



**CONTRACT DOCUMENTS
AND
SPECIFICATIONS**

DIVISION OF ENVIRONMENTAL SERVICES

FOR

**Leachate Management Construction at
Haley Pike Landfill**

Bid No. 89-2024

Prepared by: Tetra Tech

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PART 1

ADVERTISEMENT FOR BIDS

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PART 1

ADVERTISEMENT FOR BIDS

1. INVITATION

Sealed proposals for the Leachate Management Construction at Haley Pike will be received by the Lexington-Fayette Urban County Government (LFUCG) via Ion Wave until 2:00 p.m., local time, August 16, 2024, for furnishing all labor and/or materials and performing all work as set forth by this advertisement, Ion Wave Q&A, conditions (general and special), specifications, and/or the drawings prepared by Tetra Tech for Lexington-Fayette Urban County Government. Immediately following the scheduled closing time for reception of bids, all proposals which have been submitted in accordance with the above will be opened electronically and a bid tab sheet will be posted via Ion Wave.

LFUCG will only be accepting bids on-line through Ion Wave for this solicitation. Base bid and alternate totals (if required) should be provided on the appropriate line items tab on Ion Wave. Submissions without line item totals (if required) may be rejected and deemed non-responsive. All forms normally provided with bid submission should be downloaded from Ion Wave, filled out and attached with bid submission. A copy of bid bond must be included with submission. THESE INSTRUCTIONS SUPERCEDE ALL OTHER BID SUBMISSION INSTRUCTIONS PROVIDED IN THIS PACKAGE. PLEASE SUBMIT ALL QUESTIONS VIA THE Q&A MODULE ON ION WAVE.

2. DESCRIPTION OF WORK

Consisting of the construction and/or furnishing of items as listed in the Bid Schedule beginning on page P-6, Part III, Form of Proposal, of this document, for the Leachate Management Construction at Haley Pike, Lexington-Fayette County, Kentucky.

Specs and drawings are available on Ion Wave only.

3. OBTAINING PLANS, SPECIFICATIONS, AND BID DOCUMENTS

Plans, Specifications, and Contract Documents shall be obtained from Ion Wave (LFUCG's electronic bidding system). Ion Wave can be accessed at <https://lexingtonky.ionwave.net>

4. METHOD OF RECEIVING BIDS

Bids will be received from Prime Contracting firms on a **Unit Price/Lump Sum** for total Project. Bidder must include a price for all bid items to be considered. **Bids shall be submitted in the manner and subject to the conditions as set forth and described in the Information for Bidders and Special Conditions.**

Bids/proposals should be submitted online via Ion Wave.

5. METHOD OF AWARD

The Contract, if awarded, will be to the lowest responsive and responsible bidder for the total project whose qualifications indicate the award will be in the best interest of the OWNER and whose bid/proposal complies with all the prescribed requirements. No Notice of Award will be given until the OWNER has concluded such investigation as deemed necessary to establish the responsibility, qualifications and financial ability of Bidders to do the work in accordance with the Contract Documents to the satisfaction of the OWNER within the time prescribed. The OWNER reserves the right to reject the Bid of any Bidder who does not pass such investigation to the OWNER's satisfaction. The OWNER reserves the right to reject the Bid of any Bidder that is deemed to be unbalanced or front loaded. In analyzing Bids, the OWNER may take into consideration alternate and unit prices, if requested by the Bid forms.

6. BID WITHDRAWAL

No bidder may withdraw his bid for a period of ninety (90) calendar days after the closing date for receipt of bids. Errors and omissions will not be cause for withdrawal of bid without forfeit of bid bond.

7. BID SECURITY

If the bid is \$50,000 or greater, bid shall be accompanied by a certified check or bid bond payable to the Lexington-Fayette Urban County Government in an amount not less than Five Percent (5%) of the base bid. Bid bond shall be executed by a Surety Company authorized to do business in the Commonwealth of Kentucky and countersigned by a licensed Kentucky Resident Agent, representing the Surety Company. Bid Bonds are not required for bids under \$50,000. A cashier's check or irrevocable letter of credit is an acceptable form of bid security.

8. SUBMISSION OF BIDS

CONTRACTORS shall submit their bids via Ion Wave not later than 2:00 p.m. local time, **August 16, 2024**. Bid submittals and bid tab sheet will be immediately available after bid opening.

9. RIGHT TO REJECT

The Lexington-Fayette Urban County Government reserves the right to reject any and all bids and to waive all informalities and/or technicalities where the best interest of the Lexington-Fayette Urban County Government may be served.

10. NOTIFICATION TO THE LEXINGTON-FAYETTE URBAN COUNTY GOVERNMENT FOR AFFIRMATIVE ACTION PLAN AND CURRENT WORKFORCE

The successful bidder must submit the following to the Lexington-Fayette Urban County Government:

1. Affirmative Action Plan for his/her firm.
2. Current Workforce Analysis Form

Failure to submit this as required herein may result in disqualification of the Bidder from the award of the contract.

11. NOTICE CONCERNING MWDBE and Veteran Goals

Notice of requirement for Affirmative Action to ensure Equal Employment Opportunities and Disadvantaged Business Enterprises (DBE) Contract participation. Disadvantaged Business Enterprises (DBE) consists of Minority-Owned Business Enterprises (MBE) and Woman-Owned Business Enterprises (WBE).

The Lexington-Fayette Urban County Government has set a goal that not less than ten percent (10%) of the total value of this Contract be subcontracted to Disadvantaged Business Enterprises, which is made up of MBEs and WBEs, and set a goal that not less than three percent (3%) of the total value of this Contract be subcontracted to Veteran-Owned Small Businesses. The goals for the utilization of Disadvantaged Business Enterprises and Veteran-Owned Small Businesses as subcontractors are recommended goals. Contractor(s) who fail to meet such goals will be expected to provide written explanations to the Director of the Division of Purchasing of efforts they have made to accomplish the recommended goal, and the extent to which they are successful in accomplishing the recommended goal will be a consideration in the procurement process. Depending on the funding source, other DBE goals may apply.

For assistance in locating Disadvantaged Business Enterprise and Veteran-Owned Small Businesses as Subcontractors contact:

Sherita Miller, Division of Procurement
Lexington-Fayette Urban County Government
200 East Main Street, 3rd Floor, Room 338
Lexington, Kentucky 40507
859-258-3323
smiller@lexingtonky.gov

12. AMERICAN RESCUE PLAN ACT

AMENDMENT 1 — CERTIFICATION OF COMPLIANCE FOR EXPENDITURES USING FEDERAL FUNDS, INCLUDING THE AMERICAN RESCUE PLAN ACT

The Lexington-Fayette Urban County Government (“LFUCG”) may use Federal funding to pay for the goods and/or services that are the subject matter of this bid. That Federal funding may include funds received by LFUCG under the American Rescue Plan Act of 2021. Expenditures using Federal funds require evidence of the contractor’s compliance with Federal law. Therefore, by the signature below of an authorized company representative, you certify that the information below is understood, agreed, and correct. Any misrepresentations may result in the termination of the contract and/or prosecution under applicable Federal and State laws concerning false statements and false claims.

The bidder (hereafter “bidder,” or “contractor”) agrees and understands that in addition to all conditions stated within the attached bid documents, the following conditions will also apply to any Agreement entered between bidder and LFUCG, if LFUCG uses Federal funds, including but not limited to funding received by LFUCG under the American Rescue Plan Act (“ARPA”), toward payment of goods and/or services referenced in this bid. The bidder also agrees and understands that if there is a conflict between the terms included elsewhere in this Request for Proposal and the terms of this Amendment 1, then the terms of Amendment 1 shall control. The bidder further certifies that it can and will comply with these conditions, if this bid is accepted and an Agreement is executed:

1. Any Agreement executed as a result of acceptance of this bid may be governed in accordance with 2 CFR Part 200 and all other applicable Federal law and regulations and guidance issued by the U.S. Department of the Treasury.

2. Pursuant to 24 CFR § 85.43, any Agreement executed as a result of acceptance of this bid can be terminated if the contractor fails to comply with any term of the award. This Agreement may be terminated for convenience in accordance with 24 CFR § 85.44 upon written notice by LFUCG. Either party may terminate this Agreement with thirty (30) days written notice to the other party, in which case the Agreement shall terminate on the thirtieth day. In the event of termination, the contractor shall

be entitled to that portion of total compensation due under this Agreement as the services rendered bears to the services required. However, if LFUCG suspects a breach of the terms of the Agreement and/or that the contractor is violating the terms of any applicable law governing the use of Federal funds, LFUCG may suspend the contractor's ability to receive payment by giving thirty (30) days' advance written notice. Further, either party may terminate this Agreement for cause shown with thirty (30) days written notice, which shall explain the party's cause for the termination. If the parties do not reach a settlement before the end of the 30 days, then the Agreement shall terminate on the thirtieth day. In the event of a breach, LFUCG reserves the right to pursue any and all applicable legal, equitable, and/or administrative remedies against the contractor.

3. The contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, sexual orientation, gender identity, or national origin. The 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:

- (1) Employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.
- (2) The contractor will, in all solicitations or advertisements for employees placed by or on behalf of the contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, sexual orientation, gender identity, or national origin.
- (3) The 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 the contractor's legal duty to furnish information.
- (4) The contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding a notice to be provided advising the said labor union or workers' representatives of the contractor's commitments under this section and shall post copies of the notice in conspicuous places available to employees and applicants for employment.
- (5) The 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) The contractor will furnish 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 his 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 the 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 the 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, and 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) The contractor will include the portion of the sentence immediately preceding paragraph (1) and the provisions of paragraphs (1) through (8) 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. The 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 a contractor becomes involved in or is threatened with litigation with a subcontractor or vendor as a result of such direction by the administering agency, the contractor may request the United States to enter into such litigation to protect the interests of the United States.

4. If fulfillment of the contract requires the contractor to employ mechanic's or laborers, the contractor further agrees that it can and will comply with the following:

- (1) 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 a 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 a workweek.
- (2) Violation: liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in paragraph (1) of this section, the 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 paragraph (1) of this section, in the sum of \$10 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 paragraph (1) of this section.
- (3) Withholding for unpaid wages and liquidated damages. LFUCG 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 the 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

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 the 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 the 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, and 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) The contractor will include the portion of the sentence immediately preceding paragraph (1) and the provisions of paragraphs (1) through (8) 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. The 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 a contractor becomes involved in or is threatened with litigation with a subcontractor or vendor as a result of such direction by the administering agency, the contractor may request the United States to enter into such litigation to protect the interests of the United States.

4. If fulfillment of the contract requires the contractor to employ mechanic's or laborers, the contractor further agrees that it can and will comply with the following:

- (1) 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 a 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 a workweek.
- (2) Violation: liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in paragraph (1) of this section, the 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 paragraph (1) of this section, in the sum of \$10 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 paragraph (1) of this section.
- (3) Withholding for unpaid wages and liquidated damages. LFUCG 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 the 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 such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (2) of this section.

- (4) Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraph (1) through (4) of this section and also a clause requiring the subcontractors to include these clauses in any lower-tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower-tier subcontractor with the clauses set forth in paragraphs (1) through (4) of this section.
5. The contractor shall comply with all applicable standards, orders, or regulations issued pursuant to the Clean Air Act, as amended, 42 U.S.C. § 7401 et seq.
6. The contractor shall report each violation to LFUCG and understands and agrees that LFUCG will, in turn, report each violation as required to assure notification to the Treasury Department and the appropriate Environmental Protection Agency Regional Office.
7. The contractor shall include these requirements in numerical paragraphs 5 and 6 in each subcontract exceeding \$100,000 financed in whole or in part with Federal funding.
8. The contractor shall comply with all applicable standards, orders, or regulations issued pursuant to the Federal Water Pollution Control Act, as amended, 33 U.S.C. § 1251 et seq.
9. The contractor shall report each violation to LFUCG and understands and agrees that LFUCG will, in turn, report each violation as required to assure notification to the Treasury Department and the appropriate Environmental Protection Agency Regional Office.
10. The contractor shall include these requirements in numerical paragraphs 8 and 9 in each subcontract exceeding \$100,000 financed in whole or in part with Federal funds.
11. The contractor shall comply with all applicable standards, orders, or regulations issued pursuant to the Federal Water Pollution Control Act, as amended, 33 U.S.C. § 1251 et seq.
12. The contractor shall report each violation to LFUCG and understands and agrees that LFUCG will, in turn, report each violation as required to assure notification to the Treasury Department and the appropriate Environmental Protection Agency regional office.
13. The contractor shall include these requirements in numerical paragraphs 11 and 12 in each subcontract exceeding \$100,000 financed in whole or in part with American Rescue Plan Act funds.
14. The contractor shall include this language in any subcontract it executes to fulfill the terms of this bid: “the sub-grantee, contractor, subcontractor, successor, transferee, and assignee 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 CFR Part 22, which are herein incorporated by reference and made a part of this contract (or agreement). Title VI also includes 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 the Department of the Treasury's Title VI regulations, 31 CFR Part 22, and herein incorporated by reference and made a part of this contract or agreement."

15. Contractors who apply or bid for an award of \$100,000 or more shall file the required certification that it will not and has not used federal appropriated funds to pay any person or organization for influencing or attempting to influence an officer or employee of any agency. Each tier certifies to the tier above that it will not and has not used federal 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. Each tier shall also disclose any lobbying with non-federal funds that takes place in connection with obtaining any federal award. Such disclosures are forwarded from tier to tier, up to the recipient. The required certification is included here:

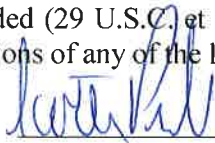
- a. The undersigned certifies, to the best of his or her knowledge and belief, that:
 - (1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, 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, and 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.
- b. 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, 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.

16. The contractor acknowledges and certifies that it has not been debarred or suspended and further acknowledges and agrees that it must comply with regulations regarding debarred or suspended entities in accordance with 24 CFR § 570.489(l). Funds may not be provided to excluded or disqualified persons.

17. The contractor agrees and certifies that to the greatest extent practicable, it will prefer the purchase, acquisition, and use of all applicable goods, products or materials produced in the United States, in conformity with 2 CFR 200.322 and/or section 70914 of Public Law No. 117-58, §§ 70901-52, also known as the Infrastructure Investment and Jobs Act, whichever is applicable.

18. The contractor agrees and certifies that all activities performed pursuant to any Agreement entered as a result of the contractor's bid, and all goods and services procured under that Agreement, shall comply with 2 C.F.R. § 200.216 (Prohibition on certain telecommunications and video surveillance services and equipment) and 2 C.F.R. 200 § 200.323 (Procurement of recovered materials), to the extent either section is applicable.

19. If this bid involves construction work for a project totaling \$10 million or more, then the contractor further agrees that all laborers and mechanics, etc., employed in the construction of the public facility project assisted with funds provided under this Agreement, whether employed by contractor, or contractor's contractors, or subcontractors, shall be paid wages complying with the Davis-Bacon Act (40 U.S.C. 3141-3144). Contractor agrees that all of contractor's contractors and subcontractors will pay laborers and mechanics the prevailing wage as determined by the Secretary of Labor and that said laborers and mechanics will be paid not less than once a week. The contractor agrees to comply with the Copeland Anti- Kick Back Act (18 U.S.C. § 874) and its implementing regulations of the U.S. Department of Labor at 29 CFR part 3 and part 5. The contractor further agrees to comply with the applicable provisions of the Contract Work Hours and Safety Standards Act (40 U.S.C. Section 327-333), and the applicable provisions of the Fair Labor Standards Act of 1938, as amended (29 U.S.C. et seq.). Contractor further agrees that it will report all suspected or reported violations of any of the laws identified in this paragraph to LFUCG.



Signature

8/16/24 _____

Date

13. PRE-BID CONFERENCE

A pre-bid conference is scheduled for August 5, 2024, 2:00 pm, 4216 Hedger Ln, Lexington, KY.

END OF SECTION

PART II
INFORMATION FOR BIDDERS

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PART II
INFORMATION FOR BIDDERS

1. RECEIPT AND OPENING OF BIDS

The Lexington-Fayette Urban County Government (herein called the OWNER) invites bids from firms on the project described in the Advertisement for Bids. The OWNER will receive bids via Ion Wave, at the time and in the manner set forth in the Advertisement for Bids, and the Bids. The OWNER may consider informal any bid not prepared and submitted in accordance with the provisions hereof and may waive any informalities or reject any and all bids. Any bid may be withdrawn prior to the scheduled time for the opening of bids or authorized postponement thereof. Any bid received after the time and date specified shall not be considered. No bidder may withdraw a bid within 90 days after the actual time and date of the bid opening, but OWNER may, in its sole discretion, release any bid and return the Bid Security prior to that date.

The Lexington-Fayette Urban County Government assumes no responsibility for bids that are not delivered as indicated above.

2. PREPARATION OF BID

The bid must be submitted with the entire proposal and include all pages. All blank spaces for the bid prices must be filled in, either in ink or typewritten, for both unit prices and extensions. Totals for each bid item must be added to show the total amount of the bid.

3. REQUIRED BONDS

The bonds required for this project are bid bond and performance and payment bond.

4. SUBCONTRACTS

The bidder is specifically advised that any person, firm, or other party to whom it is proposed to award a subcontract under this Contract must be acceptable to the OWNER. All proposed subcontractors must be identified on the Form of Proposal. Prior to the award of Contract, the OWNER or the OWNER'S representative will advise the CONTRACTOR of the acceptance and approval thereof or of any action necessary to be taken. Should any Subcontractor be rejected by the OWNER, the CONTRACTOR shall present a new name and/or firm to the OWNER at no change in the Contract Price.

5. QUALIFICATION OF BIDDER

The OWNER may make such investigations as the OWNER deems necessary to determine the ability of the bidder to perform the Work, and the bidder shall furnish to the OWNER all such information and data for this purpose as the OWNER may request.

The OWNER reserves the right to reject any bid if the evidence submitted by, or investigation of, such bidder fails to satisfy the OWNER that such bidder is properly qualified to carry out the obligations of the Contract and to complete the Work contemplated therein. Conditional bids will not be accepted.

In evaluating Bids, OWNER shall consider the qualifications of the BIDDERS, whether or not the Bids comply with the prescribed requirements, and alternatives and unit prices, as requested. OWNER may consider maintenance requirements, performance data, and disruption or damage to private property. It is OWNER'S intent to accept alternatives by the bid forms, in the order in which they are listed in the Bid Form but OWNER may accept or decline them in order or combination. The contract, if awarded, will be awarded to the lowest responsive and qualified, responsible BIDDER based upon OWNER'S evaluation which indicates that the award will be in the best interest of OWNER and the general public.

In the event there is any question as to the bidder's qualifications and ability to complete the work, a final determination will be made in accordance with a fair evaluation by the Urban County Government of the above listed elements.

- A. If the OWNER requires filling out a detailed financial statement, the bidder may provide its current certified financial statement(s) for the required time interval.
- B. Corporate firms are required to be registered with the Office of the Secretary of State, Commonwealth of Kentucky.
- C. Documents Required of CONTRACTOR - (1) A sworn statement signed by the President or owner of the Company regarding all current work in progress anywhere; (2) A document showing the percent of completion of each project and the total worth of each project; and (3) Documentation showing the percentage of the DBE employment levels on each project of the Bidder's current work force, and DBE participation levels for Subcontractors.
- D. Optional OWNER Requirements - The OWNER, at its discretion, may require the BIDDER/CONTRACTOR to provide: (1) A current detailed financial statement for a period including up to 3 prior years. (2) Financial security or insurance in amounts and kinds acceptable to the OWNER to meet the financial responsibility requirements for the CONTRACTOR to indemnify the OWNER. (3) Additional information and/or DBE work force data, as well as DBE participation data.

Each bidder agrees to waive any claim it has or may have against the Owner and their respective employees, arising out of or in connection with the administration, evaluation, or recommendation of any bid.

6. BID SECURITY

- A. Each bid must be accompanied by a bid bond prepared on a Form of Bid Bond and attached hereto, duly executed by the bidder as principal and having as surety thereon a surety company approved by the OWNER, in the amount of 5% of the bid. Such bid bond will be returned to the unsuccessful bidder(s) only upon written request to the Director of Procurement within seven (7) days of opening of bids. Bid bond shall be made payable to the Lexington-Fayette Urban County Government. Bid security is not required for projects under \$50,000.
- B. Bonds shall be placed with an agent licensed in Kentucky with surety authorized to do business within the state. When the premium is paid for such coverage, the full commission payable shall be paid to such local agent who shall not divide such commission with any person other than a duly licensed resident local agent.

7. LIQUIDATED DAMAGES FOR FAILURE TO ENTER INTO CONTRACT

The successful bidder, upon his failure or refusal to execute and deliver the Contract and bonds required within ten (10) days after he has received notice of the acceptance of his bid, shall forfeit to the OWNER, as liquidated damages for such failure or refusal, the security deposited with his bid.

8. TIME OF COMPLETION AND LIQUIDATED DAMAGES

Bidder must agree to commence work on or before a date to be specified in a written "Notice to Proceed" from the OWNER and to fully complete the Project within the time as specified in the Contract. Bidder must agree also to pay \$500.00 per calendar day thereafter deadline for final completion.

9. EXAMINATION OF CONTRACT DOCUMENTS AND SITE

- A. It is the responsibility of each Bidder before submitting a Bid, to (a) examine the Contract Documents thoroughly, (b) visit the site(s) to become familiar with local conditions that may affect cost, progress, performance or furnishing of the work, (c) consider Federal, State and Local laws and regulations that may affect cost, progress, performance or furnishing of the work, (d) study and carefully correlate Bidder's observations with the Contract Documents, and (e) notify Owner of all conflicts, errors or discrepancies in the Contract Documents.
- B. Bidders should examine the requirements of Section 4 of the General Conditions for information pertaining to subsurface conditions, underground structures, underground facilities, and availability of lands, easements, and rights-of-way. The completeness of data, presented in the Contract Documents, pertaining to subsurface conditions, underground structures, and underground facilities for the purposes of bidding or construction is not assured. The Bidder will, at Bidder's

own expense, make or obtain any additional examinations, investigations, explorations, tests and studies and obtain any additional information and data which pertain to the physical conditions (surface and subsurface) which may affect cost, progress, performance or furnishing of the Work and which Bidder deems necessary to determine its Bid for performing and furnishing the Work in accordance with the time, price, and other terms and conditions of the Contract Documents. On request in advance, OWNER will provide access to the site to conduct such explorations and tests as each Bidder deems necessary for submission of a bid. Bidder shall fill all holes, clean up and restore the site to its former condition upon completion of such explorations.

- C. The submission of a Bid will constitute an incontrovertible representation by the Bidder that Bidder has complied with every requirement of this paragraph; that without exception the Bid is premised upon furnishing and performing the Work required by the Contract Documents and such means, methods, techniques, sequences or procedures of construction as may be indicated in or required by the Contract Documents; and that the Contract Documents are sufficient in scope and detail to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.

10. ADDENDA AND INTERPRETATIONS

No interpretation of the meaning of the Contract Documents will be made to any bidder orally. Every request for such interpretation should be in writing addressed to the Director of Procurement, who in turn will have an addendum issued under signature of the Project Manager for the Lexington-Fayette Urban County Government, and to be given consideration must be received at least seven (7) days prior to the date fixed for the opening of bids. Any and all such interpretations and any supplemental instructions will be in the form of written addenda to the specifications which, if issued, will be mailed by certified mail with return receipt requested, faxed or emailed to all prospective bidders. Failure of any bidder to receive any such addendum or interpretation shall not relieve such bidder from any obligation under his bid as submitted. All addenda so issued shall become part of the Contract Documents.

11. SECURITY FOR FAITHFUL PERFORMANCE

- A. Simultaneously with his delivery of the executed Contracts, the CONTRACTOR shall furnish a surety bond or bonds as security for the faithful performance of this Contract and for payment of all persons performing labor on the Project under this Contract and furnishing materials in connection with this Contract, as specified in the General Conditions. The surety on such bond or bonds shall be a duly authorized surety company satisfactory to the OWNER and authorized to do business in the Commonwealth of Kentucky.

- B. All bonds required by this Contract and laws of this State shall be placed with agents licensed in the State of Kentucky. When the premium is paid for such coverages, the full commission shall be paid to such local agent who shall not divide such commission with any person other than a duly licensed resident local agent.
- C. **Contractor shall use standard Performance and Payment Bond forms such as documents provided with this contract book or AIA form A312-1984 (or later).**

12. POWER OF ATTORNEY

Attorney-in-fact who signs bid bonds or contract bonds must file with each bond a certified and effectively dated copy of their power of attorney.

13. TAXES AND WORKMEN'S COMPENSATION

The CONTRACTOR and subcontractor will be required to accept liability for payment of all payroll taxes, sales and use tax, and all other taxes or deductions required by local, state or federal law. Each shall carry Workmen's Compensation Insurance to the full amounts as required by Statutes and shall include the cost of all foregoing items in the proposal. The CONTRACTOR will not otherwise be reimbursed or compensated for such tax payments. The CONTRACTOR is urged to ascertain at his own risk his actual tax liability in connection with the execution or performance of his Contract.

14. LAWS AND REGULATIONS

The bidder's attention is directed to the fact that all applicable state laws, municipal ordinances, and the rules and regulations of all authorities having jurisdiction over construction of the Project shall apply to the Contract throughout, and they will be deemed to be included in the contract, the same as though herein written out in full.

15. EROSION AND SEDIMENT CONTROL AND PERMITS

The CONTRACTOR and Subcontractors performing work on projects on behalf of the OWNER shall also comply with all applicable federal, state, and local environmental regulations and all requirements and conditions set forth in "special" permits including but not limited to Corp of Engineers 404 permits, 401 Water Quality Certifications, Stream Crossing and Floodplain Encroachment Permits as described in Part 4 General Conditions Paragraph 5.17.

16. PREVAILING WAGE LAW AND MINIMUM HOURLY RATES

Federal wage rates and regulations, if required for this Project, will be as described in the Special Conditions.

17. AFFIRMATIVE ACTION PLAN

The successful Bidder must submit the entire proposal with their bid, the following items to the Urban County Government:

1. Certification of Bid Proposal/DBE – see Part III
2. KYTC DBE Provisions – see Part III
3. DBE Subcontractor Bidders List – see Part III

A Work Force Analysis Form shall be submitted for each Contract. Failure to submit any of these items as required herein may result in disqualification of the Bidder from award of the Contract.

18. CONTRACT TIME

The number of calendar days within which the Work is to be substantially completed and ready for final payment (the Contract Time) is set forth in the Contract Agreement.

19. SUBSTITUTE OR "APPROVED EQUAL" ITEMS

The Contract, if awarded, will be on the basis of materials and equipment described in the Drawings or specified in the Specifications without consideration of possible substitute or "approved equal" items. Whenever it is indicated in the Drawings or specified in the Specifications that a substitute or "approved equal" item of material or equipment may be furnished or used by the CONTRACTOR if acceptable to the OWNER, application for such acceptance will not be considered by the OWNER until after the effective date of the Agreement. The procedure for submission of any such application by the CONTRACTOR and consideration by the OWNER is set forth in the General Conditions.

20. ALTERNATE BIDS

Bidders shall submit alternate bids/proposals only if and when such alternate bids/proposals have been specifically requested in an Invitation for Bids. If alternate bids/proposals are requested in an Invitation for Bids, the form of submission of such alternate bid and the conditions under which such alternate bids will be considered for award of a contract will be established in the Invitation.

Any Bidder who submits a bid incorporating an alternate proposal when alternate bids/proposals have not been requested in the Invitation for Bids shall have his/her bid rejected as non-responsive.

Any Bidder who submits a bid incorporating two (2) or more prices for an item or groups of items (unless such method of pricing is requested in the Invitation for Bids), or which imposes conditions for acceptance other than those established in the Invitation for Bids, shall have their bid rejected as non-responsive.

21. SIGNING OF AGREEMENT

When OWNER gives a Notice of Award to the successful Bidder, it will be accompanied by the required number of unsigned counterparts of the Agreement with all other written Contract Documents attached. Within ten days thereafter, CONTRACTOR shall sign and deliver the required number of counterparts of the Agreement and attached documents to OWNER with the required Bonds, Certificate of Insurance, and Power of Attorney. The OWNER will deliver one fully signed counterpart to CONTRACTOR at such time as it has been signed by the Mayor.

22. ASSISTANCE TO BE OFFERED TO DISADVANTAGED BUSINESS ENTERPRISE (MWDDBE) CONTRACTORS AND VETERAN OWNED SMALL BUSINESSES

A. Outreach for MWDDBE(s) and Veteran Owned Small Businesses (VOSB)

The Lexington-Fayette Urban County Government (LFUCG) maintains a database of MWDDBE contractors and Veteran Owned Small Businesses. When a LFUCG construction project is advertised for bidding, notices are sent to companies registered at <https://lexingtonky.ionwave.net>. The notices describe the project and indicate the deadline for submitting bids.

If you wish to be added to the LFUCG MWDDBE contractor database, please contact:

Sherita Miller, Division of Procurement
Lexington-Fayette Urban County Government
200 East Main Street, Room 338
Lexington, Kentucky 40507
smiller@lexingtonky.gov

B. Bid Bond Assistance for MWDBE(s)

For those MWDBE contractors who wish to bid on LFUCG project, bid bond assistance is available. This bid bond assistance is in the form of a “Letter of Certification” which is accepted by the LFUCG’s Division of Purchasing, in lieu of a bid bond. The “Letter of Certification” must be included in the bid package when it is submitted to the Division of Purchasing. The “Letter of Certification” will reference the specific project for which the bid is being submitted, and the time and date on which the bid is due. Bid bond assistance must be requested from the Lexington-Fayette Urban County Government’s Division of Procurement.

C. Eligibility for Bid Bond Assistance for MWDBE(s)

In order to be eligible for any Bid bonding assistance, a MWDBE construction company must be owned or controlled at the level of 51% or more by a member or members of a minority group or females. Prior to receiving assistance, a statement providing evidence of ownership and control of the company by a member or members of a minority group or females must be signed by the Owner or corporate officer and by an attorney or accountant submitted to:

Sherita Miller, Division of Procurement
Lexington-Fayette Urban County Government
200 East Main Street, Room 338
Lexington, Kentucky 40507
smiller@lexingtonky.gov

D. MWDBE and Veteran Subcontractors

The LFUCG will, upon request, assist prime contractors in the procurement of eligible DBE subcontractors in an effort to achieve a 10% minimum MWDBE and a 3% minimum Veteran goal.

For a list of eligible subcontractors, please contact:

Sherita Miller, Division of Procurement
Lexington-Fayette Urban County Government
200 East Main Street, Room 338
Lexington, Kentucky 40507
smiller@lexingtonky.gov

23. LFUCG NON-APPROPRIATION CLAUSE

Contractor acknowledges that the LFUCG is a governmental entity, and the contract validity is based upon the availability of public funding under the authority of its statutory mandate.

In the event that public funds are unavailable and not appropriated for the performance of the LFUCG's obligations under this contract, then this contract shall automatically expire without penalty to the LFUCG thirty (30) days after written notice to Contractor of the unavailability and non-appropriation of public funds. It is expressly agreed that the LFUCG shall not activate this non-appropriation provision for its convenience or to circumvent the requirements of this contract, but only as an emergency fiscal measure during a substantial fiscal crisis, which affects generally its governmental operations.

In the event of a change in the LFUCG's statutory authority, mandate and mandated functions, by state and federal legislative or regulatory action, which adversely affects the LFUCG's authority to continue its obligations under this contract, then this contract shall automatically terminate without penalty to the LFUCG upon written notice to Contractor of such limitation or change in the LFUCG's legal authority.

END OF SECTION

PART III

FORM OF PROPOSAL

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PART III

Invitation to Bid No. 89-2024

Leachate Management Construction at Haley Pike

1. FORM OF PROPOSAL

Place: Lexington, Kentucky

Date: 8/15/24

The following Form of Proposal shall be followed exactly in submitting a proposal for this Work.

This Proposal Submitted by: Perdue Environmental Contracting Company 250 Etter Dr. Nicholasville, KY

(Name and Address of Bidding Contractor)

(Hereinafter called "Bidder"), organized and existing under the laws of the State of Kentucky, doing business as Perdue Environmental Contracting Company "a corporation," as applicable.

To: Lexington-Fayette Urban County Government
(Hereinafter called "OWNER")
Office of the Director of Purchasing
200 East Main Street, 3rd Floor
Lexington, KY 40507

Gentlemen:

The Bidder, in compliance with your Invitation for Bids for the **Leachate Management Construction at Haley Pike** having examined the Plans and Specifications with related documents, having examined the site for proposed Work, and being familiar with all of the conditions surrounding the construction of the proposed Project, including the availability of materials and labor, hereby proposes to furnish all labor, materials, and supplies, and to construct the Project in accordance with the Contract Documents, within the time set forth therein, and at the lump sum and/or unit prices stated hereinafter. These prices are to cover all expenses incurred in performing the Work required under the Contract Documents, of which this proposal is a part.

The Bidder hereby acknowledges receipt of the following addenda:

Addendum No. _____ Date _____

Addendum No. _____ Date _____

Addendum No. _____ Date _____

Addendum No. _____ Date _____

Addendum No. _____ Date _____

Addendum No. _____ Date _____

Addendum No. _____ Date _____

Addendum No. _____ Date _____

Insert above the number and the date of any Addendum issued and received. If none has been issued and received, the word "NONE" should be inserted.

2. **LEGAL STATUS OF BIDDER**

Bidder: Perdue Environmental Contracting Company

Date: 8/15/24

* 1. A corporation duly organized and doing business under the laws of the State of Kentucky, for whom Scottie D Perdue, bearing the official title of President, whose signature is affixed to this Bid/Proposal, is duly authorized to execute contracts.

* 2. A Partnership, all of the members of which, with addresses are: (Designate general partners as such)

* 3. An individual, whose signature is affixed to this Bid/Proposal (please print name)

*(The Bidder shall fill out the appropriate form and strike out the other two.)

3.

BIDDERS AFFIDAVIT

Comes the Affiant, Scottie D Perdue, and after being first duly sworn, states under penalty of perjury as follows:

1. His/her name is Scottie D Perdue and he/she is the individual submitting the bid or is the authorized representative of Perdue Environmental Contracting Company, the entity submitting the bid (hereinafter referred to as "Bidder").
2. Bidder will pay all taxes and fees, which are owed to the Lexington-Fayette Urban County Government at the time the bid is submitted, prior to award of the contract and will maintain a "current" status in regard to those taxes and fees during the life of the contract.
3. Bidder will obtain a Lexington-Fayette Urban County Government business license, if applicable, prior to award of the contract.
4. Bidder has authorized the Division of Procurement to verify the above-mentioned information with the Division of Revenue and to disclose to the Urban County Council that taxes and/or fees are delinquent or that a business license has not been obtained.
5. Bidder has not knowingly violated any provision of Chapter 25 of the Lexington-Fayette Urban County Government Code of Ordinances, known as the "Ethics Act."
6. Bidder acknowledges that "knowingly" for purposes of this Affidavit means, with respect to conduct or to circumstances described by a statute or ordinance defining an offense, that a person is aware or should have been aware that his conduct is of that nature or that the circumstance exists.

[Signature]
 Signature
President
 Title

Scottie Perdue
 Printed Name
08-15-2024
 Date

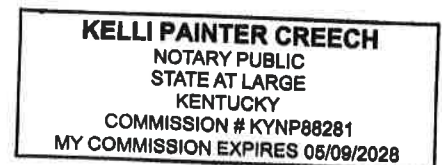
Company Name Perdue Environmental Contracting Company

Address 250 Etter Drive Nicholasville, KY 40356

Subscribed and sworn to before me by Scottie Perdue
 (Affiant)
President
 (Title)

of Perdue Environmental Contracting Co this 15 day of August, 2024.
 (Company Name)

Kelli Painter Creech
 Notary Public
 [seal of notary] My commission expires: 05/09/2028



4. BID SCHEDULE – SCHEDULE OF VALUES

The Bidder agrees to perform all the Work described in the Specifications and shown on the Plans for the following proposed lump sum and/or unit prices, if applicable, which shall include the furnishing of all labor, materials, supplies, equipment and/or vehicle usage, services, all items of cost, overhead, taxes (federal, state, local), and profit for the Contractor and any Subcontractor involved, within the time set forth herein. If unit prices are applicable, Bidder must make the extensions and additions showing the total amount of bid.

For a unit price based bid, the sum of the item totals is the bid amount the Division uses for bid comparison.

The LFUCG’s decision on the bid amount is final.

Pricing must be entered on the Excel spreadsheet and submitted in Excel form with your bid in IonWave. Page P-8 must be fully executed and attached to bid submission or bid will be considered non-responsive.

| No. | Item Description | Unit | Estimated Quantity |
|-----|--|------|--------------------|
| 1 | Mobilization (max. 2% of Total Bid) | LS | 1 |
| 2 | General Conditions (max. 7% of Construction Cost Estimate) | LS | 1 |
| 3 | Demobilization (min. 1% of Total Bid) | LS | 1 |
| 4 | Inspect, Evaluate, and Clean Existing System Piping | LS | 1 |
| 5 | Removal of Accumulated Sediment in the EQ Basin (10% of EQ Basin Capacity) | CY | 1,000 |
| 6 | Replacement and Installation of Pump for Well A10 | EA | 1 |
| 7 | Leachate Management During Construction | MO | 3 |
| 8 | Overliner Over Existing Liner for the EQ Basin (white 60-mil HDPE) | SY | 12,500 |
| 9 | Vegetation Removal - Wetlands Cell 1 | AC | 0.75 |
| 10 | Substrate Removal - Wetlands Cell 1 | LS | 1 |
| 12 | Replace Geotextile - Wetlands Cell 1 | SY | 2,800 |
| 13 | Substrate Replacement - Wetlands Cell 1 | CY | 3,300 |
| 14 | Replanting Vegetation - Wetlands Cell 1 | LS | 1.00 |
| 15 | Vegetation Removal - Wetlands Cell 2 | AC | 0.75 |
| 16 | Substrate Removal - Wetlands Cell 2 | LS | 1 |
| 17 | Replace Geotextile - Wetlands Cell 2 | SY | 2,800 |
| 18 | Substrate Replacement - Wetlands Cell 2 | CY | 3,300 |
| 19 | Replanting Vegetation - Wetlands Cell 2 | LS | 1.00 |
| 20 | Inspect/Repair Wetland Cell Sumps and Manholes | LS | 1 |
| 21 | Electrical Upgrades/Tie-in | LS | 1 |
| 22 | Surface Aerators | LS | 1 |
| 23 | Instrumentation | LS | 1 |
| 24 | End Cap | EACH | 8 |
| 25 | Baffle System (Curtain Style) | LS | 1 |
| 26 | Aeration System Calibration/Startup | LS | 1 |
| 27 | Stormwater Pollution Prevention Plan & Erosion Control | LS | 1 |
| 28 | Surveying and Construction Staking | LS | 1 |

| | | | |
|----|--|------|-------|
| 29 | Anchor Berm/Trench (Eq. Basin) | LF | 1,350 |
| 30 | Anchor Berm/Trench (Wetlands Cells 1 and 2) | LF | 1,500 |
| 31 | 60-mil Textured HDPE (Wetlands Cells 1 and 2) | SY | 5,600 |
| 32 | No. 57 Stone (Perimeter and Access Roads) | TONS | 670 |
| 33 | No. 57 Stone (Eq. Basin Perimeter) | TONS | 125 |
| 34 | 6-inch HDPE Solid Pipe | LF | 330 |
| 35 | 10 oz/yd ² Non-Woven Geotextile (Eq. Basin Perimeter Stone) | SY | 300 |
| 36 | 6-inch Gate Valve with Bollard Protection | EACH | 4 |
| 37 | 6-inch Plug Valve | EACH | 2 |
| 38 | Remove Existing Skimmer and Replace with New Skimmer (in kind) | LS | 1 |
| 39 | Revegetation | LS | 1 |
| 40 | Contingency (25%) | LS | |

Submitted by:

Pecco Inc

Firm

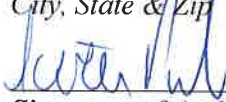
250 Etter Drive

Address

Nicholasville, KY 40356

City, State & Zip

**Bid must be signed:
(original signature)**



Signature of Authorized Company Representative – Title

Scottie D Perdue

Representative/s Name (Typed or Printed)

859-887-5508

Area Code – Phone –Fax #

Sperdue@peccoinc.com

E-Mail Address

OFFICIAL ADDRESS:

250 Etter DR

Nicholasville Kentucky 40356

(Seal if Bid is by Corporation)

By signing this form you agree to ALL terms, conditions, and associated forms in this bid package

5. STATEMENT OF BIDDER'S QUALIFICATIONS

The following statement of the Bidder's qualifications is required to be filled in, executed, and submitted with the Proposal:

1. Name of Bidder: Perdue Environmental Contracting Company

2. Permanent Place of Business: Nicholasville, KY 40356

3. When Organized: 1991

4. Where Incorporated: Kentucky

5. Construction Plant and Equipment Available for this Project:

Pecco will provide a long reach excavator, normal sized excavator, vacuum truck,
vacuum boxes to remove the sediment from the lagoons. Pecco will use
excavator to dig anchor trenches and electric trenches. Pecco will install new
electric and liner on the lagoons. Pecco will install curtain baffles, aerators,
conduits. Pecco will replace gravel and vegetation in the 2 basins as well.

(Attach Separate Sheet If Necessary)

6. Financial Condition:

If specifically requested by the OWNER, the apparent low Bidder is required to submit its latest three (3) years audited financial statements to the OWNER'S Division of Procurement within seven (7) calendar days following the bid opening.

7. In the event the Contract is awarded to the undersigned, surety bonds will be furnished by:

Great Midwest Insurance Company (Surety)

Signed: Signature on Bid Bond (Representative of Surety)

8. The following is a list of similar projects performed by the Bidder: (Attach separate sheet if necessary).

| <u>NAME</u> | <u>LOCATION</u> | <u>CONTRACT SUM</u> |
|-------------------------------|-----------------------|-----------------------|
| <u>Raven Run Landfill</u> | <u>Lexington, KY</u> | <u>\$677,261.15</u> |
| <u>MSD Lagoon Cleanout</u> | <u>Louisville, KY</u> | <u>\$1,622,842.92</u> |
| <u>Butler County Landfill</u> | <u>Morgantown, KY</u> | <u>\$2,574,965.75</u> |
| <u>Cincinnati MSD Lagoon</u> | <u>Cincinnati, OH</u> | <u>\$2,155,572.88</u> |
| <u> </u> | <u> </u> | <u> </u> |

9. The Bidder has now under contract and bonded the following projects:

| <u>NAME</u> | <u>LOCATION</u> | <u>CONTRACT SUM</u> |
|-------------------------------------|-----------------------|---------------------|
| <u>Louisville Airport Authority</u> | <u>Louisville, KY</u> | <u>\$65,000.00</u> |
| <u> </u> | <u> </u> | <u> </u> |
| <u> </u> | <u> </u> | <u> </u> |
| <u> </u> | <u> </u> | <u> </u> |
| <u> </u> | <u> </u> | <u> </u> |

10. List Key Bidder Personnel who will work on this Project.

| <u>NAME</u> | <u>POSITION DESCRIPTION</u> | <u>NO. OF YEARS WITH BIDDER</u> |
|---------------------|-------------------------------|---------------------------------|
| <u>Jeff Stipe</u> | <u>Senior Project Manager</u> | <u>16- Years</u> |
| <u>Logan Perdue</u> | <u>Project Manager</u> | <u>4- Years</u> |
| <u>Ben Whitaker</u> | <u>Superintendent</u> | <u>3-Years</u> |
| <u>Caleb Taylor</u> | <u>Operator</u> | <u>4-Years</u> |
| <u>John Kearns</u> | <u>Operator</u> | <u>5-Years</u> |

11. DBE Participation on current bonded projects under contract:

| <u>SUBCONTRACTORS</u> <u>(LIST)</u> | <u>PROJECT</u> <u>(SPECIFIC TYPE)</u> | <u>DBE</u> | <u>% of WORK</u> |
|--|--|------------|------------------|
| _____ | _____ | _____ | _____ |
| _____ | _____ | _____ | _____ |
| _____ | _____ | _____ | _____ |
| _____ | _____ | _____ | _____ |
| _____ | _____ | _____ | _____ |
| _____ | _____ | _____ | _____ |
| _____ | _____ | _____ | _____ |
| _____ | _____ | _____ | _____ |
| _____ | _____ | _____ | _____ |
| _____ | _____ | _____ | _____ |

(USE ADDITIONAL SHEETS IF NECESSARY)

12. We acknowledge that, if we are the apparent low Bidder, we will submit to the OWNER within 7 calendar days following the Bid Opening, a sworn statement on the OWNER'S form regarding all current work on hand and under contract, and a statement on the OWNER'S form of the experience of our officers, office management and field management personnel. Additionally, if requested by the OWNER, we will within 7 days following the request submit audited financial statements and loss history for insurance claims for the 3 most recent years (or a lesser period stipulated by the OWNER)—all in accordance with the Bid Documents.

Respectfully submitted:

Perdue Environmental Contracting Company
(Name of Contracting Firm)

BY:  _____

TITLE: President

DATE 8/15/24

6. LIST OF PROPOSED SUBCONTRACTORS

The following list of proposed subcontractors is required by the OWNER to be executed, completed and submitted with the BIDDER'S FORM OF PROPOSAL. All subcontractors are subject to approval of the Lexington-Fayette Urban County Government. Failure to submit this list completely filled out may be cause for rejection of bid.

| <u>BRANCH OF WORK-LIST</u> | <u>DBE</u> <u>Work</u> | <u>% of EACH MAJOR ITEM</u> |
|-----------------------------------|-----------------------------------|------------------------------------|
| Griffith Electric | Electricity | 100% |
| Blue Tank and Pump | HDPE Piping and Fittings | 100% |
| Amcon Environmental | HDPE Liner | 100% |
| Evoqua | Aerators & Controls | 100% |
| Texas Boom Company | Baffle Curtain | 100% |

LIST OF MATERIALS/ SUPPLIERS

Bidders are hereby advised that this list must be complete and submitted with the Bid. Cut sheets for all mechanical system must be included with bid submittal.

Listing "as per plans and specifications", will not be considered as sufficient identification. Where more than one "Make or Brand" is listed for any one item, the Owner has the right to select the one to be used.

| Item | Brand Name, Manufacturer and Supplier |
|---------------------|---|
| Baffle Curtain | Manf: Made in the USA, Supplied by Texas Boom Company |
| Aerators & Controls | Aqua Turbo, Evoqua |
| Plug Valves | Dezurik, Blue Tank and Pump |
| Gate Valves | Nibco, Blue Tank and Pump |
| HDPE Pipe | Jmm, Blue Tank and Pump |
| HDPE Liner | Agra America, Amcon Env (Supplier) |
| Geotextile Fabris | Marafi, S1000, Site Supply (Lexington, KY) |
| Electrical ATS | Siemens, Eckart Supply |
| Electric Load Bank | Simplex, Eckart Supply |
| Electric Panels | Eaton, Eckart Supply |

**7. Lexington-Fayette Urban County Government
MWDBE PARTICIPATION GOALS**

A. GENERAL

- 1) The LFUCG request all potential contractors to make a concerted effort to include Minority-Owned (MBE), Woman-Owned (WBE), Disadvantaged (DBE) Business Enterprises and Veteran-Owned Small Businesses (VOSB) as subcontractors or suppliers in their bids.
- 2) Toward that end, the LFUCG has established 10% of total procurement costs as a Goal for participation of Minority-Owned, Woman-Owned and Disadvantaged Businesses on this contract.
- 3) **It is therefore a request of each Bidder to include in its bid, the same goal (10%) for MWDBE participation and other requirements as outlined in this section.**
- 4) The LFUCG has also established a 3% of total procurement costs as a Goal for participation for of Veteran-Owned Businesses.
- 5) **It is therefore a request of each Bidder to include in its bid, the same goal (3%) for Veteran-Owned participation and other requirements as outlined in this section.**

B. PROCEDURES

- 1) The successful bidder will be required to report to the LFUCG, the dollar amounts of all payments submitted to Minority-Owned, Woman-Owned or Veteran-Owned subcontractors and suppliers for work done or materials purchased for this contract. (See Subcontractor Monthly Payment Report)
- 2) Replacement of a Minority-Owned, Woman-Owned or Veteran-Owned subcontractor or supplier listed in the original submittal must be requested in writing and must be accompanied by documentation of Good Faith Efforts to replace the subcontractor / supplier with another MWDBE Firm; this is subject to approval by the LFUCG. (See LFUCG MWDBE Substitution Form)
- 3) For assistance in identifying qualified, certified businesses to solicit for potential contracting opportunities, bidders may contact:
 - a) The Lexington-Fayette Urban County Government, Division of Procurement (859-258-3320)
- 4) The LFUCG will make every effort to notify interested MWDBE and Veteran-Owned subcontractors and suppliers of each Bid Package, including information on the scope of work, the pre-bid meeting time and location, the bid date, and all other pertinent information regarding the project.

C. DEFINITIONS

- 1) A Minority-Owned Business Enterprise (MBE) is defined as a business which is certified as being at least 51% owned, managed and controlled by persons of African American, Hispanic, Asian, Pacific Islander, American Indian or Alaskan Native Heritage.
- 2) A Woman-Owned Business Enterprise (WBE) is defined as a business which is certified as

being at least 51% owned, managed and controlled by one or more women.

- 3) A Disadvantaged Business (DBE) is defined as a business which is certified as being at least 51% owned, managed and controlled by a person(s) that are economically and socially disadvantaged.
- 4) A Veteran-Owned Small Business (VOSB) is defined as a business which is certified as being at least 51% owned, managed and controlled by a veteran and/or a service disabled veteran.
- 5) Good Faith Efforts are efforts that, given all relevant circumstances, a bidder or proposer actively and aggressively seeking to meet the goals, can reasonably be expected to make. In evaluating good faith efforts made toward achieving the goals, whether the bidder or proposer has performed the efforts outlined in the Obligations of Bidder for Good Faith Efforts outlined in this document will be considered, along with any other relevant factors.

D. OBLIGATION OF BIDDER FOR GOOD FAITH EFFORTS

- 1) **The bidder shall make a Good Faith Effort to achieve the Participation Goal for MWDBE and Veteran-Owned subcontractors/suppliers. The failure to meet the goal shall not necessarily be cause for disqualification of the bidder; however, bidders not meeting the goal are required to furnish with their bids written documentation of their Good Faith Efforts to do so.**
- 2) Award of Contract shall be conditioned upon satisfaction of the requirements set forth herein.
- 3) The Form of Proposal includes a section entitled “MWDBE Participation Form”. The applicable information must be completed and submitted as outlined below.
- 4) **Failure to submit this information as requested may be cause for rejection of bid or delay in contract award.**

E. DOCUMENTATION REQUIRED FOR GOOD FAITH EFFORTS

- 1) Bidders reaching the Goal are required to submit only the MWDBE Participation Form.” The form must be fully completed including names and telephone number of participating MWDBE firm(s); type of work to be performed; estimated value of the contract and value expressed as a percentage of the total Lump Sum Bid Price. The form must be signed and dated, and is to be submitted with the bid.
- 2) Bidders not reaching the Goal must submit the “MWDBE Participation Form”, the “Quote Summary Form” and a written statement documenting their Good Faith Effort to do so. If bid includes no MWDBE and/or Veteran participation, bidder shall enter “None” on the subcontractor / supplier form). In addition, the bidder must submit written proof of their Good Faith Efforts to meet the Participation Goal:
 - a. Advertised opportunities to participate in the contract in at least two (2) publications of general circulation media; trade and professional association publications; small and minority business or trade publications; and publications or trades targeting minority, women and disadvantaged businesses not less than fifteen (15) days prior to the deadline for submission

of bids to allow MWDBE firms and Veteran-Owned businesses to participate.

b. Included documentation of advertising in the above publications with the bidders good faith efforts package

c. Attended LFUCG Procurement Economic Inclusion Outreach event

d. Attended pre-bid meetings that were scheduled by LFUCG to inform MWDBEs and/or Veteran-Owned businesses of subcontracting opportunities

e. Sponsored Economic Inclusion event to provide networking opportunities for prime contractors and MWDBE firms and Veteran-Owned businesses.

f. Requested a list of MWDBE and/or Veteran subcontractors or suppliers from LFUCG and showed evidence of contacting the companies on the list(s).

g. Contacted organizations that work with MWDBE companies for assistance in finding certified MWDBE firms and Veteran-Owned businesses to work on this project. Those contacted and their responses should be a part of the bidder's good faith efforts documentation.

h. Sent written notices, by certified mail, email or facsimile, to qualified, certified MWDBEs and/or Veteran-Owned businesses soliciting their participation in the contract not less than seven (7) days prior to the deadline for submission of bids to allow them to participate effectively.

i. Followed up initial solicitations by contacting MWDBEs and Veteran-Owned Businesses to determine their level of interest.

j. Provided the interested MWDBE firm and/or Veteran-Owned business with adequate and timely information about the plans, specifications, and requirements of the contract.

k. Selected portions of the work to be performed by MWDBE firms and/or Veteran-Owned businesses in order to increase the likelihood of meeting the contract goals. This includes, where appropriate, breaking out contract work items into economically feasible units to facilitate MWDBE and Veteran participation, even when the prime contractor may otherwise perform these work items with its own workforce

l. Negotiated in good faith with interested MWDBE firms and Veteran-Owned businesses not rejecting them as unqualified without sound reasons based on a thorough investigation of their capabilities. Any rejection should be so noted in writing with a description as to why an agreement could not be reached.

m. Included documentation of quotations received from interested MWDBE firms and Veteran-Owned businesses which were not used due to uncompetitive pricing or were rejected as unacceptable and/or copies of responses from firms indicating that they would not be submitting a bid.

n. Bidder has to submit sound reasons why the quotations were considered unacceptable. The fact that the bidder has the ability and/or desire to perform the contract work with its own forces will not be considered a sound reason for rejecting a MWDBE and/or Veteran-Owned business's quote. Nothing in this provision shall be construed to require the bidder to accept unreasonable quotes in order to satisfy MWDBE and Veteran goals.

o. Made an effort to offer assistance to or refer interested MWDBE firms and Veteran-Owned businesses to obtain the necessary equipment, supplies, materials, insurance and/or bonding to satisfy the work requirements of the bid proposal

p. Made efforts to expand the search for MWBE firms and Veteran-Owned businesses beyond the usual geographic boundaries.

q. Other--any other evidence that the bidder submits which may show that the bidder has made reasonable good faith efforts to include MWDBE and Veteran participation.

Note: Failure to submit any of the documentation requested in this section may be cause for rejection of bid. Bidders may include any other documentation deemed relevant to this requirement which is subject to review by the MBE Liaison. Documentation of Good Faith Efforts must be submitted with the Bid, if the participation Goal is not met.



MINORITY BUSINESS ENTERPRISE PROGRAM

Sherita Miller, MPA
Minority Business Enterprise Liaison
Division of Procurement
Lexington-Fayette Urban County Government
200 East Main Street
Lexington, KY 40507
smiller@lexingtonky.gov
859-258-3323

OUR MISSION: The mission of the Minority Business Enterprise Program is to facilitate the full participation of minority and women owned businesses in the procurement process and to promote economic inclusion as a business imperative essential to the long term economic viability of Lexington-Fayette Urban County Government.

To that end the city council adopted and implemented Resolution 484-2017 – A Certified Minority, Women and Disadvantaged Business Enterprise ten percent (10%) minimum goal and a three (3%) minimum goal for Certified Veteran-Owned Small Businesses and Certified Service Disabled Veteran – Owned Businesses for government contracts.

The resolution states the following definitions shall be used for the purposes of reaching these goals (a full copy is available in Procurement):

Certified Disadvantaged Business Enterprise (DBE) – a business in which at least fifty-one percent (51%) is owned, managed and controlled by a person(s) who is socially and economically disadvantaged as defined by 49 CFR subpart 26.

Certified Minority Business Enterprise (MBE) – a business in which at least fifty-one percent (51%) is owned, managed and controlled by an ethnic minority (i.e. African American, Asian American/Pacific Islander, Hispanic Islander, Native American/Native Alaskan Indian) as defined in federal law or regulation as it may be amended from time-to-time.

Certified Women Business Enterprise (WBE) – a business in which at least fifty-one percent (51%) is owned, managed and controlled by a woman.

Certified Veteran-Owned Small Business (VOSB) – a business in which at least fifty-one percent (51%) is owned, managed and controlled by a veteran who served on active duty with the U.S. Army, Air Force, Navy, Marines or Coast Guard.

Certified Service Disabled Veteran Owned Small Business (SDVOSB) – a business in which at least fifty-one percent (51%) is owned, managed and controlled by a disabled veteran who served on active duty with the U.S. Army, Air Force, Navy, Marines or Coast Guard.

The term “Certified” shall mean the business is appropriately certified, licensed, verified, or validated by an organization or entity recognized by the Division of Purchasing as having the appropriate credentials to make a determination as to the status of the business.

To comply with Resolution 484-2017, prime contractors and minority, women and veteran owned businesses must

enroll in the new Diverse Business Management Compliance system, <https://lexingtonky.diversitycompliance.com/>

We have compiled the list below to help you locate certified DBE, MBE, WBE and VOSB certified businesses. Below is a listing of contacts for LFUCG Certified MWDBEs and Veteran-Owned Small Businesses in (<https://lexingtonky.ionwave.net>)

| Business | Contact | Email Address | Phone |
|---|--|--|--------------|
| LFUCG | Sherita Miller | smiller@lexingtonky.gov | 859-258-3323 |
| Commerce Lexington – Minority Business Development | Tyrone Tyra | ttyra@commercelexington.com | 859-226-1625 |
| Tri-State Minority Supplier Diversity Council | Derrick Dowell | ddowell@tsmsdc.net | 502-365-9762 |
| Small Business Development Council | Tonya Parsons UK SBDC | tonya.parsons@uky.edu | 859-257-7666 |
| Community Ventures Corporation | Devanny King | devanny.king@cvky.org | 859-231-0054 |
| KY Transportation Cabinet (KYTC) | Tony Youssefi | tyouseffi@ky.gov | 502-564-3601 |
| KYTC Pre-Qualification | Shella Eagle | Shella.Eagle@ky.gov | 502-782-4815 |
| Ohio River Valley Women’s Business Council (WBENC) | Lynnise Smith | lsmith@wbenc-orr.org | 513-487-6537 |
| Kentucky MWBE Certification Progra | Singer.Buchanan, Kentucky Finance and Administration Cabinet | Singer.Buchanan@ky.gov | 502-564-2874 |
| National Women Business Owner’s Council (NWBOC) | www.nwboc.org | info@nwboc.org | 800-675-5066 |
| Small Business Administration | Robert Coffey | robertcoffey@sba.gov | 502-582-5971 |



LFUCG MWDBE PARTICIPATION FORM

Bid/RFP/Quote Reference # 89-2024

The MWDBE and/or veteran subcontractors listed have agreed to participate on this Bid/RFP/Quote. If any substitution is made or the total value of the work is changed prior to or after the job is in progress, it is understood that those substitutions must be submitted to Procurement for approval immediately. **Failure to submit a completed form may cause rejection of the bid.**

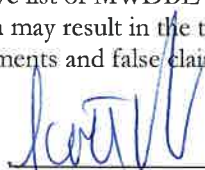
| MWDBE Company, Name, Address, Phone, Email | MBE WBE or DBE | Work to be Performed | Total Dollar Value of the Work | % Value of Total Contract |
|--|----------------|---|--------------------------------|---------------------------|
| 1. DELMAE | WBE | Fuel Provider Seed & Straw Silt Fence | \$52,548 | 1.25% |
| 2. | | | | |
| 3. | | | | |
| 4. | | | | |

The undersigned company representative submits the above list of MWDBE firms to be used in accomplishing the work contained in this Bid/RFP/Quote. Any misrepresentation may result in the termination of the contract and/or be subject to applicable Federal and State laws concerning false statements and false claims.

Perdue Environmental Contracting
Company

Company

8/15/25 _____
Date



Company Representative

President _____
Title



LFUCG MWDBE SUBSTITUTION FORM

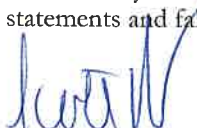
Bid/RFP/Quote Reference # _____

The substituted MWDBE and/or veteran subcontractors listed below have agreed to participate on this Bid/RFP/Quote. These substitutions were made prior to or after the job was in progress. These substitutions were made for reasons stated below and are now being submitted to Procurement for approval. By the authorized signature of a representative of our company, we understand that this information will be entered into our file for this project.

| SUBSTITUTED MWDBE Company Name, Address, Phone, Email | MWDBE Formally Contracted/ Name, Address, Phone, Email | Work to Be Performed | Reason for the Substitution | Total Dollar Value of the Work | % Value of Total Contract |
|---|--|----------------------|-----------------------------|--------------------------------|---------------------------|
| 1. N/A | | | | | |
| 2. | | | | | |
| 3. | | | | | |
| 4. | | | | | |

The undersigned acknowledges that any misrepresentation may result in termination of the contract and/or be subject to applicable Federal and State laws concerning false statements and false claims.

Perdue Environmental Contracting
 Company _____
 Company



 Company Representative

8/15/24 _____
 Date

President _____
 Title



MWDBE QUOTE SUMMARY FORM

Bid/RFP/Quote Reference # _____

The undersigned acknowledges that the minority and/or veteran subcontractors listed on this form did submit a quote to participate on this project. Failure to submit this form may cause rejection of the bid.

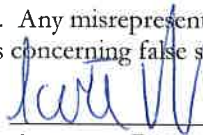
| | |
|----------------------------|-------------------------------|
| Company Name | Contact Person |
| Address/Phone/Email | Bid Package / Bid Date |

| MWDBE Company Address | Contact Person | Contact Information (work phone, Email, cell) | Date Contacted | Services to be performed | Method of Communication (email, phone meeting, ad, event etc) | Total dollars \$\$ Do Not Leave Blank (Attach Documentation) | MBE * AA HA AS NA Female | Veteran |
|-----------------------|----------------|---|----------------|--------------------------|---|--|---|---------|
| N/A | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

(MBE designation / AA=African American / HA= Hispanic American/AS = Asian American/Pacific Islander/ NA= Native American)

The undersigned acknowledges that all information is accurate. Any misrepresentation may result in termination of the contract and/or be subject to applicable Federal and State laws concerning false statements and claims.

Perdue Environmental Contracting Company
Company



Company Representative

8/15/24 _____
Date

President _____
Title



LFUCG SUBCONTRACTOR MONTHLY PAYMENT REPORT

The LFUCG has a 10% goal plan adopted by city council to increase the participation of minority and women owned businesses in the procurement process. The LFUCG also has a 3% goal plan adopted by cited council to increase the participation of veteran owned businesses in the procurement process. In order to measure that goal LFUCG will track spending with MWDBE and Veteran contractors on a monthly basis. By the signature below of an authorized company representative, you certify that the information is correct, and that each of the representations set forth below is true. Any misrepresentation may result in termination of the contract and/or prosecution under applicable Federal and State laws concerning false statements and false claims. Please submit this form monthly to the Division of Procurement/ 200 East Main Street / Room 338 / Lexington, KY 40507.

Bid/RFP/Quote # _____

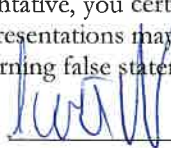
Total Contract Amount Awarded to Prime Contractor for this Project _____

| | |
|---------------------------------|--|
| Project Name/ Contract # | Work Period/ From: _____ To: _____ |
| Company Name: | Address: |
| Federal Tax ID: | Contact Person: |

| Subcontractor Vendor ID (name, address, phone, email) | Description of Work | Total Subcontract Amount | % of Total Contract Awarded to Prime for this Project | Total Amount Paid for this Period | Purchase Order number for subcontractor work (please attach PO) | Scheduled Project Start Date | Scheduled Project End Date |
|--|---------------------|--------------------------|---|-----------------------------------|--|------------------------------|----------------------------|
| N/A | | | | | | | |
| | | | | | | | |
| | | | | | | | |

By the signature below of an authorized company representative, you certify that the information is correct, and that each of the representations set forth below is true. Any misrepresentations may result in the termination of the contract and/or prosecution under applicable Federal and State laws concerning false statements and false claims.

