

BID DOCUMENTS

CARRINGTON WOODS LAKE DAM REPAIR
FOR
CITY OF MILLEDGEVILLE

APRIL 5, 2022



SIMONTON ENGINEERING, LLC

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SUITE 106
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**1050 PARKSIDE COMMONS,
SUITE 101
GREENSBORO, GA 30642
(706) 454-0870**

SE NO. 2022-59

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DRAWING NO.

460-01D1-R1

460-01D1-R1

TITLE

SITE PLAN

SPLASH PAD IMPROVEMENT&

MISCELLANEOUS DETAIL

Not for Bid

ADVERTISEMENT FOR BIDS

Sealed proposals will be received by the The City of Milledgeville, located at City Hall 119 E. Hancock Street, Milledgeville, GA 31061 on May 17, 2022 until 2:00 p.m local time for Carrington Woods Lake Dam Repair.

The work to be performed consists of furnishing all labor and materials to complete the Carrington Woods Lake Dam Repair. More specifically, the project will consist of repair to the existing dam outlet to include possible valve replacement, concrete block retaining wall, backfill of areas and stabilization .

Plans, Specifications, and Contract documents are open to public inspection at the Milledgeville Public Works, 1280 Charlton St., Milledgeville, GA 31061 , Dodge Data and Analytics, ConstructConnect, and P.C. Simonton Engineering, LLC., 1050 Parkside Commons, Suite 101, Greensboro, Georgia. Copies of the Plans, Specifications, and Contract Documents may be obtained by contacting Simonton Engineering, LLC., 1050 Parkside Commons, Suite 101, Greensboro, GA 30642, (706) 454-0870, admin@simontoneng.com and by depositing a non-refundable Ten Dollar (\$10) for electronic (PDF) set of plans and Twenty-Five Dollar (\$25) for each set of printed plans requested.

Each Contractor must prequalify for bid by submitting a completed "Statement of Bidder Qualifications" form supplied by the Engineer. Bids will be accepted from prequalified bidders only.

Bids must be accompanied by a certified check or bid bond in an amount equal to at least five percent (5%) of total amount bid for the completed work.

No bids may be withdrawn for a period of sixty (60) days after the closing time schedule for receipt of bids.

The Owner reserves the right to accept or reject any or all bids and to waive informalities. Award of the contract, if it is awarded, will be to the lowest responsible bidder.

NOTE: Plans and Specifications must be obtained no later than five (5) working days before the bid date. No exceptions.

INSTRUCTIONS TO BIDDER

1. SUBMISSION OF PROPOSALS:

- A. Sealed proposals will be received by City of Milledgeville at the City Hall 119 E. Hancock Street, Milledgeville, GA until 2:00 p.m. local time, on May 17, 2022 for all labor and materials required to fully complete the work identified in the plans and specifications for Carrington Woods Lake Dam Repair
- B. At the time and place noted above, the proposals will be publicly opened and read aloud.
- C. The proposal (including Statement of Bidder's Qualifications) shall be submitted **in duplicate** on an exact copy of the proposal form bound herein. Both copies of the Proposal Form must be signed. All blank spaces on the forms shall be filled in and all information called for shall be provided. The terms "NO BID" may be used to fill in a blank space on the Proposal Form. All signatures shall be in ink and in longhand, and the completed forms shall be without alterations or corrections; any interlineations must be initialed by the Bidder.
- D. Failure to submit a proposal in the form requested or the inclusion of any alternates, conditions, limitations or provisions not called for, will render the bid irregular and shall be considered sufficient cause for rejection of the bid.
- E. Proposal shall be in opaque, sealed envelope and marked "Carrington Woods Lake Dam" and shall bear the name of the Bidder. Proposal is to reach the above address no later than the hour and date named above, or authorized extension thereof. No proposal will be received after that time.
- F. Proposals, together with the full bid bond, may be withdrawn by Bidders prior to the time set for official opening. After time has been called, no proposal may be withdrawn for a period of sixty (60) days after the time and date of the opening.

2. INTERPRETATIONS:

- A. Neither Owner nor Engineer will be responsible for any oral instructions or interpretations of the Drawings and Specifications.
- B. Requests for interpretations of Drawings and Specifications must be made in writing to the Engineer no later than seven (7) days prior to date set for receipt of bids, and failure on the part of the successful bidder to do so shall not relieve him as Contractor of the obligation to execute such work in accordance with a later interpretation by the Engineer.
- C. All interpretations made to bidders will be issued in the form of an addendum to the Plans and Specifications will be sent to all bidders. The requirements of such

an addendum are to be included in the bids, and in closing the contract, the addenda will become a part thereof.

3. BASIS OF CONTRACT AWARD:

- A. The competency and responsibility of a bidder will be considered in making the award. Owner does not obligate himself to accept the lowest bid or any other bid.
- B. The Owner reserves the right to reject any or all proposals and to waive any technicalities.

4. FORMS AND BONDS:

- A. The Bidder's attention is directed to the Proposal Form and the Performance and Labor and Materials Payment Bond section.
- B. The bond shall be accompanied with the agents and underwriters name, address and telephone number.

5. INSPECTING AND TESTING OF MATERIALS:

- A. Whenever, in these Contract Documents, inspecting, testing, or certification of material(s) is called for, the selection of bureaus, laboratories and/or agencies for such inspecting and testing shall be made by an Independent Testing Laboratory and the character of the test shall be stipulated by the Engineer. Documentary evidence satisfactory to the Engineer that the materials have passed the required inspection and test must be furnished in quadruplicate to the Engineer by the bureau, agency, or laboratory selected. Materials satisfactorily meeting the requirements of the inspection or tests shall be approved by the Engineer and the Contractor notified of the results. The cost of such inspecting and testing shall be paid for by the Contractor.

6. CONSTRUCTION SCHEDULE:

- A. The Contractor will be required to submit a construction schedule in writing identifying milestones and completion dates at the preconstruction conference. He shall also be required to submit a resume' of the proposed job superintendent for approval by the Engineer.

7. INSURANCE:

- A. The Contractor's attention is directed to Article 11 of the Supplemental General Conditions, "Insurance." He should review these requirements and be prepared to submit insurance certificates providing the coverage identified. On the insurance certificates, the "Certificate Holder" should be listed as **both** the Owner and P.C. Simonton Engineering, LLC.

8. CONSTRUCTION STAKING:

- A. The Owner will provide horizontal and vertical control. The Contractor will be responsible for construction staking.

9. MODIFICATIONS TO PLAN SHEET 1

- A. Special Notes, Note 1-
Delete Note 1 in its entirety. City forces will not perform work on the project.

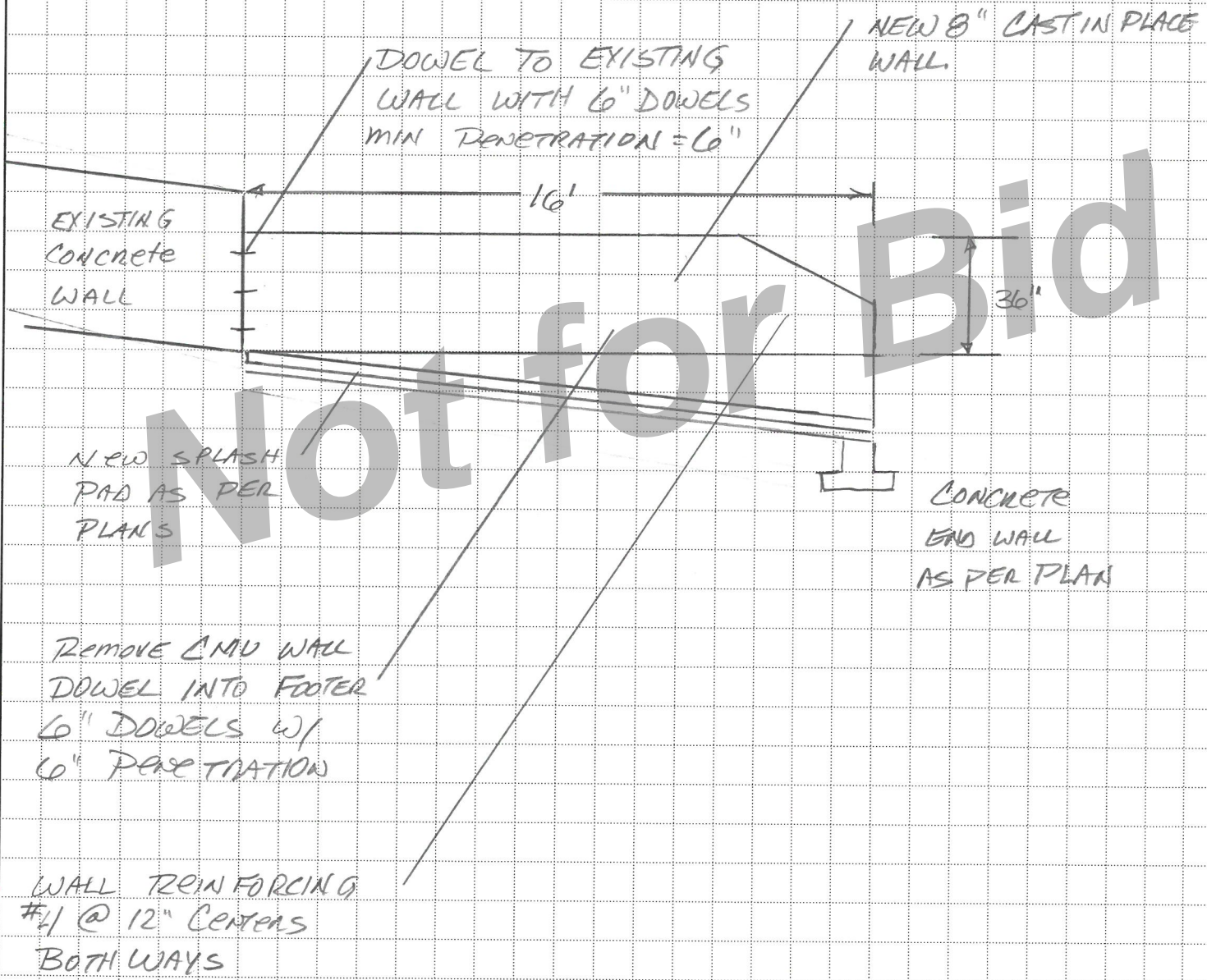
10. WORK ITEM LIST

- 1. The existing valve has been found to be operational, so no replacement is required.
- 2. No Change.
- 3. Provide alternate bid on item #3 to remove existing block wall, install dowels on existing wall & footer the pour in place wall to replace existing CMU wall. See detail.

Not for Bid



ALTERNATE BID DETAIL



PROPOSAL

City of Milledgeville
119 E. Hancock Street
Milledgeville, GA 31061

Submitted: _____, _____

The undersigned, as Bidder, hereby declares that the only person or persons interested in the Proposal as principal or principals is or are named herein and that no other person that herein mentioned has any interest in this Proposal or in the contract to be entered into; that this Proposal is made without connection with any other person, company or parties making a bid or Proposal; and that it is in full respect fair and in good faith without collusion or fraud.

The Bidder further declares that he has examined the site of the work and informed himself fully in regard to all conditions pertaining to the place where the work is to be done; that he has examined the Plans and Specifications for the work and Contractual Documents relative thereto, and has read all Special Provisions and General Conditions furnished prior to the opening of bids; that he has satisfied himself relative to the work to be performed.

The Bidder proposes and agrees, if the Proposal is accepted, to contract with _____ in the form of contract specified, to furnish all necessary materials, equipment, machinery, tools, apparatus, means of transportation and labor necessary to complete the construction of the work, in full and in complete accordance with the shown, noted, described, and reasonably intended requirements of the Specifications and Contract Documents, to the full and entire satisfaction of _____ with a definite understanding that no money will be allowed for extra work except as set forth in the attached General Conditions and Contract Documents, for prices on the following pages.

BID PROPOSAL

CARRINGTON WOODS LAKE DAM REPAIR
CITY OF MILLEDGEVILLE

(1) Lump Sum Bid to complete the scope identified
in Section 01010 of this document. \$ _____

(2) Alternate Bid as per instruction to bidder paragraph
10, item 3. In lieu of Stabilizing CMU Wall.
Add(+) or Deduct (-) \$ _____

Not for Bid

The Bidder further proposes and agrees hereby to commence work under his Contract, with adequate force and equipment, on a date to be specified in written order of the ENGINEER and shall fully complete all work hereunder within thirty (30) consecutive days from and including said date.

The undersigned further agrees that, in case of failure on his part to execute the Construction Contract and the bond within ten (10) consecutive calendar days after written notice being given of the award of the Contract, the check or bond accompanying this bid, and the monies payable thereon, shall be paid into the funds of the City of Milledgeville as liquidated damages for such failure, otherwise the check or bid bond accompanying this proposal shall be returned to the undersigned.

Attached hereto is a certified check on the _____ Bank of _____ or a Bid Bond by the _____ in the amount of _____ Dollars (\$) made payable to the _____, in accordance with the conditions of the advertisement and provisions herein.

Submitted:

By:

Title:

Not for Bid

Bidders Address: _____

City, State, Zip Code: _____

Telephone Number: _____

Bonding Agent: _____

Physical Address: _____

Telephone Number: _____

Underwriters Name: _____

Physical Address: _____

Telephone Number: _____

FAILURE TO COMPLETE THIS SECTION IS GROUNDS FOR REJECTION

BIDDER ACKNOWLEDGES RECEIPT OF THE FOLLOWING ADDENDUM:

No. _____ Date _____ No. _____ Date _____

No. _____ Date _____ No. _____ Date _____

EXPERIENCE AND REFERENCES

The Bidder shall state what work he had done (minimum of three) of similar nature to that bid for, and give references that will afford the Owner opportunity to judge as to experience, skill, business standing and financial ability. Failure to complete this section is grounds for rejection.

STATEMENT OF BIDDER'S QUALIFICATIONS

To accompany proposals submitted for construction of _____

Full legal name of Bidder _____

Business Address _____

Business Phone Number _____

Bidder is a (check one) Corporation _____ Partnership _____ Individual Proprietorship _____ Other (Specify) _____

When Organized? _____ When Incorporated? _____

If Bidder is a partnership, list all names of all partners _____

How many years have you been engaged in the contracting business under the present firm name _____

Will you, if requested by the Owner, furnish to them your most recent Financial Statement within 48 hours after bid taking? _____ If yes, give date of statement _____

Credit available for this contract \$ _____

Contracts now in hand, Gross Amount \$ _____

Have you ever refused to sign a contract at your original bid? _____

Do you have a Georgia Utility Contractor's License? _____ If yes, number? _____

Have you ever defaulted on a contract? _____

Remarks _____

(The above statements must be subscribed and sworn to before a Notary Public)

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

Firm Name: _____

(Notary Public)

By: _____

(Title)

REFERENCES:

Provide references for work done, minimum of six, three within the last 12 months of similar size and nature and a listing of all jobs performed in the last 12 months. References will afford the owner opportunity to judge as to capabilities and performance of the contractor.

Provide name, brief description, address, phone number, and contact person for each project listed. Failure to complete this section in its entirety will be grounds for rejection.

Not for Bid

LAWFUL PRESENCE AFFIDAVIT

Pursuant to O.C.G.A. § 50-36-1, all persons who - either on behalf of themselves or on behalf of an individual, business, corporation, partnership, or other private entity - apply for certain public benefits must (1) be eighteen years of age or older and (2) submit an affidavit that they are lawfully present in the United States. Public benefits, as defined by O.C.G.A. § 50-36-1(a)(3)(A), include any grant, contract, loan, professional license, or commercial license provided by an agency of State or local government or by appropriated funds of a State or local government.

I, _____, swear or affirm under penalty of perjury under the laws of the State of Georgia that I am 18 years of age or older and (check one):

___ I am a United States citizen, or

___ I am a legal Permanent Resident of the United States, or

___ I am a qualified alien (other than as a permanent resident) or nonimmigrant in the United States pursuant to Federal law.

The secure and verifiable document provided with this affidavit can best be classified as:

I understand that this sworn statement is required by law because I have applied for a public benefit and/or a business license on my behalf as an individual or on behalf of a business, corporation, partnership, or other private entity. I understand that state law required me to provide proof that I am lawfully present in the United States prior to receipt of this public benefit as listed above. I further acknowledge that making a false, fictitious, or fraudulent statement or representation in this sworn affidavit is punishable under the criminal laws of Georgia under O.C.G.A. § 16-10-20 and it shall constitute a separate criminal offense each time a public benefit is fraudulently received.

Signature

Date

Title

*Alien Registration # for Non-citizens

Business Name

TIN or SSN

If this affidavit is not presented in person, applicant must submit a notarized copy of this affidavit.

Notarized this ___ Day of _____, in the State of _____,

County of _____

Notary

Commission Expires

*Note: O.C.G.A. § 50-36-1(e) (2) requires that aliens under the Federal Immigration and Nationality Act., Title 8 U.S.C., as amended, provide their alien registration number. Because legal permanent residents are included in the federal definition of "alien", legal permanent residents must also provide their alien registration number. Qualified aliens that do not have an alien registration number may supply another identifying number below:

Another Identifying Number

Contractor Affidavit under O.C.G.A. § 13-10-91(b)(1)

By executing this affidavit, the undersigned contractor verifies its compliance with O.C.G.A. §13-10-91, stating affirmatively that the individual, firm or corporation which is engaged in the physical performance of services on behalf of _____ has registered with, is authorized to use and uses the federal work authorization program commonly known as E-verify, or any subsequent replacement program, in accordance with the applicable provisions and deadlines established in O.C.G.A. § 13-10-91. Furthermore, the undersigned contractor will continue to use the federal work authorization program throughout the contract period and the undersigned contractor will contract for the physical performance of services in satisfaction of such contract only with subcontractors who present an affidavit to the contractor with the information required by O.C.G.A. § 13-10-91(b). Contractor hereby attests that its federal work authorization user identification number and date of authorization are as follows:

Federal Work Authorization User Identification Number/E-verify User Number

Date of Authorization/Date of contract between Contractor and Public Employer

Legal Name of Contractor (please print)

Legal Address of Contractor

City, State, & Zip Code

Name of Project

Name of Public Employer

I hereby declare under penalty of perjury that the foregoing is true and correct.

Executed on _____ of _____, 20__ in _____ (city), _____ (state).

Signature of Authorized Officer or Agent

Printed Name and Title of Authorized Officer or Agent

SUBSCRIBED AND SWORN BEFORE ME ON THIS _____ DAY OF _____, 20__.

Notary Public

Commission Expires

Subcontractor Affidavit under O.C.G.A. § 13-10-91(b)(3)

By executing this affidavit, the undersigned subcontractor verifies its compliance with O.C.G.A. § 13-10-91, stating affirmatively that the individual, firm or corporation which is engaged in the physical performance of services under a contract with _____ (name of contractor) on behalf of _____ has registered with, is authorized to use and uses the federal work authorization program commonly known as E-Verify, or any subsequent replacement program, in accordance with the applicable provisions and deadlines established in O.C.G.A. § 13-10-91. Furthermore, the undersigned subcontractor will continue to use the federal work authorization program throughout the contract period and the undersigned subcontractor will contract for the physical performance of services in satisfaction of such contract only with sub-subcontractors who present an affidavit to the subcontractor with the information required by O.C.G.A. § 13-10-91(b). Additionally, the undersigned subcontractor will forward notice of the receipt of an affidavit from a sub-subcontractor to the contractor within five business days of receipt. If the undersigned subcontractor receives notice of receipt of an affidavit from any sub-subcontractor that has contracted with a sub-subcontractor to forward, within five business days of receipt, a copy of such notice to the contractor. Subcontractor hereby attests that its federal work authorization user identification number and date of authorization are as follows:

Federal Work Authorization User Identification Number

Date of Authorization

Name of Subcontractor

Name of Project

Name of Public Employer

I hereby declare under penalty of perjury that the foregoing is true and correct.

