Name: The LandPlan Group South Inc.
Address: 1206 Scott Street, Columbia, SC 29201

Sumter ITB #4-25/26
North Main St Corridor Improvements
Phase 2

City of Sumter
South Carolina

Construction Specifications

Project Number: 885

Set #

_____

Released for Bid
June, 2025

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DIVISION 04 MASONRY
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07 31 13 ASPHALT SHINGLES
07 62 00 SHEET METAL FLASHING AND TRIM

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SECTION 01105 INVITATION FOR BIDS

PROJECT: Sumter ITB #4-25/26 – N. Main St Corridor Improvements – Ph 2

OWNER: City of Sumter
13 E. Canal Street
Sumter, SC 29150

RECEIPT OF BIDS: Separate sealed bids for the construction of the above referenced project will be received by the Owner at their office, by **July 23, 2025 at 2:00 P.M**. local time, at place of bidding, City of Sumter Opera House, located at 21 N. Main, Sumter, SC 21950, and at said location will be publicly opened and read aloud. No bid may be withdrawn within a period of ninety (60) days to allow time for Bid review, qualification of Bidder, and approval of award from funding agencies

PROJECT DESCRIPTION: The project consists of the demolition and installation of concrete sidewalks, brick paving, plantings, irrigation decorative crosswalks, utility undergrounding, signage arch, columns and fencing and a guard shack on a locally owned road with some work within the SCDOT Right of Way, along W. College St and N. Main Street. Prior experience, qualifications and product certification will be required. This project will be funded by the City of Sumter The project will follow the City of Sumter Procurement Code.

PRE-BID MEETING: A **Mandatory Pre-bid** meeting will be held at the City of Sumter , City of Sumter Opera House, located at 21 N. Main, Sumter, SC 21950 on **July 10, 2025 at 2:00 pm.** The purpose of such meeting will be to review this project and to answer any questions regarding the project. Any Contractor that does not attend the pre-bid will be disqualified.

QUESTIONS:
All questions regarding this Project should be submitted to:
Kimberly Shealy, The LandPlan Group South, admin@landplansouth.com

Bid related questions will be accepted through **July 15, 2025, 5:00 pm.**
The answers to all questions asked will be shared with all participants in the Bid process.

DOCUMENTS AVAILABLE: A non-refundable deposit of $100.00 will be required to obtain a copy of Contract Documents, which can be requested from The LandPlan Group South, 1206 Scott Street, Columbia, SC 29201. Phone (803) 256-0562.
Documents may be obtained in pdf format without cost. For a link to download, please email a request to admin@landplansouth.com

(End of Section 01105)

SECTION 01110 SC INFORMATION FOR BIDDERS

1. RECEIPT AND OPENING OF BIDS: Bids will be received at the time and place as specified in the Advertisement for Bids, and then at said office publicly opened and read aloud.

2. LICENSES:

2.1. The attention of Bidders is directed to the provisions of the acts for licensing of General Contractors for the State of South Carolina and all requirements of such acts which have bearing upon this work shall be deemed a part of the Specifications as if written therein in full. The showing by the Contractor of his license number shall be deemed as the Contractor's representation that he is legally qualified to enter into the prescribed Contract for any/or all portions of the work included in his Bid.

2.2. All Bidders submitting a Bid shall have a currently valid "Contractor's License" and a "Bidder's License" for the State of South Carolina. These license numbers shall be shown on the bid form immediately below the signature identification and on the face of the sealed envelope containing the submitted Bid.

2.3. The successful Bidder will be required to obtain a business license from the City of Sumter and Sumter County prior to beginning work, if said Bidder does not have a current license.

2.4. Subcontractors who will be engaged by the General Contractor shall also hold the required licenses.

3. BID SECURITY:

3.1. Each Bid must be accompanied by a certified check of the Bidder, or a Bid Bond duly executed by the Bidder as principal and having as surety thereon a surety company qualified to do business under the laws of the State of South Carolina and satisfactory to the Owner, in an amount not less than five (5) percent of the Bid.

3.2. Such check or Bid Bond will be returned to all except the three (3) lowest Bidders within three (3) days after the opening of Bids, and the remaining checks or Bid Bonds will be returned promptly after the Owner and the accepted Bidder have executed the Agreement, or, if no award has been made within ninety (90) calendar days after the date of the opening of Bids, upon demand of the Bidder at any time thereafter, so long as he has not been notified of the acceptance of his Bid.

4. GUARANTY BONDS:

4.1. The Bidder to whom the contract is awarded will be required to execute the Agreement and obtain the Performance Bond and Payment Bond, each in the sum of the full amount of the Contract Price, within ten (10) calendar days from the date when Notice of Award is delivered to the Bidder.

4.2. The Bonds must be duly executed and acknowledged by the Bidder as principal and by a corporate surety company qualified to do business under the laws of the State of South Carolina and satisfactory to the Owner as surety, for the faithful performance of the Contract and payment for labor and materials. The premiums for such Bonds shall be paid by the Contractor.

4.3. Each Bond must be valid for one year beyond the date of final acceptance of the project.

5. EXECUTION OF CONTRACT: The Owner, within ten (10) calendar days of receipt of acceptable Performance Bond, Payment Bond, and Agreement signed by the party to whom the Agreement was awarded, shall sign the Agreement and return to such party an executed duplicate of the Agreement. Should the Owner not execute the Agreement within such period, the Bidder may by written notice withdraw his signed Agreement. Such notice of withdrawal shall be effective upon receipt of the notice by the Owner.

6. POWER OF ATTORNEY FOR BONDS: Attorneys-in-fact who sign Bid Bonds or Performance Bonds or Payment Bonds must file with each Bond a certified and effective dated copy of their power of attorney.

7. LIQUIDATED DAMAGES FOR FAILURE TO ENTER INTO CONTRACT: The successful Bidder, upon his failure or refusal to execute and deliver the Contract and Bonds required within ten (10) calendar days after he has received notice of the acceptance of his Bid, shall forfeit to the Owner, as liquidated damages for such failure or refusal, the security deposited with his bid.

8. LAWS AND REGULATIONS: All applicable laws, ordinances, and the rules and regulations of all authorities having jurisdiction over construction of the project shall apply to the contract throughout, and they will be deemed to be included as though herein written out in full.

9. NON-RESIDENT CONTRACTORS:

9.1. A Bidder, who is a non-resident contractor, shall be aware of Section 12-9-310, Article 3, of the South Carolina Income Tax Act of 1926, as amended. This article requires the Owner entering into a contract with a non-resident taxpayer, where such contract exceeds ten thousand dollars ($10,000), to withhold two percent (2%) of each payment made to the non-resident.

9.2. The funds deducted from the payment made to the non-resident contractor are funds deemed to be held in trust for the State of South Carolina and will be reported by the Owner to the South Carolina Tax Commission. This Deduction is in addition to the retainage deductions specified in the General Conditions.

9.3. Modifications to the South Carolina Income Tax Act made January 1, 1993, allow a non-resident contractor to apply for an exemption or partial exemption from the two percent (2%) withholding rule. The non-resident contractor must complete a "Nonresident Taxpayer Request for Exemption Affidavit" (Form WH 303), "Nonresident Taxpayer Affidavit" (Form WH 302) and a subcontractors list. The South Carolina Tax Commission will make the determination and notify both contracting parties of the qualified exempt or partially exempt contracts.

9.4. All contracts for $ 10,000.00 or more with non-residents which do not qualify for exemption will require the withholding of two percent (2%) from each payment as described above. The non-resident contractor may elect to post a surety bond with the South Carolina Tax Commission to eliminate this withholding requirement. The non-resident must complete and submit the Bond (Form L-2074) and a "Nonresident Taxpayer Affidavit" (Form WH 302) to the South Carolina Tax Commission for review and approval. The Owner must receive verification from the South Carolina Tax Commission if this deduction is to be waived.

9.5. The above referenced forms may be obtained from the South Carolina Tax Commission located at 301 Gervais Street, Columbia, South Carolina (mailing address - P.O. Box 125, Columbia, South Carolina 29214).

10. EXAMINATION OF DRAWINGS AND SPECIFICATIONS: Each Bidder shall carefully examine Drawings and Specifications and all Addenda or other revisions thereto and thoroughly familiarize himself with the detailed requirements thereof prior to submitting a Bid. If any Bidder is in doubt as to the true meaning of any part of the Drawings, Specifications, or other Documents, or if any error, discrepancy, conflict, or omission is noted, the Bidder should immediately contact the Engineer in writing and request clarification. The Engineer will clarify the intent of the Documents and/or correct such error, discrepancy, conflict, or omission, and will notify all Bidders by Addendum in cases where the extent of work or the cost thereof will be appreciably affected. No allowance will be made after Bids are received for oversight by a Bidder.

11. EXAMINATION OF SITE: Each Bidder shall visit the site of proposed work and fully acquaint himself with conditions relating to construction and labor so he may fully understand facilities, difficulties, and restrictions attending execution of work under contract. By executing the Agreement, the Contractor represents that he has visited the site, familiarized himself with the local conditions under which the work is to be performed, and correlated his observations with the requirements of the Contract Documents.

12. INFORMATION NOT GUARANTEED:

12.1. All information given on the Drawings or in the Contract Documents relating to subsurface conditions, existing structures, location of utilities, sewer inverts, or other information on existing facilities, is from the best sources at present available to the Owner. All such information is furnished only for the information and convenience of the Bidders.

12.2. It is agreed and understood that the Owner does not warrant or guarantee that the conditions, pipes, or other structures encountered during construction will be the same as those indicated on the Drawings or in the Contract Documents. The Bidder must satisfy himself regarding the character, quantities, and conditions of the various materials and the work to be done.

12.3. It further is agreed and understood that the Bidder or the Contractor will not use any of the information made available to him or obtained in any examination made by him in any manner as a basis or ground of claim or demand of any nature, against the Owner or the Engineer, arising from or by reason of any variance which may exist between the information

offered by the actual materials or structures encountered during the construction work, except as may otherwise be provided for in the Contract Documents.

12.4. If any work is performed by the Contractor, or any subcontractor, prior to adequate verification of applicable data, any resultant extra cost for adjustment of work necessary to conform to existing conditions, or damage to existing facilities, shall be assumed by the Contractor without reimbursement or compensation by the Owner.

13. COMPLETE WORK REQUIRED:

13.1. The Drawings, Specifications, and all supplementary documents are essential parts of the Contract, and requirements occurring in one are as binding as though occurring in all. They are intended to be cooperative, to describe and provide for a complete work. In case of discrepancy on the Drawings, figured dimensions shall govern. In case of omissions from the Specifications as to items of equipment and materials or quantities therefor, the Drawings shall govern.

13.2. It shall be the responsibility of the Bidder to call to the attention of the Engineer obvious omissions of such magnitude as to affect the strength, adequacy, function, completeness, or cost of any part of the work in ample time for amendment by Addendum prior to letting date.

14. ADDENDA AND INTERPRETATIONS:

14.1. No interpretation of the meaning of the Drawings, Specifications, or other Bid Documents will be made orally to any Bidder by the Engineers prior to award of the contract.

14.2. Every request for such interpretation should be in writing addressed to The LandPlan Group South, 1621 Pickens Street, Columbia, SC 29201. To be given consideration, such request must be received at least seven (7) days prior to the date fixed for the opening of Bids. Any and all such interpretation and any supplemental instruction will be made in the form of written Addenda to the Specifications.

14.3. Addenda will be mailed or delivered to all who are known to have received a complete set of Bidding Documents.

14.4. Copies of Addenda will be made available for inspection wherever Bidding Documents are on file for that purpose.

14.5. Every attempt will be made to issue addenda no later than four (4) days prior to the date for receipt of Bids except an Addendum withdrawing the request for Bids or one which includes postponement of the date for receipt of Bids. Should Addenda be required closer to the bid date than the specified four (4) days, Bidders shall be notified via fax or telephone that an Addendum is being released. Bidders shall be responsible for making necessary arrangements to obtain late-issue Addenda. If an Addendum is technical in nature, no attempt shall be made to provide the changes verbally.

15. ABILITY AND EXPERIENCE OF BIDDER:

15.1. It is the purpose of the Owner not to award this Contract to any Bidder who does not furnish satisfactory evidence that he has the experience of successfully completing projects of this type and magnitude and that he has sufficient capital, equipment, plant, and personnel to enable him to prosecute the work successfully and to complete it in the time named.

15.2. The Owner may make such investigation as it deems necessary to determine the ability of the Bidder to perform the work, and the Bidder shall furnish to the Owner, under oath if so required, all such information and data for this purpose as the Owner may request.

15.3. The successful Bidder will be required to construct the work with his own directly employed personnel to an extent not less than fifty percent (50%) of the Contract Amount.

16. BIDS AND QUALIFICATIONS: Before a Bid is considered for award, the Bidder may be requested by the Engineer to submit a statement of facts in detail as to his previous experience in performing similar or comparable work, and of his business and technical organization and financial resources and plant available to be used in performing the contemplated work.

17. TIME FOR COMPLETION: The Bidder must agree to commence work within the time stipulated in the Agreement. The Bidder also must agree to fully complete the project within the time stipulated in the Agreement.

18. LIQUIDATED DAMAGES: The Bidder must agree to pay as liquidated damages the amount set forth in the Agreement for each consecutive calendar day that the work is incomplete after the date of completion.

19. MODIFICATION OF BIDS: Bids may be modified in writing, executed (in the manner that a bid must be executed) and delivered to the place where bids are to be submitted at any time prior to the opening of bids. Telegraphic modifications of the BID will not be allowed.

20. WITHDRAWAL OF BIDS:

20.1. Any Bidder may withdraw his Bid, either personally or by written request, at any time prior to the scheduled time for opening of Bids or authorized postponement thereof.

20.2. No Bidder may withdraw his Bid for a period of ninety (90) calendar days after the date set for the opening thereof, and all Bids shall be subject to acceptance by the Owner during this period.

21. IRREGULAR BIDS: A Bid will be considered irregular and may be rejected for any one of the following reasons:

21.1. If the Bid is on a form other than that furnished by the Owner; or if the form is altered or any part detached.

21.2. If there are unauthorized additions, conditional or alternate bids, or irregularities of any kind which may tend to make the Bid incomplete, indefinite, or ambiguous as to its meaning.

21.3. If the Bidder adds any provisions reserving the right to accept or reject an award, or to enter into a contract pursuant to an award.

21.4. If the Bid does not contain a price for each item listed.

21.5. If the Bid does not contain the aggregate of the Bid, obtained by adding the extended amounts of the various items, if applicable.

21.6. If the Bid contains obviously unbalanced bid prices.

21.7. If there is reason to believe that any Bidder is interested in more than one Bid on the same project or that there has been collusion among the Bidders.

22. DISQUALIFICATION OF BIDDERS: More than one Bid from an individual, a firm or partnership, a corporation or any association, under the same or different names, will not be considered. Reasonable grounds for believing that any Bidder is interested as a principal in more than one Bid for the work contemplated will cause the rejection of all Bids in which such Bidder is believed to be interested. Any or all Bids will be rejected if there is reason to believe that collusion exists among the Bidders. Contracts will be awarded only to responsible Bidders capable of performing the class of work contemplated within the time specified, and having sufficient resources and finances to carry on the work properly.

23. ACCEPTANCE OR REJECTION OF BIDS: The Owner reserves the right to reject any and all Bids when such rejection is in the interest of the Owner; to reject the Bid of a Bidder who has previously failed to perform properly or complete on time contracts of a similar nature; and to reject the Bid of a Bidder who is not, in the opinion of the Engineer, in a position to perform the Contract. The Owner also reserves the right to waive any informalities and technicalities in bidding. The Owner may also accept or reject any of the alternates that may be set forth on the Bid.

24. METHOD OF AWARD: Unless all Bids are rejected, the Contract will be awarded to the lowest responsive, responsible Bidder based on low bid or combination of low bid with alternates depending on which is in the best interest of the Owner. A responsive Bidder is defined as one whose Bid is complete and submitted in accordance with the Contract Documents without excisions, exceptions, special conditions or alternate bids (unless specifically requested in the bid form). A responsible Bidder is defined as one who is legally licensed to bid and perform work in the State of South Carolina, maintains a permanent place of business, has adequate plant equipment to complete the work properly and within the established time limit, has adequate financial status to meet his obligations contingent to the work, and is considered by the Owner and Engineer to be capable of performing the work in accordance with the Contract Documents.

25. NOTICE TO PROCEED: The Notice to Proceed will be issued within ten (10) calendar days of the execution of the Agreement by the Owner. Should there be reasons why the Notice to Proceed cannot be issued within such period; the time may be extended by mutual agreement between the Owner and Contractor. If the Notice to Proceed has not been issued within the ten

(10) calendar day period or within the period mutually agreed upon, the Contractor may terminate the Agreement without further liability on the part of either party.

26. ESTIMATED QUANTITIES: Bidders must satisfy themselves of the accuracy of the estimated quantities in the Bid Schedule by examination of the site and a review of the Drawings and Specifications, including Addenda. After Bids have been submitted, the Bidder shall not assert that there was a misunderstanding concerning the quantities of work or of the nature of the work to be done.

27. COMPARISON OF BIDS: Bids will be compared on the basis of the prices stated in the Bid. In the event there is a discrepancy between the unit price and/or the computed total amount, the unit price shall govern.

28. EASEMENTS: The Owner has obtained, or will obtain, permanent easements and temporary construction easements through private property. The temporary construction easements entitle the Contractor to the occupancy and use of the designated area near or adjacent to the work for purposes related to the work. The Contractor will not encroach on any property unless it has been established that easements have been obtained. On all other land, the Contractor has no rights unless he obtains permission from the proper parties.

29. WORK IN STATE AND COUNTY RIGHTS-OF-WAY: The Owner will obtain the necessary easements and permits for construction across both County and State Highway rights-of-way. The Contractor shall abide by all rules, regulations, and requirements of these agencies in regard to construction under this contract, including the giving of notices, provisions for inspections, and employment of such methods of construction as may be required. Wherever these Specifications may be in conflict with the regulations or requirements of these agencies, such regulations shall govern and these Specifications shall be modified to such extent as necessary to conform to the said rules, regulations, and requirements. Wherever additional costs are incurred due to requirements of these agencies, such additional periods of maintenance, special features of construction, etc., all such costs shall be included in the prices bid. No additional compensation will be allowed for such costs after award of the Contract.

30. ITEMS AND INDETERMINATE ITEMS: The work to be done under this contract has been divided into items, and items having sub items to enable each Bidder to bid on the different portions of the work in accordance with his unit price estimate of their cost, and so that the actual quantity of work executed under each item, or sub item, may be paid for at the unit price bid for the particular item, or sub item, even though such quantity is greater or less than the estimated quantity stated in the Bid.

31. RIGHT TO INCREASE OR DECREASE THE AMOUNT OF WORK:

31.1. The work comprises approximately the quantities shown in the bid form which will be used as a basis for comparison of Bids and not for final estimate. The Owner does not, by expression or by implication, agree that the actual amount of work shall correspond with the estimated quantities.

31.2. The Owner reserves the right to increase or decrease the amount of work under the Contract to the extent of 25% of the work contemplated, at the unit prices quoted in the Bid.

32. FORM OF BID:

32.1. All Bids must be submitted on the blank bid form provided herein and must state the total price for which the Bidder will complete the work in accordance with the terms of the Contract Documents. All blank spaces must be filled in and there shall be no interlineations, alterations, or erasures.

32.2. The Bid must be signed manually by a principal or an officer duly authorized to make contracts. The Bidder's legal name must be fully stated and the name and title of the person signing must be typed below his signature.

33. SUBMITTING BIDS:

33.1. Each Bid must be submitted on the prescribed bid form. All blank spaces for bid prices must be filled in, in ink or typewritten, and the Bid must be fully completed and executed when submitted. Only one copy of the bid form is required.

33.2. Bidders are cautioned that it is the responsibility of each individual Bidder to assure that his Bid is in the possession of the responsible official or his designated alternate prior to the stated time and at the stated place of the bid opening. Owner is not responsible for Bids delayed by mail and/ or delivery services of any nature.

33.3. Each Bid must be submitted in an opaque sealed envelope, plainly marked on the outside, addressed and delivered as shown below. If forwarded by mail, the sealed envelope containing the Bid must be enclosed in another envelope addressed to the Owner at:

33.4.

Upper Left Hand Corner:

Bidder's Name

Bidder's Address

To: SUMTER COUNTY
13 E. Canal Street
Sumter, SC 29150

Attention: Michael Geddings

Lower Left Hand Corner:

Bid for Construction of: N. Main St Corridor Improvements – Ph 2

Sumter, SC

South Carolina General Contractor's License No. _____

Classification _____

Expiration Date _____

(End of Section 01110)

TO: CITY OF SUMTER (hereinafter called "Owner")

FROM:_____

_____

_____

Phone - _____

of the City of Sumter County of Sumter

and State of South Carolina, hereinafter called "Bidder".

PROJECT: **N. Main St Corridor Improvements Phase 2**
City of Sumter, SC

The Bidder, in compliance with your Advertisement for Bids for the construction of above referenced project, having examined the Drawings and Specifications with related documents and the site of the proposed work, and being familiar with all of the conditions surrounding the construction of the proposed project, including the availability of materials and labor, hereby proposes to furnish all labor, materials, and supplies, and to construct the project in accordance with the Contract Documents, within the time set forth therein, and the prices stated below. These prices are to cover all expenses incurred in performing the work required under the Contract Documents, of which this proposal is a part.

The Bidder declares that he has carefully examined the site of the proposed Work and fully informed and satisfied himself as to the conditions there existing, the character and requirements of the proposed Work, and the difficulties attendant upon its execution, and that he has carefully read and examined the Drawings, the annexed proposed Agreement, and the Specifications and other Contract Documents therein referred to, and knows and understands the terms and provisions thereof.

Bidder understands that information relative to existing structures, apparent and latent conditions, and natural phenomena, as furnished to him on the Drawings, in the Contract Documents, or by the Owner or the Engineer, carries no guarantee expressed or implied as to its completeness or accuracy, and he has made due allowance therefore.

He further understands that the quantities of work tabulated in the Bid are only approximate and are subject to increase or decrease as deemed necessary to the performance of the work by the

Engineer; and that these quantities as shown will be used in arriving at the total Contract Price and determination of the lowest Bidder.

TIME FOR COMPLETION AND LIQUIDATED DAMAGES: Bidder hereby agrees to commence work under this contract within 10 days of receipt of the Notice to Proceed and to fully complete the project within 180 consecutive calendar days thereafter.

Bidder also agrees to pay $500/day as liquidated damages for each consecutive calendar day thereafter as hereinafter provided in the General Conditions.

ADDENDA: Bidder acknowledges receipt of the following Addenda:

Addendum No. _____ Date _____

Addendum No. _____ Date _____

Addendum No. _____ Date _____

Addendum No. _____ Date _____

Addendum No. _____ Date _____

Addendum No. _____ Date _____

SCHEDULE OF PRICES – **N. Main St Corridor Improvements Phase 2**

Item	Description	Qty	Units	Unit Price	Price
1	Mobilization	1	LS		
2	Traffic Control	1	LS		
3	Demolition	1	LF		
4	Top Soil	1	LS		
5	Concrete Work				
	a. Curb & Gutter	700	LF		
	b. Median Curb	60	LF		
	c. 5’ Concrete Sidewalk	320	SY		
	d. Drop Down Concrete Driveway	1	LS		
6	Asphalt				
	a. Milling	1100	SY		
	b. Asphalt patch	300	SY		
	c. Pavement Overlay	1400	SY		
7	Brick Work				
	a. Brick paving w/ Concrete Base	100	SY		
	b. ADA Pavers w/ Concrete Base	6	SY		
	c. Brick Columns	13	EA		
8	Arch Sign	1	LS		
9	Striping	1	LS		
10	Traffic print XD Crosswalks	130	SY		
11	Stop Signs	2	EA		
12	Ornamental Fencing	475	LF		
13	Guard House	j1	EA		
14	Planting				
	a. Willow Oak	14	EA		
	b. Green Giant Arborvitae	6	EA		
	c. Purple Diamond Loropetalum	25	EA		
	d. Dwarf Buford Holly	141	EA		
	e. Pink Muhly Grass	33	EA		
	f. Vintage Jade Distylium	6	EA		
	g. Bourdeaux Yaupon Holly	10	EA		
	h. Taylor Juniper Tree	2	EA		
	i. Society Garlic	110	EA		
	j. Centipede Sod	2,250	SF		

Item	Description	Qty	Units	Unit Price	Price
15	Irrigation	1	LS		
16	Utility Coordination and Conduit Installation				
	a. Frontier Communications (2" Conduit)	275	LF		
	b. Duke Energy Coordination	1	LS		
17	Ornamental Lighting (Design Build)	1	LS		
18	Flag Pole Relocation and Up-Lighting	1	LS		

TOTAL BASE BID ITEMS 1-18 Inclusive $_____

Additions to work and deletions from work shall be paid in accordance with these unit prices.

The above unit prices shall include all labor, materials, de-watering, shoring, removal, overhead, profit, insurance, taxes, fees, etc., to cover the finished work of the several kinds called for.

Bidder understands that the Owner reserves the right to reject any or all bids and to waive any informality in the bidding. The Bidder agrees that this Bid shall be good and may not be withdrawn for a period of 90 calendar days after the scheduled closed time for receiving bids.