Perdue Environmental Contracting Company _____



Company Representative

Company

President _____
Title

8/15/24 _____
Date

LFUCG STATEMENT OF GOOD FAITH EFFORTS

Bid/RFP/Quote # _____

By the signature below of an authorized company representative, we certify that we have utilized the following Good Faith Efforts to obtain the maximum participation by MWDBE and Veteran-Owned business enterprises on the project and can supply the appropriate documentation.

_____ Advertised opportunities to participate in the contract in at least two (2) publications of general circulation media; trade and professional association publications; small and minority business or trade publications; and publications or trades targeting minority, women and disadvantaged businesses not less than fifteen (15) days prior to the deadline for submission of bids to allow MWDBE firms and Veteran-Owned businesses to participate.

_____ Included documentation of advertising in the above publications with the bidders good faith efforts package

_____ Attended LFUCG Procurement Economic Inclusion Outreach event

_____ Attended pre-bid meetings that were scheduled by LFUCG to inform MWDBEs and/or Veteran-Owned Businesses of subcontracting opportunities

_____ Sponsored Economic Inclusion event to provide networking opportunities for prime contractors and MWDBE firms and Veteran-Owned businesses

_____ Requested a list of MWDBE and/or Veteran subcontractors or suppliers from LFUCG and showed evidence of contacting the companies on the list(s).

_____ Contacted organizations that work with MWDBE companies for assistance in finding certified MWDBE firms and Veteran-Owned businesses to work on this project. Those contacted and their responses should be a part of the bidder's good faith efforts documentation.

_____ Sent written notices, by certified mail, email or facsimile, to qualified, certified MWDBEs soliciting their participation in the contract not less than seven (7) days prior to the deadline for submission of bids to allow them to participate effectively.

_____ Followed up initial solicitations by contacting MWDBEs and Veteran-Owned businesses to determine their level of interest.

_____ Provided the interested MWDBE firm and/or Veteran-Owned business with adequate and timely information about the plans, specifications, and requirements of the contract.

 X Selected portions of the work to be performed by MWDBE firms and/or Veteran-Owned businesses in order to increase the likelihood of meeting the contract goals. This includes, where appropriate, breaking out contract work items into economically feasible units to facilitate MWDBE and Veteran participation,

even when the prime contractor may otherwise perform these work items with its own workforce

_____ Negotiated in good faith with interested MWDBE firms and Veteran-Owned businesses not rejecting them as unqualified without sound reasons based on a thorough investigation of their capabilities. Any rejection should be so noted in writing with a description as to why an agreement could not be reached.

_____ Included documentation of quotations received from interested MWDBE firms and Veteran-Owned businesses which were not used due to uncompetitive pricing or were rejected as unacceptable and/or copies of responses from firms indicating that they would not be submitting a bid.

_____ Bidder has to submit sound reasons why the quotations were considered unacceptable. The fact that the bidder has the ability and/or desire to perform the contract work with its own forces will not be considered a sound reason for rejecting a MWDBE and/or Veteran-Owned business's quote. Nothing in this provision shall be construed to require the bidder to accept unreasonable quotes in order to satisfy MWDBE and Veteran goals.

_____ Made an effort to offer assistance to or refer interested MWDBE firms and Veteran-Owned businesses to obtain the necessary equipment, supplies, materials, insurance and/or bonding to satisfy the work requirements of the bid proposal

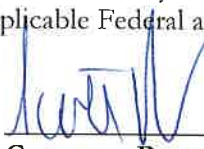
_____ Made efforts to expand the search for MWBE firms and Veteran-Owned businesses beyond the usual geographic boundaries.

_____ Other--any other evidence that the bidder submits which may show that the bidder has made reasonable good faith efforts to include MWDBE and Veteran participation.

NOTE: Failure to submit any of the documentation requested in this section may be cause for rejection of bid. Bidders may include any other documentation deemed relevant to this requirement which is subject to approval by the MBE Liaison. Documentation of Good Faith Efforts must be submitted with the Bid, if the participation Goal is not met.

The undersigned acknowledges that all information is accurate. Any misrepresentations may result in termination of the contract and/or be subject to applicable Federal and State laws concerning false statements and claims.

Perdue Environmental Contracting
Company
Company
8/15/24 _____
Date



Company Representative
President _____
Title

8. **AUTHENTICATION OF BID AND STATEMENT OF NON-COLLUSION, NON-CONFLICT OF INTEREST**

I hereby swear (or affirm) under the penalty for false swearing:

1. That I am the Bidder (if the Bidder is an individual), a partner of the Bidder (if the Bidder is a partnership), or an officer or employee of the bidding corporation having authority to sign on its behalf (if the Bidder is a corporation);
2. That the attached bid has been arrived at by the Bidder independently, and has been submitted without collusion with, and without any agreement, understanding or planned common course of action, with any other contractor, vendor of materials, supplies, equipment or services described in the Invitation to Bid, designed to limit independent bidding or competition;
3. That the contents of the bid or bids have not been communicated by the Bidder or its employees or agents to any person not an employee or agent of the Bidder or its surety on any bond furnished, with the bid or bids, and will not be communicated to any such person, prior to the official opening of the bid or bids;
4. That the Bidder is legally entitled to enter into the contracts with the Lexington-Fayette Urban County Government, and is not in violation of any prohibited conflict of interest;
5. (Applicable to corporation only) That as a foreign corporation, we are registered with the Secretary of State, Commonwealth of Kentucky, and authorized to do business in the State _____ or, that as a domestic corporation, we are in good standing with the Secretary of State, Commonwealth of Kentucky . Check the statement applicable.
6. This offer is for 60 calendar days from the date this bid is opened. In submitting the above, it is expressly agreed that, upon proper acceptance by the Lexington-Fayette Urban County Government of any or all items bid above, a contract shall thereby be created with respect to the items accepted.
7. That I have fully informed myself regarding the accuracy of the statements made in this statement.
8. That I certify that Subcontractors have not and will not be awarded to any firm(s) that have been debarred from noncompliance with the Federal Labor Standards, Title VI of the Civil Rights Act of 1964 As Amended, Executive Order 11246 As Amended or any other Federal Law.

9. STATEMENT OF EXPERIENCE

NAME OF INDIVIDUAL: Jeff Stipe

POSITION/TITLE: Senior Project Manager

STATEMENT OF EXPERIENCE: Jeff has worked for Pecco for 16 years as an operator, field technician, project manager, site superintendent to now a senior project manager. Jeff has managed several large scale projects for Pecco including but not limited to Landfill closures, lagoon sediment removal, HDPE installation, leachate collection system installs.

NAME OF INDIVIDUAL: Ben Whitaker

POSITION/TITLE: Superintendent

STATEMENT OF EXPERIENCE: Ben is a site superintendent for Pecco that has been in the in earthworks and construction industry for over 20 years. Ben has operated heavy machinery and had management oversight on large remediation projects as well as railroad projects over the last 20years.

NAME OF INDIVIDUAL: Scottie Perdue

POSITION/TITLE: President

STATEMENT OF EXPERIENCE: Scottie has been oversight on many landfill closures, Scottie previously operated heavy machinery performing many different excavation projects. Scottie has owned and operated Pecco for over 30-years managing all equipment and personnel

NAME OF INDIVIDUAL: Kelli Creech

POSITION/TITLE: Controller

STATEMENT OF EXPERIENCE: Kelli has worked in the accounting industry for over
15 years managing all aspects of the billing, pay applications, payroll and accounts
payable.

NAME OF INDIVIDUAL: Logan Perdue

POSITION/TITLE: Project Manager

STATEMENT OF EXPERIENCE: Logan is a project manager that graduated from UK
with and engineering degree. Logan has managed a site development along with a
leachate improvement project at Raven Run Landfill.

NAME OF INDIVIDUAL: _____

POSITION/TITLE: _____

STATEMENT OF EXPERIENCE: _____

* Include all officers, office management's, Affirmative Action officials, and field management personnel. (Attach separate sheets if necessary.)

10. EQUAL OPPORTUNITY AGREEMENT

Standard Title VI Assurance

The Lexington Fayette-Urban County Government, (hereinafter referred to as the “Recipient”) hereby agrees that as a condition to receiving any Federal financial assistance from the U.S. Department of Transportation, it will comply with Title VI of the Civil Rights Act of 1964, 78Stat.252, 42 U.S.C. 2000d-4 (hereinafter referred to as the “Act”), and all requirements imposed by or pursuant to Title 49, Code of Federal Regulations, U.S. Department of Transportation, Subtitle A, Office of the Secretary, (49 CFR, Part 21) Nondiscrimination in Federally Assisted Program of the Department of Transportation – Effectuation of Title VI of the Civil Rights Act of 1964 (hereinafter referred to as the “Regulations”) and other pertinent directives, no person in the United States shall, on the grounds of race, color, national origin, sex, age (over 40), religion, sexual orientation, gender identity, veteran status, or disability be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity for which the Recipient receives Federal financial assistance from the U.S. Department of Transportation, including the Federal Highway Administration, and hereby gives assurance that will promptly take any necessary measures to effectuate this agreement. This assurance is required by subsection 21.7(a) (1) of the Regulations.

The Law

- * Title VII of the Civil Rights Act of 1964 (amended 1972) states that it is unlawful for an employer to discriminate in employment because of race, color, religion, sex, age (40-70 years) or national origin.
- * Executive Order No. 11246 on Nondiscrimination under Federal contract prohibits employment discrimination by contractor and subcontractor doing business with the Federal Government or recipients of Federal funds. This order was later amended by Executive Order No. 11375 to prohibit discrimination on the basis of sex.
- * Section 503 of the Rehabilitation Act of 1973 States:
The Contractor will not discriminate against any employee or applicant for employment because of physical or mental handicap.
- * Section 2012 of the Vietnam Era Veterans Readjustment Act of 1973 requires Affirmative Action on behalf of disabled veterans and veterans of the Vietnam Era by contractors having Federal Contracts.
- * Section 206 (A) of Executive Order 12086, Consolidation of Contract Compliance Functions for Equal Employment Opportunity, states:
The Secretary of Labor may investigate the employment practices of any Government contractor or sub-contractor to determine whether or not the contractual provisions specified in Section 202 of this order have been violated.

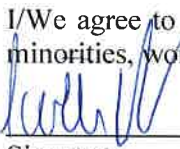
The Lexington-Fayette Urban County Government practices Equal Opportunity in recruiting, hiring and promoting. It is the Government's intent to affirmatively provide employment opportunities for those individuals who have previously not been allowed to enter into the mainstream of society. Because of its importance to the local Government, this policy carries the full endorsement of the Mayor, Commissioners, Directors, and all supervisory personnel. In

following this commitment to Equal Employment Opportunity and because the Government is the benefactor of the Federal funds, it is both against the Urban County Government policy and illegal for the Government to let contracts to companies which knowingly or unknowingly practice discrimination in their employment practices. Violation of the above mentioned ordinances may cause a contract to be canceled and the contractor may be declared ineligible for future consideration.

Please sign this statement in the appropriate space acknowledging that you have read and understand the provisions contained herein. Return this document as part of your application packet.

Bidders

I/We agree to comply with the Civil Rights Laws listed above that govern employment rights of minorities, women, Vietnam veterans, handicapped, and aged persons.



Signature

Perdue Environmental Contracting Company

Name of Business

The Entity (regardless of whether construction contractor, non-construction contractor or supplier) agrees to provide equal opportunity in employment for all qualified persons, to prohibit discrimination in employment because of race, color, religion, sex (including pregnancy, sexual orientation or gender identity), national origin, disability, age, genetic information, political affiliation, or veteran status, and to promote equal employment through a positive, continuing program from itself and each of its sub-contracting agents. This program of equal employment opportunity shall apply to every aspect of its employment policies and practices.

The Kentucky equal Employment Opportunity Act of 1978 (KRS 45.560-45.640) requires that any count, city, town, school district, water district, hospital district, or other political subdivision of the state shall include in directly or indirectly publicly funded contracts for supplies, materials, services, or equipment hereinafter entered into the following provisions:

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

- (1) *The contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, age or national origin;*
- (2) *The contractor will state in all solicitations or advertisements for employees placed by or on behalf of the contractors that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, age or national origin;*
- (3) *The contract will post notices in conspicuous places, available to employees and applicants for employment, setting forth the provisions of the non-discrimination clauses required by this section; and*
- (4) *The contractor will send a notice to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding advising the*

labor union or workers' representative of the contractor's commitments under the nondiscrimination clauses.

The Act further provides:

KRS 45.610. Hiring minorities – Information required

- (1) *For the length of the contract, each contractor shall hire minorities from other sources within the drawing area, should the union with which he has collective bargaining agreements be unwilling to supply sufficient minorities to satisfy the agreed upon goals and timetable.*
- (2) *Each contractor shall, for the length of the contract, furnish such information as required by KRS 45.560 to KRS 45.640 and by such rules, regulations and orders issued pursuant thereto and will permit access to all books and records pertaining to his employment practices and work sites by the contracting agency and the department for purposes of investigation to ascertain compliance with KRS 45.560 to 45.640 and such rules, regulations and orders issued pursuant thereto.*

KRS 45.620. Action against contractor – Hiring of minority contractor or subcontractor

- (1) *If any contractor is found by the department to have engaged in an unlawful practice under this chapter during the course of performing under a contract or subcontract covered under KRS 45.560 to 45.640, the department shall so certify to the contracting agency and such certification shall be binding upon the contracting agency unless it is reversed in the course of judicial review.*
- (2) *If the contractor is found to have committed an unlawful practice under KRS 45.560 to 45.640, the contracting agency may cancel or terminate the contract, conditioned upon a program for future compliance approved by the contracting agency and the department. The contracting agency may declare such a contractor ineligible to bid on further contracts with that agency until such time as the contractor complies in full with the requirements of KRS 45.560 – 45.640.*
- (3) *The equal employment provisions of KRS 45.560 to 45.640 may be met in part by a contractor by subcontracting to a minority contractor or subcontractor. For the provisions of KRS 45.560 to 45.640, a minority contractor or subcontractor shall mean a business that is owned and controlled by one or more persons disadvantaged by racial or ethnic circumstances.*

KRS 45.630 Termination of existing employee not required, when

Any provision of KRS 45.560 to 45.640 notwithstanding, no contractor shall be required to terminate an existing employee upon proof that that employee was employed prior to the date of the contract.

KRS 45.640 Minimum skills

Nothing in KRS 45.560 to 45.640 shall require a contractor to hire anyone who fails to demonstrate the minimum skills required to perform a particular job.

It is recommended that all of the provisions quoted above to be included as special conditions in each contract. In the case of a contract exceeding \$250,000, the contractor is required to furnish evidence that his work-force in Kentucky is representative of the available work-force in the area from which he draws employees, or to supply an Affirmative Action plan which will achieve such representation during the life of the contract.

11. EQUAL EMPLOYMENT OPPORTUNITY AFFIRMATIVE ACTION POLICY

It is the policy of Perdue Environmental Contracting Company to assure that all applicants for employment and all employees are treated on a fair and equitable basis without regard to their race, religion, sex, color, handicap, natural origin or age.

Such action shall include employment, promotion, demotion, recruitment or recruitment advertising, layoff or termination, rates of pay and other forms of compensation, and selection for training, whether apprenticeship and/or on-the-job-training.

Furthermore, this company agrees to make special recruitment efforts to hire the protected class whenever feasible. This company also agrees to adhere to all applicable federal, state, and local laws relating to Equal Employment Opportunity for all individuals.

12. WORKFORCE ANALYSIS FORM

Name of Organization: Perdue Environemntal Contracting Company

| Categories | Total | White (Not Hispanic or Latino) | | Hispanic or Latino | | Black or African-American (Not Hispanic or Latino) | | Native Hawaiian and Other Pacific Islander (Not Hispanic or Latino) | | Asian (Not Hispanic or Latino) | | American Indian or Alaskan Native (not Hispanic or Latino) | | Two or more races (Not Hispanic or Latino) | | Total | |
|---------------------|------------|--------------------------------|-----------|--------------------|----------|--|----------|---|----------|--------------------------------|----------|--|----------|--|----------|-----------|-----------|
| | | M | F | M | F | M | F | M | F | M | F | M | F | M | F | M | F |
| Administrators | 5 | 1 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 4 |
| Professionals | 4 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 |
| Superintendents | 3 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 |
| Supervisors | 8 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 0 |
| Foremen | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Technicians | 35 | 35 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 35 | 0 |
| Protective Service | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Para-Professionals | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Office/Clerical | 11 | 4 | 4 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 4 |
| Skilled Craft | 28 | 26 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 26 | 2 |
| Service/Maintenance | 9 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 0 |
| Total: | 104 | 94 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 94 | 10 |

Prepared by: Jeff Stipe Senior Project Manager
(Name and Title)

Date: 08/15/2024

Revised 2015-Dec-15

13. EVIDENCE OF INSURABILITY

LEXINGTON-FAYETTE URBAN COUNTY GOVERNMENT CONSTRUCTION PROJECT
(Use separate form for each Agency or Brokerage agreeing to provide coverage)

Names Insured: Perdue Environmental Contracting Company

Employee ID: _____

Address: 250 Etter Drive Nicholasville, KY

Phone: 859-885-5508

Project to be insured: Leachate Management Construction at Haley Pike Landfill

In lieu of obtaining certificates of insurance at this time, the undersigned agrees to provide the above Named Insured with the minimum coverage listed below. These are outlined in the Insurance and Risk Management of Part V (Special Conditions), including all requirements, and conditions:

| Section Items | Coverage | Minimum Limits and Policy Requirements | Limits Provided To Insured | Name of Insurer | A.M. Best's | |
|------------------------|----------|--|-------------------------------------|------------------------|--------------|--------|
| | | | | | Code | Rating |
| SC-2 -- see provisions | CGL | \$1,000,000 per occ. And \$2,000,000 aggregate | \$ \$1,000,000.00 \$2,000,000.00 | Nautilus Insurance Co. | 17370 | A |
| SC-2 -- see provisions | AUTO | \$1,000,000/per occ. | \$ \$1,000,000.00 | Key Risk Insurance Co. | 10875 | A |
| SC-2 -- see provisions | WC | Statutory w /endorsement as noted | \$ \$4,500,000.00 | KY AGC | Self Insured | A |
| SC-2 -- see provisions | EXC | \$5,000,000 per occ. | \$ \$10,000,000.00 | Nautilus Insurance Co. | 21415 | A |

Section 2 includes required provisions, statements regarding insurance requirements, and the undersigned agrees to abide by all provisions for the coverage's checked above unless stated otherwise when submitting.

NFP Property & Casualty Services Inc
 Agency or Brokerage
 4384 Clearwater Way Suite 200
 Street Address
 Lexington Ky 40515
 City State Zip
 859-269-1044
 Telephone Number

Kelli Creech
 Name of Authorized Representative
Controller
 Title
Kelli Creech
 Authorized Signature
8/16/24
 Date

NOTE: Authorized signatures may be the agent's if agent has placed insurance through an agency agreement with the insurer. If insurance is brokered, authorized signature must be that of authorized representative of insurer.

IMPORTANT: Contract may not be awarded if a completed and signed copy of this form for all coverage's listed above is not provided with the bid.

14. DEBARRED FIRMS

PROJECT NAME:Lachate Management Construction at Haley Pike Landfill.

BID NUMBER: 89-2024_____

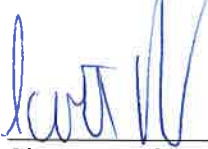
**LEXINGTON-FAYETTE URBAN COUNTY GOVERNMENT
LEXINGTON, KY**

All prime Contractors shall certify that Subcontractors have not and will not be awarded to any firms that has been debarred for noncompliance with the Federal Labor Standards, Title VI of the Civil Rights Act of 1964 As Amended, Executive Order 11246 As Amended or any other Federal Law.

All bidders shall complete the attached certification in duplicate and submit both copies to the Owner with the bid proposal. The Owner (grantee) shall transmit one copy to the Lexington-Fayette Urban County Government, Division of Community Development, within fourteen (14) days after bid opening.

The undersigned hereby certifies that the firm of Perdue Environmental Contracting Company has not and will not award a subcontract, in connection with any contract award to it as the result of this bid, to any firm that has been debarred for noncompliance with the Federal labor Standards, Title VI of the civil Rights Act of 1964, Executive Order 11246 as amended or any Federal Law.

Perdue Environmental Contracting Company
Name of Firm Submitting Bid



Signature of Authorized Official

President _____
Title

8/15/24 _____
Date

15. DEBARMENT CERTIFICATION

All contractors/subcontractors shall complete the following certification and submit it with the bid proposal.

The contractor/subcontractor certifies in accordance with Executive Order 12549 (Debarment and Suspension 2/18/86) that to the best of its knowledge and belief, that it and its principals:

- 1) Are not presently debarred, suspended, proposed for debarment, declared negligible, or voluntarily excluded from covered transactions or contract by any Federal department or agency for noncompliance with the Federal Labor Standards, Title VI of the Civil Rights Act of 1964 as amended, Executive Order 11246 as amended or any other Federal law;
 - a) 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;
 - b) Are not presently indicted for or otherwise criminally or civilly charged by a government entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (1)(a) of this certification; and
 - c) Have not within a three year period preceding this bid has one or more public (Federal, State or local) transactions or contracts terminated for cause or default.
- 2) Where the contractor is unable to certify to any of the statements in this certification, such prospective contractors shall attach an explanation to this certification form.

Firm Name: Perdue Environmental Contracting Company_____

Project: Leachate Management Construction at Haley Pike Landfill

Printed Name and Title of Authorized Representative: Scottie Perdue President

Signature: _____

Date: 8/15/24

END OF SECTION

PART IV
GENERAL CONDITIONS
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END OF SECTION

PART IV
GENERAL CONDITIONS

1. DEFINITIONS

Wherever used in these General Conditions or the other Contract Documents, the following terms have the meanings indicated which are applicable to both the singular and plural thereof.

1.1 Addenda

Written or graphic instruments issued prior to the opening of Bids which clarify, correct, or change the Bid Documents or the Contract Documents.

1.2 Agreement

The written agreement between OWNER and CONTRACTOR covering the Work to be performed; other Contract Documents are attached to the Agreement and made a part thereof as provided therein.

1.3 Application for Payment

The form accepted by CONSULTANT which is to be used by CONTRACTOR in requesting progress or final payments and which is to include such supporting documentation as is required by the Contract Documents.

1.4 Bid

The offer or proposal of the Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.

1.5 Bidder

An individual, partnership, or corporation, who submit a Bid for a prime contract with the OWNER, for the Work described in the proposed Contract Documents.

1.6 Bonds

Bid, performance and payment bonds and other instruments of security.

1.7 Calendar Day

A calendar day of twenty-four hours measured from midnight to the next midnight shall constitute a day.

1.8 Change Order

A document recommended by CONSULTANT, 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 Time, issued on or after the Effective Date of the Agreement.

1.9 Contract Documents

The Advertisement for Bidders, Information for Bidders, Agreement, Addenda (which pertain to the Contract Documents), CONTRACTOR'S Bid (including documentation accompanying the Bid and any post-bid documentation submitted prior to the Notice of Award) when attached as an exhibit to the Agreement, the Bonds, these General Conditions, the Special Conditions, the Specifications and the Drawings as the same are more specifically identified in the Agreement, together with all amendments, modifications and supplements.

1.10 Contract Unit Price

The monies payable by OWNER to CONTRACTOR under the Contract Documents as stated in the Agreement. Unit Prices are to be firm for the term of this Contract.

1.11 Contract Time

The number of consecutive calendar days between the date of issuance of the Notice to Proceed and the contract completion date.

1.12 CONTRACTOR

The person, firm or corporation with whom OWNER has entered into the Agreement.

1.13 Defective

An adjective which when modifying the word Work refers to Work that is unsatisfactory, faulty or deficient, or does not conform to the Contract Documents, or does not meet the requirements of any inspection, reference standard, test or approval referred to in the Contract Documents, or has been damaged prior to CONSULTANT'S recommendation of final payment (unless responsibility for the protection thereof has been assumed by OWNER).

1.14 Drawings

The drawings which show the character and scope of the Work to be performed and which have been prepared or approved by CONSULTANT and are referred to in the Contract Documents.

1.15 Effective Date of the Agreement

The date indicated in the Agreement on which it becomes effective.

1.16 CONSULTANT

The Lexington-Fayette Urban County Government or its authorized representative.

1.17 Field Order

A documented order issued by CONSULTANT which orders minor changes in the Work, but which does not involve a change in the Contract Price or the Contract Time.

1.18 Giving Notice

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

1.19 Laws and Regulations

Laws, rules, regulations, ordinances, codes and/or orders.

1.20 Notice of Award

The written notice by OWNER to the apparent successful bidder stating that upon compliance by the apparent successful bidder with the conditions enumerated therein, within the time specified, OWNER will sign and deliver the Agreement.

1.21 Notice to Proceed

A written notice given by OWNER to CONTRACTOR fixing the date on which the Contract Time will commence to run and on which CONTRACTOR shall start to perform CONTRACTOR'S obligations under the Contract Documents.

1.22 OWNER

The Lexington-Fayette Urban County Government.

1.23 Partial Utilization

Placing a portion of the Work in service for the purpose for which it is intended (or related purpose) before reaching Completion for all the Work.

1.24 Project

The total construction of which the Work to be provided under the Contract Documents may be the whole, or a part as indicated elsewhere in the Contract Documents.

1.25 Inspector

The authorized representative who is assigned to the site or any part thereof.

1.26 Shop Drawings

All drawings, diagrams, illustrations, schedules and other data which are specifically prepared by or for CONTRACTOR to illustrate some portion of the Work and all illustrations, brochures, standard schedules, performance charts, instructions, diagrams and other information prepared by a Supplier and submitted by CONTRACTOR to illustrate material or equipment for some portion of the Work.

1.27 Specifications

Those portions of the Contract Documents consisting of written technical descriptions of materials, equipment, construction systems, standards and

workmanship as applied to the Work and certain administrative details applicable thereto.

1.28 Standard Specifications

The "Standard Specifications for Road and Bridge Construction", Transportation Cabinet, Department of Highways, Commonwealth of Kentucky, current edition. MUTCD shall refer to the "Manual of Uniform Traffic Control Devices.

1.29 Subcontractor

An individual, firm or corporation having a direct contract with CONTRACTOR or with any other Subcontractor for the performance of a part of the Work at the site.

1.30 Special Conditions

The part of the Contract Documents which amends or supplements these General Conditions.

1.31 Supplier

A manufacturer, fabricator, supplier, distributor, materialman or vendor.

1.32 Underground Facilities

All pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels or other such facilities or attachments, and any encasements containing such facilities which have been installed underground to furnish any of the following services or materials: electricity, gases, steam, liquid petroleum products, telephone or other communications, cable television, sewage and drainage removal, traffic or other control systems or water.

1.33 Unit Price Work

An amount equal to the sum of the established unit prices for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement.

1.34 Work

The entire completed construction or the various separately identifiable parts thereof required to be furnished under the Contract Documents. Work is the result of performing services, furnishing labor and furnishing and incorporating materials and equipment into the construction, all as required by the Contract Documents.

1.35 Time Period

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

2. PRELIMINARY MATTERS

2.1 Delivery of Bonds

When the CONTRACTOR delivers the executed Agreements to OWNER, CONTRACTOR shall also deliver to OWNER, such Bonds, Insurance Certificate, and Power of Attorney as CONTRACTOR may be required to furnish.

2.2 Commencement of Contract Time; Notice to Proceed

The Contract Time will commence to run on the day specified in the Notice to Proceed.

2.3 Starting the Project

CONTRACTOR shall start to perform the Work on the date when the Contract Time commences to run, but no Work shall be done at the site prior to the date on which the Contract Time commences to run.

2.4 Before Starting Construction

Before undertaking each part of the Work, CONTRACTOR shall carefully study and compare the Contract Documents and check and verify pertinent figures shown thereon and all applicable field measurements. CONTRACTOR shall promptly report in writing to CONSULTANT any conflict, error or discrepancy which CONTRACTOR may discover and shall obtain a written interpretation or clarification from CONSULTANT before proceeding with any Work affected thereby; however, CONTRACTOR shall not be liable to OWNER or CONSULTANT for failure to report any conflict, error or discrepancy in the Contract Documents, unless CONTRACTOR had actual knowledge thereof or should reasonably have known thereof.

2.5 Submittal of Schedules

Within ten days after the effective date of the Agreement (unless otherwise specified) CONTRACTOR shall submit to CONSULTANT for review:

2.5.1 an estimated progress schedule indicating the starting and completion dates of the various stages of the Work;

2.5.2 a preliminary schedule of Shop Drawing submissions; and

2.5.3 a preliminary schedule of values for all of the Work which will include quantities and prices of items aggregating the Contract Price and will subdivide the Work into costs per labor and materials by specification section to serve as the basis for progress payments during construction. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work which will be confirmed in writing by CONTRACTOR at the time of submission. Schedule of values shall be submitted on AIA G702/703 forms, or approved equal.

2.6 Preconstruction Conference

Before CONTRACTOR starts the Work at the proposed site, a conference attended by CONTRACTOR, CONSULTANT, EEO-Affirmative Action Officer, and other appropriate parties will be held to discuss the following issues: (1) The scheduling of the Work to be completed; (2) The procedures for handling shop drawings and other submittals; (3) The processing of applications for payment; (4) The establishment of an understanding among the involved parties in regard to the proposed project; (5) The establishment of procedures for effectively implementing the LFUCG's 10% minimum DBE goals; and (6) Requirement for Mechanic's Lien on Partial Applications for Payment.

2.7 Finalizing Schedules

At least ten days before submission of the first Application for Payment a conference attended by CONTRACTOR, CONSULTANT and others as appropriate will be held to finalize the schedules submitted in accordance with paragraph 2.6. The finalized progress schedule will be acceptable to CONSULTANT as providing orderly progression of the Work to completion within the Contract Time, but such acceptance will neither impose on CONSULTANT responsibility for the progress or scheduling of the Work nor relieve CONTRACTOR from full responsibility thereof. The finalized schedule of Shop Drawing submissions will be acceptable to CONSULTANT as providing a workable arrangement for processing the submissions. The finalized schedule of values will be acceptable to CONSULTANT as to form and substance.

3. CONTRACT DOCUMENTS: INTENT, CONFLICTS, AMENDING AND REUSE

3.1 General

The Contract Documents comprise the entire agreement between OWNER and CONTRACTOR concerning the Work. The Contract Documents are complementary; what is called for by one is as binding as if called for by all. The Contract Documents will be construed in accordance with the law of the place of the Project.

3.2 Intent

It is the intent of the Contract Documents to describe a functionally complete Project (or part thereof) to be constructed in accordance with the Contract Documents. Any Work, materials or equipment that may reasonably be inferred from the Contract Documents as being required to produce the intended result will be supplied whether or not specifically called for. When words which have a well-known technical or trade meaning are used to describe Work, materials or equipment such words shall be interpreted in accordance with that meaning. Reference to standard specifications, manuals or codes of any technical society, organization or association, or to the laws or regulations of any governmental authority, whether such reference be specific or by implication, shall mean the latest standard specification, manual, code or laws or regulations in effect at the time of opening of Bids (or, on the Effective Date of the Agreement if there were no

Bids), except as may be otherwise specifically stated. However, no provision of any referenced standard specification, manual or code (whether or not specifically incorporated by reference in the Contract Documents) shall be effective to change the duties and responsibilities of OWNER, CONTRACTOR or CONSULTANT, or any of their consultants, agents or employees from those set forth in the Contract Documents, nor shall it be effective to assign to CONSULTANT, or any of CONSULTANT'S consultants, agents or employees, any duty or authority to supervise or direct the furnishing or performance of the Work or any duty or authority to undertake responsibility contrary to the provisions of paragraph 8.12.3 or 8.12.4. Clarifications and interpretations of the Contract Documents shall be issued by CONSULTANT as provided in paragraph 8.4.

3.3 Conflicts

If, during the performance of the Work, CONTRACTOR finds a conflict, error or discrepancy in the Contract Documents, CONTRACTOR shall so report to CONSULTANT in writing at once and before proceeding with the Work affected thereby shall obtain a written interpretation or clarification from CONSULTANT; however, CONTRACTOR shall not be liable to OWNER or CONSULTANT for failure to report any conflict, error or discrepancy in the Contract Documents unless CONTRACTOR had actual knowledge thereof or should reasonably have known thereof.

In resolving such conflicts, errors and discrepancies, the documents shall be given precedence in the following order:

1. Agreement
2. Field and Change Orders
3. Addenda
4. Special Conditions
5. Instruction to Bidders
6. General Conditions
7. Specifications and Drawings

Figure dimension on drawings shall govern over scale dimensions and detailed Drawings shall govern over general Drawings.

3.4 Amending and Supplementing Contract Documents

The Contract Documents may be amended to provide for additions, deletions and revisions in the Work or to modify the terms and conditions thereof by means of a Change Order or a Field Order. Contract Price and Contract Time may only be changed by a Change Order.

3.5 Reuse of Documents

Neither CONTRACTOR nor any Subcontractor or Supplier or other person or organization performing or furnishing any of the Work under a direct or indirect contract with OWNER shall 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 CONSULTANT; and they shall not reuse any of them on extensions of the Project or any other project without written consent of OWNER and CONSULTANT and specific written verification or adaptation by CONSULTANT.

4. AVAILABILITY OF LANDS; PHYSICAL CONDITIONS, REFERENCE POINTS

4.1 Availability of Lands

OWNER shall furnish, as indicated in the Contract Documents, the lands upon which the Work is to be performed, rights-of-way and easements for access thereto, and such other lands which are designated for the use of CONTRACTOR. Easements for permanent structures or permanent changes in existing facilities will be obtained and paid for by OWNER, unless otherwise provided in the Contract Documents. If CONTRACTOR believes that any delay in OWNER'S furnishing these lands, rights-of-way or easements entitles CONTRACTOR to an extension of the Contract Time, CONTRACTOR may make a claim therefor as provided in Article 11. CONSULTANT shall determine if the claim is legitimate or not. CONTRACTOR shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

4.2 Physical Conditions

4.2.1 Explorations and Reports

Reference is made to the Special Conditions for identification of those reports of explorations and tests of subsurface conditions at the site that have been utilized by CONSULTANT in preparation of the Contract Documents. CONTRACTOR may rely upon the accuracy of the technical data contained in such reports, but not upon non-technical data, interpretations or opinions contained therein or for the completeness thereof for CONTRACTOR'S purposes. Except as indicated in the immediately preceding sentence and in paragraph 4.2.6, CONTRACTOR shall have full responsibility with respect to subsurface conditions at the site.

4.2.2 Existing Structures

Reference is made to the Special Conditions for identification of those drawings of physical conditions in or relating to existing surface and subsurface structures (except Underground Facilities referred to in paragraph 4.3 which are at or contiguous to the site that have been utilized by CONSULTANT in preparation of the Contract Documents. CONTRACTOR may rely upon the accuracy of the technical data contained in such drawings, but not for the completeness thereof for CONTRACTOR'S purposes. Except as indicated in the immediately preceding sentence and in paragraph 4.2.6, CONTRACTOR shall have full responsibility with respect to physical conditions in or relating to such structures.

4.2.3 Report of Differing Conditions

If CONTRACTOR believes that:

4.2.3.1 any technical data on which CONTRACTOR is entitled to rely as provided in paragraphs 4.2.1 and 4.2.2 is inaccurate, or

4.2.3.2 any physical conditions uncovered or revealed at the site differ materially from that indicated, reflected or referred to in the Contract Documents,

CONTRACTOR shall, promptly after becoming aware thereof and before performing and WORK in connection therewith (except in an emergency) notify OWNER and CONSULTANT in writing about the inaccuracy or difference.

4.2.4 CONSULTANT'S Review

CONSULTANT will promptly review the pertinent conditions, determine the necessity of obtaining additional explorations or tests with respect thereto and advise CONTRACTOR of CONSULTANT'S findings and conclusions.

4.2.5 Possible Document Change

If CONSULTANT concludes that there is a material error in the Contract Documents or that because of newly discovered conditions a change I the Contract Documents is required, a Change Order will be issued as provided in Article 10 to reflect and document the consequences of the inaccuracy or difference.

4.2.6 Possible Price and Time Adjustments

In each such case, an increase or decrease in the Contract Price or an extension or shortening of the Contract Time, or any combination thereof, will be allowable to the extent that they are attributable to any such inaccuracy or difference.

4.3 Physical Conditions-Underground Facilities

4.3.1 Shown or Indicated

The information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or contiguous to the site is based on information and data furnished to OWNER or CONSULTANT by the owners of such underground facilities or by others. Unless it is otherwise expressly provided in the Special Conditions:

4.3.1.1 OWNER and CONSULTANT shall not be responsible for the accuracy or completeness of any such information or data; and,

4.2.1.2 CONTRACTOR shall have full responsibility for reviewing and checking all such information and data; for locating all underground facilities shown or indicated in the Contract Documents; for coordination of the Work with the owners of such underground facilities during construction;

and for the safety and protection thereof and repairing any damage thereto resulting from the Work, the cost of all of which will be considered as having been included in the Contract Price.

4.3.2 Not Shown or Indicated

If an underground facility is uncovered or revealed at or contiguous to the site which was not shown or indicated in the Contract Documents and which CONTRACTOR could not reasonably have been expected to be aware of, CONTRACTOR shall, promptly after becoming aware thereof and before performing any Work affected thereby (except in an emergency), identify the owner of such Underground Facility and give written notice thereof to that owner and to OWNER and CONSULTANT. CONSULTANT will promptly review the underground facility to determine the extent to which the Contract Documents should be modified to reflect and document the consequences of the existence of the Underground Facility, and the Contract Documents will be amended or supplemented to the extent necessary. During such time, CONTRACTOR shall be responsible for the safety and protection of such underground facility. CONTRACTOR shall be allowed an increase in the Contract Price or an extension of the Contract Time, or both, to the extent that they are attributable to the existence of any underground facility that was not shown or indicated in the Contract Documents and which CONTRACTOR could not reasonably have been expected to be aware of.

4.4 Reference Points

OWNER shall provide engineering surveys to establish reference points for construction which in CONSULTANT'S judgment are necessary to enable CONTRACTOR to proceed with the Work. CONTRACTOR shall be responsible for laying out the Work (unless otherwise specified), shall protect and preserve the established reference points and shall make no changes or relocations without the prior written approval of OWNER. CONTRACTOR shall report to CONSULTANT whenever any reference point 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 by a Registered Land Surveyor.

5. CONTRACTOR'S RESPONSIBILITIES

5.1 Supervision

CONTRACTOR shall supervise and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents. CONTRACTOR shall assure that all CONTRACTOR personnel (including subcontractors, etc.) conduct themselves in a courteous and respectful manner toward the CONSULTANT and the general public. CONTRACTOR shall keep at the Project Site during the progress of the Work a competent project manager/superintendent and all necessary assistants, all of whom shall be

satisfactory to OWNER. OWNER reserves the right to reject CONTRACTOR'S construction superintendent and project management personnel if they are unsatisfactory to OWNER and upon such rejection CONTRACTOR shall designate and provide competent successors. Failure to comply with this condition of the Contract will result in immediate suspension of the Work. Following a review by the Commissioner of Public Works, the Contract may be terminated (see GC section 14). CONTRACTOR shall be solely responsible for the means, methods, techniques, sequences and procedures of construction, but CONTRACTOR shall not be responsible for the negligence of others in the design or selection of a specific means, method, technique, sequence or procedure of construction which is indicated in and required by the Contract Documents. CONTRACTOR shall be responsible to see that the finished Work complies accurately with the Contract Documents.

5.2 Superintendence

CONTRACTOR shall keep on the Work at all times during its progress a competent resident superintendent, who shall not be replaced without written notice to OWNER and CONSULTANT except under extraordinary circumstances. The superintendent will be CONTRACTOR'S representative at the site and shall have authority to act on behalf of CONTRACTOR. All communications given to the superintendent shall be as binding as if given to CONTRACTOR.

5.3 Labor

CONTRACTOR shall provide competent, suitably qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents. CONTRACTOR shall at all times maintain good discipline and order at the site. OWNER reserves the right to require CONTRACTOR to remove from the Project any of its personnel, or subcontractor's personnel for violating LFUCG Policies, Rules or Regulations. Except in connection with the safety or protection of persons or the Work or property at the site or adjacent thereto, and except as otherwise indicated in the Contract Documents, all Work at the site shall be performed during regular working hours, and CONTRACTOR will not permit overtime work or the performance of Work on Saturday, Sunday or any legal holiday without OWNER'S written consent given after prior written notice to CONSULTANT.

5.4 Start-Up and Completion of Work

Unless otherwise specified, CONTRACTOR shall furnish and assume full responsibility for all 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 furnishing, performance, testing, start-up and completion of the Work.

5.5 Materials and Equipment

All materials and equipment shall be of good quality and new, except as otherwise provided in the Contract Documents. If required by CONSULTANT,

CONTRACTOR shall furnish satisfactory evidence (including reports of required tests) as to the kind and quality of materials and equipment. All materials and equipment shall be applied, installed, connected, erected, used, cleaned and conditioned in accordance with the instructions of the applicable supplier except as otherwise provided in the Contract Documents; but no provision of any such instructions will be effective to assign to CONSULTANT, or any of CONSULTANT'S consultants, agents or employees, any duty or authority to supervise or direct the furnishing or performance of the Work or any duty or authority to undertake responsibility contrary to the provisions of paragraph 8.12.3 or 8.12.4.

5.5.1 Not Clearly Specified or Indicated

In all instances where materials specified are obtainable in different sizes, weights, trade grades, qualities or finishes, etc., whose weights, trade grades, qualities or finishes, etc., are not clearly specified or indicated on the Drawings, the CONTRACTOR shall notify the CONSULTANT of all such instances at least five (5) days in advance of receiving the proposals. The CONSULTANT will then determine which size, weight, trade grade, quality, finish, etc., is required.

5.5.2 Coordination of Work

The CONTRACTOR shall see that for his own Work and for the work of each subcontractor, proper templates and patterns necessary for the coordination of the various parts of the Work are prepared. The CONTRACTOR shall furnish or require the Subcontractor to furnish such duplicates as will enable the Subcontractors to fit together and execute fully their respective portions of the Work.

5.6 Adjusting Progress Schedule

CONTRACTOR shall submit to CONSULTANT for acceptance (to the extent indicated in paragraph 2.8) adjustments in the progress schedule to reflect the impact thereon of new developments; these will conform generally to the progress schedule then in effect and additionally will comply with any provisions of the Contract Documents applicable thereto.

5.7 Substitutes or "Or-Equal" Items

5.7.1 General

Whenever materials or equipment are specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular supplier, the naming of the item is intended to establish the type, function, and quality required. Unless the name is followed by words indicating that no substitution is permitted, materials or equipment of other Suppliers may be accepted by OWNER/CONSULTANT if sufficient information is submitted by CONTRACTOR to allow OWNER/CONSULTANT to determine that the material or equipment

proposed is equivalent or equal to that named. The procedure for review by OWNER/CONSULTANT will include the following. Requests for review of substitute items of material and equipment will not be accepted by OWNER/CONSULTANT from anyone, other than CONTRACTOR. If CONTRACTOR wishes to furnish or use a substitute item of material or equipment, CONTRACTOR shall make written application to OWNER/CONSULTANT for acceptance thereof, certifying that the proposed substitute will perform adequately the functions and achieve the results called for by the general design, be similar and of equal substance to that specified and be suited to the same use as that specified. The application will state that the evaluation and acceptance of the proposed substitute will not prejudice CONTRACTOR'S achievement of completion on time, whether or not acceptance of the substitute for use 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 work on the Project) to adapt the design to the proposed substitute and whether or not incorporation or use of the substitute in connection with the Work is subject to payment of any license fee or royalty. All variations of the proposed substitute from that specified will be identified in the application and available maintenance, repair and replacement service will be indicated. The application will also contain an itemized estimate of all costs that will result directly or indirectly from acceptance of such substitute, including costs of redesign and claims of other contractors affected by the resulting change, all of which shall be considered by OWNER/CONSULTANT in evaluating the proposed substitute. OWNER/CONSULTANT may require CONTRACTOR to furnish at CONTRACTOR'S expense additional data about the proposed substitute.

5.7.2 Substitutes

If a specific means, method, technique, sequence or procedure of construction is indicated in or required by the Contract Documents, CONTRACTOR may furnish or utilize a substitute means, method, sequence, technique or procedure of construction acceptable to OWNER/CONSULTANT, if CONTRACTOR submits sufficient information to allow OWNER/CONSULTANT to determine that the substitute proposed is equivalent to that indicated or required by the Contract Documents. The procedure for review by OWNER/CONSULTANT will be similar to that provided in paragraph 5.7.1 as applied by OWNER/CONSULTANT.

5.7.3 OWNER/CONSULTANT'S Approval

OWNER/CONSULTANT will be allowed a reasonable time within which to evaluate each proposed substitute. OWNER/CONSULTANT will be the sole judge of acceptability, and no substitute will be ordered, installed or utilized without OWNER/CONSULTANT'S prior written acceptance which will be evidenced by either a Change Order or an approved Shop Drawing. OWNER may require CONTRACTOR to furnish at

CONTRACTOR'S expense a special performance guarantee or other surety with respect to any substitute. OWNER/CONSULTANT will record time required by OWNER/CONSULTANT and OWNER/CONSULTANT'S consultants in evaluating substitutions proposed by CONTRACTOR and in making changes in the Contract Documents occasioned thereby. Whether or not OWNER/CONSULTANT accepts a proposed substitute, CONTRACTOR shall reimburse OWNER for the charges of OWNER/CONSULTANT and OWNER/CONSULTANT'S consultants for evaluating each proposed substitute.

5.8 Subcontractors, Suppliers, and Others

5.8.1 Acceptable to CONSULTANT

CONTRACTOR shall not employ any Subcontractor, Supplier or other person or organization (including those acceptable to OWNER and CONSULTANT as indicated in paragraph 5.8.2), whether initially or as a substitute, against whom OWNER or CONSULTANT may have reasonable objection. CONTRACTOR shall not be required to employ any Subcontractor, Supplier or other person or organization to furnish or perform any of the Work against whom CONTRACTOR has reasonable objection.

5.8.2 Objection After Due Investigation

If the Contract Documents require the identity of certain Subcontractors, Suppliers or other persons or organizations (including those who are to furnish the principal items of materials and equipment) to be submitted to OWNER in advance of the specified date prior to the Effective Date of the Agreement for acceptance by OWNER and CONSULTANT and if CONTRACTOR has submitted a list thereof, OWNER'S or CONSULTANT'S acceptance (either in writing or by failing to make written objection thereto by the date indicated for acceptance or objection in the bidding documents or the Contract Documents) of any such Subcontractor, Supplier or other person or organization so identified may be revoked on the basis of reasonable objection after due investigation, in which case CONTRACTOR shall submit an acceptable substitute. No acceptance by OWNER or CONSULTANT of any such Subcontractor, Supplier or other person or organization shall constitute a waiver of any right of OWNER or CONSULTANT to reject defective Work.

5.8.3 Contractor Responsible for Acts of Subcontractors

The CONTRACTOR shall perform on the site, and with its own organization, work equivalent to at least fifty (50) percent of the total amount of Work to be performed under the Contract. This percentage may be reduced by a supplemental agreement to this Contract if, during performing the Work, the CONTRACTOR requests a reduction and the Urban County

project manager determines that the reduction would be to the advantage of the Urban County Government.

The CONTRACTOR shall, at the time he submits his proposal for the Contract, notify the OWNER in writing of the names of Subcontractors proposed for the Work. He shall not employ any Subcontractor without the prior written approval of the OWNER.

CONTRACTOR shall be fully responsible to OWNER and CONSULTANT for all acts and omissions of the Subcontractors, Suppliers and other persons and organizations performing or furnishing any of the Work under a direct or indirect contract with CONTRACTOR just as CONTRACTOR is responsible for CONTRACTOR'S own acts and omissions. Nothing in the Contract Documents shall create any contractual relationship between OWNER or CONSULTANT and any such Subcontractor, Supplier or other person or organization, nor shall it create any obligation on the part of OWNER or CONSULTANT to pay or to see to the payment of any moneys due any such Subcontractor, Supplier or other person or organization except as may otherwise be required by Laws and Regulations.

5.8.4 Division of Specifications

The divisions and sections of the Specifications and the identifications of any Drawings shall not control CONTRACTOR in dividing the Work among Subcontractors or Suppliers or delineating the Work to be performed by any specific trade.

5.8.5 Agreement Between Contractor and Subcontractors

All Work performed for CONTRACTOR by a Subcontractor will be pursuant to an appropriate agreement between CONTRACTOR and the Subcontractor which specifically binds the Subcontractor to the applicable terms and conditions of the Contract Documents for the benefit of OWNER and CONSULTANT.

5.8.6 Statements and Comments by CONTRACTOR

Neither the CONTRACTOR, his employees, nor his subcontractors shall at any time make any statement or comment as to the project scope, nature, intention, design, or construction method to any third party or parties without the explicit written consent of the OWNER.

Any third party requesting such information shall be referred to the OWNER or his representative.

Should there be any change from the original intent of the project as a result of any statement or comment by the contractor, his employees or subcontractors, contractor shall be held liable for any change in the scope,

nature, design, or construction method and shall bear the full cost for the previously mentioned changes.

5.9 Patent Fees and Royalties

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.

5.10 Permits

Unless otherwise provided in the Special conditions, CONTRACTOR shall obtain and pay for all construction permits and licenses. OWNER shall assist CONTRACTOR, when necessary, in obtaining such permits and licenses. CONTRACTOR shall pay all governmental charges and inspection fees necessary for the prosecution of the Work, which are applicable at the time of opening of Bids, or if there are no Bids on the Effective Date of the Agreement. CONTRACTOR shall pay all charges of utility owners for connections to the Work, and OWNER shall pay all charges of such utility owners for capital costs related thereto such as plant investment fees.

5.11 Laws and Regulations

5.11.1 CONTRACTOR to Comply

CONTRACTOR shall give all notices and comply with all Laws and Regulations applicable to furnishing and performance of the Work. Except where otherwise expressly required by applicable Laws and Regulations, neither OWNER nor CONSULTANT shall be responsible for monitoring CONTRACTOR'S compliance with any Laws and Regulations.

5.11.2 Specifications and Drawings at Variance

If CONTRACTOR observes that the Specifications or Drawings are at variance with any Laws or Regulations, CONTRACTOR shall give CONSULTANT prompt written notice thereof, and any necessary changes will be authorized by one of the methods indicated in paragraph 3.4. If CONTRACTOR performs any Work knowing or having reason to know that it is contrary to such Laws, or Regulations, and without such notice to CONSULTANT, CONTRACTOR shall bear all costs arising therefrom; however, it shall not be CONTRACTOR'S primary responsibility to make certain that the Specifications and Drawings are in accordance with such Laws and Regulations.

Any party, firm or individual submitting a proposal pursuant to invitation must have paid all taxes owed to the Lexington-Fayette Urban County Government at the time the proposal is submitted, and must maintain a "current" status in regard to those taxes throughout the Contract. If applicable, business must be licensed in Fayette County.

5.12 Taxes

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. Any party, firm or individual submitting a proposal pursuant to invitation must have paid all taxes owed to the Lexington-Fayette Urban County Government at the time the proposal is submitted, and must maintain a "current" status in regard to those taxes throughout the Contract. If applicable, business must be licensed in Fayette County.

5.13 Use of Premises

5.13.1 Project Site

CONTRACTOR shall confine construction equipment, the storage of materials and equipment and the operations of workers to the staging areas or work site areas identified in and permitted by the Contract Documents and other land and areas permitted by Laws and Regulations, rights-of-way, permits and easements, and shall not unreasonably encumber the premises with construction equipment or other materials or equipment. CONTRACTOR shall assume full responsibility for any damage to any such land or area, or to the owner or occupant thereof or of any land or areas contiguous thereto, resulting from the performance of the Work. Should any claim be made against OWNER or CONSULTANT by any such owner or occupant because of the performance of the Work, CONTRACTOR shall promptly attempt to settle with such other party by agreement or otherwise resolve the claim by arbitration or at law. CONTRACTOR shall, to the fullest extent permitted by Laws and Regulations, indemnify and hold OWNER and CONSULTANT harmless from and against all claims, damages, losses and expenses (including, but not limited to, fees of engineers, architects, attorneys and other professionals and court and arbitration costs) arising directly, indirectly or consequentially out of any action, legal or equitable, brought by any such other party against OWNER or CONSULTANT to the extent based on a claim arising out of CONTRACTOR'S performance of the Work.

5.13.2 Clean UP

During the progress of the Work, CONTRACTOR shall keep the premises free from accumulations of waste materials, rubbish and other debris resulting from the Work. At the completion of the Work, CONTRACTOR shall remove all waste materials, rubbish and debris from and about the premises as well as all tools, appliances, construction equipment and machinery, and surplus materials, and shall leave the site clean and ready for occupancy by OWNER. CONTRACTOR shall restore to original condition all property not designated for alteration by the Contract Documents.

5.13.1 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 property to stresses or pressures that will endanger it.

5.14 Record Drawings

CONTRACTOR shall maintain in a safe place at the site one record copy of all Drawings, Specifications, Addenda, Change Orders, Field Orders and written interpretations and clarifications (issued pursuant to paragraph 9.4) in good order and annotated to show all changes made during construction. These record documents together with all approved samples and a counterpart of all approved Shop Drawings will be available to CONSULTANT for reference. Upon completion of the Work, these record documents, samples and Shop Drawings will be delivered to CONSULTANT for OWNER.

5.15 Shop Drawings and Samples

5.15.1 Shop Drawing Submittals

After checking and verifying all field measurements and after complying with applicable procedures specified, CONTRACTOR shall submit to CONSULTANT for review and approval in accordance with the accepted schedule of Shop Drawing submissions (see paragraph 2.8), or for other appropriate action if so indicated in the Special Conditions, five copies (unless otherwise specified) of all Shop Drawings, which will bear a stamp or specific written indication that CONTRACTOR has satisfied CONTRACTOR'S responsibilities under the Contract Documents with respect to the review of the submission. All submissions will be identified as CONSULTANT may require. The data shown on the Shop Drawings will be complete with respect to quantities, dimensions, specified performance and design criteria, materials and similar data to enable CONSULTANT to review the information as required.

5.15.2 Sample Submittals

CONTRACTOR shall also submit to CONSULTANT for review and approval with such promptness as to cause no delay in Work, all samples required by the Contract Documents. All samples will have been checked by and accompanied by a specific written indication that CONTRACTOR has satisfied CONTRACTOR'S responsibilities under the Contract Documents with respect to the review of the submission and will be identified clearly as to material, Supplier, pertinent data such as catalog numbers and the use for which intended.

5.15.3 Review by CONTRACTOR

Before submission of each Shop Drawing or sample CONTRACTOR shall have determined and verified all quantities, dimensions, specified

performance criteria, installation requirements, materials, catalog numbers and similar data with respect thereto and reviewed or coordinated each Shop Drawing or sample with other Shop Drawings and samples and with the requirements of the Work and the Contract Documents.

5.15.4 Notice of Variation

At the time of each submission, CONTRACTOR shall give CONSULTANT specific written notice of each variation that the Shop Drawings or samples may have from the requirements of the Contract Documents, and, in addition, shall cause a specific notation to be made on each Shop Drawing submitted to CONSULTANT for review and approval of each such variation.

5.15.5 CONSULTANT'S Approval

CONSULTANT will review and approve with reasonable promptness Shop Drawings and samples, but CONSULTANT'S review and approval will be only for conformance with the design concept of the Project and for compliance with the information given in the Contract Documents and shall not extend to means, methods, techniques, sequences or procedures of construction (except where a specific means, method, technique, sequence or procedure of construction is indicated in or required by the Contract Documents) or to safety precautions or programs incident thereto. The review and approval of a separate item as such will not indicate approval of the assembly in which the item functions. CONTRACTOR shall make corrections required by CONSULTANT, 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 CONSULTANT on previous submittals.

5.15.6 Responsibility for Errors and Omissions

CONSULTANT'S review and approval of Shop Drawings or samples shall not relieve CONTRACTOR from responsibility for any variation from the requirements of the Contract Documents unless CONTRACTOR has in writing called CONSULTANT'S attention to each such variation at the time of submission as required by paragraph 5.15.4 and CONSULTANT has given written approval of each such variation by a specific written notation thereof incorporated in or accompanying the Shop Drawing or sample approval; nor will any approval by CONSULTANT relieve CONTRACTOR from responsibility for errors or omissions in the Shop Drawings or from responsibility for having complied with the provisions of paragraph 5.15.3.

5.15.7 Cost of Related Work

Where a Shop or sample is required by the Specifications, any related Work performed prior to CONSULTANT'S review and approval of the pertinent submission will be the sole expense and responsibility of CONTRACTOR.

5.16 Continuing the Work

CONTRACTOR shall carry on the Work and adhere to the progress schedule during all disputes or disagreements with OWNER. No Work shall be delayed or postponed pending resolutions of any disputes or disagreements, except as permitted by paragraph 14.5 or as CONTRACTOR and OWNER may otherwise agree in writing.

5.17 Erosion and Sediment Control

5.17.1 General Environmental Requirements

The CONTRACTOR and Subcontractors performing work on projects on behalf of the OWNER shall comply with all applicable federal, state, and local environmental regulations and all requirements and conditions set forth in "special" permits including but not limited to Corp of Engineers 404 permits, 401 Water Quality Certifications, Stream Crossing and Floodplain Encroachment Permits.

Any fines or penalties resulting from the failure to comply with the terms of the federal, state or local permits or perform necessary corrective action are solely the obligation of the CONTRACTOR.

5.17.2 Stormwater Pollution Prevention

A. The CONTRACTOR shall exercise due care to prevent or minimize any damage to any stream or wetland from pollution by debris, sediment or other material. The operation of equipment and/or materials in a jurisdictional wetland is expressly prohibited. Water that has been used for washing or processing, or that contains oils, sediments or other pollutants shall not be discharged from the job site. Such waters shall be collected and properly disposed of by the CONTRACTOR in accordance with applicable local, state and federal law.

B. The CONTRACTOR is solely responsible for securing all required state and local permits associated with stormwater discharges from the project including, but not necessarily limited to the KY Notice of Intent to Disturb (NOI) for Coverage of Storm Water Discharges Associated with Construction Activities under the KPDES Storm Water General Permit KYR100000 and the LFUCG, Land Disturbance Permit. Permit application preparation and all required documentation are the responsibility of the CONTRACTOR. The CONTRACTOR is solely responsible for maintaining compliance with the stormwater pollution prevention plan or erosion and sediment control plan and ensuring the following:

- a. That the Stormwater Pollution Prevention Plan (SWPPP) or erosion control plan is current and available for review on site;

- b. That any and all stormwater inspection reports required by the permit are conducted by qualified personnel and are available for review onsite; and
- c. That all best management practices (BMPs) are adequately maintained and effective at controlling erosion and preventing sediment from leaving the site.

C. The CONTRACTOR shall provide the necessary equipment and personnel to perform any and all emergency measures that may be required to contain any spillage or leakage and to remove materials, soils or liquids that become contaminated. The collected spill material shall be properly disposed at the CONTRACTOR's expense.

D. Upon completion of the work and with the concurrence of the OWNER, the CONTRACTOR must file a Notice of Termination (NOT) of Coverage Under the KPDES General Permit for Storm Water Discharges Associated with Construction Activity with the appropriate local and state authorities.

E. Any fines or penalties resulting from the failure to comply with the terms of the state or local stormwater permits or perform necessary corrective action are solely the obligation of the CONTRACTOR.

6. OTHER WORK

6.1 Related Work at Site

OWNER may perform other work related to the Project at the site by OWNER'S own forces, have other work performed by utility owners or let other direct contracts therefor which shall contain General Conditions similar to these. If the fact that such other work is to be performed was not noted in the Contract Documents, written notice thereof will be given to CONTRACTOR prior to starting any such other work; and, if such performance will involve additional expense to CONTRACTOR or requires additional time, a Change Order to the Contract will be negotiated.

6.2 Other Contractors or Utility Owners

CONTRACTOR shall afford each utility owner and other contractor who is a party to such a direct contract (or OWNER, if OWNER is performing the additional work with OWNER'S employees) proper and safe access to the site and a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such work, and shall properly connect and coordinate the Work with theirs. CONTRACTOR shall do all cutting, fitting and patching of the Work that may be required to make its several parts come together properly and integrate with such other work. CONTRACTOR shall not endanger any work of others by cutting, excavating or otherwise altering their work and will only cut or alter their work with the written consent of CONSULTANT and the others whose work will be affected. The duties and responsibilities of CONTRACTOR under this paragraph are for the

benefit of such utility owners and other contractors to the extent that there are comparable provisions for the benefit of CONTRACTOR in said direct contracts between OWNER and such utility owners and other contractors.

6.3 Delays Caused by Others

If any part of CONTRACTOR'S Work depends for proper execution or results upon the work of any such other contractor or utility owner (or OWNER), CONTRACTOR shall inspect and promptly report to CONSULTANT in writing any delays, defects or deficiencies in such work that render it unavailable or unsuitable for such proper execution and results. CONTRACTOR'S failure so to report will constitute an acceptance of the other work as fit and proper for integration with CONTRACTOR'S Work except for latent or non-apparent defects and deficiencies in the other work.

6.4 Coordination

If OWNER contracts with others for the performance of other work on the Project at the site, the person or organization who will have authority and responsibility for coordination of the activities among the various prime contractors will be identified in the Special Conditions, and the specific matters to be covered by such authority and responsibility will be itemized, and the extent of such authority and responsibilities will be provided, in the Special Conditions.

7. OWNER'S RESPONSIBILITIES

7.1 Communications

OWNER shall issue all communications to CONTRACTOR through CONSULTANT.

7.2 Data and Payments

OWNER shall furnish the data required of OWNER under the Contract Documents promptly after they are due.

7.3 Lands, Easements, and Surveys

OWNER'S duties in respect of providing lands and easements and providing engineering surveys to establish reference points are set forth in paragraphs 4.1 and 4.4. Paragraph 4.2 refers to OWNER'S identifying and making available to CONTRACTOR copies of reports of explorations and tests of subsurface conditions at the site and in existing structures which have been utilized by CONSULTANT in preparing the Drawings and Specifications.

7.4 Change Orders

OWNER is obligated to execute Change Orders as indicated in paragraph 9.4.

7.5 Inspections, Tests and Approvals

OWNER'S responsibility in respect to certain inspections, tests and approvals is set forth in paragraph 13.3.

7.6 Stop or Suspend Work

In connection with OWNER'S right to stop Work or suspend Work, see paragraph 12.4 and 14.1 Paragraph 14.2 deals with OWNER'S rights to terminate services of CONTRACTOR under certain circumstances.

8. CONSULTANT'S STATUS DURING CONSTRUCTION

8.1 OWNER'S Representative

CONSULTANT will be OWNER'S representative during the construction period. The duties and responsibilities and the limitations of authority of CONSULTANT as OWNER'S representative during construction are set forth in the Contract Documents and shall not be extended without written consent of OWNER and CONSULTANT.

8.2 Visits to Site

CONSULTANT will make visits to the site at intervals appropriate to the various stages of construction to observe the progress and quality of the executed Work and to determine, in general, if the Work is proceeding in accordance with the Contract Documents. CONSULTANT will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the Work. CONSULTANT'S efforts will be directed toward providing for OWNER a greater degree of confidence that the completed Work will conform to the Contract Documents. On the basis of such visits and on-site observations, CONSULTANT will keep OWNER informed of the progress of the Work and will endeavor to guard OWNER against defects and deficiencies in the Work.

8.3 Project Representation

CONSULTANT will provide an Inspector to assist CONSULTANT in observing the performance of the Work. If OWNER designates another agent to represent OWNER at the site who is not CONSULTANT'S agent or employee, the duties, responsibilities and limitations of authority of such other person will be as provided in the Special Conditions.

