



COLLETON COUNTY
SOUTH CAROLINA

Purchasing Department
113 Mable T. Willis Blvd.
Walterboro, SC 29488
843.782.0504

BID: CC-35
Benson and Klein Street Parking Lot

Due: Tuesday, November 30, 2021 at 11:00am

EMAIL RESPONSE TO:

Kaye B. Syfrett, Procurement Manager at ksyfrett@colletoncounty.org

TABLE OF CONTENTS
(1 OF 2)

BIDDING AND CONTRACT REQUIREMENTS

Advertisement for Bid.....	3
Information for Bidders.....	3
Contract.....	16
Reference Forms.....	22
Bid Forms.....	36

END OF SECTION

Advertisement for Bid

Owner: Colleton County, 109 Benson Street Walterboro, South Carolina, 29488.

Bid: CC-35 Benson and Klein Street Parking Lot will be submitted *via email to; Kaye B. Syfrett, Procurement Manager at ksyfrett@colletoncounty.org until 11:00am, Tuesday, November 30, 2021.*

The work to be completed as a part of this project consists of providing all required materials, equipment, and labor necessary to construct the parking lot as designed and permitted.

The construction of a parking lot located at the corner of Benson and Klein Street in Walterboro

The Instructions to Bidders, bid packet, Contract, Plans, Specifications, and other contract documents may be examined at the following location:

Colleton County website: <http://www.colletoncounty.org/bids-and-proposal-requests>

Bidders must deposit security with all bids. The security shall be in the form of a certified check or bid bond made payable to Colleton County, and shall be for an amount equal to not less than five percent (5%) of the amount of the bid. Provisions of the security shall be as described in the Information for Bidders. No bid will be considered unless the bidder is legally qualified under the provisions of the South Carolina Sections 40-11-10 through 40-11-428).

NOTICE TO BIDDERS:

Each bidder shall fully acquaint him/herself with the conditions of this Bid. The failure or omission of a bidder to acquaint him/herself with existing conditions shall in no way relieve him/herself of any obligation concerning this Bid or to the Contract.

BIDS WILL NOT BE CONSIDERED FROM ANY VENDOR THAT OWES DELINQUENT PROPERTY TAXES TO THE COUNTY OF COLLETON.

NOTICE TO BIDDERS: All amendments to and interpretations of this solicitation shall be in writing and issued by the Colleton County Procurement Manager. Colleton County shall not be legally bound by any amendment or interpretation that is not in writing. The award of the project is contingent on funding approval by Colleton County Council.

The Owner reserves the right to waive any informality or to reject any or all bids.

Owner: Colleton County, 109 Benson Street Walterboro, South Carolina 29488

Information for Bidders

ARTICLE 1 - DEFINED TERMS

1.01 Terms used in these Instructions to Bidders have the meanings indicated in the 001, General Conditions. Additional terms used in these Instructions to Bidders have the meanings indicated below:

- A. Issuing Office** - The office from which the Bidding Documents are to be issued and where the bidding procedures are to be administered.
- B. Architect, Engineer, Owner** - The person or firm in charge of the design of the project. In some instances, the owner will self-perform, acting as the Architect.
- C. Construction Coordinator** - The person or company acting on behalf of the owner and in some instances, the owner will self-perform, acting as the Construction Coordinator.
- D. Owner** - Colleton County

- E. **Official Time** - The time as noted on the Atomic Clock located in the Purchasing office lobby. All times are Eastern Standard Time.
- F. **Substantial Completion** - The point of construction where the owner can fully occupy the facility, perform all aspects of the intended use of the facility, and not be inhibited with final punch list items. Certificate of occupancy does not constitute substantial completion. The owner must agree that the project is substantially complete.

ARTICLE 2 - COPIES OF BIDDING DOCUMENTS

- 2.01 Complete sets of the Bidding Documents can be found at <http://www.colletoncounty.org/bids-and-proposal-requests>.
- 2.02 Complete sets of Bidding Documents shall be used in preparing Bids; neither Owner, Engineer, nor Architect assumes any responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.
- 2.03 Owner, Engineer, or Architect, in making copies of Bidding Documents available on the above terms, do so only to obtain Bids for the Work and do not confer a license or grant for any other use.

ARTICLE 3 - QUALIFICATIONS OF BIDDERS

- 3.01 Bidders must be insured and bonded and will hold all Trade Contracts and the Building Permit on the project.
- 3.02 To demonstrate Bidder's qualifications to perform the Work, within five (5) days of Owner's request, Bidder shall submit written evidence such as financial data; previous experience, present commitments.

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

- 4.01 **No Pre-bid Meeting**. Bidders are encouraged to inspect the site.
- 4.02 It is the responsibility of each Bidder before submitting a Bid to:
 - a. Examine and carefully study the Bidding Documents, the other related data identified in the Bidding Documents, and any Addenda.
 - b. Visit the Site and become familiar with and satisfy Bidder as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
 - c. Become familiar with and satisfy Bidder as to all federal, state, and local Laws and Regulations that may affect the cost, progress, and performance of the Work.
 - d. Agree at the time of submitting its Bid that no further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of its Bid for the performance of the Work at the price(s) bid and within the times and per the other terms and conditions of the Bidding Documents.
 - e. Promptly give Owner written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder discovers in the Bidding Documents and confirm that the written resolution thereof by Owner is acceptable to Bidder.
 - f. Determine that the Bidding Documents are generally sufficient to indicate and convey an understanding of all terms and conditions for the performance of the Work.

- g. No plea of ignorance of conditions that exist or may hereafter exist on the site of the work, or difficulties that may be encountered in the execution of the work, as a result of failure to make necessary investigations and examinations, will be accepted as an excuse for any failure or omission on the part of the Contractor to fulfill in every detail all the requirements of the contract documents and to complete the work for the consideration set forth therein, or as the basis for any claim whatsoever.
 - h. The apparent omission of a detailed description concerning any point shall be regarded as meaning the best commercial practice is to prevail and that only material and workmanship of the finest quality is to be used.
 - i. Bidders may refer to Sections 2-67, 2-73, and 2-74 of Ordinance #2008-09, also known as the Colleton County, South Carolina Purchasing Policy, to determine their remedies concerning this competitive process. The failure to be awarded a bid shall not be valid grounds for protest.
 - j. The Bidder further agrees that the performance time specified is reasonable, having carefully considered the nature and scope of the project as aforesaid.
- 4.03 The submission of a Bid will constitute an incontrovertible representation by Bidder that Bidder has complied with every requirement of this Article 4, that without exception the Bid is premised upon performing and furnishing the Work required by the Bidding Documents and applying any specific means, methods, techniques, sequences, and procedures of construction that may be shown or indicated or expressly required by the Bidding Documents, that Bidder has given Owner written notice of all conflicts, errors, ambiguities, and discrepancies that Bidder has discovered in the Bidding Documents and the written resolutions thereof by Owner are acceptable to Bidder, and that the Bidding Documents are generally sufficient to indicate and convey an understanding of all terms and conditions for performing and furnishing the Work.

ARTICLE 5 - SITE AND OTHER AREAS

- 5.01 The Site is identified in the Bidding Documents. Easements for permanent structures or permanent changes in existing facilities are to be obtained and paid for by the Owner unless otherwise provided in the Bidding Documents. All additional land and access thereto required for temporary construction facilities, construction equipment, or storage of materials and equipment to be incorporated in the Work are to be obtained and paid for by the Contractor.

ARTICLE 6 - INTERPRETATIONS AND ADDENDA

- 6.01 All questions concerning the meaning or intent of the Bidding Documents are to be submitted in writing **via email to; jstieglitz@colletoncounty.org**. Interpretations or clarifications considered necessary by the Owner in response to such questions will be issued by Addenda. Questions received less than fourteen (14) days before the date and time for the opening of bids will not be answered. Only questions answered by Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect.
- 6.02 Addenda may be issued to clarify, correct, or change the Bidding Documents as deemed advisable by the Owner. Addenda will be posted on the Colleton County website. It is the responsibility of the bidder to monitor this website for addendums.
- 6.03 Division 000 and Division 001 shall have authority over all other documents contained within the project manual. Where duplication of titles, articles, standards, requirements, and such are found, division 000 and Division 001 govern.

ARTICLE 7 - BID SECURITY

- 7.01 A Bid must be accompanied by Bid security made payable to Colleton County in an amount of five percent (5%) of Bidder's maximum Bid price in the form of a certified check, bank money order, or a Bid Bond (on the form attached) issued by a surety meeting the requirements of Paragraphs 5.01 and 5.02 of the General Conditions.
- 7.02 The Bid security of the Successful Bidder will be retained until such Bidder has executed the Contract Documents, furnished the required contract security, and met the other conditions of the Notice of Award. If the Successful Bidder fails to execute and deliver the Contract Documents and furnish the required contract security within ten (10) days after the Notice of Award, the Owner may annul the Notice of Award and the Bid security of that Bidder will be forfeited. The Bid security of other Bidders Whom the Owner believes to have a reasonable chance of receiving the award may be retained by the Owner until the earlier of seven (7) days after the Effective Date of the Agreement or sixty (60) days after the Bid opening. Bidders not receiving a contract will be issued a copy of the Notice of Award to send to their issuing Surety so that the Bid Bond can be canceled. Bidders Bid Bond documents will not be returned. All Certified Checks will be returned to the Bidders.

ARTICLE 8 - CONTRACT TIMES

- 8.01 The construction of a parking lot located at the corner of Benson and Klein Street in Walterboro, is to be completed within One Hundred Twenty (120) calendar days after the "Notice to Proceed" has been issued.

ARTICLE 9 – LIQUIDATED DAMAGES

- 9.01 Document Execution
- A. The successful Bidder, upon failure or refusal to execute and deliver the contract and bonds within ten (10) days after they have received the notice of the acceptance of their bid, shall forfeit to the Owner, as liquidated damages, the security deposited with the bid.
- 9.02 Project Execution
- A. Bidder must agree to commence work on or before a date to be specified in a written "Notice to Proceed" by the Owner and to fully complete the project within the dates specified in the Bid Form, Article 6; Paragraph 6.01. Bidder must agree also to pay as liquidated damages the sum as indicated in the Bid Form, Article 6; Paragraph 6.02 for each consecutive calendar day thereafter as hereinafter provided in the General Conditions.

ARTICLE 10 - SUBSTITUTE AND "OR-EQUAL" ITEMS

- 10.01 The Contract, if awarded, will be based on materials and equipment specified or described in the Bidding Documents. Whenever it is specified or described in the Bidding Documents that a substitute or "or-equal" item of material or equipment may be furnished or used by Contractor if acceptable to the Construction Coordinator, application for such acceptance will not be considered by the Owner until after the Effective Date of the Agreement.
- (a) The use of a "**Brand Name Only**" specification is to describe the sole item that will satisfy the county's requirements. Bids offering alternate products will be declared non-responsive.
- (b) The use of a "**Brand Name or Equal**" specification is to describe the standard of quality, performance and characteristics desired and is not intended to limit or restrict competition. An item shall be considered to be substantially equivalent, or "equal" to the specified brand in the opinion of the Purchasing Director, the County can reasonably anticipate sufficiently

similar quality, capacity, durability, performance, utility, and productivity as provided by the specified brand.

ARTICLE 11 - SUBCONTRACTORS, SUPPLIERS, AND OTHERS

- 11.01 The General Conditions require the identity of certain Subcontractors, Suppliers, individuals, or entities to be submitted to the Owner with the bid packet. The bidder shall submit the Owner a list of all such Subcontractors, Suppliers, individuals, or entities proposed for those portions of the Work for which such identification is required. The list shall be accompanied by an experience statement with pertinent information regarding similar projects and other evidence of qualification for each such Subcontractor, Supplier, individual, or entity if requested by the Owner. If Owner or Construction Coordinator, after due investigation, has reasonable objection to any proposed Subcontractor, Supplier, individual, or entity, Owner may, before the Notice of Award is given, request apparent Successful Bidder to submit a substitute, in which case apparent Successful Bidder shall submit an acceptable substitute, Bidder's Bid price will be increased (or decreased) by the difference in cost occasioned by such substitution, and Owner may consider such price adjustment in evaluating Bids and making the Contract award.
- 11.02 If apparent Successful Bidder declines to make any such substitution, Owner may award the contract to the next lowest Bidder that proposes to use acceptable Subcontractors, Suppliers, individuals, or entities. Declining to make requested substitutions will not constitute grounds for forfeiture of the Bid security of any Bidder. Any Subcontractor, Supplier, individual, or entity so listed and against which Owner or Construction Coordinator makes no written objection before issuing the Notice of Award will be deemed acceptable to Owner and Construction Coordinator subject to revocation of such acceptance after the Effective Date of the Agreement as provided in Paragraph 6.06 of the General Conditions.
- 11.03 Contractor shall not be required to employ any Subcontractor, Supplier, individual, or entity against whom Contractor has a reasonable objection.
- 11.04 Each bidder shall fully acquaint himself with the conditions of this Bid. The failure or omission of a bidder to acquaint himself with existing conditions shall in no way relieve him of any obligation concerning this Bid or to the Contract.
- 11.05 Failure of a sub-contractor to fully acquaint himself with the conditions of this bid when working on behalf of the General Contractor or contract holder shall in no way relieve himself of any obligation concerning this Bid or to the Contract.

ARTICLE 12 - PREPARATION OF BID

- 12.01 Should a bidder need any reasonable accommodations for any type of disability to participate in this procurement, you are asked to contact the Colleton County Purchasing office.
- 12.02 The Bid Form is included with the Bidding Documents located on the Owners Web Site.
- 12.03 All blanks on the Bid Form shall be completed by printing in ink or by typewriter and the Bid signed in ink. Erasures or alterations shall be initialed in ink by the person signing the Bid Form. When required a Bid price shall be indicated for each unit price item listed therein, or the words "No Bid," "No Charge," or "Not Applicable" entered. When a unit price is not required, the bid price shall be submitted in words and numbers as indicated on the bid form.
- 12.04 A Bid by an individual shall show the Bidder's name and official address.
- 12.05 A Bid by a joint venture shall be executed by each joint venture in the manner indicated on the Bid Form. The official address of the joint venture shall be shown below the signature.

- 12.06 All names shall be typed or printed in ink below the signatures.
- 12.07 The Bid shall contain an acknowledgment of receipt of all Addenda, the numbers of which shall be filled in on the Bid Form.
- 12.08 The address and telephone number for communications regarding the Bid shall be shown.
- 12.09 The Bid shall contain evidence of Bidder's authority and qualification to do business in the state where the Project is located or covenant to obtain such qualification before award of the Contract. Bidder's state contractor license number, if any, shall also be shown on the Bid Form.
- 12.10 Any reports, studies, photographs, negatives, or other documents prepared by a vendor in the performance of its obligations shall be the exclusive property of the procurer and all such material shall be remitted to the procurer by the vendor upon completion, termination, or cancellation of this order. The vendor shall not use, willingly allow or cause to have such material used for any purpose other than the performance of its obligations under this order without the prior written consent of the procurer.
- 12.11 The contractor will take affirmative action in complying with all Federal and State requirements concerning fair employment and employment of the handicapped, and concerning the treatment of all employees, without regard or discrimination by reason of age, race, color, religion, sex, national origin or physical handicap. The following are incorporated herein by reference: 41 C.F.R. 60-1.4, 60-250.4, and 60-741.4.
- 12.12 All construction contracts over \$2,000.00 must include a provision for compliance with the Copeland "Anti-Kickback" Act (18 U.S.C. 874) as supplemented in Department of Labor regulations (29 CFR Part 3). This act provides that each contractor shall be prohibited from inducing, by any means, persons employed in the construction, completion, or re-paid of public work to give up any part of their compensation.
- 12.13 The contractor certifies that the vendor(s) will provide a "drug-free workplace" as that term is defined in Section 44-107-30 of the Code of Laws of South Carolina, 1976, as amended, by complying with the requirements outlined in Title 44, Chapter 107.
- 12.14 The federally-assisted construction contractor certifies that he will not maintain or provide, for his employees, segregated facilities at any of his establishments and that he will not permit his employees to perform their services at any location under his control where segregated facilities are maintained. The federally assisted construction contractor agrees that a breach of this certification is a violation of the Equal Opportunity Clause in this Contract. As used in this certification, the term "segregated facilities" means any waiting rooms, work areas, restrooms, and washrooms, restaurants and other eating areas, time clocks, locker rooms, and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees which are segregated based on race, color, religion, or national origin because of habit, local custom, or any other reason. The federally assisted construction contractor agrees that (except where he has obtained identical certifications from proposed subcontractors for specific periods) he will obtain identical certifications from proposed subcontractors before the award of subcontracts exceeding \$10,000 which are not exempt from the provisions of the Equal Opportunity Clause and that he will retain such certifications in his files.
- 12.15 By signing this bid or proposal, Contractor certifies that it will (a) comply with the applicable requirements of Title 8, Chapter 14, and (b) include in their contracts with the subcontractor's language requiring the sub-subcontractors to comply with the applicable requirements of Title 8, Chapter 14. (An overview is available at www.procurement.sc.gov)
- 12.16 Bidders must mark as "confidential" each part of their bid which they consider to be proprietary information that could be exempt from disclosure under section 30-4-40, Code of Laws of South

Carolina 1976, as amended (Freedom of Information Act). If any part is designated as confidential, there must be attached to that part an explanation of how this information fits within one or more categories listed in section 30-4-40. The County reserves the right to determine whether this information should be exempt from disclosure and no legal action may be brought against the County or its agents for its determination in this regard.

- 12.17 Nothing herein is intended to exclude any responsible vendor, his product or service, or in any way restrain or restrict competition. On the contrary, all responsible vendors are encouraged to bid and their bids are solicited.
- 12.18 The successful Bidder must be responsible for obtaining all necessary city, county, and state permits/licenses and must comply with all State and local codes and ordinances. Copies of such permits/licenses shall be made available to Colleton County upon request. Working within the Walterboro City Limits may require a City Business License.
- 12.19 This Agreement shall be governed by and construed per the laws of the State of South Carolina, U.S.A.
- 12.20 All claims, disputes, and other matters in question between parties arising out of, or relating to, this Agreement, or the breach thereof, shall be decided in the Circuit Court of the Fourteenth Judicial Circuit in Colleton County, South Carolina. By executing this Agreement, all parties specifically consent to venue and jurisdiction in Colleton County, South Carolina, and waive any right to contest jurisdiction and venue in said Court.
- 12.21 Colleton County reserves the right to reject all or any part of any bid, waive informalities and award the contract to the lowest responsive and responsible bidder to best serve the interest of Colleton County.
- 12.22 By submitting a bid, the Bidder certifies to the best of its knowledge and belief, that it and its principals, sub-contractors, and assigns are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal, State or local department or agency. A copy of the County's debarment procedure per Section 2-68 of Ordinance #2008-09, also known as the Colleton County, South Carolina Purchasing Policy is available upon request.
- 12.23 Federal guidelines require grant recipients to obtain sufficient assurance that bidders are not suspended or debarred from participating in federal programs when contracts exceed \$25,000. By signing the bid submittal form you verify that no party to this agreement is excluded from receiving Federal contracts, certain subcontracts, and certain Federal financial and nonfinancial assistance and benefits, according to the provisions of 31 U.S.C. 6101, note, E.O. 12549, E.O. 12689, 48 CFR 9.404, and each agency's codification of the Common Rule for Non-procurement suspension and debarment. **[See <https://www.epls.gov/> for additional information.]**

ARTICLE 13 - BASIS OF BID; COMPARISON OF BIDS

- 13.01 Base Bid and Unit Price Schedule
 - A. Bidders shall submit a base bid for the project, as listed in the Specifications, General Conditions, Drawings, and any Addendums. Failure for the Contractor or Subcontractor(s) to properly perform takeoffs for the project does not relieve the bidder of their obligation to provide a complete, finished product, for the submitted base bid amount. The base bid shall include any owner-listed Allowances or contingencies.
 - B. Bidders shall submit a Base Bid as a lump sum.

- C. Within 48 hours of the apparent lowest responsive bidder being notified by Colleton County, the bidder shall submit to Colleton County for **review and approval**, the attached unit price schedule for each item of work listed. All quantity take-offs shall be listed in the form as requested. All requested unit pricing shall have a figure entered into the form. Lumping of unit prices and or divisions will not be allowed. Unit prices shall be totaled to match the lump sum bid. Failure for the bidder to provide this information in the allotted time will result in the bidder being disqualified and shall forfeit their Bid Bond.
 - D. The total of all unit prices will be the sum of the products of the quantity of each item and the corresponding unit price.
 - E. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum. Discrepancies between words and figures will be resolved in favor of the words.
- 13.02 The Bid price shall include such amounts as the Bidder deems proper for overhead and profit and any account of cash allowances, if any, named in the Contract Documents as provided in Paragraph 11.02 of the General Conditions.
- 13.03 Bid prices will be compared after adjusting for differences in the time designated by Bidders for Substantial Completion. The adjusting amount will be determined at the rate outlined in the Contract Documents for liquidated damages for failing to achieve Substantial Completion for each day before or after the desired date appearing in Article 9.
- 13.04 The contents of the successful IFB/RFP are included as if fully reproduced herein. Therefore, the selected contractor must be prepared to be bound by his/her proposal as submitted.
- 13.05 Whereas the Colleton County Purchasing Ordinance Chapter 3.08 has provisions for Local Vendor preference. Bidders are encouraged to review section 3.08.185 of Chapter 3.08 for their rights under the Local Vendor Preference as this preference could be used in determining the lowest responsible bidder.

ARTICLE 14 - SUBMITTAL OF BID

- 14.01 **A Bidder shall submit one (1) copy of the “Bid Forms”. The Bid Forms shall contain the Bid security and a completed W-9 form.**
- 14.02 A Bid must be submitted via email no later than the date and the official time prescribed in the Advertisement or Invitation to Bid and shall be accompanied by the Bid security and other required documents. A Bid must be submitted via email to:
- Kaye B. Syfrett, Procurement Manager at ksyfrett@colletoncounty.org***
- 14.03 In the case of Inclement Weather/Closure of Colleton County offices; If the Colleton County office is closed for business at the time scheduled for bid opening, for whatever reason, emailed bids will be accepted on the next scheduled business day, at the originally scheduled official time.
- 14.04 The Bid shall be submitted on the Bid Form provided; no other form is acceptable.
- 14.05 The successful Bidder will be required to provide a verified unit breakdown of costs of all services and work in a manner acceptable to the Owner.
- 14.06 All blanks on the Bid Forms shall be filled in, either typed or printed in ink. The person signing the bid shall initial all corrections or erasures.

- 14.07 Where so indicated on the Bid Form, the Bid Sum shall be expressed in both words and figures; in case of a discrepancy between the two, the Sums expressed in words shall govern.
- 14.08 List unit price on bidder take-offs - extend and show total. In case of extension errors, unit prices shall govern. Unit pricing shall include all applicable overhead, administrative, profit, and other associated costs.
- 14.09 Bidder shall quote all Alternates in the Bidding Documents. If Bidder fails to bid on all Alternates, then his/her Bid may be considered irregular, non-responsive, and may be disqualified.
- 14.10 Bids containing qualifications will be considered irregular, non-responsive, and may be disqualified.
- 14.11 A Bid submitted by a partnership shall list the names of all partners and shall be signed in the partnership name by one of the members of the partnership who is authorized to sign for the partnership.
- 14.12 A Bid submitted by a corporation shall be executed in the legal name of the corporation, followed by the state of incorporation and signed by the President or Vice President or another authorized officer. The name of each person signing the Bid Form shall be typed or printed below the signature.
- 14.13 When the person signing for a corporation is other than the President or Vice President and when requested by the Owner, a resolution or other satisfactory evidence of the authority of the officer signing on behalf of the corporation shall be furnished for the Owner's records. The name of each person signing the Bid Form shall be typed or printed below the signature.

ARTICLE 15 - MODIFICATION OF BID-CLAIM OF ERROR

- 15.01 A Bid may be modified or withdrawn by an appropriate document duly executed in the manner that a Bid must be executed and delivered to the place where Bids are to be submitted before the date and time for the opening of Bids.
- 15.02 A bidder may request to have their submitted bid withdrawn due to an error. The claim of error must be submitted within 24 hours of the bid submittal deadline. A description of the nature of the error shall accompany the request. The description shall include all original worksheets, demonstrating the error. If a withdrawal request is approved, the bidder's Bid Bond will not be forfeited.

ARTICLE 16 - OPENING OF BIDS

- 16.01 Bids will be opened at the time indicated in the Advertisement or Invitation to Bid. An abstract of the amounts of the base Bids and major alternates, if any, will be made available to Bidders after the opening of Bids in the form of a Bid Tabulation and Bid Comparison to be posted on the County web page.

ARTICLE 17 - BIDS TO REMAIN SUBJECT TO ACCEPTANCE

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

ARTICLE 18 - EVALUATION OF BIDS AND AWARD OF CONTRACT

- 18.01 Owner reserves the right to reject any or all Bids, including without limitation, nonconforming, non-responsive, unbalanced, or conditional Bids. Owner further reserves the right to reject the bid of any Bidder whom it finds, after reasonable inquiry and evaluation, to not be responsible. The owner may

also reject the bid of any Bidder if Owner believes that it would not be in the best interest of the Project to make an award to that Bidder. The owner also reserves the right to waive all informalities not involving price, time, or changes in the Work and to negotiate contract terms with the Successful Bidder.

- 18.02 More than one Bid for the same Work from an individual or entity under the same or different names will not be considered. Reasonable grounds for believing that any Bidder has an interest in more than one Bid for the Work may be cause for disqualification of that Bidder and the rejection of all Bids in which that Bidder has an interest.
- 18.03 In evaluating Bids, the Owner will consider whether or not the Bids comply with the prescribed requirements, and such alternates, unit prices, and other data, as may be requested in the Bid Form or before the Notice of Award.
- 18.04 In evaluating Bidders, the Owner will consider the qualifications of Bidders and may consider the qualifications and experience of Subcontractors, Suppliers, and other individuals or entities proposed for those portions of the Work for which the identity of Subcontractors, Suppliers, and other individuals or entities must be submitted as provided in the General Conditions.
- 18.05 Owner may conduct such investigations as Owner deems necessary to establish the responsibility, qualifications, and financial ability of Bidders, proposed Subcontractors, Suppliers, individuals, or entities to perform the Work per the Contract Documents.
- 18.06 If the Contract is to be awarded, the Owner will award the Contract to the Bidder whose Bid is in the best interests of the Project.
- 18.07 The Owner reserves the right not to award the project.

ARTICLE 19 - CONTRACT SECURITY AND INSURANCE

- 19.01 Article 5 of the General Conditions sets forth the Owner's requirements as to performance and payment bonds and insurance. When the Successful Bidder delivers the executed Agreement to the Owner, it shall be accompanied by such bonds.

ARTICLE 20 - SIGNING OF AGREEMENT

- 20.01 When the Owner gives a Notice of Award to the Successful Bidder, it shall be accompanied by the required number of unsigned counterparts of the Agreement with the other Contract Documents which are identified in the Agreement as attached thereto. Within seven (7) days thereafter, Successful Bidder shall sign and deliver the required number of counterparts of the Agreement and attached documents to Owner. Within seven (7) days thereafter, the Owner shall deliver one (1) fully signed counterpart to Successful Bidder with a complete set of the Drawings with appropriate identification.

ARTICLE 21 - RETAINAGE

- 21.01 Retainage from progress payments to the Contractor shall be **ten percent (10%)** of each payment for work completed and stored materials on site. Upon substantial completion, the contractor may request in a payment application, five percent 5% of the held retainage.

ARTICLE 22 – INSURANCE

22.01 The successful bidder shall procure, maintain, and provide proof of, insurance coverage for injuries to persons and/or property damage as may arise from or in conjunction with, the work performed on behalf of the County by the bidder, his agents, representatives, employees or subcontractors. Proof of coverage as contained herein shall be submitted fifteen (15) days before the commencement of work and such coverage shall be maintained by the bidder for the duration of the contract period; for occurrence policies.

a. General Liability

Coverage shall be as broad as Comprehensive General Liability endorsed to include Broad Form, Commercial General Liability form including Products/Completed Operations.

Minimum Limits

General Liability:

\$2,000,000 General Aggregate

\$2,000,000 Products & Completed Operations Aggregate

\$1,000,000 Personal and Advertising Injury

\$1,000,000 Each Occurrence (Bodily Injury and Property Damage)

\$50,000 Fire Damage Limit

\$5,000 Medical Expense Limit

b. Automobile Liability

Coverage is sufficient to cover all vehicles owned, used, or hired by the bidder, his agents, representatives, employees, or subcontractors.

Minimum Limits

Automobile Liability:

\$1,000,000 Combined Single Limit

\$1,000,000 Each Occurrence

Limit \$5,000 Medical Expense

c. Workers' Compensation

Limits as required by the Workers' Compensation Act of SC. Employers

Liability, \$1,000,000

d. Owners' & Contractors' Protective Liability

The policy will be in name of Colleton County.

The minimum limits required are \$1,000,000

e. Excess or Umbrella Liability

General Aggregate \$2,000,000

Each Occurrence \$2,000,000

f. Contractual Liability

Bodily Injury:

Each Accident \$2,000,000

Annual Aggregate \$2,000,000

Property Damage:

Each Accident \$2,000,000

Annual Aggregate \$2,000,000

g. Coverage Provisions

1. All deductibles or self-insured retention shall appear on the certificate(s).

2. The County of Colleton, its officers/ officials, employees, agents, and volunteers shall be added as "additional insured" as their interests may appear. This provision does not apply to Professional Liability or Workers' Compensation/Employers' Liability.
3. The bidder's insurance shall be primary over any applicable insurance or self-insurance maintained by Colleton County.
4. Shall provide 30 days' written notice to Colleton County before any cancellation, suspension, or void of coverage in whole or part, where such provision is reasonable.
5. All coverage for subcontractors of the bidder shall be subject to all of the requirements stated herein.
6. All deductibles or self-insured retention shall appear on the certificate(s) and shall be subject to approval by the County. At the option of Colleton County, either; the insurer shall reduce or eliminate such deductible or self-insured retention, or the bidder shall be required to procure a bond guaranteeing payment of losses and related claims expenses.
7. Failure to comply with any reporting provisions of the policy(s) shall not affect coverage provided by Colleton County, its officers/officials, agents, employees, and volunteers.
8. The insurer shall agree to waive all rights of subrogation against Colleton County, its' officers/officials, agents, employees, or volunteers for any act, omission, or condition of premises to which the parties may be held liable because of negligence.
9. The bidder shall furnish Colleton County certificates of insurance including endorsement affecting coverage. The certificates are to be signed by a person authorized by the insurance company(s) to bind coverage on its' behalf, if executed by a broker, a notarized copy of the authorization to bind, or certify coverage must be attached.
10. All insurance shall be placed with insurers maintaining an A.M. Best rating of no less than an A: VII. If A.M. Best rating is less than A: VII, approval must be received from Colleton County's Risk Officer.

22.02 Colleton County, SC will require each contractor and service provider to maintain on file with the Procurement Manager, a current Certificate of Insurance showing limits as required by the Workers' Compensation Act of SC:

Employers Liability, \$1,000,000.

The law also recognizes "statutory employees." These are employees who work for a subcontractor who may be working for a business or another contractor. Employers should inquire whether or not a subcontractor working for them has workers' compensation insurance, regardless of the number of employees employed by the subcontractor. If the subcontractor does not, the subcontractor's injured employees would be covered under the employer's workers' compensation insurance. If the subcontractor does not carry workers' compensation insurance, then the owner or the principal contractor would be liable just as if the subcontractor's employee was one of their employees. For answers to additional questions, visit the SC Worker's Compensation Commission website at <http://www.wcc.state.sc.us/Frequently%20Asked%20Questions/FAQ.htm>

22.03 Contractor shall provide and maintain, during the progress of the work and until execution of the Certificate of Contract Completion, a Builder's Risk Insurance policy to cover all work in the course of construction including falsework, temporary buildings, scaffolding, and materials used in the construction process (including materials designated for the project but stored off-site or in transit).

The coverage shall equal the total completed value of the work and shall provide recovery at replacement cost.

- a) Such insurance shall be on a special cause of loss form, providing coverage on an open perils basis insuring against the direct physical loss of or damage to covered property, including but not limited to theft, vandalism, malicious mischief, earthquake, tornado, lightning, and explosion, breakage of glass, collapse, water damage, and testing /startup.
- b) Coverage shall include coverage for "soft costs" (costs other than replacement of building materials) including, but not limited to, the reasonable extra costs of the architect/engineer and reasonable Contractor extension or acceleration costs. This coverage shall also include the reasonable extra costs of expediting temporary and permanent repairs to, or permanent replacement of, damaged property. This shall include overtime wages and the extra cost of express or other means for rapidly transporting materials and supplies necessary to the repair or replacement.
- c) The policy shall specifically permit and allow for partial occupancy by the owner before the execution of the final Certification of Contract Completion, and coverage shall remain in effect until all punch list items are completed.
- d) The Builder's Risk deductible may not exceed \$5,000. The Contractor or subcontractor experiencing any loss claimed under the Builder's Risk policy shall be responsible for that loss up to the amount of the deductible.
- e) If the Contractor is involved solely in the installation of material and equipment and not in new building construction, the Contractor shall provide an Installation Floater policy in place of a Builder's Risk policy. The policy must comply with the provisions of this paragraph.

ARTICLE 23 – WARRANTY

- 23.01 Warranty of workmanship and products shall be covered for **730 days** from the date of the issuance of the Certificate of Substantial Completion. During the 730-day warranty period, all product warranties or workmanship repairs are the sole responsibility of the Contract holder and shall include all parts and labor associated with the repair.
- 23.02 All items repaired or replaced during the initial Warranty period due to workmanship or product failure shall be warranted for 365 days from the date of the repair and or replacement.
- 23.03 All Surety Bonds shall cover the warranty period listed in 23.01 and 23.02. The surety shall be updated to reconcile the date of the warranty period as needed.
- 23.04 Should a product installed during the construction process not have a manufactures warranty period that extends out to one year, it is the responsibility of the Contract holder to cover the product and any resulting expenses related to that product for one year.

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THIS AGREEMENT is by and between **Colleton County, 109 Benson Street,
Walterboro, South Carolina 29488**

(hereinafter called "Owner") and _____

doing business as an **individual/partnership/corporation/joint venture** (strike out inapplicable terms), with its primary office in the City of _____, State of _____.

This Agreement will be effective on this ____ day of _____, **2021**

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

ARTICLE 1 - WORK

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

The construction of a parking lot located at the corner of Benson and Klein Street in Walterboro

ARTICLE 2 - THE PROJECT

2.01 The Project for which the Work under the Contract Documents may be the whole or only a part is generally described as follows:

The construction of a parking lot located at the corner of Benson and Klein Street in Walterboro

ARTICLE 3 - DESIGN

3.01 Professional Design has been performed by Glick Boehm and Associates.

ARTICLE 4 - CONTRACT TIMES

4.01 Time of the Essence

A. All-time limits for Milestones for final payment as stated in the Contract Documents are of the essence of the Contract.

4.02 Dates for Substantial Completion and Final Payment

The construction of a parking lot located at the corner of Benson and Klein Street in Walterboro is to be completed within one hundred-twenty (120) calendar days after the "Notice to Proceed" has been issued.

4.03 Liquidated Damages

- A. Contractor and Owner recognize that time is of the essence of this Agreement and that Owner will suffer financial loss if the Work is not completed within the times specified in Paragraph 4.02 above, plus any extensions thereof allowed per Article 12 of the General Conditions. The parties also recognize the delays, expense, and difficulties involved in proving in a legal or arbitration proceeding the actual loss suffered by the Owner if the Work is not completed on time. Accordingly, instead of requiring any such proof, Owner and Contractor agree that as liquidated damages for delay (but not as a penalty), Contractor shall pay Owner \$500 for each day that expires after the time specified in Paragraph 4.02 for completion and readiness for final payment until the work is completed and ready for final payment.
- B. Liquidated damages can and will be assessed against the final payment request and any retainage held by the Owner. Should funding for Liquidated damages exceed the amount held by the Owner in the form of Payments or Retainage, work shall stop until the Liquidated Damages issue is resolved.
- C. Substantial Completion does not constitute compliance with the allotted time as outlined in the bid packet or within the Contract Documents.

ARTICLE 5 - CONTRACT PRICE

- 5.01 Owner shall pay Contractor for completion of the Work per the Contract Documents an amount in current funds equal to the sum of the amounts determined according to Paragraphs 5.01.A below:
 - A. For all Unit Price Work, an amount equal to the sum of the established unit price for each separately identified item of Unit Price Work, times the estimated quantity of that item as indicated in the Bid Form attached hereto as part of these Contract Documents.

ARTICLE 6 - PAYMENT PROCEDURES

6.01 Submittal and Processing of Payments

- A. Contractor shall submit Applications for Payment per Article 14 of the General Conditions. Applications for Payment will be processed by the Construction Coordinator as provided in the General Conditions.

6.02 Progress Payments; Retainage

- A. The owner shall make progress payments on account of the Contract Price based on Contractor's Applications for Payment on or about the 15th day of each month during the performance of the Work as provided in Paragraphs 6.02.A.1 and 6.02.A.2 below. All such payments will be measured by the schedule of values established as provided in Paragraph 2.07-A of the General Conditions (and in the case of Unit Price Work based on the number of units completed) or, in the event there is no schedule of values, as provided in the General Requirements:
 - 1. Before Substantial Completion, progress payments will be made in an amount equal to the percentage indicated below but, in each case, less the aggregate of payments previously made and less such amounts as the Construction Coordinator may determine or Owner may withhold, including but not limited to liquidated damages, per Paragraph 14.02 of the General Conditions:
 - a. **90%** of Work completed (with the balance being Retainage).

- b. **90%** of the cost of materials and equipment not incorporated in the Work (with the balance being Retainage).
- 2. Upon Substantial Completion, Owner shall pay an amount sufficient to increase total payments to Contractor to **95%** of the Work completed, less such amounts as the Construction Coordinator shall determine per Paragraph 14.02.B.5 of the General Conditions and less **10%** of the Construction Coordinator estimate of the value of Work to be completed or corrected as shown on the tentative list of items to be completed or corrected attached to the certificate of Substantial Completion.

6.03 Final Payment

- A. Upon completion and acceptance of the Work per Paragraph 14.07 of the General Conditions, the Owner shall pay the remainder of the Contract Price as recommended by the Construction Coordinator as provided in said Paragraph 14.07.

ARTICLE 7 – CONTRACTOR’S REPRESENTATIONS

7.01 To induce Owner to enter into this Agreement Contractor makes the following representations:

- A. The contractor has examined and carefully studied the Contract Documents and the other related data identified in the Bidding Documents.
- B. The contractor has visited the Site and become familiar with and is satisfied as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
- C. The contractor is familiar with and is satisfied with all federal, state, and local Laws and Regulations that may affect the cost, progress, and performance of the Work.
- D. The contractor has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or contiguous to the Site and all drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site (except Underground Facilities) which have been identified in Paragraph 4.02 of the General Conditions and (2) reports and drawings of a Hazardous Environmental Condition, if any, at the Site which has been identified in Paragraph 4.06 of the General Conditions.
- E. The contractor has obtained and carefully studied (or assumes responsibility for doing so) all examinations, investigations, explorations, tests, studies, and data concerning conditions (surface, subsurface, and Underground Facilities) at or contiguous to the Site which may affect cost, progress, or performance of the Work or which relate to any aspect of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, including any specific means, methods, techniques, sequences, and procedures of construction expressly required by the Bidding Documents, and safety precautions and programs incident thereto.
- F. The contractor does not consider that any further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and per the other terms and conditions of the Contract Documents.
- G. The contractor is aware of the general nature of work to be performed by the Owner and others at the Site that relates to the Work as indicated in the Contract Documents.
- H. The contractor has correlated the information known to the Contractor, information, and observations obtained from visits to the Site, reports, and drawings identified in the Contract Documents, and all additional examinations, investigations, explorations, tests, studies, and data with the Contract Documents.

- I. The contractor has given the Owner written notice of all conflicts, errors, ambiguities, or discrepancies that Contractor has discovered in the Contract Documents, and the written resolution thereof by the Owner is acceptable to Contractor.
- J. The Contract Documents are generally sufficient to indicate and convey an understanding of all terms and conditions for the performance and furnishing of the Work.

ARTICLE 8 - CONTRACT DOCUMENTS

- 8.01 A. The Contract Documents shall consist of all sections in the following divisions.

DIVISION 000 - BIDDING AND CONTRACT REQUIREMENTS
DIVISION 001 - GENERAL CONDITIONS
SPECIFICATIONS & PLANS - GLICK/BOEHM & Associates

All information contained within these Divisions and the requirements thereof are of the sole responsibility of the bidder.

- B. There are no Contract Documents other than those listed above in this Article 8.
- C. The Contract Documents may only be amended, modified, or supplemented as provided in Paragraph 3.04 of the General Conditions.

ARTICLE 9 - MISCELLANEOUS

- 9.01 Terms

- A. Terms used in this Agreement will have the meanings stated in the 001, General Conditions.

- 9.02 Assignment of Contract

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

- 9.03 Successors and Assigns

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

- 9.04 Severability

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

9.05 Waiver or Forbearance

- A. Any delay or failure of Owner to insist upon strict performance of any obligation under this Agreement or to exercise any right or remedy provided under this Agreement shall not be a waiver of Owners right to demand strict compliance, irrespective of the number or duration of any delay(s) or failure(s). No term or condition imposed on Contractor under this Agreement shall be waived and no breach by Contractor shall be excused unless that waiver or excuse of a breach has been put in writing and signed by both parties. No waiver in any instance of any right or remedy shall constitute waiver of any other right or remedy under this Agreement. No consent to or forbearance of any breach or substandard performance of any obligation under this Agreement shall constitute consent to modification or reduction of the other obligations or forbearance of any other breach.
- B. Subject to the provisions below, the contract may be terminated by Owner upon fifteen (15) days advance written notice to the other party; but if any work or service hereunder is in progress, but not completed as of the date of termination, then this contract may be extended upon written approval of the Owner until said work or services are completed and accepted.
- Termination for Convenience
If this contract is terminated or canceled upon request and for the convenience of the Owner, without the required fifteen (15) days advance written notice, then the Owner shall negotiate reasonable termination costs, if applicable.
 - Termination for Cause
Termination by the Owner for cause, default, or negligence on the part of the contractor shall be excluded from the foregoing provision; termination costs, if any, shall not apply. The fifteen (15) days advance notice requirement is waived in the event of Termination for Cause.
 - Non-Appropriation:
It is understood and agreed by the parties that in the event funds are not appropriated in the current fiscal year or any subsequent fiscal years, this contract will become null and void and the Owner will only be required to pay for services completed to the satisfaction of the Owner.

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IN WITNESS, WHEREOF, Owner, and Contractor have signed this Agreement. One counterpart each has been delivered to Owner, Contractor, Construction Coordinator and provided to the Contractor for his Bonding Agency. All portions of the Contract Documents have been signed or identified by Owner and Contractor or on their behalf.

This Agreement will be effective on this ____ day of _____, 2021 (which is the Effective Date of the Agreement).

OWNER:

CONTRACTOR:

_____ **Colleton County** _____

By: _____
J. Kevin Griffin

By: _____

Title: _____ **County Administrator** _____

Title: _____ **Owner** _____

Address for giving notices:

Address for giving notices:

_____ **Colleton County Procurement Manager** _____

_____ **Attn: Kaye B Syfrett** _____

_____ **113 Mable T. Willis Blvd.** _____

_____ **Walterboro, SC 29488** _____

_____ License No.: _____

REFERENCE FORMS

1- BOND FORMS

Bond Requirements

- a. All Bonds shall be placed with insurers maintaining an A.M. Best rating of no less than an A: VII. If A.M. Best rating is less than A: VII, approval must be received from Colleton County's Risk or Finance Officer before issuance.
- b. Bonding Companies shall submit as proof of good standing, a copy of the A.M Rating along with the Bond.
- c. Bonding/Surety Companies shall use the Bonds provided in the Bid/Proposal Packet FM-55.
- d. Bonding/Surety Companies shall issue a new Performance Bond and Payment Bond at such time that the contract has been altered by a change order adjusting the compensation of the contract.
- e. Bonding companies shall note the warranty periods as outlined in the Proposal Document FM-55 and listed on the reverse side of the bond itself. Should the warranty period be extended past the initial contract period due to a warranty claim, then the bond shall be re-issued to match the new warranty period as outlined in the proposal documents.

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PERFORMANCE BOND

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

CONTRACTOR:

SURETY:

OWNER: Colleton County
109 Benson Street
Walterboro, SC 29488

CONTRACT: CC-35

Date: _____

Amount: _____

Description (Name and Location): **The construction of a parking lot located at the corner of Benson and Klein Street in Walterboro.**

BOND

Bond Number: _____

Date (Not earlier than Contract Date): _____

Amount: _____

Modifications to this Bond Form: _____

Surety and Contractor, intending to be legally bound hereby, subject to the terms printed on the reverse side hereof, do each cause this Performance Bond to be duly executed on its behalf by its authorized officer, agent, or representative.

CONTRACTOR AS PRINCIPAL

SURETY

Company: _____

Signature: _____

Name and Title:

Surety's Name and Corporate Seal

By: _____

Signature and Title
(Attach Power of Attorney)

(Space is provided below for signatures of additional parties if required.)

Attest: _____

Signature and Title

CONTRACTOR AS PRINCIPAL

SURETY

Company: _____

Signature: _____

Name and Title:

Surety's Name and Corporate Seal

By: _____

Signature and Title
(Attach Power of Attorney)

Attest: _____

Signature and Title:

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

2. If Contractor performs the Contract, Surety and Contractor have no obligation under this Bond, except to participate in conferences as provided in Paragraph 3.1.

3. If there is no Owner Default, Surety's obligation under this Bond shall arise after:

3.1. Owner has notified Contractor and Surety, at the addresses described in Paragraph 10 below, that Owner is considering declaring a Contractor Default and has requested and attempted to arrange a conference with Contractor and Surety to be held not later than 15 days after receipt of such notice to discuss methods of performing the Contract. If Owner, Contractor, and Surety agree, Contractor shall be allowed a reasonable time to perform the Contract, but such an agreement shall not waive Owner's right, if any, subsequently to declare a Contractor Default; and

3.2. Owner has declared a Contractor Default and formally terminated Contractor's right to complete the Contract. Such Contractor Default shall not be declared earlier than 20 days after Contractor and Surety have received notice as provided in Paragraph 3.1; and

3.3. Owner has agreed to pay the balance of the Contract Price to:

1. Surety per the terms of the Contract;

2. Another contractor selected according to Paragraph 4.3 to perform the Contract.

4. When Owner has satisfied the conditions of Paragraph 3, Surety shall promptly and at Surety's expense take one of the following actions:

4.1. Arrange for Contractor, with the consent of Owner, to perform and complete the Contract; or

4.2. Undertake to perform and complete the Contract itself, through its agents or independent contractors; or

4.3. Obtain bids or negotiated proposals from qualified contractors acceptable to Owner for a contract for performance and completion of the Contract, arrange for a contract to be prepared for execution by Owner and Contractor selected with Owner's concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Contract, and pay to Owner the number of damages as described in Paragraph 6 above the Balance of the Contract Price incurred by Owner resulting from Contractor Default; or

4.4. Waive its right to perform and complete, arrange for completion, or obtain a new contractor and with reasonable promptness under the circumstances:

1. After investigation, determine the amount for which it may be liable to Owner and, as soon as practicable after the amount is determined, tender payment therefor to Owner; or

2. Deny liability in whole or in part and notify the Owner citing reasons, therefore.

5. If Surety does not proceed as provided in Paragraph 4 with reasonable promptness, Surety shall be deemed to be in default on this Bond 15 days after receipt of an additional written notice from Owner to Surety demanding that Surety perform its obligations under this Bond, and Owner shall be entitled to enforce any remedy available to Owner. If Surety proceeds as provided in Paragraph 4.4, and Owner refuses the payment tendered or Surety has denied liability, in whole or in part, without further notice Owner shall be entitled to enforce any remedy available to Owner.

6. After Owner has terminated Contractor's right to complete the Contract, and if Surety elects to act under Paragraph 4.1, 4.2, or 4.3 above, then the responsibilities of Surety to Owner shall not be greater than those of Contractor under the Contract, and the responsibilities of Owner to Surety shall not be greater than those of Owner under the Contract. To a limit of the amount of this Bond, but subject to a commitment by Owner of the Balance of the Contract Price to the mitigation of costs and damages on the Contract, Surety is obligated without duplication for:

6.1. The responsibilities of Contractor for correction of defective Work and completion of the Contract.

6.2. Additional legal, design professional, and delay costs resulting from Contractor's Default, and resulting from the actions or failure to act of Surety under Paragraph 4; and

6.3. Liquidated damages, or if no liquidated damages are specified in the Contract, actual damages caused by delayed performance or non-performance of Contractor.

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

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

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

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

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

12. The Surety will be obligated until the Contractor has faithfully performed all terms of the Contract, which includes a two (2) year warranty coverage period.

12.1 The standard two-year warranty period starts on the date of issuance of the Substantial Completion Certification.

12.2 The standard warranty covers the full cost of Labor, Parts, Shipping, Sales Tax, and any other associated cost for the warranty repair.

12.3 The surety agrees that should a warranty issue arise within the allotted standard two (2) year warranty period, the item repaired during the warranty period shall be covered for an additional year (365 days) from the completed repair of the warranty issue.

13. Definitions

13.1 Balance of the Contract Price: The total amount payable by Owner to Contractor under the Contract after all proper adjustments have been made, including allowance to Contractor of any amounts received or to be received by Owner in settlement of insurance or other Claims for damages to which Contractor is entitled, reduced by all valid and proper payments made to or on behalf of Contractor under the Contract.

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

13.3. Contractor Default: Failure of Contractor, which has neither been remedied nor waived, to perform or otherwise to comply with the terms of the Contract.

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

PAYMENT BOND

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

CONTRACTOR:

SURETY:

OWNER: Colleton County
109 Benson Street
Walterboro, SC 29488

CONTRACT CC-35

Date: _____

Amount: _____

Description (Name and Location): **The construction of a parking lot located at the corner of Benson and Klein Street in Walterboro.**

BOND

Bond Number: _____

Date (Not earlier than Contract Date): _____

Amount: _____

Modifications to this Bond Form: _____

Surety and Contractor, intending to be legally bound hereby, subject to the terms printed on the reverse side hereof, do each cause this Payment Bond to be duly executed on its behalf by its authorized officer, agent, or representative.

CONTRACTOR AS PRINCIPAL

SURETY

Company: _____

Signature: _____

Name and Title:

Surety's Name and Corporate Seal

By:

Signature and Title
(Attach Power of Attorney)

(Space is provided below for signatures of additional parties if required.)

Attest:

Signature and Title

CONTRACTOR AS PRINCIPAL

SURETY

Company:

Signature: _____

Name and Title:

Surety's Name and Corporate Seal

By:

Signature and Title
(Attach Power of Attorney)

Attest:

1. Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to Owner to pay for labor, materials, and equipment furnished by Claimants for use in the performance of the Contract, which is incorporated herein by reference.
 2. Concerning the Owner, this obligation shall be null and void if Contractor:
 - 2.1. Promptly makes a payment, directly or indirectly, for all sums due Claimants, and
 - 2.2. Defends, indemnifies, and holds harmless Owner from all claims, demands, liens, or suits alleging non-payment by Contractor by any person or entity who furnished labor, materials, or equipment for use in the performance of the Contract, provided Owner has promptly notified Contractor and Surety (at the addresses described in Paragraph 12) of any claims, demands, liens, or suits and tendered defense of such claims, demands, liens, or suits to Contractor and Surety, and provided there is no Owner Default.
 3. Concerning Claimants, this obligation shall be null and void if Contractor promptly makes a payment, directly or indirectly, for all sums due.
 4. Surety shall have no obligation to Claimants under this Bond until:
 - 4.1. Claimants who are employed by or have a direct contract with Contractor have given notice to Surety (at the addresses described in Paragraph 12) and sent a copy, or notice thereof, to Owner, stating that a claim is being made under this Bond and, with substantial accuracy, the amount of the claim.
 - 4.2. Claimants who do not have a direct contract with Contractor:
 1. Have furnished written notice to Contractor and sent a copy, or notice thereof, to Owner, within 90 days after having last performed labor or last furnished materials or equipment included in the claim stating, with substantial accuracy, the amount of the claim and the name of the party to whom the materials or equipment were furnished or supplied, or for whom the labor was done or performed; and
 2. Have either received a rejection in whole or in part from Contractor or not received within 30 days of furnishing the above notice any communication from Contractor by which Contractor had indicated the claim will be paid directly or indirectly; and
 3. Not having been paid within the above 30 days, have sent a written notice to Surety and sent a copy, or notice thereof, to Owner, stating that a claim is being made under this Bond and enclosing a copy of the previous written notice furnished to Contractor.
 5. If a notice by a Claimant required by Paragraph 4 is provided by Owner to Contractor or to Surety that is sufficient compliance.
 6. When a Claimant has satisfied the conditions of Paragraph 4, the Surety shall promptly and at Surety's expense take the following actions:
 - 6.1. Send an answer to that Claimant, with a copy to Owner, within 45 days after receipt of the claim, stating the undisputed amounts and the basis for challenging any amounts that are disputed.
 - 6.2. Pay or arrange for payment of any undisputed amounts.
 7. Surety's total obligation shall not exceed the amount of this Bond, and the amount of this Bond shall be credited for any payments made in good faith by Surety.
 8. Amounts owed by Owner to Contractor under the Contract shall be used for the performance of the Contract and to satisfy claims, if any, under any performance bond. By Contractor furnishing and Owner accepting this Bond, they agree that all funds earned by Contractor in the performance of the Contract are dedicated to satisfying obligations of Contractor and Surety under this Bond, subject to Owner's priority to use the funds for the completion of the Work.
 9. Surety shall not be liable to Owner, Claimants, or others for obligations of Contractor that are unrelated to the Contract. The owner shall not be liable for payment of any costs or expenses of any Claimant under this Bond and shall have under this Bond no obligations to make payments to, give notices on behalf of, or otherwise have obligations to Claimants under this Bond.
 10. Surety hereby waives notice of any change, including changes of time, to the Contractor to related Subcontracts, purchase orders, and other obligations.
 11. No suit or action shall be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the location in which the Work or part of the Work is located or after the expiration of one year from the date (1) on which the Claimant gave the notice required by Paragraph 4.1 or Paragraph 4.2.3, or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Construction Contract, whichever of (1) or (2) first occurs. If the provisions of this paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.
 12. Notice to Surety, Owner, or Contractor shall be mailed or delivered to the addresses shown on the signature page. Actual receipt of notice by Surety, Owner, or Contractor, however, accomplished, shall be sufficient compliance as of the date received at the address shown on the signature page.
 13. When this Bond has been furnished to comply with a statutory requirement in the location where the contract was to be performed, any provision in this Bond conflicting with said statutory requirement shall be deemed deleted here from, and provisions conforming to such statutory requirement shall be deemed incorporated herein. The intent is that this Bond shall be construed as a statutory bond and not as a common law bond.
 14. Upon request of any person or entity appearing to be a potential beneficiary of this Bond, the Contractor shall promptly furnish a copy of this Bond or shall permit a copy to be made.
 15. The Surety will be obligated until the Contractor has faithfully performed all terms of the Contract, which includes a two (2) year warranty coverage period.
 - 15.1 The standard two-year warranty period starts on the date of issuance of the Substantial Completion Certification.
 - 15.2 The standard warranty covers the full cost of Labor, Parts, Shipping, Sales Tax, and any other associated cost for the warranty repair.
 - 15.3 The surety agrees that should a warranty issue arise within the allotted standard two (2) year warranty period, the item repaired during the warranty period shall be covered for an additional year (365 days) from the completed repair of the warranty issue.
16. DEFINITIONS
- 16.1. Claimant: An individual or entity having a direct contract with Contractor, or with a first-tier subcontractor of Contractor, to furnish labor, materials, or equipment for use in the performance of the Contract. This Bond shall intend to include without limitation in the terms "labor, materials or equipment" that part of water, gas, power, light, heat, oil, gasoline, telephone service, or rental equipment used in the Contract, architectural, and engineering services required for the performance of the Work of Contractor and Contractor's Subcontractors, and all other items for which a mechanic's lien may be asserted in the jurisdiction where the labor, materials, or equipment were furnished.
 - 16.2. Contract: The agreement between Owner and Contractor identified on the signature page, including all Contract Documents and changes thereto.
 - 16.3. Owner Default: Failure of Owner, which has neither been remedied nor waived, to pay Contractor as required by the Contractor to perform and complete or comply with the other terms thereof.

NOTICE OF AWARD

Dated _____

Project: <u>The construction of a parking lot located at the corner of Benson and Klein Street in Walterboro.</u>	Owner: Colleton County, 109 Benson Street, Walterboro SC 29488	Owner Project Number: CC-35
Contract: CC-35 Benson and Klein Street Parking Lot		
Bidder:		
Bidder's Address:		

You are notified that your Bid dated _____ for the above Contract has been considered. You are the Successful Bidder and are awarded a Contract for the construction of a parking lot located at the corner of Benson and Klein Street in Walterboro.

The Contract Price of your Contract is _____ (\$_____).

_____ Copies of each of the Contract Documents (except Drawings) accompany this Notice of Award.

You must comply with the following conditions precedent within ten (10) days of the date you receive this Notice of Award.

1. Deliver to the Owner One (1) fully executed counterparts of the Contract Documents.

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

Within seven (7) days after you comply with the above conditions, the Owner will return to you one (1) fully executed counterpart of the Contract Documents.

Colleton County
 Owner

By: _____
 Authorized Signature

 Title

Acceptance of Notice: On this ____ day of _____, **2021**.

 Contractor

By: _____
 Authorized Signature

 Title

NOTICE TO PROCEED

Dated _____

Project: The construction of a parking lot located at the corner of Benson and Klein Street in Walterboro.	Owner: Colleton County, 109 Benson Street, Walterboro SC 29488	Owner Project Number: CC-35
Contract: CC-35 Benson and Klein Street Parking Lot		
Contractor:		
Contractor's Address:		

You are notified that the Contract Times under the above contract will commence to run on _____, **2021** on that date you are to start performing your obligations under the Contract Documents. In accordance with the Agreement, the date that work can start at the Facility is _____, **2021** with the date of Substantial Completion being _____, **2021** and the date of readiness for final payment is _____, **2021**.

Before you may start any Work at the Site, Paragraph 2.01.B of the General Conditions provides that you and Owner must each deliver to the other (with copies to the Construction Coordinator and other identified additional insureds) certificates of insurance which each is required to purchase and maintain per the Contract Documents.

_____ Contractor	Colleton County _____ Owner
by: _____ Authorized Signature	Given by: _____ John T. Stieglitz
_____ Title	Capital Projects Director _____ Title
_____ Date	_____ Date

CONTRACTOR/SUBCONTRACTOR QUALIFICATIONS

PART 1 - GENERAL

1.01 The following information and completed forms may be requested by the Owner of the three (3) lowest bidders. The request will be made the day of the Bid Opening or within five (5) days following the Bid Opening. If requested, this data must be submitted to the Construction Coordinator or Owner within five (5) days of the request. Failure to provide the data in this section, upon request, will subject the bidder to disqualification.

1.02 DESCRIPTION

- A. Information provided will be used by the Construction Coordinator or Owner to determine the competency and ability of the Contractor and/or Subcontractor to perform the scheduled work in a manner that is satisfactory to the Construction Coordinator or Owner. The Construction Coordinator or Owner's decision shall be final.
- B. Any Subcontractor being used by the General Contractor, whose portion of the project exceeds 5% of the total bid price amount, will be required to provide the same information as the General Contractor.
- C. The Contractor and Subcontractor shall include with this section a detailed financial statement indicating the Contractor's or Subcontractor's financial resources. The information on that statement shall be certified by a Certified Public Accountant and shall be submitted on the Associated General Contractors of America form "Standard Questionnaires and Financial Statement for Bidders".
- D. The Contractor and Subcontractor shall certify by attaching his signature to this Section as provided that all information contained herein is complete and all statements and answers are accurate and true. Providing misinformation, incomplete information, inaccurate information, or failure to certify the information, will subject the bidder to disqualification.