Upon receipt of written notice of the acceptance of this Bid, Bidder will execute the formal Agreement attached within 10 days, and deliver Surety Bonds as required by the General Conditions. The bid security attached in the sum of _____ ($_____) is to become the property of the Owner in the event the Agreement and Bond are not executed within the time above set forth as liquidated damages for the delay and additional expense to the Owner caused thereby.

The undersigned declares that his firm is (delete those not applicable):
A corporation organized and existing under the laws of the State of _____.
A partnership consisting of _____.

The undersigned declares that the person or person signing this proposal is fully authorized to sign the proposal on behalf of the firm listed and to fully bind the firm listed to all the conditions and provisions thereof.
It is agreed that no person or persons or company other than the firm listed below or as otherwise indicated hereinafter has any interest whatsoever in this proposal or the contract that may be entered into as a result thereof, and that in all respects the proposal is legal and fair, submitted in good faith, without collusion or fraud.

Respectfully Submitted:

_____
Contractor

(SEAL - if bid is by a Corporation)

By:_____

_____
(Type/Print Name)

_____
(Title)

_____
(Street Address)

_____
(City, State, Zip)

S.C. General Contractor's License No. _____

(End Section 01140)

SECTION 01142 BID BOND

KNOW ALL MEN BY THESE PRESENTS: that we, the undersigned _____,

as Principal, and _____, as Surety, are hereby held and firmly bound unto

_____ as OWNER, in the penal sum of_____for the

payment of which, well and truly to be made, we hereby jointly and severally bind ourselves, our heirs, executors, administrators, successors and assigns.

Signed this _____day of_____, 2025.

The Condition of the above obligation is such that whereas the Principal has submitted to the OWNER a certain BID attached hereto and hereby made a part hereof, to enter into a contract in writing, for the construction of:

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NOW, THEREFORE,

(a) If the said BID shall be rejected, or in the alternate,

(b) If said BID shall be accepted and the Principal shall execute and deliver a contract in the Form of Contract attached hereto (properly completed in accordance with said BID) and shall furnish a BOND for his faithful performance of said contract, and for the payment of all persons performing labor or furnishing materials in connection therewith, and shall in all other respects perform the agreement created by the acceptance of said BID,

then this obligation shall be void, otherwise the same shall remain in force and effect; it being expressly understood and agreed that the liability of the Surety for any and all claims hereunder shall, in no event, exceed the penal amount of this obligation as herein stated. The Surety, for value received, hereby stipulates and agrees that the obligations of said Surety and its BOND shall be in no way impaired or affected by any extension of the time within which the OWNER may accept such BID; and said Surety does hereby waive notice of any such extension.

IN WITNESS WHEREOF, the Principal and the Surety have hereunto set their hands and seals, and such of them as are corporations have caused their corporate seals to be hereto affixed and these presents to be signed by their proper officers, the day and year first set forth above.

_____(L.S.)
Principal

_____
Surety

By: _____

(SEAL)

IMPORTANT: Surety companies executing BONDS must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the State where the project is located.

(End of Section 01142)

SECTION 01210 AGREEMENT

THIS AGREEMENT, made this _____day of _____,2025,

by and between_____,

acting herein through its _____,
(Title of Authorized Official)

hereinafter called "OWNER" and _____,
(Name of Contractor)

doing business as _____
(an Individual), (a Partnership) or (a Corporation)

of the Town of _____, County of _____, and

State of _____, hereinafter called "CONTRACTOR".

WITNESSETH: That for and in consideration of the payments and agreements hereinafter mentioned:

1. The CONTRACTOR hereby agrees with the OWNER to commence and complete the construction described as follows:

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hereinafter called the PROJECT.

2. The CONTRACTOR will furnish all of the materials, supplies, tools, equipment, labor, and other services necessary for the construction and completion of the PROJECT described herein.

3. The CONTRACTOR will commence the work required by the CONTRACT DOCUMENTS within 15 calendar days after the date of the NOTICE TO PROCEED and will fully complete the PROJECT within 180 consecutive calendar days unless the period for completion is extended otherwise by the CONTRACT DOCUMENTS. The CONTRACTOR further agrees to pay, as liquidated damages, the sum of $250.00 for each consecutive calendar day thereafter as hereinafter provided in the GENERAL CONDITIONS.

4. The CONTRACTOR agrees to perform all of the WORK described in the CONTRACT DOCUMENTS and comply with the terms therein for the sum of _____ or as shown in the Bid Schedule.

5. The term "CONTRACT DOCUMENTS" means and includes the following:

A. Advertisement for Bids
B. Information for Bidders
C. Sumter County Purchasing Regulations
D. Sumter County Certification regarding Illegal Immigration
E. Subcontractors List
F. Bid
G. Bid Bond
H. Agreement
I. Certificate of Acknowledgement, for Agreement
J. Performance Bond
K. Payment Bond
L. Certificate of Acknowledgement, for Contract Bonds
M. Certificate of Owner's Attorney
N. Notice to Award
O. Notice to Proceed
P. General Conditions
Q. Supplemental Conditions
R. Measurement and Payment
S. Drawings prepared by The LandPlan Group South, and listed in the Supplemental Conditions.
T. Specifications prepared by The LandPlan Group South.
R. Addenda

No._____ Dated _____

No._____ Dated _____

No._____ Dated _____

No._____ Dated _____

No._____ Dated _____

6. The OWNER agrees to pay the CONTRACTOR in the manner and at such times as set forth in the General Conditions such amounts as required by the CONTRACT DOCUMENTS.

7. This Agreement shall be binding on all parties hereto and their respective heirs, executors, administrators, successors and assigns.

IN WITNESS WHEREOF, the parties hereto have executed or caused to be executed by their duly authorized officials, this Agreement in four (4) counterparts, each of which shall be deemed an original, in the year and day first above written.

OWNER:

(SEAL) By: _____

_____
(Type or Print Name)

ATTEST: _____
(Title of Authorized Official)

_____
(Secretary)

_____
(Witness)

CONTRACTOR:

(SEAL) By:_____

_____
(Type or Print Name)

_____
(Title)

_____
(Street Address)

_____
(City, State, Zip)

ATTEST:

_____
(Secretary)

_____
(Witness)

(End of Section 01210)

CERTIFICATE OF ACKNOWLEDGEMENT OF CONTRACTOR
IF A CORPORATION

FOR AGREEMENT

STATE OF South Carolina

COUNTY OF _____

ON THIS _____ day of _____, 2025, before me

personally came _____, to me known, who being

by me duly sworn, did depose and say as follows:

That he resides at _____

and is the _____ of _____,
(Title of Officer) (Name of Corporation)

the Corporation described in and which executed the foregoing instrument; that he knows the corporate seal of said Corporation; that the seal affixed to the foregoing instrument is such Corporate Seal and it was so affixed by order of the Board of Directors of said Corporation; and that by the like order he signed thereto his name and official designation.

By: _____

_____
(Name) (Title)

_____
(Notary Public) (Seal)

My commission expires:_____

SECTION 01212 PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS: that

_____

(Name of Contractor)

_____

(Address of Contractor)

_____, hereinafter called Principal and
(Corporation, Partnership or Individual)

_____

(Name of Surety)

_____

(Address of Surety)

hereinafter called Surety, are held and firmly bound unto

_____

(Name of Owner)

_____

(Address of Owner)

hereinafter called OWNER, in the penal sum of _____ in lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, successors, and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION is such that whereas the Principal entered into a certain contract with the OWNER, dated the _____ day of_____, 2025, a copy of which is hereto attached and made a part hereof for the construction of:

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Sumter, SC

NOW, THEREFORE, if the Principal shall well, truly and faithfully perform its duties, all the undertakings, covenants, terms, conditions, and agreements of said contract during the original term thereof, and any extensions thereof which may be granted by the OWNER, with or without notice to the Surety and during the one year guaranty period, and if he shall satisfy all claims and demands incurred under such contract, and shall fully indemnify and save harmless the OWNER from all costs and damages which it may suffer by reason of failure to do so, and shall reimburse and repay the OWNER all outlay and expense which the OWNER may incur in making good any default, then this obligation shall be void; otherwise to remain in full force and effect.

PROVIDED, FURTHER, that the said Surety for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the contract or to the WORK to be performed thereunder or the SPECIFICATIONS accompanying the same shall in any wise affect its obligation on this BOND, and it does hereby waive notice of any such change, extension of time, alteration, or addition to the terms of the contract or to the WORK or to the SPECIFICATIONS. PROVIDED, FURTHER, that no final settlement between the OWNER and the CONTRACTOR shall abridge the right of any beneficiary hereunder whose claim may be unsatisfied.

IN WITNESS WHEREOF, this instrument is executed in four (4) counterparts, each one of which shall be deemed an original, in the year and day first above written.

ATTEST:

_____
Principal

By: _____ (S)

_____
(Principal) Secretary

_____
(Street Address)

_____
(SEAL) (City, State, Zip)

_____
Witness as to Principal

_____
(Street Address)

_____
(City, State, Zip)

ATTEST:

_____
Surety

_____
(Surety) Secretary

_____
Attorney-in-Fact

_____
(SEAL) (Street Address)

_____
(City, State, Zip)

_____
Witness as to Surety

_____
(Street Address)

_____
(City, State, Zip)

NOTE: Date of BOND must not be prior to date of Contract. If CONTRACTOR is a Partnership, all partners should execute BOND.

IMPORTANT: Surety companies executing BONDS must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the State where the PROJECT is located.

(End of Section 01212)

SECTION 01214 PAYMENT BOND

KNOW ALL MEN BY THESE PRESENTS: that

_____

(Name of Contractor)

(Address of Contractor)

_____, hereinafter called

(an Individual, (a Partnership), or (a Corporation)

Principal, and_____

(Name of Surety)

_____

(Address of Surety)

hereinafter called Surety, are held and firmly bound unto _____

_____

(Name of Owner)

_____

(Address of Owner)

hereinafter called OWNER, in the penal sum of _____ in lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, successors, and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION is such that whereas, the Principal entered into a certain contract with the Owner, dated the _____day of _____ 2025, copy of which is hereto attached and made a part hereof for the construction of:

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Sumter, SC

NOW, THEREFORE, if the Principal shall promptly make payment to all persons, firms, SUBCONTRACTORS, and corporations furnishing materials for or performing labor in the prosecution of the WORK provided for in such contract, and any authorized extension or modification thereof, including all amounts due for materials, lubricants, oil, gasoline, coal and coke, repairs on machinery, equipment and tools, consumed or used in connection with the construction of such WORK, and all insurance premiums on said WORK, and for all labor,

performed in such WORK whether by SUBCONTRACTOR or otherwise, then this obligation shall be void; otherwise to remain in full force and effect.

PROVIDED, FURTHER, that the said Surety for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the contract or to the WORK to be performed thereunder or the SPECIFICATIONS accompanying the same shall in any wise affect its obligation on this BOND, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the contract or to the WORK or to the SPECIFICATIONS.

PROVIDED, FURTHER, that no final settlement between the OWNER and the CONTRACTOR shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

IN WITNESS WHEREOF, this instrument is executed in four (4) counterparts, each one of which shall be deemed an original, this the _____day of _____, 2025.

ATTEST:

_____
Principal

_____
(Principal) Secretary

(SEAL) By:_____(S)

_____
(Street Address)

_____ _____
Witness as to Principal (City, State, Zip)

_____
(Street Address)

_____
(City, State, Zip)

_____
ATTEST: Surety

_____ By:_____
(Surety) Secretary Attorney-in-Fact

_____
(SEAL) (Street Address)

_____
(City, State, Zip)

_____
Witness as to Surety

_____
(Street Address)

_____
(City, State, Zip)

NOTE: Date of BOND must not be prior to date of Contract. If CONTRACTOR is Partnership, all partners should execute BOND.

IMPORTANT: Surety companies executing BONDS must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the State where the PROJECT is located.

(End of Section 01214)

CERTIFICATE OF ACKNOWLEDGEMENT OF CONTRACTOR
IF A CORPORATION

FOR CONTRACT BONDS

STATE OF South Carolina

COUNTY OF _____

ON THIS _____ day of _____, 2025 before me

personally came _____, to me known, who

being by me duly sworn, did depose and say as follows:

That he resides at _____

and is the _____ of _____,
(Title of Officer) (Name of Corporation)

the Corporation described in and which executed the foregoing instrument; that he knows the corporate seal of said Corporation; that the seal affixed to the foregoing instrument is such Corporate Seal and it was so affixed by order of the Board of Directors of said Corporation; and that by the like order he signed thereto his name and official designation.

By: _____

_____
(Name) (Title)

_____
(Notary Public) (Seal)

My commission expires: _____

SECTION 01219 CERTIFICATE OF OWNER'S ATTORNEY

I, the undersigned, _____, the

duly authorized and acting legal representative of _____

_____do hereby certify as follows:

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

_____

(Signed)

Date:_____

(End of Section 01219)

NOTICE OF AWARD

TO: _____
_____
_____
_____

PROJECT DESCRIPTION: **N. Main St Corridor Improvements – Ph 2**
The OWNER has considered the BID submitted by you on _____, for the above described WORK in response to its Advertisement for Bids and Information for Bidders.

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

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

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

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

Dated this _____ day of _____, 2025

_____
Owner

By:_____

_____
Title

ACCEPTANCE OF NOTICE

Receipt of the above NOTICE OF AWARD is hereby

acknowledged by _____

This the _____ day of _____, 2025

By _____

Title _____

NOTICE TO PROCEED

TO: Date: _____

Project: **N. Main St Corridor Improvements – Ph 2**

You are hereby notified to commence WORK in accordance with the Agreement dated _____ , 2025, on or before_____ 2025, and you are to complete the WORK within 180 consecutive calendar days thereafter.

The date of completion of all WORK is therefore_____, 2025.

Owner:

By: _____

Title:_____

ACCEPTANCE OF NOTICE

Receipt of the above NOTICE TO PROCEED is hereby
acknowledged by _____
this the _____day of _____, 2025
By _____
Title _____

SECTION 01230 GENERAL CONDITIONS

1. GENERAL

1.1. THE CONTRACT DOCUMENTS: The Contract Documents consist of the Advertisement for Bids, Information for Bidders, Bid, Bid Bond, Agreement, Payment Bond, Performance Bond, Conditions of the Contract (General, Supplemental and Other Conditions), Drawings, Specifications, Addenda, Notice of Award, Notice to Proceed, and Change Orders.

1.2. CORRELATION AND INTENT OF DOCUMENTS:

1.2.1. The Contract Documents are complementary, and what is required by anyone shall be as binding as if required by all.

1.2.2. The intent of the Drawings and Specifications is that the Contractor shall furnish all labor, supplies and materials, tools, machinery, equipment, transportation, supervision, temporary construction of any nature, and all other services, facilities and means necessary for the proper execution and completion of the Work in accordance with the Contract Documents and all incidental work necessary to complete the Project in an acceptable manner, and fully complete the work or improvement ready for use, occupancy and operation by the Owner.

1.2.3. Any mention in the Specifications or indication on the Drawings of articles, materials, methods or operations shall require the Contractor to furnish such item or service as if it was fully specified unless it is noted or specified as not in the contract. It is intended that all materials shall be new and best quality in every respect unless otherwise noted or specified. All workmanship, methods of assembly, and erection shall be first class in every respect.

1.3. CONFLICT OR INCONSISTENCY:

1.3.1. If there is any conflict or inconsistency between the provisions of the Supplemental Conditions and the provisions of the other Contract Documents, the provisions of the Supplemental Conditions shall prevail. If there is any conflict or inconsistency between the provisions of the General Conditions and the provisions of any of the Contract Documents other than the Supplemental Conditions, the provisions of the General Conditions shall prevail.

1.3.2. In case of conflict between the Drawings and Specifications, the Specifications shall govern. Figure dimensions on Drawings shall govern over scale dimensions, and detailed Drawings shall govern over general Drawings.

1.3.3. In case of difference between small-scale and large-scale drawings, the large scale drawings shall govern. Schedules on any contract drawing shall take precedence over conflicting information on that or any other contract drawing. On any of the drawings where a portion of the work is detailed or drawn out and the remainder is shown in outline, the parts detailed or drawn out shall apply also to all other like portions of the work. Where the word "similar" occurs on the drawings, it shall have a general meaning and not be interpreted as being identical, and all details shall be worked out in relation to their location and their connection with other parts of the work.

1.3.4. Any discrepancies found between the Drawings and Specifications and site conditions or any inconsistencies or ambiguities in the Drawings or Specifications shall be immediately reported to the Engineer, in writing, who shall promptly correct such inconsistencies or ambiguities in writing. Work done by the Contractor after his discovery of such discrepancies, inconsistencies or ambiguities shall be done at the Contractor's risk.

1.3.5. Should a conflict be discovered within the Contract Documents, the Contractor shall be deemed to have estimated the higher quality way of doing the Work unless he shall have asked for and obtained a decision in writing from the Engineer before entering into this Contract.

1.4. ADDITIONAL INSTRUCTIONS AND DETAIL DRAWINGS: The Contractor may be furnished additional instructions and detail drawings, by the Engineer, as necessary to carry out the Work required by the Contract Documents. The additional drawings and instructions thus supplied will become a part of the Contract Documents. The Contractor shall carry out the Work in accordance with the additional detail drawings and instructions.

1.5. SPECIFICATION HEADINGS:

1.5.1. For convenience of reference, these Specifications are divided into various Divisions, Sections, Subsections and Paragraphs. The titles of these headings shall not be taken as a correct or complete segregation of the various types of material and labor nor as an attempt to outline jurisdictional procedures. The headings shall not be deemed to limit or restrict the content, meaning or effect of such section, subsection, paragraph, provision or part.

1.5.2. The organization of the Specifications into the various headings, and the arrangement of Drawings shall not control the Contractor in dividing the Work among Subcontractors or in establishing the extent of Work to be performed by any trade. Each subcontract shall be dependent upon its own definite confines, regardless of Divisions of these Specifications. No responsibility, either direct or implied, is assumed by the Owner for omissions or duplications by the Contractor or by any of his subcontractors due to real or alleged errors in arrangement of matter in Contract Documents.

1.6. DRAWINGS AND SPECIFICATIONS FOR CONSTRUCTION PURPOSES: The Contractor will be furnished 6 complete sets of Drawings and Specifications to be used during the course of construction. If more than 6 sets are needed, the Contractor will be required to pay the actual cost of printing and handling.

1.7. DEFINITIONS: Wherever the words hereinafter defined or pronouns used in their stead occur in the Contract Documents, they shall have the following meanings:

1.7.1. ADDENDA: Written or graphic instruments issued prior to the execution of the Agreement which modify or interpret the Contract Document, Drawings and Specifications by additions, deletions, clarifications or corrections. Such addenda or addenda will take precedent over the position of the general drawings and specifications concerned and will be considered as part of the Contract Documents.

1.7.2. AGREEMENT: The Agreement represents the entire and integrated agreement between the parties hereto and supersedes all prior negotiations, representations or agreements,

either written or oral, including the bidding documents. The Agreement may be amended or modified by a Change Order.

1.7.3. BID: The written offer or proposal of the Bidder, submitted on the prescribed form, properly signed and guaranteed, to perform the work at the prices quoted by the Bidder.

1.7.4. BID BOND: The security furnished by the Bidder with his proposal for the Project is guaranty he will enter into a contract for the work if his proposal is accepted.

1.7.5. BIDDER: Any individual, firm or corporation or combination of same submitting a bid for the work contemplated, acting directly or through a duly authorized representative.

1.7.6. BONDS: Bid, Performance and Payment Bonds and other instruments of security furnished by the Contractor and his Surety in accordance with the Contract Documents.

1.7.7. CALENDAR DAY: Every day shown on the calendar, Sundays and holidays included.

1.7.8. CHANGE ORDER: A written order to the Contractor authorizing an addition, deletion or revision in the Work within the general scope of the Contract Documents, or authorizing an adjustment in the Contract Price or Contract Time.

1.7.9. CONTRACT: The Contract Documents form the Contract. The Contract represents the entire and integrated agreement between the parties hereto and supersedes all prior negotiations, representations or agreements, either written or oral, including the bidding documents. The Contract may be amended or modified by a Change Order.

1.7.10. CONTRACT DOCUMENTS: The Contract Documents consist of the Advertisement for Bids, Information for Bidders, Bid, Bid Bond, Agreement, Payment Bond, Performance Bond, the Conditions of the Contract (General, Supplemental, and other Conditions), the Drawings, the Specifications, Addenda issued prior to execution of the Contract, Notice of Award, Notice to Proceed and Change Orders.

1.7.11. CONTRACT PRICE: The total monies payable to the Contractor under the terms and conditions of the Contract Documents.

1.7.12. CONTRACTOR:

1.7.12.a. The individual, firm or corporation with whom the Owner has executed the Agreement by which the Contractor is obligated directly, or through Subcontractors, to perform work in connection with the Project.

1.7.12.b. The Contractor is the person or organization identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number and masculine in gender. The term Contractor means the Contractor or his authorized representative.

1.7.13. CONTRACT TIME: The number of calendar days stated in the Contract Documents for the completion of the Work.

1.7.14. DRAWINGS: The part of the Contract Documents which show the characteristics and scope of the Work to be performed and which have been prepared or approved by the Engineer.

1.7.15. EARTH: An excavated material or material to be excavated; all kinds of material other than rock.

1.7.16. ELEVATION: The figures given on the Drawings or in the other Contract Documents after the word "elevation" or abbreviation of it shall mean the distance in feet above the datum adopted by the Engineer.

1.7.17. ENGINEER: The person, firm or corporation named as such in the Contract Documents and duly appointed by the Owner to undertake the duties and powers herein assigned to the Engineer, acting either directly or through duly authorized representatives.

1.7.18. EQUIPMENT: All machinery, together with the necessary supplies for upkeep and maintenance, and all tools and apparatus necessary for the proper construction and acceptable completion of the work.

1.7.19. FIELD ORDER: A written order effecting a change in the Work not involving an adjustment in the Contract Price or an extension of the Contract Time, issued by the Engineer to the Contractor during construction.

1.7.20. FURNISH: Furnish and install complete, in place, and ready for use.

1.7.21. INFORMATION FOR BIDDERS: The Notice to Contractors containing all necessary information as to provisions, requirements, date, place, and time of submitting bids.

1.7.22. LATEST EDITION: The current printed document issued eight weeks or more prior to date of receipt of bids.

1.7.23. MATERIALS: Any substance specified for use in the construction of the Project and its appurtenances.

1.7.24. NET COST: The cost to the Contractor after application of all credits and discounts (excepting only cash discounts) and without the addition of any factor for burden, overhead or indirect cost or profit.

1.7.25. NOTICE OF AWARD: The written notice of the acceptance of the Bid from the Owner to the successful Bidder.

1.7.26. NOTICE TO PROCEED: Written communication issued by the Owner to the Contractor authorizing him to proceed with the Work and establishing the date of commencement of the Work.

1.7.27. OPTIMUM MOISTURE CONTENT FOR COMPACTION: The moisture content of a soil calculated on the basis of dry weight of soil at which the soil can be compacted to the approximate maximum density under a specified standard method of compaction.

1.7.28. OWNER: A public or quasi-public body or authority, corporation, association, partnership, or individual for whom the Work is to be performed.

1.7.29. PAYMENT BOND: The approved form of security furnished by the Contractor to guarantee the payment to all persons supplying labor and materials in the prosecution of the work in accordance with the terms of the Contract.

1.7.30. PERFORMANCE BOND: The approved form of security furnished by the Contractor to guarantee the completion of the work in accordance with the terms of the Contract.

1.7.31. PRE-CONSTRUCTION CONFERENCE: A conference following award and prior to start of construction to be attended by a duly authorized representative of the Engineer and by the responsible officials of the Contractor and other affected parties.

1.7.32. PROJECT: The undertaking to be performed as provided in the Contract Documents.

1.7.33. PROPOSAL: The written offer of the Bidder, submitted on the prescribed form, properly signed and guaranteed, to perform the work at the prices quoted by the Bidder.

1.7.34. PROPOSAL FORM: The approved form on which the Owner requires formal bids to be prepared and submitted for the work.

1.7.35. PROPOSAL GUARANTY: The security furnished by the Bidder with his proposal for a Project, as guaranty he will enter into a contract for the work if his proposal is accepted.

1.7.36. PROVIDE: Furnish and install complete, in place, and ready for use.

1.7.37. RESIDENT PROJECT REPRESENTATIVE: The authorized representative of the Owner who is assigned to the Project site or any part thereof.

1.7.38. ROCK: An excavated material or material to be excavated; only boulders and pieces of concrete or masonry exceeding 1/2 cu. yd. in volume, or solid ledge rock which, in the opinion of the Engineer, requires, for its removal, drilling and blasting, wedging, sledging, barring, or breaking up with a power-operated tool. No soft or disintegrated rock which can be removed with hand pick or power-operated excavator or shovel, no loose shaken, or previously blasted rock or broken stone in rock fillings or elsewhere, and no rock exterior to the maximum limits of measurement allowed, which may fall into the excavation will be classified as rock.

1.7.39. SHOP DRAWINGS: All drawings, diagrams, illustrations, brochures, schedules and other data which are prepared by the Contractor, a Subcontractor, manufacturer, Supplier or distributor, which illustrate how specific portions of the Work shall be fabricated or installed.

1.7.40. SPECIALIST: An individual or firm of established reputation which is regularly engaged in, and which maintains a regular force of workmen skilled in either manufacturing or fabricating items required by the contract, installing items required by the contract, or otherwise performing work required by the contract. Where the contract specifications require installation by a specialist, that term shall also be deemed to mean either the manufacturer of the item, an

individual or firm licensed by the manufacturer, or an individual or firm who will perform the work under the manufacturer's direct supervision.