8.4 Clarifications and Interpretations

CONSULTANT will issue with reasonable promptness such written clarifications or interpretations of the requirements of the Contract Documents (in the form of Drawings or otherwise) as CONSULTANT may determine necessary, which shall be consistent with or reasonably inferable from the overall intent of the Contract Documents.

8.5 Authorized Variations in Work

CONSULTANT may authorize minor variations in the Work from the requirements of the Contract Documents which do not involve an adjustment in the Contract Price or the Contract Time and are consistent with the overall intent of the Contract Documents. These may be accomplished by a Field Order.

8.6 Rejecting Defective Work

CONSULTANT will have authority to disapprove or reject Work which CONSULTANT believes to be defective, and will also have authority to require special inspection or testing of the Work as provided in paragraph 12.3, whether or not the Work is fabricated, installed or completed.

8.7 Shop Drawings

In connection with CONSULTANT'S responsibility for Shop Drawings and samples, see paragraphs 5.15.1 through 5.16 inclusive.

8.8 Change Orders

In connection with CONSULTANT'S responsibilities as to Change Orders, see Articles 10, 11 and 12.

8.9 Payments

In connection with CONSULTANT'S responsibilities with respect to Applications for Payment, etc., see Article 13.

8.10 Determinations for Unit Prices

CONSULTANT will determine the actual quantities and classifications of Unit Price Work performed by CONTRACTOR.

CONSULTANT will review with CONTRACTOR CONSULTANT'S preliminary determinations on such matters before rendering a written decision thereon (by recommendation of an Application for Payment or otherwise).

8.11 Decision on Disputes

CONSULTANT will be the initial interpreter of the requirements of the Contract Documents and judge of the acceptability of the Work thereunder. Claims, disputes and other matters relating to the acceptability of the Work or the interpretation of the requirements of the Contract Documents pertaining to the performance and furnishing of the Work and claims under Articles 10 and 11 in respect of changes in the Contract Price or Contract Time will be referred initially to CONSULTANT in writing with a request for a formal decision in accordance with this paragraph, which CONSULTANT will render in writing within a reasonable time. Written notice of each such claim, dispute and other matter will be delivered to CONSULTANT promptly (but in no event later than thirty days) after the occurrence of the event giving rise thereto, and written supporting data will be submitted to CONSULTANT within sixty days after such occurrence unless CONSULTANT allows an additional period of time to ascertain more accurate data in support of the claim.

8.12 Limitations on CONSULTANT'S Responsibilities

8.12.1 CONTRACTOR, Supplier, or Surety

Neither CONSULTANTS authority to act under this Article 8 or elsewhere in the Contract Documents nor any decision made by CONSULTANT in good faith either to exercise or not exercise such authority shall give rise to any duty or responsibility of CONSULTANT to CONTRACTOR, any Subcontractor, any Supplier, or any other person or organization performing any of the Work, or to any surety for any of them.

8.12.2 To Evaluate the Work

Whenever in the Contract Documents the terms "as ordered", "as directed", "as required", "as allowed", "as approved" or terms of like effect or import are used, or the adjectives "reasonable", "suitable", "acceptable", "proper", or "satisfactory" or adjectives or like "effect" or "import" are used to describe a requirement, direction, review or judgment of CONSULTANT as to the Work, it is intended that such requirement, direction, review or judgment will be solely to evaluate the Work for compliance with the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective shall not be effective to assign CONSULTANT any duty or authority to supervise or direct the furnishing or performance of the Work or any duty or authority to undertake responsibility contrary to the provisions of paragraph 8.12.3 or 8.12.4.

8.12.3 CONTRACTOR'S Means, Methods, Etc.

CONSULTANT will not be responsible for CONTRACTOR'S means, methods, techniques, sequences or procedures of construction, or the safety precautions and programs incident thereto, and CONSULTANT will not be responsible for CONTRACTOR'S failure to perform or furnish the Work in accordance with the Contract Documents.

8.12.4 Acts of Omissions of CONTRACTOR

CONSULTANT will not be responsible for the acts or omissions of CONTRACTOR or of any Subcontractor, any Supplier, or of any other person or organization performing or furnishing any of the Work.

9. **CHANGES IN THE WORK**

9.1 **OWNER May Order Change**

Without invalidating the Agreement and without notice to any surety, OWNER may, at any time or from time to time, order additions, deletions or revisions in the Work; these will be authorized by a Change Order. Upon receipt of such notice, CONTRACTOR shall promptly proceed with the Work involved which will be performed under the applicable conditions of the Contract Documents (except as otherwise specifically provided).

9.2 **Claims**

Claims for an increase or decrease in the Contract Price or an extension or shortening or the Contract Time that should be allowed as a result of a Change Order will be settled as provided for in Article 10 or Article 11.

9.3 Work Not in Contract Documents

CONTRACTOR shall not be entitled to an increase in the Contract Price or an extension of the Contract Time with respect to any Work performed that is not required by the Contract Documents as amended, modified and supplemented as provided in paragraph 3.4, except in the case of an emergency and except in the case of uncovering Work as provided in paragraph 12.3.4.

9.4 Change Orders

OWNER and CONTRACTOR shall execute appropriate Change Orders covering:

9.4.1 changes in the Work which are ordered by OWNER pursuant to paragraph 9.1, are required because of acceptance of defective Work under paragraph 12.7 or corrective defective Work under paragraph 12.8, or are agreed to by the parties;

9.4.2 changes in the Contract Price or Contract Time which are agreed to by the parties; and

9.4.3 changes in the Contract Price or Contract Time which embody the substance of any written decision rendered by CONSULTANT pursuant to paragraph 8.11; provided that, in lieu of executing any such Change Order, an appeal may be taken from any such decision in accordance with the provisions of the Contract Documents and applicable Laws and REGULATIONS, but during any such appeal, CONTRACTOR shall carry on the Work and adhere to the progress schedule as provided in paragraph 5.16.

9.5 Notice of Change

If notice 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 Time) is required by the provisions of any Bond to be given to a surety, the giving of any such notice will be CONTRACTOR'S responsibility, and the amount of each applicable Bond will be adjusted accordingly.

10. CHANGE OF CONTRACT PRICE

10.1 Total Compensation

The Contract Price constitutes the total compensation (subject to authorized adjustments) payable to CONTRACTOR for performing the Work. All duties, responsibilities and obligations assigned to or undertaken by CONTRACTOR shall be at his expense without change in the Contract Price.

10.2 Claim for Increase or Decrease in Price

The Contract Price may only be changed by a Change Order. Any claim for an increase or decrease in the Contract Price shall be based on written notice delivered by the CONTRACTOR to the CONSULTANT promptly (but in no event later than thirty days) after the occurrence of the event giving rise to the claim and stating the general nature of the claim. Notice of the amount of the claim with supporting data shall be delivered within sixty days after such occurrence (unless CONSULTANT allows an additional period of time to ascertain more accurate data in support of the claim) and shall be accompanied by CONTRACTOR'S written statement that the amount claimed covers all known amounts (direct, indirect, and consequential) to which the CONTRACTOR is entitled as a result of the occurrence of said event.

10.3 Value of Work

The value of any Work covered by a Change Order or of any claim for an increase or decrease in the Contract Price shall be determined in one of the following ways:

10.3.1 Unit Prices

Where the Work involved is covered by unit prices contained in the Contract Documents, by application of unit prices to the quantities of the items involved (subject to the provisions of paragraphs 10.9.1. through 10.9.3, inclusive).

10.3.2 Lump Sum

By mutual acceptance of a lump sum (which may include an allowance for overhead and profit not necessarily in accordance with paragraph 10.6.2.1).

10.3.3 Cost Plus Fee

On the basis of the Cost of the Work (determined as provided in paragraphs 10.4 and 10.5) plus a CONTRACTOR'S fee for overhead and profit (determined as provided in paragraphs 10.6 and 10.7).

10.4 Cost of the Work

The term Cost of the Work means the sum of all costs necessarily incurred and paid by CONTRACTOR in the proper performance of the Work. Except as otherwise may be agreed to in writing by OWNER, such costs shall be in amounts no higher than those prevailing in the locality of the Project; shall include only the following items; and shall not include any of the costs itemized in paragraph 10.5:

10.4.1 Payroll Costs

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. Payroll costs for employees not employed full time on the Work shall be apportioned on the basis of their time spent on the Work. Payroll costs shall include, but not be limited to, salaries and wages plus the cost of fringe benefits which shall include social security contributions,

unemployment, excise and payroll taxes, workers' or workmen's compensation, health and retirement benefits, bonuses, sick leave, vacation and holiday pay applicable thereto. Such employees shall include superintendents and foremen at the site. The expenses of performing Work after regular working hours, on Saturday, Sunday or legal holidays, shall be included in the above to the extent authorized by OWNER.

10.4.2 Materials and Equipment Costs

Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts shall accrue to CONTRACTOR unless OWNER deposits funds with CONTRACTOR with which to make payments, in which case the cash discounts shall accrue to OWNER. All trade discounts, rebates and refunds and all returns from sale of surplus materials and equipment shall accrue to OWNER, and CONTRACTOR shall make provisions so that they may be obtained.

10.4.3 Subcontractor Costs

Payments made by CONTRACTOR to the Subcontractors for Work performed by Subcontractors. If required by OWNER, CONTRACTOR shall obtain competitive bids from Subcontractors acceptable to CONTRACTOR and shall deliver such bids to OWNER who will then determine, with the advice of CONSULTANT, which bids will be accepted. If a 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 shall be determined in the same manner as CONTRACTOR'S Cost of the Work. All subcontracts shall be subject to the other provisions of the Contract Documents insofar as applicable.

10.4.4 Special Consultant Costs

Costs of special consultants (including but not limited to engineers, architects, testing laboratories, surveyors, attorneys and accountants) employed for services specifically related to the Work.

10.4.5 Supplemental Costs

10.4.5.1 The proportion of necessary transportation, travel and subsistence expenses of CONTRACTOR'S employees incurred in discharge of duties connected with the Work.

10.4.5.2 Cost, including transportation and maintenance, of all materials, supplies, equipment,

machinery, appliances, office and temporary facilities at the site and hand tools not owned by the workers, which are consumed in the performance of the Work, and cost less market value of such items used but not consumed which remain the property of CONTRACTOR.

10.4.5.3 Rentals of all construction equipment and machinery and the parts thereof whether rented from CONTRACTOR or others in accordance with rental agreements approved by OWNER with the advice of CONSULTANT, and the costs of transportation, loading, unloading, installation, dismantling and removal shall be in accordance with terms of said rental agreements. The rental of any such equipment, machinery or parts shall cease when the use thereof is no longer necessary for the Work.

10.4.5.4 Sales, consumer, use or similar taxes related to the Work, and for which CONTRACTOR is liable, imposed by Laws and Regulations.

10.4.5.5 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.

10.4.5.6 Losses and damages (and related expenses), not compensated by insurance or otherwise, to the Work or otherwise sustained by CONTRACTOR in connection with the performance and furnishing of the Work (except losses and damages within the deductible amounts of property insurance established by OWNER), provided they have resulted from causes other than the negligence of CONTRACTOR, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses shall include settlements made with the written consent and approval of OWNER. No such losses, damages and expenses shall be included in the Cost of the Work for the purpose of determining CONTRACTOR'S fee. If, however, any such loss or damage requires reconstruction and CONTRACTOR is placed in charge thereof, CONTRACTOR shall be paid a fee proportionate to that stated in paragraph 10.6.2 for services.

10.4.5.7 The cost of utilities, fuel and sanitary facilities at the site.

10.4.5.8 Minor expenses such as telegrams, long distance telephone calls, telephone service at the site, expressage and similar petty cash items in connection with the Work.

10.4.5.9 Cost of premiums for additional Bonds and insurance required because of changes in the Work and premiums for property insurance coverage within the limits of the deductible amounts established by OWNER.

10.5 Not to Be Included in Cost of the Work

The term Cost of the Work shall not include any of the following:

10.5.1 Costs of Officers and Executives

Payroll costs and other compensation of CONTRACTOR'S officers, executives, principals (of partnership and sole proprietorships), 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 a branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in paragraph 10.4.1 or specifically covered by paragraph 10.4.4 - all of which are to be considered administrative costs covered by the CONTRACTOR'S fee.

10.5.2 Principal Office

Expenses of CONTRACTOR'S principal and branch offices other than CONTRACTOR'S office at the site.

10.5.3 Capital Expense

Any part of CONTRACTOR'S capital expenses, including interest on CONTRACTOR'S capital employed for the Work and charges against CONTRACTOR for delinquent payments.

10.5.4 Bonds and Insurance

Cost of premiums for all Bonds and for all insurance whether or not CONTRACTOR is required by the Contract Documents to purchase and maintain the same (except for the cost of premiums covered by subparagraph 10.4.5.9 above).

10.5.5 Costs Due to Negligence

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.

10.5.6 Other Costs

Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in paragraph 10.4.

10.6 Contractor's Fee

The CONTRACTOR'S Fee allowed to CONTRACTOR for overhead and profit shall be determined as follows:

10.6.1 a mutually acceptable fixed fee; or if none can be agreed upon,

10.6.2 a fee based on the following percentages of the various portions of the Cost of the Work:

10.6.2.1 for costs incurred under paragraphs 10.4.1 and 10.4.2, the CONTRACTOR'S fee shall be fifteen percent;

10.6.2.2 for costs incurred under paragraph 10.4.3, the CONTRACTOR'S fee shall be five percent; and if a subcontract is on the basis of Cost of the Work Plus a fee, the maximum allowable to CONTRACTOR on account of overhead and profit of all Subcontractors shall be fifteen percent;

10.6.2.3 no fee shall be payable on the basis of costs itemized under paragraphs 10.4.4, 10.4.5 and 10.5;

10.6.2.4 the amount of credit to be allowed by CONTRACTOR to OWNER for any such change which results in a net decrease in cost will be the amount of the actual net decrease plus a deduction in CONTRACTOR'S Fee by an amount equal to ten percent of the net decrease; and

10.6.2.5 when both additions and credits are involved in any one change, the adjustment in CONTRACTOR'S fee shall be computed on the basis of the net change in accordance with paragraphs 10.6.2.1 through 10.6.2.4, inclusive.

10.7 Itemized Cost Breakdown

Whenever the cost of any Work is to be determined pursuant to paragraph 10.4 or 10.5, CONTRACTOR will submit in form acceptable to CONSULTANT an itemized cost breakdown together with supporting data.

10.8 Cash Allowances

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 done by such Subcontractors or Suppliers and for such sums within

the limit of the allowances as may be acceptable to CONSULTANT, CONTRACTOR agrees that:

10.8.1 Materials and Equipment

The 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

10.8.2 Other Costs

CONTRACTOR'S costs for unloading and handling on the site, labor, installation costs, overhead, profit and other expenses contemplated for the allowances have been included in the Contract Price and not in the allowances. No demand for additional payment on account of any thereof will be valid.

10.8.3 Change Order

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

10.9 Unit Price Work

10.9.1 General

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 established unit prices for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Determinations of the actual quantities and classifications of Unit Price Work performed by CONTRACTOR will be made by CONSULTANT in accordance with Paragraph 8.10.

10.9.2 Overhead and Profit

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.

10.9.3 Claim for Increase in Unit Price

Where the quantity of any item of Unit Price Work performed by CONTRACTOR differs materially and significantly from the estimated quantity of such item indicated in the Agreement and there is no corresponding adjustment with respect to any other item of Work and if CONTRACTOR believes that CONTRACTOR has incurred additional

expense as a result thereof, CONTRACTOR may make a claim for an increase in the Contract Price in accordance with Article 10.

11. CHANGE OF CONTRACT TIME

11.1 Change Order

The Contract Time may only be changed by a Change Order. Any claim for an extension or shortening of the Contract Time shall be based on written notice delivered to CONSULTANT promptly (but in no event later than thirty days) after the occurrence of the event giving rise to the claim and stating the general nature of the claim. Notice of the extent of the claim with supporting data shall be delivered within sixty days after such occurrence (unless CONSULTANT allows an additional period of time to ascertain more accurate data in support of the claim) and shall be accompanied by the claimant's written statement that the adjustment claimed is the entire adjustment to which the claimant has reason to believe it is entitled as a result of the occurrence of said event. All claims for adjustment in the Contract Time shall be determined by CONSULTANT in accordance with paragraph 8.11. No claim for an adjustment in the Contract Time will be valid if not submitted in accordance with the requirements of this paragraph 11.1.

11.2 Justification for Time Extensions

The Contract Time will be extended in an amount equal to time lost due to delays beyond the control of CONTRACTOR if a claim is made therefore as provided in paragraph 11.1. Such delays shall include, but not be limited to, acts or neglect by OWNER or others performing additional work as contemplated by Article 6, or to fires, floods, labor disputes, epidemics, abnormal weather conditions or acts of God.

11.3 Time Limits

All time limits stated in the Contract Documents are of the essence of the Agreement. The provisions of this Article 11 shall not exclude recovery for damages (including but not limited to fees and charges of engineers, architects, attorneys and other professionals and court costs) for delay by either party.

12. WARRANTY AND GUARANTEE; TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK

12.1 Warranty and Guarantee

CONTRACTOR warrants and guarantees to OWNER and CONSULTANT that all Work will be in accordance with the Contract Documents and will not be defective. All defective Work, whether or not in place, may be rejected, corrected or accepted as provided in this Article 12.

12.2 Access to Work

CONSULTANT and CONSULTANT'S representatives, other representatives of OWNER, testing agencies and governmental agencies with jurisdictional interests

will have access to the Work at reasonable times for their observation, inspecting and testing. CONTRACTOR shall provide proper and safe conditions for such access.

12.3 Tests and Inspections

12.3.1 Timely Notice

CONTRACTOR shall give CONSULTANT timely notice of readiness of the Work for all required inspections, tests or approvals.

12.3.2 Requirements and Responsibilities

The CONSULTANT may require such inspection and testing during the course of the Work as he/she deems necessary to ascertain and assure the integrity and acceptable quality of the materials incorporated and the work performed. Inspection presence may be either full-time or intermittent, and neither the presence nor absence at any time of the CONSULTANT or the INSPECTOR shall relieve the CONTRACTOR of sole responsibility for the acceptability and integrity of the Work or any part thereof.

The costs of sampling, testing, and inspection on-site to ascertain acceptability of the Work and materials will be borne by the OWNER except as otherwise provided. The OWNER will select a testing laboratory to perform such sampling and testing. Sampling and/or testing required by the CONTRACTOR or necessitated by failure of Work or materials to meet the above acceptability test shall be at the expense of the CONTRACTOR.

Inspection services may be performed by the employees of the OWNER or by others selected or designated by the OWNER or the CONSULTANT.

Sampling and/or testing required for manufacturing quality and/or process control, for certification that raw mineral materials or manufactured products are the quality specified in the contract, or to assure the acceptability for incorporation into the Work shall be borne by the CONTRACTOR or the material supplier.

Cost for inspection, sampling, testing, and approvals required by the laws or regulations of any public body having competent jurisdiction shall be borne by the CONTRACTOR or the material supplier.

Sampling and testing will be in accord with pertinent codes and regulations and with appropriate standards of the American Society of Testing Materials or other specified standards.

12.3.3 On-Site Construction Test and Other Testing

All inspections, tests or approvals other than those required by Laws or Regulations of any public body having jurisdiction shall be performed by

organizations acceptable to OWNER and CONTRACTOR (or by CONSULTANT if so specified).

12.3.4 Covered Work

If any Work (including the work of others) that is to be inspected, tested or approved is covered without written concurrence of CONSULTANT, it must, if requested by CONSULTANT, be uncovered for observation. Such uncovering shall be at CONTRACTOR'S expense unless CONTRACTOR has given CONSULTANT timely notice of CONTRACTOR'S intention to cover the same and CONSULTANT has not acted with reasonable promptness in response to such notice.

12.3.5 CONTRACTOR'S Obligation

Neither observations by CONSULTANT nor inspections, tests or approvals by others shall relieve CONTRACTOR from CONTRACTOR'S obligations to perform the Work in accordance with the Contract Documents.

12.4 OWNER May Stop the Work

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

12.5 Correction or Removal of Defective Work

If required by CONSULTANT, CONTRACTOR shall promptly, as directed, either correct all defective Work, whether or not fabricated, installed or completed, or, if the Work has been rejected by CONSULTANT, remove it from the site and replace it with non-defective Work. CONTRACTOR shall bear all direct, indirect and consequential costs of such correction or removal (including but not limited to fees and charges of engineers, architects, attorneys and other professionals) made necessary thereby.

12.6 One Year Correction Period

If within one year after the date of Completion or such longer period of time as may be prescribed by Laws or Regulations or by the terms of any applicable special guarantee required by the Contract Documents or by any specific provision of the Contract Documents, any Work is found to be defective, CONTRACTOR shall promptly, without cost to OWNER and in accordance with OWNER'S written instructions, either correct such defective Work, or, if it has been rejected by OWNER, remove it from the site and replace it with non-defective Work. If CONTRACTOR does not promptly comply with the terms of such instructions, or in

an emergency where delay would cause serious risk of loss or damage, OWNER may have the defective Work corrected or the rejected Work removed and replaced, and all direct, indirect and consequential costs of such removal and replacement (including but not limited to fees and charges of engineers, architects, attorneys and other professionals) will be paid by CONTRACTOR. In special circumstances where a particular item of equipment is placed in continuous service before 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 or by Change Order.

12.7 Acceptance of Defective Work

If, instead of requiring correction or removal and replacement of defective Work, OWNER prefers to accept it, OWNER may do so. CONTRACTOR shall bear all direct, indirect and consequential costs attributable to OWNER'S evaluation of and determination to accept such defective Work (such costs to be approved by CONSULTANT as to reasonableness and to include but not be limited to fees and charges of engineers, architects, attorneys and other professionals).

12.8 OWNER May Correct Defective Work

If CONTRACTOR fails within a reasonable time after written notice of CONSULTANT to proceed to correct and to correct defective Work or to remove and replace rejected Work as required by CONSULTANT in accordance with paragraph 12.5, or if CONTRACTOR fails to perform the Work in accordance with the Contract Documents, or if CONTRACTOR fails to comply with any other provision of the Contract Documents, OWNER may, after seven days' written notice to CONTRACTOR, correct and remedy any such deficiency. In exercising the rights and remedies under this paragraph OWNER shall proceed expeditiously. To the extent necessary to complete corrective and remedial action, OWNER may exclude CONTRACTOR from all or part of the site, take possession of all or part of the Work, and suspend CONTRACTOR'S services related thereto, take possession of CONTRACTOR'S tools, appliances, construction equipment and machinery at the site and incorporate in the Work all materials and equipment stored at the site or for which OWNER has paid CONTRACTOR but which are stored elsewhere. CONTRACTOR shall allow OWNER, OWNER'S representatives, agents and employees such access to the site as may be necessary to enable OWNER to exercise the rights and remedies under this paragraph. All direct, indirect and consequential costs of OWNER in exercising such rights and remedies will be charged against CONTRACTOR in an amount approved as to reasonableness by CONSULTANT, and a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work; and OWNER shall be entitled to an appropriate decrease in the Contract Price. Such direct, indirect and consequential costs will include but not be limited to fees and charges of engineers, architects, attorneys and other professionals, all court costs and all costs of repair and replacement of work of others destroyed or damaged by correction, removal or replacement of CONTRACTOR'S defective Work. CONTRACTOR shall not be allowed an extension of the Contract Time because of any delay in performance of

the Work attributable to the exercise by OWNER of OWNER'S rights and remedies hereunder.

13. PAYMENTS TO CONTRACTOR AND COMPLETION

13.1 Schedule of Values

The schedule of values established as provided in paragraph 2.8 will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to CONSULTANT. Progress payments on account of Unit Price Work will be based on the number of units completed.

13.2 Application for Progress Payment

At least ten days before each progress payment is scheduled (but not more often than once a month), CONTRACTOR shall submit to CONSULTANT for review an Application for Payment filled out and signed by CONTRACTOR covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the site or at another location agreed to in writing, the Application for Payment shall also be accompanied by a bill of sale, invoice or other documentation warranting that OWNER has received the materials and equipment free and clear of all liens, charges, security interests and encumbrances (which are hereinafter in these General Conditions referred to as "Liens") and evidence that the materials and equipment are covered by appropriate property insurance and other arrangements to protect OWNER'S interest therein, all of which will be satisfactory to OWNER. OWNER shall, within thirty (30) calendar days of presentation to him of an approved Application for Payment, pay CONTRACTOR the amount approved by CONSULTANT. Monthly progress payments shall be ninety (90) percent of the sum obtained by applying the respective bid unit prices to the approved estimated quantities of work completed by the Contractor during the preceding month. The remaining ten (10) percent will be held by the Owner, as retainage. At such time as the CONSULTANT deems appropriate - based on the quality of work performed, progress of cleanup, and other pertinent factors - the rate of retainage, or the total amount retained, may be reduced; although, any reduction in retainage, below the ten (10) percent level, is made solely at the CONSULTANT's discretion. All remaining retainage held will be included in the final payment to the Contractor.

13.2.1 Waivers of Mechanic's Lien

With each Application for Payment OWNER may require CONTRACTOR to submit waivers of mechanic's lien from entities lawfully entitled to file a mechanic's lien arising out of the Contract and related to the Work covered by the payment.

13.2.1.1 Requirement for waivers of Mechanic's Lien on Partial Applications for Payment will be determined and communicated at the Preconstruction Conference.

13.2.1.2 Submit partial waivers on each item for amount requested in previous application, after deduction for retainage, on each item.

13.2.1.3 When an application shows completion of an item, submit conditional final or full waivers.

13.2.1.4 Owner reserves the right to designate which entities involved in the Work must submit waivers.

13.2.1.5 Waiver Forms: Submit executed waivers of lien on forms acceptable to Owner.

13.3 CONTRACTOR'S Warranty of Title

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

13.4 Review of Applications for Progress Payment

13.4.1 Submission of Application for Payment

CONSULTANT will, after receipt of each Application for Payment, either indicate in writing a recommendation of payment and present the Application to OWNER, or return the Application to CONTRACTOR indicating in writing CONSULTANT'S reasons for refusing to recommend payment. In the latter case, CONTRACTOR may make the necessary corrections and resubmit the Application.

13.4.2 CONSULTANT'S Recommendation

CONSULTANT may refuse to recommend the whole or any part of any payment, if, in CONSULTANT'S opinion, it would be incorrect to make such representations to OWNER. CONSULTANT may also refuse to recommend any such payment, or, because of subsequently discovered evidence or the results of subsequent inspections or tests, nullify any such payment previously recommended, to such extent as may be necessary in CONSULTANT'S opinion to protect OWNER from loss because:

13.4.2.1 the Work is defective, or completed Work has been damaged requiring correction or replacement;

13.4.2.2 the Contract Price has been reduced by Written Amendment or Change Order;

13.4.2.3 OWNER has been required to correct defective Work or complete Work in accordance with paragraph 12.8; or

13.4.2.4 of CONSULTANT's actual knowledge of the occurrence of any of the events enumerated in paragraphs 14.2.1 through 14.2.9 inclusive.

13.5 Partial Utilization

OWNER at any time may request CONTRACTOR in writing to permit OWNER to use any such part of the Work which OWNER believes to be ready for its intended use and has been completed. If CONTRACTOR agrees, CONTRACTOR will certify to OWNER that said part of the Work is complete and request that a Certificate of Completion be issued for that part of the Work.

13.6 Final Inspection

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

13.7 Final Application for Payment

After CONTRACTOR has completed all such corrections to the satisfaction of CONSULTANT and delivered all maintenance and operating instructions, schedules, guarantees, Bonds, certificates of inspection, marked-up record documents (as provided in paragraph 5.14) and other documents - all as required by the Contract Documents, and after CONSULTANT has indicated that the Work is acceptable (subject to the provisions of paragraph 13.10), CONTRACTOR may make application for final payment following the procedure for progress payments. The final Application for Payment shall be accompanied by all documentation called for in the Contract Documents, together with complete and legally effective releases or waivers (satisfactory to OWNER) of all Liens arising out of or filed in connection with the Work. In lieu thereof and as approved by OWNER, CONTRACTOR may furnish receipts or releases in full; an affidavit of CONTRACTOR that the releases and receipts include all labor, services, material and equipment for which a Lien could be filed, and that all payrolls, material and equipment bills, and other indebtedness connected with the Work for which OWNER or OWNER'S property might in any way be responsible, have been paid or otherwise satisfied; and consent of the surety, if any, to final payment. If any Subcontractor or Supplier fails to

furnish a release or receipt in full, CONTRACTOR may furnish a Bond or other collateral satisfactory to OWNER to indemnify OWNER against any Lien.

13.8 Final Payment and Acceptance

13.8.1 CONSULTANT'S Approval

If, on the basis of CONSULTANT'S observation of the Work during construction and final inspection, and CONSULTANT'S review of the final Application for Payment and accompanying documentation - all as required by the Contract Documents, CONSULTANT is satisfied that the Work has been completed and CONTRACTOR'S other obligations under the Contract Documents have been fulfilled, CONSULTANT will, after receipt of the final Application for Payment, indicate in writing CONSULTANT'S recommendation of payment and present the Application to OWNER for payment. Thereupon CONSULTANT will give written notice to OWNER and CONTRACTOR that the Work is acceptable, subject to the provisions of paragraph 13.10. Otherwise, CONSULTANT will return the Application 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.

13.8.2 Delay in Completion of Work

If, through no fault of CONTRACTOR, final completion of the Work is significantly delayed, OWNER shall, upon receipt of CONTRACTOR'S final Application for Payment and recommendation of CONSULTANT, and without terminating the Agreement, make payment of the balance due for that portion of the Work fully completed and accepted. If the remaining balance to be held by OWNER for Work not fully completed or corrected is less than the retainage stipulated in the Agreement, and if Bonds have been furnished as required in paragraph 10 of Part II, Information for Bidders, the written consent of the surety to the payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by CONTRACTOR to CONSULTANT with the Application for such payment. Such payment shall be made under the terms and conditions governing final payment, except that it shall not constitute a waiver of claims.

13.9 CONTRACTOR'S Continuing Obligation

CONTRACTOR'S obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. Neither recommendation of any progress or final payment by CONSULTANT, nor the issuance of a certificate of Completion, nor any payment by OWNER to CONTRACTOR under the Contract Documents, nor any use or occupancy of the Work or any part thereof by OWNER, nor any act of acceptance by OWNER nor any failure to do so, nor any review and approval of a Shop Drawing or sample submission, nor any correction of defective Work by OWNER will constitute an acceptance of Work not in accordance with the Contract Documents or a release of CONTRACTOR'S obligation to perform the

Work in accordance with the Contract Documents (except as provided in paragraph 13.10).

13.10 Waiver of Claims

The making and acceptance of final payment will constitute:

13.10.1 a waiver of all claims by OWNER against CONTRACTOR, except claims arising from unsettled Liens, from defective Work appearing after final inspection or from failure to comply with the Contract Documents or the terms of any special guarantees specified therein; however, it will not constitute a waiver by OWNER of any rights in respect of CONTRACTOR'S continuing obligations under the Contract Documents; and

13.10.2 a waiver of all claims by CONTRACTOR against OWNER other than those previously made in writing and still unsettled.

14. SUSPENSION OF WORK AND TERMINATION

14.1 OWNER May Suspend Work

OWNER may, at any time and without cause, suspend the Work or any portion thereof for a period of not more than ninety days by notice in writing to CONTRACTOR and CONSULTANT which will fix the date on which Work will be resumed. CONTRACTOR shall resume the Work on the date so fixed. CONTRACTOR shall be allowed an increase in the Contract Price or an extension of the Contract Time, or both, directly attributable to any suspension if CONTRACTOR makes an approved claim therefor as provided in Articles 10 and 11.

14.2 OWNER May Terminate

The OWNER may terminate the Work upon the occurrence of any one or more of the following events:

14.2.1 if CONTRACTOR commences a voluntary case under any chapter of the Bankruptcy Code (Title 11, United States Code), as now or hereafter in effect, or if CONTRACTOR takes any equivalent or similar action by filing a petition or otherwise under any other federal or state law in effect at such time relating to the bankruptcy or insolvency;

14.2.2 if a petition is filed against CONTRACTOR under any chapter of the Bankruptcy Code as now or hereafter in effect at the time of filing, or if a petition is filed seeking any such equivalent or similar relief against CONTRACTOR under any other federal or state law in effect at the time relating to bankruptcy or insolvency;

14.2.3 if CONTRACTOR makes a general assignment for the benefit of creditors;

14.2.4 if a trustee, receiver, custodian or agent of CONTRACTOR is appointed under applicable law or under contract, whose appointment or authority to take charge of property of CONTRACTOR is for the purpose of enforcing a Lien against such property or for the purpose of general administration of such property for the benefit of CONTRACTOR'S creditors;

14.2.5 if CONTRACTOR admits in writing an inability to pay its debts generally as they become due;

14.2.6 if CONTRACTOR persistently fails to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment or failure to adhere to the progress schedule established under paragraph 2.8 as revised from time to time);

14.2.7 if CONTRACTOR disregards Laws or Regulations of any public body having jurisdiction;

14.2.8 if CONTRACTOR disregards the authority of CONSULTANT, or

14.2.9 if CONTRACTOR otherwise violates in any substantial way any provisions of the Contract Documents;

OWNER may, after giving CONTRACTOR (and the surety) seven days' written notice and to the extent permitted by Laws and Regulations, terminate the services of CONTRACTOR, exclude CONTRACTOR from the site and take possession of the Work and of all CONTRACTOR'S tools, appliances, construction equipment and machinery at the site and use the same to the full extent they could be used by CONTRACTOR (without liability to CONTRACTOR for trespass or conversion), 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 finish the Work as OWNER may deem expedient. In such case CONTRACTOR shall not be entitled to receive any further payment until the Work is finished. If the unpaid balance of the Contract Price exceeds the direct, indirect and consequential costs of completing the Work (including but not limited to fees and charges of engineers, architects, attorneys and other professionals and court and arbitration costs) such excess will be paid to CONTRACTOR. If such costs exceed such unpaid balance, CONTRACTOR shall pay the difference to OWNER. Such costs incurred by OWNER will be approved as to reasonableness by CONSULTANT and incorporated in a Change Order,

but when exercising any rights or remedies under this paragraph OWNER shall not be required to obtain the lowest price for the Work performed.

14.2.10 If safety violations are observed and brought to the Contractors attention and Contractor fails to take immediate corrective measures any repeat of similar safety violations, Owner will order an immediate termination of contract. Note: it is the Contractor's responsibility to know proper safety measures as they pertain to construction and OSHA.

14.2.11 This contract may be canceled by either party thirty (30) days after delivery by canceling party of written notice of intent to cancel to the other contracting party.

14.2.12 This contract may be canceled by the Lexington-Fayette Urban County Government if it is determined that the Bidder has failed to perform under the terms of this agreement, such cancellation to be effective upon receipt of written notice of cancellation by the Bidder.

14.3 CONTRACTOR'S Services Terminated

Where CONTRACTOR'S services have been so terminated by OWNER, the termination will not affect any rights or remedies of OWNER against CONTRACTOR then existing or which may thereafter accrue. Any retention or payment of moneys due CONTRACTOR by OWNER will not release CONTRACTOR from liability.

14.4 Payment After Termination

Upon seven days' written notice to CONTRACTOR, OWNER may, without cause and without prejudice to any other right or remedy, elect to abandon the Work and terminate the Agreement. In such case, CONTRACTOR shall be paid for all Work executed and any expense sustained plus reasonable termination expenses, which will include, but not be limited to, direct, indirect and consequential costs (including, but not limited to, fees and charges of engineers, architects, attorneys and other professionals and court and arbitration costs).

14.5 CONTRACTOR May Stop Work or Terminate

If, through no act or fault of CONTRACTOR, the Work is suspended for a period of more than ninety days by OWNER or under an order of court or other public authority, or CONSULTANT fails to act on any Application for Payment within sixty days after it is submitted, or OWNER fails for sixty days to pay CONTRACTOR any sum finally determined to be due, then CONTRACTOR may, upon seven days' written notice to OWNER and CONSULTANT, terminate the Agreement and recover from OWNER payment for all Work executed and any expense sustained plus reasonable termination expenses. In addition and in lieu of terminating the Agreement, if CONSULTANT has failed to act on an Application for Payment or OWNER has failed to make any payment as aforesaid, CONTRACTOR may upon seven days' written notice to OWNER and

CONSULTANT stop the Work until payment of all amounts then due. The provisions of this paragraph shall not relieve CONTRACTOR of the obligations under paragraph 5.16 to carry on the Work in accordance with the progress schedule and without delay during disputes and disagreements with OWNER.

15. MISCELLANEOUS

15.1 Claims for Injury or Damage

Should OWNER or CONTRACTOR suffer injury or damage to person or property because of any error, omission or act of the other party or of any of the other party's employees or agents or others for whose acts the other party is legally liable, claim will be made in writing to the other party within a reasonable time of the first observance of such injury or damage. The provisions of this paragraph 15.1 shall not be construed as a substitute for or a waiver of the provisions of any applicable statute of limitations or repose.

15.2 Non-Discrimination in Employment

The CONTRACTOR shall comply with the following requirements prohibiting discrimination:

15.2.1 That no person (as defined in KRS 344.010) shall bid on Lexington-Fayette Urban County Government construction projects, or bid to furnish materials or supplies to the Lexington-Fayette Urban County Government, if, within six months prior to the time of opening of bids, said person shall have been found, by declaratory judgment action in Fayette Circuit Court, to be presently engaging in an unlawful practice, as hereinafter defined. Such declaratory judgment action may be brought by an aggrieved individual or upon an allegation that an effort at conciliation pursuant to KRS 344.200 has been attempted and failed, by the Lexington-Fayette County Human Rights Commission.

15.2.2 That it is an unlawful practice for an employer:

15.2.2.1 to fail or refuse to hire, or to discharge any individual or otherwise to discriminate against an individual, with respect to his compensation, terms, conditions, or privileges of employment, because of such individual's race, color, religion, sex, age, or national origin; or

15.2.2.2 to limit, segregate or classify his employees in any way which would deprive or tend to deprive an individual of employment opportunities or otherwise adversely affect his status as an employee because of such individual's sex, race, color, religion, age, or national origin.

15.2.3 That it is an unlawful practice for an employer, labor organization, or joint-labor management committee controlling apprenticeship or other training or retraining, including on-the-job training programs to discriminate against an individual because of his race, color, religion, sex, age, or national origin in admission to, or employment in, any program established to provide apprenticeship or other training.

15.2.4 That a copy of this Ordinance shall be furnished all suppliers and made a part of all bid specifications.

15.2.5 This Ordinance shall take effect after it is signed, published and recorded, as required by law.

15.3 Temporary Street Closing or Blockage

The CONTRACTOR will notify the CONSULTANT at least 72 hours prior to making any temporary street closing or blockage. This will permit orderly notification to all concerned public agencies. Specific details and restrictions on street closure or blockage are contained in the Special Conditions.

15.4 Percentage of Work Performed by prime CONTRACTOR

The CONTRACTOR shall perform on site, and with its own organization, Work equivalent to at least fifty (50%) percent of the total amount of Work to be performed under the Contract. This percentage may be reduced by a supplemental agreement to this Contract if, during performing the Work, the CONTRACTOR requests a reduction and the CONSULTANT determines that the reduction would be to the advantage of the OWNER.

15.5 Clean-up

Cleanup shall progress, to the greatest degree practicable, throughout the course of the Work. The Work will not be considered as completed, and final payment will not be made, until the right-of-way and all ground occupied or affected by the Contractor in connection with the Work has been cleared of all rubbish, equipment, excess materials, temporary structures, and weeds. Rubbish and all waste materials of whatever nature shall be disposed of, off of the project site, in an acceptable manner. All property, both public and private, which has been damaged in the prosecution of the Work, shall be restored in an acceptable manner. All areas shall be draining, and all drainage ways shall be left unobstructed, and in such a condition that drift will not collect or scour be induced.

15.6 General

The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto, and, in particular but without limitation, the warranties, guarantees and obligations imposed upon CONTRACTOR by paragraphs 12.1, 12.3.5, 13.3, and 15.2 and all of the rights and remedies available to OWNER and CONSULTANT thereunder, are in addition to, and are not to be construed in any way as a limitation of, any rights and remedies

available to any or all of them which are otherwise imposed or available by Laws or Regulations, by special warranty or guarantee or by other provisions of the Contract Documents, and 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. All representations, warranties and guarantees made in the Contract Documents will survive final payment and termination or completion of the Agreement.

15.7 Debris Disposal

For all LFUCG projects any trash, construction demolition debris, yard waste, dirt or debris of any kind that is removed from the project site must be disposed of in accordance with local, state, and federal regulations. The disposal site or facility must be approved in advance by the LFUCG and disposal documentation is required. The Contractor will be responsible for payment of any fines associated with improper disposal of material removed from the project site.

END OF SECTION

PART V
SPECIAL CONDITIONS
INDEX

- 1 BLASTING
- 2 RISK MANAGEMENT PROVISIONS –
INSURANCE AND INDEMNIFICATION
- 3 WAGE SCALE
- 4 WEATHER RELATED DELAYS

1. **BLASTING** – not applicable.

2. **RISK MANAGEMENT PROVISIONS**
INSURANCE AND INDEMNIFICATION

DEFINITIONS

- (1) The CONTRACTOR understands and agrees that the Risk Management Provisions of this Contract define the responsibilities of the CONTRACTOR to the OWNER.
- (2) As used in these Risk Management Provisions, the terms "CONTRACTOR" and "OWNER" shall be defined as follows:
- a. "CONTRACTOR" means the contractor and its employees, agents, servants, owners, principals, licensees, assigns and subcontractors of any tier.
 - b. "OWNER" means the Lexington-Fayette Urban County Government (LFUCG) and its elected and appointed officials, employees, agents, boards, consultants, assigns, volunteers and successors in interest.
 - c. OWNER/ENGINEER's Consultant means Strand Associates, Inc.[®]

Strand Associates, Inc.[®] provided design services for the Project, which included preparation of Contract Documents, and will provide services during construction consisting of: responding to questions of OWNER and ENGINEER about the Contract Documents; preparing change orders as needed; providing shop drawing review; and reviewing CONTRACTOR progress pay requests. Strand Associates, Inc.[®] shall be provided with the same indemnification by CONTRACTOR as is provided for OWNER in the Contract Documents and shall be listed as an additional insured as is provided for OWNER in the Contract Documents. Excepting those noted above, no other duties or responsibilities shall be construed from the Contract Documents as being the obligation of Strand Associates, Inc.[®]

INDEMNIFICATION AND HOLD HARMLESS PROVISION

- (1) It is understood and agreed by the parties that Contractor hereby assumes the entire responsibility and liability for any and all damages to persons or property caused by or resulting from or arising out of any act or omission on the part of Contractor or its employees, agents, servants, owners, principals, licensees, assigns or subcontractors of any tier (hereinafter "CONTRACTOR") under or in connection with this agreement and/or the provision of goods or services and the performance or failure to perform any work required thereby.
- (2) CONTRACTOR shall indemnify, save, hold harmless and defend the Lexington-Fayette Urban County Government and its elected and appointed officials, employees, agents, volunteers, and successors in interest (hereinafter "LFUCG") from and against all

liability, damages, and losses, including but not limited to, demands, claims, obligations, causes of action, judgments, penalties, fines, liens, costs, expenses, interest, defense costs and reasonable attorney's fees that are in any way incidental to or connected with, or that arise or are alleged to have arisen, directly or indirectly, from or by CONTRACTOR's performance or breach of the agreement and/or the provision of goods or services provided that: (a) it is attributable to personal injury, bodily injury, sickness, or death, or to injury to or destruction of property (including the loss of use resulting therefrom), or to or from the negligent acts, errors or omissions or willful misconduct of the CONTRACTOR; and (b) not caused solely by the active negligence or willful misconduct of LFUCG.

(3) In the event LFUCG is alleged to be liable based upon the above, CONTRACTOR shall defend such allegations and shall bear all costs, fees and expenses of such defense, including but not limited to, all reasonable attorneys' fees and expenses, court costs, and expert witness fees and expenses, using attorneys approved in writing by LFUCG, which approval shall not be unreasonably withheld.

(4) These provisions shall in no way be limited by any financial responsibility or insurance requirements, and shall survive the termination of this agreement.

(5) LFUCG is a political subdivision of the Commonwealth of Kentucky. CONTRACTOR acknowledges and agrees that LFUCG is unable to provide indemnity or otherwise save, hold harmless, or defend the CONTRACTOR in any manner.

FINANCIAL RESPONSIBILITY

BIDDER/CONTRACTOR understands and agrees that it shall, prior to final acceptance of its bid and the commencement of any work, demonstrate the ability to assure compliance with the above Indemnity provisions and these other risk management provisions.

INSURANCE REQUIREMENTS

YOUR ATTENTION IS DIRECTED TO THE INSURANCE REQUIREMENTS BELOW, AND YOU MAY NEED TO CONFER WITH YOUR INSURANCE AGENTS, BROKERS, OR CARRIERS TO DETERMINE IN ADVANCE OF SUBMISSION OF A RESPONSE THE AVAILABILITY OF THE INSURANCE COVERAGES AND ENDORSEMENTS REQUIRED HEREIN. IF YOU FAIL TO COMPLY WITH THE INSURANCE REQUIREMENTS BELOW, YOU MAY BE DISQUALIFIED FROM AWARD OF THE CONTRACT.

Required Insurance Coverage

BIDDER/CONTRACTOR shall procure and maintain for the duration of this contract the following or equivalent insurance policies at no less than the limits shown below and cause its subcontractors to maintain similar insurance with limits acceptable to LFUCG in order to protect LFUCG against claims for injuries to persons or damages to property which may

arise from or in connection with the performance of the work hereunder by CONTRACTOR. The cost of such insurance shall be included in any bid:

| <u>Coverage</u> | <u>Limits</u> |
|---------------------------------|---|
| General Liability | \$1 million per occurrence, \$2 million aggregate |
| Commercial Automobile Liability | \$1 million per occurrence |
| Worker's Compensation | Statutory |
| Employer's Liability | \$100,000.00 |
| Excess/Umbrella Liability | \$5 million per occurrence |

The policies above shall contain the following conditions:

- a. All Certificates of Insurance forms used by the insurance carrier shall be properly filed and approved by the Department of Insurance for the Commonwealth of Kentucky (DOI). LFUCG shall be named as an additional insured in the General Liability Policy and Commercial Automobile Liability Policy using the Kentucky DOI approved forms.
- b. The General Liability Policy shall be primary to any insurance or self-insurance retained by LFUCG.
- c. The General Liability Policy shall include a Products and Completed Operations endorsement or Premises and Operations Liability endorsement unless it is deemed not to apply by LFUCG.
- d. LFUCG shall be provided at least 30 days advance written notice via certified mail, return receipt requested, in the event any of the required policies are canceled or non-renewed.
- e. Said coverage shall be written by insurers acceptable to LFUCG and shall be in a form acceptable to LFUCG. Insurance placed with insurers with a rating classification of no less than Excellent (A or A-) and a financial size category of no less than VIII, as defined by the most current Best's Key Rating Guide shall be deemed automatically acceptable.

Renewals

After insurance has been approved by LFUCG, evidence of renewal of an expiring policy must be submitted to LFUCG, and may be submitted on a manually signed renewal endorsement form. If the policy or carrier has changed, however, new evidence of coverage must be submitted in accordance with these Insurance Requirements.

Deductibles and Self-Insured Programs

IF YOU INTEND TO SUBMIT A SELF-INSURANCE PLAN IT MUST BE FORWARDED TO LEXINGTON-FAYETTE URBAN COUNTY GOVERNMENT, DIVISION OF RISK MANAGEMENT, 200 EAST MAIN STREET, LEXINGTON, KENTUCKY 40507 NO LATER THAN A MINIMUM OF FIVE (5) WORKING DAYS PRIOR TO THE RESPONSE DATE. Self-insurance programs, deductibles, and self-insured retentions in insurance policies are subject to separate approval by Lexington-Fayette Urban County Government's Division of Risk Management, upon review of evidence of BIDDER/CONTRACTOR's financial capacity to respond to claims. Any such programs or retentions must provide LFUCG with at least the same protection from liability and defense of suits as would be afforded by first-dollar insurance coverage. If BIDDER/CONTRACTOR satisfies any portion of the insurance requirements through deductibles, self-insurance programs, or self-insured retentions, BIDDER/CONTRACTOR agrees to provide Lexington-Fayette Urban County Government, Division of Risk Management, the following data prior to the final acceptance of bid and the commencement of any work:

- a. Latest audited financial statement, including auditor's notes.
- b. Any records of any self-insured trust fund plan or policy and related accounting statements.
- c. Actuarial funding reports or retained losses.
- d. Risk Management Manual or a description of the self-insurance and risk management program.
- e. A claim loss run summary for the previous five (5) years.
- f. Self-Insured Associations will be considered.

Safety and Loss Control

CONTRACTOR shall comply with all applicable federal, state, and local safety standards related to the performance of its works or services under this Agreement and take necessary action to protect the life, health and safety and property of all of its personnel on the job site, the public, and LFUCG.

Verification of Coverage

BIDDER/CONTRACTOR agrees to furnish LFUCG with all applicable Certificates of Insurance signed by a person authorized by the insurer to bind coverage on its behalf prior to final award, and if requested, shall provide LFUCG copies of all insurance policies, including all endorsements.

Right to Review, Audit and Inspect

CONTRACTOR understands and agrees that LFUCG may review, audit and inspect any and all of its records and operations to insure compliance with these Insurance Requirements.

Additional Insured Endorsement

- a. CONTRACTOR shall purchase and maintain liability insurance, as described above, specifically naming as additional insureds OWNER, ENGINEER, and OWNER/ENGINEER's Consultant as well as other individuals or entities identified, using Additional Insurance Endorsement Form CG 20 26 07 04, CG 20 10 07 04, or equivalent form. General liability policies shall also be endorsed with Form CG 20 37 07 04 to include the "products-completed operations hazard." Endorsements or General Liability policy shall not exclude supervisory or inspection services. CONTRACTOR shall also provide an Additional Insured Endorsement for the automobile policy.
- b. CONTRACTOR shall, prior to the start of any work on the project by an subcontractor receive: (1) a certificate of insurance from each subcontractor naming OWNER, ENGINEER, and OWNER/ENGINEER's Consultant as well as other individuals and entities so identified as an additional insured, under each subcontractor's general liability for policy; and (2) the Additional Insured Endorsement language as required by paragraph 1 for subcontractor's operations. Certificate shall be Acord 25-S or equivalent.
- c. That failure of CONTRACTOR or subcontractor to comply with the above requirements with respect to the Additional Insured Endorsement and/or Certificate of Insurance, shall not be construed as waiver of those provisions by OWNER, ENGINEER, and OWNER/ENGINEER's Consultant as well as other individuals and entities so identified.

DEFAULT

BIDDER/CONTRACTOR understands and agrees that the failure to comply with any of these insurance, safety, or loss control provisions shall constitute default and that LFUCG may elect at its option any single remedy or penalty or any combination of remedies and penalties, as available, including but not limited to purchasing insurance and charging BIDDER/CONTRACTOR for any such insurance premiums purchased, or suspending or terminating the work.

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3. WAGE SCALES – NOT APPLICABLE.

4. WEATHER RELATED DELAYS

- A. The Project Completion date shall be established with the understanding that no extension of time will be granted for weather related delays that are within the average temperature or number of rain or snow days within a particular month. The average weather conditions shall be established by referencing the records of the National Oceanic and Atmospheric Administration (NOAA) and as defined herein.
- B. Extensions of inclement weather shall be granted only when the work affected must be on schedule at the time of delay. No time will be granted for work which is behind schedule in excess of the actual delay caused by the weather, assuming the work had been on schedule.
- C. Time granted for weather delays shall be requested on a monthly basis.
- D. The weather experienced at the project site during the contract period must be found to be unusually severe, that is more severe than the adverse weather anticipated for the project location during any given month. The unusually severe weather must actually cause a delay to the completion of the project. The delay must be beyond the control and without the fault or negligence of the contractor.
- E. The anticipated adverse weather delays shall be based on the National Oceanic and Atmospheric Administration (NOAA) climatology ten year average for the Lexington Bluegrass Airport KY US location. The Mean Number of Days of daily precipitation using ≥ 0.10 will determine the base line for monthly anticipated adverse weather evaluations. The contractor's progress schedule must reflect these anticipated adverse weather delays in all weather dependent activities. Upon acknowledgement of the Notice to Proceed (NTP) and continuing throughout the contract, the contractor will record the occurrence of actual adverse weather and resultant impact to normally scheduled work. Actual adverse weather delay days must prevent work on critical path activities for 50 percent or more of the contractor's scheduled work date. The number of actual adverse weather delay days shall be calculated chronologically from the first to the last day of each month, and be recorded as full days. The number of actual adverse weather days greater than the number of anticipated adverse weather days, listed above, shall be the number of unusually severe weather days for the purposes of any contract extensions (actual adverse weather days - anticipated adverse weather days = unusually severe weather days.)
- F. Definitions:
 - 1. "Unusually severe weather" - weather that is more severe than the adverse weather anticipated for the season or location involved.
 - 2. "Adverse weather" - atmospheric conditions at a definite time and place that are unfavorable to construction activities.

END OF SECTION

PART VI
CONTRACT AGREEMENT

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PART VI

CONTRACT AGREEMENT

THIS AGREEMENT, made on the 15 day of August, 2024, by and between **Lexington-Fayette Urban County Government**, acting herein called "OWNER" and Perdue Environmental Contracting Company, doing business as (a corporation) located in the City of Nicholasville, County of Jessamine, and State of Kentucky, hereinafter called "CONTRACTOR."

WITNESSETH: That the CONTRACTOR and the OWNER in consideration of Four Million One hundred sixty thousand seventy three Dollars and Ninety one Cents (\$4,160,073.91) quoted in the proposal by the CONTRACTOR, dated 8/15/24, hereby agree to commence and complete the construction described as follows:

1. SCOPE OF WORK

The CONTRACTOR shall furnish all the materials, supplies, machinery, equipment, tools, superintendence, labor, insurance, and other accessories and services necessary to complete the said project in accordance with the conditions and prices stated in the Proposal, the General Conditions, and the Special Conditions of the Contract, the Specifications and Contract Documents therefore as prepared by Tetra Tech for the Leachate Management Construction at Haley Pike project.

2. TIME OF COMPLETION

The time period estimated and authorized by the OWNER for the proper execution of the Work by the Contract, in full, is hereby fixed as final completion by November 30, 2025. The time shall begin in accordance with the Notice to Proceed provided by OWNER.

3. ISSUANCE OF WORK ORDERS

Notice to begin Work will be given in whole or for part of the Work as determined by the OWNER pending the availability of funds. The order of construction will be as determined after consultation between the CONTRACTOR and the OWNER.

4. THE CONTRACT SUM

The OWNER agrees to pay the CONTRACTOR in current funds for the performance of the Contract, as quoted in the proposal, subject to any additions and deductions, as provided therein.

5. PROGRESS PAYMENTS

The OWNER shall make payments on account of the Contract, as provided in accordance with the General Conditions, less the aggregate of previous payments.

6. ACCEPTANCE AND FINAL PAYMENT

Final payment shall be due within ninety (90) days after completion of the Work, provided the Work be then fully completed and the Contract fully accepted.

Before issuance of final certificate, the CONTRACTOR shall submit evidence satisfactory to the Owner that all payrolls, material bills, and other indebtedness connected with the Work has been paid.

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

7. THE CONTRACT DOCUMENTS

The Advertisement for Bids, Information for Bidders, the General Conditions, Performance and Payment Bonds, Contract Agreement, Special Conditions, Technical Specifications, any and all Addenda, and Proposal, Ion Wave Q&A, and Plan Drawings form the Contract, and they are fully a part of the Contract as if hereto attached or herein repeated.

8. EXTRA WORK

The OWNER, without invalidating the Contract, may order extra work or make changes by altering, adding to or deducting from the Work, the Contract Sum being adjusted accordingly. All such Work shall be executed and paid for in accordance with the General Conditions, which is a part of this Contract.

9. THE FOLLOWING IS AN ENUMERATION OF THE SPECIFICATIONS AND DRAWINGS (CONTRACT DOCUMENTS):

SPECIFICATIONS

**SECTION
NO.**

TITLE

| | |
|------|---------------------------------------|
| I | Advertisement for Bids |
| II | Information for Bidders |
| III | Form of Proposal |
| IV | General Conditions |
| V | Special Conditions |
| VI | Contract Agreement |
| VII | Performance and Payment Bonds |
| VIII | Addenda |
| IX | Technical Specifications and Drawings |

IN WITNESSETH WHEREOF, the parties hereto have executed this Contract as of the date and year above written.

(Seal)

Lexington-Fayette Urban County Government.
Lexington, Kentucky

(Owner)

ATTEST:

Clerk of the Urban County Council

BY: _____
MAYOR

(Witness)

(Title)

(Seal)

(Contractor)

(Secretary)*

BY: _____

(Witness)

(Title)

(Address and Zip Code)

IMPORTANT: *Strike out any non-applicable terms.

Secretary of the Owner should attest. If the CONTRACTOR is corporation, Secretary should attest. Give proper title of each person-executing Contract.

PART VII

PERFORMANCE AND PAYMENT BONDS

1. PERFORMANCE BOND
2. PAYMENT BOND

PART VII

PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS, that

(Name of CONTRACTOR)

(Address of CONTRACTOR)

a _____, hereinafter
(Corporation, Partnership, or Individual)

called Principal, and _____
(Name of Surety)

(Address of Surety)

hereinafter called Surety, are held and firmly bound unto

LEXINGTON-FAYETTE URBAN COUNTY GOVERNMENT
200 East Main Street, Third Floor
Lexington, Kentucky 40507

hereinafter called "OWNER" in the penal sum of: _____
Dollars, (\$ _____), for the payment of whereof Principal and Surety bind themselves, their heirs,
executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

WHEREAS, Principal by written agreement is entering into a Contract with OWNER for
_____ (project name) _____ in accordance with drawings and
specifications prepared by: _____ (the Engineer) _____ which Contract is by reference
made a part hereof, and is hereinafter referred to as the Contract.

NOW THEREFORE, THE CONDITION OF THIS OBLIGATION is such that if the Principal shall
promptly and faithfully perform said Contract, then this obligation shall be null and void; otherwise it shall
remain in full force and effect.

The Surety hereby waives notice of any alteration or extension of time made by the OWNER.

Whenever, Principal shall be, and declared by OWNER to be in default under the Contract, the OWNER
having performed OWNER'S obligations thereunder, the Surety may promptly remedy the default, or shall
promptly:

- (1) Complete the Contract in accordance with its terms and conditions or
- (2) Obtain a bid or bids for completing the Contract in accordance with its terms and conditions, and upon determination by Surety of the lowest responsible bidder, or if the OWNER elects, upon determination by the OWNER and Surety jointly of the lowest responsible bidder, arrange for a Contract between such bidder and OWNER, and make available as Work progresses (even though there may be a default or a succession of defaults under the Contract or Contracts of completion arranged under this paragraph) sufficient funds to pay the cost of completion less the balance of the Contract Price; but not exceeding, including other costs and damages for which the Surety may be liable hereunder, the amount set forth in the first paragraph hereof. The term "balance of the Contract Price", as used in this paragraph shall mean the total amount payable by OWNER to Principal under the Contract and any amendments thereto, less the amount properly paid by OWNER to Principal.

Any suit under this bond must be instituted before the expiration of two (2) years from the date on which final payment under the Contract falls due.

No right of action shall accrue on this bond to or for the use of any person or corporation other than the OWNER named herein or the heirs, executors, administrators or successors of OWNER.

IN WITNESS WHEREOF, this instrument is executed in _____ each one of which shall be
(number)
deemed an original, this the _____ day of _____, 20_____.

ATTEST:

(Principal) Secretary

Principal

BY: _____ (s)

(Address)

Witness as to Principal

(Address)

ATTEST:

Surety

BY: _____
Attorney-in-Fact

(Surety) Secretary

(Address)

(SEAL)

Witness as to Surety

(Address)

TITLE: _____

Surety

BY: _____

TITLE: _____

NOTE: The number of executed counterparts of the bond shall coincide with the number of executed counterparts of the Contract.

PART VII
PAYMENT BOND

KNOW ALL MEN BY THESE PRESENT: that

(Name of Contractor)

(Address of Contractor)

a _____, hereinafter

(Corporation, Partnership or Individual)

called Principal, and _____

(Name of Surety)

(Address of Surety)

hereinafter called Surety, are held and firmly bound unto:

LEXINGTON-FAYETTE URBAN COUNTY GOVERNMENT
200 East Main Street, Third Floor
Lexington, Kentucky 40507

Obligee, hereinafter called OWNER, for the use and benefit of claimants as hereinafter defined, in the amount of _____ Dollars (\$ _____) the payment whereof Principal and Surety bind themselves, their heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

WHEREAS, Principal by written agreement is entering into a Contract with OWNER for _____ **(project name)** _____ in accordance with drawings and specifications prepared by: _____ **(the Engineer)** _____ which Contract is by reference made a part hereof, and is hereinafter referred to as the Contract.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION is such that, if Principal shall promptly make payment to all claimants as hereinafter defined for all labor and material used or reasonably required for use in the performance of the Contract, then this obligation shall be void; otherwise it shall remain in full force and effect, subject, however, to the following conditions.

1. A claimant is defined as one having a direct contract with the Principal or with a Subcontractor of the Principal for labor, material, or both, used or reasonably required for use in the performance of the Contract, labor and material being construed to include that part of water, gas, power, light, heat, oil, gasoline, telephone service or rental of equipment directly applicable to the Contract.

2. The above named Principal and Surety hereby jointly and severally agree with the OWNER that every claimant as herein defined, who has not been paid in full before the expiration of a period of ninety (90) days after the date on which the last of such claimant's work or labor was done or performed, or materials were furnished by such claimant, may sue on this bond for the use of such claimant, prosecute the suit to final judgment for such sum or sums as may be justly due claimant, and have execution thereon. The OWNER shall not be liable for the payment of any costs or expenses of any such suit.
3. No suit or action shall be commenced hereunder by any claimant:
 - (a) Unless claimant, other than one having a direct contract with the Principal, shall have given written notice to any two of the following: The Principal, the OWNER, or the Surety above named, within ninety (90) days after such claimant did or performed the last of the Work or labor, or furnished the last of the materials for which said claim is made, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were furnished, or for whom the Work or labor was done or performed. Such notice shall be served by mailing the same by registered mail or certified mail, postage prepaid, in an envelope addressed to the Principal, OWNER, or Surety, at any place where an office is regularly maintained for the transaction of business, or served in any manner in which legal process may be served in the state in which the aforesaid project is located, save that such service need not be made by a public officer.
 - (b) After the expiration of one (1) year following the date on which Principal ceased Work on said Contract, it being understood, however, that if any limitation embodied in this bond is prohibited by any law controlling the construction hereof such limitation shall be deemed to be amended so as to be equal to the minimum period of limitation permitted by such law.
 - (c) Other than in a state court of competent jurisdiction in and for the county or other political subdivision of the state in which the project, or any part thereof, is situated, or in the United States District Court for the district in which the project, or any part thereof, is situated, and not elsewhere.
4. The amount of this bond shall be reduced by and to the extent of any payment or payments made in good faith hereunder, inclusive of the payment by Surety of mechanics' liens which may be filed of record against aid improvement, whether or not claim for the amount of such lien be presented under and against this bond.

IN WITNESS WHEREOF, this instrument is executed in _____ counterparts, each one of
(number)

which shall be deemed an original, this the _____ day of _____, 20_____.

ATTEST:

(Principal) Secretary

(Principal)

(SEAL) BY: _____ (s)

(Address)

(Witness to Principal)

(Address)

ATTEST: _____
(Surety)
BY: _____
(Attorney-in-Fact)

(Surety) Secretary
(SEAL) _____
Witness as to Surety

(Address)

NOTE: The number of executed counterparts of the bond shall coincide with the number of executed counterparts of the Contract.