1.03 QUALIFICATIONS

A. Complete the following for General Contractor and any Subcontractors (attach additional sheets as required):

- 1. Name: _____
- 2. Address: _____
- 3. City, State, Zip: _____
- 4. Principle: _____

B. Number of years the company has been in business: _____

C. List and describe at least five (5) projects that have been completed, that are similar in size and type, and that has been completed within the last ten (10) years:

- 1. _____

- 2. _____

- 3. _____

- 4. _____

5. _____

D. For the projects listed above provide the following:

1. Project Owner: _____
Contact Name and Title: _____
Telephone Number: _____

2. Project Owner: _____
Contact Name and Title: _____
Telephone Number: _____

3. Project Owner: _____
Contact Name and Title: _____
Telephone Number: _____

4. Project Owner: _____
Contact Name and Title: _____
Telephone Number: _____

5. Project Owner: _____
Contact Name and Title: _____
Telephone Number: _____

E. For each of the projects listed in Items C & D provide the following:

1. Original Bid Amount: _____
Final Construction Cost: _____
Contract Period: _____
Actual Contract Period: _____
Explanation: _____

2. Original Bid Amount: _____
Final Construction Cost: _____
Contract Period: _____
Actual Contract Period: _____
Explanation: _____

3. Original Bid Amount: _____
Final Construction Cost: _____
Contract Period: _____
Actual Contract Period: _____
Explanation: _____

- 4. Original Bid Amount: _____
 Final Construction Cost: _____
 Contract Period: _____
 Actual Contract Period: _____
 Explanation: _____
- 5. Original Bid Amount: _____
 Final Construction Cost: _____
 Contract Period: _____
 Actual Contract Period: _____
 Explanation: _____

F. Provide the following for any portion of the work that is being subcontracted (5% or more of the Bid Amount):

- 1. Name of Subcontractor: _____
 Address City/State/Zip: _____
 Telephone Number: _____
 Work being completed: _____
- 2. Name of Subcontractor: _____
 Address City/State/Zip: _____
 Telephone Number: _____
 Work being completed: _____
- 3. Name of Subcontractor: _____
 Address City/State/Zip: _____
 Telephone Number: _____
 Work being completed: _____
- 4. Name of Subcontractor: _____
 Address City/State/Zip: _____
 Telephone Number: _____
 Work being completed: _____
- 5. Name of Subcontractor: _____
 Address City/State/Zip: _____
 Telephone Number: _____
 Work being completed: _____

G. Provide a list of equipment that is owned by the Contractor and is available for this project.

H. Provide a list of equipment that will be purchased, leased, or rented for this project.

I. Provide a list of the superintendent(s) or others that will be in charge of this project (Provide resumes and qualifications):

J. Provide the following for current projects being completed:

1. Project Name: _____
Owner: _____
Current Status: _____
Estimated Schedule of Completion: _____

2. Project Name: _____
Owner: _____
Current Status: _____
Estimated Schedule of Completion: _____

3. Project Name: _____
Owner: _____
Current Status: _____
Estimated Schedule of Completion: _____

4. Project Name: _____
Owner: _____
Current Status: _____
Estimated Schedule of Completion: _____

5. Project Name: _____
Owner: _____
Current Status: _____
Estimated Schedule of Completion: _____

K. Provide a list of the last five (5) projects that has been completed with the Owner over the past fifteen (15) years:

1. Project Name: _____
Contact Name and Title: _____
Telephone Number: _____

2. Project Name: _____
Contact Name and Title: _____
Telephone Number: _____

3. Project Name: _____
Contact Name and Title: _____
Telephone Number: _____

4. Project Name: _____
Contact Name and Title: _____
Telephone Number: _____

5. Project Name: _____
Contact Name and Title: _____
Telephone Number: _____

L. Provide a list of last five (5) projects that Bid with the Owner over the past fifteen (15) years:

1. Project Name: _____
Contact Name and Title: _____
Telephone Number: _____

2. Project Name: _____
Contact Name and Title: _____
Telephone Number: _____

3. Project Name: _____
Contact Name and Title: _____
Telephone Number: _____

4. Project Name: _____
Contact Name and Title: _____
Telephone Number: _____

5. Project Name: _____
Contact Name and Title: _____
Telephone Number: _____

M. Provide a list of projects completed with the Construction Coordinator over the past fifteen (15) years:

1. Project Name: _____
Project Engineer: _____
Original Bid Amount: _____
Final Construction Cost: _____
Contract Period: _____
Actual Contract Period: _____
Explanation: _____

2. Project Name: _____
Project Engineer: _____
Original Bid Amount: _____
Final Construction Cost: _____
Contract Period: _____
Actual Contract Period: _____
Explanation: _____

3. Project Name: _____
Project Engineer: _____
Original Bid Amount: _____
Final Construction Cost: _____
Contract Period: _____
Actual Contract Period: _____
Explanation: _____

4. Project Name: _____
Project Engineer: _____
Original Bid Amount: _____
Final Construction Cost: _____
Contract Period: _____
Actual Contract Period: _____
Explanation: _____

5. Project Name: _____
Project Engineer: _____
Original Bid Amount: _____
Final Construction Cost: _____
Contract Period: _____
Actual Contract Period: _____
Explanation: _____

N. Provide a list of projects involved with litigation, arbitration and/or mediation over the past twenty (20) years:

1. Project Name: _____
Project Owner: _____
Project Engineer: _____
Date: _____
Explanation: _____
2. Project Name: _____
Project Owner: _____
Project Engineer: _____
Date: _____
Explanation: _____
3. Project Name: _____
Project Owner: _____
Project Engineer: _____
Date: _____
Explanation: _____

O. Attach a rate schedule associated with equipment that includes labor, overhead, and profit.

_____ Rate Schedule Attached.

P. Additional information if necessary.

I HEREBY CERTIFY that as a duly authorized representative of _____, the information provided is to the best of my knowledge, accurate, and that failure to provide accurate information will result in disqualification of my bid.

Signature

Name (Please Print)

Title

Date

BID FORMS



CC-35 BID SUBMITTAL

Bids are to be submitted via email to:
Kaye B. Syfrett, Procurement Manager at ksyfrett@colletoncounty.org

=====

CONTRACTOR

<p>Contractor: _____</p> <p>Address: _____</p> <p>City/State/Zip: _____</p> <p>Phone Number: _____</p> <p>Contact Person & Title: _____</p> <p>Authorized Signature: _____</p> <p>E-mail Address: _____</p> <p>Federal Tax ID number : _____</p> <p>Contractor's License No: _____</p>

REFERENCES

The contractor must list a minimum of three (3) references along with pictures of the completed work.

<p><u>Reference 1</u></p> <p>Name of Business: _____</p> <p>Address: _____ City: _____ State: ____ Zip: _____</p> <p>Contact: _____ Title: _____ Telephone #: _____</p> <p>Email Address: _____</p> <p>Services provided: _____ Years of Service: _____</p>

THIS PAGE MUST BE COMPLETED AND SUBMITTED AS A PART OF YOUR BID

Reference 2

Name of Business: _____

Address: _____ City: _____ State: ____ Zip: _____

Contact: _____ Title: _____ Telephone #: _____

Email Address: _____

Services provided: _____ Years of Service: _____

Reference 3

Name of Business: _____

Address: _____ City: _____ State: ____ Zip: _____

Contact: _____ Title: _____ Telephone #: _____

Email Address: _____

Services provided: _____ Years of Service: _____

ADDENDA ACKNOWLEDGMENT

The contractor has examined and carefully studied the Request for Bid and the following Addenda, receipt of all of which is hereby acknowledged:

<i>Amendment No.</i>	<i>Issue Date</i>

The Contractor must acknowledge any issued addenda. Bids that fail to acknowledge the contractor's receipt of any addendum will result in the rejection of the offer if the addendum contained information that substantively changes the Owner's requirements or pricing.

Contractor: _____

Authorized Representative Name and Title: _____

Signature of Authorized Representative: _____

THIS PAGE MUST BE COMPLETED AND SUBMITTED AS A PART OF YOUR BID



The contractor will indemnify and hold harmless the Owner, Colleton County and their agents and employees from and against all claims, damages, losses, and expenses, including attorney’s fees, arising out of or resulting from the performance of the Work provided that any such claims, damages, loss, or expense are attributable to bodily injury, sickness, disease or death, injury to or destruction of tangible property, including the loss of use resulting therefrom, and is caused by any negligent or willful act or omission of the Firm, and anyone directly or indirectly employed by him/her or anyone for whose acts any of them may be liable.

In any or all claims against the Owner, Colleton County or any of their agents and/or employees by an employee of the Contractor, and anyone directly or indirectly employed by any of them, or anyone for whose acts any of them may be liable, the indemnification obligation shall not be limited in any way to the amount or type of damages, compensation or benefits payable by or for the Contractor under the Worker’s Compensation Acts, Disability Benefit Acts, or other employee benefit acts.

The obligation of the Firm under this paragraph shall not extend to the liability of Colleton County or its agents and/or employees arising out of the reports, surveys, Change Orders, designs, or Technical Specifications.

CERTIFICATE OF FAMILIARITY

The undersigned, having fully familiarized him/her with the information contained within this entire solicitation and applicable amendments, submits the attached response, and other applicable information to the County, which I verify to be true and correct to the best of my knowledge. I further certify that this response is made without prior understanding, agreement, or connection with any corporation, contractor, or person submitting a response for the same materials, supplies or equipment, and is in all respects, fair and without collusion or fraud. I agree to abide by all conditions outlined in this solicitation and certify that I have signature authority to bind the company listed herein.

MINORITY BUSINESS: Are you a minority business?

- ▶ **Yes** _____ (_____ *Women-owner/* _____ *Disadvantaged*) if yes, please submit a copy of your certificate with your response.
- ▶ **No** _____

Contractor: _____

Authorized Representative Name and Title: _____

Signature of Authorized Representative: _____

THIS PAGE MUST BE COMPLETED AND SUBMITTED AS A PART OF YOUR BID



The Contractor is certifying that they are not currently debarred from responding to any request for bids by any agency or subdivision of the State of South Carolina or the United States Federal Government, nor are they an agent of any person or entity that is currently debarred from submitting bids on contracts by any agency or subdivision of the State of South Carolina or the United States Federal Government.

A Registered Contractor with SAM's: Yes No

Cage Code. _____

DUN's No. _____

Contractor: _____

Authorized Representative Name and Title: _____

Signature of Authorized Representative: _____

THIS PAGE MUST BE COMPLETED AND SUBMITTED AS A PART OF YOUR BID

BID BOND

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

BIDDER (Name and Address): _____

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

OWNER (Name and Address): Colleton County
109 Benson Street
Walterboro, SC 29488

Bid Number: **CC-35**

Bid Due Date: **Tuesday, November 30, 2021, at 11:00am**

Project (Brief Description Including Location): **The construction of a parking lot located at the corner of Benson and Klein Street in Walterboro.**

Bond Number: _____

Date (Not later than Bid due date): _____

Penal sum _____ (Words) _____ (Figures)

Surety and Bidder, intending to be legally bound hereby, subject to the terms printed on the reverse side hereof, do each because this Bid Bond to be duly executed on its behalf by its authorized officer, agent, or representative.

BIDDER

SURETY

(Seal)

(Seal)

Bidder's Name and Corporate Seal

Surety's Name and Corporate Seal

By: _____
Signature and Title

By: _____
Signature and Title
(Attach Power of Attorney)

Attest: _____
Signature and Title

Attest: _____
Signature and Title

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

1 - BIDDER'S ACKNOWLEDGEMENTS

- 1.01 The undersigned Bidder/Proposer, proposes and agrees, if this Bid is accepted, to enter into an Agreement/Contract with Owner as stated in the form included in the Bidding Documents to perform all Work as specified or indicated in the Bidding Documents for the prices and within the times indicated in this Bid and accordance with the other terms and conditions of the Bidding Documents.
- 1.02 The undersigned Bidder/Proposer, having fully familiarized him/her with the information contained within this entire solicitation and applicable amendments, submits the attached response, and other applicable information to the County, which I verify to be true and correct to the best of my knowledge. I further certify that this response is made without prior understanding, agreement, or connection with any corporation, Offeror, or person submitting a response for the same materials, supplies or equipment, and is in all respects, fair and without collusion or fraud. I agree to abide by all conditions outlined in this solicitation and certify that I have signature authority to bind the company listed herein.
- 1.03 Bidder accepts all of the terms and conditions of the Instructions to Bidders, including without limitation those dealing with the disposition of Bid security. This Bid will remain subject to acceptance for **ninety (90) days** after the Bid opening, or for such a long period that Bidder may agree to in writing upon request of Owner.
- 1.04 For additional work authorized after signing the contract, the amount of overhead and the amount of profit to be added to base costs of labor and materials as noted in the unit price sheet shall be (10%) total for overhead and profit on work performed by the General Contractor's forces and (15%) total on work by Subcontractors. A request of additional charges for site supervision, utilities, rentals, or administrative services will not be approved unless the additional requested work warrants adding additional days to the contract term. All requests for additional work authorization shall have as an attachment, an **itemized breakdown** of the subcontractor and/or General Contractors' work to be performed to include the actual quote for supplies from the general contractor or sub-contractors suppliers. The General Contractor and sub-contractors itemized list shall have the Labor Hours, Rates, Overhead, and Profit itemized. The Sub-contractor shall list as an itemized unit cost any additional labor to include the labor hours and rates associated with the requested work. The itemized list shall be shown on the subcontractor or General Contractors letterhead and signed by the head officer or owner of the said company.
- 1.05 Bidder acknowledges the requirements of the Performance Bonds and Payment Bonds.

2 - BIDDER'S REPRESENTATIONS

- 2.01 In submitting this Bid, Bidder represents that:
 - A. The bidder has examined and carefully studied the Bidding Documents, the other related data identified in the Bidding Documents, and any issued Addenda, which is hereby acknowledged with the attached Addendum form.
 - B. The bidder has visited the Site and become familiar with and is satisfied as to the general, local and Site conditions that may affect the cost, progress, and performance of the Work.
 - C. Bidder is familiar with and is satisfied with all federal, state, and local Laws and Regulations that may affect the cost, progress, and performance of the Work.
 - D. The bidder has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or contiguous to the Site and all drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site (except Underground Facilities), which have been identified in Paragraph 4.02 of General Conditions, and (2) reports and drawings of Hazardous Environmental Conditions that have been identified in Paragraph 4.06 of General Conditions.

- E. The bidder has obtained and carefully studied (or accepts the consequences for not doing so) all additional or supplementary examinations, investigations, explorations, tests, studies, and data concerning conditions (surface, subsurface, and Underground Facilities) at or contiguous to the Site, which may affect cost, progress, or performance of the Work or which relate to any aspect of the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder, including applying the specific
- F. Means, methods, techniques, sequences, and procedures of construction expressly required by the Bidding Documents to be employed by Bidder, and safety precautions and programs incident thereto.
- G. Bidder does not consider that any further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of this Bid for the performance of the Work at the price(s) bid and within the times and per the other terms and conditions of the Bidding Documents.
- H. Bidder is aware of the general nature of work to be performed by the Owner and others at the Site that relates to the Work as indicated in the Bidding Documents.
- I. The bidder has correlated the information known to Bidder, information, and observations obtained from visits to the Site, reports, and drawings identified in the Bidding Documents, and all additional examinations, investigations, explorations, tests, studies, and data with the Bidding Documents.
- J. The bidder has given the Owner written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents, and the written resolution thereof by the Owner is acceptable to Bidder.
- K. The Bidding Documents are generally sufficient to indicate and convey an understanding of all terms and conditions for the performance of the Work for which this Bid is submitted.
- L. Bidder will submit written evidence of its authority to do business in the state where the Project is located not later than the date of its execution of the Agreement.

3 - FURTHER REPRESENTATIONS

3.01 Bidder further represents that:

- A. This Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any agreement or rules of any group, association, organization, or corporation.
- B. Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid.
- C. Bidder has not solicited or induced any individual or entity to refrain from bidding.
- D. The bidder affirms that in making such Bid, neither he/she nor any company he/she may represent, nor anyone in behalf of him/her or their company, directly or indirectly, has entered into any combination, collusion, undertaking, or agreement with any other Bidder or Bidders to maintain the prices of said work, or any compact to prevent any other Bidder or Bidders from Bidding on said Contract or work and further affirms that such bid is made without regard or reference to any other Bidder or Proposer and without any agreement or understanding or combination either directly or indirectly with any other person or persons regarding such Bidding in any way or manner whatsoever.
- E. Any attempt by the vendor to influence the opinion of Colleton County Staff or Colleton County Council by discussion, promotion, advertising, or misrepresentation of the submittal or purchasing process or any procedure to promote their offer will constitute a violation of the

Vendor submittal conditions and will cause the vendor's submittal to be declared null and void.

4 - TIME OF COMPLETION

- 4.01 Project to be completed in One Hundred Twenty (120) calendar days from issuance of Notice to Proceed.
- 4.02 Bidder accepts the provisions of the Agreement as to liquidate damages, in the event of failure to complete the Work within the Contract dates of \$500 per day for each calendar day required to complete the work in the manner and within the dates as stated in Paragraph 4.01 above.

5 - BID SUBMITTAL

5.01 This Bid submitted by:

An Individual

Name (typed or printed): _____

By: _____ (SEAL)

(Individual's signature)

Title: _____

Doing business as: _____

A Partnership

Partnership Name: _____

By: _____ (SEAL)

(Signature of general partner -- attach evidence of authority to sign)

Title: _____

Name (typed or printed): _____

A Corporation

Corporation Name: _____ (SEAL)

State of Incorporation: _____

Type (General Business, Professional, Service, Limited Liability): _____

By: _____

(Signature -- attach evidence of authority to sign)

Name (typed or printed): _____

Title: _____ (CORPORATE SEAL)

Attest _____

The date of Authorization to do business in [South Carolina] is ____/____/____.

A Joint Venture

Name of Joint Venture: _____

First Joint Ventures Name: _____ (SEAL)

By: _____

(Signature of first joint venture partner -- attach evidence of authority to sign)

Name (typed or printed): _____

Title: _____

Second Joint Ventures Name: _____ (SEAL)

By: _____

(Signature of second joint venture partner -- attach evidence of authority to sign)

Name (typed or printed): _____

Title: _____

(Each joint venture must sign. The manner of signing for each individual, partnership, and corporation that is a party to the joint venture should be in the manner indicated above.)

Bidder's Business Address _____

Telephone No.: _____ Fax No.: _____

SUBMITTED on _____, 2021.

State Contractor License No. _____

The remainder of this page intentionally left blank

6 – BASIS OF BID

BASE BID PRICE & ALLOWANCE

Base Bid price shall be for the Work as specified, and shall include all labor, supervision, administrative support, materials, equipment, accessories, shipping, preparation, insurance, testing, overhead, profit, applicable taxes, permits, fees, supervision, bonding, warranties, and all other associated costs for the finished and completed Work.

Owners Allowance shall be included in the total bid. Owners Allowance is to be used by the owner at the owner's discretion. Any unused allowance shall be credited to the owner at the completion of the project.

ALLOWANCE	\$ 50,000.00
BASE BID	\$
TOTAL BID	\$

The contractor shall make quantity take-offs using drawings and specifications to determine quantities to his satisfaction, reporting promptly any discrepancies which may affect bidding.

7 - Bid

7.01 **This section must be completed. Failure to complete the bid form will result in the submitted bid being disqualified.**

Bid for work shall remain good for 90 days from the date of submission.

Bidder/Proposer agrees to perform all of the work described in the solicitation document CC-35 to include the Allowance, Specifications, General Conditions, for the sum of:

_____ \$ _____
(Amount in words) (Numerical)

Submitted by: _____
Company

Date

Name

Signature

End of Base Bid

TABLE OF CONTENTS

(2 OF 2)

DIVISION 001 – GENERAL CONDITIONS

PART 1 - DEFINITIONS AND TERMINOLOGY	4
1.01 Defined Terms	4
1.02 Terminology	7
PART 2 - PRELIMINARY MATTERS	9
2.01 Delivery of Bonds and Evidence of Insurance	9
2.02 Copies of Documents	9
2.03 Commencement of contract times; Notice to Proceed	9
2.04 Starting the Work	9
2.05 Before Starting Construction	9
2.06 Preconstruction Conference	9
2.07 Initial Acceptance of Schedules	10
PART 3 - CONTRACT DOCUMENTS: INTENT, AMENDING, REUSE.....	10
3.01 Intent	10
3.02 Referenced Standards	10
3.03 Reporting and Resolving Discrepancies	11
3.04 Amending and Supplementing Contract Documents	11
3.05 Reuse of Documents	12
3.06 Electronic Data	12
PART 4 - AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS;	
HAZARDOUS ENVIRONMENTAL CONDITIONS; REFERENCE POINTS	12
4.01 Availability of Lands	12
4.02 Subsurface and Physical Conditions	13
4.03 Differing Subsurface of Physical Conditions	13
4.04 Underground Facilities	14
4.05 Reference Points	15
4.06 Hazardous Environmental Conditions at Site	15
PART 5- BONDS AND INSURANCE	15
5.01 Performance, Payment, and Other Bonds	15
5.02 Licensed Sureties and Insurers	16
5.03 Certificates of Insurance	16
5.04 Contractor’s Liability Insurance	16
5.05 Owner’s Liability Insurance	19
5.06 Property Insurance	19
5.07 Waiver of Rights	20
5.08 Receipt and Application of Insurance Proceeds	20
5.09 Acceptance of Bonds and Insurance, Options to Replace	21
5.10 Partial Utilization, Acknowledgement of Property Insurer	21
PART 6 - CONTRACTOR’S RESPONSIBILITIES	21
6.01 Supervision and Superintendence	21
6.02 Labor; Working Hours	22
6.03 Services, Materials, and Equipment	22
6.04 Progress Schedule	22
6.05 Substitutes and “Or-Equals”	22
6.06 Concerning Subcontractors, Suppliers, and Others	25
6.07 Patent Free and Royalties	26
6.08 Permits	26
6.09 Laws and Regulations	26

6.10	Taxes	27
6.11	Use of Site and Other Areas	27
6.12	Record Documents	27
6.13	Safety Protection	28
6.14	Safety Representative	28
6.15	Hazard Communication Program	28
6.16	Emergencies	29
6.17	Shop Drawings and Samples	29
6.18	Continuing the Work	31
6.19	Contractor's General Warranty and Guarantee	31
6.20	Indemnification	32
6.21	Delegation of Professional Design Services	32
PART 7 - OTHER WORK AT THE SITE.....		33
7.01	Related Work at Site	33
7.02	Coordination	33
7.03	Legal Relationships	34
7.04	Claims between Contractors	34
PART 8 - OWNER'S RESPONSIBILITIES.....		34
8.01	Communications to Contractor	34
8.02	Replacement of Construction Coordinator	35
8.03	Furnish Data	35
8.04	Pay When Due	35
8.05	Lands and Easements; Reports and Test	35
8.06	Insurance	35
8.07	Change Orders	35
8.08	Inspections, Test, and Approvals	35
8.09	Limitations on Owner's Responsibilities	35
8.10	Undisclosed Hazardous Environmental Conditions	35
8.11	Evidence of Financial Arrangements	35
PART 9 - CONSTRUCTION COORDINATOR'S STATUS DURING CONSTRUCTION		36
9.01	Owner's Representative	36
9.02	Visits to Site	36
9.03	Project Representative	36
9.04	Authorized Variations in Work	36
9.05	Rejecting Defective Work	37
9.06	Shop Drawings, Change Orders and Payments	37
9.07	Determinations for Unit Price Work	37
9.08	Decisions on Requirements of Contract Documents and Acceptability of Work	37
9.09	Limitations on Construction Coordinators Authority and Responsibility	38
PART 10 - CHANGES IN THE WORK; CLAIMS.....		38
10.01	Authorized Changes in Work	38
10.02	Unauthorized Changes in Work	38
10.03	Execution of Change Orders	39
10.04	Notification of Surety	39
10.05	Claims	39
PART 11 - COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK.....		40
11.01	Cost of the Work	40
11.02	Allowances	42
11.03	Unit Price Work	43
PART 12 - CHANGE OF CONTRACT PRICE; CHANGE OF CONTRACT TIMES.....		43
12.01	Change of Contract Price	43
12.02	Change of Contract Times	44
12.03	Delays	44
PART 13 - TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF		

DEFECTIVE WORK	45
13.01 Notice of Defects	45
13.02 Access to Work	45
13.03 Test and Inspections	45
13.04 Uncovering Work	46
13.05 Owner May Stop the Work	46
13.06 Correction or Removal of Defective Work	47
13.07 Correction Period	47
13.08 Acceptance of Defective Work	48
13.09 Owner may Correct Defective Work	48
PART 14 - PAYMENTS TO CONTRACTOR AND COMPLETION	49
14.01 Schedule of Values	49
14.02 Progress Payment	49
14.03 Contractor's Warranty of Title	51
14.04 Substantial Completion	51
14.05 Partial Utilization	52
14.06 Final Inspection	53
14.07 Final Payment	53
14.08 Final Completion Delayed	54
14.09 Waiver of Claims	54
PART 15 - SUSPENSION OF WORK AND TERMINATION	54
15.01 Owner May Suspend Work	54
15.02 Owner May Terminate for Cause	55
15.03 Owner May Terminate for Convenience	56
15.04 Contractor May stop Work or Terminate	56
PART 16 - DISPUTE RESOLUTION.....	56
16.01 Methods and Procedures	56
PART 17 - MISCELLANEOUS	57
17.01 Giving Notice	57
17.02 Access to Work	57
17.03 Test and Inspections	57
17.04 Uncovering Work	57
17.05 Owner May Stop the Work	57
17.06 Computation of Times	57

END OF SECTION

DIVISION 001 – GENERAL CONDITIONS

STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

PART 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 Parts 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 the Construction Coordinator 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, Contract Documents and the General Conditions (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 the Construction Coordinator 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. Construction Coordinator - The person or firm in charge of the project. The person or firm will be selected by the owner and in some instances, the owner will self-perform, acting as the Construction Coordinator. The firm could be an Architectural Firm, Engineering Firm, or third party as so designated by the owner.

12. Contract – The entire and integrated written agreement between the Owner and Contractor including the General Conditions concerning the Work. The Contract supersedes prior negotiations, representations, or agreements, whether written or oral.
13. Contract Documents – Those items so designated in the Agreement. Only printed or hard copies of the items listed in the Agreement Are Contract Documents. Approved Shop Drawings, other Contractor’s submittals, and the reports and drawings of subsurface and physical conditions are not Contract Documents.
14. Contract Price – The moneys payable by Owner to Contractor for completion of the Work in accordance with the Contract Documents as stated in the Agreement (subject to the provisions of Paragraph 11.03 in the case of Unit Price Work).
15. Contract Times – The number of days or the dates stated in the Agreement to: (i) achieve Milestones, if any, (ii) achieve Substantial Completion; and (iii) complete the Work so that it is ready for final payment as evidenced by Engineer’s written recommendation of final payment.
16. Contractor – The individual or entity with whom Owner has entered into the Agreement.
17. Cost of the Work – See Paragraph 11.01.A for definition.
18. Drawings – That part of the Contract Documents prepared or approved by the Construction Coordinator which graphically shows the scope, extent, and character of the Work to be performed by Contractor. Shop Drawings and other Contractor submittals are not Drawings as so defined.
19. Effective Date of the Agreement – The date indicated in the Agreement on which it becomes effective, but if no such date is indicated, it means the date on which the Agreement is signed and delivered by the last of the two parties to sign and deliver.
20. Field Order – A written order issued by the Construction Coordinator 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. The General Requirements pertain to all sections 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 in connection with the Work.
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 or Construction Coordinator 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. Related Entity – An officer, director, partner, employee, agent, consultant, or subcontractor.
37. Resident Project Representative – The authorized representative of the Construction Coordinator who may be assigned to the Site or any part thereof.
38. 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.
39. 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.
40. 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.
41. 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.
42. 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.

43. 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.
44. 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.
45. Substantial Completion – The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of the Construction Coordinator, 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.
46. Successful Bidder – The Bidder submitting a responsive Bid to whom Owner makes an award.
47. Supplementary Conditions – That part of the Contract Documents which amends or supplements these General Conditions.
48. Supplier – A manufacturer, fabricator, supplier, distributor, material man, or vendor having a direct contract with Contractor or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by Contractor or any Subcontractor.
49. 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.
50. Unit Price Work – Work to be paid for on the basis of unit prices.
51. 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.
52. 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 the Construction Coordinator 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.
53. Warranty- Such time period as stated in the contract, which shall cover all workmanship and products installed under the contract requirements.

1.02 Terminology

- A. The following words or terms are not defined but, when used in the Bidding Requirements or Contract Documents, have the following meaning.
- B. Intent of Certain Terms or Adjectives
1. The Contract Documents include the terms “as allowed,” “as approved,” “as ordered,” “as directed” or terms of like effect or import to authorize an exercise of professional judgment by the Construction Coordinator. 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 the Construction Coordinator as to the Work. It is intended that such exercise of professional judgment, action or determination will be solely to evaluate, in general, the Work for compliance with the requirements of and information in the Contract Documents and conformance with the design concept of the completed Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective is not intended to and shall not be effective to assign to the Construction Coordinator 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.
 2. The wording “business day” means any day Monday thru Friday.
- 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 the Construction Coordinator recommendation of final payment (unless responsibility for the protection thereof has been assumed by Owner at Substantial Completion in accordance with Paragraph 14.04 or 14.05).
- E. Furnish, Install, Perform, Provide
1. The word “furnish,” when used in connection with services, materials, or equipment, shall mean to supply and deliver said services, materials, or equipment to the Site (or some other specified location) ready for use or installation and in usable or operable condition.
 2. The word “install,” when used in connection with services, materials, or equipment, shall mean to put into use or place in final position said services, materials, or equipment complete and ready for intended use.
 3. The words “perform” or “provide,” when used in connection with services, materials, or equipment, shall mean to furnish and install said services, materials, or equipment complete and ready for intended use.

4. When “furnish,” “install,” “perform,” or “provide” is not used in connection with services, materials, or equipment in a context clearly requiring an obligation of Contractor, “provide” is implied.
- F. Unless stated otherwise in the Contract Documents, words or phrases which have a well-known technical or construction industry or trade meaning are used in the Contract Documents in accordance with such recognized meaning.

PART 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 General 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 Part 5.

2.02 Copies of Documents

- A. Owner shall furnish to Contractor up to two (2) 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 thirtieth day after the Effective Date of the Agreement.

2.04 Starting the Work

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

2.05 Before Starting Construction

- A. *Preliminary Schedules:* Within ten (10) days after the Effective Date of the Agreement (unless otherwise specified in the General Requirements), Contractor shall submit to the Construction Coordinator 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

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

2.07 Initial Acceptance of Schedules

- A. At least ten (10) days before submission of the first Application for Payment a conference attended by Contractor, the Construction Coordinator, and others as appropriate will be held to review for acceptability to the Construction Coordinator as provided below the schedules submitted in accordance with Paragraph 2.05.A. Contractor shall have an additional ten (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 the Construction Coordinator.
 - 1. The Progress Schedule will be acceptable to the Construction Coordinator if it provides an orderly progression of the Work to completion within the Contract Times. Such acceptance will not impose on the Construction Coordinator 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 the Construction Coordinator if it provides a workable arrangement for reviewing and processing the required submittals.
 - 3. Contractor's Schedule of Values will be acceptable to the Construction Coordinator as to form and substance if it provides a reasonable allocation of the Contract Price to component parts of the Work.

PART 3 – CONTRACT DOCUMENTS: INTENT, AMENDING, REUSE

3.01 Intent

- A. The Contract Documents are complementary; what is required by one is as binding as if required by all.
- B. It is the intent of the Contract Documents to describe a functionally complete Project (or part thereof) to be constructed in accordance with the Contract Documents. Any labor, documentation, services, materials, or equipment that may reasonably be inferred from the Contract Documents or from prevailing custom or trade usage as being required to produce the intended result will be provided whether or not specifically called for at no additional cost to Owner.
- C. Clarifications and interpretations of the Contract Documents shall be issued by the Construction Coordinator as provided in Part 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 the Construction Coordinator, or any of their subcontractors, consultants, agents, employees from those set forth in the Contract Documents. No such provision or instruction shall be effective to assign to Owner, or the Construction Coordinator, or any of, their Related Entities, any duty or authority to supervise or direct the performance of the Work or any duty or authority to undertake responsibility inconsistent with the provisions of the Contract Documents.

3.03 Reporting and Resolving Discrepancies

A. Reporting Discrepancies

1. *Contractor's Review of Contract Documents before Starting Work:* Before undertaking each part of the Work, Contractor shall carefully study and compare the Contract Documents and check and verify pertinent figures therein and all applicable field measurements. Contractor shall promptly report in writing to the Construction Coordinator any conflict, error, ambiguity, or discrepancy which Contractor may discover and shall obtain a written interpretation or clarification from the Construction Coordinator before proceeding with any Work affected thereby.
2. *Contractor's Review of Contract Documents During Performance of Work:* If, during the performance of the Work, Contractor discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents or between the Contract Documents and any provision of any Law or Regulation applicable to the performance of the Work or of any standard, specification, manual or code, or of any instruction of any Supplier, Contractor shall promptly report it to the Construction Coordinator 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 the Construction Coordinator for failure to report any conflict, error, ambiguity, or discrepancy in the Contract Documents unless Contractor knew or reasonably should have known thereof.

B. Resolving Discrepancies

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

3.04 Amending and Supplementing Contract Documents

- A. The Contract Documents may be amended to provide for additions, deletions, and revisions in the Work or to modify the terms and conditions thereof by either a Change Order or a Work Change Directive.
- B. The requirements of the Contract Documents may be supplemented and minor variations and deviations in the Work may be authorized, by one or more of the following ways:
 - 1. A Field Order;
 - 2. Construction Coordinator approval of a Shop Drawing or Sample; (Subject to the provisions of Paragraph 6.17.D.3); or
 - 3. Construction Coordinator written interpretation or clarification.

3.05 Reuse of Documents

- A. Contractor and any Subcontractor or Supplier or other individual or entity performing or furnishing all of the Work under a direct or indirect contract with Contractor, 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 Architects, Engineer or Architects and or Engineer's consultants, including electronic media editions; or
 - 2. Reuse any of such Drawings, Specifications, other documents, or copies thereof on extensions of the Project or any other project without written consent of Owner and Architect or Engineer and specific written verification or adaption by Architect or Engineer.
- B. The prohibition of this Paragraph 3.05 will survive final payment, or termination of the Contract. Nothing herein shall preclude Contractor from retaining copies of the Contract Documents for record purposes.

3.06 Electronic Data

- A. Copies of data furnished by Owner or the Construction Coordinator to Contractor or Contractor to Owner or the Construction Coordinator 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.

PART 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: Reports of explorations and tests of subsurface conditions at or contiguous to the Site have not been conducted. The contractor should insure that capable soils are found for any and all compacted surfaces.

4.03 Differing Subsurface or Physical Conditions

- A. Notice: If Contractor believes that any subsurface or physical condition at or contiguous to the Site that is uncovered or revealed either:
 - 1. Is of such a nature as to establish that any "technical data" on which Contractor is entitled to rely as provided in Paragraph 4.02 is materially inaccurate; or
 - 2. Is of such a nature as to require a change in the Contract Documents; or
 - 3. Differs materially from that shown or indicated in the Contract Documents; or
 - 4. Is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents; then Contractor shall, promptly after becoming aware thereof and before further disturbing the subsurface or physical conditions or performing any Work in connection therewith (except in an emergency as required by Paragraph 6.16.A), notify Owner and the Construction Coordinator 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. Construction Coordinator Review: After receipt of written notice as required by Paragraph 4.03.A, Construction Coordinator 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 the Construction Coordinator findings and conclusions.
- C. Possible Price and Times Adjustments
 - 1. The Contract Price or the Contract Times, or both, will be equitably adjusted to the extent that the existence of such differing subsurface or physical condition causes an increase or

decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:

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

4.04 Underground Facilities

- A. Shown or Indicated: The information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or contiguous to the Site is based on information and data furnished to Owner or the Construction Coordinator by the owners of such Underground Facilities, including Owner, or by others:
1. Owner and Construction Coordinator shall not be responsible for the accuracy or completeness of any such information or data; and
 2. The cost of all of the following will be included in the Contract Price, and Contractor shall have full responsibility for:
 - a. reviewing and checking all such information and data,
 - b. locating all Underground Facilities shown or indicated in the Contract Documents,
 - c. coordination of the Work with the owners of such Underground Facilities, including Owner, during construction, and
 - d. the safety and protection of all such Underground Facilities and repairing any damage thereto resulting from the Work.
- B. Not Shown or Indicated

1. If an Underground Facility is uncovered or revealed at or contiguous to the Site which was not shown or indicated, or not shown or indicated with reasonable accuracy in the Contract Documents, Contractor shall, promptly after becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by Paragraph 6.16.A), identify the owner of such Underground Facility and give written notice to that owner and to Owner and the Construction Coordinator. Construction Coordinator 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 the Construction Coordinator 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 the Construction Coordinator 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 the Construction Coordinator 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: See S&ME report attached as exhibit "A".

PART 5 - BONDS AND INSURANCE

5.01 Performance, Payment, and Other Bonds

- A. Contractor shall furnish performance and payment bonds, each in an amount at least equal to the Contract Price as security for the faithful performance and payment of all of Contractor's obligations under the Contract Documents. These bonds shall remain in effect until one year after the date when final payment becomes due or until completion of the correction period specified in Paragraph 13.07, whichever is later, except as provided otherwise by Laws or Regulations or by the Contract Documents. Contractor shall also furnish such other bonds as are required by the Contract Documents.
- B. All bonds shall be in the form prescribed by the Contract Documents except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in the current list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (amended) by

the Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury. All bonds signed by an agent must be accompanied by a certified copy of the agent's authority to act.

- C. If the surety on any bond furnished by Contractor is declared bankrupt or becomes insolvent or its right to do business is terminated in any state where any part of the Project is located or it ceases to meet the requirements of Paragraph 5.01.B, Contractor shall promptly notify Owner and the Construction Coordinator 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.

5.03 Certificates of Insurance

- A. Contractor shall deliver to Owner, with copies to each additional insured, 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, 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 full compliance with these insurance requirements or failure of Owner to identify a deficiency from evidence provided shall not be construed as a waiver of Contractor's obligation to maintain such insurance.
- D. By requiring such insurance and insurance limits herein, Owner does not represent that coverage and limits will necessarily be adequate to protect contractor and such coverage and limits 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 Liability Insurance

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

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

Statutory Benefits

- b. Applicable Federal (e.g., Longshoreman's): Statutory
 - c. Employer's Liability:
 - Each Accident \$1,000,000
 - Disease-Policy Limit \$500,000
 - Disease-Each Employee \$500,000
2. Contractor's General Liability under Paragraphs 5.04.A.3 through A.6 of the General Conditions which shall include completed operations and product liability coverages and eliminate the exclusion with respect to property under the care, custody and control of Contractor and for this project only:
- a. General Aggregate \$2,000,000
 - b. Products - Completed Operations Aggregate \$2,000,000
 - c. Personal and Advertising Injury \$1,000,000
 - d. Each Occurrence (Bodily Injury and Property Damage) \$1,000,000
 - e. Fire Damage (any one (1) fire) \$50,000
 - f. Medical Expense (any one (1) person) \$5,000
 - g. Property Damage liability insurance will provide Explosion, Collapse, and Under-ground coverages where applicable.
 - h. Excess or Umbrella Liability
 - 1) General Aggregate \$2,000,000
 - 2) Each Occurrence \$2,000,000
3. Automobile Liability under Paragraph 5.04.A.6 of the General Conditions:
- a. Include coverage for all owned, hired and non-owned automobiles.
 - b. Combined Single Limit of \$1,000,000
 - c. Each Occurrence \$1,000,000
 - d. Limits Medical Expense \$5,000
4. The Contractual Liability coverage required by Paragraph 5.04.B.4 of the General Conditions shall provide coverage for not less than the following amounts:
- a. Bodily Injury:
 - Each Accident \$2,000,000
 - Annual Aggregate \$2,000,000
 - b. Property Damage:
 - Each Accident \$2,000,000
 - Annual Aggregate \$2,000,000

5. Flood Insurance: The Contractor is required to carry flood insurance for projects located in designated flood hazard areas in which Federal Flood Insurance is available.

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. Contractor shall purchase and maintain property insurance upon the Work at the Site in the amount of the full replacement cost thereof.
 1. This insurance shall:
 - a. includes the interests of Owner, Contractor, Subcontractors, Construction Coordinator and any other individuals or entities identified herein, and the officers, directors, partners, employees, agents and other consultants and subcontractors of any of them each of whom is deemed to have an insurable interest and shall be listed as an insured or additional insured;
 - b. in addition to the individuals and entities specified, include as additional insureds, the following:
 - c. be written on a Builder's Risk "all-risk" or open peril or special causes of loss policy form that shall at least include insurance for physical loss and 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;
 - d. includes expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects);
 - e. 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 the Construction Coordinator;
 - f. allows for partial utilization of the Work by Owner;
 - g. includes testing and startup; and
 - h. be maintained in effect until final payment is made unless otherwise agreed to in writing by Owner, Contractor and the Construction Coordinator with 30 days' written notice to each other additional insured to whom a certificate of insurance has been issued.
 2. Contractor shall be responsible for any deductible or self-insured retention.
 3. The policies of insurance required to be purchased and maintained by Contractor in accordance with this Paragraph SC-5.06 A, shall comply with the requirements of paragraph 5.06.C of the General Conditions.

- B. Owner shall purchase and maintain such boiler and machinery insurance or additional property insurance as may be required Laws and Regulations which will include the interests of Owner, Contractor, Subcontractors, and Construction Coordinator, and any other individuals or entities identified, and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as an insured or additional insured.
- C. All the policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained in accordance with Paragraph 5.06 will contain a provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least thirty (30) days prior written notice has been given to Owner and Contractor and to each other additional insured to whom a certificate of insurance has been issued and will contain waiver provisions in accordance with Paragraph 5.07.
- D. Owner shall not be responsible for purchasing and maintaining any property insurance specified in this Paragraph 5.06 to protect the interests of Contractor, Subcontractors, or others in the Work to the extent of any deductible amounts that are identified. The risk of loss within such identified deductible amount will be borne by Contractor, Subcontractors, or others suffering any such loss, and if any of them wishes property insurance coverage within the limits of such amounts, each may purchase and maintain it at the purchaser's own expense.

5.07 Waiver of Rights

- A. Owner and Contractor intend that all policies purchased in accordance with Paragraph 5.06 will protect Owner, Contractor, Subcontractors, and Construction Coordinator, and all other individuals or entities identified to be listed as insureds or additional insureds (and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them) in such policies and will provide primary coverage for all losses and damages caused by the perils or causes of loss covered thereby. All such policies shall contain provisions to the effect that in the event of payment of any loss or damage the insurers will have no rights of recovery against any of the insureds or additional insureds thereunder. Owner and Contractor waive all rights against each other and their respective officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them for all losses and damages caused by, arising out of or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work; and, in addition, waive all such rights against Subcontractors, and the Construction Coordinator, and all other individuals or entities identified to be listed as insured or additional insured (and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them) under such policies for losses and damages so caused. None of the above waivers shall extend to the rights that any party making such waiver may have to the proceeds of insurance held by Owner as trustee or otherwise payable under any policy so issued.
- B. 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 the Construction Coordinator, and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them.

5.08 Receipt and Application of Insurance Proceeds

- A. Any insured loss under the policies of insurance required by Paragraph 5.06 will be adjusted with Owner and made payable to Owner as fiduciary for the insureds, as their interests may appear, subject to the requirements of any applicable mortgage clause and of Paragraph 5.08.B. 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 Part 5 on the basis of nonconformance with the Contract Documents, the objecting party shall so notify the other party in writing within ten (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 or 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.

PART 6 - CONTRACTOR'S RESPONSIBILITIES

6.01 Supervision and Superintendence

- A. **When working is being performed on site the superintendent must be present, without exception.**
- B. 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 the Construction Coordinator 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.
- C. 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 the Construction Coordinator except under extraordinary circumstances. The superintendent will be Contractor's representative at the Site and shall have authority to act on behalf of Contractor. All communications given to or received from the superintendent shall be binding on Contractor.

6.02 Labor; Working Hours

- A. Contractor shall provide competent, suitably qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents. Contractor shall at all times maintain good discipline and order at the Site.
- B. Except as otherwise required for the safety or protection of persons or the Work or property at the Site or adjacent thereto, and except as otherwise stated in the Contract Documents, all Work at the Site shall be performed on business days 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 the Construction Coordinator.

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, startup, 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 the Construction Coordinator, 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 the Construction Coordinator 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 Part 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 the Construction Coordinator for review under the circumstances described below.

1. "Or-Equal" Items: If in the Construction Coordinators sole discretion an item of material or equipment proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, it may be considered by Engineer as an "or-equal" item, in which case review and approval of the proposed item may, in Engineer's sole discretion, be accomplished without compliance with some or all of the requirements for approval of proposed substitute items. For the purposes of this Paragraph 6.05.A.1, a proposed item of material or equipment will be considered functionally equal to an item so named if:
 - a. in the exercise of reasonable judgment Engineer determines that:
 - 1) it is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;
 - 2) it will reliably perform at least equally well the function and achieve the results imposed by the design concept of the completed Project as a functioning whole,
 - 3) it has a proven record of performance and availability of responsive service; and
 - b. Contractor certifies that, if approved and incorporated into the Work:
 - 1) there will be no increase in cost to the Owner or increase in Contract Times, and
 - 2) it will conform substantially to the detailed requirements of the item named in the Contract Documents.
2. Substitute Items
 - a. If in the Construction Coordinators 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 the Construction Coordinator to determine that the item of material or equipment proposed is essentially equivalent to that named and an acceptable substitute therefor. Requests for review of proposed substitute items of material or equipment will not be accepted by the Construction Coordinator from anyone other than Contractor.
 - c. The requirements for review by the Construction Coordinator will be as set forth in Paragraph 6.05.A.2.d, as supplemented in the General Requirements and as the Construction Coordinator may decide is appropriate under the circumstances.
 - d. Contractor shall make written application to the Construction Coordinator 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 or not use of the proposed substitute item in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with Owner for other work on the Project) to adapt the design to the proposed substitute item; and
 - c) whether or not incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty;
- 3) will identify:
- a) all variations of the proposed substitute item from that specified, and
 - b) available engineering, sales, maintenance, repair, and replacement services;
- 4) and shall contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including costs of redesign and claims of other contractors affected by any resulting change,
- B. Substitute Construction Methods or Procedures: If a specific means, method, technique, sequence, or procedure of construction is expressly required by the Contract Documents, Contractor may furnish or utilize a substitute means, method, technique, sequence, or procedure of construction approved by the Construction Coordinator. Contractor shall submit sufficient information to allow the Construction Coordinator, in the Construction Coordinator'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 the Construction Coordinator will be similar to those provided in Paragraph 6.05.A 2.
- C. Construction Coordinator Evaluation: The Construction Coordinator 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. The Construction Coordinator may require Contractor to furnish additional data about the proposed substitute item. The Construction Coordinator will be the sole judge of acceptability. No "or equal" or substitute will be ordered, installed or utilized until the Construction Coordinator's review is complete, which will be evidenced by either a Change Order for a substitute or an approved Shop Drawing for an "or-equal." The Construction Coordinator 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. Cost Reimbursement: The Construction Coordinator will record the Architect or 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 the Construction Coordinator approves a substitute item so proposed or submitted by Contractor, Contractor shall reimburse Owner for the charges of the Architect or Engineer for evaluating each such proposed substitute. Contractor shall also reimburse Owner for the charges of the Architect or 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. 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, 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 the Construction Coordinator to reject defective Work.
- C. Contractor shall be fully responsible to Owner and the Construction Coordinator 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 the Construction Coordinator and any such Subcontractor, Supplier or other individual or entity, nor
 - 2. shall anything in the Contract Documents create any obligation on the part of Owner or the Construction Coordinator 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 the Construction Coordinator 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 Construction Coordinator. Whenever any such agreement is with a Subcontractor or Supplier who is listed as an additional insured on the property insurance provided in Paragraph 5.06, the agreement between the Contractor and the Subcontractor or Supplier will contain provisions whereby the Subcontractor or Supplier waives all rights against Owner, Contractor, and Construction Coordinator,, and all other individuals or entities to be listed as insureds or additional insureds (and the officers, directors,

partners, employees, agents, consultants and subcontractors of each and any of them) for all losses and damages caused by, arising out of, relating to, or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work. If the insurers on any such policies require separate waiver forms to be signed by any Subcontractor or Supplier, Contractor will obtain the same.

- H. Owner or Construction Coordinator may furnish to any Subcontractor or Supplier, to the extent practicable, information about amounts paid to Contractor on account of Work performed for Contractor by a particular Subcontractor or Supplier.

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

6.08 Permits

- A. Contractor shall obtain and pay for all construction permits and licenses. Contractor shall pay all governmental charges and inspection fees necessary for 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.

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 Construction Coordinator shall be responsible for monitoring Contractor's compliance with any Laws or Regulations.
- B. If Contractor performs any Work knowing or having reason to know that it is contrary to Laws or Regulations, Contractor shall bear all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such Work. However, it shall not be Contractor's primary responsibility to make certain that the Specifications and Drawings are in accordance with Laws and Regulations, but this shall not relieve Contractor of Contractor's obligations under Paragraph 3.03.
- C. Changes in Laws or Regulations not known at the time of opening of Bids (or, on the Effective Date of the Agreement if there were no Bids) having an effect on the cost or time of performance of the Work shall be the subject of an adjustment in Contract Price or Contract Times. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefor as provided in Paragraph 10.05.

6.10 Taxes

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

6.11 Use of Site and Other Areas

- A. Limitation on Use of Site and Other Areas
 - 1. Contractor shall confine construction equipment, the storage of materials and equipment, and the operations of workers to the Site and other areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and other areas with construction equipment or other materials or equipment. Contractor shall assume full responsibility for any damage to any such land or area, or to the owner or occupant thereof, or of any adjacent land or areas resulting from the performance of the Work.
 - 2. Should any claim be made by any such owner or occupant because of the performance of the Work, Contractor shall promptly settle with such other party by negotiation or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law.
 - 3. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Construction Coordinator, and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any claim or action, legal or equitable, brought by party against Owner, Construction Coordinator, 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 Construction Coordinator for reference. Upon completion of the Work, these record documents, Samples, and Shop Drawings will be delivered to Construction Coordinator for Owner in digital format as an as-built file.

6.13 Safety and Protection

- A. Contractor shall be solely responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work. Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury or loss to:
 - 1. all persons on the Site or who may be affected by the Work;
 - 2. all the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and
 - 3. other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction.
- B. Contractor shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection. Contractor shall notify owners of adjacent property and of Underground Facilities and other utility owners when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property.
- C. All damage, injury, or loss to any property referred to in Paragraph 6.13.A.2 or 6.13.A.3 caused, directly or indirectly, in whole or in part, by Contractor, any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be remedied by Contractor (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of Owner or Construction Coordinator or , or anyone employed by any of them, or anyone for whose acts any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of Contractor or any Subcontractor, Supplier, or other individual or entity directly or indirectly employed by any of them).
- D. Contractor's duties and responsibilities for safety and for protection of the Work shall continue until such time as all the Work is completed and Construction Coordinator 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. All MSDS Sheets shall be kept on site in good order as outlined in OSHA, laws, rules and 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 Construction Coordinator 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 Construction Coordinator for review and approval in accordance with the acceptable Schedule of Submittals (as required by Paragraph 2.07). Each submittal will be identified as Construction Coordinator 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 Construction Coordinator 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: Contractor shall also submit Samples to Construction Coordinator for review and approval in accordance with the acceptable schedule of Shop Drawings and Sample submittals.
 - 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 Construction Coordinator may require to enable Construction Coordinator 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 Construction Coordinator's review and approval of the pertinent submittal will be at the sole expense and responsibility of Contractor.
- C. Submittal Procedures
 - 1. Before submitting each Shop Drawing or Sample, Contractor shall have determined and verified:
 - a. all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect thereto;
 - b. the suitability of all materials with respect to intended use, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work;
 - c. all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto; and
 - d. shall also have reviewed and coordinated each Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents.

2. Each submittal shall bear a stamp or specific written certification that Contractor has satisfied Contractor's obligations under the Contract Documents with respect to Contractor's review and approval of that submittal.
3. With each submittal, Contractor shall give Construction Coordinator 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 separated from the Shop Drawing's or Sample Submittal; and, in addition, by a specific notation made on each Shop Drawing or Sample submitted to Construction Coordinator for review and approval of each such variation.

D. Construction Coordinator's Review

1. Construction Coordinator will provide timely review of Shop Drawings and Samples in accordance with the Schedule of Submittals acceptable to Construction Coordinator. Construction Coordinator'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. Construction Coordinator'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. Construction Coordinator'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 Construction Coordinator has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample. Construction Coordinator'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 Construction Coordinator 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 the Construction Coordinator on previous submittals.
- F.** Contractor shall furnish required submittals with sufficient information and accuracy in order to obtain required approval of an item with no more than three (3) submittals. Construction Coordinator will record the Architect or Engineer's time for reviewing subsequent submittals of Shop Drawings, samples or other items requiring approval and Contractor shall reimburse Owner for the Architect or Engineer's charges for such time.
- G.** In the event that Contractor requests a substitution for a previously approved item, Contractor shall reimburse Owner for the Architect or Engineer's charges for such time unless the need for such substitution is beyond the control of Contractor.

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. Construction Coordinator and its Related Entities shall be entitled to rely on representation of Contractor's warranty and guarantee.
- B. Contractor's warranty and guarantee hereunder excludes defects or damage caused by:
 - 1. abuse, modification, or improper maintenance or operation by persons other than Contractor, Subcontractors, Suppliers, or any other individual or entity for whom Contractor is responsible; or
 - 2. normal wear and tear under normal usage.
- C. Contractor's obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents or a release of Contractor's obligation to perform the Work in accordance with the Contract Documents:
 - 1. observations by Construction Coordinator;
 - 2. recommendation by Construction Coordinator or payment by Owner of any progress or final payment;
 - 3. the issuance of a certificate of Substantial Completion by Construction Coordinator 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 Construction Coordinator;
 - 6. any inspection, test, or approval by others; or
 - 7. any correction of defective Work by Owner.
- D. The Contractor's General Warranty and Guarantee shall be for a period of one (1) year after work has been accepted and final payment made to the Contractor. In the case of Water and Wastewater lines, the warranty period will start after acceptance of these lines into the utility provider's system for ownership, operation, and maintenance. The Contractor accepts the transference of all warranties and guarantees to the utility provider owning and operating the new lines.

6.20 Indemnification

- A. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Construction Coordinator, and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the performance of the Work, provided that any such claim, cost, loss, or damage is attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom but only to the extent caused by any negligent act or

omission of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work or anyone for whose acts any of them may be liable .

- B. In any and all claims against Owner or Construction Coordinator or any of their respective consultants, agents, officers, directors, partners, or employees by any employee (or the survivor or personal representative of such employee) of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under Paragraph 6.20.A shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for Contractor or any such Subcontractor, Supplier, or other individual or entity under workers' compensation acts, disability benefit acts, or other employee benefit acts.
- C. The indemnification obligations of Contractor under Paragraph 6.20.A shall not extend to the liability of Construction Coordinator and Construction Coordinator's officers, directors, partners, employees, agents, consultants and subcontractors arising out of:
 - 1. the preparation or approval of, or the failure to prepare or approve, maps, Drawings, opinions, reports, surveys, Change Orders, designs, or Specifications; or
 - 2. giving directions or instructions, or failing to give them, if that is the primary cause of the injury or damage.

6.21 Delegation of Professional Design Services

- A. Contractor will not be required to provide professional design services unless such services are specifically required by the Contract Documents for a portion of the Work or unless such services are required to carry out Contractor's responsibilities for construction means, methods, techniques, sequences and procedures. Contractor shall not be required to provide professional services in violation of applicable law.
- B. If professional design services or certifications by a design professional related to systems, materials or equipment are specifically required of Contractor by the Contract Documents, Owner and Construction Coordinator 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 Construction Coordinator.
- C. Owner and Construction Coordinator 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 Construction Coordinator have specified to Contractor all performance and design criteria that such services must satisfy.
- D. Pursuant to this Paragraph 6.21, Construction Coordinator'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. Construction Coordinator'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.

PART 7 - OTHER WORK AT THE SITE

7.01 Related Work at Site

- A. Owner may perform other work related to the Project at the Site with Owner's employees or via other direct contracts therefor, or have other work performed by utility owners. If such other work is not noted in the Contract Documents.
- B. Contractor shall afford each other contractor who is a party to such a direct contract, each utility owner and Owner, if Owner is performing other work with Owner's employees, proper and safe access to the Site, a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work, and shall properly coordinate the Work with theirs. Contractor shall do all cutting, fitting, and patching of the Work that may be required to properly connect or otherwise make its several parts come together and properly integrate with such other work. Contractor shall not endanger any work of others by cutting, excavating, or otherwise altering their work and will only cut or alter their work with the written consent of Construction Coordinator 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 Part 7, Contractor shall inspect such other work and promptly report to Construction Coordinator 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:
 - 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. Owner shall have sole authority and responsibility for such coordination.

7.03 Legal Relationships

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

7.04 Claims Between Contractors

- A. Should Contractor cause damage to the work or property of any other contractor at the Site, or should any claim arising out of Contractor's performance of the Work at the Site be made by any other contractor against Contractor, Owner, Construction Coordinator, or Contractor shall promptly attempt to settle with such other contractor by agreement, or to otherwise resolve the dispute by arbitration or at law.
- B. Contractor shall, to the fullest extent permitted by Laws and Regulations, indemnify and hold harmless Owner, the Construction Coordinator and the officers, directors, partners, employees, agents and other consultants and subcontractors of each and any of them from and against all claims, costs, losses and damages (including, but not limited to, fees and charges of engineers, architects, attorneys, and other professionals and court and arbitration costs) arising directly, indirectly or consequentially out of any action, legal or equitable, brought by any other contractor against Owner, Construction Coordinator, Construction Coordinator's Consultants to the extent said claim is based on or arises out of Contractor's performance of the Work. Should another contractor cause damage to the Work or property of Contractor or should the performance of work by any other contractor at the Site give rise to any other Claim, Contractor shall not institute any action, legal or equitable, against Owner, or the Construction Coordinator or permit any action against any of them to be maintained and continued in its name or for its benefit in any court or before any arbiter which seeks to impose liability on or to recover damages from Owner, or the Construction Coordinator on account of any such damage or Claim.
- C. If Contractor is delayed at any time in performing or furnishing Work by any act or neglect of another contractor, and Owner and Contractor are unable to agree as to the extent of any adjustment in Contract Times attributable thereto, Contractor may make a Claim for an extension of times in accordance with Part 12. An extension of the Contract Times shall be Contractor's exclusive remedy with respect to Owner, and construction coordinator for any delay, disruption, interference, or hindrance caused by any other contractor. This paragraph does not prevent recovery from Owner, or construction coordinator for activities that are their respective responsibilities.

PART 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 the Construction Coordinator.

8.02 Replacement of Construction Coordinator

- A. In case of termination of the employment of the Construction Coordinator, Owner shall appoint a Construction Coordinator to whose status under the Contract Documents shall be that of the former Construction Coordinator.

8.03 Furnish Data

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

8.04 Pay When Due

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

8.05 Lands and Easements; Reports and Tests

- A. Owner's duties in respect of providing lands and easements and providing engineering surveys to establish reference points are set forth in Paragraphs 4.01 and 4.05. Paragraph 4.02 refers

to Owner's identifying and making available to Contractor copies of reports of explorations and tests of subsurface conditions and drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site that have been utilized by the Architect or Engineer in preparing the Contract Documents.

8.06 Insurance

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

8.07 Change Orders

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

8.08 Inspections, Tests, and Approvals

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

8.09 Limitations on Owner's Responsibilities

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

8.10 Undisclosed Hazardous Environmental Condition

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

8.11 Evidence of Financial Arrangements

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

PART 9 - Construction Coordinator's STATUS DURING CONSTRUCTION

9.01 Owner's Representative

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

9.02 Visits to Site

- A. Construction Coordinator 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, Construction Coordinator, for the benefit of Owner, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. Construction Coordinator will not be required to make exhaustive or continuous inspections on the Site to

check the quality or quantity of the Work. Construction Coordinator'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, Construction Coordinator will keep Owner informed of the progress of the Work and will endeavor to guard Owner against defective Work.

- B. Construction Coordinator's visits and observations are subject to all the limitations on Construction Coordinator's authority and responsibility set forth in Paragraph 9.09. Particularly, but without limitation, during or as a result of Construction Coordinator's visits or observations of Contractor's Work Construction Coordinator 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 Construction Coordinator agree; Construction Coordinator will furnish a Resident Project Representative to assist Construction Coordinator in providing more extensive observation of the Work. The authority and responsibilities of any such Resident Project Representative and assistants will be as provided, 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 Construction Coordinator's consultant, agent or employee, the responsibilities and authority and limitations thereon of such other individual or entity will be as provided in Paragraph 9.09.

9.04 Authorized Variations in Work

- A. Construction Coordinator 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. Construction Coordinator will have authority to reject Work, which Construction Coordinator believes to be defective, or that Construction Coordinator 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. Construction Coordinator 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 Construction Coordinator's authority, and limitations thereof, as to Shop Drawings and Samples, see Paragraph 6.17.
- B. In connection with Construction Coordinator'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 Construction Coordinator's authority as to Change Orders, see Parts 10, 11, and 12.
- D. In connection with Construction Coordinator's authority as to Applications for Payment, see Part 14.