Executed on _____, _____, 201__ in _____ (city), _____ (state).

Signature of Authorized Officer or Agent

Printed Name and Title of Authorized Officer or Agent

SUBSCRIBED AND SWORN BEFORE ME ON THIS THE ___ DAY OF _____, 20__.

NOTARY PUBLIC

My Commission Expires:

CONTRACT

THIS AGREEMENT, made this _____ day of _____, 20__, by and between _____, herein called "OWNER" acting herein through _____ and _____, of _____, County of _____, and State of _____, herein called "CONTRACTOR".

WITNESSETH: that for and in consideration of the payments and agreement hereinafter mentioned, to be made and performed by the OWNER, and the CONTRACTOR hereby agrees with the OWNER to commence and complete the construction described as follows:

CARRINGTON WOODS LAKE DAM REPAID
FOR
CITY OF MILLEDGEVILLE

hereinafter called the project, for the sum of _____ Dollars (\$ _____) and all extra work in connection therewith, under the terms as stated in the General and Special Conditions of the Contract; and at his (its or their) own proper cost and expense to furnish all the materials, supplies, machinery, equipment, tools, superintendence, labor, insurance, and other accessories and services necessary to complete the said project in accordance with the conditions and prices stated in the Proposal; the General Conditions, Supplemental General Conditions and Special Conditions of the Contract, the plans, which include all maps, plats, blue prints and other drawings and printed or written explanatory matter thereof, the specifications and Contract Documents therefore as prepared by P.C. Simonton Engineering, LLC, herein entitled the ENGINEER, and as enumerated in Paragraph 1 of the Supplementary General Conditions, all of which are made a part hereof and collectively evidence and constitute the Contract.

The Contractor hereby agrees to commence work under this Contract on or before a date to be specified in a written "Notice to Proceed" from the Owner and to fully complete the project within Thirty (30) consecutive calendar days thereafter.

The Contractor further agrees to pay, as liquidated damages, the sum of \$300 for each consecutive calendar day thereafter as hereinafter provided in Section 01001, Paragraph 1.11.

The owner agrees to pay the contractor in current funds for the past performance of the contract subject to additions and deductions as provided in the General Conditions, Article 14 of the contract. Retainage on progress payments shall be ten (10) percent until the project is substantially complete (80% or more) at which point retainage may be reduced to 5% depending on the contractor's progress related to schedule and workmanship.

Not for Bid

IN WITNESS WHEREOF, the parties present have executed this contract in four (4) counterparts, each of which shall be deemed an original, in the year and day first above mentioned.

ATTEST

(Owner)

(Secretary) By _____

(Witness) (Title)

(Contractor)

(Secretary) By _____

(Witness) (Title)

Not for Bid

(Address and Zip Code)

PERFORMANCE BOND AND LABOR AND MATERIAL PAYMENT BOND

1. REFERENCE

By reference, "The Performance Bond and Payment Bond", E.J.C.D.C. Document C-610 and C-615, 2007 Edition, pages 1 through 2 of each inclusive, is a part of this Contract.

Not for Bid

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 Laws and Regulations.

STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

Prepared by

ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

and

Issued and Published Jointly by

ACEC

AMERICAN COUNCIL OF ENGINEERING COMPANIES



ASCE American Society
of Civil Engineers



**National Society of
Professional Engineers**
Professional Engineers in Private Practice

AMERICAN COUNCIL OF ENGINEERING COMPANIES

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A Practice Division of the

NATIONAL SOCIETY OF PROFESSIONAL ENGINEERS

Endorsed by



CONSTRUCTION SPECIFICATIONS INSTITUTE

These General Conditions have been prepared for use with the Suggested Forms of Agreement Between Owner and Contractor (EJCDC C-520 or C-525, 2007 Editions). Their provisions are interrelated and a change in one may necessitate a change in the other. Comments concerning their usage are contained in the Narrative Guide to the EJCDC Construction Documents (EJCDC C-001, 2007 Edition). For guidance in the preparation of Supplementary Conditions, see Guide to the Preparation of Supplementary Conditions (EJCDC C-800, 2007 Edition).

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STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

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Not for Bid

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. *Agreement*—The written instrument which is evidence of the agreement between Owner and Contractor covering the Work.
 3. *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.
 4. *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.
 5. *Bid*—The offer or proposal of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.
 6. *Bidder*—The individual or entity who submits a Bid directly to Owner.
 7. *Bidding Documents*—The Bidding Requirements and the proposed Contract Documents (including all Addenda).
 8. *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.
 9. *Change Order*—A document recommended by Engineer which is signed by Contractor and Owner and authorizes an addition, deletion, or revision in the Work or an adjustment in the Contract Price or the Contract Times, issued on or after the Effective Date of the Agreement.
 10. *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.
 11. *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.

12. *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 submittals, and the reports and drawings of subsurface and physical conditions are not Contract Documents.
13. *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).
14. *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.
15. *Contractor*—The individual or entity with whom Owner has entered into the Agreement.
16. *Cost of the Work*—See Paragraph 11.01 for definition.
17. *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.
18. *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.
19. *Engineer*—The individual or entity named as such in the Agreement.
20. *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.
21. *General Requirements*—Sections of Division 1 of the Specifications.
22. *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.
23. *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.
24. *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.
25. *Liens*—Charges, security interests, or encumbrances upon Project funds, real property, or personal property.
26. *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.

27. *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.
28. *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.
29. *Owner*—The individual or entity with whom Contractor has entered into the Agreement and for whom the Work is to be performed.
30. *PCBs*—Polychlorinated biphenyls.
31. *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.
32. *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.
33. *Project*—The total construction of which the Work to be performed under the Contract Documents may be the whole, or a part.
34. *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.
35. *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.
36. *Resident Project Representative*—The authorized representative of Engineer who may be assigned to the Site or any part thereof.
37. *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.
38. *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.
39. *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.

40. *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.
41. *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.
42. *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.
43. *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.
44. *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.
45. *Successful Bidder*—The Bidder submitting a responsive Bid to whom Owner makes an award.
46. *Supplementary Conditions*—That part of the Contract Documents which amends or supplements these General Conditions.
47. *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 Subcontractor.
48. *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.
49. *Unit Price Work*—Work to be paid for on the basis of unit prices.
50. *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.
51. *Work Change Directive*—A written statement to Contractor issued on or after the Effective Date of the Agreement and signed by Owner and recommended by 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 words and terms discussed in Paragraph 1.02.B through F are not defined but, when used in the Bidding Requirements or Contract Documents, have the indicated 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 information in the Contract Documents and with the design concept of the Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective is not intended to and shall not be effective to assign to Engineer any duty or authority to supervise or direct the performance of the Work, or any duty or authority to undertake responsibility contrary to the provisions of 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 that have a well-known technical or construction industry or trade meaning are used in the Contract Documents in accordance with such recognized meaning.

ARTICLE 2 – PRELIMINARY MATTERS

2.01 *Delivery of 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. In no event will the Contract Times commence to run later than the sixtieth day after the day of Bid opening or the thirtieth day after the Effective Date of the Agreement, whichever date is earlier.

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 indicating the times (numbers of days or dates) for starting and completing the various stages of the Work, including any Milestones specified in the Contract Documents;
 - 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; Designation of Authorized Representatives*

- A. Before any Work at the Site is started, a conference attended by Owner, Contractor, Engineer, and others as appropriate will be held to establish a working understanding among the parties as to the Work and to discuss the schedules referred to in Paragraph 2.05.A, procedures for handling Shop Drawings and other submittals, processing Applications for Payment, and maintaining required records.
- B. At this conference Owner and Contractor each shall designate, in writing, a specific individual to act as its authorized representative with respect to the services and responsibilities under the Contract. Such individuals shall have the authority to transmit instructions, receive information, render decisions relative to the Contract, and otherwise act on behalf of each respective party.

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 reasonably may be inferred from the Contract Documents or from prevailing custom or trade usage as being required to produce the indicated 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, Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, 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 discovers, or has actual knowledge of, 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 (a) any applicable Law or Regulation, (b) any standard, specification, manual, or code, or (c) any instruction of any Supplier, then Contractor shall promptly report it to Engineer in writing. Contractor shall not proceed with the Work affected thereby (except in an emergency as required by Paragraph 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 had actual knowledge 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, or code, or the instruction of any Supplier (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 its consultants, including electronic media editions; or
2. reuse any such Drawings, Specifications, other documents, or copies thereof on extensions of the Project or any other project without written consent of Owner and Engineer and specific written verification or adaptation by Engineer.

B. The prohibitions 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. Unless otherwise stated in the Supplementary Conditions, the data furnished by Owner or Engineer to Contractor, or by 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 known to Owner of explorations and tests of subsurface conditions at or contiguous to the Site; and
 - 2. those drawings known to Owner of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities).
- B. *Limited Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the 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 officers, directors, members, partners, employees, agents, consultants, or subcontractors with respect to:
 - 1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto; 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 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, neither Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors shall 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 provided by others; 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:* The Supplementary Conditions identify those reports and drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at the Site.
- B. *Limited Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the 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 officers, directors, members, partners, employees, agents, consultants, or subcontractors with respect to:
 1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences and procedures of construction to be employed by Contractor and safety precautions and programs incident thereto; 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. Promptly after consulting with Engineer, Owner shall take such actions as are necessary to permit Owner to timely obtain required permits and provide Contractor the written notice required by Paragraph 4.06.E.
- 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 written notice to Contractor: (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, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to 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, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to 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 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 or attorney-in-fact must be accompanied by a certified copy of that individual's authority to bind the surety. The evidence of authority shall show that it is effective on the date the agent or attorney-in-fact signed each bond.
- 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 and loss payee 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 and loss payee 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.
- C. Failure of Owner to demand such certificates or other evidence of Contractor's full compliance with these insurance requirements or failure of Owner to identify a deficiency in compliance from the evidence provided shall not be construed as a waiver of Contractor's obligation to maintain such insurance.
- D. Owner does not represent that insurance coverage and limits established in this Contract necessarily will be adequate to protect Contractor.
- E. The insurance and insurance limits required herein shall not be deemed as a limitation on Contractor's liability under the indemnities granted to Owner in the Contract Documents.

5.04 *Contractor's Insurance*

- A. Contractor shall purchase and maintain such 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, be written on an occurrence basis, 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, members, 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 contractual liability insurance covering Contractor's indemnity obligations under Paragraphs 6.11 and 6.20;
 4. 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);
 5. 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
 6. include completed operations coverage:
 - a. Such insurance shall remain in effect for two years after final payment.
 - b. 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, Owner shall purchase and maintain property insurance upon the Work at the Site in the amount of the full replacement cost thereof (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). 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, members, 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 a loss payee;
 2. be written on a Builder's Risk "all-risk" 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 that 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 loss payee to whom a certificate of insurance has been issued.
- B. Owner shall purchase and maintain such equipment breakdown 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,

members, 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 a loss payee.

- C. All the policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained in accordance with this 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 loss payee 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.
- E. If Contractor requests in writing that other special insurance be included in the property insurance policies provided under this Paragraph 5.06, Owner shall, if possible, include such insurance, and the cost thereof will be charged to Contractor by appropriate Change Order. Prior to commencement of the Work at the Site, Owner shall in writing advise Contractor whether or not such other insurance has been procured by Owner.

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 as loss payees (and the officers, directors, members, 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 loss payees thereunder. Owner and Contractor waive all rights against each other and their respective officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them for all losses and damages caused by, arising out of or resulting from any of the perils 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 as loss payees (and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them) under such policies for losses and damages so caused. 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 Owner as trustee or otherwise payable under any policy so issued.
- B. Owner waives all rights against Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them for:

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, members, 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 Owner and made payable to Owner as fiduciary for the loss payees, as their interests may appear, subject to the requirements of any applicable mortgage clause and of Paragraph 5.08.B. Owner 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, and the Work and the cost thereof covered by an appropriate Change Order.
- B. Owner 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 Owner's exercise of this power. If such objection be made, Owner 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, Owner as fiduciary shall adjust and settle the loss with the insurers and, if required in writing by any party in interest, Owner 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.

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; and
 - 3) it has a proven record of performance and availability of responsive service.
- 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 if 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 requirements for review by Engineer will be as set forth in Paragraph 6.05.A.2.d, as supplemented by 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) 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 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 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; and
 - 4) 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 a Change Order in the case of a substitute and 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 so proposed or submitted by Contractor, Contractor shall reimburse Owner for the reasonable charges of Engineer for evaluating each such proposed substitute. Contractor shall also reimburse Owner for the reasonable charges of Engineer for making changes in the Contract Documents (or in the provisions of any other direct contract with Owner) resulting from the acceptance of each proposed substitute.
- 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 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 a loss payee 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, Engineer, and all other individuals or entities identified in the Supplementary Conditions to be listed as insureds or loss payees (and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them) for all losses and damages caused by, arising out of, relating to, or resulting from 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, Owner shall indemnify and hold harmless Contractor, and its officers, directors, members, partners, employees, agents, consultants, and subcontractors from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals, and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device specified in the Contract Documents, but not identified as being subject to payment of any license fee or royalty to others required by patent rights or copyrights.
- C. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device not specified in the Contract Documents.

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 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, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any 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. Such responsibility does not relieve Subcontractors of their responsibility for the safety of persons or property in the performance of their work, nor for compliance with applicable safety Laws and Regulations. 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. Contractor shall comply with the applicable requirements of Owner's safety programs, if any. The Supplementary Conditions identify any Owner's safety programs that are applicable to the Work.
- D. Contractor shall inform Owner and Engineer of the specific requirements of Contractor's safety program with which Owner's and Engineer's employees and representatives must comply while at the Site.
- E. 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 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).
- F. 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 accepted 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:

- a. 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;
- b. determined and verified all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect thereto;
- c. determined and verified the suitability of all materials offered with respect to the indicated application, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work; and
- d. determined and verified all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto.

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 officers, directors, members, partners, employees, agents, consultants, and subcontractors 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, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the 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 officers, directors, members, partners, employees, agents, consultants, or subcontractors by any employee (or the survivor or personal representative of such employee) of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under Paragraph 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, members, 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 through 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, provide a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work, and 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 such work; provided, however, that Contractor may cut or alter others’ work with the written consent of Engineer and the others whose work will be affected. 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 wrongful actions or inactions.
- C. Contractor shall be liable to Owner and any other contractor under direct contract to Owner for the reasonable direct delay and disruption costs incurred by such other contractor as a result of Contractor's wrongful 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 with respect to 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 relating to existing surface or subsurface structures at the Site.

8.06 *Insurance*

- A. Owner's responsibilities, if any, with 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 with 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. Upon request of Contractor, Owner shall furnish Contractor reasonable evidence that financial arrangements have been made to satisfy Owner's obligations under the Contract Documents.

8.12 *Compliance with Safety Program*

A. While at the Site, Owner's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Owner has been informed pursuant to Paragraph 6.13.D.

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.

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 believes 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.

9.10 *Compliance with Safety Program*

- A. While at the Site, Engineer's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Engineer has been informed pursuant to Paragraph 6.13.D.

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, 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.D.

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

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 Times 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 not include any of the costs itemized in Paragraph 11.01.B, and shall include only the following items:

1. Payroll costs for employees in the direct employ of Contractor in the performance of the Work under schedules of job classifications agreed upon by Owner and Contractor. Such employees shall include, without limitation, superintendents, foremen, and other personnel employed full time on the Work. 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, as imposed by Laws and Regulations.
- e. Deposits lost for causes other than negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.
- f. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by Contractor in connection with the performance of the Work (except losses and damages within the deductible amounts of 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, express and courier services, 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.
- 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 quantity of any item of Unit Price Work performed by Contractor differs materially and significantly from the estimated quantity of such item indicated in the Agreement; and
 - 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 Paragraphs 12.01.C.2.a and 12.01.C.2.b 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.C.
- D. Owner, Engineer, and their officers, directors, members, partners, employees, agents, consultants, or subcontractors 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. 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, inspection, and testing. Contractor shall provide them proper and safe conditions for such access and advise them of Contractor's safety procedures and programs so that they may comply 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 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, Contractor shall, if requested by Engineer, uncover such Work 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 written 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 for 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 of the executed Work as an experienced and qualified design professional, and on Engineer's review of the Application for Payment and the accompanying data and schedules, that to the best of Engineer's knowledge, information and belief:
 - a. the Work has progressed to the point indicated;
 - b. the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, the results of any subsequent tests called for in the Contract Documents, a final determination of quantities and classifications for Unit Price Work under Paragraph 9.07, and any other qualifications stated in the recommendation); and
 - c. the conditions precedent to Contractor's being entitled to such payment appear to have been fulfilled in so far as it is Engineer's responsibility to observe the Work.
3. By recommending any such payment Engineer will not thereby be deemed to have represented that:
 - a. inspections made to check the quality or the quantity of the Work as it has been performed have been exhaustive, extended to every aspect of the Work in progress, or

involved detailed inspections of the Work beyond the responsibilities specifically assigned to Engineer in the Contract Documents; or

- b. there may not be other matters or issues between the parties that might entitle Contractor to be paid additionally by Owner or entitle Owner to withhold payment to Contractor.
4. Neither Engineer's review of Contractor's Work for the purposes of recommending payments nor Engineer's recommendation of any payment, including final payment, will impose responsibility on Engineer:
 - a. to supervise, direct, or control the Work, 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. there are other items entitling Owner to a set-off against the amount recommended; or
 - d. 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 remedies the reasons for such action.
3. Upon a subsequent determination 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 and subject to interest as provided in the Agreement.

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, Contractor, and Engineer shall make an inspection of the Work to determine the status of completion. If Engineer does not consider the Work substantially complete, Engineer will notify Contractor in writing giving the reasons therefor.
- C. If Engineer considers the Work substantially complete, Engineer will deliver to Owner a 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 remove its property and 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, Owner, and Engineer will follow the procedures of Paragraph 14.04.A through D 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 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.6;
 - 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 might in any way be responsible, or which might in any way result in liens or other burdens on Owner's property, have been paid or otherwise satisfied. If any Subcontractor or Supplier fails to furnish such a release or receipt in full, Contractor may furnish a bond or other collateral satisfactory to Owner to indemnify Owner against any Lien.

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.

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 repeated 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. Either Owner or Contractor may 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 and the other party to the Contract. 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 the 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.

SUPPLEMENTAL CONDITIONS

01. GENERAL CONDITIONS:

The "Standard General Conditions of the Construction Contract", Engineers Joint Contract Documents Committee, 2007 Edition, Articles 1 through 17 inclusive, included herein preceding these supplements, is a part of this Contract.

ARTICLE 5 - BONDS & INSURANCE

5.04 B 1& 2 Contractor's protective liability insurance, with minimum limits as follows:

General Liability – \$1,000,000 per occurrence;

Damage to rented premises – \$100,000 per occurrence;

Personal injury including death – \$1,000,000 for each occurrence;

General aggregate – \$2,000,000 per project;

Property damage - \$100,000 for each and \$200,000. for the aggregate for operations.