1.7.41. SPECIFICATIONS: A part of the Contract Documents consisting of written descriptions of a technical nature of materials, equipment, construction systems, standards and workmanship.

1.7.42. STRUCTURES: Bridges, culverts, catch basins, drop inlets, manholes, retaining walls, cribbing, endwalls, buildings, sewers, service pipes, underdrains, foundation drains, and other miscellaneous items which may be encountered in the work, and which are not otherwise classified herein.

1.7.43. SUBBASE: The layer or layers of specified or selected material of designated thickness or rate of application placed on a subgrade to comprise a component of the pavement structure to support the base course, pavement or subsequent layer of the construction.

1.7.44. SUBCONTRACTOR: An individual, firm or corporation having a direct contract with the Contractor or with any other Subcontractor for the performance of a part of the Work at the site. The term Subcontractor is referred to throughout the Contract Documents as if singular in number and masculine in gender and means a Subcontractor or his authorized representative.

1.7.45. SUB-SUBCONTRACTOR: An individual, firm or corporation having a direct or indirect contract with a Subcontractor to perform any of the Work at the site. The term Sub-subcontractor is referred to throughout the Contract Documents as if singular in number and masculine in gender and means a Sub- subcontractor or an authorized representative thereof.

1.7.46. SUBGRADE: The top surface of a roadbed upon which the pavement structure and shoulders are constructed.

1.7.47. SUBSTANTIAL COMPLETION: That date as certified by the Engineer when the construction of the Project or a specified part thereof is sufficiently completed, in accordance with the Contract Documents, so that the Project or specified part can be utilized for the purposes for which it is intended.

1.7.48. SUPPLEMENTAL CONDITIONS: Conditions of the Contract other than the General Conditions.

1.7.49. SUPERINTENDENT: The Contractor's authorized representative in responsible charge of the work.

1.7.50. SUPPLIER: Any person or organization who supplies materials or equipment for the Work, including that fabricated to a special design, but who does not perform labor at the site.

1.7.51. SURETY: The corporation, partnership or individual bound with and for the Contractor for the full and complete performance of the contract, and for the payment of all debts pertaining to the work.

1.7.52. TITLES (OR HEADINGS): The titles or headings of the sections and subsections herein are intended for convenience of reference and shall not be considered as having any bearing on their interpretation.

1.7.53. WORK: All labor necessary to produce the construction required by the Contract Documents, and all materials and equipment incorporated or to be incorporated in the Project.

1.7.54. WRITTEN NOTICE: Any notice to any part of the Agreement relative to any part of this Agreement in writing and considered delivered and the service thereof completed, when posted by certified or registered mail to the said party at his last given address, or delivered in person to said party or his authorized representative on the Work.

1.7.55. ADDITIONAL DEFINITIONS:

1.7.55.a. Wherever in the Specifications or on the Drawings, the words "as designated", "as detailed", "as directed", "as ordered", "as permitted", "as prescribed", "as provided", "as requested", "as required", or words of like import are used, it shall be understood that the designation, detail, direction, order, permission, prescribed, provision, request or requirement of the Engineer is intended.

1.7.55.b. Similarly, the words "approved", "acceptable", "satisfactory", and words of like import shall mean approved by, acceptable to, or satisfactory to the Engineer.

1.8. ABBREVIATIONS: Where any other following abbreviations are used in the Specifications, they shall have the meaning set forth opposite each.

AA	Aluminum Association
AAMA	Architectural Aluminum Manufacturers Association
AAR	Association of American Railroads
AASHTO	American Association of State Highway and Transportation Officials
ACI	American Concrete Institute
ACPA	American Concrete Pipe Association
AED	American Equipment Dealers
AFI	American Filter Institute
AGA	American Gas Association
AGC	Associated General Contractors of America, Inc.
AHDGA	American Hot Dip Galvanizers Association
AIA	American Institute of Architects
AIEE	American Institute of Electrical Engineers
AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute
AMA	Acoustical Materials Association
AMCA	Air Moving and Conditioning Association
ANS	American Nuclear Society
ANSI	American National Standards Institute
APA	American Plywood Association
ARI	Air Conditioning and Refrigeration Institute
ASA	Acoustical Society of America

ASCE	American Society of Civil Engineers
ASHRAE	American Society of Heating, Refrigerating and Air Conditioning Engineers
ASLA	American Society of Landscape Architects
ASME	American Society of Mechanical Engineers
ASQC	American Society for Quality Control
ASSE	American Society of Sanitary Engineers
ASTM	American Society for Testing and Materials
AWI	Architectural Woodwork Institute
AWPA	American Wood Preservers' Association
AWPI	American Wood Preservers' Institute
AWS	American Welding Society
AWWA	American Water Works Association
BHMA	Builders Hardware Manufacturers Association
CGA	Compressed Gas Association
CRSI	Concrete Reinforcing Steel Institute
CS	Commercial Standards, U. S. Department of Commerce
CSI	Construction Specification Institute
EIA	Electronic Industries Association
FS	Federal Specification
FSPT	Federation of Societies for Paint Technology
FSS	Federal Specifications, General Services Administration
FHWA	Federal Highway Administration
GA	Gypsum Association
IBI	Insulation Board Institute
IBR	Institute of Boiler and Radiator Manufacturers
IEEE	Institute of Electric and Electronics Engineers
IES	Illuminating Engineering Society
ISA	Instrument Society of America
ISO	International Organization for Standardization
ITE	Institute of Traffic Engineers
LIA	Lead Industries Association
MBMA	Metal Building Manufacturers Association
MIA	Marble Institute of America
MPTA	Mechanical Power Transmission Association
MS	Military Specification
MSTD	Military Standard
NAAMM	National Association of Architectural Metal Manufacturers
NAFM	National Association of Fan Manufacturers
NBFU	National Board of Fire Underwriters
NBS	National Bureau of Standards
NCMA	National Concrete Masonry Association
NEC	National Electrical Code
NECA	National Electrical Contractors Association, Inc.
NEMA	National Electrical Manufacturers Association
NFC	National Fire Code
NFPA	National Fire Protection Association
NHLA	National Hardware Lumber Association

NLMA	National Lumber Manufacturers Association
NPC	National Plumbing Code
NRCA	National Roofing Contractors Association
NRMCA	National Ready Mixed Concrete Association
NSF	National Sanitation Foundation
NTMA	The National Terrazzo and Mosaic Association
NWMA	National Woodwork Manufacturers Association
OSHA	Occupational Safety and Health Act
PCA	Portland Cement Association
PCI	Prestressed Concrete Institute
PEI	Porcelain Enamel Institute
RTI	Resilient Tile Institute
RWMA	Resistance Welder Manufacturers Association
SBI	Steel Boiler Institute
SCDOT	South Carolina Department of Transportation
SCPI	Structural Clay Products Institute
SDI	Steel Deck Institute
SJI	Steel Joist Institute
SMA	Screen Manufacturers Association
SMACNA	Sheet Metal and Air Conditioning Contractors National Association
SSBC	Southern Standard Building Code
SSGC	Southern Standard Gas Code
SSPC	Steel Structures Painting Council
TAPPI	Technical Association of the Pulp and Paper Industry
TCA	Tile Council of America
TRB	Transportation Research Board
UL	Underwriters' Laboratories, Inc.

2. OWNER'S RIGHTS AND RESPONSIBILITIES

2.1. CHANGES IN THE WORK:

2.1.1. The Owner, without invalidating the Contract, may make changes in the Work and in the Drawings and Specifications therefor by making alterations therein, additions thereto, or omissions therefrom.

2.1.2. All work resulting from such changes shall be performed and furnished under and pursuant to the terms and conditions of the Contract. If such changes result in an increase or decrease in the work to be done hereunder, or increase or decrease the quantities thereof, adjustment in compensation shall be made therefor as provided in Subsection 7.12 entitled PAYMENT FOR EXTRA WORK.

2.1.3. Except in an emergency endangering life or property, no change shall be made unless in pursuance of a written order from the Engineer authorizing the change, and no claim for additional compensation shall be valid unless the change is so ordered.

2.1.4. The Contractor agrees that he shall neither have nor assert any claim for, or be entitled to, any additional compensation for damages or for loss of anticipated profits on work that is eliminated.

2.2. PROJECT ENGINEER: As Engineer for this project, the Owner has retained:

The LandPlan Group South, Inc.
1206 Scott Street
Columbia, SC 29201

2.3. ENGINEER'S AUTHORITY:

2.3.1. The Engineer will be the Owner's representative during the construction period and he will observe the work in progress on behalf of the Owner. The Engineer will have the authority to act on behalf of the Owner in the following matters, consistent with Owner's rights and obligations as set forth in these Contract Documents:

2.3.1.a. Interpretation of Contract Documents.
2.3.1.b. Approval of samples and shop drawings.
2.3.1.c. Preparation of supplementary details and instructions.
2.3.1.d. Inspection and approval of construction work.
2.3.1.e. Preliminary approval of progress payment applications.

2.3.2. Any instructions which the Engineer may issue the Contractor shall be adjudged an interpretation of the Contract requirements and not an act of supervision. The Engineer has no authority, nor accepts any responsibility, either direct or implied, to direct and superintend the construction operations.

2.3.3. The Contractor shall proceed without delay to perform the work as directed, instructed, determined, or decided by the Engineer and shall comply promptly with such directions, instructions, determinations, or decisions. If the Contractor has any objection thereto, he may require that any such direction, instruction, determination, or decision be put in writing and within 10 days after receipt of any such writing, he may file a written protest with the Owner stating clearly and in detail his objections, the reasons therefor, and the nature and amount of additional compensation, if any, to which he claims he will be entitled thereby. A copy of such protest shall be filed with the Engineer at the same time it is filed with the Owner. Unless the Contractor files such written protest with the Owner and Engineer within such 10 day period, he shall be deemed to have waived all grounds for protest of such direction, instruction, determination, or decision and all claims for additional compensation or damages occasioned thereby, and shall further be deemed to have accepted such direction, instructions, determination, or decision as being fair, reasonable, and finally determinative of his obligations and rights under the Contract.

2.4. LIABILITY OF OWNER: No person, firm or corporation, other than the Contractor, who signed this Contract as such, shall have any interest herein or right hereunder. No claim shall be made or be valid either against the Owner or any agent of the Owner and neither the Owner nor any agent of the Owner shall be liable for or be held to pay any money, except as herein provided. The acceptance by the Contractor of the payment as fixed in the final estimate

shall operate as and shall be a full and complete release of the Owner and of every agent of the Owner of and from any and all claims, demands, damages and liabilities of, by or to the Contractor for anything done or furnished for or arising out of or relating to or by reason of the work or for or on account of any act or neglect of the Owner or of any agent of the Owner or of any other person, arising out of, relating to or by reason of the work, except the claim against the Owner for the unpaid balance, if any there be, of the amounts retained as herein provided.

2.5. RIGHTS-OF-WAY AND SUSPENSION OF WORK: The Owner shall furnish all land and rights-of-way necessary for the carrying out of this contract and the completion of the Work herein contemplated and will use due diligence in acquiring said land and rights-of-way as speedily as possible. But it is possible that all lands and rights-of-way may not be obtained as herein contemplated before construction begins, in which event the Contractor shall begin his work upon such land and rights-of-way as the Owner may have previously acquired and no claim for damages whatsoever will be allowed by reason of the delay in obtaining the remaining lands and rights-of-way. Should the Owner be prevented or enjoined from proceeding with the work, or from authorizing its prosecution, either before or after the commencement, by reason of any litigation, or by reason of its inability to procure any lands or rights-of-way for the said work, the Contractor shall not be entitled to make or assert claim for damage by reason of said delay or to withdraw from the contract except by consent of the Owner; but time for completion of the work will be extended to such time as the Owner determines will compensate for the time lost by such delay, such determination to be set forth in writing.

2.6. SURVEYS, PERMITS AND REGULATIONS:

2.6.1. The Owner will furnish all boundary surveys and establish all base lines for locating the principal component parts of the Work together with a suitable number of bench marks adjacent to the Work as shown in the Contract Documents. From the information provided by the Owner, unless otherwise specified in the Contract Documents, the Contractor shall develop and make all detail surveys needed for construction such as slope stakes, batter boards, stakes for pile locations and other working points, lines, elevations and cut sheets.

2.6.2. The Contractor shall carefully preserve bench marks, reference points and stakes and, in case of willful or careless destruction, he shall be charged with the resulting expense and shall be responsible for any mistakes that may be caused by their unnecessary loss or disturbance.

2.6.3. Permits and licenses of a temporary nature necessary for the prosecution of the Work shall be secured and paid for by the Contractor unless otherwise stated in the Supplemental Conditions. Encroachment permits, easements for permanent structures and permits for permanent changes in existing facilities shall be secured and paid for by the Owner, unless otherwise specified. The Contractor shall give all notices and comply with all laws, ordinances, rules and regulations bearing on the conduct of the Work as drawn and specified. If the Contractor observes that the Contract Documents are at variance therewith, he shall promptly notify the Engineer in writing, and any necessary changes shall be adjusted as provided in Subsection 2.1 entitled CHANGES IN THE WORK.

2.7. LINES, GRADES AND MEASUREMENTS:

2.7.1. The Owner's Engineer will set sufficient base lines and elevations as shown on the Drawings for location of the Work. The Contractor shall employ a registered civil engineer, or land surveyor and shall require said Engineer to establish all lines, elevations, reference marks, batter boards, etc., needed by the Contractor during the progress of the work, and from time to time to verify such marks by instrument or other appropriate means.

2.7.2. The Owner's Engineer shall be permitted at all times to check the lines, elevations, reference marks, batter boards, etc., set by the Contractor, who shall correct any errors in lines, elevations, reference marks, batter boards, etc., disclosed by such check. Such check shall not be construed to be an approval of the Contractor's work and shall not relieve or diminish in any way the responsibility of the Contractor for the accurate and satisfactory construction and completion of the work.

2.7.3. The Contractor shall make, check and be responsible for all measurements and dimensions necessary for the proper construction of, and the prevention of misfittings in, the work.

2.8. OWNER'S RIGHT OF AUDIT: In case the Owner agrees that a Contractor perform work on a cost plus basis, the Owner is to have a full and complete right to audit and make copies of Contractor's or Subcontractor's records with respect to any payment to Owner may be requested to make, or may make, for any work done on a cost plus basis.

2.9. OWNER'S RIGHT TO SEPARATE CONTRACTS:

2.9.1. The Owner reserves the right to let other contracts in connection with the Work under similar General Conditions. The Contractor shall afford other contractors reasonable opportunity for the introduction and storage of their materials and the execution of their work, and shall properly connect and coordinate his work with theirs.

2.9.2. The Owner may perform additional Work related to the Project by himself, or he may let other contracts containing provisions similar to these. The Contractor will afford the other contractors who are parties to such Contracts (or the Owner, if he is performing the additional Work himself), reasonable opportunity for the introduction and storage of materials and equipment and the execution of Work and shall properly connect and coordinate his Work with theirs.

2.10. OWNER'S RIGHT TO DO WORK:

2.10.1. If the Contractor should neglect to prosecute the work properly or fail to perform any provision of this contract, the Owner, after three days' written notice to the Contractor may, without prejudice to any other remedy he may have, make good such deficiencies and may deduct the cost thereof from the payment then or thereafter due the Contractor. If such expense shall exceed the unpaid balance, the Contractor shall pay the difference to the Owner on demand.

2.10.2. The Engineer's certificate setting forth the fair and reasonable cost of repairing, replacing, rebuilding or restoring any damaged or defective work or equipment when performed by one other than the Contractor shall be binding and conclusive as to the amount thereof upon the Contractor.

2.11. OWNER'S RIGHT TO TERMINATE CONTRACT: If the Contractor should be adjudged a bankrupt, or if he should make a general assignment for the benefit of his creditors, or if a receiver or trustee should be appointed on account of his insolvency, or if he should persistently or repeatedly refuse or should fail, except in cases for which extension of time is provided, to supply enough properly skilled workmen or proper materials, or if he should fail to make prompt payment to Subcontractors or for material or labor, or persistently disregard laws, ordinances or the instructions of the Owner and his representatives, or otherwise be guilty of substantial violation of any provision of the Contract, then the Owner, may, without prejudice to any other right or remedy and after giving the Contractor, and his surety, if any, seven days' written notice, terminate the employment of the Contractor and take possession of the premises and of all materials, as it may deem expedient. In such case, the Contractor shall not be entitled to receive any further payment until the work is finished. If the unpaid balance of the contract price shall exceed the expense of finishing the work including compensation for additional engineering, managerial and administrative services, such excess shall be paid to the Contractor. If such expense shall exceed such unpaid balance, the Contractor shall pay the difference to the Owner.

2.12. SUSPENSION OF WORK, TERMINATION AND DELAY: The Owner may suspend the Work or any portion thereof for a period of not more than 90 days or such further time as agreed upon by the Contractor, by written notice to the Contractor and the Engineer, which notice shall fix the date on which Work shall be resumed. The Contractor will resume that Work on the date so fixed. The Contractor will be allowed an increase in the Contract Price or an extension of the Contract Time, or both, directly attributable to any suspension.

2.13. INSPECTIONS AND TESTING: If the Contract Documents, Owner's instructions, laws, ordinances or any public authority having jurisdiction require any work to be specially tested or approved, the Contractor shall give the Owner timely notice of its readiness for observation by the Owner or inspection by another authority, and if the inspection is by another authority rather than the Owner, of the date fixed for such inspection. The required certificates of such inspection shall be secured and paid for by the Contractor. All SCDOT inspections shall be paid for by the General Contractor. Observations by the Owner shall be promptly made, and where practicable, at the source of supply. If any work should be covered up without approval or consent of the Owner, it must, if required by the Owner, be uncovered for examination, at the Contractor's expense.

2.14. INSPECTION OF WORK AWAY FROM THE SITE: If the work to be done away from the construction site is to be inspected on behalf of the Owner during its fabrication, manufacture, or testing, or before shipment, the Contractor shall give notice to the Engineer of the place and time where such fabrication, manufacture, testing, or shipping is to be done. Such notice shall be in writing and delivered to the Engineer in ample time so that the necessary arrangements for the inspection can be made.

2.15. PIPE LOCATION: Exterior pipelines will be located substantially as indicated on the Drawings, but the right is reserved to the Owner acting through the Engineer, to make such modifications in location as may be found desirable to avoid interference with structures or for other reasons. Where fittings, etc., are noted on the Drawings such notation is for the

Contractor's convenience and does not relieve him from laying and jointing different or additional items where required.

2.16. PRIOR USE OR OCCUPANCY: The Owner reserves the right to use or occupy the Work or portion thereof, and to use equipment installed under the Contract, prior to final acceptance. Such use or occupancy will not constitute acceptance of the Work or any part thereof. Despite such use or occupancy, guarantee periods will not begin until the completion of all work under the Contract, unless agreement to the contrary is made in writing between the parties.

2.17. WEATHER CONDITIONS: In the event of temporary suspension of work, or during inclement weather, or whenever the Engineer shall direct, the Contractor will, and will cause his subcontractors to, protect carefully his and their work and materials against damage or injury from the weather. If, in the opinion of the Engineer, any work or materials shall have been damaged or injured by reason of failure on the part of the Contractor or any of his subcontractors so to protect its work, such materials shall be removed and replaced at the expense of the Contractor.

2.18. OWNER'S RIGHT TO CLEAN UP: If a dispute arises between the separate contractors as to their responsibility for cleaning up, the Owner may clean up and charge the cost thereof to the Contractor as the Engineer shall determine to be just.

3. CONTRACTOR'S RIGHTS AND RESPONSIBILITIES

3.1. ACCESS TO WORK: The Owner, the Engineer, and their officers, agents, servants, and employees plus representatives of the various participating Federal or State agencies may at any and all times and for any and all purposes, enter upon the work and site thereof and the premises used by the Contractor, and the Contractor shall at all times provide safe and proper facilities therefor.

3.2. ACCIDENT PREVENTION: In the performance of the contract the Contractor shall comply with the applicable provisions of the regulations issued by the Secretary of Labor pursuant to section 107 of the Contract Work Hours and Safety Standards Act entitled "Safety and Health Regulations for Construction" (29 CFR 1518, renumbered as Part 1926). Occupational Safety and Health Standards (29 CFR Part 1910) issued by the Secretary of Labor pursuant to the Williams-Steiger Occupational Safety and Health Act of 1970 are applicable to work performed by the contractor subject to the provisions of the Act.

3.3. STATED ALLOWANCES: The Contractor shall include in the Contract Sum all allowances stated in the Contract Documents. These allowances shall cover the net cost of the materials and equipment delivered and unloaded at the site, and all applicable taxes. The Contractor's handling costs on the site, labor, installation costs, overhead, profit and other expenses contemplated for the original allowance shall be included in the Contract Sum and not in the allowance. If the cost, when determined, is more than or less than the allowance, the Contract Sum shall be adjusted accordingly by Change Order which will include additional handling costs on the site, labor, installation costs, overhead, profit and other expenses resulting to the Contractor from any increase over the original allowance.

3.4. ARCHAEOLOGICAL RIGHTS: There is a possibility that items of archaeological significance may be found during the excavation of the site. In such event, the Contractor shall stop excavation in the vicinity of the find and notify the Engineer immediately; subsequent excavation work shall proceed as directed by the Engineer. All items found which are considered to have archaeological significance are the property of the Owner.

3.5. AS-BUILT DRAWINGS: The Contractor shall designate one set of Drawings for "As-Built Drawings". The Contractor shall indicate on these drawings all field changes affecting various mechanical, electrical, piping and other items as well as locations as actually installed. The "As-Built Drawings" shall be kept current by the Contractor. The "As-Built Drawings" shall be delivered to the Engineer upon completion and acceptance of the work. Final payment for the work will not be made until the "As-Built Drawings" have been completed and delivered as indicated above.

3.6. OBLIGATIONS OF CONTRACTOR:

3.6.1. The Contractor shall and will, in good workmanlike manner, do and perform all work and furnish all supplies and materials, tools, machinery, equipment, transportation, supervision, temporary construction of any nature, and all other services, means and facilities except as herein otherwise expressly specified, necessary or proper to perform and complete all work required by this Contract, within the time herein specified, in accordance with the provisions of this Contract and in accordance with the Drawings and Specifications and in accordance with the direction of the Engineer as given from time to time during the progress of the work. He shall furnish, erect, maintain and remove such construction plant and such temporary works as may be required.

3.6.2. The Contractor shall observe, comply with, and be subject to all terms, conditions, requirements, and limitations of the Contract and Specifications, and shall do, carry on, and complete the entire work to the satisfaction of the Engineer and the Owner.

3.6.3. The Contractor shall check all dimensions, elevations, quantities and instructions shown on the Drawings or given in the Specifications and shall notify the Engineer should any discrepancy of any kind be found in the Drawings, Specifications or conditions at the site. He will not be allowed to take advantage of any discrepancy, error or omission in the Contract Documents. If any discrepancy is discovered, the Engineer will issue full instructions pertaining thereto and the Contractor shall carry out these instructions as if originally specified.

3.7. CLAIMS FOR ADDITIONAL COST: If the Contractor wishes to make a claim for an increase in the Contract Sum, he shall give written notice thereof within ten days after the occurrence of the event giving rise to such claim. This notice shall be given by the Contractor before proceeding to execute the Work, except in an emergency endangering life or property, in which case the Contractor shall proceed in accordance with Subsection 3.27 entitled PROTECTION OF WORK, PROPERTY AND PERSONS IN AN EMERGENCY. No such claim shall be valid unless so made. If the Owner and the Contractor cannot agree on the amount of the adjustment in the Contract Sum, it shall be determined by the Engineer. Any change in the Contract Sum resulting from such claim shall be authorized by Change Order.

3.8. CLAIMS FOR DAMAGE:

3.8.1. If the Contractor makes claim for any damages alleged to have been sustained by breach of contract or otherwise, he shall, within 10 days after occurrence of the alleged breach or within 10 days after such damages are alleged to have been sustained, whichever date is the earlier, file with the Engineer a written, itemized statement in triplicate of the details of the alleged breach and the details and amount of the alleged damages. The Contractor agrees that unless such statement is made and filed as so required, his claim for damages shall be deemed waived, invalid and unenforceable, and that he shall not be entitled to any compensation for any such alleged damages. Within 10 days after the timely filing of such statement, the Engineer shall file with the Owner one copy of the statement together with his recommendations for action by the Owner.

3.8.2. The Contractor shall not be entitled to claim any additional compensation for damages by reason of any direction, instruction, determination or decision of the Engineer, nor shall any such claims be considered, unless the Contractor shall have complied in all respects with the last paragraph of Subsection 2.a entitled ENGINEER'S AUTHORITY, including, but not limited to, the filing of written protest in the manner and within the time therein provided.

3.9. CUTTING AND PATCHING:

3.9.1. The Contractor shall leave all chases or openings for the installation of his own or any other contractor's subcontractor's work, or shall cut the same in existing work, and shall see that all sleeves or forms are at the work and properly set in ample time to prevent delays. He shall see that all such chases, openings, and sleeves are located accurately and are of proper size and shape and shall consult with the Engineer and the contractors and subcontractors concerned in reference to this work.

3.9.2. In case of his failure to leave or cut all such openings or have all such sleeves provided and set in proper time, he shall cut them or set them afterwards at his own expense, but in so doing he shall confine the cutting to the smallest extent possible consistent with the work to be done. In no case shall piers or structural members be cut without the written consent and approval of the Engineer.