END OF SECTION

PART VIII

ADDENDA

All addenda issued during the bidding of the Project will be reproduced in the signed Contract Documents, on the pages following this heading sheet.

Addendum
Number

Title

Date

| | | |
|----|-------|-------|
| 1. | _____ | _____ |
| 2. | _____ | _____ |
| 3. | _____ | _____ |
| 4. | _____ | _____ |
| 5. | _____ | _____ |

IX. TECHNICAL SPECIFICATIONS



SPECIFICATIONS

FOR

**LEACHATE MANAGEMENT
CONSTRUCTION AT HALEY PIKE**

100% Submittal

LEXINGTON FAYETTE URBAN COUNTY GOVERNMENT

LFUCG BID NO. 89-2024

**PREPARED BY:
Tetra Tech
424 Lewis Hargett Circle, Suite 110
Lexington, KY 40503**

July 2024

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DIVISION 01
GENERAL REQUIREMENTS

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SECTION 01010

SUMMARY OF WORK

PART 1 - GENERAL

1.01 SCOPE OF WORK

- A. These Specifications and the accompanying Drawings describe the Work to be done and materials to be furnished for the construction of Haley Pike Landfill Leachate System Improvements project which involves dewatering and cleaning the existing equalization (EQ) basin, placing HDPE geomembrane on top of the existing liner in the EQ basin, installing a baffle and aeration system in the EQ basin, removing plants and stone media in the existing wetlands, overlining the wetlands with HDPE geomembrane, installing new media and plants in the wetlands, installing valves and piping, and other incidentals of the project.
- B. The Work is located at the closed Haley Pike Landfill, 4216 Hedger Lane, Lexington, KY 40516.
- C. Major Work items in this Contract include:
1. Installing valves and piping.
 2. Dewatering and cleaning the existing EQ basin.
 3. Inspecting, evaluating, and cleaning existing system piping.
 4. Constructing compacted soil anchor trench.
 5. Placing HDPE geomembrane on top of the existing liner in the EQ basin.
 6. Installing a baffle and aeration system in the EQ basin.
 7. Installing new pump and accessories in Well A-10.
 8. Removing plants, stone media, and geotextile in the existing wetlands.
 9. Overlining the wetlands with HDPE geomembrane.
 10. Placing new geotextile in the wetlands.
 11. Installing pipe, new media, and new plants in the wetlands.
 12. Installing crushed stone around the EQ basin and wetlands.
 13. Revegetation.
- D. Stipulations
1. In the event of conflict between these specifications and Federal, State, and Local law/codes, the latter will take precedence.

Summary of Work
01010-1

2. In all cases where a device or part of the equipment is herein referred to in the singular, such reference shall apply to as many such items as are required to complete the installation.

1.02 CONTINUOUS OPERATIONS

The existing system must be maintained in continuous operation in such a manner that it meets all local, state, and federal requirements. The Contractor is responsible for payment of all fines resulting from any action or inaction on his part or the part of his subcontractors during performance of the Work that is illegal.

1.03 PERMITS

Obtain any permits related or required by the Work in this Contract.

1.04 CODES

Comply with applicable codes and regulations of authorities having jurisdiction. Submit copies of inspection reports, notices, citations, and similar communication to the Owner.

1.05 EXISTING CONDITIONS AND DIMENSIONS

- A. The Work in this Contract will primarily be performed in or around existing facilities of which a portion must remain functional. The Contractor must maintain the required items and/or systems functional without additional effort by the Owner's personnel and at no extra costs to the Owner.
- B. The Contractor is responsible for verifying all existing conditions, elevations, dimensions, etc., and providing his finished Work to facilitate existing conditions.

- END OF SECTION -

SECTION 01015
WORK SEQUENCE

PART 1 - GENERAL

1.01 WORK INCLUDED

The Contractor shall conform to all miscellaneous requirements as contained in the Contract.

1.02 RELATED REQUIREMENTS

- A. Section 00700 - General Conditions
- B. Section 01010 - Summary of Work
- C. Section 01040 - Coordination

PART 2 - PRODUCTS

2.01 MATERIALS

The Contractor shall comply with the Specifications for type of Work to be done.

PART 3 - EXECUTION

3.01 SEQUENCE OF CONSTRUCTION OPERATIONS

- A. The Contractor shall submit to the Engineer for review and acceptance a complete schedule (progress chart) of his proposed sequence of construction operations prior to commencement of Work. However, the Engineer shall not accept a construction schedule that fails to utilize the entire time allocated for the construction of the project. The Contractor shall schedule the various construction activities to complete the project throughout the entire allotted time period. This schedule requirement in no way prevents the Contractor from completing the project in a shorter time frame than scheduled. The construction schedule along with a cost breakdown schedule shall be submitted and approved by the Owner prior to the submittal of the first partial payment request in accordance with the general conditions. A revised construction schedule shall be submitted to the Owner with each pay request. This revised schedule must be approved by the Owner prior to payment.
- B. Any work that involves a partial leachate treatment bypass of the system, the time of the bypass must be reduced as much as possible by having all equipment, supplies, and materials on-site prior to beginning the work in each treatment area.

Work Sequence
01015-1

3.02 SPECIAL WORK SEQUENCE CONDITIONS

- A. Construction of the Haley Pike Landfill Leachate System Improvements project shall occur in the following order unless approved otherwise by the Engineer.
1. Contractor shall install gate valves and piping and connect to the existing valve vault to direct flow of leachate directly to the wetlands.
 2. New valves shall be opened/closed to divert flow from the EQ basin to the wetlands.
 3. Contractor shall dewater the EQ basin by drawing down the level through the effluent riser to the wetlands.
 4. Inspecting, evaluating, and cleaning existing system piping.
 5. Contractor shall clean all sediment and sludge from the EQ basin. Material shall be disposed of properly. The material shall be tested per the landfill facility requirements. Any damage to the existing geomembrane shall be repaired at no additional cost to the Owner.
 6. Contractor shall install HDPE geomembrane on top of existing membrane in EQ basin.
 7. Contractor shall install baffle and aeration system in EQ basin.
 8. New valves shall be opened/closed to divert flow to the EQ basin. Existing valve in the valve box shall be closed so no water flows into the wetlands. Work on the wetlands shall be performed while EQ basin is filling.
 9. Contractor shall remove existing plants, stone media, and geotextile from the two (2) existing wetlands. Material shall be disposed of properly. The material shall be tested per the landfill facility requirements. Any damage to the existing geomembrane shall be repaired at no additional cost to the Owner. **Note: only work shall be performed on one wetland at a time. Work must be completed on one wetland before work starts on the second wetland.**
 10. Contractor shall install HDPE geomembrane in the wetlands directly on top of the existing geomembrane.
 11. Contractor shall install geotextile in the wetlands.
 12. Contractor shall install new media and plants in the wetlands. Consideration must be taken into account for the seasonal nature of planting.
 13. Install crushed stone around the EQ basin and wetlands.
 14. Revegetate disturbed areas as work progresses.
 15. Complete remaining work tasks, including electrical and installation of new pump and yard hydrant in the existing Well A-10, of the Contract in order as Contractor deems appropriate and as approved by the Engineer.

Work Sequence
01015-2

Note that some tasks may proceed simultaneously rather than sequentially. However, at least one element of the leachate treatment system must remain operational during the project.

- B. Any existing structure, material, or access road damaged during construction activities shall be repaired or corrected by the Contractor, at no additional cost to the Owner.

- END OF SECTION -

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SECTION 01025

MEASUREMENT AND PAYMENT

PART 1 - GENERAL

1.01 GENERAL REQUIREMENTS

- A. This section identifies the method of measurement and payment for the various construction items listed in the Bid form of these Specifications.
- B. The following measurement and payment may include descriptions for more items than those shown on the Bid form. It is the intent of this section to provide a measurement and payment description for each item on the Bid form. If none is available, a request should be made to the Engineer for a clarification prior to Bid.
- C. The unit price Bid for each of the items on the Bid form shall include the cost of all the labor, materials, and equipment necessary to install these items at the locations shown on the Drawings and in accordance with the details shown on the Drawings or Specified herein. In addition, the cost shall include all construction necessary to complete the installation which is not covered by other items of the Bid form and shall be considered incidental to and included in those pay items.

1.02 PROGRESS AND PAYMENT SCHEDULES

- A. The Contractor shall prepare and submit to the Engineer, for approval, a construction schedule which depicts the Contractor's plan for completing the Contract requirements and show Work placement in dollars versus Contract time. The Contractor's construction schedule must be approved by the Engineer before any payments will be made on this Contract.
- B. The Contractor shall prepare and submit to the Engineer, for approval, an estimated payment schedule which depicts the Contractor's cost for completing the Contract requirements and show by major unit of the Project Work the Contractor's dollar value for the material and the labor (two separate amounts) to be used as a basis for the monthly payments. The Contractor's payment schedule must be approved by the Engineer before any payments will be made on this Contract.
- C. The Engineer's decision as to sufficiency and completeness of the Contractor's construction and payment schedule will be final.
- D. The Contractor must make current, to the satisfaction of the Engineer, the construction and payment schedules each time he requests a payment on this Contract.

- E. The Contractor's construction and payment schedules must be maintained at the construction site and be available for inspection and shall be revised to incorporate approved change orders as they occur.
- F. When the Contractor requests a payment on this contract, it must be on the approved Application for Payment and be current. Further, the current payment and construction schedules (both updated and revised) shall be submitted for review and approval by the Engineer before monthly payments will be made by the Owner. The Contractor shall submit electronically the Application for Payment and construction schedule when requesting payment.

1.03 CONDITIONS FOR PAYMENT

- A. The Owner will make payments for acceptable Work in place and materials properly stored on-site. The value of payment shall be as established on the approved construction schedule and Application for Payment, EXCEPT the Owner will retain ten percent (10%) of the Work in place and a percentage as hereinafter listed for items properly stored or untested.
- B. No payment will be made for stored materials unless an invoice from the supplier is attached to the pay request. Furthermore, no payment for stored materials will be made if the value of the stored materials does not exceed \$1,000.00.

- C. Allowable Payments

Equipment and Lump Sum Items: Payment for equipment and lump sum items will be based on the percent complete (as approved by the Engineer) at end of period for application for payment. Payment for equipment and lump sum items installed shall be limited to ninety percent (90%) of their scheduled value until they are ready for operation, have been certified by manufacturer, and accepted by the Engineer. Ninety percent (90%) payment for stored materials shall be contingent on proper on-site storage and proper routine maintenance as recommended by manufacturer or Engineer.

- D. The Owner may reduce the percent of retainage once the Project has achieved satisfactory progress and is at the fifty percent (50%) construction status. The dollar amount of retainage for work-in-place will not be reduced but will remain constant following the fifty percent (50%) constructed status. The retainage on the equipment items shall be determined as defined hereinbefore.
- F. Additionally, the Owner may reinstate the retainage to a full ten percent (10%) of the scheduled value of work-in-place and material items should the Owner, at its discretion, determine that the Contractor is not making satisfactory progress or there is other specific cause for such withholding.

1.04 CLAIMS FOR EXTRA WORK

- A. If the Contractor claims that any instructions by Drawings or otherwise involve extra cost, he shall give the Engineer written notice of said claim within ten (10) days after the receipt of such instructions, and in any event before proceeding to execute the Work, stating clearly and in detail the basis of his claim or claims. No such claim shall be valid unless so made.
- B. Claims for additional compensation for extra Work, due to alleged errors in spot elevations, contour lines or bench marks, will not be recognized unless accompanied by certified survey data, made prior to the time the original ground was disturbed, clearly showing that errors exist which resulted, or would result, in handling more material or performing more Work than would be reasonably estimated from the Drawings and topographical maps issued.
- C. Any discrepancies which may be discovered between actual conditions and those represented by the topographical maps and Drawings shall at once be reported to the Engineer, and Work shall not proceed, except at the Contractor's risk, until written instructions have been received by him from the Engineer.
- D. If, on the basis of the available evidence, the Engineer determines that an adjustment of the Contract Price or time is justifiable, the procedure shall then be as stated in the General Conditions.
- E. By execution of this Contract, the Contractor warrants that he has visited the site, or assumes the responsibility of having done so, of the proposed Work and fully acquainted himself with the conditions of there existing relating to construction and labor, and that he fully understands the facilities, difficulties, and restrictions attending the execution of the Work under this Contract. The Contractor further warrants that he has thoroughly examined and is familiar with the Drawings, Specifications, and all other documents comprising the Contract. The Contractor further warrants that, by execution of this Contract, his failure during bidding on this contract to receive or examine any form, instrument, document, or to visit the site and acquaint himself with existing conditions, in no way relieves him from any obligation under this Contract, and the Contractor, based on facts regarding which he should have been on notice as a result thereof.

1.05 DETERMINATION OF THE VALUE OF EXTRA (ADDITIONAL) OR OMITTED WORK

- A. The value of extra (additional) or omitted Work shall be determined in one or more of the following ways:
 - 1. On the basis of the actual cost of all the items of labor (including on-the-job supervision), materials and use of equipment plus a maximum of fifteen percent (15%) which shall cover the Contractor's and Subcontractor's general supervision, overhead and profit. The cost of labor shall include required insurance, taxes, and fringe benefits. Equipment costs shall be based on current rental rates in the areas where the Work is being

Measurement and Payment
01025-3

performed, but in no case shall such costs be greater than the current rates published by the Associated Equipment Distributors, Chicago, Illinois.

2. By estimate and acceptance in a lump sum.
 3. By unit prices named in the Contract or subsequently agreed upon.
- B. Provided, however, that the cost or estimated cost of all extra (additional) Work shall be determined in advance of authorization by the Engineer and approved by the Owner.
- C. All extra (additional) Work shall be executed under the conditions of the original Contract. Any claim for extension of time shall be adjusted according to the proportionate increase or decrease in the final total cost of the Work unless negotiated on another basis.
- D. Except for over-runs in Contract unit price items, no extra (additional) Work shall be done except upon a written Change Order from the Engineer, and no claim on the part of the Contractor for pay for extra (additional) Work shall be recognized unless so ordered in writing by the Engineer.

1.06 DETERMINATION OF THE VALUE OF WORK ITEM OVER-RUN/UNDER-RUN

- A. The Engineer reserves the right to make, in writing, changes in quantities and alterations in the Work when necessary to complete the project satisfactorily, at any time and without invalidating the Contract or releasing the surety.
- B. The Engineer will use the following formulas to determine the adjusted unit prices when either an under-run or over-run of more than 25% occurs in the quantity of the item constructed.

The excessive under-run of an item is defined as 75% of the original Contract quantity of the item minus the final quantity of the item. The excessive over-run of an item is defined as the final quantity of the item minus 125% of the original Contract quantity of the item.

Excessive Under-Run Formula

$$NP = OP + \left(\frac{EU \times 0.25 \times OP}{FQCI} \right)$$

Excessive Over-Run Formula

$$NP = OP - \left(\frac{EO \times 0.25 \times OP}{FQCI} \right)$$

Where:

NP = New Unit Price

Measurement and Payment

01025-4

OP = Original Unit Price Bid by Contractor
EU = Excessive Under-Run
EO = Excessive Over-Run
FQCI = Final Quantity Contract Item

When the Contractor submits a completed Bid Proposal, the Contractor agrees to accept payment for excessive under-runs or excessive over-runs in the quantities of these items according to the appropriate formula. The Contractor further agrees that the formulas provide full and complete compensation for the excessive under-run or excessive over-run quantities, including any and all unreimbursed expenses, loss of expected reimbursement, loss of anticipated profits, delay, inefficiency, and all other costs.

1.07 VALUE ENGINEERING

- A. Value engineering is producing an equivalent or better option to that specified in the Contract at a lesser cost. The Owner may consider as a value engineering proposal any cost reduction that is initiated, developed, and submitted to the Owner. The Owner will share equally the net savings resulting from a value engineering proposal that is approved.

The Owner will only consider value engineering proposals that may potentially result in savings without impairing essential functions and characteristics in the facility. Essential functions and characteristics include, but are not limited to, service life, reliability, economy of operation, ease of maintenance, standardized features, safety, satisfaction of customer needs, desired ability, and special design requirements.

- B. The Contractor shall formally submit, as a minimum, the following information to be reviewed for the value engineering proposal.
1. A statement that the proposal is submitted as a value engineering proposal.
 2. A detailed description of the existing work and the proposed changes for performing the work. Include a discussion of the comparative advantages and disadvantages of each.
 3. A statement of the time by which the Owner must execute an agreement adopting the proposal to obtain the maximum cost reduction during the remainder of the Contract, and the reasoning for this time schedule.
 4. A complete set of plans and construction details, when necessary, showing proposed revisions to the original Contract prepared by a registered Professional Engineer licensed in the State of Kentucky.
 5. A complete engineering analysis of the proposed changes prepared by a registered Professional Engineer licensed in the State of Kentucky. The analysis shall include sufficient detail and information to indicate that the

proposal changes will perform or function in an equivalent or superior function to the existing design.

6. A detailed cost estimate for performing work under the existing Contract and under the proposed change. Include pay items, pay units, quantities, and unit prices. Include in the unit prices all costs for labor, materials, supplies, equipment, tools, and all incidentals required for the complete incorporation of the option into the work.
7. A detailed cost estimate for costs other than those in the Contract such as future construction, design, utilities, maintenance and operations costs, and the cost to prepare the value of engineering proposal.
8. A prediction of any effects the proposed changes would have on Owner's costs other than construction, such as maintenance and operation costs and life cycle costs.
9. A statement of the effect the proposal would have on the time for completion of the Contract.

The Engineer will review the formal proposal and if acceptable will execute a change order that incorporates the necessary Contract modifications. Unless and until the Owner executes a change order, perform all work according to the terms of the existing Contract. The Engineer reserves the right to include in the change order any conditions deemed appropriate for consideration, approval, and the implementation of the value of engineering proposal.

The Engineer's approval of a value engineering proposal voids any restrictions that the Contractor had imposed on the use or disclosure of the information that the Contractor included in the value engineering proposal. The Owner and the Engineer then have the right to use, duplicate, and disclose, in whole or in part, any data necessary to implement any portion of the proposal on this project and all other projects.

The Owner and the Engineer will not be liable for any delay in acting upon any value engineering proposal. The Owner and the Engineer will allow the withdrawal, in whole or in part, of any value engineering proposal that has not been accepted within the period specified with the proposal.

The decision of the Engineer to accept or reject a value engineering proposal will be final. The Engineer will make written notification of the decision to accept or reject each value engineering proposal submitted under the provisions of this section. The Owner reserves the right not to consider any value engineering proposal.

- C. The Engineer will adjust the Contract completion time for any time savings realized by implementing a value engineering proposal. The Owner will not provide any incentive pay for early completion days resulting from a time savings related to an approved value engineering proposal. The Engineer will grant additional contract time when specified in the change order.

- D. The Engineer will measure the net savings in cost by subtracting the estimated construction costs of the proposed and accepted option and all other costs associated with the option, such as design, right-of-way, utilities, the cost of preparing the value engineering proposal, and the Engineering review costs, from the estimated construction costs in original Contract for the option.
- E. The Owner will make payment for 50 percent of the net savings in cost. The Owner will consider payment as full compensation for all work required under this section.

1.08 CONTRACTOR REIMBURSEMENT TO OWNER FOR OVERTIME

The Owner shall deduct from Contractor's earning the engineering and inspection costs associated with Contractor working overtime. Overtime will be defined as working more than 40 hours per week or beyond the 8-hour day for 5-day work week, or beyond the 10-hour day for 4-day work week. The Contractor shall compensate the Owner for extra inspection services at the rate of \$85.00 per excess hour.

PART 2 - PRODUCTS

2.01 MOBILIZATION

- A. Measurement shall be on the lump sum basis. In no case shall the lump sum unit price exceed two percent (2%) of the total Bid amount.
- B. This item includes all costs incurred for moving equipment onto the Project area and any pertinent costs related thereto.
- C. Payment will be on the basis of the unit price Bid for the item.

2.02 GENERAL CONDITIONS

- A. Measurement shall be on the lump sum basis. In no case shall the lump sum unit price exceed seven percent (7%) of the total Bid amount.
- B. This item includes insurance, Performance, Payment, and Warranty Bonds, establishing and providing temporary utilities, and all other items required under bidding requirements, Contract forms, conditions of the Contract, and the Specifications and Drawings.
- C. Payment will be on the basis of the unit price Bid for the item.

2.03 DEMOBILIZATION

- A. Measurement shall be on the lump sum basis. In no case shall the lump sum unit price be less than one percent (1%) of the total Bid amount.

Measurement and Payment
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- B. This item includes all costs incurred for removing equipment and materials from the Project area and any pertinent costs related thereto.
- C. Payment will be on the basis of the unit price Bid for the item.

2.04 INSPECT, EVALUATE, AND CLEAN EXISTING SYSTEM PIPING

- A. Measurement shall be on the lump sum basis.
- B. This item includes all necessary labor, materials, equipment, services, and incidentals required to visually inspect by means of closed-circuit television (CCTV) the designated line sections including, but not limited to, recording and playback equipment, materials, and supplies. This also includes all labor, materials, equipment, and incidentals required to clean all existing pipe and fittings and removal and proper disposal of all sludge, mud, sand, gravel, rocks, sediment, and all other debris from the interior of the lines. The piping to be inspected and cleaned includes approximately 1,300 linear feet of 6-inch pipe from the existing wet well to the effluent at the equalization basin and approximately 80 linear feet of piping from the equalization basin to the existing valve vault.
- C. Payment will be on the basis of the unit price Bid for the item.

2.05 REMOVAL OF ACCUMULATED SEDIMENT IN THE EQ BASIN (10% OF EQ BASIN CAPACITY)

- A. Measurement shall be on the basis of cubic yards.
- B. This item includes all labor, materials, and equipment for removal of accumulated sediment from the equalization basin, hauling removed material, and proper disposal of removed material.
- C. Payment will be on the basis of the unit price Bid per cubic yard.

2.06 REPLACEMENT AND INSTALLATION OF PUMP FOR WELL A-10

- A. Measurement shall be on the per unit basis of each pump installed.
- B. This item includes all labor, materials, and equipment for installation of the pump and yard hydrant for well A-10. This includes the pump and motor, cable for pulling pump, discharge line, yard hydrant with hose bibb, and all other accessories for the functioning pumping system as specified and shown on the Drawings.
- C. Payment will be on the basis of the unit price Bid for the item.

2.07 LEACHATE MANAGEMENT DURING CONSTRUCTION

Measurement and Payment
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- A. Measurement shall be on the basis of each month of leachate management during construction.
- B. This item includes all labor, materials, and equipment for proper management of the leachate and developing a leachate management plan. This includes, but is not limited to, portable pumps, temporary piping, storage, and any other incidentals necessary for on-site leachate management. Based upon historic data (2016-2022) the average amount of leachate generated was 4.4 million gallons per month for winter (December to March) and 1.8 million gallons for summer (June to September). The overall annual average was 34.5 million gallons per year. Leachate production is seasonal and will vary.
- C. Payment will be on the basis of the unit price Bid per month.

2.08 OVERLINER OVER EXISTING LINER FOR THE EQ BASIN (WHITE 60-MIL HDPE)

- A. Measurement shall be on the basis of square feet of installed 60-mil HDPE geomembrane liner.
- B. This item includes all labor, materials, and equipment for the placement and installation of the 60-mil textured HDPE geomembrane liner over the existing liner for the equalization basin in accordance with the Specifications and Drawings. This item includes all seaming, patching, and testing that will occur during the installation process. Also included in this item is shipping and unloading the materials, transportation of the materials from the staging area to the area of use, deployment of the material, and seaming of the textured HDPE geomembrane liner. Excess, waste, overlapping material or patching material is considered incidental to this item. Any work or materials necessary for any pipe penetrations are included in this item.
- C. Payment will be on the basis of the unit price Bid per square foot.

2.09 VEGETATION REMOVAL – WETLANDS CELL 1

- A. Measurement shall be on the basis of acres.
- B. This item includes all labor, materials, and equipment for the removal and proper disposal of the existing vegetation from the wetlands cell.
- C. Payment will be on the basis of the unit price Bid per acre.

2.10 SUBSTRATE REMOVAL – WETLANDS CELL 1

- A. Measurement shall be on the lump sum basis.

- B. This item includes all labor, materials, and equipment for the removal and proper disposal of the existing substrate material (gravel) from the wetlands cell.
- C. Payment will be on the basis of the unit price Bid for the item.

2.11 REPLACE GEOTEXTILE – WETLANDS CELL 1

- A. Measurement shall be on the basis of square yards of geotextile installed.
- B. This item includes all labor, materials, and equipment to transport the geotextile to the job site, place the geotextile in the wetlands cell, seaming geotextile sections together, and any other incidentals for the installation of the geotextile as specified and as shown on the Drawings.
- C. Payment will be on the basis of the unit price Bid per square yard.

2.12 SUBSTRATE REPLACEMENT – WETLANDS CELL 1

- A. Measurement shall be on the basis of cubic yards of gravel placed in the wetlands cell.
- B. This item includes all labor, materials, and equipment to haul the gravel to the site and place in the wetlands cell as specified herein and shown on the Drawings.
- C. Payment will be on the basis of the unit price Bid per cubic yard.

2.13 REPLANTING VEGETATION – WETLANDS CELL 1

- A. Measurement shall be on the lump sum basis.
- B. This item includes all labor, materials, and equipment to replant the vegetation in the wetlands cell as specified herein and shown on the Drawings.
- C. Payment will be on the basis of the unit price Bid for the item.

2.14 VEGETATION REMOVAL – WETLANDS CELL 2

- A. Measurement shall be on the basis of acres.
- B. This item includes all labor, materials, and equipment for the removal and proper disposal of the existing vegetation from the wetlands cell.
- C. Payment will be on the basis of the unit price Bid per acre.

2.15 SUBSTRATE REMOVAL – WETLANDS CELL 2

- A. Measurement shall be on the lump sum basis.

Measurement and Payment
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- B. This item includes all labor, materials, and equipment for the removal and proper disposal of the existing substrate material (gravel) from the wetlands cell.
- C. Payment will be on the basis of the unit price Bid for the item.

2.16 REPLACE GEOTEXTILE – WETLANDS CELL 2

- A. Measurement shall be on the basis of square yards.
- B. This item includes all labor, materials, and equipment to transport the geotextile to the job site, place the geotextile in the wetlands cell, seaming geotextile sections together, and any other incidentals for the installation of the geotextile as specified and as shown on the Drawings.
- C. Payment will be on the basis of the unit price Bid per square yard.

2.17 SUBSTRATE REPLACEMENT – WETLANDS CELL 2

- A. Measurement shall be on the basis of cubic yards.
- B. This item includes all labor, materials, and equipment to haul the gravel to the site and place in the wetlands cell as specified herein and shown on the Drawings.
- C. Payment will be on the basis of the unit price Bid per cubic yard.

2.18 REPLANTING VEGETATION – WETLANDS CELL 2

- A. Measurement shall be on the lump sum basis.
- B. This item includes all labor, materials, and equipment to replant the vegetation in the wetlands cell as specified herein and shown on the Drawings.
- C. Payment will be on the basis of the unit price Bid for the item.

2.19 INSPECT/REPAIR WETLAND CELL SUMPS AND MANHOLES

- A. Measurement shall be on the lump sum basis.
- B. This item includes all labor, materials, and equipment to inspect and make necessary repairs of the wetland sumps and manholes.
- C. Payment will be on the basis of the unit price Bid for the item.

2.20 ELECTRICAL UPGRADES/TIE-IN

- A. Measurement shall be on the lump sum basis.

- B. This item includes all labor, materials, and equipment necessary to install all the electrical components and work as shown on the Drawings and detailed in the Specifications.
- C. Payment will be on the basis of the unit price Bid for the item.

2.21 SURFACE AERATORS

- A. Measurement shall be on the lump sum basis.
- B. This item includes all labor, materials, and equipment for installation of the surface aerators in the equalization basin. This includes all accessories for mooring/anchoring per manufacturer's recommendations and electrical components for a complete functional system.
- C. Payment will be on the basis of the unit price Bid for the item.

2.22 INSTRUMENTATION

- A. Measurement shall be on the lump sum basis.
- B. This item includes all labor, materials, and equipment for installation of the instrumentation. This includes all incidentals, accessories, and testing for a complete functional system.
- C. Payment will be on the basis of the unit price Bid for the item.

2.23 BAFFLE SYSTEM (CURTAIN STYLE)

- A. Measurement shall be on the lump sum basis.
- B. This item includes all labor, materials, and equipment necessary to install the baffle system as shown on the Drawings and detailed in the Specifications. This includes all accessories for mooring/anchoring per manufacturer's recommendations.
- C. Payment will be on the basis of the unit price Bid for the item.

2.24 END CAP

- A. Measurement shall be on the per unit basis of each end cap installed.
- B. This item includes all labor, materials, and equipment necessary to remove the existing plug, fuse new 45° elbow, fuse new pipe extension, and install end cap.
- C. Payment will be on the basis of the unit price Bid for the item.

2.25 AERATION SYSTEM CALIBRATION/ STARTUP

- A. Measurement shall be on the lump sum basis.

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- B. This item includes all labor, materials, and equipment necessary for calibration and startup of the aeration system as shown the Drawings and detailed in the Specifications. This includes inspection of the installation by the Manufacturer's field engineer or service representative and be present for initial the start-up and testing of equipment.
- C. Payment will be on the basis of the unit price Bid for the item.

2.26 STORMWATER POLLUTION PREVENTION PLAN & EROSION CONTROL

- A. Measurement shall be on the lump sum basis.
- B. This item includes the development of the Storm Water Pollution Prevention Plan (SWPPP), submittal of the proper forms to the Kentucky Division of Water to obtain The Kentucky General Permit for Stormwater (KYR10) and adhering to the requirements of the SWPPP and the KYR10. This item also includes the installation, maintenance, and removal of all erosion control measures in accordance with the Contractor's SWPPP and the KYR10 permit and obtaining a Land Disturbance Permit (LDP) from LFUCG and adhering to the requirements of the LDP. For erosion control purposes, the Contractor is responsible for maintaining disturbed areas until 70% revegetation growth is achieved.
- C. Payment will be on the basis of the unit price Bid for the item. Twenty-Five (25%) percent will be paid after preparing the SWPPP, obtaining the KYR10, obtaining the LDP, and after complete installation of the initial erosion and sediment controls (ESCs). Fifty (50%) percent will be paid in equal monthly payments for maintenance over the construction period. Twenty-Five (25%) percent will be paid after final stabilization and removal of the ESCs.

2.27 SURVEYING AND CONSTRUCTION STAKING

- A. Measurement shall be on the lump sum basis.
- B. This item includes surveying for the purpose of calculating lengths, areas, and volumes for payment, and construction staking to indicate how the improvements are to be constructed as shown on the Drawings and preparing record documents and as-built data collection to show conformance with the required depths and slopes as shown on the Drawings. Included in this item are the surveys of all constructed items.
- C. Payment will be on the basis of the unit price Bid for the item. Twenty-Five (25%) percent will be paid after initial setup of control and staking. Fifty (50%) percent will be paid in equal monthly payments for continuing construction staking and collection of as-built data over the construction period. Twenty-Five (25%) percent will be paid after final development and submittal of as-built survey data.

2.28 ANCHOR BERM/ TRENCH (EQ. BASIN)

- A. Measurement shall be on the basis of linear feet of anchor berm/trench installed.
- B. This item includes all labor, materials, and equipment to excavate for anchor berm/trench, place geomembrane and geotextile in trench (geomembrane listed separately), place soil, compact and grade soil, and maintain the surface in an appropriate manner for inspection by the Engineer as per Specifications and to the grades/contours as shown on the Drawings.
- C. Payment will be on the basis of the unit price Bid per linear feet.

2.29 ANCHOR BERM/ TRENCH (WETLANDS CELLS 1 AND 2)

- A. Measurement shall be on the basis of linear feet of anchor berm/trench installed.
- B. This item includes all labor, materials, and equipment to excavate for anchor berm/trench, place geomembrane in trench (geomembrane and geotextile listed separately), place soil, compact and grade soil, and maintain the surface in an appropriate manner for inspection by the Engineer as per Specifications and to the grades/contours as shown on the Drawings.
- C. Payment will be on the basis of the unit price Bid per linear feet.

2.30 60 – MIL TEXTURED HDPE (WETLANDS CELLS 1 AND 2)

- A. Measurement shall be on the basis of square yards.
- B. This item includes all labor, materials, and equipment for the placement and installation of the white 60-mil textured HDPE geomembrane liner over the existing liner for the wetlands cells in accordance with the Specifications and Drawings. This item includes all seaming, patching, and testing that will occur during the installation process. Also included in this item is shipping and unloading the materials, transportation of the materials from the staging area to the area of use, deployment of the material, and seaming of the textured HDPE geomembrane liner. Excess, waste, overlapping material or patching material is considered incidental to this item. Any work or materials necessary for any pipe penetrations are included in this item.
- C. Payment will be on the basis of the unit price Bid per square yard.

2.31 NO. 57 STONE (PERIMETER AND ACCESS ROADS)

- A. Measurement shall be on the basis of tons according to delivery tickets of haul trucks. The Engineer or his representative must be presented a copy of the ticket at the time of delivery.

- B. This item includes all labor, materials, and equipment to haul the No. 57 crushed stone to the site and place for the perimeter and access roads as specified herein and shown on the Drawings. This item also includes acceptable repair of the existing roads due to construction in preparation for the new crushed stone.
- C. Payment will be on the basis of the unit price Bid per ton. Excess stone delivered to the site that is not incorporated in the Work will not be paid.

2.32 NO. 57 STONE (EQ. BASIN PERIMETER)

- A. Measurement shall be on the basis of tons.
- B. This item includes all labor, materials, and equipment to haul the No. 57 stone from quarry, spread, and roller compact the stone in lifts as specified and as shown on the Drawings.
- C. Payment will be on the basis of the unit price Bid per ton.

2.33 6-INCH HDPE SOLID PIPE

- A. Measurement shall be on the basis of linear foot along the centerline of the pipe installed.
- B. This item includes all labor, materials, and equipment to install the solid HDPE pipe. This includes jointing of pipe, fittings (where necessary), flanges, laying pipe to grade, connection of the HDPE pipe to the existing pipe near the valve vault, connection to the existing force main, excavation and backfill, bedding stone, line markers, and any other incidentals to install the pipe as specified and shown on the Drawings. While making the connection to the existing pipe, the existing pump station shall be turned off to prevent leachate flow. The pump station must be turned on when valves are installed and properly adjusted for flow.
- C. Payment will be on the basis of the unit price Bid per linear foot.

2.34 10 OZ/YD2 NON-WOVEN GEOTEXTILE (EQ. BASIN PERIMETER STONE)

- A. Measurement shall be on the basis of square yards.
- B. This item includes all labor, materials, and equipment to transport the geotextile to the job site, place the geotextile around the perimeter of the equalization basin, seaming geotextile sections together, and any other incidentals for the installation of the geotextile as specified and as shown on the Drawings.
- C. Payment will be on the basis of the unit price Bid per square yard.

2.35 6 – INCH GATE VALVE WITH BOLLARD PROTECTION

Measurement and Payment
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- A. Measurement shall be on the per unit basis of each valve installed.
- B. This item includes all labor, materials, and equipment necessary to install the valves as shown on the Drawings and detailed in the Specifications. Included in this item are flange adapters, backup rings, installation of protective bollards, and any other incidentals necessary to make a complete functional valve as described in the Specifications and shown in the Drawings.
- C. Payment will be on the basis of the unit price Bid for this item.

2.36 6 – INCH PLUG VALVE

- A. Measurement shall be on the per unit basis of each valve installed.
- B. This item includes all labor, materials, and equipment necessary to install the valves as shown on the Drawings and detailed in the Specifications. Included in this item are flange adapters, backup rings, installation of protective bollards, any other incidentals necessary to make a complete functional valve as described in the Specifications and shown in the Drawings.
- C. Payment will be on the basis of the unit price Bid for this item.

2.37 REMOVE EXISTING AND REPLACE WITH NEW SKIMMER (IN KIND)

- A. Measurement shall be on the lump sum basis.
- B. This item includes all labor, materials, and equipment necessary to remove the existing skimmer, installing the new skimmer, and storing the existing skimmer at the location as directed by the Owner. This item also includes the includes any incidentals to make a complete functional system.
- C. Payment will be on the basis of the unit price Bid for the item.

2.38 REVEGETATION

- A. Measurement shall be on the lump sum basis.
- B. This item includes placement of topsoil, soil conditioning and preparation, seed, fertilizer, mulch, bituminous material for mulch, lime and all other labor and equipment to restore vegetation on the Project site in accordance with the Specifications. This item includes the installation of erosion control blanket on all slopes greater than 3:1.
- C. Payment will be on the basis of the unit price Bid for the item.

- END OF SECTION -

Measurement and Payment
01025-16

SECTION 01040

COORDINATION

PART 1 - GENERAL

1.01 WORK INCLUDED

- A. The Contractor shall coordinate the Work of all trades and subcontractors engaged on the Work, and the Contractor shall have final responsibility in regard to the schedule, workmanship, and completeness of each and all parts of the Work.
- B. All trades and subcontractors shall be made to cooperate with each other and with others as they may be involved in the installation of Work which adjoins, incorporates, precedes or follows the Work of another. It shall be the Contractor's responsibility to point out areas of cooperation prior to execution of subcontract agreements and the assignment of the parts of the Work. Each trade and subcontractor shall be made responsible to the Owner, for furnishing embedded items, giving directions for doing all cutting and fitting, making all provisions for accommodating the Work, and for protecting, patching, repairing, and cleaning as required to satisfactorily perform the Work.
- C. The Contractor shall be responsible for all cutting, digging, and other action of his subcontractors and workmen. Where such action impairs the safety or function of any structure or component of the project, the Contractor shall make such repairs, alterations, and additions, in the opinion of the Engineer, to bring said structure or component back to its original design condition at no additional cost to the Owner.
- D. Each subcontractor is expected to be familiar with the general requirements and all sections of the detailed Specifications for all other trades and to study all Drawings applicable to this Work. Each Contractor shall consult with the Engineer if conflicts exist on the Drawings.
- E. No extra compensation will be allowed to cover the cost of removing piping, conduits, etc., or equipment found encroaching on space required by others.
- F. The Contractor shall keep access open to the existing operations of the facility. The Contractor shall coordinate with the facility personnel as needed.

- END OF SECTION -

Coordination
01040-1

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SECTION 01045

CUTTING AND PATCHING

PART 1 - GENERAL

1.01 WORK INCLUDED

- A. Provide cutting and patching work to properly complete the Work of the project for connecting to existing piping, structures, and liner components.
- B. Do not cut and patch in a manner that would result in a failure of the Work to perform as intended, decreased energy performance, increased maintenance, decreased-operational life, or decreased safety.

PART 2 - PRODUCTS

2.01 MATERIALS

Match existing materials for cutting and patching work with new materials conforming to project requirements.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Inspect conditions prior to Work to identify scope and type of Work required. Protect adjacent Work. Notify Owner of Work requiring interruption to services or Owner's operations.
- B. Perform Work with workmen skilled in the trades involved. Prepare sample area of each type of Work for approval.
- C. Cutting: Use cutting tools, not chopping tools. Make neat holes. Minimize damage to adjacent Work. Check for concealed utilities and structures before cutting.
- D. Patching: Make patches, seams, and joints durable and inconspicuous. Comply with tolerances for new Work. Perform testing as required.
- E. Clean Work area and areas affected by cutting and patching operations.
- F. Any cuts or damages to the existing liner system created by construction activities shall be repaired (with minimum 6-inch overlay of new liner items) at no additional cost to the Owner.

- END OF SECTION -

Cutting and Patching
01045-1

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SECTION 01092

ABBREVIATIONS

PART 1 - GENERAL

1.01 SUMMARY

Where any of the following abbreviations are used in the Contract Documents, they shall have the meaning set forth as follows.

1.02 ABBREVIATIONS

| | |
|--------|--|
| AASHTO | American Association of State Highway and Transportation Officials |
| AC | Alternating Current |
| ACI | American Concrete Institute |
| ADA | Americans with Disabilities Act |
| AFBMA | Anti-Friction Bearing Manufacturers Association, Inc. |
| ANSI | American National Standards Institution, Inc. |
| ASCII | American Standard Code for Information Interchange |
| ASHRAE | American Society of Heating, Refrigerating and Air Conditioning Engineers, Inc |
| ASTM | American Society for Testing and Materials |
| AWG | American Wire Gauge |
| AWPA | American Wood Preservers Association |
| AWWA | American Water Works Association |
| BMP | Best Management Practice |
| CCTV | Closed-Circuit Television |
| CD | Compact Disc |
| CL | Clay Soil with Low to Medium Plasticity |
| CMB | Certified Ballast Manufacturers Association |

Abbreviations
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| | |
|--------|--|
| CH | Clay Soil with High Plasticity |
| CRSI | Concrete Reinforcing Steel Institute |
| CQA | Construction Quality Assurance |
| CY | Cubic Yard |
| DR | Dimension Ratio |
| DVD | Digital Video Disc |
| EJCDC | Engineers Joint Contract Documents Committee |
| EO | Excessive Over-Run |
| EQ | Existing Equalization |
| ESC | Erosion and Sediment Control |
| EU | Excessive Under-Run |
| FCC | Federal Communications Commission |
| FM | Factory Mutual System |
| FQCI | Final Quantity Contract Item |
| GCL | Geosynthetic Clay Liner |
| HDPE | High Density Polyethylene |
| HP-OIT | High Pressure Oxidative Induction Time |
| HVAC | Heating, Ventilation, and Air Conditioning |
| ICEA | Insulated Cable Engineers Association |
| IEEE | Institute of Electrical and Electronic Engineers, Inc. |
| IES | Illuminating Engineering Society of North America |
| IMC | Intermediate Metal Conduit |
| ISA | Instrument Society of America |
| JIC | Joint Industry Council |
| KBC | Kentucky Building Code |

Abbreviations
01092-2

| | |
|-------|---|
| KDOW | Kentucky Division of Water |
| KDWM | Kentucky Division of Waste Management |
| KM | Kentucky Method |
| KYR10 | The Kentucky General Permit for Stormwater |
| LDP | Land Disturbance Permit |
| LF | Linear Foot |
| LS | Lump Sum |
| MCOV | Maximum Continuous Operating Voltage |
| MD | Machine Direction |
| MQC | Manufacturing Quality Control |
| NEC | National Electrical Code |
| NEMA | National Electrical Manufacturing Association |
| NFPA | National Fire Protection Association |
| NESC | National Electrical Safety Code |
| NETA | InterNational Electrical Testing Association |
| NOI | Notice of Intent |
| NOT | Notice of Termination |
| NP | New Unit Price |
| OP | Original Unit Price Bid By Contractor |
| OSHA | Occupational Safety and Health Act |
| PACP | Pipeline Assessment and Certification Program |
| PE | Polyethylene |
| PSI | Pounds per Square Inch |
| PSIG | Pounds per Square Inch Gauge |

Abbreviations
01092-3

| | |
|---------|--|
| PVC | Polyvinyl Chloride |
| QA/QC | Quality Assurance/Quality Control |
| REA | Rural Electrification Association |
| RFI | Request for Information |
| RPM | Revolutions Per Minute |
| RPR | Resident Project Representative |
| SCADA | Supervisory Control and Data Acquisition |
| SDI | Slake Durability Index |
| SDR | Standard Dimension Ratio |
| SPD | Surge Protection Device |
| SP-NCTL | Single Point Notched Constant Tensile Load |
| SVR | Suppression Voltage Rating |
| SWPPP | Storm Water Pollution Prevention Plan |
| SY | Square Yard |
| TEAO | Totally Enclosed, Air Over |
| TEFC | Totally Enclosed, Fan-Cooled |
| THW | Thermoplastic Heat Water |
| THWN | Thermoplastic High Water-Resistant, Nylon Coated |
| UBC | Uniform Building Code |
| UL | Underwriters Laboratories |
| USCS | Unified Soil Classification System |
| UV | Ultraviolet |
| W/C | Water-Cement |
| XMD | Cross Machine Direction |

- END OF SECTION -

Abbreviations
01092-4

- END OF SECTION -

Abbreviations
01092-5

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SECTION 01200

PROJECT MEETINGS

PART 1 - GENERAL

1.01 PRECONSTRUCTION CONFERENCE

- A. Prior to commencing the Work, a preconstruction conference will be held at the job site and representatives of the following organizations shall have at least one representative in attendance:

Owner, Engineer, Contractor, major subcontractors and representatives of the appropriate state and federal agencies as they choose.

- B. The preconstruction conference will be for the purpose of reviewing procedures to be followed concerning the orderly flow of required paperwork; coordination of the various parties involved with the project, review of Shop Drawing submittals, Contract time, liquidated damages, payment estimates, Change Orders, and other items of interest to the parties involved.

1.02 PROGRESS MEETINGS

- A. Monthly progress meetings will be held on-site. The Contractor's project manager and field foreman shall attend these meetings.
- B. Contractor must submit monthly progress report that includes a summary of work completed and a summary of any issues.
- C. Progress meetings may be held more than monthly if required.

- END OF SECTION -

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SECTION 01300

SUBMITTALS

PART 1 - GENERAL

1.01 WORK INCLUDED

Shop drawings, descriptive literature, product data and samples (when samples are specifically requested) for all manufactured or fabricated items shall be submitted by the Contractor to the Engineer for examination and review in the form and in the manner required by the Engineer. All submittals shall be furnished electronically or in at least two (2) bound hard copies and shall be checked and reviewed by the Contractor before submission to the Engineer. The Contractor shall mark or stamp the submittal "approved" along with the Contractor's business name, reviewer signature, and date reviewed prior to submitting to the Engineer. The review of the Submittals by the Engineer shall not be construed as a complete check, but will indicate only that the general method of construction and detailing is satisfactory and conforms with design intent. Review of such Submittals will not relieve the Contractor of the responsibility for any errors which may exist as the Contractor shall be responsible for the dimensions and design of adequate connections, details, and satisfactory construction of all Work.

1.02 RELATED SECTIONS

General Conditions

1.03 DEFINITIONS

The term "submittals" shall mean Shop Drawings, manufacturer's drawings, catalog sheets, brochures, descriptive literature, diagrams, schedules, calculations, material lists, performance charts, test reports, office and field samples, operation and maintenance manuals, and items of similar nature which are normally submitted for the Engineer's review for conformance with the design concept and compliance with the Contract Documents.

1.04 GENERAL CONDITIONS

- A. Review by the Engineer of Submittals shall not relieve the Contractor from the responsibilities of furnishing same of proper dimension, size, quality, quantity, materials, and all performance characteristics to efficiently perform the requirements and intent of the Contract Documents. Review shall not relieve the Contractor from responsibility for errors of any kind on the Submittals. Review is intended only to assure conformance with the design concept of the project and compliance with the information given in the Contract Documents.
- B. Review of Submittals shall not be construed as releasing the Contractor from the responsibility of complying with the Specifications.

Submittals
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- C. The Engineer will review the first and second Submittal for a particular item at no cost to the Contractor. Review of the third and any subsequent submittals shall be at the Contractor's expense. The expense shall be at a rate of \$150.00 per hour of review time. Payment will be deducted from the Contract, when final payment of the Contract is paid.

1.05 GENERAL REQUIREMENTS FOR SUBMITTALS

A. Progress Schedule

1. Within thirty (30) days after execution of the Agreement, but at least twenty (20) days prior to submitting the first application for a progress payment, the Contractor shall prepare and submit his proposed progress schedule to the Engineer for review and approval.
2. If so required, the schedule shall be revised until it is approved by the Engineer.
3. The schedule shall be prepared in the form of a horizontal bar chart showing in detail the proposed sequence of the work and identifying construction activities for each structure and for each portion of work.
4. The schedule shall be time scaled, identifying the first day of each week. The schedule shall be provided with estimated dates for Early Start, Early Finish, Late Start and Late Finish as applicable. The work shall be scheduled to complete the Project within the Contract time. The Late Finish date shall equal the Contract Completion Date.
5. The schedule shall show duration (number of days) and float for each activity. Float shall be defined as the measure of leeway in starting or completing a scheduled activity without adversely affecting the project completion date established by the Contract Documents.
6. All revisions to the schedule must be reviewed and commented on by the Engineer.
7. An updated Progress Schedule shall be submitted with each Pay Application.

B. Equipment and Material Orders Schedule

1. Contractor shall prepare and submit his schedule of principal items of equipment and materials to be purchased to the Engineer for review and approval.
2. If so required, the schedule shall be revised until it is approved by the Engineer.

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3. The updated schedule shall be based on the Progress Schedule developed under the requirements of Paragraph 1.0 of this Section.
4. The schedule shall be in tabular form with appropriate spaces to insert the following information for principal items of equipment and materials:
 - a. Dates on which Shop Drawings are requested and received from the manufacturer.
 - b. Dates on which certification is received from the manufacturer and transmitted to the Engineer.
 - c. Dates on which Shop Drawings are submitted to the Engineer and returned by the Engineer for revision.
 - d. Dates on which Shop Drawings are revised by manufacturer and resubmitted to the Engineer.
 - e. Date on which Shop Drawings are returned by Engineer annotated either "Furnish as Submitted" or "Furnish as Corrected".
 - f. Date on which accepted Shop Drawings are transmitted to manufacturer.
 - g. Date of manufacturer's scheduled delivery.
 - h. Date on which delivery is actually made.

C. Working Drawings

1. Within thirty (30) days after the Notice to Proceed, Contractor shall prepare and submit his preliminary schedule of Working Drawing submittals to the Engineer for review and approval. If so required, the schedule shall be revised until it is approved by the Engineer.
2. Working Drawings include, but are not limited to, Shop Drawings, layout drawings in plan and elevation, installation drawings, etc. Contractor shall be responsible for securing all of the information, details, dimensions, Drawings, etc., necessary to prepare the Working Drawings required and necessary under this Contract and to fulfill all other requirements of his Contract. Contractor shall secure such information, details, Drawings, etc., from all possible sources including the Drawings, Working Drawings prepared by subcontractors, Engineers, suppliers, etc.

D. Shop Drawings and Manufactured Item Information

1. Contractor shall submit for review by the Engineer Shop Drawings for all fabricated work and for all manufactured items required to be furnished by the Contract Documents.

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2. Structural and all other layout Drawings prepared specifically for the Project shall have a plan scale of not less than 1/4-inch = 1 foot.
3. The submitted documents shall provide information indicating that the materials are in conformance with the Technical Specifications and Contract Documents.
4. Where manufacturer's publications in the form of catalogs, brochures, illustrations or other data sheets are submitted in lieu of prepared Shop Drawings, such submittals shall specifically indicate the item for which approval is requested. Identification of items shall be made in ink, and submittals showing only general information are not acceptable.

E. Contractor Responsibilities

1. All submittals from subcontractors, manufacturers or suppliers shall be sent directly to the Contractor for checking. Contractor shall thoroughly check all Drawings for accuracy and conformance to the intent of the Contract Documents. Drawings found to be inaccurate or otherwise in error shall be returned to the subcontractors, manufacturers, or suppliers by the Contractor for correction before submitting them to the Engineer.
2. All submittals shall be bound, dated, properly labeled and consecutively numbered. Information on the label shall indicate Specification Section, Drawing number, subcontractors', manufacturer's or supplier's name and the name or type of item the submittal covers. Each part of a submittal shall be marked and tabulated.
3. Working Drawings shall be submitted as a single complete package including all associated drawings relating to a complete assembly of the various parts necessary for a complete unit or system.
4. Shop Drawings shall be submitted as a single complete package for any operating system and shall include all items of equipment and any mechanical units involved or necessary for the functioning of such system.
5. ALL SUBMITTALS SHALL BE THOROUGHLY CHECKED BY THE CONTRACTOR FOR ACCURACY AND CONFORMANCE TO THE INTENT OF THE CONTRACT DOCUMENTS BEFORE BEING SUBMITTED TO THE ENGINEER AND SHALL BEAR THE CONTRACTOR'S STAMP OF APPROVAL CERTIFYING THAT THEY HAVE BEEN SO CHECKED. SUBMITTALS WITHOUT THE CONTRACTOR'S STAMP OF APPROVAL WILL NOT BE REVIEWED BY THE ENGINEER AND WILL BE RETURNED TO THE CONTRACTOR.
6. If the submittals contain any departures from the Contract Documents, specific mention thereof shall be made in the Contractor's letter of

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transmittal. Otherwise, the review of such submittals shall not constitute approval of the departure.

7. No materials shall be ordered, fabricated or shipped or any work performed until the Engineer returns to the Contractor the submittals.
8. Where errors, deviations, and/or omissions are discovered at a later date in any of the submittals, the Engineer's prior review of the submittals does not relieve the Contractor of the responsibility for correcting all errors, deviations, and/or omissions.

F. Procedure for Review

1. Submittals shall be transmitted in sufficient time to allow the Engineer ample time for review and processing.
2. Engineer prefers initial submittals be in electronic media for review.
3. If Contractor does not have capability to submit electronic submittals, then Contractor shall submit a request to Engineer for waiver. In the event a waiver is granted, Contractor shall transmit a minimum of two (2) prints of each submittal to the Engineer for review.
4. Submittals shall be accompanied by a letter of transmittal containing date, project title, Contractor's name, number and titles of submittals, notification of departures and any other pertinent data to facilitate review.
5. Submittals will be annotated by the Engineer in one of the following ways:
 - "Furnish as Submitted" or "No Exceptions Taken" - no exceptions are taken. No resubmittal is required.
 - "Furnish as Corrected" or "Note Markings" - minor corrections are noted and shall be made, but does not require a resubmittal.
 - "Revise and Resubmit" - major corrections are noted and a resubmittal is required.
 - "Rejected" - Based on the information submitted, the submission is not in conformance with the Contract Documents. The deviations from the Contract Documents are too numerous to list and a completely revised submission of the proposed equipment or a submission of other equipment is required.
 - "Acknowledge Receipt" – Submittal has been received as required.
6. If a submittal is satisfactory to the Engineer, the Engineer will annotate the submittal "Furnish as Submitted", "Furnish as Corrected", or "No Exceptions Taken" and return to the Contractor.

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7. If a resubmittal is required, the Engineer will annotate as such.
8. Contractor shall revise and resubmit submittals as required by the Engineer until submittals are acceptable to the Engineer. It is understood by the Contractor that Owner may charge the Contractor the Engineer's charges for review in the event a submittal is not approved (either "Furnish as Submitted" or "Furnish as Corrected") by the third submittal for a system or piece of equipment. These charges shall be for all costs associated with engineering review, meetings with the Contractor or manufacturer, etc., commencing with the fourth submittal of a system or type of equipment submitted for a particular Specification Section.
9. Acceptance of a Working Drawing by the Engineer will constitute acceptance of the subject matter for which the Drawing was submitted and not for any other structure, material, equipment or appurtenances indicated or shown.

G. Engineer's Review

1. Engineer's review of the Contractor's submittals shall in no way relieve the Contractor of any of his responsibilities under the Contract. An acceptance of a submittal shall be interpreted to mean that the Engineer has no specific objections to the submitted material, subject to conformance with the Contract Drawings and Specifications. The Engineer will denote any notes in red ink so as to record his comments on the submittal. Engineer may provide a tabular list of comments referencing the submittal, in lieu of, or in addition to marking the submittal.
2. Engineer's review will be confined to general arrangement and compliance with the Contract Drawings and Specifications only, and will not be for the purpose of checking dimensions, weights, clearances, fittings, tolerances, interferences, coordination of trades, etc.

H. Record Working Drawings

1. Prior to final payment, the Contractor shall furnish the Engineer one complete set of all accepted Working Drawings, including Shop Drawings.
2. Working Drawings furnished shall be corrected to include any departures from previously accepted Drawings.

1.06 CONSTRUCTION PHOTOGRAPHS

Photographs of construction shall be submitted in accordance with Section 01380.

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1.07 PAY REQUESTS

Application for payment shall be on Owner's standard form or form approved by Engineer, and in accordance with Section 01025.

1.08 CONTRACTOR RESPONSIBILITIES

- A. Verify field measurements, field construction criteria, catalog numbers and similar data.
- B. Coordinate each submittal with requirements of Work and of Contract Documents.
- C. Notify Engineer, in writing at time of submission, of deviations in submittals from requirements of Contract Documents.
- D. Begin no Work, and have no material or products fabricated or shipped which require submittal review until return of submittals with Engineer's Shop Drawing Review stamp and initials or signature indicating review.

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SECTION 01320

SURVEYING

PART 1 – GENERAL

1.01 SUMMARY

This section of the Specifications includes requirements for surveying, field engineering, and record documents.

1.02 CONTRACTOR'S SURVEYOR

Contractor is required to use an individual skilled in the practice of surveying to provide surveying services as required for layout and construction of the project as indicated on the Drawings and specified herein. As deemed appropriate by the Contractor, its surveyor shall:

- A. Determine existing conditions and features,
- B. Generate cut sheets,
- C. Provide construction control points,
- D. Provide construction stake out,
- E. Provide necessary information and documentation for construction quality control,
- F. Provide information and documentation for final Record Drawings (as-builts),
- G. Maintain and update a set of project record documents, and
- H. Other information required to execute the work in accordance with the Drawings, Specifications, and Contract.

1.03 OWNER'S SURVEYOR

The Owner's surveyor will perform the following:

- A. Provide survey control information,
- B. Verify the work as the Owner deems necessary for construction quality control, and
- C. Verify surveys for measurement and payment for the work.

Any requested construction points which will indicate both horizontal and vertical points of key construction elements shall be provided by the Engineer.

1.04 DEFINITIONS

- A. Existing Features: Existing features may include, but are not limited to the following:
 - 1. Access Roads
 - 2. Storm Water Basins
 - 3. Storm Water Channels
 - 4. Buried Piping
 - 5. Leachate Systems
 - 6. Leachate Manholes
 - 7. Groundwater Monitoring Wells
 - 8. Gas Monitoring Probes
 - 9. Utilities
 - 10. Methane Gas Collection System
- B. Independent Surveyor: A surveyor employed by an organization that is Independent from the Contractor and acceptable to the Owner.
- C. Record Documents: See Article 3.04 of this specification.

1.05 SUBMITTALS

- A. Within 14 days before commencing work, the Contractor shall submit qualifications of Contractor's surveyor in accordance with Section 01300 - Submittals. Submit surveyor's name, Commonwealth professional license number, experience, and qualifications to the Owner or Owner's Representative:
- B. **Project Record Documents:** Upon Substantial Completion of the Work, deliver survey record documents and data to Engineer. Final payment will not be made until Owner receives satisfactory record documents. Accompany record documents with transmittal form containing:
 - 1. Date.
 - 2. Project title and number.
 - 3. Contractor's name and address.
 - 4. Title and number of each record document.
 - 5. Certification that each document as submitted is complete and accurate.
 - 6. Signature of Contractor and certification by Contractor's Surveyor.
- C. Provide survey data, in ASCII file format (.txt) or comma-separated values file format (.csv) in Microsoft Excel, as required for measurement and payment of items

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in accordance with the Specifications. The survey data shall include point identifiers, northings, eastings, elevations, and descriptions.

1.06 SITE CONDITIONS

- A. **Existing Grades:** The Contract Drawings depict surface elevations. Filling activities, maintenance activities, regrading, and routine settlement have occurred since the original survey.
- B. **Existing Features:** Contractor is required to field verify the location of existing features. Owner record drawings are available to the Contractor. The existence and location of features are not guaranteed. Before beginning site work, investigate and verify the existence and location of underground utilities and existing features. Owner and Owner's representatives take no responsibility for the accuracy of these record drawings implied or otherwise.
- C. **Field Verification:** Prior to construction, verify the location of existing features at points of connection or tie-in to the Work.
- D. **Field Conditions and Measurements:** The Contractor shall base all measurements, both horizontal and vertical, from established benchmarks. The Contractor shall be responsible for field verification of all dimensions and conditions at the job site.
- E. **Discrepancies:** Should the Contractor discover any discrepancy between actual conditions and those indicated which prevent following good practice or the intent of the Drawings and Specifications, he shall notify Owner in writing and request clarification and instructions on how to proceed. The Contractor shall not proceed with his work until he has received the same from Owner.
- F. **No Additional Payment:** No claims shall be made for extra payment or extensions of Contract completion time if the Contractor fails to notify the Owner of any discrepancy before proceeding with the aspect of the Work.

PART 2 – PRODUCTS (Not Applicable)

PART 3 – EXECUTION

3.01 QUALIFICATIONS OF CONTRACTOR'S SURVEYOR

The Contractor shall use an individual skilled in the practice of surveying.

3.02 FIELD SURVEY WORK

- A. **Control Points:** Engineer will identify existing project control points, if any, at the site for the Contractor.
- B. **Benchmarks:** Establish and maintain a minimum of two permanent benchmarks on the site, referenced to data established by survey control points. Record benchmark locations, with horizontal and vertical data, on Project Record Documents. Do not

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change or relocate benchmarks or control points without prior written approval by the Owner. Promptly report lost or destroyed reference points or requirements to relocate reference points because of necessary changes in grades or locations.

- C. **Site Improvements:** Work from lines and levels established by benchmarks and markers to set lines and levels as needed to properly locate each element of the Project. Locate and lay out site improvements, including stakes for slopes, grading, fill and topsoil placement, utility slopes and invert elevations by instrumentation and similar appropriate means. Calculate and measure required dimensions within indicated or recognized tolerances. Do not scale Drawings to determine dimensions.
- D. **Relocation of Existing Utilities:** Furnish information necessary to adjust, move or relocate existing features, structures, utility poles, lines, services or other appurtenances located in, or affected by construction. Coordinate with local authorities having jurisdiction.
- E. **Surveyor's Log:** Keep neat legible notes of all measurements and calculations made by him while surveying and laying out the work. Maintain a surveyor's log of control and other survey work. Make this log available for reference.
- F. **Payment Volumes and Material Measurements:** The actual volumes of structural fill (landfill cell, site work, and sediment pond), and low permeability clay layer shall be determined by field survey. The areas to receive structural fill material or the low permeability clay layer shall be surveyed prior to placement of fill material. The survey shall be sufficient to collect data on all changes in grade or surface irregularities. Survey data shall be collected at a minimum of every 25 square feet. Upon completion of the fill placement a final survey shall be completed with the same minimum standards to be used to determine the actual volume of fill material placed and to verify the minimum thickness of the low permeability clay layer.

3.03 TOLERANCES

- A. **Positive Drainage:** Provide positive drainage for surface towards permanent drainage ways. All areas shall be graded to the minimum slopes indicated. No ponding areas are permitted. Positive drainage shall be maintained on all stormwater and gravity sewer lines. Other tolerances for specific items of work are listed where applicable.
- B. All equipment used for surveying shall have the capability of achieving a minimum accuracy of ± 0.1 foot vertically and ± 0.1 horizontally. The allowable tolerances required for construction are ± 0.1 foot vertically and ± 0.1 foot horizontally.

3.04 RECORD DOCUMENTS

Contractor shall provide documents as follows:

- A. **General:** Do not use record documents for construction purposes. Protect record documentation from deterioration and loss in a secure, fire-resistive location; provide access to record documents for the Owner's reference during normal working hours. Backup electronic documents at least once per week.

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B. Recording

1. Label and file record documents and samples in accordance with Specification Section number listings in Table of Contents of this Invitation for Bids/Project Manual. Label each document "PROJECT RECORD" in neat, large, printed letters.
2. Preparation of project record documents shall be by personnel skilled as a draftsman competent to prepare the required drawings.
3. Record and update daily record information from field notes, on set of Drawings, and copy of Invitation for Bids/Project Manual.
4. Record information concurrently (daily) with construction progress. Do not conceal work until required information is recorded.
5. Record deviations from required lines and levels, and advise Owner when deviations that exceed indicated or recognized tolerances are detected. On Project Record Drawings, record deviations that are accepted and not corrected.

- C. **Record Drawings:** Maintain a clean, undamaged set of Contract Drawings and Shop Drawings. Mark the set to show the actual installation where the installation varies substantially from the work as originally shown. Mark whichever drawing is most capable of showing conditions fully and accurately; where Shop Drawings are used, record a cross-reference at the corresponding location on the Contract Drawings. Give particular attention to concealed elements that would be difficult to measure and record at a later date.