9.07 Determinations for Unit Price Work

- A. Construction Coordinator will determine the actual quantities and classifications of Unit Price Work performed by Contractor. Construction Coordinator will review with Contractor the Construction Coordinator's preliminary determinations on such matters before rendering a written decision thereon (by recommendation of an Application for Payment or otherwise). Construction Coordinator's written decision thereon will be final and binding (except as modified by Construction Coordinator 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. Construction Coordinator 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 the Construction Coordinator in writing within 30 days of the event giving rise to the question
- B. Construction Coordinator will, with reasonable promptness, render a written decision on the issue referred. If Owner or Contractor believe that any such decision entitles them to an adjustment in the Contract Price or Contract Times or both, a Claim may be made under Paragraph 10.05. The date of Construction Coordinator's decision shall be the date of the event giving rise to the issues referenced for the purposes of Paragraph 10.05.B.
- C. Construction Coordinator'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, Construction Coordinator 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 Construction Coordinator's Authority and Responsibilities

- A. Neither Construction Coordinator's authority or responsibility under this Part 9 or under any other provision of the Contract Documents nor any decision made by Construction Coordinator 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 Construction Coordinator shall create, impose, or give rise to any duty in contract, tort, or otherwise owed by Construction Coordinator 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. Construction Coordinator 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. Construction Coordinator will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.
- C. Construction Coordinator 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. Construction Coordinator'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.

PART 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.B.

10.03 Execution of Change Orders

- A. Owner and Contractor shall execute appropriate Change Orders recommended by Construction Coordinator covering:
 - 1. changes in the Work which are: (i) ordered by Owner pursuant to Paragraph 10.01.A, 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 Construction Coordinator pursuant to Paragraph 10.05; provided that, in lieu of executing any such Change Order, an appeal may be taken from any such decision in accordance with the provisions of the Contract Documents and applicable Laws and Regulations, but during any such appeal, Contractor shall carry on the Work and adhere to the Progress Schedule as provided in Paragraph 6.18.A.

10.04 Notification to Surety

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

10.05 Claims

- A. Construction Coordinator's Decision Required: All Claims, except those waived pursuant to Paragraph 14.09, shall be referred to the Construction Coordinator for decision. A decision by Construction Coordinator 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 Construction Coordinator 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 Construction Coordinator and the other party to the Contract within 60 days after the start of such event (unless Construction Coordinator allows additional time for claimant to submit additional or more accurate data in support of such Claim). A Claim for an adjustment in Contract Price shall be prepared in accordance with the provisions of Paragraph 12.01.B. A Claim for an adjustment in Contract Time shall be prepared in accordance with the provisions of Paragraph 12.02.B. Each Claim shall be accompanied by claimant's written statement that the adjustment claimed is the entire adjustment to which the claimant believes it is entitled as a result of said event. The opposing party shall submit any response to Construction Coordinator and the claimant within 30 days after receipt of the claimant's last submittal (unless Construction Coordinator allows additional time).
- C. Construction Coordinator's Action: Construction Coordinator 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 Construction Coordinator is unable to resolve the Claim if, in the Construction Coordinator's sole discretion, it would be inappropriate for the Construction Coordinator to do so. For purposes of further resolution of the Claim, such notice shall be deemed a denial.
- D. In the event that Construction Coordinator does not take action on a Claim within said 30 days, the Claim shall be deemed denied.
- E. Nonwithstanding anything herein final approval rests with the Owner.
- 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.

PART 11 - COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK

11.01 Cost of the Work

- A. Costs Included: The term Cost of the Work means the sum of all costs, except those excluded in Paragraph 11.01.B, necessarily incurred and paid by Contractor in the proper performance of the Work. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, the costs to be reimbursed to Contractor will be only those additional or incremental costs required because of the change in the Work or because of the event giving rise to the Claim. Except as otherwise may be agreed to in writing by Owner, such costs shall be in amounts no higher than those prevailing in the locality of the Project, shall include only the following items, and shall not include any of the costs itemized in Paragraph 11.01.B.
1. Payroll costs for employees in the direct employ of Contractor in the performance of the Work under schedules of job classifications agreed upon by Owner and Contractor. Such employees shall include, without limitation, superintendents, foremen, and other personnel employed full time at the Site. Payroll costs for employees not employed full time on the Work shall be apportioned on the basis of their time spent on the Work. Payroll costs shall include, but not be limited to, salaries and wages plus the cost of fringe benefits, which shall include social security contributions, unemployment, excise, and payroll taxes, workers' compensation, health and retirement benefits, bonuses, sick leave, vacation and holiday pay applicable thereto. The expenses of performing Work outside of regular working hours, on Saturday, Sunday, or legal holidays, shall be included in the above to the extent authorized by Owner.
 2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts shall accrue to Contractor unless Owner deposits funds with Contractor with which to make payments, in which case the cash discounts shall accrue to Owner. All trade discounts, rebates and refunds and returns from sale of surplus materials and equipment shall accrue to Owner, and Contractor shall make provisions so that they may be obtained.
 3. Payments made by Contractor to Subcontractors for Work performed by Subcontractors. If required by Owner, Contractor shall obtain competitive bids from subcontractors acceptable to Owner and Contractor and shall deliver such bids to Owner, who will then determine, with the advice of Construction Coordinator, 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 Construction Coordinator, and the costs of transportation,

loading, unloading, assembly, dismantling, and removal thereof. All such costs shall be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts shall cease when the use thereof is no longer necessary for the Work.

- d. Sales, consumer, use, and other similar taxes related to the Work, and for which Contractor is liable, imposed by Laws and Regulations.
- e. Deposits lost for causes other than negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.
- f. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by Contractor in connection with the performance of the Work (except losses and damages within the deductible amounts of property insurance established in accordance with Paragraph 5.06.D), provided such losses and damages have resulted from causes other than the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses shall include settlements made with the written consent and approval of Owner. No such losses, damages, and expenses shall be included in the Cost of the Work for the purpose of determining Contractor's fee.
- g. The cost of utilities, fuel, and sanitary facilities at the Site.
- h. Minor expenses such as telegrams, long distance telephone calls, telephone service at the Site, expresses, 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 wrongfully supplied, and making good any damage to property.
- 5. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in Paragraphs 11.01.A and 11.01.B.

- C. Contractor's Fee: When all the Work is performed on the basis of cost-plus, Contractor's fee shall be determined as set forth in the Agreement. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, Contractor's fee shall be determined as set forth in Paragraph 12.01.C.
- D. Documentation: Whenever the Cost of the Work for any purpose is to be determined pursuant to Paragraphs 11.01.A and 11.01.B, Contractor will establish and maintain records thereof in accordance with generally accepted accounting practices and submit in a form acceptable to Engineer an itemized cost breakdown together with supporting data.

11.02 Allowances

- A. It is understood that Contractor has included in the Contract Price all allowances so named in the Contract Documents and shall cause the Work so covered to be performed for such sums and by such persons or entities as may be acceptable to Owner and Construction Coordinator.
- 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 Construction Coordinator 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. 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 the Owner 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 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.

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

- e. the amount of credit to be allowed by Contractor to Owner for any change which results in a net decrease in cost will be the amount of the actual net decrease in cost plus a deduction in Contractor's fee by an amount equal to five percent of such net decrease; and
- f. when both additions and credits are involved in any one change, the adjustment in Contractor's fee shall be computed on the basis of the net change in accordance with Paragraphs 12.01.C.2.a through 12.01.C.2.e, inclusive.

12.02 Change of Contract Times

- A. The Contract Times may only be changed by a Change Order. Any Claim for an adjustment in the Contract Times shall be based on written notice submitted by the party making the Claim to the Construction Coordinator and the other party to the Contract in accordance with the provisions of Paragraph 10.05. Final approval of all change orders rests with the owner.
- 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 Part 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 Part 7, fires, floods, epidemics, abnormal weather conditions, or acts of God.
- B. If Owner, Construction Coordinator, or other contractors or utility owners performing other work for Owner as contemplated by Part 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, Construction Coordinator and the Related Entities of each of them shall not be liable to Contractor for any claims, costs, losses, or damages (including but not limited to all fees and charges of Engineers, Architects, Attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Contractor on or in connection with any other project or anticipated project.
- E. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delays within the control of Contractor. Delays attributable to and within the control of a Subcontractor or Supplier shall be deemed to be delays within the control of Contractor.

- F. All claims for delays shall be submitted at the submission of any application for payment or within fifteen (15) days of the event causing the delay. Any claims made after the allowable time shall be denied.

PART 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 Construction Coordinator has actual knowledge will be given to Contractor. All defective Work may be rejected, corrected, or accepted as provided in this Part 13.

13.02 Access to Work

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

13.03 Tests and Inspections

- A. Contractor shall give Construction Coordinator 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. Contractor shall employ and pay for the services of an independent testing laboratory to perform all inspections, tests, or approvals required by 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 Construction Coordinator 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 Construction Coordinator'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 third party organizations acceptable to Owner and Construction Coordinator.
- 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 Construction Coordinator, it must, if requested by Construction Coordinator, be uncovered for observation.
- F. Uncovering Work as provided in Paragraph 13.03.E shall be at Contractor's expense unless Contractor has given Construction Coordinator timely notice of Contractor's intention to cover the same and Construction Coordinator 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 Construction Coordinator, it must, if requested by Construction Coordinator, be uncovered for Construction Coordinator's observation and replaced at Contractor's expense.
- B. If Construction Coordinator considers it necessary or advisable that covered Work be observed by Construction Coordinator or inspected or tested by others, Contractor, at Construction Coordinator's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as Construction Coordinator 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 Construction Coordinator, Engineers, Architects, Attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such uncovering, exposure, observation, inspection, and testing, and of satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others); and Owner shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount thereof, Owner may make a Claim therefor as provided in Paragraph 10.05.
- D. If, the uncovered Work is not found to be defective, Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Times, or both, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement, and reconstruction. If the parties are unable to agree as to the amount or extent thereof, Contractor may make a Claim therefor as provided in Paragraph 10.05.

13.05 Owner May Stop the Work

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

13.06 Correction or Removal of Defective Work

- A. Promptly after receipt of notice, Contractor shall correct all defective Work, whether or not fabricated, installed, or completed, or, if the Work has been rejected by Construction Coordinator, 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 construction coordinator, 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 construction coordinator, 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 Construction Coordinator's recommendation of final payment, Construction Coordinator) 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 construction coordinator, 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 Construction Coordinator as to reasonableness) and the diminished value of the Work to the extent not otherwise paid by Contractor pursuant to this sentence. If any such acceptance occurs prior to Construction Coordinator'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 Construction Coordinator to correct defective Work or to remove and replace rejected Work as required by Construction Coordinator 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 (7) 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 Construction Coordinator and Construction Coordinator'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 construction coordinator, 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.

PART 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 the Construction Coordinator. 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 the Construction Coordinator 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. The date of the pay application must be the last day of the month. 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. Construction Coordinator will, within fifteen (15) 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 Construction Coordinator's reasons for refusing to recommend payment. In the latter case, Contractor may make the necessary corrections and resubmit the Application.
2. Construction Coordinator's recommendation of any payment requested in an Application for Payment will constitute a representation by Construction Coordinator to Owner, based on Construction Coordinator's observations on the Site of the executed Work as an experienced and qualified design professional and on Construction Coordinator's review of the Application for Payment and the accompanying data and schedules, that to the best of Construction Coordinator's knowledge, information and belief:
 - a. the Work has progressed to the point indicated;
 - b. the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, to the results of any subsequent tests called for in the Contract Documents, to a final determination of quantities and classifications for Unit Price Work under Paragraph 9.07, and to any other qualifications stated in the recommendation); and
 - c. the conditions precedent to Contractor's being entitled to such payment appear to have been fulfilled in so far as it is Construction Coordinator's responsibility to observe the Work.
3. By recommending any such payment Construction Coordinator 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 Construction Coordinator in the Contract Documents; or
 - b. that there may not be other matters or issues between the parties that might entitle Contractor to be paid additionally by Owner or entitle Owner to withhold payment to Contractor.

4. Neither Construction Coordinator's review of Contractor's Work for the purposes of recommending payments nor Construction Coordinator's recommendation of any payment, including final payment, will impose responsibility on Construction Coordinator:
 - 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. Construction Coordinator may refuse to recommend the whole or any part of any payment if, in Construction Coordinator's opinion, it would be incorrect to make the representations to Owner stated in Paragraph 14.02.B 2. Construction Coordinator 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 Construction Coordinator'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. Construction Coordinator has actual knowledge of the occurrence of any of the events enumerated in Paragraph 15.02.A.

C. Payment Becomes Due

1. Fifteen (15) days after presentation of the Application for Payment to Owner with Construction Coordinator'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 Construction Coordinator 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 Construction Coordinator, Owner will give Contractor immediate written notice (with a copy to Construction Coordinator) stating the reasons for such action and promptly pay Contractor any amount remaining after deduction of the amount so withheld. Owner shall promptly pay Contractor the amount so withheld, or any adjustment thereto agreed to by Owner and Contractor, when Contractor corrects to Owner's satisfaction the reasons for such action.
 3. If it is subsequently determined that Owner's refusal of payment was not justified, the amount wrongfully withheld shall be treated as an amount due as determined by Paragraph 14.02.C 1.

14.03 Contractor's Warranty of Title

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

14.04 Substantial Completion

- A. When Contractor considers the entire Work ready for its intended use Contractor shall notify Owner and Construction Coordinator in writing that the entire Work is substantially complete (except for items specifically listed by Contractor as incomplete) and request that Construction Coordinator issue a certificate of Substantial Completion.
- B. Promptly after Contractor's notification, Owner, Contractor, and Construction Coordinator shall make an inspection of the Work to determine the status of completion. If Construction Coordinator does not consider the Work substantially complete, Construction Coordinator will notify Contractor in writing giving the reasons therefor.
- C. If Construction Coordinator considers the Work substantially complete, the Construction Coordinator 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 (7) days after receipt of the tentative certificate during which to make written objection to Construction Coordinator as to any provisions of the certificate or attached list. If, after considering such objections, Construction Coordinator concludes that the Work is not substantially complete, Construction Coordinator 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, the Construction Coordinator considers the Work substantially complete, the Construction Coordinator will within be 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 Construction Coordinator believes justified after consideration of any objections from Owner.
- D. At the time of delivery of the tentative certificate of Substantial Completion, Construction Coordinator 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 informs the Construction Coordinator in writing prior to Construction Coordinator's issuing the definitive certificate of Substantial Completion, Construction Coordinator's aforesaid recommendation will be binding on Owner and Contractor until final payment.

- E. Owner shall have the right to exclude Contractor from the Site after the date of Substantial Completion subject to allowing Contractor reasonable access to complete or correct items on the tentative list.

14.05 Partial Utilization

- A. Prior to Substantial Completion of all the Work, Owner may use or occupy any substantially completed part of the Work which has specifically been identified in the Contract Documents, or which Owner, Construction Coordinator, and Contractor agree constitutes a separately functioning and usable part of the Work that can be used by Owner for its intended purpose without significant interference with Contractor's performance of the remainder of the Work, subject to the following conditions.
 - 1. Owner at any time may request Contractor in writing to permit Owner to use or occupy any such part of the Work Which Owner believes to be ready for its intended use and substantially complete. If and when Contractor agrees that such part of the Work is substantially complete, Contractor will certify to Owner and Construction Coordinator that such part of the Work is substantially complete and request Construction Coordinator to issue a certificate of Substantial Completion for that part of the Work.
 - 2. Contractor at any time may notify Owner and Construction Coordinator in writing that Contractor considers any such part of the Work ready for its intended use and substantially complete and request Construction Coordinator to issue a certificate of Substantial Completion for that part of the Work. Said work should have, at a minimum, a temporary Certificate of Occupancy from the authority having jurisdiction.
 - 3. Within a reasonable time after either such request, Owner, Contractor, and Construction Coordinator shall make an inspection of that part of the Work to determine its status of completion. If Construction Coordinator does not consider that part of the Work to be substantially complete, Construction Coordinator will notify Owner and Contractor in writing giving the reasons therefor. If Construction Coordinator 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, Construction Coordinator 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 Construction Coordinator, satisfactorily completed all corrections identified during the final inspection and has delivered, in accordance with the Contract Documents, all maintenance, training and operating instructions, schedules, guarantees, bonds, certificates or other evidence of insurance certificates of inspection, marked-up record documents to include digital as-builds of the project (as provided in

Paragraph 6.12), and other documents, Contractor may make application for final payment following the procedure for progress payments.

2. The final Application for Payment shall be accompanied (except as previously delivered) by:
 - a. all documentation called for in the Contract Documents, including but not limited to the evidence of insurance required by Paragraph 5.04.B.7;
 - b. consent of the surety, if any, to final payment;
 - c. a list of all Claims against Owner that Contractor believes are unsettled; and
 - d. complete and legally effective releases or waivers (satisfactory to Owner) of all Lien rights arising out of or Liens filed in connection with the Work.
 3. In lieu of the releases or waivers of Liens specified in Paragraph 14.07.A.2 and as approved by Owner, Contractor may furnish receipts or releases in full and an affidavit of Contractor that: (i) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (ii) all payrolls, material and equipment bills, and other indebtedness connected with the Work for which Owner or Owner's property might in any way be responsible have been paid or otherwise satisfied. If any Subcontractor or Supplier fails to furnish such a release or receipt in full, Contractor may furnish a bond or other collateral satisfactory to Owner to indemnify Owner against any Lien.
- B. Construction Coordinator's Review of Application and Acceptance**
1. If, on the basis of Construction Coordinator's observation of the Work during construction and final inspection, and Construction Coordinator's review of the final Application for Payment and accompanying documentation as required by the Contract Documents, Construction Coordinator is satisfied that the Work has been completed and Contractor's other obligations under the Contract Documents have been fulfilled, Construction Coordinator will, within ten (10) days after receipt of the final Application for Payment, indicate in writing Construction Coordinator's recommendation of payment and present the Application for Payment to Owner for payment. At the same time, Construction Coordinator will also give written notice to Owner and Contractor that the Work is acceptable subject to the provisions of Paragraph 14.09. Otherwise, Construction Coordinator 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 (30) days after the presentation to Owner of the Application for Payment and accompanying documentation, the amount recommended by Construction Coordinator, less any sum Owner is entitled to set off against Construction Coordinator'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 Construction Coordinator so confirms, Owner shall, upon receipt of Contractor's final Application for Payment (for Work fully completed and accepted) and recommendation of Construction Coordinator, 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 the Construction Coordinator 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.

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

15.02 Owner May Terminate for Cause

- A. The occurrence of any one or more of the following events will justify termination for cause:
 - 1. Contractor's persistent failure to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment or failure to adhere to the Progress Schedule established under Paragraph 2.07 as adjusted from time to time pursuant to Paragraph 6.04);
 - 2. Contractor's disregard of Laws or Regulations of any public body having jurisdiction;
 - 3. Contractor's disregard of the authority of the Construction Coordinator; 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 (7) 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 construction coordinator, 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 the Construction Coordinator as to their reasonableness and, when so approved by the Construction Coordinator, 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 (7) 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 fifteen (15) days written notice to Contractor and Construction Coordinator, 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) Construction Coordinator 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 (7) days written notice to Owner and Construction Coordinator, and provided Owner or Construction Coordinator 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 Construction Coordinator 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 (7) days after written notice to Owner and Construction Coordinator, 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.

PART 16 - DISPUTE RESOLUTION

16.01 Methods and Procedures

- A. Either Owner or Contractor may request mediation of any Claim submitted to Construction Coordinator for a decision under Paragraph 10.05 before such decision becomes final and binding. The mediation will be governed by the Mediation Rules of the South Carolina Supreme Court in effect as of the Effective Date of the Agreement. The request for mediation 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 the request.
- 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. agrees with the other party to submit the Claim to another dispute resolution process, or
 - 2. gives written notice to the other party of their intent to submit the Claim to a court of competent jurisdiction.

PART 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 of South Carolina.

17.06 Headings

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

SPECIFICATIONS

KLEIN/BENSON STREET PARKING LOT

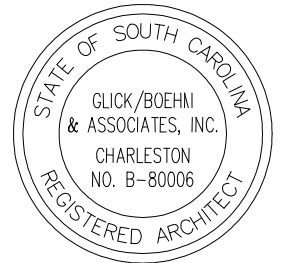
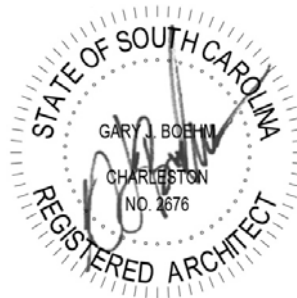
118 Benson Street
Walterboro, SC 29488

For The Owner:

Colleton County

GBA PROJECT N^o.: 1933

DATE: September 22, 2021



ARCHITECTURE / PLANNING / INTERIOR DESIGN

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00 01 10

TABLE OF CONTENTS

DIVISION 00 - INTRODUCTORY INFORMATION, BIDDING REQUIREMENTS, AND CONTRACT REQUIREMENTS

00 01 10 - TABLE OF CONTENTS

DIVISION 01 - GENERAL REQUIREMENTS

01 57 13 – TEMPORARY EROSION CONTROL

01 71 23 – CONSTRUCTION STAKEOUT AND FIELD ENGINEERING

DIVISION 02 - SITE CONSTRUCTION

02 41 13 – SELECTIVE SITE DEMOLITION

DIVISION 26 – ELECTRICAL

26 05 00 – COMMON WORK RESULTS FOR ELECTRICAL

26 05 10 – ELECTRICAL SUBMITTALS

26 05 19 – LOW-VOLTAGE ELECTRICAL CONDUCTORS AND CABLES

26 05 26 – GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

26 05 33 – RACEWAY AND BOXES FOR ELECTRICAL SYSTEMS

26 05 43 – UNDERGROUND DUCTS AND RACEWAYS FOR ELECTRICAL SYSTEMS

26 28 16 – ENCLOSED SWITCHES AND CIRCUIT BREAKERS

26 56 00 – EXTERIOR LIGHTING

DIVISION 31 – EARTHWORK

31 10 00 – SITE CLEARING

31 20 00 – EARTH MOVING

31 23 19 -- DEWATERING

DIVISION 32 – EXTERIOR IMPROVEMENTS

32 05 30 – LANDSCAPE MAINTENANCE

32 12 16 – ASPHALT PAVING AND BASE COURSE

32 16 23 – CONCRETE SIDEWALKS, CURBS, AND GUTTERS

32 17 23 – PAVEMENT MARKINGS

32 92 23 – SODDING

32 93 00 – LANDSCAPE PLANTS

DIVISION 33 – UTILITIES

33 41 00 – STORM DRAINAGE PIPING

SECTION 01 57 13
TEMPORARY EROSION CONTROL

PART 1 - GENERAL

1.01 SUMMARY

- A. This section includes the following:
 - 1. Temporary erosion and sediment control measures during construction.
 - 2. Cleaning, repair, and restoration of adjoining properties and roads necessitated by erosion and sedimentation from the project site during the course of the project.

1.02 DEFINITIONS

- A. Soil stabilization refers to measures, which protect soil from erosive forces of raindrop impact and flowing water
- B. Erosion control structures refer to silt fences, sediment traps, outlet traps, diversion berms, stabilized construction entrances, and similar devices constructed for the purpose of retaining and controlling sediment.

1.03 SYSTEM DESCRIPTION

- A. Performance Requirements: Meet the following requirements:
 - 1. Implement sediment and erosion control measures in an orderly manner as work progresses. Coordinate with the approved Storm Water Pollution Prevention Plan (SWPPP) and the approved NPDES Storm Water Discharge permit.
 - 2. Protect existing undisturbed areas from effects of erosion.
 - 3. Retain sediment within the boundaries of the site.
 - 4. Prevent damage to properties outside the construction limits from silting due to construction of the project.

1.04 QUALITY ASSURANCE

- A. Regulatory Requirements:
 - 1. Comply with the requirements of the approved SWPPP and the approved NPDES Storm Water Discharge permit.
 - 2. Pay all fees, fines, and assessments related to work of this section charged or levied by authorities having jurisdiction.

1.05 SEQUENCING AND SCHEDULING

- A. Scheduling of Work:
 - 1. Conduct site inspection and document existing conditions of site and portions indicated to remain.
 - 2. Identify all trees indicated to be protected and install tree barricades in coordination with requirements indicated on the construction drawings.
 - 3. Remove vegetation and surfaces only as required to allow installation of perimeter silt barrier.

4. Install construction entrance and remaining erosion control devices as indicated on the project drawings, and as needed to comply with the approved SWPPP.
5. Contact the appropriate jurisdictional authority office to schedule site inspection of erosion control devices prior to starting site work.
6. Comply with the requirements indicated on the construction drawings.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Stone Materials

1. Washed filter stone, ASTM D 448, size as indicated.
2. Rip-rap stone, hard quarry stone or fieldstone, split or crushed natural stone, per SCDOT Standard Specification, Edition of 2007, Section 804, Class and size as indicated.

B. Geotextiles

1. Sediment /Silt fence Fabric: Polypropylene, woven monofilament geotextile, UV and soil chemical resistant:
 - a. Puncture strength, ASTM D 4833, 60-pound.
 - b. Apparent opening Size (AOS), ASTM D 4751, 40 US Std. Sieve (0.425 mm).
 - c. Water Flow Rate, ASTM D 4491, 75 gpm/sq.ft.
 - d. Manufacturer: Fence fabric must be on the SCDOT list #34 of approved materials.
2. Synthetic Filter fabric and Sediment Trap Fabric: Polypropylene, staple fiber, needle punched non-woven geotextile, UV and soil chemical resistant:
 - a. Puncture strength, ASTM D 4833, 55-pound.
 - b. Apparent opening Size (AOS), ASTM D 4751, 70 US Std. Sieve (0.212 mm).
 - c. Water Flow Rate, ASTM D 4491, 110 gpm/sq.ft.
 - d. Manufacturers: Fence fabric must be on the SCDOT list #44 of approved materials.

C. Erosion Control Blanket: Erosion control blanket to be light weight degradable polypropylene (1.64 lbs/1000sf photodegradable) with 100% agricultural wheat-straw fiber blanket (0.5 lbs./sq.yd.).

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verify that conditions of the project site correspond with information given in the construction drawings.
- B. Inspect project site, areas of property outside of project site, and surrounding properties.
 1. Note and bring to the immediate attention of the Architect any existing disturbed soil conditions, erosion, or sedimentation requiring abatement or documentation.
 2. Provide project site border documentation in the form of a complete series of photographs clearly showing existing conditions at the construction limits of the project site prior to beginning any disturbing activities or starting any work. Submit copy to the Architect for record purposes.

3.02 SEDIMENT AND EROSION CONTROL

- A. Erosion Control Responsibilities: The Contractor will be responsible for all sediment and erosion control on the project site. He shall comply with the State regulations regarding the sediment and erosion control for land disturbing activities and the approved Storm Water Pollution Prevention Plan (SWPPP) and the approved SC DHEC NPDES General Permit for Stormwater Discharge from Large and Small Construction Activities SCR 100000. The Contractor shall ensure construction operations and management are constantly in compliance with the terms and conditions of the General Permit. If it is determined during construction that any of the installed Best Management Practices (BMP's) erosion control structures are not functioning as required, the BMP shall be repaired, modified or replaced as needed to prevent sediment from leaving the project site.
- B. Erosion Control SWPPP Inspections: The Contractor shall provide for all weekly SWPPP inspections. Inspections must be performed by a third-party SCDHEC Certified Inspector (i.e. not a direct employee of the Contractor or the Owner). If the inspections discover portions of the erosion control BMP's that must be repaired, replaced, or modified, the Contractor shall comply immediately with the repairs. A copy of the approved SWPPP will be provided to the Contractor for his use. The Contractor shall maintain an approved copy of the SWPPP at the construction on-site trailer office, and continually update as regulations require, reflecting current conditions.
- C. SWPPP Compliance Logbook: The Contractor shall create and maintain a three-ring binder of documents that demonstrate compliance with the Stormwater Pollution Prevention Plan (SWPPP) Construction Activity Permit. The binder shall include a copy of the permit registration statement, SWPPP and SWPPP update amendments, all inspection reports, copies of correspondence with the list agency that issued the permit (i.e. SCDHEC Stormwater Division of Bureau of Water and the local stormwater MS4 Office as applicable). At the completion of the project, the folder shall become the property of the Owner.
- D. SCDHEC Standard Erosion Control Notes:

Implement sediment and erosion control measures as shown on plans. Where specific sediment and erosion control measures are not shown on the plans, the following minimum requirements apply:

1. If necessary, slopes which exceed eight (8) vertical feet should be stabilized with synthetic or vegetative mats, in addition to hydroseeding. It may be necessary to install temporary slope drains during construction. Temporary berms may be needed daily until the slope is brought to grade.
2. Stabilization measures shall be initiated as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased, but in no case more than (14) days after work has ceased, except as stated below.
 - a. Where stabilization by the 14th day is precluded by snow cover or frozen ground conditions stabilization measures must be initiated as soon as practicable.
 - b. Where construction activity on a portion of the site is temporarily ceased, and earth-disturbing activities will be resumed within 14 days, temporary stabilization measures do not have to be initiated on that portion of the site.
3. All sediment and erosion control devices shall be inspected once every calendar week. If periodic inspections or other information indicates that a BMP has been inappropriately installed, or incorrectly maintained, the Permittee must address the necessary replacement or modification required to correct the BMP within 48 hours of identification.
4. Provide silt fences and/or other control devices, as may be required, to control soil erosion during utility construction. All disturbed areas shall be cleaned, graded and stabilized with grassing immediately after the utility installation. Fill, cover, and temporary

seeding at the end of each day are recommended. If water is encountered while trenching, the water shall be filtered to remove any sediments before being pumped back into any waters of the state.

5. All erosion control devices shall be properly maintained during all phases of construction until the completion of all construction activities and all disturbed areas have been stabilized. Additional control devices may be required during construction in order to control erosion and/or offsite sedimentation. All temporary control devices shall be removed once construction is complete and the site is stabilized.
6. The contractor must take necessary action to minimize the tracking of mud onto paved roadways from construction areas and the generation of dust. The contractor shall daily remove mud/soil from pavement, as may be required.
7. Residential subdivisions require erosion control features for infrastructure as well as for individual lot construction. Individual property owners shall follow these plans during construction or obtain approval of an individual plan in accordance with S.C. Reg. 72-300 et seq. and SCR100000.
8. Temporary diversion berms and/or ditches will be provided as needed during construction to protect work areas from upslope runoff and/or to divert sediment-laden water to appropriate traps or stable outlets.
9. All waters of the state (WOS), including wetlands, are to be flagged or otherwise clearly marked in the field. A double row of silt fence is to be installed in all areas where a 50-foot buffer can't be maintained between the disturbed area and all WOS. A 10-foot buffer should be maintained between the last row of silt fence and all WOS.
10. Litter, construction debris, oils, fuels, and building products with significant potential for impact (Such as stockpiles, of freshly treated lumber) and construction chemicals that could be exposed to storm water must be prevented from becoming a pollutant source in stormwater discharges.
11. A copy of the SWPPP, inspection records, and rainfall data must be retained at the construction site or a nearby location easily accessible during normal business hours, from the date of commencement of construction activities to the date that final stabilization is reached.
12. Initiate stabilization measures on any exposed steep slope (3H:1V or greater) where land-disturbing activities have permanently or temporarily ceased and will not resume for a period of 7 calendar days.
13. Minimize soil compaction and, unless infeasible, preserve topsoil.
14. Minimize the discharge of pollutants from equipment and vehicle washing, wheel wash water, and other wash waters. Wash waters must be treated in a sediment basin or alternative control that provides equivalent or better treatment prior to discharge.
15. Minimize the discharge of pollutants from dewatering of trenches and excavated areas. These discharges are to be routed through appropriate BMP's (sediment basins, filter bag, etc.).
16. The following discharges from sites are prohibited:
 - Wastewater from washout of concrete, unless managed by an appropriate control;
 - Wastewater from washout and cleanout of stucco, paint, form release oils, curing compounds and other construction materials;
 - Fuels, oils, or other pollutants used in vehicle and equipment operation and maintenance; and
 - Soaps, or solvents used in vehicle and equipment washing.
17. After construction activities begin, inspections must be conducted at a minimum of at

least once every calendar week and must be conducted until final stabilization is reached on all areas of the construction site.

18. If existing BMP's need to be modified or if additional BMP's are necessary to comply with the requirements of this permit and/or SC's Water Quality Standards, implementation must be completed before the next storm event whenever practicable. If implementation before the next storm event is impracticable, the situation must be documented in the SWPPP and alternative BMP's must be implemented as soon as reasonably possible.
19. A Pre-construction Conference must be held for each construction site with an approved on-Site SWPPP prior to the implementation of construction activities. For non-linear projects that disturb 10 acres or more this conference must be held on-site unless the Department (SCDHEC-OCRM) has approved otherwise.

E. Additional Erosion Control Notes:

1. The contractor shall maintain barriers and silt fences around all drainage inlets, open pipe inlets, unfinished junction boxes, or any openings that allow storm water borne sediments to enter the drainage system or be discharged from the site. Erosion control shall be maintained and/or replaced as needed until all permanent surfaces (i.e. pavement, grass, planting, etc.) are in place.
2. Silt fence dams on 100' intervals along all temporary ditches and swales,
3. A concrete truck wash down location will be located on the site for concrete trucks delivering concrete to the site to perform wash down after discharging concrete. Wash down shall allow excess water to drain off through a filter system, while retaining fines and paste. See also Standard SCDHEC SWPPP Notes No.14 & No.16. Once the excess water has drained away, and the paste cured to a dried condition, the subsequent hardened concrete debris material shall be collected and removed from the Owner's property in accordance with the requirements specified for construction debris and waste. The concrete waste material will not be allowed to accumulate in piles on-site. If, at any time, the Program Manager determines the wash-down area is not being operated or maintained in an appropriate manner, he may direct the Contractor to cease wash-down operations on the site and to clean the area.
4. The contractor shall be responsible for establishing final surface stabilization of all areas of land disturbance disturbed by construction operations. This includes pavements, mulches, landscaping, and grassing. Any unpaved area disturbed not specifically identified on the drawings for the type of vegetative stabilization shall be stabilized to match the adjacent surface or to match the original type of surface; i.e. grass, mulch, landscape bed, etc. No disturbed area shall be left un-stabilized.

3.03 PROTECTION AND CLEANING

- A. Maintain all devices for sediment control in proper working order for the duration of the project. When control devices become filled halfway to capacity, remove sediment and deposit onsite in such a manner as to preclude further erosion of deposited sediment. Clean and reset device in proper working order.
- B. Restore protection to protected stockpiles and slopes immediately following disturbance.

3.04 REMOVAL OF TEMPORARY DEVICES

- A. Remove erosion and sedimentation controls only after a final inspection and after permanent pavements and vegetative stabilization has been achieved and approved.
- B. Final stabilization of grassed areas is determined when 100% of sodded areas are complete without any gaps or spots larger than 12" by 12" square; and seeded areas are complete with a stable stand of grass that covers a minimum of 75% of the designated area with no bare spots

larger than 12" by 12" square. These minimum requirements are for determination of "stabilization" only, and do not determine the level required for Final Acceptance by the Owner or the Landscape Architect, as specified in the appropriate landscape specification.

END OF SECTION

SECTION 01 71 23**CONSTRUCTION STAKEOUT AND FIELD ENGINEERING****PART 1 - GENERAL****1.01 DESCRIPTION**

- A. This item shall consist of furnishing, placing, replacing when required, marking and maintaining all Construction Layout stakes necessary for proper guidance and control of construction operations. It shall also include the preparation of all construction staking, field books, such as alignment books, slope and grade books, blue-top books etc. It shall also include any additional Surveyor's, Civil, Structural or other professional engineering services specified or required to execute Contractor's construction methods.

1.02 QUALIFICATIONS OF SURVEYOR OR ENGINEER

- A. When it is specified or required for the Contractor to retain the services of an engineer or surveyor, then each shall meet the following requirements:
1. Surveyor shall be a Registered Professional Land Surveyor in the State the project site is located.
 2. Engineer shall be a Registered Professional Engineer in the State the project site is located.

PART 2 - PRODUCTS**2.01 EQUIPMENT AND MATERIALS**

- A. All surveying equipment, stakes and any other material necessary to perform the work shall be furnished by the Contractor, either directly or by a sub-contracted Registered Land Surveyor.

PART 3 - EXECUTION**3.01 SURVEY REFERENCE POINTS**

- A. Existing basic horizontal and vertical control points for the Project are those designated on drawing.
- B. Locate and protect control points prior to starting site work and preserve all permanent reference points during construction.
- C. The Contractor shall provide a Registered Land Surveyor, subject to the Owner's approval, to establish and/or re-establish all benchmarks, reference points, line and grade points necessary to complete the work at no additional expense to the Owner.
- D. The Contractor shall notify the Project Engineer in the event any original reference point or benchmark as defined in subparagraph A and B, is destroyed or lost, and if required by the Project Engineer, shall replace said reference point or benchmark as per the requirements of subparagraph C.

3.02 CONSTRUCTION STAKEOUT

- A. Establish lines and levels, locate and layout by instrumentation and similar appropriate means all site improvements
 - 1. Stakes for grading, fill and topsoil placement.
 - 2. Stakes for alignment and grades for roadways, parking facilities, and other pavements or structures.
 - 3. Storm drainage and sanitary sewers alignment and invert elevations.
 - 4. Water distribution systems, and other non-gravity utility system fixtures, fittings, bends and other appurtenances needed for proper location and alignment.
- B. A complete and accurate log of all control and survey work, as it progresses, shall be maintained.
- C. Contractor shall verify layouts, and line and grade of work, as work progresses, at random times to verify proper installation and shall notify Project Engineer of status.
- D. At the Project Engineer's request, surveying stakeout data shall be submitted for review to verify accuracy of field engineering work.

3.03 RECORD DRAWINGS AND CERTIFICATION

- A. AS-BUILT RECORD DRAWINGS: Upon completion of the work, the Contractor shall provide a certified final as-built survey by a Registered Land Surveyor showing all dimensions, locations, angles, and elevations of all portions of work performed under his contract, including new building additions and pavement. Coordinate with the requirements of this section and as specified Division One. The Contractor will be provided a copy of the original Site electronic CAD files to use as a base for the creation of these as-built record drawings. Survey shall show all improvements and their relations to any and all existing conditions that are relative to their use.
- B. UTILITY AS-BUILTS: Contractor shall, as part of his work, survey the as-constructed location of all new buried utilities. These locations shall document the horizontal location, size, material, and elevation, or depth of cover over the buried utility pipe, cable or duct.
 - 1. Provide storm drainage as-built drawings of the storm drainage system and the storm water management control structures as required by the approved SCDHEC NPDES storm water permit and as required in Section 33 41 00 STORM DRAINAGE PIPING.
 - 2. Provide water as-built drawings, and close-out documents in accordance with the requirements of the water system utility company having authority and the requirements of Section 33 11 00 WATER DISTRIBUTION PIPING.
 - 3. Provide sanitary sewer as-built drawings, and close-out documents in accordance with the requirements of the sewer utility company having authority and the requirements of Section 33 30 00 SANITARY SEWERS.
 - 4. Other utilities as-built drawings shall be as required by that discipline or utility authority requirements.
- C. UTILITY EASEMENT PLATS: Contractor shall provide new easement plats for all new potable/fire water line, and sanitary sewer lines. Plats shall be prepared by a professional surveyor and shall meet all requirements of the utility company having jurisdiction, as applicable.
- D. CERTIFICATE OF CONFORMANCE: Submit a certificate signed by Professional Engineer or

CONSTRUCTION STAKEOUT AND FIELD ENGINEERING

Registered Land Surveyor, as each portion of work requires, certifying that elevations and locations of improvements are in conformance or non-conformance with Contract Documents.

END OF SECTION

SECTION 02 41 13
SELECTIVE SITE DEMOLITION**PART 1 GENERAL****1.01 SUMMARY**

- A. The scope of work of this specification covers demolition of exterior infrastructure (i.e. pavements and utilities) and other site improvements. It does not cover demolition of buildings or selective demolition to interiors of structures or buildings. Coordinate work in this section with Section 31 10 00, SITE CLEARING.

1.02 GENERAL REQUIREMENTS

- A. Do not begin demolition until authorization is received from the Architect. Remove rubbish and debris from the project site daily, unless otherwise directed; do not allow accumulations on the project site. The work includes demolition, salvage of identified items and materials, and removal of resulting rubbish and debris. Materials that cannot be removed daily shall be stored in approved storage containers in areas specified by the Architect.

1.03 REGULATORY AND SAFETY REQUIREMENTS

- A. Comply with federal, state, and local regulations for demolition, hauling and disposal. Obtain all necessary permits as required by the above Governmental agencies.

1.04 DUST AND DEBRIS CONTROL

- A. Prevent the spread of dust and debris and avoid the creation of a nuisance or hazard in the surrounding area. Do not use water if it results in hazardous or objectionable conditions such as, but not limited to, ice, flooding, or pollution.

1.05 SEDIMENT AND EROSION CONTROL

- A. The Contractor will be responsible for all sediment and erosion control on the project site. He shall comply with the State regulations regarding the sediment and erosion control for land disturbing activities and an approved Storm Water Pollution Prevention Plan (SWPPP). Coordinate all sediment and erosion control work with the requirements of Section 01 57 13 TEMPORARY EROSION CONTROL.

1.06 PROTECTION

- A. Traffic Control Signs: Where pedestrian and driver safety are endangered in the area of removal work use traffic barricades with flashing lights. Notify the Architect prior to beginning such work.
- B. Existing Work: Before beginning any demolition work, the Contractor shall conduct a site inspection with the Architect to document all existing conditions and examine the drawings and specifications to determine the extent of the work. Record existing work in the presence of the Architect, showing the condition of structures, pavements, and other facilities adjacent to areas of alteration or removal. Photographs sized 4 inch will be acceptable as a record of existing conditions.
- C. Items to Remain in Place: Take necessary precautions to avoid damage to existing items to remain in place, to be reused, or to remain the property of the Owner. Repair or replace damaged items as approved by the Architect. Coordinate the work of this section with all other work indicated. Construct and maintain shoring, bracing, and supports as required. Do not

overload pavements to remain. Repairs, reinforcement, or replacement require approval by the Architect prior to performing such work.

- D. Existing Construction: Do not disturb existing construction beyond the extent indicated or necessary for installation of new construction.
- E. Trees: Protect trees within the project site which are indicated to be left in place, and which might be damaged during demolition by a minimum 4-foot high fence. Erect and secure a temporary tree barricade or fence barrier a minimum of 5 feet from the trunk for trees 10-inch DBH (diameter breast height-as measured 4.5 feet above existing ground) and smaller. For trees greater than 10-inch DBH, protective barricades shall provide a diameter of protection around the tree, measured in feet, equal to the DBH diameter of the tree measured in inches (i.e. an 18-inch diameter tree would require an 18-foot diameter protective barricade). For cluster trees or large clumps of trees, follow the outer perimeter of branches, unless specifically indicated otherwise. Replace any tree designated to remain that is damaged during the work under this contract with like-kind or as approved by the Architect.
- F. Utility Service: Maintain existing utilities indicated to stay in service and protect against damage during demolition operations.
- G. Facilities: Protect electrical and mechanical services and utilities. Where removal of existing utilities and pavement is specified or indicated, provide approved barricades, temporary covering of exposed areas, and temporary services or connections for electrical and mechanical utilities.
- H. Protection of Personnel: Before, during and after the demolition work the Contractor shall continuously evaluate the site conditions and take immediate action to protect all personnel working in and around the demolition site.

1.07 BURNING

- A. The use of burning at the project site for the disposal of refuse and debris will not be permitted.

1.08 RELOCATIONS

- A. Perform the removal and reinstallation of relocated items as indicated with workmen skilled in the trades involved. Items to be relocated which are damaged by the Contractor shall be repaired or replaced with new undamaged items as approved by the Architect.

1.09 USE OF EXPLOSIVES

- A. Use of explosives will not be permitted.

PART 2 PRODUCTS

2.01 FILL MATERIAL

- A. Comply with Section 31 20 00 EARTH MOVING for excavating, backfilling, and compacting procedures for soils used as backfill material to fill voids, depressions or excavations resulting from demolition of pavements or site infrastructure.

PART 3 EXECUTION**3.01 EXISTING FACILITIES TO BE REMOVED**

- A. Utilities and Related Equipment:
1. General Requirements: Do not interrupt existing utilities serving occupied or used facilities, except when authorized in writing by the Architect. Do not interrupt existing utilities serving facilities occupied and used by the Owner except when approved in writing and then only after temporary utility services have been approved and provided. Do not begin demolition work until all utility disconnections have been made. Shut off and cap utilities for future use, as indicated.
 2. Disconnecting Existing Utilities: Remove existing utilities, as indicated, and terminate in a manner conforming to the nationally recognized code covering the specific utility and approved by the Architect. When utility lines are encountered that are not indicated on the drawings, the Architect shall be notified prior to further work in that area. Remove meters and related equipment and deliver to a location on the station in accordance with instructions of the Architect.
- B. Paving and Slabs: Remove concrete and asphaltic concrete paving and slabs including aggregate base as indicated. Provide neat sawcuts at limits of pavement removal as indicated. Sawcuts shall be at full depth of the pavement. Assume for bidding purposes that concrete sidewalks are 4 inches thick; asphalt pavements are 3 inches thick (not including aggregate base), and exterior structural or utility slabs are 6" thick, unless otherwise indicated.
- C. Concrete: Saw concrete along straight lines. Make sawcuts full depth of pavement. At locations where the thickness exceeds the capabilities of a saw blade, grind smooth the rough broken area where new concrete pavement will be installed abutting the saw cut pavement so as to allow the proper installation of pre-formed expansion joint material between the existing concrete pavements and the new concrete pavements.
- D. Miscellaneous Metal: Salvage shop-fabricated items such as trash dumpster enclosure access doors and frames, steel gratings, metal ladders, and similar items as whole units. Scrap metal shall become the Contractor's property. Recycle scrap metal to the greatest extent possible as part of demolition operations. Provide separate containers to collect scrap metal and transport to a scrap metal collection or recycle facility.
- E. Patching: Where removals leave holes and damaged surfaces exposed in the finished work, patch and repair these holes and damaged surfaces to match adjacent finished surfaces. Where new work is to be applied to existing surfaces, perform removals and patching in a manner to produce surfaces suitable for receiving new work. Finished surfaces of patched area shall be flush with the adjacent existing surface and shall match the existing adjacent surface as closely as possible as to texture and finish. Patching shall be as specified and indicated.
- F. Electrical Equipment and Fixtures: Remove and salvage outdoor/exterior electrical fixtures for re-use, as indicated. Fixtures indicated for re-use shall be boxed and tagged for identification and protected from breakage.

3.02 CONCURRENT EARTH-MOVING OPERATIONS

- A. Do not begin excavation, filling, and other earth-moving operations that are sequential to demolition work until all demolition in the area has been completed and debris removed. Holes, excavation depressions and other hazardous openings shall be filled in accordance with Section 31 20 00, EARTH MOVING.

3.03 DISPOSITION OF MATERIAL

- A. Title to Materials: Except for salvaged items specified in related Sections, and for materials or equipment scheduled for salvage, all materials and equipment removed and not reused or salvaged, shall become the property of the Contractor and shall be removed from Owner property. Title to materials resulting from demolition, and materials and equipment to be removed, is vested in the Contractor upon approval by the Architect of the Contractor's demolition and removal procedures, and authorization by the Architect to begin demolition. The Owner will not be responsible for the condition or loss of, or damage to, such property after contract award. Materials and equipment shall not be viewed by prospective purchasers or sold on the site.
- B. Reuse of Materials and Equipment: Remove and store materials and equipment listed or indicated to be reused or relocated to prevent damage and reinstall as the work progresses.
- C. Salvaged Materials and Equipment: Remove materials and equipment that are indicated and/or specified to be removed by the Contractor and that are to remain the property of the Owner, and deliver to a storage site, as directed within 10 miles of the work site.
 - 1. Salvage items and material to the maximum extent possible.
 - 2. Material salvaged for the Contractor shall be stored as approved by the Architect and shall be removed from Owner property before completion of the contract. Material salvaged for the Contractor shall not be sold on the site.
 - 3. Salvaged items to remain the property of the Owner shall be removed in a manner to prevent damage and packed or crated to protect the items from damage while in storage or during shipment. Items damaged during removal or storage shall be repaired or replaced to match existing items. Containers shall be properly identified as to contents.
- D. Unsalvageable Material: Concrete, masonry, and other noncombustible material, except concrete permitted to remain in place, shall be disposed of off the site.

3.04 CLEANUP

- A. Debris and rubbish shall be removed from disturbed site areas, trenches, and similar excavations prior to any backfilling. Under no circumstances will rubbish or demolition debris be allowed to be buried on site. Dispose of debris, rubbish, scrap, and other non-salvageable materials resulting from removal operations with all applicable federal, state and local regulations. Debris shall be transported in a manner that prevents spillage on streets or adjacent areas.

3.05 REUSE OF SALVAGED ITEMS

- A. Recondition salvaged materials and equipment designated for reuse before installation. Replace items damaged during removal and salvage operations or restore them as necessary to usable condition.

END OF SECTION

COMMON WORK RESULTS FOR ELECTRICAL

**SECTION 260500
COMMON WORK RESULTS FOR ELECTRICAL****PART 1 - GENERAL****1.1 IMPOSED REGULATIONS**

- A. Applicable provisions of the State and Local Codes and of the following codes and standards in addition to those listed elsewhere in the specifications are hereby imposed on a general basis for electrical work: codes and standards listed on the electrical drawings.

1.2 SCOPE OF WORK

- A. Provide all labor, materials, equipment and supervision to construct complete and operable electrical systems as indicated on the drawings and specified herein. All materials and equipment used shall be new, undamaged and free from any defects.

1.3 RELATED DOCUMENTS AND OTHER INFORMATION

- A. The general provisions of the Contract, including General and Supplementary Conditions and General Requirements, apply to the portions of work specified in each and every Section of this Division, individually and collectively.

1.4 EXISTING SERVICES AND FACILITIES

- A. Damage to Existing Services: Existing services and facilities damaged by the Contractor through negligence or through use of faulty materials or workmanship shall be promptly repaired, replaced, or otherwise restored to previous conditions by the Contractor without additional cost to the Owner.
- B. Interruption of Services: Interruptions of services necessary for connection to or modification of existing systems or facilities shall occur only at prearranged times approved by the Owner. Interruptions shall only occur after the provision of all temporary work and the availability of adequate labor and materials will assure that the duration of the interruption will not exceed the time agreed upon.
- C. Removed Materials: Existing materials made unnecessary by the new installation shall be stored on site. They shall remain the property of the Owner and shall be stored at a location and in a manner as directed by the Owner. If classified by the Owner's authorized representative as unsuitable for further use, the material shall become the property of the Contractor and shall be removed from the site at no additional cost to the owner.

1.5 PRODUCT WARRANTIES

- A. Provide manufacturer's standard printed commitment in reference to a specific product and normal application, stating that certain acts of restitution will be performed for the Purchaser or Owner by the manufacturer, when and if the product fails within certain operational conditions and time limits. Where the warranty requirements of a specific specification section exceeds the manufacturer's standard warranty, the more stringent requirements will apply and modified manufacturer's warranty shall be provided. In no case shall the manufacturer's warranty be less than one (1) year.

1.6 PRODUCT SUBSTITUTIONS

- A. General: Materials specified by manufacturer's name shall be used unless prior approval of an alternate is given by addenda. Requests for substitutions must be received in the office of

COMMON WORK RESULTS FOR ELECTRICAL

the Glick Boehm Architecture at least 10 days prior to opening of bids.

1.7 ELECTRICAL DRAWINGS

- A. Electrical contract drawings are diagrammatic and indicate the general arrangement of electrical equipment. Do not scale electrical plans. Obtain all dimensions from the Civil's dimensioned drawings and field measurements.
- B. Coordinate installation of electrical equipment with the structural and mechanical equipment and access thereto. Coordinate exterior electrical work with civil and landscaping work.
- C. Discrepancies shown on different drawings, between drawings and specifications or between documents and field conditions shall be installed to provide the better quality or greater quantity of work; or, comply with the more stringent requirement; either or both in accordance with the A/E's interpretation.

1.8 SUBMITTALS

- A. Refer to section 260510

PART 2 - EXECUTION**2.1 PRODUCT INSTALLATION, GENERAL**

- A. Except where more stringent requirements are indicated, comply with the product manufacturer's installation instructions and recommendations, including handling, anchorage, assembly, connections, cleaning and testing, charging, lubrication, startup, test operation and shut-down of operating equipment. Consult with manufacturer's technical experts, for specific instructions on unique product conditions and unforeseen problems.
- B. Protection and Identification: Deliver products to project properly identified with names, models numbers, types, grades, compliance labels and similar information needed for distinct identifications; adequately packaged or protected to prevent deterioration during shipment, storage and handling. Store in a dry, well ventilated, indoor space, except where prepared and protected by the manufacturer specifically for exterior storage.
- C. Permits and Tests: Provide labor, material and equipment to perform all tests required by the governing agencies and submit a record of all tests to the Owner or his representative. Notify the Architect five days in advance of any testing.
- D. Clean all equipment, inside and out, upon completion of the work. Scratched or marred surfaces shall be touched-up with touch-up paint furnished by the equipment manufacturer.
- E. Replace all equipment and materials that become damaged.
- F. No more than three phase conductors, each of opposite phases for a three phase WYE system, shall be combined in a single raceway unless written approval is granted by the engineer or noted otherwise on the construction documents. (For 120 volt and 277 volt receptacle and lighting circuits are no more than 3 circuits unless written approval is granted by the engineer or noted otherwise on the construction documents.)

2.2 EQUIPMENT PROTECTION

- A. Equipment and materials shall be protected during shipment and storage against physical damage, vermin, dirt, corrosive substances, fumes, moisture, cold and rain.

COMMON WORK RESULTS FOR ELECTRICAL

- B. Store equipment indoors in clean dry space with uniform temperature to prevent condensation. Equipment shall include but not be limited to switchgear, switchboards, panelboards, transformers, motor control centers, motor controllers, uninterruptible power systems, enclosures, controllers, circuit protective devices, cables, wire, light fixtures, electronic equipment, and accessories.
- C. During installation, equipment shall be protected against entry of foreign matter; and be vacuum-cleaned both inside and outside before testing and operating. Compressed air shall not be used to clean equipment. Remove loose packing and flammable materials from inside equipment.
- D. Damaged equipment shall be, as determined by the Engineer, placed in first class operating condition or be returned to the source of supply for repair or replacement.
- E. Painted surfaces shall be protected with factory installed removable heavy kraft paper, sheet vinyl or equal.
- F. Damaged paint on equipment and materials shall be refinished with the same quality of paint and workmanship as used by the manufacturer so repaired areas are not obvious.

2.3 UTILITY CONNECTIONS:

- A. Coordinate the connection of the electrical system with the local power company. Comply with the requirements of governing regulations, franchised service companies and controlling agencies. Pay all utility fees and charges.

2.4 ELECTRICAL WORK:

- A. Electrical work shall be accomplished with all affected circuits or equipment de-energized.
- B. Nothing in the above shall impose any duty on the Architects and Architect's consultants, nor relieve the General Contractor and its subcontractors of its obligations, duties and responsibilities including but not limited to, construction means, methods, sequence, techniques or procedures necessary for performing, superintending and coordinating the Electrical Work in accordance with the Contract Documents and any health or safety precautions required by any regulatory agencies.

END OF SECTION 260500

**SECTION 260510
ELECTRICAL SUBMITTALS****PART 1 - GENERAL****1.1 RELATED REQUIREMENTS**

- A. Comply with the applicable requirements of the Division 1 specifications (013300) and the requirements of this Division of the specifications.

1.2 SUBMITTALS

- A. Submit for review by the Engineer Architect a schedule with engineering data of materials and equipment to be incorporated in the work. Submittals shall be supported by descriptive materials, i.e., catalog sheets, product data sheets, diagrams, performance curves and charts published by the manufacturer, warranties, etc., to show conformance to Specifications and Plan requirements; model numbers alone shall not be acceptable. Data submitted for review shall contain all information to indicate compliance with Contract Documents. Complete electrical characteristics shall be provided for all equipment. Submittals for lighting fixtures shall include Photometric Data. The Engineer reserves the right to require samples of any equipment to be submitted for review.
- B. The purpose of shop drawing review is to demonstrate to the Architect that the Contractor understands the design concept. The Architect's review of such drawings, schedules, or cuts shall not relieve the Contractor from responsibility for deviations from the drawings or specifications unless he has, in writing, called the Architect's attention to such deviation at the time of submission, and received written permission from the Architect for such deviations.
- C. Where cut sheets include an entire product family, mark all specific items to be utilized for this project on equipment cut sheets. Generic cut sheets with no indication of which items on the cut sheet shall be used will be rejected.
- D. Response to Submittals: Shop drawings shall be returned by the Electrical Engineer with the following classifications:
1. "No Exceptions Taken": No corrections, no marks. Contractor shall submit copies for distribution
 2. "Make Corrections Noted": A few minor corrections. Items may be ordered as marked up without further resubmission. Submit copies for distribution.
 3. "Amend and Resubmit": Minor corrections. Item may be ordered at the Contractor's risk. Contractor shall resubmit drawings with corrections noted.
 4. "Rejected - Resubmit": Major corrections or not in accordance with the contract documents. No items shall be ordered. Contractor shall correct and resubmit drawings.
- E. Prior Approvals and Shop Drawings must be hand delivered, received by mail, or email.
- F. Submittal data received by facsimile will not be reviewed.
- G. Equipment and materials requiring submittals:
1. Section 260519 – Low-Voltage Electrical Conductors and Cables
 - a. Splice Kits

- b. Wire
- 2. Section 260526 – Grounding and Bonding for Electrical Systems
 - a. Product Data
- 3. Section 260533 – Raceway and Boxes for Electrical Systems
 - a. Raceway
 - b. Boxes
 - c. Enclosure ratings
 - d. Dimension data
 - e. Floor Boxes
 - f. Corrosion Protection
 - g. Hazardous Location Conduit Bodies, Fittings, Outlet Boxes, and Covers
 - h. Surface Metallic/Nonmetallic Raceway
 - i. Cast Outlet/Device Boxes
- 4. Section 260543 – Underground Ducts and Raceways for Electrical Systems
 - a. Raceway
 - b. Handholes
 - c. Warning Tape
- 5. Section 262816 – Enclosed Switches and Circuit Breakers
 - a. Product data
 - b. Enclosures
 - c. Dimensional Data
- 6. Section 265600 – Exterior Lighting
 - a. Lighting Fixtures
 - b. Poles and Accessories

PART 2 - PRODUCTS

- 2.1 Not Used.

PART 3 - EXECUTION

3.1 MANUFACTURER'S DATA

- A. Include the manufacturer's comprehensive product data sheet and installation instructions. Where operating ranges are shown, mark data to show portion of range required for project application. Where pre-printed data sheet covers more than one distinct product-size, type, material, trim, accessory group or other variations, delete or mark-out portions of the pre-printed data which are not applicable.

3.2 EQUIPMENT LIST

- A. Where more than one type of a product is being used (i.e. starters, disconnects, breakers, etc.) provide a list with each submittal correlating the type and size of product to the load served.

3.3 TEST REPORTS

- A. Submit test reports which have been signed and dated by the firm performing the tests, and prepare in the manner specified in the standard or regulation governing the tests procedure as indicated.

END OF SECTION 260510

**SECTION 260519
LOW-VOLTAGE ELECTRICAL CONDUCTORS AND CABLES**

PART 1 - GENERAL

1.1 SUMMARY

- A. This section includes the requirements for the following:
 - 1. Wire and cable for 600 volts and less.
 - 2. Wiring connectors and connections.

1.2 SUBMITTALS

- A. Refer to section 260510.

1.3 QUALITY ASSURANCE

- A. Conform to requirements of NFPA 70.
- B. Furnish products listed and classified by Underwriters Laboratories Inc. as suitable for the purpose specified and indicated.

1.4 REFERENCE STANDARDS

- A. NECA 1 - Standard for Good Workmanship in Electrical Contracting; National Electrical Contractors Association; current edition.
- B. NETA STD ATS - Acceptance Testing Specifications for Electrical Power Distribution Equipment and Systems; International Electrical Testing Association; current edition.
- C. NFPA 70 - National Electrical Code; National Fire Protection Association, current edition.

PART 2 - PRODUCTS

2.1 WIRING REQUIREMENTS

- A. Exterior locations (above or below grade) THWN-2, XHHW-2 or USE in raceway.
- B. Use conductors not smaller than 12 AWG for power and lighting circuits.
- C. Use conductors not smaller than 14 AWG for control circuits.