Contractor's automobile liability insurance (including contractual liability insurance as applicable to the Contractor's obligations under paragraph 6.20) with minimum limits as follows:

Automobile liability – \$1,000,000 per occurrence;

Workers compensation – Statutory coverage and \$1,000,000 Employers liability limit.

- (a) Any exclusion of so-called underground damage to pipes, collapse of structures or damage resulting from explosion or blasting, shall be deleted.
- (b) The policy shall provide completed operations coverage, and such coverage shall be maintained by the Contractor for a period of one year from the date of payment of the final amounts owed the Contractor by the Owner, whichever occurs first.

ARTICLE 14 - PAYMENTS TO CONTRACTOR AND COMPLETION

14.02 *Progress Payments*

A. Applications for Payments

1. Add a sentence after the second sentence stating, "Each payment request shall be accompanied with record drawings showing as-built conditions of all work requested during the pay period."

ARTICLE 16 - DISPUTE RESOLUTION

- 16.01 Any dispute arising under this agreement shall first be resolved by utilizing non-binding mediation, however should the dispute not be resolved by this method it shall be heard in the Superior Court of the County in which the owner resides, and the parties consent to jurisdiction and venue in that Court. The parties waive any defense they may have to lack of jurisdiction or improper venue and agree to have all disputes resolved in the Superior Court of the County in which the owner resides.

Not for Bid

SECTION 01010 - SUMMARY OF WORK

1.1 Project/Work Identification:

- A. The work consists of the following work items:
1. Lower lake pool elevation sufficient to access drain valve.
 - A. Replace existing drain valve and install concrete riser (see Sheet 2).
 2. Saw cut concrete splash area as shown and remove underlying debris while protecting and providing support for drain pipe and cinder block wall as needed (see Sheet 2).
 3. Stabilize cinder block wall and seal gaps.
 - A. Where end of spillway sidewall and cinder block wall meet, fill voids underneath with non-shrink grout.
 - B. Form and place concrete at end of cinder block wall to close gap between.
 - C. Apply surface bonding to inside face of cinder block wall.
 4. Install end wall across lower end of concrete splash area. Backfill with No. 57 stone. Place concrete over existing splash pad surface and shape as shown. Cast wall around drain pipe and maintain support as needed.
 5. Place type 1 riprap along base of splash pad and wall.
 6. Excavate loose soil around hole. Backfill and compact structural fill. Establish permanent grass stand on disturbed areas.
 7. Remove organic material from eroded channel. Backfill with embankment structural fill and compact. Add erosion matting, establish permanent grass stand on disturbed areas.
 8. Remove tree and grind stump and roots. Remove debris and establish permanent grass stand on disturbed areas.
 9. Excavate hole to residual soil, backfill with embankment structural fill and compact.
 10. Clear and remove debris from inlets and all segments of Emergency and Principal spillway.
 11. Field locate existing toe drain, verify size & location. Mark outlet with U-channel post topped with reflector. (Approximate location shown). Inspect, clear out any debris and install animal screens, equal to Agri Drain, Rat Guard, stainless steel.

- 12. Repair cracks and deterioration in the emergency spillway.
- 13. Fill and compact all holes along dam with dirt.
- B. The Work is described by these Technical Specifications and the following Drawings prepared by Peoples & Quigley, Inc.:

| <u>Drawing Number</u> | <u>Sheet No.</u> | <u>Title</u> |
|-----------------------|------------------|---|
| 460-01D1-R1 | 1 | Site Plan |
| 460-01D1-R1 | 2 | Splash Pad Improvement & Miscellaneous Details |

- 1.2 Work Areas: The Contractor shall restrict his operations to Owner's property, easements, and public right-of-way unless specific authorization has been obtained by the Contractor, in writing, from property owners for the use of private land.
- 1.3 Owner Occupancy: The Owner reserves the right to occupy partially completed parts of the work prior to substantial completion, provided that such occupancy does not interfere with completion of the work. Such partial occupancy shall not constitute acceptance of the work or any part of the work.
- 1.4 Coordination: The work of this Contract includes coordination of the work with work of other contractors, public utilities, and the Owner, from beginning of construction activity through project close-out and warranty periods.
- 1.5 Changes in the Work:
 - A. The Owner reserves the right to change planned locations of the work during construction to avoid interferences or obstructions.
 - B. Field changes of planned locations shall be made only when directed by the Owner's representative.
 - C. For work under a unit price contract, the Owner reserves the right to:
 - 1. Add additional work to the bid quantities if project funds are available. Such work shall be installed at the bid prices; or,
 - 2. Delete work as necessary to keep the project within the available funds or to eliminate undue delay in the work.

END OF SECTION

SECTION 01567 - POLLUTION CONTROL

1.1 Siltation:

- A. Conduct the work and restore disturbed areas in such a manner so as to minimize siltation of local streams.
- B. Comply with all requirements of the Erosion and Sediment Control Plan and Section 02269. Although not expected to be needed, provide erosion and sediment control measures if unanticipated needs arise, as required to comply with all local, state and federal erosion control requirements.

1.2 Water Pollution:

- A. Take extreme care to avoid contamination of water supply systems or discharge of polluted water into streams. Take special care when making connections between existing facilities and new work, and where water and sewer lines cross.
- B. Do not discard waste material of any type into surface streams.
- C. The bypassing of raw wastewater onto the ground or into waters of the state is prohibited.
- D. Discharge of sediment laden water into waters of the state is prohibited.

1.3 Solid Waste:

- A. Dispose of all solid waste that is generated in the execution of the work in a sanitary landfill in accordance with local and state regulations.
- B. Do not burn or bury trash without the express written consent of the Owner and the property owner involved.

1.4 Air Pollution:

- A. Any burning that is permitted by written consent of the Owner shall be done without creating any nuisance conditions and in compliance with local, state and federal air quality control regulations.
- B. Control dust by regular cleaning and watering of road surfaces in work areas and by watering trenches and unpaved areas as necessary to avoid dust problems.

END OF SECTION

SECTION 01710 - CLEANING AND RESTORATION

1.1 Scope: This Section covers the restoration of property disturbed by the Contractor's operations and identifies special areas in which restoration is critical.

1.2 General:

- A. Restore all areas that are disturbed equal to their original condition, with the exception of trees that must be removed to construct the project.
- B. Fertilize and seed undeveloped areas, such as woods, pasture, and open fields, to protect against erosion. Restore previously grassed areas equal to their condition prior to construction.
- C. Protect and restore areas disturbed as follows:
 - 1. Remove shrubs during construction and replant or replace upon completion of the work. The Contractor shall be responsible for all shrubs.
 - 2. Replant lawn and establish a lawn equal to that which existed prior to construction.
 - 3. Restore all existing improvements (including structures, fences, mailboxes, bridges, walkways, pavement, etc.) of any type that are disturbed equal to their condition prior to construction.
- D. Protect ditches and storm drainage from debris and siltation. If blockages occur, clean and restore to original condition as soon as practical and as often as necessary.

1.3 Special Areas:

- A. DOT ROW: Completely restore all disturbed areas in DOT ROW as soon as practical. Backfill all trenches and regrade ditches and disturbed areas on a daily basis as work is completed. Proceed with handwork as needed to complete the restoration in front of each individual property. Grass immediately when in season. When immediate grassing is not practical, provide adequate erosion control. If these procedures are not followed, the DOT District Engineer may stop all work in DOT ROWS.
- B. Driveways: Provide stone, cover plates, temporary pavement, or whatever is necessary to maintain all driveways in a useable condition at all times at no expense to the Owner.

- C. Local Roads and Streets: Provide crushed stone or temporary pavement to maintain all roads in a passable condition at all times until the permanent roadway surface is repaired.

END OF SECTION

Not for Bid

SECTION 02202 - EXCAVATION, FILLING AND GRADING

PART 1 - GENERAL

- 1.1 Work Included: The work covered by this Section consists of all earthwork including embankments, structural founding, trenching, and site grading. It includes: excavation; disposal of unsuitable material; pumping and dewatering; sheeting and shoring; delivery and placement of borrow material; filling, bedding, compacting, and final grading. All earthwork shall be completed to bring the site to finished grades and/or subgrades as shown on the Drawings.
- 1.2 Quality Assurance:
- A. Contractor will be responsible for field quality control. However, an independent testing laboratory may be employed by the Owner to make field density tests of the fill and backfill. Contractor shall cooperate with and assist the laboratory personnel as required to ensure that proper compaction is obtained.
 - B. All work under this Section shall conform fully to applicable OSHA rules and regulations.
 - C. All work shall conform to all applicable local and state regulations.
 - D. All earthwork shall be subject to inspection by Engineer.
 - E. Tests on borrow material proposed for use as controlled fill must be performed by a testing laboratory approved by Owner.
 - F. Settlement Restrictions: Contractor shall guarantee that filled areas will not suffer from ponding or settlement in excess of the following limitations for a period of one year from the date of final acceptance.
 - 1. Structural Areas – No measureable change.
 - 2. Paved areas and areas within 5 feet of structures - 0.10 foot.
 - 3. Improved areas and areas sloped for drainage - 0.20 foot.
 - 4. All other areas - 0.50 foot.

Fill material which settles in excess of the above limitations for items 1-3 shall be removed and replaced with suitable material at no cost to Owner. For trenches, refill and recompact as often as necessary to maintain the surface at the required finished grade and level with adjacent surfaces. Construction, paving, landscaping and other site improvements damaged by settlement shall be removed and replaced or reworked with suitable material at no cost to Owner.

1.3 References: Reference Standards used herein are:

- A. ASTM-C136, Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates.
- B. ASTM-D1556, Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method.
- C. ASTM-D698, Standard test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort.
- D. ASTM-D2167, Standard Test Method for Density of Unit Weight of Soil in Place by the Rubber Balloon Method.
- E. ASTM-D2487, Standard Practice for Classification of Soils for Engineering Purposes (USCS).
- F. ASTM-D2937, Standard Test Method for Density of Soil in Place by the Drive-Cylinder Method.
- G. ASTM-C33, Standard Specification for Concrete Aggregates.
- H. NFPA 495, Code for the Manufacture, Transportation, Storage and Use of Explosive Materials.
- I. Standard Specifications: Construction of Transportation Systems, Georgia Department of Transportation, 2013 Edition.

1.4 Submittals:

- A. Submit for approval testing laboratory report showing that material for controlled fill meets requirements of this Section prior to delivery of any fill material to the site.
- B. Submit for approval a schedule of field quality control tests to be performed by the Contractor during placement of fill prior to initiation of the work. Include the name of the testing laboratory, the frequency and spacing of tests, and the method(s) of testing.

1.5 Site Conditions:

- A. Maintain access to existing facilities and private property at all times.
- B. Protect carefully all bench marks, monuments, and other reference points. Replacement, if required, shall be by a registered land surveyor at no cost to Owner.

- C. Perform earthwork operations with special care in the vicinity of existing facilities. Protect above or below ground utilities which are to remain. If any damage is done to these facilities, repair immediately.
- D. Limit operations to Owner's property and easements. Do not trespass on adjacent property without written permission from the owner of such property.
- E. Comply with all erosion and sediment control measures specified in Section 02269 of these specifications or required by law.
- F. Check the existing grades on the site prior to starting. Beginning of any earthwork shall constitute acceptance of the site conditions.
- G. Allowable on-site borrow areas, if any, will be designated by the Owner prior to the start of construction.
- H. Conduct all work required on public right-of-way in strict conformance with rules and regulations of governing bodies having jurisdiction over the work.
- I. Provide traffic protection by means of suitable signs, barricades and lights.
- J. Contact the Utilities Protection Inc. "Call Before You Dig" telephone number 1 (800) 282-7411 prior to starting any site work.
- K. Protect existing underground and overhead utility pipes, poles, lines, services, structures, etc., from damage or interruption of service by the conduct of construction operations. Furnish and have available at all times, an electronic pipe detector in working order, and use to survey the proposed path of trenching prior to excavation. The approximate position of known utilities is shown on the Contract Drawings for the Contractor's information. The utilities shown on the Contract Drawings were located during an above-ground investigation and may not be accurate or complete. Locate and protect all underground and overhead utilities and structures in the construction area.

PART 2 - PRODUCTS

2.1 Fill Material:

- A. Embankment Structural Fill: All structural fill soil required for embankment fill should consist of low to moderately plastic soils that are free of debris, trash, topsoil, roots, vegetative matter, sod, other non-soil materials, and rocks larger than 3 inches in diameter. The soils shall meet the following classifications and minimum engineering parameters:
 - 1. Acceptable Unified Soil Classifications: CL, ML, SC and SM

2. Minimum Standard Proctor Compacted Dry Unit Weight (ASTM D698): 100 pcf
 3. Minimum Effective Coefficient of Internal Friction Angle (ϕ'): 30 degrees (remolded at 98% standard Proctor compaction)
 4. Plasticity Index: less than 30
 5. Percent passing #200 Sieve: 25 percent minimum
- B. Native Soil: All materials from the site which are free of debris, except highly organic silts and clays. Classes of native soil, referred to herein, refer to the Unified Soil Classification System established by ASTM-D2487.
- C. Unsuitable Material: Highly organic soil, USCS Group Pt, topsoil, roots, vegetable matter, sod, frozen earth, trash, debris, stones or pavement fragments larger than 4 inches in maximum dimension, or excessively wet soil shall NOT be used as fill or backfill material.
- D. Granular Soil: Soil having gradation, when tested in accordance with ASTM-C136 (or other granular material specifically approved by the Engineer prior to use,) as follows:
1. 100 percent passing screen having 3-1/2-inch nominal square opening.
 2. Not more than 30 percent retained on 3/4-inch sieve.
 3. Not more than 46 percent passing No. 100 sieve.
 4. Not more than 12 percent passing No. 200 sieve.

2.2 Granular Bedding or Crushed Stone (No. 57 Stone): Uniform material, consisting of clean, hard, angular pieces of rock, free of organic matter and debris, with the following gradation requirements:

| <u>Sieve Designation</u> | <u>Percent by Weight Passing Square Mesh Sieve</u> |
|--------------------------|--|
| 1½ inch | 100 |
| 1 inch | 95-100 |
| ½ inch | 25-60 |
| No. 4 | 0-10 |
| No. 8 | 0-5 |
| No. 200 | 0-2 |

- 2.3 Crusher Run: Sound durable well graded crushed rock, all of which passes a 1½-inch sieve, free of organic matter and debris.
- 2.4 Topsoil: Natural, friable, fertile soil which produces heavy growth vegetation and is representative of the soil in the vicinity; organic matter 1.5% minimum; pH between 5.0 and 7.0.
- 2.5 Filter Sand: Fine aggregate in accordance with ASTM-C33.

- 2.6 Filter Stone: No. 57 stone in accordance with ASTM-C33.
- 2.7 Riprap: Shall be Stone Dumped Riprap, Type 2, conforming to Section 603 of the Georgia Department of Transportation Standard Specifications. It shall consist of sound, durable stone meeting the quality requirements of Class A coarse aggregate.
- 2.8 Rubble Masonry: Shall be Mortar Rubble Masonry conforming to Section 607 of the Georgia Department of Transportation Standard Specifications.

PART 3 - EXECUTION

- 3.1 Inspection: Verify that all necessary demolition, clearing and grubbing operations, and preceding work affecting work of this section, have been completed prior to initiation of any earthwork.
- 3.2 Preparation:
- A. Notify all utility companies and locate, stake and flag all existing underground utilities prior to start of any excavation activities.
 - B. Provide sufficient reference points to ensure that work conforms to the Contract Documents.
 - C. Provide dewatering as required. Do not undertake earthwork until suitable dewatering has been provided.
 - D. Provide drainage control around areas to be graded to minimize erosion and siltation of adjacent streams.
 - E. Erect sheeting, shoring, and bracing as necessary for protection of persons, improvements, excavations, and existing facilities.
 - F. Strip topsoil and other materials unsuitable for use in the subgrade to a depth of at least six inches from all areas within the excavation or embankment limits. Stockpile the topsoil in such locations as approved by Engineer and preserve for surfacing fill or excavated areas; or dispose of as approved by Engineer.
 - G. Proof roll all stripped areas which are to be subgrades and areas beneath slabs, structures, or pavements. Make at least 3 coverages with a loaded dump truck or loaded earth-moving scraper in the presence of Engineer. Remove all soft or yielding material, loose soil or debris.

3.3 General Excavation:

- A. Excavate whatever material is encountered, including rock, to the lines and grades shown on the Drawings. Any deviations from the Drawings must be approved by Engineer.
- B. Remove all unsuitable material, soft and yielding material, and material which will not compact readily when rolled. Dispose of as directed by the Owner's representative.
- C. Keep the top of the excavation so that it will drain at all times. Protect the subgrade from damage from materials, tools, and equipment.
- D. If unexpected conditions are encountered which endanger the work, immediately notify Engineer. Perform no further excavation until directed.
- E. Do not bring explosives on site or use in the work without prior written notice to the Owner. Conduct blasting operations in strict accordance with all existing ordinances and regulations. Protect all exposed structures from the effects of blast. Cover all blasts with heavy timbers, mats or other suitable protection. The blasting shall be done only by experienced men. Use very light charges to prevent damages to adjacent structures. Promptly repair or replace any facilities damaged by blasting operations at no cost to Owner. Where there are no local ordinances governing blasting and the storage explosives, all blasting supplies shall be stored in a manner approved by the Owner. In no case shall caps or other explosives be kept at the place where dynamite or other explosives are stored.

3.4 Rock Excavation:

- A. All excavation shall be considered unclassified unless rock is a specific bid item. Whether or not rock is indicated by the Drawings, Contractor is responsible for making his own investigation to determine the extent of rock.
- B. Excavate encountered rock to depths as follows:
 - 1. Under areas to be paved, 12 inches below required subgrade.
 - 2. Under areas to be grassed or landscaped, 6 inches below finished grade, except for boulders or outcrops to remain.

3.5 Structural Excavation:

- A. Make no footing or slab excavations to full depth indicated when freezing temperatures may be expected, unless footings or slabs can be poured immediately after excavation has been completed and inspected. Protect foundation concrete from freezing in accordance with Concrete Specifications.
- B. Excavation shall be sufficient to allow inspection of foundation walls and to permit the various trades to install their work. Trenches for formed foundation walls, and pier excavations, shall be a minimum of two feet wider than wall or pier thickness.

Excavate footings to the actual footing dimensions. Provide level bottoms with no loose soil. If for any reason the excavation is carried below the exact lines of the footings or floor slabs on ground, fill the excess excavation with concrete of the same quality and mix as that for footings; fill with compacted crushed stone, under slabs.

- C. Carefully examine all rock bottoms for foundations and remove all loose or broken rock to provide solid bearing. Level or shelve rock surface to a slope not exceeding 1 inch per foot.