Mark record sets with red erasable pencil. Mark new information that is important to the Owner, but was not shown on Contract Drawings or Shop Drawings. Note related Change Order numbers where applicable. Organize record drawing sheets into manageable sets, bind with durable paper cover sheets, and print suitable titles, dates and other identification on the cover of each set. Legibly mark each item to record actual construction, including:

1. Measured horizontal and vertical locations of underground utilities and appurtenances referenced to permanent surface improvements.
2. Measured locations of liner systems, internal utilities, and appurtenances concealed in construction, referenced to visible and accessible features of construction.
3. Field changes (dimensions and detail).
4. Changes by Modifications made by Owner.
5. Details not on original Contract Drawings.
6. References to related Shop Drawings and Modifications.
7. Depths of various elements of the Work in relation to datum.

- D. **Record Specifications:** Maintain one complete copy of the Project Manual, including addenda and one copy of other written construction documents such as Change Orders, Field Orders, and Requests for Information issued in printed form during construction. Mark these documents to show substantial variations in actual work performed in comparison with the text of the Specifications, Change Orders, and Field Orders. Give particular attention to substitutions, selection of options and similar information on elements that are concealed or cannot otherwise be readily discerned later by direct observation. Note related record drawing information and product data. Legibly mark up each Section to record:
1. Manufacturer, trade name, catalog number, and supplier of each product and item of equipment actually installed.
 2. Changes made by Change Order or Field Order.
 3. Other matters not originally specified.
- E. **Record Product Data:** Maintain one copy of each approved Product Data submittal. Mark these documents to show significant variations in actual work performed in comparison with information submitted. Include variations in products delivered to the site, and from the manufacturer's installation instructions and recommendations. Give particular attention to concealed products and portions of the work that cannot be otherwise be readily discerned later by direct observation. Note related Change Orders and mark-up of record drawings and Specifications.
- Upon completion of mark-up, submit complete set of record Product Data to the Owner for Owner's records.
- F. **Record Sample Submittal:** Immediately prior to the date or dates of Substantial Completion, the Contractor will meet at the site with Owner and the Owner's personnel to determine which of the submitted samples that have been maintained during progress of the work are to be transmitted to Owner for record purposes. Comply with delivery to Owner sample storage area.
- G. **As-Built Survey:** Survey final location and elevation of all pipes, wells, sumps, liner, and valves. Buried pipes and anchor trench shall be surveyed at a minimum of every 50 feet, plus at all tees, fittings, and at all breaks or changes in grade. Contractor shall determine as-built length and slope of all pipes installed under this Contract. Survey final topographic features of all constructed surfaces (access roads, ditches, structural fill, low permeability clay layer, catch basins, headwalls, gabion baskets, anchor trench, etc.). Survey shall show all changes in grade or surface irregularities. Survey data shall be collected at a minimum of every 25 square feet. Provide as-built coordinates of all surveyed points to CQA consultant in an acceptable electronic format for use in preparing as-built drawings.
- H. **Miscellaneous Record Submittals:** Refer to other Specification Sections for requirements of miscellaneous record keeping and submittals in connection with actual performance of the work. Immediately prior to the date or dates of substantial completion, complete miscellaneous records and place in good order, properly identified and bound or filed, ready for continued use and reference. Submit to the

Owner for the Owner's records. Miscellaneous record submittals include but are not limited to:

1. Field Test Records
2. Inspection Certificates
3. Manufacturer's Certificates
4. Manufacturer's Warranties

- I. All as-built survey information and record documents shall be provided to the CQA consultant within 30 days of Substantial Completion of the Work by the Contractor.

3.05 INSPECTION

Verify locations of survey control points and existing features prior to starting work. Promptly notify Owner and Owner's Surveyor of any discrepancies.

3.06 SURVEYING FOR RECORD DRAWINGS

Final measurement shall be submitted to and verified by the CQA consultant. Drawings and as-built calculations shall be checked and certified by the Contractor's Surveyor. In the event of any disagreements, the Owner's Surveyor or an Independent Surveyor may be hired by the Owner to provide supplemental information on final pay quantities to the CQA consultant.

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SECTION 01380

CONSTRUCTION PHOTOGRAPHS

PART 1 - GENERAL

1.01 WORK INCLUDED

Provide photographs of the construction throughout the progress of the Work.

1.02 RELATED WORK

- A. Section 00700 - General Conditions
- B. Section 01700 - Contract Closeout

1.03 PHOTOGRAPHY

- A. The Contractor shall take photographs at the locations and at such stages of the construction and as directed by the Engineer. Digital format shall be used. Provide all pictures for a given period in a digital format.
- B. Provide sufficient photographs of the construction for the duration of the Contract time. When directed by the Engineer, frequency of photographs may be increased.
- C. Take the photographs at the beginning, during, and completion of each major element of construction (other incidentals of work also) listed below:
 - 1. Valve installation.
 - 2. Equalization basin dewatering.
 - 3. Equalization basin lining.
 - 4. Installation of equalization basin baffle.
 - 5. Installation of aeration system.
 - 6. Removal of wetlands media.
 - 7. Wetlands lining.
 - 8. Installation of wetlands media and plants.
 - 9. Electrical work.
 - 10. Pump station improvements.
 - 11. Other work pertaining to the project.

1.04 DIGITAL PHOTOGRAPHS

- A. All photographs shall be digital. Digital photographs of all views shall be provided on compact disc (CD), thumb drive, or storage drive to the Owner. Digital pictures shall be time and date stamped.
- B. All digital videos of the pipe inspections shall be submitted to the Engineer.

1.05 TECHNIQUE

- A. All views shall provide factual presentation of the Work progress.
- B. All photographs shall provide correct exposure and focus, high resolution and sharpness, maximum depth of field, and minimum distortion.

1.06 VIEWS

The photographs shall be from varied views that show the most representative sample of the Work progress.

1.07 SUBMITTALS

Submit digital photographs with each Pay Application or at monthly progress meetings unless specifically requested sooner by the Owner or Engineer.

- END OF SECTION -

SECTION 01400

QUALITY CONTROL

PART 1 - GENERAL

1.01 WORK INCLUDED

- A. Work of all crafts and trades shall be laid out to lines and elevations as established by the Contractor from the Drawings or from instructions by the Engineer.
- B. Unless otherwise shown, all Work shall be plumb and level, in straight lines and true planes, parallel or square to the established lines and levels. The Work shall be accurately measured and fitted to tolerances as established by the best practices of the crafts and trades involved, and shall be as required to fit all parts of the Work carefully and neatly together.
- C. All equipment, materials, and articles incorporated into the Work shall be new and of comparable quality as specified. All workmanship shall be first-class and shall be performed by mechanics skilled and regularly employed in their respective trades.
- D. The Contractor shall determine that the equipment he proposes to furnish can be brought into the facility and installed in the space available. Equipment shall be installed so that all parts are readily accessible for inspection and maintenance.

1.02 TESTING SERVICES

- A. Tests, inspections, and certifications of materials, equipment, subcontractors or completed Work, as required by the various sections of the Specifications shall be provided by the Contractor and all costs shall be included in the Contract price.
- B. The Contractor shall submit to the Owner the name of testing laboratory to be employed.
- C. Contractor shall deliver written notice to the Engineer at least two (2) work days in advance of any inspections or tests to be made at the project site. All inspections or tests to be conducted in the field shall be done in the presence of the Owner or his representative.
- D. Certifications by independent testing laboratories may be by properly attested copies of the data including scientific procedures and results of tests.

1.03 CONCRETE/GROUT TESTING

Contractor shall have a minimum of four (4) concrete cylinders taken from the first delivery concrete/grout truck and for every 25 c.y. of concrete/grout or discreet concrete delivery should the amount be less than 25 c.y. even though placement may be at multiple locations. Cylinders shall be submitted to independent laboratory for testing of strength by

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breaking at 7 days, 14 days, and 28 days. Additional cylinders may be taken as deemed necessary by Engineer and all costs shall be borne by Contractor. Cylinders shall be cured on-site in same condition as concrete/grout.

1.04 CONTRACTOR'S QUALITY CONTROL

Comply with industry standards except when more restrictive tolerances or specified requirements indicate more rigid standards or more precise workmanship.

- END OF SECTION -

SECTION 01450

SERVICES OF MANUFACTURER'S REPRESENTATIVE

PART 1 - GENERAL

1.01 GENERAL

The Contractor shall comply with the manufacturer's instructions pertaining to shipping, handling, storing, installing, startup, and operation of all products and materials.

1.02 MANUFACTURER'S SERVICES

A. General

The Contractor shall provide a qualified service representative from each company manufacturing or supplying certain equipment to perform the duties herein described and as required by the various sections of the Specifications. All costs shall be included in the Contract price.

1. The service representatives shall notify the Engineer each time they intend to be at the project site and define the purpose of this visit. There will be no acknowledgment by the Owner of on-site visits by the service representative unless such visits are properly logged by the Engineer.

B. Supervision of Installation

Supervision of the workers and advice to the Engineer shall be provided to ensure that proper procedures are followed during equipment installation.

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SECTION 01510

TEMPORARY UTILITIES

PART 1 - GENERAL

1.01 DESCRIPTION

- A. The Contractor shall maintain strict supervision of use of temporary utility services.
 - 1. Enforce compliance with applicable standards.
 - 2. Enforce safety practices.
 - 3. Prevent abuse of services.
 - 4. Utility charges: Contractor shall be responsible for paying for all utilities utilized during construction.

1.02 REQUIREMENTS OF REGULATORY AGENCIES

- A. Obtain and pay for all permits as required by governing authorities.
- B. Obtain and pay for temporary easements required across property other than that of Owner.
- C. Comply with applicable codes.

1.03 REMOVAL

- A. Completely remove temporary materials, equipment, and offices upon completion of construction as directed by the Engineer.
- B. Repair damage caused by installation and restore to specified or original condition.

1.04 ELECTRICAL SERVICE

Electrical service for construction needs and for lighting and heating and cooling of the field offices shall be provided by the Contractor.

1.05 TELEPHONE SERVICE

- A. Furnish telephone service for construction needs throughout construction periods.
- B. Pay all costs for Contractor's telephone service.
- C. Do not use Owner's existing telephone system.

1.06 TEMPORARY WATER

Temporary Utilities
01510-1

The Contractor shall provide the water necessary for construction and testing. The Contractor shall supply his own hoses and any appurtenances necessary for water supply.

1.07 SANITARY FACILITIES

The Contractor shall provide self-contained portable sanitary facilities. These facilities shall be provided with disinfecting hand soap/sanitizer and toilet paper. These facilities shall be maintained on a regular basis.

- END OF SECTION -

SECTION 01530

BARRIERS

PART 1 - GENERAL

1.01 WORK INCLUDED

The Contractor shall provide all temporary barriers in conformance with local, state, and federal codes.

- END OF SECTION -

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SECTION 01540

SECURITY

PART 1 - GENERAL

1.01 WORK INCLUDED

- A. The project area has to remain safely accessible to Owner's personnel and current landfill operator activities; however, the Contractor shall provide any non-interfering security deemed necessary to protect Contractor's work, equipment, etc.
- B. Provide an adequate system to secure the project area at all times, especially during non-construction periods; the Contractor shall be solely responsible for taking proper security measures.

1.02 COSTS

Contractor shall pay for all costs for protection and security systems.

- END OF SECTION -

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SECTION 01545

PROTECTION OF WORK AND PROPERTY

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

Protection for products (including Owner-provided products) before and after installation and existing property.

1.02 RELATED REQUIREMENTS

Division 1 - General Requirements

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.01 PROTECTION AFTER INSTALLATION

- A. Project installed products and control traffic in immediate area to prevent damage.
- B. Restrict traffic of any kind across revegetated areas and completed liner system.

- END OF SECTION -

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SECTION 01550

ACCESS ROADS AND PARKING AREAS

PART 1 - GENERAL

1.01 WORK INCLUDED

- A. Access/haul roads.
- B. Temporary parking.
- C. Existing pavements and parking areas.
- D. Permanent pavements and parking areas.
- E. Maintenance.
- F. Removal and repair.

1.02 RELATED REQUIREMENTS

- A. Section 01045 - Cutting and Patching
- B. Section 01510 - Temporary Utilities

PART 2 - PRODUCTS

2.01 MATERIALS

For temporary construction: Contractor's option, but must be approved by the Owner.

PART 3 - EXECUTION

3.01 PREPARATION

Clear areas, provide proper surface and storm drainage of premises and adjacent areas.
Install erosion protection.

3.02 ACCESS ROADS

- A. Construct temporary all-weather access roads to serve the construction area, of a width and load-bearing capacity to provide unimpeded traffic for construction purposes.

- B. Construct temporary bridges and/or culverts to span low areas and allow unimpeded drainage.
- C. Extend and relocate as Work progress requires, and provide detours as necessary for unimpeded traffic flow.
- D. Locate temporary access roads as approved by the Owner and/or the Engineer.
- E. Provide and maintain access to all Owner facilities.
- F. Contractor is responsible for all costs relating to access/haul roads.

3.03 TEMPORARY PARKING

Construct temporary parking areas to accommodate use of construction personnel in an area acceptable to the Owner and/or the Engineer. Pay all costs relating to temporary parking.

3.04 MAINTENANCE

- A. Maintain traffic and parking areas in a sound condition, free of excavated material, construction equipment, products, mud, snow, and ice. Use whatever dust control measures required to prevent airborne particles.
- B. Maintain existing paved areas used for construction; promptly repair breaks, potholes, low areas, standing water, and other deficiencies to maintain paving and drainage in original and/or specified condition.

3.05 REMOVAL AND REPAIR

- A. Remove temporary materials and construction when permanent facilities are usable as directed by the Engineer.
- B. Remove underground work and compacted materials to a depth of two (2) feet; fill and grade site as specified.
- C. Repair existing permanent facilities damaged by usage to original and/or specified condition.

- END OF SECTION -

SECTION 01560
TEMPORARY CONTROLS

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Dust control.
- B. Erosion Control.

1.02 RELATED REQUIREMENTS

Section 01563 – Stormwater Pollution Prevention Plan

Section 01565 – Erosion and Sediment Control

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.01 DUST CONTROL

- A. Execute Work by methods to minimize raising dust from construction operations. Provide positive means to prevent airborne dust from dispersing into atmosphere.
- B. Minimize amount of bare soil exposed at one time.

3.02 EROSION CONTROL

Provide temporary control of erosion and sediment caused by stormwater in accordance with the Stormwater Pollution Prevention Plan and the KYR10 General Permit.

- END OF SECTION -

Temporary Controls
01560-1

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SECTION 01563

STORMWATER POLLUTION PREVENTION PLAN

PART 1 - GENERAL

1.01 SUMMARY

The Contractor shall furnish all labor, equipment, materials, and routine maintenance for the construction of temporary erosion and sediment control measures in accordance with the Drawings and Specifications, or as otherwise directed by the Engineer.

The Contractor shall develop the Stormwater Pollution Prevention Plan, for use on this project. The Contractor shall install and maintain any and all erosion and sediment control measures necessitated by project changes or alterations made by the Engineer, or by the Contractor. These changes and alterations must comply with the Drawings and Specifications and any applicable local and state ordinances and laws.

1.02 SUBMITTALS

- A. The General Contractor is responsible for submitting a Notice of Intent (NOI-SWCA) to be covered under a General Permit by the Kentucky Division of Water (KDOW). The General Contractor must develop and comply with the Stormwater Pollution Prevention Plan (SWPPP) for the project.
- B. The General Contractor must obtain a Land Disturbance Permit (LDP) from LFUCG and submit copies of pertinent documents to the Engineer relating to the LDP.
- C. The Contractor shall develop the SWPPP for use on this project. The SWPPP shall be submitted to the Engineer for Review.
- D. For the purposes of the NOI-SWCA, the General Contractor will be considered the "Operator".
- E. A minimum of 7 days prior to beginning work, The Contractor shall electronically submit the NOI-SWCA by accessing the following KDOW website: <https://dep.gateway.ky.gov/eForms/default.aspx?FormID=7>.
- F. The Contractor shall complete the form. Then:
 1. Save a copy of the NOI-SWCA.
 2. Send a copy of the NOI-SWCA to the Engineer.
 3. Submit the NOI-SWCA by selecting: "Submit Final Version to DEP".
- G. KDOW will review the NOI-SWCA, and respond to the Contractor, generally within 7 calendar days. If the NOI-SWCA is properly completed and KDOW has no issues with the project, this response should be in the form of an approval. The

Contractor is not allowed to begin work on the project until this approval is received. (Note: The Contractor must save the Permit Number to be used when submitting the Notice of Termination.)

- H. At the completion of the project, and when all erosion control features are removed from the project site (or are directed in writing by the Owner to be left in place), the Contractor shall submit a Notice of Termination (NOT-SW) to KDOW. The Contractor shall electronically submit the NOT-SW by accessing the following KDOW website:
<https://dep.gateway.ky.gov/eforms/default.aspx?FormID=5>.
- I. The Contractor shall select a blank eForm from Option A, and populate the necessary information. They shall reference the project with the Permit Number provided by KDOW (above). Then:
 - 1. Send a copy of the NOT-SW to the Engineer.
 - 2. Submit the NOT-SW by selecting: "Submit Final Version to DEP".

1.03 COMPLIANCE

- A. The Contractor shall develop a Stormwater Pollution Prevention Plan (SWPPP) as required. The Contractor shall comply with SWPPP. It is the Contractor's sole responsibility to meet all requirements of the Kentucky General permit for Stormwater Discharges Associated with Construction Activities (KYR10).
- B. During the project the Contractor shall keep a copy of the NOI-SWCA and the SWPPP on the jobsite, available for review by the Owner, Agency, and state inspectors and regulatory officers.
- C. During the project the Contractor shall keep a Maintenance Log on the jobsite, in a 3-ring binder, and shall record the dates and intensity of significant rain events, how each BMP responded to each rain event, and the method used to maintain, clean out, repair, and/or replace any impacted BMP. A copy of a typical Maintenance Log is included in this Section.
- D. BMP's shall be inspected weekly (at a minimum) and after any significant rain event (>0.5"). The Contractor shall take corrective action for proper maintenance of each BMP.

PART 2 - PRODUCTS

2.01 GENERAL

The materials used for sediment and erosion control shall meet the requirements set forth in other parts of the Drawings and Specifications.

PART 3 - EXECUTION

Stormwater Pollution Prevention Plan
01563-2

3.01 GENERAL

- A. All sediment and erosion control devices shall be installed prior to beginning site clearing and grubbing and/or excavation/construction.
- B. The Contractor shall monitor and maintain all sediment and erosion control measures throughout the construction period and until 70% revegetation coverage is obtained.
 - 1. Sediment and erosion control measures shall be inspected weekly and after each storm event exceeding 0.5 inches of precipitation.
 - 2. Accumulations of silt or other material obstructions that reduce their effectiveness shall be removed.
 - 3. The Contractor shall promptly make any required repairs to insure all measures continue to function properly for the duration of the project. Maintenance is incidental to the cost of the project.
- C. The Contractor shall indemnify and hold harmless the Owner for any penalties imposed against the Owner by any local or state agency for the failure of any erosion and sediment control measures.
- D. The Contractor shall promptly correct any erosion and sediment control deficiencies identified by the Engineer or other local or State agency. If the Contractor fails to correct these deficiencies within 24 hours of notification, the Owner may make any required corrections and assess the cost of this work to the Contractor.
- E. During the project the Contractor shall undertake intermediate grading measures to ensure the site drains properly and in a manner that silt and erosion will be directed to the appropriate BMP's. Repairs to specific areas of the site subject to more severe erosion shall be repaired as directed by the Engineer.
- F. If any waste/borrow areas or project access routes not defined on the Drawings and Specifications are used, the Contractor shall be responsible for the installation and maintenance of all erosion and sediment control measures required for those areas and shall coordinate with the appropriate property owners involved. The Contractor shall be responsible for the cost for all work related to erosion control, permitting, and re-grading of these areas.

- END OF SECTION -

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SECTION 01565

EROSION AND SEDIMENT CONTROL

PART 1 - GENERAL

1.01 WORK INCLUDED

- A. The Contractor shall not employ any construction method that violates a rule, regulation, guideline, or procedure established by federal, state, or local agencies having jurisdiction over the environment effect of construction.
- B. The Contractor shall take all measures necessary to control soil erosion resulting from construction operations, shall prevent the flow of sediment from the construction site, and shall contain construction materials (including excavation and backfill) within his protected working area so as to prevent damage to the adjacent wetlands and water courses.
- C. Pollutants such as chemicals, fuels, lubricants, bitumen, raw sewage, and other harmful waste shall not be discharged into or alongside of any body of water or into natural or man-made channels leading thereto.

1.02 RELATED REQUIREMENTS

- A. Section 01563 – Storm Water Pollution Prevention Plan.
- B. Section 02378 – Sediment Control

PART 2 - PRODUCTS

2.01 MATERIALS

Filter fabric for sediment traps shall be of suitable materials acceptable to the Engineer. Silt fence shall meet the requirements of Section 02378. Rock check dams shall be constructed from Class I riprap. All materials used for erosion and sediment control shall be submitted as a shop drawing (submittal) for review.

PART 3 - EXECUTION

3.01 METHODS OF CONSTRUCTION

- A. The Contractor shall use any of the acceptable methods necessary to control soil erosion and prevent the flow of sediment to the maximum extent possible. These methods shall include, but not be limited to, the use of water diversion structures, diversion ditches, settling basins, rock check dams, and silt fence.

Erosion and Sediment Control
01565-1

- B. Construction operations shall be restricted to the areas of Work indicated on the Drawings and to the area that must be entered for the construction of temporary or permanent facilities. The Engineer has the authority to limit the surface area of erodible earth material exposed by clearing and grubbing, excavation, borrow, and fill operations and to direct the Contractor to provide immediate permanent or temporary pollution control measures to prevent contamination of the wetlands and adjacent watercourses. Such Work may involve the construction of temporary berms, dikes, dams, sediment basins, slope drains, and use of temporary mulches, mats, or other control devices or methods as necessary to control erosion.
- C. Excavated soil material shall not be placed adjacent to the wetlands or watercourses in a manner that will cause it to be washed away by high water or runoff. Earth berms or diversions shall be constructed to intercept and divert runoff water away from critical areas. Diversion outlets shall be stable or shall be stabilized by means acceptable to the Engineer. If for any reason construction materials are washed away during the course of construction, the Contractor shall remove those materials from the fouled areas as directed by the Engineer.
- D. For Work within easements or rights-of-way, all materials used in construction such as excavation, backfill, roadway, and pipe bedding and equipment shall be kept within the limits of these easements or rights-of-way.
- E. The Contractor shall not pump silt-laden water from trenches or other excavation into the wetlands, or adjacent watercourses. Instead, silt-laden water from his excavations shall be discharged within areas surrounded by baled hay or into sediment traps or ensure that only sediment-free water is returned to the watercourses. Damage to vegetation by excessive watering or silt accumulation in the discharge area shall be avoided.
- F. Prohibited construction procedures include, but are not limited to, the following:
 - 1. Dumping of spoil material into any streams, wetlands, surface waters, or unspecified locations.
 - 2. Indiscriminate, arbitrary, or capricious operation of equipment in wetlands or surface waters.
 - 3. Pumping of silt-laden water from trenches or excavations into surface waters, or wetlands.
 - 4. Damaging vegetation adjacent to or outside of the construction area limits.
 - 5. Disposal of trees, brush, debris, paints, chemicals, asphalt products, concrete curing compounds, fuels, lubricants, insecticides, washwater from concrete trucks or hydroseeders, or any other pollutant in wetlands, surface waters, or unspecified locations.
 - 6. Permanent or unauthorized alteration of the flow line of any stream.
 - 7. Open burning of debris from the construction Work.

- G. Any temporary working roadways required shall be clean fill approved by the Engineer. In the event fill is used, the Contractor shall take every precaution to prevent the fill from mixing with native materials of the site. All such foreign fill materials shall be removed from the site following construction.

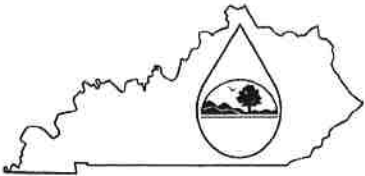
3.02 EROSION CHECKS

The Contractor shall furnish and install erosion checks surrounding the base of all deposits of stored excavated material outside of the disturbed area, and where indicated by the Engineer. Checks surrounding stored material shall be located approximately 6 feet from that material. Checks shall be installed as shown on the Drawings.

- END OF SECTION -


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| | |
|---|---|
|  | <p>KENTUCKY POLLUTION DISCHARGE ELIMINATION SYSTEM (KPDES)</p> <p>Notice of Intent (NOI) for coverage of Storm Water Discharge Associated with Construction Activities Under the KPDES Storm Water General Permit KYR100000</p> <p>Click here for Instructions (Controls/KPDES_FormKYR10_Instructions.htm)</p> <p><small>Click here to obtain information and a copy of the KPDES General Permit. (http://dep.ky.gov/formslibrary/Documents/KYR10PermitPage.pdf)</small></p> <p><small>(*) indicates a required field; (✓) indicates a field may be required based on user input or is an optionally required field</small></p> |
|---|---|

| | | |
|--|---|--|
| Reason for Submittal:(*) <input type="button" value="v"/> | Agency Interest ID: Agency Interest ID | Permit Number:(✓) KPDES Permit Number |
| If change to existing permit coverage is requested, describe the changes for which modification of coverage is being sought:(✓) | | |
| <p>ELIGIBILITY: Stormwater discharges associated with construction activities disturbing individually one (1) acre or more, including, in the case of a common plan of development, contiguous construction activities that cumulatively equal one (1) acre or more of disturbance.</p> | | |
| <p>EXCLUSIONS: The following are excluded from coverage under this general permit: 1) Are conducted at or on properties that have obtained an individual KPDES permit for the discharge of other wastewaters which requires the development and implementation of a Best Management Practices (BMP) plan; 2) Any operation that the DOW determines an individual permit would better address the discharges from that operation; 3) Any project that discharges to an Impaired Water listed in the most recent Integrated Report, §305(b) as impaired for sediment and for which an approved TMDL has been developed.</p> | | |
| SECTION I -- FACILITY OPERATOR INFORMATION (PERMITTEE) | | |
| Company Name:(✓) Company Name | First Name:(✓) First Name | M.I.: A Last Name:(✓) Last Name |

Kentucky EEC eForms

| | | | |
|---|--|--|----------------------------|
| Mailing Address:(*) Mailing Address | City:(*) City | State:(*) ▼ | Zip:(*) Zip |
| eMail Address:(*) eMail Address | | Business Phone:(*) Phone | Alternate Phone: Phone |
| SECTION II -- GENERAL SITE LOCATION INFORMATION | | | |
| Project Name:(*) project Name | | Status of Owner/Operator(*) ▼ | SIC Code(*) ▼ |
| Company Name:(√) Company Name | First Name:(√) First Name | M.I.: M | Last Name:(√) Last Name |
| Site Physical Address:(*) Site Physical Address | | | |
| City:(*) City | | State:(*) ▼ | Zip:(*) Zip |
| County:(*) ▼ | Latitude(decimal degrees)(*)DMS to DD Converter (https://www.fcc.gov/media/radio/dms-decimal) Latitude | Longitude(decimal degrees)(*) Longitude | |
| SECTION III -- SPECIFIC SITE ACTIVITY INFORMATION  | | | |
| Project Description:(*) Describe the project. | | | |
| a. For single projects provide the following information | | | |
| Total Number of Acres in Project:(√) Project Acres | | Total Number of Acres Disturbed:(√) Disturbed Acres | |
| Anticipated Start Date:(√) | | Anticipated Completion Date:(√) | |
| b. For common plans of development provide the following information | | | |
| Total Number of Acres in Project:(√) | | Total Number of Acres Disturbed:(√) | |

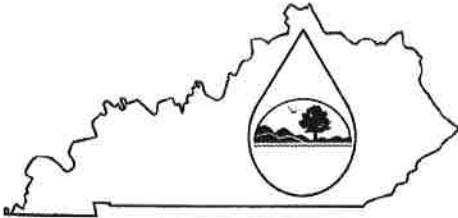
| # Acre(s) | # Acre(s) | | | | | | | | |
|--|---|--------------------|----------------------|-----------|----------------------|---------------|--|--|--|
| Number of individual lots in development, if applicable: (✓) # lot(s) | Number of lots in development:(✓) # lot(s) | | | | | | | | |
| Total acreage of lots intended to be developed:(✓) Project Acres | Number of acres Intended to be disturbed at any one time:(✓) Disturbed Acres | | | | | | | | |
| Anticipated Start Date:(✓) | Anticipated Completion Date:(✓) | | | | | | | | |
| List Building Contractor(s) at the time of Application: (*) | | | | | | | | | |
| <table border="1"> <thead> <tr> <th>Company Name</th> </tr> </thead> <tbody> <tr> <td>+ </td> </tr> </tbody> </table> | | Company Name | + | | | | | | |
| Company Name | | | | | | | | | |
| + | | | | | | | | | |
| SECTION IV – IF THE PERMITTED SITE DISCHARGES TO A WATER BODY THE FOLLOWING INFORMATION IS REQUIRED ? | | | | | | | | | |
| Discharge Point(s): | | | | | | | | | |
| <table border="1"> <thead> <tr> <th>Unnamed Tributary?</th> <th>Latitude</th> <th>Longitude</th> <th>Receiving Water Name</th> </tr> </thead> <tbody> <tr> <td>+ </td> <td></td> <td></td> <td></td> </tr> </tbody> </table> | | Unnamed Tributary? | Latitude | Longitude | Receiving Water Name | + | | | |
| Unnamed Tributary? | Latitude | Longitude | Receiving Water Name | | | | | | |
| + | | | | | | | | | |
| SECTION V – IF THE PERMITTED SITE DISCHARGES TO A MS4 THE FOLLOWING INFORMATION IS REQUIRED ? | | | | | | | | | |
| Name of MS4: | | | | | | | | | |

| | | | | | | | | | |
|---|---|--|---|----------|-----------|---|--|----------------------|--|
| Date of application/notification to the MS4 for construction site permit coverage: <input type="text" value="Date"/> | | Discharge Point(s):(*) <table border="1"> <tr> <td>Latitude</td> <td>Longitude</td> </tr> <tr> <td colspan="2">+</td> </tr> <tr> <td colspan="2"> <input type="text"/> </td> </tr> </table> | | Latitude | Longitude | + | | <input type="text"/> | |
| Latitude | Longitude | | | | | | | | |
| + | | | | | | | | | |
| <input type="text"/> | | | | | | | | | |
| SECTION VI -- WILL THE PROJECT REQUIRE CONSTRUCTION ACTIVITIES IN A WATER BODY OR THE RIPARIAN ZONE? | | | | | | | | | |
| Will the project require construction activities in a water body or the riparian zone?:(*) | | <input type="text"/> | | | | | | | |
| If Yes, describe scope of activity: (✓) | | <input type="text" value="describe scope of activity"/> | | | | | | | |
| Is a Clean Water Act 404 permit required?:(*) | | <input type="text"/> | | | | | | | |
| Is a Clean Water Act 401 Water Quality Certification required?:(*) | | <input type="text"/> | | | | | | | |
| SECTION VII -- NOI PREPARER INFORMATION | | | | | | | | | |
| First Name:(*) <input type="text" value="First Name"/> | M.I.: <input type="text" value="M"/> | Last Name:(*) <input type="text" value="Last Name"/> | Company Name:(*) <input type="text" value="Company Name"/> | | | | | | |
| Mailing Address:(*) <input type="text" value="Mailing Address"/> | City:(*) <input type="text" value="City"/> | State:(*) <input type="text"/> | Zip:(*) <input type="text" value="Zip"/> | | | | | | |
| eMail Address:(*) <input type="text" value="eMail Address"/> | | Business Phone:(*) <input type="text" value="Phone"/> | Alternate Phone: <input type="text" value="Phone"/> | | | | | | |
| SECTION VIII -- ATTACHMENTS | | | | | | | | | |
| Facility Location Map:(*) | | <input type="button" value="Upload file"/> | | | | | | | |
| Supplemental Information: | | <input type="button" value="Upload file"/> | | | | | | | |
| SECTION IX -- CERTIFICATION | | | | | | | | | |

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| | | | |
|---|-----------------------------|----------------------------|----------------------------|
| <p>I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.</p> | | | |
| Signature:(*) Signature | | Title:(*) Title | |
| First Name:(*) First Name | M.I.: MI | Last Name:(*) Last Name | |
| eMail Address:(*) eMail Address | Business Phone:(*) Phone | Alternate Phone: Phone | Signature Date:(*) Date |
| <input type="button" value="Click to Save Values for Future Retrieval"/> <input type="button" value="Click to Submit to EEC"/> | | | |

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|  | <h2>KENTUCKY POLLUTION DISCHARGE ELIMINATION SYSTEM (KPDES)</h2> <p>Notice of Termination for KPDES General Permits</p> <p>Click here for Instructions (Controls/KPDES_Form_General_NOT_Instructions.htm)</p> <p><small>(*) indicates a required field; (✓) indicates a field may be required based on user input or is an optionally required field</small></p> |
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| | | | |
|--|---|---|--|
| SECTION I -- KPDES GENERAL PERMIT INFORMATION | | | |
| Permit Number:(*) Permit Nun | Select "Yes" if you are no longer the Operator of the Facility:(*) ✓ | Select "Yes" if stormwater from facility is discharged to Combined Sewer System (CSS): (*) ✓ | Select "Yes" if the Discharge is being Terminated:(*) ✓ |
| SECTION II -- FACILITY OPERATOR INFORMATION (PERMITTEE) | | | |
| Company Name:(✓) Company Name | First Name:(✓) First Name | M.I.: M | Last Name:(✓) Last Name |
| Mailing Address:(*) Operator Mailing Address | | | |
| City:(*) City | State:(*) ✓ | Zip:(*) Zip | |

| | | | |
|--|-----------------------------|--|----------------------------|
| SECTION III -- GENERAL SITE LOCATION INFORMATION | | | |
| Project Name:(*) project Name | | Facility Owner Name:(*) Facility Owner Name | |
| Site Physical Address:(*) Site Physical Address | | | |
| City:(*) City | | State:(*) ▼ | Zip:(*) Zip |
| SECTION IX -- CERTIFICATION (PERMITTEE) | | | |
| I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. | | | |
| Signature:(*) Signature | | Title:(*) Title | |
| First Name:(*) First Name | M.I.: MI | Last Name:(*) Last Name | |
| eMail Address:(*) eMail Address | Business Phone:(*) Phone | Alternate Phone: Phone | Signature Date:(*) Date |
| <div style="display: flex; justify-content: space-around; margin-top: 10px;"> Click to Save Values for Future Retrieval Click to Submit to EEC </div> | | | |

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SECTION 01570

TRAFFIC REGULATION

PART 1 - GENERAL

1.01 WORK INCLUDED

- A. Construction parking control.
- B. Flagmen.
- C. Lights.
- D. Haul routes.
- E. Removal.

1.02 RELATED SECTIONS

- A. Section 00700 - General Conditions
- B. Section 01530 - Barriers

PART 2 - PRODUCTS

2.01 SIGNS AND DEVICES

- A. Traffic Cones and Drums, Lights: as approved by local jurisdictions.
- B. Flagman Equipment: as required by local jurisdictions.

PART 3 - EXECUTION

3.01 CONSTRUCTION PARKING CONTROL

- A. Control vehicular parking to prevent interference with public traffic and parking, access by emergency vehicles and Owner's operations.
- B. Monitor parking of construction personnel's vehicles in existing facilities. Maintain vehicular access to and through parking areas.
- C. Prevent parking on or adjacent to access roads or in non-designated areas.

3.02 TRAFFIC CONTROL

- A. Whenever and wherever, in the Engineer's opinion, traffic is sufficiently congested or public safety is endangered, Contractor shall furnish uniformed officers to direct traffic and to keep traffic off the highway area affected by construction operations.
- B. Contractor shall abide by county and state regulations governing utility construction Work.
- C. Traffic control shall be provided according to the Kentucky Department of Highways Manual on Uniform Traffic Control Devices for Streets and Highways.

3.03 FLAGMEN

Provide trained and equipped flagmen to regulate traffic when construction operations or traffic encroach on public traffic lanes.

3.04 LIGHTS

Use lights during hours of low visibility to delineate traffic lanes and to guide traffic.

3.05 HAUL ROUTES

- A. Consult with authorities, establish public thoroughfares to be used for haul routes and site access.
- B. Confine construction traffic to designated haul routes.
- C. Provide traffic control at critical areas of haul routes to regulate traffic and minimize interference with public traffic.

3.06 REMOVAL

Remove equipment and devices when no longer required.

- END OF SECTION -

SECTION 01600

MATERIAL AND EQUIPMENT

PART 1 - GENERAL

1.01 STORAGE OF MATERIALS AND EQUIPMENT

All excavated materials and equipment to be incorporated in the Work shall be placed so as not to injure any part of the Work or existing facilities and so that free access can be had at all times to all parts of the Work and to all public utility installations in the vicinity of the Work. Materials and equipment shall be kept neatly piled and compactly stored in such locations as will cause a minimum of inconvenience to public travel and adjoining owners, tenants, and occupants.

1.02 HANDLING AND DISTRIBUTION

- A. The Contractor shall handle, haul, and distribute all materials and all surplus materials on the different portions of the Work, as necessary or required; shall provide suitable and adequate storage room for materials and equipment during the progress of the Work, and be responsible for the protection, loss of, or damage to materials and equipment furnished by the Contractor, until the final completion and acceptance of the Work.
- B. Storage and demurrage charges by transportation companies and vendors shall be borne by the Contractor.

1.03 MATERIALS, SAMPLES, INSPECTION

- A. Unless otherwise expressly provided on the Drawings or in any of the other Contract Documents, only new materials and equipment shall be incorporated in the Work. All materials and equipment furnished by the Contractor to be incorporated in the Work shall be subject to the inspection of the Engineer. No material shall be processed or fabricated for the Work or delivered to the Work site without prior concurrence of the Engineer.
- B. As soon as possible after execution of the Agreement, the Contractor shall submit to the Engineer the names and addresses of the manufacturers and suppliers of all materials and equipment he proposes to incorporate into the Work. When shop and working Drawings are required as specified below, the Contractor shall submit prior to the submission of such Drawings, data in sufficient detail to enable the Engineer to determine whether the manufacturer and/or the supplier have the ability to furnish a product meeting the Specifications. As requested, the Contractor shall also submit data relating to the materials and equipment he proposes to incorporate into the Work in sufficient detail to enable the Engineer to identify and evaluate the particular product and to determine whether it conforms to the Contract requirements. Such data shall be submitted in a manner similar to that specified for submission of shop and working Drawings.

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- C. Facilities and labor for the storage, handling, and inspection of all materials and equipment shall be furnished by the Contractor. Defective materials and equipment shall be removed immediately from the site of the Work.
- D. If the Engineer so requires, either prior to or after commencement of the Work, the Contractor shall submit samples of materials for such special tests as the Engineer deems necessary to demonstrate that they conform to the Specifications. Such samples, including concrete test cylinders, shall be furnished, taken, stored, packed, and shipped by the Contractor as directed. The Contractor shall furnish suitable molds for making concrete test cylinders. Except as otherwise expressly specified, the Owner shall make arrangements for, and pay for, the tests.
- E. All samples shall be packed so as to reach their destination in good condition, and shall be labeled to indicate the material represented, the name of the building or work and location for which the material is intended, and the name of the Contractor submitting the sample. To ensure consideration of samples, the Contractor shall notify the Engineer by letter that the samples have been shipped and shall properly describe the samples in the letter. The letter of notification shall be sent separate from and should not be enclosed with the samples.
- F. The Contractor shall submit data and samples, or place his orders, sufficiently early to permit consideration, inspection, and testing before the materials and equipment are needed for incorporation in the Work. The consequences of his failure to do so shall be the Contractor's sole responsibility.
- G. When required, the Contractor shall furnish to the Engineer triplicate sworn copies of manufacturer's shop or mill tests (or reports from independent testing laboratories) relative to materials, equipment performance ratings, and concrete data.
- H. After review of the samples, data, etc., the materials and equipment used on the Work shall in all respects conform therewith.

- END OF SECTION -

SECTION 01615

STORAGE

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

- A. General Storage
- B. Enclosed Storage
- C. Exterior Storage
- D. Maintenance of Storage

1.02 RELATED REQUIREMENTS

Division 1 - General Requirements

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.01 GENERAL STORAGE

- A. Store products, immediately on delivery, in accordance with manufacturer's instructions, with seals and labels intact. Protect until installed.
- B. Arrange storage in a manner to provide access for maintenance of stored items and for inspection.

3.02 ENCLOSED STORAGE

- A. Store products, subject to damage by the elements, in substantial weather-tight enclosures.
- B. Maintain temperature and humidity within ranges stated in manufacturer's instructions.
- C. Provide humidity control and ventilation for sensitive products as required by manufacturer's instructions.
- D. Store unpacked and loose products on shelves, in bins, or in neat groups of like items.

Storage
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3.03 EXTERIOR STORAGE

- A. Provide substantial platforms, blocking, or skids, to support fabricated products above ground; slope to provide drainage. Protect products from soiling and staining.
- B. For products subject to discoloration or deterioration from exposure to the elements, cover with impervious sheet material. Provide ventilation to avoid condensation.
- C. Store loose granular materials on clean, solid surfaces such as pavement, or on rigid sheet materials, to prevent erosion and ponding of water.
- D. Provide surface drainage to prevent erosion and ponding of water.
- E. Prevent mixing of refuse or chemically injurious materials.

3.04 MAINTENANCE OF STORAGE

- A. Periodically inspect stored products on a scheduled basis. Maintain a log of inspections, make available to Engineer on request.
- B. Verify that storage facilities comply with manufacturer's product storage requirements.
- C. Verify that manufacturer required environmental conditions are maintained continually.
- D. Verify that surfaces of products exposed to the elements are not adversely affected; that any weathering of finishes is acceptable under requirements of Contract Documents.

3.05 MAINTENANCE OF EQUIPMENT STORAGE

- A. For mechanical and electrical equipment in long-term storage, provide manufacturer's service instructions to accompany each item, with notice of enclosed instructions shown on exterior of package.
- B. Service equipment on a regularly scheduled basis, in accordance with the manufacturer's recommendations, maintaining a log of services; submit as a record document.

- END OF SECTION -

Storage
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SECTION 01700

CONTRACT CLOSEOUT

PART 1 - GENERAL

1.01 RELATED REQUIREMENTS

- A. Section 00300 - Liquidated Damages
- B. Section 01710 - Final Cleaning
- C. Section 01720 - Project Record Documents

1.02 SUBSTANTIAL COMPLETION

- A. Contractor shall submit written certification to Engineer that project is substantially complete and includes a list of major items to be completed or corrected.
- B. Engineer will make an inspection within fourteen (14) days after receipt of certification, together with the Owner's representative.
- C. Should Engineer consider that work is substantially complete:
 - 1. Engineer will prepare and issue a certificate of substantial completion, containing:
 - a. Date of substantial completion.
 - b. Contractor's list of items to be completed or corrected, verified, and amended by Engineer.
 - c. The time within which Contractor shall complete or correct work of listed items.
 - 2. Contractor shall complete work listed for completion or correction, within designated time.
- D. Should Engineer consider that work is not substantially complete:
 - 1. He shall immediately notify Contractor, in writing, stating reasons.
 - 2. Contractor shall complete work, and send second written notice to Engineer, certifying that project, or designated portion of project is substantially complete.
 - 3. Engineer will re-review work.

1.03 FINAL INSPECTION

- A. Contractor shall submit written certification that:
 - 1. Contract Documents have been reviewed.
 - 2. Project has been inspected for compliance with Contract Documents.
 - 3. Work has been completed in accordance with Contract Documents.
 - 4. Equipment and systems have been tested in presence of Owner's representative and are operational.
 - 5. Project is completed and ready for final inspection.
- B. Engineer will make final on-site observation/review within fourteen (14) days after receipt of certification.
- C. Should Engineer consider that work is finally complete in accordance with requirements of Contract Documents, he shall request Contractor to make Contract closeout submittals.
- D. Should Engineer consider that work is not finally complete:
 - 1. He shall notify Contractor, in writing, stating reasons.
 - 2. Contractor shall take immediate steps to remedy the stated deficiencies, and send second written notice to Engineer certifying that work is complete.
 - 3. Engineer will re-review the work.

1.04 FINAL CLEANING UP

The work will not be considered as completed and final payment made until all final cleaning up has been done by the Contractor in a manner satisfactory to the Engineer. See Section 01710 for detailed requirements.

1.05 CLOSEOUT SUBMITTALS

- A. Project Record Documents: in accordance with Section 01720.
- B. Guarantees, Warranties, and Bonds: in accordance with particular technical specifications and Section 01740.
- C. Sworn Statement for Final Payment in accordance with Section 00645.

1.06 INSTRUCTION

Instruct Owner's personnel in operation of all systems, mechanical, electrical, and other equipment.

1.07 FINAL APPLICATION FOR PAYMENT

Contractor shall submit final applications in accordance with requirements of general conditions.

1.08 FINAL CERTIFICATE FOR PAYMENT

- A. Contractor shall furnish fully executed Warranty Bond and Sworn Statement for Final Payment per Sections 00618 and 00645.
- B. Engineer will issue final certificate in accordance with provisions of general conditions.
- C. Should final completion be materially delayed through no fault of Contractor, Engineer may issue a semi-final certificate for payment.

- END OF SECTION -

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SECTION 01710
FINAL CLEANING

PART 1 - GENERAL

1.01 WORK INCLUDED

- A. On a continuous basis, maintain premises free from accumulations of waste, debris, and rubbish, caused by operations.
- B. At completion of work, remove waste materials, rubbish, tools, equipment, machinery, and surplus materials, and clean all sight-exposed surfaces; leave project clean and ready for occupancy.

1.02 RELATED REQUIREMENTS

- A. Section 01045 - Cutting and Patching
- B. Section 01700 - Contract Closeout
- C. Cleaning for Specific Products or Work: Specification section for that work.

1.03 SAFETY REQUIREMENTS

- A. Hazards Control
 - 1. Store volatile wastes in covered metal containers and remove from premises daily.
 - 2. Prevent accumulation of wastes which create hazardous conditions.
 - 3. Provide adequate ventilation during use of volatile or noxious substances.
- B. Conduct cleaning and disposal operations to comply with local ordinances and anti-pollution laws.
 - 1. Do not burn or bury rubbish and waste materials on project site without written permission from the Owner.
 - 2. Do not dispose of volatile wastes such as mineral spirits, oil, or paint thinner in storm or sanitary drains.
 - 3. Do not dispose of wastes into streams or waterways.

PART 2 - PRODUCTS

2.01 MATERIALS

Use only cleaning materials recommended by manufacturer of surface to be cleaned.

PART 3 - EXECUTION

3.01 DURING CONSTRUCTION

- A. Execute cleaning to ensure that building, grounds, and public properties are maintained free from accumulations of waste materials and rubbish.
- B. Wet down dry materials and rubbish to prevent blowing dust.
- C. At reasonable intervals during progress of work, clean site and public properties, and dispose of waste materials, debris, and rubbish.
- D. Provide on-site containers for collection of waste materials, debris, and rubbish.
- E. Remove waste materials, debris, and rubbish from site and legally dispose.
- F. Handle materials in a controlled manner with as few handlings as possible; do not drop or throw materials from heights.
- G. The Contractor shall thoroughly clean all materials and equipment installed as required.

3.02 FINAL CLEANING

- A. Employ experienced workmen, or professional cleaners, for final cleaning.
- B. In preparation for substantial completion, conduct final inspection of sight-exposed interior and exterior surface, and of concealed spaces.
- C. Repair, patch, and touch up marred surfaces to specified finish, to match adjacent surfaces.
- D. Broom clean paved surfaces; rake clean other surfaces of grounds.
- E. Maintain cleaning until project, or portion thereof, is occupied by Owner.
- F. The Contractor shall restore or replace existing property or structures as promptly and practicable as work progresses.

- END OF SECTION -

Final Cleaning
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SECTION 01720

PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.01 RELATED SECTIONS

- A. Section 01300 – Submittals
- B. Section 01320 – Surveying

1.02 MAINTENANCE OF DOCUMENTS

- A. Maintain at job site, one copy of:
 - 1. Contract Drawings;
 - 2. Specifications;
 - 3. Addenda;
 - 4. Reviewed Shop Drawings (Submittals);
 - 5. Change Orders;
 - 6. Request for Information (RFI) and Field Orders; and
 - 6. Other modifications to the Contract.
- B. Store documents in approved location, apart from documents used for construction.
- C. Provide files and racks for storage of documents.
- D. Maintain documents in clean, dry, legible condition.
- E. Do not use record documents for construction purposes.
- F. Make documents available at all times for inspection by Engineer and Owner.

1.03 MARKING DEVICES

Provide colored pencil or felt-tip marking pen for all marking.

1.04 RECORDING

- A. Label each document "PROJECT RECORD" in printed letters.
- B. Keep record documents current.
- C. Do not permanently conceal any work until required information has been recorded.

Project Record Documents
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- D. Contract Drawings: legibly mark to record actual construction:
1. Horizontal and vertical location of underground utilities and appurtenances referenced to permanent surface improvements.
 2. Location of internal utilities and appurtenances concealed in construction referenced to visible and accessible features of structure.
 3. Field changes of dimension and detail.
 4. Changes made by Change Order or field order.
 5. Details not on original Contract Drawings.
- E. Specifications and Addenda: legibly mark up each section to record:
1. Manufacturer, trade name, catalog number, and supplier of each product and item of equipment actually installed.
 2. Changes made by Change Order or field order.
 3. Other matters not originally specified.
- F. Shop Drawings (Submittals): Maintain as record documents; legibly annotate Shop Drawings to record changes made after review.

1.05 SUBMITTAL

- A. At completion of project, deliver record documents to Engineer.
- B. Accompany submittal with transmittal letter, in duplicate, containing:
1. Date;
 2. Project title and Contract number;
 3. Contractor's name and address;
 4. Title and sheet number of each record document;
 5. Certification that each document as submitted is complete and accurate; and
 6. Signature of Contractor or his authorized representative.

- END OF SECTION -

SECTION 01740

WARRANTIES AND BONDS

PART 1 - GENERAL

1.03 WORK INCLUDED

- A. Compile specified warranties and bonds.
- B. Compile specified service and maintenance contracts.
- C. Co-execute submittals when required.
- D. Review submittals to verify compliance with Contract Documents.

1.03 RELATED REQUIREMENTS

- A. Bid Bond
- B. Performance and Payment Bonds
- C. Warranty Bond
- D. Guaranty
- E. General Warranty of Construction
- F. Warranties and bonds required for specific products: as listed in other Specification sections.

1.03 EXECUTION OF BONDS

- A. Performance and Payment bonds shall be executed and in full effect at the same time as the Agreements are executed.
- B. Warranty bond shall be issued with final application for payment and be effective on the date of substantial completion.

1.04 WARRANTY BONDS OR CORPORATE GUARANTEES IN LIEU OF EXPERIENCE RECORD

- A. When specifically requested in the products and installation general provisions of a Specification section for a particular piece of equipment or product, a record of five (5) years of successful full-scale operation shall be required from the equipment manufacturer. This record of full-scale operation shall be from existing facilities utilizing the equipment or product specified, in an application similar to the application intended for this project.

Warranties and Bonds
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- B. The manufacturer shall certify in writing to the Contractor that it has the required record of successful full-scale operation. This certification shall be submitted by the Contractor with his construction materials and/or equipment data list. In the event the manufacturer cannot provide the five (5) year certification of experience to the Contractor, the Contractor shall furnish within thirty (30) days after the notice of award, a warranty bond of corporation guarantee from the equipment manufacturer written in the name of the Contractor and acceptable to the Owner. The warranty bond or corporate guarantee shall be kept in force for five (5) years from the date of substantial completion of the Contract, less the number of years of experience the manufacturer may be able to certify to the Engineer. As a minimum, the bond or guarantee shall be in force for one (1) year after the date of substantial completion of the Contract. The warranty bond shall be written in an amount equivalent to the manufacturer's quotation, the Contractor's installation cost plus 100 percent (100%). The warranty bond or corporate guarantee will assure the Owner that, if in the judgement of the Engineer, the equipment does not perform its specified function, the Contractor shall remove the equipment and install equipment that will perform the specified function and the work by the Contractor shall be paid for by the warranty bond or corporate guarantee.

1.05 SUBMITTALS REQUIREMENTS

- A. Assemble warranties, bonds, and service and maintenance contracts, executed by each of the respective manufacturers, suppliers, and subcontractors.
- B. Furnish electronically (format to be as required for hard copies) or two (2) original signed hard copies.
- C. Table of Contents: neatly typed, in orderly sequence. Provide complete information for each item:
1. Product, equipment, or Work item.
 2. Manufacturer name, address, and telephone number.
 3. Supplier name, address, and telephone number.
 4. Contractor name, address, and telephone number.
 5. Scope.
 6. Date of beginning of warranty, bond, or service and maintenance contract.
 7. Duration of warranty, bond, or service and maintenance contract.
 8. Provide information for Owner's personnel:
 - a. Proper procedure in case of failure.
 - b. Instances that might affect the validity of warranty or bond.

1.06 FORM OF HARD COPY SUBMITTALS

- A. Prepare in duplicate packets.
- B. Format
 - 1. Size 8½" x 11", punch sheets for 3-ring binder: fold larger sheets to fit into binders.
 - 2. Cover: identify each packet with typed or printed title "WARRANTIES AND BONDS". List:
 - a. Title of project.
 - b. Date of project.
 - c. Contractor name, address, and telephone number.
- C. Binders: commercial quality, 3-ring, with durable and cleanable plastic covers.

1.07 TIME OF SUBMITTALS

- A. For equipment or component parts of equipment put into service during progress of construction: submit documents within ten (10) days after inspection and acceptance.
- B. Otherwise, make submittals within ten (10) days after date of substantial completion, prior to final request for payment.
- C. For items of work, where acceptance is delayed materially beyond the date of substantial completion, provide updated submittal within ten (10) days after acceptance, listing the date of acceptance as the start of the warranty period.

1.08 SUBMITTALS REQUIRED

Submit warranties, bonds, and service and maintenance contracts as specified in the respective sections of the Specifications. Additionally, the Contractor shall warrant the entire Contract, including (if applicable) all earthwork, geosynthetic material, retaining walls, concrete, paving, building, plumbing, HVAC, mechanical and electrical equipment to be free from defects in design and installation for one (1) year from the date of startup. In the event a component fails to perform as specified or is proven defective in service during the warranty period, the Contractor shall repair the defect without cost to the Owner.

- END OF SECTION -

DIVISION 02
SITE PREPARATION

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SECTION 02072

HIGH DENSITY POLYETHYLENE GEOMEMBRANE

PART 1 – GENERAL

1.01 SUMMARY

The Contractor shall furnish all labor and materials necessary for the installation of the white double sided textured high-density polyethylene (HDPE) geomembrane layer in accordance with the Drawings and Specifications.

1.02 SUBMITTALS

The Contractor shall furnish the following information to the Engineer:

- A. Conceptual description of the proposed plan for placement of the geomembrane panels over the area of installation.
- B. Geomembrane Manufacturer's affidavit providing assurance that the qualifications of the Geomembrane Manufacturer and the Geomembrane Installer have been achieved.
- C. A project reference list from the Geomembrane Manufacturer and the Geomembrane Installer consisting of the principal details of at least 10 projects totaling at least 10 million square feet of installed geomembrane.
- D. Original and identification of the raw materials used to manufacture the geomembrane.
- E. Geomembrane Manufacturer's Quality Assurance/Quality Control (QA/QC) certifications for each shipment of geomembrane to verify that the materials supplied for the project are in accordance with the requirements of this Specification. The certificates shall show the following:
 - 1. Average thickness per ASTM D-5994
 - 2. Carbon Black percentage per ASTM D-1603
 - 3. Density per ASTM D-1505 / D-792
 - 4. Tensile Strength and Elongation per ASTM D-6693
 - 5. Puncture Resistance per ASTM D-4833
 - 6. Tear Resistance per ASTM D-1004
 - 7. Carbon Black Dispersion (Category) per ASTM D-5596
- F. Survey data, as described in Section 01320, for the measurement and payment of
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the HDPE geomembrane installed. Survey information shall include slope breaks in order to calculate slope gain. The survey information shall include the location of the anchor trench and the end of the material at the tie-in. Payment will not include any excess, waste, or overlapping of the material.

- G. Geomembrane Field Trail Seam Logs, Panel Placement Logs, Air Test Logs, Geomembrane Seam Destructive Sample Logs, Geomembrane Repair Logs, and Trail Weld Test Records.
- H. As-built panel layout.

1.03 QUALIFICATIONS

- A. Geomembrane Manufacturer must have produced at least 10 million square feet of high-density polyethylene geomembrane, with at least 8 million square feet installed.
- B. Geomembrane Installer must either have installed at least 10 million square feet of geomembrane, or must provide to the Engineer satisfactory evidence, through similar experience in the installation of other types of geosynthetics, that the high-density polyethylene geomembrane will be installed in a competent, professional manner.

1.04 WARRANTY

The geomembrane liner manufacturer shall warrant their materials for a minimum of five (5) years. The Contractor shall warrant the installation for a minimum of two (2) years.

PART 2 – PRODUCTS

2.01 GENERAL

The geomembrane shall be white 60 mil HDPE textured on both sides as manufactured by POLY-FLEX®, Grand Prairie, Texas, SKAPS Industries, Commerce, Georgia, or Engineer pre-approved equal. Prior to using an alternative geomembrane, the Contractor shall furnish to the Engineer independent test results demonstrating that the alternative material meets the requirements of this Specification.

2.02 MATERIALS

The geomembrane shall meet or exceed the properties listed below:

| PROPERTY | TEST METHOD | VALUE |
|---------------------------------------|---------------------------|----------------|
| Asperity Height (mils) | ASTM D7466 ⁽⁷⁾ | 12 min. |
| Thickness (mils) | ASTM D-5994 | 57 (min. avg.) |
| Lowest Individual of 8 to 10 Readings | | 54 |
| Lowest Individual of 10 Readings | | 51 |
| Density (g/cc) | ASTM D-1505/D-792 | 0.94 min. |

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| PROPERTY | TEST METHOD | VALUE |
|---|--------------|-------------|
| Carbon Black (%) ⁽¹⁾ | ASTM D-1603 | 2-3 |
| Carbon Black Dispersion (%) ⁽²⁾ | ASTM D-5596 | Cat. 1 or 2 |
| Tensile Properties ⁽³⁾ | ASTM D-6693 | |
| Strength Yield (lb/in width) | | 126 |
| Strength at Break (lb/in width) | | 90 |
| Elongation at Yield (%) | | 12 |
| Elongation at Break (%) | | 100 |
| Tear Resistance (lbs) | ASTM D-1004 | 42 |
| Puncture Resistance (lbs) | ASTM D-4833 | 90 |
| Environmental Stress Crack (hrs.) ⁽⁴⁾ | ASTM D-5397 | 300 min. |
| Oxidative Induction Time (OIT) | | |
| Standard OIT, minutes | ASTM D-3895 | 100 min. |
| Oven Aging at 85°C | ASTM D-5721 | |
| High Pressure OIT - % retained after 90 days | ASTM D-5885 | 80 max. |
| UV Resistance ⁽⁵⁾ | GRI GM11 | |
| High Pressure OIT ⁽⁶⁾ - % retained after 1600 hrs. | ASTM D-5885 | 50 |
| Seam Properties | | |
| 1. Shear Strength, ppi | ASTM D-6392 | 120 |
| Peel Strength, ppi | @ 2 in./min. | 91 |
| 2. | | |

- (1) Other methods such as ASTM D-4218 or microwave methods are acceptable if an appropriate correlation can be established.
- (2) Carbon black dispersion for 10 different views: 9 in Categories 1 and 2 with one allowed in Category 3.
- (3) Machine direction (MD) and cross machine direction (XMD) average values should be on the basis of five test specimens each direction. Yield elongation is calculated using a gauge length of 1.3 inches; Break elongation is calculated using a gauge length of 2.0 inches.
- (4) The yield stress used to calculate the applied load for the SP-NCTL test should be the mean value via MQC testing.
- (5) The condition of the test should be 20 hr. UV cycle at 75°C followed by 4 hr. condensation at 60°C.
- (6) UV resistance is based on percent retained value regardless of the original HP-OIT value.
- (7) Of the 10 readings; 8 must be greater than 7 mils and the lowest reading value must be greater than 5 mils.

2.03 RESIN

- A. The polyethylene resin (ASTM D-1248) shall be made from virgin, uncontaminated ingredients.
- B. The natural density of the resin shall be between 0.934 and 0.940 g/cc.
- C. The melt flow index shall be equal to or less than 0.4 g/10 minutes per ASTM D-1238, Cond. 190/2.16
- D. The HDPE geomembrane formulation shall consist of 97 percent polyethylene resin.

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- E. Reclaimed material shall not be allowed in the formulation.

2.04 CARBON BLACK

The amount of carbon black in the geomembrane shall be between 2.0 and 3.0 percent by weight per ASTM D-1603.

2.05 WELDING ROD

The welding rod shall have the same properties as the resin used to manufacture the geomembrane.

2.06 MANUFACTURING

- A. The finished geomembrane sheet shall be free from pinholes, surface blemishes, scratches, or other defects (e.g., nonuniform color, streaking, roughness, carbon black agglomerates, visually discernible regrind, etc.)
- B. The geomembrane shall be wound around a cardboard or plastic pipe core with an outside diameter of six (6) inches. The core shall not buckle or fail during handling, shipment, storage, and transportation.
- C. There shall be no factory seaming.

2.07 TEXTURING

- A. The surface texturing shall be of the same type of polymer and formulation as the base sheet polymer and its formulation.
- B. The degree of texturing shall be sufficient to develop the amount of friction specified in this specification.

2.08 PRODUCT DOCUMENTATION

- A. The manufacturer shall provide the Engineer or other designated party with the QA/QC certifications for each shipment of geomembrane. The certification shall be signed by a responsible party employed by the manufacturer such as the QA/QC Manager, Production Manager, or Technical Services Manager. The geomembrane shall not be accepted or approved until all required certificates have been received by the Engineer.
 - 1. Geomembrane lot and roll numbers (with corresponding shipping information).
 - 2. Manufacturer test data for raw materials used in the geomembrane production, including those items listed in 1.02D.
 - 3. Manufacturer's test data for finished geomembrane production, including those items listed in 1.02D.

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- B. The certifications of all raw material and sheet material tests including testing frequency and test methods used shall be issued to the Engineer prior to geomembrane delivery. No HDPE geomembrane shall be installed until the Engineer has reviewed the certified test summary and concurred that the geomembrane delivered is acceptable for use. Records, including test data, shall be maintained by the Geomembrane Manufacturer for one year and shall be made available upon request.
- C. All geomembrane conformance test data shall meet or exceed requirements outlined in Section 2.02. Any materials that do not conform to these requirements shall be retested or rejected by the Owner upon the recommendation of the Engineer. Geomembrane that is rejected shall be removed from the project site and replaced by the Contractor. Sampling and conformance testing of geomembrane supplied as replacement for rejected material shall be performed by the Engineer or his representative and paid for by the Contractor.

2.09 PRODUCT LABELING

- A. Prior to shipment, the Geomembrane Manufacturer shall affix a label to each roll identifying the following characteristics:
 - 1. Product identification information (manufacturer name and address, brand name, product code).
 - 2. Thickness of geomembrane sheet, lot number, and roll number or panel number.
 - 3. Roll length and width.
 - 4. Total roll weight.
- B. The label shall be located so that each roll of geomembrane can be identified by examining the roll or core edges. The label shall be weather-proof.