3.9.3. The Contractor shall carefully fit around, close up, repair, patch, and point around the work specified herein to the satisfaction of the Engineer.

3.9.4. All of this work shall be done by careful workmen competent to do such work and with the proper small hand tools. Power tools shall not be used except where, in the opinion of the Engineer, the type of tool proposed can be used without damage to any work or structure and without inconvenience or interference with the operation of any facility. The Engineer's approval of the type of tool shall not in any way relieve or diminish the responsibility of the Contractor for such damage, inconvenience or interference resulting from the use of such tools.

3.9.5. The Contractor shall not cut or alter the work of any subcontractor or any other contractor, nor permit any of his subcontractors to cut or alter the work of any other contractor or subcontractor except with the written consent of the contractor or subcontractor whose work is to be cut or altered or with the written consent of the Engineer. All cutting and patching or repairing made necessary by the negligence, carelessness, or incompetence of the Contractor or

any of his subcontractors shall be done by or at the expense of the Contractor and shall be the responsibility of the Contractor.

3.10. CLEANING UP:

3.10.1. The Contractor at all times shall keep the site of the work free from rubbish and debris caused by his operation under the Contract. When the work has been completed, the Contractor shall remove from the site of the work all of his plant, machinery, tools, construction equipment, temporary work and surplus materials so as to leave the work and the site clean and ready for use.

3.10.2. All public streets adjacent to the site and all private ways at the site shall be kept clean of debris, spilled materials, and wet and dry earth at all times and shall be cleaned at the end of each working day. When wet earth is encountered, it shall be cleaned from the vehicles before they leave the site and enter streets and private ways.

3.11. NON-COMPLIANCE WITH CONTRACT REQUIREMENTS: In the event the Contractor, after receiving written notice from the Owner of non-compliance with any requirement of this Contract, fails to initiate promptly such action as may be appropriate to comply with the specified requirement within a reasonable period of time, the Owner shall have the right to order the Contractor to stop any or all work under the Contract until the Contractor has complied or has initiated such action as may be appropriate to comply within a reasonable period of time. The Contractor will not be entitled to any extension of contract time or payment for any costs incurred as a result of being ordered to stop work for such cause.

3.12. OVERALL PROJECT COORDINATION: The Contractor shall coordinate all Work of his Contract to produce the required finished Project in accordance with the Contract Documents. Special attention shall be given to the submission of shop drawings, samples, color charts, and requests for substitution within the specified time; furnishing the proper shop drawings to Subcontractors and material suppliers, whose work and equipment is affected by and related thereto; and the furnishing of all information concerning location, type, and size of built-in equipment and materials and equipment utilities. This coordination is in addition to all other coordination requirements called for in the technical sections of the Specifications.

3.13. COMMUNICATIONS: The Contractor shall forward all communications to the Owner through the Engineer.

3.14. NO DISCRIMINATION IN EMPLOYMENT: In connection with the performance of work under this Contract, the Contractor agrees not to discriminate against any employee or applicant for employment because of race, religion, color, or national origin. The aforesaid provision shall include, but not be limited to, the following: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship.

3.15. DRAWINGS AND SPECIFICATIONS AT THE SITE: The Contractor shall maintain at the site one complete set of all Drawings, Specifications, Addenda, approved Shop Drawings, Change Orders and other Modifications, in good and readable condition and marked to record all changes made during construction. These shall be available to the Engineer. The Drawings,

marked to record all changes made during construction, shall be delivered to the Engineer for the Owner upon completion of the work.

3.16. EMPLOY COMPETENT PERSONS: The Contractor shall endeavor to employ only competent persons on the Work. Whenever the Engineer notifies the Contractor in writing that in his opinion any person on the Work is incompetent, unfaithful, disorderly, or otherwise unsatisfactory, or not employed in accordance with the provisions of the Contract, such person shall be discharged from the Work and shall not again be employed on it, except with the written consent of the Engineer. Provided, however, that the failure of the Owner or Engineer to object to an employee is not to be considered acknowledgment or approval of the employee's competence by the Engineer or Owner.

3.17. EMPLOY SUFFICIENT LABOR AND EQUIPMENT: If, in the judgement of the Engineer, the Contractor is not employing sufficient labor, plant, equipment or other means to complete the work within the time specified, the Engineer may, after giving written notice, require the Contractor to employ such additional labor, plant, equipment and other means as the Engineer may deem necessary to enable the work to progress properly.

3.18. EXISTING STRUCTURES: Where the dimensions and locations of existing structures are of importance in the installation or connection of any part of the Work, the Contractor shall verify such dimensions and locations in the field before the fabrication of any material or equipment which is dependent on the correctness of such information.

3.19. INDEMNIFICATION:

3.19.1. The Contractor will indemnify and hold harmless the Owner and the Engineer and their agents and employees from and against all claims, damages, losses and expenses, including attorneys' fees, arising out of or resulting from the performance of the Work, provided that any such claim, damage, loss or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property including the loss of use resulting therefrom; and is caused in whole or in part by any negligent or willful act or omission of the Contractor, any Subcontractor, anyone directly or indirectly employed by any of them, or anyone for whose acts any of them may be liable.

3.19.2. In any and all claims against the Owner or the Engineer, or any of their agents or employees, by any employee of the Contractor, any Subcontractor, 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 by an limitation on the amount or type of damages, compensation or benefits payable by or for the Contractor or any Subcontractor under workmen's compensation acts, disability benefit acts or other employee benefits acts.

3.20. INTOXICATING LIQUORS: The Contractor shall not sell and shall neither permit nor suffer the introduction or use of intoxicating liquors upon or about the work.

3.21. LEGAL ADDRESS OF CONTRACTOR: The Contractor's business address and his office at or near the site of the work are both hereby designated as places to which communications may be delivered. The depositing of any letter, notice, or other communication in a postpaid wrapper directed to the Contractor's business address in a post office box regularly

maintained by the U. S. Postal Service or the delivery at either designated address of any letter, notice, or other communication by mail or otherwise shall be deemed sufficient service thereof upon the Contractor, and the date of such service shall be the date of receipt. The first-named address may be changed at any time by an instrument in writing, executed and acknowledged by the Contractor and delivered to the Engineer. Service of any notice, letter or other communication upon the Contractor personally shall likewise be deemed sufficient service.

3.22. MUTUAL RESPONSIBILITY OF CONTRACTORS:

3.22.1. The Contractor shall afford other contractors reasonable opportunity for the introduction and storage of their materials and equipment and the execution of their work, and shall properly connect and coordinate his Work with theirs.

3.22.2. If any part of the Contractor's Work depends for proper execution or results upon the work of any other separate contractor, the Contractor shall inspect and promptly report to the Owner any apparent discrepancies or defects in such work that render it unsuitable for such proper execution and results. Failure of the Contractor so to inspect and report shall constitute an acceptance of the other contractor's work as fit and proper to receive his Work, except as to defects which may develop in the other separate contractor's work after the execution of the Contractor's Work. To ensure proper execution of the subsequent work, the Contractor shall measure work already in place and shall at once report to the Owner any discrepancy between the executed work and the Contract Documents.

3.22.3. Should the Contractor cause damage to any separate contractor on the work, the Contractor agrees, upon due notice, to settle with such contractor by agreement or arbitration, if he will so settle. If such separate contractor sues the Owner on account of any damage alleged to have been so sustained, the Owner shall notify the Contractor, who shall defend such proceedings at the Contractor's expense, and if any judgement against the Owner arises therefrom, the Contractor shall pay or satisfy it and pay all costs incurred by the Owner.

3.23. NIGHT AND SUNDAY WORK:

3.23.1. No work shall be done at night or on Sunday except:
3.23.1.a. Usual protective work, such as pumping and the tending of lights and fires;
3.23.1.b. Work done in case of emergency threatening injury to persons or property;
3.23.1.c. When provided for under Supplemental Conditions as herein specified;
3.23.1.d. If all of the conditions set forth in the next paragraph below are met.

3.23.2. No work other than that included in (3.23.1.a), (3.23.1.b), and (3.23.1.c) above, shall be done at night except when:

3.23.2.a. In the judgment of the Engineer, the work will be of advantage to the Owner and can be performed satisfactorily at night;
3.23.2.b. The work will be done by a crew organized for regular and continuous night work;
3.23.2.c. The Engineer has given written permission for such night work.

3.23.3. Any work necessary to be performed after regular hours, on Sundays, or Legal Holidays, shall be performed without additional expense to the Owner.

3.24. OCCUPYING PRIVATE LAND: The Contractor shall not (except after written consent from the proper parties) enter or occupy with men, tools, materials, or equipment, any land outside the rights-of-way or property of the Owner. A copy of the written consent shall be given to the Engineer prior to occupation of private land.

3.25. PERMITS AND RESPONSIBILITIES: The Contractor shall, without additional expense to the Owner, be responsible for obtaining any necessary licenses and permits, and for complying with any applicable Federal, State and municipal laws, codes, and regulations, in connection with the prosecution of the work. He shall be similarly responsible for all damages to persons or property that occurs as a result of his fault or negligence. He shall also be responsible for all materials delivered and work performed until completion and acceptance of the entire construction work, except for any completed unit of construction thereof which theretofore may have been accepted.

3.26. PRECAUTIONS DURING ADVERSE WEATHER:

3.26.1. During adverse weather and against the possibility thereof, the Contractor shall take all necessary precautions so that the Work may be properly done and satisfactory in all respects. When required, protection shall be provided by use of tarpaulins, wood and building-paper shelters, or other approved means.

3.26.2. During cold weather, materials shall be preheated, if required, and the materials and adjacent structure into which they are to be incorporated shall be made and kept sufficiently warm so that a proper bond will take place and a proper curing, aging, or drying will result. Protected spaces shall be artificially heated by approved means which will result in a moist or a dry atmosphere according to the particular requirements of the work being protected. Ingredients for concrete and mortar shall be sufficiently heated so that the mixture will warm throughout when used.

3.26.3. The Engineer may suspend construction operations at any time when, in his judgement, the conditions are unsuitable or the proper precautions are not being taken, whatever the weather may be, in any season. The Contractor agrees that he shall not have or assert any claim for or be entitled to any additional compensation or damages on account of any such suspension.

3.27. PROTECTION OF WORK, PROPERTY AND PERSONS:

3.27.1. The Contractor will be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work. He will take all necessary precautions for the safety of, and will provide the necessary protection to prevent damage, injury or loss to all employees on the Work and other persons who may be affected thereby, all the Work and all materials or equipment to be incorporated therein, whether in storage on or off the site, and other property at the site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation or replacement in the course of construction.

3.27.2. The Contractor will comply with all applicable laws, ordinances, rules, regulations and orders of any public body having jurisdiction. He will erect and maintain as required by the

conditions and progress of the Work, all necessary safeguards for safety and protection. He will notify owners of adjacent utilities when prosecution of the Work may affect them. The Contractor will remedy all damage, injury or loss to any property caused, directly or indirectly, in whole or in part, by the Contractor, any subcontractor, or anyone directly or indirectly employed by any of them or anyone for whose acts any of them be liable, except damage or loss attributable to the fault of the Contract Documents or to the acts or omissions of the Owner or the Engineer or anyone employed by either of them or anyone for whose acts either of them may be liable and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of the Contractor.

3.28. PROTECTION OF WORK, PROPERTY AND PERSONS IN AN EMERGENCY: In emergencies affecting the safety of persons or the Work or property at the site or adjacent thereto, the Contractor, without special instruction or authorization from the Engineer or Owner, shall act to prevent threatened damage, injury or loss. He will give the Engineer prompt Written Notice of any significant changes in the Work or deviations from the Contract Documents caused thereby, and a Change Order shall thereupon be issued covering the changes and deviations involved.

3.29. PROTECTION AGAINST WATER AND STORM: The Contractor shall take all precautions necessary to prevent damage to the Work by storms or by water entering the site of the Work directly or through the ground. In case of damage by storm or water, the Contractor shall at his own cost and expense make such repairs or replacements or rebuild such parts of the Work as the Engineer may require in order that the finished work may be completed as required by the Contractor.

3.30. PROTECTION OF EXISTING VEGETATION, STRUCTURES, UTILITIES AND IMPROVEMENTS:

3.30.1. The Contractor will preserve and protect all existing vegetation such as trees, shrubs, and grass on or adjacent to the site of the work which is not to be removed and which does not reasonably interfere with the construction work. Care shall be taken in removing trees authorized for removal to avoid damage to vegetation to remain in place. Any limbs or branches of trees broken during such operations or by the careless operation of equipment or by workmen, shall be trimmed with a clean cut and painted with an approved tree pruning compound as approved by the Engineer.

3.30.2. The Contractor will protect from damage all existing improvements or utilities at or near the site of the work, the location of which is made known to him, and will repair or restore any damage to such facilities resulting from failure to comply with the requirements of this Contract or the failure to exercise reasonable care in the performance of the Work. If the Contractor fails or refuses to repair any such damage promptly, the Owner may have the necessary work performed and charge the cost thereof to the Contractor.

3.30.3. The Contractor shall enclose the trunks of trees adjacent to his work and not to be cut, with substantial wooden boxes of such height as may be necessary to protect them from injury from piled material, from equipment, from his operation, or otherwise due to his work. Excavating machinery and cranes shall be of suitable type and shall be operated with care to prevent injury to trees not to be cut and particularly to overhanging branches and limbs.

3.30.4. On paved surfaces, the Contractor shall not use or operate tractors, bulldozers or other power-operated equipment, the treads or wheels of which are so shaped as to cut or otherwise injure such surfaces.

3.31. RESTORATION OF PROPERTY: All existing surfaces, including lawns, grassed and planted areas which have been injured by the Contractor's operations, shall be restored to a condition at least equal to that in which they were found immediately before work was begun. Suitable materials and methods shall be used for such restoration. All restored plantings shall be maintained by cutting, trimming, fertilizing, etc., until acceptance. The restoration of existing property or structures shall be done as promptly as practicable and shall not be left until the end of construction period.

3.32. INTERFERENCE WITH AND PROTECTION OF STREETS:

3.32.1. The Contractor shall not close or obstruct any portion of a street, road, or private way without obtaining permits therefor from the proper authorities. If any street, road or private way shall be rendered unsafe by the Contractor's operations, he shall make such repairs or provide such temporary ways or guards as shall be acceptable to the proper authorities.

3.32.2. Streets, roads, private ways, and walks not closed shall be maintained passable and safe by the Contractor, who shall assume and have full responsibility for the adequacy and safety of provisions made therefor.

3.32.3. The Contractor shall, at least 24 hours in advance, notify the highway, police and fire departments in writing, with a copy to the Engineer, if the closure of a street or road is necessary. He shall cooperate with the police department in the establishment of alternate routes and shall provide adequate detour signs, plainly marked and well lighted, in order to minimize confusion.

3.33. TRAFFIC CONTROL: Where control of traffic is required for public safety, the Contractor shall provide an adequate number of flagmen employed at his own expense.

3.34. CONSTRUCTION DRAINAGE:

3.34.1. The Contractor shall furnish all labor, materials and necessary equipment for the temporary control of surface water and seepage water during construction and keep all excavations, pits and trenches free from water at all times.

3.34.2. The Contractor shall furnish and operate pumps and other equipment required. Dikes and ditches shall be constructed around excavations and elsewhere as necessary to prevent surface water from flooding the excavations or standing in areas adjacent to excavations, in work areas or in material storage areas. The Contractor shall take all necessary precautions to protect adjacent areas and properties at points other than that which would be considered the natural flow, prior to construction, without the expressed consent of the Owner in writing with a copy to the Engineer. He shall take steps to prevent the erosion of soil, earth and other material and the conduction of the eroded materials onto adjacent properties and shall be responsible for the removal of such materials and the restoration of adjacent areas to their original condition.

3.35. RETURN OF DRAWINGS: All copies of Drawings, Specifications and other Documents furnished by the Owner or the Engineer to the Contractor may be used only in connection with the prosecution of the Work and shall be returned by the Contractor upon completion of the Work.

3.36. SITE INVESTIGATION: The Contractor acknowledges that he has investigated and satisfied himself as to the conditions affecting the Work, including but not restricted to those bearing upon transportation, disposal, handling and storage of materials, availability of labor, water, electric power, roads and uncertainties of weather, river stages, water table, tides or similar physical conditions at the site, the confirmation and conditions of the ground, the character of equipment and facilities needed preliminary to and during prosecution of the Work. The Contractor further acknowledges that he has satisfied himself as to character, quality and quantity of surface and subsurface materials or obstacles to be encountered insofar as this information is reasonably ascertainable from an inspection of the site, including all exploratory work done by the Owner, as well as from information presented by the Drawings and Specifications made a part of this Contract. Any failure by the Contractor to acquaint himself with the available information will not relieve him from responsibility for estimating properly the difficulty or cost of successfully performing the work. The Owner assumes no responsibility for any conclusions or interpretations made by the Contractor on the basis of the information made available by the Owner.

3.37. SOIL EROSION AND SEDIMENT CONTROL: The Contractors attention is directed to the fact that unless exposed earth areas are properly cared for during construction, they may result in substantial sedimentation damage downstream from the construction area. The Contractor shall be responsible for conducting his site grading and drainage operations in such manner as to prevent excessive soil erosion of the construction site work areas. He shall at all times provide satisfactory means to prevent the movement and washing of soil onto pavements or into adjacent ditches, swales, inlets, and drainage pipes, to avoid the possibility of these structures becoming clogged with soil. He shall promptly repair all areas which may become eroded and shall clear drainage ditches, swales, and structures of siltation. The Contractor will indemnify and save harmless the Owner and Engineer from and against any and all claims, demands, fines, or assessments, including attorneys' fees and cost of defense arising out of or caused by the Contractor's failure to provide soil erosion and sediment control.

3.38. SUBSURFACE CONDITIONS: The Contractor shall promptly, and before such conditions are disturbed, except in the event of an emergency, notify the Owner by Written Notice of:

3.38.1.a. Subsurface or latent physical conditions of the site differing materially from those indicated in the Contract Documents.

3.38.1.b. Unknown physical conditions at the site, of an unusual nature, differing materially from those ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents.

3.38.2. The Owner shall promptly investigate the conditions, and if he finds that such conditions do so materially differ and cause an increase or decrease in the cost of, or in the time required for, performance of the Work, an equitable adjustment shall be made and the Contract

Documents shall be modified by Change Order. Any claim of the Contractor for adjustment hereunder shall not be allowed unless he has given the required Written Notice; provided that the Owner may, if he determines the facts so justify, consider and adjust any such claims asserted before the date of final payment.

3.39. SUBCONTRACTING:

3.39.1. The Contractor may utilize the services of specialty Subcontractors on those parts of the Work which, under normal contracting practices, are performed by specialty Subcontractors. The Contractor shall, without additional expense to the Owner, utilize the services of specialty subcontractors on those parts of the work which are specified to be performed by specialty subcontractors.

3.39.2. The Contractor shall not award any work to any subcontractor without prior written approval of the Owner, which approval will not be given until the Contractor submits to the Owner a written statement concerning the proposed award to the subcontractor, which statement shall contain such information as the Owner may require. No request for payment will be approved before this list has been received and reviewed by the Owner.

3.39.3. The Contractor shall not award Work to Subcontractor(s), in excess of 50 percent of the Contract Price, without prior written approval of the Owner.

3.39.4. The Contractor shall be fully responsible to the Owner for the acts and omissions of his Subcontractors, and of persons either directly or indirectly employed by them, as he is for the acts or omissions of persons directly employed by him.

3.39.5. The Contractor shall cause appropriate provisions to be inserted in all subcontracts relative to the Work to bind Subcontractors to the Contractor by the terms of the Contract Documents insofar as applicable to the Work of Subcontractors and to give the Contractor the same power as regards terminating any subcontract that the Owner may exercise over the Contractor under any provisions of the Contract Documents.

3.39.6. If any other contractor or any subcontractor of any such other contractor shall suffer or claim to have suffered loss, damage or delay by reason of the acts or omissions of the Contractor or of any of his subcontractors, the Contractor agrees to assume the defense against any such claim and to reimburse such other contractor or subcontractor for such loss or damage. The Contractor agrees to and does hereby indemnify and save harmless the Owner from and against any and all claims by such other contractors or subcontractors alleging such loss, damage or delay and from and against any and all claims, demands, costs and expenses, including attorneys' fees, arising out of, relating to or resulting from such claims.

3.39.7. The Contractor shall be responsible for the coordination of the trades, subcontractors, and material men engaged upon his work. The Owner or Engineer will not undertake to settle any differences between the Contractor and his subcontractors or between subcontractors. If any Subcontractor on the project, in the opinion of the Engineer, proves to be incompetent or otherwise unsatisfactory, he shall be replaced if and when directed in writing.

3.40. SUPERVISION:

3.40.1. The Contractor shall keep on his work, during its progress, a competent superintendent and any necessary assistants, all satisfactory to the Owner. The superintendent shall not be changed except with the consent of the Owner, unless the superintendent proves to be unsatisfactory to the Contractor and ceases to be in his employ. The superintendent shall represent the Contractor in his absence and all directions given to him shall be as binding as if given to the Contractor. Important directions shall be confirmed in writing to the Contractor. Other directions shall be so confirmed on written request in each case. The Owner shall not be responsible for the acts or omissions of the superintendent or his assistants.

3.40.2. The Contractor shall give efficient supervision to the Work, using his best skill and attention. He shall carefully study and compare all Drawings, Specifications and other instructions and shall at once report to the Owner any error, inconsistency or omission which he may discover.

3.41. TAXES: The Contractor shall promptly pay federal, state and local taxes which may be assessed against him in connection with the work or his operations under the Agreement and/or the other Contract Documents, including, but not limited to, taxes attributable to the purchase of materials and equipment, to the performance of services, and the employment of persons in the prosecution of the work.

3.42. TEMPORARY HEAT:

3.42.1. The Contractor shall provide temporary heat whenever necessary to protect all Work and materials against injury from dampness and cold and to dry out moisture from the building. Fuel, equipment and method of heating shall be satisfactory to the Owner's Insurer and the Engineer.

3.42.2. Temporary heating apparatus shall be installed and operated in such a manner that finished work will not be damaged thereby.

3.43. SANITARY FACILITIES: The Contractor shall provide adequate sanitary facilities for the use of those employed on the Work. Such facilities shall be made available when the first employees arrive on the site of the Work, shall be properly secluded from public observations, and shall be constructed and maintained during the progress of the Work in suitable numbers and at such points and in such manner as may be required or approved. The Contractor shall maintain the sanitary facilities in a satisfactory and sanitary condition at all times and shall enforce their use. He shall rigorously prohibit the committing of nuisances on the site of the work, on the lands of the Owner, or on adjacent property. The Owner and the Engineer shall have the right to inspect such facilities at all times to determine whether or not they are being properly and adequately maintained.

3.44. TEMPORARY UTILITIES:

3.44.1. The Contractor shall make arrangements for and furnish as a part of the Contract, all electricity, water, lighting and other utilities needed to do the Work called for by the Contract. Any separate contractors having a contract with the Owner shall make arrangements for and share the cost with the Contractor for the use of the required utilities on a pro rated schedule based on an agreed basis. All Electrical Work shall comply with the National Electrical Code.

3.44.2. The Contractor shall provide and pay for all temporary wiring, switches, connections and meters.

3.44.3. The Contractor shall provide sufficient electric lighting so that all work may be done in a workmanlike manner when there is not sufficient daylight.

3.45. UNCOVERING AND CORRECTION OF WORK:

3.45.1. The Engineer shall be furnished by the Contractor with every reasonable facility for examining and inspecting the work and for ascertaining that the work is being performed in accordance with the requirements and intent of the Contract, even to the extent of requiring the uncovering or taking down of portions of finished work by the Contractor.

3.45.2. Should the work thus uncovered or taken down prove satisfactory, the cost of uncovering or taking down and the replacement thereof shall be considered as extra work unless the original work was done in violation of the Contract in point of time or in the absence of the Engineer or his inspector and without his written authorization, in which case said cost shall be borne by the Contractor. Should the work uncovered or taken down prove unsatisfactory, said cost shall likewise be borne by the Contractor.

3.45.3. The inspection of the work shall not relieve the Contractor of any of his obligations to perform and complete the work as required by the Contract. Defective work shall be corrected and unsuitable materials, equipment, apparatus and other items shall be replaced by the Contractor, notwithstanding that such work, materials, equipment, apparatus and other items may have been previously overlooked or accepted or estimated for payment. If the work or any part thereof shall be found defective at any time before the final acceptance of the work, the Contractor shall forthwith make good such defect in a manner satisfactory to the Engineer; if any materials, equipment, apparatus or other items brought upon the site for use or incorporation in the work, or selected from the same, are condemned by the Engineer as unsuitable or not in conformity with the Specifications or any of the other Contract Documents, the Contractor shall forthwith remove such materials, equipment, apparatus and other items from the site of the work and shall at his own cost and expense make good and replace the same and any material furnished by the Owner which shall be damaged or rendered defective by the handling or improper installation by the Contractor, his agents, servants, employees or subcontractors.

3.45.4. If the Owner deems it inexpedient to correct work injured or done not in accordance with the Contract, an equitable deduction from the Contract Price shall be made therefor.

3.46. COOPERATION WITH UTILITIES:

3.46.1. The Owner will notify all utility companies, all pipe line owners, or other parties affected, and endeavor to have all necessary adjustments of the public or private utility fixtures, pipe lines, and other appurtenances within or adjacent to the limits of construction, made as soon as practicable.

