

Specifications & Contract Documents

prepared for the

LTRWC

Logan Todd Regional Water Commission

for the proposed

**Sludge Lagoon Addition
Guthrie, KY**

Earthwork

prepared by

MCGHEE ENGINEERING, INC.
Guthrie, Kentucky

September 1, 2022

Specifications and Contract Documents
Sludge Lagoon Addition

prepared for the

**Logan/Todd
Regional
Water
Commission**



Chairman

John Mason Barnes

Board Members

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Jimmy Covington
Theresa Jarvis
Mark Stratton
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prepared by

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**LTRWC
Sludge Lagoon
Addition**

CONTRACT DOCUMENTS

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Contract Drawings

Contract Drawings consist of 7 sheets bound separately from this document.
See the index on the cover sheet of the Contract Drawings.

ADVERTISEMENT FOR BIDS

Logan Todd Regional Water Commission
P.O. Box 400
248 Tower Street
Guthrie, KY 42234

RE: Sludge Lagoon Addition

The **Logan Todd Regional Water Commission** will receive separate, sealed Bids for their **Sludge Lagoon Addition Project** until **2:00 p.m., Tuesday, February 21, 2023** at the office of Logan Todd Regional Water Commission, 248 Tower Street, P.O. Box 400, Guthrie, Kentucky 42234, at which time they will be publicly opened and read aloud.

The work to be performed involves the earthwork construction for a proposed sludge lagoon, piping, and drainage structures in Guthrie, Kentucky. Bids will be received for a single prime Contract. Bids shall be on a lump sum basis.

The Issuing Office for the Bidding Documents is: McGhee Engineering, Inc., at P.O. Box 267, 202 South Ewing Street, Guthrie, Kentucky 42234 or by calling (270) 483-9985. Prospective Bidders may examine the Bidding Documents at the Issuing Office on Mondays through Fridays between the hours of 8:30-4:30 pm, and may obtain copies of the Bidding Documents from the Issuing Office as described below.

Plans must be ordered by visiting www.mcgheeengineering.com and clicking "**Bid Opportunities**". Plans will be sold with an option of Digital only OR Printed Set w/ Digital copy. Bids will be accepted only from registered contractors holding approved bid forms provided by the Issuing Office. Plan holders may be viewed at www.mcgheeengineering.com.

A **Pre-bid Conference** will be held at **10:00 A.M. local time, on February 10, 2023** at the **Logan Todd Regional Water Plant**, 248 Tower Street, Guthrie, KY 42234. Bidders are encouraged to attend and participate in the conference.

Bid security shall be furnished in accordance with the Instructions to Bidders.

Published by the authority of the Logan Todd Regional Water Commission
Kyle Kenner, Manager

Dated: February 23, 2023

INSTRUCTIONS TO BIDDERS

A. These Instructions to Bidders establish requirements for Bidding and Award of Contract.

B. Table of Articles

1. Defined Terms
2. Copies of Bidding Documents
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ARTICLE 1- DEFINED TERMS

Other terms used in the bidding documents and not defined elsewhere have the following meanings which are applicable to both the singular and plural thereof.

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

- A. Bidder - The individual or entity who submits a Bid directly to OWNER.
- B. Issuing Office - The office from which the Bidding Documents are to be issued and where the bidding procedures are to be administered.
- C. Successful Bidder - The lowest responsible Bidder submitting a responsive Bid to whom OWNER (on the basis of OWNER's evaluation as hereinafter provided) makes an award.

ARTICLE 2 - COPIES OF BIDDING DOCUMENTS

2.01 Complete sets of the Bidding Documents in the number and for the non-refundable sum, if any, stated in the Advertisement to Bid may be obtained from the Issuing Office.

2.02 Complete sets of Bidding Documents must be used in preparing Bids; neither OWNER nor ENGINEER assume any responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.

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

ARTICLE 3 - QUALIFICATIONS OF BIDDERS

3.01 A formal pre-bid qualification of Bidders will not be required for the Project. However, one or more bidders may be asked to complete a reference statement in order to document the bidder's past performance on similar projects. The Owner reserves the right to contact references and to use the information received in assessing the bidder's qualifications to perform the work. Bidders may be asked to submit written evidence such as financial data, previous experience, present commitments and other such data as may be called for below. Bidder must be prepared to submit evidence of Bidder's qualifications to do business in the state where the project is located prior to award of the Contract.

ARTICLE 4 - EXAMINATION OF BIDDING DOCUMENTS, OTHER RELATED DATA AND SITE

4.01 Subsurface and Physical Conditions

A. The Supplementary Conditions identify:

1. Those reports, if any, of explorations and tests of subsurface conditions at or contiguous to the Site that ENGINEER has used in preparing the Bidding Documents.

2. Those drawings of physical conditions in or relating to existing surface and subsurface structures at or contiguous to the Site (except underground Facilities) that ENGINEER has used in preparing the Bidding Documents.

B. Copies of reports, if applicable, and drawings referenced in paragraph 4.01.A are attached within the Contract Documents, and the "technical data" contained therein upon which Bidder is entitled to rely as provided in paragraph 4.02 of the General Conditions has been identified and established in paragraph 4.02 of the Supplementary Conditions. Bidder is responsible for any interpretation or conclusion Bidder draws from any "technical data" or any other data, interpretations, opinions, or information contained in such reports or shown or indicated in such drawings.

4.02 Underground Facilities

A. Information and data shown or indicated in the Bidding Documents with respect to existing Underground Facilities at or contiguous to the Site are based upon information and data furnished to OWNER and ENGINEER by owners of such Underground Facilities, including OWNER or others.

4.03 Hazardous Environmental Condition

A. The Supplementary Conditions identify those reports and drawings relating to a Hazardous Environmental Condition identified at the Site, if any, that ENGINEER has used in preparing the Bidding Documents.

B. Copies of reports, if applicable, and drawings referenced in paragraph 4.03.A will be made available by OWNER to any Bidder on request. Those reports and drawings are not part of the Contract Documents, but the “technical data” contained therein upon which Bidder is entitled to rely as provided in paragraph 4.06 of the General Conditions has been identified and established in paragraph 4.06 of the Supplementary Conditions. Bidder is responsible for any interpretation or conclusion Bidder draws from any “technical data” or any other data, interpretations, opinions, or information contained in such reports or shown or indicated in such drawings.

4.04 Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders with respect to subsurface conditions, other physical conditions and Underground Facilities, and possible changes in the Bidding Documents due to differing or unanticipated conditions appear in paragraphs 4.02, 4.03, and 4.04 of the General Conditions. Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders with respect to a Hazardous Environmental Condition at the Site, if any, and possible changes in the Contract Documents because of any Hazardous Environmental Condition uncovered or revealed at the Site which was not shown or indicated in the Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work appear in paragraph 4.06 of the General Conditions.

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

4.06 Reference is made to Article 7 of the Supplementary Conditions for the identification of the general nature of other work, if applicable, that is to be performed at the Site by OWNER or others (such as utilities and other prime contractors) that relates to the Work for which a Bid is to be submitted. On request, OWNER will provide to each Bidder for examination access to or copies of Contract Documents (other than portions thereof related to price) for such other work.

4.07 It is the responsibility of each Bidder before submitting a Bid to:

A. Examine and carefully study the Bidding Documents, including any Addenda and the other related data identified in the Bidding Documents;

B. Visit the Site and become familiar with and satisfy Bidder as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work;

C. Become familiar with and satisfy Bidder as to all federal, state, and local Laws and Regulations that may affect cost, progress, or performance of the Work;

D. Carefully study all reports of explorations and tests of subsurface conditions at or contiguous to the Site and all drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site (except Underground Facilities) which have been identified in the Supplementary conditions as provided in paragraph 4.02 of the General Conditions, and carefully study all reports and drawings of a Hazardous Environmental Condition, if any, at the Site which have been identified in the Supplementary Conditions as provided in paragraph 4.06 of the General Conditions;

E. Obtain and carefully study (or assume responsibility for doing so) all additional or supplementary examinations, investigations, explorations, tests, studies, and data concerning

conditions (surface, subsurface, and Underground Facilities) at or contiguous to the Site which may affect cost, progress, or performance of the Work or which relate to any aspect of the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder, including any specific means, methods, techniques, sequences, and procedures of construction expressly required by the Bidding Documents, and safety precautions and programs incident thereto (Bidder may want to engage the services of a specialist or specialists to help Bidder evaluate these physical conditions and their impact on the work enumerated above);

F. Agree at the time of submitting its Bid that no further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of its Bid for performance of the Work at the price bid and within the times and in accordance with the other terms and conditions of the Bidding;

G. Become aware of the general nature of the work to be performed by OWNER and others at the Site that relates to the Work as indicated in the Bidding Documents;

H. Correlate the information known to Bidder, information and observations obtained from visits to the Site, reports and drawings identified in the Bidding Documents, and all additional examinations, investigations, explorations, tests, studies, and data with the Bidding Documents;

I. Promptly give ENGINEER written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder discovers in the Bidding documents and confirm that the written resolution thereof by ENGINEER is acceptable to Bidder; and

J. Determine that the Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance of the Work.

4.08 The submission of a Bid will constitute an incontrovertible representation by Bidder that Bidder has complied with every requirement of this Article 4, that without exception the Bid is premised upon performing and furnishing the work required by the Bidding Documents and applying the specific means, methods, techniques, sequences, or procedures of construction (if any) that may be shown or indicated or expressly required by the Bidding Documents, that Bidder has given ENGINEER written notice of all conflicts, errors, ambiguities, and discrepancies that Bidder has discovered in the Bidding Documents and the written resolution thereof by ENGINEER is acceptable to Bidder, and that the Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performing and furnishing the work.

ARTICLE 5 - PRE-BID CONFERENCE

5.01 A pre-Bid conference will be held at the time and location stated in the Advertisement for Bid. Representatives of Owner and Engineer will be present to discuss the Project. Bidders are encouraged to attend and participate in the conference. Engineer will transmit to all prospective Bidders of record such Addenda as Engineer considers necessary in response to questions arising at the conference. Oral statements may not be relied upon and will not be binding or legally effective.

ARTICLE 6 - SITE AND OTHER AREAS

6.01 The Site is identified in the Bidding Documents. Easements for permanent structures or permanent changes in existing facilities are to be obtained and paid for by OWNER unless otherwise provided in the Bidding Documents. All additional lands and access thereto required for temporary construction facilities, construction equipment, or storage of materials and equipment are to be obtained and paid for by CONTRACTOR.

ARTICLE 7 - INTERPRETATIONS AND ADDENDA

7.01 All questions about the meaning or intent of the Bidding Documents are to be submitted to ENGINEER in writing. Interpretations or clarifications considered necessary by ENGINEER in response to such questions will be issued by Addenda mailed or delivered to all parties recorded by Engineer as having received the Bidding Documents.

7.02 All requests for interpretation must be received at least **four days** prior to the day set for receiving Bids. Addenda will be mailed no later than **three days** prior to the day set for receiving Bids. Failure of any Bidder to receive any such Addendum or interpretation shall not relieve such Bidder from any obligations under the Bid as submitted. All Addenda so issued shall become part of the Contract Documents.

7.03 Only questions answered by Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect.

7.04 Addenda may also be issued to clarify, correct, or change the Bidding Documents as deemed advisable by OWNER or ENGINEER.

7.05 Receipt of all addenda must be acknowledged in space provided in the Bid.

ARTICLE 8 - BID SECURITY

8.01 A Bid must be accompanied by Bid security made payable to OWNER in an amount of **five percent (5%)** of the Bidder's maximum Bid price and in the form of a certified check or a Bid Bond (EJCDC No. C-430, 2002 Edition) issued by a surety meeting the requirements of paragraphs 5.01 and 5.02 of the General Conditions.

8.02 The Bid security of the successful Bidder will be retained until such Bidder has executed the Contract Documents, furnished the required Contract security, and met the other conditions of the Notice of Award, whereupon the Bid security will be returned upon request. If the Successful Bidder fails to execute and deliver the Contract Documents and furnish the required Contract security within ten (10) days after the Notice of Award, OWNER may annul the Notice of Award and the Bid security of the Bidder will be forfeited. The Bid security of other Bidders whom OWNER believes to have a reasonable chance of receiving the award may be retained by OWNER until the earlier of seven days after the Effective Date of the Agreement or 91 days after the Bid opening, whereupon Bid security furnished by such Bidders will be returned.

8.03 Bid security of other Bidders whom OWNER believes do not have a reasonable chance of receiving the award will be returned, upon request, within seven days after the Bid opening.

ARTICLE 9 - CONTRACT TIMES

9.01 The project as indicated in the Plans and Specifications shall be completed within the number of consecutive working days stated in the Contract unless the period for completion is extended otherwise by the CONTRACT DOCUMENTS. Contractors shall submit any request for time extensions at the time of submission of the pay request covering the period during which the time extension is requested, and such requests shall include justification in conformance with the Contract. Failure to make timely submittal of requests for time extension shall be grounds for their denial. The times set forth in the Agreement for completion of work are an essential element of the Contract.

ARTICLE 10 - LIQUIDATED DAMAGES

10.01 Provisions for liquidated damages are set forth in the Agreement.

ARTICLE 11 - SUBSTITUTE OR "OR-EQUAL" ITEMS

11.01 The material manufacturers listed in the specifications have been specified because of their products' quality and suitability to this project. The bidder may request that additional manufacturers' products be approved for use on the project by submitting to the Engineer, in writing, his request accompanied by complete descriptive materials on the proposed alternate product. The Engineer must receive this request no later than **four days** prior to the deadline for submittal of bids. Those products, which the Engineer deems equal to those already named in the specifications will be named in an addendum, sent to all bidders. Only those products named in the specifications or in subsequent addenda will be acceptable for use on the job. The procedure for submission of any such application by CONTRACTOR and consideration by ENGINEER is set forth in paragraph 6.05 of the General Conditions and may be supplemented in the General Requirements.

ARTICLE 12 - SUBCONTRACTORS, SUPPLIERS, AND OTHERS

12.01 A list of subcontractors, suppliers, individuals, or entities shall be submitted along with the Bid at the Bid Opening to the OWNER. An experience statement of each Bidder shall accompany such list with pertinent information regarding similar projects and other evidence of qualifications for each such subcontractor, supplier, individuals, or entities if requested by OWNER. If OWNER or ENGINEER, after due investigation, has reasonable objection to any proposed subcontractor, supplier, individual, or entity may, before the Notice of Award is given, request the apparent successful Bidder to submit an acceptable substitute without an increase in the Bid.

12.02 If apparent successful Bidder declines to make any such substitution, OWNER may award the Contract to the next lowest Bidder that proposes to use acceptable subcontractors, suppliers, individuals, or entities. Declining to make requested substitutions will not constitute grounds for the forfeiture of the Bid security of any Bidder. Any subcontractor, supplier, individual, or entity listed and against which OWNER or ENGINEER makes no written objection prior to the giving of the Notice of Award will be deemed acceptable to OWNER and ENGINEER subject to revocation of such acceptance after the Effective Date of the Agreement as provided in paragraph 6.06 of the General Conditions.

12.03 CONTRACTOR shall not be required to employ any subcontractor, supplier, individual, or entity against whom CONTRACTOR has reasonable objection.

12.04 The CONTRACTOR shall not award work to Subcontractor(s) in excess of the limits stated in SC 6.06.

ARTICLE 13 - BID

13.01 The Bid Form is included with the Bidding Documents.

13.02 All blanks on the Bid form must be completed in ink or typewritten and the Bid signed in ink. Erasures or alterations shall be initialed in ink by the person signing the Bid Form. A Bid price shall be indicated for each section, Bid item, alternative, adjustment unit price item or unit price item listed therein, or the words "No Bid," "No Change," or "Not Applicable" entered.

13.03 A Bid by a corporation shall be executed in the corporate name by the president or vice president or other corporate officer accompanied by evidence of authority to sign. The corporate seal shall be affixed and attested by the secretary or an assistant secretary. The corporate address and state of incorporation shall be shown below the signature.

13.04 A Bid by a partnership shall be executed in the partnership name and signed by a partner (whose title must appear under the signature), accompanied by evidence of authority to sign. The official address of the partnership shall be shown below the signature.

13.05 A Bid by a limited liability company shall be executed in the name of the firm by a member and accompanied by evidence of authority to sign. The state of formation of the firm and the official address of the firm shall be shown below the signature.

13.06 A Bid by an individual shall show the Bidder's name and official address.

13.07 A Bid by a joint venture shall be executed by each joint venturer in the manner indicated on the Bid form. The business address of the joint venture must be provided on the Bid Form.

13.08 All names shall be typed or printed in ink below the signatures.

13.09 The Bid shall contain an acknowledgment of receipt of all Addenda, the number and dates of which must be filled in on the Bid form.

13.10 The address and telephone number for communications regarding the Bid shall be shown.

13.11 The Bid shall contain evidence of Bidder's authority and qualification to do business in the state where the Project is located or covenant to obtain such qualification prior to award of the Contract. Bidder's state contractor license number for the state of the Project, if any, shall also be shown on the Bid Form.

ARTICLE 14 - BASIS OF BID; COMPARISION OF BIDS

14.01 Bidders shall submit a Bid on a unit price basis for each item of Work listed in the Bid Schedule.

14.02 The total of all bid prices will be the sum of the products of the estimated quantity of each item and the corresponding unit price. The final quantities and Contract Price will be determined in accordance with paragraph 11.03 of the General Conditions.

14.02 Discrepancies between the multiplication of units of Work and unit prices will be resolved in favor of the unit prices. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum. Discrepancies between words and figures will be resolved in favor of the words.

ARTICLE 15 - SUBMITTAL OF BID

15.01 Bid Form is to be completed and submitted with all the attachments as required.

15.02 A Bid shall be submitted no later than the date and time prescribed and at the place indicated in the Advertisement to Bid and shall be enclosed in an opaque sealed envelope, marked with the Project title (and, if applicable, the designated portion of the Project for which the Bid is submitted), the name and address of the Bidder, and shall be accompanied by the Bid security and other required documents. If the Bid is sent by mail or other delivery system, the sealed envelope containing the Bid shall be enclosed in a separate envelope plainly marked on the outside with the notation "BID ENCLOSED." A mailed Bid shall be addressed to place indicated in the Advertisement to Bid. No relief shall be provided for a mailed Bid not being received by the prescribed time. No Bid will be considered which is received after the time set for receiving Bids.

ARTICLE 16 - MODIFICATION AND WITHDRAWAL OF BIDS

16.01 A Bid may be modified or withdrawn by an appropriate document duly executed in the manner that a Bid must be executed and delivered to the place where Bids are to be submitted prior to the date and time for the opening of Bids.

16.02 If within 24 hours after Bids are opened any Bidder files a duly signed written notice with Owner and promptly thereafter demonstrates to the reasonable satisfaction of Owner that there was a material and substantial mistake in the preparation of its Bid, that Bidder may withdraw its Bid, and the Bid security will be returned. Thereafter, if the Work is rebid or negotiated, that Bidder will be disqualified from further bidding on the Work. This provision to withdraw a Bid without forfeiting the Bid security does not apply to Bidder's errors in judgment in preparing the Bid.

ARTICLE 17 - OPENING OF BIDS

17.01 Bids will be opened at the time and place indicated in the Advertisement to Bid and, (unless obviously nonresponsive), read aloud publicly. An abstract of the amounts of the base Bids and major alternatives and components (if any) will be made available to Bidders after the opening of Bids.

ARTICLE 18 - BIDS TO REMAIN SUBJECT TO ACCEPTANCE

18.01 All Bids will remain subject to acceptance for a period of **90 days**, but OWNER may, in its sole discretion, release any Bid and return the Bid security prior to the end of this period.

ARTICLE 19 – EVALUATION OF BIDS & AWARD OF CONTRACT

19.01 OWNER reserves without limitation the right to reject any or all Bids, to waive any and all informalities not involving price, time or changes in the work and to negotiate Contract terms with the successful Bidder; and the right to accept or reject all incomplete, nonconforming, nonresponsive, unbalanced, obscure, or conditional Bids, or Bids which contain additions not called for, erasures, alterations, or irregularities of any kind, or which do not comply with the Instructions to Bidders. OWNER reserves the right to reject the Bid of any Bidder if OWNER believes that it would not be in the best interest of the project to make an award to that Bidder, whether because the Bid is not responsive or the Bidder is unqualified or of doubtful financial ability or fails to meet any other pertinent standard or criteria established by OWNER. OWNER further reserves the right to reject the Bid of any Bidder whom it finds, after reasonable inquiry and evaluation, to be nonresponsive.

19.02 More than one Bid for the same Work from an individual or entity under the same or different names will not be considered. Reasonable grounds for believing that any Bidder has an interest in more than one Bid for the Work may be cause for disqualification of that Bidder and the rejection of all Bids in which that Bidder has an interest.

19.03 In evaluating Bids, OWNER will consider whether or not the Bids comply with the prescribed requirements, and such alternatives, unit prices, and other data as may be requested in the Bid form or prior to the Notice of Award.

19.04 In evaluating Bids, OWNER will consider the qualifications of Bidders and may consider the qualifications and experience of subcontractors, suppliers, and other individuals or entities proposed for those portions of the work for which the identity of subcontractors, suppliers, and other individuals or entities must be submitted as provided in the Supplementary Conditions.

19.05 OWNER may make such investigations as OWNER deems necessary to assist in the evaluation of any Bid and to establish the responsibility, qualifications, and financial ability of Bidders, proposed subcontractors, suppliers, and other persons and organizations to perform and furnish the work in accordance with the Contract Documents to OWNER's satisfaction within the prescribed time.

Bidder shall furnish to OWNER all such information and data for this purpose as OWNER may request. OWNER reserves the right to reject any Bid if the evidence submitted by, or investigation of, such Bidder fails to satisfy OWNER that such Bidder is properly qualified to carry out the obligations of the Contract Documents and to complete the work contemplated therein.

19.06 OWNER shall be satisfied that Bidder involved (1) maintains a permanent place of business, (2) has adequate plant and equipment to do the work properly and expeditiously, (3) has a suitable financial status to meet obligations incident to the work, (4) has appropriate technical experience, and (5) can submit a satisfactory performance record.

19.07 If a Contract is to be awarded, it will be awarded to the responsible Bidder whose Bid, conforming with all the material terms and conditions in the Instructions to Bidders, is lowest in price and in the best interest of the Owner by considering other factors such as work history, recommendations, etc... In cases where the low bidder is not awarded the contract, submit an explanation of the selection process used, along with the recommendation for award, in order for all bidding requirements to be met for RD to concur in award of contract.

ARTICLE 20 - CONTRACT SECURITY AND INSURANCE

20.01 Article 5 of the General Conditions, as may be modified by the Supplementary Conditions, sets forth OWNER's requirements as to performance and payment bonds and insurances. When the Successful Bidder delivers the executed Agreement to OWNER, it must be accompanied by the required performance and payment bonds and insurances.

ARTICLE 21 - SIGNING OF AGREEMENT

21.01 When the OWNER gives a Notice of Award to the Successful Bidder, it will be accompanied by a list of items and information required of the Successful Bidder for evaluation by the OWNER and funding agency, if applicable. Within **10** days thereafter, the successful Bidder shall deliver the full number of original copies of the items listed and the Notice must be acknowledged by the Successful Bidder within **10** days thereafter. After receipt of an acknowledged Notice of Award, a pre-construction meeting will be scheduled at which time the OWNER and Successful Bidder will execute the required number of Agreements and Notice to Proceed. After certification by the Local Counsel and any other required parties, the OWNER shall deliver one fully signed counterpart to the Successful Bidder along with a complete set of Drawings with appropriate identification. OWNER will furnish the Contractor up to three (3) sets of conforming Contract Documents, Technical Specifications and Plans free of charge. Additional sets may be obtained from the Engineer at commercial reproduction rates. The successful bidder shall commence work within ten (10) calendar days after receipt of written notice to proceed and shall progress therewith so that the work shall be completed in accordance with the terms of the Contract Documents within the time allowed after the date of the commencement of contract time.

21.02 This Contract is expected to be funded in part with funds provided by the United States Department of Agriculture, Rural Development (RD) and with grant funds administered by the Kentucky Infrastructure Authority (KIA). Refer to Article 18 of the General Conditions for information on the Federal Requirements.

21.03 Concurrence by RD in the award of the Contract is required before the Contract is effective.

ARTICLE 22 - RETAINAGE

22.01 Prior to Substantial Completion, OWNER will retain an amount equal to 5% of each progress payment application. Amounts previously retained shall not be paid to the CONTRACTOR until substantial completion of the Work. In no event shall the total Retainage be more than 5% of the value of the work satisfactorily completed.

ARTICLE 23 – LICENSES, FEES, AND TAXES

23.01 The Bid shall include all taxes in effect at the time the Bid is submitted, unless specifically exempted in the Bidding Documents. No change will be allowed for taxes from which OWNER is exempt. Bidders who are uncertain as to what items are subject to tax, or who require further explanation or clarification, are requested to contact the State of Kentucky Revenue Cabinet.

23.02 Successful Bidder must comply with any City ordinances relating to Occupational License Fees, Business Licenses, payroll, and net profits taxes and any other ordinances which may apply to the project. Refer to the Supplementary Conditions SC-6.10 for additional information.

23.03 Successful Bidder must provide proof of having all such licenses or fees at or before the signing of the Contract.

ARTICLE 24 - WAGE RATE DETERMINATION

24.01 The total project is estimated to have a construction cost of more than \$250,000. A wage rate determination has been inserted as a part of the Bidding Documents. Bidders shall inspect the wage rate determination and shall incorporate its requirements into their Bid, if applicable.

ARTICLE 25 – OTHER BID REQUIREMENTS

25.01 Bidder shall complete the following documents attached to the Bid.

- List of Subcontractors
- Statement of Experience
- Certification Regarding Debarment, etc.
- Compliance Statement
- Certification for Contract Grants and Loans

ARTICLE 26 – LAWS, ORDINANCES, AND REGULATIONS

26.01 Bidder must familiarize itself with all laws, ordinances, and regulations by federal, state, city, or other governmental agency, which by reason of being neglected or violated may affect the Work contemplated and must secure and pay the fee required for any permits which may be necessary unless such fees are otherwise indicated to be paid in the Bidding Documents.

ARTICLE 27 – INSURANCE

29.01 Before execution of Contract by OWNER, the successful Bidder shall furnish OWNER a certificate or certificates issued by or on behalf of insurers or a self-insurance program or group self insurance program, qualified to do business in the Commonwealth of Kentucky under KRS Chapter 304 or KRS Chapter 342, certifying that the successful Bidder complies with the Worker's Compensation laws of Kentucky and is insured or indemnified against public liability claims which may arise out of the performance of the Work under the proposed Contract. **Bidders shall abide by all contract insurance requirements and limits, as set forth in the Supplementary Conditions section of the Contract Documents.**

ARTICLE 31 – SAFETY STANDARDS AND ACCIDENT PREVENTION:

31.01 With respect to all work performed under this contract, the contractor shall:

- Comply with the safety standards provision of applicable laws, building and construction codes and the "Manual of Accident Prevention in Construction" published by the Associated General Contractors of America, the requirements of the Occupational Safety and Health Act of 1970 (Public Law 91-596), and the requirements of Title 29 of the Code of Federal Regulations, Section 1518 as

published in the "federal Register", Volume 36, No. 75, Saturday, April 17, 1971. Exercise every precaution at all times for the prevention of accidents and the protection of persons (including employees) and property. Maintain at his/her office or other well know place at the job site, all articles necessary for giving first aid to the injured, and shall make standing arrangements for the immediate removal to a hospital or a doctor's care of persons (including employees), who may be injured on the job site before the employer has made a standing arrangement for removal of injured persons to a hospital or a doctor's care.

BID BOND

Any singular reference to Bidder, Surety, Owner or other party shall be considered plural where applicable.

BIDDER *(Name and Address):*

SURETY *(Name and Address of Principal Place of Business):*

OWNER *(Name and Address):*

BID

Bid Due Date:

Description *(Project Name and Include Location):*

BOND

Bond Number:

Date *(Not earlier than Bid due date):*

Penal sum _____ \$ _____
 (Words) (Figures)

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

BIDDER

SURETY

 Bidder's Name and Corporate Seal (Seal) Surety's Name and Corporate Seal (Seal)

By: _____
 Signature

By: _____
 Signature (Attach Power of Attorney)

 Print Name

 Print Name

 Title

 Title

Attest: _____
 Signature

Attest: _____
 Signature

 Title

 Title

Note: Above addresses are to be used for giving any required notice. Provide execution by any additional parties, such as joint venturers, if necessary.

PENAL SUM FORM

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

BID FORM

Project Identification: LTRWC – Logan Todd Regional Water Commission
Sludge Lagoon Addition

Contract Identification: Earthwork

ARTICLE 1 – BID RECIPIENT

1.01 This Bid is Submitted to: LTRWC
248 Tower Street – PO Box 400
Guthrie, Kentucky 42234

1.02 The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with Owner in the form included in the Bidding Documents to perform all Work as specified or indicated in the Bidding Documents for the prices and within the times indicated in the Bid and in accordance with the other terms and conditions of the Bidding Documents.

ARTICLE 2 – BIDDER’S ACKNOWLEDGMENTS

2.01 Bidder accepts all of the terms and conditions of the Advertisement and Instructions to Bidders, including without limitations those dealing with the dispositions of Bid security. The Bid will remain subject to acceptance for 90 days after the Bid opening, or for such longer period of time that Bidder may agree to in writing upon request of Owner.

ARTICLE 3 – BIDDER’S REPRESENTATIONS

3.01 In submitting this Bid, Bidder represents that:

A. Bidder has examined and carefully studied the Bidding Documents, the other related data identified in the Bidding Documents, and the following Addenda, receipt of which is hereby acknowledged.

Addendum No. _____ Dated _____
Addendum No. _____ Dated _____
Addendum No. _____ Dated _____
Addendum No. _____ Dated _____

B. Bidder has visited the Site and become familiar with and is satisfied as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.

C. Bidder is familiar with and is satisfied as to all Federal, State, and local Laws and Regulations that may affect cost, progress, and performance of the Work.

D. Bidder has carefully studied all: (1) reports, if any, of explorations and tests of subsurface conditions at or contiguous to the Site and all drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site (except Underground Facilities) which have been identified in SC-4.02, and (2) reports and drawings, if any, of a Hazard Environmental Condition, which has been identified in SC-4.06.

E. Bidder has obtained and carefully studied (or accepts the consequences for not doing so) all additional or supplementary examinations, investigations, explorations, tests, studies, and data concerning conditions (surface, subsurface and Underground Facilities) at or contiguous to the Site which may affect cost, progress, or performance of the Work or which relate to any aspect of the means, methods, techniques, sequences, and procedures of construction to be employed by the Bidder, including applying the specific means, methods, techniques, sequences, and procedures of construction expressly required by the Bidding Documents to be employed by Bidder, and safety precautions and programs incident thereto.

- F. Bidder does not consider that any further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of this Bid for performance of the Work at the price(s) bid and within the times and in accordance with the other terms and conditions of the Bidding Documents.
- G. Bidder is aware of the general nature of the Work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents.
- H. Bidder has correlated the information known to Bidder, information and observations obtained from visits to the Site, reports and drawings identified in the Bidding Documents, and all additional examinations, investigations, explorations, tests, studies, and data with the Bidding Documents.
- I. Bidder has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents, and the written resolution thereof by Engineer is acceptable to Bidder.
- J. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance of the Work for which this Bid is submitted.
- K. Bidder will submit written evidence of its authority to do business in the State where the Project is located not later than the date of its execution of the Agreement.

ARTICLE 4 – FURTHER REPRESENTATIONS

4.01 Bidder further represents that:

- A. This Bid is genuine and not made in the interest of or on the behalf of any undisclosed individual or entity and is not submitted in conformity with any agreement or rules of any group, association, organization, or corporation;
- B. Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid;
- C. Bidder has not solicited or induced any individual or entity to refrain from bidding; and
- D. Bidder has not sought by collusion to obtain for itself any advantage over any other Bidder or over Owner.

ARTICLE 5 – BASIS OF BID

5.01 Bidder will complete the Work in accordance with the Contract Documents for the following prices:

Item	Type of Work	Unit	(Words)	(Numbers)
1.	Earthwork as describe in plans and specs complete and ready for use, including testing erosion control, drainage structures, roadways, culverts, piping and appurtenances, and clean up.	LS	_____ Dollars	\$ _____

TOTAL AMOUNT OF BID

\$ _____

- 5.02 The owner shall supply the following materials for the contractor's use:
1. 198 LF of 8" DIP (No Gaskets)
 2. 12 LF of 10" DIP (No Gaskets)
- 5.03 Unit prices have been computed in accordance with paragraph 11.03A of the General Conditions.
- 5.04 Bidder acknowledges that estimated quantities are not guaranteed, and are solely for the purpose of comparison of Bids, and final payment for all Unit Price Bid items will be based on actual quantities, determined as provided in the Contract Documents.
- 5.05 **SUPPLEMENTAL UNIT PRICES:** The following Supplemental Unit Prices will apply in the event that additions to or deductions from the work required in the Bid are ordered. A single price shall be bid for each item. OWNER reserves the right to accept or reject these prices by inclusion in or omission from the Contract Documents to be executed after the award of the Contract.

Item	Type of Work	Unit	Supplemental Unit Price		
			(Words)		(Numbers)
1.	Unclassified undercut, where ordered by the Engineer.	CY	_____.	Dollars	\$_____.
2.	No. 57 aggregate refill, where ordered by the Engineer.	Ton	_____.	Dollars	\$_____.
3.	DGA aggregate refill, where ordered by the Engineer	Ton	_____.	Dollars	\$_____.

ARTICLE 6 – TIME OF COMPLETION

- 6.01 Bidder agrees that the Work will be substantially complete in accordance with paragraph 14.04 of the General Conditions on or before the date, or within the number of calendar days, indicated in the Agreement.
- 6.02 Bidder accepts the provisions of the Agreement as to liquidated damages in the event of failure to complete the work within the Contract Time.

ARTICLE 7 – ATTACHMENTS TO THIS BID

- 7.01 The following documents are attached to and made a condition of the Bid:
- A. Required Bid security in the form of a Bid Bond (EJCDC No. C-430) or Certified Check (circle type of security provided);
 - B. If Bid amount exceeds \$10,000, signed Compliance Statement (RD 400-6). Refer to specific equal opportunity requirements set forth in paragraph 18.10 of the General Conditions;
 - C. If Bid amount exceeds \$25,000, signed Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion - Lower Tier Covered Transactions (AD-1048);
 - D. If Bid amount exceeds \$100,000, signed RD Instruction 1940-Q, Exhibit A-1, Certification for Contracts, Grants, and Loans. Refer to paragraph 18.1 1 of the General Conditions;

- E. List of Subcontractors.
- F. Statement of Experience

ARTICLE 8 – DEFINED TERMS

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

ARTICLE 9 – BID SUBMITTAL

9.01 This Bid submitted by:

Submitted by:

Signature	Business
Printed or Typed Name	Bidder's Business Address
Title	City, State, Zip Code
Employer's Tax ID No.	Business Phone No. Business Fax No.
Business Email Address	Cell Phone No. Other Contact No.

9.02 Bid submitted on _____, 2023

Seal below (if required)

LIST OF SUBCONTRACTORS

The following SUBCONTRACTORS are proposed for work on the PROJECT.

No.	Subcontractor Name, Address & Phone No.	Work Item(s)
1.	<hr/> <hr/> <hr/>	<hr/> <hr/> <hr/>
2.	<hr/> <hr/> <hr/>	<hr/> <hr/> <hr/>
3.	<hr/> <hr/> <hr/>	<hr/> <hr/> <hr/>
4.	<hr/> <hr/> <hr/>	<hr/> <hr/> <hr/>
5.	<hr/> <hr/> <hr/>	<hr/> <hr/> <hr/>
6.	<hr/> <hr/> <hr/>	<hr/> <hr/> <hr/>
7.	<hr/> <hr/> <hr/>	<hr/> <hr/> <hr/>

Bidder

STATEMENT OF EXPERIENCE

The following list represents the most recent clients for whom similar work was performed by the BIDDER. The persons listed may be contacted as references. Provide at least four unique and non-Owner related project references.

No.	Contact Person, Company & Phone No.	Project Description, Date & Approximate Value of Work
1.	_____ _____ _____	_____ _____ _____
2.	_____ _____ _____	_____ _____ _____
3.	_____ _____ _____	_____ _____ _____
4.	_____ _____ _____	_____ _____ _____
5.	_____ _____ _____	_____ _____ _____
6.	_____ _____ _____	_____ _____ _____

Bidder

NOTICE OF AWARD

TO: _____

PROJECT Description: **LTRWC – Logan Todd Regional Water Commission
Sludge Lagoon Addition
Earthwork**

The OWNER has considered the BID submitted by you for the above-described WORK in response to its Advertisement for Bids dated _____ and Instructions to Bidders.

You are hereby notified that your BID has been accepted for items in the amount of \$_____

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

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

You are required to return an acknowledged copy of this NOTICE OF AWARD to the OWNER.

Dated this _____ day of _____.

Logan Todd Regional Water Commission

Name

ACCEPTANCE OF NOTICE

Receipt of the above NOTICE OF AWARD is hereby acknowledged and dated this ____ day of _____ 2023.

Contractor

Name

Title

**SUGGESTED FORM OF AGREEMENT
BETWEEN OWNER AND CONTRACTOR
FOR CONSTRUCTION CONTRACT (STIPULATED PRICE)
FUNDING AGENCY EDITION**

THIS AGREEMENT is by and between **Logan Todd Regional Water Commission** (“Owner”) and
_____ (“Contractor”).

Owner and Contractor, in consideration of the mutual covenants hereinafter set forth, agree as follows:

ARTICLE 1 – WORK

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

The Work to be performed involves the earthwork construction for a proposed sludge lagoon, piping, and drainage structures in Guthrie, Kentucky as described by the Contract Drawings and Specifications.

ARTICLE 2 – THE PROJECT

2.01 The Project, of which the Work under the Contract Documents is a part, is generally described as follows:

LTRWC – Sludge Lagoon Addition

ARTICLE 3 – ENGINEER

3.01 The part of the Project that pertains to the Work has been designed by **McGhee Engineering Inc.**

3.02 The Owner has retained **McGhee Engineering Inc.** (Engineer) to act as Owner’s representative, assume all duties and responsibilities, and have the rights and authority assigned to Engineer in the Contract Documents in connection with the completion of the Work in accordance with the Contract Documents.

ARTICLE 4 – CONTRACT TIMES

4.01 *Time of the Essence*

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

4.02 *Contract Times: Days*

A. The Work will be substantially completed within **180** days after the date when the Contract Time commence to run as provided in Paragraph 4.01 of the General Conditions, and completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions within **180** days after the date when the Contract Times commence to run.

4.03 *Liquidated Damages*

- A. Contractor and Owner recognize that time is of the essence as stated in Paragraph 4.01 above and that Owner will suffer financial and other losses if the Work is not completed and Milestones not achieved within the times specified in Paragraph 4.02 above, plus any extensions thereof allowed in accordance with the Contract. The parties also recognize the delays, expense, and difficulties involved in proving in a legal or arbitration proceeding the actual loss suffered by Owner if the Work is not completed on time. Accordingly, instead of requiring any such proof, Owner and Contractor agree that as liquidated damages for delay (but not as a penalty):
1. Substantial Completion: Contractor shall pay Owner **\$500** for each day that expires after the time (as duly adjusted pursuant to the Contract) specified in Paragraph 4.02.A above for Substantial Completion until the Work is substantially complete.
 2. Completion of Remaining Work: After Substantial Completion, if Contractor shall neglect, refuse, or fail to complete the remaining Work within the Contract Times (as duly adjusted pursuant to the Contract) for completion and readiness for final payment, Contractor shall pay Owner **\$500** for each day that expires after such time until the Work is completed and ready for final payment.
 3. Liquidated damages for failing to timely attain Substantial Completion and final completion are not additive and will not be imposed concurrently.

ARTICLE 5 – CONTRACT PRICE

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

- A. For all Work, at the prices stated in Contractor’s Bid, attached hereto as an exhibit.

ARTICLE 6 – PAYMENT PROCEDURES

6.01 *Submittal and Processing of Payments*

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

6.02 *Progress Payments; Retainage*

- A. Owner shall make progress payments on account of the Contract Price on the basis of Contractor’s Applications for Payment on or about the **first** day of each month during performance of the Work as provided in Paragraph 6.02.A.1 below, provided that such Applications for Payment have been submitted in a timely manner and otherwise meet the requirements of the Contract. All such payments will be measured by the Schedule of Values established as provided in the General Conditions (and in the case of Unit Price Work based on the number of units completed) or, in the event there is no Schedule of Values, as provided elsewhere in the Contract.
1. Prior to Substantial Completion, progress payments will be made in an amount equal to the percentage indicated below but, in each case, less the aggregate of payments previously made and less such amounts as Owner may withhold, including but not limited to liquidated damages, in accordance with the Contract
 - a. 95 percent of Work completed (with the balance being retainage); and
 - b. 95 percent of cost of materials and equipment not incorporated in the Work (with the balance being retainage).
 2. Upon Substantial Completion of the entire construction to be provided under the Contract Documents..

6.03 *Final Payment*

- A. Upon final completion and acceptance of the Work in accordance with Paragraph 15.06 of the General Conditions, Owner shall pay the remainder of the Contract Price as recommended by Engineer as provided in said Paragraph 15.06.

ARTICLE 7 – INTEREST

7.01 All amounts not paid when due shall bear interest at the maximum legal rate.

ARTICLE 8 – CONTRACTOR’S REPRESENTATIONS

1.02 In order to induce Owner to enter into this Contract, Contractor makes the following representations:

- A. Contractor has examined and carefully studied the Contract Documents, and any data and reference items identified in the Contract Documents.
- B. Contractor has visited the Site, conducted a thorough, alert visual examination of the Site and adjacent areas, and become familiar with and is satisfied as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
- C. Contractor is familiar with and is satisfied as to all Laws and Regulations that may affect cost, progress, and performance of the Work.
- D. Contractor has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or adjacent to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings, and (2) reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings.
- E. Contractor has considered the information known to Contractor itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Contract Documents; and the Site-related reports and drawings identified in the Contract Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor; and (3) Contractor’s safety precautions and programs.
- F. Based on the information and observations referred to in the preceding paragraph, Contractor agrees that no further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract.
- G. Contractor is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Contract Documents.
- H. Contractor has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Contractor has discovered in the Contract Documents, and the written resolution thereof by Engineer is acceptable to Contractor.
- I. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.
- J. Contractor’s entry into this Contract constitutes an incontrovertible representation by Contractor that without exception all prices in the Agreement are premised upon performing and furnishing the Work required by the Contract Documents.

ARTICLE 9 – CONTRACT DOCUMENTS

9.01 *Contents*

- A. The Contract Documents consist of the following:
 - 1. This Agreement (pages 1 to 6 inclusive).
 - 2. Performance bond (pages 1 to 3 inclusive).
 - 3. Payment bond (pages 1 to 3 inclusive).
 - 4. Bid bonds (pages 1 to 2 inclusive).
 - 5. General Conditions (pages 1 to 66 inclusive).
 - 6. Supplementary Conditions (pages 1 to 3 inclusive).
 - 7. Specifications as listed in the table of contents of the Project Manual.
 - 8. Drawings consisting of 7 sheets with each sheet bearing the following general title: LTRWC – Sludge Lagoon Addition
 - 9. Exhibits to this Agreement (enumerated as follows):
 - a. Contractor’s Bid (pages 1).
 - b. Documents submitted by Contractor prior to Notice of Award – Statement of Experience.
 - 10. The following which may be delivered or issued on or after the Effective Date of the Agreement and are not attached hereto:
 - a. Notice to Proceed (pages 1 to 1, inclusive).
 - b. Work Change Directives.
 - c. Change Order(s).
- B. The documents listed in Paragraph 9.01.A are attached to this Agreement (except as expressly noted otherwise above).
- C. There are no Contract Documents other than those listed above in this Article 9.
- D. The Contract Documents may only be amended, modified, or supplemented as provided in the General Conditions.

ARTICLE 10 – MISCELLANEOUS

10.01 *Terms*

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

10.02 *Assignment of Contract*

- A. Unless expressly agreed to elsewhere in the Contract, no assignment by a party hereto of any rights under or interests in the Contract will be binding on another party hereto without the written consent of the party sought to be bound; and, specifically but without limitation, money that may become due and money that is due may not be

assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the assignor from any duty or responsibility under the Contract Documents.

10.03 *Successors and Assigns*

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

10.04 *Severability*

- A. Any provision or part of the Contract Documents held to be void or unenforceable under any Law or Regulation shall be deemed stricken, and all remaining provisions shall continue to be valid and binding upon Owner and Contractor, who agree that the Contract Documents shall be reformed to replace such stricken provision or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provision.

10.05 *Contractor's Certifications*

- A. Contractor certifies that it has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for or in executing the Contract. For the purposes of this Paragraph 10.05:
 - 1. "corrupt practice" means the offering, giving, receiving, or soliciting of any thing of value likely to influence the action of a public official in the bidding process or in the Contract execution;
 - 2. "fraudulent practice" means an intentional misrepresentation of facts made (a) to influence the bidding process or the execution of the Contract to the detriment of Owner, (b) to establish Bid or Contract prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;
 - 3. "collusive practice" means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish Bid prices at artificial, non-competitive levels; and
 - 4. "coercive practice" means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

10.06 *Other Provisions*

- A. Owner stipulates that if the General Conditions that are made a part of this Contract are based on EJCDC® C-700, Standard General Conditions for the Construction Contract, published by the Engineers Joint Contract Documents Committee®, and if Owner is the party that has furnished said General Conditions, then Owner has plainly shown all modifications to the standard wording of such published document to the Contractor in the Supplementary Conditions.

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

This Agreement will be effective on _____ (which is the Effective Date of the Contract).

OWNER:

CONTRACTOR

Logan Todd Regional Water Commission

XXXXXXXXXXXXXXXXXX

By: _____

By: _____

Title: **Kyle Kenner, System Manager**

Title: **XXXXXXXX**

[CORPORATE SEAL]

[CORPORATE SEAL]

Attest: _____

Attest: _____

Title: **Nancy Summer, Admin Assistant**

Title: _____

Address for giving notices:

Address for giving notices:

PO Box 400

Guthrie, KY 42234

License No. (where applicable):

(If Owner is a corporation, attach evidence of authority to sign. If Owner is a public body, attach evidence of authority to sign and resolution or other documents authorizing execution of this Agreement.)