PART 3 – EXECUTION

3.01 HANDLING – MANUFACTURE

- A. Rolls
 - 1. The cores on which the rolls of geomembranes are wound shall be at least 150 mm (6.0 inches) outside diameter.
 - 2. The cores shall have a sufficient inside diameter such that forklift stingers (a long rod inserted into the core) can be used for lifting and movement.
 - 3. The cores shall be sufficiently strong that the roll can be lifted by a stinger or with fabric slings without excessively deflecting, nor structurally buckling the roll.

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4. The stacking of rolls at the manufacturing facility shall not cause buckling of the cores nor flattening of the rolls. In general, the maximum stacking limit is five (5) rolls high.
5. If storage at the manufacture's facility is for longer than six (6) months, the rolls shall be covered by a sacrificial covering, or placed within a temporary or permanent enclosure.
6. The manufacturer shall identify all rolls with the manufacturer's name, product identification, thickness, roller number, roll dimensions, and date manufactured.

3.02 SHIPMENT, HANDLING, AND SITE STORAGE

- A. Unloading of rolls or pallets at the job site's temporary storage location shall be such that no damage to the geomembrane occurs.
- B. Pushing, sliding, or dragging of rolls or pallets of geomembranes shall not be permitted.
- C. Off-loading at the job site shall be performed with cranes or forklifts in a workmanlike manner such that damage does not occur to any part of the geomembrane.
- D. Temporary storage at the job site shall be in an area where standing water cannot accumulate at any time.
- E. The ground surface shall be suitably prepared such that no stones or other rough objects that could damage the geomembranes are present.
- F. Temporary storage of rolls of HDPE geomembranes in the field shall not be so high that crushing of the core or flattening of the rolls occur. In general, the maximum stacking limit is five (5) rolls high.
- G. Suitable means of securing the rolls or pallets shall be used such that shifting, abrasion, or other adverse movement does not occur.
- H. If storage of rolls or pallets of geomembranes at the job site is longer than six (6) months, a sacrificial covering or temporary shelter shall be provided for protection against precipitation, ultraviolet exposure, and accidental damage.

3.03 PLACEMENT

- A. General
 1. When placing the geomembrane, construction equipment shall not be permitted to ride directly on the lower geosynthetic material. In cases where rolls must be moved over previously placed geosynthetics, it is necessary to move materials by hand or by using small pneumatic tired

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lifting units. Tire inflation pressures shall be limited to a maximum value of 5 lb/in².

2. Underlying geosynthetic material shall have all folds, wrinkles, and other undulations removed before placement of the geomembrane.
3. Care and planning shall be taken to unroll the geomembrane close to its intended, and final position.
4. The Geomembrane Installer shall maintain a daily field record of the actual placement of each panel, noting the weather conditions, seaming, parameters, panel numbers, seams welded, samples taken, and tests runs. The Geomembrane Installer shall provide a copy of the field record to the Engineer no later than the following day.

B. Temperature Effects on Geomembrane – Sticking/Cracking

1. Geomembranes, when unrolled, shall not stick together to the extent where tearing, or visually observed straining of the geomembrane, occurs. A sheet temperature of 50°C (122°F) is the upper limit that a geomembrane shall be unrolled, unless it is shown otherwise to the satisfaction of the Engineer.
2. Geomembranes which have been torn or have been excessively deformed shall be rejected or repaired.
3. Geomembranes, when unrolled in cold weather, shall not crack, craze, or distort in texture. A sheet temperature of 0°C (32°F) is the lowest limit that a geomembrane shall be unrolled, unless it is shown otherwise to the satisfaction of the Engineer.

C. Temperature Effects on Geomembrane – Expansion/Contraction

1. Sufficient slack shall be placed in the geomembrane to compensate for the coldest temperatures envisioned, so that no tensile stresses are generated in the geomembrane or in its seams either during installation or subsequently after the geomembrane is covered.
2. The geomembrane shall have adequate slack such that it does not lift up off the underlying substrate material at any location within the facility, i.e., no "trampolining" of the geomembrane shall be allowed to occur at any time.
3. The geomembrane shall not have excessive slack to the point where creases fold over upon themselves either during placement and seaming, or when the protective soil or drainage materials are placed on the geomembrane.
4. Permanent creases in the covered geomembrane shall not be permitted at any time.

D. Spotting

1. The geomembrane shall be placed in such a manner as to orient the seams parallel to the line of the maximum slope, i.e., along the slope, not across the slope.

2. Where seams must be oriented across the slope, the geomembrane shall be placed in such a manner that the "up slope" panel forms the upper panel and overlaps the "down slope" panel.
3. Spotting of deployed geomembranes shall be done with no disturbance to the soil subgrade or geosynthetic materials upon which they are placed.
4. Spotting shall be done with a minimum of dragging of the geomembrane.
5. Temporary tack welding of all types of thermoplastic geomembranes shall be allowed at the Installer's discretion.
6. When temporary tack welds of geomembranes are utilized, the welds shall not interfere with the primary seaming method, or with the ability to perform subsequent destructive seam tests.

E. Wind Considerations

1. Geomembrane rolls, which have been displaced by wind, shall be inspected and approved by the Engineer before any further field operations commence.
2. Geomembrane rolls, which have been damaged, shall be rejected and/or repaired as directed in the contract Drawings or Specifications.
3. Permanent crease marks, or severely folded locations in geomembranes, shall not be permitted unless it can be shown that such distortions have no adverse effect on the properties of the geomembrane. If this cannot be done, these areas shall be cut out and properly patched as per the Specifications and approved by the Engineer.
4. If patching of wind-damaged geomembranes becomes excessive, the entire roll or panel shall be rejected.

3.04 SEAMING AND JOINING

- A. The Geomembrane Installer shall attend a pre-construction meeting with the Contractor and the Engineer at the project site prior to the installation of the geomembrane.
- B. The geomembrane shall be seamed together by fusion or extrusion welding as approved for the specific geomembrane by the Geomembrane Manufacturer. The seaming method shall be approved by the Engineer prior to the commencement of work.
- C. Geomembrane panels shall have a finished minimum overlap of four (4) inches for fusion welding and six (6) inches for extrusion welding.
- D. In corners and odd-shaped geometric locations, seams shall be minimized.
- E. The Geomembrane Installer shall have an identification system for all field welds. All welds shall be noted and recorded in the Geomembrane Installer's daily field

record along with complete details of repairs, anchoring, and geomembrane attachments to other structures.

- F. The Geomembrane Installer shall make every effort to minimize or eliminate the potential for water accumulation beneath the geomembrane during construction and installation. The Geomembrane Installer shall remove any water found beneath the geomembrane.
- G. Precautions shall be taken to prevent damaging the geomembrane beneath it by restricting heavy equipment traffic. Unrolling the geosynthetic can be accomplished using lightweight, rubber-tired equipment which produces a maximum ground pressure of 5 psi. This equipment can be driven directly on the geomembrane, provided the equipment makes no sudden stops, starts, or turns.
- H. The geomembrane area to be welded shall be clean and free of all dirt, debris, moisture, or any other foreign material. Solvents shall not be used to clean the geomembrane panels prior to welding. The geomembrane weld shall be done as soon as possible once cleaning and preparation is complete.
- I. The welds of the adjacent geomembrane panels shall be continuous extending the full length of the panels including the portion of the panels that will be located in the anchor trench.
- J. The Geomembrane Installer shall seam all geomembranes the day they are placed.
- K. Excessive grinding of the geomembrane panel in preparation for seaming shall not be acceptable. Excessive grinding shall be considered extensive scoring of the geomembrane panel or when noticeable grinding is observed more than 1/4-inch outside of the completed weld area.
- L. All extrusion welding machines that are used shall be purged of old extrudate prior to the start of each weld run. Any extrusion welding machines that are used shall be required to continuously monitor and control the temperatures of the extrudate and the zone of contact to stay within the recommendations of the Geomembrane Manufacturer.
- M. Excessive overheating of the geomembrane shall not be permitted. Excessive overheating includes, but is not limited to: 1) Seaming temperature or seaming rates that cause deformation or visible warping of the top or bottom surface of the geomembrane seam area 2) Seaming temperatures in excess of the recommendations of the Geomembrane Manufacturer.
- N. Connection of the new 60-mil HDPE liner to the existing 60-mil textured HDPE liner shall be comprised of properly cleaning and preparing the existing material to receive the new material, laying the new material to properly overlap, and seaming the two materials by means of extrusion welding as described in the Specifications.

3.05 TEST WELDS AND TEST WELDING SAMPLING

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- A. Field test welds shall be conducted on the liner to verify that seaming conditions are satisfactory. The Geomembrane Installer shall evaluate the test weld prior to production seaming. The Geomembrane Installer shall perform a test weld for each welder whenever any of the following conditions occur at shift start-up, during a "cold" restart of the welder, after a change in the welding technician, after a significant change in ambient temperatures, after four (4) hours of continuous operation, or as required by the Engineer. All test seams shall be performed with the same generator unit, lengths of extension cord, and other necessary equipment as proposed for use with each welding unit during the production seaming.
- B. The Geomembrane Installer shall perform field testing of all test welds. The Geomembrane Installer shall submit at the time of the bid submittals, a test weld quality control testing program for approval by the Engineer.
- C. All test seams shall be made in contact with the subgrade. The welding rod used for extrusion welding shall have the same properties as the resin used to manufacture the geomembrane.
- D. The test seam samples shall be a minimum of 10 feet long for fusion welding and three (3) feet long for extrusion welding with the seam centered lengthwise.
- E. The Geomembrane Installer shall cut from the test seam ten specimens for field testing by the Geomembrane Installer and ten specimens to be provided to the Engineer for archiving or future testing. All specimens shall be marked with pertinent information including date, time, ambient temperature, welder, welding technician name, welding parameters, welding method, and any other pertinent information.
- F. The Geomembrane Installer shall use a tensiometer to test five specimens for shear and five specimens for peel. The Geomembrane Installer shall provide all testing equipment. Each specimen shall be 1-inch wide with a grip separation of four (4) inches plus the width of the seam. The seam shall be centered between the clamps. The rate of grip separation shall be two (2) inches per minute. Test results for seam strength properties shall be the average of five (5) specimens. Four out of five specimens shall pass the seam acceptance criteria. Shear percent elongation shall exceed 50%, peel separation should not exceed 25% based on the proportion of the area of separated bond to the area of the original bonding. Dual hot wedge fusion seaming methods shall be tested on both seams. Failure of the test weld to meet the criteria shall require a new test weld. If a test seam again fails to meet field seam Specifications, the seaming apparatus and/or seamer shall not be used for seaming until the deficiencies are corrected and a successful test seam is achieved. All testing shall be done in the presence of the Engineer.
- G. The Geomembrane Installer shall retain all test weld samples on site for the review of the Engineer until the end of the project.

3.06 PRODUCTION SEAM TESTING

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A. Non-Destructive Seam Testing

The Geomembrane Installer shall provide nondestructive testing of all field seams. The nondestructive testing method shall be the vacuum chamber or pressurized dual seam.

1. Vacuum Box Testing

- a. The Geomembrane Installer shall provide a vacuum box assembly consisting of a rigid housing, a transparent viewing window, a soft rubber gasket attached to the bottom, port hole or valve assembly, and a vacuum gauge. The Geomembrane Installer shall additionally provide a soapy solution in a plastic bucket with a mop.
- b. The Geomembrane Installer shall trim any excess sheet overlap from the seam. The geomembrane to be tested shall be wetted with the soapy solution of sufficient length and width so that the vacuum box will sit on the wetted area.
- c. Place the vacuum box over the wetted area and compress. Create a vacuum of 3-5 psi. Ensure that a leak tight seal is created.
- d. The Geomembrane Installer shall examine the geomembrane through the viewing window for the presence of soap bubbles for 15 seconds.
- e. If no bubbles appear after 15 seconds, close the vacuum valve and open the bleed valve, move the box over to the next adjoining area with a minimum of three (3) inches overlap and repeat the process.
- f. All areas where soap bubbles appear shall be marked, recorded in the testing log, repaired, and then retested.
- g. All testing shall be done in the presence of the Engineer.

2. Air Pressure Testing

- a. The Geomembrane Installer shall provide an air pump equipped with a pressure gauge capable of generating and sustaining a pressure between 25 and 30 psi and a pressure gauge equipped with a sharp hollow needle.
- b. The Geomembrane Installer shall seal one end of the seam to be tested and insert needle or other approved pressure feed device through the sealed end of the channel created by the double wedge fusion weld.
- c. Connect and activate the air pump to verify the unobstructed passage of air thorough the channel. Seal the other end of the channel.
- d. Activate the air pump to a pressure between 25 and 30 psi, close

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valve, allow two (2) minutes for the injected air to come to equilibrium in the channel, and sustain pressure for approximately five (5) minutes.

- e. If loss of pressure exceeds 4 psi, or pressure does not stabilize, locate faulty area, repair the area, and retest.
- f. If pressure does not drop below the acceptable value after five (5) minutes, cut the air channel open at the opposite end from the pressure gauge. The air channel should deflate immediately indicating that the entire length of the seam has been tested.
- g. All testing shall be done in the presence of the Engineer.

B. Destructive Seam Testing

1. The Geomembrane Installer shall provide the Engineer with one destructive test sample for every 500 feet of seam length or as directed by the Engineer.
2. Samples shall be cut and marked by the Geomembrane Installer as the seaming progresses. All samples shall be marked with pertinent information including date, time, ambient temperature, welder, welding technician name, welding parameters, welding method, and any other pertinent information. The installer shall also record the date, location, and pass-fail description on the daily seaming log. Care shall be taken to avoid damage to the underlying geomembrane during the sampling process. Any damage that may occur to the geomembrane will be immediately repaired per the Specifications at no additional cost to the Owner. All holes in the geomembrane resulting from the sampling process shall be immediately patched and vacuum tested by the Geomembrane Installer.
3. The samples shall be 12 inches wide by 36 inches long with the seam centered lengthwise. The sample shall be cut into three equal lengths. One sample shall be for the Geomembrane Installer, one sample for the Engineer, and one sample for the Owner.
4. The Geomembrane Installer shall test ten 1-inch-wide specimens from his sample, five specimens for shear strength and five for peel strength. Four out of five specimens must pass the project seam requirements for each test to be acceptable.
5. The Owner may, at his discretion, send seam samples to a laboratory for further testing.
6. The following procedures shall apply whenever a sample fails the field destructive test.
 - a. The installer shall cap strip the seam between the failed location and any passed test locations.
 - b. The Geomembrane Installer may retrace the welding path to an intermediate location and take a sample for an additional field test. If this test passes, then the seam shall be cap stripped between the

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location and the original failed location. If the test fails, then the process is repeated.

c. The Geomembrane Installer shall either cut out the old seam, reposition the panel and reseam, or add a cap strip over the length of the seam failure.

7. All sampling and testing shall be performed in the presence of the Engineer or his representative.

3.07 DAMAGE REPAIR

- A. Any damage in the form of holes, blisters, cuts or tears, including those done for seam testing, shall be identified and repaired by the Installer by cutting a patch of unused geomembrane and placing over the area.
- B. The damaged area shall be removed of all dirt, debris, and moisture. A patch of geomembrane shall be cut to fit over the damaged area and to extend one foot in all directions around it. All patches shall be rounded at the corners so that the repair can be completed with continuous extrusion welding. The weld area shall be ground no more than 10 minutes prior to welding. No more than 10% of the thickness shall be removed by grinding.
- C. Damaged geomembrane areas shall not be repaired by the application of a bead extrudate, unless approved by the Engineer.
- D. Extrusion welds shall not be placed over previously seamed areas in an attempt to repair fusion seams.
- E. If patching of the geomembrane becomes excessive, the entire roll or panel shall be rejected.

3.08 VERIFICATION OF REPAIRS

- A. Each repair shall be tested by non-destructive means. Repairs that pass the non-destructive test shall be taken as an indication of an adequate repair. Failed tests indicate that the repair shall be repeated and retested until passing test results are achieved.
- B. The Geomembrane Installer and Engineer shall keep separate daily documentation of all non-destructive and destructive testing. This documentation shall identify all seams that initially failed the test and include evidence that these seams were repaired and successfully retested.

- END OF SECTION -

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SECTION 02300

EARTHWORK

PART 1 - GENERAL

1.01 SUMMARY

The Contractor shall furnish all labor, materials, and equipment necessary for the construction of the areas requiring the Earthwork in accordance with the Drawings and Specifications. This includes hauling, placing, compacting, screening, crushing, processing, moisture addition, disking, scarification, and all other incidental items required in the work. The earthwork shall consist of anchor trenches and backfilling. Other Earthwork material placed by the Contractor shall meet the requirements set forth herein.

1.02 RELATED SECTIONS

- A. Section 02315 –Excavation
- B. Section 02319 - Excavation, Backfilling, and Compacting for Utilities

PART 2 - PRODUCTS

2.01 EQUIPMENT

- A. The equipment used for the earthwork will be of the Contractor's option, unless otherwise called for herein or requested by the Engineer. The equipment used shall have sufficient capabilities to produce a product meeting the desired final performance.

2.02 MATERIALS

- A. The material shall be the soil removed during construction of the anchor trenches and pipe trenches. The material shall be free of organic material and structurally sound. Topsoil removed shall be stored for placement on top of the new trenches.
- B. Should extra soil material be needed for the trenches the material shall be as designated or approved by the Engineer. The material shall be clean on-site natural soil from the borrow area (located across the railroad tracks) void of topsoil or other deleterious materials. The maximum size rock allowed in the material shall be four (4) inches in any dimension. The material shall have a maximum rock content of 30%.

PART 3 - EXECUTION

3.01 PLACEMENT

Earthwork
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- A. Trenches shall be inspected and acceptable by the Engineer or RPR prior to placement of soil material.
- B. The fill for the anchor trenches shall be constructed in loose lifts not to exceed six (6) inches. Each lift shall be compacted.
- C. The Contractor shall be responsible to rework any areas that are deemed unsuitable or unacceptable by the Engineer or RPR.

3.02 TOLERANCES

Top Surface of fill material must match existing surrounding grade.

- END OF SECTION -

SECTION 02315

EXCAVATION

PART 1 - GENERAL

1.01 SUMMARY

The Contractor shall furnish all labor, materials, and equipment necessary for the unclassified excavation as shown on the Drawings.

1.02 RELATED SECTIONS

- A Section 02300 – Earthwork
- B. Section 02319 - Excavating, Backfilling, and Compacting for Utilities

1.03 SAFETY

- A. Conform to all federal, state, and local codes and regulations regarding safety.
- B. Protect excavations by shoring, bracing, sheet piling, underpinning, or other methods required to prevent cave-in or loose soil from falling into excavation.
- C. Underpin adjacent structures which may be damaged by excavation work, including service utilities and pipe chases.
- D. Notify Engineer of unexpected subsurface conditions and discontinue affected work in area until notified to resume work.
- E. Protect bottom of excavations and soil adjacent to and beneath foundations from frost.
- F. Grade excavation top perimeter to prevent surface water run-off into excavation.
- G. Contractor shall provide ample means and devices with which to intercept any water entering the excavation area.

PART 2 - PRODUCTS

2.01 EQUIPMENT

- A. The equipment used for the excavation will be of the Contractor's option, unless otherwise called for herein or required by the Engineer. The equipment used shall have sufficient capabilities to produce a product meeting the desired final performance.

Excavation
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PART 3 - EXECUTION

3.01 CLASSIFICATION

Without regard to the materials encountered, all excavation is unclassified and the Owner will consider it Unclassified Excavation. Any reference to rock, earth, or any other material on the Drawings or cross sections, whether in numbers, words, letters, or lines, is solely for the Owner's information and is not an indication of classified excavation or the quantity of either rock, earth, or any other material involved. The Bidder must draw his own conclusions as to the conditions to be encountered. The Owner does not give any guarantee as to the accuracy of the data and will not consider any claim for additional compensation when the materials encountered are not in accord with the classification shown.

3.02 EXCAVATION

All unclassified excavation shall be done in accordance with Section 204 – Roadway and Drainage Excavation in the Kentucky Transportation Cabinet's *Standard Specifications for Road and Bridge Construction*, Latest Edition.

3.03 DEWATERING

- A. The Contractor, at his own expense, shall provide adequate facilities for promptly and continuously removing water from all excavation.
- B. To ensure proper conditions at all times during construction, the Contractor shall provide and maintain ample means and devices (including spare units kept ready for immediate use in case of breakdowns) with which to remove promptly and dispose properly of all water entering trenches and other excavations. Such excavation shall be kept dry until the structures, pipes, and appurtenances to be built therein have been completed to such extent that they will not be floated or otherwise damaged.
- C. All water pumped or drained from the work shall be disposed of in a suitable manner without undue interference with other work, damage to pavements, other surfaces, or property. Suitable temporary pipes, flumes, or channels shall be provided for water that may flow along or across the site of the work.
- D. If necessary, the Contractor shall dewater the excavations by means of an efficient drainage wellpoint system which will drain the soil and prevent saturated soil from flowing into the excavation. The wellpoints shall be designed especially for this type of service. The pumping unit shall be designed for use with the wellpoints, and shall be capable of maintaining a high vacuum and of handling large volumes of air and water at the same time.
- E. The installation of the wellpoints and pump shall be done under the supervision of a competent representative of the manufacturer. The Contractor shall do all special work such as surrounding the wellpoints with sand or gravel or other work which is

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necessary for the wellpoint system to operate for the successful dewatering of the excavation.

3.04 UNAUTHORIZED EXCAVATION

If the bottom of any excavation is taken out beyond the limits indicated or prescribed, the resulting void shall be backfilled at the Contractor's expense with thoroughly compacted earth material in accordance with Section 02300, or with 4000 psi concrete, if the excavation was for a structure.

3.05 EXISTING UTILITIES AND OTHER OBSTRUCTIONS

Prior to the commencement of construction on the project, the Contractor shall contact the utility companies whose lines, above and below ground, may be affected during construction and verify the locations of the utilities as shown on the Drawings. The Contractor shall ascertain from said companies if he will be allowed to displace or alter, by necessity, those lines encountered or replace those lines disturbed by accident during construction, or if the companies themselves are only permitted by policy to perform such work. If the Contractor is permitted to perform such work, he shall leave the lines in as good condition as were originally encountered and complete the work as quickly as possible. All such lines or underground structures damaged or molested in the construction shall be replaced at the Contractor's expense, unless in the opinion of the Engineer, such damage was caused through no fault of the Contractor.

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SECTION 02319

EXCAVATING, BACKFILLING, AND COMPACTING FOR UTILITIES

PART 1 - GENERAL

1.01 SUMMARY

- A. Excavating of Trenches
- B. Bedding of Pipe
- C. Backfilling Trenches

1.02 RELATED SECTIONS

- A. Section 02625 – HDPE Pipe and Fittings

1.03 SUBMITTALS

The Contractor shall furnish the Sieve analysis of stone per ASTM C-136 to the Engineer in accordance with Section 01300.

PART 2 - PRODUCTS

2.01 BEDDING AND BACKFILLING STONE

- A. Crushed Stone material shall conform to the Kentucky Transportation Cabinet *Standard Specifications for Road and Bridge Construction*, latest edition.
- B. Bedding Stone: No. 9 Crushed Stone.
- C. Backfill Stone: No. 57 Crushed Stone.

PART 3 - EXECUTION

3.01 GENERAL REQUIREMENTS

- A. Trenching may be accomplished by means of a backhoe, excavator, trenching machine or by hand depending on the construction area. At the Contractor's option, trenching by mechanical means is acceptable except as noted below:

Where the pipe line is being constructed close to other utilities, structures, building, or large trees, and it is reasonable to anticipate possible damage from the use of a mechanical means, then trenching shall be made by hand methods.

- B. Clearing

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All trees, stumps, bushes, shrubbery, and abandoned concrete or masonry structures within the limits of the trench shall be removed by the Contractor and disposed of in a manner satisfactory to the land owner and in accordance with federal, state, and local regulations. All clearing work shall be considered as incidental to the cost of laying pipe.

C. Bracing and Sheeting

In areas of unstable soils, bracing and sheeting shall be provided to adequately protect the workers during pipeline installation.

1. All requirements of the Occupational Safety and Health Act (OSHA) shall be met during trenching and backfill operations.
2. When sheeting and bracing are required, the trench width shall not be less than specified herein. As backfill is placed, the sheeting shall be withdrawn in increments not exceeding one (1) foot and the void left by the withdrawn sheeting shall be filled and compacted.
3. The Engineer will not be responsible for determining requirements for bracing or sheeting.

- D. Excavated materials shall be piled in a manner that will not endanger the Work and will avoid obstructing driveways and sidewalks. Gutters shall be kept clear or other satisfactory provisions made for street drainage.

3.02 TRENCHING

A. General

1. The Contractor shall perform all excavation of every description and of whatever substances encountered, including clearing over the pipe line route. All excavations for the pipeline shall be open-cut except at paved city and county roads, state and federal highways, railroads and blacktop or concrete driveways which shall be bored unless otherwise approved by Engineer. Banks of excavations shall be kept as nearly vertical as possible.
2. Trench widths at the top of the pipe shall not be less than or greater than that given in the following table:

| ALLOWABLE TRENCH WIDTHS | | |
|---------------------------|---------------------------|---------------------------|
| Pipe Diameter (inches) | Minimum Width (inches) | Maximum Width (inches) |
| 4 & less | 16 | 28 |
| 6 | 18 | 30 |
| 8 | 20 | 32 |
| 10 | 22 | 34 |
| 12 | 24 | 36 |
| 14 | 26 | 38 |
| 16 | 28 | 40 |
| 18 | 30 | 42 |
| 20 | 32 | 44 |

B. Trench Depth

1. The trench shall be excavated to a depth sufficient to provide 30 inches of cover over the pipe in non-traffic areas and 36 inches in traffic areas. In addition, excavation shall be carried to a minimum of six (6) inches below pipe grade in rock.
2. When it is necessary to install a pipeline below a roadway ditch, it shall be provided with 48 inches of cover unless otherwise approved by Engineer.

- C. All excavation will be classified as unclassified. Unclassified excavation shall include all material encountered during excavation of trench to proper depth and width. It includes the removal of all slate, hardpan, soil, pavements, loess and solid rock and any other material which may be encountered in the trench.

3.03 PIPE BEDDING

- A. The trench shall be excavated to a depth shown on the Drawings.
- B. Bedding material shall be No. 9 Crushed Stone. The trench shall be over-excavated six (6) inches and filled with No. 9 Crushed Stone prior to laying pipe. In no case shall pipe be laid on solid or blasted rock.
- C. Bedding material shall be placed from six (6) inches below the bottom of pipe to the centerline (springline) of the pipe. Bedding shall be compacted in layers not to exceed six (6) inches.
- D. When the subgrade is found to be unstable or to include other unsuitable material, such material shall be removed to the depth ordered by the Engineer and replaced under the directions of the Engineer with clean, stable backfill material. When the bottom of the trench or the subgrade is found to consist of material that is unstable to such a degree that, in the judgement of the Engineer it cannot be removed, a

foundation for the pipe and/or appurtenance shall be constructed using piling, timber, concrete, or other materials at the direction of the Engineer.

3.04 PIPE BACKFILLING

A. Initial Backfill

1. Initial backfill is defined as the material placed from the centerline (springline) of the pipe.
2. Initial backfill shall be No. 9 Crushed Stone.

B. Final Backfill

1. Final backfill is defined as the material placed from the centerline of the pipe to a depth as shown on the Drawings.
2. Final backfill, in earth or rock excavation areas, free from rocks, debris, or other foreign materials may be used.
3. Final backfill, shall be No. 9 or No. 57 Crushed Stone.

- END OF SECTION -

SECTION 02372

GEOTEXTILE FILTRATION MATERIAL

PART 1 - GENERAL

1.01 SUMMARY

The Contractor shall furnish all labor, materials, and equipment necessary for the installation of the non-woven geotextile in accordance with the Drawings and Specifications.

1.02 SYSTEM DESCRIPTION

The non-woven geotextile is intended to act as a separation geotextile between soil and stone.

1.03 SUBMITTALS

The Contractor shall furnish the following information to the Engineer in accordance with Section 01300.

- A. Geotextile manufacturer's affidavit providing assurance that the qualifications of the Geotextile Manufacturer and the Contractor have been achieved.
- B. A project reference list consisting of the principal details of at least 10 projects totaling at least 8 million square feet of installed geotextile.
- C. Geotextile Manufacturer's Quality Assurance/Quality Control (QA/QC) certifications for each shipment of geotextile to verify that the materials supplied for the project are in accordance with the requirements of this specification. The certificates shall show the following:
 - 1. Unit weight per ASTM D-5261
 - 2. Grab tensile strength per ASTM D-4632
 - 3. Trapezoidal tear strength per ASTM D-4533
 - 4. CBR Puncture strength per ASTM D-6241
 - 5. Apparent opening size per ASTM D-4751
 - 6. Permittivity per ASTM D-4491
 - 7. Ultraviolet light resistance per ASTM D-4355
 - 8. Thickness per ASTM D-5199
- D. Manufacturer's warranty covering materials and workmanship of the geotextile.

- E. Survey data, as described in Section 01320, for the location, measurement, and payment of the geotextile. The survey information shall be location along the centerline of the structure that requires geotextile.
- F. Manufacturer's installation guideline.

1.04 QUALIFICATIONS

- A. Geotextile Manufacturer must have produced at least 10 million square feet of non-woven geotextile, with at least 8 million square feet installed.
- B. Geotextile Contractor must either have installed at least 1 million square feet of non-woven geotextile, or must provide to the Engineer satisfactory evidence, through similar experience in the installation of other types of geosynthetics, that the non-woven geotextile will be installed in a competent, professional manner.

PART 2 - PRODUCTS

2.01 NON-WOVEN GEOTEXTILE

- A. Non-Woven Geotextile

The non-woven geotextile shall meet the physical requirements below. The geotextile shall be free of holes, tears, defects, and patch-repairs of defects. The geotextile shall be composed of a non-woven needle-punched, discontinuous fiber. Fibers used in manufacture of the geotextile, and threads used in joining the geotextiles by sewing, shall consist of long chain synthetic polymers composed of at least 95 percent by weight polyolefins, polyesters, or polyamides.

The geotextile and threads used in sewing the geotextile shall be chemically resistant to commonly encountered hazardous and municipal landfill leachate, rot, and mildew. The geotextile and threads used in sewing the geotextile shall also contain stabilizers or inhibitors to limit degradation due to ultraviolet (UV) light exposure. Polymeric thread used for sewing shall exhibit chemical and UV resistance equal to or exceeding that of the geotextile.

- B. Materials

The non-woven geotextile shall achieve compliance with the properties listed below. All values are minimum roll values in weaker principal direction unless indicated otherwise.

| PROPERTY | TEST METHOD | * NON-WOVEN GEOTEXTILE |
|---|-------------|---------------------------------|
| Fabric Weight (oz/yd ²) | ASTM D-5261 | 10 |
| Grab Strength (lbs) | ASTM D-4632 | 210 |
| Grab Elongation (%) | ASTM D-4632 | 50 |
| Trapezoid Tear Strength (lbs) | ASTM D-4533 | 100 |
| Seam Strength (lbs) | ASTM D-4632 | 190 |
| CBR Puncture Resistance (lbs) | ASTM D-6241 | 725 |
| Water Flow Rate (gpm/ft ²) | ASTM D-4491 | 75 |
| Permittivity, Ψ (sec ⁻¹) | ASTM D-4491 | 0.94 |
| Permeability, k (cm/sec) | ASTM D-4491 | 0.25 |
| AOS (U.S. Sieve No.) | ASTM D-4751 | 100 |
| U.V. Resistance (%) | ASTM D-4355 | 70% after 500 hours of exposure |

C. Product Documentation

The Contractor shall provide the Engineer with the QA/QC certifications for each shipment of non-woven geotextile. The certification shall be signed by a responsible party employed by the manufacturer such as the QA/QC Manager, Production Manger, or Technical Services Manager. The QA/QC certifications shall include:

1. Geotextile lot and roll numbers (with corresponding shipping information).
2. Manufacturer test data for raw materials used in the non-woven geotextile production, including those items listed in Article 1.03 C.
3. Manufacturer's test data for finished non-woven geotextile production, including those items listed in Article 1.03 C.

D. Product Labeling

Prior to shipment, the non-woven geotextile manufacturer shall affix a label to each roll identifying the following characteristics:

1. Product identification information (manufacturer name and address, brand name, product code).
2. Lot and roll number.
3. Roll length and width.

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4. Total roll weight.
- E. Packaging
1. The non-woven geotextile shall be wound around a cardboard core four (4) inches in diameter to facilitate handling. The core is not intended to support the roll for lifting, but shall be sufficiently strong to prevent collapse during transit.
 2. All rolls shall be labeled and bagged in packaging that is resistant to photodegradation by ultraviolet light.

PART 3 - EXECUTION

3.01 SHIPPING AND HANDLING

- A. The manufacturer assumes responsibility for initial loading and shipping of the non-woven geotextile. Unloading, on-site handling, and storage are the responsibility of the Contractor.
- B. Handling of rolls of non-woven geotextiles shall be done in a competent manner, such that damage does not occur to the non-woven geotextile nor to its protective wrapping.
- C. The party responsible for unloading the non-woven geotextile shall contact the manufacturer prior to shipment to ascertain the appropriateness of the proposed unloading methods and equipment to be utilized.
- D. A visual inspection of each roll shall be made as it is unloaded to identify if any packaging has been damaged. Rolls with damaged packaging shall be marked and set aside for further inspection. The packaging shall be repaired prior to being placed in storage.

3.02 SITE STORAGE

- A. The location of field storage shall not be in areas where water can accumulate. The rolls shall be elevated off of the ground so as not to form a dam creating the ponding of water. A dedicated area shall be selected at the job site that is away from high traffic areas and well-drained.
- B. Unloading of rolls or pallets at the job site's temporary storage location shall be such that no damage to the geotextile occurs.
- C. Pushing, sliding, or dragging of rolls of non-woven geotextiles shall not be permitted.
- D. The rolls shall be stacked in such a manner as to prevent crushing of the cores, sliding or rolling from the stacks, or damage to the non-woven geotextile.

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- E. Outdoor storage of rolls shall not exceed manufacturer's recommendations or longer than six (6) months, whichever is less. For storage periods longer than six (6) months a temporary enclosure shall be placed over the rolls, or they shall be moved within an enclosed facility.

3.03 PLACEMENT

- A. The non-woven geotextile shall be placed at the locations shown in the Drawings.
- B. Geotextiles shall be deployed free of wrinkles and folds.
- C. During installation on slopes, the geotextiles shall be anchored at the top and rolled down the slope.
- D. All geotextiles shall be weighted with sandbags or other material that will not damage the geotextile during the presence of wind. Geotextiles uplifted by wind may be reused upon approval by the Engineer.
- E. The Contractor shall take the necessary precautions to protect the underlying layers upon which the geotextile will be placed.
- F. Trimming of the geotextiles shall be performed using only an upward cutting hook blade. Trimming of the geotextile shall be performed in a manner that will not damage the geomembrane or other underlying materials.
- G. A visual examination shall be carried out over the installed non-woven geotextile to ensure that no potentially harmful objects are present such as small tools, sharp objects, or protruding stones.

3.04 SEAMING AND JOINING

- A. The non-woven geotextile shall be overlapped and sewn together per the manufacturer's recommendations. The minimum overlap shall be one (1) inch.
- B. All seams shall be continuously sewn. On slopes greater than 10:1, all seams shall be oriented parallel to the slope.
- C. On slopes less than or equal to 10:1, damaged areas of a size exceeding 10 percent of the roll width shall be removed and replaced across the entire roll width with new material. Damaged areas of a size less than 10 percent of the roll width may be patched.
- D. On slopes greater than 10:1, geotextile panels which require repair shall be removed and replaced with new material.
- E. The thread used shall consist of high strength polypropylene or polyester. The sewn thread shall be of contrasting color to the non-woven geotextile and of chemical and ultraviolet properties equal to or greater than that of the geotextile.

Geotextile Filtration Material

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3.05 DAMAGE REPAIR

- A. Damaged non-woven geotextiles and non-woven geotextiles contaminated with dirt shall be repaired immediately at no additional cost to the Owner.
- B. The patch material used for the repair of a hole or tear shall be the same type of material as the damaged non-woven geotextile.
- C. All patches shall extend at least 12 inches in all directions beyond any portion of the damaged geotextile.
- D. The repair patch shall be sewn in place by hand or machine so as not to accidentally shift out of position or be moved during backfilling or covering operation.
- E. The sewn thread shall be of contrasting color to the geotextile and of chemical and ultraviolet light resistance properties equal to or greater than that of the geotextile.
- F. The repair shall be reviewed by the Engineer.

3.06 BACKFILLING OR COVERING

- A. Covering of the non-woven geotextile shall be done in a controlled manner so as to not shift the geotextile from its intended position.
- B. Covering material shall not be dropped on the non-woven geotextile in a manner that may puncture or damage the geotextile.

- END OF SECTION -

SECTION 02378

SEDIMENT CONTROL

PART 1 - GENERAL

1.01 SUMMARY

The Contractor shall furnish all labor, equipment, materials, and routine maintenance for the construction of temporary erosion and sediment control measures in accordance with the Drawings and Specifications, or as otherwise directed by the Engineer.

1.02 SUBMITTALS

- A. The Contractor shall furnish information to the Engineer in accordance with Section 01300 that the silt fence meets this Specification.
- B. The gradation or classification requirements for the riprap have been achieved.

1.03 RELATED SECTIONS

- A. Section 01563 – Storm Water Pollution Prevention Plan
- B. Section 01565 – Erosion and Sediment Control

PART 2 - PRODUCTS

2.01 SILT FENCE

- C. Silt fences shall be installed as shown on the Drawings or as directed by the Engineer.
- D. Material

Silt fence filter fabric shall be specifically recommended for this purpose by the manufacturer and shall meet or exceed the following criteria:

| Property | Conformance | Specification |
|-------------------|-------------|--------------------|
| Bursting Strength | ASTM D-751 | 150 psi |
| Grab Strength | ASTM D-1682 | 100 psi |
| Permeability | | 0.02 – 0.03 cm/sec |

- E. The silt fence shall contain ultraviolet ray inhibitors and stabilizers to provide a minimum of six (6) months of expected usable construction life at a temperature range of 0° F to 120° F.

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- F. Posts for the silt fence shall be either 2-inch diameter wood or 1.33 pounds per linear foot steel with a minimum length of five (5) feet. The posts shall be set to sufficient depth to provide a sound anchor for the filter fabric. Steel posts shall have projectiles for fastening the silt fence.

2.02 ROCK CHECK DAM

- A. Rock check dams shall be installed as shown on the Drawings or as directed by the Engineer.
- B. The rock check dams shall be constructed of Class I channel lining.
- C. The channel lining shall be clean, hard, durable limestone and meet the Specifications as set forth in Section 805 and Section 703 of the Kentucky Transportation Cabinet *Standard Specifications for Road and Bridge Construction*, latest edition.
- D. The rock check dams shall be shaped to the configuration shown in Rock Check Dam detail.
- E. The rock check dams shall have a maximum height of two (2) feet.

PART 3 - EXECUTION

3.01 GENERAL

- A. All sediment and erosion control devices shall be installed prior to the initiation of site clearing and grubbing and/or excavation/construction to prevent sediment generated by the operation from escaping downstream of the work site.
- B. The Contractor shall monitor and maintain all sediment and erosion control devices throughout the construction period.
- C. The Contractor shall comply with the Storm Water Pollution Prevention Plan.

3.02 SILT FENCE INSTALLATION

- A. The silt fence posts shall be installed six (6) to ten (10) feet apart on a slight angle toward the anticipated runoff source.
- B. A trench four (4) to six (6) inches deep shall be dug along the uphill side of the fence line.
- C. The silt fence shall then be attached to the posts with a maximum height of three (3) feet.
- D. The lower four (4) to six (6) inches of the silt fence shall be laid in the trench and

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curled toward the erosion source.

- E. The trench shall then be backfilled with any available soil.

3.03 ROCK CHECK DAM

- A. The stone for the rock check dam shall be placed in an orderly fashion and not dumped. Care shall be taken by the Contractor when placing the crushed stone on geotextiles as to not puncture the geotextile material during the installation process.
- B. The rock check dam shall have a 5 (horizontal) to 1 (vertical), 5:1, slope on the upstream slope and a 2.5 (horizontal) to 1 (vertical), 2.5:1, slope on the downstream slope.
- C. The maximum height of the rock check dam shall be two (2) feet.
- D. A non-woven geotextile shall be installed on the upstream slope of the rock check dam.

3.04 MAINTENANCE

All sediment and erosion control devices shall be maintained in a sound condition during the period of construction. Accumulations of silt, which may threaten their effectiveness, shall be removed. The sediment and erosion control devices shall be inspected weekly (at a minimum) and after any significant rain event ($>0.5''$). Any required repairs shall be made promptly to ensure the devices continue to function properly. A maintenance log of all erosion control devices shall be maintained by the Contractor.

- END OF SECTION -

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SECTION 02515

VALVES

PART 1 - GENERAL

1.01 SCOPE OF WORK

- A. Provide all labor, materials, equipment and services required to furnish and install all valves shown on the Drawings and/or specified herein.

1.02 SUBMITTALS

- A. Descriptive literature, catalog cuts, and dimensional prints clearly indicating all dimensions and materials of construction, shall be submitted on all items specified herein to the Engineer for review before ordering. Comply with provisions of Section 01300.
- B. At the time of submission, the Contractor shall, in writing, call Engineer's attention to any deviations that the submittals may have from the requirements of the Engineer's Contract Drawings and Specifications.

PART 2 - PRODUCTS

2.01 GATE VALVES

- A. Gate valves shall conform with AWWA C-509 standard, and shall be of the resilient seat type, iron body, fully bronze mounted, non-rising stem and have a design working pressure of 250 psi. All assembly bolts shall be stainless steel. Valves shall be of standard manufacturer and of the highest quality both as to materials and workmanship.
- B. All gate valves shall be furnished with mechanical joint connections, unless otherwise shown on the Drawings or specified hereinafter.
- C. An epoxy coating conforming to AWWA C-550 shall be applied to the interior and exterior ferrous surfaces of the valve except for finished or seating surfaces.
- D. All gate valves shall have the name or monogram of the manufacturer, the year the valve casting was made, the size of the valve, and the working water pressure cast on the body of the valve.
- E. Gate valves 12" and smaller shall be installed in a vertical position. Gate valves greater than 12" shall have the bonnet mounted in the horizontal position and have a bevel gear actuator. Gate valves shall be provided with a 2-inch square operating nut and shall be opened by turning to the left (counter-clockwise). All valve operating nuts shall be set within a cast iron valve box. There shall be a maximum

36" depth of valve operating nut. Contractor must use extension stems, if necessary, to raise operator nut within 36" of final grade.

2.02 GATE VALVES - BURIED

- A. Gate valves shall conform to the Specifications of Section 02515, Paragraph 2.01, except be designed for buried service, have mechanical joint ends, have all exterior surfaces shop painted with two coats of Fed. Spec. TT-V-51F Asphalt Varnish, with 2-inch square nut operator in a vertical position for use in a valve box.

2.03 VALVE BOXES - BURIED VALVES

- A. Valve boxes shall be of 5-1/4 inch standard cast iron, two-piece, screw type valve box with drop cover marked "SEWER", as applicable. Valve boxes for gate valves larger than 8 inches shall be three-piece. Valve boxes shall be accurately centered over valve operating nut, and backfill thoroughly tamped about them. Valve boxes shall not rest on the valves but shall be supported on crushed stone fill. They shall be set vertically and properly cut and/or adjusted so that the tops of boxes will be at grade in any paving, walk or road surface, and in grass plots, fields, woods or other open terrain. Valve boxes and covers shall be as manufactured by Tyler Corporation, Opelika Foundry, Bingham & Taylor, or equal.
- B. Contractor shall furnish two (2) 6-foot T-handle operating wrenches for underground valves. Nut operator extensions for all valves buried deeper than 3 feet shall be provided with stem extensions sufficient to raise operator nut to within 3 feet of finished grade.
- C. Valve boxes shall have extension stems, where necessary when operating nut is raised to be within 3 feet of the existing grade.
- D. Wherever valve boxes fall outside of the pavement, the top of the box shall be set in a cast-in-place concrete slab 18" x 18" x 4" thick with the top of the slab and box flush with the top of the ground. This provision shall apply to all new and all existing valve boxes which fall within the limits of the contract, unless otherwise stated on the plans or ordered by the Engineer. Bollards shall be installed as shown on the Drawings.

2.04 PLUG VALVES

- A. Type 2 – Eccentric Plug Valves (for buried service):
 - 1. Type: Nonlubricated eccentric plug with resilient plug faces.
 - 2. Construction:
 - a. Body and Plug Material: Cast iron, ASTM A126, Class B.
 - b. Bearings: Noncorrosive, permanently lubricated.
 - c. Seat: Nickel.
 - d. Bushings: Bronze.
 - e. Plug Facing: Neoprene or Nitrile-Butadiene.
 - f. Packing: Nitrile-Butadiene, externally adjustable.
 - g. Lining: Epoxy coated in accordance with AWWA C550.

3. Pressure Rating: 150 psi.
4. End Connections: Mechanical Joint.
5. Operator:
 - 1) As specified in the valve schedule.
 - 2) Furnish completely enclosed mounting bracket and actuator cover for buried valves.
6. Manufacturer and Model:
 - 1) DeZurik, Fig. No. 118.
 - 2) Or equal.

PART 3 - EXECUTION

3.01 VALVE INSTALLATION

- A. All valves shall be installed in accordance with details on the Contract Drawings and with the manufacturer's recommendations.
- B. All valves shall be anchored in accordance with the details on the Contract Drawings.

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SECTION 02625

HIGH DENSITY POLYETHYLENE (HDPE) PIPE AND FITTINGS

PART 1 - GENERAL

1.01 SUMMARY

The Contractor shall furnish all labor, materials, and equipment necessary for the installation of the HDPE pipe and fittings in accordance with the Drawings and Specifications.

1.02 RELATED SECTIONS

Section 02319 – Excavating, Backfilling, and Compacting for Utilities

1.03 SYSTEM DESCRIPTION

The HDPE pipe is intended to function as follows:

- A. Convey leachate from the landfill.
- B. Collect and transport leachate to wetlands.

1.04 SUBMITTALS

The Contractor shall furnish the following information to the Engineer in accordance with Section 01300.

- A. Comprehensive shop drawings and testing results for HDPE pipe and fittings to verify that the HDPE pipe and fittings are in accordance with the requirements of this Specification and the Drawings.
- B. Sieve analysis of bedding and backfilling stone per ASTM C-136.
- C. Survey data, as described in Section 01320, for the location, measurement, and payment of the HDPE pipe. The survey information shall include the location of all fittings and valves.

PART 2 - PRODUCTS

2.01 HDPE PIPE - GENERAL

- A. The HDPE pipe shall have a grade designation of PE3608 or PE4710 and a cell classification of 345464C or 445474C per ASTM D-3350. Cell classification of materials shall be according to tests for density per ASTM D-1505, melt index per ASTM D-1238, flex modulus per ASTM D-790, tensile strength per ASTM D-638, Environmental and notch stress crack resistance per ASTM D-1693 and ASTM F-High Density Polyethylene (HDPE) Pipe and Fittings

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1473, and hydrostatic design basis per ASTM D-2837.

- B. The HDPE pipe shall be homogeneous throughout and free from cracks, holes (except specified perforations), foreign inclusions, or other defects. The pipe shall be as uniform as commercially practical in color.
- C. The workmanship, pipe dimensions and tolerances, outside diameters, wall thickness, eccentricity, sustained pressures, burst pressures, flattening, extrusion quality, marking, and all other requirements of ASTM F-714 shall be conformed within all respects.
- D. HDPE pipe shall be marked with manufacturer's name, production lot number, ASTM designation, minimum cell classification, dimension ratio (DR), and nominal diameter.
- E. HDPE pipe shall be Phillips Driscopipe or approved equal.

2.02 HDPE PERFORATED DRAIN PIPE

- A. The HDPE perforated drain pipe shall be SDR 19 per ASTM F-714 in size(s) noted on Drawings.
- B. All perforated pipe shall have perforations cleanly cut and uniformly spaced along the length of the pipe.
- C. The diameter of all perforations shall be 0.5 inches.
- D. There shall be three (3) rows of perforations located at a spacing of 120 degrees around the circumference and with a longitudinal spacing of six (6) inches.
- E. The pipe shall be placed so that the bottom of the pipe has no perforations.

2.03 HDPE SOLID WALL DRAIN PIPE

The HDPE solid wall drain pipe shall be SDR 19 per ASTM F-714 in size(s) noted on Drawings.

2.04 HDPE FITTINGS

All fittings shall be of the same type of material as the pipe. Fittings may be molded or fabricated in shop. Fittings shall have the same or greater pressure rating (or SDR) of the connecting pipe (the smaller the SDR number, the higher the pressure rating). All fittings shall be approved by the pipe manufacturer prior to installation.

PART 3 - EXECUTION

3.01 SHIPMENT, HANDLING, AND SITE STORAGE

- A. Handling of pallets of HDPE pipe shall be done in a competent manner such that

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damage does not occur to the pipe.

- B. The location of field storage shall not be in areas where water can accumulate. The pallets shall be on level ground and oriented so as not to form a dam creating the ponding of water.
- C. The pallets shall not be stacked more than three high. Furthermore, they shall be stacked in such a way that access for conformance testing is possible.
- D. Outdoor storage of HDPE pipe shall not be longer than 12 months. For storage periods longer than 12 months, a temporary covering shall be placed over the pipes, or they shall be moved to an enclosed facility.

3.02 HDPE PIPE BEDDING AND BACKFILL

The HDPE pipe bedding and backfill shall be in accordance with the Specifications and as shown on the Drawings.

3.03 HDPE PIPE CONNECTIONS

The HDPE pipe sections shall be joined together by heat fusion (butt fusion or electrofusion). Butt fusion joints shall be made in the following manner:

- A. Comply with manufacturer's recommendation.
- B. Clean pipe ends inside and outside to remove dirt, water, grease, and other foreign materials.
- C. Square (face) the pipe ends using facing tool of the fusion machine.
- D. Check line-up of pipe ends in fusion machine to see that pipe ends meet squarely and completely over the entire surface to be fused. Make sure the clamps are tight so that the pipe does not slip during the fusion process.
- E. Check temperature of heater plate to assure that it falls within the range given in the following table:

| HEAT FUSION JOINTS - TEMPERATURE RANGES | | | |
|--|-----------------|---|-----------------|
| THERMOMETER READINGS (Degrees Fahrenheit) | | SURFACE TEMPERATURE (Degrees Fahrenheit) | |
| Coated Plates | Uncoated Plates | Coated Plates | Uncoated Plates |
| 500 – 525 | 485 - 500 | 475 - 500 | 475 - 500 |
| 400 – 425 | 375 - 400 | 375 - 400 | 375 - 400 |

- F. Insert clean heater plate between aligned ends and bring ends firmly in contact with plate, but DO NOT APPLY PRESSURE while achieving melt pattern. Allow pipe ends to heat and soften. Approximate softening depths are given in the following table:

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| HEAT FUSION JOINTS - MELT BEAD DEPTHS | |
|--|---|
| PIPE DIAMETER (inches) | APPROXIMATE MELT BEAD (inches) |
| 2 inch and below | 1/16 |
| 3 inch – 5 inch | 1/8 |
| 6 inch and larger | 3/16 |

- G. Carefully move the pipe ends away from the heater plate and remove the plate. (If the softened material sticks to the heater plate, discontinue the joint. Clean heater plate and resquare pipe ends and start over).
- H. Bring melted ends together rapidly. DO NOT SLAM. Apply enough pressure to form a double roll-back to the body of the pipe bead around the entire circumference to the pipe about 1/8 inch to 3/16 inch wide. Pressure is necessary to cause the heated material to flow together.
- I. Allow the joint to cool and solidify properly. This occurs when the bead feels hard and your finger can remain comfortably on the bead. Remove the pipe from the clamps and inspect the joint appearance.

3.04 HDPE PIPE PLACEMENT

- A. The pipe shall be protected during handling against impact shocks and free fall. Care shall be taken to avoid excessive stress or strain conditions during installation.
- B. After being delivered alongside the trench, the pipe shall be carefully examined for soundness or damage. No piece of pipe or fitting which is known to be defective shall be laid or placed in the lines. If any defective pipe or fitting shall be discovered after the pipe is laid, it shall be removed and replaced with a satisfactory pipe or fitting without additional charge. Before each piece of pipe is lowered into the trench, it shall be thoroughly cleaned out. Each piece of pipe shall be lowered separately unless special permission is given otherwise by the Engineer. In case a length of pipe is cut to fit in a line, it shall be so cut as to leave a smooth end at right angles to the longitudinal axis of the pipe.
- C. All pipe shall be laid straight between changes in alignment and at uniform grade between changes in grade. When jointed in the trench, the pipe shall form a true and smooth line.
- D. Trenches shall be kept dry during pipe laying. Before pipe laying is started, all water that may have collected in the trench shall be removed.
- E. No pipe shall be laid on solid or blasted rock.
- F. Pipe shall be properly sloped for positive flow.

3.05 HDPE PIPE TESTING

- A. All HDPE vacuum header pipes shall be subjected to an air test per ASTM F 1417 and as described herein to detect any leaks in the piping. Testing shall be performed below grade (inside the trench) unless otherwise approved by the Engineer. The Contractor shall accept the responsibility for locating, uncovering (if previously backfilled), and repairing any leaks detected during testing.
- B. Like sizes of polyethylene piping shall be butt welded together into testing segments not to exceed 500 feet. Segments shall be connected to a testing apparatus on one end and fitted with caps on all openings.
- C. The segment to be tested should be allowed time to reach constant and/or ambient temperature before initiating the test.
- D. The test should be performed during a period when the pipe segment will be out of direct sunlight when possible; i.e., early morning, late evening, or cloudy days. This will minimize the pressure changes, which will occur during temperature fluctuations.
- E. The test pressure shall be five (5) psig.
- F. Pressure drop during the test shall not exceed one percent of the testing gauge pressures over a period of one hour. This pressure drop shall be corrected for temperature changes before determining pass or failure. (See Part 3.06 for test failures). The Contractor shall sign off on the test form indicating testing compliance. The Owner's representative shall sign off on the test form to indicate test compliance.
- G. The Owner's representative shall be notified prior to commencement of the testing procedure and shall be present during the test.
- H. Equipment for this testing procedure will be furnished by the Contractor. This shall consist of, but not limited to, a polyethylene flange adaptor with a PVC blind flange. Tapped and threaded into the blind flange will be a temperature gauge 0° to 100° C, a pressure gauge 0 to 10 psi (graduated in 0.1-psi increments minimum, 0.01-psi increments preferable), a "Schraeder tire valve" to facilitate an air compressor hose, and a ball valve to release pipe pressure at completion of test. Polyethylene reducers shall be utilized to adapt test flange to size of pipe being tested.

3.06 TEST FAILURE

- A. The following steps shall be performed when a pipe segment fails the one-percent - one-hour test described in Part 3.05, F above.
 - I. The pipe and all fusions shall be inspected for cracks, pinholes, or perforations.

2. All blocked risers and capped ends shall be inspected for leaks.
 3. Leaks shall be located and/or verified by applying a soapy water solution and observing soap bubble formation.
- B. All pipe and fused joint leaks shall be repaired by cutting out the leaking area and re-fusing the pipe.
- C. After all leaks are repaired, a retest shall be performed in accordance with Part 3.05.

- END OF SECTION -

SECTION 02650

LEACHATE LINE CLEANING

PART 1 - GENERAL

1.01 SCOPE OF WORK

- A. Furnish all labor, materials, equipment and incidentals required to clean all existing pipe and fittings as specified herein.
- B. Cleaning shall include the proper high pressure water jetting, rodding, snaking, and flushing of lines prior to inspection by closed circuit television.
- C. Cleaning shall dislodge, transport and remove all sludge, mud, sand, gravel, rocks, sediment, and all other debris from the interior of the lines.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Equipment used for line cleaning shall be Contractor's choice, but shall be sufficient to clean the existing lines as required.

PART 3 - EXECUTION

3.01 PERFORMANCE

- A. Protect existing sewer lines from damage caused by improper use of cleaning equipment.
- B. Removal of Materials
 - 1. Remove all solids and semi-solids at the downstream structure of the section being cleaned.
 - 2. Passing material from one section of a line to another will not be permitted.
- C. Remove from the site and properly dispose of all solids or semi-solids recovered during the cleaning operation.
- D. No sewer cleaning shall take place in a particular sewer segment until all upstream pipe segments have been cleaned. If cleaning is done in a downstream pipe segment in order to facilitate overall cleaning operations, the segment shall be re-cleaned at no additional cost, after all pipes upstream of that segment have been cleaned.

3.02 FIELD QUALITY CONTROL

- A. Acceptance of this portion of the work shall be dependent upon the results of the television inspection. Lines not acceptably clean as to permit television inspection shall be re-cleaned and re-inspected at no additional cost to the Owner.

3.03 FINAL SEWER CLEANING

- A. Prior to final inspection and acceptance of each line of the system by the Engineer, the line shall be cleaned and all accumulated construction debris, rocks, gravel, sand, silt and other foreign material from the system shall be removed. Once the large debris is removed, the line shall be flushed.
- B. Following final cleaning, the Contractor shall inspect each line in accordance with Specifications Section 2651 – Television Inspection.

- END OF SECTION -

SECTION 02651

TELEVISION LEACHATE LINE INSPECTION

PART 1 - GENERAL

1.01 SCOPE OF WORK

- A. Furnish all necessary labor, materials, equipment, services and incidentals required to visually inspect by means of closed-circuit television (CCTV) the designated line sections including, but not limited to, recording and playback equipment, materials and supplies.
- B. The inspection shall be performed on one sewer line at a time. The section being inspected shall be suitably isolated from the remainder of the sewer system.
- C. Video recordings shall be made of the television inspections and copies of both the recordings and printed inspection logs shall be supplied to the Owner.

PART 2 - PRODUCTS

2.01 EQUIPMENT

- A. The television camera used for sewer main inspection shall be one specifically designed and constructed for such inspection. Lighting for the camera shall be suitable to allow a clear picture for the entire periphery of the pipe. The camera, television monitor and other components of the video system shall be capable of producing a minimum 500-line resolution color video picture. Picture quality and definition shall be to the satisfaction of the Engineer and if unsatisfactory, inspection shall be performed again with the appropriate changes made as designated by the Engineer at no additional cost to the Owner. The television inspection equipment shall have an accurate footage counter that shall display on the monitor, the exact distance of the camera from the centerline of the starting point.

PART 3 - EXECUTION

3.01 PROCEDURE

- A. The camera shall be moved through the lines in either direction at a uniform rate, stopping when necessary to ensure proper documentation of the pipe's condition but in no case will the television camera be pulled at a speed greater than 30 fpm. Manual winches, power winches, TV cable and powered rewinds or other devices that do not obstruct the camera view or interfere with proper documentation of the sewer conditions shall be used to move the camera through the line. If, during the inspection operation, the television camera will not pass through the entire line section, the equipment shall be removed and repositioned in a manner so that the inspection can be performed from the opposite direction. All set-up costs for the inspection shall be included in the unit price

Television Leachate Line Inspection

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bid. If, again, the camera fails to pass through the entire section, the Contractor or re-clean or further remove roots or blockage at no additional cost to the Owner.

- B. Whenever non-remote powered and controlled winches are used to pull the television camera through the line, telephones, radios, or other suitable means of communication shall be set up between the two locations of the line being inspected to ensure that good communications exist between members of the crew.
- C. Measurement for location of defects shall be above ground by means of a meter device. Marking on cable, or the like, which would require interpolation for depth of manhole, shall not be allowed. Measurement meters shall be accurate to two-tenths of a foot over the length of the line section being inspected. Accuracy of the measurement meters shall be checked daily by use of a walking meter, roll-a-tape, or other suitable device, and the accuracy shall be satisfactory to the Owner's representative.
- D. The camera height shall be adjusted such that the camera lens is always centered (1/2 I.D. or higher) in the pipe being televised. Flow shall be controlled such that depth of flow shall not exceed 20% of pipe's diameter.
- E. Lighting system shall be adequate for quality pictures.

3.02 RECORDING OF FIELD OBSERVATIONS

A. Television Inspection logs

- 1. Printed location records shall be kept which shall clearly show the location of each source of any infiltration discovered. In addition, other data of significance including the locations of infiltrations, joints, unusual conditions, roots, storm sewer connections, cracked or collapsed sections, presence of scale and corrosion, line sections that the camera failed to pass through and reasons for the failure and other discernible features shall be recorded and annotated using the Pipeline Assessment and Certification Program (PACP) system and a copy of such records shall be supplied to both the Owner and the Engineer.

B. Digital Recordings

- 1. The purpose of digital recording shall be to supply a visual and audio record of areas of interests of the pipe segments that may be replayed by the Owner. Digital recording playback shall be at the same speed that it was recorded and shall be made in color. The Contractor shall be required to have all digital media and necessary playback equipment readily accessible for review by the Owner/Engineer during the project.
- 2. The Contractor shall perform CCTV inspection of each newly installed or rehabilitated pipe segment (manhole to manhole) after testing and before re-introducing any sewage flow into the pipe. Each test shall be witnessed by the Engineer and/or Owner.
- 3. The Contractor shall record each CCTV inspection on a DVD or other acceptable media and submit such recordings to the Engineer as a prerequisite for Partial

Television Leachate Line Inspection

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Utilization/Substantial Completion.

4. CCTV inspections shall be performed by a PACP certified and trained person.
5. Inspections shall include narration that notes the location and type of defects, if any.
6. At the completion of the project, the Contractor shall furnish all of the original digital recordings to the Owner. Each disc shall be labeled as to its contents. Labels shall include the disc number, date televised, and line segment reach designation on the disc. The Contractor shall keep a copy of the discs for 30 days after the final payment for the project, at which time the discs may be erased or disposed at the Contractor's option.

- END OF SECTION -

Television Leachate Line Inspection

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SECTION 02720

CRUSHED STONE

PART 1 - GENERAL

1.01 SUMMARY

The Contractor shall furnish all labor, equipment, and materials necessary for the installation of the crushed stone in accordance with the Drawings and Specifications.

1.02 SUBMITTALS

- A. Gradation of stone as performed in accordance with ASTM C-136.
- B. Delivery tickets of haul trucks indicating amount, in tons, of crushed stone delivered to the site.

PART 2 - PRODUCTS

2.01 CRUSHED STONE

The crushed stone shall meet the following requirements:

- A. Crushed stone shall be clean, hard, durable limestone and meet the specifications and gradations set forth in Section 805 and Section 703 of the Kentucky Transportation Cabinet *Standard Specifications for Road and Bridge Construction*, latest edition.

PART 3 - EXECUTION

3.01 INSTALLATION

The crushed stone shall be installed at the locations shown on the Drawings. The crushed stone shall be placed in no greater than 6-inch lifts. Compaction shall be achieved by power equipment. The crushed stone shall be installed to the specified lines, grades, cross sections, and depths shown on the Drawings. Care shall be taken by the Contractor when placing the crushed stone on geotextiles and near HDPE geomembrane, as to not puncture or damage the material during the installation process. Any material that is punctured or damaged shall be replaced at no additional cost to the Owner. Care shall be taken by the Contractor when placing and compacted crushed on or around pipe, as to not crush or damage the pipe. Any damaged pipe shall be replaced at the Contractor's expense.

- END OF SECTION -

Crushed Stone
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SECTION 02920

REVEGETATION

PART 1 - GENERAL

1.01 SUMMARY

The Contractor shall furnish all labor, materials, and equipment necessary to perform all temporary and permanent revegetation of the site in accordance with the Drawings and Specifications. Installation of the wetland plants in the constructed wetland cells shall be coordinated with the Owner. Wetland plants shall not be installed until the wetland cells are filled with liquid and completely operational.

1.02 SUBMITTALS

- A. Contractor shall submit to Engineer information for the following materials in accordance with Section 01300:
 - 1. Fertilizer,
 - 2. Lime,
 - 3. Seed,
 - 4. Mulch, and
 - 5. Bituminous Materials for Mulch,
 - 6. Wetlands Plants.

- B. Survey data, as described in Section 01320, for the measurement and payment of the area revegetated.