3.46.2. Water lines, gas lines, wire lines, sewer lines, water and gas meter boxes, water and gas valve boxes, manholes, light standards, cableways, signals, and all other utility appurtenances within the limits of the proposed construction which are to be relocated or adjusted are to be

moved by the Owners under separate agreement, except as otherwise provided for in the Supplemental Conditions or as noted on the Drawings.

3.46.3. The Drawings will show all known utilities located within the limits of the contract according to information obtained. The accuracy of the Drawings in this respect is not guaranteed by the Owner. The Contractor shall have considered in his bid all of the permanent and temporary utility appurtenances in their present or relocated position. No additional compensation will be allowed for any delays, inconveniences, or damages sustained by him due to any interference from the said utility appurtenances or the operation of moving them.

3.46.4. Unless otherwise provided, the cost of temporary rearrangement of utilities made only in order to facilitate the construction of the work will be borne by the Contractor.

3.47. VERIFICATION OF DIMENSIONS AND ELEVATIONS:

3.47.1. Dimensions and elevations indicated on the Drawings in reference to existing structures, location of utilities, sewer inverts, or other information on existing facilities, are the best available data obtainable but are not guaranteed by the Engineer. The Engineer will not be responsible for their accuracy. Before proceeding with any work dependent upon the data involved, the Contractor shall field check and verify all dimensions, grades, inverts, lines, elevations, or other conditions of limitations at the site of the work to avoid construction errors or damage to existing facilities. If any work is performed by the Contractor, or any subcontractors, prior to adequate verification of applicable data, any resultant extra cost for adjustment of work necessary to conform to existing facilities, shall be assumed by the Contractor without reimbursement or compensation by the Owner.

3.47.2. If the Contractor, in the course of the work, finds any discrepancy between the Drawings and the physical conditions of the locality, or any errors or omissions in the Drawings or in the layout as given by survey points and instructions, he shall immediately inform the Engineer, in writing. The Engineer will promptly investigate the reported conditions and issue such instructions as may be necessary for the proper execution of the work. Any work done after such discovery and prior to receipt of such instructions shall be at the risk of the Contractor.

4. MATERIALS, EQUIPMENT AND WORKMANSHIP

4.1. CHEMICAL USAGE: All chemicals used during project construction or furnished for project operation, whether herbicide, pesticide, disinfectant, polymer, reactant or of other classification, shall show approval of either EPA or U.S.D.A. The use of all such chemicals and disposal of residues shall be in strict conformance with manufacturer and U.S.D.A. instructions.

4.2. TITLE TO MATERIALS: No materials or supplies for the Work shall be purchased by the Contractor or by any subcontractor subject to any chattel mortgage or under a conditional sale contract or other agreement by which an interest is retained by the seller. The Contractor warrants that he has good title to all materials and supplies used by him, in the Work, free from all liens, claims or encumbrances.

4.3. CORRECTION OF WORK BEFORE COMPLETION:

4.3.1. The Contractor shall promptly remove from the premises all work condemned by the Owner as failing to conform to the Contract Documents, whether incorporated or not and the Contractor shall promptly replace and re- execute his own work in accordance with the Contract and without expense to the Owner and shall bear the expense of making good all work of other contractors destroyed or damaged by such removal or replacement. The fact that the Engineer may have previously overlooked such defective work shall not constitute an acceptance of any part of it.

4.3.2. If the Contractor does not remove such condemned work within a reasonable time, fixed by written notice, the Owner may remove it, and after storing it at the job site for 30 days, due written notice thereof being given the Contractor, the Owner may offer the material for sale and removal from the premises. Net proceeds from such sale shall be for the Contractor's credit against the "Owner's Right to Do Work". If the material has no sale value, the Owner may remove it from the premises and/or otherwise dispose of it. The costs of such disposition shall be deducted from payments to the Contractor as provided in Subsection 2.10 entitled OWNER'S RIGHT TO DO WORK.

4.4. CORRECTION OF WORK AFTER COMPLETION: The Contractor shall remedy any defects due to faulty materials or workmanship and pay for any damage to other work resulting therefrom which shall appear within a period of one year from the date of final acceptance of the work except where longer periods are specified and in accordance with the terms of any special guarantees provided in the Contract.

4.5. CORRECTIONS OF WORK AFTER GUARANTEE PERIOD: It shall be the responsibility of the Contractor to permanently correct all defective items called to his attention within the guarantee period, whether such correction be made within the guarantee period or not. The Contract shall not be fully performed until such permanent corrections are made.

4.6. GENERAL GUARANTY:

4.6.1. The Contractor warrants to the Owner that all materials and equipment furnished under this Contract will be new unless otherwise specified, and that all Work will be of good quality, free from faults and defects and in conformance with the Contract Documents. All Work not so conforming to these standards may be considered defective. If required by the Owner, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment.

4.6.2. Neither the final certificate of payment nor any provision in the Contract Documents nor partial or entire occupancy of the premises by the Owner shall constitute an acceptance of work not done in accordance with the Contract Documents or relieve the Contractor of liability in respect to any express warranties or responsibility for faulty materials or workmanship. The Contractor shall remedy any defects in the work and pay for any damage to other work resulting therefrom, which shall appear within a period of one year from the date of final acceptance of the work, except where longer periods are specified. If the Contractor shall fail to repair, replace, rebuild or restore such defective or damaged work or equipment promptly after receiving notice, the Owner shall have the right to have the work done by others in the same manner as is provided for in Subsection 2.10, OWNER'S RIGHT TO DO WORK.

4.6.3. The Contractor shall further guarantee for a period of 24 months that any building or buildings, constructed under this Project, shall be watertight and leak proof at every point and in every area, except where leaks can be attributed to damage to the building by external forces other than storm or foundation settlement. He shall, immediately upon notification by the Owner of water penetration, determine the source of water penetration and, at his own expense, do any work necessary to make the building watertight. He shall also, at his own expense, repair re replace any other damaged material to return the building or buildings to the original accepted condition.

4.6.4. In addition to the foregoing stipulations, the Contractor shall comply with all other guarantees and warranties referred to in any portions of the Contract Documents, the more stringent requirement governing. Unless otherwise specifically stated elsewhere in these Specifications, the date of beginning of all guarantee or warranty periods shall be the date of acceptance of the project.

4.6.5. If for any reason, the Contractor cannot guarantee any part of his work using material or construction methods which have been specified, or shown, he shall notify the Engineer in writing before Contracts are signed, giving reasons together with the name of product and data on substitutions he can guarantee. Should the Contractor fail to so notify the Engineer prior to the signing of Contracts, he will be held to have agreed to guarantee all Work specified or shown.

4.7. HANDLING AND DISTRIBUTION:

4.7.1. The Contractor shall handle, haul and distribute all materials and all surplus materials on the different portions of the work as necessary or required; shall provide suitable and adequate storage room for materials and equipment during the progress of the work, and be responsible for the protection, loss of, or damage to materials and equipment furnished by him, until the final completion and acceptance of the work.

4.7.2. Storage and demurrage charges by transportation companies and vendors shall be borne by the Contractor.

4.8. MANUFACTURER'S DIRECTIONS:

4.8.1. All manufactured articles, material and equipment shall be applied, installed, connected, erected, used, cleaned and conditioned as directed by the manufacturers, unless herein specified to the contrary.

4.8.2. If the specifications or plans are contrary to the manufacturer's directions, the manufacturer shall be contacted by the Contractor before proceeding with the work and the Engineer advised if the manufacturer has any objections to the specified application.

4.9. MATERIALS, SERVICES AND FACILITIES:

4.9.1. It is understood that, except as otherwise specifically stated in the Contract Documents, the Contractor shall provide and pay for all labor, supplies and materials, tools, machinery, equipment, transportation, supervision, temporary construction of any nature, and all other

services, means and facilities of any nature whatsoever necessary to execute, complete, and deliver the Work within the specified time.

4.9.2. Materials and equipment shall be so stored as to insure the preservation of their quality and fitness for the Work. Stored materials and equipment to be incorporated in the Work shall be located so as to facilitate prompt inspection.

4.9.3. Materials, supplies and equipment shall be in accordance with samples submitted by the Contractor and approved by the Engineer.

4.10. MISCELLANEOUS ITEMS:

4.10.1. The work to be done by the Contractor, specified and enumerated under this Contract, shall include any minor details of the Work not specifically mentioned in the Specifications or shown on the Drawings, but obviously necessary for the proper completion of the Work, which shall be considered incidental and as being a part of and included with the Work for which prices are given in the Bid. The Contractor will not be entitled to any additional compensation therefor.

4.10.2. Miscellaneous items and accessories which are not specifically mentioned, but which are essential to produce a complete and properly operating installation or usable structure or plant, providing the indicated function, shall be furnished and installed without change in the contract price. Such miscellaneous items and accessories shall be of the same quality standards, including material, style, finish, strength, class, weight and other applicable characteristics as specified for the major component of which the miscellaneous item or accessory is an essential part, and shall be approved by the Engineer before installation. The above requirement is not intended to include major components not covered by or inferable from the Drawings and Specifications.

4.10.3. MISTAKES OF CONTRACTOR: The Contractor shall promptly correct and make good any and all defects, damages, omissions, or mistakes, for which he and/or his agents, servants, employees or subcontractors are responsible, and he shall pay to the Owner all costs, expenses, losses, and damages resulting therefrom or by reason thereof as determined by the Engineer.

4.11. PROTECTION AGAINST ELECTROLYSIS: Where dissimilar metals are used in conjunction with each other, or against concrete surfaces, suitable insulation shall be provided between adjoining surfaces so as to eliminate direct contact and any resultant electrolysis. The insulation shall be bituminous impregnated felt, heavy bituminous coatings, nonmetallic separators or washers, or other approved materials.

4.12. RIGHT TO MATERIALS: Nothing in the Contract shall be construed as vesting in the Contractor any right of property in the materials, equipment, apparatus and other items furnished after they have been installed or incorporated in or attached or affixed to the work or the site, but all such materials, equipment, apparatus and other items shall, upon being so installed, incorporated, attached or affixed, become the property of the Owner.

4.13. ROYALTIES AND PATENTS: The Contractor shall pay all applicable royalties and license fees. He shall defend all suits or claims for infringement of any patent rights and shall

save the Owner harmless from loss on account thereof, except that the Owner shall be responsible for all such loss when a particular process or the product of a particular manufacturer or manufacturers is specified, but if the Contractor has information that the process or article specified is an infringement of a patent, he shall be responsible for such loss unless he promptly gives such information to the Owner in writing.

4.14. SUBMITTAL SCHEDULE:

4.14.1. Within 20 days after execution and delivery of the Contract, the Contractor shall prepare and deliver to the Engineer a Submittal Schedule. This includes a list of all submittals required under the Contract. The list shall identify each major group of shop drawings, coordination drawings and schedules and each sample and the planned submission date for each.

4.14.2. After the Engineer's review of the list of submittals, the Engineer will meet with the Contractor for a joint review and correction and adjustment, as necessary, for agreement on the submittal. In addition, at the meeting the duration of the review period for each submittal will be established. The Contractor's planned submission date for each submittal shall allow no less than 15 working days for review and appropriate action before approval of the submittal becomes critical to the progress of the Contractor's work. Within five calendar days after the joint review, the Contractor shall make any necessary revisions to the list of submittals, including duration of the review periods, in accordance with the agreements reached during the joint review and submit two revised copies to the Engineer. No application for partial payment will be approved until the submitted schedule is approved.

4.15. SHOP DRAWINGS:

4.15.1. Shop Drawings are drawings, diagrams, illustrations, schedules, performance charts, brochures and other data which are prepared by the Contractor or any Subcontractor, manufacturer, supplier or distributor, and which illustrate some portion of the Work. It shall be the Contractor's responsibility to furnish Shop Drawings as required by the technical specifications or as requested by the Engineer. These submittals must be made no later than is required by the submittal schedule.

4.15.2. Shop Drawings shall show the principal dimensions, weight, structural and operating features, space required, clearances, type and/or brand of finish or shop coat, grease fittings, etc., depending on the subject of the drawing. When it is customary to do so, when the dimensions are of particular importance, or when so specified, the drawings shall be certified by the manufacturer or fabricator as correct for the contract.

4.15.3. When so specified or if considered by the Engineer to be acceptable, manufacturer's specifications, catalog data, descriptive manner, illustrations, etc., may be submitted for approval in place of shop and working drawings. In such case the requirements shall be as specified for shop and working drawings, insofar as applicable except that the submission shall be in quadruplicate.

4.15.4. The Contractor shall be responsible for the prompt and timely submittal of all shop and working drawings so that there shall be no delay to the work due to the absence of such drawings.

4.15.5. The Contractor shall check the Shop Drawings, shall coordinate them (by means of coordination drawings wherever required) with the work of all trades involved before submission and shall indicate thereon his approval. Drawings and schedules submitted without evidence of the Contractor's approval may be returned for resubmission.

4.15.6. By approving and submitting Shop Drawings, the Contractor thereby represents that he has determined and verified all field measurements, field construction criteria, materials, catalog numbers and similar data, or will do so, and that he has checked and coordinated each Shop Drawing with the requirements of the Work and of the Contract Documents.

4.15.7. If drawings or schedules show variations from the contract requirements because of standard shop practice or for other reasons, the Contractor shall describe such variations in his letter of transmittal. If acceptable, the Engineer may approve any or all such variations and issue an appropriate change order. If the Contractor fails to describe such variations he shall not be relieved of the responsibility for executing the work in accordance with the Contract, even though such drawings or schedules may have been approved.

4.15.8. Each Shop Drawing or Coordination Drawing shall have a blank area 5 by 5 inches located adjacent to the title block. The title block shall display the following:

(1) Number and Title of Drawing
(2) Date of Drawing
(3) Revision number and date (if applicable)
(4) Project Title
(5) Name of project building or facility
(6) Name of Contractor
(7) Name of Subcontractor (if applicable)
(8) Clear identity of contents and location of work

4.15.9. Prior to submitting drawings to the Engineer, the Contractor shall check thoroughly all such drawings to satisfy himself that the subject matter thereof conforms to the Drawings and Specifications in all respects. All drawings which are correct shall be marked with the date, checker's name, and indication of the Contractor's approval, and then shall be submitted to the Engineer; other drawings shall be returned for correction.

4.15.10. The Contractor shall stamp all drawings which are to be submitted to the Engineer for approval. The rubber stamp shall incorporate the following items:

PROJECT TITLE N. Main St Corridor Improvements – Ph 2

CONTRACTOR'S NAME _____

APPROVED BY _____ DATE _____

SPECIFICATION SECTION _____ TRANSMITTAL NO. _____

4.15.11. The review of Shop Drawings will be general only and shall not relieve or in any respect diminish the responsibility of the Contractor for details of design, dimensions, etc., necessary for proper fitting and construction of the work as required by the Contract and for achieving the result and performance specified thereunder.

4.15.12. Should the Contractor submit for approval equipment that requires modifications to the structures, piping, layout, etc., detailed on the Drawings, he shall also submit for approval details of the proposed modifications. If such equipment and modifications are approved, the Contractor, at no additional cost to the Owner, shall do all work necessary to make such modifications. Required structural changes shall be designed and detailed by an Engineer registered in the state in which the project will be constructed. Drawings shall be signed and show registration numbers or may have seal affixed.

4.15.13. Submission of Shop Drawings shall be accompanied by a copy of a transmittal letter containing Project name, Contractor's name, number of drawings, titles, specifications section, and other pertinent data. The submittal shall include four (4) legible copies of Shop Drawings or printed matter

4.15.14. The review of Shop Drawings will be performed by the Engineer as follows:

4.15.14.a.When the submittal conforms fully with the Contract Drawings and Specifications, the Engineer will approve it. The reproducible of each drawing or page of approved submittals will be stamped approved, signed, dated and returned to the Contractor. No changes shall be made to approved drawings by the Contractor. If the Contractor desires to make any change from approved drawings, or pages of approved submittals, he shall notify the Engineer in writing that the approved material has been withdrawn and shall submit the substitution set in accordance with the above procedure.

4.15.14.b.When the submittal clearly does not conform with the Contract Drawings and Specifications, the Engineer will disapprove it by stamping it "Rejected". Rejected submittals shall be corrected and resubmitted within 14 calendar days from the date of rejection. Submittals that are rejected shall not be released for any work.

4.15.14.c.When the submittal has only minor deviations from the Contract Drawings and Specifications, the Engineer will note the deviations and omissions as may be appropriate and approve the submittal subject to the notations by stamping it "Approved as Noted". Approved as Noted submittals may be released for fabrication of work at the Contractor's risk; in any event the submittal shall be corrected and resubmitted for approval within 14 calendar days from the date of approval as noted.

4.15.15. The Contractor shall be responsible for delays resulting from the rejection or approval as noted of incomplete, inadequate, incorrect or otherwise unacceptable submittals.

4.15.16. The Contractor shall assure that only drawings and pages of printed material bearing the Engineer's "Approved" stamp are allowed on the job site.

4.15.17. The Contractor shall submit, at the completion of the Project, one set of all reviewed and correct shop drawings, catalog cuts, and descriptive literature for all Work previously

submitted. These sets shall be sent to the Engineer for the Owner before final Certificate of Payment is issued.

4.16. OPERATING AND MAINTENANCE MANUALS: One copy of each required Operating and Maintenance Manual must be submitted to the Engineer with the first submittal of shop drawings. Five additional copies of each required Operating and Maintenance Manual must be submitted to the Engineer within 14 days of the return of approved shop drawings to the Contractor. No payment will be approved on any equipment for received by the Engineer. These O&M manuals must be addressed specifically to the piece of equipment supplied and shall not be general in nature; each item must be clearly identified and located. Each page must be printed on 8-1/2" x 11" paper or folded to that size in a manner suitable for insertion in a 3-ring binder.

4.17. SAMPLES:

4.17.1. Samples are physical examples furnished by the Contractor to illustrate materials, equipment or workmanship, and to establish standards by which the Work will be judged. It shall be the Contractor's responsibility to furnish samples as required by the technical specifications or as required by the Engineer. These samples must be submitted no later than is required by the Submittal Schedule.

4.17.2. Each sample shall have a label indicating:
(1) Project Title
(2) Name of project building or facility
(3) Name of Contractor
(4) Name of Subcontractor (if applicable)
(5) Identification of material with specification section
(6) Name of producer and brand (if any)

4.17.3. Samples shall be submitted in duplicate unless otherwise noted in the technical specifications and shall be accompanied by a copy of a transmittal letter containing Project Name, Contractor's Name, number of samples, specification section and other pertinent data.

4.17.4. If the Engineer so requires, either prior to or after commencement of the work, the Contractor shall submit samples of materials for such special tests as the Engineer deems necessary to demonstrate that they conform to the Specifications. Such samples shall be furnished, taken, stored, packed and shipped by the Contractor as directed. Except as otherwise expressly specified, the Contractor shall make arrangements for, and pay for, the tests.

4.17.5. All samples shall be packed so as to reach their destination in good condition. To insure consideration of samples, the Contractor shall notify the Engineer by letter that the samples have been shipped and shall properly describe the samples in the letter. The letter of notification shall be sent separate from and should not be enclosed with the samples.

4.17.6. The Contractor shall submit data and samples, or place his orders, sufficiently early to provide ample time for consideration, inspection, testing, and approval before the materials and equipment are needed for incorporation in the work. The consequences of his failure to do so shall be the Contractor's sole responsibility.

4.17.7. In order to demonstrate the proficiency of workmen, or to facilitate the choice among several textures, types, finishes, surfaces, etc., the Contractor shall provide such samples of workmanship of wall, floor, finish, etc., as may be required.

4.17.8. When required, the Contractor shall furnish to the Engineer triplicate sworn copies of manufacturer's shop or mill tests (or reports from independent testing laboratories) relative to materials, equipment performance ratings, and concrete data.

4.18. STORAGE OF MATERIALS AND EQUIPMENT: All excavated materials, construction equipment, and materials and equipment to be incorporated in the Work shall be placed so as not to injure any part of the Work or existing facilities and so that free access can be had at all times to all parts of the Work and to all public utility installations in the vicinity of the Work. Materials and equipment shall be kept neatly piled and compactly stored in such locations as will cause a minimum of inconvenience to public travel and adjoining owners, tenants and occupants.

4.19. INSPECTION AND TESTING:

4.19.1. All materials and equipment used in the construction of the Project shall be subject to adequate inspection and testing in accordance with generally accepted standards, as required and defined in the Contract Documents.

4.19.2. The General Contractor shall provide all inspection and testing services not required by the Contract Documents.

4.19.3. The Contractor shall provide at his expense the testing and inspection services required by the SCDOT and the Contract Documents.

4.19.4. If the Contract Documents, laws, ordinance, rules, regulations or orders of any public authority having jurisdiction require any Work to specifically be inspected, tested, or approved by someone other than the Contractor, the Contractor will give the Engineer timely notice of readiness. The Contractor will then furnish the Engineer the required certificates of inspection, testing or approval.

4.19.5. Inspections, tests, or approvals by the Engineer or others shall not relieve the Contractor from his obligations to perform the Work in accordance with the requirements of the Contract Documents.

4.19.6. The Engineer and his representatives will at all times have access to the Work. In addition, authorized representatives and agents of any participating Federal or State agency shall be permitted to inspect all work, materials, payrolls, records of personnel, invoices of materials, an other relevant data and records. The Contractor will provide proper facilities for such access and observation of the Work and also for any inspection or testing thereof.

4.19.7. If any Work is covered contrary to the written instructions of the Engineer it must, if requested by the Engineer, be uncovered for his observation and replaced at the Contractor's expense.

4.19.8. If the Engineer considers it necessary or advisable that covered Work be inspected or tested by others, the Contractor, at the Engineer's request, will uncover, expose or otherwise make available for observation, inspection or testing as the Engineer may require, that portion of the Work in question, furnishing all necessary labor, materials, tools, and equipment. If it is found that such Work is defective, the Contractor will bear all the expenses of such uncovering, exposure, observation, inspection and testing and of satisfactory reconstruction. If, however, such Work is not found to be defective, the Contractor will be allowed an increase in the Contract Price or an extension of the Contract Time, or both, directly attributable to such uncovering, exposure, observation, inspection, testing and reconstruction and an appropriate Change Order shall be issued.

4.20. SUBSTITUTIONS:

4.20.1. The Contractor may recommend the substitution of a material, article, or piece of equipment of equal function for those referred to in the Contract Documents by reference to brand name or catalogue number, and if, in the opinion of the Engineer, such material, article, or piece of equipment is of equal function to that specified, the Engineer may approve its substitution and use by the Contractor. Any cost differential shall be deductible from the Contract Price and the Contract Documents shall be appropriately modified by Change Order.

4.20.2. The Contractor warrants that if substitutes are approved, no major changes in the function or general design of the Project will result. Incidental changes or extra component parts required to accommodate the substitute will be made by the Contractor without a change in the Contract Price or Contract Time.

4.21. "OR EQUAL" CLAUSE:

4.21.1. The phrase "or equal" shall be construed to mean that material or equipment will be acceptable only when in the judgement of the Engineer they are composed of parts of equal quality, or equal workmanship and finish, designed and constructed to perform or accomplish the desired result as efficiently as the indicated brand, pattern, grade, class, make or model.

4.21.2. Whenever a material, article or piece of equipment is identified on the Drawings or in the Specifications by reference to manufacturers' or vendors' names, trade names, catalogue numbers, etc., it is intended merely to establish a standard of quality and function; and, any material, article, or equipment of other manufacturers and vendors which will perform adequately the duties imposed by the general design will be considered equally acceptable provided the material, article, or equipment so proposed, is, in the opinion of the Engineer, of equal substance and function. It shall not be purchased or installed by the Contractor without the Engineer's written approval.

4.22. WAGES AND OVERTIME COMPENSATION: The Contractor and each of his subcontractors shall comply with all applicable State and local laws or ordinances with respect to the hours worked by laborers and mechanics engaged in work on the project and with respect to compensation for overtime.

4.23. NO WAIVER: Neither the inspection by the Owner or the Engineer, nor any order, measurement, approval, determination, decision or certificate by the Engineer, nor any order by the Owner for the payment of money, nor any payment for or use, occupancy, possession or acceptance of the whole or any part of the work by the Owner, nor the extension of time, nor any other act or omission of the Owner or of the Engineer shall constitute or be deemed to be an acceptance of any defective or improper work, materials, or equipment nor operate as a waiver of any requirement or provision of the Contract, or of any remedy, power or right of or herein reserved to the Owner, nor of any right to damages for breach of contract. Any and all rights and/or remedies provided for in the Contract are intended and shall be construed to be cumulative; and, in addition to each and every other right and remedy provided for herein or by law, the Owner shall be entitled as of right to a writ of injunction against any breach or threatened breach of the Contract by the Contractor, by his Subcontractors or by any other person or persons.

4.24. WORK TO CONFORM: During its progress and on its completion, the work shall conform truly to the lines, levels, and grades indicated on the Drawings or given by the Engineer and shall be built in a thoroughly substantial and workmanlike manner, in strict accordance with the Drawings, Specifications, and other Contract Documents and the directions given from time to time by the Engineer. All work done without instruction having been given therefor by the Engineer, without prior lines or levels, or performed during the absence of the Engineer, will not be estimated or paid for except when such work is authorized by the Engineer in writing. Work so done may be ordered uncovered or taken down, removed, and replaced at the Contractor's expense.

4.25. WORKING HOURS:

4.25.1. It is contemplated that all work will be performed during the customary working hours of the trades involved unless otherwise specified in this Contract. Work performed by the Contractor at his own volition outside such customary working hours shall be at no additional expense to the Owner.