2.2 BUILDING WIRE

- A. Conductor: Copper.
- B. Insulation Voltage Rating: 600 volts.
- C. Temperature Rating: 90° C.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Pull all conductors into raceway at same time.

LOW-VOLTAGE ELECTRICAL CONDUCTORS AND CABLES

- B. Use suitable wire pulling lubricant for building wire 4 AWG and larger. Do not exceed manufacturers recommended maximum pulling tensions and sidewall pressure values.
- C. Use pulling means, including fish tape, cable, rope, and basket-weave wire/cable grips that will not damage cables or raceway.
- D. Neatly train and lace wiring inside boxes, equipment, and panelboards.
- E. Clean conductor surfaces before installing lugs and connectors.
- F. Make splices, taps, and terminations to carry full ampacity of conductors with no perceptible temperature rise.
- G. Use split bolt connectors or compression fittings for splices and taps on conductors 6 AWG and larger. Tape uninsulated conductors and connector with electrical tape to 150 percent of insulation rating of conductor.
- H. Use solderless pressure connectors with insulating covers for copper conductor splices and taps, 8 AWG and smaller.
- I. Use insulated spring wire connectors with plastic caps for copper conductor splices and taps, 10 AWG and smaller.
- J. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values or UL 486A and UL 486B.
- K. Identify and color code wire and cable under provisions of Section 26 05 53. Identify each conductor with its circuit number or other designation indicated.
- L. For each electrical connection/termination, provide a complete assembly of materials, including but not necessarily limited to, pressure connectors, terminals (lugs), electrical insulating tape, heat-shrinkable insulating tubing, cable ties, solderless wire nuts, and other materials necessary to complete splices and terminations. Torque all connections according to installation instructions.
- M. Motor connections shall be made with compression connectors forming a bolted in-line or stub-type connection.
- N. Splicing of feeder conductors shall not be acceptable, unless specifically indicated on the drawing. Where splicing of feeder conductors is indicated, splices shall be made using compression type butt splice.
- O. All splices made underground or in the pipe basements shall be rated suitable for water immersion.
- P. Support for Conductors in Vertical Conduit: Factory-fabricated assembly consisting of threaded body and insulating wedging plug or plugs for cables in riser conduits. Plugs shall have number, size, and shape of conductor gripping pieces as required to suit individual conductors or cables supported. Body shall be malleable iron.

3.2 LABELING

- A. Color Coding
 - 1. Color shall be green for grounding conductors and green with yellow stripe for isolated grounding conductors.
 - 2. The color of the circuit conductors shall be as follows:

LOW-VOLTAGE ELECTRICAL CONDUCTORS AND CABLES

120/208 volt, 3-phase

Phase A - Black
Phase B -Red
Phase C - Blue
Neutral - White

3.3 FIELD QUALITY CONTROL

- A. Inspect and test in accordance with NETA STD ATS, except Section 4.
- B. Perform inspections and tests listed in NETA STD ATS, Section 7.3.2.

END OF SECTION 260519

**SECTION 260526
GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS**

PART 1 - GENERAL

1.1 SUMMARY

- A. Grounding and bonding components.
- B. Provide all components necessary to complete the grounding system(s) consisting of:
 - 1. Concrete-encased electrode.

1.2 SUBMITTALS

- A. Refer to section 260510.

1.3 QUALITY ASSURANCE

- A. Conform to requirements of NFPA 70.

1.4 REFERENCES

- A. NETA STD ATS - Acceptance Testing Specifications for Electrical Power Distribution Equipment and Systems; International Electrical Testing Association; current edition.
- B. NFPA 70 - National Electrical Code; National Fire Protection Association; current edition.
- C. NFPA 99 - Standard for Health Care Facilities; National Fire Protection Association; current edition.
- D. IEEE Standard 142 "Green Book" – Recommended Practices for Grounding of industrial and Commercial Power Systems; current edition.

1.5 PERFORMANCE REQUIREMENTS

- A. Maximum grounding system resistance: 15 ohms.
- B. Services at power company interface points shall comply with the power company ground resistance requirements.

PART 2 - PRODUCTS

2.1 ELECTRODES

- A. Sectionalized steel with copper-welded exterior, 3/4" dia. x 10'. One 10-foot section shall be required at each ground rod location, unless as otherwise directed in this specification.

2.2 CONDUCTORS

- A. Bonding Jumper Braid: Copper braided tape, sized for application.
- B. Electrical Grounding conductors: Unless otherwise indicated, provide bare or green insulated stranded copper electrical grounding conductors sized according to NEC or as shown or specified. Provide green insulated for conductors sized No. 10 AWG and smaller.

GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

2.3 GROUND CONNECTIONS

- A. Below Grade: Exothermic-welded type connectors.
- B. Above Grade:
 - 1. Bonding Jumpers: compression type connectors, using zinc-plated fasteners and external tooth lock washers.
 - 2. Ground Busbars: Two-hole compression type lugs using tin-plated copper or copper alloy bolts and nuts.
 - 3. Rack and Cabinet Ground Bars: one-hole compression-type lugs using zinc-plated or copper alloy fasteners.
- C. Install exothermic connectors and terminals as recommended by the connector and terminal manufacturer for intended applications.
- D. Bolted clamp will not be accepted between grounding rods and ground conductors.

PART 3 - EXECUTION**3.1 EXAMINATION**

- A. Verify that final backfill and compaction has been completed before driving rod electrodes.

3.2 CORROSION INHIBITORS

- A. When making ground and ground bonding connections, apply a corrosion inhibitor to all contact surfaces. Use corrosion inhibitor appropriate for protecting a connection between the metals used.
- B. Where concrete penetration is necessary, non-metallic conduit shall be cast flush with the points of concrete entrance and exit so as to provide an opening for the ground wire and the opening shall be sealed with a suitable compound after installation of the ground wire.

3.3 SECONDARY EQUIPMENT AND CIRCUITS

- A. Connect metallic conduits, which terminate without mechanical connection to the housing, by grounding bushings and grounding conductor to the equipment ground bus.
- B. Feeders and Branch Circuits: Install equipment grounding conductors with all feeders and power and lighting branch circuits, sized in accordance with Article 250 of NFPA 70.
- C. Boxes, Cabinets, Enclosures, and Panelboards:
 - 1. Bond the equipment grounding conductor to each pullbox, junction box, outlet box, device box, cabinets, and other enclosures through which the conductor passes.
 - 2. Provide lugs in each box and enclosure for equipment grounding conductor termination.
 - 3. Provide ground bars in panelboards, bolted to the housing, with sufficient lugs to terminate the equipment grounding conductors.
- D. Metallic Conduit: Metallic conduits which terminate without mechanical connection to an electrical equipment housing by means of locknut and bushings or adapters, shall be

GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

provided with grounding bushings. Connect bushings with a bare grounding conductor to the equipment ground bus.

3.4 INSTALLATION

- A. Install ground electrodes at locations indicated. Provide additional electrodes as required to achieve specified resistance to ground.
- B. Install nominal 10" diameter x 18" long fiberglass "water valve" type enclosure, with cover, over each ground rod. The top of ground rods shall be 12" below finished grade. The rod and exothermic connection to the grounding electrode conductor shall be accessible from within enclosure. Fill the lower 3" of enclosure with crushed rocks. Top of enclosure shall be flush with finished grade.
- C. If it is determined that the rebar cannot be made electrically continuous, install a No 1/0 bare copper conductor in the footing around the perimeter of the building.
- D. Bond together metal siding not attached to grounded structure; bond to ground.

3.5 FIELD QUALITY CONTROL

- A. Inspect and test in accordance with NETA STD ATS except Section 4.
- B. Perform inspections and tests listed in NETA STD ATS, Section 7.13.
- C. Upon completion of installation of electrical grounding system, test resistance of each ground rod installation using the "Fall of Potential" method. Ground resistances shall be measured in normally dry conditions not less than 48 hours after rainfall and at low tide. Where tests show resistance to ground is over the specified value, take appropriate action to reduce resistance by driving additional sections of ground rods and then retest to demonstrate compliance. Tests shall be conducted in the presence of the Project Electrical Engineer. Provide forms to record the data as the tests are conducted. Forms shall be signed by the person conducting the test and included with project closeout documents.
- D. Test the effectiveness of the grounding system in patient care areas as required by NFPA 99.

END OF SECTION 260526

SECTION 260533
RACEWAY AND BOXES FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL**1.1 SUBMITTALS**

- A. Refer to section 260510

1.2 QUALITY ASSURANCE

- A. Products: Listed and classified by Underwriters Laboratories Inc. as suitable for purpose specified and shown.

1.3 REFERENCE STANDARDS

- A. ANSI C80.1 - American National Standard for Electrical Rigid Steel Conduit (ERSC); current edition
- B. ANSI C80.3 - American National Standard for Steel Electrical Metallic Tubing (EMT); current edition
- C. ANSI C80.5 - American National Standard for Electrical Rigid Aluminum Conduit (ERAC); current edition
- D. NECA 1 - Standard Practices for Good Workmanship in Electrical Contracting; National Electrical Contractors Association; current edition
- E. NECA 101 - Standard for Installing Steel Conduit (Rigid, IMC, EMT); National Electrical Contractors Association; current edition
- F. NEMA FB 1 - Fittings, Cast Metal Boxes, and Conduit Bodies for Conduit, Electrical Metallic Tubing, and Cable; National Electrical Manufacturers Association; current edition

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Accept conduit on site. Inspect for damage
- B. Protect conduit from corrosion and entrance of debris by storing above grade. Provide appropriate covering.

PART 2 - PRODUCTS**2.1 CONDUIT REQUIREMENTS**

- A. Conduit Size: Comply with NFPA 70.
 - 1. Minimum Size: 3/4 inch
- B. Wet and Damp Locations:
 - 1. Exterior above ground and in pipe basements: RMC, IMC, or LFMC (LFMC shall be only used with restrictions, see conduit installation)
 - 2. Exterior below ground: RNC schedule 40
 - 3. Where RNC Schedule 40 is installed below grade, the elbows required to turn the raceway up through the grade shall be RMC.
- C. Area subject to physical damage: RMC, IMC, or LFMC (LFMC shall be only used with

RACEWAY AND BOXES FOR ELECTRICAL SYSTEMS

restrictions, see conduit installation)

1. "Areas subject to physical damage" shall be defined as the most stringent of the following:
 - a. Exposed conduit below eight feet above finished floor.
 - b. As interpreted by the authority having jurisdiction (AHJ).

2.2 METAL CONDUIT

- A. Rigid Steel Galvanized Conduit (RMC): ANSI C80.1.
- B. Intermediate Metal Conduit (IMC): ANSI C80.6.
- C. Fittings and Conduit Bodies: NEMA FB 1; material to match conduit.
 1. Fittings shall meet the requirements of UL 514B and ANSI/ NEMA FB1.
 2. Standard threaded couplings, locknuts, bushings, and elbows: Only steel or malleable iron materials are acceptable. Integral retractable type IMC couplings are also acceptable.
 3. Die-cast or pressure-cast zinc-alloy fittings or fittings made of "pot metal" are prohibited.
 4. Locknuts: Bonding type with sharp edges for digging into the metal wall of an enclosure.
 5. Bushings: Metallic insulating type, consisting of an insulating insert molded or locked into the metallic body of the fitting. Bushings made entirely of metal or nonmetallic material are not permitted.
 6. Sealing fittings: Threaded cast iron type. Use continuous drain type sealing fittings to prevent passage of water vapor. In concealed work, install fittings in flush steel boxes with blank cover plates having the same finishes as that of other electrical plates in the room.

2.3 LIQUIDTIGHT FLEXIBLE METAL CONDUIT

- A. LIQUIDTIGHT FLEXIBLE METAL CONDUIT (LFMC) Description: Interlocked steel construction with PVC jacket. Liquid-tight flexible metal conduit: Shall Conform to UL 360.
- B. Fittings: UL 514B and ANSI/ NEMA FB1.
 1. Only steel or malleable iron materials are acceptable.
 2. Die-cast or pressure-cast zinc-alloy fittings or fittings made of "pot metal" are prohibited.
 3. Fittings must incorporate a threaded grounding cone, a steel or plastic compression ring, and a gland for tightening. Connectors shall have insulated throats.
 4. Coating for Fittings for PVC-Coated Conduit: Minimum thickness, 0.040 inch, with overlapping sleeves protecting threaded joints.

2.4 NONMETALLIC CONDUIT

- A. RIGID NONMETALLIC CONDUIT (RNC): Direct burial plastic conduit: Shall conform to UL 651 and UL 651A, heavy wall PVC or high density polyethylene (PE).
- B. RNC: NEMA TC 2, schedule 40 PVC
- C. Fittings shall meet the requirements of UL 514C and NEMA TC3
- D. Fittings for RNC: NEMA TC 3; match to conduit or tubing type and material.

2.5 EXPANSION AND DEFLECTION COUPLINGS

- A. Conform to UL 467 and UL 514B.
- B. Accommodate, 0.75 inch deflection, expansion, or contraction in any direction, and allow 30 degree angular deflections.
- C. Include internal flexible metal braid sized to guarantee conduit ground continuity and fault currents in accordance with UL 467, and the NEC code tables for ground conductors.
- D. Jacket: Flexible, corrosion resistant, watertight, moisture and heat resistant molded rubber material with stainless steel jacket clamps.

2.6 CORROSION PROTECTION

- A. Corrosion protection for conduits passing through concrete slabs shall be by one of the following means: field-wrapped with 3M Scotchrap No. 50, 2-inch wide (minimum), with a 50 percent overlay, or shall have a factory-applied polyvinyl chloride, plastic resin, or epoxy coating.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify routing and termination locations of conduit prior to rough-in.
- B. Conduit routing is shown on drawings in approximate locations unless dimensioned. Route as required to provide a complete wiring system.

3.2 CONDUIT INSTALLATION

- A. Install conduit securely, in a neat and workmanlike manner, as specified in NECA 101.
- B. Waterproofing: Completely seal clearances around the conduit and make watertight.
- C. Arrange supports to prevent misalignment during wiring installation.
- D. Cut conduit square using saw or pipecutter; de-burr cut ends.
- E. Bring conduit to shoulder of fittings; fasten securely.
- F. For power conduits install no more than equivalent of three 90 degree bends between boxes. Use conduit bodies to make sharp changes in direction, as around beams.
- G. Avoid moisture traps; provide junction box with drain fitting at low points in conduit system.
- H. Seal the inside of all conduits.
- I. Use suitable caps to protect installed conduit against entrance of dirt and moisture.
- J. Do not install FMC or LFMC in lengths over 6'.

3.3 IDENTIFICATION

- A. Stencil or install phenolic nameplates on covers of the boxes identified on riser diagrams; for example "SIG-FA JB No. 1"

END OF SECTION 260533

**SECTION 260543
UNDERGROUND DUCTS AND RACEWAYS FOR ELECTRICAL SYSTEMS****PART 1 - GENERAL****1.1 SUBMITTALS:**

- A. Refer to section 260510.

PART 2 - PRODUCTS**2.1 DUCTBANKS**

- A. Any grouping of conduits underground shall be considered a duct bank.

2.2 HANDHOLES

- A. Handholes reinforced polymer concrete manufactured in molded structural shapes, on undisturbed or thoroughly compacted earth and shall conform with details and dimensions indicated on the drawings.

2.3 WARNING TAPE

- A. Provide a plastic warning tape in the backfill above all underground cables, conduits and duct banks. The tape shall be 3 inches wide, shall be bright, fade-resistant yellow in color, and shall include an imprinted legend, "WARNING - BURIED HIGH VOLTAGE LINE", "WARNING - BURIED FIBER OPTIC LINE" or "WARNING - BURIED TELEPHONE LINE", as applicable., repeated continuously throughout the entire length. Tape shall be buried 12 inches below top of trench.

PART 3 - EXECUTION**3.1 GENERAL**

- A. Provide barricades with warning lights, around all trenches. Barricades shall be orange mesh type supported by rods driven into the earth. Barricades shall remain in place at all times, not just at night. Maintain the integrity and appearance of the barricades until the trenches have been backfilled and compacted.
- B. Clearance from Other Utilities: Do not install lines installed under this contract in the same trenches with other utilities. Maintain horizontal and vertical separation as required by ANSI C2.

3.2 INSTALLATION

- A. During construction, partially completed duct lines shall be protected from the entrance of debris such as mud, sand and dirt, by means of suitable conduit plugs.
- B. Install warning tape 12" below grade along the entire length of, and centered on underground conduit runs..

3.3 RECONDITIONING OF SURFACES

- A. Ground covering and vegetation disturbed during installation, shall be restored to original elevation and condition.

- B. Sod or topsoil shall be preserved carefully and replaced after the backfilling is completed. Sod that is damaged shall be replaced by sod of quality equal to that removed. When the surface is disturbed in a newly seeded area, the restored surface shall be re-seeded with the same quantity and formula of seed as that use in the original seeding.

END OF SECTION 260543

ENCLOSED SWITCHES AND CIRCUIT BREAKERS

**SECTION 262816
ENCLOSED SWITCHES AND CIRCUIT BREAKERS**

PART 1 - GENERAL

1.1 SUBMITTALS

- A. Refer to section 260510.

1.2 QUALITY ASSURANCE

- A. Conform to requirements of NFPA 70.
- B. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.
- C. Products: Furnish products listed and classified by Underwriters Laboratories Inc.; or testing firm acceptable to authority having jurisdiction as suitable for purpose specified and indicated.

1.3 REFERENCES

- A. NEMA FU 1 - Low Voltage Cartridge Fuses; National Electrical Manufacturers Association; current edition.
- B. NEMA KS 1 - Enclosed and Miscellaneous Distribution Equipment Switches (600 Volts Maximum); National Electrical Manufacturers Association; current edition.
- C. NETA STD ATS - Acceptance Testing Specifications for Electrical Power Distribution Equipment and Systems; International Electrical Testing Association; current edition.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable manufacturers
 - 1. Eaton Electrical/Cutler-Hammer
 - 2. GE Industrial
 - 3. Square D
 - 4. Siemens

2.2 FUSIBLE SWITCH

- A. Fusible Switch Assemblies: NEMA KS 1, Type HD enclosed load interrupter knife switch.
 - 1. Externally operable handle interlocked to prevent opening front cover with switch in ON position.
 - 2. Handle lockable in OFF position.
 - 3. Fuse clips: Designed to accommodate NEMA FU1, Class R or J fuse

2.3 MOLDED CASE CIRCUIT BREAKERS

- A. Molded Case Circuit Breakers: UL listed for the following service conditions: Temperature: 40 degrees C.

2.4 ENCLOSURES

ENCLOSED SWITCHES AND CIRCUIT BREAKERS

- A. Enclosures: NEMA KS 1.
 - 1. Exterior Locations: NEMA 3R steel.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install in accordance with Manufacturer's instructions.
- B. Apply adhesive tag on inside door of each fused switch indicating NEMA fuse class and size installed.
- C. Coordinate safety and disconnect switch installation with surrounding equipment to provide unobstructed access to the switch (4 foot clearance) and to insure that the switch is within sight of the controller or driven equipment.

3.2 FIELD QUALITY CONTROL

- A. Touch-up scratched or marred surfaces to match original finish.
- B. Clean all debris from enclosure interiors.

3.3 LABELING

- A. Provide nameplates on all switch enclosures wherein new circuits are modified or installed. Indicate the following information:
 - 1. Equipment Switch Serves.
 - 2. Voltage, phase, wire, short circuit current rating
 - 3. Date installed

3.4 CLEARANCE AND WORKSPACE

- A. Maintain workspace and clearances as required by the NEC for the voltage encountered. No pipes or ducts shall pass above the outline of the switch enclosure. It shall be the responsibility of this Contractor to make sure that other trades do not encroach on this space.

END OF SECTION 262816

**SECTION 265600
EXTERIOR LIGHTING****PART 1 - GENERAL****1.1 SUBMITTALS**

- A. Refer to Section 260510.

1.2 QUALITY ASSURANCE

- A. Conform to requirements of NFPA 70 and NFPA 101.
- B. Products: Listed and classified by Underwriters Laboratories Inc. as suitable for the purpose specified and indicated.

1.3 REFERENCE STANDARDS

- A. ANSI C78.379 - American National Standard for Electric Lamps -- Reflector Lamps -- Classification of Beam Patterns; current edition.
- B. NFPA 70 - National Electrical Code; National Fire Protection Association, current edition.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Poles: Do not store poles on ground. Store poles so they are at least 305 mm (one foot) above ground level and growing vegetation. Do not remove factory-applied pole wrappings until just before installing pole.

PART 2 - PRODUCTS**2.1 MANUFACTURERS**

- A. As scheduled or listed on the contract documents. Equal products by other manufacturers are acceptable providing substitutions are submitted in accordance with requirements listed elsewhere in the Bid Documents and approved by the A/E.

2.2 LUMINAIRES

- A. Furnish products as indicated in Schedule on the contract documents.
- B. UL 1598 and NEMA C136.17. Luminaries shall be weatherproof, heavy duty, outdoor types designed for efficient light utilization, adequate dissipation of driver heat and safe cleaning.
- C. Lenses shall be frame-mounted heat-resistant, borosilicate glass, prismatic refractors. Attach the frame to the luminaire housing by hinges or chain. Use heat and aging resistant resilient gaskets to seal and cushion lenses and refractors in luminary doors.
- D. Materials shall be rustproof. Latches and fittings shall be non-ferrous metal.
- E. p: Full cutoff

2.3 POLES

- A. Furnish products as indicated in Schedule on the contract documents.

- B. The pole and arm assembly shall be designed for wind loading of 110 miles per hour, with an additional 30 percent gust factor, supporting luminaire(s) having the effective projected areas indicated. The effective projected area of the pole shall be applied at the height of the pole base as shown on the drawings.
- C. Poles shall be anchor-bolt type designed for use with underground supply conductors. Poles shall have oval-shaped handhole having a minimum clear opening of 2.5 by 5 inches. Handhole cover shall be secured by stainless steel captive screws.
- D. Provide a steel-grounding stud opposite hand hole openings
- E. Provide a base cover matching the pole in material and color to conceal the mounting hardware pole-base welds and anchor bolts
- F. Hardware: All necessary hardware shall be 300 series stainless steel.
- G. Aluminum: Provide aluminum poles manufactured of corrosion resistant AA AAH35.1 aluminum alloys conforming to AASHTO LTS-4 for Alloy 6063-T6 or Alloy 6005-T5 for wrought alloys, and Alloy 356-T4 (3,5) for ASTM B108-03 cast alloys. Poles shall be seamless extruded or spun seamless type. Provide a pole grounding connection designed to prevent electrolysis when used with copper ground wire. Base covers for aluminum poles shall be cast from 356-T6 aluminum alloy in accordance with ASTM B108-03

2.4 FOUNDATIONS FOR POLES

- A. Foundations shall be cast-in-place concrete.
- B. Foundations shall support the effective projected area of the specified pole, arm(s), and luminaire(s) under wind conditions previously specified in this section.
- C. Place concrete in spirally wrapped treated paper forms.
- D. Rub-finish and round all above-grade concrete edges to approximately 3/4 inch radius.
- E. Concrete shall have 3000 psi minimum 28 day compressive strength.
- F. Anchor bolt assemblies and reinforcing of concrete foundations shall be as shown on the drawings and meet ACI 318. Anchor bolts shall be in a welded cage or properly positioned by the tie wire to stirrups.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install lighting in accordance with the NEC, as shown on the drawings, and in accordance with manufacturer's recommendations.
- B. Poles:
 - 1. Provide pole foundations with galvanized steel anchor bolts, threaded at the top end and bent 90 degrees at the bottom end. Provide galvanized nuts, washers, and ornamental covers for anchor bolts. Thoroughly compact backfill with compacting arranged to prevent pressure between conductor, jacket, or sheath and the end of conduit. Adjust poles as necessary to provide a permanent vertical position with the bracket arm in proper position for luminaire location.

2. After the poles have been installed, shimmed and plumbed, grout the spaces between the pole bases and the concrete base with non-shrink concrete grout material. Provide a plastic or copper tube, of not less than 3/8-inch inside diameter, through the grout tight to the top of the concrete base for moisture weeping.
- C. Foundation Excavation: Depth shall be as indicated. Dig holes large enough to permit the proper use of tampers to the full depth of the hole. Place backfill in the hole in 6 inch maximum layers and thoroughly tamp. Place surplus earth around the pole in a conical shape and pack tightly to drain water away.
- D. Install fixtures securely, in a neat and workmanlike manner, as specified in NECA 500 (commercial lighting).
- E. Install accessories furnished with each luminaire.
- F. Make wiring connections to branch circuit using building wire with insulation suitable for temperature conditions within luminaire.
- G. Bond products and metal accessories to branch circuit equipment grounding conductor.

3.2 GROUNDING

- A. Ground noncurrent-carrying parts of equipment including metal poles, luminaries, mounting arms, brackets, and metallic enclosures as specified in Section 26 05 26. Where copper grounding conductor is connected to a metal other than copper, provide specially treated or lined connectors suitable and listed for this purpose.

3.3 FIELD QUALITY CONTROL

- A. Operate each luminaire after installation and connection. Inspect for proper connection and operation.

3.4 ADJUSTING

- A. Aim and adjust luminaires as indicated.

3.5 CLEANING

- A. Clean electrical parts to remove conductive and deleterious materials.
- B. Remove dirt and debris from enclosures.
- C. Clean photometric control surfaces as recommended by manufacturer.
- D. Clean finishes and touch up damage.

3.6 CLOSEOUT ACTIVITIES

- A. Demonstrate luminaire operation for minimum of two hours.

3.7 PROTECTION

- A. Replace/Repair luminaires that have failed at Substantial Completion.

END OF SECTION 265600

SECTION 31 10 00
SITE CLEARING**PART 1 - GENERAL****1.01 SUMMARY OF WORK:**

- A. The specification section covers the extent of site clearing as indicated on the contract drawings. Site clearing work includes, but is not limited to, protection of existing trees, removal of trees, stumps, shrub and other vegetation; grubbing out of roots and root systems; stripping and stockpiling topsoil from the project site.

1.02 RELATED DOCUMENTS

- A. General: Drawings and general provisions of Contract, including General Conditions apply to work of this section.
- B. Site Demolition: Coordinate work with the requirements of Section 02 41 13, SELECTIVE SITE DEMOLITION.

1.03 JOB CONDITIONS:

- A. Traffic: Conduct site clearing operations to ensure minimum interference with streets, walks, and other adjacent occupied or used facilities. Do not close or obstruct streets, walks or other occupied or used facilities without permission from authorities having jurisdiction.
- B. Sediment & Erosion Control Measures: Comply with the erosion control measures indicated on the drawings, as specified in Section 01 57 13, TEMPORARY EROSION CONTROL, and as required in the approved SWPPP/SCDHEC Permit. Perform inspections and certifications on erosion control system as required in the approved SWPPP and as specified.
- C. Protection of Existing Improvements:
 - 1. Provide protections necessary to prevent damage to existing improvements indicated to remain in place.
 - 2. Protect improvements on adjoining properties and on Owner's property.
 - 3. Restore damaged improvements to their original condition, as acceptable to parties having jurisdiction.
- D. Protection of Existing Trees and Vegetation:
 - 1. Protect existing trees and other vegetation indicated to remain in place, against unnecessary cutting, breaking or skinning of roots, skinning and bruising or bark, smothering of trees by stockpiling construction materials or excavated materials within drip line. Prohibit vehicular traffic, or parking of vehicles within drip line.
 - 2. Erect and secure a temporary tree barricade or fence barrier as indicated on the construction drawings.
 - 3. Water trees and other vegetation to remain within limits of contract work as required to maintain their health during course of construction operations.
 - 4. Provide protection for roots over 1-1/2" diameter cut during construction operations. Coat cut faces with emulsified asphalt, or other acceptable coating, formulated for use on damaged plant tissues. Temporarily cover exposed roots with wet burlap to prevent roots from drying out; cover with earth as soon as possible.

5. Replace any tree designated to remain that is damaged during the work under this contract with like-kind or as approved by the Architect. Employ licensed arborist to repair damage to trees and shrubs.

PART 2 - PRODUCTS

(Not used).

PART 3 - EXECUTION

3.01 SITE CLEARING:

- A. General: Remove trees, shrubs, grass and other vegetation, interfering with installation of new construction. Remove such items elsewhere on site or premises as specifically indicated in accordance with Section 02 41 13, SELECTIVE SITE DEMOLITION. Removal includes digging out stumps and roots. Carefully and cleanly cut roots and branches of trees indicated to be left standing, where such roots and branches obstruct new construction.
- B. Topsoil:
 1. Topsoil is defined as friable clay loam surface soil found in a depth of not less than 6". Satisfactory topsoil is reasonably free of subsoil, clay lumps, stones, and other objects over 2" in diameter, and without weeds, roots, and other objectionable material.
 2. Strip topsoil to whatever depths encountered in a manner to prevent intermingling with underlying subsoil or other objectionable material.
 3. Remove heavy growths of grass from areas before stripping.
 4. Where trees are indicated to be left standing, stop topsoil stripping a sufficient distance to prevent damage to main root system.
 5. Stockpile topsoil in storage piles in areas shown, or where directed. Construct storage piles to freely drain surface water. Cover storage piles if required to prevent wind-blown dust.
 6. Dispose of unsuitable or excess topsoil same as waste material, herein specified.
- C. Clearing and Grubbing:
 1. Clear site of trees, shrubs and other vegetation, except for those indicated to be left standing. Completely remove stumps, roots, and other debris protruding through ground surface.
 2. Use only hand methods for grubbing inside drip line of trees indicated to be left standing.
 3. Fill depressions caused by clearing and grubbing operations with satisfactory soil material unless further excavation or earthwork is indicated. Place fill material in horizontal layers not exceeding 8" loose depth, and thoroughly compact to a density equal to adjacent original ground. Comply with Section 31 20 00, EARTH MOVING for backfilling and compaction operations.

3.02 REMOVAL OF IMPROVEMENTS:

- A. Remove existing above-grade and below-grade improvements necessary to permit construction, and other work as indicated, and in conformance with Section 02 41 13, SELECTIVE SITE DEMOLITION.

3.03 DISPOSAL OF WASTE MATERIALS:

- A. Burning will not be allowed.
- B. Removal of Waste Materials: Transport and dispose of non-combustible waste materials and unsuitable or surplus topsoil materials offsite, at the Contractors expense.

END OF SECTION

SECTION 31 20 00
EARTH MOVING**PART 1 - GENERAL****1.01 SUMMARY OF WORK**

- A. Work included: Excavate, backfill, compact, and grade the site to the elevations shown on the Drawings, as specified herein, and as needed for the installation of underground utilities, storm drainage, systems, roadway subgrades, building pads, foundation structures, and general site grading, and also to meet the requirements of the construction shown in the Contract Documents.
- B. Related Work: Documents affecting work of this section include, but are not necessarily limited to, General Provisions and Modifications of these Specifications.
- C. Refer to Section 01 40 00, SPECIAL INSPECTIONS for a list of special Inspections required in association with earthwork performed relative to the building foundation.

1.02 QUALITY ASSURANCE

- A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.
- B. Use equipment adequate in size capacity, and numbers to accomplish the work of this Section in a timely manner.
- C. In addition to complying with requirements of governmental agencies having jurisdiction, comply with the directions of the Engineer. Where the term "Engineer" is used herein, it is inferred to include the Project Civil Engineer Designer of Record, the Geotechnical (Soil) Engineer, or Project Architect, as assigned by the Owner as his representative.
- D. Testing required for this part of the work will be furnished by the Contractor.

PART 2 - PRODUCTS**2.01 SOIL MATERIALS**

- A. Fill and backfill materials:
 - 1. General Requirements: Utilize existing on-site soils from on-site excavations for general site fill and backfill where feasible and suitable. Soils used for site fill and backfill should generally consist of sands classified as SP, SP-SC, SC, SP-SM, or SM soils according to the Unified Soil Classification System. In addition, soil used for fill and backfill should be free of roots, organics, debris and other deleterious matter. Provide soil materials in lawns and landscape beds that have a maximum of 25% fines (material passing the No.200 sieve).
 - 2. Off-site Fill (Borrow) Material: Borrow material is that material removed from excavations and imported from off-site borrow areas and may vary in composition depending on its intended use in the work. Provide off-site borrow where insufficient soil exists on site to accomplish the backfilling and filling required to achieve the indicated grades or elevations, or if unsuitable soils are found on site for the work. Off-site borrow material is subject to the approval of the Engineer. In this specification it refers to predominantly granular, non-expansive soils free from roots and other deleterious matter, normally referred to as

“Select Fill”, “Structural Fill” or “Controlled Fill”. For the purposes of this specification it shall be referred to as “Controlled Fill.”

- a. Controlled fill borrow material shall be free from roots, debris, organic matter, and deleterious substances, containing no rocks or lumps larger than 2" in their greatest dimension, and containing no more than 12% fines (material passing No. 200 sieve) and having a maximum Dry Density as defined by ASTM D-1557 of 105 pcf. Submit samples of materials to soils laboratory for testing and approval prior to execution of filling.
3. Do not permit rocks having a dimension greater than 1" in the upper 12" of fill or embankment.
 4. Cohesionless materials used for trench backfill: Utilize existing material excavated from the trench provided it meets the General Requirements specified above. Borrow material utilized for trench backfill shall meet the requirements specified for Select borrow material, and approved by the Engineer, unless specifically required otherwise in other sections or indicated on the drawings.

2.02 GRAVEL BEDDING

- A. Aggregate Gradation: Provide coarse aggregate, Number 57 stone, with gradation as shown on Table A-4 of the SCDOT 2007 Edition of the Standard Specification for Highway Construction. Aggregate shall be composed of crushed angular granite.

PART 3 - EXECUTION

3.01 SURFACE CONDITIONS

- A. Examination: Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely proper completion of the work. Do not proceed until unsatisfactory conditions are corrected.
- B. Erosion and Sediment Control: Coordinate and comply with the erosion control measures indicated on the drawings, and as specified in Section 01 57 13, TEMPORARY EROSION CONTROL.
- C. Topsoiling: Remove all topsoil and surface deleterious matter in accordance with Section 31 10 00, SITE CLEARING.
- D. Densification and Proof-rolling:
 1. Proof roll testing will be required in vehicular pavement areas and building foundation areas, except it is not required over pile supported building foundations. After removal of topsoil, and other surface overburden (cut soils) to design subgrade elevation, but prior to installation of any required fill material, densify existing soils to a uniform consistency by making six to eight passes with a large (10-ton or larger) vibratory roller. If water is drawn to the surface, the vibrator should be disengaged, and the densification continued.
 2. After completion of the densification process, proof roll the densified subgrade with a dump truck or pneumatic tire roller with a minimum weight of 15 tons.
 3. Proof-roll over all areas at speeds of 2.5 to 3.5 miles per hour. Proof-rolling shall be done in the presence of the Engineer. Rutting or pumping may indicate unsatisfactory material or satisfactory material with a high moisture content.
 4. Undercut areas as directed and replace with approved controlled fill material.
 5. Proof-roll only when weather conditions permit. Do not proof-roll wet or saturated subgrades. Materials degraded by proof-rolling of wet subgrades shall be replaced by the Contractor at no cost to the Owner.

E. Mucking:

1. When unsatisfactory or unsuitable soils (muck) are encountered and are required to be removed by the Engineer, the cost of the removal and replacement shall be determined according to the contract provisions, when payment is to be based upon a unit price, such price shall be determined as noted below.
 2. Mucking Unit Price: Contractor shall provide a unit price for mucking (removable of unsuitable soils). The unit price shall include the removal of unsuitable soils below the area of stripping (assume 6" stripping and indicated subgrade cut) and shall include the disposal of muck offsite. The unit price shall also include backfilling and compacting with approved controlled fill. The unit cost submitted shall be based upon in-place measurement. No truck measures will be allowed. The approved or negotiated unit price will be used to modify the contract price.
- E. Undercutting and Gravel Bedding: Where specified or indicated, provide gravel bedding (#57 stone) below all footings, grade beams and other foundation elements. Depth of bedding will be as indicated. Assume groundwater will be encountered at the depth of excavation required to install the gravel bedding, and provide a dewatering system, as specified in Section 31 23 19, DEWATERING to control groundwater levels during construction.

3.02 PROCEDURES:

A. Protection of Utilities:

1. Contractor shall contact Palmetto Utilities Protection Services (PUPS) at 1-888-721-7877 or "811", a minimum of three (3) business days prior to beginning construction.
2. Unless shown to be removed, protect active utility lines shown on the drawings or otherwise made known to the Contractor prior to excavating. If damaged, repair or replace at no additional cost to the Owner.
3. If active utility lines are encountered and are not shown on the Drawings or otherwise made known to the Contractor, promptly take necessary steps to assure that service is not interrupted.
4. If service is interrupted as a result of work under this Section, immediately restore service by repairing the damaged utility at no additional cost to the Owner.
5. If existing utilities are found to interfere with the permanent facilities being constructed under this section, immediately notify the Engineer and secure his instructions.
6. Do not proceed with permanent relocations of utilities until written instructions are received from the Engineer.

B. Protection of persons and property:

1. Barricade open holes and depressions occurring as part of the Work, and post warning lights on property adjacent to or with public access.
2. Operate warning lights during hours from dusk to dawn each day and as otherwise required.
3. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, washout, and other hazards created by operations under this Section.

- C. Dewatering: The Contractor is responsible for managing all surface rainfall runoff water in a manner to protect the stability of the exposed soils in excavations and subgrades in paved areas on the site. This includes both surface water and subsurface water. Surface water control may include temporary ditches, temporary swales, temporary drain holes and or inlet openings

in storm boxes to prevent ponding around inlets located in paved areas. Coordinate all temporary drainage devices with the approved SWPPP plan and Section 01 57 13, TEMPORARY EROSION CONTROL. Provide dewatering for excavations and subsurface water in accordance with Section 31 23 19, DEWATERING.

- D. Dust Control: Use means necessary to prevent dust becoming a nuisance to the public, to neighbors, and to other work being performed on or near the site. Airborne dust control is also a part of the environmental protection requirements, just as rainwater erosion. The use of watering trucks, or other such techniques shall be employed as needed to control wind-borne dust.
- E. Maintain access to adjacent areas at all times.

3.03 GENERAL EXCAVATION

- A. Perform excavating of every type of material encountered within the limits of the Work to the lines, grades, and elevations indicated and specified herein.
- B. Unsatisfactory excavated materials:
 - 1. Excavate to a distance below grade as directed by the Engineer and replace with materials in accordance with the paragraph entitled "Mucking."
 - 2. Include excavation of unsatisfactory materials, and replacement by satisfactory materials, as parts of the work of this Section.
- C. Surplus materials: All site surface strippings and surplus satisfactory excavated material shall be stockpiled on-site, in the designated stockpile storage area, unless specifically directed otherwise in writing by the Owner and Engineer.
- D. Excavation of rock: Based on geotechnical subsurface report, no rock, or boulders will be encountered during excavation or earthwork.
- E. Excavate and backfill in a manner and sequence that will provide proper drainage at all times.
- F. Borrow: Obtain material required for fill or embankment in excess of that produced within the grading limits of the Work from borrow areas selected and paid for by the Contractor and approved by the Engineer.
- G. Ditches and gutters:
 - 1. Cut accurately to the cross sections, grades, and elevations shown.
 - 2. Maintain excavations free from detrimental quantities of leaves, sticks, trash, and other debris until completion of the Work.
 - 3. Dispose of excavated materials as shown on the Drawings or directed by the Engineer; except do not, in any case, deposit materials less than 3'- 0" from the edge of a ditch.
- H. Unauthorized excavation:
 - 1. Unauthorized excavation consists of removal of materials beyond indicated subgrade elevations or dimensions without specific instruction from the Engineer.
 - 2. Under footings, foundations, or retaining walls:
 - a. Fill unauthorized excavations by extending the indicated bottom elevation of the footing or base to the excavation bottom, without altering the required top elevation.
 - b. When acceptable to the Engineer, gravel bedding may be used to bring the bottom elevation to proper position.

3. Elsewhere, backfill and compact unauthorized excavations as specified for authorized excavations, unless otherwise directed by the Engineer.
- I. Stability of excavations:
 1. Shore and brace where sloping is not possible because of space restrictions or stability of the materials being excavated.
 2. Maintain sides and slopes of excavations in a safe condition until completion of backfilling.
 - J. Shoring and bracing:
 1. Provide materials for shoring and bracing as may be necessary for safety personnel, protection of work, and compliance with requirements of governmental agencies having jurisdiction.
 2. Maintain shoring and bracing in excavations regardless of the time period excavations will be open.
 3. Carry shoring and bracing down as excavation progresses.
 - K. Excavating for structures: Conform the elevations and dimensions shown within a tolerance of 0.10 ft. and extending a sufficient distance from footings and foundations to permit placing and removing concrete formwork, installation of services, other construction required, and for inspection.
 - L. When excavating for pavements, cut surface to comply with cross sections, elevations, and grades.
 - M. Cold weather protection: Protect excavation bottoms against freezing when atmospheric temperature is less than 35 degrees F.

3.04 TRENCHING FOR UTILITIES

- A. Provide sheeting and shoring necessary for protection of the work and for the safety of personnel.
 1. Prior to backfilling, remove all sheeting.
 2. Do not permit sheeting to remain in the trenches except when, in the opinion of the Engineer, field conditions or the type of sheeting or methods of construction such as use of concrete bedding are such as to make removal of sheeting impracticable. In such cases, the Engineer may permit portions of sheeting to be cut off and remain in the trench.
- B. Open cut:
 1. Excavate for utilities by open cut.
 2. If conditions at the site prevent such open cut, and if approved by the Engineer trenching may be used.
 3. Short sections of a trench may be tunneled if, in the opinion of the Engineer, the conductor can be installed safely and backfill can be compacted properly into such tunnel.
 4. Where it becomes necessary to excavate beyond the limits of normal excavation lines in order to remove boulders or other interfering objects, backfill the voids remaining after removal of the objects as directed by the Engineer.
 5. When the void is below the subgrade for the utility bedding, use suitable earth material and compact as approved by the Engineer, but in no case to the relative density directed less than 90%.
 6. When the void is in the side of the utility trench or open cut, use suitable earth or sand

compacted or consolidated as approved by the Engineer, but in no case to a relative density less than 80%.

7. Remove boulders and other interfering objects, and backfill voids left by such removals, at no additional cost to the Owner.
8. Excavating for appurtenances:
 - a. Excavate for manholes and similar structures to a distance sufficient to leave at least 12" clear between outer surfaces and the embankment or shoring that may be used to hold and protect the banks.
 - b. Overdepth excavation beyond such appurtenances that has not been directed, will be considered unauthorized. Fill with sand, gravel, or lean concrete as directed by the Engineer, and at no additional cost to the Owner.
- C. Trench to the minimum width necessary for proper installation of the utility, with sides as nearly vertical as possible. Accurately grade the bottom to provide uniform bearing for utility.
- D. Depressions:
 1. Dig bell holes and depressions for joints after the trench has been graded. Provide uniform bearing for the pipe on prepared bottom of the trench.
 2. Do not excavate below the depth indicated or specified.
- E. Where utility runs traverse public property or are subject to governmental or utility company jurisdiction, provide depth, bedding, cover, and other requirements as set forth by legally constituted authority having jurisdiction, but in no case less than the depth shown in the Contract.

3.05 BEDDING FOR UTILITIES

- A. Provide bedding as indicated on the Drawings for each utility.

3.06 BACKFILLING OF UTILITY TRENCHES

- A. General:
 1. Do not completely backfill trenches until required tests have been performed, and until the utilities systems as installed conform to the requirements specified in their pertinent Sections of these Specifications.
 2. Except as otherwise specified or directed for special conditions, backfill trenches to the ground surface with selected material approved by the Engineer.
 3. Reopen trenches which have been improperly backfilled, to a depth as required for proper compaction. Refill and compact as specified, or otherwise correct to the approval of the Engineer.
 4. Do not allow or cause any of the Work performed or installed to be covered up or enclosed by work of this Section prior to required inspections, tests, and approvals.
 5. Should any of the Work be so enclosed or covered up before it has been approved, uncover all such work and, after approvals have been made, refill and compact as specified, all at no additional cost to the Owner.
- B. Lower portion of trench:
 1. Deposit approved backfill and bedding material in layers of 6" maximum thickness and compact with suitable tampers to the density of the adjacent soil, or grade as specified herein, until there is a cover of not less than 24" over sewer and 12" over other utility lines.

2. Take special care in backfilling and bedding operations as not to damage pipe and pipe coatings.
- C. Remainder of trench:
1. Except for special materials for pavements, such as "flowable fill", backfill the remainder of the trench with material free from stones larger than 6" or 1/2 the layered thickness, whichever is smaller, in any dimension.
 2. Deposit backfill material in layers not exceeding the thickness specified and compact each layer to the minimum density indicated.
- D. Adjacent to buildings: Mechanically compact backfill within ten feet of buildings.

3.07 GENERAL SITE FILLING AND BACKFILLING

- A. General: For each classification listed below, place acceptable soil material layers to required subgrade elevations.
1. In excavations, use satisfactory excavated or borrow material.
 2. Under asphalt pavements, use approved on-site fill or controlled fill borrow materials as approved by Engineer.
 3. Under building slabs, use approved on-site fill or controlled fill borrow materials as approved by Engineer.
- B. Backfill excavations as promptly as progress of the Work permits, but not until completion of the following.
1. Acceptance of construction below finish grade including, where applicable, damp-proofing and water-proofing.
 2. Inspecting, testing, approving, and recording locations of underground utilities.
 3. Removing concrete formwork.
 4. Removing shoring and bracing and backfilling of voids with satisfactory materials.
 5. Removing trash and debris.
 6. Placement of horizontal bracing on horizontally supported walls.
- C. Ground surface preparation:
1. Remove vegetation, debris, unsatisfactory soil materials, obstructions, and deleterious matter from ground surface prior to placement of fills. Coordinate and comply with the requirements of Section 31 10 00, SITE CLEARING.
 2. Plow, strip, or break up sloped surfaces steeper than one vertical to four horizontal so that fill materials will bond with existing surfaces.
 3. When existing ground surface has a density less than specified under "compacting" for the particular area, break up the ground surface, pulverize, moisture-condition to the optimum moisture content, and compact to required depth and percentage of maximum density.
- D. Placing and Compacting:
1. Place backfill and fill materials in layers not more than 8" in loose depth. Conform with paragraph entitled "COMPACTING."
 2. Before compacting, moisten or aerate each layer as necessary to provide the optimum moisture content.
 3. Compact each layer to required percentage of maximum density for area.

4. Do not place backfill or fill material on surface that are muddy, frozen, or containing frost or ice.
5. Place backfill and fill materials evenly adjacent to structures, to required elevations.
6. Take care to prevent wedging action of backfill against structures by carrying the material uniformly around the structure to approximately the same elevation in each lift.

3.08 GRADING

A. General:

1. Uniformly grade the areas within limits of grading under this Section, including adjacent transition areas.
2. Smooth the finished surfaces within specified tolerance.
3. Compact with uniform levels or slopes between points where elevations are shown on the Drawings, or between such points and existing grades.
4. Where a change of slope is indicated on the Drawings, construct a rolled transition section having a minimum radius of approximately 8'0", unless adjacent construction will not permit such a transition, or if such a transition defeats positive control of drainage.

B. Grading outside building lines:

1. Grade areas adjacent to buildings to achieve drainage away from the structures, and to prevent ponding.
2. Finish the surfaces to be free from irregular surface changes, and:
 - a. Shape the surface of areas scheduled to be under walks to line, grade, and cross-section, with finished surface not more than 0.10 ft. above or below the required sub-grade elevation.
 - b. Shape the surface of areas scheduled to be under pavement to line, grade and cross section, with finished surface not more than 0.05 ft. above or below the required subgrade elevation.

3.09 COMPACTING

- A. Control soil compaction for other than clay soils during construction to provide the minimum percentage of density specified for each area as determining according to ASTM D 1557.
- B. Provide not less than the following maximum density of soil material compacted at optimum moisture content for the actual density of each layer of soil material in place, and as approved by the Engineer.
 1. Lawn, playing field and other non-paved areas: Compact the top 8" of subgrade and each layer of fill material or backfill material at 90% of maximum density.
 2. Walks: Compact the top 8" of subgrade and each layer of fill material or backfill material at 95% of maximum density.
 3. Vehicular Pavements: Compact the top 12" of subgrade and each layer of fill material or backfill material at 95% of maximum density.
 4. Utility Trenches: Compact initial backfill and top 12" above the utility at 95% of maximum density. Where utilities cross under paved areas compact the remainder of trench at 95% of maximum density; and at 90% of maximum density for unpaved areas.
 5. Slabs and foundations:
 - a. Where existing unstable soils have been removed, backfill shall be placed in thin successive layers 8 inches to 10 inches loose measurement. Each layer shall be

compacted to at least 95% of its maximum laboratory dry density. All soil beneath building floor slabs and footings shall be compacted to at least 95% of its maximum density.

b. The gravel bedding layer shall be lightly tamped to seat the stone into the underlying insitu soil and to dispel large voids. Vibratory compactors shall not be used.

C. Moisture Control:

1. Where subgrade or layer of soil material must be moisture-conditioned before compacting, uniformly apply water to surface of subgrade or layer of soil material to prevent free water appearing on surface during or subsequent to compacting operations.
2. Remove and replace, or scarify and air dry, soil material that is too wet to permit compacting to the specified density.
3. Soil material that has been removed because it is too wet to permit compacting may be stockpiled or spread and allowed to dry. Assist drying by discing, harrowing, or pulverizing until moisture content is reduced to a satisfactory value as determined by moisture-density relation tests approved by the Engineer.

3.10 QUALITY CONTROL

- A. Secure the Engineer's inspection and approval of subgrades, and fill layers before subsequent construction is permitted thereon.
- B. Provide at least the following tests to the approval of the Engineer:
 1. At paved areas, each lift of fill or backfill shall be tested for density and moisture content at a frequency of one test for every 5000 square feet (sf), but not less than three tests.
 2. Slabs and Footings:
 - a. Fill and Controlled Fill Beneath Slabs and Footings: Each lift of fill or backfill shall be tested for density and moisture content at a frequency of one test for every 2500 square feet (sf), but not less than three tests. Each test location shall be tested twice. The average of two tests at one location shall equal or exceed the specified density. The location of the tests shall be as selected by the Engineer.
 - b. Compacted Existing Soil Beneath Slabs and Footings: In addition to the tests in subparagraph a. above, perform density tests in not less than two randomly selected locations.
 3. In utility trenches, each lift of fill or backfill shall be tested for density and moisture content at a frequency of one test for every 50 linear feet of compacted trench

3.11 TEST FOR DISPLACEMENT OF SEWERS AND STORMDRAINS

- A. Check sewers and storm drains to determine whether displacement has occurred after the trench has been backfilled to above the pipe and has been compacted as specified. Comply with the specific requirements as specified in Section 33 30 00, SANITARY SEWERS and Section 33 41 00, STORM DRAINAGE PIPING.
- B. Flash a light between manholes or, if the manholes have not yet been constructed, between the locations of the manholes, by means of a flashlight or by reflecting sunlight with a mirror.
- C. If the illuminated interior of the pipeline shows poor alignment, displaced pipes, or any other defects, correct the defects to the specified conditions and at no additional cost to the Owner.

3.12 MAINTENANCE

- A. Protection of newly graded areas:
 - 1. Protect newly graded areas from traffic and erosion and keep free from trash and weeds.
 - 2. Protect newly graded and excavated subgrade soils from standing water in low points or in open excavations. The contractor will be responsible for subgrades soils or excavation areas where the stability of the soils is damaged, or the soils made unstable due to failure to provide proper drainage during construction.
 - 3. Repair and reestablish grades in settled, eroded, and rutted areas to the specified tolerances.

- B. Where completed compacted areas are disturbed by subsequent construction operations or adverse weather, scarify the surface, reshape, and compact to the required density prior to further construction.

END OF SECTION

SECTION 31 23 19
DEWATERING**PART 1 - GENERAL****1.01 SUMMARY OF WORK**

- A. Section includes construction dewatering; which includes the extraction or pumping of subsurface ground water to allow for proper utility and foundation trench work; also, the management and disposal of surface runoff from rainfall events within the construction area that could damage excavated or unfinished pavement subgrades.
- B. Related Sections:
 - 1. Section 31 20 00, EARTH MOVING for excavating, backfilling, site grading, and for site utilities.

1.02 PERFORMANCE REQUIREMENTS

- A. Dewatering Performance: Remove all water, including rainwater, encountered during trench and sub-structure work to an approved location by pumps, drains, and other approved methods. The potential for groundwater intrusion into excavations will be higher during periods of rainfall. Design, furnish, install, test, operate, monitor, and maintain dewatering system of sufficient scope, size, and capacity to control hydrostatic pressures and to lower, control, remove, and dispose of ground water and permit excavation and construction to proceed on dry, stable subgrades.
 - 1. Delegated Design: Design dewatering system, including comprehensive engineering analysis by a qualified professional engineer, using performance requirements and design criteria indicated.
 - 2. Continuously monitor and maintain dewatering operations to ensure erosion control, stability of excavations and constructed slopes, that excavation does not flood, and that damage to subgrades and permanent structures is prevented.
 - 3. Prevent surface water from entering excavations by grading, dikes, or other means.
 - 4. Accomplish dewatering without damaging existing buildings, structures, and site improvements adjacent to excavation.
 - 5. Remove dewatering system when no longer required for construction.

1.03 SUBMITTALS

- A. Shop Drawings: For dewatering well-point system: Show arrangement, locations, and details of wells and well points; locations of risers, headers, filters, pumps, power units, and discharge lines; and means of discharge, control of sediment, and disposal of water.
 - 1. Include layouts of piezometers and flow-measuring devices for monitoring performance of dewatering system.
 - 2. Include a written plan for dewatering operations including control procedures to be adopted if dewatering problems arise.
- B. Delegated-Design Submittal: For dewatering system indicated to comply with performance requirements and design criteria, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.
- C. Qualification Data: For qualified professional engineer.

- D. Field quality-control reports.
- E. Other Informational Submittals: Photographs or Videotape: Show existing conditions of adjoining construction and site improvements that might be misconstrued as damage caused by dewatering operations.

1.04 QUALITY ASSURANCE

- A. Installer Qualifications: An experienced installer that has specialized in design of dewatering systems and dewatering work.
- B. Regulatory Requirements: Comply with governing EPA notification regulations before beginning dewatering. Comply with hauling and disposal regulations of authorities having jurisdiction.
- C. Preinstallation Conference: Conduct conference at Project site.
 - 1. Review methods and procedures related to dewatering including, but not limited to, the following:
 - 2. Inspection and discussion of condition of site to be dewatered including coordination with temporary erosion control measures and temporary controls and protections.
 - 3. Geotechnical report.
 - 4. Proposed site clearing and excavations.
 - 5. Existing utilities and subsurface conditions.
 - 6. Construction schedule. Verify availability of Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
 - 7. Testing and monitoring of dewatering system.

1.05 PROJECT CONDITIONS

- A. Interruption of Existing Utilities: Do not interrupt any utility serving facilities occupied by Owner or others.
- B. Project-Site Information: A geotechnical report has been prepared for this Project and is available for information only. The opinions expressed in this report are those of geotechnical engineer and represent interpretations of subsoil conditions, tests, and results of analyses conducted by geotechnical engineer. Owner will not be responsible for interpretations or conclusions drawn from this data.
 - 1. Make additional test borings and conduct other exploratory operations necessary for dewatering.
 - 2. The geotechnical report is included elsewhere in the Project Manual.
- C. Survey Work: Engage a qualified land surveyor or professional engineer to survey adjacent existing buildings, structures, and site improvements, establishing exact elevations at fixed points to act as benchmarks. Clearly identify benchmarks and record existing elevations. During dewatering, regularly resurvey benchmarks, maintaining an accurate log of surveyed elevations for comparison with original elevations. Promptly notify Architect if changes in elevations occur or if cracks, sags, or other damage is evident in adjacent construction.

PART 2 – PRODUCTS

(Not Used)

PART 3 - EXECUTION**3.01 PREPARATION**

- A. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by dewatering operations.
 - 1. Provide temporary grading to facilitate dewatering and control of surface water. Prevent surface water and subsurface or ground water from entering excavations, from ponding on prepared subgrades, and from flooding site and surrounding area.
 - 2. Protect subgrades and foundation soils from softening and damage by rain or water accumulation.
- B. Install dewatering system to ensure minimum interference with roads, streets, walks, and other adjacent occupied and used facilities. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction. Provide alternate routes around closed or obstructed traffic ways if required by authorities having jurisdiction.

3.02 INSTALLATION

- A. Install dewatering system utilizing wells, well points, or similar methods complete with pump equipment, standby power and pumps, filter material gradation, valves, appurtenances, water disposal, and surface-water controls. Space well points or wells at intervals required to provide sufficient dewatering. Use filters or other means to prevent pumping of fine sands or silts from the subsurface.
- B. Before excavating below ground-water level, place system into operation to lower water to specified levels. Operate system continuously until drains, sewers, and structures have been constructed and fill materials have been placed or until dewatering is no longer required.
- C. Provide an adequate system to lower and control ground water to permit excavation, construction of structures, and placement of fill materials on dry subgrades. Install sufficient dewatering equipment to drain water-bearing strata above and below bottom of foundations, drains, sewers, and other excavations. Do not permit open-sump pumping that leads to loss of fines, soil piping, subgrade softening, and slope instability.
- D. Reduce hydrostatic head in water-bearing strata below subgrade elevations of foundations, drains, sewers, and other excavations. Maintain piezometric water level a minimum of 24 inches below surface of excavation.
- E. Protect and maintain temporary erosion and sedimentation controls, which are specified in Section 01 57 13, TEMPORARY EROSION CONTROL during dewatering operations.
- F. Dispose of all subsurface water in accordance with the SCDHEC-OCRM erosion control regulations. Utilize sumps, sedimentation tanks, filter bags and other devices to separate sediments from water prior to discharge. At no time shall such water be discharged into a sanitary sewer without the expressed written permission of the jurisdictional authority (owner/operator) of the sewer system.

- G. Provide standby equipment on site, installed and available for immediate operation, to maintain dewatering on continuous basis if any part of system becomes inadequate or fails. If dewatering requirements are not satisfied due to inadequacy or failure of dewatering system, restore damaged structures and foundation soils at no additional expense to Owner. Remove dewatering system from Project site on completion of dewatering. Plug or fill well holes with sand.
- H. Damages: Promptly repair damages to adjacent facilities caused by dewatering operations.

3.03 FIELD QUALITY CONTROL

- A. Observation Wells: Provide, take measurements, and maintain at least the minimum number of observation wells or piezometers indicated on Contractor's approved shop drawing; additional observation wells may be required by authorities having jurisdiction.
 - 1. Observe and record daily elevation of ground water and piezometric water levels in observation wells.
 - 2. Repair or replace, within 24 hours, observation wells that become inactive, damaged, or destroyed. In areas where observation wells are not functioning properly, suspend construction activities until reliable observations can be made. Add or remove water from observation-well risers to demonstrate that observation wells are functioning properly.
 - 3. Fill observation wells, remove piezometers, and fill holes when dewatering is completed.
- B. Provide continual observation to ensure that subsurface soils are not being removed by the dewatering operation.

END OF SECTION

SECTION 32 05 30
LANDSCAPE MAINTENANCE**PART 1 - GENERAL****1.01 SUMMARY**

The scope of this section includes the requirements for the maintenance and care of exterior planting beds, landscaping plants, trees, mulches, grasses and lawns installed by the Contractor, or contained within his project limits until final acceptance by the owner, or the end of the warranty period, as specified herein.

1.02 DEFINITIONS

- A. Pesticide: Fumigant, herbicide, insecticide, fungicide and rodenticide.
- B. Stand of Turf: 95 percent ground cover of the established species.

1.03 RELATED REQUIREMENTS

- A. Section 32 92 19, SEEDING applies to this section for installation of new permanent hydro-seeded turfgrass requirements, with additions and modifications herein.
- B. Section 32 92 23, SODDING applies to this section for installation of new permanent sod turfgrass requirements, with additions and modifications herein.
- C. Section 32 93 00 , LANDSCAPE PLANTS applies to this section for installation of trees, shrubs, ground cover, vines, mulch topdressing, and staking and guying, with additions and modifications herein.

1.04 SUBMITTALS

Submit the following in accordance with Section 01 33 00, SUBMITTAL PROCEDURES.

- A. Product Data
 - 1. Fertilizer
 - 2. PesticidesInclude physical characteristics, application instructions and recommendations.
- B. Test Reports
 - 1. Topsoil composition tests
- C. Manufacturer's Instructions
 - 1. Pesticides

1.05 DELIVERY, STORAGE AND HANDLING

- A. Delivery
 - 1. Fertilizer Delivery: Deliver to the site in original containers bearing manufacturer's chemical analysis, name, trade name, or trademark, and indication of conformance to state and federal laws. Instead of containers, fertilizer may be furnished in bulk with a certificate indicating the above information.