3.6 Trench Excavation:

- A. Excavated materials satisfying the requirements of this Section for Native Material may be used for backfilling. Remove surplus excavated material and Unsuitable Materials from the job site and dispose of it in an acceptable manner that will not adversely impact the environment.
- B. Remove pavement only as necessary for excavating the trench and installing the pipeline and appurtenances. Cut all asphalt pavement in straight, uniform lines. Cut all concrete pavements to a depth of at least 2 inches along the cut line with a rotary saw, after which the pavement may be broken with a jack hammer or suitable pavement cutter.
- C. Provide protection of utilities as follows:
 - 1. Contact all local utility owners, and with an electronic pipe locator and their assistance, locate underground structures, pipes and utility lines, and mark them in advance of trenching operations. Excavate and expose underground utilities in test pits to verify locations and depths. As excavation approaches the marked areas, digging by conventional trenching machines shall be done with extreme care. No extra compensation will be given for manual excavation required to locate underground structures or utilities.
 - 2. Promptly correct damage to utilities or structures, to provide a condition at least equal to the original condition before the damage occurred. Should the Contractor fail to promptly correct the damage, the Owner may correct the damage and back-charge the Contractor for costs incurred for the correction.
 - 3. Perform removal, relocation, or relaying of pipes, utility lines, and appurtenances which will obstruct the completed pipelines as part of the trenching work.
 - 4. Where existing storm drains are damaged or destroyed by removal to facilitate construction, replace the drains with new reinforced concrete pipe meeting the requirements of ASTM Designation C-76, Class II. Pipe size shall be equal to that removed except sizes smaller than 12 inches which shall be replaced with 12-inch pipe.

- D. Excavate the banks of trenches vertical from bottom of trench to 12 inches above the top of the pipe or conduit.
- E. Keep the trench width within the limits specified below:
1. Maximum width at top of pipe = Pipe outside diameter (O.D.) plus 24 inches. If the maximum trench width is exceeded, the required bedding must be upgraded to the next higher class at contractor's expense, for that part of trench that exceeds the maximum allowable width.
 2. Minimum width of trench = O.D. of bell or coupling plus 12 inches. (Trench widths less than the minimum specified above may be allowed if pipe or conduit is to be bedded and backfilled with approved granular material or crushed stone.)
- F. Unless prior approval is obtained from the Owner's Representative, limit the length of open trench to that which can be completed in one working day. Do not leave trenches open overnight unless there are extenuating circumstances and it is approved by the Owner's Representative. Fully protect any unattended open trench with effective barricades and lights.
- G. Where necessary, provide and install sufficient and suitably sized movable shields, sheeting, shoring and bracing which shall remain in place until the backfill has proceeded to a point where it can be removed safely. When damage is liable to result from withdrawing sheeting, it shall remain in place. Movable shields, sheeting, shoring, and bracing are considered as an integral part of the excavation work and no extra payment will be allowed for this work.
- H. Remove rock encountered in trench excavation for the overall width of the trench and to a depth of 6 inches below the invert of the pipe.

3.7 Embankment Excavation:

- A. All materials removed by excavation which are suitable for the purpose shall be used whenever practicable for embankments and backfilling trenches.
- B. After all drains, structures and other utilities under embankments have been completed, compact the base to 95 percent of the maximum dry density as determined by ASTM-D698. Fill must be placed with moisture content within four percent of the optimum moisture content. Correct any irregularities or depressions that develop under rolling by loosening the material at these places and adding, removing or replacing material until the surface is smooth and uniform.

3.8 Site Filling:

A. Preparation:

1. Prior to placing fill, plow and scarify the existing ground to a depth of at least 6 inches and recompact to the approximate density of the surrounding undisturbed soil.
2. Plow, step (bench) or break up sloped ground surfaces steeper than one vertical to four horizontal on which fill is to be placed in such manner that the fill material will bond with the existing surface.

B. Placement:

1. Place fill material in 8-inch lifts (uncompacted layers.) Spread each layer uniformly and evenly and blade mix during spreading to provide uniformity of materials throughout the layer. Thoroughly compact each layer by use of heavy, tracked vehicles, sheep's foot rollers, or other suitable equipment. Use heavy power tamping equipment around structures.
2. Maintain the moisture content of fill as required to attain the degree of compaction specified. Fill must be placed with moisture content within four percent of the optimum moisture content.
3. Fill that is within 2 feet of the finished subgrade and in areas to be trenched for utilities shall contain no rock over 1 foot in its greatest dimension. Place each layer so that all rock voids are filled with earth, rock spalls, or rock fines. Place and manipulate the rock in uniform layers. Do not dump rock over the edges of the layer being constructed. Instead, deposit rock on the layer and move ahead so as to advance the layer with a mixture of rock, rock spalls, rock fines and earth. The two feet of the embankment immediately below the finished subgrade shall be composed of materials which can be placed in layers not exceeding 6 inches in compacted thickness. Do not place rock over 4 inches in its greatest dimension within 12 inches of the finished subgrade.
4. Fill under proposed structures and in the upper 2 feet of fill beneath pavements shall contain no rock fragment larger than 4 inches in its greatest dimension.

C. Compaction:

1. Compact areas to be paved to not less than 98 percent of the maximum dry density as determined by ASTM-D698.
2. Compact areas to be landscaped to not less than 95 percent of the maximum dry density as determined by ASTM-D698.

3. Compact areas on dam embankments to not less than 98 percent of the maximum dry density as determined by ASTM D-698.

3.9 Structural Filling:

- A. Place fill material in uniform layers not more than 8-inch lifts (uncompacted thickness) and compact to a minimum of 98 percent of the maximum dry density as determined by ASTM-D698. Fill must be placed with moisture content within the range of the optimum moisture content and 3 percent above the optimum. Remove and stockpile, soil that is too wet for optimum compaction. This soil may be reused after drying and approval by Engineer.
- B. Provide Fill Material, or Granular Soil, as approved by Engineer for yard fills and backfills around structures. Obtain these materials on site wherever possible. Where necessary to obtain fill material off site, submit analyses of the proposed fill material prior to delivery of any fill material to the site.
- C. Provide Granular Soil as approved by the Engineer for fills beneath structures. Obtain these materials on site whenever possible. Where necessary to obtain fill material off site, submit analyses of the proposed fill material prior to delivery of any fill material to the site. Use heavy power tamping equipment around and beneath structures.

3.10 Trench Backfilling:

A. Pipe Bedding:

1. Bedding shall conform to the following requirements for the pipe or conduit material being used:
 - a. Install pressure pipe with a Class D Bedding (flat bottom trench with bell excavation) unless directed otherwise by the Owner's Representative.
 - b. Install Ductile Iron sewer pipe with Class C bedding (bedded in granular material having a thickness of $\frac{1}{4}$ of pipe O.D. (6 inches minimum) below the pipe and extending up to $\frac{1}{4}$ of pipe O.D. unless directed otherwise by the engineer).
 - c. Install PVC sewer pipe with a Class B Bedding (bedded in granular material having a thickness of $\frac{1}{4}$ of pipe O.D. (4 inches minimum) below the pipe and extending up to the springline of the pipe).
2. Grade the trench bottom firm, uniform and continuous to allow bearing all along the entire length of the barrel of the pipe. Excavate bell holes so that the pipe bells or couplings do not support any load. When excavation is carried below or beyond that required, fill the over-excavated space with suitable, compacted Native or Granular Material.

3. In areas of rock excavation, and where needed in other areas, provide Granular Material bedding across the full width of the excavation to a minimum 6-inch depth under the pipe.
4. Whenever the subgrade is unstable, or too soft to provide a satisfactory foundation for any pipe, undercut the trench as necessary and backfill with Granular Material. Compact and bring the trench bottom to proper grade to create a firm, unyielding, stabilized subgrade for the bedding material and/or pipe.

B. Trench Backfill:

1. Backfill and compact all trenches and excavations immediately after the pipe or appurtenance has been installed. Unless otherwise specified, use suitable excavated Native Material for backfill. If sufficient suitable Native Material is not available on site, provide sufficient and suitable borrow material for backfill.
2. Initial Backfill - Place suitable Native Material or Granular Material backfill around the pipe, from the top of bedding up to a level 12 inches above the top of the pipe by hand placement and compact using hand-operated tampers. No rocks larger than 2 inches shall be present in the initial backfill. Compact to 95 percent of the maximum dry density as determined by ASTM-D698.
3. Remaining Backfill - Place backfill in the remainder of the trench, from 12 inches above the pipe to surface, as follows:
 - a. Backfill trenches in areas to be paved, roadway shoulders, ditch lines, or areas beneath proposed structures, with suitable Native Material or Granular Material and compact in 6-inch layers using heavy compacting equipment to achieve 98 percent of the maximum dry density as determined by ASTM-D698.
 - b. Rock (no larger than 12 inches in maximum dimension) may be placed in the upper layer of backfill when approved by the Owner's Representative.
 - c. In areas to be paved, install a temporary surface at grade consisting of 2 inches of crushed stone. Leave backfilled trench open to traffic and maintain the surface at grade by refilling with crushed stone and recompact as necessary to remedy any settlement. Continue such maintenance, including dust control, until paving is authorized by the Owner's Representative.
 - d. Backfill trenches in areas to be grassed or landscaped (unless otherwise specified) with Native Material and compact in layers by

methods of Contractor's choice to achieve 95 percent of the maximum dry density as determined by ASTM-D698.

- e. If the trench is on DOT or Railroad right-of-way, compact to density specified in the applicable permit. Refill and recompact as often as necessary to maintain the trench surface at the required finished grade.

3.11 Embankment Filling:

A. Preparation:

1. On sloped ground surfaces, steeper than one vertical to four horizontal, on which embankment is to be placed, plow step (bench) or break-up, in such manner that the embankment material will bond with the existing surface.
2. Prior to placing embankments, scarify and plow the existing ground to a depth of at least 6 inches, and recompact to the approximate density of the surrounding undisturbed soil.

B. Borrow Excavation:

1. Shall be made from borrow areas designated by the Owner. Borrow may be made only at the designated locations and within the horizontal and vertical limits as directed. On completion of borrow operations, leave borrow area neat and uniformly graded.
2. No borrow material shall be taken from within 100 feet of the upstream toe of an embankment except where excavation is specifically required by the Drawings for pond formation.

C. Placement:

1. Fill cut-off trench with impervious material of Soil Class GC, SC, or CL and compact to 95 percent of the maximum dry density as determined by ASTM-D698. Fill must be placed with moisture content within four percent of the optimum moisture content.
2. Place fill material around structures, pipe conduits, and antiseep collars at approximately the same rate on all sides to prevent damage from unequal loading.
3. Form embankments utilizing native soils of USCS soil classification groups of: GC, SC, or CL for impervious core areas and native soils, class: SC, CL, SM, or GC for the remainder of the embankment. Embankment fill materials shall contain no rocks larger than 2 inches, consist of well graded materials, and be placed so that there will be no lenses, pockets, streaks, or layers of

material differing substantially in texture or gradation from the surrounding material.

4. Where applicable, provide toe drain as shown on the Drawings.
5. Place fill material in successive horizontal layers starting at the lowest point of the fill. The thickness of the layers shall be such that the required compaction can be obtained. The slope, in areas between embankment in-place and embankment to-be-placed, shall not exceed 3:1.
6. Maintain the proper moisture content of layers before rolling to obtain the prescribed compaction. Wet or dry the material and manipulate when necessary to secure a uniform moisture throughout the layer. Should the material be too wet to permit proper compaction, delay all work on portions of the embankment thus affected until the material has dried to the required moisture content. Maintain sufficient equipment to furnish and distribute the required water at all times.
7. Continue rolling operations until the embankments are compacted to not less than 98 percent of the maximum dry density as determined by ASTM-D698. Any areas inaccessible to a roller shall be consolidated and compacted by mechanical tampers.
8. Any type of earth-moving, compaction, and watering equipment may be used, provided the equipment is in a satisfactory condition and is of such capacity that the construction schedule can be maintained as approved by the Owner. Furnish, operate, and maintain all equipment as necessary to control uniform density, layers, section, and smoothness of grade.
9. The Contractor shall be responsible for the stability of all embankments and shall replace any portion which becomes displaced.

3.12 Site and Embankment Finish Grading:

- A. General: Perform finish grading to provide the elevations and grades shown on the Drawings. Blend finish grades into conformity with natural ground surfaces. Leave all graded surfaces smooth and free to drain. Provide berm ditches at the tops of all cuts.
- B. Slopes: Trim and finish all open slopes to conform to the slope lines shown on the plans or as directed by the Engineer. Leave the finished surfaces in smooth, uniform planes.
- C. Topsoil: Spread topsoil which has been obtained from stripping the site upon the slopes of fills and other areas to be grassed. Spread excess materials as directed by the Engineer or remove from the site. If sufficient topsoil to provide 2-inch cover is not available on-site, obtain topsoil from off-site.

- D. Grading Tolerances: Bring the finish grading work in all areas to a neat and smooth finish to the grades shown on the Drawings to a tolerance of ± 0.05 ft for areas to be paved and ± 0.1 ft for all other areas.
- E. Pavement base: Do not apply pavement base material(s) until the subgrade has been checked and approved by the Engineer.

3.13 Field Quality Control:

- A. Provide services of a soils testing laboratory approved by Engineer for testing borrow material and compaction tests as described in this Section.
- B. Perform sufficient routine quality control compaction tests to ensure adequate compaction beneath structures and areas to be paved. Density tests shall be at least one test per 2,500 square feet for each 2 feet of fill thickness beneath proposed structures and at least one test per 6,500 square feet for each 2 feet of fill thickness in areas to be paved.
- C. Notify the testing laboratory and the Engineer 24 hours prior to need for tests. Allow time to perform the tests upon completion of each layer of fill in designated areas. Provide equipment to cut out smooth surfaced spot locations on which to perform the tests. When the tests indicate that density or moisture content does not meet requirements specified herein, rework the particular layer or portion thereof, as determined by the Engineer, until the required density has been obtained.
- D. An additional independent laboratory may be retained by the Owner to perform compaction tests on the compacted fill. If such tests by Owner indicate failure to meet the Specifications, the costs of the tests and subsequent retests will be deducted from moneys due Contractor. Otherwise, the costs of these tests will be paid by Owner.

- 3.14 Restoration and Clean-up: Clean-Up: Remove all material not used and rubbish of every description from the job site. Restore all private and public facilities and structures that have been disturbed to essentially as good a condition as existed prior to the work. All areas of fill or cut shall be raked smooth, free from lumps, rocks, and foreign matter and left ready for grassing or surfacing.

END OF SECTION

SECTION 02269 - EROSION CONTROL

PART 1 - GENERAL

- 1.1 Work Included: The work covered by this Section consists of providing adequate protection against erosion and sediment transport off the property during the execution of the work. It shall include but not be limited to those features specifically shown on the Drawings.
- 1.2 References: "Manual for Erosion and Sediment Control in Georgia", latest edition, prepared by the State Soil and Water Conservation Committee of Georgia.
- 1.3 Site Conditions:
- A. Complete all work in strict conformance with the requirements of the references cited in Paragraph 1.2. Protect all adjacent public and private property from siltation and other damage due to construction activities.
 - B. Comply with all local and state rules and regulations relating to erosion and sediment control. Confirm that all Land Disturbing Permits have been obtained prior to starting work.
 - C. Maintain all temporary controls until permanent grassing or landscaping is complete.
 - D. Provide supplementary erosion and run-off control measures when it becomes apparent that additional problems exist.

PART 2 - PRODUCTS

- 2.1 Hay or Straw Bales: Wire bound or string tied.
- 2.2 Silt Fence: Type A, B, or C as called for on the Drawings. Silt fence must be listed on the Georgia Department of Transportation Qualified Products List #36.
- A. Type A - 36 inch wide fabric with 25 gal./min./sq. ft. flow rate.
 - B. Type B - 22 inch wide fabric with 25 gal./min./sq. ft. flow rate.
 - C. Type C - 36 inch wide fabric with 70 gal./min./sq. ft. flow rate and with woven wire fence backing.
- 2.3 Stakes:
- A. Post Size:

| | <u>Minimum Length</u> | <u>Type of Post</u> | <u>Size of Post</u> |
|--------|-----------------------|---------------------------|---|
| Type A | 4' | Soft wood Oak Steel | 3" dia. or 2x4 1.5" x 1.5" 1.3lb/ft. Min. |
| Type B | 3' | Soft wood Oak Steel | 2" dia. or 2x2 1" x 1" # 5 rebar (min.) |
| Type C | 4' | Steel | # 6 rebar (min.) |

B. Fasteners for Wood Posts:

| | <u>Gauge</u> | <u>Crown</u> | <u>Legs</u> | <u>Staples/Post</u> |
|--------------|--------------|---------------|---------------------|---------------------|
| Wire Staples | 17 min. | 3/4" wide | 1/2" long | 5 min. |
| | <u>Gauge</u> | <u>Length</u> | <u>Button Heads</u> | <u>Nail/Post</u> |
| Nails | 14 min | 1" | 3/4" | 4 min |

Note: Filter fabric may also be attached to the post by wire, cord, and pockets.

- 2.4 Seed: Select plants appropriate to the season and site conditions from Chapter 6 of "Manual for Erosion and Sediment Control in Georgia." Temporary grass shall be a quick growing species such as millet, rye grass, Italian rye grass, or cereal grasses suitable to the area providing a temporary cover which will not later compete with grasses sown for permanent cover. Seed shall meet the requirements of the Georgia Seed Law and Rules and Regulations.
- 2.5 Lime: Agricultural grade ground or pulverized limestone.
- 2.6 Fertilizer: Standard commercial grade, either 4-12-12, 6-12-12, or 5-10-15.
- 2.7 Corrugated Metal Pipe: 16 gauge, type I or II culvert pipe conforming to AASHTO-M36.
- 2.8 Stone for Exit/Entrance Pad: ASTM-D448 size #1 (1-1/2 inches to 3-1/2 inches diameter).
- 2.9 Riprap: Durable stone weighing at least 150 lb./CF, in irregular shapes, sized from 20 to 250 lbs. Each.

PART 3 - EXECUTION

- 3.1 Inspection: Prior to clearing the site, inspect site and determine all preliminary erosion control measures that will be required to prevent erosion and sedimentation problems and comply with any applicable Erosion Control Plans approved by local and/or state authorities.

3.2 Preparation: Provide all necessary materials at the site prior to clearing and/or grading.

3.3 Installation:

- A. Where applicable, provide temporary stone exit/entrance pad located at points of vehicular ingress and egress to the site and maintain in service until pavement is placed. Minimum pad thickness shall be 6 inches; minimum length shall be 50 feet. Maintain in a condition that will prevent tracking or flow of mud onto public roads.
- B. Keep public roadways clean of dirt or mud at all times.
- C. Provide erosion and sediment control barriers as shown on the Drawings, required by the approved Erosion Control Plan, or as needed for the proposed construction methods and procedures to detain sediment on site.
- D. If impoundments or sediment traps are required, construct immediately after necessary clearing and in accordance with grading Specifications.
- E. When permanent site drainage facilities are included in the work, install as early as practical in the construction process. Where practical (and where permissible without creating erosion problems), divert run-off into permanent facilities.
- F. Provide temporary sediment barriers around drainage structures and all grading areas and excavations where subgrades are being prepared.
- G. Provide diversion berms or dikes at top of all slopes and abrupt changes in slope. Diversion dikes or berms to be minimum 2 feet in width and 18 inches in height. Machine compact and provide temporary seeding immediately after construction.
- H. Provide temporary drains where necessary to convey water down slopes. Drains may consist of pipes, filter cloth, rubble, concrete, asphalt, or plastic sheets. Inspect for damage after each rainfall event. Repair as required.
- I. Provide riprap or other protection at all drainage discharge points to prevent scour at these points. Provide 3 inch filter material under riprap.
- J. As soon as practical following grading of areas to be paved, apply an initial base course of stone of at least 4 inch thickness and maintain by periodic top dressing until final base course and pavement are installed.
- K. Provide disturbed area stabilization with mulch, temporary vegetation, or permanent vegetation as soon as practicable where construction activities have temporarily or permanently ceased, but in no case more than 14 days after construction has ceased.