NOTE TO USER: Use in those states or other jurisdictions where applicable or required.

PERFORMANCE BOND

Any singular reference to Contractor, Surety, Owner, or other party shall be considered plural where applicable.

CONTRACTOR (*Name and Address*): SURETY (*Name, and Address of Principal Place of Business*):

OWNER (*Name and Address*):

CONTRACT

Effective Date of Agreement:
Amount:
Description (*Name and Location*):

BOND

Bond Number:
Date (*Not earlier than Effective Date of Agreement*):
Amount:
Modifications to this Bond Form:

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

CONTRACTOR AS PRINCIPAL

SURETY

Contractor's Name and Corporate Seal (Seal)

Surety's Name and Corporate Seal (Seal)

By: _____
Signature

By: _____
Signature (Attach Power of Attorney)

Print Name

Print Name

Title

Title

Attest: _____
Signature

Attest: _____
Signature

Title

Title

Note: Provide execution by additional parties, such as joint venturers, if necessary.

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

1. If Contractor performs the Contract, Surety and Contractor have no obligation under this Bond, except to participate in conferences as provided in Paragraph 2.1.
2. If there is no Owner Default, Surety's obligation under this Bond shall arise after:
 - 2.1 Owner has notified Contractor and Surety, at the addresses described in Paragraph 9 below, that Owner is considering declaring a Contractor Default and has requested and attempted to arrange a conference with Contractor and Surety to be held not later than 15 days after receipt of such notice to discuss methods of performing the Contract. If Owner, Contractor, and Surety agree, Contractor shall be allowed a reasonable time to perform the Contract, but such an agreement shall not waive Owner's right, if any, subsequently to declare a Contractor Default; and
 - 2.2 Owner has declared a Contractor Default and formally terminated Contractor's right to complete the Contract. Such Contractor Default shall not be declared earlier than 20 days after Contractor and Surety have received notice as provided in Paragraph 2.1; and
 - 2.3 Owner has agreed to pay the Balance of the Contract Price to:
 1. Surety in accordance with the terms of the Contract; or
 2. Another contractor selected pursuant to Paragraph 3.3 to perform the Contract.
3. When Owner has satisfied the conditions of Paragraph 2, Surety shall promptly, and at Surety's expense, take one of the following actions:
 - 3.1 Arrange for Contractor, with consent of Owner, to perform and complete the Contract; or
 - 3.2 Undertake to perform and complete the Contract itself, through its agents or through independent contractors; or
 - 3.3 Obtain bids or negotiated proposals from qualified contractors acceptable to Owner for a contract for performance and completion of the Contract, arrange for a contract to be prepared for execution by Owner and contractor selected with Owner's concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Contract, and pay to Owner the amount of damages as described in Paragraph 5 in excess of the Balance of the Contract Price incurred by Owner resulting from Contractor Default; or
 - 3.4 Waive its right to perform and complete, arrange for completion, or obtain a new contractor, and with reasonable promptness under the circumstances:
 1. After investigation, determine the amount for which it may be liable to Owner and, as soon as practicable after the amount is determined, tender payment therefor to Owner; or
 2. Deny liability in whole or in part and notify Owner citing reasons therefore.
4. If Surety does not proceed as provided in Paragraph 3 with reasonable promptness, Surety shall be deemed to be in default on this Bond 15 days after receipt of an additional written notice from Owner to Surety demanding that Surety perform its obligations under this Bond, and Owner shall be entitled to enforce any remedy available to Owner. If Surety proceeds as provided in Paragraph 3.4, and Owner refuses the payment tendered or Surety has denied liability, in whole or in part, without further notice Owner shall be entitled to enforce any remedy available to Owner.
5. After Owner has terminated Contractor's right to complete the Contract, and if Surety elects to act under Paragraph 3.1, 3.2, or 3.3 above, then the responsibilities of Surety to Owner shall not be greater than those of Contractor under the Contract, and the responsibilities of Owner to Surety shall not be greater than those of Owner under the Contract. To the limit of the amount of this Bond, but subject to commitment by Owner of the Balance of the Contract Price to mitigation of costs and damages on the Contract, Surety is obligated without duplication for:

- 5.1 The responsibilities of Contractor for correction of defective Work and completion of the Contract;
- 5.2 Additional legal, design professional, and delay costs resulting from Contractor's Default, and resulting from the actions of or failure to act of Surety under Paragraph 3; and
- 5.3 Liquidated damages, or if no liquidated damages are specified in the Contract, actual damages caused by delayed performance or non-performance of Contractor.

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

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

8. Any proceeding, legal or equitable, under this Bond may be instituted in any court of competent jurisdiction in the location in which the Work or part of the Work is located, and shall be instituted within two years after Contractor Default or within two years after Contractor ceased working or within two years after Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

9. Notice to Surety, Owner, or Contractor shall be mailed or delivered to the address shown on the signature page.

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

11. Definitions.

- 11.1 Balance of the Contract Price: The total amount payable by Owner to Contractor under the Contract after all proper adjustments have been made, including allowance to Contractor of any amounts received or to be received by Owner in settlement of insurance or other Claims for damages to which Contractor is entitled, reduced by all valid and proper payments made to or on behalf of Contractor under the Contract.
- 11.2 Contract: The agreement between Owner and Contractor identified on the signature page, including all Contract Documents and changes thereto.
- 11.3 Contractor Default: Failure of Contractor, which has neither been remedied nor waived, to perform or otherwise to comply with the terms of the Contract.
- 11.4 Owner Default: Failure of Owner, which has neither been remedied nor waived, to pay Contractor as required by the Contract or to perform and complete or otherwise comply with the other terms thereof.

FOR INFORMATION ONLY – *(Name, Address and Telephone)*
Surety Agency or Broker:
Owner's Representative *(Engineer or other party)*:

PAYMENT BOND

Any singular reference to Contractor, Surety, Owner, or other party shall be considered plural where applicable.

CONTRACTOR (*Name and Address*):

SURETY (*Name, and Address of Principal Place of Business*):

OWNER (*Name and Address*):

CONTRACT

Effective Date of Agreement:

Amount:

Description (*Name and Location*):

BOND

Bond Number:

Date (*Not earlier than Effective Date of Agreement*):

Amount:

Modifications to this Bond Form:

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

CONTRACTOR AS PRINCIPAL

SURETY

Contractor's Name and Corporate Seal (Seal)

Surety's Name and Corporate Seal (Seal)

By: _____
Signature

By: _____
Signature (Attach Power of Attorney)

Print Name

Print Name

Title

Title

Attest: _____
Signature

Attest: _____
Signature

Title

Title

Note: Provide execution by additional parties, such as joint venturers, if necessary.

1. Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to Owner to pay for labor, materials, and equipment furnished by Claimants for use in the performance of the Contract, which is incorporated herein by reference.
2. With respect to Owner, this obligation shall be null and void if Contractor:
 - 2.1 Promptly makes payment, directly or indirectly, for all sums due Claimants, and
 - 2.2 Defends, indemnifies, and holds harmless Owner from all claims, demands, liens, or suits alleging non-payment by Contractor by any person or entity who furnished labor, materials, or equipment for use in the performance of the Contract, provided Owner has promptly notified Contractor and Surety (at the addresses described in Paragraph 12) of any claims, demands, liens, or suits and tendered defense of such claims, demands, liens, or suits to Contractor and Surety, and provided there is no Owner Default.
3. With respect to Claimants, this obligation shall be null and void if Contractor promptly makes payment, directly or indirectly, for all sums due.
4. Surety shall have no obligation to Claimants under this Bond until:
 - 4.1 Claimants who are employed by or have a direct contract with Contractor have given notice to Surety (at the address described in Paragraph 12) and sent a copy, or notice thereof, to Owner, stating that a claim is being made under this Bond and, with substantial accuracy, the amount of the claim.
 - 4.2 Claimants who do not have a direct contract with Contractor:
 1. Have furnished written notice to Contractor and sent a copy, or notice thereof, to Owner, within 90 days after having last performed labor or last furnished materials or equipment included in the claim stating, with substantial accuracy, the amount of the claim and the name of the party to whom the materials or equipment were furnished or supplied, or for whom the labor was done or performed; and
 2. Have either received a rejection in whole or in part from Contractor, or not received within 30 days of furnishing the above notice any communication from Contractor by which Contractor had indicated the claim will be paid directly or indirectly; and
 3. Not having been paid within the above 30 days, have sent a written notice to Surety (at the address described in Paragraph 12) and sent a copy, or notice thereof, to Owner, stating that a claim is being made under this Bond and enclosing a copy of the previous written notice furnished to Contractor.
5. If a notice by a Claimant required by Paragraph 4 is provided by Owner to Contractor or to Surety, that is sufficient compliance.
6. Reserved.
7. Surety's total obligation shall not exceed the amount of this Bond, and the amount of this Bond shall be credited for any payments made in good faith by Surety.
8. Amounts owed by Owner to Contractor under the Contract shall be used for the performance of the Contract and to satisfy claims, if any, under any performance bond. By Contractor furnishing and Owner accepting this Bond, they agree that all funds earned by Contractor in the performance of the Contract are dedicated to satisfy obligations of Contractor and Surety under this Bond, subject to Owner's priority to use the funds for the completion of the Work.
9. Surety shall not be liable to Owner, Claimants, or others for obligations of Contractor that are unrelated to the Contract. Owner shall not be liable for payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligations to make payments to, give notices on behalf of, or otherwise have obligations to Claimants under this Bond.

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

11. No suit or action shall be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the location in which the Work or part of the Work is located or after the expiration of one year from the date (1) on which the Claimant gave the notice required by Paragraph 4.1 or Paragraph 4.2.3, or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Contract, whichever of (1) or (2) first occurs. If the provisions of this paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

12. Notice to Surety, Owner, or Contractor shall be mailed or delivered to the addresses shown on the signature page. Actual receipt of notice by Surety, Owner, or Contractor, however accomplished, shall be sufficient compliance as of the date received at the address shown on the signature page.

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

14. Upon request of any person or entity appearing to be a potential beneficiary of this Bond, Contractor shall promptly furnish a copy of this Bond or shall permit a copy to be made.

15. Definitions

15.1 Claimant: An individual or entity having a direct contract with Contractor, or with a first-tier subcontractor of Contractor, to furnish labor, materials, or equipment for use in the performance of the Contract. The intent of this Bond shall be to include without limitation in the terms “labor, materials or equipment” that part of water, gas, power, light, heat, oil, gasoline, telephone service, or rental equipment used in the Contract, architectural and engineering services required for performance of the Work of Contractor and Contractor’s subcontractors, and all other items for which a mechanic’s lien may be asserted in the jurisdiction where the labor, materials, or equipment were furnished.

15.2 Contract: The agreement between Owner and Contractor identified on the signature page, including all Contract Documents and changes thereto.

15.3 Owner Default: Failure of Owner, which has neither been remedied nor waived, to pay Contractor as required by the Contract, or to perform and complete or otherwise comply with the other terms thereof.

FOR INFORMATION ONLY – *(Name, Address, and Telephone)*

Surety Agency or Broker:

Owner’s Representative *(Engineer or other)*:

NOTICE TO PROCEED

TO: _____ DATE: _____

PROJECT: **Logan Todd Regional Water Commission**
Sludge Lagoon Addition
Earthwork

You are hereby notified to commence WORK in accordance with the Agreement dated _____ on _____ or before _____, and you are to complete the WORK within **180** consecutive calendar days thereafter. The date of completion of all WORK is therefore _____.

Logan Industrial Development Authority

Name

ACCEPTANCE OF NOTICE

Receipt of the above NOTICE TO PROCEED is hereby acknowledged and dated this ____ day of _____ 2012.

XXXXXXXXXX

Contractor

Employer Identification Number

This document has important legal consequences; consultation with an attorney is encouraged with respect to its use or modification. This document should be adapted to the particular circumstances of the contemplated Project and the Controlling Law.

STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT FUNDING AGENCY EDITION

Prepared by

ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

and

Issued and Published Jointly By

ACEC

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This document has been approved and endorsed by

The Associated General Contractors of America



and the

Construction Specification Institute



Knowledge for Creating
and Sustaining
the Built Environment

These General Conditions have been prepared for use with the Suggested Forms of Agreement Between Owner and Contractor Funding Agency Edition No. C-521 (2002 Edition). Their provisions are interrelated and a change in one may necessitate a change in the other. Comments concerning their usage are contained in the EJCDC Construction Documents, General and Instructions (No. C-001, 2002 Edition). For guidance in the preparation of Supplementary Conditions, see Guide to the Preparation of Supplementary Conditions (No. C-800, 2002 Edition).

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GENERAL CONDITIONS

ARTICLE 1 – DEFINITIONS AND TERMINOLOGY

1.01 *Defined Terms*

- A. Wherever used in the Bidding Requirements or Contract Documents and printed with initial capital letters, the terms listed below will have the meanings indicated which are applicable to both the singular and plural thereof. In addition to terms specifically defined, terms with initial capital letters in the Contract Documents include references to identified articles and paragraphs, and the titles of other documents or forms.
1. *Addenda* – Written or graphic instruments issued prior to the opening of Bids which clarify, correct, or change the Bidding Requirements or the proposed Contract Documents.
 2. *Agency* – The Federal or state agency named as such in the Agreement.
 3. *Agreement* – The written instrument which is evidence of the agreement between Owner and Contractor covering the Work.
 4. *Application for Payment* – The form acceptable to Engineer which is to be used by Contractor during the course of the Work in requesting progress or final payments and which is to be accompanied by such supporting documentation as is required by the Contract Documents.
 5. *Asbestos* – Any material that contains more than one percent asbestos and is friable or is releasing asbestos fibers into the air above current action levels established by the United States Occupational Safety and Health Administration.
 6. *Bid* – The offer or proposal of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.
 7. *Bidder* – The individual or entity who submits a Bid directly to Owner.
 8. *Bidding Documents* – The Bidding Requirements and the proposed Contract Documents (including all Addenda).
 9. *Bidding Requirements* – The Advertisement or Invitation to Bid, Instructions to Bidders, bid security of acceptable form, if any, and the Bid Form with any supplements.
 10. *Change Order* – A document recommended by Engineer which is signed by Contractor and Owner and Agency and authorizes an addition, deletion, or revision in the Work or an adjustment in the Contract Price or the Contract Times, issued on or after the Effective Date of the Agreement.
 11. *Claim* – A demand or assertion by Owner or Contractor seeking an adjustment of Contract Price or Contract Times, or both, or other relief with respect to the terms of the Contract. A demand for money or services by a third party is not a Claim.
 12. *Contract* – The entire and integrated written agreement between the Owner and Contractor concerning the Work. The Contract supersedes prior negotiations, representations, or agreements, whether written or oral.
 13. *Contract Documents* – Those items so designated in the Agreement. Only printed or hard copies of the items listed in the Agreement are Contract Documents. Approved Shop Drawings, other Contractor's submittals, and the reports and drawings of subsurface and physical conditions are not Contract Documents.

14. *Contract Price* – The moneys payable by Owner to Contractor for completion of the Work in accordance with the Contract Documents as stated in the Agreement (subject to the provisions of Paragraph 11.03 in the case of Unit Price Work).
15. *Contract Times* – The number of days or the dates stated in the Agreement to: (i) achieve Milestones, if any, (ii) achieve Substantial Completion; and (iii) complete the Work so that it is ready for final payment as evidenced by Engineer's written recommendation of final payment.
16. *Contractor* – The individual or entity with whom Owner has entered into the Agreement.
17. *Cost of the Work* – See Paragraph 11.01.A for definition.
18. *Drawings* – That part of the Contract Documents prepared or approved by Engineer which graphically shows the scope, extent, and character of the Work to be performed by Contractor. Shop Drawings and other Contractor submittals are not Drawings as so defined.
19. *Effective Date of the Agreement* – The date indicated in the Agreement on which it becomes effective, but if no such date is indicated, it means the date on which the Agreement is signed and delivered by the last of the two parties to sign and deliver.
20. *Engineer* – The individual or entity named as such in the Agreement.
21. *Field Order* – A written order issued by Engineer which requires minor changes in the Work but which does not involve a change in the Contract Price or the Contract Times.
22. *General Requirements* – Sections of Division 1 of the Specifications. The General Requirements pertain to all sections of the Specifications.
23. *Hazardous Environmental Condition* – The presence at the Site of Asbestos, PCBs, Petroleum, Hazardous Waste, or Radioactive Material in such quantities or circumstances that may present a substantial danger to persons or property exposed thereto in connection with the Work.
24. *Hazardous Waste* – The term Hazardous Waste shall have the meaning provided in Section 1004 of the Solid Waste Disposal Act (42 USC Section 6903) as amended from time to time.
25. *Laws and Regulations; Laws or Regulations* – Any and all applicable laws, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.
26. *Liens* – Charges, security interests, or encumbrances upon Project funds, real property, or personal property.
27. *Milestone* – A principal event specified in the Contract Documents relating to an intermediate completion date or time prior to Substantial Completion of all the Work.
28. *Notice of Award* – The written notice by Owner to the Successful Bidder stating that upon timely compliance by the Successful Bidder with the conditions precedent listed therein, Owner will sign and deliver the Agreement.
29. *Notice to Proceed* – A written notice given by Owner to Contractor fixing the date on which the Contract Times will commence to run and on which Contractor shall start to perform the Work under the Contract Documents.
30. *Owner* – The individual or entity with whom Contractor has entered into the Agreement and for whom the Work is to be performed.
31. *PCBs* – Polychlorinated biphenyls.

32. *Petroleum* – Petroleum, including crude oil or any fraction thereof which is liquid at standard conditions of temperature and pressure (60 degrees Fahrenheit and 14.7 pounds per square inch absolute), such as oil, petroleum, fuel oil, oil sludge, oil refuse, gasoline, kerosene, and oil mixed with other non-Hazardous Waste and crude oils.
33. *Progress Schedule* – A schedule, prepared and maintained by Contractor, describing the sequence and duration of the activities comprising the Contractor’s plan to accomplish the Work within the Contract Times.
34. *Project* – The total construction of which the Work to be performed under the Contract Documents may be the whole, or a part.
35. *Project Manual* – The bound documentary information prepared for bidding and constructing the Work. A listing of the contents of the Project Manual, which may be bound in one or more volumes, is contained in the table(s) of contents.
36. *Radioactive Material* – Source, special nuclear, or byproduct material as defined by the Atomic Energy Act of 1954 (42 USC Section 2011 et seq.) as amended from time to time.
37. *Related Entity* – An officer, director, partner, employee, agent, consultant, or subcontractor.
38. *Resident Project Representative* – The authorized representative of Engineer who may be assigned to the Site or any part thereof.
39. *Samples* – Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and which establish the standards by which such portion of the Work will be judged.
40. *Schedule of Submittals* – A schedule, prepared and maintained by Contractor, of required submittals and the time requirements to support scheduled performance of related construction activities.
41. *Schedule of Values* – A schedule, prepared and maintained by Contractor, allocating portions of the Contract Price to various portions of the Work and used as the basis for reviewing Contractor’s Applications for Payment.
42. *Shop Drawings* – All drawings, diagrams, illustrations, schedules, and other data or information which are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work.
43. *Site* – Lands or areas indicated in the Contract Documents as being furnished by Owner upon which the Work is to be performed, including rights-of-way and easements for access thereto, and such other lands furnished by Owner which are designated for the use of Contractor.
44. *Specifications* – That part of the Contract Documents consisting of written requirements for materials, equipment, systems, standards and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable thereto.
45. *Subcontractor* – An individual or entity having a direct contract with Contractor or with any other Subcontractor for the performance of a part of the Work at the Site.
46. *Substantial Completion* – The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of Engineer, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms “substantially complete” and “substantially completed” as applied to all or part of the Work refer to Substantial Completion thereof.
47. *Successful Bidder* – The Bidder submitting a responsive Bid to whom Owner makes an award.

48. *Supplementary Conditions* – That part of the Contract Documents which amends or supplements these General Conditions.
49. *Supplier* – A manufacturer, fabricator, supplier, distributor, materialman, or vendor having a direct contract with Contractor or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by Contractor or any Subcontractor.
50. *Underground Facilities* – All underground pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or attachments, and any encasements containing such facilities, including those that convey electricity, gases, steam, liquid petroleum products, telephone or other communications, cable television, water, wastewater, storm water, other liquids or chemicals, or traffic or other control systems.
51. *Unit Price Work* – Work to be paid for on the basis of unit prices.
52. *Work* – The entire construction or the various separately identifiable parts thereof required to be provided under the Contract Documents. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such construction, and furnishing, installing, and incorporating all materials and equipment into such construction, all as required by the Contract Documents.
53. *Work Change Directive* – A written statement to Contractor issued on or after the Effective Date of the Agreement and signed by Owner and Agency upon recommendation of the Engineer ordering an addition, deletion, or revision in the Work, or responding to differing or unforeseen subsurface or physical conditions under which the Work is to be performed or to emergencies. A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the change ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order following negotiations by the parties as to its effect, if any, on the Contract Price or Contract Times.

1.02 *Terminology*

- A. The following words or terms are not defined but, when used in the Bidding Requirements or Contract Documents, have the following meaning.
- B. *Intent of Certain Terms or Adjectives*
 1. The Contract Documents include the terms “as allowed,” “as approved,” “as ordered,” “as directed” or terms of like effect or import to authorize an exercise of professional judgment by Engineer. In addition, the adjectives “reasonable,” “suitable,” “acceptable,” “proper,” “satisfactory,” or adjectives of like effect or import are used to describe an action or determination of Engineer as to the Work. It is intended that such exercise of professional judgment, action or determination will be solely to evaluate, in general, the Work for compliance with the requirements of and information in the Contract Documents and conformance with the design concept of the completed Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective is not intended to and shall not be effective to assign to Engineer any duty or authority to supervise or direct the performance of the Work or any duty or authority to undertake responsibility contrary to the provisions of Paragraph 9.09 or any other provision of the Contract Documents.
- C. *Day*
 1. The word “day” means a calendar day of 24 hours measured from midnight to the next midnight.
- D. *Defective*
 1. The word “defective,” when modifying the word “Work,” refers to Work that is unsatisfactory, faulty, or deficient in that it:
 - a. does not conform to the Contract Documents, or

- b. does not meet the requirements of any applicable inspection, reference standard, test, or approval referred to in the Contract Documents, or
 - c. has been damaged prior to Engineer’s recommendation of final payment (unless responsibility for the protection thereof has been assumed by Owner at Substantial Completion in accordance with Paragraph 14.04 or 14.05).
- E. *Furnish, Install, Perform, Provide*
- 1. The word “furnish,” when used in connection with services, materials, or equipment, shall mean to supply and deliver said services, materials, or equipment to the Site (or some other specified location) ready for use or installation and in usable or operable condition.
 - 2. The word “install,” when used in connection with services, materials, or equipment, shall mean to put into use or place in final position said services, materials, or equipment complete and ready for intended use.
 - 3. The words “perform” or “provide,” when used in connection with services, materials, or equipment, shall mean to furnish and install said services, materials, or equipment complete and ready for intended use.
 - 4. When “furnish,” “install,” “perform,” or “provide” is not used in connection with services, materials, or equipment in a context clearly requiring an obligation of Contractor, “provide” is implied.
- F. Unless stated otherwise in the Contract Documents, words or phrases which have a well-known technical or construction industry or trade meaning are used in the Contract Documents in accordance with such recognized meaning.

ARTICLE 2 – PRELIMINARY MATTERS

2.01 *Delivery of Bonds and Evidence of Insurance*

- A. When Contractor delivers the executed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner such bonds as Contractor may be required to furnish.
- B. *Evidence of Insurance:* Before any Work at the Site is started, Contractor and Owner shall each deliver to the other, with copies to each additional insured identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance which either of them or any additional insured may reasonably request) which Contractor and Owner respectively are required to purchase and maintain in accordance with Article 5.

2.02 *Copies of Documents*

- A. Owner shall furnish to Contractor up to ten printed or hard copies of the Drawings and Project Manual. Additional copies will be furnished upon request at the cost of reproduction.

2.03 *Commencement of Contract Times; Notice to Proceed*

- A. The Contract Times will commence to run on the thirtieth day after the Effective Date of the Agreement or, if a Notice to Proceed is given, on the day indicated in the Notice to Proceed. A Notice to Proceed may be given at any time within 30 days after the Effective Date of the Agreement.

2.04 *Starting the Work*

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

2.05 *Before Starting Construction*

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

2.06 *Preconstruction Conference*

- A. Before any Work at the Site is started, a conference attended by Owner, Contractor, Engineer, Agency, and others as appropriate will be held to establish a working understanding among the parties as to the Work and to discuss the schedules referred to in Paragraph 2.05.A, procedures for handling Shop Drawings and other submittals, processing Applications for Payment, and maintaining required records.

2.07 *Initial Acceptance of Schedules*

- A. At least 10 days before submission of the first Application for Payment a conference attended by Contractor, Engineer, and others as appropriate will be held to review for acceptability to Engineer as provided below the schedules submitted in accordance with Paragraph 2.05.A. Contractor shall have an additional 10 days to make corrections and adjustments and to complete and resubmit the schedules. No progress payment shall be made to Contractor until acceptable schedules are submitted to Engineer.
1. The Progress Schedule will be acceptable to Engineer if it provides an orderly progression of the Work to completion within the Contract Times. Such acceptance will not impose on Engineer responsibility for the Progress Schedule, for sequencing, scheduling, or progress of the Work nor interfere with or relieve Contractor from Contractor's full responsibility therefor.
 2. Contractor's Schedule of Submittals will be acceptable to Engineer if it provides a workable arrangement for reviewing and processing the required submittals.
 3. Contractor's Schedule of Values will be acceptable to Engineer as to form and substance if it provides a reasonable allocation of the Contract Price to component parts of the Work.

ARTICLE 3 – CONTRACT DOCUMENTS: INTENT, AMENDING, REUSE

3.01 *Intent*

- A. The Contract Documents are complementary; what is required by one is as binding as if required by all.
- B. It is the intent of the Contract Documents to describe a functionally complete Project (or part thereof) to be constructed in accordance with the Contract Documents. Any labor, documentation, services, materials, or equipment that may reasonably be inferred from the Contract Documents or from prevailing custom or trade usage as being required to produce the intended result will be provided whether or not specifically called for at no additional cost to Owner.
- C. Clarifications and interpretations of the Contract Documents shall be issued by Engineer as provided in Article 9.

3.02 *Reference Standards*

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

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

3.03 *Reporting and Resolving Discrepancies*

A. Reporting Discrepancies

1. *Contractor's Review of Contract Documents Before Starting Work:* Before undertaking each part of the Work, Contractor shall carefully study and compare the Contract Documents and check and verify pertinent figures therein and all applicable field measurements. Contractor shall promptly report in writing to Engineer any conflict, error, ambiguity, or discrepancy which Contractor may discover and shall obtain a written interpretation or clarification from Engineer before proceeding with any Work affected thereby.
2. *Contractor's Review of Contract Documents During Performance of Work:* If, during the performance of the Work, Contractor discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents or between the Contract Documents and any provision of any Law or Regulation applicable to the performance of the Work or of any standard, specification, manual or code, or of any instruction of any Supplier, Contractor shall promptly report it to Engineer in writing. Contractor shall not proceed with the Work affected thereby (except in an emergency as required by Paragraph 6.16.A) until an amendment or supplement to the Contract Documents has been issued by one of the methods indicated in Paragraph 3.04.
3. Contractor shall not be liable to Owner or Engineer for failure to report any conflict, error, ambiguity, or discrepancy in the Contract Documents unless Contractor knew or reasonably should have known thereof.

B. Resolving Discrepancies

1. Except as may be otherwise specifically stated in the Contract Documents, the provisions of the Contract Documents shall take precedence in resolving any conflict, error, ambiguity, or discrepancy between the provisions of the Contract Documents and:
 - a. the provisions of any standard, specification, manual, code, or instruction (whether or not specifically incorporated by reference in the Contract Documents); or
 - b. the provisions of any Laws or Regulations applicable to the performance of the Work (unless such an interpretation of the provisions of the Contract Documents would result in violation of such Law or Regulation).

3.04 *Amending and Supplementing Contract Documents*

- A. The Contract Documents may be amended to provide for additions, deletions, and revisions in the Work or to modify the terms and conditions thereof by either a Change Order or a Work Change Directive.

- B. The requirements of the Contract Documents may be supplemented, and minor variations and deviations in the Work may be authorized, by one or more of the following ways:
 - 1. A Field Order;
 - 2. Engineer's approval of a Shop Drawing or Sample; (Subject to the provisions of Paragraph 6.17.D.3) or
 - 3. Engineer's written interpretation or clarification.

3.05 *Reuse of Documents*

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

3.06 *Electronic Data*

- A. Copies of data furnished by Owner or Engineer to Contractor or Contractor to Owner or Engineer that may be relied upon are limited to the printed copies (also known as hard copies). Files in electronic media format of text, data, graphics, or other types are furnished only for the convenience of the receiving party. Any conclusion or information obtained or derived from such electronic files will be at the user's sole risk. If there is a discrepancy between the electronic files and the hard copies, the hard copies govern.
- B. Because data stored in electronic media format can deteriorate or be modified inadvertently or otherwise without authorization of the data's creator, the party receiving electronic files agrees that it will perform acceptance tests or procedures within 60 days, after which the receiving party shall be deemed to have accepted the data thus transferred. Any errors detected within the 60-day acceptance period will be corrected by the transferring party.
- C. When transferring documents in electronic media format, the transferring party makes no representations as to long term compatibility, usability, or readability of documents resulting from the use of software application packages, operating systems, or computer hardware differing from those used by the data's creator.

ARTICLE 4 – AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS; REFERENCE POINTS

4.01 *Availability of Lands*

- A. Owner shall furnish the Site. Owner shall notify Contractor of any encumbrances or restrictions not of general application but specifically related to use of the Site with which Contractor must comply in performing the Work. Owner will obtain in a timely manner and pay for easements for permanent structures or permanent changes in existing facilities. If Contractor and Owner are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, as a result of any delay in Owner's furnishing the Site or a part thereof, Contractor may make a Claim therefor as provided in Paragraph 10.05.
- B. Upon reasonable written request, Owner shall furnish Contractor with a current statement of record legal title and legal description of the lands upon which the Work is to be performed and Owner's interest therein as necessary

for giving notice of or filing a mechanic's or construction lien against such lands in accordance with applicable Laws and Regulations.

- C. Contractor shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

4.02 *Subsurface and Physical Conditions*

- A. *Reports and Drawings:* The Supplementary Conditions identify:

1. those reports of explorations and tests of subsurface conditions at or contiguous to the Site that Engineer has used in preparing the Contract Documents; and
2. those drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site (except Underground Facilities) that Engineer has used in preparing the Contract Documents.

- B. *Limited Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the general accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such "technical data" is identified in the Supplementary Conditions. Except for such reliance on such "technical data," Contractor may not rely upon or make any claim against Owner or Engineer, or any of their Related Entities with respect to:

1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto; or
2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or
3. any Contractor interpretation of or conclusion drawn from any "technical data" or any such other data, interpretations, opinions, or information.

4.03 *Differing Subsurface or Physical Conditions*

- A. *Notice:* If Contractor believes that any subsurface or physical condition at or contiguous to the Site that is uncovered or revealed either:

1. is of such a nature as to establish that any "technical data" on which Contractor is entitled to rely as provided in Paragraph 4.02 is materially inaccurate; or
2. is of such a nature as to require a change in the Contract Documents; or
3. differs materially from that shown or indicated in the Contract Documents; or
4. is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents;

then Contractor shall, promptly after becoming aware thereof and before further disturbing the subsurface or physical conditions or performing any Work in connection therewith (except in an emergency as required by Paragraph 6.16.A), notify Owner and Engineer in writing about such condition. Contractor shall not further disturb such condition or perform any Work in connection therewith (except as aforesaid) until receipt of written order to do so.

B. *Engineer's Review:* After receipt of written notice as required by Paragraph 4.03.A, Engineer will promptly review the pertinent condition, determine the necessity of Owner's obtaining additional exploration or tests with respect thereto, and advise Owner in writing (with a copy to Contractor) of Engineer's findings and conclusions.

C. *Possible Price and Times Adjustments*

1. The Contract Price or the Contract Times, or both, will be equitably adjusted to the extent that the existence of such differing subsurface or physical condition causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:
 - a. such condition must meet any one or more of the categories described in Paragraph 4.03.A; and
 - b. with respect to Work that is paid for on a Unit Price Basis, any adjustment in Contract Price will be subject to the provisions of Paragraphs 9.07 and 11.03.
2. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times if:
 - a. Contractor knew of the existence of such conditions at the time Contractor made a final commitment to Owner with respect to Contract Price and Contract Times by the submission of a Bid or becoming bound under a negotiated contract; or
 - b. the existence of such condition could reasonably have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and contiguous areas required by the Bidding Requirements or Contract Documents to be conducted by or for Contractor prior to Contractor's making such final commitment; or
 - c. Contractor failed to give the written notice as required by Paragraph 4.03.A.
3. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, a Claim may be made therefor as provided in Paragraph 10.05. However, Owner and Engineer, and any of their Related Entities shall not be liable to Contractor for any claims, costs, losses, or damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Contractor on or in connection with any other project or anticipated project.

4.04 *Underground Facilities*

- A. *Shown or Indicated:* The information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or contiguous to the Site is based on information and data furnished to Owner or Engineer by the owners of such Underground Facilities, including Owner, or by others. Unless it is otherwise expressly provided in the Supplementary Conditions:
1. Owner and Engineer shall not be responsible for the accuracy or completeness of any such information or data; and
 2. the cost of all of the following will be included in the Contract Price, and Contractor shall have full responsibility for:
 - a. reviewing and checking all such information and data,
 - b. locating all Underground Facilities shown or indicated in the Contract Documents,
 - c. coordination of the Work with the owners of such Underground Facilities, including Owner, during construction, and

- d. the safety and protection of all such Underground Facilities and repairing any damage thereto resulting from the Work.

B. *Not Shown or Indicated*

1. If an Underground Facility is uncovered or revealed at or contiguous to the Site which was not shown or indicated, or not shown or indicated with reasonable accuracy in the Contract Documents, Contractor shall, promptly after becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by Paragraph 6.16.A), identify the owner of such Underground Facility and give written notice to that owner and to Owner and Engineer. Engineer will promptly review the Underground Facility and determine the extent, if any, to which a change is required in the Contract Documents to reflect and document the consequences of the existence or location of the Underground Facility. During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.
2. If Engineer concludes that a change in the Contract Documents is required, a Work Change Directive or a Change Order will be issued to reflect and document such consequences. An equitable adjustment shall be made in the Contract Price or Contract Times, or both, to the extent that they are attributable to the existence or location of any Underground Facility that was not shown or indicated or not shown or indicated with reasonable accuracy in the Contract Documents and that Contractor did not know of and could not reasonably have been expected to be aware of or to have anticipated. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment in Contract Price or Contract Times, Owner or Contractor may make a Claim therefor as provided in Paragraph 10.05.

4.05 *Reference Points*

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

4.06 *Hazardous Environmental Condition at Site*

- A. *Reports and Drawings:* Reference is made to the Supplementary Conditions for the identification of those reports and drawings relating to a Hazardous Environmental Condition identified at the Site, if any, that have been utilized by the Engineer in the preparation of the Contract Documents.
- B. *Limited Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the general accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such "technical data" is identified in the Supplementary Conditions. Except for such reliance on such "technical data," Contractor may not rely upon or make any claim against Owner or Engineer, or any of their Related Entities with respect to:
 1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences and procedures of construction to be employed by Contractor and safety precautions and programs incident thereto; or
 2. other data, interpretations, opinions and information contained in such reports or shown or indicated in such drawings; or
 3. any Contractor interpretation of or conclusion drawn from any "technical data" or any such other data, interpretations, opinions or information.

- C. Contractor shall not be responsible for any Hazardous Environmental Condition uncovered or revealed at the Site which was not shown or indicated in Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work. Contractor shall be responsible for a Hazardous Environmental Condition created with any materials brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible.
- D. If Contractor encounters a Hazardous Environmental Condition or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, Contractor shall immediately: (i) secure or otherwise isolate such condition; (ii) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by Paragraph 6.16.A); and (iii) notify Owner and Engineer (and promptly thereafter confirm such notice in writing). Owner shall promptly consult with Engineer concerning the necessity for Owner to retain a qualified expert to evaluate such condition or take corrective action, if any.
- E. Contractor shall not be required to resume Work in connection with such condition or in any affected area until after Owner has obtained any required permits related thereto and delivered to Contractor written notice: (i) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work; or (ii) specifying any special conditions under which such Work may be resumed safely. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times, or both, as a result of such Work stoppage or such special conditions under which Work is agreed to be resumed by Contractor, either party may make a Claim therefor as provided in Paragraph 10.05.
- F. If after receipt of such written notice Contractor does not agree to resume such Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under such special conditions, then Owner may order the portion of the Work that is in the area affected by such condition to be deleted from the Work. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of an adjustment in Contract Price or Contract Times as a result of deleting such portion of the Work, then either party may make a Claim therefor as provided in Paragraph 10.05. Owner may have such deleted portion of the Work performed by Owner's own forces or others in accordance with Article 7.
- G. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, Subcontractors, and Engineer, and the officers, directors, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition, provided that such Hazardous Environmental Condition: (i) was not shown or indicated in the Drawings or Specifications or identified in the Contract Documents to be included within the scope of the Work, and (ii) was not created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 4.06.G shall obligate Owner to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- H. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 4.06. H shall obligate Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- I. The provisions of Paragraphs 4.02, 4.03, and 4.04 do not apply to a Hazardous Environmental Condition uncovered or revealed at the Site.

ARTICLE 5 – BONDS AND INSURANCE

5.01 *Performance, Payment, and Other Bonds*

- A. Contractor shall furnish performance and payment bonds, each in an amount at least equal to the Contract Price as security for the faithful performance and payment of all of Contractor's obligations under the Contract Documents. These bonds shall remain in effect until one year after the date when final payment becomes due or until completion of the correction period specified in Paragraph 13.07, whichever is later, except as provided otherwise by Laws or Regulations or by the Contract Documents. Contractor shall also furnish such other bonds as are required by the Contract Documents.
- B. All bonds shall be in the form prescribed by the Contract Documents except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in the current list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (amended) by the Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury. All bonds signed by an agent must be accompanied by a certified copy of the agent's authority to act.
- C. If the surety on any bond furnished by Contractor is declared bankrupt or becomes insolvent or its right to do business is terminated in any state where any part of the Project is located or it ceases to meet the requirements of Paragraph 5.01.B, Contractor shall promptly notify Owner and Engineer and shall, within 20 days after the event giving rise to such notification, provide another bond and surety, both of which shall comply with the requirements of Paragraphs 5.01.B and 5.02.

5.02 *Licensed Sureties and Insurers*

- A. All bonds and insurance required by the Contract Documents to be purchased and maintained by Owner or Contractor shall be obtained from surety or insurance companies that are duly licensed or authorized in the jurisdiction in which the Project is located to issue bonds or insurance policies for the limits and coverages so required. Such surety and insurance companies shall also meet such additional requirements and qualifications as may be provided in the Supplementary Conditions.

5.03 *Certificates of Insurance*

- A. Contractor shall deliver to Owner, with copies to each additional insured identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by Owner or any other additional insured) which Contractor is required to purchase and maintain.
- B. Owner shall deliver to Contractor, with copies to each additional insured identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by Contractor or any other additional insured) which Owner is required to purchase and maintain.

5.04 *Contractor's Liability Insurance*

- A. Contractor shall purchase and maintain such liability and other insurance as is appropriate for the Work being performed and as will provide protection from claims set forth below which may arise out of or result from Contractor's performance of the Work and Contractor's other obligations under the Contract Documents, whether it is to be performed by Contractor, any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to perform any of the Work, or by anyone for whose acts any of them may be liable:
 - 1. claims under workers' compensation, disability benefits, and other similar employee benefit acts;
 - 2. claims for damages because of bodily injury, occupational sickness or disease, or death of Contractor's employees;

3. claims for damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees;
 4. claims for damages insured by reasonably available personal injury liability coverage which are sustained:
 - a. by any person as a result of an offense directly or indirectly related to the employment of such person by Contractor, or
 - b. by any other person for any other reason;
 5. claims for damages, other than to the Work itself, because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom; and
 6. claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance or use of any motor vehicle.
- B. The policies of insurance required by this Paragraph 5.04 shall:
1. with respect to insurance required by Paragraphs 5.04.A.3 through 5.04.A.6 inclusive, include as additional insureds (subject to any customary exclusion regarding professional liability) Owner and Engineer, and any other individuals or entities identified in the Supplementary Conditions, all of whom shall be listed as additional insureds, and include coverage for the respective officers, directors, partners, employees, agents, consultants and subcontractors of each and any of all such additional insureds, and the insurance afforded to these additional insureds shall provide primary coverage for all claims covered thereby;
 2. include at least the specific coverages and be written for not less than the limits of liability provided in the Supplementary Conditions or required by Laws or Regulations, whichever is greater;
 3. include completed operations insurance;
 4. include contractual liability insurance covering Contractor's indemnity obligations under Paragraphs 6.11 and 6.20;
 5. contain a provision or endorsement that the coverage afforded will not be canceled, materially changed or renewal refused until at least 30 days prior written notice has been given to Owner and Contractor and to each other additional insured identified in the Supplementary Conditions to whom a certificate of insurance has been issued (and the certificates of insurance furnished by the Contractor pursuant to Paragraph 5.03 will so provide);
 6. remain in effect at least until final payment and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work in accordance with Paragraph 13.07; and
 7. with respect to completed operations insurance, and any insurance coverage written on a claims-made basis, remain in effect for at least two years after final payment.
 - a. Contractor shall furnish Owner and each other additional insured identified in the Supplementary Conditions, to whom a certificate of insurance has been issued, evidence satisfactory to Owner and any such additional insured of continuation of such insurance at final payment and one year thereafter.

5.05 *Owner's Liability Insurance*

- A. In addition to the insurance required to be provided by Contractor under Paragraph 5.04, Owner, at Owner's option, may purchase and maintain at Owner's expense Owner's own liability insurance as will protect Owner against claims which may arise from operations under the Contract Documents.

5.06 *Property Insurance*

- A. Unless otherwise provided in the Supplementary Conditions, Contractor shall purchase and maintain property insurance upon the Work at the Site in the amount of the full replacement cost thereof (Contractor shall be responsible for any deductible or self-insured retention.). This insurance shall:
1. include the interests of Owner, Contractor, Subcontractors, and Engineer, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, partners, employees, agents, consultants and subcontractors of any of them, each of whom is deemed to have an insurable interest and shall be listed as an insured or additional insured;
 2. be written on a Builder's Risk "all-risk" or open peril or special causes of loss policy form that shall at least include insurance for physical loss or damage to the Work, temporary buildings, falsework, and materials and equipment in transit, and shall insure against at least the following perils or causes of loss: fire, lightning, extended coverage, theft, vandalism and malicious mischief, earthquake, collapse, debris removal, demolition occasioned by enforcement of Laws and Regulations, water damage (other than caused by flood), and such other perils or causes of loss as may be specifically required by the Supplementary Conditions;
 3. include expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects);
 4. cover materials and equipment stored at the Site or at another location that was agreed to in writing by Owner prior to being incorporated in the Work, provided that such materials and equipment have been included in an Application for Payment recommended by Engineer;
 5. allow for partial utilization of the Work by Owner;
 6. include testing and startup; and
 7. be maintained in effect until final payment is made unless otherwise agreed to in writing by Owner, Contractor, and Engineer with 30 days written notice to each other additional insured to whom a certificate of insurance has been issued.
- B. Contractor shall purchase and maintain such boiler and machinery insurance or additional property insurance as may be required by the Supplementary Conditions or Laws and Regulations which will include the interests of Owner, Contractor, Subcontractors, and Engineer, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as an insured or additional insured.
- C. All the policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained in accordance with Paragraph 5.06 will contain a provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least 30 days prior written notice has been given to Owner and Contractor and to each other additional insured to whom a certificate of insurance has been issued and will contain waiver provisions in accordance with Paragraph 5.07.
- D. Owner shall not be responsible for purchasing and maintaining any property insurance specified in this Paragraph 5.06 to protect the interests of Contractor, Subcontractors, or others in the Work to the extent of any deductible amounts that are identified in the Supplementary Conditions. The risk of loss within such identified deductible amount will be borne by Contractor, Subcontractors, or others suffering any such loss, and if any of them wishes property insurance coverage within the limits of such amounts, each may purchase and maintain it at the purchaser's own expense.

5.07 *Waiver of Rights*

- A. Owner and Contractor intend that all policies purchased in accordance with Paragraph 5.06 will protect Owner, Contractor, Subcontractors, and Engineer, and all other individuals or entities identified in the Supplementary Conditions to be listed as insureds or additional insureds (and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them) in such policies and will provide primary coverage for all losses and damages caused by the perils or causes of loss covered thereby. All such policies shall contain provisions to the effect that in the event of payment of any loss or damage the insurers will have no rights of recovery against any of the insureds or additional insureds thereunder. Owner and Contractor waive all rights against each other and their respective officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them for all losses and damages caused by, arising out of or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work; and, in addition, waive all such rights against Subcontractors, and Engineer, and all other individuals or entities identified in the Supplementary Conditions to be listed as insured or additional insured (and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them) under such policies for losses and damages so caused. None of the above waivers shall extend to the rights that any party making such waiver may have to the proceeds of insurance held by Contractor as trustee or otherwise payable under any policy so issued.
- B. Owner waives all rights against Contractor, Subcontractors, and Engineer, and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them for:
 - 1. loss due to business interruption, loss of use, or other consequential loss extending beyond direct physical loss or damage to Owner's property or the Work caused by, arising out of, or resulting from fire or other perils whether or not insured by Owner; and
 - 2. loss or damage to the completed Project or part thereof caused by, arising out of, or resulting from fire or other insured peril or cause of loss covered by any property insurance maintained on the completed Project or part thereof by Owner during partial utilization pursuant to Paragraph 14.05, after Substantial Completion pursuant to Paragraph 14.04, or after final payment pursuant to Paragraph 14.07.
- C. Any insurance policy maintained by Owner covering any loss, damage or consequential loss referred to in Paragraph 5.07.B shall contain provisions to the effect that in the event of payment of any such loss, damage, or consequential loss, the insurers will have no rights of recovery against Contractor, Subcontractors, or Engineer, and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them.