2. Pesticide Delivery: Deliver to the site in original containers with legible label indicating Environmental Protection Agency (EPA) registration number and manufacturer's registered uses.
- B. Storage
1. Fertilizer and Mulch Storage: Store in dry locations away from contaminants.
 2. Pesticides and Plant Growth Regulators Storage: Do not store with other maintenance material. Store herbicides "downwind," relative to the airflow in the storage building, from other pesticides.
- C. Handling: Do not drop or dump materials from vehicles.

1.06 QUALITY ASSURANCE

- A. Topsoil composition Tests: Perform tests as specified in DOA SSIR.

PART 2 - PRODUCTS

2.01 PH ADJUSTERS

- A. Iron: 100 percent elemental

2.02 SOIL CONDITIONERS

- A. Sand: Clean and free of materials harmful to plants.
- B. Composted Derivatives: Ground bark, nitrolized sawdust, humus or other green wood waste material free of stones, sticks, and soil stabilized with nitrogen and having the following properties:
1. Particle Size: Minimum percent by weight passing:
 - No. 4 mesh screen 95
 - No. 8 mesh screen 80
 2. Nitrogen Content: Minimum percent based on dry weight:
 - Fir Sawdust 0.7
 - Fir or Pine Bark 1.0
- C. Gypsum: Coarsely ground gypsum comprised of calcium sulfate dihydrate 91 percent, calcium 22 percent, sulfur 17 percent; minimum 96 percent passing through a 20-mesh screen, 100 percent passing thru a 16-mesh screen.

2.03 FERTILIZER

- A. Post-Plant Fertilizer Mixture: Fertilizer mixtures not to exceed one percent granular dust, as specified below.
1. Turf Fertilizer "A": For Fall, Winter, Spring, and Summer seasons use an organic, granular fertilizer containing the following minimum percentages, by weight, or plant food nutrients:
 - 20 percent available nitrogen
 - 10 percent available phosphorus
 - 10 percent available potassium
 - 3 percent sulfur
 - 3 percent iron

2. Planter Bed/Slope Fertilizer "C": For Fall, Winter, Spring, and Summer seasons use an organic, granular fertilizer containing the following minimum percentages, by weight, or plant food nutrients:

- 20 percent available nitrogen
- 10 percent available phosphorus
- 10 percent available potassium
- 3 percent sulfur
- 3 percent iron

2.04 WATER

Source of water to be approved by Architect, suitable quality for irrigation.

2.05 ORGANIC MULCH MATERIALS

Pine straw mulch: needle length ranging in size from 2 to 8 inches.

2.06 PESTICIDES

Fumigant, herbicide, insecticide, fungicide, and rodenticide: EPA registered and approved. Furnish for post-emergence application for crabgrass control and broadleaf weed control. Comply with Federal Insecticide, Fungicide, and Rodenticide Act (Title 7 U.S.C. Section 136) for requirements on contractor's licensing, certification, and record keeping. Contractor to keep records of all pesticide applications and forward data monthly to Architect. Submit record keeping format to Architect for approval. Contact the Installation Pest Control Coordinator prior to starting work.

PART 3 - EXECUTION

3.01 EXTENT OF WORK

Provide landscape construction maintenance to include mowing, edging, rolling, aeration, fertilizing, watering, weeding, pruning, stake and guy adjusting, and pesticide application for all newly installed landscape areas, unless indicated otherwise, and at all areas inside or outside the limits of the construction that are disturbed by the Contractor's operations.

3.02 IRRIGATION ESTABLISHMENT PERIOD

There is a new permanent irrigation system included in this project. Temporary irrigation will be required if the permanent system is not fully functional at the time of planting, and commencement of the plant establishment period. Temporary irrigation system may be terminated once the permanent irrigation system is approved for use.

The irrigation establishment period will include the proper implementation and operation of a watering and irrigation system that will be utilized during the maintenance period. Irrigation establishment period will commence on the same date as the Turf Establishment Period and the Plant Establishment Period and shall continue until such time as the system is turned over to the Owner for final acceptance, but not less than 90 days.

- A. Maintenance During the Irrigation Establishment Period: Begin maintenance immediately after irrigation equipment has been installed and is functional. Inspect irrigation equipment at least once a week during the installation and establishment period and perform needed maintenance promptly.
- B. The Contractor shall provide all necessary maintenance and repair to ensure proper operation of the irrigation system and its components. This includes all drip lines, rotary heads, pop-ups and piping, valves and controllers.

- C. Water Restrictions: The Contractor shall abide by state, local or other water conservation regulations in force during the establishment period.
- D. Fire Hydrants: To use a fire hydrant for irrigation is not allowed, without the expressed written approval of the water distribution system utility company having jurisdiction.
- E. Remedial Work: Remedial measures directed by the Architect to ensure all irrigation system and equipment repairs and adjustments for plant material survival and healthy growth have been completed.

3.03 TURF ESTABLISHMENT PERIOD

Turf establishment period will commence on the date that inspection by the Architect or Owner shows that the new turf furnished under this contract has been satisfactorily installed and shall continue until such time as it is turned over to the Owner for final acceptance, but not less than 90 days.

- A. Maintenance During the Turf Establishment Period: Begin maintenance immediately after turf has been installed. Inspect turf areas at least once a week during the installation and establishment period and perform needed maintenance promptly.
- B. Promotion of Turf Growth: Turf shall be maintained in a manner that promotes proper health, growth, rich natural green color, and neat uniform manicured appearance, free of bare areas, ruts, holes, weeds, pests, dead vegetation, debris, and unwanted vegetation that present an unsightly appearance. Mow, remove excess clippings, eradicate weeds, water, fertilize, overseed, roll, aerate, topdress and perform other operations necessary to promote turf growth.
- C. Mowing: Turf shall be mowed at a uniform finished height. Mow turfed areas to an average height of 2 inches when average height of grass becomes 4 inches for spring/summer maintenance and to an average height of 2 inches when the average height of grass reaches 4 inches for fall/winter maintenance. The height of turf is measured from the soil. Mowing of turf shall be performed in a manner that prevents scalping, rutting, bruising, uneven and rough cutting. Each successive mowing shall be at approximate 45-degree angles to the previous mowing where practical. Prior to mowing, all rubbish, debris, trash, leaves, rocks, paper, and limbs or branches on a turf area shall be picked up and disposed. Adjacent paved areas shall be swept/vacuumed clean. Reel-type mowers shall be used on warm season grasses and rotary-type mowers shall be used on cool season type grasses. Mulcher mowers may be used on only cool season type grasses.
- D. Turf Edging: Perimeter of planter bed edges, sidewalks, driveways, curbs, and other paved surfaces shall be edged. Uniformly edge these areas to prevent encroachment and to provide a clear-cut division line between planter beds, turf, and ground cover. Edging is to be accomplished in a manner that prevents scalping, rutting, bruising, uneven and rough cutting. Edging shall be performed on the same day that turf is mowed. Use of string line trimmers is permitted in "soft" areas such as an edge between turfgrass and a planter bed. Care shall be exercised to avoid damaged to any plant materials.
- E. Turf Trimming: Trimming around trees, fences, poles, walls, irrigation valve boxes and other similar objects is to be accomplished to match the height and appearance of surrounding mowed turf growth. Trimming shall be performed on the same day the turf's mowed. Care shall be exercised to avoid "Girdling" trees located in turf areas. The use of protective tree collars on trees in turf areas may be utilized as a temporary means to avoid injury to tree trunks. At the end of the plant establishment period Contractor will be responsible for removing all protective tree collars.
- F. Post-Fertilizer Application: Apply fertilizer in a manner that promotes health, growth, color and

appearance of cultivated turf areas. The method of application, fertilizer type and frequencies shall be determined by the laboratory soil analysis result and recommendations of the soils at the site. Organic fertilizer shall be used. In the event that organic fertilizer is not producing the desired effect, the Contractor shall contact the Architect for approval prior to the use of a non-organic type of fertilizer. Fertilizer shall be applied by approved methods in accordance with the manufacturer's recommendations. For bidding purposes only apply at rates for the following:

Organic Fertilizer "A" 10 pounds per 1000 square feet at intervals of every 10 weeks.

- G. Turf Watering: The Contractor shall perform irrigation in a manner that promotes the health, growth, color and appearance of cultivated vegetation and that complies with all Federal, State, and local water agencies and authorities' directives. The Contractor shall be responsible to prevent over watering, water run-off, erosion, and ponding due to excessive quantities or rate of application. The Contractor shall abide by state, local or other water conservation regulations or restrictions in force during the establishment period. Irrigation rates shall be adjusted to comply with the water conservation regulations schedule.
- H. Turf Aeration: Upon completion of weed eradication operations and Architect's approval to proceed, aerate turf areas by approved device. Core, by pulling soil plugs, to a minimum depth of 1.5 inches. Leave all soil plugs, that are produced, in the turf area. After aeration operations are complete, top-dress entire area 1/4-inch depth with the following mixture:
- 72 percent sand
25 percent humus
- Blend all parts of topdressing mixture to a uniform consistency throughout. Keep clean at all times at least one paved pedestrian access route and one paved vehicular access route to each building. Clean all soil plugs off of other paving when work is complete. This work shall commence 90 days prior final acceptance of the maintenance establishment period.
- I. Turf Clearance Area: Trees located in turf areas shall be maintained with a growth free clearance of 18 inches from the tree trunk base. The use of mechanical weed whips to accomplish the turf growth free bed area is prohibited.
- J. Policing: The Contractor shall police all landscaped areas. Policing includes removal of leaves, branches and limbs regardless of length or diameter, dead vegetation, paper, trash, cigarette butts, garbage, rocks or other debris. Policing shall extend to both sides of fencing or walls. Collected debris shall be promptly removed and disposed of at an approved disposal site.
- K. Final Inspection and Acceptance: Final inspection will be scheduled upon written request from the Contractor at least 10 days prior to the last day of the turf establishment period. Final acceptance will be based upon a satisfactory stand of turf.
- L. Replanting: Replant seeded areas in accordance with Section 32 92 19 SEEDING; sodded areas in accordance with Section 32 92 23 SODDING, and within specified planting dates, areas which do not have a satisfactory stand of turf.

3.04 EXTERIOR PLANT (PLANTER BED) ESTABLISHMENT PERIOD

Planter Bed establishment period will commence on the date that inspection by the Architect shows that the new plants furnished under this contract has been satisfactorily installed and shall continue until such time as it is turned over to the Owner for final acceptance, but not less than 90 days.

- A. Maintenance During the Planter Bed Establishment Period: Begin maintenance immediately after plants have been installed. Inspect planter bed areas at least once a week during the installation and establishment period and perform needed maintenance promptly.

- B. Promotion of Plant Growth: Water, prune, fertilize, mulch, adjust stakes, guys and turnbuckles, re-wrap, eradicate weeds and perform other operations necessary to promote plant growth.
- C. Planter Bed Maintenance: Planter beds shall be weeded, fertilized, dead flower stalks and seed heads removed, and mulch levels maintained. A plant bed is defined as an area comprised of trees, shrubs, vines, wildflowers, perennials, ground cover, and a mulch topdressing excluding turf. Planter beds shall be kept weed, turf and pest free. Ground covers shall not be allowed to grow into vines, perennials, shrubs or trees.
1. Ground Cover Maintenance: Herbaceous and Woody ground cover shall be trimmed, pruned, irrigated, and fertilized to present a healthy and manicured appearance. Ground cover will not be allowed to encroach into turf areas. A definite break shall be maintained between turf and ground cover. In areas where ground cover and shrubs, vines and wildflowers are planted together, the ground cover shall not be allowed to grow onto or otherwise dominate the planter bed area. Ground cover will not be allowed to grow onto or into, and be removed from both sides of fences, ditches, gutters, paved areas, buildings, walls, trees, shrubs and storm drains.
 2. Shrub Maintenance: Shrubs shall be trimmed and pruned for health, safety, and aesthetic appearance. Shrubs or shrub masses shall be pruned to evenly form and balance a plant to its natural growth characteristics. Water shoots, suckers, and branches of shrubs not conforming to desired shape and size shall be removed.
 3. Shrub Selective Maintenance: In addition to the above requirements, shrubs shall be selectively pruned, and shaped for health and safety when the following conditions exist. Remove growth in front of windows, over entrance ways or walks, and any growth which will obstruct vision at street intersections. Remove dead, damaged or diseased branches or limbs. Shrub growth obstructs pedestrian walkways. Shrub growth found growing against or over structures. All pruning debris shall be disposed of in a proper manner.
 4. Shrub Irrigation: All earth mound watering basins around the base of shrubs intended to retain water for proper irrigation shall be maintained in good condition to permit the most efficient application of water and reduce waste.
 5. Tree Maintenance: Tree maintenance includes adjustment of stake ties, guy supports and turnbuckles, watering, fertilizing, pest control, pruning for health and safety and fall leaf cleanup. Stakes, ties, guy supports, and turnbuckles shall be inspected and adjusted to avoid girdling and promote natural development. All trees within the project boundaries, regardless of caliper, shall be selectively pruned for safety and health reasons. These include but are not limited to removal of dead and broken branches, correction of structural defects, or whenever the following conditions exist. Remove diseased wood or structurally weak limbs that may cause a safety hazard. Remove branches that extend over buildings and endanger roofs and in front of windows and which obstruct traffic signs or street intersections. Provide clearance for buses, moving vans and similar vehicles along streets. Prune trees according to their natural growth characteristics leaving trees well shaped and balanced. Pruning of all trees including palm trees shall be accomplished by or in the presence of a certified member of the International Society of Arboriculture and in accordance with ANSI Z133.1. All pruning debris generated shall be disposed of in a proper manner.
 6. Palm Tree Pruning: The Contractor shall prune palm trees to remove dead, dying, diseased, damaged or unwanted fronds, seed pods and fruit clusters. Fronds shall be pruned to a 90-degree angle above the horizontal plane. All tools shall be disinfected with a 50 percent chlorine bleach solution or an approved disinfectant where a possible transmission of disease between individual palm tree exists. Climbing spikes shall not be used in the performance of pruning tasks.
 7. Tree Irrigation: All earth mound watering basins around the base of individual trees or clumps of trees intended to retain water in place for proper irrigation shall be maintained in

a good condition to permit the most efficient application of water and reduce waste.

- D. **Water Restrictions:** The Contractor shall abide by state, local or other water conservation regulations in force during the establishment period. Irrigation rates shall be adjusted to comply with the water conservation regulations schedule.
- E. **Planter Bed Post-Fertilizer Application:** Apply fertilizer in a manner that promotes health, growth, color and appearance of newly installed planter bed areas. The method of application, fertilizer type and frequencies shall be determined by the laboratory soil analysis result and recommendations of the soils at the site. Organic fertilizer shall be used. In the event that organic fertilizer is not producing the desired effect, the Contractor shall contract the Architect, in writing, for approval prior to the use of a non-organic type of fertilizer. Fertilizer shall be applied by approved methods in accordance with the manufacturer's recommendations. For bidding purposes only apply at rates for the following:
- Organic Fertilizer "A" 10 pounds per 1000 square feet at intervals of every 10 weeks.
- F. **Policing:** The Contractor shall police all landscaped areas. Policing includes removal of leaves, branches and limbs regardless of length or diameter, dead vegetation, paper, trash, cigarette butts, garbage, rocks or other debris. Policing shall extend to both sides of fencing or walls. Collected debris shall be promptly removed and disposed of at an approved disposal site.
- G. **Removal of Dead Plants:** Remove dead plants and provide new plants immediately, and replace stakes, guys, wraps, mulch and eroded earth mound water basins. No additional plant establishment period will be required for replacement plants.
- H. **Tracking of Unhealthy Plants:** Note plants not in healthy growing condition, as determined by the Architect, and remove and replace with plants of the same species and sizes as originally specified. Install replacement plantings in accordance with Section 32 93 00, PLANTS.
- I. **Final Inspection:** Final inspection will be made upon written request from the Contractor at least 10 days prior to the last day of the planter bed establishment period.
- J. **Final Acceptance:** Based on compliance with the following:
1. **Total Plants on Site:** Plants have been accepted and required number of replacements have been installed.
 2. **Mulching and Weeding:** Planter beds and earth mound water basins are properly mulched and free of weeds.
 3. **Fertilizing:** Planter beds have been fertilized as required with correct type of material and application rates.
 4. **Tree Supports:** Stakes, guys and turnbuckles are in good condition.
 5. **Remedial Work:** Remedial measures directed by the Architect to ensure plant material survival and promote healthy growth have been completed.

3.05 PESTICIDE APPLICATION

The Contractor shall furnish all labor, supervision, tools, materials, equipment, and transportation necessary to provide Pest Control Services as required.

- A. **State Licensing:** The Contractor shall be licensed by the State to provide pest control in the categories in which work will be performed.
- B. **Licensed Applicators:** All pesticide applications shall be performed by a licensed pesticide

applicator. The individual must be responsible, and all pesticides must be used in accordance with the Federal, state, local, and installation laws publications, and any requirements identified in attachments. All pesticides shall be procured, processed, handled, and applied in strict accordance with the manufacturer's label. All pesticides shall be registered with the U.S. Environmental Protection Agency and State.

- C. Application and Reporting Procedure: Notify the Architect 24 hours before application. Apply pesticides in accordance with EPA label restrictions and recommendations and federal and state laws. Make daily reports to the Architect stating areas treated with each chemical, the quantity applied, and spray mixture or formulation used. The Contractor shall maintain a label book of pesticides used, including all appropriate Material Safety Data Sheets (MSDS), and have it readily available at all times for inspection. Pesticides shall always be stored in original containers having EPA-registered labels or in containers meeting EPA label requirements.
- D. Application Precautions: Apply in well ventilated areas. Avoid inhalation, injection, or spilling on clothing or skin. Wear protective clothing in accordance with manufacturer's Material Safety Data Sheet recommendations. Do not expose personnel to pesticides exceeding the exposure levels recommended in the most stringent of the following: OSHA, 29 CFR 1910-SUBPART Z, or the manufacturer's material safety data sheet. If excessive exposures are unavoidable, use respirators approved by the National Institute for Occupational Safety and Health for protection from pesticides. Conform to the selection and usage guidance in ANSI Z88.2.
- E. Hydraulic Equipment: For liquid application of chemicals, hydraulic equipment shall have leak-proof tanks and a positive agitation method. Calibrate and meter equipment so that application of chemicals in specified amounts can be determined. Provide equipment with gages and valves capable of maintaining constant application pressures. Use application equipment appropriate for the nature and size of work, that is clean, calibrated, and in proper operational condition. Never leave equipment unattended during filling, and during application usage.
- F. Personnel Injury and Property Damage Prevention: Apply in a manner to prevent injury to personnel, and damage to property, from either direct spray, or drifting of chemicals both on and off Owner's property.
- G. Pesticide Disposal: The Contractor shall dispose of all excess pesticides, pesticide rinse water, empty pesticide containers, and any pesticide contaminated article in accordance with the label, applicable State and Federal regulations. Pesticides, pesticide containers, pesticide residue, pesticide rinse water, or any pesticide contaminated articles shall not be disposed of on the Owner's property. However, rinse water may be used as diluents for the formulation of the same pesticide.
- H. Pesticide Spills, Clean Up and Decontamination: The Contractor shall be responsible for proper reporting, clean up and decontamination of pesticide spills, as required by EPA and State Laws and Regulations. All spills shall be immediately reported to the Architect.

END OF SECTION

SECTION 32 12 16
ASPHALT PAVING AND BASE COURSE**PART 1 - GENERAL****1.01 RELATED DOCUMENTS**

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions, and Specifications Section 31 20 00, EARTH MOVING, apply to work of this section.
- B. All work shall be in conformance with the South Carolina State Highway Standard Specifications for Highway Construction, Edition of 2007, with the latest addenda and revisions as specified in the Supplemental Technical Specifications; hereafter referred to as "SCDOT-SS."

1.02 DESCRIPTION OF WORK

Extent of asphalt concrete paving work is as shown on construction drawings.

1.03 SUBMITTALS

- A. Material Certificates: Provide copies of material certificates signed by material supplier and Contractor, certifying that each material item complies with, or exceeds, specified requirements.
- B. Mx Design: Provide copies of each type of asphaltic concrete mix, approved by the SCDOT within the last 12 months, indicated to be used in the project.
- C. Test Reports
 - 1. Sampling and Testing of aggregate base course material. Contractor shall make the proposed source material stockpiles available to the approved testing laboratory for sampling and testing for sieve analysis. If recycled concrete is submitted, also provide a percent content by volume of foreign and deleterious material and a description of such foreign and deleterious material. Contractor must select a single type of aggregate material from the options allowed and that selected source, once approved may not be substituted or mixed with any other source or type of aggregate material without express written permission by the Engineer.
 - 2. Field Density Tests: provide field density tests of the aggregate base course material in-place as specified.

1.04 QUALITY ASSURANCE

Sampling and testing are the responsibility of the Contractor and performed by an approved testing laboratory. Test the materials to establish compliance with the specified requirements; perform testing at the specified frequency. The Engineer may specify the time and location of the field density tests at his discretion; otherwise the test points will be randomly selected. Furnish copies of test results to the Engineer within 24 hours of completion of the tests.

- A. Sampling: Take samples of aggregate base course for laboratory testing in conformance with ASTM D 75/D 75M. When deemed necessary, the sampling will be observed by the Engineer. Test results of sampling shall confirm material supplied meets the specified gradation. If Crushed Recycled Concrete (CRC) material is used, sample testing shall also measure the quantity of any foreign material by volume.
- B. Preconstruction Tests: Perform one of each of the following tests, on the proposed aggregate base course material prior to commencing construction, to demonstrate that the proposed

material meets all specified requirements when furnished. If materials from more than one source are going to be utilized, this testing shall be completed for each source.

1. Sieve Analysis: Make sieve analysis in conformance with ASTM C 117 and ASTM C 136. Sieves shall conform to ASTM E 11. Submit certified copies of test results for approval not less than 30 days before material is required for the work.
2. Liquid Limit and Plasticity Index: Determine liquid limit and plasticity index in accordance with ASTM D 4318. Submit certified copies of test results for approval not less than 30 days before material is required for the work.
3. Moisture-Density Determinations: Determine the laboratory maximum dry density and optimum moisture content in accordance with AASHTO T 180, Method D and corrected with AASHTO T 224. Submit calibration curves and related test results prior to using the device or equipment being calibrated.

1.05 JOB CONDITIONS

Weather Limitations: Asphalt mixture shall be placed in conformance with Section 401.4.4 of the SCDOT-SS. Minimum ambient air temperature shall not be below 55 degrees F; minimum ground surface temperature shall not be below 45 degrees F.

1.06 GRADE CONTROL

Establish and maintain required lines and elevations as specified in Section 01 71 23, CONSTRUCTION STAKEOUT AND FIELD ENGINEERING.

PART 2 - PRODUCTS

2.01 AGGREGATE BASE COURSE MATERIALS

- A. Graded Aggregate Base Course (GABC): Graded aggregate base course (GABC) is well graded, durable aggregate uniformly moistened and mechanically stabilized by compaction. Provide GABC consisting of clean, sound, durable particles of crushed natural stone, crushed gravel, crushed recycled concrete, angular sand, or other approved material. GABC shall be free of lumps of clay, organic matter, and other objectionable materials or coatings. The portion retained on the No. 4 sieve is known as coarse aggregate; that portion passing the No. 4 sieve is known as fine aggregate. All material shall pass a 2-inch mesh sieve and shall be graded uniformly down to dust. Fine material shall consist entirely of dust of fracture. Liquid limit shall not exceed 35 and material shall be non-plastic as determined by ASTM D4318.
1. Crushed Gravel: Crushed gravel shall be manufactured by crushing gravels and shall meet all the requirements specified below.
 2. Crushed Stone: Provide crushed stone consisting of freshly mined quarry rock, meeting all the requirements specified below.
 3. Crushed Recycled Concrete: Provide crushed recycled concrete consisting of previously hardened Portland cement concrete. The recycled material shall be free of all reinforcing steel, bituminous concrete, surfacing materials, and any other foreign material (i.e. PVC or metal conduits, ceramic tile, composite floor tile, wood, plastics, wire or other metals, etc.) and shall be crushed and processed to meet the required gradations. The Owner has the right to reject any CRC base if the material supplied contains foreign matter and deleterious material.
- B. Gradation Requirements: Apply the specified gradation requirements to the completed base course. The aggregates shall be continuously well graded within the limits specified in TABLE 1. Sieves shall conform to ASTM E 11.

TABLE 1. GRADATION OF AGGREGATES
Percentage by Weight Passing Square-Mesh Sieve

<u>SIEVE</u>	<u>MACADAM*</u>	<u>MARINE LIMESTONE</u>
2 inch	100	100
1 ½ inch	95-100	95-100
1 inch	70-100	70-100
½ inch	48-75	50-85
No. 4	30-60	30-60
No. 30	11-30	17-38
No. 200	0-12	0-20

*As defined in the SCDOT Standard Specifications. Recycled Concrete Base Course gradation shall conform to the gradation specified for Macadam Base Course Material.

2.02 ASPHALT MATERIALS

A. Asphaltic Concrete Intermediate Course

1. Asphaltic Concrete Intermediate Course shall comply with SCDOT-SS standard Hot Mixed Asphalt (HMA) Intermediate Course, Type B or Type C, as indicated and per the following specifications:
 - a. Coarse Aggregate: ASTM D 692, Maximum Los Angeles Abrasion loss 60 percent per ASTM C131.
 - b. Fine Aggregate: ASTM D1073; except as modified herein
 - c. Mineral Filler: ASTM D 242.
2. Mix: Produce mix in an approved plant from an approved job-mix formula based on the following:

<u>SIEVE</u>	<u>GRADATION (% passing by weight)</u>	
	<u>TYPE B</u>	<u>TYPE C</u>
1 inch	100	100
¾ inch	98 – 100	90 - 100
½ inch	90 – 95	80 - 95
⅜ inch	72 – 90	68 - 87
No. 4	44 – 62	45 - 68
No. 8	23 – 43	30 - 46
No. 30	10 – 25	12 - 29
No. 100	4 – 12	4 - 13
No. 200	2 – 8	2 - 8

- a. Binder Limits, %
- b. Binder Grade:
- c. Total Air Voids:
- d. Voids Filled w/Asphalt (VFA):
- e. The use of recycled asphalt pavement (RAP) in the mix shall be in conformance with the SCDOT-SS.

* Asphalt binder content may be increased on percentage of aged binder in mixture as approved by SCDOT. AV & VFA limits will be allowed to extend outside of design ranges above once binder content is adjusted and approved by SCDOT OMR.

B. Asphaltic Concrete Surface Course

1. Asphaltic concrete surface course shall comply with SCDOT-SS standard Hot Mixed Asphalt (HMA) Surface Course, Type B or Type C, as indicated and per the following specifications:
 - a. Coarse Aggregate: ASTM D 692, Maximum Los Angeles Abrasion loss 40 percent per ASTM C131.
 - b. Fine Aggregate: ASTM D1073; except as modified herein
 - c. Mineral Filler: ASTM D 242.
 - d. Asphalt Binder: AASHTO M 320, PG 64-22, Performance grade.
2. Mix: Produce mix in an approved plant from an approved job-mix formula based on the following:

<u>SIEVE</u>	<u>GRADATION (% passing by weight)</u>	
	<u>TYPE B</u>	<u>TYPE C</u>
1 inch	100	100
3/4 inch	98 - 100	100
1/2 inch	90 - 100	97 - 100
3/8 inch	72 - 90	83 - 100
No. 4	44 - 62	58 - 80
No. 8	23 - 43	42 - 62
No. 30	10 - 25	20 - 40
No. 100	4 - 12	8 - 20
No. 200	2 - 8	3 - 9

- a. Binder Limits, %: 4.8 - 6.0* 5.0 – 6.8*
- b. Binder Grade: PG 64-22 PG 64-22
- c. Air Voids, %: 3.0 – 4.0 3.5 – 4.5
- d. Voids Filled w/Asphalt: 70% - 80% 70% - 77%
- e. The use of recycled asphalt pavement (RAP) in the mix shall be in conformance with the SCDOT-SS.

* Asphalt binder content may be increased on percentage of aged binder in mixture as approved by SCDOT. AV & VFA limits will be allowed to extend outside of design ranges above once binder content is adjusted and approved by SCDOT OMR.

2.03 BITUMINOUS PRIME COAT AND TACK COAT MATERIALS

- A. Bituminous Prime Coat: Bituminous prime coat materials shall be RC-70 or RC-250, liquid asphalt conforming to ASTM D2028; or emulsified asphalt Grades SS-1 or SS-1h conforming to ASTM D977; or cationic emulsified asphalt grades CSS-1 or CSS-1h conforming to ASTM D2397. Emulsified asphalt may be diluted in equal proportion with water.
- B. Bituminous Tack Coat: Provide a tack coat material consisting of binder or emulsified asphalt as identified on the SCDOT Qualified Product List 37 or 38. The acceptable grades of emulsified asphalt are RS-1, MS-1, MS-2, HFMS-1, HFMS-2, SS-1, CRS-1, CRS-2, CMS-2, and CSS-1. Emulsified asphalt, with the exception of Grades RS-1 and CRS-1, may be diluted with up to 50 percent with water provided the dilution occurs at the manufacturing plant using acceptable procedures and not diluted at the point of use.
- C. Contractor's Option: The contractor may use, at his option, any prime or tack coat material on the current SCDOT list of approved materials.

PART 3 - EXECUTION**3.01 SURFACE PREPARATION**

- A. Inspect finished subgrade surface for smoothness, compaction and stability (proof-roll) in accordance with Section 31 20 00, EARTH MOVING. Remove loose material from compacted subgrade surface immediately prior to installation of base course material. Notify Engineer of unsatisfactory conditions. Do not begin installation of base course until deficient subgrade areas have been corrected.

3.02 INSTALLATION

- A. Compacting and Finishing of Aggregate Base Course: Spread finished mixture uniformly and compact to at least 100 percent of maximum laboratory density as determined in accordance with ASTM D1557, Method D. Determine in-place density in accordance with ASTM D1556 or ASTM D2922. After compaction, finished surface of aggregate base course shall not vary more than 3/8 inch when tested with a 10-foot straightedge. Finished thickness of base course shall not vary more than 1/2 half inch from the required thickness at any point and the average of all depth measurements shall be at least that indicated. Areas not meeting the specified requirements will be rejected until corrected by the Contractor at no additional cost to the Owner.
- B. Bituminous Prime Coat and Tack Coat
 1. Prime Coat for Aggregate Base Course: When specifically indicated on construction drawings, apply bituminous prime coat to the completed and accepted aggregate base course after receiving approval for priming. For macadam or recycled concrete, apply at a rate of not less than 0.25 gallons per square yard and not more than 0.30 gallons per square yard. For marine limestone base course, apply at a rate of not less than 0.08 gallons per square yard and not more than 0.12 gallons per square yard. Obtain the Engineer's approval for the temperature of application and weather conditions for application. Do not permit traffic on the primed area until the prime coat has cured adequately.
 2. Bituminous Tack Coat: Before laying any new asphalt pavement over existing pavement, uniformly apply the tack coat to the surface of the existing pavement at the rate of 0.05 to 0.15 gallons per square yard. Place lesser amounts on new pavements and greater amounts on older pavements to ensure a bond between the surface being paved and the new overlying asphalt paving course. Also apply tach to the edges of all pavements when patching pavements, tying new pavements into existing, or making trench repairs.
- C. Spreading and Compacting of Asphaltic Concrete Intermediate and Surface Courses:
 1. Spread wearing course with a bituminous spreader at a temperature of not less than 225 degrees F nor more than 325 degrees F. Roll, while hot with a steel-wheel roller weighing not less than 10 tons and a pneumatic-tired roller.
 2. In areas where the use of machine-spreading is impractical, spread the mixture on approved dump boards or an adjacent approved area outside the area to be paved and distribute into place from the dump boards or from the approved area by means of hot shovels. Spread mixture with hot rakes in a uniformly loose layer of thickness that when compacted will conform to the required grade and thickness. During hand spreading, carefully place each shovelful of mixture by turning the shovel over in a manner that will prevent segregation. In no case shall the mixture be placed by throwing or broadcasting from a shovel. Do not dump the loads any faster than can be properly handled by the shovelers and rakers.
 3. The finished thickness and surface tolerances shall be as specified in paragraph entitled

FIELD QUALITY CONTROL. The average thickness of all depth measurements shall be at least the thickness indicated. Reject any area not meeting any one of the above requirements until corrected by the Contractor.

3.03 FIELD QUALITY CONTROL

- A. General: Test in-place asphalt concrete courses for compliance with requirements for thickness and surface smoothness. Repair or remove and replace unacceptable paving as directed by Engineer.
- B. Thickness: In-place compacted thickness will not be acceptable if exceeding following allowable variation from required thickness.
 - 1. Aggregate Base Course: 1/2", plus or minus
 - 2. HMA Intermediate Course: 1/4", plus or minus
 - 3. HMA Wearing Course: 1/4", plus or minus
- C. Surface Smoothness: Test finished surface of each construction course, aggregate base and asphalt concrete course for smoothness, using 10' straightedge applied parallel with, and at right angles to centerline of paved area, at intervals as directed by the Engineer. Surfaces will not be acceptable if, exceeding the following tolerances of smoothness.
 - 1. Aggregate Base Course Surfaces: 3/8"
 - 2. HMA Intermediate Course Surfaces: 1/4"
 - 3. HMA Wearing Course Surfaces: 1/8"

END OF SECTION

SECTION 32 16 23**CONCRETE SIDEWALKS, CURBS AND GUTTERS****PART 1 - GENERAL****1.01 DESCRIPTION OF WORK**

- A. The work shall include construction of pedestrian Portland cement concrete walkways, curbs and gutters on a prepared subgrade as specified herein and to the dimensions, typical sections and notations as shown on the Drawings. Construction shall be to the lines and grades as shown on the Drawings.

1.02 REFERENCE STANDARDS

Unless otherwise indicated, all referenced standards shall be the latest edition available at the time of bidding. Any requirements of these specifications shall in no way invalidate the minimum requirements of the referenced standards.

SCDOT SS	South Carolina State Highway Department Standard Specifications (2007 Edition), Section 720, "Concrete Curb, Gutter, Curb and Gutter, Sidewalk, Driveway, and Median"
ASTM C 31/C 31M	Standard Practice for Making and Curing Concrete Test Specimens in the Field
ASTM C 143/C 143M	Standard Test Method for Slump of Hydraulic-Cement Concrete
ASTM C 171	Standard Specification for Sheet Materials for Curing Concrete
ASTM C 172	Standard Practice for Sampling Freshly Mixed Concrete
ASTM C 309	Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete
ASTM C 31/C 31M	Standard Practice for Making and Curing Concrete Test Specimens in the Field
ASTM D 1751	Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types)
ASTM D 1752	Standard Specification for Preformed Sponge Rubber Cork and Recycled PVC Expansion Joint Fillers for Concrete Paving and Structural Construction

1.03 WORKMANSHIP

- A. The Contractor is responsible for correction of concrete work which does not conform to the specified requirements, including strength, tolerances and finishes. Correct deficient concrete as directed by the Engineer.

1.04 SUBMITTALS

The following shall be submitted for approval prior to starting work:

A. Design Data

1. Concrete Mix Design: Thirty days minimum prior to concrete placement, submit a mix design, with applicable tests, for each strength and type of concrete for approval. Submit a complete list of materials including type; brand; source and amount of cement, fly ash, slag, and admixtures; and applicable reference specifications. Submittal shall clearly indicate where each mix design will be used when more than one mix design is submitted. Submit a new mix design for each material source change.

B. Test Reports

1. Field Quality Control Tests
 - a. Strength Test
 - b. Slump Test
 - c. Surface evaluation

Copies of all test reports within 24 hours of completion of the test

1.05 WEATHER LIMITATIONS

- A. Placing During Cold Weather: Concrete placement shall not take place when the air temperature reaches 40 degrees F and is falling or is already below that point. Placement may begin when the air temperature reaches 35 degrees F and is rising, or is already above 40 degrees F. Provisions shall be made to protect the concrete from freezing during the specified curing period. If concrete must be placed when the temperature of the air, aggregates, or water is below 35 degrees F, placement and protection shall be approved in writing. Approval will be contingent upon full conformance with the following provisions. The underlying material shall be prepared and protected so that it is entirely free of frost when the concrete is deposited. Mixing water and aggregates shall be heated as necessary to result in the temperature of the in-place concrete being between 50 degrees and 85 degrees F. Methods and equipment for heating shall be approved. The aggregates shall be free of ice, snow, and frozen lumps before entering the mixer. Covering and other means shall be provided for maintaining the concrete at a temperature of at least 50 degrees F for not less than 72 hours after placing, and at a temperature above freezing for the remainder of the curing period.
- B. Placing During Warm Weather: The temperature of the concrete as placed shall not exceed 85 degrees F except where an approved retarder is used. The mixing water and/or aggregates shall be cooled, if necessary, to maintain a satisfactory placing temperature. The placing temperature shall not exceed 95 degrees F at any time.

PART 2 - PRODUCTS**2.01 FORMS**

- A. Forms shall be of wood or metal and of a depth equal to or greater than the typical section shown on Drawings. Provide flexible or curved forms where required or directed to prevent a "chord" effect between tangent points when placing forms in areas having specified radii as indicated on the Drawings.
- B. Forms shall be free from warp, and of sufficient strength when staked to hold the alignment specified during concrete placing and finishing operations.
- C. All forms shall be cleaned and oiled prior to placement of concrete.

2.02 PORTLAND CEMENT CONCRETE

- A. Concrete shall be Class 3000 (3,000 psi 28-day compressive strength), as defined by the South Carolina State Highway Department Standard Specifications, (2007 Edition), Section 701, "Portland Cement Concrete for Structures." All concrete shall be ready mixed as produced by a reputable manufacturer, acceptable to the Engineer.
1. Air Content: Mixtures shall have air content by volume of concrete of 5 to 7 percent, based on measurements made immediately after discharge from the mixer.
 2. Slump: The concrete slump for static formed work shall be 2 inches plus or minus 1 inch where determined in accordance with ASTM C 143/C 143M. At the Contractor's option, he may provide two different mix designs: one for curb and gutter with a maximum slump of 2 inches; and one for sidewalks with a maximum slump of 4 inches. Concrete used in slip form paving must be stiff enough to hold its shape without deformation once the form has passed.

2.03 EXPANSION JOINTS

- A. Bituminous preformed joint filler complying with requirements of ASTM D 1751 or ASTM D 1752, 1/2 inch thick, unless otherwise indicated.

2.04 CONCRETE CURING MATERIALS

- A. Impervious Sheet Materials: Impervious sheet materials shall conform to ASTM C 171, type optional, except that polyethylene film, if used, shall be white opaque.
- B. White Pigmented Membrane-Forming Curing Compound: White pigmented membrane-forming curing compound shall conform to ASTM C 309, Type 2, Class B, free of paraffin or petroleum.

PART 3 - EXECUTION**3.01 GENERAL**

Construct forms to the exact sizes, shapes, lines, and dimensions shown, and as required to obtain accurate alignment, location, and grades.

3.02 SUBGRADE PREPARATION

The subgrade shall be constructed to the specified grade and cross section prior to concrete placement. Subgrade shall be placed and compacted in conformance with Section 31 20 00, EARTH MOVING.

- A. Sidewalk Subgrade: The subgrade shall be tested for grade and cross section with a template extending the full width of the sidewalk and supported between side forms.
- B. Curb and Gutter Subgrade: The subgrade shall be tested for grade and cross section by means of a template extending the full width of the curb and gutter. The subgrade shall be of materials equal in bearing quality to the subgrade under the adjacent pavement.
- C. Maintenance of Subgrade: The subgrade shall be maintained in a smooth, compacted condition in conformity with the required section and established grade until the concrete is placed. The subgrade shall be in a moist condition when concrete is placed. The subgrade shall be prepared and protected to produce a subgrade free from frost when the concrete is deposited.

3.03 FORMWORK

- A. Forms shall be set to the indicated alignment, grade and dimensions. Forms shall be held rigidly in place by a minimum of 3 stakes per form placed at intervals not to exceed 4 feet. Corners, deep sections, and radius bends shall have additional stakes and braces, as required. Clamps, spreaders, and braces shall be used where required to ensure rigidity in the forms. Forms shall be removed without injuring the concrete. Bars or heavy tools shall not be used against the concrete in removing the forms. Any concrete found defective after form removal shall be promptly and satisfactorily repaired. Forms shall be cleaned and coated with form oil each time before concrete is placed.

3.04 SIDEWALK CONCRETE PLACEMENT AND FINISHING

- A. Formed Sidewalks: Concrete shall be placed in the forms in one layer. When consolidated and finished, the sidewalks shall be of the thickness indicated. After concrete has been placed in the forms, a strike-off guided by side forms shall be used to bring the surface to proper section to be compacted. The concrete shall be consolidated with an approved vibrator, and the surface shall be finished to grade with a strike off.
- B. Concrete Finishing: After straight edging, when most of the water sheen has disappeared, and just before the concrete hardens, the surface shall be finished with a wood float or darby to a smooth and uniformly fine granular or sandy texture free of waves, irregularities, or tool marks. A scored surface shall be produced by brooming with a fiber-bristle brush in a direction transverse to that of the traffic, after edging.
- C. Edge and Joint Finishing: All slab edges, including those at formed joints, shall be finished with an edger having a radius of 1/8-inch. Transverse joint shall be edged before brooming, and the brooming shall eliminate the flat surface left by the surface face of the edger. Corners and edges which have crumbled and areas which lack sufficient mortar for proper finishing shall be cleaned and filled solidly with a properly proportioned mortar mixture and then finished.
- D. Surface and Thickness Tolerances: Finished surfaces shall not vary more than 5/16-inch from the testing edge of a 10-foot straightedge. Permissible deficiency in section thickness will be up to 1/4 inch.

3.05 CURB AND GUTTER CONCRETE PLACEMENT AND FINISHING

- A. Formed Curb and Gutter: Concrete shall be placed to the section required in a single lift. Consolidation shall be achieved by using approved mechanical vibrators. Curve shaped gutters shall be finished with a standard curb "mule".
- B. Curb and Gutter Finishing: Approved slip-formed curb and gutter machines may be used in lieu of hand placement.
- C. Concrete Finishing: Exposed surfaces shall be floated and finished with a smooth wood float until true to grade and section and uniform in texture. Floated surfaces shall then be brushed with a fine-hair brush with longitudinal strokes. The edges of the gutter and top of the curb shall be rounded with an edging tool to a radius of 1/2-inch. Immediately after removing the front curb form, the face of the curb shall be rubbed with a wood or concrete rubbing block and water until blemishes, form marks, and tool marks have been removed. The front curb surface, while still wet, shall be brushed in the same manner as the gutter and curb top. The top surface of gutter and entrance shall be finished to grade with a wood float.
- D. Joint Finishing: Curb edges at formed joints shall be finished as indicated.

CONCRETE SIDEWALKS, CURBS AND GUTTERS

- E. Surface and Thickness Tolerances: Finished surfaces shall not vary more than 1/4 inch from the testing edge of a 10-foot straightedge. Permissible deficiency in section thickness will be up to 1/4 inch.

3.06 SIDEWALK JOINTS

Sidewalk joints shall be constructed to divide the surface into rectangular areas. Transverse contraction joints shall be spaced at a distance equal to the sidewalk width or 5 feet on centers, whichever is less, unless indicated otherwise on the drawings, and shall be continuous across the slab. Longitudinal contraction joints shall be constructed along the centerline of all sidewalks 10 feet or more in width. Expansion joints shall be formed about structures and features which project through or into the sidewalk pavement, using joint filler of the type, thickness, and width indicated.

- A. Sidewalk Contraction Joints: The contraction joints shall be formed in the fresh concrete by cutting a groove in the top portion of the slab to a depth of at least one-fourth of the sidewalk slab thickness, using a jointer to cut the groove, or by sawing a groove in the hardened concrete with a power-driven saw, unless otherwise approved. Sawed joints shall be constructed by sawing a groove in the concrete with a 1/8-inch blade to the depth indicated as soon as the concrete is hard enough to support the sawing operation, preferably within 3-6 hours, but not greater than 24 hours. The sawing shall be performed at the locations of the hand tooled joint groove to ensure the proper depth of 1/4 of the total thickness is achieved at each joint location.
- B. Sidewalk Expansion Joints: Expansion joints shall be formed with 1/2-inch joint filler strips. Joint filler shall be placed with top edge 1/4 inch below the surface and shall be held in place with steel pins or other devices to prevent warping of the filler during floating and finishing. Immediately after finishing operations are completed, joint edges shall be rounded with an edging tool having a radius of 1/8 inch, and concrete over the joint filler shall be removed. At the end of the curing period, expansion joints shall be cleaned.

3.07 CURB AND GUTTER JOINTS

Curb and gutter joints shall be constructed at right angles to the line of curb and gutter.

- A. Contraction Joints: Contraction joints shall be constructed directly opposite contraction joints in abutting Portland cement concrete pavements and spaced so that monolithic sections between curb returns will not be less than 5 feet nor greater than 15 feet in length.
 - 1. Contraction joints (except for slip forming) shall be constructed by means of 1/8-inch thick separators and of a section conforming to the cross section of the curb and gutter. Separators shall be removed as soon as practicable after concrete has set sufficiently to preserve the width and shape of the joint and prior to finishing.
 - 2. When slip forming is used, the contraction joints shall be cut in the top portion of the gutter/curb hardened concrete in a continuous cut across the curb and gutter, using a power-driven saw. The depth of cut shall be at least one-fourth of the gutter/curb depth and 1/8-inch in width.
- B. Expansion Joints: Expansion joints shall be formed by means of preformed expansion joint filler material cut and shaped to the cross section of curb and gutter. Expansion joints shall be provided in curb and gutter directly opposite expansion joints of abutting Portland cement concrete pavement and shall be of the same type and thickness as joints in the pavement. Where curb and gutter do not abut Portland cement concrete pavement, expansion joints at least 1/2-inch in width, unless specifically indicated otherwise, shall be provided at intervals not less than 30 feet nor greater than 120 feet.

3.08 CURING AND PROTECTION

- A. General Requirements: Concrete shall be protected against loss of moisture and rapid temperature changes for at least 7 days from the beginning of the curing operation. Unhardened concrete shall be protected from rain and flowing water. All equipment needed for adequate curing and protection of the concrete shall be on hand and ready for use before actual concrete placement begins. Protection shall be provided as necessary to prevent cracking of the pavement due to temperature changes during the curing period.
1. Impervious Sheeting Method: The entire exposed surface shall be wetted with a fine spray of water and then covered with impervious sheeting material. Sheets shall be laid directly on the concrete surface with the light-colored side up and overlapped 12 inches when a continuous sheet is not used. The curing medium shall not be less than 18-inches wider than the concrete surface to be cured and shall be securely weighted down by heavy wood planks, or a bank of moist earth placed along edges and laps in the sheets. Damaged sheets shall be repaired or replaced, if damaged during the curing period. The curing medium shall remain on the concrete surface to be cured for not less than 7 days.
 2. Liquid Membrane Curing Method: A uniform coating of white-pigmented membrane-curing compound shall be applied to the entire exposed surface of the concrete as soon after finishing as the free water has disappeared from the finished surface. Formed surfaces shall be coated immediately after the forms are removed and in no case longer than 1 hour after the removal of forms. Concrete shall not be allowed to dry before the application of the membrane. If any drying has occurred, the surface of the concrete shall be moistened with a fine spray of water and the curing compound applied as soon as the free water disappears. Curing compound shall be applied in two coats by hand-operated pressure sprayers at a coverage of approximately 200 square feet per gallon for the total of both coats. The second coat shall be applied in a direction approximately at right angles to the direction of application of the first coat. The compound shall form a uniform, continuous, coherent film that will not check, crack, or peel and shall be free from pinholes or other imperfections. If pinholes, abrasion, or other discontinuities exist, an additional coat shall be applied to the affected areas within 30 minutes. Concrete surfaces that are subjected to heavy rainfall within 3 hours after the curing compound has been applied shall be resprayed by the method and at the coverage specified above. Areas where the curing compound is damaged by subsequent construction operations within the curing period shall be resprayed. Necessary precautions shall be taken to ensure that the concrete is properly cured at sawed joints. Concrete surfaces to which membrane-curing compounds have been applied shall be adequately protected during the curing period from pedestrian and vehicular traffic, except as required for joint-sawing operations and surface tests.
- B. Backfilling: After curing, debris shall be removed and the area adjoining the concrete shall be backfilled, graded, and compacted to conform to the surrounding area in accordance with lines and grades indicated.
- C. Protection: Completed concrete shall be protected from damage until accepted. The Contractor shall repair damaged concrete and clean concrete discolored during construction. Concrete that is damaged shall be removed and reconstructed for the entire length between regularly scheduled joints. Refinishing the damaged portion will not be acceptable. Removed damaged portions shall be disposed of as directed.

3.09 FIELD QUALITY CONTROL

- A. General Requirements: The Contractor shall perform the inspection and tests described and meet the specified requirements for inspection details and frequency of testing. Based upon the results of these inspections and tests, the Contractor shall take the action and submit reports as required below, and any additional tests to ensure that the requirements of these specifications are met.

B. Concrete Testing:

1. **Strength Testing:** The Contractor shall provide molded concrete specimens for strength tests. Samples of concrete shall be taken for every 250 cubic yards of concrete placed, but not less than once a day. The samples for strength tests shall be taken in accordance with ASTM C 172. Cylinders for acceptance shall be molded in conformance with ASTM C 31/C 31M by an approved testing laboratory. Each strength test result shall be the average of 2 test cylinders from the same concrete sample tested at 28 days, unless otherwise specified or approved. Concrete will be considered satisfactory if the averages of all sets of three consecutive strength test results equal or exceed the specified strength, and no individual strength test result falls below the specified strength by more than 500 psi.
2. **Slump Test:** Two slump tests shall be made on randomly selected batches of each class of concrete for every 250 cubic yards, or fraction thereof, of concrete placed during each shift. Additional tests shall be performed when excessive variation in the workability of the concrete is noted.

C. Thickness Evaluation: The anticipated thickness of the concrete shall be determined prior to placement by passing a template through the formed section or by measuring the depth of opening of the extrusion template of the curb forming machine.

D. Surface Evaluation: The finished surface of each category of the completed work shall be uniform in color and free of blemishes and form or tool marks.

3.10 SURFACE DEFICIENCIES AND CORRECTIONS

- A. **Thickness Deficiency:** When measurements indicate that the completed concrete section is deficient in thickness by more than 1/4 inch the deficient section will be removed, between regularly scheduled joints, and replaced.
- B. **High Areas:** In areas not meeting surface smoothness and plan grade requirements, high areas shall be reduced either by rubbing the freshly finished concrete with carborundum brick and water when the concrete is less than 36 hours old or by grinding the hardened concrete with an approved surface grinding machine after the concrete is 36 hours old or more. The area corrected by grinding the surface of the hardened concrete shall not exceed 5 percent of the area of any integral slab, and the depth of grinding shall not exceed 1/4 inch. Pavement areas requiring grade or surface smoothness corrections in excess of the limits specified above shall be removed and replaced.
- C. **Appearance:** Exposed surfaces of the finished work will be inspected by the Engineer and any deficiencies in appearance will be identified. Areas which exhibit excessive cracking, discoloration, form marks, or tool marks or which are otherwise inconsistent with the overall appearances of the work shall be removed and replaced.

END OF SECTION

**SECTION 32 17 23
PAVEMENT MARKINGS****PART 1 - GENERAL****1.01 DESCRIPTION OF WORK**

- A. The work shall include construction of pavement markings, stripes, symbols, and other indicated markings for traffic control and parking delineation onto asphalt or concrete pavements as shown on the Drawings. Thermoplastic pavement markings shall be required in all public roadways and when specifically indicated on the construction drawings; Off-street parking lot markings may be painted markings if not specifically indicated otherwise.

1.02 SYSTEM DESCRIPTION

All machines, tools and equipment used in the performance of the work shall be approved and maintained in satisfactory operating condition. Equipment operating on roads shall display low speed traffic markings and traffic warning lights.

A. Paint Application Equipment

1. Self-Propelled or Mobile-Drawn Pneumatic Spraying Machines: The equipment to apply paint to pavements shall be a self-propelled or mobile-drawn pneumatic spraying machine with suitable arrangements of atomizing nozzles and controls to obtain the specified results, and meet all performance requirements for work in SCDOT rights-of-way
2. Hand-Operated, Push-Type Machines: All machines, tools, and equipment used in performance of the work shall be approved and maintained in satisfactory operating condition. Hand-operated push-type machines of a type commonly used for application of paint to pavement surfaces will be acceptable for marking small streets and parking areas

B. Thermoplastic Application Equipment

1. Thermoplastic Material: Thermoplastic material, when indicated on the construction drawings, shall be applied to the primed pavement surface by spray techniques or by the extrusion method, wherein one side of the shaping die is the pavement and the other three sides are contained by, or are part of, suitable equipment for heating and controlling the flow of material. By either method, the markings shall be applied with equipment that is capable of providing continuous uniformity in the dimensions of the stripe and meet all performance and application requirements for work in SCDOT rights-of-way.
 - a. The application equipment shall be constructed to ensure continuous uniformity in the dimensions of the stripe. The applicator shall provide a means for cleanly cutting off stripe ends squarely and shall provide a method of applying "skip-lines". The equipment shall be capable of applying varying widths of traffic markings.
 - b. The applicator shall be equipped with a drop-on type bead dispenser capable of uniformly dispensing reflective glass spheres at controlled rates of flow. The bead dispenser shall be automatically operated and shall begin flow prior to the flow of composition to assure that the strip is fully reflectorized.
- C. Reflective Media Dispenser: The dispenser for applying the reflective media shall be attached to the paint dispenser and shall operate automatically and simultaneously with the applicator through the same control mechanism.

1.03 SUBMITTALS

Submit the following for approval:

- A. Product Data: For each type of product indicated. Include technical data and tested physical and performance properties.
- B. Composition Requirements: Manufacturer's current printed product description and Material Safety Data Sheets (MSDS) for each type paint/color proposed for use.
- C. Qualifications: Documentation on personnel qualifications, as specified.
- D. Certificates: Volatile Organic Compound (VOC): Certificate stating that the proposed pavement marking paint meets the VOC regulations of the local Air Pollution Control District having jurisdiction over the geographical area in which the project is located.

1.04 QUALITY ASSURANCE

- A. Qualifications: Submit documentation certifying that pertinent personnel are qualified for equipment operation and handling of chemicals.
- B. Traffic Controls: Suitable warning signs shall be placed near the beginning of the worksite and well ahead of the worksite for alerting approaching traffic from both directions. Small markers shall be placed along newly painted lines or freshly placed raised markers to control traffic and prevent damage to newly painted surfaces or displacement of raised pavement markers. Painting equipment shall be marked with large warning signs indicating slow-moving painting equipment in operation.
- C. Maintenance of Traffic: When traffic in existing streets, roads or parking areas must be rerouted or controlled to accomplish the work, the necessary warning signs, flag-persons, and related equipment for the safe passage of vehicles shall be provided.

1.05 DELIVERY, STORAGE, AND HANDLING

All materials shall be delivered and stored in sealed containers that plainly show the designated name, formula or specification number, batch number, color, date of manufacture, manufacturer's name, and directions, all of which shall be plainly legible at time of use.

1.06 ENVIRONMENTAL REQUIREMENTS

Pavement surface shall be free of snow, ice, or slush. Surface temperature shall be at least 40 degrees F and rising at the beginning of operations, except those involving shot or sand blasting. Operation shall cease during thunderstorms. Operation shall cease during rainfall, except for waterblasting and removal of previously applied chemicals. Waterblasting shall cease where surface water accumulation alters the effectiveness of material removal.

PART 2 - PRODUCTS**2.01 PAINT**

The paint shall be homogeneous, easily stirred to smooth consistency, and shall show no hard settlement or other objectionable characteristics during a storage period of 6 months. Paints for parking areas shall conform to FS TT-P-1952, color as indicated. Pavement marking paints shall comply with applicable state and local laws enacted to ensure compliance with Federal Clean Air Standards. Paint materials shall conform to the restrictions of the local Air Pollution Control District.

2.02 THERMOPLASTIC COMPOUNDS

Pavement markings for public streets and roads, when indicated on the project drawings, shall be reflectorized thermoplastic pavement marking compounds conforming to the requirements of the SCDOT Standard Specifications for Highway Construction, Section 627. The thermoplastic reflectorized pavement marking compound shall be extruded or sprayed in a molten state onto a primed pavement surface. Following a surface application of glass beads and upon cooling to normal pavement temperatures, the marking shall be an adherent reflectorized strip of the specified thickness and width that is capable of resisting deformation by traffic.

- A. Composition Requirements: The binder component shall meet all of the requirements of AASHTO M 249. The pigment, beads and filler shall be uniformly dispersed in the binder resin. The thermoplastic composition shall be free from all skins, dirt, and foreign objects and shall comply with the following requirements:

Component	Percent by Weight	
	White	Yellow
Binder	17 min.	17 min.
Titanium dioxide	10 min.	-
Glass beads	20 min.	20 min.
Calcium carbonate and inert fillers	49 max.	*
Yellow pigments	-	*

*Amount and type of yellow pigment, calcium carbonate and inert fillers shall be at the option of the manufacturer, providing the other composition requirements of the SCDOT are met.

- B. Physical Properties
 1. Color: The color shall be as indicated.
 2. Drying Time: When installed at 70 degrees F and in thicknesses between 1/8 and 3/16 inch, after curing 15 minutes.
 3. Softening Point: The composition shall have a softening point of not less than 194 degrees F when tested in accordance with ASTM E 28.
 4. Specific Gravity: The specific gravity of the composition shall be between 1.9 and 2.2 as determined in accordance with ASTM D 792.
- C. Asphalt Concrete Primer: The primer for asphalt concrete pavements shall be a thermosetting adhesive with a solids content of pigment reinforced synthetic rubber and synthetic plastic resin dissolved and/or dispersed in a volatile organic compound (VOC). Solids content shall not be less than 10 percent by weight at 70 degrees F and 60 percent relative humidity. A wet film thickness of 0.005 inch plus or minus 0.001 inch, shall dry to a tack-free condition in less than 5 minutes.
- D. Portland Cement Concrete Primer: The primer for Portland cement concrete pavements shall be an epoxy resin primer. The primer shall be of the type recommended by the manufacturer of the thermoplastic composition.

2.03 PREFORMED TAPE

The preformed tape shall be an adherent reflectorized strip in accordance with ASTM D 4505 Type I or IV, Class optional.

2.04 RAISED REFLECTIVE MARKERS

Where indicated, either metallic or nonmetallic markers of the button or prismatic reflector type may be used. Markers shall be of permanent colors, as specified for pavement marking, and shall retain the color and brightness under the action of traffic. Button markers shall have a diameter of not less than 4 inches and shall be spaced not more than 40 feet apart on solid longitudinal lines. Broken centerline marker spacings shall be in segments indicated with gaps indicated between segments. Markers shall have rounded surfaces presenting a smooth contour to traffic and shall not project more than 3/4 inch above level of pavement. Pavement markers and adhesive epoxy shall conform to ASTM D 4280.

2.05 REFLECTIVE MEDIA

Reflective media for roads and streets shall conform to FS TT-B-1325, Type I, Gradation A or AASHTO M 247, Type I.

PART 3 - EXECUTION

3.01 SURFACE PREPARATION

Thoroughly clean surfaces to be marked before application of the pavement marking material. Dust, dirt, and other granular surface deposits shall be removed by sweeping, blowing with compressed air, rinsing with water or a combination of these methods as required. Rubber deposits, surface laitance, existing paint markings, and other coatings adhering to the pavement shall be completely removed with scrapers, wire brushes, sandblasting, approved chemicals, or mechanical abrasion as directed. Areas of old pavement affected with oil or grease shall be scrubbed with several applications of trisodium phosphate solution or other approved detergent or degreaser and rinsed thoroughly after each application. After cleaning, oil-soaked areas shall be sealed with cut shellac to prevent bleeding through the new paint. Pavement surfaces shall be allowed to dry, when water is used for cleaning, prior to striping or marking. Surfaces shall be re-cleaned, when work has been stopped due to rain.

- A. Pretreatment for Early Painting: Where early painting is required on rigid pavements, apply a pretreatment with an aqueous solution, containing 3 percent phosphoric acid and 2 percent zinc chloride, to prepared pavement areas prior to painting.
- B. Cleaning Existing Pavement Markings:
 1. In general, markings shall not be placed over existing pavement marking patterns. Remove existing pavement markings, which are in good condition but interfere or conflict with the newly applied marking patterns. Deteriorated or obscured markings that are not misleading or confusing or interfere with the adhesion of the new marking material do not require removal. New preformed and thermoplastic pavement markings shall not be applied over existing preformed or thermoplastic markings. Whenever grinding, scraping, sandblasting or other operations are performed the work must be conducted in such a manner that the finished pavement surface is not damaged or left in a pattern that is misleading or confusing. When these operations are completed the pavement surface shall be blown off with compressed air to remove residue and debris resulting from the cleaning work.