4.25.2. Any requests received by the Contractor from occupants of existing buildings to change the hours of work shall be referred to the Owner for determination.

5. INSURANCE, LEGAL RESPONSIBILITY AND SAFETY

5.1. LITIGATION OF DISPUTES; JURISDICTION: The Owner and Contractor agree that this Contract shall be interpreted according to the Laws of the State of South Carolina, and that the appropriate forum and jurisdiction for resolving any disputes and claims shall be the South Carolina Court of Common Pleas for Sumter County.

5.2. ASSIGNMENTS: The Contractor shall not assign the whole or any part of this Contract or any monies due or to become due hereunder without written consent of the Owner. In case the Contractor assigns all or any part of any monies due or to become due under this Contract, the instrument of assignment shall contain a clause substantially to the effect that it is agreed that the right of the assignee in and to any monies due or to become due to the Contractor shall be subject to prior claims of all persons, firms, and corporations for services rendered or materials supplied for the performance of the work called for in this contract.

5.3. PERFORMANCE BOND AND PAYMENT BOND: Unless otherwise noted in the Supplemental Conditions, a Performance Bond and a Payment Bond are required. The Contractor shall obtain a Performance Bond and Payment Bond, acceptable to the Owner in a surety company authorized to do business in the state in which the Project is constructed, each for the full amount of the Contract Sum. The bonds shall guarantee the Contractor's faithful performance of the Contract and the payment of all obligations arising thereunder. The bonds shall remain in force until:

5.3.1. The Project has been completed and accepted by the Owner.

5.3.2. The provisions of all guarantees required by these Contract Documents have been fulfilled or the time limitation for all guarantees has expired, or

5.3.3. The time for the filing of all mechanics' liens has expired, whichever is longer, after which it shall become void.

5.3.4. The Contractor shall pay all charges in connection with the bonds as a part of the Contract. One executed copy of the bonds shall be attached to each copy of the Contract before they are returned to the Engineer for the Owner's signature.

5.3.5. If the Contractor defaults, the Contractor or his Surety shall reimburse the Owner for any additional Engineering fees for additional services made necessary because of the Contractor's default.

5.4. ADDITIONAL OR SUBSTITUTE BOND: If at any time the Owner for justifiable cause, shall be or become dissatisfied with the surety or sureties for the Performance and/or Payment Bonds, the Contractor shall within 5 days after notice from the Owner to do so, substitute an acceptable bond (or bonds) in such form and sum and signed by such other surety or sureties as may be satisfactory to the Owner. The premiums on such bond shall be paid by the Contractor. No further payments shall be deemed due nor shall be made until the new surety or sureties shall have furnished such an acceptable bond to the Owner.

5.5. CHANGES NOT TO AFFECT BONDS: It is distinctly agreed and understood that any changes made in the Work or the Drawings or Specifications therefor (whether such changes increase or decrease the amount thereof or the time required for its performance) or any changes in the manner or time of payments made by the Owner to the Contractor, or any other modifications of the Contract, shall in no way annul, release, diminish or affect the liability of the Surety on the Contract Bonds given by the Contractor, it being the intent hereof that notwithstanding such changes the liability of the Surety on said bonds continue and remain in full force and effect.

5.6. COMPLIANCE WITH LAWS:

5.6.1. The law of the place where the Project is located shall govern the Contract. The Contractor shall abide by all local and State Laws or ordinances to the extent that such requirements do not conflict with Federal laws or regulations. The Contractor shall keep himself fully informed of all existing and future Federal, State and local laws, ordinances, rules and

regulations affecting those engaged or employed on the work, the materials and equipment used in the work or the conduct of the work, and of all orders, decrees and other requirements of bodies or tribunals having any jurisdiction or authority over the same, including, but not limited to the U. S. Department of Labor and Bureau of Standards Safety and Health Regulations for Construction and its amendments as set up under the Williams-Steiger Occupational Safety and Health Act of 1970. If any discrepancy or inconsistency is discovered in the Drawings, Specifications or other Contract Documents in relation to any such law, ordinance, rule, regulation, order, decree or other requirement, the Contractor shall forthwith report the same to the Engineer in writing.

5.6.2. The Contractor shall at all times observe and comply with, and cause all his agents, servants, employees, and subcontractors to observe and comply with all such existing requirements, and he shall protect, indemnify and save harmless the Owner, its officers, agents, servants, and employees, from and against any and all claims, demands, suits, proceedings, liabilities, judgements, penalties, losses, damages, costs and expenses, including attorney's fees, arising from or based upon any violation or claimed violation of any such law, ordinance, rule, regulations, order, decree, or other requirement, whether committed by the Contractor or any of his agents, servants employees, or subcontractors.

5.7. REQUIRED PROVISIONS DEEMED INSERTED: Each and every provision of law and clause required by law to be inserted in this Contract shall be deemed to be inserted herein, and the Contract shall be read and enforced as though it were included herein. If through mistake or otherwise any such provision is not inserted, or is not correctly inserted, then upon the application of either party the Contract shall forthwith be physically amended to make such insertion or correction.

5.8. LIENS: If at any time any notice of liens are filed for labor performed or materials or equipment manufactured, furnished, or delivered to or for the Work, the Contractor shall, at its own cost and expense, promptly discharge, remove or otherwise dispose of the same, and until such discharge, removal or disposition, the Owner shall have the right to retain from any monies payable hereunder an amount which, in its sole judgement, it deems necessary to satisfy such liens and pay the costs and expenses, including attorney's fees, of defending any actions brought to enforce the same, or incurred in connection therewith or by reason thereof.

5.9. CLAIMS: If at any time there by any evidence of any claims for which the Contractor is or may be liable or responsible hereunder, the Contractor shall promptly settle or otherwise dispose of the same, and until such claims are settled or disposed of, the Owner may retain from any monies which would otherwise be payable hereunder so much thereof as, in its judgement, it may deem necessary to settle or otherwise dispose of such claims and to pay the costs and expenses, including attorneys' fees, of defending any actions brought to enforce such claims, or incurred in connection therewith or by reason thereof.

5.10. INSURANCE:

5.10.1. The Contractor shall not commence any work until he obtains, at his own expense, all required insurance. Such insurance must have the approval of the Owner as to limit, form, and amount. The Contractor will not permit any Subcontractor to commence work on this project until such Subcontractor has complied with the same insurance requirements.

5.10.2. The Contractor shall furnish the Owner with certificates showing the type, amount, class of operations covered, effective dates and dates of expiration of policies. Such certificates shall also contain substantially the following statement: "The insurance covered by this certificate will not be canceled or materially altered, except after 10 days notice in writing and delivered by registered mail to the Owner." Should any policy be canceled before final payment by the Owner to the Contractor and the Contractor fails immediately to procure other insurance as specified, the Owner reserves the right to procure such insurance and to deduct the cost thereof from any sum due the Contractor under this Contract.

5.10.3. Any insurance bearing on adequacy of performance shall be maintained after completion of the project for the full guaranty period. Should such insurance be canceled before the end of the guaranty period and the Contractor fails immediately to procure other insurance as specified, the Owner reserves the right to procure such insurance and to charge the cost thereof to the Contractor.

5.10.4. Nothing contained in these insurance requirements is to be construed as limiting the extent of the Contractor's responsibility for payment of damages resulting from his operations under this Contract.

5.10.5. The Contractor is required to obtain and maintain for the full period of the Contract the following types of insurance coverage with limits not less than stated below:

5.10.6. WORKMEN'S COMPENSATION INSURANCE

As required by applicable State or territorial law for all of his employees to be engaged in work at the site of the project under this Contract and, in case of any such work sublet, the Contractor shall require the subcontractor similarly to provide Workmen's Compensation Insurance for all of the latter's employees to be engaged in such work unless such employees are covered by the protection afforded by the Contractor's Workmen's Compensation Insurance. In case any class of employees engaged in hazardous work on the project under this Contract is not protected under the Workmen's Compensation Statute, the Contractor shall provide and shall cause each subcontractor to provide adequate employer's liability insurance for the protection of such of his employees as are not otherwise protected.

5.10.7 COMPREHENSIVE GENERAL LIABILITY

	Bodily Injury Per Person	Bodily Injury Per Accident	Property Damage
Premises and Operations	500,000	1,000,000	500,000
Elevator Liability	500,000	1,000,000	500,000
Products Liability, Including Completed Operations Coverage	500,000	1,000,000	500,000

5.10.8 COMPREHENSIVE AUTOMOBILE LIABILITY

All Owner Automobiles	500,000	1,000,000	500,000
Non-Owned Automobiles	500,000	1,000,000	500,000
Hired Car Coverage	500,000	1,000,000	500,000

5.10.9 SUBCONTRACTOR'S LIABILITY INSURANCE

Same limits as required of the General Contractor.

5.11. ORAL AGREEMENTS: No oral order, objection, claim or notice by any party to the others shall affect or modify any of the terms or obligations contained in any of the Contract Documents, and none of the provisions of the Contract Documents shall be held to be waived or modified by reason of any act whatsoever, other than by a definitely agreed waiver or modification thereof in writing, and no evidence shall be introduced in any proceeding of any other waiver or modification.

5.12. SAFETY: In accordance with generally accepted construction practices, the Contractor shall be solely and completely responsible for conditions of the job site, including safety of all persons and property affected directly or indirectly by his operations during the performance of the work. This requirement will apply continuously 24 hours per day until acceptance of the work by the Owner and shall not be limited to normal working hours.

5.13. The Contractor shall take all reasonable precautions for the safety of, and shall provide all reasonable protection to prevent damage, injury or loss to:

5.13.1. All employees on the Work and all other persons who may be affected thereby;

5.13.2. All the Work and all materials and equipment to be incorporated therein, whether in storage on or off the site, under the care, custody or control of the Contractor or any of Subcontractors or Sub-subcontractors; and

5.13.3. Other property at the site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation or replacement in the course of construction.

5.14. The Contractor shall comply with all applicable laws, ordinances, rules, regulations and lawful orders of any public authority having jurisdiction for the safety of persons or property or to protect them from damage, injury or loss. He shall erect and maintain, as required by existing conditions and progress of the Work, all reasonable safeguards for safety and protection, including posting danger signs and other warnings against hazards, promulgating safety regulations and notifying owners and users of adjacent utilities.

5.15. When the use or storage of explosives or other hazardous materials or equipment is necessary for the execution of the Work, the Contractor shall exercise the utmost care and shall carry on such activities under the supervision of properly qualified personnel. The Contractor shall designate a responsible member of his organization at the site whose duty shall be the

prevention of accidents. This person shall be the Contractor's superintendent unless otherwise designated in writing by the Contractor to the Owner and the Engineer.

5.16. The Contractor shall not load or permit any part of the Work to be loaded so as to endanger its safety.

6. PROGRESS AND COMPLETION OF WORK

6.1. NOTICE TO PROCEED: Following the execution of the Agreement by the Owner and the Contractor, written Notice to Proceed with the work shall be given by the Owner to the Contractor. The Contractor shall begin and shall prosecute the work regularly and uninterruptedly thereafter (except as provided for herein) with such force as to secure the completion of the work within the Contract Time.

6.2. CONTRACT TIME: The Contractor shall complete, in an acceptable manner, all of the work contracted for in the time stated in the Agreement. Computation of Contract Time shall commence the day to be specified in the Notice to Proceed and every calendar day following, except as herein provided, shall be counted as Contract Time.

6.3. SCHEDULE OF COMPLETION: The Contractor shall submit, at such times as may reasonably be requested by the Engineer, schedules showing the order in which the Contractor proposes to carry on the work, with dates at which the Contractor will start the various parts of the work, and estimated date of completion of each part.

6.4. WORK CHANGES: The Owner may, as the need arises, order changes in the work through additions, deletions, or modifications to the extent of 25 percent of the Contract Amount, without invalidating the Contract. Compensation and time of completion affected by the change shall be adjusted at the time of ordering such change.

6.5. EXTRA WORK: New and unforeseen items of work found to be necessary, and which cannot be covered by an item or combination of items for which there is a Contract Price, shall be classed as Extra Work. The Contractor shall do such Extra Work and furnish such materials as may be required for the proper completion or construction of the whole work contemplated, upon written order from the Owner as approved by the Engineer. In the absence of such written order, no claim for Extra Work shall be considered. Extra Work shall be performed in accordance with these Contract Documents where applicable and work not covered by such shall be done in accordance with the best construction practice and in a workmanlike manner. Extra Work required in an emergency to protect life and property shall be performed by the Contractor as required.

6.6. EXTENSION OF CONTRACT TIME:

6.6.1. A delay beyond the Contractor's control occasioned by an Act of God, by act or omission on the part of the Owner or by strikes, lockouts, fire, etc., may entitle the Contractor to an extension of time in which to complete the work as agreed by the Owner, provided, however, that the Contractor shall immediately give written notice to the Owner of the cause of such delay.

6.6.2. Act of God shall mean an earthquake, flood, cyclone or other cataclysmic phenomenon of nature. Rain, wind, flood, or other natural phenomenon of normal intensity for the locality shall not be construed as an Act of God and no reparation shall be made to the Contractor damages to the work resulting therefrom.

6.6.3. All claims for extension of time shall be made in writing to the Engineer no more than 20 days after the occurrence of the delay; otherwise they shall be waived. In the case of continuing cause of delay only one claim is necessary. Any claim should include complete justification for the extent of the delay claimed.

6.6.4. This Subsection does not exclude the recovery of damages for delay for either party under other provisions of the Contract Documents.

6.7. ENGINEER'S CERTIFICATE OF SUBSTANTIAL COMPLETION: When the work to be performed under this Contract is substantially completed in accordance with the Contract Documents, the Engineer shall prepare an Engineer's Certificate of Substantial Completion to be acknowledged and accepted by the Owner and the Contractor. The Certificate may list items to be completed or corrected but such Certificate shall not relieve the Contractor of his obligation to complete all work, whether listed or not, in accordance with the Contract Documents nor will it preclude any right the Owner may have for recourse in accordance with the Contract Documents.

6.8. TERMINATION OF CONTRACTOR'S RESPONSIBILITY: The Contract will be considered complete when all work has been finished, the final review made up by the Engineer, and the project accepted in writing by the Owner. The Contractor's responsibility shall then cease, except as set forth in his Performance Bond, as provided in Subsection 4.6 entitled GENERAL GUARANTY, and as provided in Subsection 6.9 entitled CORRECTION OF FAULTY WORK AFTER FINAL PAYMENT.

6.9. CORRECTION OF FAULTY WORK AFTER FINAL PAYMENT: The making of the final payment by the Owner to the Contractor shall not relieve the Contractor of responsibility for faulty materials or workmanship. The Contractor shall promptly replace any such defects discovered within one year, except where longer periods are specified, from the date of written acceptance of the work.

6.10. PROGRESS SCHEDULE:

6.10.1. Within 20 days after execution and delivery of the Agreement and not less than 10 days prior to making an application for partial payment, the Contractor shall prepare and deliver to the Engineer a Progress Schedule on forms approved by the Engineer.

6.10.2. The schedule shall be set up in a Critical Path format and shall show the proposed dates of commencement and completion of the various subdivisions of work required under the Contract Documents.

6.10.3. The schedule shall show the dates of commencement and completion of the various subdivisions of work required by the Contract Documents and all activities required to accomplish the work. No activity included in the schedule shall have a duration greater than

fifteen (15) days. After approval of the Submit Schedule, the Contractor shall incorporate this schedule into the CPM schedule.

6.10.4. The schedule shall be updated monthly. No progress payments will be made unless application is accompanied by the updated schedule.

6.11. SCHEDULES, REPORTS AND RECORDS:

6.11.1. The Contractor shall submit to the Owner such schedules of quantities and costs, progress schedules, payrolls, reports, estimates, records and other data where applicable as are required by the Contract Documents for the Work to be performed.

6.11.2. The Contractor shall also submit, in a format as approved by the Engineer, a schedule of payments that he anticipates he will earn during the course of the Work.

6.12. ABANDONMENT OF WORK OR OTHER DEFAULT:

6.12.1. If the work shall be abandoned, or any part thereof shall be sublet without previous written consent of the Owner, or the Contract or any monies payable hereunder shall be assigned otherwise than as herein specified, or if at any time the Engineer shall be of the opinion, and shall so certify in writing, that the conditions herein specified as to rate of progress are not being complied with, or that the work or any part thereof is being unnecessarily or unreasonably delayed, or that the Contractor has violated or is in default under any of the provisions of the Contract, or if the Contractor becomes bankrupt or insolvent or goes or is put into liquidation or dissolution, either voluntarily or involuntarily, or petitions for an arrangement or reorganization under the Bankruptcy Act, or makes a general assignment for the benefit of creditors or otherwise acknowledges insolvency, the happening of any of which shall be and constitute a default under the Contract, the Owner may notify the Contractor in writing, with a copy of such notice mailed to the Surety, to discontinue such work or any part thereof; thereupon the Contractor shall discontinue such work or such part thereof as the Owner may designate; and the Owner may, upon giving notice, by contract or otherwise as it may determine, complete the work or such part thereof and charge the entire cost and expense of so completing the work or such part thereof to the Contractor. In addition to the said entire cost and expense of completing the work, the Owner shall be entitled to reimbursement from the Contractor and the Contractor agrees to pay the Owner any losses, damages, costs and expenses, including attorney's fees, sustained or incurred by the Owner by reasons of any of the foregoing causes. For the purposes of such completion the Owner may for itself or for any contractors employed by the Owner take possession of any and use or cause to be used any and all materials, equipment, plant, machinery, appliances, tools, supplies and such other items of every description that may be found or located at the site of the Work. No equipment or materials may be removed from the Work without the written consent of the Owner.

6.12.2. All costs, expenses, losses, damages, attorney's fees and any and all other charges incurred by the Owner under this Subsection shall be charged against the Contractor and deducted and/or paid by the Owner out of any monies due or payable or to become due or payable under the Contract to the Contractor; in computing the amounts chargeable to the Contractor, the Owner shall not be held to a basis of the lowest prices for which the completion of the work or any part thereof might have been accomplished, but all sums actually paid or obligated therefor to effect its prompt completion shall be charged to and against the account of

the Contractor. In case the costs, expense, losses, damages, attorney's fees and other charges together with all payments theretofore made to or for the account of the Contractor are less than the sum which would have been payable under the Contract if the work had been properly performed and completed by the Contractor, the Contractor shall be entitled to receive the difference and, in case such costs, expenses, losses, damages, attorney's fees and other charges, together with all payments theretofore made to or for the account of the Contractor, shall exceed the said sum, the Contractor shall pay the amount of the excess to the Owner.

7. PAYMENTS TO THE CONTRACTOR

7.1. PRICES FOR WORK: The Owner shall pay and the Contractor shall receive the prices stipulated in the Bid made a part hereof as full compensation for everything performed and furnished and for all risks and obligations undertaken by the Contractor under and as required by the Contract.

7.2. SCHEDULE OF VALUES: Except in cases where unit prices form the basis for payment under the Contract, the Contractor shall, within 20 days of the execution of the Contract and not less than 10 days prior to making an application for partial payment, submit to the Owner in a form approved by the Owner a schedule of values showing a breakdown of the Contract Sum itemized by trade and/or specification sections or as otherwise directed by the Owner and for each item shall show the total value including the Contractor's overhead and profit. Upon approval by the Owner, this schedule will be used in determining the value of the work done for the purpose of partial payments. The costs employed in making up any of these schedules will be used only for determining the basis of partial payments and will not be considered as fixing a basis for additions to or deductions from the Contract Price.

7.3. APPLICATIONS FOR PARTIAL PAYMENT:

7.3.1. Before the first day of each month, or as otherwise directed by the Owner, the Contractor shall make applications for the value of the work done and the materials installed and/or delivered to the site for installation in the project during the previous month. Such applications shall show the breakdown of the project into the same items as the schedule of values specified in Subsection 7.2 entitled SCHEDULE OF VALUES and showing for each item the total value, the value previously reported as complete, the value completed during the month, the cumulative value completed and the value remaining to be done. The application shall also show the value of materials delivered to the site which have not been incorporated into the work and whose value is not included in the amount shown for the work of which they are a part. The value of such materials shall be established by attaching copies of invoices covering the materials to the application. The application shall include a summary of value of the work performed during the previous month, plus the value of the material delivered to the job site but not incorporated in the work, and minus the amount of the retainage indicated in Subsection 7.4 entitled RETAINAGE.

7.3.2. The Engineer will, within 10 days after receipt of each partial payment estimate, either indicate in writing his approval of payment and present the partial payment estimate to the Owner, or return the partial payment estimate to the Contractor indicating in writing his reasons for refusing to approve payment. In the latter case, the Contractor may make the necessary corrections and resubmit the partial payment estimate.

7.4. RETAINAGE: The Owner shall retain 10 percent of the amount of each payment until final completion and acceptance of all work covered by the Contract Documents. The Owner at any time, however, after 50 percent of the work has been completed, if he finds that satisfactory progress is being made, will make further partial payments in full on the current and remaining estimates, but amounts previously retained shall not be paid to the Contractor at 50 percent completion or any time thereafter when, in the opinion of the Engineer, the progress of the Work is not satisfactory, additional amounts may be retained but in no event shall the total retainage be more than 10 percent of the value of the work completed. Upon substantial completion of the work, any amount retained may be paid to the Contractor. When the Work has been substantially completed except for Work which cannot be completed because of weather conditions, lack of materials or other reasons which in the judgment of the Owner are valid reasons for non- completion, the Owner may make additional payments, retaining at all times an amount sufficient to cover the estimated cost of the Work still to be completed.

7.5. PAYMENTS WITHHELD:

7.5.1. The Owner may withhold payment or, on account of subsequently discovered evidence, nullify the whole or part of any application to the extent necessary to protect himself from loss on account of:

7.5.1.a. Defective work not remedied.

7.5.1.b. Claims filed or reasonable evidence indicating the probably filing of claims.

7.5.1.c. Failure of the Contractor to make payments to Subcontractors, material suppliers, or employees.

7.5.1.d. A reasonable doubt that the Contract work can be completed for the balance unpaid.

7.5.1.e. Damage to another Contractor.

7.5.2. When the above grounds are removed, payment will be made for the amounts withheld because of them.

7.6. PAYMENT OF APPLICATIONS FOR PARTIAL PAYMENT: Upon verification and approval of the application for partial payment made as specified, the Owner will make payment of the amount found properly due. No payment made to the Contractor nor partial or entire use or occupancy of the Work by the Owner shall be an acceptance of any work or materials not in accordance with this Contract.

7.7. FINAL INSPECTION: Upon receipt of written notice from the Contractor that the work has been completed and finished in accordance with the Contract, the Owner shall cause an inspection to be made of the work by his authorized representatives. A list shall be made of all deviations from the Contract requirements (commonly termed "punch list") and a copy of such list furnished to the Contractor. The Contractor shall with reasonable haste remedy all defects so noted and shall notify the Owner upon the completion of such work. When inspection by the Owner's authorized representatives shows the work to be complete in accordance with the Contract, application for final payment may be made.

7.8. RELEASE OF LIENS: Neither the final payment nor any part of the retained percentage shall become due until the Contractor shall deliver to the Owner a complete and notarized release of all liens arising out of this Contract, or receipts in full in lieu thereof, and if required in either case, an affidavit that so far as he had knowledge of information the releases and receipts include all the labor and material for which a lien could be filed; but the Contractor may, if any Subcontractor refuses to furnish a release or receipt in full, furnish a bond satisfactory to the Owner, to indemnify him against any lien. If any lien remains unsatisfied after all payments are made, the Contractor shall refund to the Owner all monies that the latter may be compelled to pay in discharging such a lien, including all costs and a reasonable attorney's fee.

7.9. USE OR PARTIAL PAYMENT NOT ACCEPTANCE: It is agreed that this is an entire contract for one whole and complete work or result and that neither the Owner's entrance upon or use of the Work or any part thereof nor any partial payments by the Owner shall constitute an acceptance of the Work or any part thereof before its entire completion and final acceptance.

7.10. PAYMENT FOR UNCORRECTED WORK: Should the Owner direct the Contractor not to correct work that has been damaged or that was not performed in accordance with the Contract Documents, an equitable deduction from the Contract Amount shall be made to compensate the Owner for the Uncorrected Work.

7.11. PAYMENT FOR REMOVAL OF REJECTED WORK AND MATERIALS:

7.11.1. The removal of work and materials rejected in accordance with Subsection 4.3 entitled CORRECTION OF WORK BEFORE COMPLETION and the re-execution of acceptable work by the Contractor shall be at the expense of the Contractor, and he shall pay the cost of replacing the work of other contractors destroyed or damaged by the removal of the rejected work or materials and the subsequent replacement of acceptable work.

7.11.2. Removal of rejected work or materials and storage of materials by the Owner, in accordance with Subsection 4.3 entitled CORRECTION OF WORK BEFORE COMPLETION, shall be paid by the Contractor within 30 days after written notice to pay is given by the Owner. If the Contractor does not pay the expenses of such removal and after 10 days' written notice being given by the Owner of his intent to sell the materials, the Owner may sell the materials at auction or at private sale and will pay the Contractor the net proceeds therefrom after deducting all the costs and expense that should have been borne by the Contractor.