5.08 *Receipt and Application of Insurance Proceeds*

- A. Any insured loss under the policies of insurance required by Paragraph 5.06 will be adjusted with Contractor and made payable to Contractor as fiduciary for the insureds, as their interests may appear, subject to the requirements of any applicable mortgage clause and of Paragraph 5.08.B. Contractor shall deposit in a separate account any money so received and shall distribute it in accordance with such agreement as the parties in interest may reach. If no other special agreement is reached, the damaged Work shall be repaired or replaced, the moneys so received applied on account thereof.
- B. Contractor as fiduciary shall have power to adjust and settle any loss with the insurers unless one of the parties in interest shall object in writing within 15 days after the occurrence of loss to Contractor's exercise of this power. If such objection be made, Contractor as fiduciary shall make settlement with the insurers in accordance with such agreement as the parties in interest may reach. If no such agreement among the parties in interest is reached, Contractor as fiduciary shall adjust and settle the loss with the insurers and, if required in writing by any party in interest, Contractor as fiduciary shall give bond for the proper performance of such duties.

5.09 *Acceptance of Bonds and Insurance; Option to Replace*

- A. If either Owner or Contractor has any objection to the coverage afforded by or other provisions of the bonds or insurance required to be purchased and maintained by the other party in accordance with Article 5 on the basis of

non-conformance with the Contract Documents, the objecting party shall so notify the other party in writing within 10 days after receipt of the certificates (or other evidence requested) required by Paragraph 2.01.B. Owner and Contractor shall each provide to the other such additional information in respect of insurance provided as the other may reasonably request. If either party does not purchase or maintain all of the bonds and insurance required of such party by the Contract Documents, such party shall notify the other party in writing of such failure to purchase prior to the start of the Work, or of such failure to maintain prior to any change in the required coverage. Without prejudice to any other right or remedy, the other party may elect to obtain equivalent bonds or insurance to protect such other party's interests at the expense of the party who was required to provide such coverage, and a Change Order shall be issued to adjust the Contract Price accordingly.

5.10 *Partial Utilization, Acknowledgment of Property Insurer*

- A. If Owner finds it necessary to occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work as provided in Paragraph 14.05, no such use or occupancy shall commence before the insurers providing the property insurance pursuant to Paragraph 5.06 have acknowledged notice thereof and in writing effected any changes in coverage necessitated thereby. The insurers providing the property insurance shall consent by endorsement on the policy or policies, but the property insurance shall not be canceled or permitted to lapse on account of any such partial use or occupancy.

ARTICLE 6 – CONTRACTOR’S RESPONSIBILITIES

6.01 *Supervision and Superintendence*

- A. Contractor shall supervise, inspect, and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents. Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction. Contractor shall not be responsible for the negligence of Owner or Engineer in the design or specification of a specific means, method, technique, sequence, or procedure of construction which is shown or indicated in and expressly required by the Contract Documents.
- B. At all times during the progress of the Work, Contractor shall assign a competent resident superintendent who shall not be replaced without written notice to Owner and Engineer except under extraordinary circumstances. The superintendent will be Contractor's representative at the Site and shall have authority to act on behalf of Contractor. All communications given to or received from the superintendent shall be binding on Contractor.

6.02 *Labor; Working Hours*

- A. Contractor shall provide competent, suitably qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents. Contractor shall at all times maintain good discipline and order at the Site.
- B. Except as otherwise required for the safety or protection of persons or the Work or property at the Site or adjacent thereto, and except as otherwise stated in the Contract Documents, all Work at the Site shall be performed during regular working hours. Contractor will not permit the performance of Work on a Saturday, Sunday, or any legal holiday without Owner's written consent (which will not be unreasonably withheld) given after prior written notice to Engineer.

6.03 *Services, Materials, and Equipment*

- A. Unless otherwise specified in the Contract Documents, Contractor shall provide and assume full responsibility for all services, materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities, and all other facilities and incidentals necessary for the performance, testing, start-up, and completion of the Work.
- B. All materials and equipment incorporated into the Work shall be as specified or, if not specified, shall be of good quality and new, except as otherwise provided in the Contract Documents. All special warranties and guarantees

required by the Specifications shall expressly run to the benefit of Owner. If required by Engineer, Contractor shall furnish satisfactory evidence (including reports of required tests) as to the source, kind, and quality of materials and equipment.

- C. All materials and equipment shall be stored, applied, installed, connected, erected, protected, used, cleaned, and conditioned in accordance with instructions of the applicable Supplier, except as otherwise may be provided in the Contract Documents.

6.04 *Progress Schedule*

- A. Contractor shall adhere to the Progress Schedule established in accordance with Paragraph 2.07 as it may be adjusted from time to time as provided below.
 - 1. Contractor shall submit to Engineer for acceptance (to the extent indicated in Paragraph 2.07) proposed adjustments in the Progress Schedule that will not result in changing the Contract Times. Such adjustments will comply with any provisions of the General Requirements applicable thereto.
 - 2. Proposed adjustments in the Progress Schedule that will change the Contract Times shall be submitted in accordance with the requirements of Article 12. Adjustments in Contract Times may only be made by a Change Order.

6.05 *Substitutes and "Or-Equals"*

- A. Whenever an item of material or equipment is specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier, the specification or description is intended to establish the type, function, appearance, and quality required. Unless the specification or description contains or is followed by words reading that no like, equivalent, or "or-equal" item or no substitution is permitted, other items of material or equipment or material or equipment of other Suppliers may be submitted to Engineer for review under the circumstances described below.
 - 1. *"Or-Equal" Items:* If in Engineer's sole discretion an item of material or equipment proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, it may be considered by Engineer as an "or-equal" item, in which case review and approval of the proposed item may, in Engineer's sole discretion, be accomplished without compliance with some or all of the requirements for approval of proposed substitute items. For the purposes of this Paragraph 6.05.A.1, a proposed item of material or equipment will be considered functionally equal to an item so named if:
 - a. in the exercise of reasonable judgment Engineer determines that:
 - 1) it is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;
 - 2) it will reliably perform at least equally well the function and achieve the results imposed by the design concept of the completed Project as a functioning whole;
 - 3) it has a proven record of performance and availability of responsive service; and
 - b. Contractor certifies that, if approved and incorporated into the Work:
 - 1) there will be no increase in cost to the Owner or increase in Contract Times, and
 - 2) it will conform substantially to the detailed requirements of the item named in the Contract Documents.
 - 2. Substitute Items

- a. If in Engineer's sole discretion an item of material or equipment proposed by Contractor does not qualify as an "or-equal" item under Paragraph 6.05.A.1, it will be considered a proposed substitute item.
 - b. Contractor shall submit sufficient information as provided below to allow Engineer to determine that the item of material or equipment proposed is essentially equivalent to that named and an acceptable substitute therefor. Requests for review of proposed substitute items of material or equipment will not be accepted by Engineer from anyone other than Contractor.
 - c. The procedure requirements for review by Engineer will be as set forth in Paragraph 6.05.A.2.d, as supplemented in the General Requirements and as Engineer may decide is appropriate under the circumstances.
 - d. Contractor shall make written application to Engineer for review of a proposed substitute item of material or equipment that Contractor seeks to furnish or use. The application:
 - 1) shall certify that the proposed substitute item will:
 - a) will perform adequately the functions and achieve the results called for by the general design,
 - b) be similar in substance to that specified, and
 - c) be suited to the same use as that specified;
 - 2) will state:
 - a) the extent, if any, to which the use of the proposed substitute item will prejudice Contractor's achievement of Substantial Completion on time;
 - b) whether or not use of the proposed substitute item in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with Owner for other work on the Project) to adapt the design to the proposed substitute item; and
 - c) whether or not incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty;
 - 3) will identify:
 - a) all variations of the proposed substitute item from that specified , and
 - b) available engineering, sales, maintenance, repair, and replacement services;
 - 4) and shall contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including costs of redesign and claims of other contractors affected by any resulting change.
- B. *Substitute Construction Methods or Procedures:* If a specific means, method, technique, sequence, or procedure of construction is expressly required by the Contract Documents, Contractor may furnish or utilize a substitute means, method, technique, sequence, or procedure of construction approved by Engineer. Contractor shall submit sufficient information to allow Engineer, in Engineer's sole discretion, to determine that the substitute proposed is equivalent to that expressly called for by the Contract Documents. The requirements for review by Engineer will be similar to those provided in Paragraph 6.05.A.2.
- C. *Engineer's Evaluation:* Engineer will be allowed a reasonable time within which to evaluate each proposal or submittal made pursuant to Paragraphs 6.05.A and 6.05.B. Engineer may require Contractor to furnish additional data about the proposed substitute item. Engineer will be the sole judge of acceptability. No "or equal" or

substitute will be ordered, installed or utilized until Engineer's review is complete, which will be evidenced by either a Change Order for a substitute or an approved Shop Drawing for an "or equal." Engineer will advise Contractor in writing of any negative determination.

- D. *Special Guarantee:* Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.
- E. *Engineer's Cost Reimbursement:* Engineer will record Engineer's costs in evaluating a substitute proposed or submitted by Contractor pursuant to Paragraphs 6.05.A.2 and 6.05.B. Whether or not Engineer approves a substitute item so proposed or submitted by Contractor, Contractor shall reimburse Owner for the charges of Engineer for evaluating each such proposed substitute. Contractor shall also reimburse Owner for the charges of Engineer for making changes in the Contract Documents (or in the provisions of any other direct contract with Owner) resulting from the acceptance of each proposed substitute.
- F. *Contractor's Expense:* Contractor shall provide all data in support of any proposed substitute or "or-equal" at Contractor's expense.

6.06 *Concerning Subcontractors, Suppliers, and Others*

- A. Contractor shall not employ any Subcontractor, Supplier, or other individual or entity (including those acceptable to Owner as indicated in Paragraph 6.06.B), whether initially or as a replacement, against whom Owner may have reasonable objection. Contractor shall not be required to employ any Subcontractor, Supplier, or other individual or entity to furnish or perform any of the Work against whom Contractor has reasonable objection.
- B. If the Supplementary Conditions require the identity of certain Subcontractors, Suppliers, or other individuals or entities to be submitted to Owner in advance for acceptance by Owner by a specified date prior to the Effective Date of the Agreement, and if Contractor has submitted a list thereof in accordance with the Supplementary Conditions, Owner's acceptance (either in writing or by failing to make written objection thereto by the date indicated for acceptance or objection in the Bidding Documents or the Contract Documents) of any such Subcontractor, Supplier, or other individual or entity so identified may be revoked on the basis of reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor, Supplier, or other individual or entity, and the Contract Price will be adjusted by the difference in the cost occasioned by such replacement, and an appropriate Change Order will be issued. No acceptance by Owner of any such Subcontractor, Supplier, or other individual or entity, whether initially or as a replacement, shall constitute a waiver of any right of Owner or Engineer to reject defective Work.
- C. Contractor shall be fully responsible to Owner and Engineer for all acts and omissions of the Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work just as Contractor is responsible for Contractor's own acts and omissions. Nothing in the Contract Documents:
 - 1. shall create for the benefit of any such Subcontractor, Supplier, or other individual or entity any contractual relationship between Owner or Engineer and any such Subcontractor, Supplier or other individual or entity, nor
 - 2. shall anything in the Contract Documents create any obligation on the part of Owner or Engineer to pay or to see to the payment of any moneys due any such Subcontractor, Supplier, or other individual or entity except as may otherwise be required by Laws and Regulations.
- D. Contractor shall be solely responsible for scheduling and coordinating the Work of Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work under a direct or indirect contract with Contractor.
- E. Contractor shall require all Subcontractors, Suppliers, and such other individuals or entities performing or furnishing any of the Work to communicate with Engineer through Contractor.

- F. The divisions and sections of the Specifications and the identifications of any Drawings shall not control Contractor in dividing the Work among Subcontractors or Suppliers or delineating the Work to be performed by any specific trade.
- G. All Work performed for Contractor by a Subcontractor or Supplier will be pursuant to an appropriate agreement between Contractor and the Subcontractor or Supplier which specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract Documents for the benefit of Owner and Engineer. Whenever any such agreement is with a Subcontractor or Supplier who is listed as an additional insured on the property insurance provided in Paragraph 5.06, the agreement between the Contractor and the Subcontractor or Supplier will contain provisions whereby the Subcontractor or Supplier waives all rights against Owner, Contractor, and Engineer, and all other individuals or entities identified in the Supplementary Conditions to be listed as insureds or additional insureds (and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them) for all losses and damages caused by, arising out of, relating to, or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work. If the insurers on any such policies require separate waiver forms to be signed by any Subcontractor or Supplier, Contractor will obtain the same.

6.07 *Patent Fees and Royalties*

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

6.08 *Permits*

- A. Unless otherwise provided in the Supplementary Conditions, Contractor shall obtain and pay for all construction permits and licenses. Owner shall assist Contractor, when necessary, in obtaining such permits and licenses. Contractor shall pay all governmental charges and inspection fees necessary for the prosecution of the Work which are applicable at the time of opening of Bids, or, if there are no Bids, on the Effective Date of the Agreement. Owner shall pay all charges of utility owners for connections for providing permanent service to the Work.

6.09 *Laws and Regulations*

- A. Contractor shall give all notices required by and shall comply with all Laws and Regulations applicable to the performance of the Work. Except where otherwise expressly required by applicable Laws and Regulations, neither Owner nor Engineer shall be responsible for monitoring Contractor's compliance with any Laws or Regulations.
- B. If Contractor performs any Work knowing or having reason to know that it is contrary to Laws or Regulations, Contractor shall bear all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such Work. However, it shall not be Contractor's primary responsibility to make certain that the Specifications and Drawings are in accordance with Laws and Regulations, but this shall not relieve Contractor of Contractor's obligations under Paragraph 3.03.

- C. Changes in Laws or Regulations not known at the time of opening of Bids (or, on the Effective Date of the Agreement if there were no Bids) having an effect on the cost or time of performance of the Work shall be the subject of an adjustment in Contract Price or Contract Times. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefor as provided in Paragraph 10.05.

6.10 *Taxes*

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

6.11 *Use of Site and Other Areas*

A. *Limitation on Use of Site and Other Areas*

1. Contractor shall confine construction equipment, the storage of materials and equipment, and the operations of workers to the Site and other areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and other areas with construction equipment or other materials or equipment. Contractor shall assume full responsibility for any damage to any such land or area, or to the owner or occupant thereof, or of any adjacent land or areas resulting from the performance of the Work.
2. Should any claim be made by any such owner or occupant because of the performance of the Work, Contractor shall promptly settle with such other party by negotiation or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law.
3. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any claim or action, legal or equitable, brought by any such owner or occupant against Owner, Engineer, or any other party indemnified hereunder to the extent caused by or based upon Contractor's performance of the Work.

- B. *Removal of Debris During Performance of the Work:* During the progress of the Work Contractor shall keep the Site and other areas free from accumulations of waste materials, rubbish, and other debris. Removal and disposal of such waste materials, rubbish, and other debris shall conform to applicable Laws and Regulations.

- C. *Cleaning:* Prior to Substantial Completion of the Work, Contractor shall clean the Site and the Work and make it ready for utilization by Owner. At the completion of the Work Contractor shall remove from the Site all tools, appliances, construction equipment and machinery, and surplus materials and shall restore to original condition all property not designated for alteration by the Contract Documents.

- D. *Loading Structures:* Contractor shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall Contractor subject any part of the Work or adjacent property to stresses or pressures that will endanger it.

6.12 *Record Documents*

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

6.13 *Safety and Protection*

- A. Contractor shall be solely responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work. Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury or loss to:
 - 1. all persons on the Site or who may be affected by the Work;
 - 2. all the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and
 - 3. other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction.
- B. Contractor shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection. Contractor shall notify owners of adjacent property and of Underground Facilities and other utility owners when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property.
- C. All damage, injury, or loss to any property referred to in Paragraph 6.13.A.2 or 6.13.A.3 caused, directly or indirectly, in whole or in part, by Contractor, any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be remedied by Contractor (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of Owner or Engineer or , or anyone employed by any of them, or anyone for whose acts any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of Contractor or any Subcontractor, Supplier, or other individual or entity directly or indirectly employed by any of them).
- D. Contractor's duties and responsibilities for safety and for protection of the Work shall continue until such time as all the Work is completed and Engineer has issued a notice to Owner and Contractor in accordance with Paragraph 14.07.B that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion).

6.14 *Safety Representative*

- A. Contractor shall designate a qualified and experienced safety representative at the Site whose duties and responsibilities shall be the prevention of accidents and the maintaining and supervising of safety precautions and programs.

6.15 *Hazard Communication Programs*

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

6.16 *Emergencies*

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

6.17 *Shop Drawings and Samples*

- A. Contractor shall submit Shop Drawings and Samples to Engineer for review and approval in accordance with the acceptable Schedule of Submittals (as required by Paragraph 2.07). Each submittal will be identified as Engineer may require.
 - 1. *Shop Drawings*
 - a. Submit number of copies specified in the General Requirements.
 - b. Data shown on the Shop Drawings will be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show Engineer the services, materials, and equipment Contractor proposes to provide and to enable Engineer to review the information for the limited purposes required by Paragraph 6.17.D.
 - 2. *Samples*
 - a. Submit number of Samples specified in the Specifications.
 - b. Clearly identify each Sample as to material, Supplier, pertinent data such as catalog numbers, the use for which intended and other data as Engineer may require to enable Engineer to review the submittal for the limited purposes required by Paragraph 6.17.D.
- B. Where a Shop Drawing or Sample is required by the Contract Documents or the Schedule of Submittals, any related Work performed prior to Engineer's review and approval of the pertinent submittal will be at the sole expense and responsibility of Contractor.
- C. *Submittal Procedures*
 - 1. Before submitting each Shop Drawing or Sample, Contractor shall have determined and verified:
 - a. all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect thereto;
 - b. the suitability of all materials with respect to intended use, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work;
 - c. all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto; and
 - d. shall also have reviewed and coordinated each Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents.
 - 2. Each submittal shall bear a stamp or specific written certification that Contractor has satisfied Contractor's obligations under the Contract Documents with respect to Contractor's review and approval of that submittal.
 - 3. With each submittal, Contractor shall give Engineer specific written notice of any variations, that the Shop Drawing or Sample may have from the requirements of the Contract Documents. This notice shall be both a written communication separate from the Shop Drawings or Sample submittal; and, in addition, by a specific notation made on each Shop Drawing or Sample submitted to Engineer for review and approval of each such variation.
- D. *Engineer's Review*

1. Engineer will provide timely review of Shop Drawings and Samples in accordance with the Schedule of Submittals acceptable to Engineer. Engineer's review and approval will be only to determine if the items covered by the submittals will, after installation or incorporation in the Work, conform to the information given in the Contract Documents and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.
2. Engineer's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction (except where a particular means, method, technique, sequence, or procedure of construction is specifically and expressly called for by the Contract Documents) or to safety precautions or programs incident thereto. The review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.
3. Engineer's review and approval shall not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has complied with the requirements of Paragraph 6.17.C.3 and Engineer has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample. Engineer's review and approval shall not relieve Contractor from responsibility for complying with the requirements of Paragraph 6.17.C.1.

E. *Resubmittal Procedures*

1. Contractor shall make corrections required by Engineer and shall return the required number of corrected copies of Shop Drawings and submit, as required, new Samples for review and approval. Contractor shall direct specific attention in writing to revisions other than the corrections called for by Engineer on previous submittals.

6.18 *Continuing the Work*

- A. Contractor shall carry on the Work and adhere to the Progress Schedule during all disputes or disagreements with Owner. No Work shall be delayed or postponed pending resolution of any disputes or disagreements, except as permitted by Paragraph 15.04 or as Owner and Contractor may otherwise agree in writing.

6.19 *Contractor's General Warranty and Guarantee*

- A. Contractor warrants and guarantees to Owner that all Work will be in accordance with the Contract Documents and will not be defective. Engineer and its Related Entities shall be entitled to rely on representation of Contractor's warranty and guarantee.
- B. Contractor's warranty and guarantee hereunder excludes defects or damage caused by:
 1. abuse, modification, or improper maintenance or operation by persons other than Contractor, Subcontractors, Suppliers, or any other individual or entity for whom Contractor is responsible; or
 2. normal wear and tear under normal usage.
- C. Contractor's obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents or a release of Contractor's obligation to perform the Work in accordance with the Contract Documents:
 1. observations by Engineer;
 2. recommendation by Engineer or payment by Owner of any progress or final payment;
 3. the issuance of a certificate of Substantial Completion by Engineer or any payment related thereto by Owner;

4. use or occupancy of the Work or any part thereof by Owner;
5. any review and approval of a Shop Drawing or Sample submittal or the issuance of a notice of acceptability by Engineer;
6. any inspection, test, or approval by others; or
7. any correction of defective Work by Owner.

6.20 *Indemnification*

- A. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the performance of the Work, provided that any such claim, cost, loss, or damage is attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom but only to the extent caused by any negligent act or omission of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work or anyone for whose acts any of them may be liable.
- B. In any and all claims against Owner or Engineer or any of their respective consultants, agents, officers, directors, partners, or employees by any employee (or the survivor or personal representative of such employee) of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under Paragraph 6.20.A shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for Contractor or any such Subcontractor, Supplier, or other individual or entity under workers' compensation acts, disability benefit acts, or other employee benefit acts.
- C. The indemnification obligations of Contractor under Paragraph 6.20.A shall not extend to the liability of Engineer and Engineer's officers, directors, partners, employees, agents, consultants and subcontractors arising out of:
 1. the preparation or approval of, or the failure to prepare or approve, maps, Drawings, opinions, reports, surveys, Change Orders, designs, or Specifications; or
 2. giving directions or instructions, or failing to give them, if that is the primary cause of the injury or damage.

6.21 *Delegation of Professional Design Services*

- A. Contractor will not be required to provide professional design services unless such services are specifically required by the Contract Documents for a portion of the Work or unless such services are required to carry out Contractor's responsibilities for construction means, methods, techniques, sequences and procedures. Contractor shall not be required to provide professional services in violation of applicable law.
- B. If professional design services or certifications by a design professional related to systems, materials or equipment are specifically required of Contractor by the Contract Documents, Owner and Engineer will specify all performance and design criteria that such services must satisfy. Contractor shall cause such services or certifications to be provided by a properly licensed professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings and other submittals prepared by such professional. Shop Drawings and other submittals related to the Work designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to Engineer.
- C. Owner and Engineer shall be entitled to rely upon the adequacy, accuracy and completeness of the services, certifications or approvals performed by such design professionals, provided Owner and Engineer have specified to Contractor all performance and design criteria that such services must satisfy.

- D. Pursuant to this Paragraph 6.21, Engineer's review and approval of design calculations and design drawings will be only for the limited purpose of checking for conformance with performance and design criteria given and the design concept expressed in the Contract Documents. Engineer's review and approval of Shop Drawings and other submittals (except design calculations and design drawings) will be only for the purpose stated in Paragraph 6.17.D.1.
- E. Contractor shall not be responsible for the adequacy of the performance or design criteria required by the Contract Documents.

ARTICLE 7 – OTHER WORK AT THE SITE

7.01 *Related Work at Site*

- A. Owner may perform other work related to the Project at the Site with Owner's employees, or via other direct contracts therefor, or have other work performed by utility owners. If such other work is not noted in the Contract Documents, then:
 - 1. written notice thereof will be given to Contractor prior to starting any such other work; and
 - 2. if Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times that should be allowed as a result of such other work, a Claim may be made therefor as provided in Paragraph 10.05.
- B. Contractor shall afford each other contractor who is a party to such a direct contract, each utility owner and Owner, if Owner is performing other work with Owner's employees, proper and safe access to the Site, a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work, and shall properly coordinate the Work with theirs. Contractor shall do all cutting, fitting, and patching of the Work that may be required to properly connect or otherwise make its several parts come together and properly integrate with such other work. Contractor shall not endanger any work of others by cutting, excavating, or otherwise altering their work and will only cut or alter their work with the written consent of Engineer and the others whose work will be affected. The duties and responsibilities of Contractor under this Paragraph are for the benefit of such utility owners and other contractors to the extent that there are comparable provisions for the benefit of Contractor in said direct contracts between Owner and such utility owners and other contractors.
- C. If the proper execution or results of any part of Contractor's Work depends upon work performed by others under this Article 7, Contractor shall inspect such other work and promptly report to Engineer in writing any delays, defects, or deficiencies in such other work that render it unavailable or unsuitable for the proper execution and results of Contractor's Work. Contractor's failure to so report will constitute an acceptance of such other work as fit and proper for integration with Contractor's Work except for latent defects and deficiencies in such other work.

7.02 *Coordination*

- A. If Owner intends to contract with others for the performance of other work on the Project at the Site, the following will be set forth in Supplementary Conditions:
 - 1. the individual or entity who will have authority and responsibility for coordination of the activities among the various contractors will be identified;
 - 2. the specific matters to be covered by such authority and responsibility will be itemized; and
 - 3. the extent of such authority and responsibilities will be provided.
- B. Unless otherwise provided in the Supplementary Conditions, Owner shall have sole authority and responsibility for such coordination.

7.03 *Legal Relationships*

- A. Paragraphs 7.01.A and 7.02 are not applicable for utilities not under the control of Owner.
- B. Each other direct contract of Owner under Paragraph 7.01.A shall provide that the other contractor is liable to Owner and Contractor for the reasonable direct delay and disruption costs incurred by Contractor as a result of the other contractor's actions or inactions.
- C. Contractor shall be liable to Owner and any other contractor for the reasonable direct delay and disruption costs incurred by such other contractor as a result of Contractor's action or inactions.

ARTICLE 8 – OWNER'S RESPONSIBILITIES

8.01 *Communications to Contractor*

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

8.02 *Replacement of Engineer*

- A. In case of termination of the employment of Engineer, Owner shall appoint an engineer to whom Contractor makes no reasonable objection, whose status under the Contract Documents shall be that of the former Engineer.

8.03 *Furnish Data*

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

8.04 *Pay When Due*

- A. Owner shall make payments to Contractor when they are due as provided in Paragraphs 14.02.C and 14.07.C.

8.05 *Lands and Easements; Reports and Tests*

- A. Owner's duties in respect of providing lands and easements and providing engineering surveys to establish reference points are set forth in Paragraphs 4.01 and 4.05. Paragraph 4.02 refers to Owner's identifying and making available to Contractor copies of reports of explorations and tests of subsurface conditions and drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site that have been utilized by Engineer in preparing the Contract Documents.

8.06 *Insurance*

- A. Owner's responsibilities, if any, in respect to purchasing and maintaining liability and property insurance are set forth in Article 5.

8.07 *Change Orders*

- A. Owner is obligated to execute Change Orders as indicated in Paragraph 10.03.

8.08 *Inspections, Tests, and Approvals*

- A. Owner's responsibility in respect to certain inspections, tests, and approvals is set forth in Paragraph 13.03.B.

8.09 *Limitations on Owner's Responsibilities*

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

8.10 *Undisclosed Hazardous Environmental Condition*

- A. Owner's responsibility in respect to an undisclosed Hazardous Environmental Condition is set forth in Paragraph 4.06.

8.11 *Evidence of Financial Arrangements*

- A. If and to the extent Owner has agreed to furnish Contractor reasonable evidence that financial arrangements have been made to satisfy Owner's obligations under the Contract Documents, Owner's responsibility in respect thereof will be as set forth in the Supplementary Conditions.

ARTICLE 9 – ENGINEER'S STATUS DURING CONSTRUCTION

9.01 *Owner's Representative*

- A. Engineer will be Owner's representative during the construction period. The duties and responsibilities and the limitations of authority of Engineer as Owner's representative during construction are set forth in the Contract Documents and will not be changed without written consent of Owner and Engineer.

9.02 *Visits to Site*

- A. Engineer will make visits to the Site at intervals appropriate to the various stages of construction as Engineer deems necessary in order to observe as an experienced and qualified design professional the progress that has been made and the quality of the various aspects of Contractor's executed Work. Based on information obtained during such visits and observations, Engineer, for the benefit of Owner, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. Engineer will not be required to make exhaustive or continuous inspections on the Site to check the quality or quantity of the Work. Engineer's efforts will be directed toward providing for Owner a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits and observations, Engineer will keep Owner informed of the progress of the Work and will endeavor to guard Owner against defective Work.
- B. Engineer's visits and observations are subject to all the limitations on Engineer's authority and responsibility set forth in Paragraph 9.09. Particularly, but without limitation, during or as a result of Engineer's visits or observations of Contractor's Work Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work.

9.03 *Project Representative*

- A. If Owner and Engineer agree, Engineer will furnish a Resident Project Representative to assist Engineer in providing more extensive observation of the Work. The authority and responsibilities of any such Resident Project Representative and assistants will be as provided in the Supplementary Conditions, and limitations on the responsibilities thereof will be as provided in Paragraph 9.09. If Owner designates another representative or agent to represent Owner at the Site who is not Engineer's consultant, agent or employee, the responsibilities and authority and limitations thereon of such other individual or entity will be as provided in the Supplementary Conditions.

9.04 *Authorized Variations in Work*

- A. Engineer may authorize minor variations in the Work from the requirements of the Contract Documents which do not involve an adjustment in the Contract Price or the Contract Times and are compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. These may be accomplished by a Field Order and will be binding on Owner and also on Contractor, who shall perform the Work involved promptly. If Owner or Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, or both, and the parties are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefor as provided in Paragraph 10.05.

9.05 *Rejecting Defective Work*

- A. Engineer will have authority to reject Work which Engineer believes to be defective, or that Engineer believes will not produce a completed Project that conforms to the Contract Documents or that will prejudice the integrity of the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. Engineer will also have authority to require special inspection or testing of the Work as provided in Paragraph 13.04, whether or not the Work is fabricated, installed, or completed.

9.06 *Shop Drawings, Change Orders and Payments*

- A. In connection with Engineer's authority, and limitations thereof, as to Shop Drawings and Samples, see Paragraph 6.17.
- B. In connection with Engineer's authority, and limitations thereof, as to design calculations and design drawings submitted in response to a delegation of professional design services, if any, see Paragraph 6.21.
- C. In connection with Engineer's authority as to Change Orders, see Articles 10, 11, and 12.
- D. In connection with Engineer's authority as to Applications for Payment, see Article 14.

9.07 *Determinations for Unit Price Work*

- A. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor. Engineer will review with Contractor the Engineer's preliminary determinations on such matters before rendering a written decision thereon (by recommendation of an Application for Payment or otherwise). Engineer's written decision thereon will be final and binding (except as modified by Engineer to reflect changed factual conditions or more accurate data) upon Owner and Contractor, subject to the provisions of Paragraph 10.05.

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

- A. Engineer will be the initial interpreter of the requirements of the Contract Documents and judge of the acceptability of the Work thereunder. All matters in question and other matters between Owner and Contractor arising prior to the date final payment is due relating to the acceptability of the Work, and the interpretation of the requirements of the Contract Documents pertaining to the performance of the Work, will be referred initially to Engineer in writing within 30 days of the event giving rise to the question.
- B. Engineer will, with reasonable promptness, render a written decision on the issue referred. If Owner or Contractor believe that any such decision entitles them to an adjustment in the Contract Price or Contract Times or both, a Claim may be made under Paragraph 10.05. The date of Engineer's decision shall be the date of the event giving rise to the issues referenced for the purposes of Paragraph 10.05.B.
- C. Engineer's written decision on the issue referred will be final and binding on Owner and Contractor, subject to the provisions of Paragraph 10.05.

- D. When functioning as interpreter and judge under this Paragraph 9.08, Engineer will not show partiality to Owner or Contractor and will not be liable in connection with any interpretation or decision rendered in good faith in such capacity.

9.09 *Limitations on Engineer's Authority and Responsibilities*

- A. Neither Engineer's authority or responsibility under this Article 9 or under any other provision of the Contract Documents nor any decision made by Engineer in good faith either to exercise or not exercise such authority or responsibility or the undertaking, exercise, or performance of any authority or responsibility by Engineer shall create, impose, or give rise to any duty in contract, tort, or otherwise owed by Engineer to Contractor, any Subcontractor, any Supplier, any other individual or entity, or to any surety for or employee or agent of any of them.
- B. Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Engineer will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.
- C. Engineer will not be responsible for the acts or omissions of Contractor or of any Subcontractor, any Supplier, or of any other individual or entity performing any of the Work.
- D. Engineer's review of the final Application for Payment and accompanying documentation and all maintenance and operating instructions, schedules, guarantees, bonds, certificates of inspection, tests and approvals, and other documentation required to be delivered by Paragraph 14.07.A will only be to determine generally that their content complies with the requirements of, and in the case of certificates of inspections, tests, and approvals that the results certified indicate compliance with the Contract Documents.
- E. The limitations upon authority and responsibility set forth in this Paragraph 9.09 shall also apply to the Resident Project Representative, if any, and assistants, if any.

ARTICLE 10 – CHANGES IN THE WORK; CLAIMS

10.01 *Authorized Changes in the Work*

- A. Without invalidating the Contract and without notice to any surety, Owner may, subject to written approval by Agency at any time or from time to time, order additions, deletions, or revisions in the Work by a Change Order, or a Work Change Directive. Upon receipt of any such document, Contractor shall promptly proceed with the Work involved which will be performed under the applicable conditions of the Contract Documents (except as otherwise specifically provided).
- B. If Owner and Contractor are unable to agree on entitlement to, or on the amount or extent, if any, of an adjustment in the Contract Price or Contract Times, or both, that should be allowed as a result of a Work Change Directive, a Claim may be made therefor as provided in Paragraph 10.05.

10.02 *Unauthorized Changes in the Work*

- A. Contractor shall not be entitled to an increase in the Contract Price or an extension of the Contract Times with respect to any work performed that is not required by the Contract Documents as amended, modified, or supplemented as provided in Paragraph 3.04, except in the case of an emergency as provided in Paragraph 6.16 or in the case of uncovering Work as provided in Paragraph 13.04.B.

10.03 *Execution of Change Orders*

- A. Owner and Contractor shall execute appropriate Change Orders recommended by Engineer covering:
1. changes in the Work which are: (i) ordered by Owner pursuant to Paragraph 10.01.A, (ii) required because of acceptance of defective Work under Paragraph 13.08.A or Owner's correction of defective Work under Paragraph 13.09, or (iii) agreed to by the parties;
 2. changes in the Contract Price or Contract Times which are agreed to by the parties, including any undisputed sum or amount of time for Work actually performed in accordance with a Work Change Directive; and
 3. changes in the Contract Price or Contract Times which embody the substance of any written decision rendered by Engineer pursuant to Paragraph 10.05; provided that, in lieu of executing any such Change Order, an appeal may be taken from any such decision in accordance with the provisions of the Contract Documents and applicable Laws and Regulations, but during any such appeal, Contractor shall carry on the Work and adhere to the Progress Schedule as provided in Paragraph 6.18.A.

10.04 *Notification to Surety*

- A. If 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 Times) 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. The amount of each applicable bond will be adjusted to reflect the effect of any such change.

10.05 *Claims*

- A. *Engineer's Decision Required:* All Claims, except those waived pursuant to Paragraph 14.09, shall be referred to the Engineer for decision. A decision by Engineer shall be required as a condition precedent to any exercise by Owner or Contractor of any rights or remedies either may otherwise have under the Contract Documents or by Laws and Regulations in respect of such Claims.
- B. *Notice:* Written notice stating the general nature of each Claim shall be delivered by the claimant to Engineer and the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto. The responsibility to substantiate a Claim shall rest with the party making the Claim. Notice of the amount or extent of the Claim, with supporting data shall be delivered to the Engineer and the other party to the Contract within 60 days after the start of such event (unless Engineer allows additional time for claimant to submit additional or more accurate data in support of such Claim). A Claim for an adjustment in Contract Price shall be prepared in accordance with the provisions of Paragraph 12.01.B. A Claim for an adjustment in Contract Time shall be prepared in accordance with the provisions of Paragraph 12.02.B. Each Claim shall be accompanied by claimant's written statement that the adjustment claimed is the entire adjustment to which the claimant believes it is entitled as a result of said event. The opposing party shall submit any response to Engineer and the claimant within 30 days after receipt of the claimant's last submittal (unless Engineer allows additional time).
- C. *Engineer's Action:* Engineer will review each Claim and, within 30 days after receipt of the last submittal of the claimant or the last submittal of the opposing party, if any, take one of the following actions in writing:
1. deny the Claim in whole or in part,
 2. approve the Claim, or
 3. notify the parties that the Engineer is unable to resolve the Claim if, in the Engineer's sole discretion, it would be inappropriate for the Engineer to do so. For purposes of further resolution of the Claim, such notice shall be deemed a denial.
- D. In the event that Engineer does not take action on a Claim within said 30 days, the Claim shall be deemed denied.

- E. Engineer's written action under Paragraph 10.05.C or denial pursuant to Paragraphs 10.05.C.3 or 10.05.D will be final and binding upon Owner and Contractor, unless Owner or Contractor invoke the dispute resolution procedure set forth in Article 16 within 30 days of such action or denial.
- F. No Claim for an adjustment in Contract Price or Contract Times will be valid if not submitted in accordance with this Paragraph 10.05.

ARTICLE 11 – COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK

11.01 *Cost of the Work*

- A. *Costs Included:* The term Cost of the Work means the sum of all costs, except those excluded in Paragraph 11.01.B, necessarily incurred and paid by Contractor in the proper performance of the Work. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, the costs to be reimbursed to Contractor will be only those additional or incremental costs required because of the change in the Work or because of the event giving rise to the Claim. Except as otherwise may be agreed to in 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 11.01.B.
 - 1. Payroll costs for employees in the direct employ of Contractor in the performance of the Work under schedules of job classifications agreed upon by Owner and Contractor. Such employees shall include, without limitation, superintendents, foremen, and other personnel employed full time at the Site. Payroll costs for employees not employed full time on the Work shall be apportioned on the basis of their time spent on the Work. Payroll costs shall include, but not be limited to, salaries and wages plus the cost of fringe benefits, which shall include social security contributions, unemployment, excise, and payroll taxes, workers' compensation, health and retirement benefits, bonuses, sick leave, vacation and holiday pay applicable thereto. The expenses of performing Work outside of regular working hours, on Saturday, Sunday, or legal holidays, shall be included in the above to the extent authorized by Owner.
 - 2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts shall accrue to Contractor unless Owner deposits funds with Contractor with which to make payments, in which case the cash discounts shall accrue to Owner. All trade discounts, rebates and refunds and returns from sale of surplus materials and equipment shall accrue to Owner, and Contractor shall make provisions so that they may be obtained.
 - 3. Payments made by Contractor to Subcontractors for Work performed by Subcontractors. If required by Owner, Contractor shall obtain competitive bids from subcontractors acceptable to Owner and Contractor and shall deliver such bids to Owner, who will then determine, with the advice of Engineer, which bids, if any, will be acceptable. If any subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work plus a fee, the Subcontractor's Cost of the Work and fee shall be determined in the same manner as Contractor's Cost of the Work and fee as provided in this Paragraph 11.01.
 - 4. Costs of special consultants (including but not limited to Engineers, architects, testing laboratories, surveyors, attorneys, and accountants) employed for services specifically related to the Work.
 - 5. Supplemental costs including the following:
 - a. The proportion of necessary transportation, travel, and subsistence expenses of Contractor's employees incurred in discharge of duties connected with the Work.
 - b. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office, and temporary facilities at the Site, and hand tools not owned by the workers, which are consumed in the performance of the Work, and cost, less market value, of such items used but not consumed which remain the property of Contractor.

- c. Rentals of all construction equipment and machinery, and the parts thereof whether rented from Contractor or others in accordance with rental agreements approved by Owner with the advice of Engineer, and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs shall be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts shall cease when the use thereof is no longer necessary for the Work.
 - d. Sales, consumer, use, and other similar taxes related to the Work, and for which Contractor is liable, imposed by Laws and Regulations.
 - e. Deposits lost for causes other than negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.
 - f. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by Contractor in connection with the performance of the Work (except losses and damages within the deductible amounts of property insurance established in accordance with Paragraph 5.06.D), provided such losses and damages have resulted from causes other than the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses shall include settlements made with the written consent and approval of Owner. No such losses, damages, and expenses shall be included in the Cost of the Work for the purpose of determining Contractor's fee.
 - g. The cost of utilities, fuel, and sanitary facilities at the Site.
 - h. Minor expenses such as telegrams, long distance telephone calls, telephone service at the Site, expressages, and similar petty cash items in connection with the Work.
 - i. The costs of premiums for all bonds and insurance Contractor is required by the Contract Documents to purchase and maintain.
- B. *Costs Excluded:* The term Cost of the Work shall not include any of the following items:
- 1. Payroll costs and other compensation of Contractor's officers, executives, principals (of partnerships and sole proprietorships), general managers, safety managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expeditors, timekeepers, clerks, and other personnel employed by Contractor, whether at the Site or in Contractor's principal or branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in Paragraph 11.01.A.1 or specifically covered by Paragraph 11.01.A.4, all of which are to be considered administrative costs covered by the Contractor's fee.
 - 2. Expenses of Contractor's principal and branch offices other than Contractor's office at the Site.
 - 3. Any part of Contractor's capital expenses, including interest on Contractor's capital employed for the Work and charges against Contractor for delinquent payments.
 - 4. Costs due to the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of defective Work, disposal of materials or equipment wrongly supplied, and making good any damage to property.
 - 5. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in Paragraphs 11.01.A and 11.01.B.
- C. *Contractor's Fee:* When all the Work is performed on the basis of cost-plus, Contractor's fee shall be determined as set forth in the Agreement. When the value of any Work covered by a Change Order or when a Claim for an

adjustment in Contract Price is determined on the basis of Cost of the Work, Contractor's fee shall be determined as set forth in Paragraph 12.01.C.

- D. *Documentation:* Whenever the Cost of the Work for any purpose is to be determined pursuant to Paragraphs 11.01.A and 11.01.B, Contractor will establish and maintain records thereof in accordance with generally accepted accounting practices and submit in a form acceptable to Engineer an itemized cost breakdown together with supporting data.

11.02 Allowances

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

11.03 Unit Price Work

- A. Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to the sum of the unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement.
- B. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Determinations of the actual quantities and classifications of Unit Price Work performed by Contractor will be made by Engineer subject to the provisions of Paragraph 9.07.
- C. Each unit price will be deemed to include an amount considered by Contractor to be adequate to cover Contractor's overhead and profit for each separately identified item.
- D. Owner or Contractor may make a Claim for an adjustment in the Contract Price in accordance with Paragraph 10.05 if:
1. the Bid price of a particular item of Unit Price Work amounts to more than 5 percent of the Contract Price and the variation in the quantity of that particular item of Unit Price Work performed by Contractor differs by more than 25 percent from the estimated quantity of such item indicated in the Agreement; and

2. there is no corresponding adjustment with respect to any other item of Work; and
3. Contractor believes that Contractor is entitled to an increase in Contract Price as a result of having incurred additional expense or Owner believes that Owner is entitled to a decrease in Contract Price and the parties are unable to agree as to the amount of any such increase or decrease.

ARTICLE 12 – CHANGE OF CONTRACT PRICE; CHANGE OF CONTRACT TIMES

12.01 Change of Contract Price

- A. The Contract Price may only be changed by a Change Order. Any Claim for an adjustment in the Contract Price shall be based on written notice submitted by the party making the Claim to the Engineer and the other party to the Contract in accordance with the provisions of Paragraph 10.05.
- B. The value of any Work covered by a Change Order or of any Claim for an adjustment in the Contract Price will be determined as follows:
 1. where the Work involved is covered by unit prices contained in the Contract Documents, by application of such unit prices to the quantities of the items involved (subject to the provisions of Paragraph 11.03); or
 2. where the Work involved is not covered by unit prices contained in the Contract Documents, by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with Paragraph 12.01.C.2); or
 3. where the Work involved is not covered by unit prices contained in the Contract Documents and agreement to a lump sum is not reached under Paragraph 12.01.B.2, on the basis of the Cost of the Work (determined as provided in Paragraph 11.01) plus a Contractor's fee for overhead and profit (determined as provided in Paragraph 12.01.C).
- C. Contractor's Fee: The Contractor's fee for overhead and profit shall be determined as follows:
 1. a mutually acceptable fixed fee; or
 2. if a fixed fee is not agreed upon, then a fee based on the following percentages of the various portions of the Cost of the Work:
 - a. for costs incurred under Paragraphs 11.01.A.1 and 11.01.A.2, the Contractor's fee shall be 15 percent;
 - b. for costs incurred under Paragraph 11.01.A.3, the Contractor's fee shall be five percent;
 - c. where one or more tiers of subcontracts are on the basis of Cost of the Work plus a fee and no fixed fee is agreed upon, the intent of Paragraph 12.01.C.2.a is that the Subcontractor who actually performs the Work, at whatever tier, will be paid a fee of 15 percent of the costs incurred by such Subcontractor under Paragraphs 11.01.A.1 and 11.01.A.2 and that any higher tier Subcontractor and Contractor will each be paid a fee of five percent of the amount paid to the next lower tier Subcontractor;
 - d. no fee shall be payable on the basis of costs itemized under Paragraphs 11.01.A.4, 11.01.A.5, and 11.01.B;
 - e. the amount of credit to be allowed by Contractor to Owner for any change which results in a net decrease in cost will be the amount of the actual net decrease in cost plus a deduction in Contractor's fee by an amount equal to five percent of such net decrease; and

- f. when both additions and credits are involved in any one change, the adjustment in Contractor's fee shall be computed on the basis of the net change in accordance with Paragraphs 12.01.C.2.a through 12.01.C.2.e, inclusive.

12.02 *Change of Contract Times*

- A. The Contract Times may only be changed by a Change Order. Any Claim for an adjustment in the Contract Times shall be based on written notice submitted by the party making the Claim to the Engineer and the other party to the Contract in accordance with the provisions of Paragraph 10.05.
- B. Any adjustment of the Contract Times covered by a Change Order or any Claim for an adjustment in the Contract Times will be determined in accordance with the provisions of this Article 12.