C. Cleaning Concrete Curing Compounds:

1. On new Portland cement concrete pavements, cleaning operations shall not begin until a minimum of 30 days after the placement of concrete. All new concrete pavements shall be cleaned by either sandblasting or water blasting. When water blasting is performed, thermoplastic and preformed markings shall be applied no sooner than 24 hours after the blasting has been completed. The extent of the blasting work shall be to clean and prepare the concrete surface as follows:
 - a. There is no visible evidence of curing compound on the peaks of the textured concrete surface.
 - b. There are no heavy puddled deposits of curing compound in the valleys of the textured concrete surface.
 - c. All remaining curing compound is intact; all loose and flaking material is removed.
 - d. The peaks of the textured pavement surface are rounded in profile and free of sharp edges and irregularities.
 - e. The surface to be marked is dry.

3.02 APPLICATION

All pavement markings and patterns shall be placed as shown on the plans.

- A. **Paint:** Paint shall be applied to clean, dry surfaces, and only when air and pavement temperatures are above 40 degrees F and less than 95 degrees F. Paint temperature shall be maintained within these same limits. New asphalt pavement surfaces and new Portland concrete cement shall be allowed to cure for a period of not less than 30 days before applications of paint. Paint shall be applied pneumatically with approved equipment at rate of coverage specified. Provide guide-lines and templates as necessary to control paint application. Special precautions shall be taken in marking numbers, letters, and symbols. Edges of markings shall be sharply outlined.
 1. **Rate of Application:**
 - a. **Reflective Markings:** Pigmented binder shall be applied evenly to the pavement area to be coated at a rate of 105 plus or minus 5 square feet/gallon. Glass spheres shall be applied uniformly to the wet paint on road and street pavement at a rate of 6 plus or minus 0.5 pounds of glass spheres per gallon of paint.
 - b. **Nonreflective Markings:** Paint shall be applied evenly to the pavement surface to be coated at a rate of 105 plus or minus 5 square feet/gallon.
 2. **Drying:** The maximum drying time requirements of the paint specifications will be strictly enforced to prevent undue softening of bitumen, and pickup, displacement, or discoloration by tires of traffic. If there is a delay in drying of the markings, painting operations shall be discontinued until cause of the slow drying is determined and corrected.
- B. **Thermoplastic Compounds:** Thermoplastic pavement markings shall be placed upon dry pavement; surface dry only will not be considered an acceptable condition. At the time of installation, the pavement surface temperature shall be a minimum of 55 degrees F and the air temperature is 50 degrees F or higher. Thermoplastics, as placed, shall be free from dirt or tint.
 1. **Longitudinal Markings:** All centerline, skip-line, edge-line, and other longitudinal type markings shall be applied with a mobile applicator. All special markings, crosswalks, stop bars, legends, arrows, and similar patterns shall be placed with a portable applicator, using the extrusion method.
 2. **Primer:** After surface preparation has been completed the asphalt and/or concrete pavement surface shall be primed. The primer shall be applied with spray equipment. Primer materials shall be allowed to "set-up" prior to applying the thermoplastic

composition. The asphalt concrete primer shall be allowed to dry to a tack-free condition, usually occurring in less than 10 minutes. The Portland cement concrete primer shall be allowed to dry in accordance with the thermoplastic manufacturer's recommendations. To shorten the curing time of the epoxy resins an infrared heating device may be used on the concrete primer.

- a. Asphalt Concrete Primer: Primer shall be applied to all asphalt concrete pavements at a wet film thickness of 0.005 inch, plus or minus 0.001 inch (265-400 square feet/gallon).
 - b. Portland Cement Concrete Primer: Primer shall be applied to all concrete pavements (including concrete bridge decks) at a wet film thickness of between 0.04 to 0.05 inch (320-400 square feet/gallon).
3. Markings: After the primer has "set-up", the thermoplastic shall be applied at temperatures no lower than 390 degrees F nor higher than 420 degrees F at the point of deposition. Immediately after installation of the marking, drop-on glass spheres shall be mechanically applied so that the spheres are held by and imbedded in the surface of the molten material.
- a. Extruded Markings: All extruded thermoplastic markings shall be applied at the specified width and at a thickness of not less than 0.125 inch nor more than 0.190 inch.
 - b. Sprayed Markings: All sprayed thermoplastic markings shall be applied at the specified width and the thicknesses designated in the contract plans. If the plans do not specify a thickness, centerline markings shall be applied at a wet thickness of 0.090 inch, plus or minus 0.005 inch, and edge-line markings at a wet thickness of 0.090 inch plus or minus 0.005 inch.
 - c. Reflective Glass Spheres: Immediately following application, reflective glass spheres shall be dropped onto the molten thermoplastic marking at the rate of 1 pound/20 square feet of compound.
- C. Preformed Tape: The pavement surface temperature shall be a minimum of 60 degrees F and the ambient temperature shall be a minimum of 60 degrees F and rising. The preformed markings shall be placed in accordance with the manufacturer's written instructions.
- D. Raised Reflective Markers: Prefabricated markers shall be aligned carefully at the required spacing and permanently fixed in place by means of epoxy resin adhesives. To ensure good bond, pavement in areas where markers will be set shall be thoroughly cleaned by sandblasting and use of compressed air prior to applying adhesive.
- E. Reflective Media: Application of reflective media shall immediately follow application of pigmented binder. Drop-on application of glass spheres shall be accomplished to ensure that reflective media is evenly distributed at the specified rate of coverage. Should there be malfunction of either paint applicator or reflective media dispenser, operations shall be discontinued immediately until deficiency is corrected.

END OF SECTION

SECTION 32 92 23

SODDING

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

- A. Extent of turfgrass work is limited to those areas disturbed during the course of construction and not indicated to be paved.
- B. Subgrade Elevations: Excavation, filling and grading work required for establishing elevations shown on drawings is not specified in this section. Refer to Section 31 20 00 EARTH MOVING.

1.02 REFERENCES

- A. ANSI Z 60 - American Standard for Nursery Stock

1.03 QUALITY ASSURANCE

- A. General - Subcontract turfgrass work to a single firm specializing in such work. Ship materials with certificates of inspection required by governing authorities. Comply with regulations applicable to turf materials.
- B. Analysis and Standards - Package standard products with Manufacturer's certified analysis. For other materials, provide analysis by the recognized laboratory made in accordance with methods established by the Association of Official Agricultural Chemists, wherever applicable.
- C. Topsoil - Before delivery of topsoil, furnish Architect with written statement giving location of properties from which topsoil is to be obtained, names and addresses of owners, depth to be stripped, and crops grown during past 2 years.
- D. Inspection - The Architect may inspect turf materials either at place of growth or at site before planting, for compliance with requirements for genus, species, variety, size and quality. Architect retains right to further inspect condition of root systems, insects, injuries and latent defects, and to reject unsatisfactory or defective material at any time during progress of work. Remove rejected materials immediately from project site.
- E. Final Acceptance – Sodded areas will be considered for Final Acceptance after the defined Turf Establishment Period and the turf grass is healthy and growing with an even healthy color, have no bare spots wider than 1" by 12", and presents as an even well drained surface.

1.04 SUBMITTALS

- A. Certification-Submit certificates of inspection as required by Architect. Submit manufacturer's or vendor's certified analysis for soil amendments and fertilizer materials. Submit other data substantiating that materials comply with specified requirements.

1.05 DELIVERY, STORAGE AND HANDLING

- A. Packaged Materials - Deliver packaged materials in containers showing weight, analysis and name of manufacturer. Protect materials from deterioration during delivery, and while stored at site.
- B. Sod - Time delivery so that sod will be placed within 24 hours after stripping. Protect sod against drying and breaking of rolled strips.

1.06 JOB CONDITIONS

- A. Proceed with and complete turfgrass work as rapidly as portions of site become available, working within seasonal limitations for kind of turf grass specified.
- B. Excavation - When conditions detrimental to plant growth are encountered, such as rubble fill, adverse drainage condition, or obstructions, notify Architect before planting.

1.07 SPECIAL PROJECT WARRANTY

- A. Warranty grass through the establishment period, until final acceptance; but not less than 90 days.

PART 2 - PRODUCTS**2.01 TOPSOIL**

- A. Topsoil has been (or will be) stockpiled for re-use in landscape work. If quantity of stockpiled topsoil is insufficient, provide additional topsoil as required to complete landscape work.
- B. Provide new topsoil which is fertile, friable, natural, loam, surface soil, reasonably free of subsoil, clay lumps, brush, weeds and other litter, and free of roots, stumps, stones larger than 2" in any dimension, and other extraneous or toxic matter harmful to plant growth.

2.02 SOIL AMENDMENTS

- A. Lime - Natural dolomitic limestone containing not less than 85% of total carbonates with a minimum of 30% magnesium carbonates, ground so that not less than 90% passes a 10-mesh sieve, not less than 50% passes a 100-mesh sieve.
- B. Commercial Fertilizer - Complete fertilizer of neutral character, with some elements derived from organic sources. Provide fertilizer with percentage of nitrogen required to provide not less than 1 lb. of actual nitrogen per 100 sq. ft. of lawn area and not less than 4% phosphoric acid and 2% potassium. Provide nitrogen in a form that will be available to lawn during initial period of growth; at least 50% of nitrogen to be organic form.

2.03 SOD TURFGRASS

- A. Species of sod shall be Common Bermuda (Cynodon Dactylon). Quality of sod shall meet requirements of ANSI Z60.1
- B. Provide strongly rooted sod, not less than 2 years old, free of weeds and undesirable native grasses and machine cut to pad thickness of 3/4" ($\pm 1/4$ "), excluding top growth and development when planted (viable, not dormant). Provide sod of uniform pad sizes with maximum 5% deviation in either length or width. Broken pads or pads with uneven ends will not be acceptable. Sod pads incapable of supporting their own weight when suspended vertically with a firm grasp on upper 10% of pad will be rejected.

PART 3 - EXECUTION**3.01 PREPARATION**

A. Preparation for Planting Lawns

1. Loosen subgrade of lawn areas to a minimum depth of 4". Remove stones over 1-1/2" in any dimension and sticks, roots, rubbish and other extraneous matter. Limit preparation to areas to be planted promptly after preparation.
2. Spread topsoil to 4" minimum depth so as to meet lines, grades and elevations shown, after light rolling and natural settlement. Add specified soil amendments and mix thoroughly into upper 4" of topsoil.
3. Place approximately 1/2 of total amount of topsoil required. Work into top of loosened subgrade to create a transition layer and then place remainder of planting soil. Add specified soil amendments and mix thoroughly into upper 4" of topsoil.
4. Preparation of Unchanged Grades - Where lawns are to be planted in areas that have not been altered or disturbed by excavating, grading, or stripping operations, prepare soil for lawn planting as follows: Till to a depth of not less than 6"; apply soil amendments and initial fertilizers as specified; remove high areas and fill in depressions; till soil to a homogenous mixture of fine texture, free of lumps, clods, stones, roots and other extraneous matter.
5. Prior to preparation of unchanged areas, remove existing grass, vegetation and turf. Dispose of such material outside of Owner's property; do not turn over into soil being prepared for lawns.
6. Allow for sod thickness in areas to be sodded.
7. Apply specified commercial fertilizer at rates specified and thoroughly mix into upper 2" of topsoil. Delay application of fertilizer if lawn planting will not follow within a few days.
8. Fine grade lawn areas to smooth, even surface with loose, uniformly fine texture. Roll, rake and drag lawn areas, remove ridges and fill depressions, as required to meet finish grades. Limit fine grading to areas to be planted immediately after grading.
9. Moisten prepared lawn areas before planting if soil is dry. Water thoroughly and allow surface moisture to dry before planting lawns. Do not create a muddy soil condition.
10. Restore lawn areas to specified condition if eroded or otherwise disturbed after fine grading and prior to planting.

3.02 PLANTING

A. Sodding new lawns

1. Lay sod to form a solid mass with tightly fitted joints. Butt ends and sides of sod strips; do not overlap. Stagger strips to offset joints in adjacent courses. Work from boards to avoid damage to subgrade or sod. Tamp or roll lightly to ensure contact with subgrade. Work sifted soil into minor cracks between pieces of sod; remove excess to avoid smothering of adjacent grass.
2. Anchor sod on slopes with wood pegs to prevent slippage.
3. Water sod thoroughly with a fine spray immediately after planting.

3.03 MAINTENANCE

- A. Begin maintenance immediately after planting. Maintain lawns for the duration of the contract and through the Turf Establishment Period until final acceptance, but not less than 90 days. Comply with the requirements of Section 32 05 30, LANDSCAPE MAINTENANCE.

3.04 INSPECTION AND ACCEPTANCE

- A. When turfgrass work is completed, including maintenance, Architect will, upon request, make an inspection to determine acceptability. When inspected landscape work does not comply with requirements, replace rejected work and continue specified maintenance until reinspected by Architect and found to be acceptable. Remove rejected materials promptly from project site.

3.05 CLEANUP AND PROTECTION

- A. During landscape work, keep pavements clean and work area in an orderly condition.
- B. Protect landscape work and materials from damage due to landscape operations, operations by other contractors, trades and trespassers. Maintain protection during installation and maintenance periods. Treat, repair or replace damaged landscape work as directed.

END OF SECTION

SECTION 32 93 00
LANDSCAPE PLANTS**PART 1- GENERAL****1.01 DESCRIPTION OF WORK**

- A. Extent of landscape development work is the installation and maintenance of new exterior plants, trees, shrubs, ornamentals, ground covers and mulches, as shown on drawings and in schedules. Permanent turf grass lawns shall be as specified separately in Section 32 92 19, SEEDING and 32 92 23, SODDING. Temporary erosion control grassing shall be as indicated on the civil site drawings.
- B. Subgrade Elevations: Excavation, filling and grading required to establish elevations shown on drawings are not specified in this section. Refer to Section 31 20 00, EARTH MOVING.

1.02 REFERENCES

- A. ANSI Z 60.1 - American Standard for Nursery Stock dated May 12, 2004.

1.03 QUALITY ASSURANCE

- A. General - Subcontract landscape work to a single firm specializing in landscape work. Ship landscape materials with certificates of inspection required by governing authorities. Comply with regulations applicable to landscape materials.
- B. Do not make substitutions. If specified landscape material is not obtainable, submit proof of non-availability to Architect, together with proposal for use of equivalent material.
- C. Analysis and Standards - Package standard products with manufacturer's certified analysis. For other materials, provide analysis by the recognized laboratory made in accordance with methods established by the Association of Official Agricultural Chemists, wherever applicable.
- D. Topsoil - Before delivery of topsoil, furnish Architect with written statement giving location of properties from which top soil is to be obtained, names and addresses of owners, depth to be stripped, and crops grown during past 2 years.
- E. Trees, Shrubs and Plants - Provide trees, shrubs and plants of quantity, size, genus, species and variety shown and scheduled for landscape work and complying with recommendations and requirements of ANSI Z60.1 "American Standard for Nursery Stock". Provide healthy, vigorous stock, grown in recognized nursery in accordance with good horticultural practice and free of disease, insects, eggs, larvae and defects such as knots, sun-scald, injuries, abrasions, or disfigurement.
- F. Inspection - The Architect may inspect trees and shrubs either at place of growth or at site before planting, for compliance with requirements for genus, species, variety, size and quality. Architect retains right to further inspect trees and shrubs for size and condition of root balls and root systems, insects, injuries and latent defects, and to reject unsatisfactory or defective material at any time during progress of work. Remove rejected trees or shrubs immediately from project site.

1.04 SUBMITTALS

- A. Certification - Submit certificates of inspection as required by the Architect. Submit manufacturer's or vendor's certified analysis for soil amendments and fertilizer materials. Submit other data substantiating that materials comply with specified requirements.

1.05 DELIVERY, STORAGE AND HANDLING

- A. Packaged Materials - Deliver packaged materials in containers showing weight, analysis and name of manufacturer. Protect materials from deterioration during delivery, and while stored at site.
- B. Trees and Shrubs - Provide freshly dug trees and shrubs. Do not prune prior to delivery unless otherwise approved by the Architect. Do not bend or bind-tie trees or shrubs in such manner as to damage bark, break branches or destroy natural shape. Provide protective covering during delivery. Do not drop balled and burlapped stock during delivery.
- C. Deliver trees and shrubs after preparations for planting have been completed and plant immediately. If planting is delayed more than 6 hours after delivery, set trees and shrubs in shade, protect from weather and mechanical damage, and keep roots moist by covering with mulch, burlap or other acceptable means of retaining moisture.
- D. Do not remove container grown stock from containers until planting time.

1.06 JOB CONDITIONS

- A. Proceed with and complete landscape work as rapidly as portions of site become available, working within seasonal limitations for each kind of landscape work required.
- B. Utilities - Determine location of underground utilities and perform work in a manner which will avoid possible damage. Hand excavate, as required. Maintain grade stakes set by others until removal is mutually agreed upon by parties concerned.
- C. Excavation - When conditions detrimental to plant growth are encountered, such as rubble fill, adverse drainage condition, or obstructions, notify the Architect before planting.
- D. Coordination with Lawns - Plant trees and shrubs after final grades are established and prior to planting of lawns, unless otherwise acceptable to Architect. If planting of trees and shrubs occurs after lawn work, protect lawn areas and promptly repair damage to lawns resulting from planting operations.

1.07 SPECIAL PROJECT WARRANTY

- A. Warranty trees and shrubs, for a period of one year after date of substantial completion, against defects including death and unsatisfactory growth, except for defects resulting from abuse or damage by others, or unusual phenomena or incidents which are beyond Landscape Installer's control. Coordinate and comply maintenance and warranty requirements with Section 32 05 30 LANDSCAPE MAINTENANCE.
- B. Remove and replace trees, shrubs, or other plants found to be dead or in unhealthy condition during warranty period. Make replacements during growth season following end of warranty period.
- C. Only one replacement (per tree, shrub, or plant) will be required at end of warranty period, except for losses or replacements due to failure to comply with specified requirements.

PART 2 - PRODUCTS**2.01 TOPSOIL**

- A. Topsoil has been (or will be) stockpiled for re-use in landscape work. If quantity of stockpiled

topsoil is insufficient, provide additional topsoil as required to complete landscape work.

- B. Provide new topsoil which is fertile, friable, natural, loam, surface soil, reasonably free of subsoil, clay lumps, brush, weeds and other litter, and free of roots, stumps, stones larger than 2" in any dimension, and other extraneous or toxic matter harmful to plant growth.

2.02 SOIL AMENDMENTS

- A. Lime - Natural dolomitic limestone containing not less than 85% of total carbonates with a minimum of 30% magnesium carbonates, ground so that not less than 90% passes a 10-mesh sieve, not less than 50% passes a 100-mesh sieve.
- B. Peat Humus - FS Q-P-166 decomposed peat with no identifiable fibers and with ph range suitable for intended use.
- C. Mulch - Organic mulch free from deleterious materials and suitable for top dressing of trees, shrubs or plants and consisting of the following: Pine Straw
- D. Commercial Fertilizer - Complete fertilizer of neutral character, with some elements derived from organic sources and containing following percentages of available nutrients:
 - 1. For trees and shrubs, provide fertilizer with not less than 16% total nitrogen, 4% available phosphoric acid and 8% soluble potash.

2.03 PLANT MATERIALS

- A. Quality - Provide trees, shrubs, and other plants of size, genus, species and variety shown and scheduled for landscape work and complying with recommendations and requirements of ANSI Z60.1 "American Standard for Nursery Stock".
- B. Deciduous Trees - Provide trees of height and caliper scheduled or shown and with branching configuration recommended by ANSI Z260.1 for type and species required. Provide single stem trees except where special forms are shown or listed.
 - 1. Provide balled and burlapped (B&B) deciduous trees.
 - 2. Container grown deciduous trees will be acceptable in lieu of balled and burlapped deciduous trees subject to specified limitations of ANSI Z60.1 for container stock.
- C. Palms - Palms shall have the specified height as measured from the base of the trunk to the base of the fronds or foliage in accordance with ANLA ANSI/ANLA Z60.1. The palm shall have straight trunk and healthy fronds or foliage as typical for the variety grown in the region of the project. Palms trimmed or pruned for delivery shall retain the central fronds located at the "cabbage" head of the tree, as a means of determining plant health.
- D. Coniferous Evergreen Plant Material - Coniferous Evergreen plant material shall have the height-to-spread ratio recommended by ANLA ANSI/ANLA Z60.1. The coniferous evergreen trees shall not be "poled" or the leader removed. Acceptable plant material shall be exceptionally heavy, well shaped and trimmed to form a symmetrical and tightly knit plant. The form of growth desired shall be as indicated.

2.04 GROUND COVER

- A. Provide plants established and well-rooted in removable containers, or integral peat pots and with not less than minimum number and length of runners required by ANSI Z60.1 for the size shown or listed.

2.05 STAKES AND GUYS

- A. Provide stakes, guys, and deadman anchors of sound new hardwood, treated softwood, or

redwood, free of knot holes and other defects. Provide wire ties and guys of 2-strand, twisted, pliable galvanized iron wire not lighter than 12 gauge with zinc-coated turnbuckles. Provide not less than 1/2" diameter rubber or plastic hose, cut to required lengths and of uniform color, material and size to protect tree trunks from damage by wires. Provide flagging of all guys with high visibility surveyors ribbon so as to maintain pedestrian visibility.

PART 3 - EXECUTION

3.01 PREPARATION

- A. Layout individual tree and shrub locations and areas for multiple plantings. Stake locations and outline areas and secure the Architect's acceptance before start of planting work. Make minor adjustments as may be requested.
- B. Preparation of Planting Soil
 1. Before mixing, clean topsoil of roots, plants, sods, stones, clay lumps, and other extraneous materials harmful or toxic to plant growth.
 2. Mix specified soil amendments and fertilizers with topsoil at rates specified. Delay mixing of fertilizer if planting will not follow placing of planting soil within a few days.
 3. For pit and Trench type backfill, mix planting soil prior to backfilling, and stockpile at site.
 4. For planting beds, mix planting soil either prior to planting or apply on surface of topsoil and mix thoroughly before planting.
 5. Mix lime with dry soil prior to mixing of fertilizer.
 6. Prevent lime from contacting roots of acid-loving plants.
- C. Preparation of Planting Beds
 1. Loosen subgrade of planting bed areas to a minimum depth of 6" using a culti-mulcher or similar equipment. Remove stones over 1-1/2" in any dimension, and sticks, stones, rubbish and other extraneous matter.
 2. Spread planting soil mixture to 4" minimum depth to meet lines, grades and elevations shown, after light rolling and natural settlement. Place approximately 1/2 of total amount of planting soil required. Work into top of loosened subgrade to create a transition layer, then place remainder of the planting soil.
 3. Dig beds not less than 8" deep and mix with specified soil amendments and fertilizers.
 4. Planters - Place not less than 4" layer of gravel in bottom of planters, and fill with planting soil mixture consisting of 1-part topsoil, 1-part coarse sand, 1-part peat humus, and 3 lbs. dolomitic limestone per cubic yard of mix. Place soil in lightly compacted layers to an elevation 1-1/2" below top of planter allowing for natural settlement.
- D. Excavation for Trees and Shrubs
 1. Excavate pits, beds and trenches with vertical sides and with bottom of excavation slightly raised at center to provide proper drainage. Loosen hard subsoil in bottom of excavation.
 2. For balled and burlapped (B&B trees and shrubs), make excavations at least half again as wide as the ball diameter and equal to the ball in depth, plus following allowance for setting of ball on layer of compacted backfill.
 3. Allow for 3" setting layer of planting soil mixture.
 4. For container grown stock, excavate as specified for balled and burlapped stock, adjusted to size of container width and depth.

5. Water tree and shrub plantings thoroughly immediately after planting.

3.02 PLANTING

A. Planting Trees and Shrubs

1. Set balled and burlapped (B&B) stock on layer of compacted planting soil mixture, plumb and in center of pit or trench with grades. Remove burlap from sides of balls; retain on bottoms. When set, place additional backfill around base and sides of ball, and work each layer to settle backfill and eliminate voids and air pockets. When planting is complete, water thoroughly. Repeat watering until no more is absorbed.
2. Set container grown stock as specified for balled burlapped stock, except cut cans on 2 sides with an approved can cutter; remove bottoms of wooden boxes after partial backfilling so as not to damage root balls.
3. Dish top of backfill to allow for mulching.
4. Mulch pits, trenches, and planted areas. Provide not less than following thickness of mulch and work into top of backfill and finish level with adjacent finish grades.
5. Provide 4" thickness of mulch, type as indicated.
6. Prune, thin out and shape trees and shrubs in accordance with standard horticultural practice. Prune trees to retain required height and spread. Unless otherwise directed by Architect, do not cut tree leaders, and remove only injured or dead branches from flowering trees, if any. Prune shrubs to retain natural character.
7. Remove and replace excessively pruned or malformed stock resulting from improper pruning.
8. Wrap tree trunks of 2" caliper and larger. Start at ground level and cover trunk to height of first branches and securely attach. Inspect tree trunks for injury, improper pruning and insect infestation and take corrective measures before wrapping.
9. Guy and stake trees immediately after planting, as indicated.

B. Planting Ground Cover

1. Space plants as shown or scheduled.
2. Dig holes large enough to allow for spreading of roots and backfill with planting soil. Work soil around roots to eliminate air pockets and leave a slight saucer indentation around plants to hold water. Water thoroughly after planting, taking care not to cover crowns of plants with wet soils.
3. Mulch areas between ground cover plants; place not less than 4" thick, of type indicated.

3.03 MAINTENANCE

- A. Begin maintenance immediately after planting. Maintain trees, shrubs and other plants for the duration of the contract, and the required Plant Establishment Period until final Acceptance by the Owner, but not less than 90 days. Comply with the requirements in Section 32 05 30 LANDSCAPE MAINTENANCE.

3.04 INSPECTION AND ACCEPTANCE

- A. When landscape work is completed, including maintenance, Architect will, upon request, make an inspection to determine acceptability.
- B. Landscape work may be inspected for acceptance in parts agreeable to Architect, provided work offered for inspection is complete, including maintenance. When inspected landscape work does not comply with requirements, replace rejected work and continue specified

maintenance until reinspected by the Architect and found to be acceptable. Remove rejected plants and materials promptly from project site.

3.05 CLEANUP AND PROTECTION

- A. During landscape work, keep pavements clean from damage due to landscape operations, operations by other contractors and trades and trespassers. Maintain protection during installation and maintenance periods. Treat, repair or replace damaged landscape work as directed.
- B. During landscape work, keep pavements clean and work area in an orderly condition.
- C. Protect landscape work and materials from damage due to landscape operations, operations by other contractors, trades and trespassers. Maintain protection during installation and maintenance periods. Treat, repair or replace damaged landscape work as directed.

END OF SECTION

SECTION 33 41 00
STORM DRAINAGE PIPING**PART 1 - GENERAL****1.01 DESCRIPTION**

- A. Work Included: Scope of work includes the installation of gravity storm water sewers, culverts, roof drains, and storm water management detention basins and other accessories as indicated on the construction drawings.
- B. The Contractor shall perform the work covered under this section in such a manner that shall not disturb, crack, or undermine existing foundations and shall not damage existing underground utilities or previously constructed portions of the work.
- C. Related Work: Documents affecting work in the area include, but are not limited to the general conditions and specifications Section 31 20 00, EARTH MOVING; Storm Water SWPPP and erosion control as specified in Section 01 57 13, TEMPORARY EROSION AND SEDIMENT CONTROL, and Record Drawing Closeout documents as specified in Section 01 71 23, CONSTRUCTION STAKEOUT AND FIELD ENGINEERING.

1.02 SUBMITTALS

Submit the following prior to commencing work on the system.

- A. Manufacturer's Catalog Data
 - 1. Piping and jointing materials
 - 2. Cast-Iron Frames and Grates
 - 3. Pre-cast boxes or manholes

1.03 DELIVERY, STORAGE, AND HANDLING

- A. Delivery and Storage
 - 1. Piping: Inspect materials delivered to site for damage; store with minimum of handling. Store materials on site in enclosures or under protective coverings. Store jointing materials and rubber gaskets under cover out of direct sunlight. Do not store materials directly on the ground. Keep inside of pipes and fittings free of dirt and debris.
 - 2. Metal Items: Check upon arrival, identify and segregate as to types, functions, and sizes. Store off the ground in a manner affording easy accessibility and not causing excessive rusting or coating with grease or other objectionable materials.
- B. Handling: Handle pipe, fittings, and other accessories in a manner to ensure delivery to the trench in sound undamaged condition. Take special care not to damage pipe and fittings; if damaged, make repairs. Carry, do not drag pipe to trench.

PART 2 - PRODUCTS**2.01 PIPELINE MATERIALS**

- A. Concrete Piping
 - 1. Concrete storm drainage pipe shall be reinforced concrete pipe conforming to ASTM C76, Class III, Wall B, bell and spigot joint.

2. Jointing materials for concrete piping:
 - a. ASTM C 990, bitumen or butyl-rubber sealant.
 - b. ASTM C 443, rubber o-ring type gasket.
- B. Polyvinyl Chloride (PVC) Plastic Pipe and Fittings
 1. PVC plastic pipe and fittings shall conform to ASTM D 3034, SDR 26, having ends adaptable for elastomeric gasket joints.
 2. Joints for PVC plastic pipe and fittings shall conform to ASTM D 3212. Gaskets shall conform to ASTM F 477.
- C. Ductile Iron Pipe (DIP) and Fittings
 1. Ductile iron pipe used for storm drainage applications shall conform to ASTM A 746, or AWWA C150, Thickness Class 50. Pipe shall have cement mortar lining in conformance with AWWA C104. Fittings shall conform to AWWA C110 and shall also be cement mortar lined.
 2. Joints for ductile iron pipe and fittings shall be push on joints. Shape of pipe ends and fitting ends, gaskets, and lubricants for joint assembly shall conform to AWWA C111, except that the gaskets shall be suitable for exposure to sewage.
- D. High Density Polyethylene (HDPE) Corrugated Plastic Pipe
 1. High density polyethylene plastic pipe and fittings shall have a corrugated exterior and a smooth-flow interior. Pipe sizes 4-inch through 10-inch diameter shall meet the requirements of AASHTO M252, Type S. Pipe sizes 12-inch through 36-inch diameter shall meet the requirements of AASHTO M294, Type S. Fittings shall be constructed of the same material and have the same strength and flow characteristics as the pipe.
 2. Joints for HDPE pipe and fittings shall be a bell and spigot configuration using an elastomeric gasket seal. Gaskets shall conform to ASTM F 477.
 3. Where indicated, perforated pipe shall have factory installed perforations meeting the requirements for AASHTO Class II perforations.

2.02 SUBSURFACE DRAINS

- A. Subsurface drainpipe: Corrugated perforated high-density polyethylene pipe meeting AASHTO M252, Type C, size as indicated. The piping shall have a factory installed geotextile wrapping, or "sock".
- B. Rock/Gravel Backfill - No. 789 Stone, Per ASTM C33.

2.03 MISCELLANEOUS MATERIALS

- A. Frames, Covers, and Gratings: Frames, covers, and gratings shall be of the nominal type and size indicated on the construction drawings. Where applicable, use of SCDOT standard frame and cover/grates are acceptable.
- B. Brick and Mortar: Brick shall conform to ASTM C55, Grade S-I or S-II. Concrete masonry bricks shall be standard dimension measuring 2-1/4" x 3-5/8" x 7-5/8". Mortar for jointing and parging shall consist of one-part Portland cement and two parts fine sand. Lime may be added to the mortar in a quantity not more than 25 percent of the volume of cement.
- C. Cast-in-Place Concrete: ASTM C94, minimum compressive strength 3000 psi.

- D. Precast Concrete Manhole/Drop Inlet Sections: Precast concrete drop inlet boxes shall conform to South Carolina State Highway Department Standard Specifications, Edition 2007, Section 701.02 and 719.10.
- E. Pre-manufactured Yard/Landscape Inlets: Pre-manufactured Yard/Landscape inlets and boxes, shall be of the size and type indicated. They shall have square integral hinged cast-iron or ductile-iron frames and grates for easy access and cleaning, unless specifically indicated otherwise. The inlet basins shall be manufactured to be compatible with PVC or HDPE pipe and fittings. The system shall be used in landscape or grassed areas for the purpose of draining confined areas and building roof drain systems not susceptible to vehicular traffic.

PART 3 - EXECUTION

3.01 INSTALLATION OF PIPELINES AND APPURTENANT CONSTRUCTION

- A. General Requirements for Installation of Pipelines: These requirements shall apply to pipeline installation except where specific exception is made under paragraph entitled "Special Requirements."
 - 1. Location: The work covered by this section shall be as indicated on the drawings.
 - 2. Earthwork: Perform earthwork operations in accordance with Section 31 20 00, EARTH MOVING.
 - 3. All new storm drainage inlet structures and pipe openings shall be protected from water borne sediments by silt barrier erosion control devices, as indicated, or as specified in the approved Storm Water Pollution Prevention Plan (SWPPP).
- B. Pipe Laying and Jointing: Start storm drain piping system installation at the low point in the system and install all piping in the in the upslope direction. Lay pipe with the bell or groove ends in the upgrade direction. Inspect each pipe and fitting before and after installation; remove those found defective from site and replace with new. Provide proper facilities for lowering sections of pipe into trenches. Adjust spigots in bells or tongues in grooves to produce a uniform space. Blocking or wedging between tongues and grooves will not be permitted. Install joint gasket material as recommended by the manufacturer of the pipe being laid.

Concrete tongue and groove pipe joints shall be wrapped with an exterior layer of non-woven filter fabric with a minimum width of 12 inches, and a minimum of 12 inches of overlap at the ends, with the top overlap being from the top and ending on the side of the pipe not the crown. Ensure wrapping is firmly secured to pipe and itself to prevent loosening or separation during the backfilling operations. Replace by one of the proper dimensions any pipe or fitting that does not allow sufficient space for proper caulking or installation of joint gasket material.

Under no circumstances shall pipe be laid in water, and no pipe shall be laid when trench conditions or weather are unsuitable for such work. Diversion of drainage or dewatering of trenches during construction shall be provided as necessary. Comply with the requirements of Section 31 23 19 DEWATERING. When pipes are protected by headwalls or connect with drainage structures, the exposed ends of the pipe shall be placed or cut flush with the face of the structure as close as possible but protruding into the structure by no more than 1 inch. After the pipe is cut, the rough edges shall be smoothed up in an approved manner.

At the end of each workday, close open ends of pipe temporarily with wood blocks or bulkheads, or other approved erosion control material to protect pipe from erodible soils and debris. Provide batterboards not more than 25 feet apart in trenches for checking and ensuring that pipe invert elevations are as indicated. Laser beam method may be used in lieu of batterboards for the same purpose. All pipe in-place shall be inspected and approved before being covered and concealed.

- C. Special Requirements: Polyethylene subsurface drains shall be installed per manufacturer's recommendations. Gravel backfill shall be laid to depths and compaction levels as indicated.
- D. Curb Inlet/Drop Inlet/Junction Box Construction: Construct base slab of cast-in-place concrete or use precast concrete base sections.
 - 1. For cast-in-place concrete construction, either pour bottom slabs and walls integrally or key and bond walls to bottom slab.
 - 2. For masonry construction, the joints shall be filled completely and shall be smooth and free from surplus mortar on the inside of the structure. Brick structures shall be plastered or parged with 1/2 inch of mortar over the entire outside surface of the walls. For square or rectangular structures, brick shall be laid in stretcher courses with a header course every sixth course. Parging the interior walls will not be required, except in instances where there are excessive voids and gaps in the mortar joints.
 - 3. For precast concrete construction, make joint between sections with the gaskets specified for this purpose; install in the manner specified for joints in concrete piping. Give a smooth finish to inside joints of precast concrete storm boxes.
 - 4. Provide a soil-tight seal at all joints including the joint between top-of-box wall and top slab or cast-iron inlet frame using non-shrink grout between the two surfaces as well as grouting the exterior and interior surfaces of the joint to seal any voids or gaps. Parging will not be required for precast concrete manholes. Drop inlets, or other structures shall be constructed to the line and dimension shown on the construction drawings.
- E. Yard/Landscape Drain Inlets: Install pre-manufactured Yard/Landscape Inlets at the location and elevations indicated. Install in accordance with the construction drawings, these specifications and the manufacturer's recommendations.

3.02 FIELD QUALITY CONTROL

- A. Field Tests and Inspections: The Engineer will conduct field inspections and witness field tests specified in this section. The Contractor shall perform field tests and provide, labor, equipment, and incidentals required for testing. Be able to produce evidence, when required, that each item of work has been constructed properly in accordance with the drawings and specifications.
- B. Pipeline Testing: Check each straight run of pipeline for gross deficiencies by holding a light in a manhole; it shall show a practically full circle of light through the pipeline when viewed from the adjoining end of line. Upon completion of work, the entire piped drainage system shall be cleaned.
- C. Closed Circuit Television (CCTV) Inspection
 - 1. Scope of Work:
 - a. The contractor shall conduct a Closed-Circuit Television (CCTV) inspection of the completed storm drainage system in accordance with the Pipeline Assessment Certification Program (PACP) inspection standards and closed-circuit television techniques. The CCTV Contractor shall video inspect all mainline sections of pipe sized 10 inches in diameter and larger from storm box to storm box. Video inspection shall be performed immediately after construction and prior to Final Inspection of the system.
 - b. Prior to performing CCTV inspection, all storm drain piping shall be thoroughly cleaned of all sand, sediments, debris, and equipment.
 - 2. CCTV Equipment:
 - a. Television inspection equipment shall have an accurate footage counter that will display on the monitor and record the camera distance from the centerline of the starting manhole/storm box. Prior to beginning of each CCTV inspection segment, manhole/storm

box identification numbers, as indicated on the construction drawings, or as provided by the Program Manager, will be displayed in the title and be a part of the video record.

b. The camera shall be a remote operated pan/tilt type, with rotating camera and light head with a 360-degree rotating view angle and a minimum 270-degree pan angle. The variable intensity control of the camera light shall be adjustable from the remote viewing station controls.

c. The camera, television monitor and other components shall be color, and camera/light quality shall allow a clear, in-focus picture for the entire periphery of the pipelines extending at least ten (10) feet in front of the camera. In High Density Polyethylene (HDPE), lighting should be sufficient for a clear view at least two (2) feet in front of the camera.

3. Execution:

a. Internal inspection of pipelines shall be performed by PACP certified personnel, trained in the identification of pipe deficiencies and condition assessment utilizing CCTV equipment. The pipe must be clear of any dirt or debris. The CCTV inspection technician shall have full control of the movement of the camera unit at all times. The travel speed of the camera may be variable, but uniform with no jerky or movement, with a maximum speed of 20 feet per minute.

b. The interior of the pipe shall be carefully inspected to determine the location and extent of all deficiencies. Pipe conditions that result in a question of proper installation procedures shall be noted so these conditions can be reviewed and, if necessary, corrective actions can be taken prior to Final Acceptance by the owner. Continuous footage readings for identifying the location of defects must be accurate to within 3 percent tolerance. Deficiency identifications are to be called out and recorded to the nearest full foot.

c. As directed by the Program Manager, or his representative, the camera shall be stopped to view and analyze conditions that appear unusual or uncommon.

d. CCTV Contractor shall record inspections in a PACP format and shall be recorded in a high-quality CD/DVD format. The title shall include the following information:

- 1) date and time
- 2) Storm Segment number
- 3) Upstream manhole number and downstream manhole number
- 4) Size of pipe and pipe material
- 5) Location (start and end counter distance in feet from the beginning point) and description of obstructions; structural defects; longitudinal or circumferential cracking; joints that are open or leaking; sags; sediments and other abnormalities. The CCTV Contractor's written log shall contain the same information.

e. The CCTV Inspection Video shall be submitted to the Program Manager for review upon completion of the inspection and completion of any discrepancies. Any pipeline segments that must be repaired or found to have deficiencies repaired, shall have those section re-inspected by the CCTV and updated reports submitted.

3.03 RECORD CLOSEOUT DOCUMENTS

A. Provide final As-built Record Drawings of the completed storm water system in compliance with the SC DHEC NPDES General Permit for Stormwater Discharge from Large and Small Construction Activities, SCR100000 (2012 CGP) and as required by SCDHEC or the Public Works Storm Water Management MS4 office for Final approval and closeout. At a minimum the Record Drawings shall include the following data:

1. each storm drain sewer and culvert pipe installed, its size, material, invert elevation at the downstream outlet and the upstream inlet, length and the resultant pipe slope.

2. each storm box structure, manhole, catch basin and curb inlet; the structure top elevation; for curb inlets, swale inlets and detention basin outlet control structures, also indicate the inlet elevation and size of weirs and orifices.
 3. each detention basin, the location and elevation of the top of bank, and toe of bank at bottom of basin around its perimeter.
 4. all roof drain piping, bends, tees, wyes, cleanouts, pipe sizes and pipe material, and depth of bury to top of pipe at each one of these locations.
- B. Retain the services of a Registered Land Surveyor and comply with these and the requirements specified in Section 01 71 23, CONSTRUCTION STAKEOUT AND FIELD ENGINEERING and the requirements of this section. The Contractor will be provided a copy of the original Site electronic CAD files to use as a base for the creation of these as-built record drawings.

END OF SECTION

BENSON/ KLEIN PARKING LOT

**118 BENSON STREET
 WALTERBORO, SC 29488**
 FOR
COLLETON COUNTY

09-22-2021

ARCHITECT

GLICK/BOEHM & ASSOCIATES
 493 King Street, Suite 100
 Charleston, SC 29403
 843.577.6377

CIVIL ENGINEER

FORSBERG ENGINEERING
 1587 SAVANNAH HIGHWAY, SUITE B
 P.O. BOX 30575
 CHARLESTON, SC 29417
 843.571.2622

ELECTRICAL ENGINEER

DWG CONSULTING ENGINEERS
 1009 ANNA KNAPP BOULEVARD
 SUITE 202
 MOUNT PLEASANT, SC 29464
 843.849.1141

DRAWING LIST	
Sheet No.	Sheet Title
GENERAL	
G000	COVER SHEET
CIVIL	
C102	TOPOGRAPHIC SURVEY
C201	SITE DEMOLITION & EROSION CONTROL PLAN
C301	SITE PLAN
C401	GRADING, DRAINAGE, & UTILITY PLAN
C501	CONSTRUCTION DETAILS
C502	CONSTRUCTION DETAILS
C503	CONSTRUCTION DETAILS
C504	CONSTRUCTION DETAILS
LANDSCAPE	
L103	LANDSCAPE PLANTING PLAN/ PARKING AREA
L104	PLANT SCHEDULE/ DETALIS PARKING AREA
ELECTRICAL	
E001	ELECTRICAL NOTES & DIAGRAMS
E100	SITE LIGHTING PLAN

REV.	DATE	DESCRIPTION

BENSON/ KLEIN PARKING LOT
COLLETON COUNTY
118 BENSON STREET
WALTERBORO, SC 29488

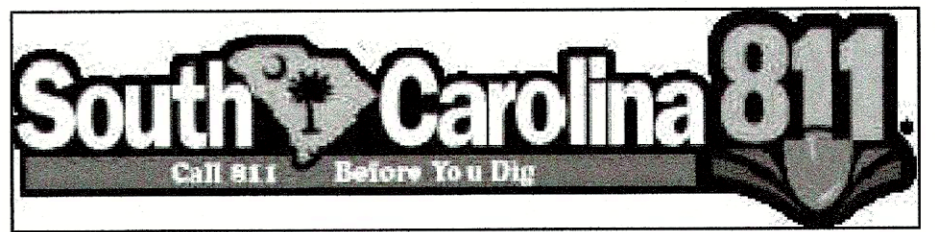
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 GLICK/BOEHM & ASSOCIATES, INC.
 JOB NUMBER: 1933
 PROJECT MGR.: SM
 DRAWN BY: MCM
 CHECKED BY: SM
 APPROVED BY: GB
 DATE ISSUED FOR: 09/22/2021

COVER SHEET

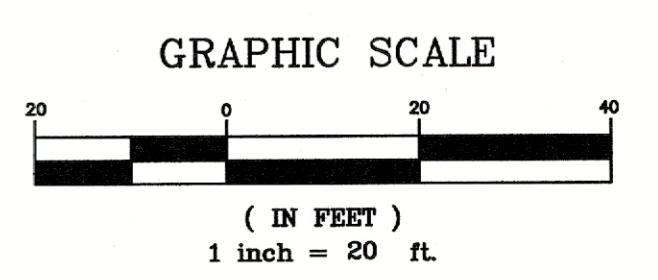
G000



- NOTES
- 1) THE PROPERTY IS OWNED BY CCEDC ONE INC.
 - 2) THE TOTAL AREA OF THE PROPERTY IS 4.535 ACRES PER THE CURRENT SURVEY.
 - 3) ACCORDING TO THE FLOOD INSURANCE MAP 45029C0320 F DATED 11/07/01 THIS PROPERTY LIES IN A FLOOD ZONE X AND FLOOD ZONE AE.
 - 4) REFERENCE AN UNRECORDED PLAT BY ATLAS SURVEYING DATED 12/13/17 TITLED "AN ABSULT, TREE AND TOPOGRAPHIC SURVEY OF TMS 163-11-00-228, 163-11-00-229 AND A PORTION OF 163-11-00-230, PROPERTY OF CCEDC ONE, INC.
 - 5) THE BOUNDARY INFORMATION SHOWN ON THIS SURVEY WAS TAKEN FROM REFERENCE 4 AND VERIFIED IN THE FIELD.

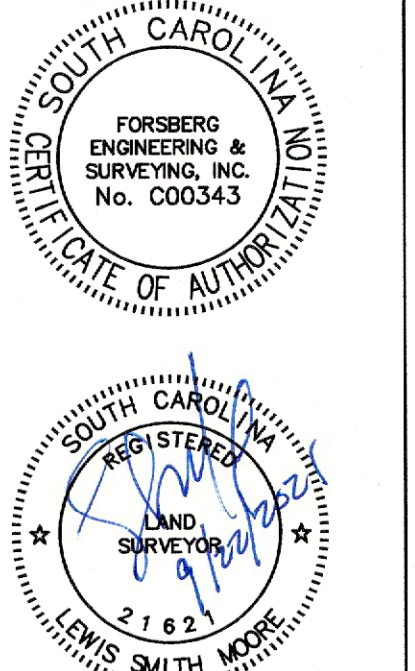


CONSIDERABLE EFFORT HAS BEEN MADE TO DETERMINE THE LOCATION OF UNDERGROUND UTILITIES. SOME LOCATIONS ARE ACTUAL FIELD MEASUREMENTS AND SOME ARE TAKEN FROM UTILITY RECORDS. THIS PLAN DOES NOT WARRANT THAT UTILITIES ARE SHOWN ACCURATELY NOR THAT ALL UTILITIES ARE SHOWN. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE EXACT LOCATION OF ALL UTILITIES PRIOR TO BEGINNING DIGGING OPERATIONS. CALL PALMETTO UTILITIES PROTECTION SERVICE AT 1-888-721-7877 A MINIMUM OF 3 WORKING DAYS BEFORE DIGGING. ANY UTILITIES UTILITIES DAMAGED OR DISTURBED DURING CONSTRUCTION SHALL BE RESTORED TO THEIR ORIGINAL CONDITION AT THE CONTRACTOR'S EXPENSE. ADDITIONALLY, THE CONTRACTOR SHALL CONFIRM THE CONNECTION POINTS OF NEW UTILITIES TO EXISTING UTILITIES PRIOR TO BEGINNING NEW CONSTRUCTION.



GBA
 CLICK BOEHM ARCHITECTURE
 PLANNING INTERIOR BUSINESS
 403 King Street, Suite 100
 Charleston, South Carolina 29403
 T: 843.572.6377
 www.gba.com

REV.	DATE	DESCRIPTION

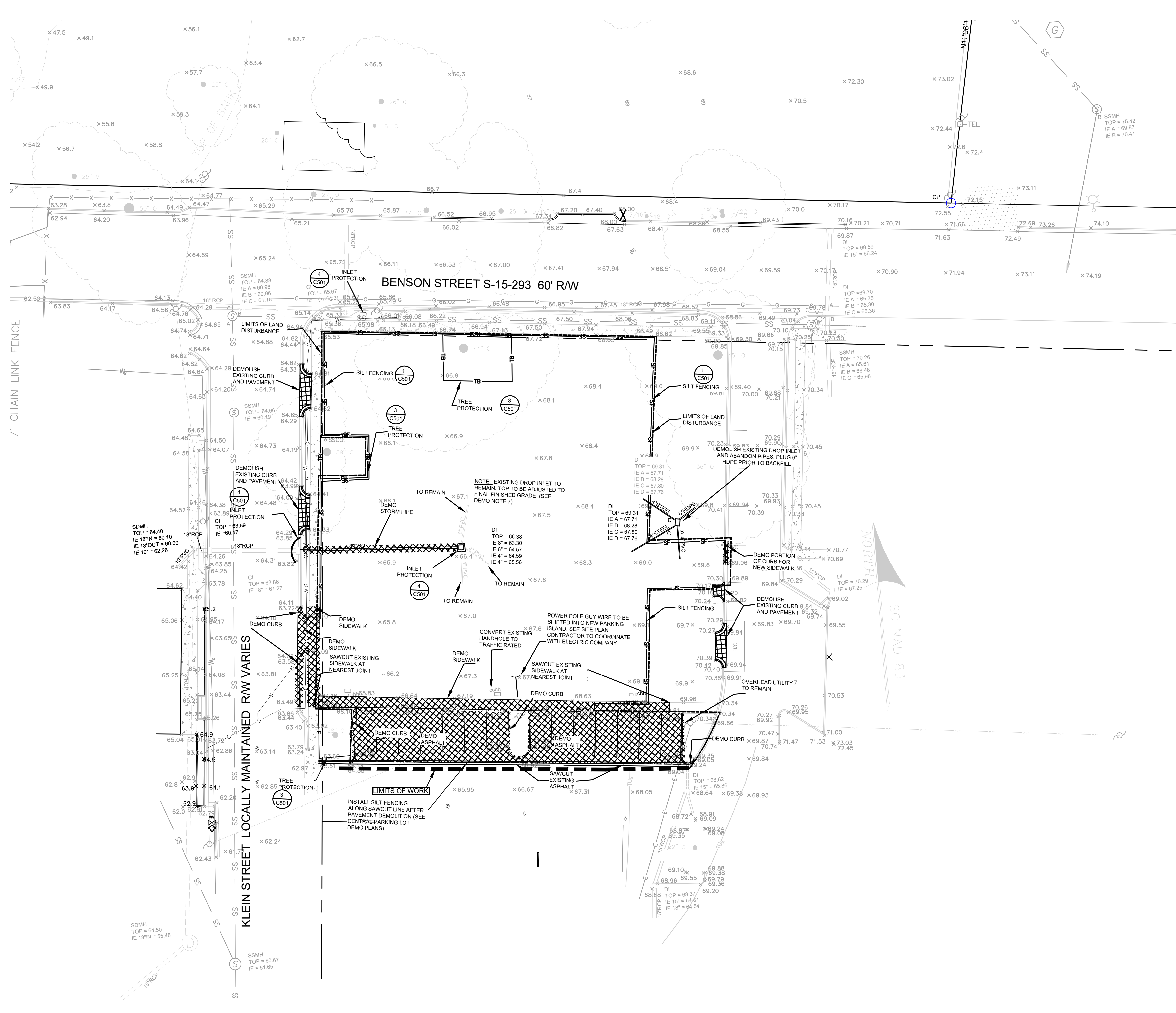


BESON/KLEIN PARKING LOT
 COLLETON COUNTY
 118 BENSON STREET
 WALTERBORO, SC 29488

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 GLICK/BOEHM & ASSOCIATES, INC.
 JOB NUMBER: 1904
 PROJECT MGR.: SM
 DRAWN BY: TL
 CHECKED BY: GL
 APPROVED BY: TL
 DATE ISSUED FOR: 09/22/2021
 BID SET

TOPOGRAPHIC SURVEY

C102



- DEMOLITION LEGEND:**
- DEMOLITION AREA
 - TREE TO BE REMOVED
 - TREE BARRICADE (TREE SAVE) SEE L100
 - SILT FENCE
- DEMOLITION NOTES:**

- 1) THE CONTRACTOR TO INSTALL ALL SILT FENCING & TREE BARRICADES BEFORE STARTING ANY WORK. CONTRACTOR IS RESPONSIBLE FOR EROSION CONTROL MEASURES. SEE EROSION CONTROL NOTES.
- 2) THE CONTRACTOR WILL BE RESPONSIBLE FOR ALL SWPPP INSPECTIONS, REPORTS, AS-BUILT DRAWINGS, MEETINGS, CERTIFICATIONS, AND NOTICE OF TERMINATION AS REQUIRED BY THE APPROVED NPDES PERMIT FOR STORMWATER DISCHARGE FROM LARGE AND SMALL CONSTRUCTION ACTIVITIES SCR100000 (2019 CGP)
- 3) CONSIDERABLE EFFORT HAS BEEN MADE TO DETERMINE THE LOCATION OF UNDERGROUND UTILITIES. SOME LOCATIONS ARE ACTUAL FIELD MEASUREMENTS AND SOME ARE TAKEN FROM UTILITY RECORDS OR LOCATIONS MARKED IN THE FIELD BY THE VARIOUS UTILITY COMPANIES. THIS SURVEY DOES NOT WARRANT THAT UTILITIES ARE SHOWN ACCURATELY NOR THAT ALL UTILITIES ARE SHOWN. CALL PALMETTO UTILITY PROTECTION SERVICE (P.U.P.S.) AT 811 A MINIMUM OF 3 WORKING DAYS BEFORE DIGGING.
- 4) ACCESS TO THE CONSTRUCTION SITE SHALL BE MAINTAINED DURING CONSTRUCTION.
- 5) CONTRACTOR SHALL ENSURE THAT SITE DISTANCE VISIBILITY IS MAINTAINED IN ACCORDANCE WITH SCDOT ARMS MANUAL AT ALL INTERSECTIONS AND CONSTRUCTION DRIVEWAYS DURING DEMOLITION. ALL CONSTRUCTION EGRESS/INGRESS POINTS SHALL PROVIDE PROPER TRAFFIC CONTROL FOR CONSTRUCTION DRIVEWAYS AT ALL TIMES DURING DEMOLITION.
- 6.) SEE SPECIFICATION SECTION 024113 FOR ADDITIONAL DEMOLITION NOTES.
- 7) THE CONTRACTOR SHALL CONDUCT A CLOSED CIRCUIT TELEVISION (CCTV) INSPECTION OF STORM SYSTEM ON SITE, INTERNAL INSPECTION OF PIPELINES SHALL BE PERFORM TO ASSES DEFICIENCIES. THE PIPE MUST BE CLEAR OF ANY DIRT OR DEBRIS. PIPE CONDITIONS SHALL BE NOTED AND PROVIDED TO OWNER AND ENGINEER FOR REVIEW.

"I HAVE PLACED MY SIGNATURE AND SEAL ON THE DESIGN DOCUMENTS SUBMITTED SIGNIFYING THAT I ACCEPT RESPONSIBILITY FOR THE DESIGN OF THE SYSTEM. FURTHER, I CERTIFY TO THE BEST OF MY KNOWLEDGE AND BELIEF THAT THE DESIGN IS CONSISTENT WITH THE REQUIREMENTS OF TITLE 48, CHAPTER 14 OF THE CODE OF LAWS OF SC, 1976 AS AMENDED, PURSUANT TO REGULATION 72-300 ET SEQ. (IF APPLICABLE), AND IN ACCORDANCE WITH THE TERMS AND CONDITIONS OF SCR100000."

GADSDEN LINTON III, PE SC# 29925

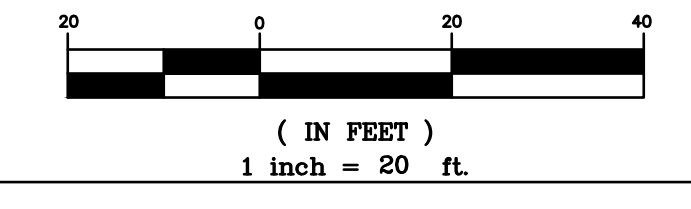
CONSTRUCTION SEQUENCE

- 1) CONTRACTOR TO INSTALL PERIMETER CONTROLS AND CONSTRUCTION ACCESS POINTS. CONTRACTOR TO ENSURE EXISTING EROSION CONTROL DEVICES REMAIN INTACT DURING PROJECT DURATION.
- 2) CLEARING, GRUBBING, AND DEMOLITION.
- 3) ROUGH GRADING AND INSTALLATION OF STORM DRAINAGE LINES AND STRUCTURES.
- 4) INSTALL SEDIMENT CONTROLS AT ALL STRUCTURES WITHIN 5 DAYS OF STRUCTURE INSTALLATION.
- 5) PAVING AND FINAL SITE GRADING.
- 6) LANDSCAPE PLANTING, SODDING, AND GRASSING.
- 7) REMOVE ALL TEMPORARY EROSION & SEDIMENT CONTROL BMP FOLLOWING FINAL INSPECTIONS.
- 8) SUBMIT AS-BUILT SURVEY TO PROJECT ENGINEER AS REQUIRED.
- 9) AS-BUILT DRAWINGS FOR STORMWATER FACILITIES IN ACCORDANCE WITH DHEC SPECIFICATIONS NEED TO BE SUBMITTED AND ACCEPTED BEFORE N.O.T. IS ISSUED.

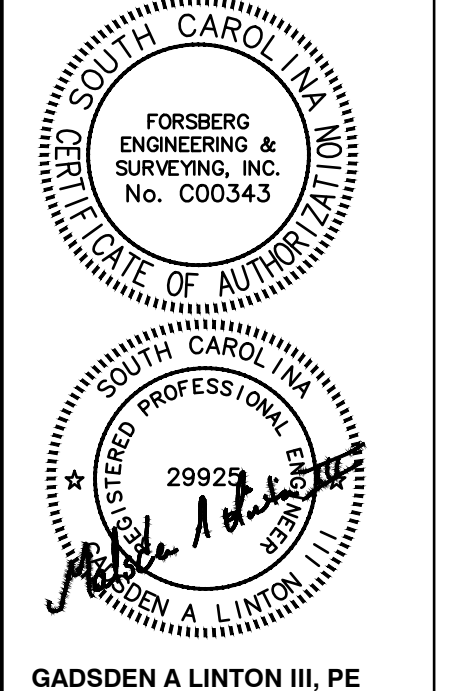
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GRAPHIC SCALE



REV#	DATE	DESCRIPTION

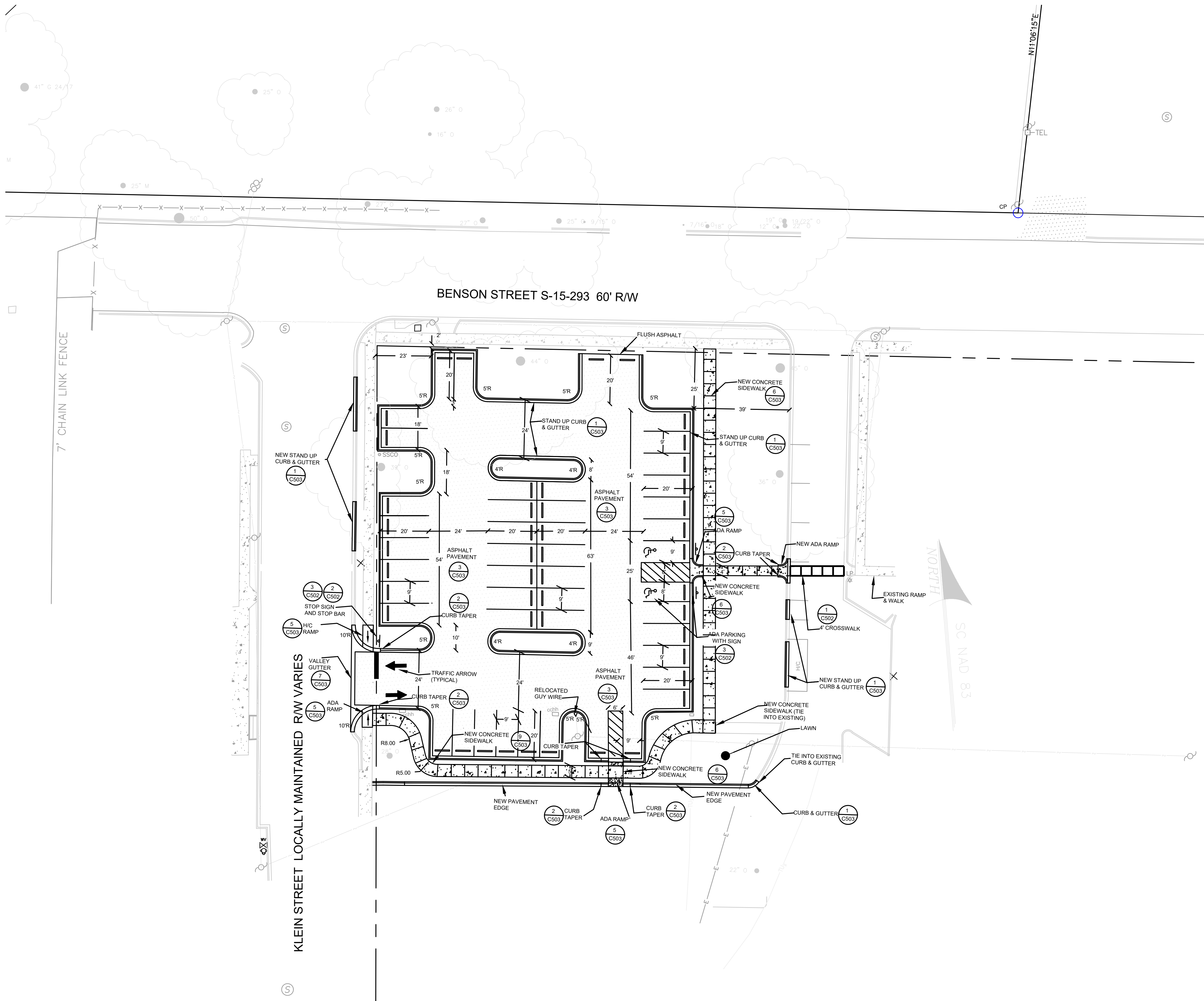


BENSON/KLEIN PARKING LOT
 COLLETON COUNTY
 118 BENSON STREET
 WALTERBORO, SC 29488

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 JOB NUMBER: 1904
 PROJECT MGR.: SM
 DRAWN BY: TL
 CHECKED BY: GL
 APPROVED BY: TL
 DATE ISSUED FOR: 09/22/2021
 BID SET

DEMOLITION & EROSION CONTROL PLAN

C201



SITE DATA:

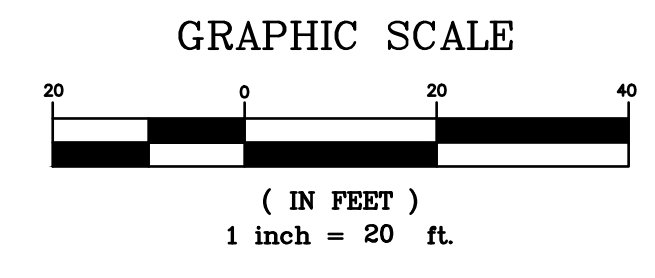
- 1) THE PROPERTY OWNER IS: CCECD ONE INC A SOUTH CAROLINA ELEEM
- 2) THE PROPERTY ADDRESS IS: 118 BENSON STREET, WALTERBORO, SC 29488
- 3) TMS No.: 116-11-00-230
- 4) TOTAL AREA OF TRACTS = 4.0 ACRES
- 5) ZONED: HIGHWAY COMMERCIAL DISTRICT, HCD
- 6) ACCORDING TO FEMA FLOOD INSURANCE RATE MAP45029C0318G DATED DECEMBER 21,2017 THIS PROPERTY APPEARS TO LIE IN ZONE X
- 7) CADD FILES WILL BE PROVIDED TO SUCCESSFUL BIDDER FOR THEIR USE IN THE LAYOUT OF THE PROJECT.