7.12. PAYMENT FOR EXTRA WORK: Written notice of claims for payment for Extra Work shall be given by the Contractor within ten days after receipt of instructions from the Owner to proceed with the Extra Work and also before any work is commenced, except in emergency endangering life or property. No claim shall be valid unless so made. In all cases, the Contractor's itemized estimate sheets showing all labor and material shall be submitted to the Owner. The Owner's order for Extra Work shall specify any extension of the Contract Time and one of the following methods of payment:

7.12.1. Unit price or combinations of unit prices which form the basis of the original Contract.

7.12.2. A lump sum based on the Contractor's estimate and accepted by the Owner.

7.12.3. Net cost plus a fixed fee. Net costs are defined as follows:

7.12.3.a. Labor costs, including time of foreman while engaged directly upon extra work at rates not greater than the scale of rates for each respective classification of labor customary in the area where the work is performed for each respective job classification.

7.12.3.b. Labor insurance taxes including amounts paid on a percent of such labor rates or on a cents per hour basis for Workmen's Compensation, Public Liability, Contractor's Contingent Liability and Contractual Liability Insurance and all Federal Old Age and Unemployment Taxes and any other taxes applicable as well as fringe benefits as may be approved by the Engineer.

7.12.3.c. Materials and supplies actually used on the work.

7.12.3.d. Rental charges for necessary equipment, as agreed upon by the Owner and Contractor. Rental charges shall not exceed those published in Rental Rates for Construction Equipment issued by the American Equipment Distributor. Equipment and tools having a value of $100.00 or less are considered to be "small tools" and, as such, are considered to be part of overhead.

7.13. To the cost under Subparagraph 7.12.3 there shall be added a fixed fee to be agreed upon but not to exceed fifteen (15) percent of the estimated cost of the work. The fee shall be compensation to cover the cost of supervision, overhead, bond, profit and any other general expenses. On work performed by subcontractors, the fixed fee shall not exceed ten (10) percent of the cost of the work.

7.14. PAYMENT FOR WORK SUSPENDED BY THE OWNER: If the work or any part thereof shall be suspended by the Owner and abandoned by the Contractor as provided in Subsection 2.12 entitled SUSPENSION OF WORK, TERMINATION AND DELAY, the Contractor will then be entitled to payment for all work done on the portions so abandoned, plus 15 percent of the value of the abandoned work to compensate for overhead, plant expense, and anticipated profit. This does not relate to under run in quantities.

7.15. PAYMENT FOR WORK BY THE OWNER: The cost of the work performed by the Owner, in accordance with Subsection 2.10 entitled OWNER'S RIGHT TO DO WORK, shall be paid by the Contractor.

7.16. PAYMENT FOR WORK BY THE OWNER FOLLOWING TERMINATION OF CONTRACT BY OWNER: Upon termination of the Contract by the Owner in accordance with Subsection 2.11 entitled OWNER'S RIGHT TO TERMINATE CONTRACT, no further payment shall be due the Contractor until the work is completed. If the unpaid balance of the Contract Amount shall exceed the cost of completing the work including all overhead costs, the excess shall be paid to the Contractor. If the cost of completing the work shall exceed the unpaid balance, the Contractor shall pay the difference to the Owner. The cost incurred by the Owner, as herein provided, and the damage incurred through the Contractor's default, shall be certified by the Owner.

7.17. PAYMENT FOR SAMPLES AND TESTING OF MATERIALS:

7.17.1. Samples furnished all SCDOT required materials and in accordance with Subsection 4.17 entitled SAMPLES, shall be furnished by the Contractor at his expense.

7.17.2. Testing of samples and materials required by SCDOT and furnished in accordance with Subsection 4.17 entitled SAMPLES, shall be arranged and paid for by the Contractor.

7.18. ACCEPTANCE AND FINAL PAYMENT:

7.18.1. When the Contractor shall have completed the work in accordance with the terms of the Contract Documents, he shall certify completion of the work to the Owner and submit a final Request for Payment, which shall be the Contract Amount plus all approved additions, less all approved deductions and less previous payments made. The Contractor shall furnish evidence that he has fully paid all debts for labor, materials, and equipment incurred in connection with the work, and, upon acceptance by the Owner, the Owner will release the Contractor except as to the conditions of the Performance Bond and the Payment Bond, any legal rights of the Owner, required guaranties, and Correction of Faulty Work after Final Payment, and will pay the Contractor's final Request for Payment. The Contractor shall allow sufficient time between the time of completion of the work and approval of the final Request for Payment for the Engineer to assemble and check the necessary data.

7.18.2. The Contractor shall deliver to the Owner a complete release of all liens arising out of this Contract before the retained percentage or before the final Request for Payment is paid.

7.19. ACCEPTANCE OF FINAL PAYMENT AS RELEASE: The acceptance by the Contractor of final payment shall be and shall operate as a release to the Owner of all claims and all liability to the Contractor other than claims in stated amounts as may be specifically excepted by the Contractor for all things done or furnished in connection with this Work and for every act and neglect of the Owner and others relating to or arising out of this Work. Any payment, however, final or otherwise, shall not release the Contractor or his sureties from any obligations under the Contract Documents or the Performance Bond and the Payment Bond.

7.20. DELAYS AND DAMAGES:

7.20.1. The date of beginning and the time for completion of the Work are essential conditions of the Contract Documents and the Work embraced shall be commenced on a date specified in the Notice to Proceed.

7.20.2. The Contractor will proceed with the Work at such rate of progress to insure full completion within the Contract Time. It is expressly understood and agreed by and between the Contractor and the Owner that the Contract Time for the completion of the Work described herein is a reasonable time, taking into consideration the average climatic and economic conditions and other factors prevailing in the locality of the Work. If the Contractor refuses or fails to prosecute the Work, or any separable part thereof, with such diligence as will insure its completion within the time specified in the Contract, or any extension thereof, or fails to complete said Work within such time, the Owner may, by written notice to the Contractor and his Surety, terminate his right to proceed with the Work or such part of the work as to which there has been delay. In such event the Owner may take over the Work and prosecute the same to completion, by contract or otherwise, and may take possession of and utilize in completing the work such materials, appliances, and plant as may be on the site of the work and necessary

therefor. Whether or not the Contractor's right to proceed with the Work is terminated, he and his sureties shall be liable for any damage to the Owner resulting from his refusal or failure to complete the Work within the specified time.

7.20.3. If fixed and agreed liquidated damages are provided in the Contract and if the Owner so terminates the Contractor's right to proceed, the resulting damage will consist of such liquidated damages until such reasonable time as may be required for final completion of the Work together with any increased costs occasioned the Owner in completing the Work.

7.20.4. If fixed and agreed liquidated damages are provided in the Contract, and if the Owner does not so terminate the Contractor's right to proceed, the resulting damage will consist of such liquidated damages until the Work is completed or accepted.

7.20.5. The Contractor's right to proceed shall not be so terminated nor the Contractor charged with resulting damage if:

7.20.5.a. The delay in the completion of the Work arises from unforeseeable causes beyond the control and without the fault or negligence of the Contractor, including but not restricted to, Acts of God, acts of the public enemy, acts of the Government in either its sovereign or contractual capacity, acts of another contractor in the performance of a contract with the Owner, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes, unusually severe weather, or delays of subcontractors or suppliers arising from unforeseeable causes beyond the control and without the fault or negligence of both the Contractor and such subcontractors or suppliers; and

7.20.5.b. The Contractor, within 10 days from the beginning of any such delay (unless the Owner grants a further period of time before the date of final payment under the Contract), notifies the Owner in writing of the causes of delay.

7.20.6. As used in subparagraph 1, above, the term "subcontractors or suppliers" means subcontractors or suppliers at any time.

7.20.7. The Engineer shall ascertain the facts and the extent of the delay and extend the time for completing the Work when, in his judgment, the findings of fact justify such an extension, and his findings of fact shall be final and conclusive on the parties, subject only to appeal as provided in these General Conditions. The rights and remedies of the Owner provided in this clause are in addition to any other rights and remedies provided by law or under this Contract. This does not relate to under run in quantities.

(End of Section 01230)

SECTION 01232 SUPPLEMENTAL CONDITIONS

1. CONFLICT OR INCONSISTENCY: If there is any conflict or inconsistency between the provisions of the SUPPLEMENTAL CONDITIONS and the GENERAL CONDITIONS, the provisions of the SUPPLEMENTAL CONDITIONS shall prevail. If there is conflict between the provisions of the GENERAL CONDITIONS and any of the Contract Documents other than the SUPPLEMENTAL CONDITIONS, the provisions of the GENERAL CONDITIONS shall prevail.

2. CONFLICT OF INTEREST: No official of the Owner who is authorized in such capacity and on behalf of the Owner to negotiate, make, accept or approve, or to take part in negotiation, making, accepting, or approving any architectural, engineering, inspecting, construction, or material supply contract, or any subcontract in connection with the construction of the project, shall become directly or indirectly interested personally in this Contract or in any part thereof. No officer, employee, architect, attorney, engineer, or inspector of or for the Owner who is authorized in such capacity and on behalf of the Owner who is in any legislative, executive, supervisory, or other similar functions in connection with the construction of the project, shall become directly or indirectly interested personally in this Contract or in any part thereof, any material supply contract, subcontract, insurance contract, or any other contract pertaining to the project.

3. CONTRACTOR'S FIELD OFFICE: The Contractor shall maintain a temporary field office near the work for his own use during the period of construction at which readily accessible copies of all Contract Documents shall be kept. The office shall be located where it will not interfere with the progress of the work. In charge of this office, there shall be a responsible and competent representative of the Contractor, duly authorized to receive orders and directions and to put them into effect.

4. CONTRACT MODIFICATION: All changes which affect the cost of the construction of and contract modifications must be approved by the Owner prior to becoming effective. The contract change order will include extra work, work for which quantities have been altered from those shown in the bidding schedule as well as decreases or increases in the quantities of installed units which are different from those shown in the bidding schedule because of final measurements. All changes the project must be authorized by means of a contract change order. All change orders should be recorded on a contract change order as they occur so that they may be included in the partial payment estimate.

5. WATER/SEWER LINE SEPARATION: The horizontal and vertical separation of sewer lines and water mains must be in accordance with Section R61-58.4D(12) of the State Primary Drinking Water Regulations.

5.1 Parallel installation - Water mains shall be laid at least ten (10) feet horizontally from any existing or proposed sewer. The distance shall be measured edge to edge. In cases where it is not practical to maintain a ten foot separation, the Department may allow deviation on a case-by-case basis, if supported by data from the design engineer. Such deviation may allow installation of the water main closer to a sewer, provided that the water main is laid in a separate trench or on

an undisturbed earth shelf located on one side of the sewer at such an elevation that the bottom of the water main is at least eighteen (18) inches above the top of the sewer.

5.2 Crossings - Water mains crossing sewers shall be laid to provide a minimum vertical separation of eighteen (18) inches between the outside of the water main and the outside of the sewer. This shall be the case whether the water main is either above or below the sewer line. Whenever possible, the water main shall be located above the sewer line. Where a new water main crosses a new sewer line, a full length of pipe shall be used for both the water main and sewer line and the crossing shall be arranged so that the joints of each line will be as far as possible from the point of crossing and each other. Where a new water main crosses an existing sewer line, one full length of water pipe shall be located so both joints will be as far from the sewer line as possible. Where a water main crosses under a sewer, adequate structural support shall be provided for the sewer line to prevent damage to the water main.

5.2.1 Special Conditions - When it is impossible to obtain the distances specified in R.61-58.4(D) (12)(a) and (b) the Department may allow an alternative design. Any alternative design shall:

5.2.1.1 maximize the distances between the water main and sewer line and the joints of each;

5.2.1.2 use materials which meet the requirements R.61-58.4(D)(1) for the sewer line; and,

5.2.1.3 Allow enough distance to make repairs to one of the lines without damaging the other.

5.2.2 Force mains - There shall be at least a ten (10) foot horizontal separation between water mains and sanitary sewer force mains. There shall be an eighteen (18) inch vertical separation at crossing as required in R.61-58.4(D)(12)(a) and (b).

5.2.3 Sewer manholes - No water pipe shall pass through or come in contact with any part of a sewer manhole. Water lines may come in contact with storm sewers or catch basins if there is no other practical alternative, provided that ductile iron is used, no joints of the water line are within the storm sewer or catch basin and the joints are located as far as possible from the storm sewer or catch basin.

5.2.4 Drain-fields and Spray-fields - Potable water lines shall not be laid less than twenty-five (25) feet horizontally from any portion of a waste-water tile-field or spray-field, or shall be otherwise protected by an acceptable method approved by the Department.

6. COMPUTATION OF QUANTITIES:

6.1 For estimating quantities in which the computation of areas by geometric methods would be comparatively laborious, it is agreed that a digitizer shall be considered an instrument of precision adapted to the measurement of such areas.

6.2 It is further agreed that the computation of the volume of prismoids shall be by the method of average end areas.

7. LIMITS OF NORMAL EXCAVATION:

7.1 In determining the quantities of excavation to which unit prices shall apply, the limits of normal width and depth of excavation shall be as described below, unless other limits are indicated on the Drawings or specified.

7.2 For pipes in trenches, the normal width of the trench shall be measured between vertical planes which are a distance apart equal to the sum of 18 inches plus 1-1/3 times the nominal inside diameter of the pipe. If the width so computed is less than three feet, a width of three feet shall be taken as the normal width for payment. The normal depth shall be measured to a distance of 0.2 foot below the bottom of the pipe in earth and 0.7 foot in rock, unless there be a cradle underneath the pipe; in which case the normal depth shall be measured to the underside of the cradle. The width of trench for the cradle shall be assumed to be that specified above for pipes in trenches.

7.3 For concrete placed directly against undisturbed earth, the normal width and depth of the excavation for such concrete shall be measured to the neat lines of the concrete as indicated on the Drawings or as ordered.

7.4 For concrete placed against rock surfaces resulting from rock excavation, the normal width and depth of the excavation shall be measured to 0.4 foot outside the neat lines of the concrete as indicated on the Drawings or as ordered.

7.5 For other structures, except manholes as noted below, the normal width shall be measured between vertical planes one foot outside the neat lines of the several parts of the structure, except that the width at any elevation shall be measured as not less than the width at a lower elevation. The normal depth shall be measured to the underside of that part of the structure for which the excavation is made.

7.6 No additional width or depth of trenches excavated in earth or rock shall be allowed at standard circular manholes.

7.7 Wherever bell holes are required for jointing pipe, they shall be provided without additional compensation over and above that resulting from measurements as above described.

8. FEDERAL SAFE DRINKING WATER ACT: In accordance with Section 1417 of this Act, any pipe, solder, or flux used in the installation or repair of public water systems and plumbing used for drinking water, must be lead free. Lead free is defined as less than 0.2 percent lead in solder and flux and less than 8.0 percent lead in pipes and fittings. Leaded joints for the repair of cast iron pipes are not included. Lead shot and lead packers in well construction are no longer allowed.

9. WORK ON HIGHWAY RIGHT-OF-WAY: All work performed in roads and street crossings and all work performed on street or road rights-of-way shall be performed in accordance with "Policy for Accommodating Utilities on Highway Rights-of-Way", current issue, by the South Carolina Highway Department.

10. CONNECTIONS MADE TO EXISTING MAINS:

10.1 No existing main shall be cut, tapped, or otherwise disturbed without first obtaining permission in writing from the Owner to make that connection. At least 48 hours notice is required to obtain written approval.

10.2 Connections to mains shall be coordinated with the Office of the County Supervisor so that they are made during a period of low water demand and with a minimum of service interruption.

11. WATER SUPPLY:

11.1 Water supply for the purposes of flushing, disinfecting and pressure testing of the water line will be furnished by the Owner. It shall be the Contractor's responsibility to convey the water to any remote location that is required on the project.

11.2 The Contractor shall install a metering system that complies with AWWA C700 and shall pay the Owner for the water used

12. USE OF PREMISES: The Contractor shall confine his materials, equipment, and the operations of his employees, subcontractors, and suppliers to minimize interference with the Owner's normal operations being carried on in the existing plant and use of yards, roadways, trucking and parking areas. Where connection between new and existing work is necessary and requires shutting down of any existing facilities, services, or areas, these connections shall be made at such times and in such manner as the Owner may direct.

13. PERSONNEL FACILITIES: In order to minimize interference with the operations of the merchants, Contractor shall provide suitable facilities necessary for his personnel for use as lunch rooms, vending areas, first aid rooms, toilets, etc., and shall instruct and supervise his personnel to ensure that the facilities provided by the Owner for the use of its employees are not used by employees of the Contractor. All such personnel facilities provided by the Contractor shall be located adjacent to or within the area of the work.

14. PARKING AREAS: The Contractor shall secure suitable parking areas for his employees.

15. STATE AND LOCAL PERMITS, LICENSES, INSPECTIONS, CERTIFICATES: The Contractor shall obtain such required documents and pay the fees assessed for each division of work for which such permits, licenses, and inspections are required. The Contractor shall also obtain and pay the fees for general permits such as Building Permits and Certificate of Occupancy.

16. SIGNS:

16.1 The Owner reserves the right to all advertising privileges about the job and no signs shall be posted by the Contractor anywhere on the premises without approval by the Owner except those signs, posters, or bulletins required by Federal, State, or local authorities. Directional signs identifying offices and/or storage areas of the Contractor may be erected as required to facilitate work, provided:

16.1.1 The Contractor shall submit to the Owner for approval a scale drawing or sketch of the proposed sign showing size, type of material, painting, and proposed location. All submittal data shall be in triplicate.

16.1.2 The size of the individual sign shall be not greater than 24 inches wide by 12 inches high.

16.1.3 Signs shall be neatly painted on weather-resistant materials.

16.1.4 The signs will be removed upon completion of the job.

16.1.5 No sign shall be erected prior to approval by the Owner.

17. OWNER'S INSURANCE AUTHORITY: During all phases of construction, the Contractor will be required to perform his operations so as to comply expeditiously with the recommendations of the Owner's Insurance Authority.

18. BUILDERS RISK INSURANCE: The Contractor shall procure and maintain during the life of this Contract, Builders Risk Insurance on an all risk basis, on a 100 percent completed value basis on the insurable portion of the project. The Owner, the Contractor, and Subcontractor (as their interest may appear) shall be named as the Insured.

19. FLOOD INSURANCE:

19.1 The Contractor must acquire any flood insurance made available to it under the National Flood Insurance Act of 1968 as amended beginning with the period of construction and maintain such insurance for the entire useful life of the project, if the total value of insurable improvements is $10,000 or more.

19.2 The amount of insurance required is the total project cost, excluding facilities which are uninsurable under the National Flood Insurance Program such as bridges, dams, water and sewer lines, and underground structures, and excluding the cost of the land, or the maximum limit of coverage made available to the grantee under the National Flood Insurance Act, whichever is less.

20. PUBLICITY: All prime contractors and their subcontractors shall submit to the Owner for approval all publicity items, including photographs, relating to the work of this project. Owner shall approve any and all material prior to release for publication.

21. PROTECTION OF WORK: The Contractor shall at all times, until final acceptance of the work, provide protection of the work, either new or previously existing, from all hazards involved in his operations. All damage suffered by any item of work, including, but not limited to, drains, curbs, doors, equipment, and structures, shall be repaired or the item shall be replaced prior to final acceptance.

22. SPECIAL PRECAUTIONS: At all times during the construction of the project and its component parts, the Contractor shall provide, install, and maintain proper temporary supports, shoring, and bracing to prevent any damage to the work due to all causes. When openings are

made in the roof and/or exterior walls, suitable temporary weathertight closures shall be installed and maintained at all times when work is not in progress at that location.

23. SMOKING AND FIRE PROTECTION:

23.1 Smoking is absolutely forbidden except in such areas as the Owner shall designate. The Contractor shall confer with the Owner to determine the areas in which smoking is permitted. It is the responsibility of the Contractor to enforce "No Smoking" regulations in the restricted areas. The Owner will remove from the premises any person violating the smoking regulations.

23.2 Welding, flame cutting, or other operations involving the use of flame, arc, or sparking devices will not be allowed without adequate protection.

24. POWDER ACTUATED FASTENERS: Whether or not permitted by local code or ordinance, powder actuated fasteners may not be used except on specific approval of the Owner or the Engineer in writing.

25. COMPRESSED AIR: The Contractor shall furnish all compressed air and temporary piping required for the work. Where necessary to locate air compressors within the building, proper ventilation shall be supplied for the compressors. All costs of providing the compressed air shall be borne by the Contractor. No connection or use of the Owner's air supply will be permitted.

26. ELEVATION DATUM: The datum adopted by the Engineer is NGVD 29. All elevations shown on the Drawings or referred to in these specifications refer to this datum.

27. EASEMENTS:

27.1 The Owner has obtained, or will obtain, permanent easements and temporary construction easements through private property. The temporary construction easements entitle the Contractor to the occupancy and use of the designated area near or adjacent to the work for purposes related to the work.

27.2 The Contractor will not encroach on any property unless it has been established that easements have been obtained. On all other land, the Contractor has no rights unless he obtains permission from the proper parties.

28. OCCUPYING PRIVATE LAND: The Contractor shall not (except after written consent from the proper parties) enter or occupy with men, tools, or materials, any land outside the rights-of-way of property of the Owner. A copy of the written consent shall be given to the Engineer.

29. WORK IN STATE AND CITY RIGHTS-OF-WAY:

29.1 Attention is directed to the fact that work will be going on in both City and State highway rights-of-way. The Owner has obtained permission for the Contractor to encroach on these rights-of-way for work.

29.2 The Contractor will be required to conform to the requirements of the South Carolina Department of Transportation, (SCDOT) and the City of Sumter while working within the rights-of-way.

30. SCDHEC DISTRICT ENGINEER INSPECTION: All of the work constructed on this project is subject to the inspection and approval by the South Carolina Department of Health and Environmental Control District Engineer. This inspection and acceptance is in addition to inspection and acceptance of the Engineer.

31. WORK ADJACENT TO TELEPHONE, POWER AND GAS COMPANY STRUCTURES: Where work is being performed within the telephone company or electric and gas company rights-of-way, the Owner has acquired, or will acquire, permission from these agencies to construct facilities within their rights-of-way or easements. In all cases where work is being performed near telephone company or electric or gas company facilities, the Contractor will notify the respective companies of areas in which work is being performed.

32. WORK BEING PERFORMED NEAR WATER LINES: The Contractor will inform the Town as to the areas where work is being performed. It is required of a Contractor to obtain permission from the Department of Public Utilities where alterations to their system are required.

33. TRAFFIC CONTROL:

33.1 The Contractor will comply with the manual published by the South Carolina Department of Highways and Public Transportation entitled "Traffic Controls for Street and Highway Construction and Maintenance Operations, Part V, of the South Carolina Manual on Uniform Traffic Control Devices for Streets and Highways, 1994" or the latest version. Provide traffic control as required and approved by the South Carolina Department of Highways and Public Transportation.

33.2 Upon completion and acceptance of the work or as the need for temporary traffic control devices ceases, they shall be removed by the Contractor and shall remain the property of the Contractor.

33.3 Signs shall be used where warranted to maintain traffic or to call attention to conditions on, or adjacent to, the construction work. Such signs shall be removed when they are no longer required.

33.4 All traffic control and marking devices shall be in accordance with the provisions of the "State of South Carolina Uniform Manual on Traffic Control Devices". Upon completion and acceptance of the work or as the need for temporary traffic control devices ceases, they shall be removed by the Contractor and shall remain the property of the Contractor.

33.5 Signs shall be used where warranted to maintain traffic or to call attention to conditions on, or adjacent to, the construction work. Such signs shall be removed when they are no longer required.

34. LINES, GRADES AND MEASUREMENTS:

34.1 The Contractor shall employ, at his own expense, a competent civil engineer or land surveyor who shall be registered in South Carolina and who shall be thoroughly experienced in field layout work. Said Engineer shall establish all lines, elevations, reference marks, etc., needed by the Contractor during the progress of the work, and from time to time he shall verify such marks by instrument or by other appropriate means. The Owner's Engineer may waive the requirement for the Engineer to be registered in South Carolina upon a presentation of a resume which is satisfactory. The waiving of this requirement may be revoked at any time by the Owner's Engineer.

34.2 Alignment and grade of all pipe, tunnels, and borings shall be continuously controlled by use of lasers established through the pipe or casing, not transferred from another medium. The Contractor shall furnish lasers and accessories as required and approved by the Engineer. The Contractor's Engineer will set and check each laser each day that work is in progress or more often as required to assure continuous accurate control.

34.3 The Contractor's Engineer responsible for lines and grades shall verify to the Owner in writing that work has been constructed to lines and grades as shown on the Drawings. This certification shall accompany each request for payment.

34.4 The Owner's Engineer shall be permitted at any time to check the lines, elevations, reference marks, lasers, etc., set by the Engineer employed by the Contractor, and the Contractor shall correct any errors in lines, elevations, reference marks, lasers, etc., disclosed by such check. Such a check shall not be construed to be an approval of the Contractor's work and shall not relieve the Contractor of the responsibility for the accurate construction of the entire work.

34.5 The Contractor shall make all measurements and check all dimensions necessary for the proper construction of the work called for by the Drawings and Specifications. During the prosecution of the work, he shall make all necessary measurements to prevent misfitting in said work, and he shall be responsible therefore, and for the accurate construction of the entire work.

34.6 The Owner's Engineer shall have access to all field notes. Field notes will be recorded in bound field books, and carbon copies given the Owner's Inspector at the close of each shift.

35. CITY BUSINESS LICENSE: The successful Bidder and all subcontractors will be required to obtain a business license from the City of Sumter prior to beginning work, if said Bidder does not have a current license.

36. UTILITY LOCATIONS: Prior to beginning any excavation, the Contractor shall notify all public utility companies and have their lines located and marked. The following is a list of utility companies and persons to be contacted for utility locations.