12.03 *Delays*

- A. Where Contractor is prevented from completing any part of the Work within the Contract Times due to delay beyond the control of Contractor, the Contract Times will be extended in an amount equal to the time lost due to such delay if a Claim is made therefor as provided in Paragraph 12.02.A. Delays beyond the control of Contractor shall include, but not be limited to, acts or neglect by Owner, acts or neglect of utility owners or other contractors performing other work as contemplated by Article 7, fires, floods, epidemics, abnormal weather conditions, or acts of God.
- B. If Owner, Engineer, or other contractors or utility owners performing other work for Owner as contemplated by Article 7, or anyone for whom Owner is responsible, delays, disrupts, or interferes with the performance or progress of the Work, then Contractor shall be entitled to an equitable adjustment in the Contract Price or the Contract Times, or both. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.
- C. If Contractor is delayed in the performance or progress of the Work by fire, flood, epidemic, abnormal weather conditions, acts of God, acts or failures to act of utility owners not under the control of Owner, or other causes not the fault of and beyond control of Owner and Contractor, then Contractor shall be entitled to an equitable adjustment in Contract Times, if such adjustment is essential to Contractor's ability to complete the Work within the Contract Times. Such an adjustment shall be Contractor's sole and exclusive remedy for the delays described in this Paragraph 12.03.B.
 - 1. delays caused by or within the control of Contractor; or
- D. Owner, Engineer and the Related Entities of each of them shall not be liable to Contractor for any claims, costs, losses, or damages (including but not limited to all fees and charges of Engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Contractor on or in connection with any other project or anticipated project.
- E. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delays within the control of Contractor. Delays attributable to and within the control of a Subcontractor or Supplier shall be deemed to be delays within the control of Contractor.

ARTICLE 13 – TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK

13.01 *Notice of Defects*

- A. Prompt notice of all defective Work of which Owner or Engineer has actual knowledge will be given to Contractor. All defective Work may be rejected, corrected, or accepted as provided in this Article 13.

13.02 *Access to Work*

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

13.03 *Tests and Inspections*

- A. Contractor shall give Engineer timely notice of readiness of the Work for all required inspections, tests, or approvals and shall cooperate with inspection and testing personnel to facilitate required inspections or tests.
- B. Owner shall employ and pay for the services of an independent testing laboratory to perform all inspections, tests, or approvals required by the Contract Documents except:
 - 1. for inspections, tests, or approvals covered by Paragraphs 13.03.C and 13.03.D below;
 - 2. that costs incurred in connection with tests or inspections conducted pursuant to Paragraph 13.04.B shall be paid as provided in said Paragraph 13.04.C; and
 - 3. as otherwise specifically provided in the Contract Documents.
- C. If Laws or Regulations of any public body having jurisdiction require any Work (or part thereof) specifically to be inspected, tested, or approved by an employee or other representative of such public body, Contractor shall assume full responsibility for arranging and obtaining such inspections, tests, or approvals, pay all costs in connection therewith, and furnish Engineer the required certificates of inspection or approval.
- D. Contractor shall be responsible for arranging and obtaining and shall pay all costs in connection with any inspections, tests, or approvals required for Owner's and Engineer's acceptance of materials or equipment to be incorporated in the Work; or acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work. Such inspections, tests, or approvals shall be performed by organizations acceptable to Owner and Engineer.
- E. If any Work (or the work of others) that is to be inspected, tested, or approved is covered by Contractor without written concurrence of Engineer, it must, if requested by Engineer, be uncovered for observation.
- F. Uncovering Work as provided in Paragraph 13.03.E shall be at Contractor's expense unless Contractor has given Engineer timely notice of Contractor's intention to cover the same and Engineer has not acted with reasonable promptness in response to such notice.

13.04 *Uncovering Work*

- A. If any Work is covered contrary to the written request of Engineer, it must, if requested by Engineer, be uncovered for Engineer's observation and replaced at Contractor's expense.
- B. If Engineer considers it necessary or advisable that covered Work be observed by Engineer or inspected or tested by others, Contractor, at Engineer's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as Engineer may require, that portion of the Work in question, furnishing all necessary labor, material, and equipment.
- C. If it is found that the uncovered Work is defective, Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such uncovering, exposure, observation, inspection, and testing, and of satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others); and Owner shall be entitled to an appropriate decrease in the

Contract Price. If the parties are unable to agree as to the amount thereof, Owner may make a Claim therefor as provided in Paragraph 10.05.

- D. If, the uncovered Work is not found to be defective, Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Times, or both, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement, and reconstruction. If the parties are unable to agree as to the amount or extent thereof, Contractor may make a Claim therefor as provided in Paragraph 10.05.

13.05 *Owner May Stop the Work*

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

13.06 *Correction or Removal of Defective Work*

- A. Promptly after receipt of notice, Contractor shall correct all defective Work, whether or not fabricated, installed, or completed, or, if the Work has been rejected by Engineer, remove it from the Project and replace it with Work that is not defective. Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or removal (including but not limited to all costs of repair or replacement of work of others).
- B. When correcting defective Work under the terms of this Paragraph 13.06 or Paragraph 13.07, Contractor shall take no action that would void or otherwise impair Owner's special warranty and guarantee, if any, on said Work.

13.07 *Correction Period*

- A. If within one year after the date of Substantial Completion (or such longer period of time as may be prescribed by the terms of any applicable special guarantee required by the Contract Documents) or by any specific provision of the Contract Documents, any Work is found to be defective, or if the repair of any damages to the land or areas made available for Contractor's use by Owner or permitted by Laws and Regulations as contemplated in Paragraph 6.11.A is found to be defective, Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions:
1. repair such defective land or areas; or
 2. correct such defective Work; or
 3. if the defective Work has been rejected by Owner, remove it from the Project and replace it with Work that is not defective, and
 4. satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others or other land or areas resulting therefrom.
- B. If Contractor does not promptly comply with the terms of Owner's written instructions, or in an emergency where delay would cause serious risk of loss or damage, Owner may have the defective Work corrected or repaired or may have the rejected Work removed and replaced. All claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others) will be paid by Contractor.

- C. In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications.
- D. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this Paragraph 13.07, the correction period hereunder with respect to such Work will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.
- E. Contractor's obligations under this Paragraph 13.07 are in addition to any other obligation or warranty. The provisions of this Paragraph 13.07 shall not be construed as a substitute for or a waiver of the provisions of any applicable statute of limitation or repose.

13.08 *Acceptance of Defective Work*

- A. If, instead of requiring correction or removal and replacement of defective Work, Owner (and, prior to Engineer's recommendation of final payment, Engineer) prefers to accept it, Owner may do so. Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) attributable to Owner's evaluation of and determination to accept such defective Work (such costs to be approved by Engineer as to reasonableness) and the diminished value of the Work to the extent not otherwise paid by Contractor pursuant to this sentence. If any such acceptance occurs prior to Engineer's recommendation of final payment, a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work, and Owner shall be entitled to an appropriate decrease in the Contract Price, reflecting the diminished value of Work so accepted. If the parties are unable to agree as to the amount thereof, Owner may make a Claim therefor as provided in Paragraph 10.05. If the acceptance occurs after such recommendation, an appropriate amount will be paid by Contractor to Owner.

13.09 *Owner May Correct Defective Work*

- A. If Contractor fails within a reasonable time after written notice from Engineer to correct defective Work or to remove and replace rejected Work as required by Engineer in accordance with Paragraph 13.06.A, or if Contractor fails to perform the Work in accordance with the Contract Documents, or if Contractor fails to comply with any other provision of the Contract Documents, Owner may, after seven days written notice to Contractor, correct or remedy any such deficiency.
- B. In exercising the rights and remedies under this Paragraph 13.09, Owner shall proceed expeditiously. In connection with such corrective or remedial action, Owner may exclude Contractor from all or part of the Site, take possession of all or part of the Work and suspend Contractor's services related thereto, take possession of Contractor's tools, appliances, construction equipment and machinery at the Site, and incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere. Contractor shall allow Owner, Owner's representatives, agents and employees, Owner's other contractors, and Engineer and Engineer's consultants access to the Site to enable Owner to exercise the rights and remedies under this Paragraph.
- C. All claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) incurred or sustained by Owner in exercising the rights and remedies under this Paragraph 13.09 will be charged against Contractor, and a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work; and Owner shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount of the adjustment, Owner may make a Claim therefor as provided in Paragraph 10.05. Such claims, costs, losses and damages will include but not be limited to all costs of repair, or replacement of work of others destroyed or damaged by correction, removal, or replacement of Contractor's defective Work.
- D. Contractor shall not be allowed an extension of the Contract Times because of any delay in the performance of the Work attributable to the exercise by Owner of Owner's rights and remedies under this Paragraph 13.09.

ARTICLE 14 – PAYMENTS TO CONTRACTOR AND COMPLETION

14.01 *Schedule of Values*

- A. The Schedule of Values established as provided in Paragraph 2.07.A will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to Engineer. Progress payments on account of Unit Price Work will be based on the number of units completed.

14.02 *Progress Payments*

A. *Applications for Payments*

1. At least 20 days before the date established in the Agreement for each progress payment (but not more often than once a month), Contractor shall submit to Engineer for review an Application for Payment filled out and signed by Contractor covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the Site or at another location agreed to in writing, the Application for Payment shall also be accompanied by a bill of sale, invoice, or other documentation warranting that Owner has received the materials and equipment free and clear of all Liens and evidence that the materials and equipment are covered by appropriate property insurance or other arrangements to protect Owner's interest therein, all of which must be satisfactory to Owner.
2. Beginning with the second Application for Payment, each Application shall include an affidavit of Contractor stating that all previous progress payments received on account of the Work have been applied on account to discharge Contractor's legitimate obligations associated with prior Applications for Payment.
3. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.

B. *Review of Applications*

1. Engineer will, within 10 days after receipt of each Application for Payment, either indicate in writing a recommendation of payment and present the Application to Owner or return the Application to Contractor indicating in writing Engineer's reasons for refusing to recommend payment. In the latter case, Contractor may make the necessary corrections and resubmit the Application.
2. Engineer's recommendation of any payment requested in an Application for Payment will constitute a representation by Engineer to Owner, based on Engineer's observations on the Site of the executed Work as an experienced and qualified design professional and on Engineer's review of the Application for Payment and the accompanying data and schedules, that to the best of Engineer's knowledge, information and belief:
 - a. the Work has progressed to the point indicated;
 - b. the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, to the results of any subsequent tests called for in the Contract Documents, to a final determination of quantities and classifications for Unit Price Work under Paragraph 9.07, and to any other qualifications stated in the recommendation); and
 - c. the conditions precedent to Contractor's being entitled to such payment appear to have been fulfilled in so far as it is Engineer's responsibility to observe the Work.
3. By recommending any such payment Engineer will not thereby be deemed to have represented that:
 - a. inspections made to check the quality or the quantity of the Work as it has been performed have been exhaustive, extended to every aspect of the Work in progress, or involved detailed inspections of the Work beyond the responsibilities specifically assigned to Engineer in the Contract Documents; or

- b. that there may not be other matters or issues between the parties that might entitle Contractor to be paid additionally by Owner or entitle Owner to withhold payment to Contractor.
4. Neither Engineer's review of Contractor's Work for the purposes of recommending payments nor Engineer's recommendation of any payment, including final payment, will impose responsibility on Engineer:
- a. to supervise, direct, or control the Work, or
 - b. for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or
 - c. for Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work, or
 - d. to make any examination to ascertain how or for what purposes Contractor has used the moneys paid on account of the Contract Price, or
 - e. to determine that title to any of the Work, materials, or equipment has passed to Owner free and clear of any Liens.
5. Engineer may refuse to recommend the whole or any part of any payment if, in Engineer's opinion, it would be incorrect to make the representations to Owner stated in Paragraph 14.02.B.2. Engineer may also refuse to recommend any such payment or, because of subsequently discovered evidence or the results of subsequent inspections or tests, revise or revoke any such payment recommendation previously made, to such extent as may be necessary in Engineer's opinion to protect Owner from loss because:
- a. the Work is defective, or completed Work has been damaged, requiring correction or replacement;
 - b. the Contract Price has been reduced by Change Orders;
 - c. Owner has been required to correct defective Work or complete Work in accordance with Paragraph 13.09; or
 - d. Engineer has actual knowledge of the occurrence of any of the events enumerated in Paragraph 15.02.A.

C. Payment Becomes Due

1. Ten days after presentation of the Application for Payment to Owner with Engineer's recommendation, the amount recommended will (subject to the provisions of Paragraph 14.02.D) become due, and when due will be paid by Owner to Contractor.

D. Reduction in Payment

1. Owner may refuse to make payment of the full amount recommended by Engineer because:
- a. claims have been made against Owner on account of Contractor's performance or furnishing of the Work;
 - b. Liens have been filed in connection with the Work, except where Contractor has delivered a specific bond satisfactory to Owner to secure the satisfaction and discharge of such Liens;
 - c. the Contractor's performance or furnishing of the Work is inconsistent with funding Agency requirements;
 - d. there are other items entitling Owner to a set-off against the amount recommended; or

- e. Owner has actual knowledge of the occurrence of any of the events enumerated in Paragraphs 14.02.B.5.a through 14.02.B.5.c or Paragraph 15.02.A.
2. If Owner refuses to make payment of the full amount recommended by Engineer, Owner will give Contractor immediate written notice (with a copy to Engineer) stating the reasons for such action and promptly pay Contractor any amount remaining after deduction of the amount so withheld. Owner shall promptly pay Contractor the amount so withheld, or any adjustment thereto agreed to by Owner and Contractor, when Contractor corrects to Owner's satisfaction the reasons for such action.
3. If it is subsequently determined that Owner's refusal of payment was not justified, the amount wrongfully withheld shall be treated as an amount due as determined by Paragraph 14.02.C.1.

14.03 *Contractor's Warranty of Title*

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

14.04 *Substantial Completion*

- A. When Contractor considers the entire Work ready for its intended use Contractor shall notify Owner and Engineer in writing that the entire Work is substantially complete (except for items specifically listed by Contractor as incomplete) and request that Engineer issue a certificate of Substantial Completion.
- B. Promptly after Contractor's notification, Owner, Agency, Contractor, and Engineer shall make a prefinal inspection of the Work to determine the status of completion. If Engineer does not consider the Work substantially complete, Engineer will notify Contractor in writing giving the reasons therefor.
- C. If Engineer considers the Work substantially complete, Engineer will deliver to Owner a tentative certificate of Substantial Completion which shall fix the date of Substantial Completion. There shall be attached to the certificate a tentative list of items to be completed or corrected before final payment. Owner shall have seven days after receipt of the tentative certificate during which to make written objection to Engineer as to any provisions of the certificate or attached list. If, after considering such objections, Engineer concludes that the Work is not substantially complete, Engineer will within 14 days after submission of the tentative certificate to Owner notify Contractor in writing, stating the reasons therefor. If, after consideration of Owner's objections, Engineer considers the Work substantially complete, Engineer will within said 14 days execute and deliver to Owner and Contractor a definitive certificate of Substantial Completion (with a revised tentative list of items to be completed or corrected) reflecting such changes from the tentative certificate as Engineer believes justified after consideration of any objections from Owner.
- D. At the time of delivery of the tentative certificate of Substantial Completion, Engineer will deliver to Owner and Contractor a written recommendation as to division of responsibilities pending final payment between Owner and Contractor with respect to security, operation, safety, and protection of the Work, maintenance, heat, utilities, insurance, and warranties and guarantees. Unless Owner and Contractor agree otherwise in writing and so inform Engineer in writing prior to Engineer's issuing the definitive certificate of Substantial Completion, Engineer's aforesaid recommendation will be binding on Owner and Contractor until final payment.
- E. Owner shall have the right to exclude Contractor from the Site after the date of Substantial Completion subject to allowing Contractor reasonable access to complete or correct items on the tentative list.

14.05 *Partial Utilization*

- A. Prior to Substantial Completion of all the Work, Owner may use or occupy any substantially completed part of the Work which has specifically been identified in the Contract Documents, or which Owner, Engineer, and Contractor agree constitutes a separately functioning and usable part of the Work that can be used by Owner for its

intended purpose without significant interference with Contractor's performance of the remainder of the Work, subject to the following conditions.

1. Owner at any time may request Contractor in writing to permit Owner to use or occupy any such part of the Work which Owner believes to be ready for its intended use and substantially complete. If and when Contractor agrees that such part of the Work is substantially complete, Contractor will certify to Owner and Engineer that such part of the Work is substantially complete and request Engineer to issue a certificate of Substantial Completion for that part of the Work.
2. Contractor at any time may notify Owner and Engineer in writing that Contractor considers any such part of the Work ready for its intended use and substantially complete and request Engineer to issue a certificate of Substantial Completion for that part of the Work.
3. Within a reasonable time after either such request, Owner, Contractor, and Engineer shall make an inspection of that part of the Work to determine its status of completion. If Engineer does not consider that part of the Work to be substantially complete, Engineer will notify Owner and Contractor in writing giving the reasons therefor. If Engineer considers that part of the Work to be substantially complete, the provisions of Paragraph 14.04 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.
4. No use or occupancy or separate operation of part of the Work may occur prior to compliance with the requirements of Paragraph 5.10 regarding property insurance.

14.06 *Final Inspection*

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

14.07 *Final Payment*

A. *Application for Payment*

1. After Contractor has, in the opinion of Engineer, satisfactorily completed all corrections identified during the final inspection and has delivered, in accordance with the Contract Documents, all maintenance and operating instructions, schedules, guarantees, bonds, certificates or other evidence of insurance certificates of inspection, marked-up record documents (as provided in Paragraph 6.12), and other documents, Contractor may make application for final payment following the procedure for progress payments.
2. The final Application for Payment shall be accompanied (except as previously delivered) by:
 - a. all documentation called for in the Contract Documents, including but not limited to the evidence of insurance required by Paragraph 5.04.B.7;
 - b. consent of the surety, if any, to final payment;
 - c. a list of all Claims against Owner that Contractor believes are unsettled; and
 - d. complete and legally effective releases or waivers (satisfactory to Owner) of all Lien rights arising out of or Liens filed in connection with the Work.
3. In lieu of the releases or waivers of Liens specified in Paragraph 14.07.A.2 and as approved by Owner, Contractor may furnish receipts or releases in full and an affidavit of Contractor that: (i) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (ii) all payrolls, material and equipment bills, and other indebtedness connected with the Work for which Owner or

Owner's property might in any way be responsible have been paid or otherwise satisfied. If any Subcontractor or Supplier fails to furnish such a release or receipt in full, Contractor may furnish a bond or other collateral satisfactory to Owner to indemnify Owner against any Lien.

B. Engineer's Review of Application and Acceptance

1. If, on the basis of Engineer's observation of the Work during construction and final inspection, and Engineer's review of the final Application for Payment and accompanying documentation as required by the Contract Documents, Engineer is satisfied that the Work has been completed and Contractor's other obligations under the Contract Documents have been fulfilled, Engineer will, within ten days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of payment and present the Application for Payment to Owner for payment. At the same time Engineer will also give written notice to Owner and Contractor that the Work is acceptable subject to the provisions of Paragraph 14.09. Otherwise, Engineer will return the Application for Payment to Contractor, indicating in writing the reasons for refusing to recommend final payment, in which case Contractor shall make the necessary corrections and resubmit the Application for Payment.

C. Payment Becomes Due

1. Thirty days after the presentation to Owner of the Application for Payment and accompanying documentation, the amount recommended by Engineer, less any sum Owner is entitled to set off against Engineer's recommendation, including but not limited to liquidated damages, will become due and will be paid by Owner to Contractor.

14.08 *Final Completion Delayed*

- A. If, through no fault of Contractor, final completion of the Work is significantly delayed, and if Engineer so confirms, Owner shall, upon receipt of Contractor's final Application for Payment (for Work fully completed and accepted) and recommendation of Engineer, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed and accepted. If the remaining balance to be held by Owner for Work not fully completed or corrected is less than the retainage stipulated in the Agreement, and if bonds have been furnished as required in Paragraph 5.01, the written consent of the surety to the payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by Contractor to Engineer with the Application for such payment. Such payment shall be made under the terms and conditions governing final payment, except that it shall not constitute a waiver of Claims. The remaining balance of any sum included in the final Application for Payment but held by OWNER for Work not fully completed and accepted will become due when the Work is fully completed and accepted.

14.09 *Waiver of Claims*

- A. The making and acceptance of final payment will constitute:
 1. a waiver of all Claims by Owner against Contractor, except Claims arising from unsettled Liens, from defective Work appearing after final inspection pursuant to Paragraph 14.06, from failure to comply with the Contract Documents or the terms of any special guarantees specified therein, or from Contractor's continuing obligations under the Contract Documents; and
 2. a waiver of all Claims by Contractor against Owner other than those previously made in accordance with the requirements herein and expressly acknowledged by Owner in writing as still unsettled.

ARTICLE 15 – SUSPENSION OF WORK AND TERMINATION

15.01 *Owner May Suspend Work*

- A. At any time and without cause, Owner may suspend the Work or any portion thereof for a period of not more than 90 consecutive days by notice in writing to Contractor and Engineer which will fix the date on which Work will be

resumed. Contractor shall resume the Work on the date so fixed. Contractor shall be granted an adjustment in the Contract Price or an extension of the Contract Times, or both, directly attributable to any such suspension if Contractor makes a Claim therefor as provided in Paragraph 10.05.

15.02 *Owner May Terminate for Cause*

- A. The occurrence of any one or more of the following events will justify termination for cause:
1. Contractor's persistent failure to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment or failure to adhere to the Progress Schedule established under Paragraph 2.07 as adjusted from time to time pursuant to Paragraph 6.04);
 2. Contractor's disregard of Laws or Regulations of any public body having jurisdiction;
 3. Contractor's disregard of the authority of Engineer; or
 4. Contractor's violation in any substantial way of any provisions of the Contract Documents.
- B. If one or more of the events identified in Paragraph 15.02.A occur, Owner may, after giving Contractor (and surety) seven days written notice of its intent to terminate the services of Contractor:
1. exclude Contractor from the Site, and take possession of the Work and of all Contractor's tools, appliances, construction equipment, and machinery at the Site, and use the same to the full extent they could be used by Contractor (without liability to Contractor for trespass or conversion),
 2. incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere, and
 3. complete the Work as Owner may deem expedient.
- C. If Owner proceeds as provided in Paragraph 15.02.B, Contractor shall not be entitled to receive any further payment until the Work is completed. If the unpaid balance of the Contract Price exceeds all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Owner arising out of or relating to completing the Work, such excess will be paid to Contractor. If such claims, costs, losses, and damages exceed such unpaid balance, Contractor shall pay the difference to Owner. Such claims, costs, losses, and damages incurred by Owner will be reviewed by Engineer as to their reasonableness and, when so approved by Engineer, incorporated in a Change Order. When exercising any rights or remedies under this Paragraph Owner shall not be required to obtain the lowest price for the Work performed.
- D. Notwithstanding Paragraphs 15.02.B and 15.02.C, Contractor's services will not be terminated if Contractor begins within seven days of receipt of notice of intent to terminate to correct its failure to perform and proceeds diligently to cure such failure within no more than 30 days of receipt of said notice.
- E. Where Contractor's services have been so terminated by Owner, the termination will not affect any rights or remedies of Owner against Contractor then existing or which may thereafter accrue. Any retention or payment of moneys due Contractor by Owner will not release Contractor from liability.
- F. If and to the extent that Contractor has provided a performance bond under the provisions of Paragraph 5.01.A, the termination procedures of that bond shall supersede the provisions of Paragraphs 15.02.B, and 15.02.C.

15.03 *Owner May Terminate For Convenience*

- A. Upon seven days written notice to Contractor and Engineer, Owner may, without cause and without prejudice to any other right or remedy of Owner, terminate the Contract. In such case, Contractor shall be paid for (without duplication of any items):
1. completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such Work;
 2. expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials, or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses;
 3. all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) incurred in settlement of terminated contracts with Subcontractors, Suppliers, and others; and
 4. reasonable expenses directly attributable to termination.
- B. Contractor shall not be paid on account of loss of anticipated profits or revenue or other economic loss arising out of or resulting from such termination.

15.04 *Contractor May Stop Work or Terminate*

- A. If, through no act or fault of Contractor, (i) the Work is suspended for more than 90 consecutive days by Owner or under an order of court or other public authority, or (ii) Engineer fails to act on any Application for Payment within 30 days after it is submitted, or (iii) Owner fails for 30 days to pay Contractor any sum finally determined to be due, then Contractor may, upon seven days written notice to Owner and Engineer, and provided Owner or Engineer do not remedy such suspension or failure within that time, terminate the Contract and recover from Owner payment on the same terms as provided in Paragraph 15.03.
- B. In lieu of terminating the Contract and without prejudice to any other right or remedy, if Engineer has failed to act on an Application for Payment within 30 days after it is submitted, or Owner has failed for 30 days to pay Contractor any sum finally determined to be due, Contractor may, seven days after written notice to Owner and Engineer, stop the Work until payment is made of all such amounts due Contractor, including interest thereon. The provisions of this Paragraph 15.04 are not intended to preclude Contractor from making a Claim under Paragraph 10.05 for an adjustment in Contract Price or Contract Times or otherwise for expenses or damage directly attributable to Contractor's stopping the Work as permitted by this Paragraph.

ARTICLE 16 – DISPUTE RESOLUTION

16.01 *Methods and Procedures*

- A. Owner and Contractor may mutually request mediation of any Claim submitted to Engineer for a decision under Paragraph 10.05 before such decision becomes final and binding. The mediation will be governed by the Construction Industry Mediation Rules of the American Arbitration Association in effect as of the Effective Date of the Agreement. The request for mediation shall be submitted in writing to the American Arbitration Association. Timely submission of the request shall stay the effect of Paragraph 10.05.E.
- B. Owner and Contractor shall participate in the mediation process in good faith. The process shall be concluded within 60 days of filing of the request. The date of termination of the mediation shall be determined by application of the mediation rules referenced above.
- C. If the claim is not resolved by mediation, Engineer's action under Paragraph 10.05.C or a denial pursuant to Paragraphs 10.05.C.3 or 10.05.D shall become final and binding 30 days after termination of the mediation unless, within that time period, Owner or Contractor:

1. elects in writing to invoke any dispute resolution process provided for in the Supplementary Conditions, or
2. agrees with the other party to submit the Claim to another dispute resolution process, or
3. gives written notice to the other party of their intent to submit the Claim to a court of competent jurisdiction.

ARTICLE 17 – MISCELLANEOUS

17.01 *Giving Notice*

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

17.02 *Computation of Times*

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

17.03 *Cumulative Remedies*

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

17.04 *Survival of Obligations*

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

17.05 *Controlling Law*

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

17.06 *Headings*

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

ARTICLE 18 – FEDERAL REQUIREMENTS

18.01 *Agency Not a Party*

- A. This Contract is expected to be funded in part with funds provided by Agency. Neither Agency, nor any of its departments, entities, or employees is a party to this Contract.

18.02 *Contract Approval*

- A. Owner and Contractor will furnish Owner's attorney such evidence as required so that Owner's attorney can complete and execute the following "Certificate of Owner's Attorney" (Exhibit GC-A) before Owner submits the executed Contract Documents to Agency for approval.
- B. Concurrence by Agency in the award of the Contract is required before the Contract is effective.

18.03 *Conflict of Interest*

- A. Contractor may not knowingly contract with a supplier or manufacturer if the individual or entity who prepared the plans and specifications has a corporate or financial affiliation with the supplier or manufacturer.
- B. Owner's officers, employees, or agents shall not engage in the award or administration of this Contract if a conflict of interest, real or apparent, would be involved. Such a conflict would arise when: (i) the employee, officer or agent; (ii) any member of their immediate family; (iii) their partner or (iv) an organization that employs, or is about to employ, any of the above, has a financial interest in Contractor. Owner's officers, employees, or agents shall neither solicit nor accept gratuities, favors or anything of monetary value from Contractor or subcontractors.

18.04 *Gratuities*

- A. If Owner finds after a notice and hearing that Contractor, or any of Contractor's agents or representatives, offered or gave gratuities (in the form of entertainment, gifts, or otherwise) to any official, employee, or agent of Owner or Agency in an attempt to secure this Contract or favorable treatment in awarding, amending, or making any determinations related to the performance of this Contract, Owner may, by written notice to Contractor, terminate this Contract. Owner may also pursue other rights and remedies that the law or this Contract provides. However, the existence of the facts on which Owner bases such findings shall be an issue and may be reviewed in proceedings under the dispute resolution provisions of this Contract.
- B. In the event this Contract is terminated as provided in paragraph 18.04.A, Owner may pursue the same remedies against Contractor as it could pursue in the event of a breach of this Contract by Contractor. As a penalty, in addition to any other damages to which it may be entitled by law, Owner may pursue exemplary damages in an amount (as determined by Owner) which shall not be less than three nor more than ten times the costs Contractor incurs in providing any such gratuities to any such officer or employee.

18.05 *Audit and Access to Records*

- A. For all negotiated contracts and negotiated modifications (except those of \$10,000 or less), Owner, Agency, the Comptroller General, or any of their duly authorized representatives, shall have access to any books, documents, papers, and records of the Contractor, which are pertinent to the Contract, for the purpose of making audits, examinations, excerpts and transcriptions. Contractor shall maintain all required records for three years after final payment is made and all other pending matters are closed.

18.06 *Small, Minority and Women's Businesses*

- A. If Contractor intends to let any subcontracts for a portion of the work, Contractor shall take affirmative steps to assure that small, minority and women's businesses are used when possible as sources of supplies, equipment, construction, and services. Affirmative steps shall consist of: (1) including qualified small, minority and women's businesses on solicitation lists; (2) assuring that small, minority and women's businesses are solicited whenever

they are potential sources; (3) dividing total requirements when economically feasible, into small tasks or quantities to permit maximum participation of small, minority, and women's businesses; (4) establishing delivery schedules, where the requirements of the work permit, which will encourage participation by small, minority and women's businesses; (5) using the services and assistance of the Small Business Administration and the Minority Business Development Agency of the U.S. Department of Commerce; (6) requiring each party to a subcontract to take the affirmative steps of this section; and (7) Contractor is encouraged to procure goods and services from labor surplus area firms.

18.07 *Anti-Kickback*

- A. Contractor shall comply with the Copeland Anti-Kickback Act (18 USC 874 and 40 USC 276c) as supplemented by Department of Labor regulations (29 CFR Part 3, "Contractors and Subcontractors on Public Buildings or Public Works Financed in Whole or in Part by Loans or Grants of the United States"). The Act provides that Contractor or subcontractor shall be prohibited from inducing, by any means, any person employed in the construction, completion, or repair of public facilities, to give up any part of the compensation to which they are otherwise entitled. Owner shall report all suspected or reported violations to Agency.

18.08 *Clean Air and Pollution Control Acts*

- A. If this Contract exceeds \$100,000, Contractor shall comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act (42 USC 7401 *et seq.*) and the Federal Water Pollution Control Act as amended (33 USC 1251 *et seq.*). Contractor will report violations to the Agency and the Regional Office of the EPA.

18.09 *State Energy Policy*

- A. Contractor shall comply with the Energy Policy and Conservation Act (P.L. 94-163). Mandatory standards and policies relating to energy efficiency, contained in any applicable State Energy Conservation Plan, shall be utilized.

18.10 *Equal Opportunity Requirements*

- A. If this Contract exceeds \$10,000, Contractor shall comply with Executive Order 11246, "Equal Employment Opportunity," as amended by Executive Order 11375, "Amending Executive Order 11246 Relating to Equal Employment Opportunity," and as supplemented by regulations at 41 CFR part 60, "Office of Federal Contract Compliance Programs, Equal Employment Opportunity, Department of Labor."
- B. Contractor's compliance with Executive Order 11246 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative active obligations required by the Standard Federal Equal Employment Opportunity Construction Contract Specifications, as set forth in 41 CFR Part 60-4 and its efforts to meet the goals established for the geographical area where the Contract is to be performed. The hours of minority and female employment and training must be substantially uniform throughout the length of the Contract, and in each trade, and Contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from Contractor to Contractor or from project to project for the sole purpose of meeting Contractor's goals shall be a violation of the Contract, the Executive Order, and the regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hours performed.
- C. Contractor shall provide written notification to the Director of the Office of Federal Contract Compliance Programs within 10 working days of award of any construction subcontract in excess of \$10,000 at any tier for construction work under the Contract resulting from this solicitation. The notification shall list the name, address, and telephone number of the subcontractor; employer identification number; estimated dollar amount of subcontract; estimated starting and completion dates of the subcontract; and the geographical area in which the Contract is to be performed.

18.11 *Restrictions on Lobbying*

- A. Contractor and each subcontractor shall comply with Restrictions on Lobbying (Public Law 101-121, Section 319) as supplemented by applicable Agency regulations. This Law applies to the recipients of contracts and subcontracts that exceed \$100,000 at any tier under a Federal loan that exceeds \$150,000 or a Federal grant that exceeds \$100,000. If applicable, Contractor must complete a certification form on lobbying activities related to a specific Federal loan or grant that is a funding source for this Contract. 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, or an employee of a member of Congress in connection with obtaining any Federal contract, grant, or any other award covered by 31 USC 1352. Each tier shall disclose any lobbying with non-Federal funds that takes place in connection with obtaining any Federal award. Certifications and disclosures are forwarded from tier to tier up to the Owner. Necessary certification and disclosure forms shall be provided by Owner.

18.12 *Environmental Requirements*

- A. When constructing a project involving trenching and/or other related earth excavations, Contractor shall comply with the following environmental constraints:
1. Wetlands – When disposing of excess, spoil, or other construction materials on public or private property, Contractor shall not fill in or otherwise convert wetlands.
 2. Floodplains – When disposing of excess, spoil, or other construction materials on public or private property, Contractor shall not fill in or otherwise convert 100 year floodplain areas delineated on the latest Federal Emergency Management Agency Floodplain Maps, or other appropriate maps, i.e., alluvial soils on NRCS Soil Survey Maps.
 3. Historic Preservation – Any excavation by Contractor that uncovers an historical or archaeological artifact shall be immediately reported to Owner and a representative of Agency. Construction shall be temporarily halted pending the notification process and further directions issued by Agency after consultation with the State Historic Preservation Officer (SHPO).
 4. Endangered Species – Contractor shall comply with the Endangered Species Act, which provides for the protection of endangered and/or threatened species and critical habitat. Should any evidence of the presence of endangered and/or threatened species or their critical habitat be brought to the attention of Contractor, Contractor will immediately report this evidence to Owner and a representative of Agency. Construction shall be temporarily halted pending the notification process and further directions issued by Agency after consultation with the U.S. Fish and Wildlife Service.

EXHIBIT GC-A

Certificate of Owner's Attorney

I, the undersigned, _____, the duly authorized and acting legal representative of _____, do hereby certify as follows:

I have examined the attached Contract(s) and performance and payment bond(s) and the manner of execution thereof, and I am of the opinion that each of the aforesaid agreements is adequate and has been duly executed by the proper parties thereto acting through their duly authorized representatives; that said representatives have full power and authority to execute said agreements on behalf of the respective parties named thereon; and that the foregoing agreements constitute valid and legally binding obligations upon the parties executing the same in accordance with the terms, conditions, and provisions thereof.

Date: _____

SUPPLEMENTARY CONDITIONS

These Supplementary Conditions amend or supplement the Standard General Conditions of the Construction Contract Funding Agency Edition (No. C-710, 2002 Edition) and other provisions of the Contract Documents as indicated below. All provisions not so amended or supplemented remain in full force and effect.

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

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SC-1.01.A.2. Add the following language to the end of Paragraph 1.01.A.2:

The Project is financed in whole or in part by USDA Rural Development pursuant to the Consolidated Farm and Rural Development Act (7 USC Section 1921 et seq.). The Project is also being funded in part with monies from the Kentucky Infrastructure Authority.

SC-1.01.A.4. Add the following language to the end of Paragraph 1.01.A.4:

The Application for Payment form to be used on this Project is Form RD 1924-18. The Agency must approve all Applications for Payment before payment is made.

SC-1.01.A.10. Add the following language to the end of Paragraph 1.01.A.10:

The Change Order form to be used on this Project is Form RD1927-7. Agency approval is required before Change Orders are effective.

SC-1.01.A.15. Delete in it's entirety and replace with the following:

Contract Times: The number of days or date stated in the Agreement to achieve substantial completion. Final completion date will be determined by Contractor, Owner, and Engineer, after substantial completion, based on remaining work, weather and market conditions.

SC-2.03.A. Delete Paragraph 2.03.A in its entirety and insert the following in its place:

- A. The Contract Times will commence on the day indicated in the Notice to Proceed. A Notice to Proceed may be given at any time within 10 days after the Effective Date of the Agreement.

SC-4.02. Delete Paragraphs 4.02.A and 4.02.E in their entirety and insert the following:

- A. No reports or explorations or tests of subsurface conditions at or contiguous to the Site are known to the Owner or Engineer.)

SC-4.06. Delete Paragraphs 4.06.A and 4.06.E in their entirety and insert the following:

- A. No reports or explorations or tests of subsurface conditions at or contiguous to the Site are known to the Owner or Engineer.
- B. Not used.

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

- C. Failure of the Owner to demand such certificates or other evidence of full compliance with these insurance requirements or failure of the Owner to identify a deficiency from evidence provided shall not be construed as a waiver of Contractor's obligation to maintain such insurance.

SC-5.04. Add the following new paragraph immediately after Paragraph 5.04.B:

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

General Liability	General Aggregate	\$2,000,000
	Product & Completed Operations Aggr.	\$2,000,000
	Personal & Advertising Injury	\$1,000,000
	Each Occurrence	\$1,000,000
	Fire Damage	\$100,000
	Medical Expense (per person)	\$10,000
Automotive Liability	Combined Single Limit	\$500,000
Excess Liability	Umbrella Form	\$1,000,000
Workers Compensation	Statutory Limits	

In addition, the Contractor shall name the Owner and the Engineer as "also insured" in all policies. Insurance shall be continuously in force throughout the project construction. Contractor shall provide certification of coverages upon request, and update such certifications as required to remain current. Any additional insurance, bonds or other sureties required by governmental agencies, railroads, pipeline companies, utilities or others are to be provided by the Contractor as required.

SC-6.06 Add a new paragraph immediately after Paragraph 6.06.G:

H. The Contractor shall not award work valued at more than fifty (50%) percent of the Contract Price to Subcontractor(s), without prior written approval of the Owner.

SC-9.03.A. Add the following language at the end of paragraph 9.03.A:

The Engineer will provide Resident Project Representative services for this project. The Duties, Responsibilities, and Limitations of Authority of the Resident Project Representative will be as stated in Exhibit D of the Agreement Between Owner and Engineer, E-510, 2002 Edition, as amended and executed for this specific Project.

SC-14.02.A.3 Add the following language at the end of paragraph 14.02.A.3:

No payments will be made that would deplete the retainage prior to substantial completion, nor place in escrow any funds that are required for retainage, or invest the retainage for benefit.

SC-14.02.C.1. Delete Paragraph 14.02.C.1 in its entirety and insert the following in its place:

1. The Application for Payment with Engineer's recommendations will be presented to the Owner and Agency for consideration. If both the Owner and Agency find the Application for Payment acceptable, the recommended amount less any reduction under the provisions of Paragraph 14.02.D will become due thirty days after the Application for Payment is presented to the Owner, and the Owner will make payment to the Contractor.

SC-18.08 Delete paragraph 18.08.A in its entirety and insert the following in its place:

- A. If this Contract exceeds \$100,000, the Contractor shall comply with all applicable standards, orders, or requirements issued under Section 306 of the Clean Air Act (42 USC § 1857(h)), Section 508 of the Clean Water Act (33 USC §1368), Executive Order 11738, and Environmental Protection Agency regulations (40 CFR Part 15).

PROJECT SPECIAL CONDITIONS

1. Project Special Conditions: These Special Conditions supplement the “Standard General Conditions” and the “Supplementary Conditions” within the Contract Documents. The Engineer's decision shall be final as to interpretation and/or conflict between any of the reference specifications and standards contained herein.
2. Additional Definitions: Wherever the following terms are used in these specifications, their meaning shall be construed in accordance with the definitions listed below.
 - a. Engineer: McGhee Engineering, Inc., P.O. Box 267, 202 Ewing Street, Guthrie, Kentucky 42234, telephone (270) 483-9985.
 - b. Inspector: Representative of the Engineer or Owner stationed at, or visiting the site of the work to secure conformity with the Plans and Specifications, to record the work performed by the Contractor and to serve in such other capacities as the Engineer may direct.
 - c. Plans: All drawings adopted by the Engineer and bound herein pertaining to the work under this contract.
 - d. ASTM Specifications: Adopted by the American Society for Testing and Materials, governing the methods and procedures for manufacturing and testing materials and bearing appropriate alphabetical and numerical designations pertinent to the various items involved.
 - e. OSHA: Occupational Health and Safety Administration requirements pertaining to the project.
3. The following abbreviations will be used in these Specifications, the Proposal and contract:

LF or L.F.	Linear Foot
SF or S.F.	Square Foot
LS or L.S.	Lump Sum
EA or Ea	Each
SQ. IN.	Square Inch
LBS.	Pounds
LIN. IN.	Linear Inch

4. Safety Standards and Accident Prevention: With respect to all work performed under this contract, the contractor shall:
 - 4.1 Comply with the safety standards provision of applicable laws, building and construction codes and the “Manual of Accident Prevention in Construction” published by the Associated General Contractors of America, the requirements of the Occupational Safety and Health Act of 1970 (Public Law 91-596), and the requirements of Title 29 of the Code of Federal Regulations, Section 1518 as published in the “federal Register”, Volume 36, No. 75, Saturday, April 17, 1971.
 - 4.2 Exercise every precaution at all times for the prevention of accidents and the protection of persons (including employees) and property.
 - 4.3 Maintain at his/her office or other well know place at the job site, all articles necessary for giving first aid to the injured, and shall make standing arrangements for the immediate removal to a hospital or a doctor's care of persons (including employees), who may be injured on the job site before the employer has made a standing arrangement for removal of injured persons to a hospital or a doctor's care.
5. Completion Time and Liquidated Damages: The project as indicated in the Plans and Specifications shall be completed within the number of consecutive working days stated in the Contract. Contractors shall submit any request for time extensions at the time of submission of the pay request covering the period

during which the time extension is requested, and such requests shall include justification in conformance with the Contract. Failure to make timely submittal of requests for time extension shall be grounds for their denial. The times set forth in the Proposal for completion of work are an essential element of the Contract. The Contractor and Owner understand and agree that a breach of this Contract as to completion on time will cause damage to the Owner. The parties agree that for each and every calendar day the work or any portion thereof shall remain uncompleted after the expiration of the contract time limit, **An amount specified and under the provisions of the Agreement** will be deducted from the money due or to become due the Contractor, not as a penalty, but as liquidated damages and added expense of engineering and overhead.

6. Contractor's Warranty: The Contractor shall guarantee that all work performed under this Contract is new and free of faulty materials in every particular, and free of faulty workmanship, and he does hereby agree to maintain, replace or re-execute without additional cost to the Owner such work found to be unsatisfactory and to make good all damage to his, or work by others affected by this Contract as a result of improper workmanship and materials or due to such required replacement or re-execution.

The Contractor shall warrant all such work for a period of one (1) year from the date of acceptance of all work performed under this Contract. A "Final Certificate" will be issued by the Engineer, as evidence. Neither the "Final Certificate," nor payment, nor any provisions in the Contract Documents shall relieve the Contractor of the guarantee or maintenance provisions, or his responsibility for neglect or the replacement of faulty materials, or workmanship, or any other items of defect during the warranty period.

7. Safety: The Contractor shall be responsible for the safety of himself, his employees and other persons, as well as for the protection of the safety of the improvements being erected and the property of himself or any other person, as a result of his operation. All work shall be done in accordance with the Occupational Safety and Health Administration regulations and all other current federal, state and local laws pertaining to occupational safety, health and welfare. All monitoring and testing required to assure compliance with such requirements shall be the responsibility of the Contractor. The safety of the public, protection of property, and convenience of traffic shall be of prime importance during construction. In all respects, public safety and protection of property and provisions therefore, made necessary by the work, shall be the direct responsibility of the Contractor and shall be performed at his expense.
8. Contractor's Responsibility for Materials and Equipment: The Contractor shall assume full responsibility for all supplies, materials and equipment furnished or installed by him for the work he contracts to do, whether furnished by him or by other parties, until the same shall have been installed and finally tested and accepted by the Engineer. The Contractor shall, therefore, insure such property against loss or damage while stored at the site of the work.
9. Permits, Licenses and Laws: The Contractor shall obtain, at his own expense, all necessary permits and licenses from the proper authorities and shall give all notice required by law or ordinance and shall pay all fees and charges incidental to the due and lawful prosecution of the work and shall comply with all laws, ordinances and regulations relating thereto. Contractor shall obtain necessary building permits; however, there shall be no fees charged to the Contractor by the Owner.

The Owner shall not be responsible to the Contractor for expenses incurred while performing the work under this contract due to the requirements and conditions imposed on the Contractor by any governmental agencies. The Contractor shall investigate with said government as to the requirements and conditions to be imposed.

Copies of said permits, licenses, authorizations or regulations shall be filed with the Owner through the Engineer or his representative. In the event that any work to be performed by the Contractor under the above mentioned permits is found to be unsatisfactory and is not approved by the aforementioned governmental authorities, the cost thereof shall be charged to the Contractor and shall be withheld by the Owner from any money due to the Contractor under the subject construction contract.

10. Labor Laws: The Contractor shall comply with, and shall cause all subcontractors to comply with, the requirements of all applicable labor laws (hours of work, minimum wage, prevailing wage, etc.).

11. Protection of Adjoining Property: Any damage to any property of the Owner or other caused by the Contractor's operations shall be corrected at the Contractor's expense.
12. Cleanup: Upon completion of the work and before acceptance and final payment by the Owner, the Contractor shall remove rubbish, unused materials and temporary structures from the limits of the project and restore, in a manner acceptable to the Engineer, all property both public and private that has been damaged during prosecution of the work, and shall level and grade all portions of the work where the surface of the ground or street surface has been disturbed during construction and shall leave the site of the work in a neat and presentable condition, free from ruts and holes. Areas where vegetation is disturbed by construction shall be graded and re-seeded to the satisfaction of the Owner.

Materials associated with the project shall not be deposited on adjacent property unless prior approval has been obtained from the property owner involved.

No extra payment will be made for these cleanup requirements, its cost being included in the various unit prices bid in this proposal.