SPECIAL R/W NOTES FOR SCDOT PROJECTS:

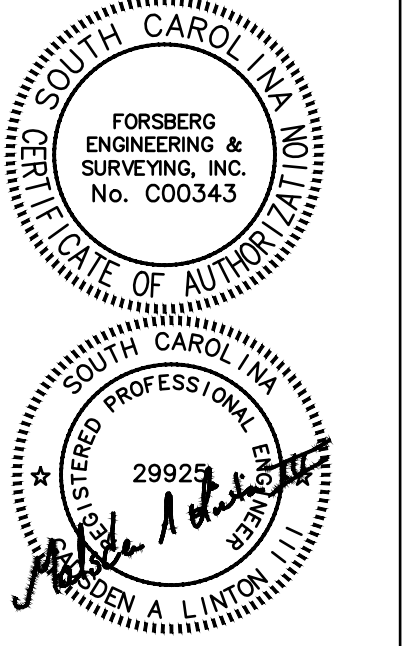
- 1) CONTRACTOR TO REFER TO THE MOST CURRENT EDITION OF THE SCDOT STANDARD DRAWINGS TO MAKE SURE THAT THE DETAILS SHOWN HEREON ARE THE MOST CURRENT SCDOT DETAILS.
- 2) ANY FIELD CHANGES WITHIN SCDOT R/W OR CHANGES THAT WOULD IMPACT SCDOT R/W WILL REQUIRE WRITTEN SCDOT APPROVAL PRIOR TO CHANGES BEING IMPLEMENTED IN THE FIELD. (E.G. DRAINAGE, GRADING, ACCESS DESIGN ETC.)
- 3) SCDOT WILL REQUIRE THAT YOU PROVIDE A TRAFFIC CONTROL PLAN (PHASED AS NECESSARY) FOR REVIEW AND APPROVAL.
- 4) UTILITY COMPANIES MUST SUBMIT UTILITY ENCROACHMENTS UNDER SEPARATE PERMITS FOR NEW CONNECTIONS OR RELOCATION OF EXISTING SERVICES. NO UTILITY WORK CAN BEGIN WITHIN THE R/W WITHOUT AN APPROVED SCDOT ENCROACHMENT PERMIT FOR EACH UTILITY. SCDOT WILL NOT ALLOW AN OPEN CUT OF A STATE ROAD IF IT WAS RECENTLY RESURFACED.
- 5) ALL PIPE INSTALLATIONS WITHIN SCDOT RIGHT OF WAY TO MEET CURRENT SCDOT BACKFILL AND COMPACTIVE STANDARDS (SEE SCDOT STANDARD DRAWINGS SECTION 714-000).
- 6) THE DETAILS SHOWN ON THIS PLAN ARE FOR REFERENCE ONLY. FULL SIZE DETAILS ARE AVAILABLE ON THE SCDOT WEBSITE AT http://www.scdot.org/doing/sd_Book.aspx
- 7) THE OWNER SHALL BE RESPONSIBLE FOR THE MAINTENANCE OF DRIVEWAYS AND OTHER ACCESS POINTS, INCLUDING ANY DRAINAGE STRUCTURES. FOR AREAS WITHIN THE RIGHTS-OF-WAYS OF STATE MAINTAINED FACILITIES IN PERPETUITY. DRIVEWAY ACCESS SHALL BE MAINTAINED FOR INGRESS/EGRESSES - BLOCKING OF ACCESS WILL NOT BE ALLOWED.
- 8) ALL SIGNS LOCATED IN SCDOT RIGHT OF WAY SHALL BE A U-CHANNEL POST AND BREAK AWAY DESIGN IN ADDITION TO MUTCD. SEE SCDOT DETAIL 651-110-00.

MUTCD 2009	
STOP SIGN	- R1-1
DO NOT ENTER	- R5-1
ONE-WAY SIGN	- R6-1L-36
NO PARKING	- R8-3 W/ R7 201P
SPEED LIMIT	- R2-1
RIGHT TURN ONLY	- R3-5R

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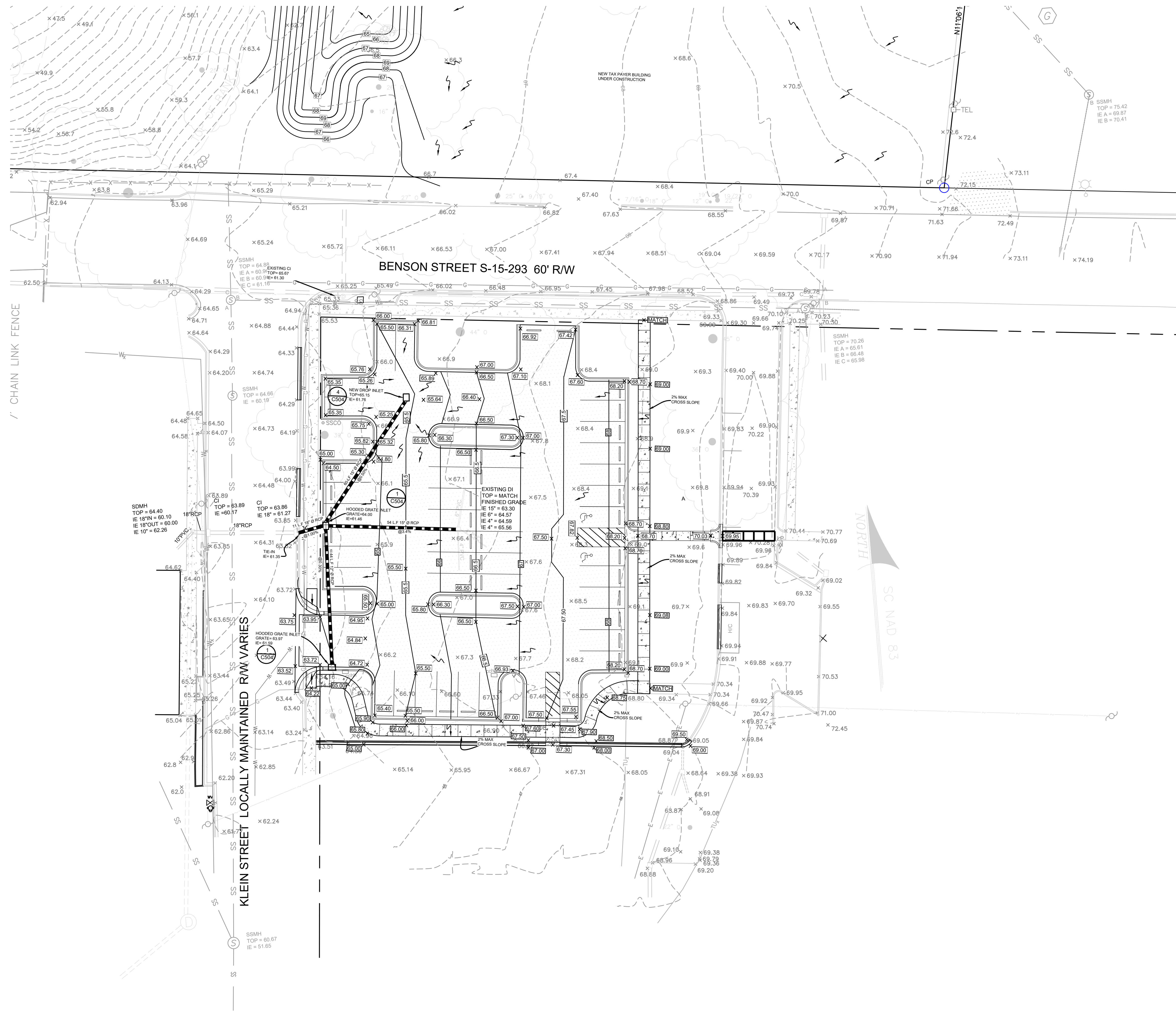
GADSDEN A. LINTON III, PE

BENSON/KLEIN PARKING LOT
COLLETON COUNTY
118 BENSON STREET
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NEW SITE PLAN

C301

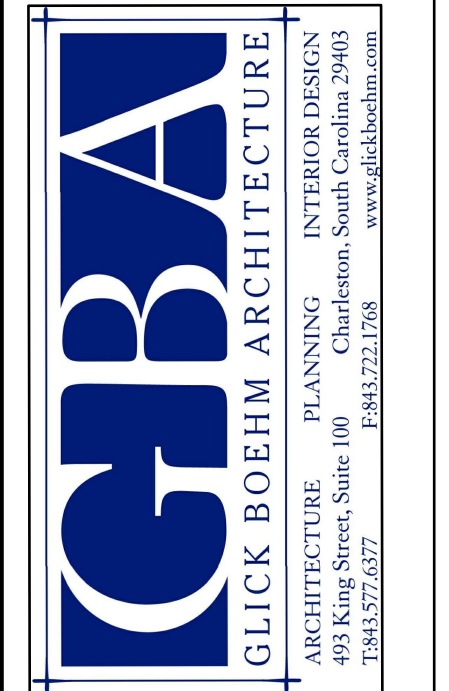


GRADING, DRAINAGE, & UTILITY LEGEND:

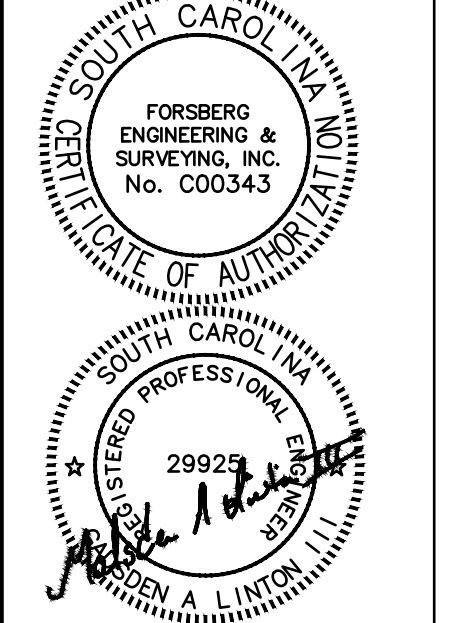
- 7.60 = FINISHED GRADE ELEVATION
- = DRAINAGE DIRECTIONAL ARROW
- DI = DROP INLET
- HDPE = HIGH DENSITY POLYETHYLENE PIPE
- RCP = REINFORCED CONCRETE PIPE
- CO = STORM CLEAN OUT
- = NEW STORM DRAIN PIPE
- SD = STORM DRAINAGE TO BE LOCATED BY OTHERS
- NS = NEW SANITARY SEWER GRAVITY
- NW = NEW POTABLE WATER

GRADING NOTES:

- 1) NEW STORM DRAINAGE LINES SHALL BE LAID UPGRADE AFTER CONFIRMATION OF EXISTING INVERT ELEVATIONS.
- 2) SEE SHEET C201 FOR SWPPP PLAN AND SEQUENCE OF CONSTRUCTION NOTES.
- 3) SEE LANDSCAPE PLANS AND TREE LOCATIONS & HARDSCAPE LAYOUT.
- 4) CONTRACTOR IS RESPONSIBLE OF ALL SWPPP AS-BUILTS.
- 5) EXISTING AND NEW SSMH, WM, WV, DRAINAGE, FIRE HYDRANTS, INLETS ETC. MUST BE ADJUSTED TO FINAL FINISHED GRADES. MINOR ADJUSTMENT MAY BE NECESSARY.
- 6) PRIOR TO PAVING, CONTRACTOR SHALL VERIFY THAT FINE GRADED BASE COURSE MEETS REQUIRED GRADES SUCH AS TO AVOID "BIRD BATH" AREAS ON FINAL PAVEMENT.



REV.	DATE	DESCRIPTION



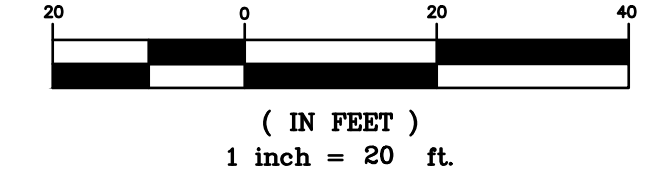
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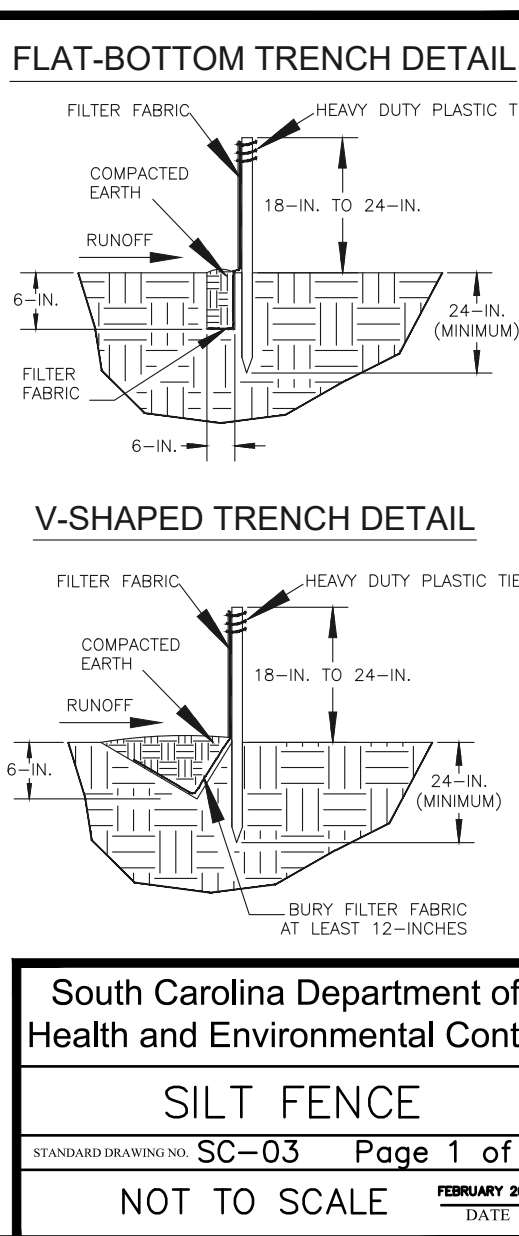
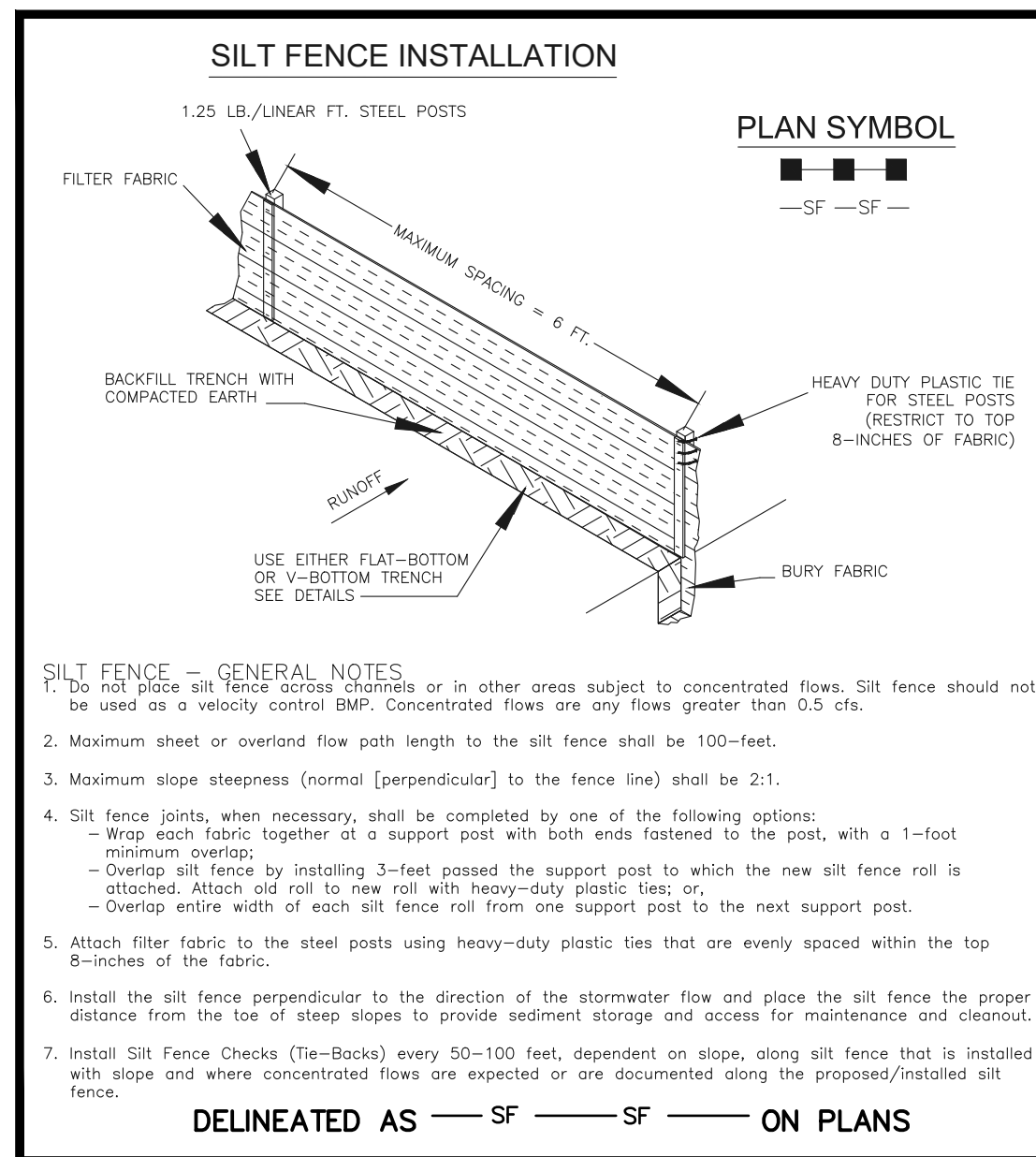
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NEW GRADING, DRAINAGE, & UTILITY PLAN

C401

SCDHEC NPDES STANDARD NOTES (2012 CGP)

- IF NECESSARY, SLOPES, WHICH EXCEED EIGHT (8) VERTICAL FEET SHOULD BE STABILIZED WITH SYNTHETIC OR VEGETATIVE MATS, IN ADDITION TO HYDROSEEDING. IT MAY BE NECESSARY TO INSTALL TEMPORARY SLOPE DRAINS DURING CONSTRUCTION. TEMPORARY BERMS MAY BE NEEDED UNTIL THE SLOPE IS BROUGHT TO GRADE.
- STABILIZATION MEASURES SHALL BE INITIATED AS SOON AS PRACTICABLE IN PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITIES HAVE TEMPORARILY OR PERMANENTLY CEASED, BUT IN NO CASE MORE THAN FOURTEEN (14) DAYS AFTER WORK HAS CEASED, EXCEPT AS STATED BELOW.
 - WHERE STABILIZATION BY THE 14-DAY IS PRECLUDED BY SNOW COVER OR FROZEN GROUND CONDITIONS STABILIZATION MEASURES MUST BE INITIATED AS SOON AS PRACTICABLE.
 - WHERE CONSTRUCTION ACTIVITY ON A PORTION OF THE SITE IS TEMPORARILY CEASED, AND EARTH-DISTURBING ACTIVITIES WILL BE RESUMED WITHIN 14 DAYS, TEMPORARY STABILIZATION MEASURES DO NOT HAVE TO BE INITIATED ON THAT PORTION OF THE SITE.
- ALL SEDIMENT AND EROSION CONTROL DEVICES SHALL BE INSPECTED ONCE CALENDAR EVERY WEEK, IF PERIODIC INSPECTION OR OTHER INFORMATION INDICATES THAT A BMP HAS BEEN INAPPROPRIATELY, OR INCORRECTLY, THE PERMITTEE MUST ADDRESS THE NECESSARY REPLACEMENT OR MODIFICATION REQUIRED TO CORRECT THE BMP WITHIN 48 HOURS OF IDENTIFICATION.
- PROVIDE SILT FENCE AND/OR OTHER CONTROL DEVICES, AS MAY BE REQUIRED, TO CONTROL SOIL EROSION DURING UTILITY CONSTRUCTION. ALL DISTURBED AREAS SHALL BE CLEANED, GRADED, AND STABILIZED WITH GRASSING IMMEDIATELY AFTER THE UTILITY INSTALLATION. FILL, COVER, AND TEMPORARY SEEDING AT THE END OF EACH DAY ARE RECOMMENDED. IF WATER IS ENCOUNTERED WHILE TRENCHING, THE WATER SHOULD BE FILTERED TO REMOVE SEDIMENT BEFORE BEING PUMPED BACK INTO ANY WATERS OF THE STATE.
- ALL EROSION CONTROL DEVICES SHALL BE PROPERLY MAINTAINED DURING ALL PHASES OF CONSTRUCTION UNTIL THE COMPLETION OF ALL CONSTRUCTION ACTIVITIES AND ALL DISTURBED AREAS HAVE BEEN STABILIZED. ADDITIONAL CONTROL DEVICES MAY BE REQUIRED DURING CONSTRUCTION IN ORDER TO CONTROL EROSION AND/OR OFFSITE SEDIMENTATION. ALL TEMPORARY CONTROL DEVICES SHALL BE REMOVED ONCE CONSTRUCTION IS COMPLETE AND THE SITE IS STABILIZED.
- THE CONTRACTOR MUST TAKE NECESSARY ACTION TO MINIMIZE THE TRACKING OF MUD ONTO PAVED ROADWAY(S) FROM CONSTRUCTION AREAS AND THE GENERATION OF DUST. THE CONTRACTOR SHALL DAILY REMOVE MUD/SOIL FROM PAVEMENT, AS MAY BE REQUIRED.
- RESIDENTIAL SUBDIVISIONS REQUIRE EROSION CONTROL FEATURES FOR INFRASTRUCTURE AS WELL AS FOR INDIVIDUAL LOT CONSTRUCTION. INDIVIDUAL PROPERTY OWNERS SHALL FOLLOW THESE PLANS DURING CONSTRUCTION OR OBTAIN APPROVAL OF AN INDIVIDUAL PLAN IN ACCORDANCE WITH S.C. REG. 72-300 ET SEQ. AND SCR100000.
- TEMPORARY DIVERSION BERMS AND/OR DITCHES WILL BE PROVIDED AS NEEDED DURING CONSTRUCTION TO PROTECT WORK AREAS FROM UPSLOPE RUNOFF AND/OR TO DIVERT SEDIMENT-LADEN WATER TO APPROPRIATE TRAPS OR STABLE OUTLETS.
- ALL WATERS OF THE STATE (WOS), INCLUDING WETLANDS, ARE TO BE FLAGGED OR OTHERWISE CLEARLY MARKED IN THE FIELD. A DOUBLE ROW OF SILT FENCE IS TO BE INSTALLED IN ALL AREAS WHERE A 50-FOOT BUFFER CANT BE MAINTAINED BETWEEN THE DISTURBED AREA AND ALL WOS. A 10-FOOT BUFFER SHOULD BE MAINTAINED BETWEEN THE LAST ROW OF SILT FENCE AND ALL WOS.
- LITTER, CONSTRUCTION DEBRIS, OILS, FUELS, AND BUILDING PRODUCTS WITH SIGNIFICANT POTENTIAL FOR IMPACT (SUCH AS STOCKPILES OF FRESHLY TREATED LUMBER) AND CONSTRUCTION CHEMICALS THAT COULD BE EXPOSED TO STORM WATER MUST BE PREVENTED FROM BECOMING A POLLUTANT SOURCE IN STORM WATER DISCHARGES.
- A COPY OF THE SWPPP, INSPECTION RECORDS, AND RAINFALL DATA MUST BE RETAINED AT THE CONSTRUCTION SITE OR A NEARBY LOCATION EASILY ACCESSIBLE DURING NORMAL BUSINESS HOURS, FROM THE DATE OF COMMENCEMENT OF CONSTRUCTION ACTIVITIES TO THE DATE THAT FINAL STABILIZATION IS REACHED.
- INITIATE STABILIZATION MEASURES ON ANY EXPOSED STEEP SLOPE (3H:1V OR GREATER) WHERE LAND-DISTURBING ACTIVITIES HAVE PERMANENTLY OR TEMPORARILY CEASED, AND WILL NOT RESUME FOR A PERIOD OF 7 CALENDAR DAYS.
- MINIMIZE SOIL COMPACTION AND, UNLESS INFEASIBLE, PRESERVE TOPSOIL.
- MINIMIZE THE DISCHARGE OF POLLUTANTS FROM EQUIPMENT AND VEHICLE WASHING. WHEEL WASH WATER, AND OTHER WASH WATERS, WASH WATERS MUST BE TREATED IN A SEDIMENT BASIN OR ALTERNATIVE CONTROL THAT PROVIDES EQUIVALENT OR BETTER TREATMENT PRIOR TO DISCHARGE.
- MINIMIZE THE DISCHARGE OF POLLUTANTS FROM DEWATERING OF TRENCHES AND EXCAVATED AREAS. THESE DISCHARGES ARE TO BE ROUTED THROUGH APPROPRIATE BMPs (SEDIMENT BASIN, FILTER BAG, ETC.).
- THE FOLLOWING DISCHARGES FROM SITES ARE PROHIBITED:
 - WASTEWATER FROM WASHOUT OF CONCRETE, UNLESS MANAGED BY AN APPROPRIATE CONTROL;
 - WASTEWATER FROM WASHOUT AND CLEANOUT OF STUCCO, PAINT, FORM RELEASE OILS, CURING COMPOUNDS AND OTHER CONSTRUCTION MATERIALS;
 - FUELS, OILS, OR OTHER POLLUTANTS USED IN VEHICLE AND EQUIPMENT OPERATION AND MAINTENANCE; AND
 - SOAPS OR SOLVENTS USED IN VEHICLE AND EQUIPMENT WASHING.
- AFTER CONSTRUCTION ACTIVITIES BEGIN, INSPECTIONS MUST BE CONDUCTED AT A MINIMUM OF AT LEAST ONCE EVERY CALENDAR WEEK AND MUST BE CONDUCTED UNTIL FINAL STABILIZATION IS REACHED ON ALL AREAS OF THE CONSTRUCTION SITE.
- IF EXISTING BMPs NEED TO BE MODIFIED OR IF ADDITIONAL BMPs ARE NECESSARY TO COMPLY WITH THE REQUIREMENTS OF THIS PERMIT AND/OR SC'S WATER QUALITY STANDARDS, IMPLEMENTATION MUST BE COMPLETED BEFORE THE NEXT STORM EVENT WHENEVER PRACTICABLE. IF IMPLEMENTATION BEFORE THE NEXT STORM EVENT IS IMPRACTICABLE, THE SITUATION MUST BE DOCUMENTED IN THE SWPPP AND ALTERNATIVE BMPs MUST BE IMPLEMENTED AS REASONABLY POSSIBLE.
- A PRE-CONSTRUCTION CONFERENCE MUST BE HELD FOR EACH CONSTRUCTION SITE WITH AN APPROVED ON-SITE SWPPP PRIOR TO THE IMPLEMENTATION OF CONSTRUCTION ACTIVITIES. FOR NON-LINEAR PROJECTS THAT DISTURB 10 ACRES OR MORE THIS CONFERENCE MUST BE HELD ON-SITE UNLESS THE DEPARTMENT HAS APPROVED OTHERWISE.



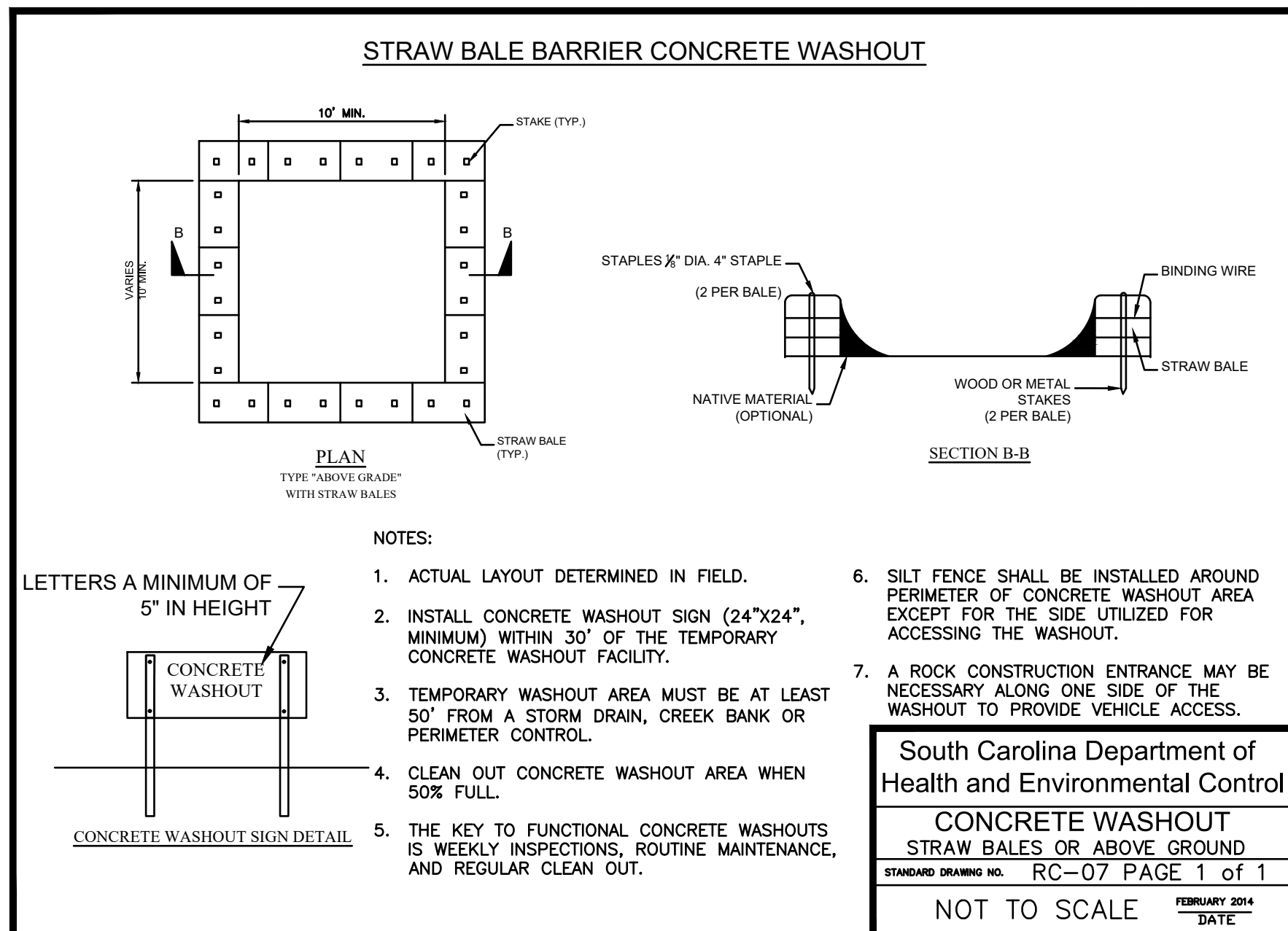
- SILT FENCE — GENERAL NOTES**
- Do not place silt fence across channels or in other areas subject to concentrated flows. Silt fence should not be used as a velocity control BMP. Concentrated flows are any flows greater than 0.5 cfs.
 - Maximum sheet or overland flow path length to the silt fence shall be 100-feet.
 - Maximum slope steepness (normal [perpendicular] to the fence line) shall be 2:1.
 - Silt fence joints, when necessary, shall be completed by one of the following options:
 - Wrap each fabric together at a support post with both ends fastened to the post, with a 1-foot minimum overlap;
 - Overlap silt fence by installing 3-feet passed the support post to which the new silt fence roll is attached. Attach old roll to new roll with heavy-duty plastic ties; or,
 - Overlap entire width of each silt fence roll from one support post to the next support post.
 - Attach filter fabric to the steel posts using heavy-duty plastic ties that are evenly spaced within the top 8-inches of the fabric.
 - Install the silt fence perpendicular to the direction of the stormwater flow and place the silt fence the proper distance from the toe of steep slopes to provide sediment storage and access for maintenance and cleanup.
 - Install Silt Fence Checks (Tie-Backs) every 50-100 feet, dependent on slope, along silt fence that is installed with slope and where concentrated flows are expected or are documented along the proposed/installed silt fence.
- SILT FENCE — FABRIC REQUIREMENTS**
- Silt fence must be composed of woven geotextile filter fabric that consists of the following requirements:
 - Composed of fibers consisting of long chain synthetic polymers of at least 85% by weight of polypropylene, polyesters, or polyamides that are formed into a network such that the filaments or yarns retain dimensional stability relative to each other;
 - Free of any treatment or coating which might adversely alter its physical properties after installation;
 - Free of any defects or flaws that significantly affect its physical and/or filtering properties; and,
 - Have a minimum width of 36-inches.
 - Use only fabric appearing on SC DOT's Qualified Products Listing (QPL), Approval Sheet #34, meeting the requirements of the most current edition of the SC DOT Standard Specifications for Highway Construction.
 - 12-inches of the fabric should be placed within excavated trench and tied in when the trench is backfilled.
 - Filter fabric shall be purchased in continuous rolls and cut to the length of the barrier to avoid joints.
 - Filter Fabric shall be installed at a minimum of 24-inches above the ground.

- SILT FENCE — INSPECTION & MAINTENANCE**
- The key to functional silt fence is weekly inspections, routine maintenance, and regular sediment removal.
 - Regular inspections of silt fence shall be conducted once every calendar week and, as recommended, within 24-hours after each rainfall event that produces 1/2-inch or more of precipitation.
 - Attention to sediment accumulations along the silt fence is extremely important. Accumulated sediment should be continuously monitored and removed when necessary.
 - Remove accumulated sediment when it reaches 1/3 the height of the silt fence.
 - Removed sediment shall be placed in stockpile storage areas or spread thinly across disturbed area. Stabilize the removed sediment after it is relocated.
 - Check for areas where stormwater runoff has eroded a channel beneath the silt fence, or where the fence has sagged or collapsed due to runoff overtopping the silt fence. Install checks/tie-backs and/or re-install silt fence, as necessary.
 - Check for tears within the silt fence, areas where silt fence has begun to decompose, and for any other circumstance that may render the silt fence ineffective. Removed damaged silt fence and re-install new silt fence immediately.
 - Silt fence should be removed within 30 days after final stabilization is achieved and once it is removed, the resulting disturbed area shall be permanently stabilized.

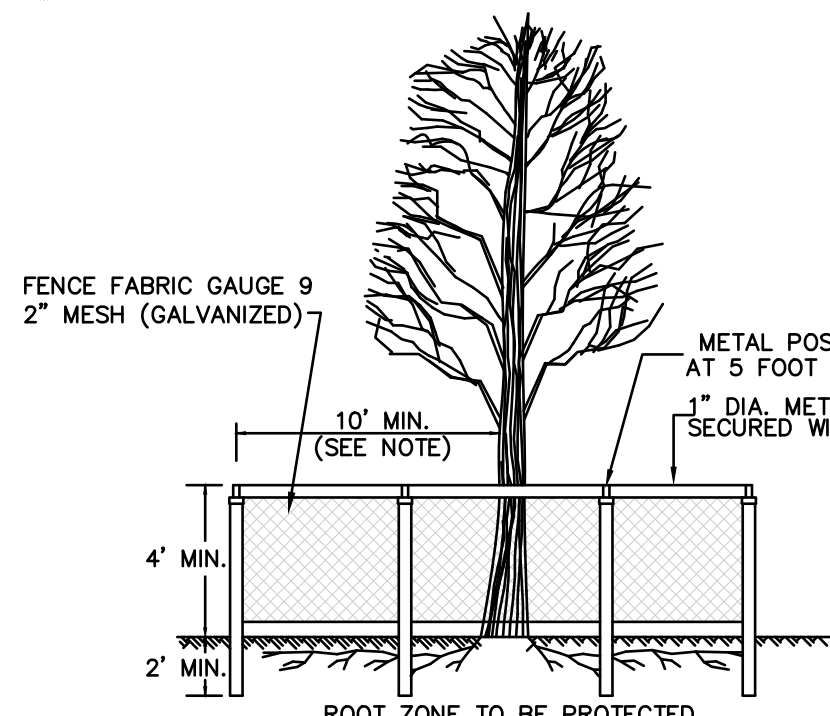
South Carolina Department of Health and Environmental Control
SILT FENCE
 STANDARD DRAWING NO. SC-03 Page 1 of 2
 NOT TO SCALE
 FEBRUARY 2014 DATE

South Carolina Department of Health and Environmental Control
SILT FENCE
 STANDARD DRAWING NO. SC-03 PAGE 2 of 2
 GENERAL NOTES
 FEBRUARY 2014 DATE

SILT FENCE PROTECTION

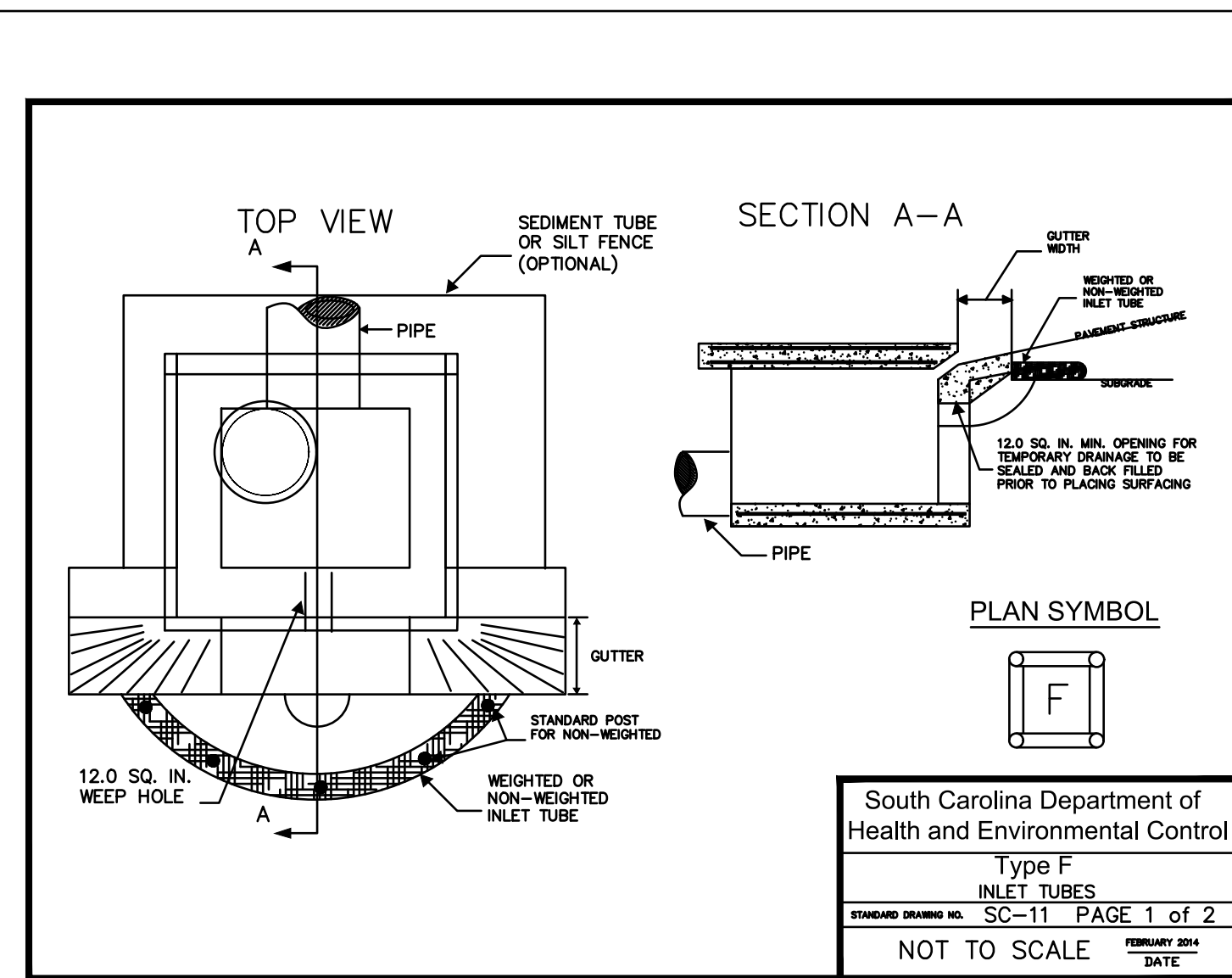


South Carolina Department of Health and Environmental Control
CONCRETE WASHOUT
 STRAW BALES OR ABOVE GROUND
 STANDARD DRAWING NO. RC-07 PAGE 1 of 1
 NOT TO SCALE
 FEBRUARY 2014 DATE



- NOTES:**
- ALL TREE PROTECTION BARRICADES MUST HAVE TWO HORIZONTAL CROSS RAILS.
 - BARRICADES SHALL BE ERECTED AT A MINIMUM DISTANCE FROM THE BASE OF PROTECTED TREES AND GRAND TREES ACCORDING TO THE FOLLOWING STANDARDS:
 - A. FOR PROTECTED TREES TWENTY-THREE INCHES (23") OR LESS D.B.H. PROTECTIVE BARRICADES SHALL BE PLACED A MINIMUM DISTANCE OF TEN FEET (10') FROM THE BASE OF EACH PROTECTED TREE.
 - B.) FOR PROTECTED TREES GREATER THAN TWENTY-THREE INCHES (23") D.B.H. AND GRAND TREES: PROTECTIVE BARRICADES SHALL PROVIDE A DIAMETER OF PROTECTION AROUND THE TREE EQUAL IN FEET TO THE DIAMETER BREST HEIGHT FO THE TREE (i.e., A 24" DIAMETER TREE WOULD REQUIRE A 24-FOOT DIAMETER PROTECTIVE BARRICADE).
- SEE CITY OF CHARLESTON ZONING ORDINANCE SEC. 54-330 TREE PROTECTION FOR ADDITIONAL REQUIREMENTS.
- ***NOTE: TREE PROTECTION FOR GRAND TREES ON SITE SHALL BE 4' CHAIN LINK FENCE.**

South Carolina Department of Health and Environmental Control
TREE BARRICADE/PROTECTION DETAIL
 NOT TO SCALE
 FEBRUARY 2014 DATE



South Carolina Department of Health and Environmental Control
Type F INLET TUBES
 STANDARD DRAWING NO. SC-11 PAGE 1 of 2
 NOT TO SCALE
 FEBRUARY 2014 DATE

- TYPE F — INLET TUBES INLET PROTECTION**
- GENERAL NOTES**
- Inlet tubes should be composed of compacted geotextiles, curled excelsior wood, natural coconut fibers, a hardwood mulch, or a mix of these materials enclosed by a flexible netting material.
 - Inlets tubes should utilize an outer netting that consists of seamless, high-density polyethylene photodegradable materials treated with ultraviolet stabilizers or a seamless, high-density polyethylene non-degradable material. Curled wood excelsior fiber, or natural coconut fiber rolled erosion control products rolled up to create an inlet tube device are not allowed.
 - Do not use straw, straw fiber, straw bales, pine needles, or leaf mulch as fill material within inlet tubes.
 - Weighted inlet tubes must be capable of staying in place without external stabilization measures and may have a weighted inner core or other weighted mechanism to keep them in place.
 - Install weighted tubes lying flat on the ground, with no gaps between the underlying surface and the inlet tube. Do not stack inlet tubes. Do not completely block inlet with tube.
 - Non-weighted inlet tubes require staking or other stabilization methods to keep them safely in place.
 - Overflow or overtopping of inlet tubes must be allowed to flow into inlet unobstructed.
 - To avoid possible flooding, two or three concrete cinder blocks may be placed between the tube and the inlet.
- INSPECTION AND MAINTENANCE**
- The key to functional inlet protection is weekly inspection, routine maintenance, and regular sediment removal.
 - Regular inspections of all inlet protection shall be conducted once every calendar week and, as recommended, within 24-hours after each rainfall event that produces 1/2-inch or more of precipitation.
 - Attention to sediment accumulations in front of the inlet protection is extremely important. Accumulated sediment should be continuously monitored and removed when necessary.
 - Remove accumulated sediment when it reaches 1/3 the height of the blocks. If a sump is used, sediment should be removed when it fills approximately 1/3 the depth of the hole.
 - Removed sediment shall be placed in stockpile storage areas or spread thinly across disturbed area. Stabilize the removed sediment after it is relocated.
 - Large debris, trash, and leaves should be removed from in front of tubes when found.
 - Replace inlet tube when damaged or as recommended by manufacturer's specifications.
 - Inlet protection structures should be removed after the disturbed areas are permanently stabilized. Remove all construction material and sediment, and dispose of them properly. Grade the disturbed area to the elevation of the drop inlet structure crest. Stabilize all bare areas immediately.

South Carolina Department of Health and Environmental Control
Type F INLET TUBES
 STANDARD DRAWING NO. SC-11 PAGE 2 of 2
 GENERAL NOTES
 FEBRUARY 2014 DATE

INLET SILT PROTECTION(TUBE)

GLICK BOEHM ARCHITECTURE
 PLANNING INTERIOR DESIGN
 ARCHITECTURE SURVEYING, INC.
 493 King Street, Suite 100
 Charleston, South Carolina 29403
 P: 843.727.1208
 www.glickboehm.com

REV#	DATE	DESCRIPTION

SOUTH CAROLINA PROFESSIONAL ENGINEERS & SURVEYORS
 FORSBERG ENGINEERING & SURVEYING, INC.
 No. C00343
 29925
 GADSDEN A LINTON III, PE

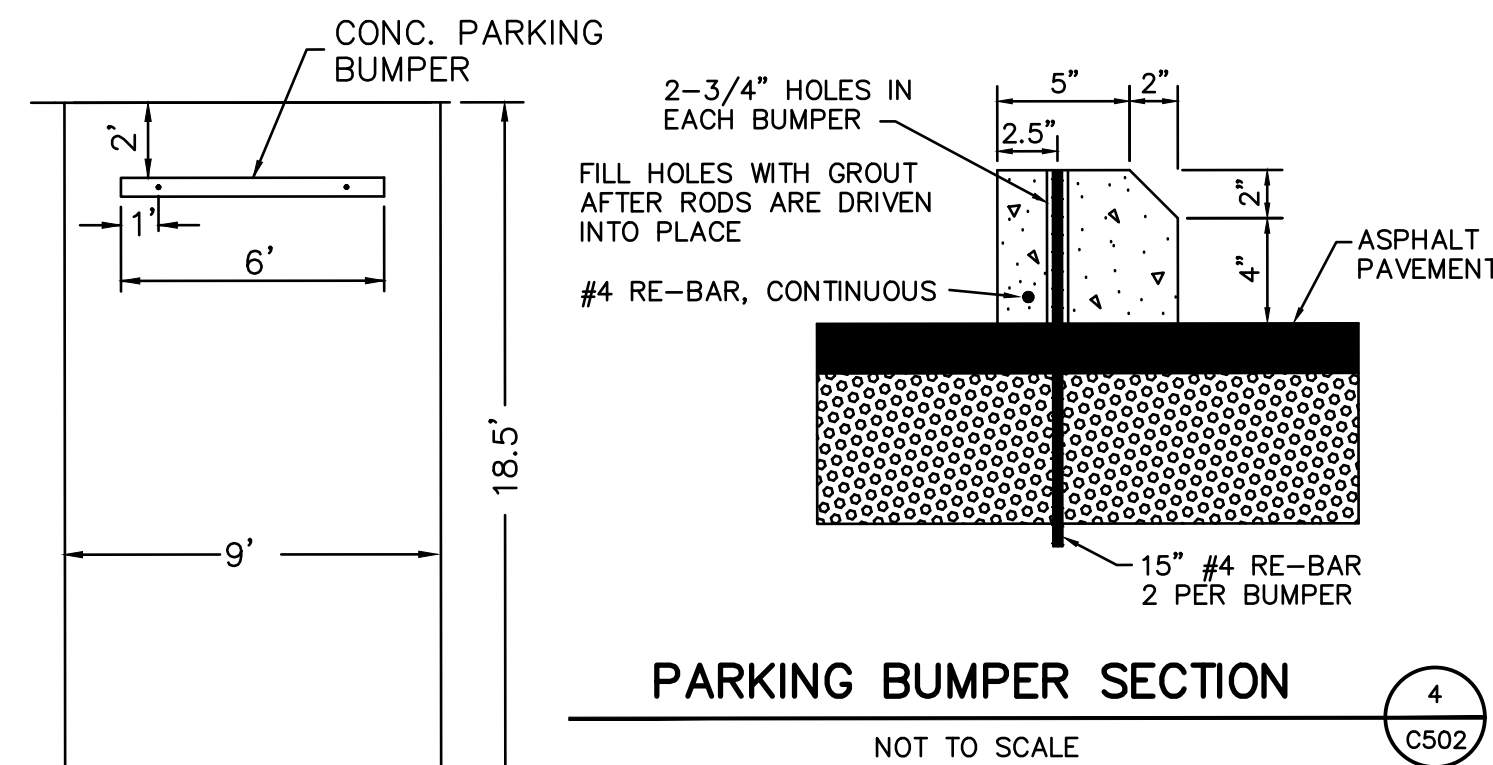
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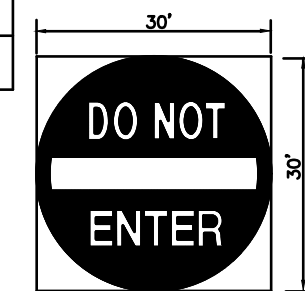
CONSTRUCTION DETAILS

C501



NUMBER	SIZE	CLASS
*R5-1-30	30" X 30"	STANDARD

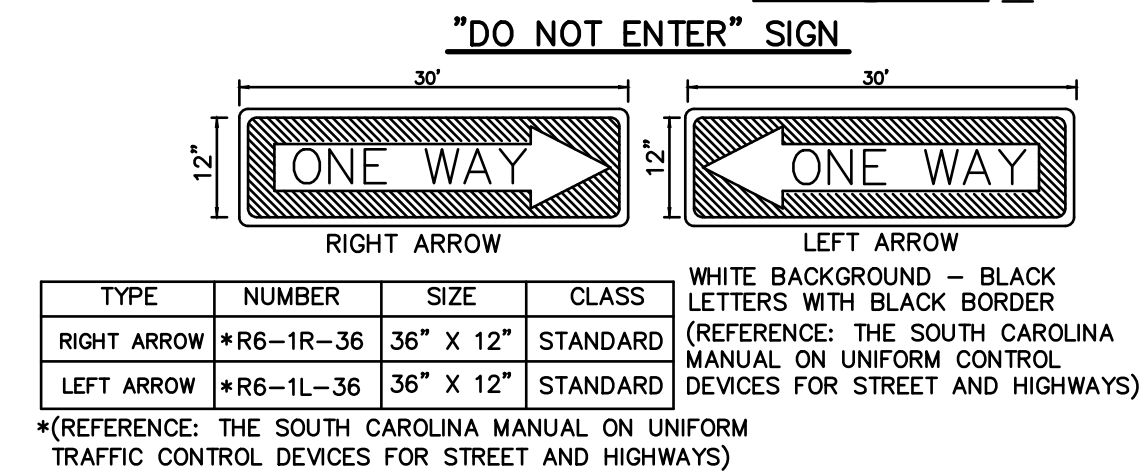
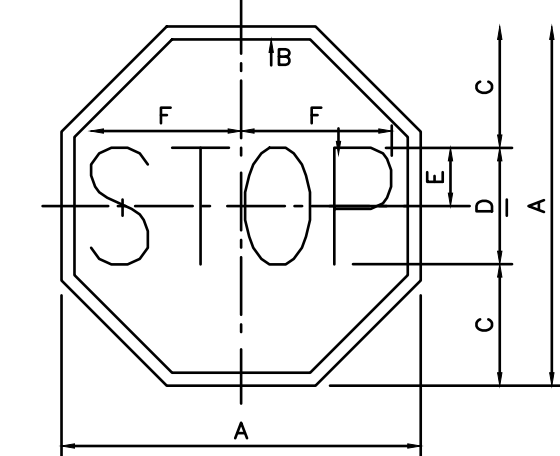
*REFERENCE: THE SOUTH CAROLINA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREET AND HIGHWAYS)
LEGEND AND BACKGROUND: WHITE REFLECTORIZED.
CIRCLE: RED-REFLECTORIZED.



SIGN	DIMENSION (INCHES)					
	A	B	C	D	E	F
STD.	30	13/4	10	10C	5	12-1/2

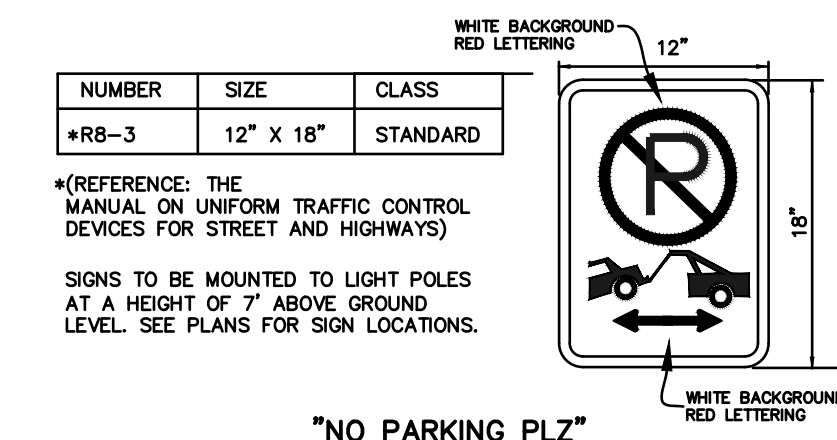
LETTER INDICATES STANDARD ALPHABET SERIES

COLORS:
LEGEND - WHITE REFLECTORIZED PAINT
BACKGROUND - RED REFLECTORIZED PAINT



TYPE	NUMBER	SIZE	CLASS
RIGHT ARROW	*R6-1R-36	36" X 12"	STANDARD
LEFT ARROW	*R6-1L-36	36" X 12"	STANDARD

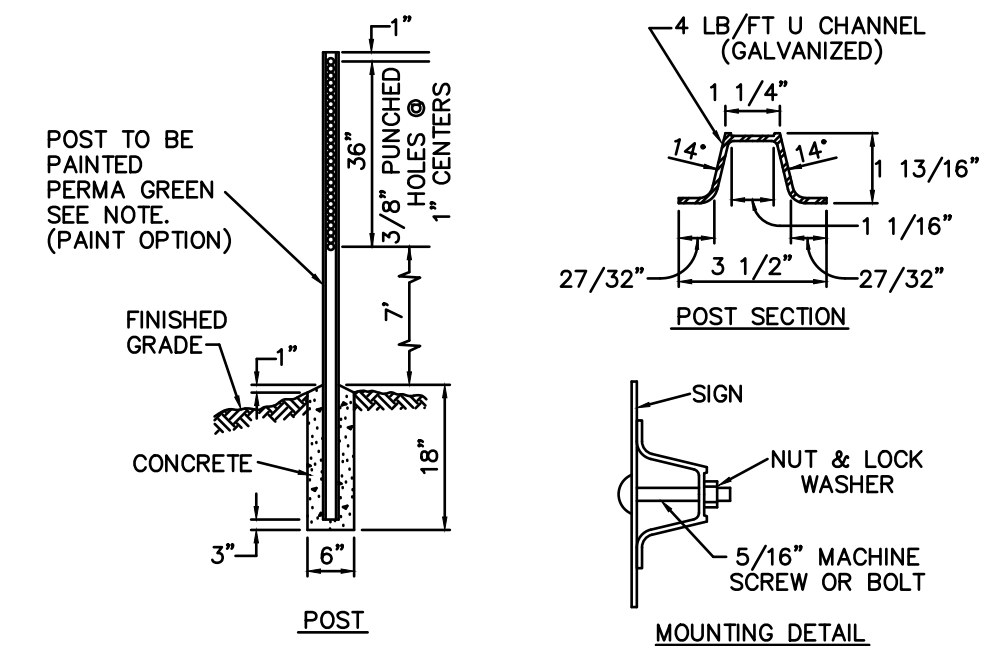
*REFERENCE: THE SOUTH CAROLINA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREET AND HIGHWAYS)



NUMBER	SIZE	CLASS
*R8-3	12" X 18"	STANDARD

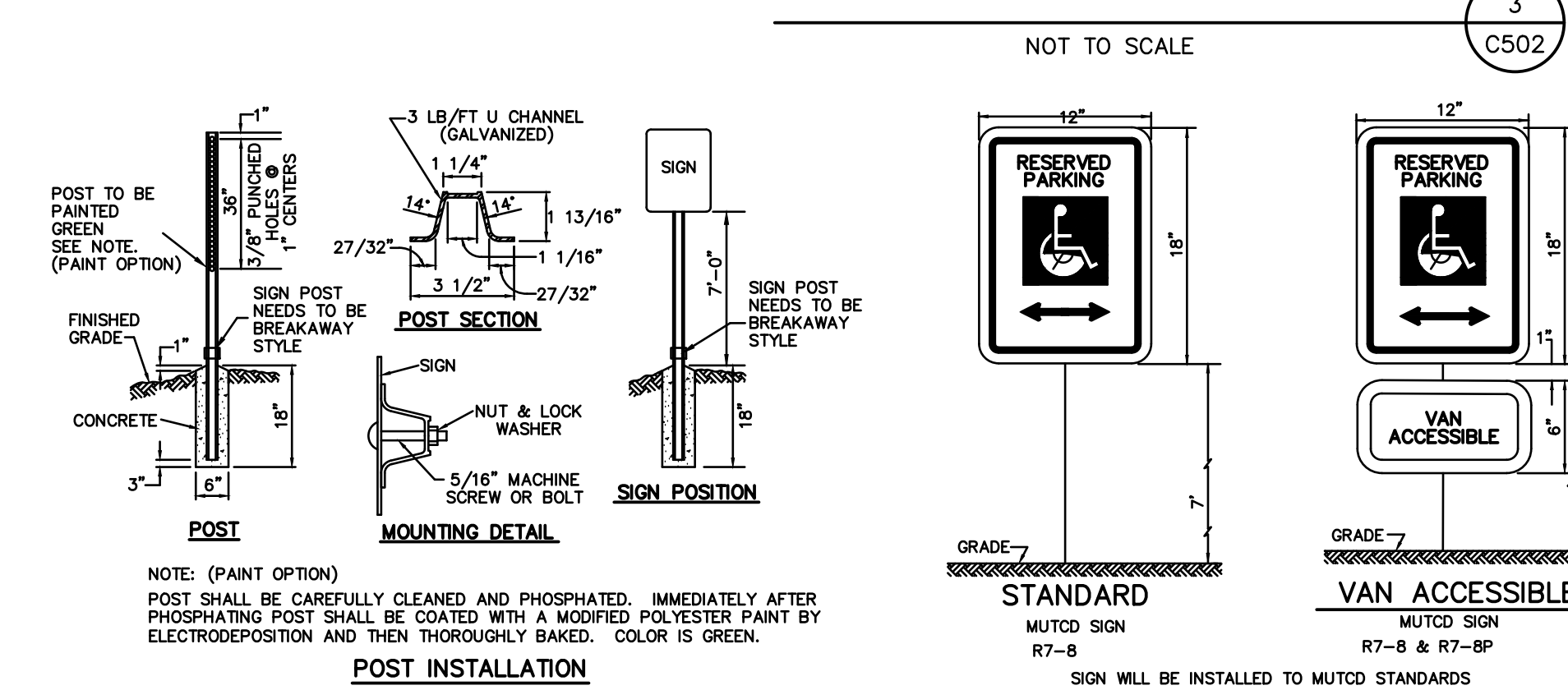
*REFERENCE: THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREET AND HIGHWAYS)
SIGNS TO BE MOUNTED TO LIGHT POLES AT A HEIGHT OF 7' ABOVE GROUND LEVEL. SEE PLANS FOR SIGN LOCATIONS.