- L. Where no specific controls are called for on the Drawings for drainage leaving the site, provide check dams to create ponding for sediment deposition and collection of debris. Maximum height shall be 4 feet and the impounded area shall be kept clean as much as practical.
 - M. Provide temporary sediment basins for pumped water. Do not allow sediments to run-off into state waterways.
- 3.4 Maintenance: Inspect for damage after each rainfall event. Clear all debris and accumulated sediment from behind barriers, check dams, etc. regularly so that the functional capacity of these items is not significantly reduced throughout the construction period.
- 3.5 Clean-Up: Following completion of permanent site drainage and landscaping, remove all temporary erosion control facilities and dispose of all accumulated waste in a manner approved by the Owner's Representative. Any resulting disturbed areas shall be landscaped to conform to and blend with the remainder of the site landscaping.

END OF SECTION

Not for Bid

SECTION 02271 - RIPRAP

PART 1 - GENERAL

- 1.1 Work Included: The work included in this Section consists of furnishing all labor and materials for the installation of riprap as shown on the Drawings and described herein.
- 1.2 Submittals: Submit Certificates of Compliance from the stone supplier indicating conformance to these and referenced Specifications.
- 1.3 References: All work and materials shall conform to "Standard Specifications, Construction of Transportation Systems," Georgia Department of Transportation, 2013 Edition, sections of which are referenced herein.

PART 2 - PRODUCTS

- 2.1 Riprap: Conforming to Georgia Department of Transportation Standard Specification Section 805.2.01, Stone Dumped Riprap, Type 1 or Type 3 as shown on the Drawings.
- 2.2 Filter Stone: Crushed Stone conforming to Georgia Department of Transportation Standard Specification Section 800.2.01, Size No. 3.
- 2.3 Filter Fabric: Conforming to Georgia Department of Transportation Standard Specification Section 881.2.06, Type I, or Type II if filter stone is hand placed.
 - A. Total Open Area: Less than 10%.
 - B. Equivalent Opening Size: No. 70 Standard Sieve.

PART 3 - EXECUTION

- 3.1 Areas to be Riprapped: Place riprap as indicated on the Drawings to the thicknesses shown.
- 3.2 Preparation: Clear and grade the area to receive riprap in accordance with the Specification and the Drawings. Carefully shape the surface in accordance with the details shown on the Drawings.
- 3.3 Placing Filter Fabric:
 - A. Lay sheets with long dimension up the slope, minimizing horizontal laps.
 - B. Overlap sheets a minimum of 12 inches.
 - C. Anchor the sheets with 15-inch pins in center of lap at 3 foot spacing.

- 3.4 Placing Riprap: Dump riprap stone and move into place to form a compact layer to the design thickness. The thickness shown on the Drawings is a minimum thickness, without tolerance.

END OF SECTION

Not for Bid

SECTION 02485 - PERMANENT GRASSING

PART 1 - GENERAL

- 1.1 Work Included: The work covered by this Section consists of preparing the ground surface; furnishing and applying lime, fertilizer, seed, and mulch; establishing a permanent stand of grass on all disturbed areas. Temporary grass cover for erosion control is specified elsewhere.
- 1.2 References: Reference standards for the work under this Section shall be Sections 700 of the "Standard Specifications, Construction of Roads and Bridges," Georgia Department of Transportation, 2013 Edition, hereinafter referred to herein as the "Standard Specifications."

PART 2 - PRODUCTS

- 2.1 Fertilizer: Standard commercial grade, 10-10-10 (N-P-K).
- 2.2 Lime: Agricultural grade, ground or pulverized limestone.
- 2.3 Permanent Grass Seed: Select grasses appropriate to the season and site conditions from Tables 1 and 3 in Section 700 of the Standard Specifications. Grass seed to be used in previously grassed areas shall be equal type and grade to the previously existing grass except that it shall be of no lower quality than the grass specified herein. Each variety of seed shall be furnished separately and mixed only after approval of the Engineer.
- 2.4 Mulch: As specified in Section 893.2.02 of the Standard Specifications.

PART 3 - EXECUTION

- 3.1 Preparation:
- A. Complete placement of topsoil and fine grading to the tolerances specified in Section 02202.
 - B. Remove rocks and debris larger than 2 inches from the area to be grassed and rake surface smooth to conform to adjacent ground.
 - C. Loosen surface by discing, raking or harrowing.
 - D. Apply fertilizer at the rate of 1,000 lbs./acre.
 - E. Apply lime at the rate of 2,000 lbs./acre.
 - F. Thoroughly till lime and fertilizer, into the top 4 inches of the soil layer.

3.3 Seeding:

- A. Apply seed evenly with a cyclone seeder, drill, cultipacker seeder or hydroseeder. Small grains shall be planted no more than one inch deep. Grasses and legumes shall be planted no more than 1/4 inch deep. Distribution by hand is not acceptable.
- B. Apply the following seed at the following rates:
 - 1. Hulled Bermuda at the rate of 10 lbs./acre.
 - 2. Fescue at the rate of 50 lbs./acre.
 - 3. Wilmington Bahia at the rate of 60 lbs./acre.

3.4 Rolling: Roll all seeded areas before applying mulch. On slopes greater than 2:1, cover seeds by dragging spiked chains or other satisfactory method.

3.5 Mulching: Mulch all seedings. Mulch shall be straw or hay spread at the rate of approximately 2 tons/acre; wood cellulose fiber applied at the rate of approximately 1,500 lbs. per acre; or other material approved by the Owner's Representative. Bituminous treated mulch shall be used on all slopes steeper than 2:1. Anchor mulch immediately after application using 5 gallons/1,000 square feet of emulsified asphalt on flat areas and 8 gallons/1,000 square feet on slopes steeper than 2:1 or 8 feet in height.

3.6 Watering: Provide watering as required to establish and maintain vegetative cover.

3.7 Maintenance:

- A. The Contractor shall be responsible for the proper care and maintenance of the seeded areas until a full stand of grass is established. Repair and replace eroded areas by watering, refertilizing, reliming, reseeding, sodding, and remulching as necessary to provide an even, fixed growth of grass. Provide protection against traffic and erect the necessary barricades and warning signs required, immediately after planting is completed.
- B. Mowing: Mow the seeded and sodded areas with mowing equipment to maintain grass height between 2 and 4 inches. If weeds or other undesirable vegetation threaten to smother the planted species, mow such vegetation, or in the case of rank growths, uproot, and remove them from the area. Not more than 1/3 of the grass leaf shall be removed by the initial cutting or subsequent cuttings.

3.8 Repair:

- A. When the surface of any part of the seeded area has been gullied or otherwise damaged, repair the affected portions to reestablish the condition and grade of seed or

sod bed prior to the injury and then replant or resod. Accomplish reseedings within the planting season when possible.

END OF SECTION

Not for Bid

SECTION 03300 - CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

- 1.1 **Work Included:** The work included in this Section consists of all concrete work, concrete surface treatment, cement finishings, cast-in anchorages, reinforcing steel, etc. Concrete work called for by other sections of these Specifications, if not specifically described otherwise, shall comply with the requirements of this Section.
- 1.2 **Quality Assurance:** An independent testing laboratory, experienced and well qualified in the design of concrete mixtures and concrete testing shall be employed by the Contractor to perform mix design services. The testing laboratory shall, prior to construction, design the proportions to be used for concrete mixtures to attain the unit compressive strengths specified and the workability or plasticity appropriate for the various conditions of concrete use and shall perform all services necessary for the design-of-mix and redesign where changes are made in the aggregates or in the plasticity or workability of the concrete. Mix designs, proportioning, water-cement ratios, and acceptance criteria shall be in accordance with ACI-318, Chapter 4.
- 1.3 **References:** Perform all concrete work in conformance with all requirements of the following documents (latest revision) except as noted herein.
- A. ACI-301 Specifications for Structural Concrete for Buildings.
 - B. ACI-302.1R Guide for Concrete Floor and Slab Construction.
 - C. ACI-316 Recommended Practice for Construction of Concrete Pavements and Concrete Bases.
 - D. ACI-318 Building Code Requirements for Reinforced Concrete.
 - E. Concrete Sanitary Engineering Structures reported by ACI Committee 350.
 - F. ASTM-A82 Standard Specification for Cold-Drawn Steel Wire for Concrete Reinforcement.
 - G. ASTM-A185 Standard Specification for Welded Steel Wire Fabric for Concrete Reinforcement.
 - H. ASTM-A615 Standard Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement.
 - I. ASTM-C31 Standard Method of Making and Curing Concrete Test Specimens in the Field

- J. ASTM-C33 Standard Specification for Concrete Aggregates.
- K. ASTM-C39 Standard Method for Compressive Strength of Cylindrical Concrete Specimens.
- L. ASTM-C42 Standard Method of Obtaining and Testing Drilled Cores and Sawed Beams of Concrete.
- M. ASTM-C94 Specification for Ready-Mixed Concrete.
- N. ASTM-C143 Standard Method of Test for Slump of Portland Cement Concrete.
- O. ASTM-C150 Standard Specification for Portland Cement.
- P. ASTM-172 Standard Method of Sampling Freshly Mixed Concrete.

1.4 Submittals: Prior to use of concrete in the Work, submit for review the following:

- A. Certified reports from the testing laboratory employed by the Contractor for the mix design on all design mix determinations, all related services to the Contractor, and the cylinder check tests verifying the design mix.
- B. Name and location of "ready-mix" plant proposed for use.
- C. Mill certification certifying that cement, sand, aggregate and reinforcing steel comply with the requirements of this Specification.
- D. Shop drawings showing bending and placing details for steel reinforcing including bar sizes, spacings, bending, and tagging identification.

PART 2 - PRODUCTS

2.1 Concrete: All concrete must be furnished by a "ready-mix" concrete plant approved by the Engineer prior to the start of construction. On-site proportioned and mixed concrete will not be accepted.

A. Mix Design:

- 1. Mix design, proportioning, water/cement ratio and acceptance criteria shall conform to ACI-318, Chapter 4. Concrete shall have a 28 day compressive strength (fc') of 4,000 psi. unless otherwise specified. The slump shall be 3 to 4 inches.
- 2. Concrete for structures that must hold or convey water shall have

- (a) A minimum of 517 lb. of cement per cubic yard for coarse aggregate No. 467 (1-1/2 inch maximum), and 564 lb. cement per cubic yard for coarse aggregate No. 57 (1 inch maximum) or No. 67 (3/4 inch maximum).
 - (b) A maximum water-cement ratio of 0.45.
- B. Cement shall be Type 1 portland cement; the composition, marking, handling and storage shall conform with ASTM-C150. Type III (High Early Strength) portland cement may be used, subject to the approval of the Engineer in each instance for its proposed use. Cement which has become damp, lumpy, or otherwise affected so as to reduce its strength shall not be used in the work.
- C. Aggregate shall conform to ASTM-C33. Maximum aggregate size shall be 3/4" inch (No. 67 stone).
- D. All admixtures proposed to be used shall be submitted and approved by the Engineer prior to use.

2.2 Reinforcing Steel:

- A. Reinforcing bars shall conform to ASTM-A615 and have a minimum yield strength of 60,000 psi.
- B. Cold drawn wire shall conform to ASTM-A82.
- C. Welded wire fabric shall conform to ASTM-A185.

2.3 Control Joints:

- A. Metal key type equal to Johnscrete; or
- B. PVC equal to Stress-Lock by Maxwell-Hitchcock.

2.4 Expansion Joints: 1/2-inch-thick, premolded, bituminous membrane, extending full depth of slabs.

2.5 Waterstops:

- A. New concrete: 6-inch PVC ribbed flat waterstop equal to Greenstreak No. 679 manufactured by Sika Corporation.
- B. Between existing concrete and new concrete: 6-inch PVC retrofit waterstop equal to Greenstreak No. 609 in conjunction with Epoxy 7300 manufactured by Sika Corporation.

2.6 Vapor Barrier: Vapor barrier shall be polyethylene sheeting, minimum 6 mil thickness, conforming to ASTM-C171.

2.7 Admixtures:

- A. Water reducing admixture shall conform to ASTM-C494, Type A.
- B. Water reducing, retarding admixture shall conform to ASTM-C494, Type D.
- C. Non-Corrosive, Non-Chloride Accelerator: the admixture shall conform to ASTM-C 494, Type C.
- D. Air entraining admixture shall conform to ASTM-C260.
- E. Fly ash shall conform to ASTM-C618, Type F.
- F. High range water reducer (HRWR) shall conform to ASTM-C494, Type F or G and shall be one of the following:
 - 1. Rheobuild 1000 and 716, manufactured by Master Builders
 - 2. Daracem 100, manufactured by W. R. Grace
 - 3. Sikament 320, manufactured by Sika Corporation
 - 4. Eucon 37, manufactured by Euclid Chemical Company
- G. Calcium Chloride: Calcium chloride or admixtures containing more than 0.1 percent chloride ions are not permitted.

2.8 Curing and Sealing Compounds:

- A. Curing compound shall be acrylic based, conforming to ASTM-C309.
- B. Sealing compound shall be one of the following.
 - 1. Masterseal 340, manufactured by Master Builders
 - 2. Sikaguard 70, manufactured by Sika Corporation
 - 3. Super Rez Seal, manufactured by Euclid Chemical Company

PART 3 - EXECUTION

3.1 Inspection:

- A. Assure that all excavations and formwork are completed and properly prepared to receive concrete.
- B. Check reinforcement for placement and anchoring.
- C. Verify placement of all joint material, sleeves, etc., and other embedded items.

3.2 Installation:

A. Formwork:

- 1. Arrange internal metal ties so that when the forms are removed, no metal shall be within 1-1/2 inch of any surface.
- 2. Provide level bottoms for earth forms for beams with even, clean, and unless otherwise shown, vertical sides.
- 3. Earth cuts may be used as forms for vertical surfaces of footings only when the soil is sufficiently stable to prevent caving in; otherwise, the sides of the footings shall be formed as specified. Should it become necessary to form footings, no wooden material shall be permanently left in the ground.
- 4. Place a 1 inch chamfer strip at all exterior and interior exposed corners.
- 5. Do not remove forms until the concrete has attained the necessary strength to support its own weight and any construction live loads.

B. Reinforcing Steel:

- 1. Pre-cut form reinforcing steel accurately to the dimensions shown on the Drawings. Bend all bars cold and do not straighten in a manner which will injure the metal.
- 2. Position reinforcement accurately and unless otherwise shown or specified, secure against displacement by using annealed iron wire of not less than 18 gauge or suitable metal clips at all intersections. Support by metal chairs, spacers, hangers, or bolsters.
- 3. Support reinforcement in slabs on earth by masonry blocking of suitable height to hold the reinforcement at the proper level.

C. **Mixing and Transporting Concrete:**

1. Concrete proportioned and mixed on the job will not be accepted. All concrete shall be obtained from a "ready-mixed" concrete plant approved by the Engineer.
2. Mixing and transportation operations shall conform with ASTM-C94. Do not add mixing water after a truck has left the plant. No concrete shall be used in the work which has been held longer than 1-1/2 hours in a mixer truck.

D. **Construction Joints and Expansion Joints:**

1. **Construction Joints in Containment Structures, Beams, Girders and Slabs with Waterstops:** Prior to placing concrete next to the joint, the joint surface shall be thoroughly cleaned and dampened with water. Remove all free water so that the surface of the joint shows signs of drying before placing the adjacent concrete.
2. **Construction joints in Beams, Girders and Slabs without Waterstops:** These joints shall be located at points of minimum shear and their locations shall be approved by the Engineer before they are bulkheaded. These joints shall be roughened and thoroughly cleaned of all foreign matter and laitance and dampened with water. Remove all free water and slush with a coat of neat cement grout before placing the adjacent concrete. Place the adjacent concrete before the neat cement grout takes its initial set.
3. **Construction Joints in Columns:** These joints, unless otherwise shown on the Drawings, shall be located at the bottom of the girder, beam or slab it receives, and at the top of slabs when the column continues through a slab level. These joints shall be treated as specified in paragraph 2, above.
4. **Expansion Joints:** Expansion Joints shall be installed where shown on the Drawings.

- E. **Waterstops:** Waterstops shall be provided where specified and as indicated and noted on Drawings and shall be made continuous throughout their length

F. **Placement of Concrete:**

1. Do not place concrete until the forms, reinforcement, and other conditions are approved by the Engineer, and until all pipes, conduits, sleeves, thimbles, hangers, anchors, flashing, and other work required to be placed in the concrete have been properly installed.
2. Provide all materials and equipment needed for protection from early drying and for curing ready for use before the concrete arrives.

3. Whenever the surrounding air temperatures are expected to be below 40 degrees F or above 75 degrees F, provisions shall be made to protect the concrete in accordance with 3.3, Severe-Weather Provisions, this specification.
4. Deposit concrete in the forms as rapidly as practical to its final position and in such a manner as to prevent flow of concrete and to maintain a plastic surface which is approximately horizontal. Maintain the rate of delivery of the mixed concrete such that the interval between placing fresh concrete in contact with concrete already placed from previous batches does not exceed 45 minutes.
5. Use vibrators to consolidate (compact) the concrete. Insert and remove vertically; do not use vibrator to move concrete horizontally.

G. Finishing: Shall be in accordance with ACI-302.

1. All concrete not exposed to view - Rough Form Finish.
2. All interior surfaces exposed to view, including surfaces to be painted - Grout Cleaned Finish.
3. All exterior surfaces exposed to view except walks, ramps, or steps - Smooth Rubbed Finish.
4. Surfaces to receive roofing, waterproofing membranes or ceramic tile - Floated Finish.
5. Exposed, interior and exterior concrete intended for walking surface shall receive integral and chemical hardeners equal to HARCOL by Sonneborn and LAPIDOLITH by Sonneborn Building Products. Hardeners shall be applied per manufacturer's recommendations.
6. Exterior sidewalks and ramps - Broom Finish.
7. Exterior platforms, steps, landings, and pedestrian ramps - Nonslip Finish.

3.3 Severe-Weather Provisions:

- A. Hot Weather Concreting: Protect in accordance with ACI-305R except as modified herein:
1. Provide adequate methods of lowering temperature of concrete ingredients so that the temperature of concrete when placed does not exceed 90 degrees F.

2. Concrete shall not be placed when the air temperature is expected to exceed 100 degrees F within 12 hours casting.
3. When the air temperature is 75 degrees F and above, forms and reinforcing shall be thoroughly wetted with water so that the concrete will be placed against wet and cooled surfaces. All excess water shall be removed before casting the concrete.
4. Protection and curing - Slabs (On Grade and Formed)
 - (a) Protect slabs from damage due to dry winds and high temperatures.
 - (b) Protect slabs from direct sun at temperatures of 85 degrees F and above.
 - (c) Moist curing of all slabs shall start as soon as the surface of the fresh concrete is hard enough to permit curing without damage to the surface of the concrete.
5. Protection and Curing - Formed Surfaces: As soon as the concrete has set, wet the forms and keep the forms wet during the curing period. Provide for keeping the top of the walls, and other top surfaces, moist during the curing period.