13. Resident Construction Observation: The Owner may employ the services of a resident construction observer during construction of the project. The purpose of the resident construction observer is to provide additional assurances to the owner as to the quality of the work and the conformance of the work to the plans and specifications. The resident construction observer is not provided to act as a supervisor of the contractor's activities, nor to take responsibility for the quality or safety of the contractor's work. Such responsibilities remain exclusively with the contractor.
14. Basis of Payment: The basis of payment for all items involved with the project will be made according to the units described in the Proposal breakdown. If there are any conflicts between the basis of payment described in the Specification and the units described in the Proposal breakdown, then the Proposal breakdown will prevail.
15. Inclement Weather: The basis of contract time is calendar days. If during the course of the project, weather conditions prevail that preclude performance of productive work for a number of days in excess of that which would normally be expected for the period, the Contractor may request a compensating time extension.

END OF SECTION

SUMMARY OF WORK

1.0 WORK COVERED BY CONTRACT DOCUMENTS

The work to be performed involves the earthwork construction for a proposed sludge lagoon, piping, and drainage structures in Guthrie, Kentucky as described by the Contract Drawings and Specifications.

2.0 CONTRACTOR'S DUTIES

2.1 Construction and Related Activities

The Contractor shall provide and pay for all labor, materials, equipment, machinery, tools, superintendence, insurance, bonds, shipping, sampling and testing, utilities, and other costs required for a complete and ready to use building pad.

2.2 Taxes

The Contractor shall pay all required sales taxes, payroll taxes, consumer and use taxes, and other taxes relating to the work of the project.

2.3 Permits

The contractor shall secure and pay for all legally required permits, licenses and fees associated with the construction.

2.4 Notices

The Contractor shall provide all required notices, including notices to utility owners of intent to excavate in the vicinity of their utilities, notices to property owners of intent to enter their property for construction purposes, notices regarding the interruption of any utility service, as well as other notices required by the plans and contract documents.

2.5 Laws

Contractor shall fully comply with all applicable laws, ordinances, rules, regulations, orders and other legal requirements, and shall bear the cost of such compliance.

2.6 Character of Workmen

Contractor shall employ workman and foremen with sufficient knowledge of and experience in the type of work proposed to assure satisfactory performance. Workman shall maintain a professional demeanor and appearance at all times on the project. Any workman on the project who performs work in an incompetent manner, or acts in a disorderly or intemperate manner shall be removed from the project, and may not be employed on any portion of the project unless approved by the Owner.

2.7 Notice of Discrepancies

If discrepancies or ambiguities are found in the plans, specifications, contract documents or in any communication to the contractor, the contractor shall immediately notify the Engineer in writing. Do not proceed with the affected work until clarification is received.

2.8 Inspection

Provide at all times, access to the work for inspection by representatives of the Owner, the Engineer, and regulatory authorities having jurisdiction over the project.

3.0 CONTRACTOR'S USE OF PREMISES

Contractor shall confine his operations to public right-of-way, easements and property obtained by the Owner for construction of the project, or to areas secured by the Contractor for his use. Contractor shall take precautions to minimize disruption to existing properties.

Stored materials, regardless of their location shall be protected by the Contractor from damage, theft or degradation at all times.

4.0 EXISTING FACILITIES

The existing sewer collection system will be in continuous operation during the construction of the Project. Contractor shall avoid disturbing existing sewer facilities, and any other utilities or structures encountered in the work, except as necessary for construction operations. Contractor shall give at least 48 hours prior notice to the Owner, or to any utility or other entity, of any necessary disruptions to service, or work affecting active lines.

Contractor shall cooperate with Owners personnel in continuing operation of existing facilities.

5.0 PARTIAL OWNER OCCUPANCY

The Owner may, at his discretion, place into service any or all portions of the completed work prior to final completion of all work on the project. Placing a portion of the work in service before final completion does not relieve the contractor of his obligation to complete all work associated with that portion of the line (i.e. clean-up, surface restoration, etc.), to perform maintenance for the required period, or to provide warranty for that portion of the work. If a portion of the work that is placed in service prior to final project completion and acceptance is, in the opinion of the Engineer, complete and ready for acceptance, the Contractor may request that the warranty period for that portion of the work begin at the time it is placed in service, providing that such request is made in writing within seven days of the date of being placed in service. If the request is not made within the required time, the warranty period for that portion of the work will begin upon final acceptance of the Project.

END OF SECTION 01-100

SITE, ACCESS, TEMPORARY FACILITIES, UTILITIES

1.0 SITE

The City of Guthrie, Kentucky is the site of all work on this Project.

- a. **RIGHTS-OF-WAY AND EASEMENTS:** The owner has legal authority to construct these facilities on property owned by the City, within easements on private property, and on existing public rights-of-way and will provide any other required permanent and construction easements. Access to the site of the work is the responsibility of the Contractor.
- b. **LOCATION OF TEMPORARY FACILITIES:** Owner's temporary office facilities, Contractor's Field offices, Sub-Contractors' Field Offices, Engineer's Field Office, Material Storage Buildings, Material and Equipment Storage Yards, and parking areas for all project workers shall be located in areas approved by the Engineer.
- c. **DAMAGE TO EXISTING PROPERTY:** The Contractor will be held responsible for any damage to existing structures, work, materials, or equipment because of his operations and shall repair or replace any damaged structures, work, materials, or equipment to the satisfaction of, and at no additional cost to, the Owner.

The Contractor shall protect all existing structures and property from damage and shall provide bracing, shoring, or other work necessary for such protection.

2.0 CONNECTING STREETS, ROADS AND HIGHWAYS

Any damage to a public facility and/or any access road into the project site by construction traffic generated by this project shall be the responsibility of the Contractor. The access road shall be kept open to normal traffic and in a reasonable state of repair. The Contractor shall arrange with the appropriate authority to perform repairs himself or to have the said authority perform them. Any damages to the public roads shall be considered a matter of the Contractor's or his suppliers public liability outside the purview of this Contract.

Contractor shall provide adequate barricades, warning signs, lights, etc., for construction operations hazardous to traffic and public safety.

3.0 TEMPORARY FACILITIES

- a. **CONTRACTOR'S OFFICE AT SITE OF WORK:** Contractor will not be required to provide temporary office facilities.
- b. **PARKING:** The Contractor shall provide and maintain on-site suitable parking areas for the use of all construction workers and others performing work or furnishing services in connection with this Contract, as required to avoid any need for such personnel to park personal vehicles in locations where they may interfere with public traffic, Owner's operations, or construction activities. On-site parking shall be limited to that space available in the assigned work and storage area. Additional parking areas as necessary for the Contractor's operations shall be the full responsibility of the Contractor.
- c. **SANITARY FACILITIES:** The Contractor shall provide and maintain sanitary facilities for the use of his employees or any other persons on the job site, as may be required to comply with the regulations of state and local departments of health.

4.0 UTILITIES & SERVICES

- a. **WATER:** Water for any purpose will be paid for by the Contractor.
- b. **POWER:** Power for lighting, temporary office facilities, operation of the Contractor's plant or equipment, or for any other use by the Contractor shall be provided by the Contractor at his sole cost

and expense. The contractor will be responsible for all necessary arrangements with the utility company.

- c. HEAT: All heat necessary for the protection or completion of the work, operation of the Contractor's plant or equipment, or for any other use by the Contractor shall be provided by the Contractor at his sole cost and expense.
- d. TELEPHONE SERVICE: The Contractor shall make all necessary arrangements with the telephone utility, and pay all charges therefor, for telephones in his offices at the site, if desired.
- e. SANITARY SEWER: The Contractor may make use of portable toilet facilities at his sole cost and expense.
- f. WORKING HOURS: The Contractor may work on this project during the daylight hours, Monday through Friday, except legal holidays, when weather conditions permit. If the Contractor wishes to work at other times, he may do so if approved by the Engineer and if the following conditions are met:
 - 1. Request Engineer's approval to work at least 48 hours in advance.
 - 2. The Contractor shall pay the cost of inspection services.

END OF SECTION 01 150

TESTING AND CONTROL

1.0 SPECIFICATIONS: Portions of these Specifications are of the abbreviated and simplified type, and include incomplete sentences. Omission of words and phrases such as "the Contractor shall," "in conformity therewith," "shall be," "as noted on the Drawings," "according to the Plans," "a," "an," "the," and "all" is intentional. Omitted words or phrases shall be supplied by inference in the same manner as they are when a "Note" occurs on the Drawings.

The Contractor shall provide all items, articles, material, operations, and methods listed, mentioned, or scheduled, either on the Drawings or specified herein, or both, including appurtenances and incidentals, necessary and required for their completion.

Whenever the words "approved," "satisfactory," "directed," "submitted," "inspected," or similar words or phrases are used, it shall be assumed that the word "Engineer" follows the verb as the object of the clause, such as, "approved by the Engineer."

All references to standard specifications, codes, and manufacturer's installation directions shall mean the latest edition thereof.

Reference to technical societies and standards organizations is made in these Specifications in accordance with the following abbreviations:

AASHTO	American Association of State Highway & Transportation Officials
ACI	American Concrete Institute
AIEE	American Institute of Electrical Engineers
API	American Petroleum Institute
ASA	American Standards Association
ASTM	American Society for Testing Materials
AWS	American Welding Society
AWWA	American Water Works Association
EPA	Environmental Protection Agency
FAA	Federal Aviation Agency
FS	Federal Specifications
IPCFA	Insulated Power Cable Engineers Association
NBFU	National Board of Fire Underwriters
NEC	National Electrical Code
NFMA	National Electrical Manufacturers Association
OSHA	Occupational Safety and Health Administration
PCA	Portland Cement Association
AISC	American Institute for Steel Construction
ASME	American Society of Mechanical Engineers
ANSI	American National Standards Institute
AFBMA	Anti-friction Bearing Manufacturers Association
AGMA	American Gear Manufacturers Association
NFPA	National Fire Protection Association

3.0 ENGINEERS PROJECT REPRESENTATIVE: The Engineer will provide a Project Representative and assistants as required for observation of the performance of the work. Contractor shall be required to provide office facilities for Engineer's representatives if deemed necessary.

4.0 TESTING LABORATORIES:

a. TESTING LABORATORY SERVICES: All tests which require the services of a laboratory to determine compliance with the Contract Documents shall be performed by an independent commercial testing laboratory acceptable to Engineer. The laboratory shall be staffed with experienced technicians, properly equipped, and fully qualified to perform the tests in accordance with the specified standards.

- b. **TESTING LABORATORY SERVICES:** Contractor shall pay for all testing laboratory services. Contractor shall obtain Engineer's acceptance of the testing laboratory before having services performed.

Field sampling and testing will be performed for Engineer by testing laboratory personnel in the general manner indicated in the specifications with minimum interference with construction operations. Engineer will determine the exact time and location of field sampling and testing, and may require such additional sampling and testing as necessary to determine that material and equipment conform with data previously furnished by Contractor and with the Contract Documents.

The testing laboratory shall perform all laboratory tests in the shortest time consistent with the specified standards and shall furnish a written report of each test without delay.

Contractor shall furnish all sample materials and cooperate in the sampling and field testing activities, interrupting the work when necessary. Contractor shall furnish personnel, equipment, and facilities to perform sampling and field-testing activities, and to deliver samples and test specimens to the testing laboratory, when so required by the Engineer. When sampling or testing activities are performed in the field by Engineer or testing laboratory personnel, Contractor shall furnish all assistance necessary for proper results.

Contractor shall not retain any testing laboratory against which the Owner has reasonable objection.

- c. **TRANSMITTAL OF TEST REPORTS:** Written reports of tests and engineering data furnished for Engineer's review of materials and equipment proposed to be used in the work shall be submitted as specified for Shop Drawings.

The testing laboratory will furnish three copies of a written report of each test performed by laboratory personnel in the field or laboratory. Two copies of each test report will be transmitted to the Engineer and one copy to Contractor within three days after each test is completed.

- 5.0 **MANUFACTURERS' FIELD SERVICES:** An experienced, competent, and authorized representative of the manufacturer or supplier of each item of equipment indicated on the Drawings shall visit the site of the work and inspect, check, adjust if necessary, and approve the equipment installation. In each case, the equipment supplier's representative shall be present when the equipment is placed in operation. The equipment supplier's representative shall revisit the job site as often as necessary until all trouble is corrected and the equipment installation and operation are satisfactory in the opinion of Engineer.

Each equipment supplier's representative shall furnish to Owner, through Engineer, a written report certifying that the equipment (1) has been properly installed and lubricated; (2) is in accurate alignment (3) is free from any undue stress imposed by connecting piping or anchor bolts; and (4) has been operated under full load conditions and that It operated satisfactorily.

All costs for this work shall be included in the prices quoted by equipment suppliers.

- 6.0 **PATENTS:** Patented equipment, processes, and methods furnished or used by the Contractor shall not obligate the Owner beyond the Contract prices shown in the Proposal. Royalties, fees, and other similar costs are considered included in said Contract price.
- 7.0 **MATERIALS AND WORKMANSHIP:** All materials and equipment shall be new, unused, of specified quality, and approved by the Engineer prior to installation. Preference shall be given to domestic construction materials as required by EPA is procurement regulations (40 CFR 33.710). All work shall be performed in a thorough and workmanlike manner, by competent workmen.
- 8.0 **LINES AND GRADES:** Engineer will establish a project benchmark and control points for horizontal & vertical control. From these the Contractor shall stake out all work and establish all additional levels and measurements required. Contractor is responsible for accuracy of all measurements and levels beyond reference points.

SECTION 02-110

SITE CLEARING

1.0 GENERAL

1.01 WORK INCLUDED

- A. Clear site within construction limits of plant life and grass.
- B. Remove root system of trees and shrubs.
- C. Remove surface debris.

1.02 REGULATORY REQUIREMENTS

Conform to applicable local codes and ordinances for disposal of debris.

2.0 PRODUCTS (NOT USED)

3.0 EXECUTION

3.01 EXISTING TREES AND OTHER VEGETATION

- A. The Contractor shall not cut or injure any trees or other vegetation outside work area without written permission from the Engineer. The Contractor shall be responsible for all damage done outside the work area.
- B. All trees and other vegetation shall be removed within the work area.
- C. The work area is defined as the area to be paved, covered by buildings or structures, or to have the natural grade of the ground changed by excavation or backfill, and a reasonable surrounding area necessary for accomplishing the work.

3.02 CLEARING

- A. From areas to be cleared, the Contractor shall cut or otherwise remove all trees, brush, and other vegetable matter such as snags, bark and refuse. The ground shall be cleared to the extent of the work area unless otherwise directed by the Engineer.
- B. Except where clearing is done by uprooting with machinery, trees, stumps, and stubs to be cleared shall be cut as close to the ground surface as practicable, but no more than 6 inches above the ground surface for small trees and 12 inches for larger trees.

3.03 GRUBBING

From areas to be grubbed, the Contractor shall remove completely all stumps, remove to a depth of 12 inches all roots larger than 3-inch diameter, and remove to a depth of 6 inches all roots larger than 1/2-inch diameter. Such depths shall be measured from the existing ground surface or the proposed finished grade, whichever is lower.

3.04 STRIPPING OF TOPSOIL

Prior to starting general excavation, strip topsoil to a depth of 6 inches or to depths required by the Engineer. Do not strip topsoil in a muddy condition and avoid mixture of subsoil. Stockpile the stripped

topsoil for use in finish grading and site restoration. Topsoil stockpiled shall be free from trash, brush, stones over 2 inches in diameter and other extraneous material.

3.05 PROTECTION

- A. Protect plant growth and features remaining as final landscaping.
- B. Protect benchmarks and existing work from damage or displacement.
- C. Maintain designated site access for vehicle and pedestrian traffic.

3.06 REMOVAL

- A. All material resulting from clearing and grubbing and not scheduled for reuse shall become the property of the Contractor and shall be suitably disposed of off-site, unless otherwise directed by the Engineer, in accordance with all applicable laws, ordinances, rules and regulations.
- B. Such disposal shall be performed as soon as possible after removal of the material and shall not be left until the final period of cleaning up.

END OF SECTION 02-110

SECTION 02-211

ROUGH GRADING

1.0 GENERAL

1.01 WORK INCLUDED

- A. Remove topsoil and stockpile for later reuse.
- B. Excavate subsoil and stockpile for later reuse as directed in Section 02-223: Embankments.
- C. Grade and rough contour site.

1.02 RELATED REQUIREMENTS

- A. Section 02-222: Excavation.
- B. Section 02-223: Embankments.

1.03 PROJECT RECORD DOCUMENTS

- A. Accurately record location of utilities remaining, rerouted utilities, new utilities by horizontal dimensions, elevations or inverts, and slope gradients.

1.04 PROTECTION

- A. Protect trees and other features remaining as portion of final landscaping.
- B. Protect benchmarks, existing structures, fences, roads, sidewalks and other features not designated for demolition.
- C. Protect above or below grade utilities which are to remain.
- D. Contractor shall be responsible for repairing any damage to those items not designated for demolition or removal in a manner satisfactory to the Owner at no additional cost to the Owner.

2.0 PRODUCTS

2.01 MATERIALS

- A. Topsoil: Excavated material, graded free of roots, rocks larger than 1 inch, subsoil, debris, and large weeds.
- B. Subsoil: Excavated material, graded free of lumps larger than 12 inches, rocks larger than 12 inches, and debris.

3.0 EXCAVATION

3.01 PREPARATION

- A. Identify required lines, levels, contours, and datum.
- B. Identify known below grade utilities. Stake and flag locations.
- C. Identify and flag above grade utilities.
- D. Maintain and protect existing utilities remaining which pass through work areas.
- E. Upon discovery of unknown utility or concealed conditions, discontinue affected work; notify Engineer.

3.02 TOPSOIL EXCAVATION

- A. Excavate topsoil from areas to be further excavated, and stockpile in area designated on site by the Engineer.
- B. Do not excavate wet topsoil.
- c. Stockpile topsoil to depth not exceeding 8 feet.

3.03 SUBSOIL EXCAVATION

- A. Excavate subsoil from indicated areas and stockpile in area designated on site. Excess subsoil may be reused according to Section 02-223: Embankments.
- B. Do not excavate wet subsoil.
- C. Stockpile subsoil to depth not exceeding 8 feet.
- D. When excavation through roots is necessary, perform work by hand and cut roots with a sharp axe.

3.04 TOLERANCES

Top Surface of Subgrade: Plus or minus 3 inches.

END OF SECTION 02-211

SECTION 02-222

EXCAVATION

1.0 GENERAL

1.01 WORK INCLUDED

- A. Structure excavation.
- B. Utility excavation.

1.02 RELATED REQUIREMENTS

- A. Section 02-223: Embankments.

1.03 PROTECTION

- A. Protect excavations by shoring, bracing, sheet piling, underpinning, or other methods required to prevent cave-in or loose soil from falling into excavation.
- B. Underpin adjacent structures that may be damaged by excavation work, including service utilities and pipe chases.
- C. Notify Engineer of unexpected subsurface conditions and discontinue affected work in area until notified to resume work.
- D. Protect bottom of excavations and soil adjacent to and beneath foundations from frost.
- E. Grade excavation top perimeter to prevent surface water run-off into excavation.
- F. Contractor shall provide ample means and devices with which to intercept any water entering the excavation area.

1.04 ROCK EXCAVATION

- A. Any rock encountered within foundation excavations for recommended soil bearing elements should be removed to a depth sufficient to provide a minimum 6-inch aggregate cushion between the bottom of the footing and the top of rock. The aggregate cushion should be constructed of No. 57 aggregate, or equivalent. **All excavation of any kind is unclassified**; no additional payment will be made based on the type of material to be excavated.

1.05 PAYMENT

- A. General excavation shall include all excavation specified, undercutting, fill, backfill, grading, and rock excavation except unsuitable foundation material, as hereinafter described.
- B. All general excavation shall be included in the Lump Sum Bid. Changes that require additions to or deductions from the excavation will be adjusted on the basis of the unit price for changes contained in the Contract.

2.0 PRODUCTS

2.01 MATERIALS

- A. Subsoil: Excavated material, graded free of lumps larger than 12 inches, rocks larger than 12 inches, and debris.
- B. Pea Gravel: Mineral aggregate graded 1/4 inch to 5/8 inch, free of soil, subsoil, clay, shale, or foreign matter.

3.0 EXECUTION

3.01 PREPARATION

Identify required lines, levels, contours, and datum.

3.02 EXCAVATION

- A. Excavate subsoil required for structure foundations, construction operations, and other work.
- B. Contractor is responsible to adequately brace open cuts and protect workmen and equipment from cave-in.
- C. Remove lumped subsoil, boulders, and rock up to 1/3 Cu. yd., measured by volume.
- D. Correct unauthorized excavation at no Cost to Owner.
- E. Fill over-excavated areas under structure bearing surfaces in accordance with direction by Engineer.
- F. Stockpile excavated material in area designated on site.

3.03 EXCAVATION FOR STRUCTURES

- A. For structures, excavate to elevations and dimensions indicated, plus ample space for construction operations and inspection of foundations.
 - 1. Excavate to the depth and grade required for subgrade preparation and bridge course construction as indicated on the Drawings and described in the Geotechnical Report. Structure foundations shall bear entirely on prepared subgrade.
 - 2. Structure foundations shall be installed immediately after subgrade preparation is completed. In no case should foundations be installed in excavations which contain water. Any soft, saturated areas in the bottom of excavations shall be removed or stabilized using granular material.
 - 3. Make no excavation to the full depth indicated when freezing temperatures may be expected unless foundations can be installed after the excavation has been completed. Protect the bottom so excavated from frost if foundation installation is delayed.

3.04 REMOVAL OF WATER

- 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 that 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 necessary for the wellpoint system to operate for the successful dewatering of the excavation.

3.05 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 02-223: Embankment, or with Class B concrete, if the excavation was for a structure.

3.06 ELIMINATION OF UNSUITABLE MATERIAL

- A. If material unsuitable for foundation (in the opinion of the Engineer) is found at or below the grade to which excavation would normally be carried in accordance with the Drawings and/or Specifications, the Contractor shall remove such material to the required width and depth and replace it with thoroughly compacted, screened gravel, select bank-run gravel, fine aggregate or concrete as directed.
- B. No excavated materials shall be removed from the site of the work or disposed of by the Contractor except as directed or permitted.
- C. Surplus excavated materials suitable for backfill shall be used to backfill normal excavations in rock or to replace other materials unacceptable for use as backfill; shall be neatly deposited and graded so as to make or widen fills, flatten side slopes, or fill depressions. All work shall be as directed or permitted and without additional compensation.

3.07 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 Contract 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.

3.08 FIELD QUALITY CONTROL

Allow time for inspection of excavated areas by the Geotechnical Engineer prior to placement of any backfill.

END OF SECTION 02-222

SECTION 02-223

EMBANKMENTS

1.0 GENERAL

1.01 WORK INCLUDED

- A. Structure perimeter backfilling to subgrade elevations.
- B. Site backfilling.
- C. Compaction requirements.
- D. Access road subgrade preparation.

1.02 RELATED WORK

- A. General Conditions and Supplementary Conditions.
- B. Section 02-222: Excavation.

1.03 REFERENCES

- A. Commonwealth of Kentucky, Standard Specifications for Road and Bridge Construction.
- B. ANSI/ASTM D698 - Moisture-Density Relations of Soils and Soil-Aggregate Mixture Using 5.5 lb Rammer and 12 inch Drop.
- C. ANSI/ASTM D1556 - Density of Soil in Place by the Sand-Cone Method.
- D. ASTM 2922 - Density of Soil and Soil-Aggregate in Place by Nuclear Methods.
- E. ASTM 3017 - Moisture Content of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).

1.04 TESTS

- A. Tests and analysis of fill materials will be performed in accordance with ANSI/ASTM D698 and under provisions of Section 01500. Tests shall include but not be limited to gradation analysis and moisture/density relationships.
- B. Test will be performed by an approved independent testing laboratory and shall be the responsibility of the Contractor at no additional cost to the Owner.
- C. Density test shall be performed in sufficient number to insure the specified densities are being obtained.
- D. When ASTM D2922 is used, the calibration curves shall be checked and adjusted if necessary by the procedure described in ASTM D2922, paragraph ADJUSTING CALIBRATION CURVE. ASTM D2922 results in a wet unit weight of soil; and when using this method, ASTM D3017 shall be used to determine content of the soil. The calibration checks of both the density and moisture gages shall be made at the beginning of a job on each different type of material encountered and at intervals as directed by the testing laboratory.

1.05 SUBMITTALS

Results of soil moisture and density tests by an approved testing laboratory shall be submitted to the Engineer for review.

2.0 PRODUCTS

2.01 SELECT FILL MATERIALS

- A. The on-site residual soils are considered suitable for use as compacted fill. Fill that will support foundation elements shall be placed in 6- to 8-inch loose lifts and compacted to a minimum of 100 percent of its maximum dry density and within plus or minus 2 percent of optimum moisture content as determined by standard Proctor moisture density test. A minimum of 95 percent of the maximum dry density and plus or minus 2 percent of optimum moisture content shall be obtained for fill soils supporting sidewalks or pavements. Field density tests shall be performed on each lift placed to determine if proper compaction is being achieved. If sufficient suitable material is not available from the excavations, the backfill material shall be screened gravel, crushed stone or selected borrow as directed.
- B. Frozen material shall not be placed in the backfill nor shall backfill be placed upon frozen material. Previously frozen material shall be removed or shall be otherwise treated as required before new backfill is placed.
- C. All material, whether from the excavations or from borrow, shall be of such nature that after it has been placed and properly compacted, it will make a dense, suitable fill. It shall not contain vegetation, masses of roots, individual roots more than 18 inches long or more than 1/2-inch in diameter, stones over 6 inches in diameter, or porous matter.

2.02 COMPACTED FILL

- A. Soil used for compacted fill shall be inorganic clayey soils free of deleterious debris or rocks whose largest dimension is no larger than 3-inches. The soil shall have a liquid limit (LL) of less than 50, a plasticity index (PI) of less than 30, and a maximum dry density according to the standard Proctor compaction test of at least 100 pcf. The fill shall be compacted to at least 95 percent of the SPMDD. The top foot of structural fill shall be compacted to 100 percent of the SPMDD.
- B. The moisture content of the compacted fill material shall be within 2% of the optimum moisture content as determined by ASTM D-698.

2.03 STRUCTURAL BACKFILL

- A. Crushed stone used as a bearing medium should be placed in uniform, loose lifts not exceeding 8 inches in thickness. It is recommended that each lift be compacted by a minimum of five (5) passes of a smooth drum vibratory roller having a total static weight of not less than 20,000 pounds. The diameter of the drum should be between 5.0 and 5.5 feet and 6.0 and 6.5 feet wide.
- B. Walls below final grade should be backfilled with a minimum 12-inch thick layer of free draining material up to two feet below final grade. The two feet above this free draining material should be backfilled with an impervious material that would retard surface water infiltration. The free draining material should extend down to a rock blanket beneath the bottom slab.

2.04 GEOTEXTILE FABRIC

- A. Geotextile fabric to be placed under rip rap on steeply sloped embankments shall be non-woven polypropylene fabric equal to Mirafi 140N.

3.0 EXECUTION

3.01 INSPECTION

- A. Verify that subgrade has been inspected by the Geotechnical Engineer.
- B. Verify areas to be backfilled are free of debris, snow, ice, or water, and ground surfaces are not frozen.

3.02 PREPARATION

- A. When necessary, compact subgrade surfaces to density requirements for the backfill material and prepare subgrade or previous layer of compacted fill prior to placement of additional fill by scarifying or disking.
- B. Cut out soft areas of subgrade not readily capable of in situ compaction. Backfill with subsoil and compact to density equal to requirements for subsequent backfill material.

3.03 BACKFILLING - GENERAL

- A. Backfill areas to contours and elevations. Use unfrozen materials. The Contractor shall keep the foundation and subgrade free from water or unacceptable materials after the fill operations have started.
- B. Backfill systematically, as early as possible, to allow maximum time for natural settlement. Do not backfill over porous, wet, or spongy subgrade surfaces.
- C. Place and compact fill materials in continuous layers not exceeding 8 inches loose depth. Field density tests shall be performed on each lift.
- D. Employ a placement method so not to disturb or damage foundation drainage.
- E. Maintain optimum moisture content of backfill material to attain required compaction density as specified. Material deposited on the fill that is too wet shall be removed or spread and permitted to dry, assisted by disking or blading, if necessary, until the moisture content is reduced to the specified limits.
- F. All crushed stone fill and crushed stone backfill under structures and pavements adjacent to structures shall be DGA or crushed stone per Kentucky Highway Department Standard Specifications for Road and Bridge Construction, unless indicated otherwise. Fill and backfill materials shall be placed in layers not exceeding six (6) inches in thickness and compacted to 95 percent of maximum dry density.
- G. Backfill shall not be placed against or on structures until they have attained sufficient strength to support all loads to which subjected without distortion, cracking, or damage. Deposit soil evenly around the structure.
- H. Slope grade away from structures minimum 2 inches in 10 feet, unless noted otherwise.
- I. Make changes in grade gradual. Blend slopes into level areas.
- J. Remove surplus excavation materials to designated areas.

K. Geotextile fabric shall be installed per the manufacturer's recommendations.

3.04 TOLERANCES

Top Surface of Backfilling: Plus or minus 1 inch.

3.05 FIELD QUALITY CONTROL

- A. Compaction testing will be performed in accordance with ASTM D1556 or ASTM D2922 and under provisions of Sections 01-500.
- B. Tests shall be performed on each 100 square feet of surface area and on each lift of the surface area, where more than one lift is required to achieve the required bearing or backfill surface.
- C. If tests indicate work does not meet specified requirements, remove work, replace and retest at no cost to Owner.

END OF SECTION 02-223

ROADWAY EXCAVATION

- 1.1 SCOPE: Roadway excavation consists of excavating, hauling, shaping, compacting and satisfactorily manipulating material within the project limits to required elevations.
- 2.1 PRODUCTS: Specific products are not required. Equipment and materials necessary to properly complete roadway excavation shall be used.
- 3.1 GRADING: Grading shall be the entire length of the project to required lines and grades. Mud or spongy material shall be removed to the depth required. The space shall be refilled with suitable material which is free of vegetation, humus or debris. Compaction shall be to a minimum density of 95 percent at optimum moisture content as determined by ASTM D698.
- 3.2 DISPOSAL OF MATERIAL: Suitable excavated material shall be used for compacted fills or backfills. Unsuitable excavated material and any surplus material not required for fill with other waste materials shall be disposed of by the Contractor at his expense.

CHAIN LINK FENCES AND GATES

1.1 SCOPE

- A. This section covers the furnishing and installation of chain link fence, posts, and gates plus all accessories and specials necessary for and incidental to the proper erection and installation of the fence and gates in the locations shown on the drawings.

1.2 SUBMITTALS

- A. Drawings, specifications, installation schedules and other data showing complete details of the fabrication, construction, and installation of the fence and gates together with complete data covering all materials proposed for use, shall be submitted in accordance with the procedure set forth in Section 01300.

1.3 GENERAL

- A. The Contractor shall follow the drawings in all matters concerning the location and placement of fences and gates. No changes shall be made from the drawings without approval of the Engineer.
- B. The Contractor should familiarize himself with the plans and the location at which new fence is to be constructed. All workmanship is to be first-class in every detail, and equal to the best standards of workmanship for similar types of installations.
- C. The Contractor shall construct a seven (7) foot high chain link fence including posts, and gates as located on the plans and in accordance with this specification.

2.1 MATERIALS:

- A. Style of Fence: The fence shall be seven (7) feet in overall height consisting of a six (6) foot-high panel of wire fabric, with three strands of barbed wire on the outside secured to 45° extension arms mounted on the top of the posts. Wire fabric shall be held in alignment by top rail and a bottom tension wire.
- B. Fabric: Fabric shall be of chain link wire woven in a 2 inch or smaller mesh. Fabric shall be woven of #9 (.148 diameter) gage wire before galvanizing.
 - 1. Top and bottom edges of fabric shall have a twisted finish.
 - 2. The fabric shall be heavily zinc coated, by the hot dip process after weaving, in accordance with ASTM Designation A392, Class 2.
- C. Barbed Wire: Wire shall be ASTM A-121 carbon steel wire, with a minimum of 0.10 and a maximum of 0.20 silicon added. Silicon element added to assure proper adherence of the zinc coating per ASTM standards.
- D. The wire shall stand a tensile strength test of 80,000 lbs. per square inch based on a cross section of the galvanized wire. Each line shall contain two (2) strands of 12 1/2 gauge steel wire with four point barbs spaced on three (3) inch centers. This wire shall be heavily zinc coated by the hot dip process in accordance with ASTM 392.
- E. Line Posts: Line posts shall be hot dipped galvanized two (2) inch nominal diameter, schedule 40 steel pipe spaced on centers not to exceed ten (10) feet. Fabric shall be attached to line posts with #6 gauge aluminum tie wire on 14 inch centers. Posts shall be set in concrete in a nine (9)

inch diameter hole not less than 24 inches deep in soil. In rock, the post shall extend at least 12 inches into sound rock. Galvanizing shall be in accordance with ASTM Designation A-123.

- F. Terminal Posts: End, corner and pull posts shall be hot dipped galvanized three (3) inch diameter schedule 40 pipe set in concrete in a twelve (12) inch hole not less than 30 inches deep in soil. In rock, the post shall extend at least 12 inches into sound rock. Galvanizing shall be in accordance with ASTM Designation A-123. Fabric shall be attached to terminal posts with 1/4" x 3/4" tension bars and 3/4" wide tension bands spaced at 14" intervals.
- G. Terminal Post Fittings: All post fittings including tension bands and brace connections shall be made of not less than 14 gauge hot-dipped galvanized steel. Bands shall be manufactured in a fashion which will not result in sharp and dangerous edges. All bands and connections shall be securely fastened with 5/16 inch x 1-1/4 inch galvanized carriage bolts and nuts. Tension bars shall be hot-dipped galvanized a minimum of 3/4 inch wide and 1/4 inch thick and sheared ends shall be given two coats of aluminum paint. No aluminum or pot metal fittings will be acceptable.
- H. Extension Arms: Contractor shall provide a pressed steel or malleable iron base with riveted, pressed steel extensions, galvanized after assembly. The arms shall be able to withstand a weight of 200 lbs. applied at the outer strand of barbed wire. The base shall be designed in such a manner that all pipe posts will be completely covered to exclude rain water from inside the post.
- I. Top Rails: 1-1/4" nominal diameter standard weight pipe, passing through the line post tops to form a continuous brace for each stretch of fence. Rails should be securely fastened to the terminal posts with malleable rail end cup and 7/8" beveled steel brace band. Provide outside sleeve type couplings at least seven (7) inches long. Provide every fifth coupling with a heavy spring to take up expansion and contraction of the rail.
- J. Bottom Tension Wire: Bottom tension wire shall be #7 gauge galvanized steel spring coil tension wire, fastened to chain link fabric with #11 gauge galvanized hog rings on 24 inch centers. Tension wires shall run the entire length of the fence.
- K. Braces: Brace material shall be 1-1/4 nominal diameter pipe, hot dipped galvanized, and shall extend from terminal post to first adjacent line post. Braces shall be securely fastened to posts by suitable pressed steel or malleable connections, then trussed from line post back to terminal with 3/8 inch galvanized round rod with tightener. Braces shall be used at end posts, corner posts and gate posts.
- L. Gates: Gate frames shall be fabricated of two (2) inch O.D. hot dipped galvanized pipe, wt. 2.62 lbs. per linear foot with galvanized pressed steel or malleable iron corner ells, securely riveted to the frame with four (4) rivets per corner. Internal bracing shall be 1-5/8 inch O.D. hot dipped galvanized pipe, wt. 2.27 lbs. per linear foot with 3/8 inch adjustable truss rods. The bottom hinge is to be ball and socket type, or type allowing pivot on vertical member of gate frame preventing removal of gate without disassembling of hinge, made of malleable iron; upper hinges to be 180° wrap around type, made of malleable iron, base galvanized, to allow gate to swing 180°. Gates shall be complete with padlocking device, center rests and semiautomatic catch to secure gates in open positions. End members of each gate leaf shall be complete with three (3) equally spaced strands of barbed wire attached with eye bolts. Fabric is to match that used in the line fence and to be centered in the frame, attached by means of tension bars and bands. Top bar of gate frame shall be on level plane and at the same height as top rail.
- M. Gate Posts: Gate posts supporting gate leaves up to and including twelve (12) feet in width shall be hot dipped galvanized four (4) inch diameter schedule 40 pipe set in concrete in a twelve (12) inch hole not less than thirty-six (36) inches deep in soil. In rock, the post shall extend at least 18 inches into sound rock. Galvanizing shall be in accordance with ASTM Designation A-123.

3.0 CONSTRUCTION

- A. The fence shall be installed by skilled and experienced fence erectors, and on lines and grades indicated on the drawings. All posts shall be set plumb and in concrete footings of the size specified under corresponding post section of this specification. The concrete shall extend a minimum of three (3) inches below the bottom of the posts. Concrete shall be crowned slightly above grade and troweled to provide a smooth, neat appearance. Posts shall be uniformly spaced between corner posts. Concrete shall be 3,000 psi minimum. The bottom of the fabric shall be held as uniformly as is practical to one (1) inch above the finish grade. The three strands of barbed wire shall be installed with maximum tension in order to prevent sagging in the future.

END OF SECTION

SECTION 02-930

SEEDING AND SODDING

1.0 WORK INCLUDED

1.01 CLEAN-UP

Upon completion of the Project, the Contractor shall remove all debris and surplus construction materials resulting from his work. The Contractor shall grade the ground along each side of the pipe trenches and/or structures in a uniform and neat manner leaving the construction area in a shape as near as possible to the original ground line, or as shown on the Drawings.

2.0 PRODUCTS

2.01 SEED

Grass seed shall be mixed and guaranteed by the supplier to consist of the following:

Annual Ryegrass	40 percent
Kentucky 31 Fescue	60 percent

2.02 TOPSOIL

Topsoil shall be material stripped and stored under work of Section 02-110 and shall be used for all work under this Section. If the quantity of stored topsoil is inadequate or if none has been salvaged from the Project site, the Contractor shall furnish at his own expense sufficient topsoil to properly install all work as specified herein. Topsoil shall be original surface loam obtained from well-drained areas from which topsoil has not been removed previously, either by erosion, clearing and removal of trees or mechanical means. It shall not contain subsoil material and shall be clean and free of clay lumps, roots, stones or similar substances more than 2 inches in any dimension, debris, discarded fragments of building materials or weeds and weed seeds.

2.03 SOIL IMPROVEMENTS

- A. Commercial fertilizers shall have a guaranteed analysis of 10-10-10. Fertilizer shall be uniform in composition, dry and free flowing, and shall be delivered to the site in the original, unopened containers, each bearing the manufacturer's guaranteed analysis. Any fertilizer that becomes caked or otherwise damaged, making it unsuitable for use, will not be accepted.
- B. Lime shall be ground limestone (Dolomite) containing not less than 85 percent of total carbonates, and shall be ground to such fineness that 50 percent will pass through a 100-mesh sieve, and 90 percent will pass through a 20-mesh sieve. Coarser material shall be acceptable provided that required rates of application are increased proportionally on the basis of quantities passing the 100-mesh sieve.

3.0 EXECUTION

3.01 SEEDING AND SODDING

- A. After installation of the Project, topsoil shall be spread evenly to a minimum 4-inch depth and lightly compacted. No topsoil shall be spread in a frozen or muddy condition. The Contractor as directed by the Engineer shall dispose of any stored topsoil remaining after work is in place.
- B. Soil improvement shall be made prior to seeding.
 1. Ground limestone shall be applied at the rate of 20 pounds per thousand square feet and shall be thoroughly mixed into the topsoil.
 2. Fertilizer shall be applied at a rate of 10 pounds per thousand square feet.

- C. Immediately before any seed is to be sown, the ground shall be scarified as necessary and shall be raked until the surface is smooth, friable and of a uniformly fine texture. Areas shall be seeded evenly with a mechanical spreader at a rate of 5 pounds per 1,000 square feet, lightly raked and watered with a fine spray.
- D. After seed has been distributed, the Contractor shall cover areas that are likely to washout with wheat straw to a depth of 1-1/2 inches.
- E. Seeded areas shall be protected and maintained by watering, regular mowing and reseeding as may be necessary to produce a uniform stand of grass. Maintenance shall continue throughout the guarantee period until a dense, uniform turf is established.
- F. All paved streets, roads, sidewalks, curbs, fences, stonewalls, lawns, etc., disturbed during construction shall be restored, repaired, or replaced to as good a condition as existed prior to construction. All materials and workmanship shall conform to standard practices and specifications of the Owner and/or the Kentucky Department of Highways, whichever applies.
- G. The Contractor shall remove from the site all equipment, unused materials and other items at his expense. The construction site shall be left in a neat, orderly condition, clear of all unsightly items, before the Work is finally accepted.

END OF SECTION 02-930

SECTION 03-100

CONCRETE FORMWORK

1.0 GENERAL

1.01 WORK INCLUDED

- A. Formwork for cast-in-place concrete, with shoring, bracing, and anchorage.
- B. Openings for other affected work.
- C. Form accessories.
- D. Stripping forms.

1.02 RELATED WORK

- A. Section 03-210: Reinforcing Steel.

1.03 REFERENCES

- A. ACI 301 - Specifications for Structural Concrete for Buildings.
- B. ACI 347 - Recommended Practice for Concrete Formwork.
- C. PS 1 - Construction and Industrial Plywood.
- D. ACI 318 - Building Code Requirements for Reinforced Concrete.
- E. ACI 350 R - Environmental Engineering Concrete Structures.

1.04 SYSTEM DESCRIPTION

Design, engineer and construct formwork, shoring, and bracing to meet design and code requirements so that resultant concrete conforms to required shapes, lines, dimensions and tolerances.

1.05 QUALITY ASSURANCE

Construct and erect concrete formwork in accordance with ACI 301 and 347, latest revisions.

2.0 PRODUCTS

2.01 FORM MATERIALS

- A. Plywood; Douglas Fir species; medium density overlaid one side grade; sound, undamaged sheets with straight edges.
- B. Glass fiber fabric reinforced plastic forms; matched, tight fitting, stiffened to support weight of concrete without deflection detrimental to structural tolerances and appearance of finished concrete surface.
- C. Forms shall be sufficiently rigid to prevent displacement or sagging between supports and so constructed that the concrete will not be damaged by their removal. The Contractor shall be entirely responsible for their adequacy.

- D. For surfaces to be given a rubbed finish, the form surface in contact with the concrete shall be made of heavy gage metal, new plywood (used plywood may not be used), tempered wood fiberboards with smooth surface, or similar material. Metal forms or form linings shall have square edges so that the concrete will not have fins or fluting. Forms shall not be pieced out by use of material different from those in the adjacent form or in such manner as will detract from the uniformity of the finished surface.
- E. For surfaces other than those to be given a rubbed finish, forms shall be made of wood, metal, or other acceptable material. Wooden forms shall be constructed of sound lumber or plywood of suitable dimensions, free from knotholes and loose knots. Plywood shall be reasonably good as accepted. Metal forms shall be of an acceptable type for the work involved. Edges of forms in contact with concrete shall be flush within 1/16-inch.
- F. Forms for walls, columns, or piers shall have removable panels at the bottom for cleaning, inspection, and scrubbing in of bonding grout. Forms for thin sections (such as walls or columns) of considerable height shall be arranged with suitable openings so that the concrete can be placed in a manner that will prevent segregation and accumulations of hardened concrete on the forms or reinforcement above the fresh concrete, unless special spouts are used to place concrete, and so that construction joints can be properly keyed and treated.
- G. Forms for exposed surfaces shall be built with 3/4-inch chamfer strips attached to produce smooth, straight chamfers at all sharp edges of concrete.
- H. All forms shall be oiled with an acceptable nonstaining oil or liquid form coating before reinforcement is placed.
- I. Before form material is reused, all surfaces that are in contact with the concrete shall be thoroughly cleaned, all damaged places repaired, and all projecting nails withdrawn.

2.02 FORMWORK ACCESSORIES

- A. Form ties to be encased in concrete shall not be made of through bolts or common wire, but shall be made and installed as to embody the following features:
 - 1. After removal of the protruding part of the tie, there shall be no metal nearer than 1 inch to the face of the concrete.
 - 2. That part of the tie which is to be removed shall be at least 1/2-inch in diameter, or if smaller, it shall be provided with a wood or metal cone 1 inch long placed against the inside of the forms. Cones shall be carefully removed from the concrete after the forms have been stripped.
 - 3. Ties that pass through walls subject to hydrostatic pressure shall be provided with acceptable water stops, such as washers, securely fastened to the ties.
- B. Form Release Agent: Colorless material which will not stain concrete, absorb moisture or impair natural bonding or color characteristics of coating intended for use on concrete. Form oil shall be placed prior to reinforcing steel when possible and surplus oil on form surfaces or reinforcing steel shall be removed.
- C. Fillets for Chamfered Corners: Wood strip type to the size and shape as shown on the Drawings (or 3/4-inch if not shown).
- D. Dovetail Anchor Slots: Minimum 10 gage thick galvanized steel; foam filled; release tape sealed slots; bent tab anchors securable to concrete formwork.
- E. Nails, spikes, lag bolts, through bolts, anchorages: Sized as required of strength and character to maintain formwork in place while placing concrete.

3.0 EXECUTION

3.01 INSPECTION

Verify lines, levels and measurements before proceeding with formwork.

3.02 PREPARATION

Earth forms not permitted except for continuous strip footings of buildings.

3.03 ERECTION

- A. Provide bracing to ensure stability of formwork. Strengthen formwork liable to be overstressed by construction loads.
- B. Camber slabs and beams to achieve ACI 301 tolerances.
- C. Provide temporary ports in formwork to facilitate cleaning and inspection. Locate openings at bottom of forms to allow flushing water to drain. Close ports with tight fitting panels, flush with inside face of forms, neatly fitted so that joints will not be apparent in exposed concrete surfaces.
- D. Concrete surfaces not exposed to view shall be formed with sound tight lumber or other material producing equivalent finish.
- E. Concrete surfaces to be exposed to view shall be formed with material that is not reactive with concrete surfaces and shall be equivalent in smoothness and appearance to that produced by new plywood panels conforming to PS 1, exterior type Grade B-B.

3.04 APPLICATION OF RELEASE AGENT

Apply form release agent on formwork in accordance with manufacturer's instructions. Apply prior to placing reinforcing steel, anchoring devices, and embedded items.

3.05 INSERTS, EMBEDDED PARTS, AND OPENINGS

- A. Provide formed openings where required for work embedded in or passing through concrete.
- B. Coordinate work of other sections in forming and setting openings, slots, recesses, chases, sleeves, bolts, anchors, and other inserts.
- C. Install accessories in accordance with manufacturer's instructions, level and plumb. Ensure items are not disturbed during concrete placement.