STOP SIGN DETAIL

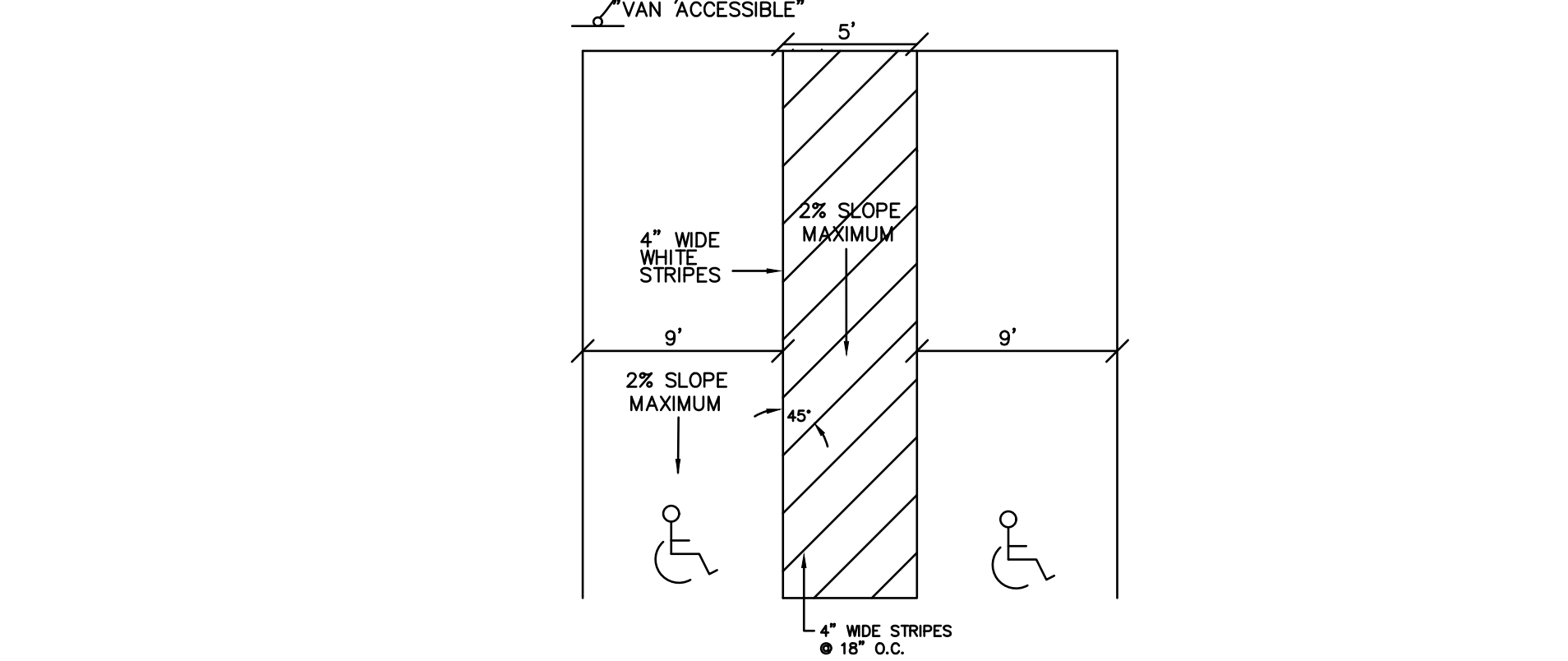


NOTE: (PAINT OPTION)
POST SHALL BE CAREFULLY CLEANED AND PHOSPHATED. IMMEDIATELY AFTER PHOSPHATING POST SHALL BE COATED WITH A MODIFIED POLYESTER PAINT BY ELECTRODEPOSITION AND THEN THOROUGHLY BAKED. COLOR IS PERMA-GREEN PER FEDERAL STANDARD 595-A COLOR NUMBER 14109 (DARK LIMIT V-).

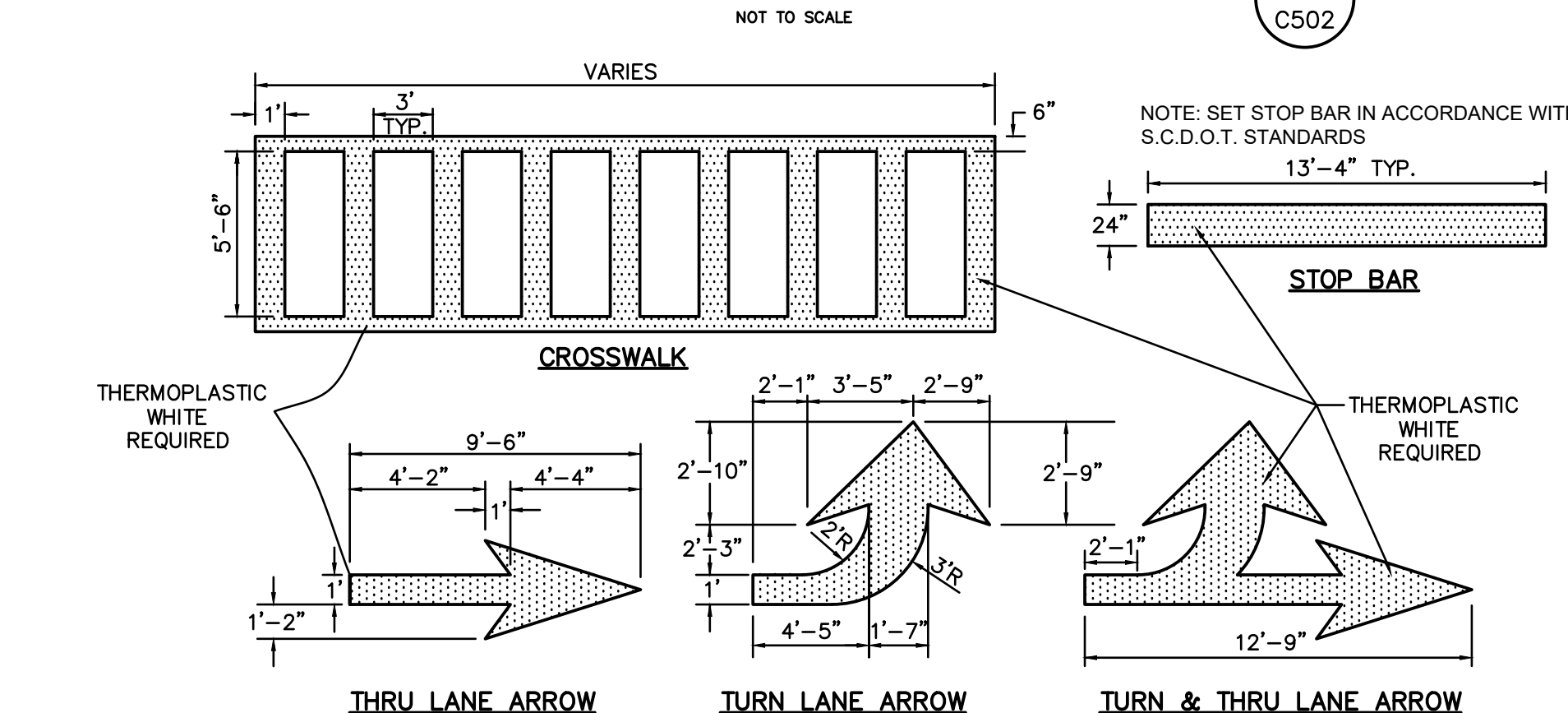
STOP SIGN & POST DETAIL



HANDICAPPED PARKING SIGN



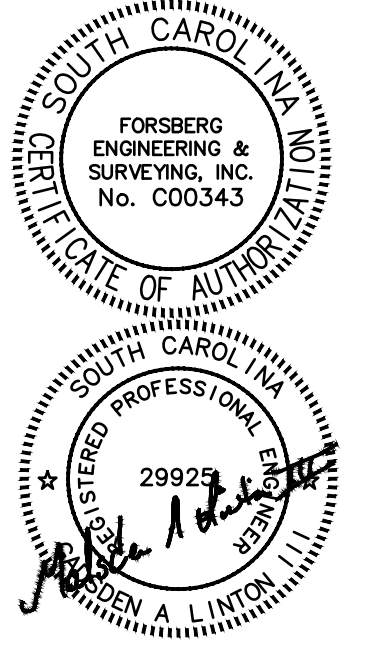
HANDICAP PARKING DETAIL



PAVEMENT MARKING DETAIL



REV.	DATE	DESCRIPTION



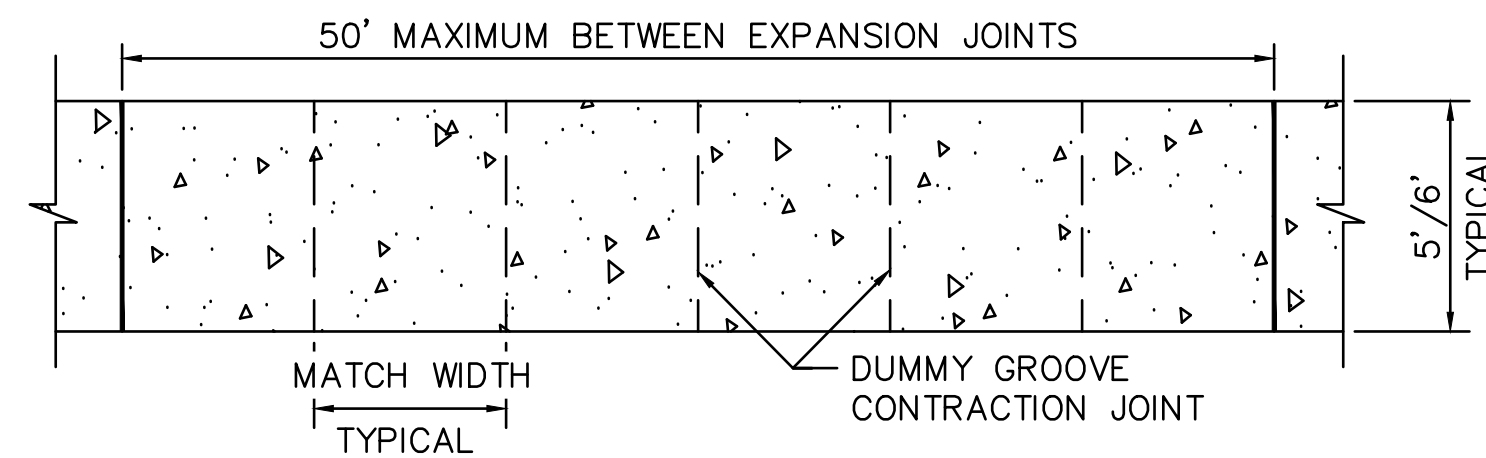
GADSDEN A LINTON III, PE

BENSON/KLEIN PARKING LOT
COLLETON COUNTY
118 BENSON STREET
WALTERBORO, SC 29488

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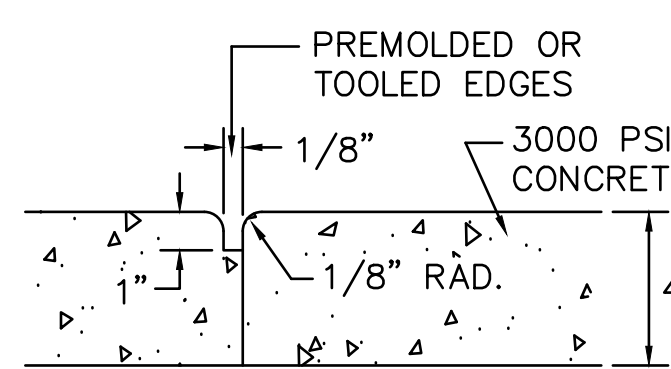
CONSTRUCTION DETAILS

C502

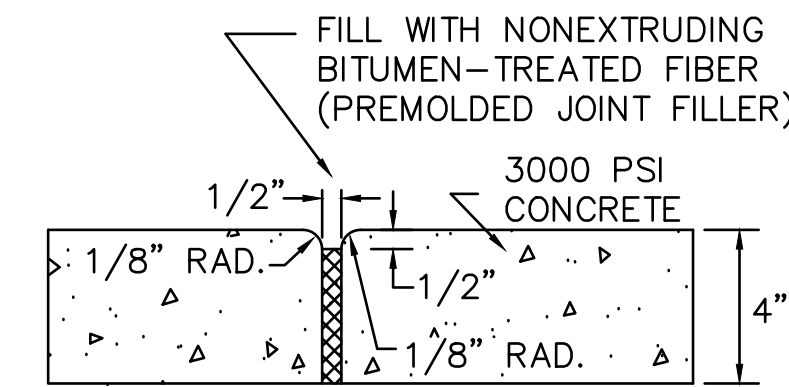


SIDEWALK PLAN

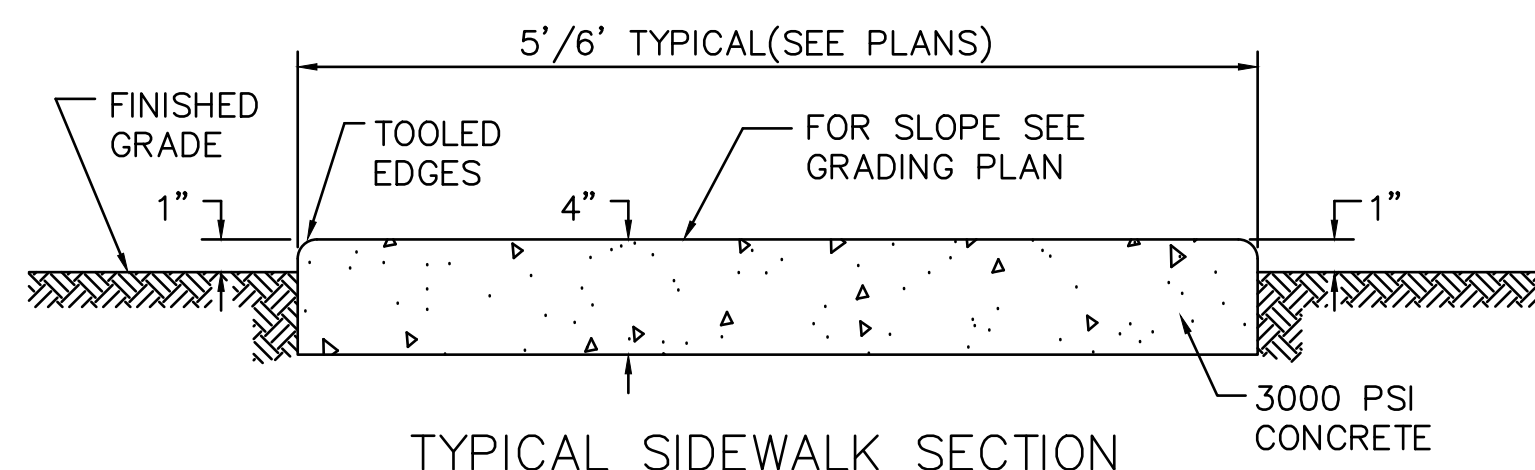
NOTE: ALSO PROVIDE EXPANSION JOINTS WHERE SIDEWALK ABUTS CURB & GUTTER AND/OR OTHER SIDEWALKS.



DUMMY GROOVE CONTRACTION JOINT



EXPANSION JOINT

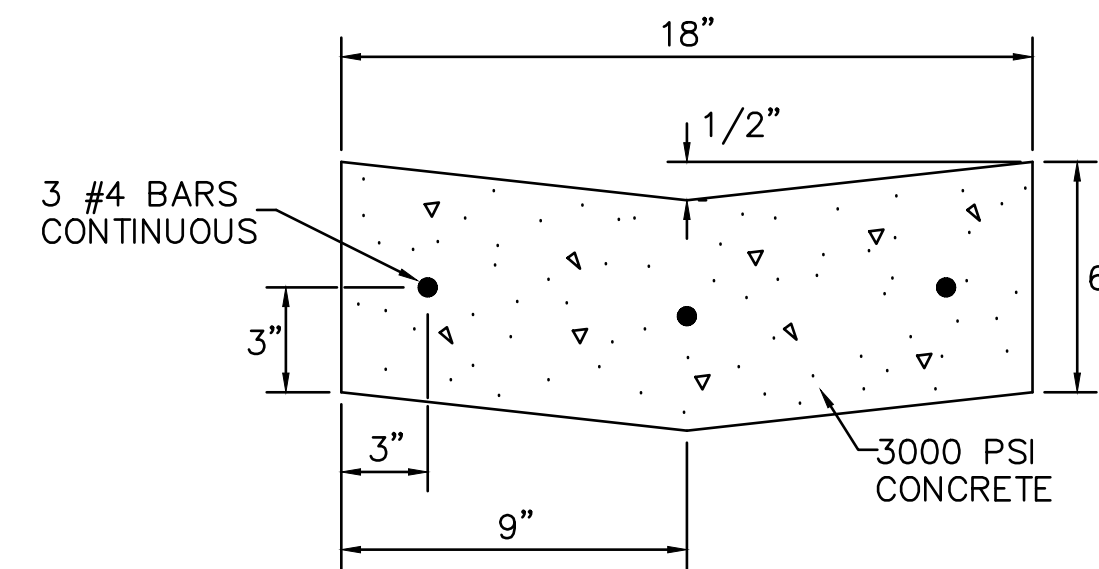


TYPICAL SIDEWALK SECTION

SIDEWALK DETAIL

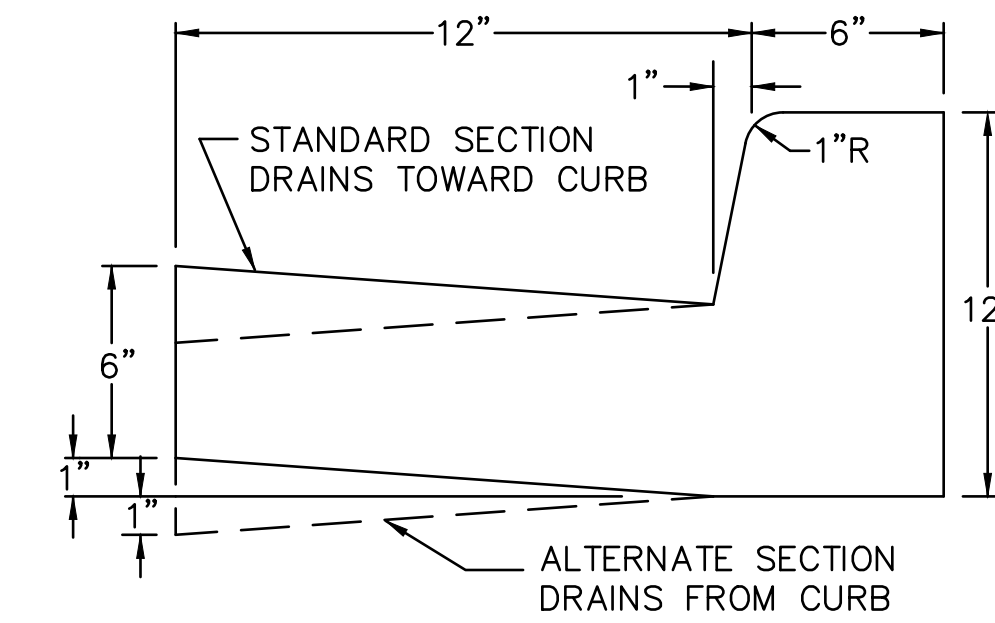
NOT TO SCALE

NOTE: SIDEWALK CONTRACTION JOINTS @ 6'-0" O.C., EXPANSION JOINTS @ 24'-0" O.C., UNLESS SHOWN OTHERWISE ON PLANS



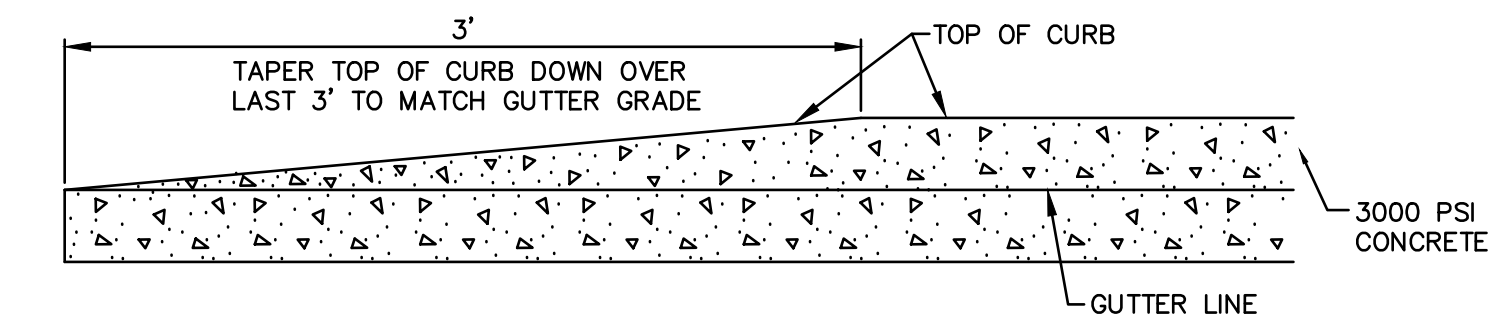
CONCRETE VALLEY GUTTER DETAIL

NOT TO SCALE



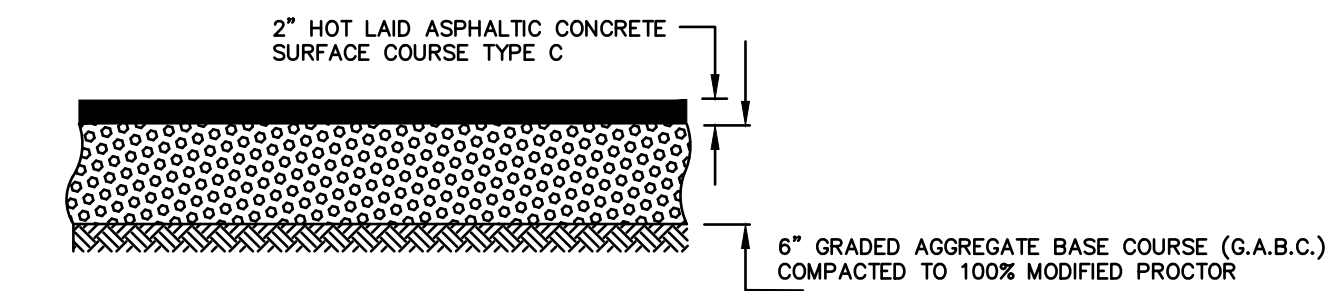
CONCRETE CURB DETAIL

NOT TO SCALE



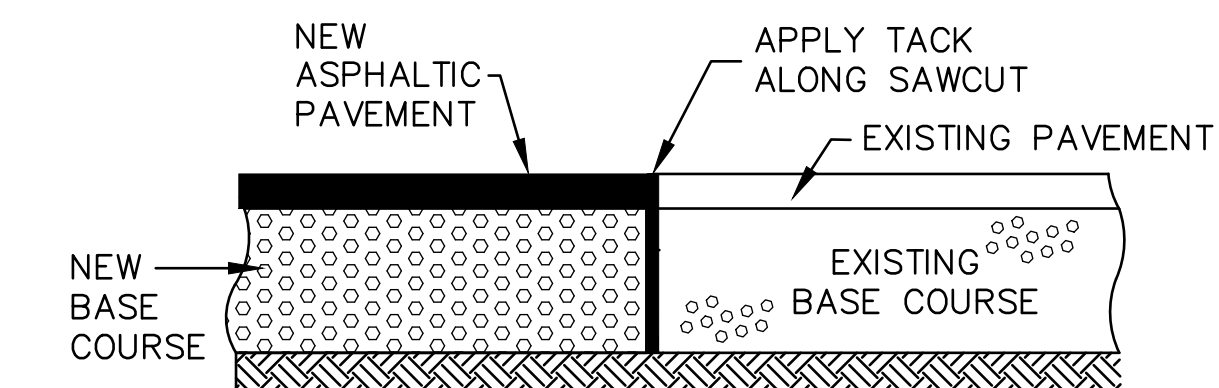
CONCRETE CURB TAPER DETAIL

NOT TO SCALE



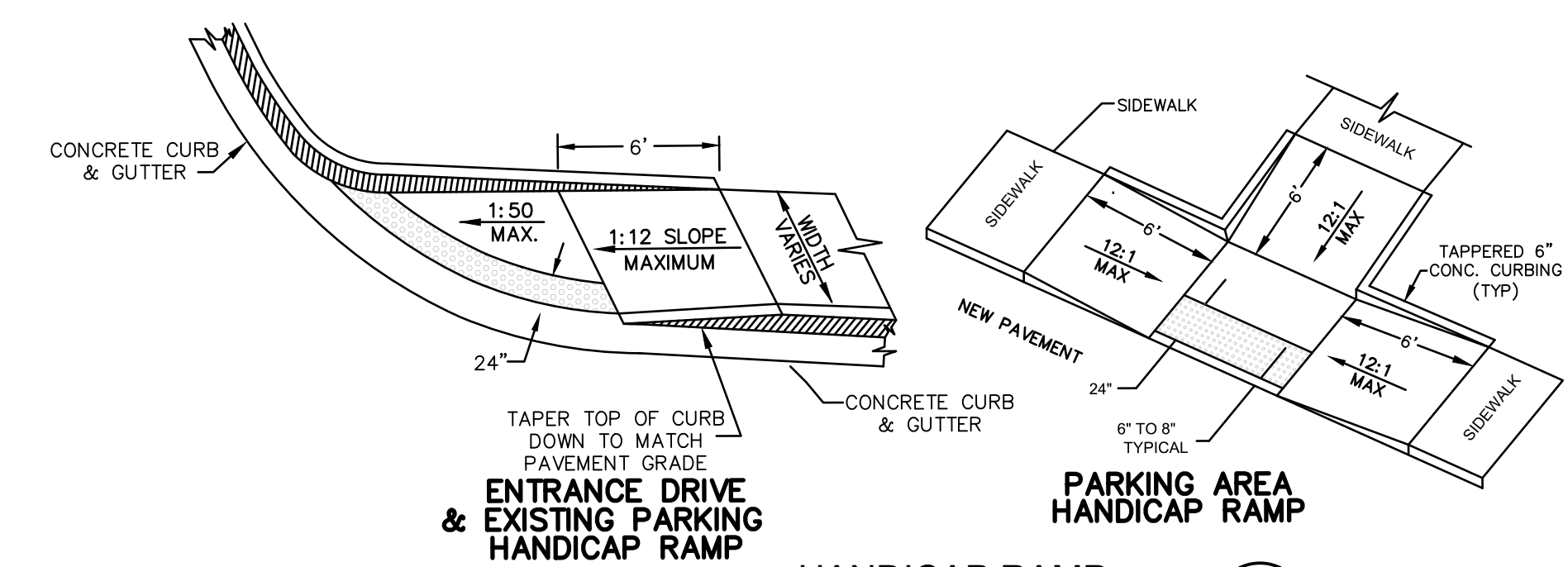
TYPICAL PAVEMENT SECTION

NOT TO SCALE



PAVEMENT JOINING DETAIL

NOT TO SCALE

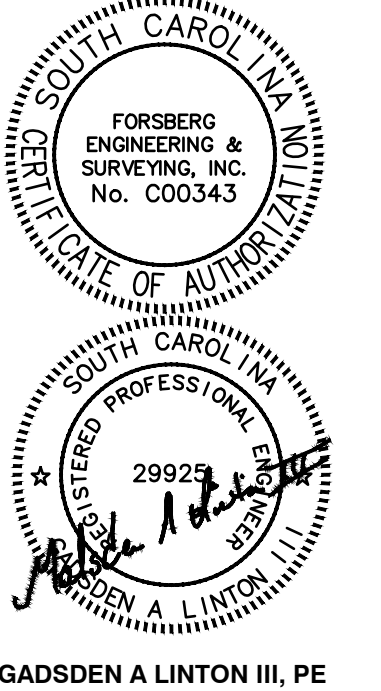


HANDICAP RAMP

NOT TO SCALE



REV	DATE	DESCRIPTION

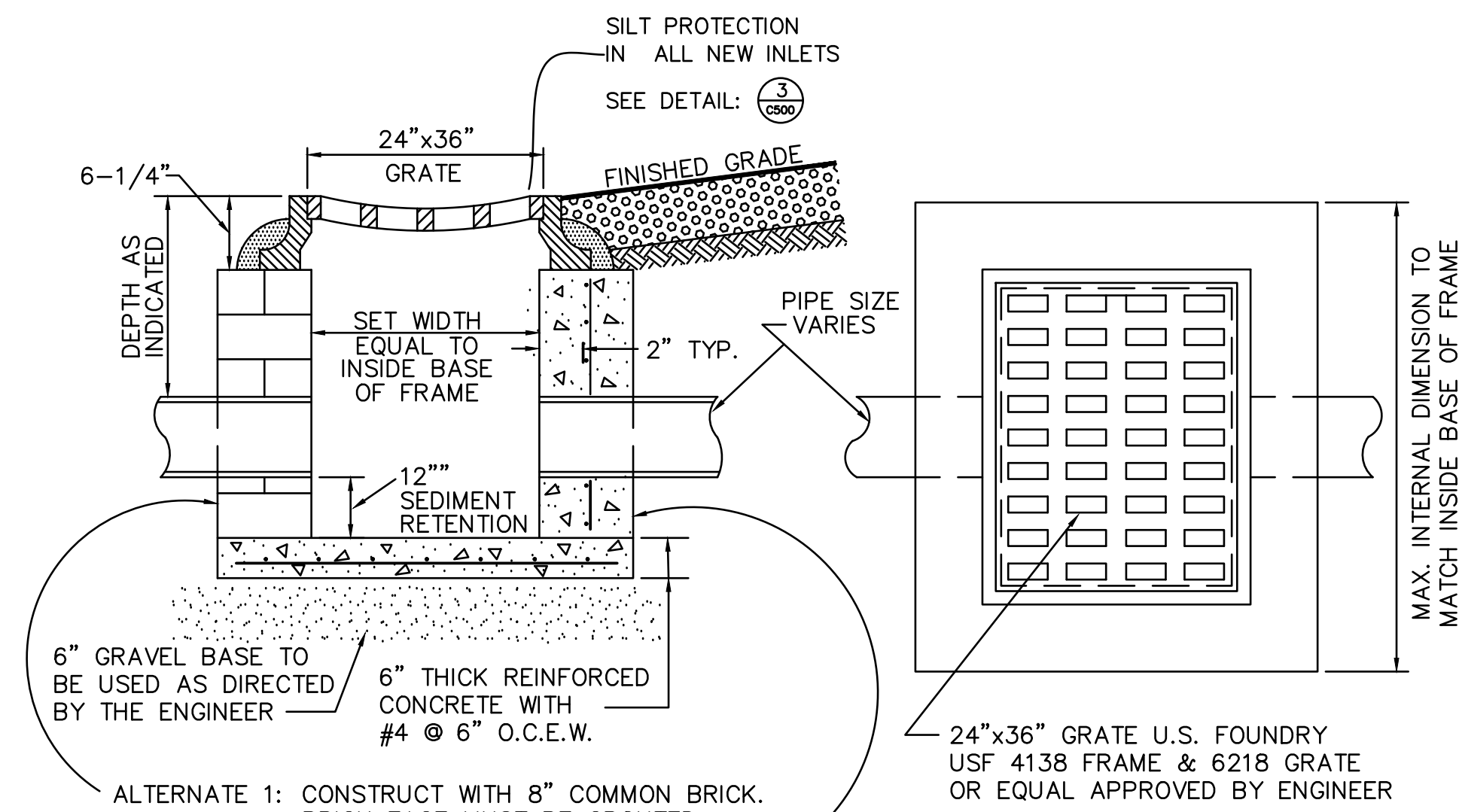


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CONSTRUCTION DETAILS

C503

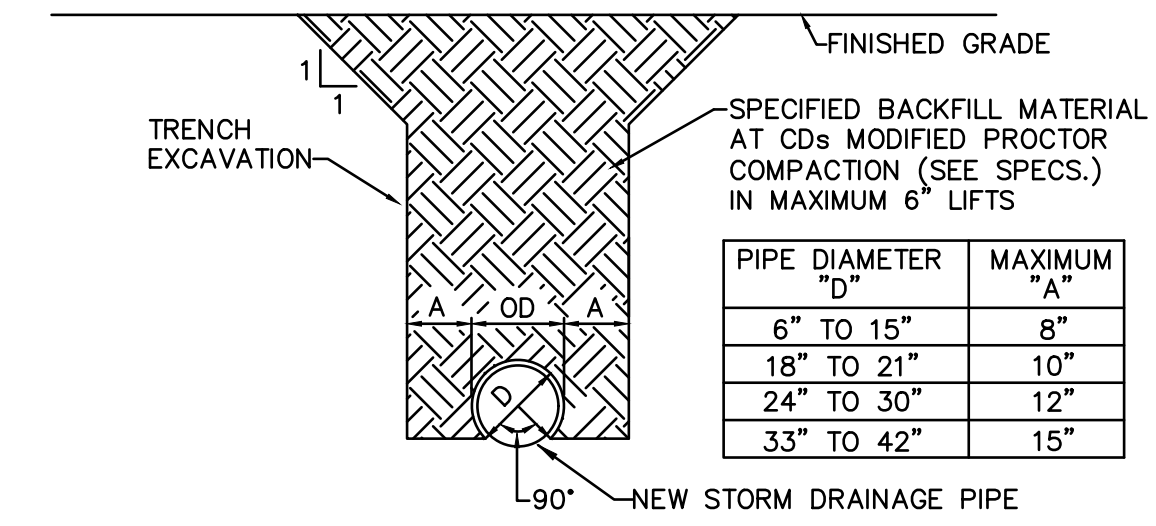


- ALTERNATE 1: CONSTRUCT WITH 8" COMMON BRICK. BRICK FACE MUST BE GROUTED (PARGE COATED) 1/4" TO 1/2" THICK BOTH SIDES.
- ALTERNATE 2: CONSTRUCT WITH REINFORCED CONCRETE WITH #4 @ 8" O.C.E.W. 6" THICK
- ALTERNATE 3: PRECAST BOX APPROVED BY ENGINEER

STANDARD DROP INLET DETAIL

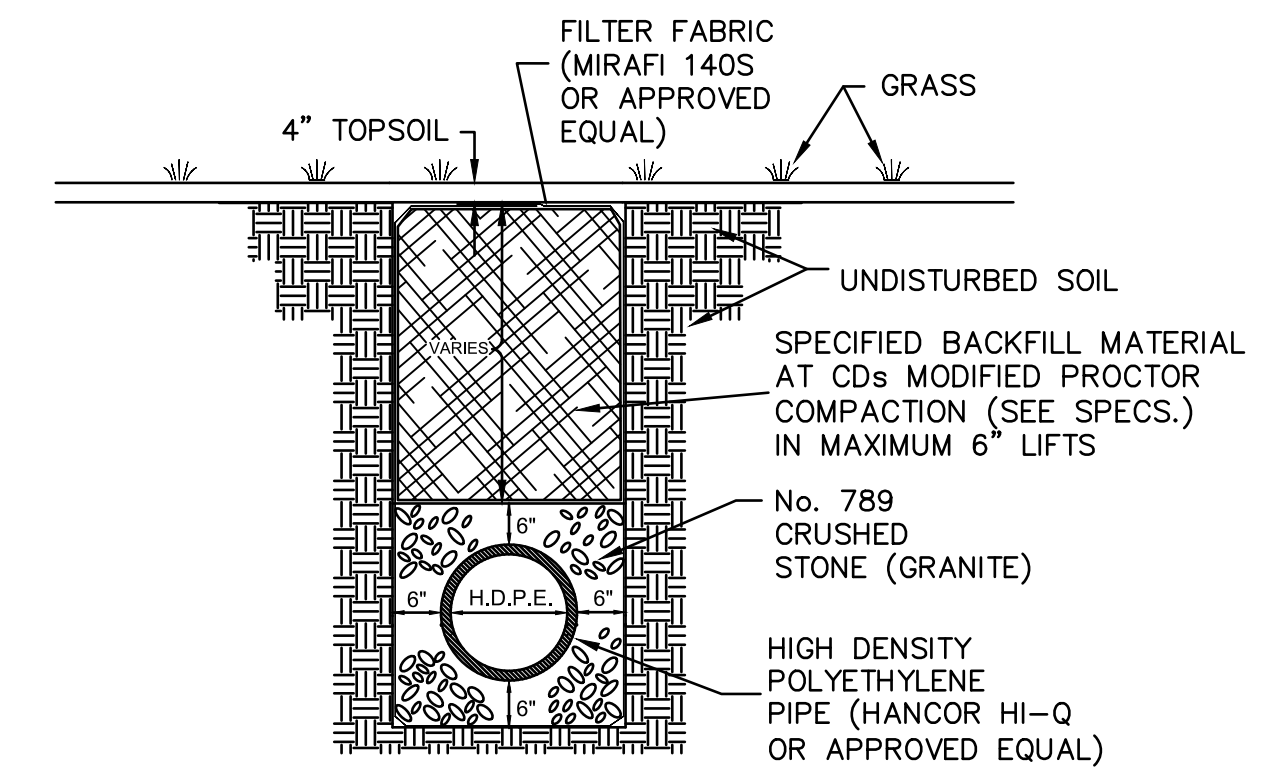
4
C504

NOT TO SCALE



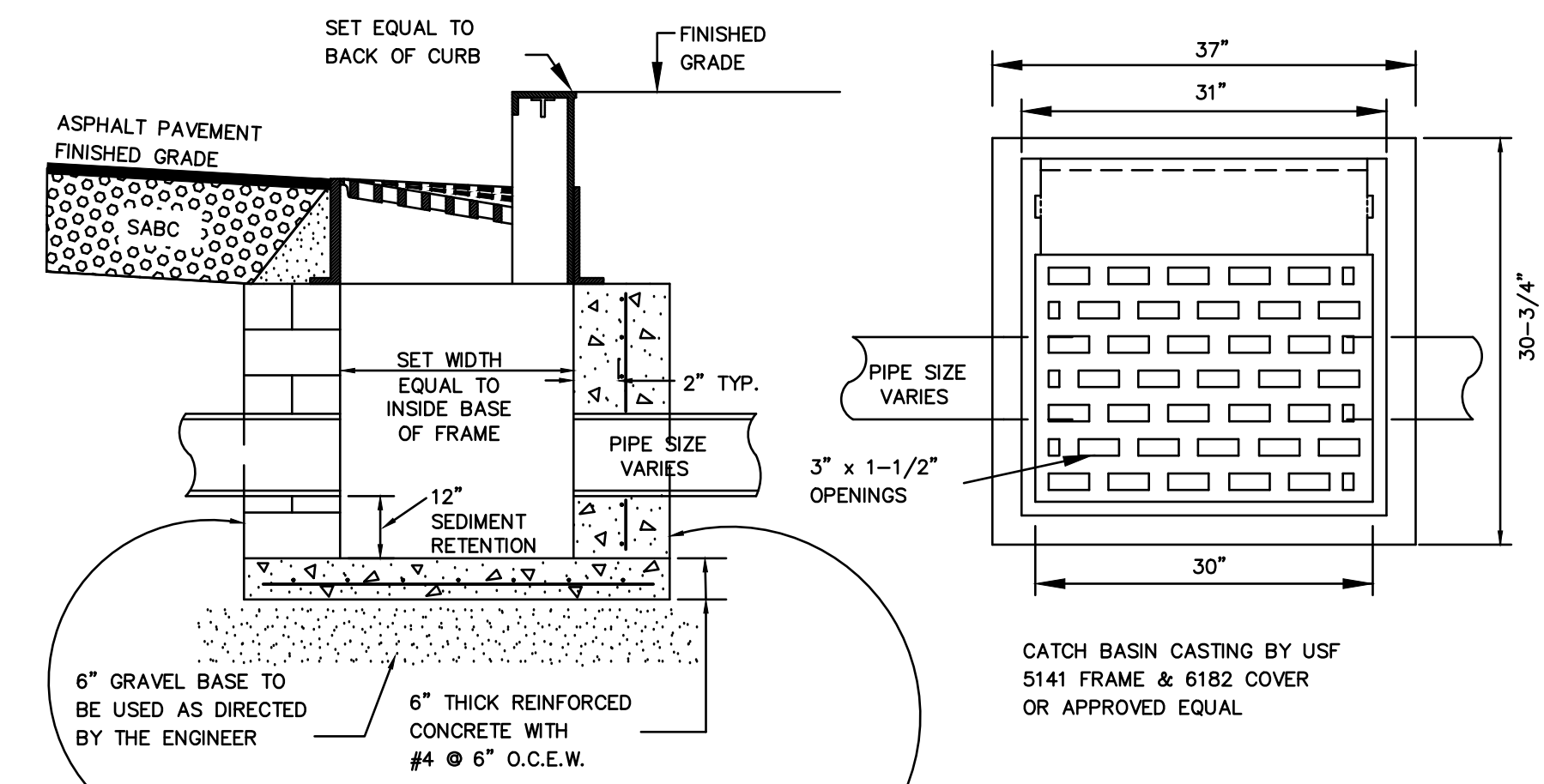
STORM DRAIN TRENCH DETAIL 1
C504

NOT TO SCALE



HIGH DENSITY POLYETHYLENE DRAINAGE PIPE TRENCH DETAIL 2
C504

NOT TO SCALE



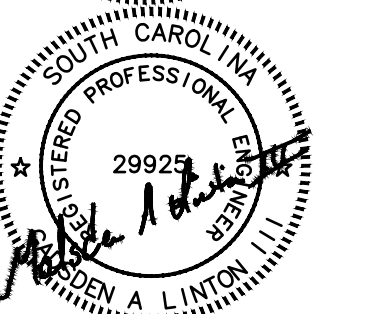
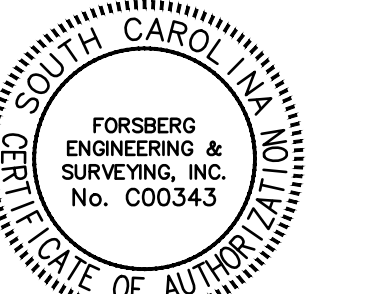
- ALTERNATE 1: CONSTRUCT WITH 8" COMMON BRICK
- ALTERNATE 2: CONSTRUCT WITH REINFORCED CONCRETE WITH #4 @ 8" O.C.E.W. 6" THICK
- ALTERNATE 3: PRECAST BOX APPROVED BY ENGINEER

CURB INLET (HOODED) DETAIL 3
C504

NOT TO SCALE



REV	DATE	DESCRIPTION



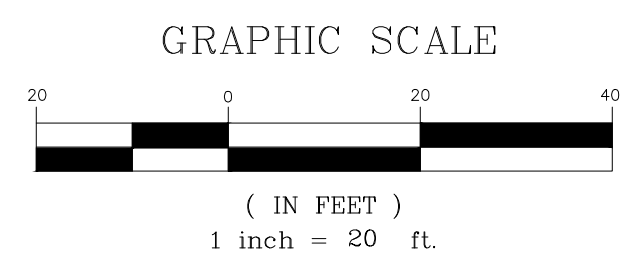
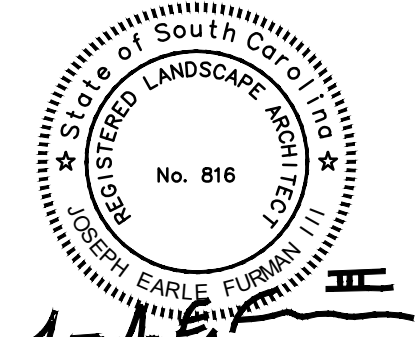
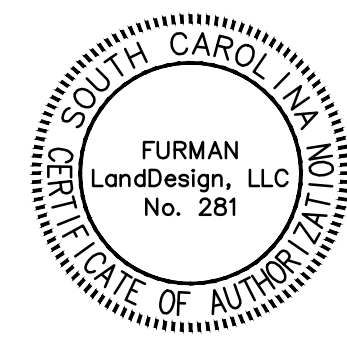
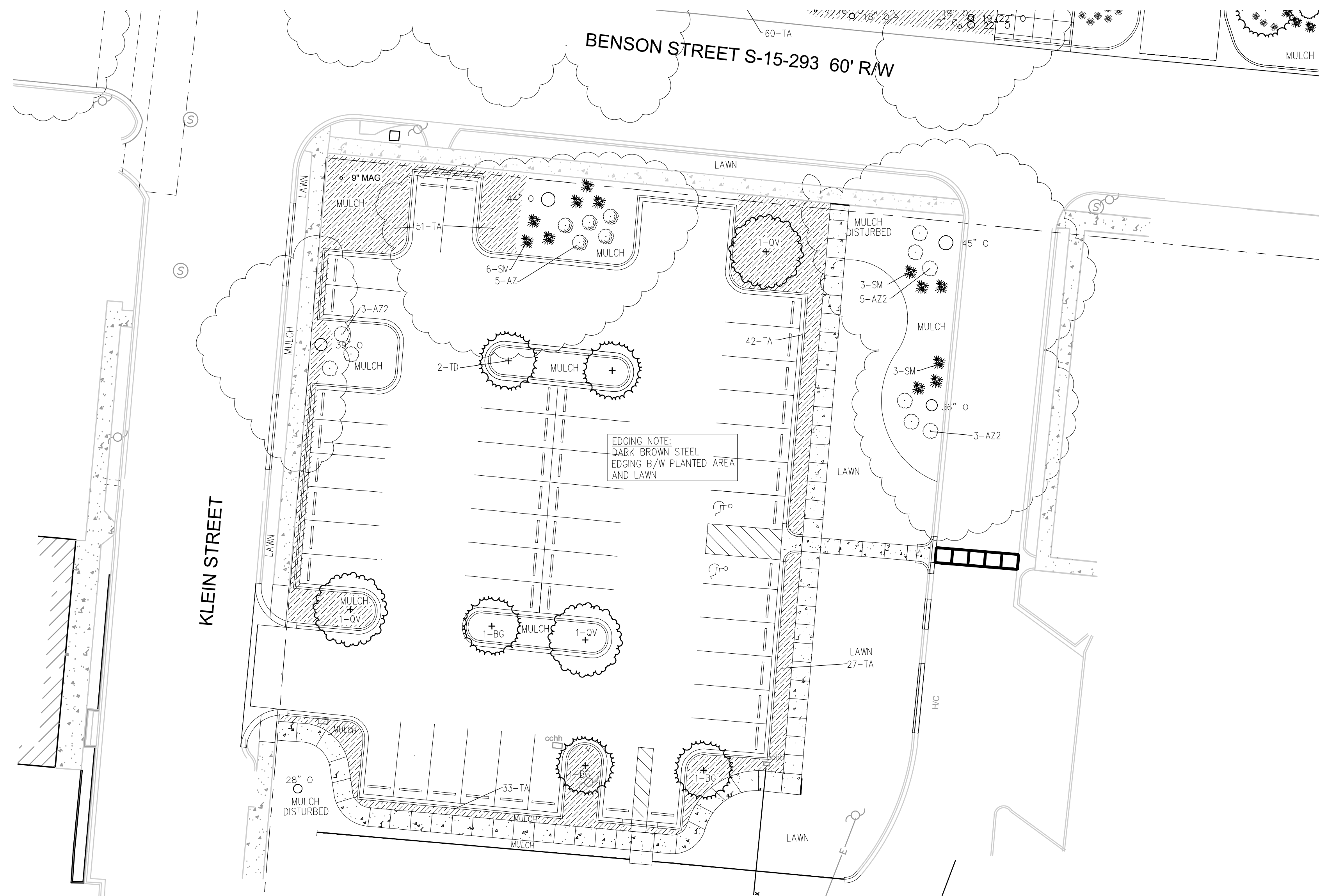
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CONSTRUCTION DETAILS

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REV.	DATE	DESCRIPTION

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JOB NUMBER: 1904
PROJECT MGR.: SM
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CHECKED BY: Checker
APPROVED BY: Approver
DATE ISSUED FOR: 9/22/2021
BID SET

**LANDSCAPE
PLANTING PLAN/
PARKING AREA**

L103



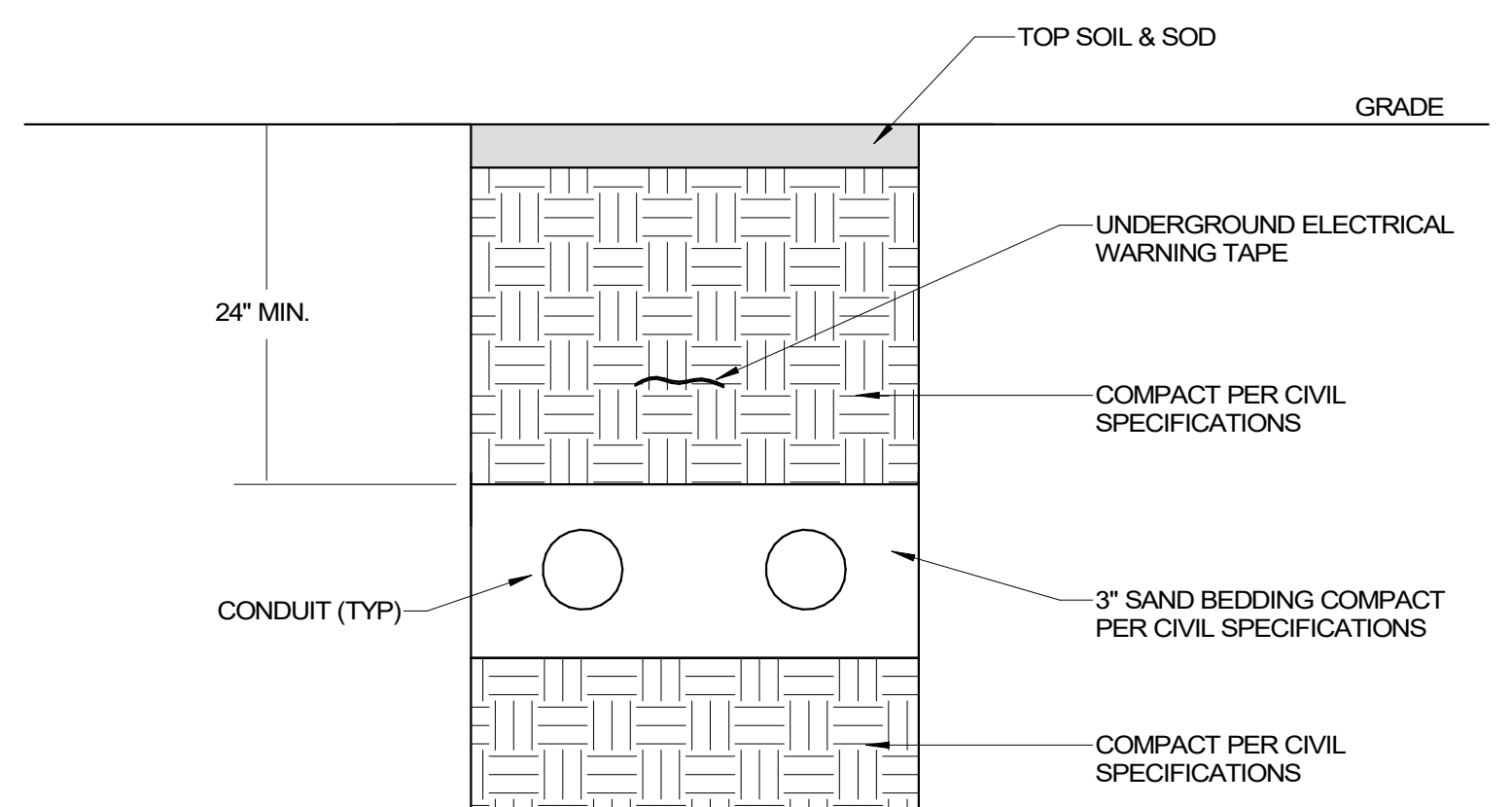
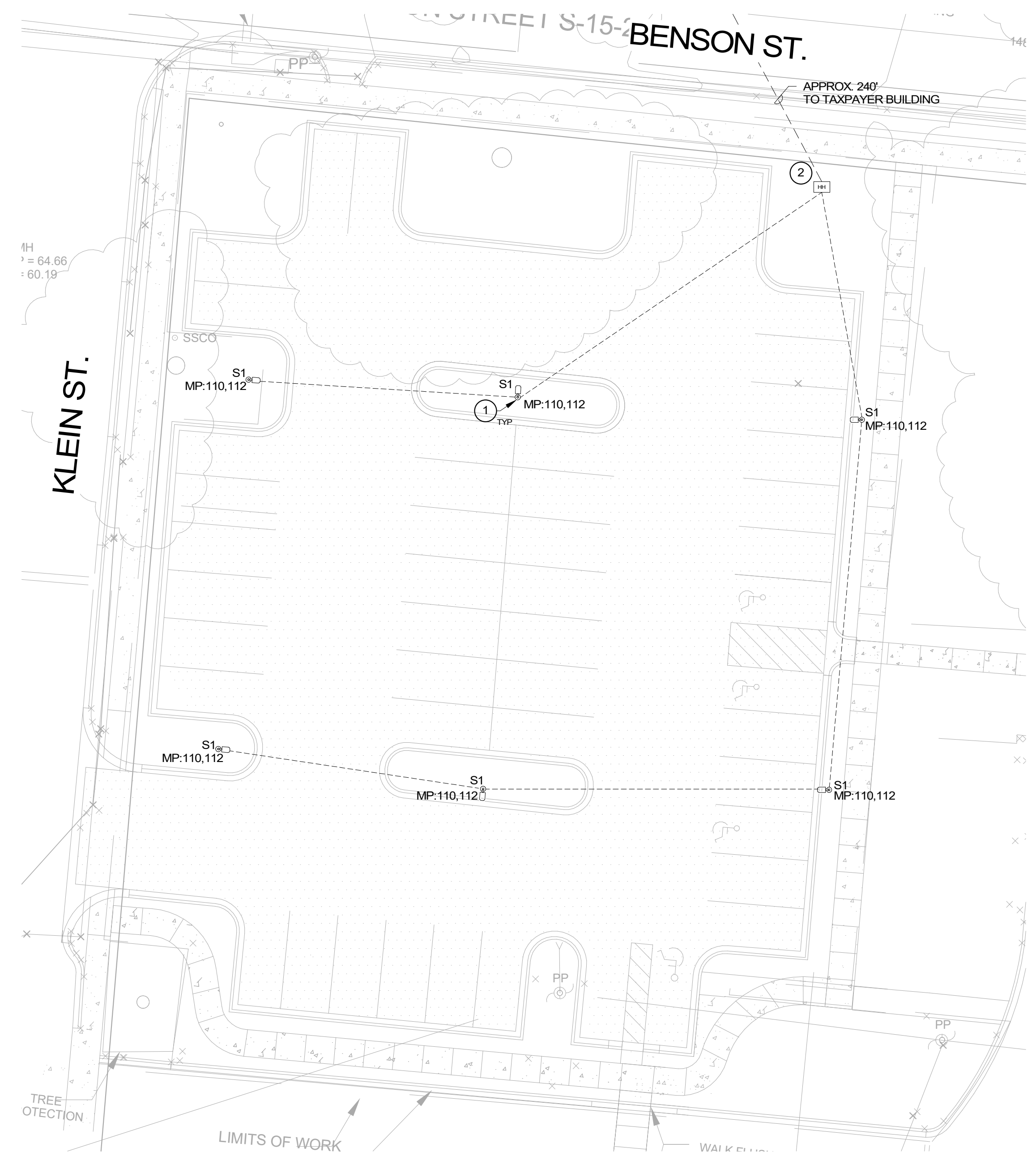
LIGHT FIXTURE SCHEDULE											
FIXTURE SPECIFICATIONS				LAMPING			ELECTRICAL		FIXTURE MOUNTING		NOTES
TYPE	FIXTURE DESCRIPTION	MANUFACTURER	CAT. #	NO.	LAMP TYPE	TOTAL LUMENS	COLOR TEMP.	LOAD (VA)	VOLTS	FIXTURE MOUNTING	NOTES
S1	16" SQUARE POLE WITH SINGLE TYPE 3 LED FIXTURE	AEL	ATB2-60LEDE70-MVOLT-R3-ATB2SS60		LED	16702	4000 K	130	208 V	POLE MOUNTED AT 16'	POLE CAT # SSA-H-16-40-B-1-B1

KEYNOTES

- PROVIDE 16" SQUARE ALUMINUM POLE PER LIGHT FIXTURE SCHEDULE.
- EXISTING HANDHOLE AND CONDUIT CONNECTED TO TAXPAYER PANEL 'MP'. PROVIDE WIRE FROM TAXPAYER BUILDING TO HANDHOLE. CONDUIT AND WIRE FROM HANDHOLE TO ALL FIXTURES. REFER TO SHEET E001 FOR SIZES.

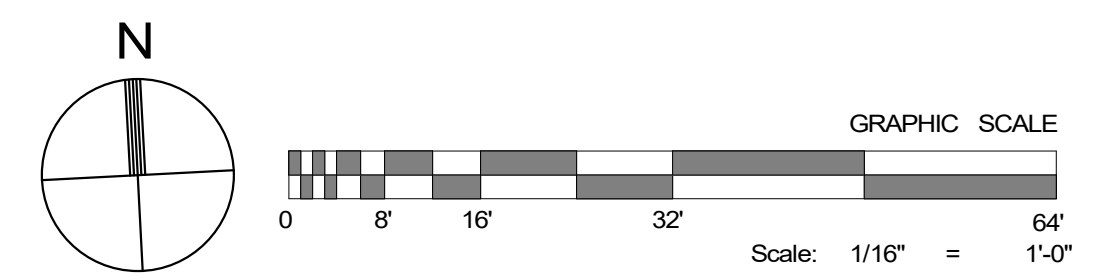
GENERAL NOTES

- PROVIDE ALL FIXTURES WITH INTEGRAL PHOTOCELLS.



2 UNDERGROUND CONDUIT DETAIL
E100 NOT TO SCALE

1 SITE LIGHTING PLAN
E100 SCALE: 1/16" = 1'-0"



DWVG
CONSULTING ENGINEERS
1008 Arden Road, Suite 202 - Moore Park, SC 29566
Phone: (843) 646-1141 - Fax: (843) 646-8756
812 St. Andrew Rd., Suite 8 - Columbia, SC 29210
Phone: (803) 455-1933 - Fax: (803) 403-1653
www.dwvg.com

GBA
GLICK BOEHM ARCHITECTURE
ARCHITECTURE PLANNING INTERIOR DESIGN
493 King Street, Suite 100 Charleston, South Carolina 29403
784.577.6377 www.glickbohm.com

REV.	DATE	DESCRIPTION

Professional Engineer Seal for Brian S. Bates, No. 27238, State of South Carolina.

BENSON / KLEIN PARKING LOT
COLLETON COUNTY
BENSON STREET
WALTERBORO, SC

2021
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100% CD

SITE LIGHTING PLAN

E100