B. Cold-Weather Concreting: Protect in accordance with ACI-306R except as modified herein.

1. Provide adequate equipment for heating concrete materials and protecting concrete from damage during freezing or near-freezing weather. No frozen materials, or materials containing ice, shall be used.
2. All concrete materials and all reinforcement, forms, fillers and ground with which concrete is to come into contact shall be free from frost.
3. Whenever the temperature of the surrounding air is below 40 degrees F and falling, all concrete placed in the forms shall have a temperature of between 70 and 80 degrees F, and adequate means shall be provided for maintaining a temperature of not less than 70 degrees F for three days, or 50 degrees F for five days, or for as much more time as is necessary to insure proper curing of the concrete. If high early strength concrete is used, the requirement for maintenance of 50 degrees F may be reduced to three days.
4. Use only the specified non-chloride accelerator. Calcium chloride or admixtures containing more than 0.1 percent chloride ions are not permitted.

5. Housing, covering or other protection used in connection with curing shall remain in place and intact at least 24 hours after the artificial heat is disconnected.
- C. Remove hardened, or partially hardened, concrete on forms or reinforcement before placing concrete.
- D. Do not place concrete on earth until the fill or excavation has been prepared as set forth under applicable sections of the specifications for that work.
- E. Give the Engineer at least 48 hours notice before any concrete is to be placed. Concrete shall not be placed until the Contractor certifies that the formwork, reinforcing, and all inserts required for mechanical and electrical work, instrumentation, plumbing, process piping, metal embeds, and any other inserts or miscellaneous specialties required for the work are supported in their proper position; that the formed enclosure is clean and the surfaces to receive concrete are prepared as specified.

3.4 Field Quality Control:

- A. Take representative job control sample specimens of the concrete in accordance with ASTM-C172 at the point of deposit as follows:
 1. One sampling consisting of three cylinders from each pouring operation and not less than one sampling for each 20 cubic yards of concrete poured. Collect and cure samples in accordance with ASTM-C31.
 2. Transport the cylinders to a testing laboratory designated by the Owner for curing and testing. Handle and test samples in accordance with ASTM-C39. Seven day and 28 day tests shall be performed.
 3. When required, perform core tests in accordance with ASTM-C42.
 4. Laboratory costs for job control testing shall be borne by the Owner, except that costs for testing which indicates failure to meet Specifications shall be borne by the Contractor

3.5 Curing:

- A. Curing shall conform to ACI-308 except as modified herein.
- B. All Slabs on Grade: after placement and finishing, concrete shall be maintained in a moist condition for at least seven successive days during which the temperature of the concrete is 50 degrees F or above. For temperatures of 50 degrees F and below,

curing period shall be 14 successive days. Concrete shall be kept moist by any one, or combination, of the following methods.

1. **Ponding or Immersion:** Continually immerse the concrete in water throughout the curing period. Water shall not be more than 20 degrees F less than the temperature of the concrete.
2. **Fog Spraying or Sprinkling:** Provide uniform and continuous application of water throughout the curing period.
3. **Pervious Sheeting:** completely cover surface and edges of the concrete with two thicknesses of wet sheeting. Overlap sheeting 6-inches over adjacent sheeting. Sheeting shall be at least as long as the width of the surface to be cured. During application, do not drag the sheeting over the finished concrete nor over sheeting already placed. Wet sheeting thoroughly and keep continuously wet throughout the curing period.
4. **Impervious Sheeting:** wet the entire exposed surface of the concrete thoroughly with a fine spray of water and cover with impervious sheeting throughout the curing period. Lay sheeting directly on the concrete surface and overlap edges 12-inches minimum. Provide sheeting not less than 18-inches wider than the concrete surface to be cured. Secure edges and transverse laps to form closed joints. Repair torn or damaged sheeting or provide new sheeting. Inspect surface of concrete daily for wetness. The surface shall be kept continuously wet during the curing period.

C. **All other Concrete:** after placement, concrete shall be maintained in a moist condition for the same periods as specified above for slabs on grade.

1. **Concrete in Formed Surfaces - Slabs, Beams, Columns and Building Walls:** Keep forms and exposed surfaces wet with water during the curing period. If forms are removed before the end of the curing period, apply a curing compound within one hour after form removal.
2. **Concrete in Formed Surfaces - Containment Vessel Walls:** Keep forms wet with water during the curing period. If forms are removed before the end of the curing period, continue the moist curing in accordance with Paragraph 1 above.

3.6 Patching:

- A. As determined by the Engineer, any concrete which is out of alignment or level, has a defective surface or has defects which reduce its structural adequacy, shall be considered as not conforming with the Drawings and Specifications and shall be rejected.

- B. Do not take any remedial action on concrete with any defect without the permission of the Engineer.
- C. Unless the Engineer grants permission to patch the rejected concrete, remove the rejected concrete and replace it with concrete that conforms to the Drawings and Specifications. The location of cut lines and the extent of removal will be determined by the Engineer.
- D. If the Engineer grants permission to patch the rejected concrete, it shall be done in accordance with the following:
1. Permission to patch rejected concrete will not be a waiver of the Engineer's right to require complete removal of the rejected concrete if the patching does not, in the Engineer's judgment, restore the concrete to the requirements of the Specifications and Drawings.
 2. Patching shall be accomplished after the curing is completed.
 3. Defective areas shall be chipped away to a depth of not less than 1-inch, in all cases to sound concrete, with edges perpendicular to the surface. Feather edges will not be permitted. Remove all loose material and thoroughly clean the chipped surfaces with a high pressure air hose delivering air at 100 psi. The area to be patched and an area at least 6-inches wide surrounding it shall be dampened. A bonding grout shall be prepared using a mix of approximately one part cement to one part fine sand passing a No. 30 mesh sieve, mixed to the consistency of thick cream, and then well brushed into the surfaces as noted below in paragraph 5.
 4. The patching mixture shall be made of the same materials and of approximately the same portions as used for the original concrete, except that the coarse aggregate shall be omitted and the mortar shall consist of not more than one part cement to two and one-half parts sand by damp, loose volume. White Portland cement shall be substituted for a part of the gray Portland cement to produce a color matching the color of the surrounding concrete, as determined by a trial patch. The quantity of mixing water shall be no more than necessary for handling and placing. The patching mortar shall be mixed in advance and allowed to stand with frequent manipulation with a trowel, without addition of water, until it has reached the stiffest consistency that will permit placing.
 5. After surface water has evaporated from the area to be patched, the bond coat shall be well brushed into the surface. When the bond coat begins to lose the water sheen, the premixed patching mortar shall be applied. The mortar shall be thoroughly consolidated into place and struck off so as to leave the patch

slightly higher than the surrounding surface. To permit initial shrinkage, it shall be left undisturbed for at least one hour before being finally finished. The patched area shall be kept damp for seven days. Finishing tools that produce a finish matching the surrounding shall be used.

- E. Tie holes left by withdrawal of rods or the holes left by removal of ends of wall ties shall be filled solid with mortar after first being wetted. For holes passing through the wall, a plunger-type grout gun shall be used to force the mortar through the wall starting at the back face. A piece of burlap or canvas shall be held over the hole on the outside and when the hole is filled, the excess mortar shall be struck off with the cloth flush with the surface. Holes not passing through the walls shall be filled with a small tool that will permit packing the hole solid with mortar. Any excess mortar at the surface of the wall shall be struck off flush with a cloth. Mortar shall consist of one part cement, two and one-half parts sand and no more water than necessary for handling and packing.

3.7 Surface Preparation for Finish Grout or Topping:

- A. The surface shall be given a wood float finish and moist cured. After the curing period, the finish grout or topping shall be applied where indicated and noted on the Drawings.

END OF SECTION

SECTION 03320 – REPAIR/RESTORATION OF CONCRETE SURFACES

PART ONE – GENERAL

- 1.1 **Work Included:** The work included in this Section consists of rehabilitation of deteriorated concrete structures including surface preparation and repair of cracks.
- 1.2 **References:** Perform all concrete repair work in conformance with all requirements of the following documents (latest revision) except as noted herein.
- A. NSF/ANSI Standard 61.
 - B. ASTM-C33 Standard Specification for Concrete Aggregates.
 - C. ASTM-C94 Specification for Ready-Mixed Concrete.
 - D. ASTM-C143 Standard Method of Test for Slump of Portland Cement Concrete.
 - E. ASTM-C150 Standard Specification for Portland Cement.
 - F. ACI-347 Recommended Practice for Concrete Formwork.
 - G. SSPC/NACE Surface Preparation Standards.
 - H. ICRI Series 300 Concrete.
- 1.3 **Submittals:**
- A. Submit detailed information on products not listed in these specifications or on the Drawings that are proposed to be used for approval. The submittal shall include: repair materials, manufacturer(s) technical specifications, handling procedures, required surface preparation, methods of application, and curing requirements.
 - B. Provide a work schedule for the crack repairs for approval by Owner's Representative.
- 1.4 **Delivery, Storage, and Handling:** Unload and store all materials in a manner to avoid physical damage or detrimental effects of exposure to weather. Store materials in accordance with manufacturer's recommendation.
- 1.5 **Warranty:** The materials and installation shall be fully warranted against defects in material and workmanship for a period of one year from the date of final acceptance. Warranty shall cover all costs of repairs, including parts, labor, transportation, and field services.

PART TWO – PRODUCTS

2.1 Repair/Restoration Materials:

- A. The repair products specified in this Section and on the Drawings are set up as standards of quality. The products of other manufacturers comparable in type and quality to those specified may be used if satisfactory data is submitted and approved.
- B. All materials shall be delivered to the job site in the original sealed containers of the manufacturer and stored in accordance with the manufacturer's recommendations.
- C. Crack surface restoration: Avanti AV-202-LV Multigrout LV or approved equal.
- D. Crack structural repair: Prime Flex 900XLV by Prime Resins, Inc. or approved equal.
- E. Primer for cracks: Epoxoprime Series 201 by Tnemec Co., Inc. or approved equal.
- F. Surface bonding cement: ProSpec Surface Bonding Cement CR by Akona Manufacturing, LLC or approved equal.

2.2 Non-Shrink Grout: Grout shall be non-metallic, Portland cement based on a mixture of hydraulic cement, aggregate and additives conforming to ASTM C-1107, ProSpec Construction Grout by Akona Manufacturing or approved equal.

2.3 Product Installation: Concrete repair/restoration products must be applied by persons trained and approved by the product manufacturer(s).

PART THREE - EXECUTION:

3.1 Inspection: Prior to initiating the Work, thoroughly inspect the facilities and ensure that no conditions exist that will interfere with or delay execution of the work.

3.2 Preparation:

- A. Schedule Work with Owner's Representative.
- B. Verify that the proposed repair system is compatible with any materials that will remain in place.
- C. Provide adequate protection for operating facilities from repair operations.

3.3 Surface Preparation:

- A. Prepare all horizontal/vertical surfaces and cracks to be restored or repaired in accordance with specific product manufacturer's recommendations.
- B. Clearly mark all cracks needing repair and review with Owner's Representative. Define limits of crack repairs and identify needed structural repairs.
- C. For large cracks greater than ½", saw cut each side of crack to straddle it at least 2" wide and 1" deep. Vary width depending on condition of adjacent substrate. Remove damaged concrete so that repair products adhere to structurally sound concrete.

3.4 Restoration/Repairs:

- A. Complete crack repairs before proceeding with surface restoration.
- B. Prepared cracks shall be repaired in accordance with the material manufacturer's recommendations and with their published crack repair methods.
- C. Repaired cracks shall be primed in accordance with the material manufacturer's recommendations.
- D. Clean all debris resulting from surface preparation and repairs.

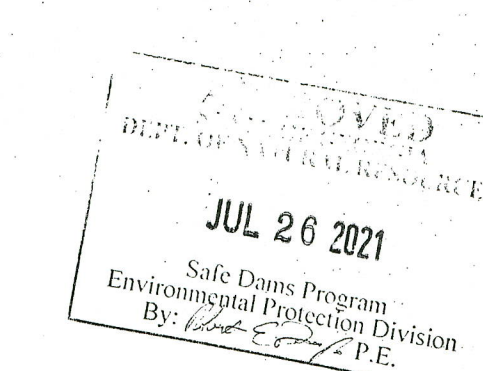
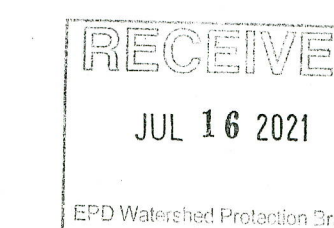
3.5 Clean-Up: Clean areas that accumulate runoff from surface preparation.

END OF SECTION

Know what's below.
Call before you dig.

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- TEMPORARY BENCHMARKS:
A. TBM-1 MAG-NAIL ELEV. 323.96.
B. TBM-2 MAG-NAIL ELEV. 338.65.
- 24-HOUR CONTACT: TIM THOMAS (478)456-5144



WORK ITEMS

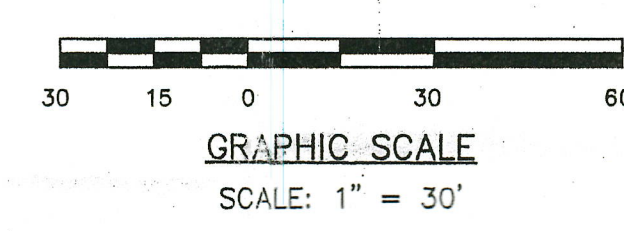
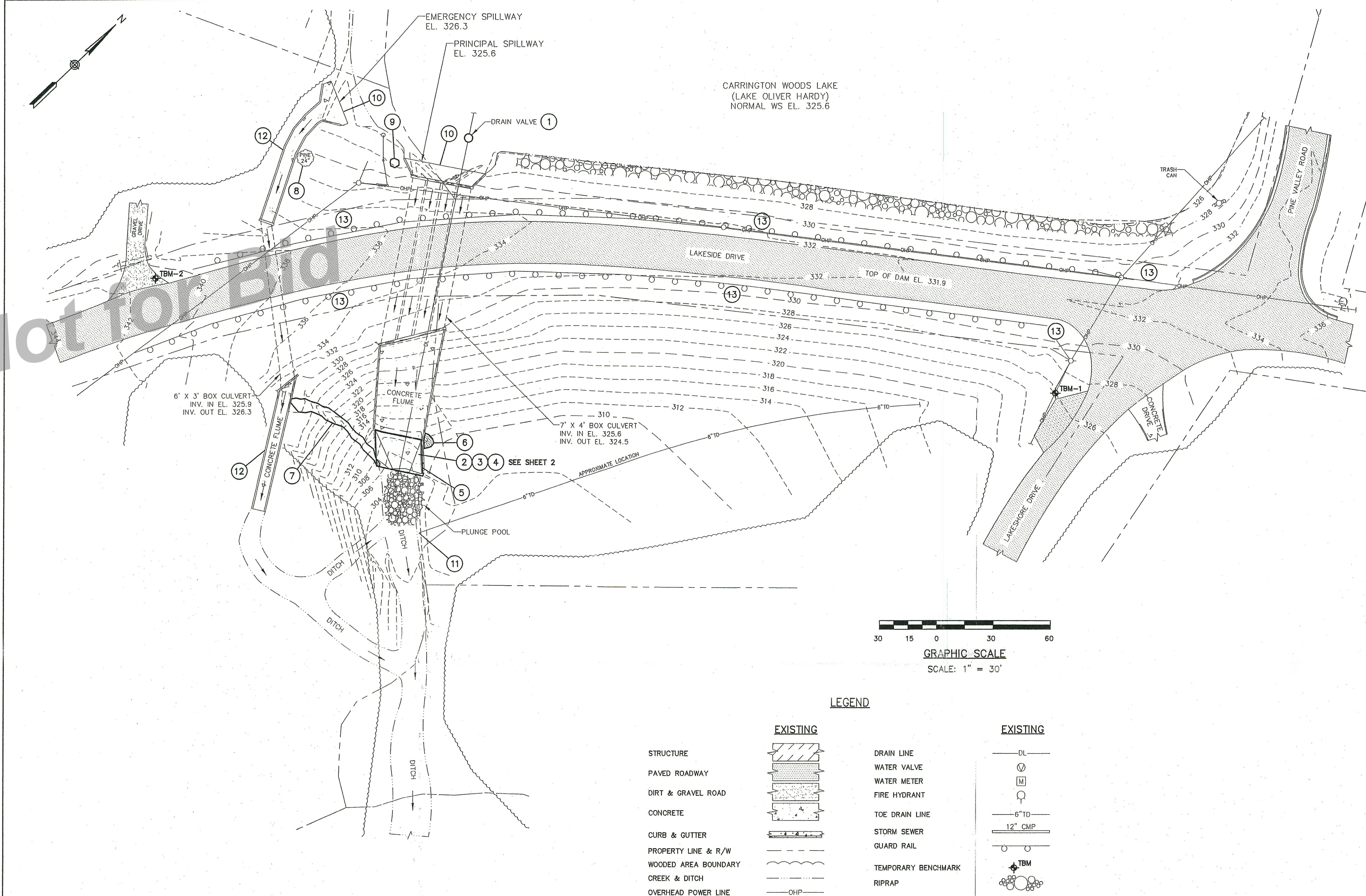
- LOCATE DRAIN VALVE TO LOWER LAKE POOL ELEVATION. EXERCISE VALVE TO ENSURE PROPER OPENING AND CLOSING OF GATE VALVE. IF THE VALVE DOES NOT OPEN OR SEAL PROPERLY UPON CLOSING COMPLETE THE FOLLOWING:
 - LOWER LAKE POOL ELEVATION TO ACCESS DRAIN VALVE.
 - REPLACE DRAIN VALVE AND INSTALL NEW CONCRETE RISER (SEE SHEET 2).
- SAW CUT CONCRETE SPLASH PAD AS SHOWN AND REMOVE UNDERLYING DEBRIS WHILE PROTECTING AND PROVIDING SUPPORT FOR DRAIN PIPE AND CINDER BLOCK WALL AS NEEDED (SEE SHEET 2).
- STABILIZE CINDER BLOCK WALL AND SEAL GAPS.
 - WHERE END OF SPILLWAY SIDEWALL AND CINDER BLOCK WALL MEET, FILL VOIDS UNDERNEATH WITH NON-SHRINK GROUT.
 - FORM AND PLACE CONCRETE AT END OF CINDER BLOCK WALL TO CLOSE GAP BETWEEN.
 - APPLY SURFACE BONDING TO INSIDE FACE OF CINDER BLOCK WALL.
- INSTALL END WALL ACROSS LOWER END OF CONCRETE SPLASH PAD. BACKFILL WITH NO. 57 STONE. PLACE CONCRETE OVER EXISTING SPLASH PAD SURFACE AND SHAPE AS SHOWN. CAST WALL AROUND DRAIN PIPE AND MAINTAIN SUPPORT AS NEEDED.
- PLACE TYPE 1 RIPRAP ALONG BASE OF SPLASH PAD END WALL.
- EXCAVATE LOOSE SOIL AROUND HOLE. BACKFILL AND COMPACT STRUCTURAL FILL. ESTABLISH PERMANENT GRASS STAND ON DISTURBED AREAS.
- REMOVE ORGANIC MATERIAL FROM ERODED CHANNEL. BACKFILL WITH EMBANKMENT STRUCTURAL FILL AND COMPACT. ADD EROSION MATTING. ESTABLISH PERMANENT GRASS STAND ON DISTURBED AREAS.
- REMOVE TREE AND GRIND STUMP AND ROOTS. REMOVE DEBRIS AND ESTABLISH PERMANENT GRASS STAND ON DISTURBED AREAS.
- EXCAVATE HOLE TO RESIDUAL SOIL. BACKFILL WITH EMBANKMENT STRUCTURAL FILL AND COMPACT.
- CLEAR AND REMOVE DEBRIS FROM INLETS AND ALL SEGMENTS OF EMERGENCY AND PRINCIPAL SPILLWAY.
- FIELD LOCATE ALL EXISTING TOE DRAINS, VERIFY SIZES & LOCATIONS. MARK OUTLET WITH U-CHANNEL POSTS TOPPED WITH REFLECTOR. (APPROXIMATE LOCATION SHOWN). INSPECT, CLEAR OUT ANY DEBRIS AND INSTALL ANIMAL SCREENS, EQUAL TO AGRI DRAIN, RAT GUARD, STAINLESS STEEL.
- REPAIR CRACKS AND DETERIORATION IN THE EMERGENCY SPILLWAY (SEE SECTION 03320).
- FILL AND COMPACT ALL HOLES ALONG DAM CREST WITH DIRT.