3.06 FORM REMOVAL

- A. Do not remove forms and bracing until concrete has sufficient strength to support its own weight and construction and design loads which may be imposed upon it. Remove load-supporting forms when concrete has attained 75 percent of required 28-day compressive strength, provided construction is reshored.
- B. Reshore structural members due to design requirements or construction conditions to permit successive construction.
- C. Remove formwork progressively so that no unbalanced loads are imposed on structure.
- D. Do not damage concrete surfaces during form removal.

3.07 CLEANING

- A. Clean forms to remove foreign matter as erection proceeds.
- B. Ensure that water and debris drain to exterior through clean out ports.
- C. During cold weather, remove ice and snow from forms. Do not use deicing salts. Do not use water to clean out completed forms unless formwork and construction proceed within heated enclosure. Use compressed air to remove foreign matter.

END OF SECTION 03-100

SECTION 03-210

REINFORCING STEEL

1.0 GENERAL

1.01 WORK INCLUDED

- A. Reinforcing steel.
- B. Shop Drawings.

1.02 RELATED WORK

- A. Section 03-100: Concrete Formwork.

1.03 REFERENCES

- A. ASTM A-615.
- B. ASTM A-616.
- C. ASTM A-617.
- D. ACI 351.
- E. ASTM A-120.
- F. ASTM A-185.

1.04 SUBMITTALS

- A. Shop Drawings: If requested, the Contractor shall submit a complete set of shop drawings including schedules and bending drawings for all reinforcement used in the work in accordance with the "Manual of Standard Practice for Detailing Concrete Structures" (ACI 351).

2.0 PRODUCTS

2.01 MATERIALS

- A. The minimum yield strength of the reinforcement shall be 60,000 pounds per square inch. Bar reinforcement shall conform to the requirements of ASTM A-615, A-616, or A-617. All bar reinforcement shall be deformed.
- B. Smooth dowels shall be plain steel bars conforming to ASTM A-615, Grade 40, or steel pipe conforming to ASTM A-120, Schedule 80. Pipe, if used, shall be closed flush at each end with mortar or metal or plastic cap.
- C. Welded wire fabric shall conform to ASTM 185, welded steel wire fabric for concrete reinforcement.
- D. Reinforcement supports and other accessories in contact with the forms for members which will be exposed to view in the finished work shall have approved high density polyethylene tips so that the metal portion shall be at least 1/4-inch from the form or surface. Supports for reinforcement, when in contact with the ground or stone fill, shall be precast stone concrete blocks.

2.02 FABRICATION

- A. Reinforcement shall be bent cold. It shall be bent accurately to the dimensions and shapes shown on the plans and to within tolerances specified in the CR51 Manual of Standard Practice.
- B. Reinforcing shall be shipped with bars of the same size and shape, fastened securely with wire and with metal identification tags giving size and mark.

3.0 EXECUTION

3.01 PLACING AND FASTENING

- A. Before being placed in position, reinforcement shall be cleaned of loose mill and rust scale, dirt and other coatings that will interfere with development of proper bond.
- B. Reinforcement shall be accurately placed in positions shown on the Drawings and firmly held in place during placement and hardening of concrete by using annealed wire ties. Bars shall be tied at all intersections except where spacing is less than 1 foot in both directions, and then alternate intersections may be tied.
- C. Distance from the forms shall be maintained by means of stays, blocks, ties, hangers or other approved supports. If fabric reinforcement is shipped in rolls, it shall be straightened into flat sheets before being placed.
- D. **Before any concrete is placed, the Engineer or Owner shall have inspected the placing of the steel reinforcement and given permission to deposit the concrete. Concrete placed in violation of this provision will be rejected and thereupon shall be removed.**
- E. Unless otherwise specified, reinforcement shall be furnished in the full lengths indicated on the Drawings. Splicing of bars, except where shown on the Drawings, will not be permitted without the approval of the Engineer. Where splices are made, they shall be staggered insofar as possible.
- F. Wire mesh reinforcement shall be continuous between expansion joints. Laps shall be at least one full mesh plus 2 inches, staggered to avoid continuous lap in either direction and securely wired or clipped with standard clips.
- G. Dowels shall be installed at right angles to construction joints and expansion joints. Dowels shall be accurately aligned parallel to the finished surface, and shall be rigidly held in place and supported during placing of the concrete. One end of dowels shall be oiled or greased and have a plastic expansion end cap.

END OF SECTION 03-210

SECTION 03-310

CAST-IN-PLACE STRUCTURAL CONCRETE

1.0 GENERAL

1.1 WORK INCLUDED

The work in this section shall include all formwork, shoring, bracing, anchorage, concrete reinforcement and accessories for cast-in-place concrete.

1.2 GENERAL REQUIREMENT

All concrete construction shall conform to all applicable requirements of ACI 301, ACI 318 and ACI 350 R, except as modified by the supplemental requirements specified herein.

1.3 RELATED WORK

- A. Section 02-222: Excavation.
- B. Section 03-100: Concrete Formwork.
- C. Section 03-210: Reinforcing Steel.

1.4 REFERENCES

- A. The Contractor shall conform to the recommendations of the following references:
 - 1. Specifications for Structural Concrete for Building ACI 301 (latest revision).
 - 2. Field Reference Manual: Specifications for Structural Concrete for Buildings ACI Sp-15 (88).
 - 3. Manual of Standard Practice - CRSI (latest revision).
 - 4. Placing Reinforcing Bars - CRSI (latest revision).
 - 5. Building Code Requirements for Reinforced Concrete ACI 318.
 - 6. Environmental Engineering Concrete Structures ACI 350R.
- B. The following standard shall also apply to this work:

1. ASTM C-143.	9. ASTM D-570.
2. ASTM C-150.	10. ASTM D-1252.
3. ASTM C-33.	11. ASNI A-116.1.
4. ASTM C-260.	12. ASTM A-120.
5. ASTM C-494.	13. ASTM C-94.
6. ASTM A-615.	14. ASTM D-2146.
7. ASTM D-638.	15. Federal Specifications FF-S-325.
8. ASTM D-695.	

1.5 SUBMITTALS

- A. The Contractor shall submit the following data to the Engineer for review:
 - 1. Proposed mix designs, test results, plotted curves and all other substantiating data as required by Sections 3.8 and 3.9 of ACI 301.
 - 2. Mix designs for all mixes proposed or required to be used, including all mixes containing admixtures.
 - 3. A certified copy of the control records of the proposed production facility establishing the standard deviation as defined in Section 3.9 of ACI 301.
- B. Certification attesting that admixtures equal or exceeds the physical requirements of ASTM C-494 for Type A admixture and when required, for Type D admixture.

- C. Notarized certifications by the manufacturer that epoxy bonding adhesive meets the specification contained herein.
- D. Drawings showing locations of all proposed construction joints.
- E. Shop drawing for reinforcing steel showing bar schedules, location, and splices.

1.6 QUALITY ASSURANCE

- A. Consistency:
 - 1. Concrete shall be of such consistency that it can be worked readily into all parts of the forms and around embedded work, without permitting the materials to segregate, or free water to collect on the surface. Consistency shall be measured by the ASTM Standard Test Method for Slump of Portland Cement Concrete, Designation C143-78. The consistency of concrete shall be as given in Table I.
 - 2. Slump tests shall be made in the field by the Contractor.
- B. Compression Tests:
 - 1. During the progress of the work, at least one set of four compression test cylinders shall be made for each 50 cubic yards of concrete or major fraction thereof, and not less than one such set for each type of concrete for each days' pouring. Cylinders made in the field shall be made and cured in accordance with ASTM Standard Method of Making and Curing Concrete Test Specimens in the Field, Designation C31-69, except that wherever possible molds shall be left on cylinders until they have reached the laboratory.
 - 2. One (1) cylinder of each set shall be broken in accordance with ASTM C-39 at seven (7) days and two (2) at twenty-eight (28) days. Two (2) copies of these test results shall be submitted to the Engineer on the same day of the tests. The remaining cylinder shall be reserved for future testing if required.
 - 3. On evidence of these tests, any concrete that fails to meet the specified strength requirements shall be strengthened or replaced as directed by the Engineer at the Contractor's expense.
- C. Inserts in Concrete by Other Trades:
 - 1. All trades shall be notified, at the proper time, to install items to be embedded in concrete.
 - 2. All castings, inserts, conduits, and other metalwork shall be accurately built into or encased in the concrete by the Contractor as directed and all necessary precautions shall be taken to prevent the metalwork from being displaced or deformed.
 - 3. Anchor bolts shall be set by means of substantial templates.
 - 4. The Contractor shall build into new concrete against which facing brick or tile is to be laid, suitable, acceptable, non-corrodible metal, dovetail grooves for ties for securing the brickwork to the concrete.
- D. Testing:
 - 1. All testing shall be in accordance with provisions of ACI 301.
 - 2. Testing services listed in ACI 301 Sections 16.3, 16.4 and 16.5 shall be performed by a testing agency acceptable to the Engineer. Testing services to meet the requirements of ACI shall be paid for by the Contractor at his expense. Test shall be made for each 50 cubic yards of concrete and/or each day concrete is placed.
- E. Additional Requirements:
 - 1. Unless otherwise directed by the Engineer, the vertical surfaces of all footings shall be formed. Excavations and reinforcement for all footings shall have been inspected by the Engineer before any concrete is placed.
 - 2. The installation of underground and embedded items shall be inspected before slabs are placed. Pipes and conduits shall be installed below the concrete unless otherwise indicated. Fill required to raise the subgrade shall be placed as specified in Division 2. Unless shown otherwise, porous fill not less than 6 inches in compacted thickness shall be installed under all slabs, tank bottoms, and foundations. The fill shall be leveled and

uniformly compacted to a reasonably true and even surface. The surfaces shall be clean, free from frost, ice, mud and water. Where indicated, waterproof paper, polyethylene sheeting of nominal 4-mil minimum thickness, or polyethylene coated burlap shall be laid over surfaces receiving concrete.

- F. Hot Weather Requirements: Placing of concrete under conditions of high temperatures, low humidity or wind shall be done in accordance with the American Concrete Institute "Hot Weather Concreting" (ACI 305R-77).
- G. Cold Weather Requirements: Cold weather concreting procedures and precautions shall conform to American Concrete Institute "Cold Weather Concreting" (ACI 306 R-78).

2.0 PRODUCTS

2.1 Contractor shall supply concrete only from an approved ready mixed concrete supplier.

2.2 CONCRETE MIX WITHOUT FLY ASH

Structural concrete of the various classes required shall be proportioned by Section 3.9 of ACI 301 to produce the following 28-day compressive strengths:

- A. Selection of Proportions for Class A Concrete:
 - 1. 4,000 psi compressive for strength at 28 days.
 - 2. Type II cement plus water reducing, dispersing agent and air. Type IP cement may be used in place of Type II.
 - 3. Maximum water/cement plus water reducing dispersing agent ratio = 0.50.
 - 4. Minimum cement content = 564 pounds (6.0 bags)/cubic yards concrete.
 - 5. Nominal maximum size coarse aggregate = No. 67 (3/4-inch maximum) or No. 57 (1-inch maximum).
 - 6. Air content = 6 percent plus or minus 2 percent by volume.
 - 7. Slump = 2 inches to 3 inches in accordance with ASTM C-143.
- B. Selection of proportions for Class B concrete:
 - 1. 3,000 psi compressive strength at 28 days.
 - 2. Type I cement plus water reducing dispersing agent and air.
 - 3. Maximum (water)/(cement plus water reducing dispersing agent) ratio = 0.56.
 - 4. Minimum cement content = 432 pounds (4.5 bags)/cubic yards concrete.
 - 5. Nominal maximum size coarse aggregate = No. 67 (3/4-inch maximum) or No. 57 (1-inch maximum).
 - 6. Air content = 6 percent plus or minus 2 percent by volume.
 - 7. Slump = 3 inches to 4 inches in accordance with ASTM C-143.

2.3 OPTIONAL CONCRETE MIX USING FLY ASH

- A. Selection of Proportions for Class A Concrete:
 - 1. 4,000 psi compressive for strength at 28 days.
 - 2. Type II cement plus water reducing dispersing agent and air.
 - 3. Maximum (water)/(cement plus water reducing dispersing agent) ratio = 0.50.
 - 4. Minimum cement content = 517 pounds (5.5 bags)/cubic yards concrete.
 - 5. Maximum Fly Ash Content = 71 pounds/cubic yards
 - 6. Nominal maximum size coarse aggregate = No. 67 (3/4-inch maximum) or No. 57 (1-inch maximum).
 - 7. Air content = 6 percent plus or minus 2 percent by volume.
 - 8. Slump = 2 inches to 3 inches in accordance with ASTM C-143.
- B. Selection of Proportions for Class B Concrete:
 - 1. 3,000 psi compressive strength at 28 days.
 - 2. Type I cement plus water reducing dispersing agent and air.
 - 3. Maximum (water)/(cement plus water reducing dispersing agent) ratio = 0.56.

4. Minimum cement content = 432 pounds (4.5 bags)/cubic yards concrete.
 5. Maximum Fly Ash Content = 71 pounds/cubic yards.
 6. Nominal maximum size coarse aggregate = No. 67 (3/4-inch maximum) or No. 57 (1-inch maximum).
 7. Air content = 6 percent plus or minus 2 percent by volume.
 8. Slump = 3 inches to 4 inches in accordance with ASTM C-143.
- C. Applicable Standards:
1. ANSI C 311-77 "Standard Methods of Sampling and Testing Fly Ash for Use as an Admixture in Portland Cement Concrete".
 2. ANSI C 618-80 "Standard Specification for Fly Ash and Raw or Calcined Natural Pozzolan for Use as a Mineral Admixture in Portland Cement Concrete".
- D. Concrete shall be used as follows:
1. Class A concrete for all concrete work except as noted below.
 2. Class B concrete for fill concrete, thrust blocks, post setting, and where indicated on the Drawings.
- E. All testing shall be or have been performed by an approved independent testing laboratory.
- F. Cement for exposed concrete shall have a uniform color classification.
- G. Type II cement conforming to ASTM C-150 shall be used in all structural concrete. The alkali content shall not exceed 0.6 percent calculated as sodium oxide. Type IP Cement may be used in place of Type II cement.
- H. Coarse aggregate shall conform to all requirements of ASTM C-33.
- I. Manufactured sand shall not be used as fine aggregate in concrete.

2.4 FLY ASH CONCRETE

- A. In the absence of a verified and acceptable history of fly ash concrete mixes, the following procedure is required to establish the quality of the concrete mix.
- B. Trial batches must be made starting thirty (30) days ahead of initial concrete pour. Four (4) mixes shall be designed and produced at no cost to the Owner or the Engineer as follows:
1. Mix using Type II cement with water reducing admixture for normal temperatures (Class A).
 2. Mix using Type II cement with water reducing admixture for cold weather temperatures (Class A).
 3. Mix using Type II cement with water reducing admixture for hot weather temperatures (Class A).
 4. Mix using Type I cement with water reducing admixture for normal weather temperatures (Class B).
- C. Four (4) test cylinders shall be cast for each of the four (4) mixes. Two (2) cylinders shall be broken at 7 days, and two (2) cylinders shall be broken at 28 days, for each of the four (4) mixes. The trial batch design report shall include strength breaks at 7 days and 28 days, air content, etc.
- D. The water-reducing, cement dispersing admixture (such as Master Builders Pozzolith 344-N, Nox-Crete Plastiflow, Plastocrete 161 by SIKA Chemical Company, or approved equal) used in fly ash concrete, shall be a normal, accelerated, or retarded hardening admixture. The admixture shall be used at optimum dosage to offset the slow strength development and setting characteristics of the fly ash. Only those brands of admixture that can provide readily available field service on short notice to provide field services, inspection, and assistance, will be acceptable.
- E. Prior to the use of fly ash concrete, recent mill reports shall be submitted on a regular basis during the project. Maximum loss of ignition (LOI) shall be 6 percent.

- F. Tests for air content shall be made twice a day at the jobsite prior to pouring, for all mixes containing fly ash.

2.5 ADMIXTURES

- A. An air-entraining admixture shall be used on all concrete and shall be the neutralized vinsol resin type such as Master Builders MB-VR, or Euclid Chemical Co. AIR-MIX or equal. The admixture shall meet the requirements of ASTM C-260. Certification attesting to the percent of effective solids and compliance of the material with ASTM C-260 shall be furnished, if requested.
- B. A water reducing, set-controlling admixture (non-lignin type) shall be used in all concrete. The admixture shall be a combination of polyhydroxylated polymers including catalysts and components to produce the required setting time based on job site conditions, specified early strength development, finishing characteristics required, and surface texture, as determined by the Engineer.
- C. Certification shall be furnished attesting that the admixture exceeds the physical requirements of ASTM C-494, Type A, water reducing and normal setting admixture, and when required, for ASTM C-494, Type D, water reducing and retarding admixture when used with local materials with which the subject concrete is composed.
- D. The admixture manufacturer, when requested, shall provide a qualified concrete technician employed by the manufacturer to assist in proportioning concrete for optimum use. He also will be available when requested to advise on proper addition of the admixture to the concrete and on adjustment of the concrete mix proportions to meet changing job conditions.
- E. The use of admixtures to retard setting of the concrete during hot weather, to accelerate setting during cold weather, and to reduce water content without impairing workability will be permitted if the following conditions are met.
- F. The admixture shall conform to ASTM C-494 except that the durability factor for concrete containing the admixture shall be at least 100 percent of control, the water content a maximum of 90 percent of control and length change shall not be greater than control, as defined in ASTM C-494.
- G. Where the Contractor finds it impractical to employ fully the recommended procedures for hot weather concreting, the Engineer may at his discretion require the use of a set retardant admixture for mass concrete greater than 2.5 feet thick and for all concrete whenever the temperature at the time concrete is cast exceeds 80 degrees F. The Contractor subject to the review of the Engineer shall select the admixture. The admixture and concrete containing the admixture shall meet all the requirements of these Specifications. Preliminary tests of this concrete shall be required at the Contractor's expense.
- H. Admixtures shall be used in concrete design mixes in the same manner and proportions as in the field so that the effects of the admixtures are included in preliminary tests submitted to the Engineer for review prior to the start of construction.
- I. When more than one admixture is used, all admixtures shall be compatible. They should preferably be by the same manufacturer.
- J. Calcium chloride will not be permitted as an admixture in any concrete.

2.6 WATER

The mix water for concrete shall be potable.

2.7 AGGREGATES

- A. Fine aggregates shall be natural sand having clean, hard, uncoated grains, free from injurious amounts of clay, dust, organic matter or other deleterious substances, and shall conform to ASTM C-33.
- B. Coarse aggregates shall be crushed stone having clean, hard, uncoated particles, and shall be free from injurious amounts of soft, friable, thin, elongated or laminated pieces. Shale may not be used as aggregate. Coarse aggregates shall conform to ASTM C-33 and shall not exceed the following maximum sizes:
 - 1. 3/4-inch for slabs, beams, girders, and walls.
 - 2. 1-inch for all other concrete.

2.8 TESTING AGGREGATES AND DETERMINING PROPORTIONS

- A. No concrete shall be used in the work until the Engineer has accepted the materials and mix design.
- B. The conformity of aggregates to the specifications hereinbefore given shall be demonstrated and determined by tests per ASTM C-33 made with representative samples of the materials to be used on the work.
- C. The actual proportions of cement, aggregates, admixtures and water necessary to produce concrete conforming to the requirements set forth shall be determined by making test cylinders using representative samples of the materials to be used in the work. A set of four (4) standard 6-inch cylinders shall be made and cured per ASTM C-31. Two (2) shall be tested at 7 days and two (2) at 28 days per ASTM C-39. The slump shall not be less than the greatest slump expected to be used in the work.
- D. Reports on the tests and a statement of the proportions proposed for the concrete mixture, shall be submitted in triplicate to the Engineer for review as soon as possible, but not less than five (5) days prior to the proposed beginning of the concrete work. If the Contractor furnishes in writing, similar, reliable detailed information from an acceptable source, and of date not more than four (4) months prior to the time when concrete will be used on this project, the above requirements for laboratory tests may be modified by the Engineer. Such data shall derive from mixtures containing constituents, including the admixtures where used, of the same types and from the same sources as will be used on this project.
- E. The Engineer shall have the right to make check tests of aggregates and concrete, using the same materials, and to order changes as may be necessary to meet the specified requirements.
- F. The Contractor may request permission to add water at the job site, and when the addition of water is permitted by the Engineer, the quantity added shall be the responsibility of the Contractor and in no case shall the total water per bag of cement exceed that determined by the designed mix.
- G. All concrete exposed to weather, such as foundations, walls, exterior steps and retaining walls, etc. shall be air entrained.
- H. If concrete of the required characteristics is not being produced as the work progresses, the Engineer may order such changes in proportions or materials, or both, as may be necessary to secure concrete of the specified quality. The Contractor shall make such changes at his own expense and no extra compensation will be allowed because of such changes.

2.9 MIXING

All central plant and rolling stock equipment and methods shall conform to the Truck Mixer and Agitator Standards of the Truck Mixer Manufacturers' Bureau of the National Ready Mixed Concrete Assn., as well as the ACI Standards for Measuring, Mixing and Placing Concrete (ACI 614), and with Sections 7 to 14,

inclusive, of the ASTM Standard Specification for Ready Mixed Concrete, Designation C94-78a, insofar as applicable.

3.0 EXECUTION

3.1 PLACING AND COMPACTING CONCRETE

- A. At least 20 hours before the Contractor proposes to make any placement of concrete, he shall notify the Engineer of his intention and planned procedure. Unless otherwise permitted, the work shall be so executed that a section begun on any day shall be completed during daylight of the same day.
- B. Ready mixed concrete shall be transported to the site in watertight agitator or mixer trucks. The quantity of concrete to be mixed or delivered in any one batch shall not exceed the rated capacity of the mixer or agitator for the respective conditions as stated on the nameplates.
- C. Central mixed concrete shall be plant mixed a minimum of 1-1/2 minutes per batch, and then shall be truck mixed or agitated a minimum of 8 minutes. Agitation shall begin immediately after the premixed concrete is placed in the truck and shall continue without interruption until discharge. For transit mixed concrete, the major portion of the mixing water shall be added and mixing started immediately after the truck is charged.
- D. The amount of water initially added shall be recorded on the delivery slip for the Engineer's information; no additional water shall be added, either in transit or at the site, except as directed. Mixing (at mixing speed) shall be continued for at least 10 minutes followed by agitation without interruption until discharge. Concrete shall be discharged at the site within 1-1/2 hours after water was first added to the mix, and shall be mixed at least 5 minutes after all water has been added.
- E. Concrete that has become compacted or segregated during transportation to or on the site of the work shall be satisfactorily remixed just prior to being placed in the forms.
- F. Partially hardened concrete shall not be deposited in the forms. The retempering of concrete which has partially hardened (that is, the remixing of concrete with or without additional cement, aggregate, or water) will not be permitted.
- G. The concrete shall be mixed only in the quantity required for immediate use. Concrete that has developed an initial set shall not be used. The Contractor shall have sufficient plant capacity and transporting apparatus to insure continuous delivery at the rate required.
- H. The temperature of the concrete mixture immediately before placement shall be between 50 degrees F and 90 degrees F.
- I. Concrete mixed in stationary mixers and transported by nonagitating equipment shall be placed in the forms within 45 minutes from the time ingredients are charged into the mixing drum. Concrete that is truck mixed or transported in truck mixers or truck agitators shall be delivered to the site of the work and discharge completed in the forms within the time specified in paragraph 10.7 of ASTM C-94, except that when the concrete temperature exceeds 85 degrees F, the time shall be reduced to 30 minutes. Transit mixed concrete that is completely mixed at the site of concrete placement or batched cement and aggregates transported to mixers shall be placed in the forms within 1-1/2 hours after cement has been added. Concrete shall be placed in the forms within 15 minutes after discharge from the mixer at the job site.
- J. If concrete is placed by pumping, no aluminum shall be used in any parts of the pumping system that contact or might contaminate the concrete. Aluminum chutes and conveyors shall not be used.
- K. No concrete shall be placed on frozen subgrade or in water, or until the subgrade, forms, and preliminary work have been accepted. No concrete shall be placed until all materials to be built into the concrete have been set and have been accepted by the various trades and by the

- Engineer. All such materials shall be thoroughly clean and free from rust, scale, oil, or any other foreign matter.
- L. Forms and excavations shall be free from water and all dirt, debris, and foreign matter when concrete is placed. Except as otherwise directed, wood forms and embedded wood called for or allowed shall be thoroughly wetted just prior to placement of concrete.
 - M. Concrete placed at air temperatures below 40 degrees F shall have a minimum temperature of 50 degrees F and a maximum of 70 degrees F when placed.
 - N. Chutes for conveying concrete shall be metal or metal lined and of such size, design, and slope as to ensure a continuous flow of concrete without segregation. The slope of chutes shall have approximately the same slope. The discharge end of the chute shall be provided with a baffle, or if required, a spout and the end of the chute. The spout shall be kept as close as practicable to, but in no event more than 5 feet above the surface of the fresh concrete. When the operation is intermittent, the chute shall discharge into a hopper.
 - O. In thin sections of considerable height (such as walls and columns), concrete shall be placed in such manner as will prevent segregation and accumulations of hardened concrete on the forms or reinforcement above the mass of concrete being placed. To achieve this end, suitable hoppers spouts with restricted outlets, etc. shall be used as required or permitted unless the forms are provided with suitable openings.
 - P. Chutes, hoppers, spouts, etc. shall be thoroughly cleaned before and after each run and the water and debris shall not be discharged inside the form.
 - Q. For any one placement, concrete shall be deposited continuously in layers of such thickness that no concrete will be deposited on concrete which has hardened sufficiently to cause the formation of seams and planes of weakness within the section, and so as to maintain until the completion of the unit, an approximately horizontal plastic surface.
 - R. No wooden spreaders shall be left in the concrete.
 - S. During and immediately after being deposited, concrete shall be thoroughly compacted by means of suitable tools and methods, such as internal type mechanical vibrators operating at not less than 5,000 rpm or other tool spading to produce the required density and quality of finish. Vibration shall be done only by experienced operators and shall be carried in such manner and only long enough to produce homogeneity and optimum consolidation without permitting segregation of the solid constituents, "pumping" of air, or other objectionable results.
 - T. The concrete shall be thoroughly rodded and tamped about embedded materials so as to secure proper adhesion and prevent leakage. Care shall be taken to prevent the displacement of such materials during concreting.
 - U. The distance between construction joints shall not exceed 25 feet for all concrete construction and not less than 48 hours shall elapse between casting of adjoining units unless the Engineer waives these requirements. Provision shall be made for jointing successive units as indicated or required. Where joints are not shown on the Drawings, they are required to be made at a spacing of approximately 25 feet. Additional construction joints required to satisfy the 25 foot spacing requirement shall be located by the Contractor subject to the review of the Engineer. The Contractor shall submit for review Drawings separate from the steel reinforcing Drawings, showing the location of all proposed construction joints. All construction joints shall be prepared for bonding as specified in paragraph 6.1.4.3 of ACI Standard 301 and Section 3.02 Bonding Concrete at Construction Joints. Joints in walls and columns shall be maintained level.
 - V. Formwork for beam soffits and slabs and other parts that support the weight of concrete shall remain in place until the concrete has reached its specified 28-day strength, unless otherwise specified or permitted.

3.2 BONDING CONCRETE AT CONSTRUCTION JOINTS

- A. In order to secure full bond at construction joints, the surface of the concrete previously placed (including vertical, inclined, and substantially horizontal areas) shall be thoroughly cleaned of foreign materials and laitance, if any, and then roughened.
- B. The previously placed concrete at the joint shall be free of standing water.
- C. Waterstops shall be used on all construction joints below water level.

3.3 CURING AND PROTECTION

- A. All concrete, particularly slabs and including finished surfaces, shall be treated immediately after concreting or cement finishing is completed, to provide continuous moist curing for at least seven days, regardless of the adjacent air temperature. Walls and vertical surfaces may be covered with continuously saturated burlap, or kept moist by other acceptable means. Horizontal surfaces, slabs, etc., shall be ponded to a depth of 1/2-inch wherever practicable, or kept continuously wet by the use of lawn sprinklers, a complete covering of continuously saturated burlap, or by other acceptable means.
- B. For at least seven days after having been placed, all concrete shall be so protected that the temperature at the surface will not fall below 45 degrees F. The methods of protecting the concrete shall be as specified in that section of the General Specifications titled "Precautions During Adverse Weather" and shall be subject to the review of the Engineer.
- C. The above-mentioned 7-day periods may be reduced to 3 days in each case if high-early-strength cement is allowed to be used in the concrete.
- D. Wherever practicable, finished slabs shall be protected from the direct rays of the sun to prevent checking and crazing.

3.4 TRIMMING AND REPAIRS

- A. The Contractor shall use suitable forms, mixture of concrete, and workmanship so that concrete surfaces, when exposed, will not require patching. Concrete which, in the opinion of the Engineer has excessive honeycomb, aggregate pockets, or depressions will be rejected and the Contractor shall, at his own expense remove the entire section containing such defects and replace it with acceptable concrete.
- B. As soon as the forms have been stripped and the concrete surfaces exposed, fins and other projections shall be removed, recesses left by the removal of form ties shall be filled and surface defects which do not impair structural strength shall be repaired.
- C. Defective concrete shall be cut perpendicular to the surface until sound concrete is reached, but not less than 1-inch deep. The remaining concrete shall be thoroughly roughened and cleaned. Concrete around the cavity or the form tie recess shall be thoroughly wetted and promptly painted with a 1/16-inch brush coat of neat cement mixed to the consistency of thick paint. The hole shall then be filled with mortar.
- D. Mortar shall be 1:1-1/2 cement and sand mix with sufficient white cement, or fine limestone screening in lieu of sand, to produce a surface matching the adjoining work. Cement and sand shall be from the same sources as in the parent concrete.
- E. Mortar in patches shall be applied so that after partial set it can be compressed and rubbed to produce a finish flush and uniform in texture with the adjoining work. All patches shall be warm-moist cured as above specified.
- F. The use of mortar patching as above specified shall be confined to the repair of small defects in relatively green concrete. If substantial repairs are required, the defective portions shall be cut out

to sound concrete and the defective concrete replaced by means of a cement gun, or the structure shall be taken down and rebuilt, all as the Engineer may decide or direct.

3.5 FINISHES

A. Exposed to View Concrete Surfaces:

1. All concrete exposed to view in the completed structure shall be produced using materials and workmanship to such quality that only nominal finishing will be required. The provisions of paragraphs 13.3, 13.4, and 13.6 of ACI shall apply to all exposed to view concrete surfaces (limited to 1 foot below grade and 1 foot below the minimum liquid level for structures that will contain liquids).
2. Forms for exposed concrete surfaces shall be exterior grade, high density overlay plywood, steel, or wood forms with smooth tempered hard board form liners.
3. Forms shall be coated with Nox-Crete Form Coating Release Agent, Debond Form Coating by L & M Construction Chemicals, Inc. or an approved equal, before initial pour and between subsequent pours, in accordance with the manufacturer's printed instructions. Form boards shall not be wet with water prior to placing concrete.
4. Recessed joints in concrete shall be formed using lacquer coated wooden battens or forms, milled to indicated profiles. Battens and corner strips shall be carefully inspected before concrete is placed and damaged pieces replaced.
5. Chamfer strips shall be 1-inch radius with leg, polyvinyl chloride strips by Gateway Building Products, Saf-T-Grip Specialties Cor., Vinylex Corp., or equal.
6. Particular attention is directed to the requirements of paragraphs 10.2.2 and 13.3 of ACI 301. Form panels shall be provided in the maximum form joints. Wherever practicable, form joints shall occur at recessed joints. All form joints in exterior exposed to view surfaces shall be carefully caulked with an approved nonstaining caulking compound. Joints shall not be taped. Form oil or other material that will impart a stain to the concrete shall not be allowed to contact concrete surfaces.
7. Care shall be taken to prevent chipping of corners or other damage to concrete when forms are removed. Exposed corners and other surfaces that may be damaged by ensuing operations shall be protected from damage by boxing, corner boards or other approved means until construction is completed.
8. Form ties shall remain in the walls and shall be equipped with a waterseal to prevent passage of water through the walls. Particular care shall be taken to bend tie wire ends away from exposed faces of beams, slabs and columns. In no case shall ends to tie wires project toward or touch formwork. Minimum set back of form ties shall be 1 inch from faces of wall. The hole left by removal of tie ends shall be sealed and grouted as per ACI Par. 9.3 and in accordance with procedure described hereinafter in Par. 3.04.E. Form ties will be permitted to fall within as cast areas of architecturally treated wall surfaces (ACI Chapter 13); this does not apply to walls receiving textured decorative waterproof masonry coating.
9. All formed exposed to view concrete shall be prepared as paragraph 3.04 B, then rubbed and coated with Thoroseal or another Engineer approved product. The manufacturer's recommendations for surface preparation, application procedures and rates, and temperature and moisture conditions shall be followed. Exterior vertical surfaces shall be finished to one foot below grade. Interior exposed to view vertical surfaces of dry pits shall be finished full height, interior vertical surfaces of liquid containers shall be finished to one foot below the minimum liquid level that will occur during normal operations.
10. Slope all slabs to prevent water pocketing.

B. All vertical surfaces below minimum liquid level in liquid containing structures shall have a smooth form finish.

C. All smooth form concrete vertical surfaces shall be true plane within 1/4-inch in 10 feet as determined by a 10 foot straight edge place anywhere on the surface in any direction. Abrupt irregularities shall not exceed 1/8-inch.

D. Basin and tank floors shall have a "troweled" finish unless shown otherwise on Drawings.

- E. Weirs and overflow surfaces shall be given a troweled finish.
- F. Exterior platforms, steps and landings shall be given a broom finish. Broom finish shall be applied to surfaces which have been steel troweled to an even smooth finish. The troweled surface shall then be broomed with a fiber bristle brush in the direction transverse to that of the main traffic.
- G. Walking surfaces of slabs shall have a troweled finish unless shown otherwise on Drawings.
- H. Patching of holes due to removal of tie ends and other repairable defective areas shall be as follows: Entire contact area of hole shall be coated with two part moisture insensitive epoxy bonding compound in accordance with manufacturer's specifications, and prior to placing of freshly mixed patching mortar. Patching mortar shall be mixed and placed in general accordance with ACI Par. 9.2.2, 9.2.3, and 13.6.
- I. Nox-Crete Harbeton, Chem Hard by L & M Construction Chemicals hardener treatment, or an approved equal shall be applied to all exposed concrete floors in occupied spaces. The floors shall be thoroughly cured, cleaned, and perfectly dry with all work above them completed. The hardener shall be applied evenly and freely and in conformance with manufacturer's instructions, using not less than three (3) coats, allowing 24 hours between coats. One gallon of hardener shall cover not more than 100 square feet. After the final coat is completed and dry, surplus hardener shall be removed from the surface of the concrete by scrubbing and mopping with water.

3.6 CONCRETE WALKS AND CURBS:

- A. Subgrade shall be true and well compacted at the required grades. Spongy and otherwise unsuitable material shall have been removed and replaced with properly compacted stone.
- B. Concrete walks shall be not less than 4 inches in thickness. Walks shall have contraction joints every 4 linear feet in each direction, formed in the fresh concrete by cutting a groove in the top surface of the slab to a depth of at least one-fourth the slab thickness with a jointing tool. Transverse expansion joints shall be installed at driveways, and opposite expansion joints in adjacent curbs. Where curbs are not adjacent, transverse expansion joints shall be installed at intervals of approximately 24 feet. Sidewalks shall receive a broomed finish. Scoring shall be in a transverse direction. Edges of the sidewalks and joints shall be edged with a tool having a radius not greater than 1/4-inch. Sidewalks adjacent to curbs shall have a slope of 1/4-inch per foot toward the curb. Sidewalks not adjacent to curbs shall have a transverse slope of 1/4-inch per foot or shall be crowned as directed by the Engineer. The surface of the concrete shall show no variation in cross section in excess of 1/4-inch in 5 feet. Concrete walks shall be reinforced with 6 x 6 - W1.4 x W1.4 welded wire fabric unless noted otherwise on the Drawings.

3.7 WATERTIGHTNESS

- A. The structures that are intended to contain liquids and/or will be subjected to exterior hydrostatic pressures shall be so constructed that when completed and tested, there shall be no loss of water and no wet spots shall show.
- B. As soon as practicable after the completion of the structures, the Contractor shall fill such structures with water and if leakages develop or wet spots show, the Contractor shall empty such structures and correct the leakage in an approved manner. Any cracks that appear in the concrete shall be dug out and suitably repaired. Temporary bulkheads over pipe openings in walls shall be provided as required for the testing.
- C. After repairs, if any are required, the structures shall be tested again and further repaired if necessary until satisfactory results are obtained. All work in connection with these tests and repairs shall be at the expense of the Contractor.
- D. Waterstops shall be placed in all locations as indicated on the Drawings and as may be required to assure the watertightness of all containers of liquids. Special shop fabricated ells, tees and

crosses shall be provided at junctions. Waterstops shall be extended at least 6 inches beyond end of placement in order to provide splice length for subsequent placement. In slabs and tank bottoms, waterstops shall be turned up to be made continuous with waterstops at bottom of walls or in walls. All joints between adjacent, continuing, and intersecting sections of waterstop including butt joints, tee joints, and other angled joints shall be heat fused to form a watertight seal. Waterstops shall not be lapped. Waterstops shall be secured in place to maintain proper position during placement of concrete. Care shall be taken to avoid folding while concrete is being placed and to prevent voids in the concrete surrounding the waterstop. All materials shall be installed in accordance with the manufacturer's recommendations.

- E. Joints between pipe (except cast iron wall pipe) and cast-in-place concrete walls shall be sealed as required by the Drawings.
- F. The top surface of all concrete decks (except slabs on grade) shall be coated with Sikagard-70 water-repellant penetrating sealer as manufactured by the Sika Corporation, Nox-Crete Stifel, or another approved equal. The manufacturer's recommendations shall be followed in all areas of application.

3.8 GROUTING BASE PLATES, BEARING PLATES AND MACHINE BASES

- A. Column base plates, bearing plates for beams and similar structural members, machinery and equipment bases shall, after being plumbed and properly positioned, be provided with full bearing on epoxy nonshrink grout. Concrete surfaces shall be rough, clean, free of oil, grease and laitance and shall be moistened thoroughly immediately before grout is placed. Metal surfaces shall be clean and free of oil, grease and rust. Mixing and placing shall be in conformance with the material manufacturer's printed instructions.
- B. Grout fill that is formed in place by using rotating equipment as a screed, such as for clarifiers and similar types of equipment, shall be mixed in proportions and consistencies as required by the manufacturer or supplier of the equipment.

3.9 EQUIPMENT PADS

Unless otherwise shown or directed, all equipment and items such as lockers, motor control centers, etc., shall be installed on concrete bases. The bases shall be constructed to the dimensions shown on the Drawings or as required to meet plan elevations. Where no specific plan elevations are required, the bases shall be 6 inches thick and shall extend 3 inches outside the equipment base. In general, the concrete bases shall be placed up to 1-inch below the base. The equipment shall then be properly slimmed to grade and the 1-inch void filled with nonshrink epoxy grout.

END OF SECTION 03-310

SECTION 05502

SLIDE GATES

PART 1–GENERAL

1.01 SUMMARY

1. Work included: This section includes furnishing, installing, and placing into successful operation slide gates and weir gates as listed below and indicated. Slide gates and weir gates shall be complete with gate, guides, framing, operator, and other components as required to make a complete system.
2. Related Sections and Divisions: Applicable provisions of Division 1 shall govern work in this section.

1.02 REFERENCES

3. NEC
4. NEMA
5. AWWA 513

1.03 SYSTEM DESCRIPTION

6. Application:
 1. Slide gates and weir gates shall be suitable for use in potable streams that may contain chemicals listed in the design criteria in the drawings. Slide gates shall be NSF approved.
 2. Weir gates shall be downward acting and shall form a sharp crested weir. Weir gates shall be used in modulation service to control flow rates.

PART 2–PRODUCTS

2.01 MANUFACTURES

- A. Fabricated stainless steel slide gates and weir gates shall be Rodney Hunt Series 700. Fontaine, or equal.

2.02 GATE CONSTRUCTION

- A. Disc: The gate disc shall consist of a flat plate reinforced with structural or formed members welded to the plate. The disc is to be designed to limit the deflection of the gate to 1/720 of its span under design head. The slide shall withstand the maximum design head maintaining a minimum factor of safety of 5 with regard to ultimate tensile, compressive, and shear strength of the plate, members, and welds. Design calculations shall be submitted. All disc components shall have a minimum material thickness of ¼ inch. Provide ultra-high molecular weight polymer bearing bars on each side of gate.

- B. Frame: The gate frame shall consist of guides, invert member and operator yoke, welded or bolted together to form a rigid one-piece frame. The guides shall be of a sandwiched type construction build up of plates, angles, and formed shapes. The guide slot shall engage the disc plate a minimum of 1 inch. The invert member shall be an angle, channel, or formed shape welded to the bottom of the guide to form a flush surface and to meet with the disc seal. For self-contained gates, the yoke members shall be designed to limit the deflection to 1/720 of its span. The frame shall withstand the maximum design head with a minimum factor of safety of 5 with regard to ultimate tensile, compressive, and shear strength. Design calculations shall be submitted.
- C. Seals: "J" type self-adjusting UHMW seals shall be attached to the frame to restrict the leakage to the following units:
 - 1. Under a design seating head of 5 feet (measured from gate invert, the leakage shall not exceed 0.05 gpm per foot of seating perimeter.
 - 2. Under a design unseating head of 5 feet (measured from gate invert, the leakage shall not exceed 0.1 gpm per foot of seating perimeter.
- D. Stems: Stems shall be Type 304 or 303 MX stainless steel. Stem threads shall be of the cut Acme type. Stems shall be designed to transmit in compression a minimum of 2 times the rated output of the hoist at 40 pounds effort on the crank or handwheel. The L/r ratio of the unsupported stem shall not exceed 200. Stem guides, where required to limit the unsupported stem length, shall be bronze or UHMW bushed. All gates having widths greater than two times their height shall be provided with two lifting devices connected by a tandem shaft for simultaneous operation.
- E. Stem Covers: Raising stem gates shall be provided with clear butyrate or polycarbonate stem covers to provide indication of gate position, permit inspection of the stem threads, and to protect the stem from contamination. Vent holes shall be provided to prevent condensation.
- F. Provide a horizontal member at 21 inches above the operating floor where handrailing is interrupted by the slide gates.

2.03 MATERIALS

- A. Slide or weir gates components shall be Type 304 stainless steel unless otherwise indicated. All welds shall be passivated at the factory.
- B. "J" type or UHMW slide seals shall conform to ASTM D2000 Grade AA625 or ASTM D4020-96.

2.04 MANUAL OPERATIONS

- A. Unless otherwise specified, operation of the gate shall be by an anti-friction handwheel bench stand or by crank operation through right angle bevel gears as shown on the drawings. Maximum effort shall not exceed 40 pounds on the handwheel or crank to raise gate under full operating head. The lift mechanism shall be capable of withstanding, without damage, a handwheel or crank effort of 200 pounds. Bench stand shall be minimum of 36 inches above operating floor. When possible, the bench stand shall be 42 inches above the operating floor where the gate interrupts handrailing. If the bench stand must be higher to allow operation of the gate, provide a horizontal member across the yoke at 42 inches

above the operating floor. The member shall meet OSHA strength requirements for guardrail.

- B. A suitable side mount operator system shall be provided where the bench stand is located over 48 inches above the operating floor. System shall include right angle bevel gear boxes, stainless steel shafting and flexible couplings as required for operation 36 inches above the operating floor.
- C. The hoist nut shall be manganese bronze conforming to ASTM B584 C86500. The hoist nut shall be supported on roller bearings. A lubrication fitting shall be provided for lubrication of the hoist bearings without disassembly of the hoist. Suitable seals shall be provided to prevent entry of foreign matter. The direction of handwheel or crank rotation to open the gate shall be clearly and permanently marked on the hoist. Where the actuators will be interconnected, it shall be by flexible coupling and stainless steel tubing.

2.05 ANCHOR BOLTS

- A. CONTRACTOR shall provide anchor bolts necessary for equipment furnished. Anchor bolt shall be Type 304 stainless steel and shall be of ample strength for intended service.

END OF SECTION

SECTION 05520

HANDRAILS AND RAILINGS

PART 1–GENERAL

1.01 SUMMARY

- A. Work includes aluminum handrails, railings, and fittings.
- B. Related Sections and Divisions: Applicable provisions of Division 1 shall govern work in this section.

1.02 REFERENCES

- A. ASTM B241–Standard Specification for Aluminum and Aluminum-Alloy Seamless Pipe and Seamless Extruded Tube.

1.03 DESIGN REQUIREMENTS

- A. Railings and handrails shall be designed in accordance with and meet the applicable requirements of the Occupational Safety and Health Act and the Kentucky Building Code.

PART 2–PRODUCTS

2.01 ALUMINUM RAILING SYSTEM

- A. Provide a mechanically joined pipe railing system, Tabco 2500 Railing System as manufactured by Tuttle Aluminum and Bronze Co. or equal.
- B. Rails shall be ASTM B241, Aluminum Alloy 6063-T6 or 6005-T5, Schedule 40, 1 1/2-inch-diameter pipe extrusion.
- C. Posts shall be ASTM B241, Aluminum Alloy 6063-T6 or 6005-T5, schedule 40, 1 1/2-inch-diameter pipe.
- D. Furnish and install 4-inch by 1/4-inch toeboards where shown or noted on the Drawings, or where required by OSHA 1910.29(k).
- E. Provide expansion joints in railing and toeboards at expansion joints in structures and as necessary to prevent buckling or buildup of stresses. Expansion joints shall occur within 1 foot of posts.
- F. Finished joints shall be smooth.
- G. All rails, posts, toeboards, and connectors shall have a M12C22A41 clear anodized finish.
- H. Posts shall be anchored to the top of walls and decks with a flange base plate. Base plate shall reinforce the bottom end of the post as required to meet OSHA design criteria.

- I. Stainless steel expansion bolt anchoring system, in accordance with manufacturer's recommendations, shall be used.

PART 3-EXECUTION

3.01 INSTALLATION

- A. Install all railing in accordance with approved shop drawings and manufacturer's instructions providing a complete installation.
- B. Install components plumb and level, accurately fitted, and free from distortion or defects.
- C. Clean all components as recommended by railing manufacturer.