PART 2 - PRODUCTS

2.01 EQUIPMENT

The equipment used for revegetation shall be of the Contractor's option.

2.02 MATERIALS

The materials utilized for revegetation shall meet the following requirements:

- A. Topsoil

The topsoil shall be fertile, natural soil, typical of the locality, free from large stones, roots, sticks, peat, weeds, and sod, and obtained from naturally well drained areas. It shall not be excessively acid or alkaline nor contain other toxic material harmful to plant growth. Topsoil stockpiled from other operations on-site may be

Revegetation
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used, but the Contractor shall furnish additional topsoil at his own expense, if required.

B. Fertilizer

The Fertilizer shall be completed commercial fertilizer, 10-10-10 grade. It shall be delivered to the site in the original unopened containers each showing the manufacturer's guarantee analysis, net weight, brand and grade, and name and address of manufacturer. The fertilizer shall be stored so that when used it shall be dry and free flowing.

C. Lime

Lime shall be agricultural ground limestone meeting the requirements as specified in Section 827 of the Kentucky Transportation Cabinet Department of Highways, *Standard Specifications for Road and Bridge Construction*, latest edition.

D. Seed

Seed shall be from the same or previous year's crop. All seed shall be capable of meeting the requirements for germination, purity, and weed content as specified in Section 827 of the Kentucky Transportation Cabinet Department of Highways, *Standard Specifications for Road and Bridge Construction*, latest edition. The appropriate seed mixture, as specified in the following table, shall be used on the prepared surface. Seed shall be applied at a minimum rate of 2 pounds per 1,000 square feet. Seed shall be delivered in sealed containers bearing the dealer's guaranteed analysis.

| Seed Species | Permanent Seed Mixtures Percent Content |
|---|---|
| Kentucky 31 Fescue <i>Festuca arundinacea</i> | 75% |
| Red Top <i>Agrostis alba</i> | 10% |
| Ryegrass, Perennial <i>Lolium perenne</i> | 10% |
| White Dutch Clover <i>Trifolium repens</i> | 5% |

E. Mulch

Mulch materials shall consist of wheat, oat barley, or rye straw. The mulch shall not be musty, moldy, or otherwise of low quality. The use of mulch that contains noxious weeds shall not be allowed.

F. Bituminous Materials for Mulch

The bituminous materials for mulch shall meet the requirements as specified in Section 827 of the Kentucky Transportation Cabinet Department of Highways *Standard Specifications for Road and Bridge Construction*, latest edition.

G. Wetland Cell Plants. Wetland cell plants shall consist of *Typha* sp. (cattails) and

scirpus (softstem bulrush). Plants shall be planted at 1,000 per acre.

PART 3 - EXECUTION

3.01 APPLICATION RATES

A. Topsoil

Topsoil shall be placed to a minimum depth of three (3) inches.

B. Fertilizer

Fertilizer shall be applied at the rate of 1,200 pounds per acre.

C. Lime

Lime shall be applied at the rate necessary to achieve a pH of 6 to 7.

D. Seed

Seed shall be applied at a minimum rate of two (2) pounds per 1,000 square feet.

E. Mulch

Mulch shall be applied to a loose depth of two (2) inches, approximately two (2) tons per acre.

F. Bituminous Materials for Mulch

Bituminous material shall be applied at a rate of 250 gallons per acre.

G. Wetland Cell Plants

Typha sp. (cattails) @ 1,000 plants/acre. Scirpus (softstem bulrush) @ 1,000 plants/acre. Plants shall be evenly intermixed in the wetland cells.

3.02 INSTALLATION

A. The subgrade of all areas to receive topsoil and to be seeded shall be raked and all rubbish, sticks, roots, and stones larger than two (2) inches shall be removed. Topsoil shall be spread to a depth sufficiently greater than that of the final grade so that after natural settling and light rolling the completed grades, lines and elevations will conform to those shown in the Drawings. No topsoil shall be spread in water or while frozen or muddy.

B. After the topsoil has been spread, it shall be prepared by loosening the topsoil to a minimum depth of three (3) inches by rotary tools, discs, harrows, or other approved methods.

- C. Lime and fertilizer shall be uniformly spread at the specified rate and immediately mixed into the full depth of the loosened topsoil.
- D. Immediately following this presentation the seed shall be uniformly applied at the specified rate and lightly raked into the surface of the topsoil. Lightly roll the surface and water with fine spray.
- E. All seeded areas shall be mulched following seed placement. Bituminous treated mulch shall be spread on the area seeded in a uniform manner by equipment that will not appreciably cut or break the mulch. The Contractor shall heat the bituminous material during cool weather, or as directed by the Engineer, to insure uniform distribution.

The Contractor shall take all necessary precautions to not deface other structures with the bituminous materials. The Contractor shall be responsible to clean any other structure defaced by the bituminous materials as directed by the Engineer. This shall be done at the cost of the Contractor.

- F. The Contractor shall keep all seeded areas watered and in good condition, reseeding if, and when necessary, until a good, healthy, uniform growth is established over the entire area seeded, and shall maintain these areas in an approved condition until final acceptance of the project.
- G. The Contractor shall maintain the areas in grass in a neat manner by watering, mowing, and raking clippings and leaves until the project is completed.
- H. The Contractor shall be responsible for reclaiming and revegetating any Borrow Areas per Specifications.

- END OF SECTION -

Revegetation
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DIVISION 11

EQUIPMENT

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SECTION 11212

SUBMERSIBLE RAW WATER PUMPS

PART 1 – GENERAL

1.01 SUMMARY

- A. The Contractor shall provide all labor, materials, and equipment to install one (1) groundwater well submerged pump and motor, cable for pulling pump, discharge line, and other accessories.
- B. All equipment and incidentals required shall be furnished as shown on the Drawings and as specified herein.

1.02 SYSTEM RESPONSIBILITY

The groundwater pump system manufacturer shall supply all the necessary parts of the entire system, including all items listed in 1.01.A above, and shall be responsible for the successful installation, start-up, and initial operation of the entire system.

1.03 RELATED WORK

Work sequence requirements are included in Division 1.

1.04 DESCRIPTION OF SYSTEM

The groundwater pump specified herein shall pump groundwater from the well A-10 to the existing wet well. See contract Drawings for more information.

1.05 SUBMITTALS

- A. Submit to the Engineer, for review, shop drawings and technical literature covering details of all equipment and accessories being furnished under this section prior to fabrication or shipment. See Division 1 for additional requirements. Information specifically required:
 - 1. Completed data sheet.
 - 2. Certified performance curves, based on actual shop tests of pumping units, which show that the units meet the specified requirements for the various capacities specified. Curve shall show head capacity, efficiency, and horsepower, and shall cover the complete operating range of the pump from zero capacity to the maximum capacity. Except as hereinafter specified, certified tests on mechanically duplicate units will be acceptable.
 - 3. Drawings of the proposed equipment giving general dimensions sufficient to determine how the equipment is to be supported and if it will fit with the space available.

4. Any additional information, such as descriptive literature, manufacturer's specifications and other data, to demonstrate compliance with these specifications.
 5. A list of manufacturer's recommended spare parts with the manufacturer's current price for each item.
 6. Manufacturer's installation manual.
 7. Manufacturer's standard recommended start-up report form.
 8. Shop drawings for electrical equipment and systems furnished herein shall be provided as specified under electrical work.
- B. Submit operation and maintenance instructions in accordance with Division 1.

PART 2 – PRODUCTS

2.01 MANUFACTURERS

- A. Subject to compliance with the complete requirements of these Specifications, including pump efficiencies, manufacturers offering products which may be incorporated into the work include Webtrol (WT1807L) or approved equal.
- B. Some standard equipment of these manufacturers will have to be modified to meet requirements of these Specifications.
- C. The cost of modifications to other equipment or facilities required to accommodate a manufacturer's equipment shall be included in the Contractor's bid.

2.02 PUMP DESIGN

A. General

The pump system shall include one (1) submersible groundwater pump and appurtenances to meet the requirements specified herein or as shown on the Drawings.

The pump shall be equipped with galvanized lifting chain or stainless steel cable. The working load of the lifting system shall be 50% greater than the pump unit weight. Each pump shall also be equipped with power and control cables sized in accordance with NEC and ICEA standards.

B. Operating Conditions

Design Conditions

| | |
|------------------------|--------|
| Number of Pumps | 1 |
| Design Capacity | 18 gpm |
| TDH at Design Capacity | 140 ft |

| | |
|--|-----------|
| Minimum Pump Efficiency at Design Capacity | 75 % |
| Pump Horsepower | 1.5 hp |
| Maximum Motor RPM | 1,750 rpm |
| Voltage | 208V, 1ph |

C. Pump Construction

Major components shall be 304 stainless steel. The pump shall have an enclosed check valve.

D. Cable Entry Seal

The power cable shall be suitable for the submersible application and sized in accordance with NEC requirements.

E. Motor

The motor horsepower shall be adequate so that the pump is non-overloading throughout the entire pump performance curve from shut-off through run-out.

F. Bearing

The bearing shall be an enclosed urethane bearing mounted in polycarbonate top diffuser.

G. Impeller

The impeller shall be a Glass reinforced noryl impeller.

H. Protection

The pump shall have a 304 stainless steel cable guard to protect the motor lead from abrasion and cutting.

2.03 CONTROLS

The controls shall be as specified in Division 16.

2.04 SPARE PARTS

Spare parts shall include those recommended by the manufacturer
See Division 1 for additional requirements.

2.05 WARRANTY

The pump manufacturer shall warrant the pumping units against workmanship and material defects for a period of one (1) year from installation, or 18 months after shipment, under normal use, operation, and service. The pump manufacturer shall also warrant the guide system complete to the Owner against defects in workmanship and materials for a period of ten (10) years under normal use and service. Both pump manufacturer warranties shall be in published form and shall apply to all similar units. A copy of each warranty shall be provided to the Owner at start-up.

2.06 MISCELLANEOUS

- A. Nameplates and other data plates shall be stainless steel, suitably secured to the pump.
- B. Parts Numbering
Parts shall be completely identified with a numerical system to facilitate parts inventory control. Each part shall be properly identified by a separate number, and those parts which are identical shall have the same number to effect minimum spare parts inventory.
- C. Replacement Parts
An inventory of parts shall be maintained to provide replacement to the Owner.

PART 3 – EXECUTION

3.01 MANUFACTURER'S SERVICE REPRESENTATIVE

The Manufacturer's field engineer or service representative shall inspect and check the installation and be on hand for initial start-up and testing of pump equipment. See Division 1 for additional requirements.

3.02 INSTALLATION

- A. The Contractor shall take care in installing all equipment. All equipment shall be suitably aligned vertically and horizontally. No undue stress or misalignment shall be present.
- B. All wiring shall be suitably secured as recommended by the manufacturer.
- C. When lowering the pump into the well, use the discharge pipe. A safety cable shall be attached to the pump's discharge head lifting eye. Never use the electrical cable to raise or lower the pump. Do not scrape the electrical cable against the well casing while raising or lowering the pump into well.
- D. Upon completion of installation by the Contractor and start-up of the equipment by the Manufacturer's field service representative, the equipment shall be operated under the supervision of the Contractor/Manufacturer's representative for a minimum of eight (8) hours to ensure that all clearance, vibrations, and motor operating characteristics are within acceptable limits.
- E. The unit shall demonstrate its ability to operate without overloading, jamming, or excessive vibration during normal operation.

3.03 FIELD TESTING OF PUMP PERFORMANCE

Each pump and motor shall be field tested for conformance with the approved pump characteristic curves. Field tests shall confirm pump shut-off head, performance at the design point, and at one other point in the head capacity curve. The tests shall be made by the Contractor and shall be witnessed by the Engineer. The Contractor shall furnish all test equipment including equipment to test the motor rpm. If the performance of the unit(s) proves to be lower than approved data shows, it will be cause for rejection of the unit.

3.04 MANUFACTURER'S TRAINING

A minimum of four (4) hours of operator training shall be furnished by a fully qualified field service engineer. The training shall address all aspects of pump operation, maintenance, and trouble shooting.

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SECTION 11310

AERATORS

PART 1 – GENERAL

1.01 SUMMARY

- A. The Contractor shall provide all labor, materials, and equipment to install the floating mechanical aerators and appurtenances necessary for proper functioning. Each aerator shall consist of a motor, a direct drive impeller driven at a constant speed, an integral floatation unit, and an anti-vortex cross/cone.
- B. All equipment and incidentals required shall be furnished as shown on the Drawings and as specified herein.

1.02 SYSTEM RESPONSIBILITY

The floating mechanical aerator manufacturer shall supply all the necessary parts of the entire system, including all items listed in 1.01.A above, and shall be responsible for the successful installation, start-up, and initial operation of the entire system.

1.03 RELATED WORK

Work sequence requirements are included in Division 1.

1.04 DESCRIPTION OF SYSTEM

The aerators specified herein shall be installed in EQ basin as shown on the Drawings.

1.05 SUBMITTALS

- A. Submit to the Engineer, for review, shop drawings and technical literature covering details of all equipment and accessories being furnished under this section prior to fabrication or shipment. See Division 1 for additional requirements. Information specifically required:
 - 1. General information, including detailed drawings, brochures, cut-sheets, motor data sheets, etc., demonstrating compliance with this specification.
 - 2. Drawings of the proposed equipment giving general dimensions sufficient to determine how the equipment is to be installed and moored.
 - 3. Any additional information, such as descriptive literature, manufacturer's specifications, and other data, to demonstrate compliance with these specifications.
 - 4. A list of manufacturer's recommended spare parts.
 - 5. Manufacturer's installation and O & M manuals.
 - 6. Manufacturer's standard recommended start-up report form.

7. Shop drawings for electrical equipment and systems furnished herein shall be provided as specified under electrical work.

PART 2 – PRODUCTS

2.01 MANUFACTURERS

- A. Subject to compliance with the complete requirements of these Specifications, including performance requirements, manufacturers offering products which may be incorporated into the work include Aqua Turbo™ Systems, Evoqua (Aqua-Lator®), or approved equal.
- B. Some standard equipment of these manufacturers may have to be modified to meet requirements of these Specifications.
- C. The cost of modifications to other equipment or facilities required to accommodate a manufacturer's equipment shall be included in the Contractor's bid.

2.02 AERATOR CONSTRUCTION

A. General

The aerators shall have proper horsepower and be sufficient for achieving oxygen dispersion as required. Each aerator shall be designed for energy efficiency.

B. Motor

The motor shall be fully enclosed and fan cooled. The insulation shall be NEMA Class F or higher. A labyrinth type waterseal shall be positioned below the bottom motor bearing. The motor shall be dynamically balanced and designed for severe chemical conditions. Bearings shall be rated as heavy duty.

Each motor shall be equipped with a suitably sized 120V space heater with thermostat to keep condensation from forming when the motor is not running.

Each motor shall be equipped with a normally closed thermostatic heat protection device to protect the motor from overheating during operation. The unit shall immediately stop the aerator drive motor in the event of excessive heat buildup.

C. Aerator Components

Major components, including the diffuser, volute, and intake cone shall be 304 stainless steel.

D. Motor Shaft

Motor shaft to be to NEMA standards. The drive end shall be constructed for easy propeller installation.

E. Floats

Floats shall be 304 stainless steel. Floats shall have sufficient buoyancy and stability for the aerator. Floats shall be one-piece. Floats shall be filled with closed cell polyurethane foam.

F. Propeller

The propeller shall be 304 or 316 stainless steel. The propeller shall be secure by a stainless steel locking nut. The apparatus shall be dynamically balanced and prevent cavitation.

2.03 CONTROLS

Custom control panel controlling (4) 3 HP 230V/3/60 aerators. The control panel shall include the following components: NEMA 4X stainless steel enclosure with subpanel and floor-mount legs; 80% rated thermal magnetic main circuit breaker with thru-door lockable pistol handle disconnect; (4) FVNR contactors with close coupled motor circuit protectors; control power transformer with primary and secondary fused protection; (4) industrial control relays; (4) 24/7 adjustable time clocks; (4) 30 mm heavy duty, oiltight HOA's; (4) red LED fault pilot lights, and (4) green LED running pilot lights; TVSS; along with required miscellaneous wiring supplies. Motor space heaters shall be powered and controlled from control power transformer. Each space heater shall be protected with circuit breaker. Detailed electrical schematics with complete bill of materials shall be included. UL certification shall be provided.

The electrical controls shall be as specified in Division 16.

2.04 SPARE PARTS

Spare parts shall include those recommended by the manufacturer. See Division 1 for additional requirements.

2.05 WARRANTY

The aerator manufacturer shall warrant the aerator units against workmanship and material defects for a minimum period of two (2) years from installation, or 30 months after shipment, under normal use, operation, and service. A copy of the warranty shall be provided to the Owner at start-up.

2.06 MISCELLANEOUS

A. Nameplates and other data plates shall be stainless steel, suitably secured to the aerators.

B. Parts Numbering

Parts shall be completely identified with a numerical system to facilitate parts inventory control. Each part shall be properly identified by a separate number, and those parts which are identical shall have the same number to effect minimum spare parts inventory.

C. Replacement Parts

An inventory of parts shall be maintained to provide replacement to the Owner.

PART 3 – EXECUTION

3.01 MANUFACTURER’S SERVICE REPRESENTATIVE

The Manufacturer’s field engineer or service representative shall inspect and check the installation and be on hand for initial start-up and testing of equipment. See Division 1 for additional requirements.

3.02 INSTALLATION

- A. The Contractor shall take care in installing all equipment. All equipment shall be suitably aligned vertically and horizontally. No undue stress or misalignment shall be present.
- B. All wiring shall be suitably secured as recommended by the manufacturer.
- C. Installation and mooring of the equipment shall be in accordance with the manufacturer’s recommendations, instructions, and guidelines.
- D. Upon completion of installation by the Contractor and start-up of the equipment by the Manufacturer’s field service representative, the equipment shall be operated under the supervision of the Contractor/Manufacturer’s representative to ensure that all clearance, vibrations, and motor operating characteristics are within acceptable limits.
- E. The unit shall demonstrate its ability to operate without overloading, jamming, or excessive vibration during normal operation.

3.03 MANUFACTURER’S TRAINING

A minimum of four (4) hours of operator training shall be furnished by a fully qualified field service engineer. The training shall address all aspects of aerator operation, mooring, maintenance, and trouble shooting.

- END OF SECTION -

SECTION 11350

BAFFLES

PART 1 – GENERAL

1.01 SUMMARY

- A. The Contractor shall provide all labor, materials, and equipment to install the floating baffles and all appurtenances necessary for a complete functioning baffle system. Each baffle shall consist of a barrier curtain, upper tension members, and bottom ballast.
- B. All equipment and incidentals required shall be furnished as shown on the Drawings and as specified herein.

1.02 SYSTEM RESPONSIBILITY

The floating baffle manufacturer shall supply all the necessary parts of the entire system, including all items listed in 1.01.A above.

1.03 RELATED WORK

Work sequence requirements are included in Division 1.

1.04 DESCRIPTION OF SYSTEM

The floating baffles specified herein shall be installed in EQ basin as shown on the Drawings. The baffles shall function as a flow diversion to increase detention time.

1.05 SUBMITTALS

- A. Submit to the Engineer, for review, shop drawings and technical literature covering details of all equipment and accessories being furnished under this section prior to fabrication and shipment. See Division 1 for additional requirements. Information specifically required:
 - 1. General information, including detailed drawings, brochures, cut-sheets, etc., demonstrating compliance with this specification.
 - 2. Drawings of the proposed equipment giving general dimensions sufficient to determine how the equipment is to be installed and moored.
 - 3. Any additional information, such as descriptive literature, manufacturer's specifications and other data, to demonstrate compliance with these specifications.
 - 4. Manufacturer's installation and O & M manuals.
 - 5. List of floating baffle projects.

PART 2 – PRODUCTS

2.01 MANUFACTURERS

- A. Subject to compliance with the complete requirements of these Specifications, including performance requirements, qualified manufacturers must have 10 years experience fabricating geomembrane products.
- B. Some standard equipment of these manufacturers may have to be modified to meet requirements of these Specifications.
- C. The cost of modifications to other equipment or facilities required to accommodate a manufacturer’s equipment shall be included in the Contractor’s bid.

2.02 FLOATING BAFFLE COMPONENTS

- A. Baffle Curtain Material

The baffle curtain material shall be polyester reinforced geomembrane material 30-mil XR-5® 8130 or approved equal. The material shall meet or exceed the properties below:

| Property | Test Method | Value |
|--------------------------|-------------|----------------------------------|
| Thickness | ASTM D751 | 30 mil (min.) |
| Weight | ASTM D751 | 30 oz/SY (min.) |
| Tensile Strength, Grab | ASTM D751 | 550 lb. Warp/550 lb. Fill (min.) |
| Tear Strength, Trapezoid | ASTM D4533 | 40 lb. Warp/55 lb. Fill (min.) |
| Low Temp. Resistance | ASTM D2136 | -30 ° F |
| Hydrostatic Resistance | ASTM D751 A | 800 psi (min.) |
| Puncture, Ball Tip | ASTM D751 | 750 lb. (min.) |

- B. Upper Tension Members and Bottom Ballast

Each tension member shall be 5/16” (min.) 304 stainless steel cable. The cable shall be seamed in a hem under the flotation collar. The bottom ballast shall be 5/8” hot-dipped galvanized proof-coil chain. The chain shall be seamed in a hem at the bottom edge of the curtain or approved protective cover to prevent damage to basin liner. The ballast chains shall maintain the vertical placement of the curtain.

- C. Flotation Collars

The flotation collars shall consist of closed cell polyethylene (PE) foam cylindrical logs. The logs shall have a minimum buoyancy of pounds per cubic foot. Each log shall be sealed in its own chamber inside the baffle collar.

D. Anchoring, Connection, and Fastener Hardware

All hardware required for installation shall be provided by the manufacturer. All shall be 316 stainless steel.

2.03 WARRANTY

The baffle manufacturer shall warrant the baffles against workmanship and material defects for a minimum period of two (2) years from the shipment. A copy of the warranty shall be provided to the Owner.

PART 3 – EXECUTION

3.01 MANUFACTURER'S SERVICE REPRESENTATIVE

The Manufacturer's field engineer or service representative shall inspect and check the final installation.

3.02 DELIVERY, STORAGE, AND HANDLING

The baffle sections shall be properly secured on wooden pallets that can be moved with a forklift and wrapped in water-resistant material to prevent damage during shipment. The Contractor shall inspect material for any defects or damage. The baffle system shall be stored on-site per the manufacturer's recommendations.

3.03 INSTALLATION

- A. The Contractor shall field verify dimensions for baffle installation prior to production.
- B. The Contractor shall take care while installing the baffles so no damage to any of the materials occurs.
- C. Installation, anchoring, and mooring of the equipment shall be in accordance with the manufacturer's recommendations, instructions, and guidelines.

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DIVISION 16
ELECTRICAL

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**SECTION 16050
BASIC ELECTRICAL MATERIALS AND METHODS**

PART 1 - GENERAL

1.01 CONTRACTOR'S UNDERSTANDING

- A. Contractors bidding work under this Contract shall read and understand Division Zero and Division 1 - General Requirements. If any discrepancies are discovered between the Basic Electrical Materials and Methods and General Requirements, the above mentioned documents shall overrule this section. The Basic Electrical Materials and Methods are intended as a supplement to the above mentioned documents.
- B. The Contractor shall bid as outlined in the above mentioned Specifications and shall be governed by any alternates or unit prices called for in the form of the proposal.
- C. Each Contractor bidding on the work included in these Specifications shall view the building site and carefully examine the contract Drawings and Specifications, so that he/she may fully understand what is to be done, and to document existing conditions.

1.02 SCOPE OF WORK

- A. Work included in this section of the Specifications shall include the furnishings of all labor, material, tools, approvals, utility connection fees, excavation, backfill, and other equipment necessary to install the electrical system as shown on the Contract Drawings and as specified herein.
- B. It also includes installation and connection of all electrical utilization equipment included in this contract but furnished by other contractors or suppliers.
- C. It is the general intent that all motors shall be furnished with the particular object of equipment it drives, except where a new motor is to be provided for an item of existing equipment (a replacement motor), then it shall be provided under this Division of the specifications.
- D. The Contractor shall furnish and install all conduit, wire disconnect switches and miscellaneous material to make all electrical connections to all items of utilization equipment to wiring devices except as otherwise specified.
- E. Equipment connections shall be made with flexible or rigid conduit as required controllers for motors, disconnect switches, and all control protective and signal devices for motor circuits, except where such apparatus is furnished mounted and connected integrally with the motor driven equipment, shall be installed, connected and left in operating condition. The number and size of conductors between motors and control or protective apparatus shall be as required to obtain the operation described in these Specifications, and /or by the Contractor Documents, and/or as shown in manufacturer furnished, Engineer reviewed Shop

Drawings.

- F. All devices and items of electrical equipment, including those shown on the Contract Drawings but not specifically mentioned in the Specifications or those mentioned in the Specifications but not shown on the Contract Drawings, are to be furnished under this section of the specifications. Any such device or item of equipment, if not defined in quality, shall be equal to similar Equipment and/or devices specified herein.
- G. All devices and items of equipment mentioned in this section of the Specifications whether electrical or not whether furnished under this or other Division of the Specifications shall be installed under this Division of the Specifications, unless specifically indicated otherwise.
- H. Where wiring diagrams are not shown on the Contract Drawings, they are to be provided by the supplier of the equipment served and such diagrams shall be adhered to except as herein modified.
- I. The following is a list of items that may not be defined clearly on the Contract Drawings or in other parts of these Specifications. The list is meant to be an aid to the Contractor and is not necessarily a complete list of work to be performed under this Contract: Connect all motors and accessories furnished by equipment suppliers.
 - 1. Furnish, install, and connect all motor controls.
 - 2. Furnish, install, and connect all electrical conduit, duct and cables.
 - 3. Furnish, install, and connect all power distribution equipment.
 - 4. Abandon and remove all existing wiring and materials not to be reused, as shown on the Contract Drawings.

1.03 SHOP DRAWINGS, DESCRIPTIVE LITERATURE, INSTALLATION, OPERATION AND MAINTENANCE INFORMATION

- A. Shop Drawings including descriptive literature and/or installation, operation and maintenance instructions shall be submitted in accordance with Division 1.
- B. Shop Drawings shall be submitted on the following materials specified in Division.
 - 5. Conduit.
 - 6. Boxes - all types and sizes.
 - 7. Metal framing system (Strut type channel).
 - 8. Conduit fittings, support hardware.
 - 9. Motor control equipment.
 - 10. Power distribution equipment.
 - 11. Adjustable speed equipment and accessories.
 - 12. Miscellaneous spare parts and hardware.
 - 13. Wire.
 - 14. Wire markers, signs and labels.
 - 15. Lightning/transient suppressors.
 - 16. Motors.
- J. The Engineers reserves the right to make modifications to motor control and power

distribution equipment ratings after Shop Drawings review, if the Shop Drawings are submitted prematurely (prematurely meaning submitted before all utilization equipment has been reviewed and accepted). Cost of modifications shall be the Contractor's responsibility.

1.04 SYMBOLS AND ABBREVIATIONS

- A. The symbols and abbreviations general follow stand electrical and architectural practice, however, exceptions to this shall be as shown on the Contract Drawings.

1.05 COORDINATION WITH OTHER TRADES

- A. The Contractor shall coordinate the electrical work with that of other trades to ensure proper final location of all electrical and/or connections.

1.06 CODES

- A. The minimum standard for all work shall be the latest revision of the Kentucky Building code (KBC), [Uniform Building Code (UBC) and the National Electrical Code (NEC). Whenever and wherever state and/or local laws or ordinances and /or regulations and /or the Engineer's design require a higher standard that the current NEC or KBC, then these laws and/or regulations and/or the design shall be followed.

- B. Following is a list of other applicable Standards or Codes:

| | |
|---|--------|
| 1. Uniform Building Code | UBC |
| 2. Kentucky Building Code | KBC |
| 3. National Electrical Code | NEC |
| 4. Factory Mutual System | FM |
| 5. National Fire Protection Association | NFPA |
| 6. National Electrical Manufacturers Association | NEMA |
| 7. Occupational Safety and Health Administration | OSHA |
| 8. Insulated Cable Engineers Association, Inc. | ICEA |
| 9. Illuminating Engineering Society of North America | IES |
| 10. Instrument Society of America | ISA |
| 11. Institute of Electrical and Electronic Engineers, Inc. | IEEE |
| 12. Certified Ballast Manufacturers Association | CMB |
| 13. American National Standards Institution, Inc. | ANSI |
| 14. Anti-Friction Bearing Manufacturers Association, Inc. | AFBMA |
| 15. Joint Industry Council | JIC |
| 16. American Society of Heating, Refrigerating And Air Conditioning Engineers, Inc. | ASHRAE |
| 17. Federal Communications Commission | FCC |
| 18. American Society for Testing and Materials | ASTM |
| 19. American Wood Preservers Association | AWPA |
| 20. Rural Electrification Association | REA |

1.07 INSPECTIONS AND PERMITS

- A. Inspection of the electrical system on all construction projects is required. If the local government has appointed a state licensed inspector, the Contractor shall be required to use that person to perform the inspections. If a locally mandated inspector does not exist, the Contractor shall select and hire a state licensed inspector, who has jurisdiction before any work is concealed. The Contractor shall notify the electrical inspector in writing, immediately upon notice to proceed, and a copy of the notice shall be submitted to the Engineers.
- B. At the time of completion of the project, there shall be furnished to the Owner a certificate of compliance, from the agency having jurisdiction pursuant to all electrical work performed. The Engineer shall also receive a Photostatic copy.
- C. All costs incurred by the Contractor to execute the above mentioned requirements shall be paid by the Contractor at no extra cost to Owner.
- D. All permits necessary for the complete electrical system shall be obtained by the Contractor from the authorities governing such work. For further information, see Division 1.

1.08 STORAGE

- A. All work, equipment and materials shall be protected against dirt, water, or other injury during the period of construction.
- B. Sensitive electrical equipment such as motor starters, controls, and panelboards, delivered to job site, shall be protected against injury or corrosion due to atmospheric conditions or physical damage by other means. Protection is interpreted to mean that equipment shall be stored under roof, in a structure properly heated in cold weather and ventilated in hot weather. Provision shall be made to control the humidity in the storage area to 50 percent relative. The stored equipment shall be inspected periodically, and if it is found that the protection is inadequate, further protective measures shall be employed. Electrical equipment other than boxes and conduit shall not be installed until the structure is under roof with doors and windows installed.
- C. The Contractor shall not store submersible pump units in the wet well. If it is absolutely necessary to do so, the open power cable ends are to be suspended above the maximum flood elevation or maximum expected water level. If not stored in this manner, the Contractor may be called upon to replace the pump motors and cables with new units to ensure that water has not penetrated the cable and entered the motor housing.

1.09 MATERIALS

- A. All materials used shall be new and at least meet the minimum standards as established by the NEC and/or National Electrical Manufacturers Association (NEMA). All materials shall be UL listed for the application, where a listing exists. Additional requirements are found in Division 1. All equipment shall meet applicable FCC requirements and restrictions.
- D. The material and equipment described herein has been specified according to a particular trade name or make to set quality standards. However, each Contractor

has the right to substitute other material and equipment in lieu of that specified, other than those specifically mentioned at matching or for standardization, providing such material and equipment meets all of the requirements of those specified and is accepted, in writing by the Engineer.

- E. The reuse of salvaged electrical equipment and/or wiring will not be permitted unless specified herein or indicated on the Contract Drawings.
- F. All salvaged or abandoned electrical materials shall become the property of the Contractor and shall be removed from the job site upon completion of the project, unless otherwise noted on the Contract Drawings or specified herein.

1.10 ERRORS, CORRECTIONS, AND/OR OMISSIONS

- A. Should a piece of utilization equipment be supplied of a different size or horsepower than shown on the Contract Drawings, the Contractor shall be responsible for installing the proper size wiring, conduit, starters, circuit breakers, etc., for proper operation of that unit and the complete electrical system at no extra cost to the Owner.
- B. It is the intent of these Specifications to provide for an electrical system installation complete in every respect, to operate in the manner and under conditions as shown in these Specifications and on the Contract Drawings. The Contractor shall notify the Engineer, in writing, of any omission or error at least 10 days prior to opening of bids. In the event of the Contractor's failure to give such notice, he/she may be required to correct work and/or furnish items omitted without additional cost. Further requirements on this subject may be found in the General Requirements, Division 1.
- C. Necessary changes or revisions in electrical work to meet any code or power company requirement shall be made by the Contractor without additional charge.

1.11 GUARANTEES AND WARRANTIES

- A. The Contractor shall guarantee all work including equipment, materials, and workmanship. This guarantee shall be against all defects of any of the above and shall run for a period of 1 year from the date of acceptance of the work, concurrent with the one year guarantee period designated for the general construction contract under which electrical work is performed. Date of acceptance shall be considered to be the date on which all "punch list" items are completed ("punch list" is defined to be the written listing of work that is incomplete or deficient that must be finished or replaced/repared before the Contractor receives final payment).
- B. Repair and maintenance for the guarantee period is the responsibility of the Contractor and shall include all repairs and maintenance other than that which is considered as routine.

1.12 TESTING

- A. After the wiring system is complete, and at such time as the Engineer may direct, the Contractor shall conduct an operating test for acceptance. The equipment shall be demonstrated to operate in accordance with the requirements of these Specifications and the Contract Drawings. The test shall be performed in the presence of the Engineer or his authorized representative. The Contractor shall furnish all instruments and personnel required for the tests, as well as the necessary electrical power.
- B. Before energizing the system, the Contractor shall check all connections and set all relays and instruments for proper operation. He shall obtain all necessary clearances, approvals, and instructions from the serving utility company and/or equipment manufacturers prior to placing power on the equipment.
- C. Tests may be performed by the Engineer to determine integrity of insulation on wiring circuits selected by the Engineer at random.
- D. Cost of utilities for testing done prior to beneficial occupancy by the Owner shall be borne by the Contractor.

1.13 CLEANUP

- A. Cleanup shall be completed as soon as possible after the electrical installation is complete. All starters, disconnect switches and other electrical equipment shall be free of shipping tags, stickers, etc. All painted equipment shall be left free of scratches or other blemishes, such as splattered or blistered paint, etc. All the interior of all control panels, etc., shall be free of dust, dirt, wire strippings, etc. Surplus material, rubbish and equipment resulting from the work shall be removed from the job site by the Contractor upon completion of the work.
- B. During construction, cover all Owner equipment and furnishings subject to mechanical damage or contamination in any way.

1.14 EXCAVATION AND BACKFILL

- A. Excavation for conduits shall be of sufficient width to allow for proper jointing and alignment of the type conduit used. Conduit shall be bedded on original ground. Where conduit is in solid rock, a 6 inch earth cushion must be provided. Conduit shall be laid in straight lines between pull boxes and/or structures unless otherwise notes on the Contract Drawings. The cost of solid rock excavation shall be included in the lump sum bid with no extra pay allowed (unclassified).
- B. Backfill shall be hand placed, loose granular earth for a height of 6 inches above the top of the largest conduit. This material shall be free of rocks over 2 inches in diameter. Above this, large rocks may be included but must be mixed with sufficient earth to fill all voids.

1.15 POWER COMPANY COORDINATION

- A. The Contractor is responsible for coordinating all activities onsite by the power company. It is the Contractor's responsibility to contact the power company to schedule service installation and/or modifications.

- B. All power company metering equipment shall be electrically located “upstream” of any manual/automatic transfer equipment on projects requiring onsite emergency power generation equipment.
- C. Any special provisions required by the serving electrical utility shall be as outlined on the Contract Drawings or as advised by the utility at the time of construction, and work required by these special provisions shall be executed with no extra cost to the Owner.

1.16 TEMPORARY ELECTRICAL POWER

- A. The Contractor shall be responsible for providing temporary electrical power as required during the course of construction and shall remove the temporary service equipment when no longer required. Temporary power is also addressed in Division1.

1.17 OVERCURRENT PROTECTION

- A. Circuit breakers or fused switches shall be the size and type as written herein and shown on the Contract Drawings. Any additional overcurrent protection required to maintain an equipment listing by an authority having jurisdiction shall be installed by the Contractor at no extra cost to the Owner.
- B. The Contractor shall submit to the Engineer actual nameplate data from motors shipped to the site, stating motor identification as well as characteristics. Overload relay thermal unit selection tables shall accompany the motor data. The Engineer will select thermal unit sizes from this data for use by the Contractor in ordering proper thermal units.

1.18 TRAINING

- A. All manufacturers supplying equipment for this division shall provide the Owner’s operations staff with training in the operation and maintenance on the equipment being furnished. The training shall be conducted at the project site by a qualified representative of the manufacturer.
- B. The cost of this training shall be included in the bid price.
- C. The required training shall consist of both classroom and hands-on situation. Classroom training shall include instruction on how the equipment works its relationship to all accessories and other related units, detailed review of shop drawings, detailed presentation of written O & M instructions, troubleshooting and record-keeping recommendations. Hands-on-training shall include a review of the manufacturer’s O & M instructions, check out of each operator to identifying key elements of the equipment, tear down as appropriate, calibration, adjustment, greasing and oiling points, and operating manipulations of all electrical and mechanical controls.
- D. The training shall be scheduled through the Contractor with the Owner. The timing of the training shall closely coincide with startup of the equipment, but no training shall be conducted until the equipment is operational.

- E. The minimum number of hours to be provided by manufacturers supplying equipment on this project shall be in accordance with the following table:

| Item | Training Hours | |
|---------------------------|----------------|----------|
| | Classroom | Hands-on |
| Automatic Transfer Switch | 1 | 1 |
| Load Bank | 2 | 2 |

- F. At least 60 days prior to the training the manufacturer shall submit through the Contractor to the Engineer an outline of the training proposed for the Engineer's review and concurrence.

- G. The Owner reserves the right to videotape all training sessions.

1.19 AS BUILT DRAWINGS

- A. The Contractor shall maintain 1 set of the Contract Drawings on the job in good condition for examination at all times. The Contractor's qualified representative shall enter upon these drawings, from day to day, the actual "as-built" record of construction and/or alteration progress. Entries and notes shall be made in a neat and legible manner and these drawings delivered to the Engineer after completion of the construction, for use in preparation of Record Drawings.

1.20 MAINTAINING CONTINUOUS ELECTRICAL SYSTEM AND SERVICE

- A. Existing service(s) continuity shall be maintained at all times. In no way shall the installation and/or alteration of the electrical work interfere with or stop the normal operation of the existing facilities, except where prior arrangements have been made
- B. When additions and taps to existing service(s) require electrical outages of duration in excess of a few minutes, arrangements shall be made in advance for such outages. All outages shall be held to an acceptable minimum with none exceeding 4 hours continuous duration. If necessary, cuts shall be performed on premium time. If performed at night, requiring a general outage, the Contractor shall furnish an auxiliary source of light and power as required. Under no circumstances shall an electrical outage of any duration be initiated until the Owner and Engineer have concurred, and as far as possible in advance.

1.21 GROUNDING AND BONDING

- A. All metallic conduit, cabinets, equipment, and service shall be grounded in accordance with the latest issue of the National Electrical Code. All supporting framework and other metal or metal clad equipment or materials which are in contact with electrical conduit, cable and/or enclosures shall be properly grounded to meet the code requirements.

1.22 RELATED SPECIFICATION DIVISIONS

The following divisions contain Specifications on utilization equipment, equipment

accessories, and procedures related to execution of the electrical work, and are included here for the Contractor's information. Bids shall still be based on complete Contract Documents.

- Division 0 - Bidding Requirements, Contract Forms, and Conditions of the Contract
- Division 1 - General Requirements
- Division 2 - Site work
- Division 11 - Equipment

1.23 SERVICE ENTRANCE

- A. Conductors and terminations for service entrances shall be furnished and installed by the Contractor. Voltage, phase, and number of wires shall be as shown on the Drawings. Clearances for overhead entrance wires shall be per Power Company, NEC, and NESC requirements.
- B. Any details not shown on the Drawings or written in the Specifications pertaining to the service entrance shall be per power company requirements. It is the Contractor's responsibility to contact the utility prior to bidding and obtain any special requirements or costs they will be imposing. Those costs shall be included in the bid.

1.24 CONTRACTOR LICENSING

- A. The Contractor performing the electrical work on this project shall be locally licensed, if required by local law or ordinance. If the Contractor has passed the State test, it may not be necessary to meet local testing requirements. It shall be the Contractor's responsibility to investigate these requirements and comply with same.

1.25 ANCHORING/MOUNTING

- A. Electrical conduits and/or equipment shall be rigidly supported. Anchors used shall be metallic expansion type, or if appropriate to prevent spalling concrete, epoxy set type. Plastic or explosive type anchors are prohibited.
- B. Since this project is in Seismic Zone, the Contractor shall be sure that all supports are consistent with the KBC requirements in this regard.

1.26 ELECTRICAL COMPONENT MOUNTING HEIGHTS

- A. Unless otherwise indicated, mounting height for components shall be as defined herein. In cases of conflicts with architectural or structural aspects, the components may be relocated. If an indicated height conflicts with a code requirement, the code shall govern.
- B. Mounting heights are given from finished floor elevation to the centerline of the component, unless otherwise noted.

| Component | Height | Comments |
|-----------|--------|----------|
|-----------|--------|----------|

- | | | |
|--|-------|--|
| 1. Top of panel boards or control panels | 6'-6" | Maximum (except for handicapped areas) |
| 2. Top of local motor controller | 6'-0" | Maximum |
| 3. Top of local disconnect switch | 6'-0" | Maximum |

In situations where there appears to be a conflict with Americans with Disabilities Act (ADA) legislation, utilize the ADA requirements herein.

1.27 RECEIPTS

- A. Some sections of the Specifications call for equipment, materials, accessories, etc. to be provided and "turned over to the Owner" or like requirements. The Contractor shall obtain a receipt for each item turned over, signed by the Owner or his representative. A copy of this receipt shall be transmitted to the Engineer.
- B. When a question arises concerning whether items have been turned over to the Owner, and there is no signed receipt, it may be assumed that the items were not provided.

PART 2 - PRODUCTS

Not Applicable.

PART 3 - EXECUTION

Not Applicable.

END OF SECTION-16050

**SECTION 16070
SUPPORTING DEVICES**

PART 1 - GENERAL

1.01 SCOPE OF WORK

- A. All electric equipment shall be rigidly mounted, and installed using supporting devices as indicated on the Contract Drawings, as required by the work, and described herein.

PART 2 - PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

- A. "Cooper B-Line," "Unistrut," or equal.

2.02 MATERIALS

- A. All mounting brackets and strut used outside shall be aluminum. Fasteners used to mount equipment outside shall be stainless steel.

PART 3 - EXECUTION

3.01 SEISMIC CONSIDERATIONS

- A. Where required, seismic restraints shall be provided for electrical equipment.

END OF SECTION-16070

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**SECTION 16075
ELECTRICAL IDENTIFICATION**

PART 1 - GENERAL

1.01 EQUIPMENT LABELING

- A. All starters, feeder units in panelboards, disconnects, etc. shall be marked to indicate the motor, circuit they control, or variable monitored. Marking is to be done with engraved laminated nameplates and shall bear the designation shown on the Contract Drawings where this information is given. Nameplates shall be fastened to equipment with stainless steel screws, minimum of one each side. In no way shall the installation of mounting screws void the NEMA enclosure rating of the equipment in which they are installed. If there are more than one identical unit, they shall be given consecutive numbers or other descriptions as designated by the Engineer. Nameplate background color shall be white, with black engraved letters, unless otherwise noted.
- B. Branch circuits in lighting panels shall be typed on a card suitable for the card frame furnished with the panel. The card shall bear the panel designation listed on the Contract Drawings where this information is given, as well as indicate what each circuit controls.
- C. All electrical equipment shall be marked for arc flash hazard in accordance with NEC Article 110.16.

PART 2 - PRODUCTS

Not applicable

PART 3 - EXECUTION

Not applicable

END OF SECTION-16075

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**SECTION 16120
CONDUCTORS AND CABLES**

PART 1 - GENERAL

1.01 SCOPE OF WORK

- A. Wire and cable shall conform to the latest requirements of the NEC and shall meet all ASTM/UL specifications. Wire and cable shall be new; shall have size, grade of insulation, voltage rating and manufacturer's name permanently marked on the outer covering at regular intervals. Complete descriptive literature shall be submitted to the Engineer for review and acceptance prior to installation.

1.02 DELIVERY, STORAGE AND HANDLING

- A. Wire and cable shall be suitably protected from weather and damage during storage and handling and shall be in first class condition when installed.

PART 2 - PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

- A. Building Wire (types "THWN" and "THW"-cu.) - "American," "Carol," or equal.

2.02 MATERIALS

- A. General
 - a. In general, all conductors shall be 98 percent conductive, annealed copper unless otherwise noted on the Contract Drawings.
 - b. Conductors shall be type THW or THWN insulation. Conductor size shall be AWG (American Wire Gauge) Standard. Minimum conductor size shall be AWG number 12 except branch circuits in excess of 75 feet from panel to first outlet not smaller than no. 10 AWG. Minimum voltage rating shall be 600 volts. Conductors for small power may be solid (i.e. lighting, receptacles), but conductors for control work shall be stranded.

PART 3 - EXECUTION

3.01 INSTALLATION/APPLICATION/ERECTION

- A. General
 - a. Conductors shall be continuous from outlet to outlet and no splices shall be made except accessible in junction boxes. Wire connectors of insulating material or solderless pressure connectors, properly taped, shall be used for all splices in wiring, wherever possible.
 - b. Conductors shall be color coded in accordance with the following schedule:

| | 208/240V 3 Phase | 120/240, Single Phase |
|-----------------------|------------------------|--------------------------|
| Phase A | Black | Black |
| Phase B | Red | Red |
| Phase C | Blue | |
| Neutral (Grounded) | White or Light Gray | White or Light Gray |
| Grounding | Green | Green |

- c. Conductors shall be pulled into raceways in strict accordance with manufacturer's recommendations.
- d. Ample slack conductors shall be allowed at each terminal point, and pull or junction box, to permit installation with ease and without crowding.
- e. All conductors terminating at terminal blocks shall be identified with numbers and/or letters identical to circuit or control identification.
- f. No conductors shall be drawn into conduits until all work which may cause wire or cable damage is completed. Wire pulling shall be accomplished utilizing machinery and accessories intended for the purpose.
- g. All connections and splices shall be made in accordance with conductor manufacturer's recommendations, and as written herein.
- h. In general, feeder sizes shown are based on no more than three current carrying conductors in a conduit. Multiple small branch circuit feeders may be combined in a common conduit, provided conductors are derated in accordance with NEC article 310-15.
- i. Unless otherwise specifically indicated, neutrals may not be shared.

B. Feeders

- a. All feeders are of the secondary type, below 600 volts, unless otherwise noted. The Contractor shall furnish and install all feeders from the distribution center(s) to each of the other structures/sub panels as shown on the Contract Drawings.
- b. Wire shall be factory color coded for each phase and neutral, with green used for the ground conductor. As far as practical, all feeders shall be continuous from origin to panel termination without running splices in intermediate pull boxes.

3.02 TESTING

- A. Testing Agency: The Contractor shall engage a qualified testing agency to perform tests and inspections and prepare tests reports.
- B. Perform tests and inspections and prepare test reports.
- C. Test and Inspections

- a. After installing conductors and cables and before electrical circuitry has been energized, test all new feeders and control wiring for compliance with requirements.
 - b. Perform each visual and mechanical inspection and electrical test stated in NETA Acceptance Testing Specification. Certify compliance with test parameters.
 - c. Infrared Scanning: After substantial completion, but not more than 60 days after final acceptance, perform an infrared scan of each splice in cables and conductors #3 AWG and larger. Remove box and equipment covers so splices are accessible to portable scanner.
- D. Test Reports: Prepare a written report record the following:
- a. Test procedures used.
 - b. Test results that comply with requirements.
 - c. Test results that do not comply with requirements and corrective action taken to achieve compliance with requirements.
- E. Remove and replace wiring and/or splices that do not meet the NETA criteria for the given circuit type and retest as specified above.

END OF SECTION-16120

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SECTION 16130 RACEWAYS

PART 1 - GENERAL

1.01 SCOPE OF WORK

- A. This section of the Technical Specifications includes all raceways for accommodation of electrical conductors, communications conductors, sleeves for underground electrical installations, conduit stubs for future installations, fittings therefore and accessories.
- B. All raceways shall be marked with the manufacturer's name or trademark as well as type of raceway and size. This marking shall appear at least once every 10 feet and shall be of sufficient durability to withstand the environment involved. All raceways shall be furnished and installed as outlined under Part 3 of this Specification.
- C. All raceways and fittings shall be painted to match existing or surrounding surfaces except in mechanical spaces.

PART 2 - PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

- A. Tubular Raceways
 - a. Aluminum, Rigid, Heavy-Wall, Threaded - "Wheatland Tube Co.," "Thomas and Betts," "Allied Tube & Conduit Corp.," or equal.
 - b. Plastic (PVC); Type A (Thin Wall); Type 40 (or Schedule 40); Type 80 (or Schedule 80) (Heavy -Wall) - "Allied Tube & Conduit Corp.," "Carlson," or equal.
 - c. Flexible Metal Conduit - "Thomas and Betts," "Allied Tube & Conduit Corp.," or equal.
 - d. Liquidtight Flexible Metal Conduit - "Thomas and Betts," "Allied Tube & Conduit Corp.," "Carlson," or equal.
- B. Raceway Fittings
 - a. Conduit fittings - "Crouse-Hinds," "Appleton," "OZ Gedney," or equal.
 - b. Non-metallic conduit fittings - "Carlson," or equal.
 - c. Flexible conduit fittings - "Raco," "T & B," "OZ Gedney," or equal.

2.02 MATERIALS

- A. Aluminum Conduit
 - a. Aluminum conduit shall be extruded from alloy 6063 and shall be the rigid type, non-toxic, corrosion resistant, and non-staining. It shall be manufactured per

UL standards as well as listed/labeled by same.

- b. Fittings, boxes, and accessories used in conjunction with aluminum conduit shall be die cast, copper free type. They shall be resistant to both chemical and galvanic corrosion. All covers shall have neoprene gaskets.
- c. Aluminum conduit proposed for concrete slab or underground applications shall be UL listed for the purpose and factory pre-coated.

B. Rigid Steel Conduit

- a. Rigid steel conduit and fittings shall be of mild steel piping, galvanized inside and out, and shall conform to UL standards. The conduit and fittings shall be listed and labeled by UL as well. It shall have an accurate circular cross section, a uniform wall thickness, and a continuously welded seam. The interior and exterior surfaces shall be thoroughly and evenly coated with zinc using the hot-dip galvanizing process, so that metal-to-metal contact and galvanic protection against corrosion are provided. A clear coating of zinc chromate shall also be applied. Galvanizing shall be applied to the conduit threads as well. Each piece of conduit shall be straight, free from blisters and other defects, cut square, and taper reamed. It shall be delivered with plastic protectors on the threads.

C. Polyvinylchloride (PVC) Conduit

- a. PVC conduit and fittings shall be Schedule 40, 80 heavy wall, or thinwall, as indicated in these Specifications manufactured to conform to UL standards. It shall be listed and labeled by UL. It shall have at least the same temperature rating as the conductor insulation. Expansion joints shall be used as recommended by the manufacturer in published literature. PVC systems shall be 90 degrees Celsius minimum UL rated, have a tensile strength of 7,000 psi @ 73.4 degrees Fahrenheit, flexural strength of 11,000 psi and compressive strength of 8,000 psi.

D. Flexible Conduit

- a. Flexible metallic conduit in dry, non-hazardous locations shall be constructed from flexibly or spirally wound electro-galvanized steel. Connections shall be by means of galvanized malleable iron squeeze type fittings.
- b. Liquidtight flexible metallic conduit shall be constructed from continuously interlocked aluminum core. It shall have a sunlight and oil resistant thermoplastic PVC jacket. It shall be IP 66/67 rated, and rated for temperatures -4 degrees F to 176 degrees F. Fittings shall be 304 stainless steel with gland nut, sealing ring, and high tensile grounding cone and body, and shall have an insulated throat. Stainless steel lock nut shall be provided for connection to boxes. Fittings shall be listed for Class I, Division 2 and Class II, Division 1 and 2 hazardous locations.

E. Conduit Fittings

- a. Rigid Steel Conduit Fittings
 1. Standard threaded couplings, locknuts, bushings, and elbows made only of steel or malleable iron are acceptable. Integral retractable type IMC

- couplings are acceptable also.
2. Locknuts: Bonding type with sharp edges for digging into the metal wall of an enclosure.
 3. Bushings: Metallic insulating type, consisting of an insulating insert molded or locked into the metallic body of the fitting. Bushings made entirely of metal or nonmetallic material are not permitted.
 4. Erickson (union-type) and set screw type couplings: Approved for use in concrete are permitted or use to complete a conduit run where conduit is installed in concrete. Use set screws of case hardened steel with hex head and cup point to firmly seat in conduit wall for positive ground. Tightening of set screws with pliers is prohibited.
- b. Rigid Aluminum Conduit Fittings
1. Standard threaded couplings, locknuts, bushings, and elbows: Malleable iron, steel or aluminum alloy materials. Zinc or cadmium plate iron or steel fittings. Aluminum fittings containing more than 0.4 percent copper are prohibited.
 2. Locknuts and bushings: As specified for rigid steel and IMC conduit.
 3. Set screw fittings: Not permitted for use with aluminum conduit.

PART 3 - EXECUTION

3.01 PREPARATION

- A. Exterior underground metallic conduits shall be degreased, pretreated, and coated with 2 coats of Carboline 888 epoxy, or equal.

3.02 INSTALLATION

A. Conduit

- a. All conduit shall be installed in a first class workmanship manner. It shall be installed in horizontal and vertical runs in such a manner as to ensure against trouble from the collection of trapped condensation and shall be arranged so as to be devoid of traps wherever possible. Special care shall be used in assuring that exposed conduit runs are parallel or perpendicular to walls, structural members, or intersections of vertical planes and ceilings. No open wiring is allowed.
- b. Fittings or symmetrical bends shall be required wherever right angle turns are made in exposed work. Bends and offsets shall be avoided wherever possible, but where necessary, they shall be made with an approved conduit bending machine. All conduit joints shall be cut square, reamed smooth and drawn up tight, using couplings intended for the purpose.
- c. Conduits shall be securely fastened to all junction and pull boxes with double galvanized locknuts and insulating-grounding bushings as required by the NEC. Runs of exposed conduit shall be supported in accordance with the NEC using cast aluminum or malleable iron one hole pipe straps with spacers to provide an air space behind the conduit.
- d. During construction, all conduit work shall be protected to prevent lodgement of dirt, plaster or trash in conduits, fittings or boxes. Conduits which have been plugged shall be entirely freed of accumulations or be replaced. All

- conduits below grade shall be swabbed free of debris and moisture before wires are pulled. Crushed or deformed conduit shall not be permitted.
- e. The final section of conduit connecting each motor or piece of utilization equipment subject to vibration shall be of the flexible type. Type "UA" shall be used in in outdoor or wet locations.
 - f. All underground conduits entering an enclosure shall be sealed against water/condensate entering around the conductors. Sealant shall be Polywater FST duct sealant.
 - g. Conduit expansion fittings shall be provided in exposed vertical conduit runs between underground transition and termination into an exterior enclosure or LB fitting.
 - h. Conduits to electrical enclosures installed below grade shall be sealed using Polywater FST duct sealant.
 - i. PVC conduit installed underground for low voltage application shall be schedule 80 without encasement. Where PVC conduit is installed, transition shall be made to GRS conduit at bends where wire pulling could cut conduit.
 - j. Aluminum conduit shall not be used underground or placed in concrete slabs.
 - k. **Minimum conduit size shall be ¾ inch.** The following table shows the minimum burial depth required for all exterior conduit or cable:

| | |
|---------------------|-----|
| Rigid Metal Conduit | 18" |
| Schedule 80 PVC | 30" |

- l. Maximum conduit burial depth shall be 60" unless otherwise indicated or agreed on a case-by-case basis.
- m. Wire pulling shall be facilitated by the use of a UL approved pulling compound in pulls over 30 feet in length or where there are 2 or more 90 degree bends. Only polypropylene, nylon, or manila pulling ropes will be permitted. **Standard industry recognized wire pulling equipment shall be used.**
- n. All conduits entering and leaving instrument enclosures shall be sealed around the wires with silicone caulk.
- o. Areas of use for each type of conduit:

| Space Description | Schedule 80 PVC | GRS | Aluminum |
|----------------------------------|-----------------|-----|----------|
| Exterior Exposed | | | X |
| Exterior Underground Direct Bury | X | X | |

- p. Underground raceways (conduit) shall be concrete encased where they pass over or under obstructions, such as: sidewalks; roadways; piping; etc.
- q. All conduit shall have an insulated ground wire pulled to all equipment and receptacles.
- r. All raceway runs are shown diagrammatically to outline the general routing of the raceway. The installation shall be made to avoid interference with pipes, ducts, structural members or other equipment. Should structural or other interference prevent the installation of the raceways, or setting of boxes, or the electrical equipment, as indicated in the Drawings, deviations must be approved by the Owner, and after approval, shall be made without additional charges and shown on the Record Drawings.

- s. Conduit may be run inside concrete slabs as long as the slab is at least 6-inches thick and conduit will have at least 2-inches of cover on both sides.
- t. Runs of exposed flexible conduit shall be limited to 5 ft. All runs of flexible conduit shall be supported in accordance with NEC requirements.

END OF SECTION-16130

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SECTION 16131 BOXES

PART 1 - GENERAL

1.01 SCOPE OF WORK

Junction boxes shall be furnished and installed where indicated on the Contract Drawings, and/or as required by the work in accordance with the NEC.

PART 2 - PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

- A. Boxes - "Wiegmann," "Appleton," "Raco," "Crouse-Hinds," "Hoffman," "Robroy Industries," "Cloud Concrete Products," "Spring City," "Carlson," or equal.

2.02 GENERAL

- A. Junction boxes for out-of-doors use, not mounted in concrete may be sheet metal (NEMA 4X), waterproof, rustproof, rain and sleetproof, with hinged covers and latches and provided means of locking by means of keyed locks, tamper-resistant screws or padlocking as required and with clamping cap-screws top and bottom door edges to provide firm contact with gasketing. All gaskets shall be molded (unbroken) neoprene or butyl rubber.
- B. NEMA 4X junction and/or pull boxes shall be stainless steel.
- C. Underground junction or pull boxes shall be constructed of reinforced concrete cast-in-place or pre-fabricated as detailed on the Contract Drawings.

PART 3 - EXECUTION

3.01 INSTALLATION, APPLICATION, AND ERECTION

- A. Exposed Work
 - 1. Junction boxes for use with exposed aluminum conduit shall be copper free, cast aluminum type.
 - 2. Outlet or junction boxes for use with exposed PVC conduit shall be PVC.
- B. Pull Boxes
 - 1. Pull boxes for exterior underground work are shown on the Contract Drawings and are the minimum number required. Others may be added at the Contractor's option, but no extra pay shall be allowed.
 - 2. Exterior - Polymer concrete with open gravel bottom. Enclosure, box, and cover shall conform to all test provisions of ANSI/SCTE 77 for Tier 8 applications. All components in an assembly shall be manufactured using matched surface tooling. All covers shall have a minimum coefficient of friction of 0.05 in accordance with

ASTM C1028 and the corresponding Tier level embossed on the top surface. Dimensions shall be as required to meet applicable NEC requirements for the number and configuration of conduits entering and exiting the enclosure. Box depth shall be as required for conduit burial depth. Cover shall be stamped "ELECTRICAL" as applicable.

C. Openings in Electrical Boxes

1. All openings in electrical equipment, enclosures, and junction boxes shall be by means of welded bosses, standard knockouts, or shall be sawed, drilled, or punched with tools specially made for the purpose. The use of a cutting torch is prohibited. Unused openings shall be plugged per the NEC.

END OF SECTION - 16131

**SECTION 16150
WIRE CONNECTIONS AND CONNECTING DEVICES**

PART 1 - GENERAL

1.01 SCOPE OF WORK

- A. Wire connection and connecting devices shall be as herein specified.

PART 2 - PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

- A. Connectors, Lugs, etc. - "T & B", "Anderson", "Burndy", or equal.
- B. Termination and splice connectors - "3M Scotchlok", "Anderson", "T & B", "Burndy", or equal.

2.02 MATERIALS

- A. Wire Splicing and Terminations (600 Volts and Below)
 - 1. Electrical Terminal and Splice Connectors (#22 - #4 AWG)
 - a. Terminals and splice connectors from #22 - #4 AWG shall be compression types with barrels to provide maximum conductor contact and tensile strength. Performance, construction, and materials shall be in conformance with UL standards for wire connectors and rated for 600 volts and 105 degrees Celsius.
 - b. Connectors shall be manufactured from high conductivity copper and entirely tin plated. Terminal barrels shall be serrated on the inside surface and have a chamfered conductor entry. Terminals shall have funnel entry construction to prevent strand fold-back. All barrels shall be brazed seam or seamless construction.
 - c. Spade type terminals shall be sized for the appropriate stud and shall be locking type that snap firmly onto studs with a close fit for maximum retention. Spade type terminals shall be insulated with an insulation suitable for maintaining a high dielectric strength when crimped and be made from nylon, PVC, or equal.
 - 2. Electrical Lugs and Connectors (#6 AWG - 1000 Kcmil)
 - a. Lugs and splice connectors from #6 AWG - 1000 Kcmil shall be compression types with barrels to provide maximum conductor contact and tensile strength. They shall be manufactured from high conductivity copper and entirely tin plated. They shall be crimped with standard industry tooling. The lugs and connectors must have a current carrying capacity equal to the conductors for which they are rated and must also meet all UL requirements. All lugs above 4/0 AWG shall be 2 hole lugs with NEMA spacing. The lugs shall be rated for operation through 35 KV. The lugs

- shall be of closed end construction to exclude moisture migration into the cable conductor.
3. Twist-on Wire Connectors (#22 AWG - #10 AWG)
 - a. All twist-on wire connectors must have a corrosion resistant spring that is free to expand within a steel jacket. The steel jacket must be insulated with a flexible vinyl jacket capable of withstanding 105 degrees Celsius ambient temperatures and of sufficient length to cover wires that are inadvertently overstripped.
 - b. Each connector size must be listed by UL for the intended purpose and color coded to assure that the proper size is used on the wire combinations to be spliced. The connectors must be compatible with all common rubber and thermoplastic wire insulations.
 4. Solderless/re-usable lugs shall be used only when furnished with equipment such as control panels, furnished by others, where specification of compression type lugs is beyond the Contractor's control. In the event their use is necessary, the Contractor shall be responsible for assuring that they are manufactured to NEMA standards, with proper number and spacing of holes and set screws.

PART 3 - EXECUTION

3.01 INSTALLATION, APPLICATION, & ERECTION

A. Insulation of Splices and Connections

1. Connections/splices with a smooth even contour shall be insulated with a conformable 7 mil thick vinyl plastic insulating tape which can be applied under all weather conditions and is designed to perform in a continuous temperature environment up to 105 degrees Celsius. The tape shall have excellent resistance to abrasion, moisture, alkalies, acids, corrosion, and varying weather conditions (including sunlight). The tape shall be equal to Scotch 33+ and shall be applied in conformance with manufacturer's recommendations. In addition, it shall be applied in successive half-lapped layers with sufficient tension to reduce its width to 5/8 of its original width. The last inch of the wrap shall not be stretched.
2. Connections/splices with irregular shapes or sharp edges protruding shall be first wrapped with 30 mil rubber tape to smooth the contour of the joint before being insulated with 33+ insulating tape specified in the previous paragraph. The rubber tape shall be high voltage (69 KV) corona-resistant based on self-fusing ethylene propylene rubber and be capable of operation at 130 degrees Celsius under emergency conditions. The tape must be capable of being applied in either the stretched or unstretched condition without any loss in either physical or electrical properties. The tape must not split, crack, slip, or flag when exposed to various environments. The tape must be compatible with all synthetic cable insulations. The tape must have a dissipation factor of less than 5 percent at 130 degrees Celsius, be non-vulcanizing, and have a shelf life of a least 5 years. The rubber tape shall be applied in successive, half-lapped wound layers and shall be highly elongated to eliminate voids. Other

manufacturer's recommendations on installation shall be adhered to. The rubber tape shall be equal to Scotch 23 or 130C electrical splicing tape.