CONSTRUCTION NOTES

- WHERE EMBANKMENT FILLING IS TO BE PERFORMED, SEE SECTION 02202 FOR MATERIAL AND COMPACTION REQUIREMENTS.

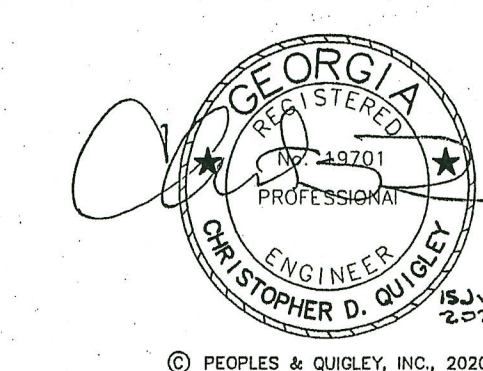
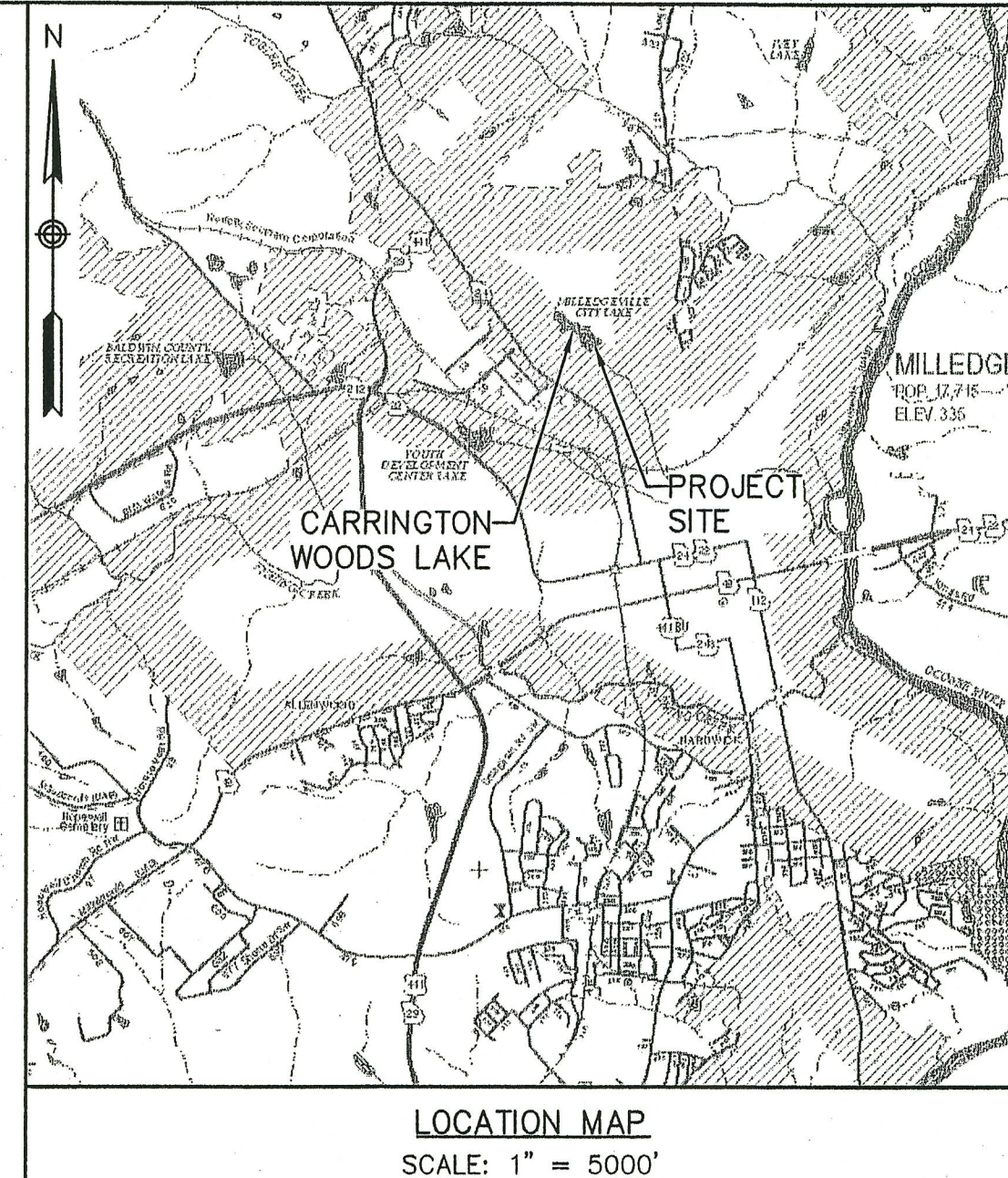
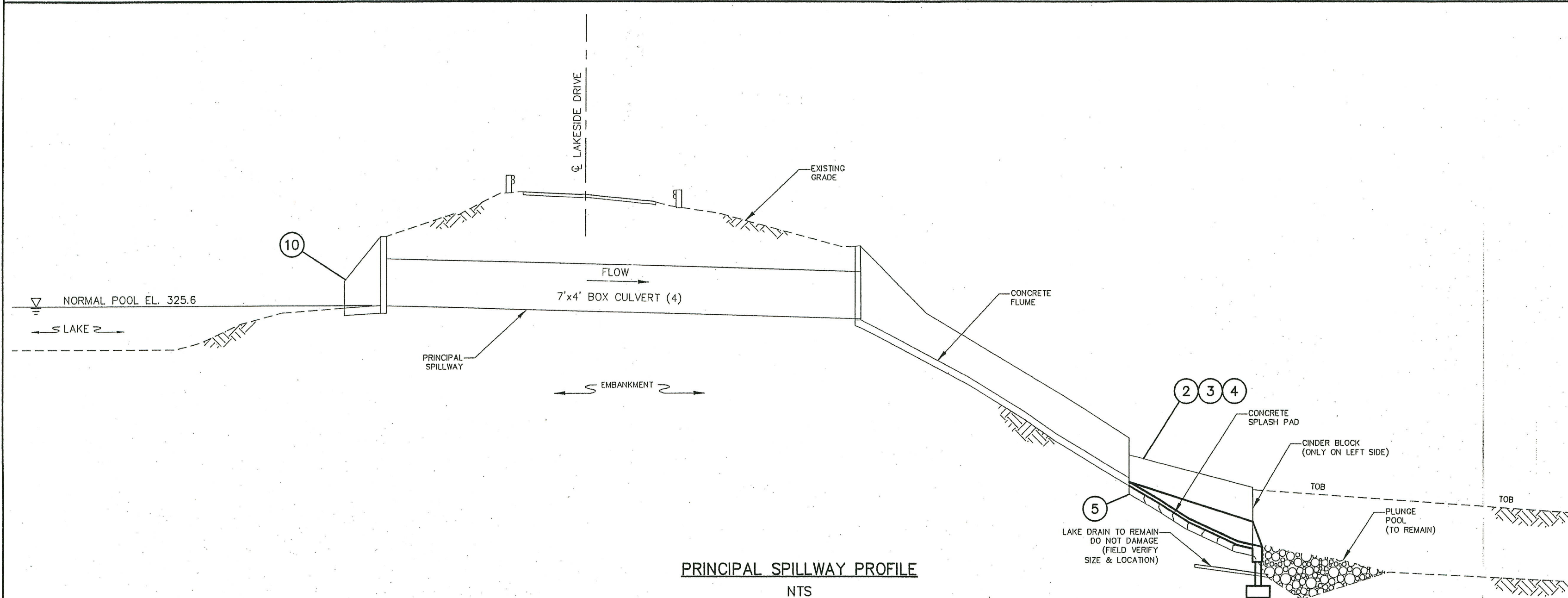
SPECIAL NOTES

- WORK WILL BE COMPLETED BY OWNERS IN-HOUSE FORCES AS MUCH AS PRACTICAL.
- ENGINEER'S REPRESENTATIVES WILL BE ON-SITE DURING CONSTRUCTION ACTIVITIES TO CONFIRM WORK COMPLIES WITH APPROVED CONSTRUCTION DOCUMENTS.



LEGEND

| EXISTING | | EXISTING | |
|----------------------|-----|---------------------|---------|
| STRUCTURE | | DRAIN LINE | DL |
| PAVED ROADWAY | | WATER VALVE | |
| DIRT & GRAVEL ROAD | | WATER METER | |
| CONCRETE | | FIRE HYDRANT | |
| CURB & GUTTER | | TOE DRAIN LINE | 6" TD |
| PROPERTY LINE & R/W | | STORM SEWER | 12" CMP |
| WOODED AREA BOUNDARY | | GUARD RAIL | |
| CREEK & DITCH | | TEMPORARY BENCHMARK | TBM |
| OVERHEAD POWER LINE | OHP | RIPRAP | |



| NO. | DATE | BY | CDO | EPD COMMENTS | REVISION |
|-----|-----------|----|-----|--------------|----------|
| 1 | 7/15/2021 | | | | |

CITY OF MILLEDGEVILLE, GA
119 EAST HANCOCK STREET
MILLEDGEVILLE, GA 31059

CARRINGTON WOODS LAKE DAM
2020 DAM IMPROVEMENTS

SITE PLAN

| | | |
|--------------------|-------------------------|-----------------------------------|
| DESIGNED BY JDC | DATE AUGUST 31, 2020 | SHEET 1 |
| DRAWN BY JCP | SCALE AS SHOWN | OF 2 DRAWING NO. 460-001-R1 |
| CHECKED BY KAB | DATE AUGUST 31, 2020 | |
| APPROVED BY CDO | | |

PEOPLES & QUIGLEY, INC.
CONSULTING ENGINEERS
8059 BOWLSTON DRIVE, NE
SANDY SPRING, GEORGIA 30328
TELEPHONE (404) 255-2850

Know what's below.
Call before you dig.

GENERAL NOTES

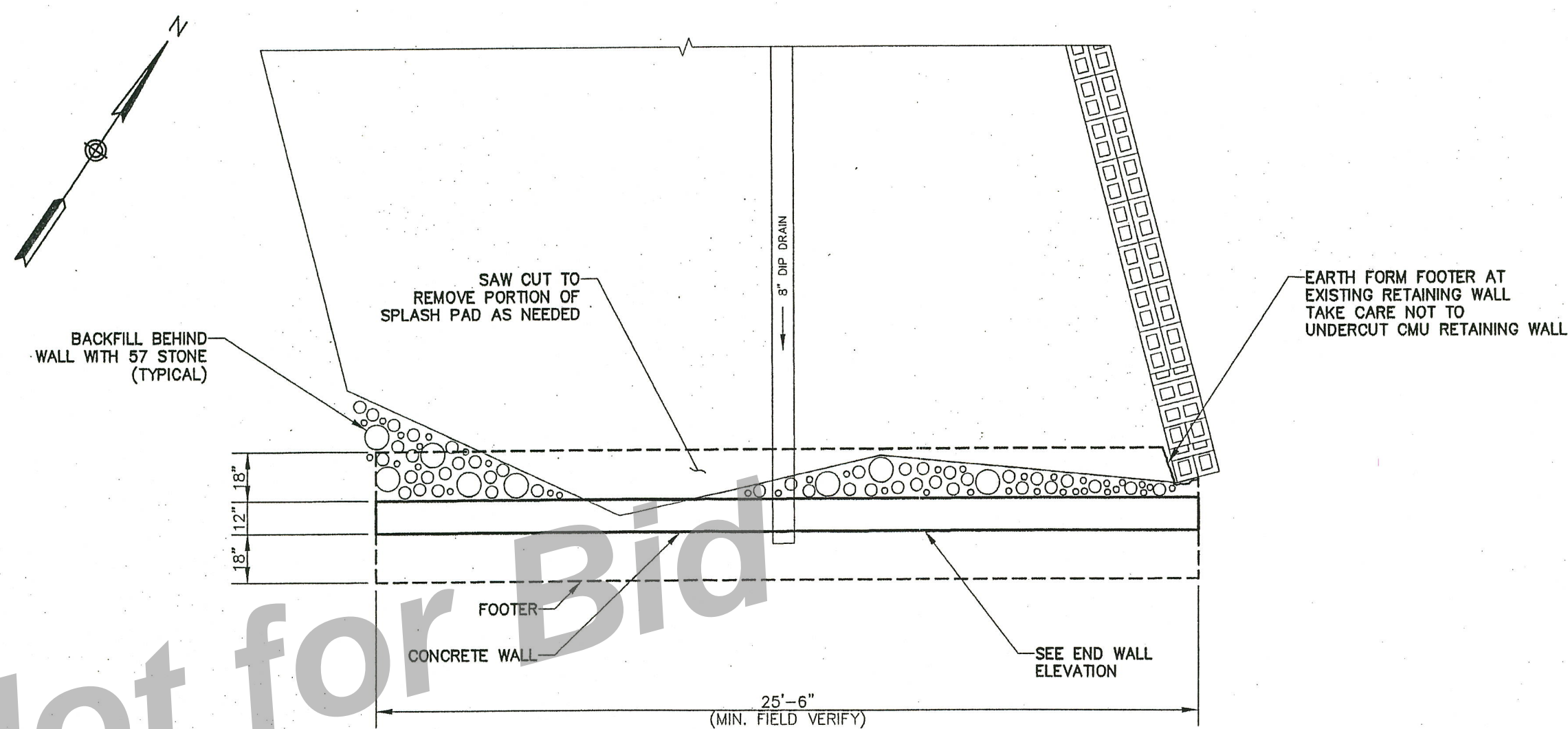
- THIS DRAWING, AS AN INSTRUMENT OF SERVICE, WAS PREPARED BY PEOPLES & QUIGLEY, INC. FOR THE EXCLUSIVE USE OF THE CLIENT NAMED HEREON. NO WARRANTY, EXPRESSED OR IMPLIED IS INTENDED TO EXTEND TO ANY UNNAMED THIRD PARTY. THIS DRAWING REMAINS THE PROPERTY OF PEOPLES & QUIGLEY, INC., IS COPYRIGHTED, AND SHALL NOT BE REPRODUCED OR COPIED IN WHOLE OR IN PART WITHOUT THE WRITTEN PERMISSION OF PEOPLES & QUIGLEY, INC.
- PERSONS USING THIS DRAWING SHALL MAKE THEIR OWN DETERMINATION OF THE LOCATION, DEPTH, AND DESCRIPTION OF UNDERGROUND AND OVERHEAD UTILITIES. THE UTILITY INFORMATION SHOWN HEREON WAS OBTAINED FROM READILY AVAILABLE SOURCES BELIEVED TO BE RELIABLE, BUT IT MAY NOT BE ACCURATE OR COMPLETE. EXCAVATION OR ELECTRONIC DETECTION METHODS WERE NOT USED TO VERIFY THE INFORMATION.
- CALL UTILITIES 72 HOURS BEFORE BEGINNING ANY CONSTRUCTION OR EXCAVATION TO HAVE UNDERGROUND UTILITIES FIELD STAKED.
- THIS PROPERTY WAS NOT SURVEYED BY PEOPLES & QUIGLEY, INC. THE PROPERTY INFORMATION HEREON WAS COMPILED FROM PLATS, MAPS, AND DEED DESCRIPTIONS BY OTHERS. PROPERTY LINES SHOWN SHOULD BE CONSIDERED APPROXIMATE. DO NOT USE THE PROPERTY INFORMATION FOR CONSTRUCTION, RECORDING, CONVEYANCE, OR SALES.
- TEMPORARY BENCHMARKS:
A. TBM-1 MAG-NAIL ELEV. 323.96.
B. TBM-2 MAG-NAIL ELEV. 338.65.

SPECIAL NOTES

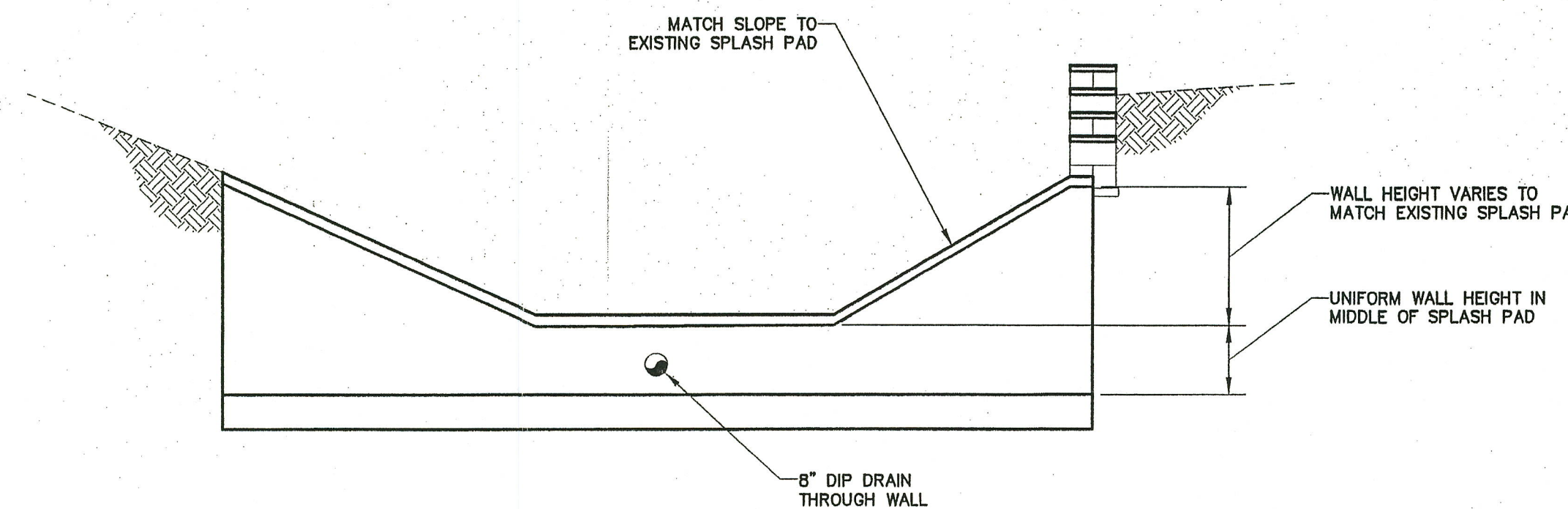
- WORK WILL BE COMPLETED BY OWNERS IN-HOUSE FORCES AS MUCH AS PRACTICAL.
- ENGINEER'S REPRESENTATIVES WILL BE ON-SITE DURING CONSTRUCTION ACTIVITIES TO CONFIRM WORK COMPLIES WITH APPROVED CONSTRUCTION DOCUMENTS.