END OF SECTION

PIPING AND VALVES

1.0 SCOPE OF WORK

This section describes piping, valves and related items to be used in performance of the work.

2.0 MATERIALS

2.1 Ductile Iron Pipe

Ductile iron pipe shall meet the requirements of ANSI/AWWA C150/A21.50 and ANSI/AWWA C151/A21.51 and shall be NSF approved. All ductile iron pipe shall have a minimum pressure rating as specified on the Drawings. All ductile iron pipe shall be cement lined with an asphalt coating on the exterior of the line. In standard buried installation, ductile iron pipe shall be supplied with push-on type joints with SBR rubber, or other gasket material suitable for continuous service in a buried potable water pipeline. Pipe which will be exposed (e.g. above grade, or in vaults or buildings) shall have flanged joints. Pipe size, pressure class, NSF seal, and manufacturer's name shall be clearly marked on the exterior of each pipe joint.

All ductile iron pipe shall be approved by the National Sanitation Foundation for potable water use. All ductile iron pipe and fittings shall be manufactured in the United States. All pipe for any one project shall be made by the same manufacturer.

Restrained joint pipe and fittings shall meet all other requirements for ductile iron pipe and fittings set forth above, plus having a positive means of restraining the pipeline joint against separation due to a maximum internal working pressure equal to 350 psi. The joint restraint system shall be equal to American Ductile Iron Pipe Flex-Ring, US Pipe TR Flex system, Clow Super-Lock or approved equal.

2.2 PVC Pipe

PVC pipe for water shall be manufactured in accordance with ASTM D2241 and have NSF approval. Unless otherwise noted on the Drawings, PVC pipe shall be AWWA C-900, with a minimum pressure rating of 200 psi. In addition the manufacturer's equipment and quality control facilities must be adequate to ensure that each extrusion of pipe is uniform in texture, dimensions, and strength. Also furnish a certificate from the manufacturer certifying that the pipe furnished for this project meets the requirements of these Specifications.

All pipe shall be manufactured in the United States of America. All pipe for any one project shall be made by the same manufacturer.

The pipe shall be furnished in laying lengths of 20'. The Contractor's methods of storing and handling the pipe shall be approved by the Engineer. Pipe shall be fully supported as recommended by the manufacturer. Stringing pipe along the proposed route in excess of one day's work will not be allowed.

Certain information shall be marked on each piece of pipe. At the least, this shall consist of:

Nominal Size
Type of material
SDR or class
Manufacturer
NSF Seal of Approval

PVC drain or sewer pipe shall be SDR 35.

2.3 HDPE Pipe

HDPE pipe for underdrain shall be N-12 by ADS or an approved equal.

2.4 Fittings for Ductile Iron and PVC Pipe

All fittings shall be cast gray iron or ductile iron, cement lined, bituminous coated, manufactured in accordance with AWWA/ANSI Standards C110/A21.10 and C111/A21.11, latest revision, unless otherwise indicated or directed. Minimum pressure rating shall be 350 psi. In buried service, mechanical joint fittings shall be used. In exposed piping, flanged fittings shall be used. ANSI/AWWA C153/A21.53 fittings may be used in lieu of AWWA/ANSI C110/A21.10 fittings at the Contractor's option.

2.5 Gate Valves

Gate valves shall be iron body, resilient rubber seat type valves with non-rising stems. Three inch and smaller valves may be bronze body. Resilient seat gate valves shall have a bronze stem nut cast integrally with the cast iron valve disc. The valve shall be capable of being installed and operated in either direction and shall be furnished with mechanical joint ends. Valves shall be suitable for installation in an approximately vertical position in buried pipe lines. Stem seal shall consist of O-ring seals. All valves shall open to the left (counter-clockwise), and shall be provided with 2" square operating nut. All underground gate valves which have nuts deeper than 30' below the valve box top shall have extended stems with nuts located within one foot of the valve box cap.

Valves shall be suitable for working pressures up to 250 psi and shall be equal to latest specifications of AWWA C-509 in all respects. Valves shall be equal to US Pipe Metroseal 250.

Valves which are to be located within a section of restrained joint pipe shall be equipped with a restraint mechanism equal to Megalug 1100 Series. The pressure rating of the restraint mechanism shall equal 350 psi.

Gate valves used in exposed piping applications shall have flanged ends and shall be supplied with a standard handwheel operator.

Gate valves 2 inch and smaller shall be equal to Nibco T29.

2.6 Butterfly Valves

Butterfly valves shall be cast iron body and disc with stainless steel reinforced rubber disc seat. The valve shall have an offset disc and stub shaft design allowing minimal head loss through the valve, and consistent drip tight closure. The valve shall be capable of being installed and operated in either flow direction and shall be furnished with mechanical joint ends. Valves shall be suitable for installation in an approximately vertical position in buried pipelines. The disc and internal flow path shall be coated with a two-part thermosetting epoxy. The valve exterior shall be coated with asphaltic varnish. All valves shall open to the left (counter-clockwise), and shall be provided with 2" square operating nut. All underground butterfly valves, which have nuts deeper than 30' below the valve box top, shall have extended stems with nuts located within one foot of the valve box cap.

Valves shall be suitable for maximum working pressures up to 250 psi and shall be equal to latest specifications of AWWA C-504 in all respects. Valves shall be equal to Mueller B-5227.

Valves which are to be located within a section of restrained joint pipe shall be equipped with a restraint mechanism equal to Megalug 1100 Series. The pressure rating of the restraint mechanism shall equal 350 psi.

Butterfly valves used in exposed piping applications shall have flanged ends and shall be supplied with a standard handwheel operator.

2.7 Valve Boxes

Valves box frames and covers shall be made of heavy cast iron and shall meet the requirements of ASTM A-48, class 30, and shall be three-piece, 5 1/4" diameter barrel, screw type construction.

All casting shall be made accurately to the required dimensions and shall be sound, smooth, clear and free of blemished or other defects. Defective castings which have been plugged or otherwise treated to remedy defects shall be rejected. Contact surfaces of frames and covers are to be machined so that they rest securely in the frames with no rocking. The cover shall be in contact with the frame for the entire perimeter.

The valve box frames and covers shall be equal to Russco B-129. The Cover shall be marked "Water".

2.8 Flushing Hydrant

Flushing hydrants shall be 6" nominal diameter with 5 1/4" opening (three way) equal to Mueller A-423. Hydrants shall be suitable for maximum working pressures up to 250 psi.

2.9 Pipe Supports

Pipe supports shall be cast iron or fabricated steel as manufactured by Grinnell.

3.0 INSTALLATION

All piping, valves and related items are to be installed as recommended by the manufacturer and as indicated on the plans.

END OF SECTION 11-200

CONSTRUCTION PLANS

for the

SLUDGE LAGOON ADDITION

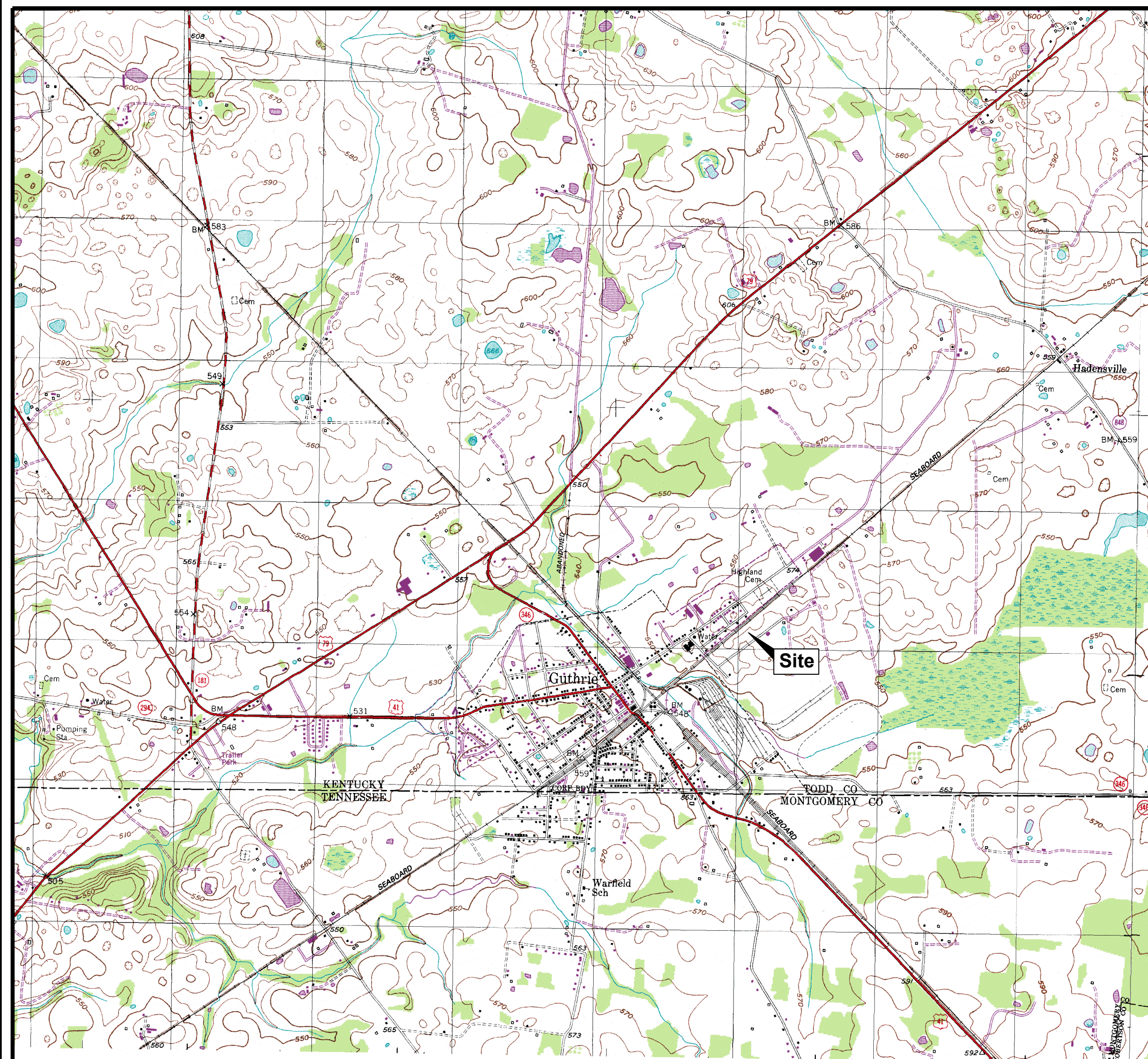
by the

Logan Todd Regional Water Commission

Todd County (KY)

VICINITY MAPS

SHEET INDEX

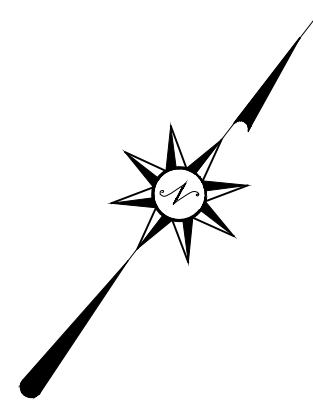


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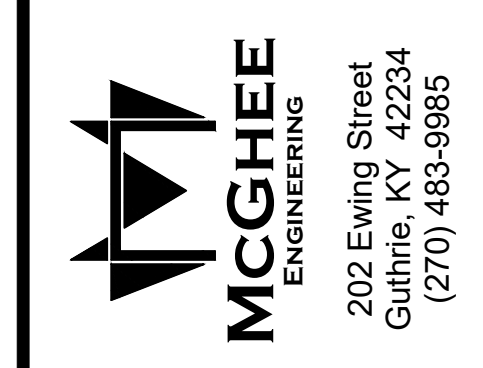
September 2022

- T-1 Title Sheet
- C-1 Proposed Contours
- C-2 Site Plan
- P-1 Sludge Lagoon Plan
- P-2 Sludge Lagoon Sections
- P-3 Sludge Lagoon Details
- P-4 Sludge Lagoon Details



No.	Revision	Date	By
1	FOR KCOV REVIEW	09-01-22	ETH
REVISIONS			

SCALE:
1" = 20'



FIRM: McGhee
 DES BY: ETH CHK BY:
 DWN BY: ETH APP BY:
 SCALE: AS SHOWN
 PROJECT DATE: 2022
 PRINTED:
 LENGTH OF BAR IS 1"
 ON ORIGINAL DRAWING

Logan Todd Regional
 Water Commission
SLUDGE LAGOON ADDITION
 Sludge Lagoon Grading Plan



September 01, 2022
 STATE OF KENTUCKY
 ERIC T. HARRIS
 23703
 PROFESSIONAL ENGINEER

 Eric T. Harris, P.E.

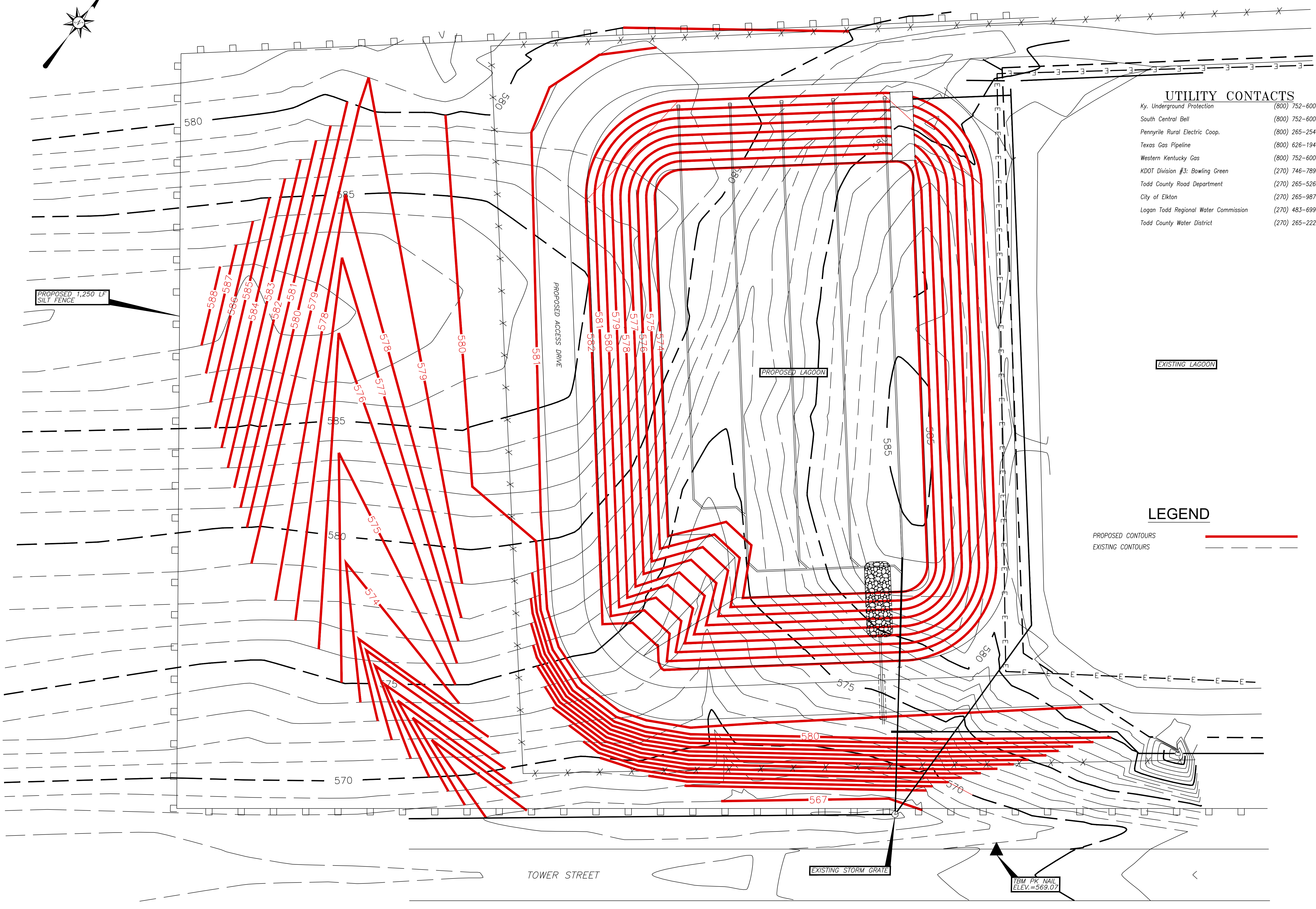
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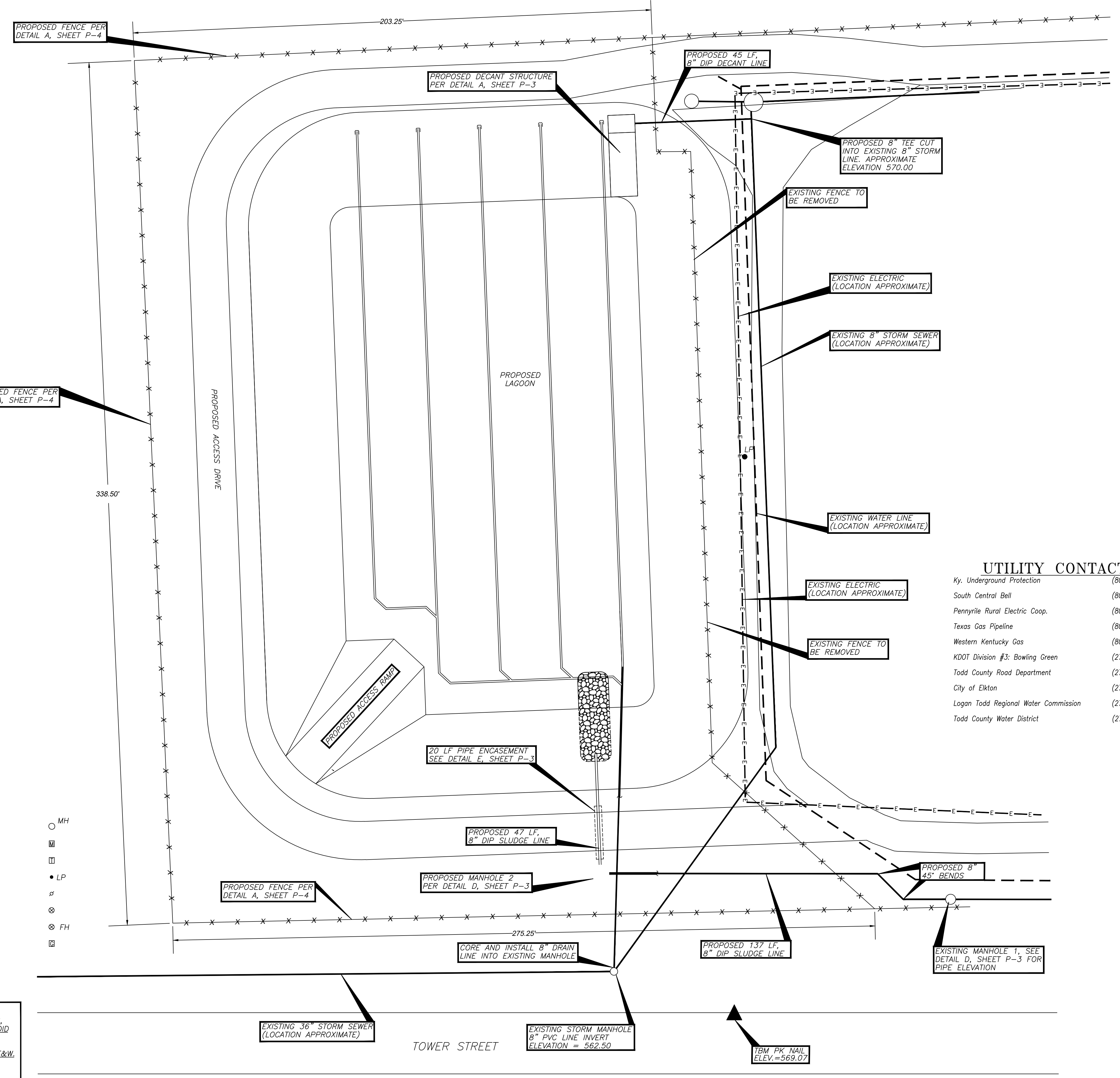
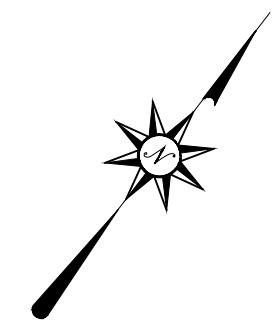
UTILITY CONTACTS

Ky. Underground Protection	(800) 752-6007
South Central Bell	(800) 752-6007
Pennyrile Rural Electric Coop.	(800) 265-2545
Texas Gas Pipeline	(800) 626-1948
Western Kentucky Gas	(800) 752-6007
KDOT Division #3: Bowling Green	(270) 746-7898
Todd County Road Department	(270) 265-5262
City of Elktion	(270) 265-9877
Logan Todd Regional Water Commission	(270) 483-6990
Todd County Water District	(270) 265-2229

LEGEND

PROPOSED CONTOURS	
EXISTING CONTOURS	





LEGEND

PROPOSED WATER LINE	—————	EXISTING MANHOLE	○ MH
EXISTING WATER LINE (OTHERS)	- - - - -	RESIDENTIAL WATER METER	⊞
EXISTING LOGAN TODD WATER	-LT-LT-LT-LT-LT-	PHONE PEDESTAL	⊞
BURIED ELECTRIC SERVICE	-E-E-E-E-E-	LIGHT POLE	• LP
EXISTING SEWER LINE	-S-S-S-S-S-	GUY WIRE	σ
EXISTING GAS MAIN	-GAS-GAS-GAS-	VALVE	⊗ FH
TELEPHONE LINE	—————	FIRE HYDRANT	⊗ FH
		GAS METER/REGULATOR	⊞

ENVIRONMENTAL NOTE:
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BASEMAP & SCALE NOTE:
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Todd County Water District	(270) 265-2229

SCALE:
1" = 20'

NO.	REVISION	DATE	BY
1	FOR ICDW REVIEW	09-01-22	ETH

MCGHEE
 ENGINEERING
 202 Ewing Street
 Guthrie, KY 42234
 (270) 483-9885

FIRM: McGhee
 DES BY: ETH
 DWN BY: ETH
 SCALE: AS SHOWN
 PROJECT DATE: 2022
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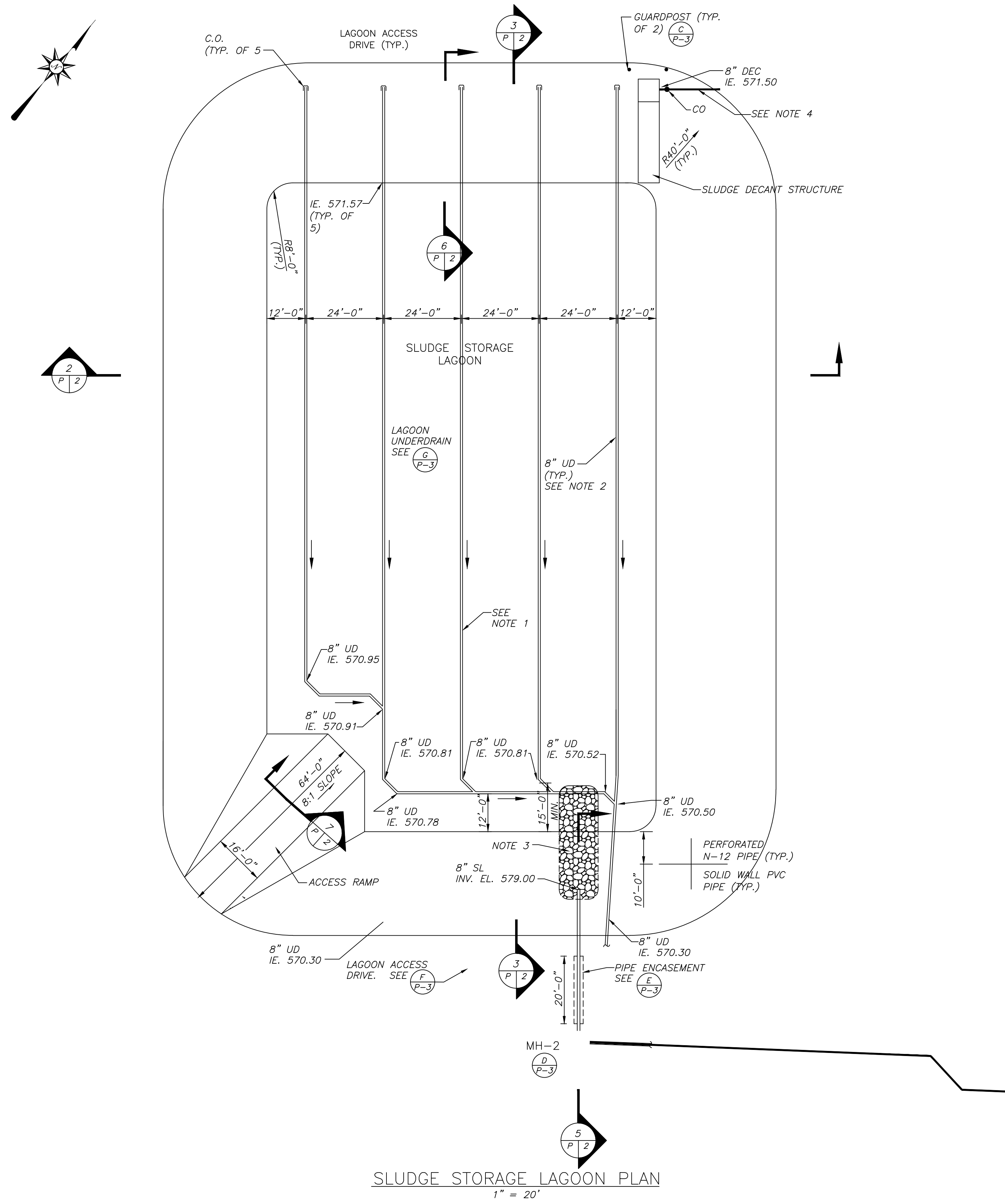
Logan Todd Regional Water Commission
SLUDGE LAGOON ADDITION
 Sludge Lagoon Site Plan



September 01, 2022

ERIC T. HARRIS
 23703
 PROFESSIONAL ENGINEER

Eric T. Harris, P.E.



SLUDGE STORAGE LAGOON PLAN
1" = 20'

- NOTES:**
1. UNDERDRAIN (UD) PIPING ELEVATIONS FOR THE PROPOSED LAGOON ARE IDENTICAL TO THOSE OF THE EXISTING LAGOONS
 2. SEE (G/P-3) FOR LAGOON UNDERDRAIN DETAIL.
 3. PROVIDE MINIMUM 18" THICK LAYER OF CYCLOPEAN RIPRAP IN AREA SHOWN.
 4. UNDERDRAIN PIPING SHALL BE HDPE N-12 PIPING. ALL OTHER PIPING SHALL BE DUCTILE IRON OR PVC PIPING AS SPECIFIED.

 SCALE: 1" = 50'	
FOR KCOV REVIEW	09-01-22 ETH
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REVISIONS	

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ENGINEERING
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Guthrie, KY 42234
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LENGTH OF BAR IS 1" ON ORIGINAL DRAWING

Logan Todd Regional
Water Commission
SLUDGE LAGOON ADDITION
Sludge Lagoon Plan



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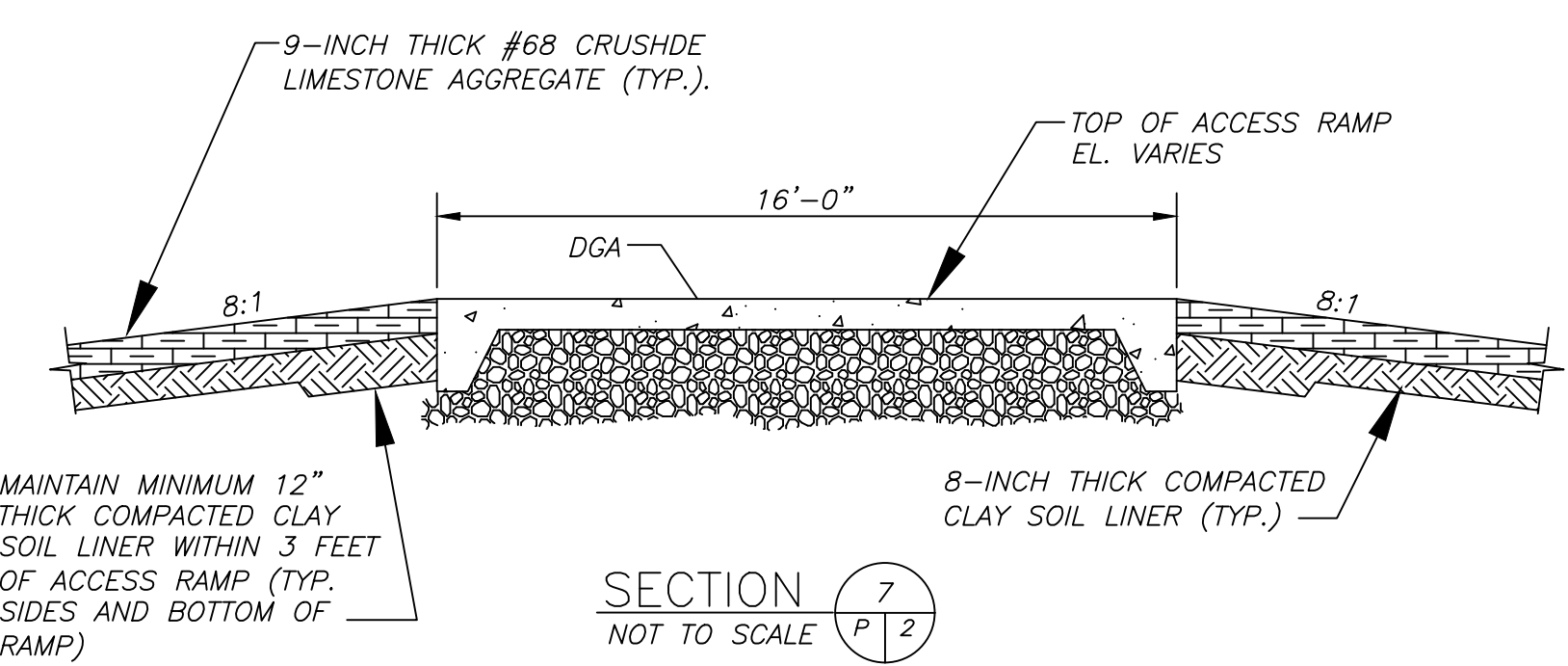
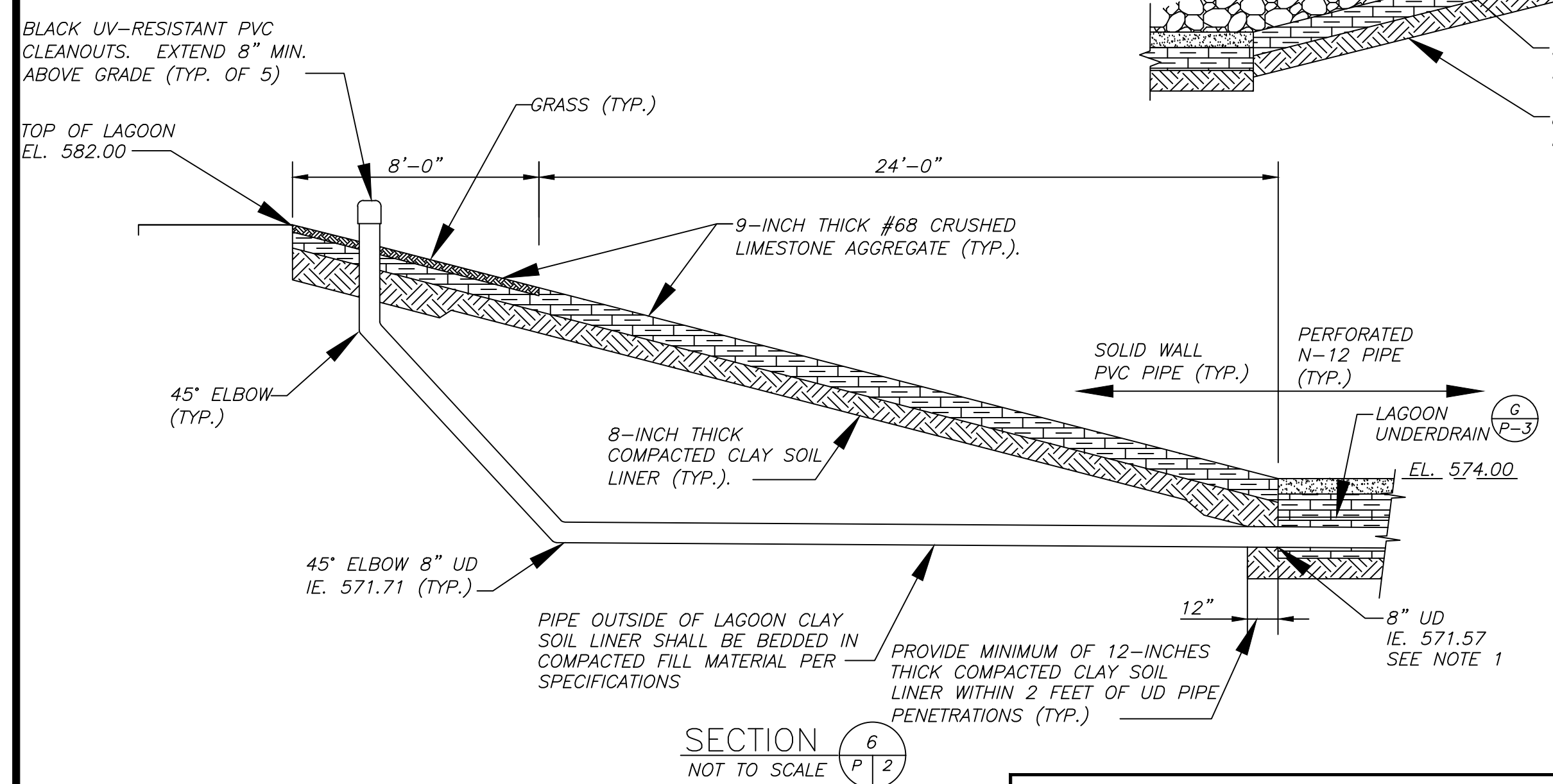
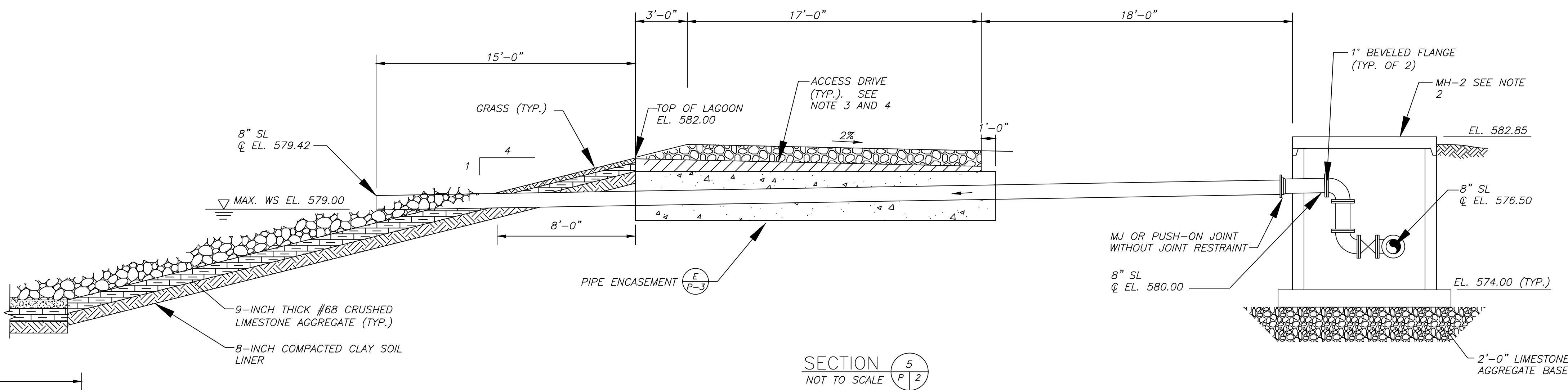
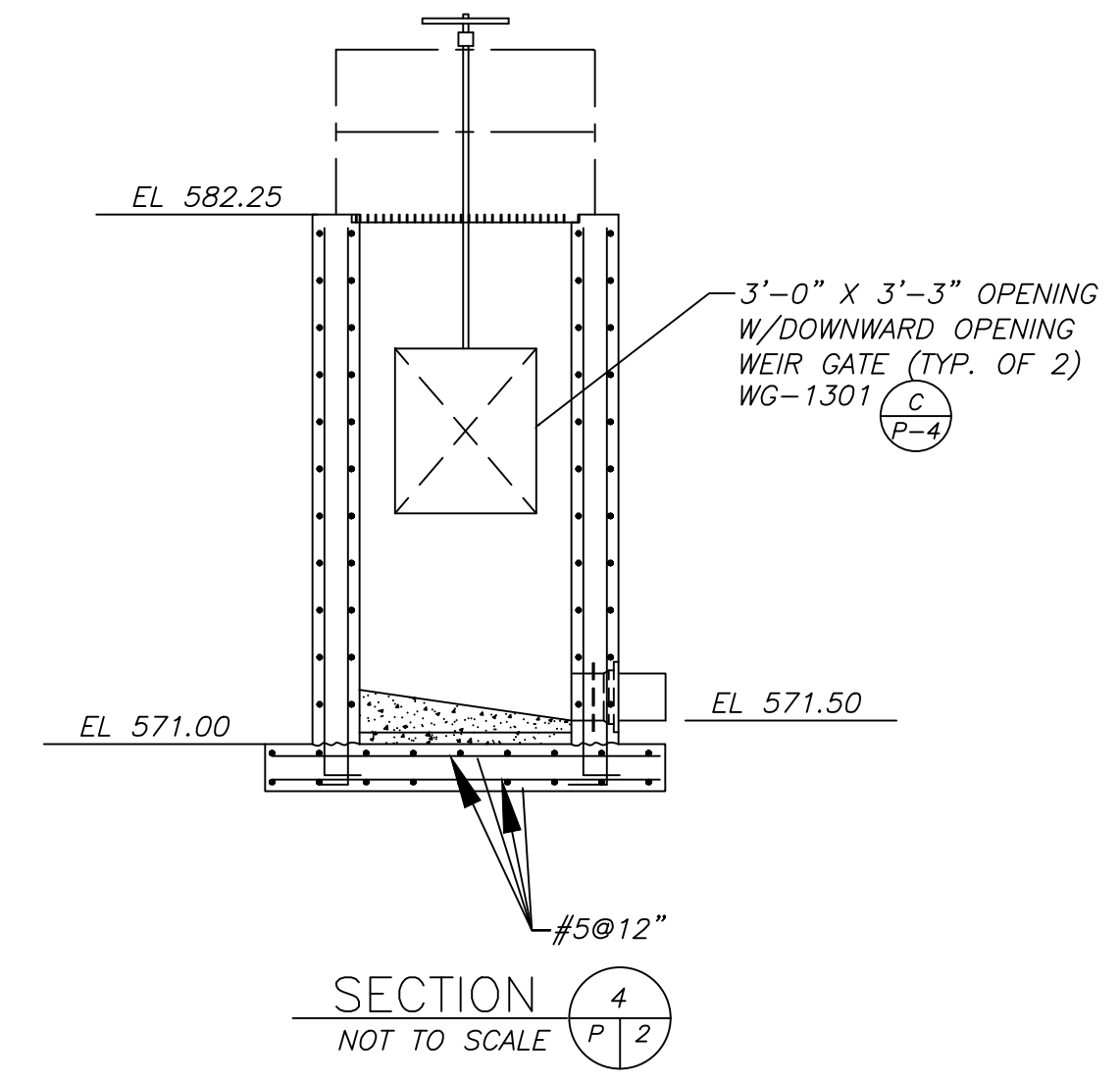
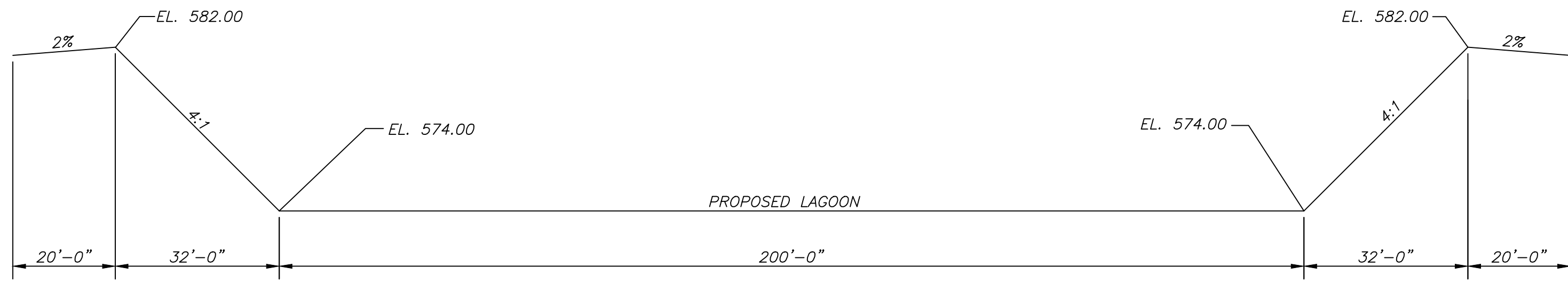
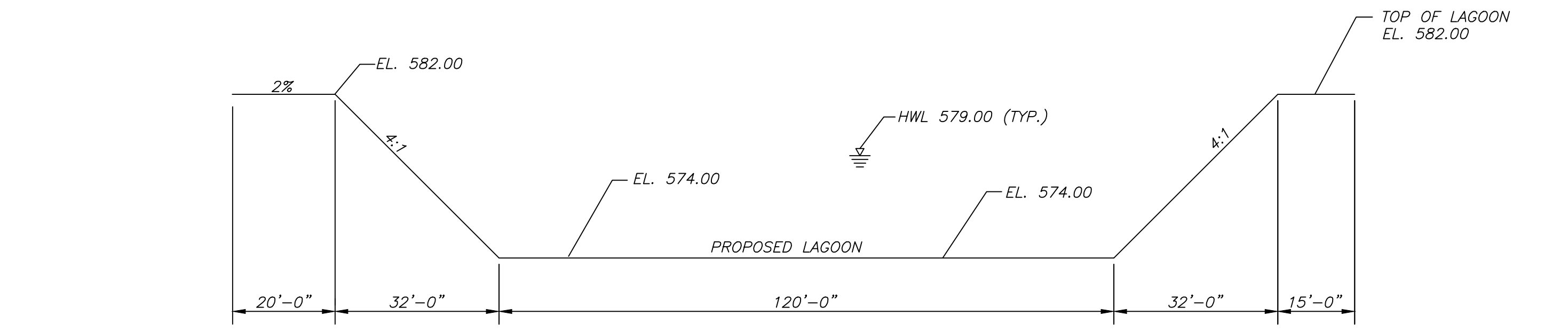
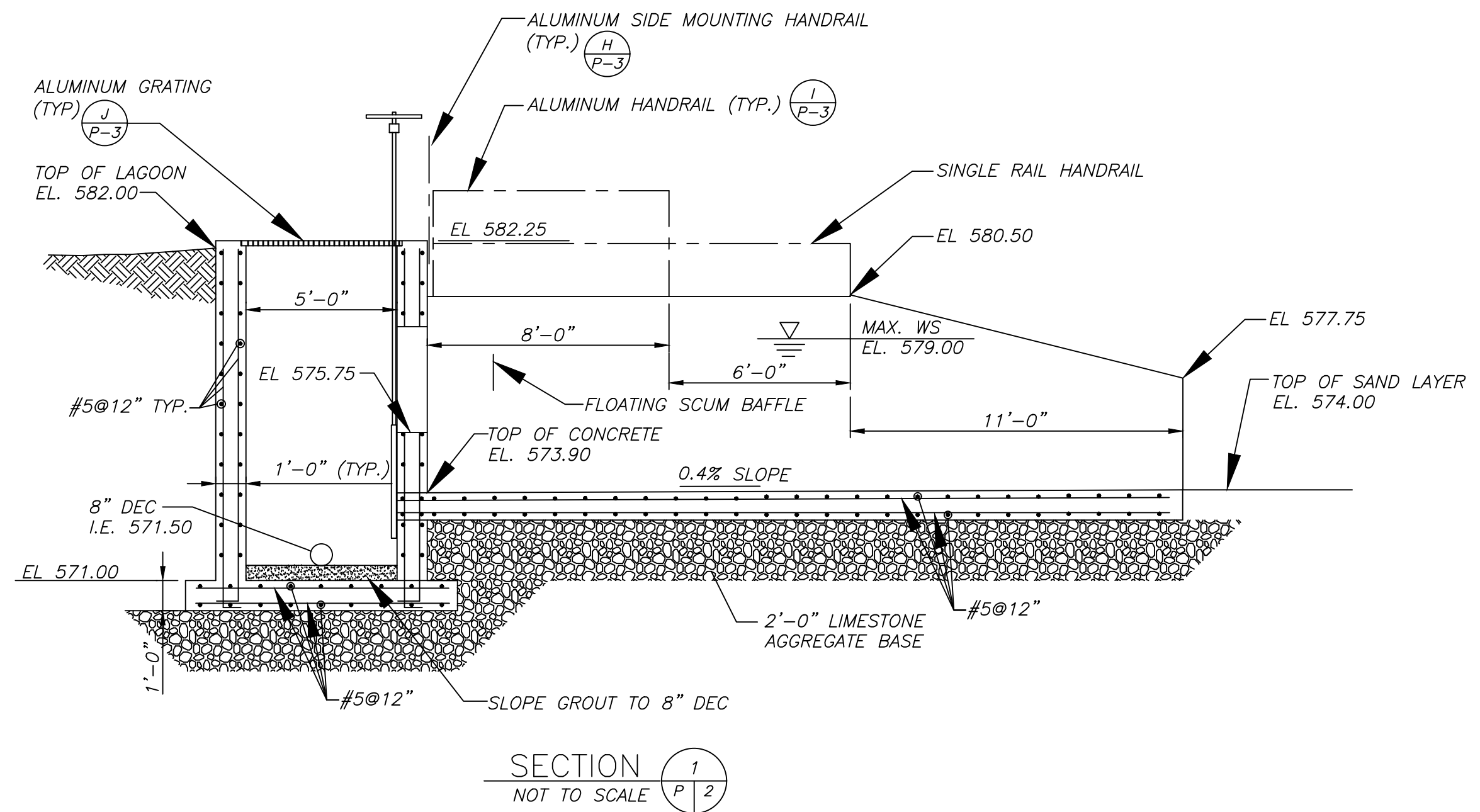
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Logan Todd Regional Water Commission	(270) 483-6990
Todd County Water District	(270) 265-2229

LEGEND

—	PROPOSED WATER LINE	○	MH
— — — — —	PROPERTY LINE	⊞	RESIDENTIAL WATER METER
— — — — —	EXISTING WATER LINE (OTHERS)	—	PHONE PEDESTAL
— LT — LT — LT —	EXISTING LOGAN TODD WATER	—	POWER/TELEPHONE POLE
— E — E — E —	BURIED ELECTRIC SERVICE	•	P/T
— S — S — S —	EXISTING SEWER LINE	⊙	VALVE
— GAS — GAS —	EXISTING GAS MAIN	⊗	FH
— TELE — TELE —	TELEPHONE LINE	⊞	GAS METER/REGULATOR

September 01-2022

 Eric T. Harris, P.E.
 DRAWING NO. _____
 SHEET P-1



- NOTES:**
- UNDERDRAIN (UD) PIPE SHALL BE BEDDED IN #57 CRUSHED LIMESTONE AGGREGATE. MAINTAIN MINIMUM 4" OF #57 AGGREGATE AROUND CIRCUMFERENCE OF PIPE.
 - SEE DETAIL B, SHEET P-4 FOR MH-1 AND MH-2.
 - PROVIDE MINIMUM 6-INCHES OF DENSE GRADED AGGREGATE OVER MINIMUM 9-INCHES OF #57 AGGREGATE ON ACCESS DRIVE.
 - RAISE ACCESS ROAD WITHIN 10'-0" EACH SIDE OF CENTERLINE OF 10" SL PIPE TO PROVIDE MINIMUM COVER AS SHOWN (TYP. OF 2). SEE DETAIL (F P-3) FOR TYPICAL ACCESS DRIVE CROSS-SECTION.