B. Connection Make-up

1. Connections of lugs to bus bars, etc., shall be made up with corrosion resistant steel bolts having non-magnetic properties with matching nuts, and shall utilize a Belleville spring washer (stainless steel) to maintain connection integrity. Connections shall be torqued to the proper limits. Prior to bolting up the connection, electrical joint compound shall be brushed on the contact faces of the electrical joint.
2. All motor lead connections shall be made up to match the type of lead furnished on the motor. If the lead is not lugged, then twist-on wire connectors may be used. To prevent possible vibration problems, twist-on connectors shall be taped after installation.
3. All lugged motor lead connections (excluding motors over 200 horse-power) shall be made up using ring tongue compression lugs with proper size stainless steel nuts and bolts. Belleville type spring shall be used to maintain tension on the connections. The connections shall then be insulated using the procedure described for irregular shapes, utilizing rubber tape in conjunction with vinyl electrical tape.
4. At the time of final inspection, the Engineer may request the Contractor to disassemble 3 randomly selected motor lead connections in the Engineer's presence, to assure conformance with these Specifications.
5. The Contractor shall include all necessary tools, materials, and labor in his bid for disassembly of the connections and for remaking them with new insulating materials after inspection.

END OF SECTION-16150

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**SECTION 16255
HORIZONTAL AIRFLOW OUTDOOR RESISTIVE LOAD BANK**

PART 1 - GENERAL

1.01 SCOPE OF WORK

- A. This specification contains the minimum requirements for the design, manufacture and testing of a UL listed, air-cooled, outdoor weatherproof resistive load bank.
- B. The load bank is required for periodic exercising and testing of the standby emergency generator. The load bank shall be permanently mounted in a weatherproof enclosure, forced air cooled with integral control panel.
- C. All materials equipment and parts comprising the units specified herein shall be new and unused, of current manufacture and of the highest grade. All equipment shall be free from all defects or imperfections.
- D. Should the supplier take exception to any part of this specification, it shall be stated in the bid, and referenced to the specification line number.

1.02 SUBMITTALS

- A. The manufacturer shall submit for review technical data including features, performance, electrical characteristics, physical characteristics, ratings, accessories, and finishes.
- B. Shop drawings shall include dimensional plans, front and side elevations and mounting details sufficient to properly install the load bank. Load bus configuration and load connections termination area shall be clearly identified.
- C. Electrical schematic drawings shall be provided to detail the operation of the load bank and the provided safety circuits. Over-current protection and control devices shall be identified, and their ratings marked. A system interconnection drawing shall be included for control wiring related to the load bank.

1.03 GUARANTEE AND SERVICE AGREEMENT

- A. Equipment furnished under this section shall be guaranteed against defective parts or workmanship for a period of five years from the date of field testing and acceptance by the Owner. The warranty shall include 24 hour parts and service from the manufacturer through the local distributor.
- B. During the five year warranty period, the supplier of the generator and transfer switch package shall provide regular maintenance of the equipment in accordance with the manufacturer's published operation and maintenance manuals. Regular maintenance shall include, but not be limited to tune-ups and associated parts, fuses, filter replacements, spark plugs, clamps, and hoses. Regular fluid replacements including oil and coolants shall also be included. Any required adjustments to the transfer switch and generator controls shall be included in the

maintenance agreement.

- C. After each maintenance or warranty site visit, a report shall be provided to the Owner outlining the maintenance performed, adjustments made, repairs or corrections, and a list of parts that were replaced during the site visit.
- D. See General Requirements for general project warranty requirements.

1.04 STANDARDS

- A. The equipment covered by this specification shall be designed with the latest applicable NPFA-70 NEMA, NEC, IEEE, and ANSI standards.
- B. The load bank certified to a NRTL such as UL or CSA.

PART 2 - PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

- A. Load bank shall be manufactured by “Simplex”, “Avtron”, or equal.

2.02 RATING:

- A. The total capacity of the load bank shall be rated 50kW at 240 Volts, 3-Phase, 3-Wire, 60 Hertz, at unity Power Factor and 5kW minimum load step resolution.
- B. The load bank shall be designed for continuous duty cycle operation with no limitations. The load bank shall operate in an ambient temperature of -28°C to 49°C (-20°F to 120°F).

2.03 MATERIAL OF CONSTRUCTION

- A. The load bank shall be outdoor weatherproof construction, suitable for installation on a concrete pad or structural base. All exterior fasteners shall be stainless steel.
- B. The load bank shall be constructed of heavy gauge steel or aluminized steel per ASTM A463 in minimum NEMA 3R outdoor weatherproof enclosure with removable access panels.
- C. The main input load bus, load step relays, fuses and blower/control relays shall be located within the load bank enclosure.
- D. Airflow throughout the load bank shall be horizontal.
- E. The load bank exhaust/rain hood shall be angled downward.
- F. The load bank enclosure shall have a powder coated finish.
- G. Load elements shall be contained in an integral resistor case. Resistors can be individually removed for inspection or service.

2.04 RESISTIVE LOAD ELEMENTS

- A. Open wire, helically wound, chromium alloy, thermally derated to 60%. -0%, +5% tolerance, 2% balance. .995 p.f. element wire mechanically supported with stainless steel rods and ceramic insulators over entire length.
- B. All materials used in the mounting and installation of the load elements are suitable for the temperatures encountered, in both normal operation and under fault conditions.
- C. Materials in direct contact with the element wire are ceramic, other materials which structurally support the load elements, and/or which form the hot air duct within which the elements are mounted are steel, stainless steel or aluminum. Plastics and glass reinforced plastic materials and flammable materials are not acceptable materials of construction for installation, support and mounting of load elements or in the construction of the load bank hot air duct.
- D. The change in resistance due to temperature shall be minimized by maintaining conservative watt densities.
- E. The overall tolerance of the load bank shall be -0% to +5% kW at rated voltage. A -5%, +5% rating allows the load bank to deliver less than rated kW and shall not be used. The load bank must deliver full rated kW at rated voltage.

2.05 COOLING

- A. The load bank shall be cooled by integral TEFC or TEAO motor(s) which is direct coupled to the cooling fan blade. The fan motor must be electrically protected against overload using a motor overload device and short circuit protected.
- B. The fan blade is to be an airfoil design constructed from aluminum, magnetic circuit breaker and fan contactor.

2.06 ELEMENT CIRCUIT PROTECTION

- A. Branch circuit fuses, each load branch circuit, 70A, 200kAIC, current limiting type.

2.07 INTERIOR HEATER

- A. Thermostatically controlled heater shall be located within the control section to provide protection to the control devices from the effects of moisture and condensation.
- A. Externally powered from 15A branch circuit, 120V, 1-phase, 60Hz thermostatically controlled anti-condensation heaters.

2.08 CONTROL PANEL

- A. The control panel shall be in unit mounted outdoor rated enclosure with hinge-open front.

- B. Control panel shall be internally powered from load bus, with isolation transformer (120V control). PLC powered via 24VDC conditioned power.
- C. PLC-based, 4" Color Touch HMI controller consisting of the following:
 - a. Power supply for load bank control circuits.
 - b. Malfunction detection/auto disconnect system.
 - c. Cooling fan automatic start-stop control.
 - d. Remote load dump circuit to allow use of remote dry contacts (close to run) to trip load bank offline.
 - e. Input/output devices and control circuits for operation of load bank from an automatic controller.
 - f. Auxiliary dry contacts to indicate "normal operation"/"summary alarm"
 - g. Summary alarm lamp (LED) on load bank enclosure - indicates that there has been a cooling failure, load dump activation or other failure.
- D. Touch panel functions, including:
 - a. Control Power On - Off buttons (starts/stops cooling fan)
 - b. Bypass switch to override remote load dump
 - c. Numeric load application button - activates numeric keypad for applying or removing desired load value
- E. Touch panel message display including:
 - a. Control Power On/Off
 - b. Manual mode
 - c. Auto Mode (if equipped)
 - d. Load dump - normal/bypass
 - e. Normal operation
 - f. High exhaust temp
 - g. High intake temp.
 - h. Fan failure
 - i. Load bank failure
 - j. Master load on
 - k. Load step on (one for each load step)
- F. Current transformers (minimum 2) shall be furnished and installed in the generator enclosure and connected to the load bank control panel for sensing of downstream loads.
- G. Provide an option for automatic load leveling and load regulation, via PLC, to maintain total generator load within a preset bandwidth when external load demands on genset are present - kilowatt sensing. The load bank, in parallel with another load, will act to maintain the overall system power within a defined window of operations. When Load Leveling is turned off, the load bank will ramp down to zero and turn itself off.
- H. BMS monitoring and control.

- I. Remote communications modules, MODBUS RTU/RS-485 (std), MODBUS RTU/TCIP (Ethernet)

PART 3 - EXECUTION

3.01 QUALITY CONTROL

- A. The load bank shall be fully tested using a test specification written by the supplier. Tests shall include electrical functional testing, verifying conformance to assembly drawings and specifications. Each load step shall be cold resistance checked to verify proper calibration of resistive load steps and proper ohmic value.
- B. The manufacturer shall maintain this data on file for inspection purposes by the purchaser. Tests using high potential equipment shall be performed to ensure isolation of the load circuits from the control circuits and to determine isolation of the load circuits from the load bank frame. Tests of all safety circuits shall be performed to verify conformance to the specification.
- C. All electrical circuits shall have a high potential insulation resistance test performed at twice rated voltage plus 1000 VAC to assure insulation integrity.
- D. All quality control test equipment shall be regularly maintained and calibrated to traceable national standards.

3.02 INSTALLATION

- A. Installation of equipment shall include furnishing and installing all interconnecting wiring between all major equipment, as well as control wiring to control panel, branch circuits for enclosure heater, and any other applicable accessories.
- B. Equipment shall be installed on concrete pad. Equipment shall be permanently fastened to the pad in accordance with applicable codes and seismic requirements of the site.
- C. Equipment shall be initially started and operated by representatives.
- D. All equipment shall be physically inspected for damage. Installation damage shall be repaired prior to final system testing. Equipment shall be thoroughly cleaned to remove all dirt and construction debris prior to initial operation and final testing of the system.
- E. Contractor shall be responsible for all required coordination.

END OF SECTION 16255

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SECTION 16289 SURGE PROTECTION DEVICE

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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

1.02 DESCRIPTION

- A. General: Surge protection device (SPD) is the description and equipment required for the protection of all AC electrical circuits and electronic equipment from the effects of lightning induced voltages, external switching transients and internally generated switching transients.

1.03 REFERENCE STANDARDS AND PUBLICATIONS

- A. General: The latest edition of the following standards and publications shall comply to the work of this section:
 - a. ANSI/IEEE C84.1-1989, American National Standard for Electric Power Systems and Equipment - Voltage Ratings (60 Hertz)
 - b. ANSI/IEEE C62.41-1991, Recommended Practice on Surge Voltages in Low-Voltage AC Power Circuits
 - c. ANSI/IEEE C62.45-1992, IEEE Guide on Surge Testing for Equipment Connected to Low-Voltage AC Power Circuits
 - d. The SPD units and all components shall be designed, manufactured and tested in accordance with the latest applicable UL standard (UL 1449, 2nd Edition dated February 5, 2005, compliance required February 9, 2007), UL 1283 and CSA certified per CSA 22.2.
 - e. SPD units shall be listed by Underwriters Laboratories and covered by Underwriters Laboratories Certification and Follow up services. Testing or listing to the UL 1449 standard by laboratories other than Underwriters Laboratories is not acceptable.
 - f. The UL 1449 suppression voltage ratings (SVR) and CSA label shall be permanently affixed to the Series Surge Protective Device (SPD).
 - g. Underwriters Laboratories, UL 1283, Standard for Safety - Electromagnetic Interference Filters
 - h. National Fire Protection Association, NFPA 780 - National Electrical Code
 - i. IEEE Standard 142-1991, IEEE Recommended Practice for Grounding of Industrial and Commercial Power Systems (IEEE Green Book)
 - j. ANSI/IEEE Standard 141-1999, IEEE Recommended Practice for Electric Power Distribution for Industrial Plants (IEEE Red Book)
 - k. IEEE Standard 1100-1999, IEEE Recommended Practice for Powering and Grounding Sensitive Electronic Equipment (IEEE Emerald Book)
 - l. FIPS Pub 94, Federal Information Processing Standards Publication - Guideline on Electrical Power for ADP Installations

- m. National Electrical Manufacturer's Association LS-1, 1992 (NEMA LS-1)
- n. MIL Standard 220A Method of Insertion-loss Measurement
- o. ISO 9001:1994, Quality Systems - Model for Quality Assurance in Design, Development, Production, Installation and Servicing

1.04 MANUFACTURER QUALIFICATIONS

- A. Square D/Schneider Electric , SurgeLogic.IMA Series, Siemens, Cutler Hammer, or equal.

1.05 WARRANTY

- A. The SPD and supporting components shall be guaranteed by the manufacturer to be free of defects in material and workmanship for a period of ten (10) years from the date of substantial completion of service and activation of the system to which the suppressor is attached.
- B. An SPD that shows evidence of failure or incorrect operation during the warranty period shall be replaced free of charge. Since "Acts of Nature" or similar statements typically include the threat of lightning to which the SPDs shall be exposed, any such clause limiting warranty responsibility in the general conditions of this specification shall not apply to this section. That is, the warranty is to cover the effects of lightning, single phasing, and all other electrical anomalies. The warranty shall cover the entire device, not just various components, such as modules only.
- C. The installation of SPDs in or on electrical distribution equipment shall in no way compromise or violate equipment listing, labeling, or warranty of the distribution equipment.

1.06 SUBMITTALS

- A. The transient voltage surge suppression submittals shall include, but shall not be limited to, the following information:
 - a. Data for each suppressor type indicating conductor sizes, conductor types, and connection configuration and lead lengths.
 - b. Manufacturer's certified test data indicating the ability of the product to meet or exceed requirements of this specification.
 - c. Drawings, with dimensions, indicating SPD mounting arrangement and lead length configuration, and mounting arrangement of any optional remote diagnostic equipment and assemblies.
 - d. List and detail all protection systems such as fuses, disconnecting means and protective materials.
 - e. SPD wiring, bonding, and grounding connections shall be indicated on the wiring diagrams for each system. Include installation details demonstrating mechanical and electrical connections to equipment to be protected.
 - f. Provide verification that the SPD device complies with the required UL 1449 2nd edition. At a minimum, the complete UL File number covering the submitted TVSS devices shall be provided.

PART 2 - PRODUCTS

2.01 PERFORMANCE

A. GENERAL

- a. SPDs shall be listed in accordance with UL 1449 Second Edition, Standard for Safety, Transient Voltage Surge Suppressors and UL 1283, Standard for Safety, Electromagnetic Interference Filters.
- b. The SPD shall protect all modes and there shall be seven discrete suppression circuits: 3 modes connected Line to Ground, 3 modes connected Line to Neutral, and 1 mode connected Neutral to Ground for a 3-phase, 4-wire, plus ground voltage system. Line to Neutral to Ground is not an acceptable substitute for Line to Ground. Line to Neutral to Line and Line to Ground to Line (in combination) will be acceptable for Line to Line protection.
- c. All SPDs must have passed the UL 1449 Second Edition Fault Current Test with a Rating of 200,000 AIC. Documentation substantiating this claim must be provided.
- d. SPDs shall use a separate path to building ground; the equipment safety ground is not to be used as a transient ground path.
- e. All SPDs are to be an MOV-based design and are not to include SAD technology as a means of suppression.
- f. The maximum continuous operating voltage (MCOV) of all components shall not be less than 125% for a 120V system and 115% for 220, 240, 277, and 480V systems.
- g. Standard diagnostic features are to include green LEDs (one per phase - normally on) indicating power and suppression status and a set of normally open/normally closed Form C dry-relay contacts.
- h. Extended diagnostics must include an audible alarm and surge counter to be displayed on an LCD display on the front of the suppressor. The surge counter must include a reset option. The audible alarm must include a mute option. Products requiring an optional diagnostic test kit to verify operational status are not acceptable.

B. DISTRIBUTION PANEL PROTECTION

- a. The distribution panel SPD equipment shall meet or exceed the minimum performance criteria as follows:
 1. The single-impulse surge-current rating shall be a minimum of 160,000 Amperes per phase (80,000 Amperes per mode).
 2. The UL 1449 Second Edition Suppressed Voltage Rating for the following configurations shall not exceed the following:

| Voltage Configuration | L-G | L-N | N-G |
|-----------------------|------|------|------|
| 120/240V (3Y101) | 400V | 400V | 400V |

3. SPDs shall be of compact design. The mounting position of the SPD shall allow a straight and short lead-length connection between the SPD and the

- point of connection in the panelboard.
4. Visual indication of proper SPD connection and operation shall be easily viewed on the front panel of the enclosure. The indicator lights shall indicate suppression circuit status, phase status, phase loss, reduced protection level and suppression fault.
 5. The SPD shall be equipped with an integral disconnect switch or be available as an option.
 6. A set of normally open/normally closed Form "C" dry contacts shall be provided for remote monitoring.
 7. SPDs shall have a diagnostics LCD panel display providing information on phase loss (specific to each phase), surge/transient event count, stored cumulative surge/transient event history, and technical support information.
 8. SPDs shall be equipped with an audible alarm with mute, reset and acknowledge features.
 9. The device must be certified to withstand a minimum of 15,500 Category C3 (Combination wave - 20,000 Volts - 1.2x50us OCV and 10,000 Amps - 8x20us SCC as defined by ANSI/IEEE C62.41-1991) impulses with less than 10% change in the baseline to final let-through voltage. This data must be submitted as an independently verified and certified test report.
 10. The maximum value for the attenuation for the suppressor must exceed a minimum of 33 dB. All measurements for this requirement must be taken using the MIL STD 220A method and with only six (6) inches of lead length extending outside of the normal exit location of leads for the enclosure. Test results taken with leads extending past six (6) inches are not acceptable or compliant. Additional or excessive lead length used in the test setup is not acceptable.

PART 3 - INSTALLATION

- A. The installing contractor shall install the parallel SPD with short and straight conductors as practically possible.
- B. The contractor shall follow the SPD manufacturer's recommended installation practice as found in the equipment installation instructions.
- C. SPD shall be mounted in panelboard.
- D. The installation shall apply to all applicable codes.

END OF SECTION-16289

**SECTION 16361
AUTOMATIC TRANSFER SWITCH**

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

- A. This Section includes transfer switch rated 600 V and less, including the following:
 - 1. Automatic transfer switches

1.03 SUBMITTALS

- A. Product Data: For each type of product indicated. Include rated capacities, weights, operating characteristics, furnished specialties, and accessories.
- B. Shop Drawings: Dimensioned plans, elevations, sections, and details showing minimum clearances, conductor entry provisions, gutter space, installed features and devices, and material lists for each switch specified.
 - 1. Single-Line Diagram: Show connections between transfer switch, switch, power sources, and load.
- C. Manufacturer Seismic Qualification Certification: Submit certification that transfer switches accessories, and components will withstand seismic forces defined per IBC 2012 seismic standards. Include the following:
 - 1. Basis for Certification: Indicate whether withstand certification is based on actual test of assembled components or on calculation.
 - a. The term "withstand" means "the unit will remain in place without separation of any parts from the device when subjected to the seismic forces specified."
 - 2. Dimensioned Outline Drawings of Equipment Unit: Identify center of gravity and locate and describe mounting and anchorage provisions.
 - 3. Detailed description of equipment anchorage devices on which the certification is based and their installation requirements.
- D. Field quality-control test reports.

- E. Operation and Maintenance Data: For each type of product to include in emergency, operation, and maintenance manuals. In addition to items specified, include the following:
 - 1. Features and operating sequences, both automatic and manual.
 - 2. List of all factory settings of relays; provide relay-setting and calibration instructions, including software, where applicable.

1.04 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Maintain a service center capable of providing training, parts, and emergency maintenance repairs within a response period of less than eight hours from time of notification.
- B. Comply with UL 1008 7th edition, unless requirements of these Specifications are stricter.
- C. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
- D. Comply with NEMA ICS 1.
- E. Comply with NFPA 70.
- F. Comply with NFPA 99.
- G. Comply with NFPA 110.
- H. UL 891 Service Entrance Rated

1.05 WARRANTY:

Manufacturers standard form in which manufacturer agrees to repair or replace components of transfer switch and associated auxiliary components that fail in materials or workmanship within specified warranty period. Warranty is comprehensive and shall include all parts & labor for specified period.

- 1. Warranty period: 100% parts & labor for (2) Years from shipment, then 100% parts only for (5) Years from shipment.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Russelectric, or equal.

2.02 GENERAL TRANSFER-SWITCH PRODUCT REQUIREMENTS

- A. Indicated Current Ratings: Apply as defined in UL 1008 for continuous loading and total system transfer, including tungsten filament lamp loads not exceeding 30 percent of switch ampere rating, unless otherwise indicated.
- B. Tested Fault-Current Closing and Withstand Ratings: Adequate for duty imposed by protective devices at installation locations in Project under the fault conditions indicated, based on testing according to UL 1008.
- C. Solid-State Controls: Repetitive accuracy of all settings shall be plus or minus 2 percent or better over an operating temperature range of minus 20 to plus 70 deg C.
- D. Resistance to Damage by Voltage Transients: Components shall meet or exceed voltage-surge withstand capability requirements when tested according to IEEE C62.41. Components shall meet or exceed voltage-impulse withstand test of NEMA ICS 1.
- E. Electrical Operation: Accomplish by a nonfused electric-motor-operated mechanism, mechanically and electrically interlocked in both directions.
- F. Switch Characteristics: Designed for continuous-duty repetitive transfer of full-rated current between active power sources.
 - 1. Limitation: Switches using molded-case switches or circuit breakers or insulated-case circuit-breaker components are not acceptable.
 - 2. Switch Action: Double throw; mechanically held in both directions.
 - 3. Contacts: Silver composition or silver alloy for load-current switching. Conventional automatic transfer-switch units, rated 225 A and higher, shall have separate arcing contacts.
- G. Neutral Terminal: Switched and fully rated, unless otherwise indicated.
- H. Oversize Neutral: Ampacity and switch rating of neutral path through units indicated for oversize neutral shall be double the nominal rating of circuit in which switch is installed.
- I. Annunciation, Control, and Programming Interface Components: Devices at transfer switches for communicating with remote programming devices, annunciators, or

annunciator and control panels shall have communication capability matched with remote device.

- J. Factory Wiring: Train and bundle factory wiring and label, consistent with Shop Drawings, either by color-code or by numbered or lettered wire and cable tape markers at terminations.
 - 1. Designated Terminals: Pressure type, suitable for types and sizes of field wiring indicated.
 - 2. Power-Terminal Arrangement and Field-Wiring Space: Suitable for top, side, or bottom entrance of feeder conductors as indicated.
 - 3. Control Wiring: Equipped with lugs suitable for connection to terminal strips.
- K. Enclosures: Wall-mounted NEMA Type 4X stainless steel enclosure, unless otherwise indicated on plans.

2.03 AUTOMATIC TRANSFER SWITCHES

- A. Comply with Level 1 equipment according to NFPA 110.
- B. Switching Arrangement: Double-throw type, incapable of pauses or intermediate position stops during normal functioning, unless otherwise indicated.
- C. Manual Switch Operation: Under load, with door closed and with either or both sources energized. Transfer time is same as for electrical operation. Control circuit automatically disconnects from electrical operator during manual operation. Two toggle switches to permit selection of manual or automatic retransfer to normal. Manual is automatically bypassed if emergency fails while normal is available. Open first switch for manual mode, momentarily close second switch to retransfer to normal. Includes pilot light to indicate manual position.
- D. Manual Switch Operation: Unloaded for maintenance purposes only.
- E. Digital Communication Interface: Matched to capability of remote annunciator or annunciator and control panel. Include SNMP, Modbus RS485 & TCP/IP communications, SMTP email notifications, & integral web page for remote monitoring. Communication interface shall have four Ethernet Ports to allow for daisy chain of multiple devices.
- F. Dual Operator Delayed Transition (Center Off) Contactor Based transfer mechanisms. Linear motors are not acceptable.
- G. Motor Disconnect and Timing Relay: Controls designate starters so they disconnect motors before transfer and reconnect them selectively at an adjustable time interval after transfer. Control connection to motor starters is through wiring external to automatic transfer switch. Time delay for reconnecting individual motor loads is adjustable between 1 and 60 seconds, and settings are as indicated. Relay contacts handling motor-control circuit inrush and seal currents are rated for actual currents to be encountered.

- H. Terminal provisions for a remote contact which opens to signal, the transfer switch to transfer to emergency and for remote contacts which open to inhibit transfer to emergency and/or retransfer to normal. Both of these inhibit signals can be activated through the keypad or serial port.
- I. System LCD controller/display. Shall include the following features:
 - 1. System status screen which shall be readily accessible from any point in the menu by depressing the “ESC” key a maximum of two times. This screen shall display a clear description of the active operating sequence and switch position. For example:
 - a. Normal Failed
 - b. Load on Normal
 - c. TD Normal to Emergency (X min X seconds)

Controllers that require multiple screens to determine system status or display “coded” system status messages, which must be explained by references in an operators manual, are not acceptable.

- 2. Self Diagnostics: The controller shall contain a diagnostic screen for the purpose of detecting system errors. This screen shall provide information on the status input signals to the controller which may be preventing load transfer commands from being complete.
- 3. Data Logging: The controller shall have the ability to log data and to maintain the last 99 events, even in the event of total power loss. The following events shall be time and date stamped and maintained in non-volatile memory:
 - a. Event Logging:
 - b. Data and time and reason for transfer normal to emergency
 - c. Data and time and reason for transfer emergency to normal
 - d. Data and time and reason for engine start.
 - e. Data and time engine stopped.
 - f. Data and time emergency source available.
 - g. Data and time emergency source not available.
- 4. Statistical Data:
 - a. Total number of transfers.
 - b. Total number of transfers due to source failure.
 - c. Total number of days controller is energized.
 - d. Total number of hours both normal and emergency sources are available.
- J. One set of double pole, double throw contacts that operate when normal source voltage is available and one set of double pole, double throw contacts that operate when emergency source voltage is available.
- K. Automatic Transfer-Switch Features:
 - 1. Undervoltage Sensing for Each Phase of Normal Source: Sense low phase-to-ground voltage on each phase. Pickup voltage shall be adjustable from 85 to

- 100 percent of nominal, and dropout voltage is adjustable from 75 to 98 percent of pickup value. Factory set for pickup at 90 percent and dropout at 85 percent.
2. Undervoltage Sensing for Each Phase of Emergency Source: Sense low phase to-ground voltage on each phase. Pickup voltage shall be adjustable from 85 to 100 percent of nominal, and drop out voltage is adjustable from 70 to 98 percent of pickup value. Factory set for pickup at 90 percent and dropout at 85 percent.
 3. Phase rotation monitor
 4. Adjustable Time Delay: For override of normal-source voltage sensing to delay transfer and engine start signals. Adjustable from zero to six seconds, and factory set for one second.
 5. Voltage/Frequency Lockout Relay: Prevent premature transfer to generator. Pickup voltage shall be adjustable from 85 to 100 percent of nominal. Factory set for pickup at 90 percent. Pickup frequency shall be adjustable from 90 to 100 percent of nominal. Factory set for pickup at 95 percent.
 6. Time Delay for Retransfer to Normal Source: Adjustable from 0 to 30 minutes, and factory set for 10 minutes to automatically defeat delay on loss of voltage or sustained undervoltage of emergency source, provided normal supply has been restored.
 7. Test Switch: Simulate normal-source failure.
 8. Switch-Position Pilot Lights: Indicate source to which load is connected.
 9. Source-Available Indicating Lights: Supervise sources via transfer-switch normal- and emergency-source sensing circuits.
 - a. Normal Power Supervision: Green light with nameplate engraved "Normal Source Available."
 - b. Emergency Power Supervision: Red light with nameplate engraved "Emergency Source Available."
 10. Unassigned Auxiliary Contacts: Two normally open, single-pole, double-throw contacts for each switch position, rated 10 A at 240-V ac.
 11. Transfer Override Switch: Overrides automatic retransfer control so automatic transfer switch will remain connected to emergency power source regardless of condition of normal source. Pilot light indicates override status.
 12. Engine Starting Contacts: One isolated and normally closed, and one isolated and normally open; rated 10 A at 32-V dc minimum.
 13. Engine Shutdown Contacts: Time delay adjustable from zero to five minutes, and factory set for five minutes. Contacts shall initiate shutdown at remote engine-generator controls after retransfer of load to normal source.
 14. Engine-Generator Exerciser: Solid-state, programmable-time switch starts engine generator and transfers load to it from normal source for a preset time, then retransfers and shuts down engine after a preset cool-down period. Initiates exercise cycle at preset intervals adjustable from 7 to 30 days. Running periods are adjustable from 10 to 30 minutes. Factory settings are for 30-day exercise cycle, 20-minute running period, and 5-minute cool-down period. Exerciser features include the following:
 - a. Exerciser Transfer Selector Switch: Permits selection of exercise with and without load transfer.
 - b. Push-button programming control with digital display of settings.

- c. Integral battery operation of time switch when normal control power is not available.

2.04 CONTROL SYSTEM

- A. Functional Description: Include the following functions for indicated transfer switches:
 - 1. Indication of sources available, as defined by actual pickup and dropout settings of transfer-switch controls.
 - 2. Indication of switch position.
 - 3. Indication of switch in test mode.
 - 4. Indication of failure of digital communication link.
 - 5. Key-switch or user-code access to control functions of panel.
 - 6. Control of switch-test initiation.
 - 7. Control of switch operation in either direction.

- B. Malfunction of control panel, or communication link shall not affect functions of automatic transfer switch. In the event of failure of communication link, automatic transfer switch automatically reverts to stand-alone, self-contained operation. Remote Annunciation and Control Panel: Solid-state components. Include the following features:
 - 1. Controls and indicating lights grouped together for transfer switch.
 - 2. Label each indicating light control group. Indicate transfer switch it controls, location of switch, and load it serves.
 - 3. Digital Communication Capability: Matched to that of transfer switches supervised.
 - 4. Mounting: Flush, modular, steel cabinet, unless otherwise indicated.

2.05 SOURCE QUALITY CONTROL

- A. Factory test and inspect components, assembled switches, and associated equipment. Ensure proper operation. Check transfer time and voltage, frequency, and time-delay settings for compliance with specified requirements. Perform dielectric strength test complying with NEMA ICS 1.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Design each fastener and support to carry load indicated by seismic requirements and according to seismic-restraint details.

- B. Set field-adjustable intervals and delays, relays, and engine exerciser clock.

3.02 CONNECTIONS

- A. Wiring to Remote Components: Match type and number of cables and conductors to control and communication requirements of transfer switches as recommended by manufacturer. Increase raceway sizes at no additional cost to Owner if necessary to accommodate required wiring.

3.03 FIELD QUALITY CONTROL

- A. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect, test, and adjust components, assemblies, and equipment installations, including connections. Report results in writing.
 - 1. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect components, assemblies, and equipment installation, including connections, and to assist in testing.
 - 2. After installing equipment and after electrical circuitry has been energized, test for compliance with requirements.
 - 3. Perform each visual and mechanical inspection and electrical test stated in NETA Acceptance Testing Specification. Certify compliance with test parameters.
 - 4. Measure insulation resistance phase-to-phase and phase-to-ground with insulation-resistance tester. Include external annunciation and control circuits. Use test voltages and procedure recommended by manufacturer. Comply with manufacturer's specified minimum resistance.
 - a. Check for electrical continuity of circuits and for short circuits.
 - b. Inspect for physical damage, proper installation and connection, and integrity of barriers, covers, and safety features.
 - c. Verify that manual transfer warnings are properly placed.
 - d. Perform manual transfer operation.
 - 5. After energizing circuits, demonstrate interlocking sequence and operational function for each switch at least three times.
 - a. Simulate power failures of normal source to automatic transfer switches and of emergency source with normal source available.
 - b. Simulate loss of phase-to-ground voltage for each phase of normal source.
 - c. Verify time-delay settings.
 - d. Verify pickup and dropout voltages by data readout or inspection of control settings.
 - e. Test transfer-switch operations.
 - f. Perform contact-resistance test across main contacts and correct values exceeding 500 microhms and values for 1 pole deviating by more than 50 percent from other poles.
 - g. Verify proper sequence and correct timing of automatic engine starting, transfer time delay, retransfer time delay on restoration of normal power, and engine cool-down and shutdown.

6. Ground-Fault Tests: Coordinate with testing of ground-fault protective devices for power delivery from both sources.
 - a. Verify grounding connections and locations and ratings of sensors.
 7. After energizing circuits, demonstrate interlocking sequence and operational function for each switch at least three times.
 - a. Simulate power failures of normal source to automatic transfer switches and of emergency source with normal source available.
 - b. Simulate loss of phase-to-ground voltage for each phase of normal source.
 - c. Verify time-delay settings.
 - d. Verify pickup and dropout voltages by data readout or inspection of control settings.
 - e. Test unit functional modes and related automatic transfer-switch operations.
 - f. Perform contact-resistance test across main contacts and correct values exceeding 500 microhms and values for 1 pole deviating by more than 50 percent from other poles.
 - g. Verify proper sequence and correct timing of automatic engine starting, transfer time delay, retransfer time delay on restoration of normal power, and engine cool-down and shutdown.
- B. Coordinate tests with tests of generator and run them concurrently.
 - C. Report results of tests and inspections in writing. Record adjustable relay settings and measured insulation and contact resistances and time delays. Attach a label or tag to each tested component indicating satisfactory completion of tests.
 - D. Remove and replace malfunctioning units and retest as specified above.

3.04 DEMONSTRATION

- A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain transfer switches and related equipment as specified below.

END OF SECTION - 16361

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SECTION 16440 MOTOR CONTROL

PART 1 - GENERAL

1.01 SCOPE OF WORK

- A. Contractor shall furnish and install motor control equipment as specified herein and as shown on the Drawings.

1.02 SUBMITTALS

- A. Motor control equipment shall be new and the equipment of one manufacturer. Each component is specified by a particular trade name; however, this does not relieve the Contractor of the responsibility of submitting descriptive literature and Shop Drawings for review of all components. Motor control shall be the same brand as power distribution equipment on projects with both.
- B. Shop drawings, including dimension & layout drawings, complete schematic and composite wiring diagrams, control circuit wiring diagrams and descriptive literature shall be submitted to the Engineer for review. Service manuals shall be submitted on all equipment and shall be bound in PDF format. The manuals shall also include information on accessories such as timers, etc., built in the control center.

PART 2 - PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

- A. Control Equipment - "Square D", "Siemens", "Allen Bradley", or equal.
- B. Components for Typical Units
 - a. Combination Starters
 - 1. All combination starters shall utilize a unit disconnect as specified in the previous article. Magnetic starters shall be furnished in all combination starter units. All starters shall utilize NEMA rated contactors. IEC contactors are not acceptable. Minimum starter size shall be NEMA 1. Starters shall be provided with a three-pole, external manual reset, overload relay for ambient compensated bimetallic thermal overload units.
 - 2. Control circuit transformers shall include two primary protection fuses and one secondary fuse (in the non-ground secondary conductor). The transformer shall be sized to accommodate the contractor(s) and all connected control circuit loads. The transformer rating shall be fully visible from the front when the unit door is opened.
 - 3. When a unit control circuit transformer is not provided, the disconnect shall include an electrical interlock for disconnection of externally powered control circuits.
 - 4. Auxiliary control circuit interlocks shall be provided where indicated.

Auxiliary interlocks shall be field convertible to normally open or normally closed operation.

5. NEMA/EEMAC Size 1-4 starters shall be mounted directly adjacent to the wireway so that power wiring (motor leads) shall connect directly to the starter terminals without the use of interposing terminals. Larger starters shall be arranged so that the power wiring may exit through the bottom of the starter cubical without entering the vertical wireway.
 6. All starters shall be of the voltage rating, type, and sized for the motor size shown in these Specifications and/or on the Contract Drawings. Should a piece of electrically driven equipment be furnished with a larger motor than shown on the Contract Drawings, the proper size combination starter shall be provided for the equipment supplied, at no extra cost to the Owner.
- b. Terminal Blocks
1. All starter units shall be provided with unit control terminal blocks.
 2. Terminal blocks shall be the pull-apart type 600 volt and rated at 25 amps. All current carrying parts shall be tin plated. Terminals shall be accessible from inside the unit when the unit door is opened. Terminal blocks shall be DIN rail mounted with the stationary portion of the block secured to the unit bottom plate. The stationary portion shall be used for factory connections, and shall remain attached to the unit when removed. The terminals used for field connections shall face forward so they can be wired without removing the unit or any of its components.
- c. Nameplates - Shall be engraved phenolic nameplates for each MCC and unit compartment. Shall be gray background with white letters, measuring a minimum of 1.5 in H x 6.25 in W total outside dimensions.
- d. Pilot Device Panel - Each combination starter unit shall be provided with a hinged/removable control station plate, which can accommodate up to five 22 mm pilot devices or three 30 mm pilot devices.
- e. Circuit Breakers
1. Circuit breakers shall be molded case type. Trip elements of multi-pole breakers shall be effectively insulated from one another. Multi-pole breakers shall be designed so that an overload on any one pole shall open all poles simultaneously.
 2. The breaker operating mechanism shall be the quick-make, quick-break type and shall be entirely trip free to prevent the contacts being held in a closed position against a short circuit.
 3. Breakers not used with motor starters shall be of the thermal magnetic type with a thermal bimetallic element for time delayed overload protection and a magnetic element for short circuit protection.
 4. The breaker shall be trip indicating with the trip position midway between the "On" and "Off" positions.
 5. Breakers for combination starters shall be 100 amp frame or larger. All breakers for combination starters shall have an adjustable magnetic trip element of the motor circuit protector type.
 6. Breakers for combination starters shall be F frame or larger. All breakers shall have adjustable magnetic trip elements. Circuit breakers K frame or larger shall have interchangeable thermal-magnetic trip elements.

2.02 MISCELLANEOUS MOTOR CONTROL DEVICES (480, 240, OR 120 VOLT)

A. General

- a. All motor control equipment shall be new and the product of 1 manufacturer. Equipment specified below applies to applications where mounting individually in a custom/manufacturer's control panel. Starters which are mounted individually or in a control panel shall meet the requirements above.

B. Pilot Devices

- a. Pilot lights shall be oiltight, heavy duty, push-to-test, with LED lamp.
- b. Elapsed time meters shall be six-digit, reading in hours and tenths of hours. Numbers shall be 5/32" high minimum. Meters shall be non-reset-able. Enclosure shall be polycarbonate, weatherproof.

C. Enclosed Circuit Breakers

- a. Circuit breakers shall be molded case type. Trip elements of multi-pole breakers shall be effectively insulated from one another. Multi-pole breakers shall be designed so that an overload on any one pole shall open all poles simultaneously.
- b. The breaker operating mechanism shall be the quick-make, quick-break type and shall be entirely trip free to prevent the contacts being held in a closed position against a short circuit.
- c. Breakers not used with motor starters shall be of the thermal magnetic type with a thermal bimetallic element for time delayed overload protection and a magnetic element for short circuit protection.
- d. The breaker shall be trip indicating with the trip position midway between the "On" and "Off" positions.
- e. Breakers for combination starters shall be F frame or larger. All breakers shall have adjustable magnetic trip elements. Circuit breakers K frame and larger shall have interchangeable thermal-magnetic trip elements.
- f. Enclosed breakers shall be UL listed and shall conform to NEMA Standards. NEMA 4X enclosed breakers where called for shall be stainless steel.

D. Safety Switches

- a. Safety switches shall be of the heavy duty industrial, quick make, quick-break type. Ratings shall correspond to that of the equipment in which circuit it is used, fuses sized as shown on the Contract Drawings. All safety switches at motor locations are of the nonfused type where shown on Construction Drawings.
- b. Main disconnect switch shall be fused type service entrance rated with fuses rating as shown on Construction Drawings.
- c. Safety switches shall have a mechanical door interlock to prevent the door from being opened with the switch in the on position and facilities for locking it in the closed or open position. Enclosures for outside installation shall be NEMA 4X.
- d. Safety switches shall be UL listed and shall conform to NEMA Standards. NEMA 4X enclosed safety switches where called for shall be stainless steel.

E. Selector Switches

- a. Hand-off-automatic type selector switches shall be of oil-tight construction and shall have 3 positions. The switch must not have a spring loaded return. It shall be of the “quick-make”, “quick-break” type.

PART 3 - EXECUTION

3.01 INSTALLATION/APPLICATION/ERECTION

A. Individually Mounted Motor Control Devices (480, 240, or 120 Volt)

- a. Each motor disconnect shall be located as near as possible to its respective motor.

3.02 EXTRA STOCK/SPARE PARTS

A. Provide the following spare parts:

- 10 fuses of each type/amperage used
- 1 pilot light lamp for each pilot light socket assembly provided

END OF SECTION - 16440

SECTION 16442 PANELBOARDS

PART 1 - GENERAL

1.01 SCOPE OF WORK

- A. This section of the Technical Specifications includes furnishing all labor, materials, equipment, and incidentals required for the installation of all panelboards as hereinafter specified and as shown on the Contract Drawings.
- B. The panelboards for installation under this Contract shall be selected from the following types with the panel voltage and main sizes the determining factors. All panelboards shall be by the same manufacturer.
- C. Circuit breakers of size and type shown on Contract Drawings and described herein shall be provided with the panelboards.

PART 2 - PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

- A. "Square D", "Siemens", "Cutler Hammer", or equal.

2.02 GENERAL REQUIREMENTS

- A. Rating - Panelboard ratings shall be as shown on the Contract Drawings. All panelboards shall be rated for the intended voltage.
- B. References - The panelboard (s) and circuit break (s) referenced herein are designed and manufactured according to the latest revision of the following specifications.
 - a. NEMA PB 1 - Panelboards
 - b. NEMA PB 1.1 - Instructions for Safe Installation, Operation, and Maintenance of Panelboards Rated 600 Volts or less.
 - c. NEMA AB 1 - Molded Case Circuit Breakers
 - d. UL 50 - Enclosures for Electrical Equipment
 - e. UL 67 - Panelboards
 - f. UL 489 - Molded-Case Circuit Breakers and Circuit Breaker Enclosures
 - g. CSA Standard C22.2 No. 29-M1989 - Panelboards and Enclosed Panelboards
 - h. CSA Standard C22.2 No. 5-M91 - Molded Case Circuit Breakers
 - i. Federal Specification W-P-115C - Type I Class 1
 - j. Federal Specification W-C-375B/Gen - Circuit Breakers, Molded Case, Branch Circuit and Service.
 - k. Federal Specification W-C-865C - Fusible Switches
 - l. NFPA 70 - National Electrical Code (NEC)
 - m. ASTM - American Society of Testing Materials

2.03 LIGHTING AND APPLIANCE PANELBOARD TYPE - 120/240V

A. Interior

- a. Continuous main current ratings, as indicated on the Drawings, not to exceed 600 amperes maximum.
- b. Minimum short circuit current rating as indicated or as required to meet the short circuit study criteria specified elsewhere.
- c. Provide one (1) continuous bus bar per phase. Each bus bar shall have sequentially phased branch circuit connectors suitable for plug-on or bolt-on branch circuit breakers. The bussing shall be fully rated. Panelboard bus current ratings shall be determined by heat-rise tests conducted in accordance with UL 67. Bussing rated 100-400 amperes shall be plated copper. Bussing rated for 600 amperes shall be plated copper as standard construction. Bus bar plating shall run the entire length of the bus bar. Panelboards shall be suitable for use as Service Equipment when application requirements comply with UL 67 and NEC Articles 230-F and -G.
- d. All current-carrying parts shall be insulated from ground and phase-to-phase by high dielectric strength thermoplastic.
- e. A solidly bonded copper equipment ground bar shall be provided. Where indicated, an additional copper isolated/insulated ground bar shall also be provided.
- f. Split solid neutral shall be plated and located in the mains compartment up to 225 amperes so all incoming neutral cable may be of the same length. UL Listed panelboards with 200% rated solid neutral shall be plated copper for non-linear load applications. Panelboards shall be marked for non-linear load applications.
- g. Interior trim shall be of dead-front construction to shield user from energized parts. Dead-front trim shall have pre-formed twistouts covering unused mounting space.
- h. Nameplates shall contain system information and catalog number of factory order number. Interior wiring diagram, neutral wiring diagram, UL Listed label and short circuit current rating shall be displayed on the interior or in a booklet format.
- i. Interiors shall be field convertible for top or bottom incoming feed. Sub-feed circuit breakers shall be vertically mounted. Main lug interiors up to 400 amperes shall be convertible to main breaker. Interior leveling provisions shall be provided for flush mounted applications.

B. Branch Circuit Breakers

- a. Circuit breakers shall be UL Listed with amperage ratings, interrupting ratings, and number of poles as indicated on the Drawings.
- b. Molded case branch circuit breakers shall have bolt-on type bus connectors.
- c. Circuit breakers shall have an overcenter toggle mechanism which will provide quick-make, quick-break contact action. Circuit breakers shall have thermal and magnetic trip elements in each pole. Two- and three-pole circuit breakers shall have common tripping of all poles.
- d. There shall be two forms of visible trip indication. The breaker handle shall reside in a position between ON and OFF. In addition, there shall be a red indicator appearing in the clear window of the circuit breaker housing.

- e. The exposed faceplates of all branch circuit breakers shall be flush with one another.
- f. Lugs shall be UL Listed to accept solid or stranded copper and aluminum conductors. Lugs shall be suitable for 90° C rated wire.
- g. Breakers shall be UL Listed for use with the following factory installed accessories: Shunt Trip, Auxiliary Switch, and Alarm Switch.

C. Enclosures

- a. Type 4 and 4X
 - 1. Enclosures shall be constructed of 304 stainless steel. The enclosure shall be water-tight, dust-tight, and corrosion resistant.
 - 2. The door shall be furnished with a locking handle, with all lock assemblies keyed alike.
 - 3. A clear plastic directory card holder shall be mounted on the inside of the door.

PART 3 - EXECUTION

3.01 INSTALLATION/APPLICATION/ERECTION

- A. Boxes for surface mounted panelboards shall be mounted so there is at least 2 inch air space between the box and the mounting surface.
- B. Circuit directories shall be typed giving location and nature of load served.
- C. Each panelboard shall be nameplated with plastic engraved nameplates stating the panel's name, voltage, and the name of panel serving the panel. Nameplates shall be secured by use of stainless steel screws.
- D. Provide the owner with five (5) keys for each type lock furnished.

END OF SECTION-16442

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Document A310™ – 2010

Conforms with The American Institute of Architects AIA Document 310

Bid Bond

CONTRACTOR:

(Name, legal status and address)

Perdue Environmental Contracting Co., Inc.
250 Etter Drive
Nicholasville, KY 40356

SURETY:

(Name, legal status and principal place of business)

Great Midwest Insurance Company
800 Gessner Road, Suite 600
Houston, TX 77024

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

OWNER:

(Name, legal status and address)

Lexington-Fayette Urban County Government
200 East Main Street
Lexington, KY 40507

Any singular reference to Contractor, Surety, Owner or other party shall be considered plural where applicable.

BOND AMOUNT: \$ 5%

Five Percent of Amount Bid

PROJECT:

(Name, location or address, and Project number, if any)

Leachate Management Project - Haley Pike Landfill, 4216 Hedger Ln, Lexington, KY

The Contractor and Surety are bound to the Owner in the amount set forth above, for the payment of which the Contractor and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, as provided herein. The conditions of this Bond are such that if the Owner accepts the bid of the Contractor within the time specified in the bid documents, or within such time period as may be agreed to by the Owner and Contractor, and the Contractor either (1) enters into a contract with the Owner in accordance with the terms of such bid, and gives such bond or bonds as may be specified in the bidding or Contract Documents, with a surety admitted in the jurisdiction of the Project and otherwise acceptable to the Owner, for the faithful performance of such Contract and for the prompt payment of labor and material furnished in the prosecution thereof; or (2) pays to the Owner the difference, not to exceed the amount of this Bond, between the amount specified in said bid and such larger amount for which the Owner may in good faith contract with another party to perform the work covered by said bid, then this obligation shall be null and void, otherwise to remain in full force and effect. The Surety hereby waives any notice of an agreement between the Owner and Contractor to extend the time in which the Owner may accept the bid. Waiver of notice by the Surety shall not apply to any extension exceeding sixty (60) days in the aggregate beyond the time for acceptance of bids specified in the bid documents, and the Owner and Contractor shall obtain the Surety's consent for an extension beyond sixty (60) days.

If this Bond is issued in connection with a subcontractor's bid to a Contractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

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

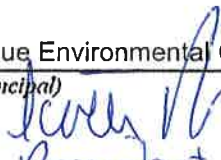
Signed and sealed this 16th day of August, 2024



(Witness)

Perdue Environmental Contracting Co., Inc.

(Principal) (Seal)

By: 

(Title) President



(Witness)

Great Midwest Insurance Company

(Surety) (Seal)

By: 

(Title) Amy Smith Attorney-in-Fact

POWER OF ATTORNEY

Great Midwest Insurance Company

KNOW ALL MEN BY THESE PRESENTS, that GREAT MIDWEST INSURANCE COMPANY, a Texas Corporation, with its principal office in Houston, TX, does hereby constitute and appoint:

Amy Smith, Jason D. Cromwell, Raymond H. Hundley, James H. Martin, Deborah Neichter, Brock T. Smith, Jill Kemp, Ryan Britt, Michele Lacrosse, Barbara Duncan, Leigh McCarthy, Lynnette Long

its true and lawful Attorney(s)-In-Fact to make, execute, seal and deliver for, and on its behalf as surety, any and all bonds, undertakings or other writings obligatory in nature of a bond.

This authority is made under and by the authority of a resolution which was passed by the Board of Directors of GREAT MIDWEST INSURANCE COMPANY, on the 1st day of October, 2018 as follows:

Resolved, that the President, or any officer, be and hereby is, authorized to appoint and empower any representative of the Company or other person or persons as Attorney-In-Fact to execute on behalf of the Company any bonds, undertakings, policies, contracts of indemnity or other writings obligatory in nature of a bond not to exceed Ten Million dollars (\$10,000,000.00), which the Company might execute through its duly elected officers, and affix the seal of the Company thereto. Any said execution of such documents by an Attorney-In-Fact shall be as binding upon the Company as if they had been duly executed and acknowledged by the regularly elected officers of the Company. Any Attorney-In-Fact, so appointed, may be removed in the Company's sole discretion and the authority so granted may be revoked as specified in the Power of Attorney.

Resolved, that the signature of the President and the seal of the Company may be affixed by facsimile on any power of attorney granted, and the signature of the Secretary, and the seal of the Company may be affixed by facsimile to any certificate of any such power and any such power or certificate bearing such facsimile signature and seal shall be valid and binding on the Company. Any such power so executed and sealed and certificate so executed and sealed shall, with respect to any bond of undertaking to which it is attached, continue to be valid and binding on the Company.

IN WITNESS THEREOF, GREAT MIDWEST INSURANCE COMPANY, has caused this instrument to be signed by its President, and its Corporate Seal to be affixed this 11th day of February, 2021.

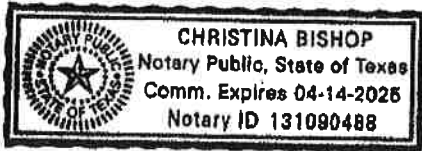


GREAT MIDWEST INSURANCE COMPANY

BY [Signature] Mark W. Haushill President

ACKNOWLEDGEMENT

On this 11th day of February, 2021, before me, personally came Mark W. Haushill to me known, who being duly sworn, did depose and say that he is the President of GREAT MIDWEST INSURANCE COMPANY, the corporation described in and which executed the above instrument; that he executed said instrument on behalf of the corporation by authority of his office under the By-laws of said corporation.



BY [Signature] Christina Bishop Notary Public

CERTIFICATE

I, the undersigned, Secretary of GREAT MIDWEST INSURANCE COMPANY, A Texas Insurance Company, DO HEREBY CERTIFY that the original Power of Attorney of which the foregoing is a true and correct copy, is in full force and effect and has not been revoked and the resolutions as set forth are now in force.

Signed and Sealed at Houston, TX this 16th Day of August, 2024.



BY [Signature] Leslie K. Shaunty Secretary

"WARNING: Any person who knowingly and with intent to defraud any insurance company or other person, files an application for insurance of claim containing any materially false information, or conceals for the purpose of misleading, information concerning any fact material thereto, commits a fraudulent insurance act, which is a crime and subjects such person to criminal and civil penalties.

Bid Schedule
HALEY PIKE LANDFILL LEACHATE SYSTEM IMPROVEMENTS
 LEXINGTON-FAYETTE URBAN COUNTY GOVERNMENT

| No. | Item Description | Unit | Estimated Quantity | Unit Price | Estimated Cost | |
|-----|--|------|--------------------|--------------|----------------|-----------------------|
| | | | | | | Total Cost |
| 1 | Mobilization (max. 2% of Total Bid) | LS | 1 | \$17,250.00 | | \$17,250.00 |
| 2 | General Conditions (max. 7% of Construction Cost Estimate) | LS | 1 | \$267,774.87 | | \$267,774.87 |
| 3 | Demobilization (min. 1% of Total Bid) | LS | 1 | \$17,250.00 | | \$17,250.00 |
| 4 | Inspect, Evaluate, and Clean Existing System Piping | LS | 1 | \$9,922.00 | | \$9,922.00 |
| 5 | Removal of Accumulated Sediment in the EQ Basin (10% of EQ Basin Capacity) | CY | 1,000 | \$719.71 | | \$719,710.00 |
| 6 | Replacement and Installation of Pump for Well A10 | EA | 1 | \$19,493.00 | | \$19,493.00 |
| 7 | Leachate Management During Construction | MO | 3 | \$14,739.73 | | \$44,219.19 |
| 8 | Overliner Over Existing Liner for the EQ Basin (white 60-mil HDPE) | SY | 12,500 | \$11.06 | | \$138,250.00 |
| 9 | Vegetation Removal - Wetlands Cell 1 | AC | 0.75 | \$15,096.80 | | \$11,322.60 |
| 10 | Substrate Removal - Wetlands Cell 1 | LS | 1 | \$351,989.75 | | \$351,989.75 |
| 12 | Replace Geotextile - Wetlands Cell 1 | SY | 2,800 | \$6.41 | | \$17,948.00 |
| 13 | Substrate Replacement - Wetlands Cell 1 | CY | 3,300 | \$58.06 | | \$191,598.00 |
| 14 | Replanting Vegetation - Wetlands Cell 1 | LS | 1.00 | \$19,535.00 | | \$19,535.00 |
| 15 | Vegetation Removal - Wetlands Cell 2 | AC | 0.75 | \$15,096.80 | | \$11,322.60 |
| 16 | Substrate Removal - Wetlands Cell 2 | LS | 1 | \$351,989.75 | | \$351,989.75 |
| 17 | Replace Geotextile - Wetlands Cell 2 | SY | 2,800 | \$6.41 | | \$17,948.00 |
| 18 | Substrate Replacement - Wetlands Cell 2 | CY | 3,300 | \$58.06 | | \$191,598.00 |
| 19 | Replanting Vegetation - Wetlands Cell 2 | LS | 1.00 | \$19,535.00 | | \$19,535.00 |
| 20 | Inspect/Repair Wetland Cell Sumps and Manholes | LS | 1 | \$11,620.00 | | \$11,620.00 |
| 21 | Electrical Upgrades/Tie-in | LS | 1 | \$243,450.00 | | \$243,450.00 |
| 22 | Surface Aerators | LS | 1 | \$229,732.08 | | \$229,732.08 |
| 23 | Instrumentation | LS | 1 | \$9,595.00 | | \$9,595.00 |
| 24 | End Cap | EACH | 8 | \$5,702.42 | | \$45,619.36 |
| 25 | Baffle System (Curtain Style) | LS | 1 | \$62,748.00 | | \$62,748.00 |
| 26 | Aeration System Calibration/Startup | LS | 1 | \$7,385.95 | | \$7,385.95 |
| 27 | Stormwater Pollution Prevention Plan & Erosion Control | LS | 1 | \$27,935.68 | | \$27,935.68 |
| 28 | Surveying and Construction Staking | LS | 1 | \$12,605.87 | | \$12,605.87 |
| 29 | Anchor Berm/Trench (Eq. Basin) | LF | 1,350 | \$30.88 | | \$41,688.00 |
| 30 | Anchor Berm/Trench (Wetlands Cells 1 and 2) | LF | 1,500 | \$30.88 | | \$46,320.00 |
| 31 | 60-mil Textured HDPE (Wetlands Cells 1 and 2) | SY | 5,600 | \$10.65 | | \$59,640.00 |
| 32 | No. 5/7 Stone (Perimeter and Access Roads) | TONS | 670 | \$48.22 | | \$32,307.40 |
| 33 | No. 5/7 Stone (Eq. Basin Perimeter) | TONS | 125 | \$48.22 | | \$6,027.50 |
| 34 | 6-inch HDPE Solid Pipe | LF | 330 | \$55.53 | | \$18,324.90 |
| 35 | 10 oz/yd2 Non-Woven Geotextile (Eq. Basin Perimeter Stone) | SY | 300 | \$7.40 | | \$2,220.00 |
| 36 | 6-inch Gate Valve with Bolland Protection | EACH | 4 | \$4,662.60 | | \$18,650.40 |
| 37 | 6-inch Plug Valve | EACH | 2 | \$3,388.19 | | \$6,776.38 |
| 38 | Remove Existing Skimmer and Replace with New Skimmer (in kind) | LS | 1 | \$7,876.85 | | \$7,876.85 |
| 39 | Revegetation | LS | 1 | \$18,658.00 | | \$18,658.00 |
| 40 | Contingency (25%) | | | | | \$8,320.14 |
| | Total | | | | | \$4,160,073.91 |


 8/15/24

Document A310™ – 2010

Conforms with The American Institute of Architects AIA Document 310

Bid Bond

CONTRACTOR:

(Name, legal status and address)

Perdue Environmental Contracting Co., Inc.
250 Etter Drive
Nicholasville, KY 40356

SURETY:

(Name, legal status and principal place of business)

Great Midwest Insurance Company
800 Gessner Road, Suite 600
Houston, TX 77024

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

Any singular reference to Contractor, Surety, Owner or other party shall be considered plural where applicable.

OWNER:

(Name, legal status and address)

Lexington-Fayette Urban County Government
200 East Main Street
Lexington, KY 40507

BOND AMOUNT: \$ 5%

Five Percent of Amount Bid

PROJECT:

(Name, location or address, and Project number, if any)

Leachate Management Project - Haley Pike Landfill, 4216 Hedger Ln, Lexington, KY

The Contractor and Surety are bound to the Owner in the amount set forth above, for the payment of which the Contractor and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, as provided herein. The conditions of this Bond are such that if the Owner accepts the bid of the Contractor within the time specified in the bid documents, or within such time period as may be agreed to by the Owner and Contractor, and the Contractor either (1) enters into a contract with the Owner in accordance with the terms of such bid, and gives such bond or bonds as may be specified in the bidding or Contract Documents, with a surety admitted in the jurisdiction of the Project and otherwise acceptable to the Owner, for the faithful performance of such Contract and for the prompt payment of labor and material furnished in the prosecution thereof; or (2) pays to the Owner the difference, not to exceed the amount of this Bond, between the amount specified in said bid and such larger amount for which the Owner may in good faith contract with another party to perform the work covered by said bid, then this obligation shall be null and void, otherwise to remain in full force and effect. The Surety hereby waives any notice of an agreement between the Owner and Contractor to extend the time in which the Owner may accept the bid. Waiver of notice by the Surety shall not apply to any extension exceeding sixty (60) days in the aggregate beyond the time for acceptance of bids specified in the bid documents, and the Owner and Contractor shall obtain the Surety's consent for an extension beyond sixty (60) days.

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

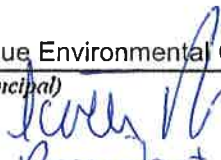
Signed and sealed this 16th day of August, 2024



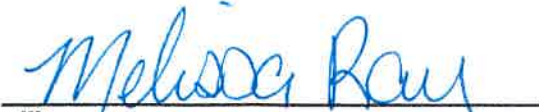
(Witness)

Perdue Environmental Contracting Co., Inc.

(Principal) (Seal)

By: 

(Title) President



(Witness)

Great Midwest Insurance Company

(Surety) (Seal)

By: 

(Title) Amy Smith Attorney-in-Fact

POWER OF ATTORNEY

Great Midwest Insurance Company

KNOW ALL MEN BY THESE PRESENTS, that GREAT MIDWEST INSURANCE COMPANY, a Texas Corporation, with its principal office in Houston, TX, does hereby constitute and appoint:

Amy Smith, Jason D. Cromwell, Raymond H. Hundley, James H. Martin, Deborah Neichter, Brock T. Smith, Jill Kemp, Ryan Britt, Michele Lacrosse, Barbara Duncan, Leigh McCarthy, Lynnette Long

its true and lawful Attorney(s)-In-Fact to make, execute, seal and deliver for, and on its behalf as surety, any and all bonds, undertakings or other writings obligatory in nature of a bond.

This authority is made under and by the authority of a resolution which was passed by the Board of Directors of GREAT MIDWEST INSURANCE COMPANY, on the 1st day of October, 2018 as follows:

Resolved, that the President, or any officer, be and hereby is, authorized to appoint and empower any representative of the Company or other person or persons as Attorney-In-Fact to execute on behalf of the Company any bonds, undertakings, policies, contracts of indemnity or other writings obligatory in nature of a bond not to exceed Ten Million dollars (\$10,000,000.00), which the Company might execute through its duly elected officers, and affix the seal of the Company thereto. Any said execution of such documents by an Attorney-In-Fact shall be as binding upon the Company as if they had been duly executed and acknowledged by the regularly elected officers of the Company. Any Attorney-In-Fact, so appointed, may be removed in the Company's sole discretion and the authority so granted may be revoked as specified in the Power of Attorney.

Resolved, that the signature of the President and the seal of the Company may be affixed by facsimile on any power of attorney granted, and the signature of the Secretary, and the seal of the Company may be affixed by facsimile to any certificate of any such power and any such power or certificate bearing such facsimile signature and seal shall be valid and binding on the Company. Any such power so executed and sealed and certificate so executed and sealed shall, with respect to any bond of undertaking to which it is attached, continue to be valid and binding on the Company.

IN WITNESS THEREOF, GREAT MIDWEST INSURANCE COMPANY, has caused this instrument to be signed by its President, and its Corporate Seal to be affixed this 11th day of February, 2021.

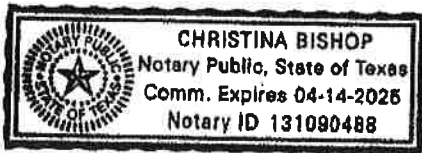


GREAT MIDWEST INSURANCE COMPANY

BY [Signature] Mark W. Haushill President

ACKNOWLEDGEMENT

On this 11th day of February, 2021, before me, personally came Mark W. Haushill to me known, who being duly sworn, did depose and say that he is the President of GREAT MIDWEST INSURANCE COMPANY, the corporation described in and which executed the above instrument; that he executed said instrument on behalf of the corporation by authority of his office under the By-laws of said corporation.



BY [Signature] Christina Bishop Notary Public

CERTIFICATE

I, the undersigned, Secretary of GREAT MIDWEST INSURANCE COMPANY, A Texas Insurance Company, DO HEREBY CERTIFY that the original Power of Attorney of which the foregoing is a true and correct copy, is in full force and effect and has not been revoked and the resolutions as set forth are now in force.

Signed and Sealed at Houston, TX this 16th Day of August, 2024



BY [Signature] Leslie K. Shaunty Secretary

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