CONSTRUCTION NOTES

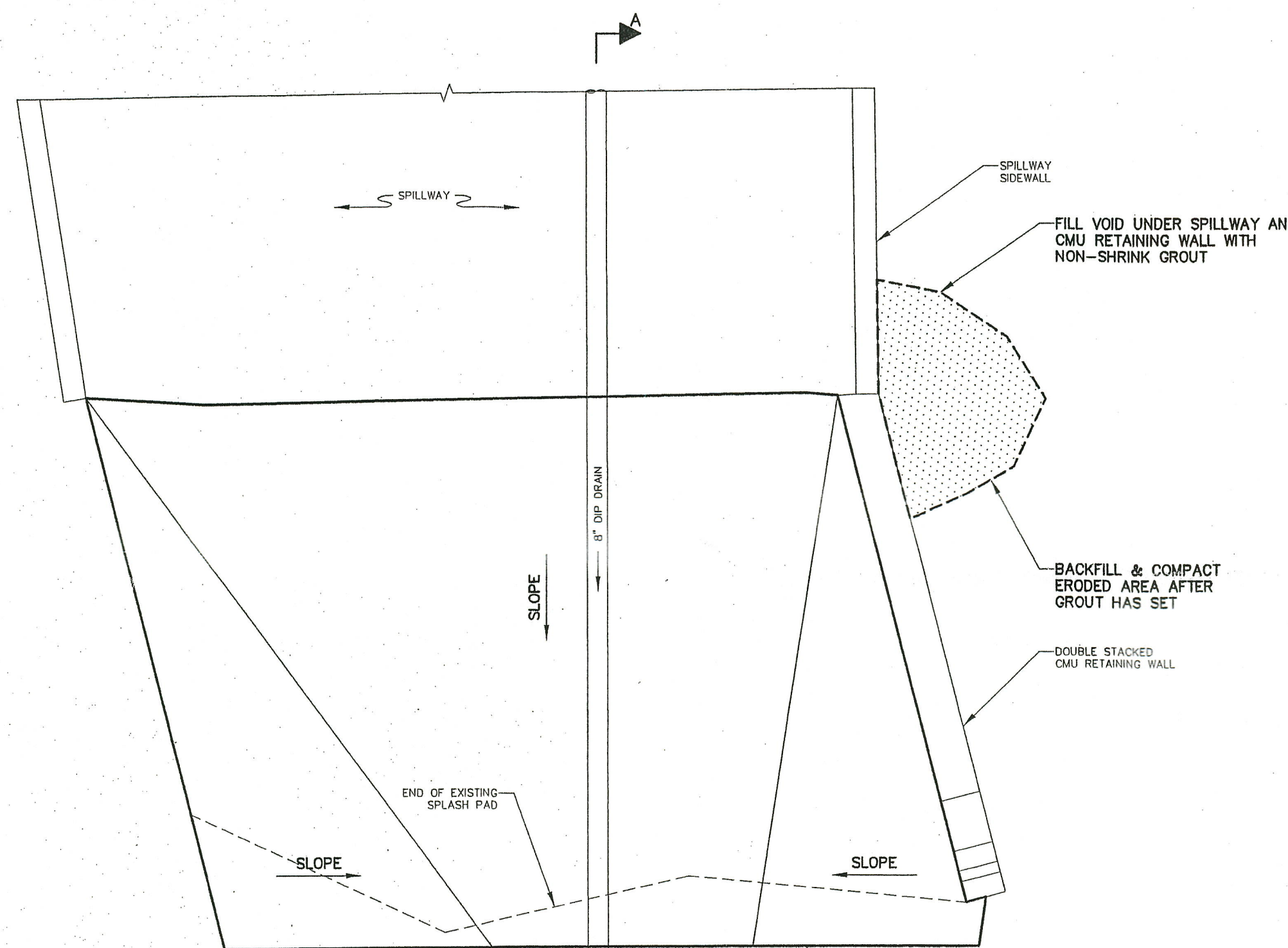
- CONCRETE SHALL BE 4,000 PSI @ 28 DAYS. SEE SECTION 03300 FOR CAST-IN-PLACE CONCRETE REQUIREMENTS.
- CONCRETE DEBRIS REMOVED FROM PLUNGE POOL AREA SHALL BE PLACED ALONG EXPOSED BANKS DOWNSTREAM OF SPLASH PAD TO REINFORCE BANKS.
- PROTECT AND SUPPORT 8" LAKE DRAIN WHILE REMOVING RIPRAP AND DEBRIS AND EXCAVATING FOR NEW END WALL.



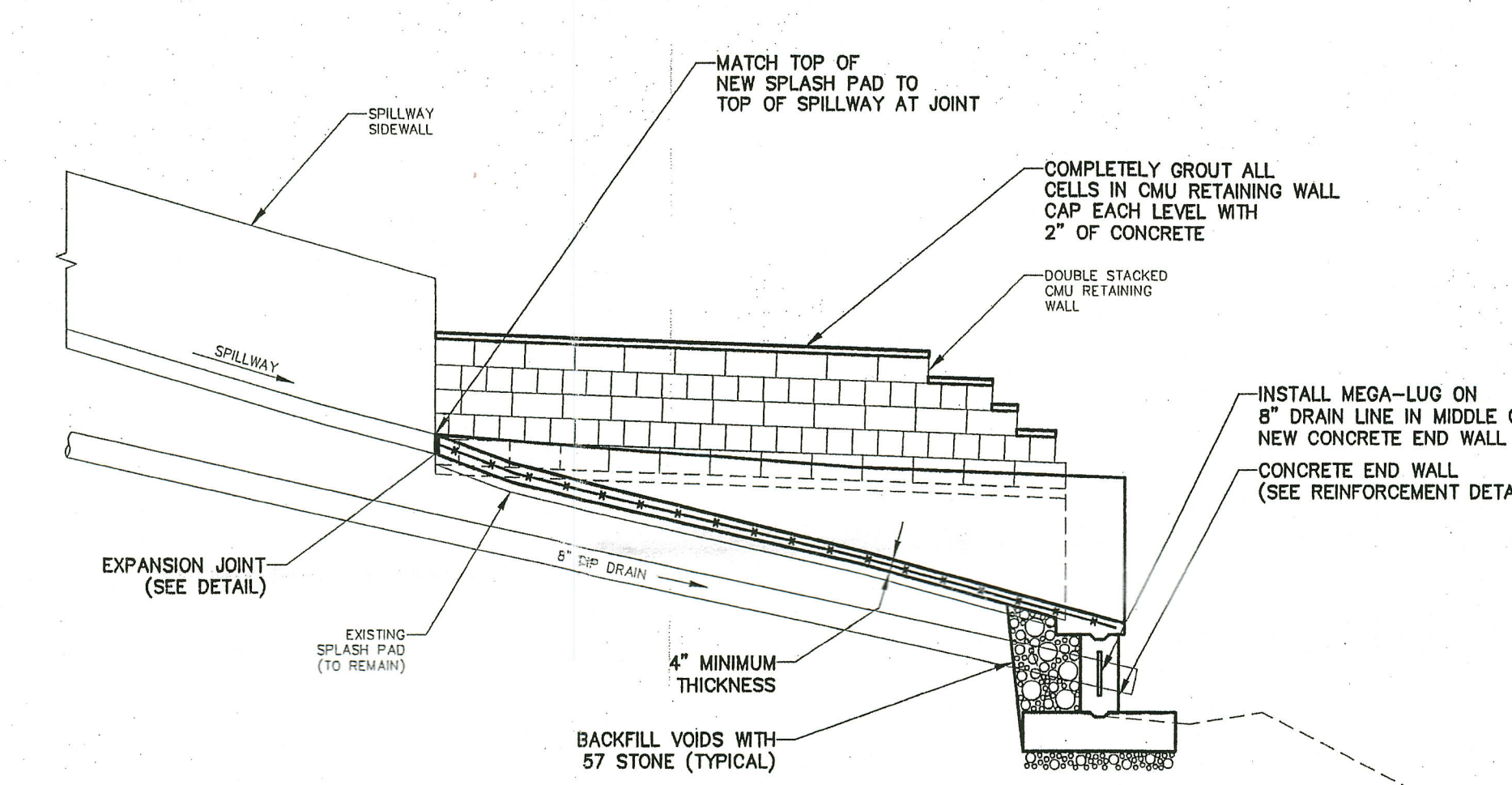
END WALL PLAN



END WALL ELEVATION



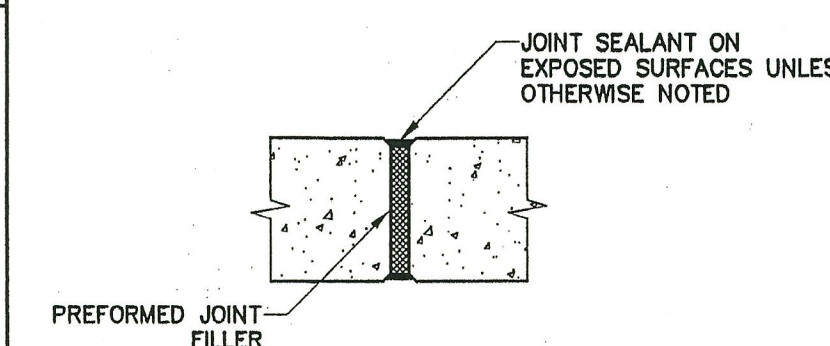
SPLASH PAD PLAN



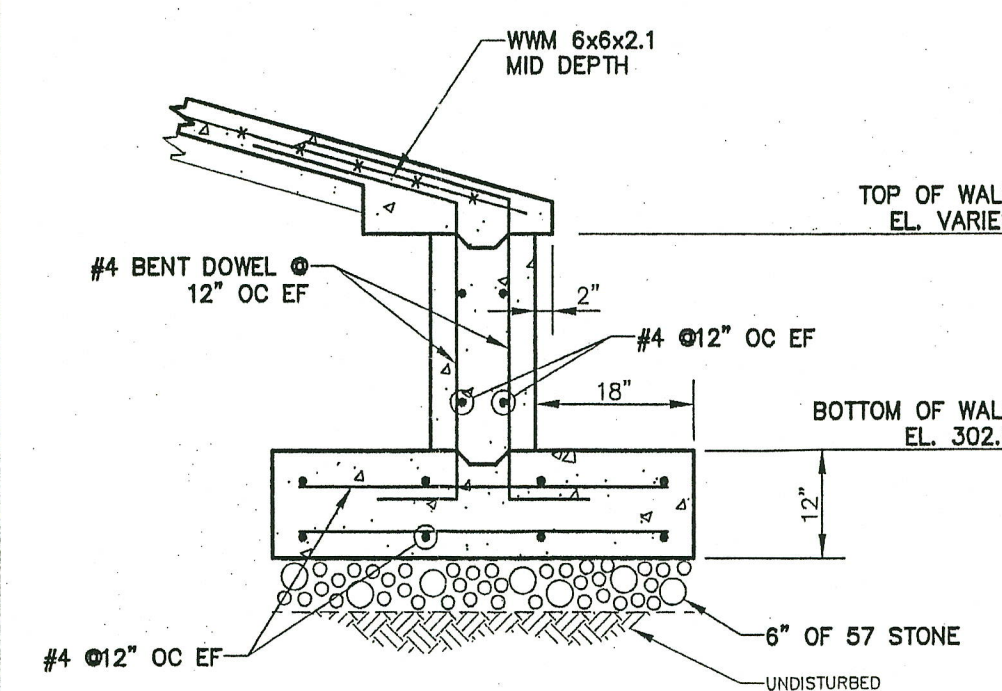
SECTION A-A

SPLASH PAD
SCALE: 1/4"=1'-0"

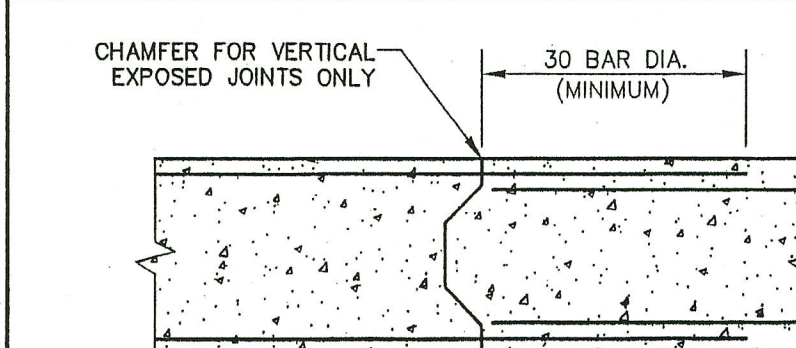
| TEMPERATURE RANGE | SPACING BETWEEN JOINTS | | |
|--|------------------------|--------|--------|
| | 40 FT. | 60 FT. | 80 FT. |
| UNDERGROUND 30°F | 1/2" | 3/4" | 7/8" |
| PARTLY PROTECTED ABOVE GROUND 80°F | 3/4" | 7/8" | 1" |
| UNPROTECTED EXPOSED ABOVE GROUND 120°F | 7/8" | 1" | — |



EXPANSION JOINTS
NTS



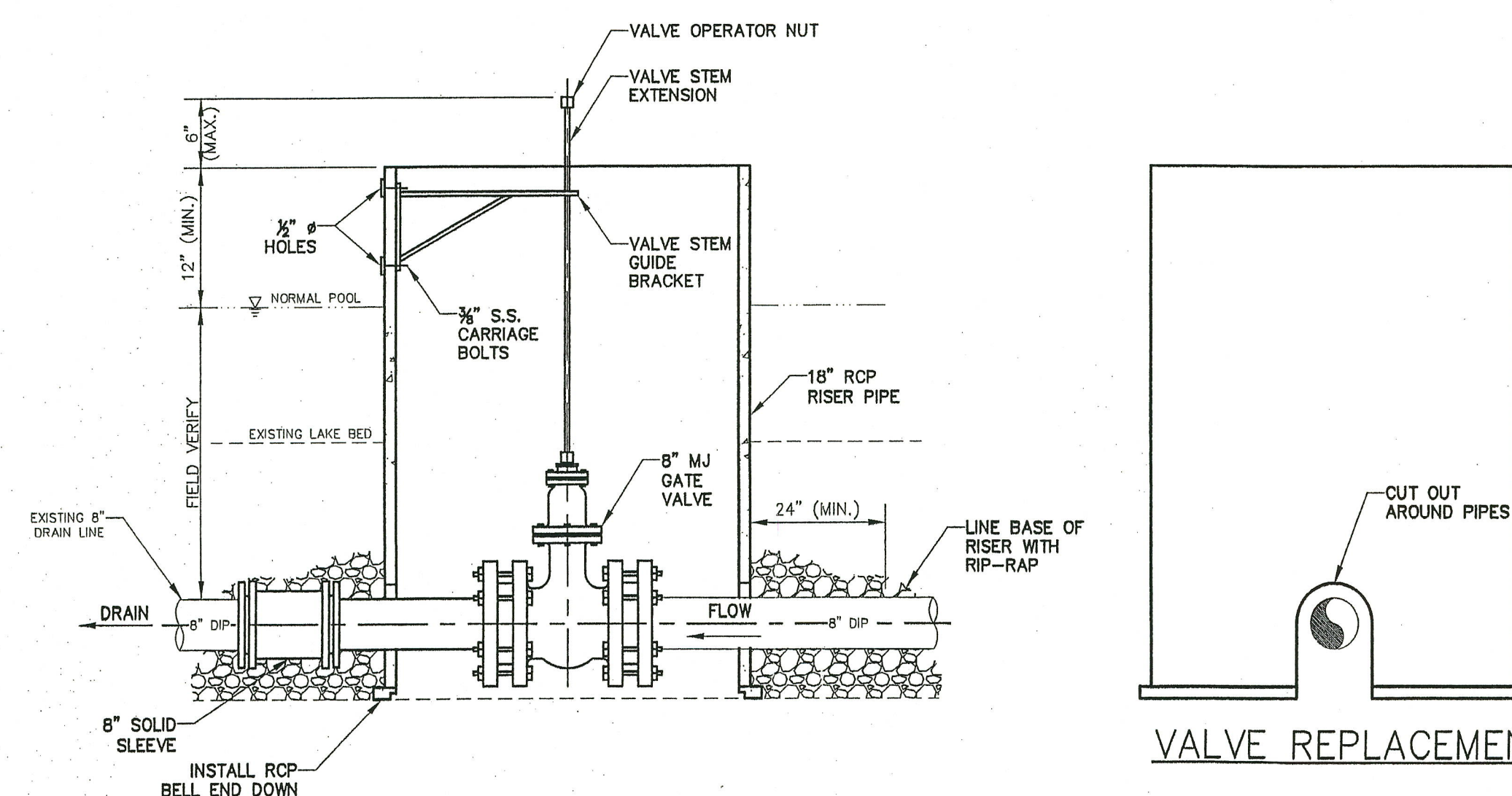
REINFORCEMENT
NTS



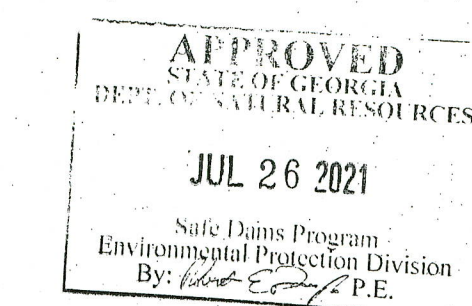
CONSTRUCTION JOINTS
NTS

NOTES

- INSTALL NEW GATE VALVE AND RISER ONLY IF EXISTING VALVE IS NOT OPERATIONAL (SEE WORK ITEM NO. 1, SHEET 1).
- NEW VALVE SHALL CONFORM TO ALL REQUIREMENTS OF AWWA-C509 FOR RESILIENT-SEATED, IRON BODY, BRONZE MOUNTED GATE VALVES.
- FIELD VERIFY DEPTH OF VALVE AFTER DRAINING LAKE AND BEFORE ORDERING MATERIALS.
- ALL HARDWARE TO BE 304 STAINLESS STEEL.
- PROVIDE CUT-OUTS IN RISER PIPE TO INSTALL OVER DRAIN LINE. PIPE SHALL NOT SUPPORT RISER.



VALVE REPLACEMENT WITH CONCRETE RISER
NTS



CITY OF MILLEDGEVILLE, GA
119 EAST HANCOCK STREET
MILLEDGEVILLE, GA 31059

CARRINGTON WOODS LAKE DAM
2020 DAM IMPROVEMENTS

SPLASH PAD IMPROVEMENT & MISCELLANEOUS DETAILS

| | | | |
|--------------------|---|-------------------------|----------------------------|
| DESIGNED BY JDC | SCALE AS SHOWN | DATE AUGUST 31, 2020 | SHEET 2 |
| DRAWN BY JCP | PROJECT PEOPLES & QUIGLEY, INC. CONSULTING ENGINEERS 6059 BOYLSTON DRIVE, NE SANDY SPRINGS, GEORGIA 30328 TELEPHONE (404) 255-2000 | DATE AUGUST 31, 2020 | DRAWING NO. 460-01D1-R1 |
| CHECKED BY KAB | PROFESSIONAL ENGINEER CHRISTOPHER D. QUIGLEY 1984 2-21 | DATE AUGUST 31, 2020 | OF 2 |
| APPROVED BY CDQ | DATE AUGUST 31, 2020 | DATE AUGUST 31, 2020 | DRAWING NO. 460-01D1-R1 |