ENVIRONMENTAL NOTE:
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Logan Todd Regional Water Commission	(270) 483-6990
Todd County Water District	(270) 265-2229

LEGEND

PROPOSED WATER LINE	— — — — —	EXISTING MANHOLE	○ MH
PROPERTY LINE	— — — — —	RESIDENTIAL WATER METER	⊞
EXISTING WATER LINE (OTHERS)	— — — — —	PHONE PEDESTAL	⊞
EXISTING LOGAN TODD WATER	— LT — LT — LT —	POWER/TELEPHONE POLE	• P/T
BURIED ELECTRIC SERVICE	— E — E — E —	GUY WIRE	α
EXISTING SEWER LINE	— S — S — S —	VALVE	⊗ FH
EXISTING GAS MAIN	— GAS — GAS —	FIRE HYDRANT	⊗ FH
TELEPHONE LINE	— TELE — TELE —	GAS METER/REGULATOR	⊞

REVISIONS

No.	Revision	Date	By
1	FOR UDW REVIEW	09-01-22	ETH

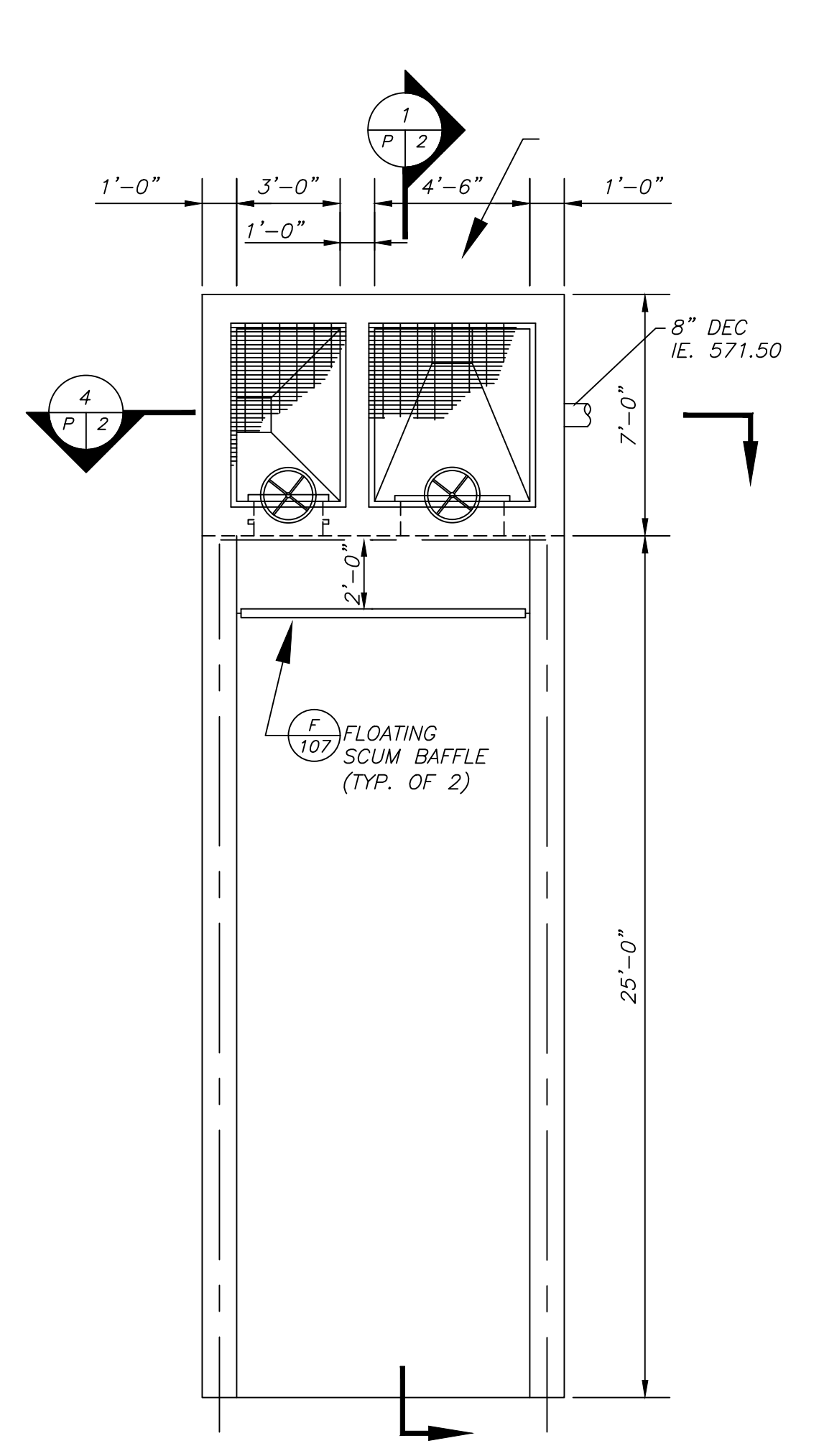
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ENGINEERING
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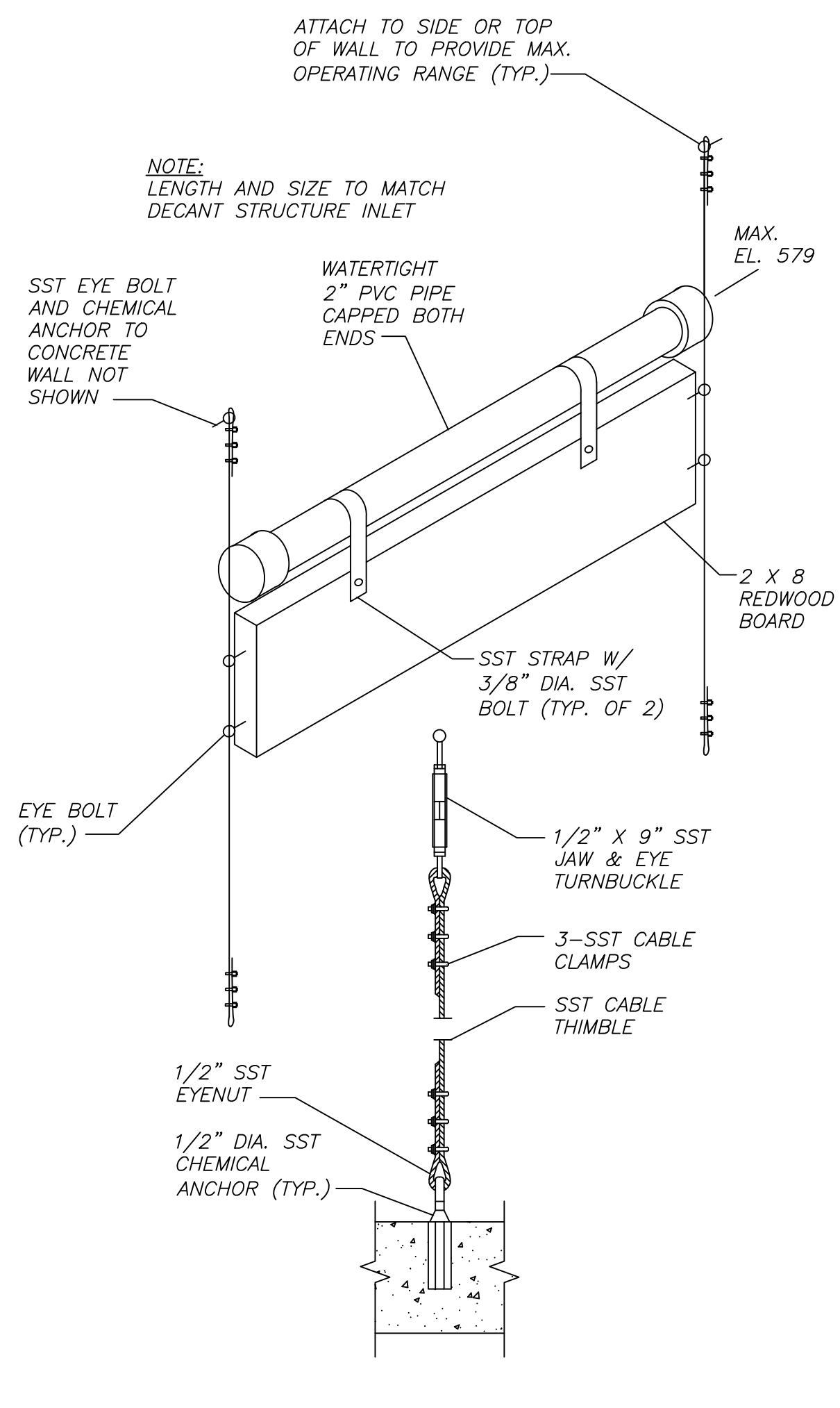
Logan Todd Regional Water Commission
SLUDGE LAGOON ADDITION
Sludge Lagoon Sections



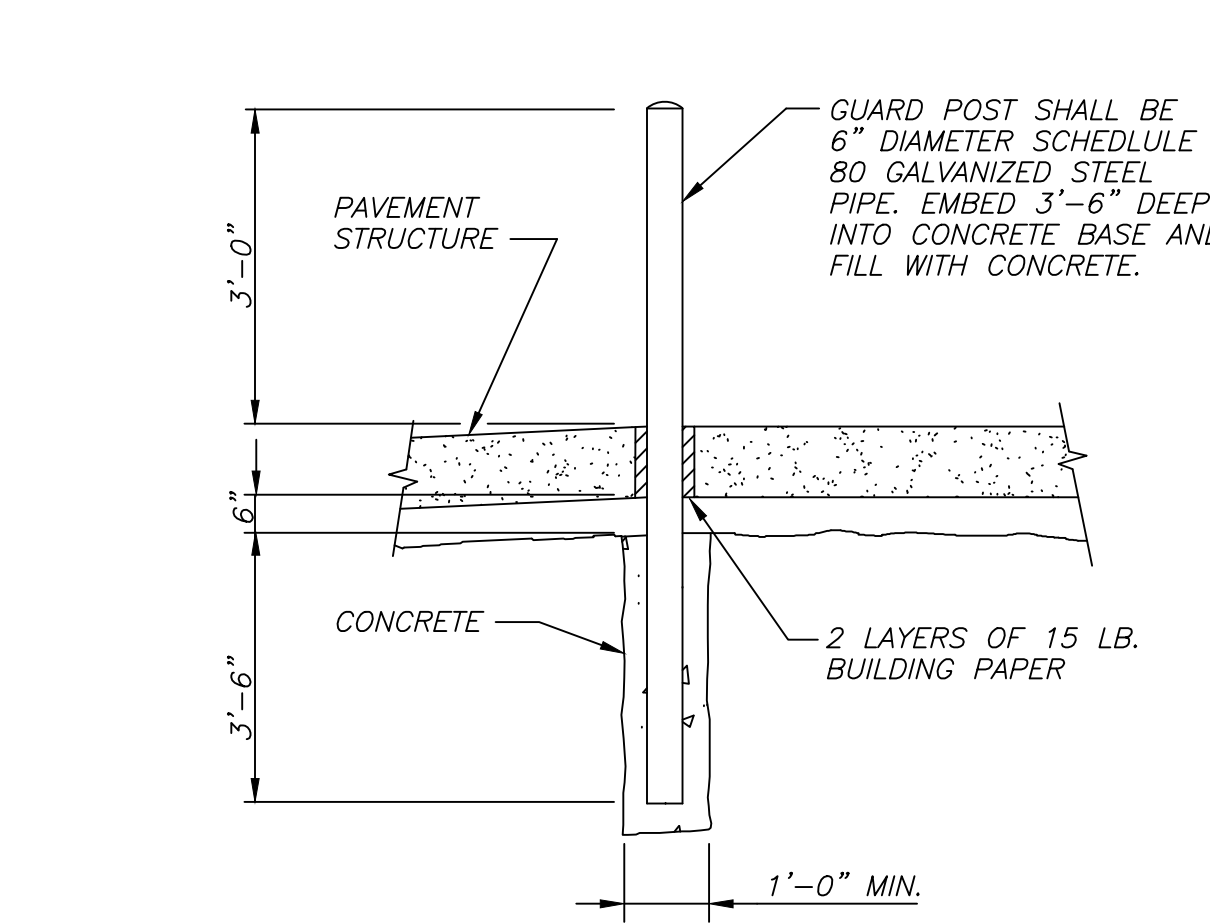
September 01, 2022
ERIC T. HARRIS
23705
Professional Engineer
Eric T. Harris, P.E.



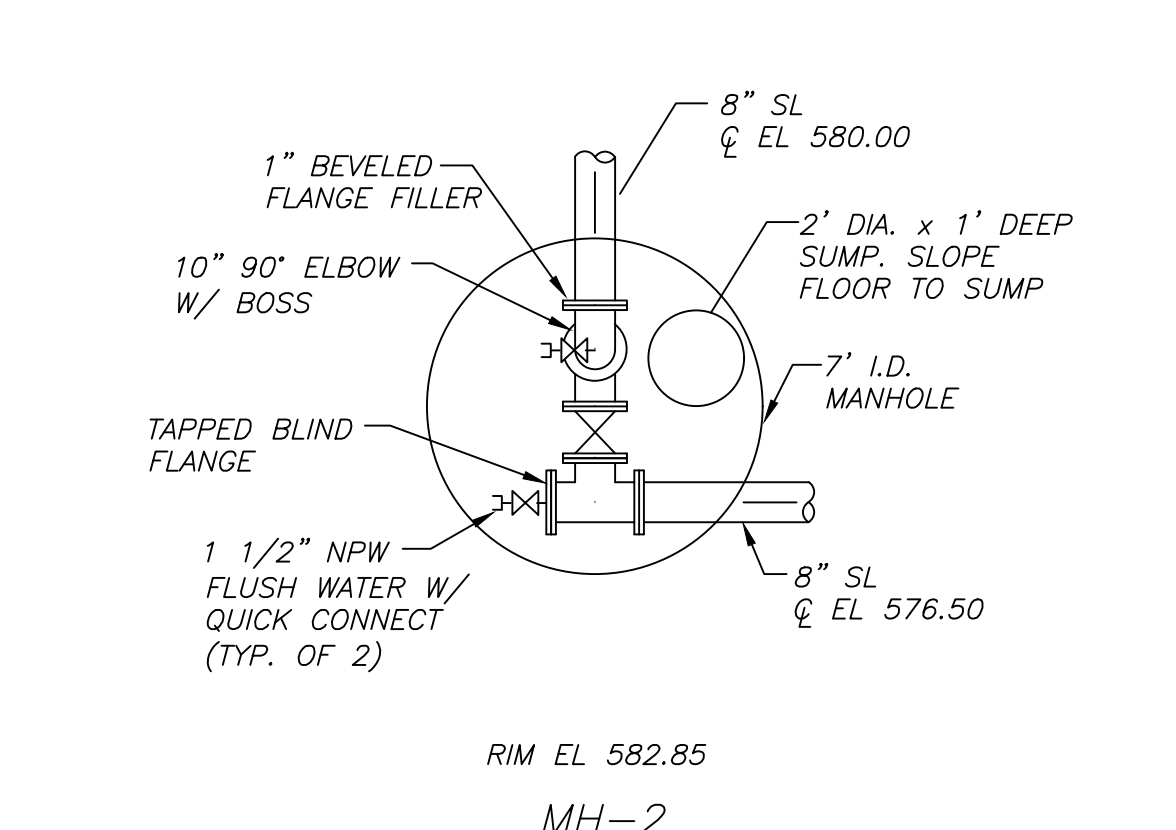
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NOT TO SCALE



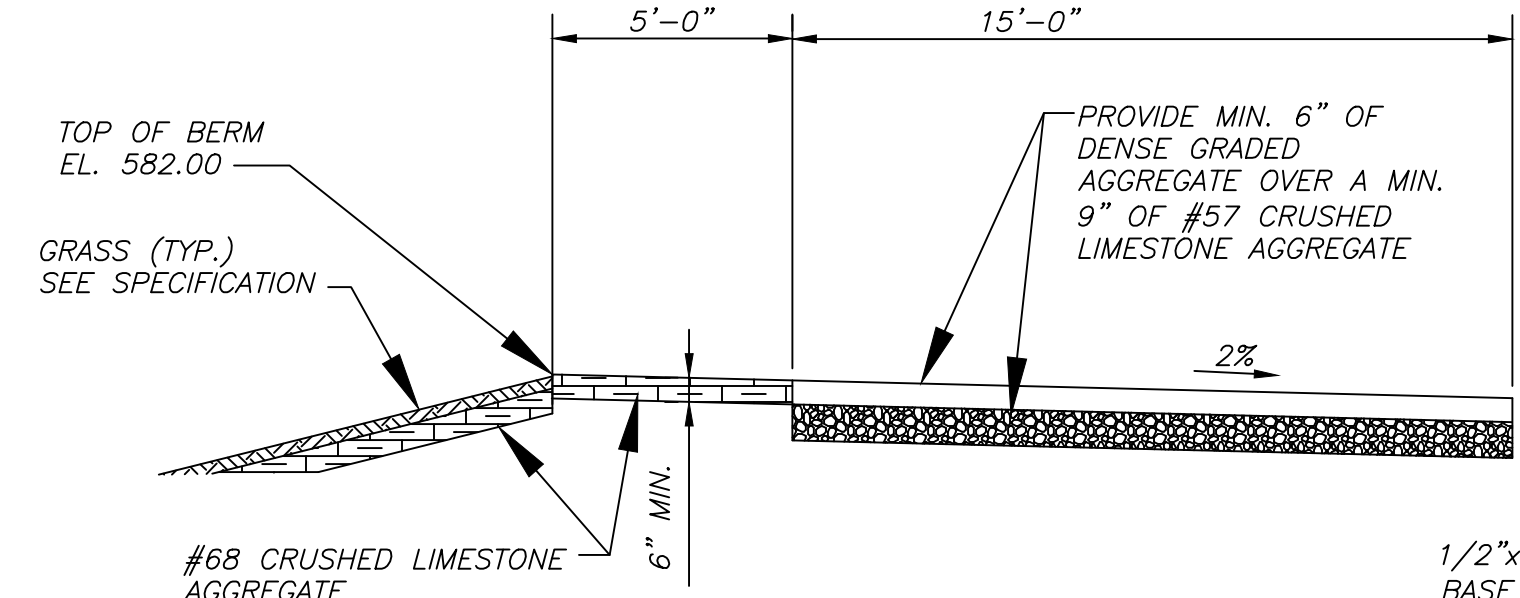
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NOT TO SCALE



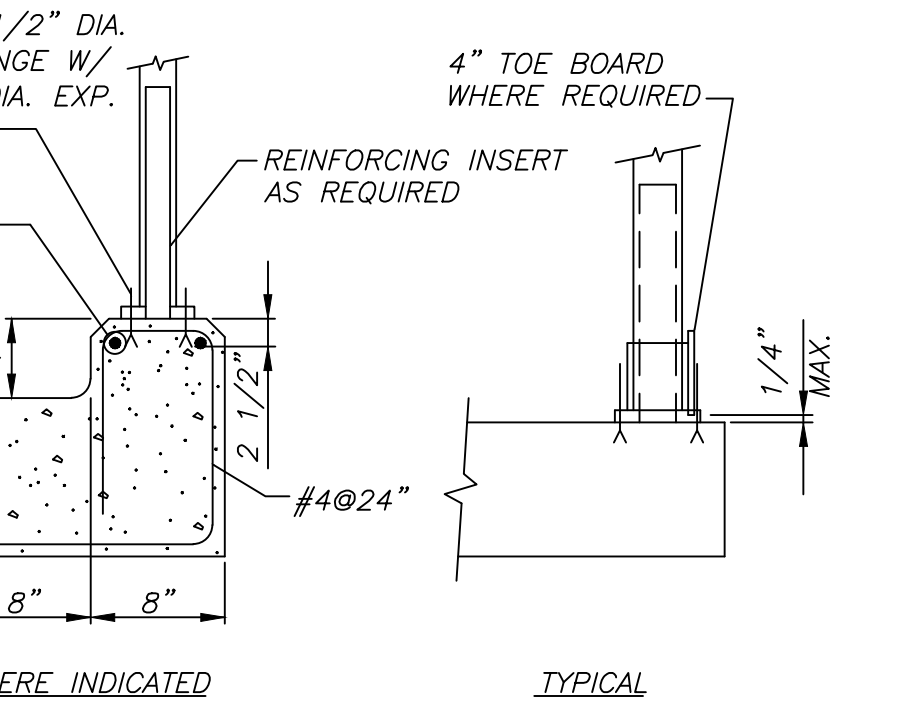
C GUARD POST
NOT TO SCALE



D MANHOLE DETAILS
NOT TO SCALE



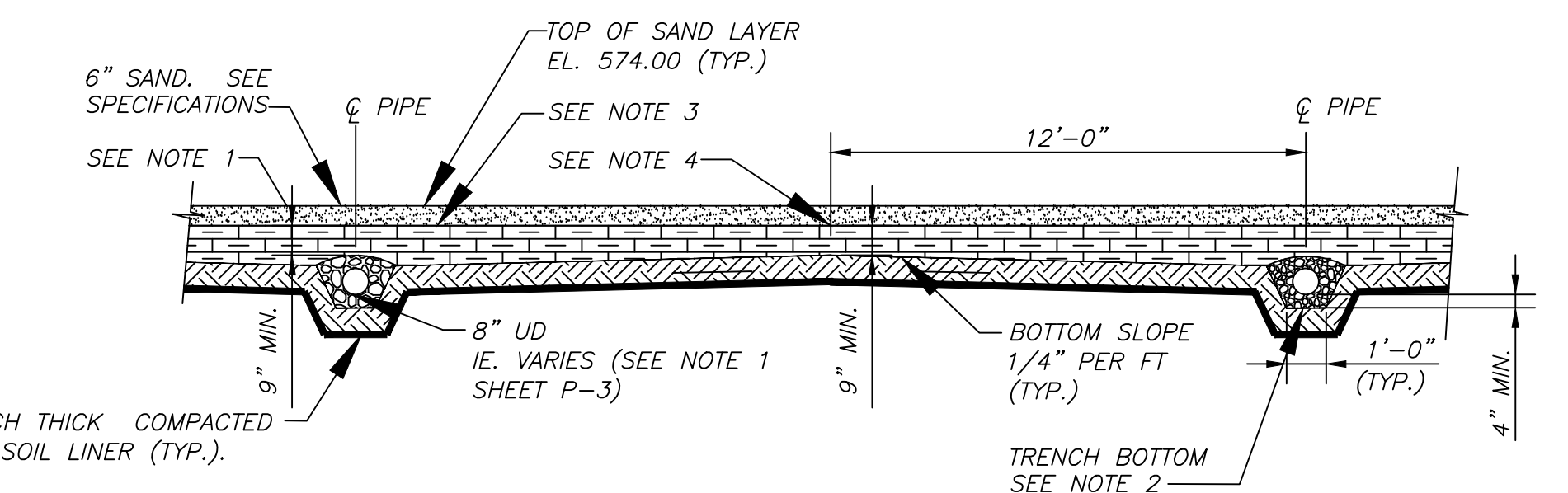
E PIPE ENCASEMENT
NOT TO SCALE



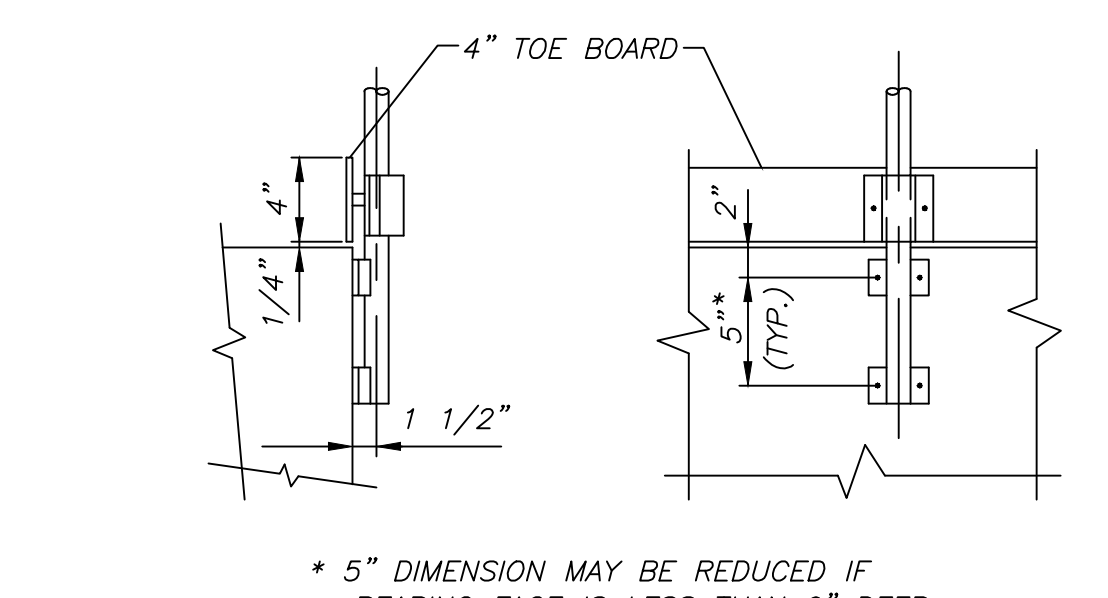
F ACCESS DRIVE
NOT TO SCALE



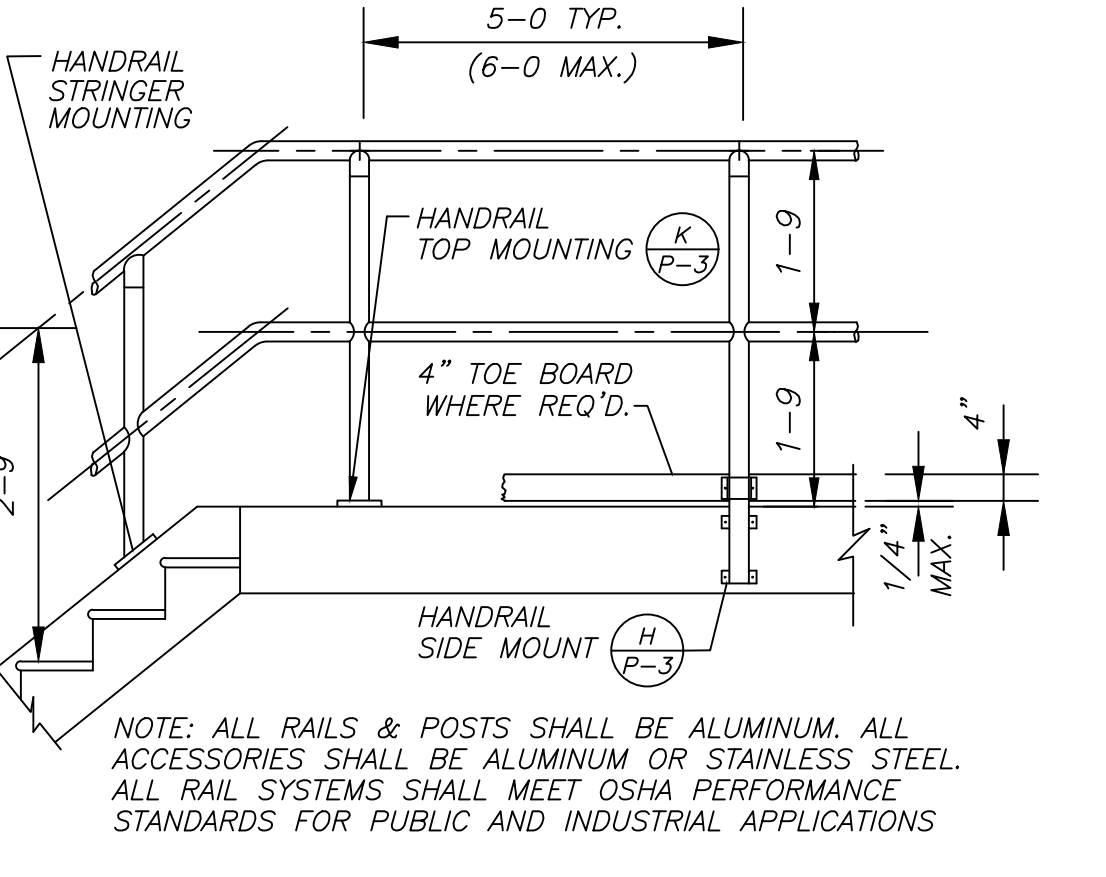
G HANDRAIL TOP MOUNTING
NOT TO SCALE



H LAGOON UNDERDRAIN DETAIL
NOT TO SCALE



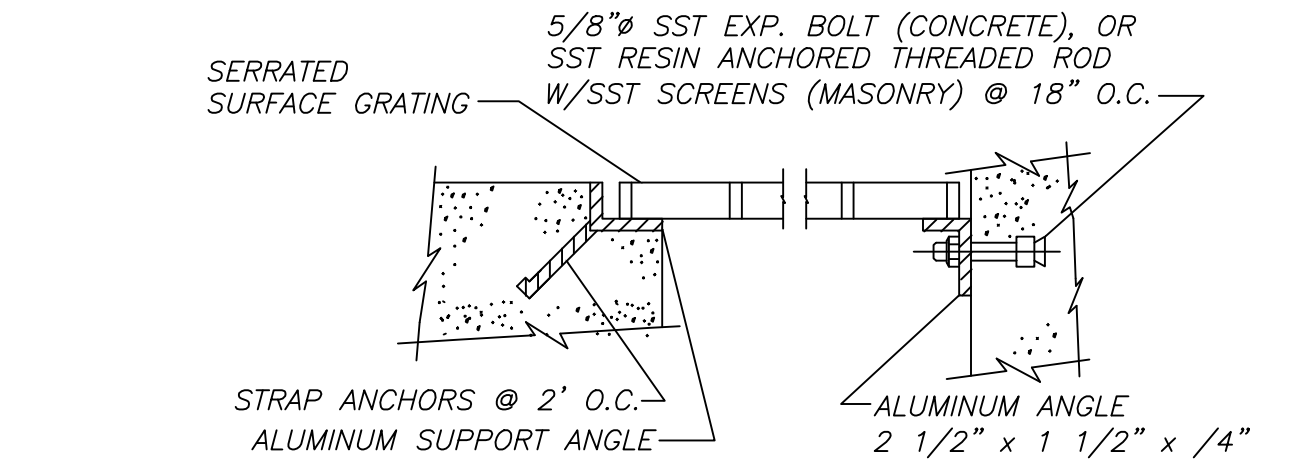
I HANDRAIL SIDE MOUNTING
NOT TO SCALE



J ALUMINUM HANDRAIL
NOT TO SCALE

- NOTES**
1. PROVIDE 4 x 3 x 3/8" ALUMINUM GRATING SUPPORT ANGLES ACROSS OPENINGS. BOLT ENDS OF ANGLE TO SIDES OF OPENINGS LOCATE ANCHOR BOLTS MINIMUM 4" FROM EDGE OF CONCRETE.
 2. CONTRACTOR SHALL CUT GRATING SUPPORT ANGLES FOR CLEARANCE FOR STOP PLATE GROOVES.
 3. ALL ALUMINUM IN CONTACT WITH CONCRETE SHALL BE COATED WITH BITUMASTIC.

SIZE	SUPPORT ANGLE	MAX. SPAN
1" x 3/16"	1 1/4" x 1 3/4" x 1/4"	2'-6"
1 3/4" x 3/16"	2" x 2" x 1/4"	5'-0"
2" x 3/16"	2" x 2" x 1/4"	6'-0"



K GRATING
NOT TO SCALE

- NOTES**
1. PROVIDE MINIMUM 6-INCHES SAND OVER ENTIRE LAGOON BOTTOM.
 2. TRENCH BOTTOM ELEVATION VARIES. MAINTAIN MINIMUM 4-INCHES BETWEEN BOTTOM OF PIPE AND TRENCH BOTTOM.
 3. PROVIDE MINIMUM 9-INCHES OF #68 CRUSHED LIMESTONE AGGREGATE BETWEEN #57 AGGREGATE AND SAND LAYER (TYP. FOR EACH UD PIPE).
 4. PROVIDE MINIMUM 9-INCHES OF #68 CRUSHED LIMESTONE AGGREGATE BETWEEN SAND LAYER AND COMPACTED CLAY LINER.

ENVIRONMENTAL NOTE:
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BASEMAP & SCALE NOTE:
THE LOCATIONS OF EXISTING TOPOGRAPHIC FEATURES AND UTILITIES ARE APPROXIMATE. THE CONTRACTOR SHALL FAMILIARIZE HIMSELF WITH THE PROJECT SITE PRIOR TO CONSTRUCTION. UNDER NO CIRCUMSTANCES SHALL THE CONTRACTOR ASSUME THAT ALL FEATURES ARE IDENTIFIED AND INDICATED IN THEIR EXACT LOCATION. THE CONTRACTOR SHALL CONTACT KENTUCKY UNDERGROUND PROTECTION, INC., AS WELL AS OTHER UTILITIES, PIPELINE COMPANIES, ETC. POTENTIALLY HAVING UNDERGROUND LINES, UTILITIES, STRUCTURES, ETC. IN THE AREA FOR VERIFICATION AND LOCATION PRIOR TO EXCAVATION.

UTILITY CONTACTS

Ky. Underground Protection	(800) 752-6007	PROPOSED WATER LINE
South Central Bell	(800) 752-6007	PROPERTY LINE
Pennyrite Rural Electric Coop.	(800) 265-2545	EXISTING WATER LINE (OTHERS)
Texas Gas Pipeline	(800) 626-1948	EXISTING LOGAN TODD WATER
Western Kentucky Gas	(800) 752-6007	BURIED ELECTRIC SERVICE
KDOT Division #3: Bowling Green	(270) 746-7898	EXISTING SEWER LINE
Todd County Road Department	(270) 265-5262	EXISTING GAS MAIN
City of Elkton	(270) 265-9877	TELEPHONE LINE
Logan Todd Regional Water Commission	(270) 483-6990	
Todd County Water District	(270) 265-2229	

LEGEND

— — — — —	EXISTING MANHOLE	○ MH
— — — — —	RESIDENTIAL WATER METER	◻
— — — — —	PHONE PEDESTAL	□
— LT — LT — LT —	POWER/TELEPHONE POLE	• P/T
— E — E — E —	GUY WIRE	∩
— S — S — S —	VALVE	⊗ FH
— GAS — GAS —	FIRE HYDRANT	⊗ FH
— TELE — TELE —	GAS METER/REGULATOR	⊗

REVISIONS

No.	Revision	Date	By
1	FOR COOR REVIEW	09-01-22	ETH

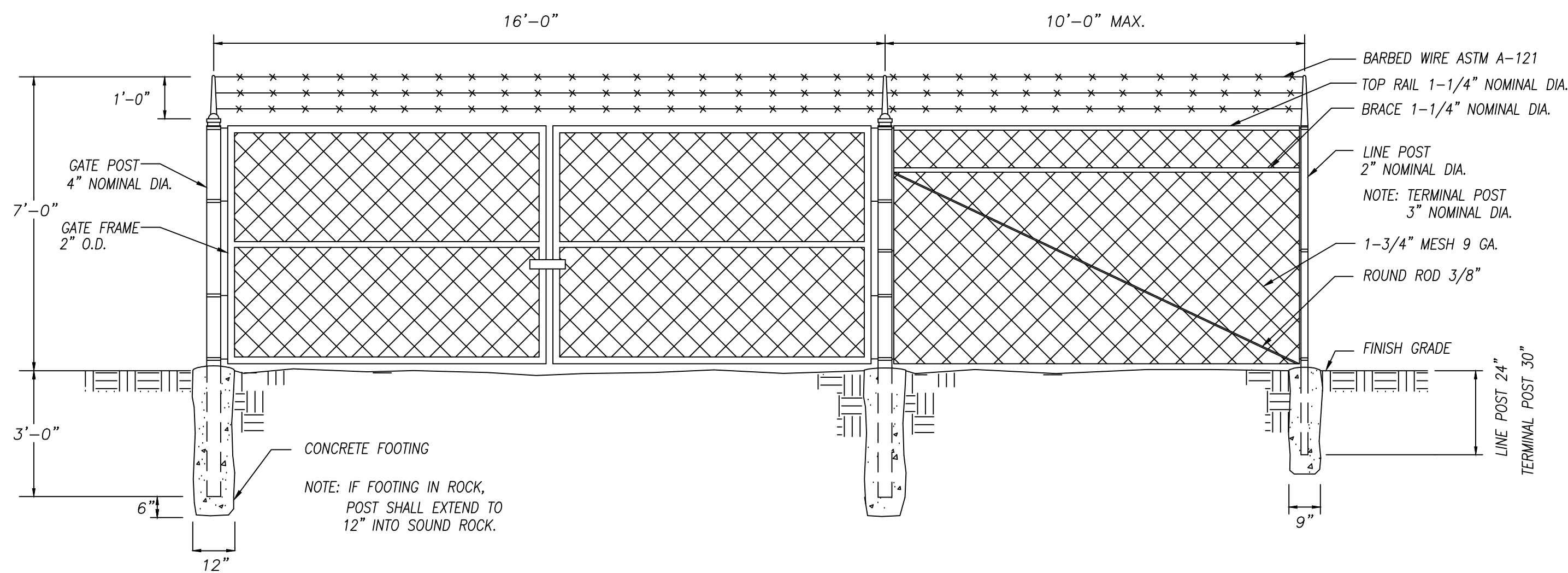
MCGHEE
ENGINEERING
202 Ewing Street
Guthrie, KY 42234
(270) 483-9985

FIRM: McGhee
DES BY: ETH
DWN BY: ETH
SCALE: AS SHOWN
PROJECT DATE: 2022
PRINTED:
LENGTH OF BAR IS 1"
ON ORIGINAL DRAWING

Logan Todd Regional
Water Commission
SLUDGE LAGOON ADDITION
Sludge Lagoon Details



September 01, 2022
ERIC T. HARRIS
23703
PROFESSOR OF CIVIL ENGINEERING
Lic. No. 23703
Eric T. Harris, P.E.



EXCEPT AS NOTED OTHERWISE, THE FOLLOWING SUPERIMPOSED LOADS HAVE BEEN USED IN THE STRUCTURAL DESIGN IN ADDITION TO THE DEAD LOAD OF THE STRUCTURES.

ROOFS	.30 PSF + DRIFTED SNOW
ELEVATED SLABS	100 PSF
LATERAL EARTH	DRY 55 PCF EQUIV. FLUID
	SATURATED 85 PCF EQUIV. FLUID
LATERAL FLUID	62.4 PCF
BUOYANCY	62.4 PCF x DEPTH BELOW GROUND WATER
WIND	20 PSF
MATERIAL	STRESSES
CONCRETE	4000 PSI
REINFORCING	60,000 PSI
STRUCTURAL STEEL	36,000 PSI
ALUMINUM	

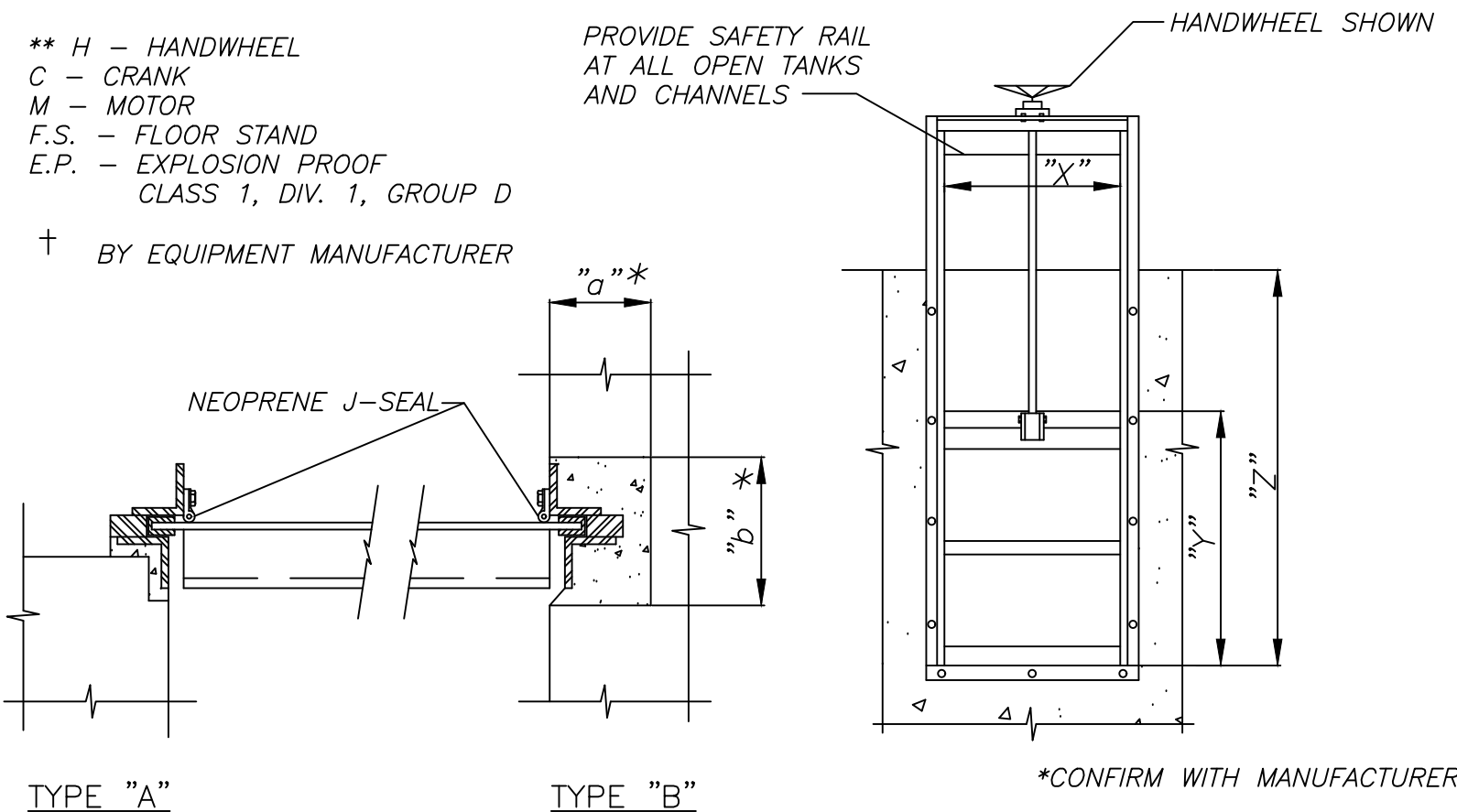
ASSUMED FOUNDATION BEARING: -2000 PSF FOR OXIDATION DITCH
-3000 PSF ASSUMED FOR ALL OTHER STRUCTURES

WHEN SUBGRADE IS REACHED FOR FOUNDATIONS, THE SUBGRADE MUST BE OBSERVED AND APPROVED BY PROJECT SOILS ENGINEER PRIOR TO PLACEMENT OF CONCRETE. CONTRACTOR WILL BE RESPONSIBLE FOR SCHEDULING GEOTECHNICAL ENGINEER'S INSPECTION.

B STRUCTURAL DESIGN LOADS

A CHAIN LINK FENCE DETAIL

REFERENCE DWG. NUMBER	EQUIPMENT NUMBER	DIMENSION "X"	DIMENSION "Y"	DIMENSION "Z"	MOUNTING TYPE SIDES	MOUNTING TYPE INVERT	OPERATOR TYPE **	ELECTRICAL RATING	MOTOR (hp)	CONTROL SERVICE	REMARKS
P-3	WG-1301	3'-0"	3'-6"	6.35'	A	A	H	-	-	-	SINGLE STEM D.O.W.



C SLIDE GATE DETAILS
NOT TO SCALE

- NOTES:
- WG-1301 OPERATING RANGE (TOP OF WEIR): 579.00 TO 575.90.
 - D.O.W. = DOWNWARD OPENING WEIR

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	EXISTING WATER LINE (OTHERS)		PHONE PEDESTAL
	EXISTING LOGAN TODD WATER		POWER/TELEPHONE POLE
	BURIED ELECTRIC SERVICE		GUY WIRE
	EXISTING SEWER LINE		VALVE
	EXISTING GAS MAIN		FIRE HYDRANT
	TELEPHONE LINE		GAS METER/REGULATOR

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1	09-01-22	ETH

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ENGINEERING
202 Ewing Street
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