UTILITY SERVICE OR FACILITY	PERSON TO CONTACT (NAME, TITLE, & PHONE NO.)
Electric, Gas,	**For all utilities**, call: **Palmetto Utility Protection Service** **8-1-1**

Telephone	**or, 1-888-721-7877**
Cable TV	
Sewer	
Water	City of Sumter Department of Public Services 803-436-2558

37. DANGER SIGNALS AND SAFETY DEVICES: The Contractor shall make all necessary precautions to guard against damages to property and injury to persons. He shall put up and maintain in good condition, sufficient red or warning lights at night, suitable barricades and other devices necessary to protect the public. In case the Contractor fails or neglects to take such precautions, the Owner may have such lights and barricades installed and charged the cost of this work to the Contractor. Such action by the Owner does not relieve the Contractor of any liability incurred under this Specifications or contract.

38. PAVEMENT GUARANTEE: The Contractor warrants to the Owner that all materials and workmanship furnished on state roadways are guaranteed in accordance with the terms of the General Conditions, Section 4, General Guaranty, for a period of two years. The Contractor will remedy any settlements or deficiencies of the pavement surface within this period.

39. CLEAN-UP FOLLOWING PAVEMENT INSTALLATION; PUBLIC AND PRIVATE RIGHT-OF-WAYS:

39.1 All work within state, county and city highway right-of-ways is to be conducted in accordance with the contract drawings and specifications, the general and special provisions of the encroachment permit, and the traffic control requirements of the Supplemental Conditions. The work is subject to inspections by highway representatives and their directions regarding activities in right-of-ways.

39.2 Clean-up is a major issue with regards to work in public right-of-ways. Initial clean-up shall be performed daily as it affects roadway safety and drainage. Soils are to be removed from roadways, sidewalks, and drainage ditches and culverts restored. Impediments to drainage and safety such as excess dirt piles, stored materials, lax or incomplete traffic control will not be tolerated.

39.3 To the maximum extent possible, private roadways, drives, offsite drainage ditches and structures shall be restored immediately after the installation of sidewalk and roadway pavements. The restoration or replacement of public or private property shall be scheduled as a top priority work item in the execution of this project.

39.4 Final clean-up, including grassing, shall also be expedited to the maximum extent possible. The Owner reserves the option to direct this work to be performed expeditiously for the protection of the environment and the welfare of the public.

40. PRE-CONSTRUCTION CONFERENCE: Prior to construction, a pre-construction conference will be held with representatives of the Owner, Contractor, the Engineer, and other parties that are stakeholders in the project.

41. SPECIFICATIONS AND DRAWINGS: The following Drawings and Specifications form a part of this Contract as set forth in Paragraph 1.1, Section 01230, GENERAL CONDITIONS. The Drawings bear the general designation:

42. A. THE DRAWINGS ARE LISTED AS FOLLOWS

Sheet No.	Title
1	Cover
2	Notes
3-4	Existing Conditions
5-6	Demolition Plan
7-8	Layout Plan
9-10	Grading Plan and Drainage Plans
11	Utility Plan
12-13	Landscape Plan
14-15	Irrigation Plan
16-19	Details
------	Sumter Planting Details
A1.1-A6.2	Architectural Sheets
S0.0-S3.0	Bldg. Structural Plan
E1-E2	Bldg. Electrical
E1-E3	Site Electrical Plans
------	Duke Energy Lighting Plan
------	Frontier/Verizon Communication Plan

B. THE SPECIFICATIONS ARE LISTED AS FOLLOWS:

Section No.	Title
02050	Demolition and Removal
02140	Dewatering
02210	Unclassified Excavation and Grading
02222	Excavating, Backfilling & Compacting for Utilities
02231	Subgrade
02235	Macadam Base Course
02270	Erosion Control
02277	Temporary Silt Fence
02441	Underground Irrigation System
02511	Bituminous Pavements
02515	Exterior Concrete Work
02523	Concrete Sidewalk & Driveway
02527	Concrete Curb, Curb and Gutter

02575	Paving Repair & Resurfacing
02614	Brick Work
02616	Pavement Removal & Replace
02820	Grassing
02830	Planting
02933	Seeding and Mulching
02995	Clean Up
03100	Concrete Form Work
03200	Concrete Reinforcement
03300	Cast-In Place Concrete
03310	Brick Foundations

Architectural

DIVISION 03 CONCRETE
03 30 00 CAST-IN-PLACE CONCRETE

DIVISION 04 MASONRY
04 20 00 UNIT MASONRY
04 72 00 ARCHITECTURAL CAST STONE

DIVISION 05 METALS
05 12 00 STRUCTURAL STEEL FRAMING

DIVISION 06 WOOD, PLASTICS, AND COMPOSITES
06 00 00 GENERAL
06 10 00 ROUGH CARPENTRY
06 10 10 CARPENTRY
06 17 53 SHOP FABRICATED WOOD TRUSSES

DIVISION 07 THERMAL AND MOISTURE PROTECTION
07 21 00 THERMAL INSULATION
07 24 00 EXTERIOR INSULATION AND FINISH SYSTEM (EIFS)
07 31 13 ASPHALT SHINGLES
07 62 00 SHEET METAL FLASHING AND TRIM

DIVISION 08 OPENINGS
08 11 13 HOLLOW METAL DOORS AND FRAMES
08 41 13 ALUMINUM STOREFRONT SYSTEMS
08 71 00 DOOR HARDWARE
08 80 00 GLAZING

DIVISION 09 FINISHES
09 91 00 PAINTING

DIVISION 10 SPECIALTIES
10 14 00 SIGNAGE

----- SCDOT Encroachment Permit

----- Lighting Specifications
----- Flag Pole

----- SCDOT Encroachment Permit
----- Lighting Specifications
----- Flag Pole

(End of Section 01232)

GENERAL: The following paragraph establishes the basis for Measurement and payment for the Work to be performed under the respective Bid items listed in the BID, Section 01140.

The Bid Price shall constitute full compensation for doing each item of work including all activities and incidentals required for the installation and completion of each item and accordance with the Contract Drawings, Specifications and requirements.

The Bid Price for each item shall be full compensation for the following activities: Furnishing and installing all materials and equipment, including excavation, disposal of surplus excavated or material, backfill, compaction, all necessary sheeting and bracing, dewatering, handling water flows, removing and replacing base and pavement outside the limits of demolition, property corners, signs, fences, shrubs, lawns, water lines, gas lines, storm drain lines and storm drainage structures, maintenance of drives and streets and protection of power and communication lines. The price shall also constitute full compensation for all barricades, lighting and flagmen as required for the protection of the public and public property.

Each price stated in the BID shall constitute full compensation for each completed item of work.

ITEM NO. 1 - MOBILIZATION

The Lump Sum Bid for mobilization shall include:

1) The establishment of all temporary offices, buildings, fencing, staging areas, haul routes, and other facilities necessary for the work on the project.
2) Surveying and construction staking.
3) Performance bond, labor and materials bond.
4) General Liability Insurance; and
5) All other work and operations which must be performed or costs incurred prior to beginning work on the various items on the project site.
6) Installation and project duration maintenance of erosion control facilities such as silt fencing, construction entrances, concrete washout areas, and erosion control matting. All work shall be done in accordance with the details.
7) Weekly/monthly SWPPP reports as required by SCDHEC. Contractor to copy Engineer and Owner on all reports on a weekly basis.

The mobilization cost will be paid with the first pay request and shall be limited to 7% of the total contract amount. Ninety percent (90%) of the mobilization cost will be paid with the first pay request with the remaining being prorated over the duration of the project to cover maintenance of the erosion control facilities.

Payment, at the amount stated, will be full compensation for the work satisfactorily completed.

ITEM NO. 2 - TRAFFIC CONTROL

The Lump Sum Bid for traffic control shall include all costs for material, labor, and traffic control plan, plus coordination with SCDOT and/or the city of Sumter to provide traffic control

and alert local Fire, Police and EMS throughout the life of the project in accordance with SCDOT standards.

The traffic control cost shall be pro-rated equally, by month, over the length of the project.

Payment, at the pro-rated amount, will be full compensation for the work satisfactorily completed.

ITEM NO. 3 - DEMOLITION

The Unit Price Bid for demolition shall include, but not be limited to), all costs for furnishing labor and equipment for the complete removal, salvage, and disposal of existing material necessary for the installation of concrete sidewalks, concrete handicap ramps, brick paving, columns, guard shack, arch sign, columns, fencing landscaping and irrigation. Demolition work includes removal and disposal of curb and gutter, asphalt pavement, concrete pavement, structures, drainage grates, posts, poles, trees, shrubs, and incidental items necessary to install new work. Demolition work shall be performed in accordance with Specification Section 02219, DEMOLITION AND REMOVAL. This item does not cover (minor demolition) preparing areas that are currently grassed or planted that will eventually have pavement. Preparing these areas should be included in the Unit Price for the finished surfaces.

Measurement will be on a square yard basis of the demolition work accomplished at each location.

Payment, at the Unit Price Bid, will be full compensation for the work satisfactorily completed.

ITEM NO. 4 - TOP SOIL

The Unit Price Bid shall be full compensation for the cost of off-site borrow and hauling to stockpiles on-site to supplement topsoil stockpiled during stripping. Sub-grade preparation, placing and rolling of topsoil as required by the plans and specifications in all landscape areas shall be included in Lump Sum Bid Item No. 4.

Topsoil measurement shall be made at the Unit Price Bid for, for topsoil delivered and installed to the site.

Payment, at the Unit Price Bid for, will be full compensation for the work satisfactorily completed.

ITEMS NO. 5a. CURB AND GUTTER

The Unit Price Bid for concrete curb and gutter shall include (but not be limited to), all costs for furnishing all material, labor, and equipment required to construct concrete curb and gutter and tapered curb and gutter at the locations indicated on the plans and as specified herein.

Measurement will be in linear feet of new concrete curb and gutter and tapered curb and gutter in place and accepted. The length of curb and gutter will be measured and will exclude lengths at type 1 catch basins and at new SCDOT driveways.

Payment will be made at the Unit Price Bid for concrete curb and gutter, measured as specified above and constitute full compensation for the work satisfactorily completed.

ITEMS NO. 5b. MEDIAN CURB

The Unit Price Bid for median curb shall include (but not be limited to), all costs for furnishing all material, labor, and equipment required to construct Median curbs at the locations indicated on the plans and as specified herein.

Measurement will be in linear feet of new median curbs in place, and accepted. Length of curb will be measured and will exclude lengths at type 1 catch basins.

Payment will be made at the Unit Price Bid for median curbs, measured as specified above and constitute full compensation for the work satisfactorily completed.

ITEMS NO. 5c - 4" SCORED CONCRETE SIDEWALK

The Unit Price Bid for concrete sidewalk 4" thick shall include all costs for furnishing all materials, labor, and equipment to install concrete sidewalk at the locations on the drawings and in CAST-IN-PLACE CONCRETE. The Bid Price shall also include all preparation costs, including but not necessarily limited to, excavation, grading, forming, finishing, reinforcing, compaction, and disposal of any excess materials.

Measurement will be on a square yard basis of the completed concrete slab surface.

Payment at the Unit Price Bid will be full compensation for the work satisfactorily completed.

ITEM NO. 5d. - SCDOT STANDARD CONCRETE DRIVEWAY

The Unit Price Bid for SCDOT Standard concrete driveway shall include all costs for furnishing all materials, labor, and equipment to install SCDOT Standard concrete driveway at the locations on the drawings and in CAST-IN-PLACE CONCRETE. The Bid Price shall also include all the curb and gutter tie-ins, preparation costs, including but not necessarily limited to, excavation, grading, forming, brush and window detail, reinforcing, compaction, and disposal of any excess materials.

Measurement will be on a lump sum basis of the completed concrete sidewalk surface.

Payment at the Unit Price Bid will be full compensation for the work satisfactorily completed.

ITEM NO. 6a - ASPHALT MILLING

The Unit Price Bid for the Milling shall include (but not be limited to) all costs associated with milling the existing asphalt surface course as required by the engineer, hauling of the waste materials to City of Sumter public works department, cleaning the construction area, within the limits shown and all additional labor and equipment necessary to complete the work as described in the drawings and in accordance with specifications. Dispose of waste material in a manner consistent with local, State and Federal regulations.

The milling will be measured on a square yard basis of the work completed.

Payment at the Unit Price Bid for Milling will be full compensation for work satisfactorily completed.

ITEM NO. 6b - ASPHALT PATCH

The Unit Price Bid for asphalt paving patch shall include all costs for furnishing labor, equipment, and materials for saw cutting, excavating, grading, preparing the subsurface, installing new stabilized aggregate base material, prime coat, asphaltic concrete binder, tack coat, and asphaltic concrete surface course as indicated on the drawings and in accordance with the specifications.

Measurement will be on a square yard basis of the asphalt patch completed.

Payment, at the Unit Price bid, will be full compensation for the work satisfactorily completed.

ITEM NO. 6c - ASPHALT OVERLAY

The Unit Price Bid for the Asphalt Overlay shall include (but not be limited to) all costs associated with cleaning the construction area, and furnishing all asphaltic concrete pavement, bituminous tack coat, material, labor, and equipment required to overlay within the limits shown and all additional labor and equipment necessary to complete the work as described in the drawings and in accordance with specifications. Dispose of waste material in a manner consistent with local, State and Federal regulations.

The asphalt overlay will be measured on a square yard basis of the work completed.

Payment at the Unit Price Bid for Milling and Overlay will be full compensation for work satisfactorily completed.

ITEMS NO. 7a & b - BRICK PAVING & ADA PAVERS W/ CONCRETE BASE

The Unit Price Bid for all brick paving and ADA pavers with concrete base shall include (but not be limited to), all cost for furnishing all material, labor and equipment required for the installation of brick paving, single and double brick border course and ADA pavers including concrete base in accordance with the drawings and specifications including detailing as shown in the drawings. The price shall also include the installation of the concrete base, sand cement setting bed and sand swept joints.

Measurement will be on a square yard basis of the brick pavers and ADA pavers with concrete base specified in place, and accepted.

Payment, at the Unit Price bid, will be full compensation for the work satisfactorily completed.

ITEM NO. 7c LARGE BRICK COLUMNS WITH CAST STONE ACCENTS

The Unit Price Bid for brick work shall include (but not be limited to), all cost for furnishing material, labor and equipment required for the installation of Large Brick Columns with Cast Stone Accents in accordance with the drawings and specifications including detailing as shown in the drawings. The price shall also include the installation of columns, concrete foundations, cast stone cap and any other ancillary portions of the work.

Measurement will be on a per each cost of Large Brick Columns with Cast Stone Accents installed and completed.

Payment will be made at the Unit Price Bid for each Large Brick Columns with Cast Stone Accents, measured as specified above. Payment will constitute full compensation for the work satisfactorily completed and accepted.

ITEM NOS. 8, ARCH ENTRY SIGN

The Lump Sum Bid for arch entry sign shall include:

1. The purchase of all materials required for construction of the arch entry sign as per architectural plans and specifications.
2. Structure layout as per architectural drawings & site drawings
3. All labor and equipment required to construct the arch entry sign.
4. Concrete foundations as shown on the architectural and structural plans.
5. Electrical Service and coordination with Duke Energy to bring underground service to the proposed arch entry sign.
6. Coordination with City of Sumter and all utility companies associated with the improvements as shown on the plans.

Measurement will be fully completed arch entry sign and accepted.

Payment at the lump sum Bid will be full compensation for the work satisfactorily completed.

ITEM NO. 9 - STRIPING

The Lump Sum Price for this item shall include costs for temporary and permanent thermoplastic pavement striping and marking, to include but is not limited to roadway center lines, lane markings, directional arrows and stop lines on the new pavement as shown and as directed by SCDOT and the Owner.

The amount to be paid under this item shall be compensation for furnishing the paint materials and installing the pavement.

Payment at the Unit Price Bid will be full compensation for satisfactorily striping installed.

ITEM NO. 10 - TRAFFIC PRINT XD

The Unit Price Bid for decorative paving shall include (but not be limited to) all costs for materials, labor and equipment for the installation of traffic print XD crosswalks and shall be in accordance with the specification, and as indicated on the construction drawings.

Measurement will be in square feet of decorative pavement specified in place, and accepted.

Payment at the Unit Price Bid, will be full compensation for the decorative paving satisfactorily installed.

ITEMS NOS. 11. STOP SIGNS

The Unit Price Bid for Stop Signs, shall include all labor, materials, and equipment for installation of specified items per manufacturers requirements at the location shown on the Drawings, and in accordance with the Details.

Payment will be measured on a per-item basis of items installed.

Payment, at the Unit Price Bid, will be full compensation for all work satisfactorily completed.

ITEMS NO. 12. 6' WELDED STEEL FENCING (between columns)

The Unit Price Bid for 6' welded steel fencing and gates (between columns) shall include (but not be limited to), all costs for furnishing all material, labor, and equipment required to construct 6' welded steel fencing (between columns) and gates at the locations indicated on the plans and as specified herein.

Measurement will be in linear feet of new 6' welded steel fencing (between columns) in place and accepted. Completed length of fencing will be measured.

Payment will be made at the Unit Price Bid for 6' welded steel fencing (between columns), measured as specified above and constitute full compensation for the work satisfactorily completed.

ITEM NOS. 13. GUARD SHACK BUILDING

The Lump Sum Bid for Guard Shack Building shall include:

1. The purchase of all materials required for construction of the guard shack building as per architectural plans and specifications.
2. Structure layout as per architectural drawings & site drawings
3. All labor and equipment required to construct the guard shack building.
4. Concrete floor slab and foundations as shown on the architectural and structural plans.

5. Electrical Service and coordination with Duke Energy to bring underground service to the proposed building.
6. Coordination with City of Sumter and all utility companies associated with the improvements as shown on the plans.

Measurement will be fully completed guard shack building and accepted.

Payment at the lump sum Bid will be full compensation for the work satisfactorily completed.

ITEM NO. 14a-j - PLANTING

The Unit Price bid for planting shall include costs for furnishing all labor, equipment and materials including plantings, sod and planting mixtures for providing and installing the plant material at the locations shown on the drawings and in accordance with the specifications. The Contractor also shall include planting mix, sod, and hardwood mulch in the bid price. Top soil shall be covered in ITEM 4.

Measurement will be on an each basis for plant material installed.

Payment, at the Unit Price Bid, will be full compensation for the work satisfactorily completed.

ITEM NO. 15 - IRRIGATION

The Lump Sum bid for items under irrigation shall include costs for all labor, equipment, and material including sleeves for installing the individual items at the locations on the Drawings and in accordance with the details and specifications. The price shall also include the service line to the irrigation system as well tap to the existing Morris college irrigation system using the existing water line and meter provided by the college. The contractor will be required to tie the entire irrigation system to one existing controller.

Measurement will be on a lump sum basis of the irrigation system installed.

Payment, at the Lump Sum Bid, will be full compensation for all work satisfactorily completed.

ITEM NO. 16a. –b. – UTILITY COORDINATION AND CONDUITS

The Unit Price bid for items under utility coordination and conduits shall include costs for all labor, equipment, boring and material for installing and coordination of the individual conduits and boxes at the locations on the Drawings and in accordance with the details and specifications. The price shall also include coordination with all effected local utility companies and City of Sumter. Duke Energy, Frontier, Farmers Telephone and Spectrum will supply handhole boxes for their work if necessary. The conduit for Frontier, FTC and the City of Sumter will be the responsibility of the contractor. Coordination with all utility contractors (Frontier, FTC, Spectrum Communications and SCDOT) shall be the full responsibility of the contractor.

Payment will be measured on a lump sum basis of conduit installed and accepted.

Payment, at the Unit Price Bid, will be full compensation for all work satisfactorily completed.

ITEM NO. 17 - DESIGN BUILD ORNAMENTAL LIGHTING

The Lump Sum bid for the design build ornamental lighting system shall include the design and installation of light poles, arch lighting (Lettering, sconces, up-lights), bases, conduit and electrical wiring as shown on the Site electrical plans. All poles shall be design and installed to be breakaway to meet SCDOT standards. It shall also include coordination and connection to a Duke Energy electrical pedestal. All work shall be in accordance with the National Electric Code. The bidder shall include all costs for design, trenching, conduit, wiring, service, foundation, equipment, surface restorations, and ancillary items associated with a fully functioning electrical pedestal and lights and coordination with Duke Power.

Measurement will be on a lump sum basis of the lighting system designed and installed.

Payment, at the lump sum bid, will represent full compensation for the satisfactory completion of the work.

ITEMS NOS. 18. RELOCATED FLAG POLES AND NEW UPLIGHTING

The Unit Price Bid for relocated flag poles and new uplighting, shall include all labor, materials, and equipment for installation of specified items per manufacturers requirements at the location shown on the Drawings, and in accordance with the Details. Note

Payment will be measured on a per-item basis of items installed.

Payment, at the Unit Price Bid, will be full compensation for all work satisfactorily completed.

(End Section 01250)

SECTION 02050 DEMOLITION AND REMOVAL

PART ONE - GENERAL:

1.01 - SCOPE

This work includes the demolition and removal of all items necessary for the completion of the work as shown on the contract documents, including but not limited to, asphalt base and surfacing, concrete paving, and designated vegetation.

1.02 - QUALITY ASSURANCE

A. Referenced 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. South Carolina Highway Department Standard Specifications for Highway Construction, most current edition.

PART TWO - PRODUCTS: (This section not applicable).

PART THREE - EXECUTION:

3.01 - REQUIREMENTS

The work includes demolition or removal of all existing materials indicated, specified or required. All materials resulting from demolition work, except as indicated or specified otherwise, shall become the property of the CONTRACTOR and shall be removed from the limits of the OWNER'S property. Remove all rubbish and debris from the site daily, unless otherwise directed.

A. Dust Control

Take appropriate action to check the spread of dust to avoid the creation of a nuisance in the surrounding area. Comply with all dust regulations imposed by local air pollution agencies.

B. Personnel

Where pedestrian and driver safety is endangered in the area of removal work, use traffic barricades with flashing lights to meet the SCDOT standard for traffic control.

3.02 - EXISTING FACILITIES TO BE REMOVED

A. Asphalt

Remove asphalt concrete, concrete and base materials completely where indicated within the limits as specified for the new work. Exercise extreme care in the demolition procedures to avoid damage to private and public property. The existing roadway materials are indicated on the drawings. This information is not presented as a guarantee of the material to be encountered. CONTRACTORS are to make their own determinations as to the work involved.

B. Miscellaneous Removals

Remove completely all lawn and gravel within the limits specified for the new work. Exercise extreme care in the removal procedures to avoid damage to private and public property.

C. Concrete

Where concrete work to be removed abuts concrete to remain, saw concrete along straight lines to a depth of not less than two inches (2"). The remainder of the concrete shall be broken out, provided that the broken area is concealed in the finished work, and the remaining is sound. At locations where the broken face cannot be concealed, it shall be ground smooth or the saw cut shall be made entirely through the concrete.

D. Salvaged Materials

Items to be salvaged and delivered to the City include any and all signage in the construction limits.

3.03 - CLEAN UP

Remove and transport all debris and rubbish in a manner that will prevent spillage on streets or adjacent areas. Clean up spillage from streets and adjacent areas.

3.04 - REGULATIONS

Comply with all Federal, State and local hauling and disposal regulations.

(End Section 02050)

PART 1 - GENERAL

1.1 SUMMARY

A. This Section shall apply to all excavation.

B. Construct all permanent work in areas free from water. Design, construct and maintain all dikes, levees, cofferdams and diversion and drainage channels as necessary to maintain the areas free from water and to protect the areas to be occupied by permanent work from water damage. Remove temporary works after they have served their purpose.

C. The CONTRACTOR shall be responsible for the stability of all temporary and permanent slopes, grades, foundations, materials and structures during the course of the Contract. Repair and replace all slopes, grades, foundations, materials and structures damaged by water, both surface and subsurface, to the lines, grades and conditions existing prior to the damage, at no additional cost to the OWNER.

1.2 PAYMENT

A. The CONTRACTOR'S attention is called to the face that there is no separate pay item for dewatering.

PART 2 - PRODUCTS

2.1 Furnish well points, pumps, tile drains or other approved methods of the type normally used in dewatering operations. Furnish piezometer wells to monitor groundwater levels, if necessary.

PART 3 - EXECUTION

3.1 CARE OF WATER

A. Except where the excavated materials are designated as materials for permanent work, material from required excavation may be used for dikes, levees, cofferdams and other temporary backfill.

B. Furnish, install, maintain and operate necessary pumping and other equipment for dewatering the various parts of the work and for maintaining the foundation and other parts free from water as required for constructing each part of the work.

C. Install all drainage ditches, sumps and pumps to control excessive seepage on excavated slopes, to drain isolated zones with perched water tables and to drain impervious surfaces at final excavation elevation.

D. Dewater by means which will insure dry excavations, preserve final lines and grades, do not disturb or displace adjacent soil. Care shall be taken to assure that dewatering operation has no negative impact on the adjacent road and railroad.

E. All pumping and drainage shall be done with no damage to property or structures and without interference with the rights of the public, OWNERS of private property.

F. Do not overload or obstruct existing drainage facilities.

G. After they have served their purpose, remove all temporary protective work at a satisfactory time and in a satisfactory manner. All diversion channels and other temporary excavations in areas where the compacted fill or other structures will be constructed shall be cleaned out, backfilled and processed under the same Specifications as those governing the compacted fill.

H. When temporary works will not adversely affect any item of permanent work or the planned usage of the Project, the CONTRACTOR may be permitted to leave such temporary works in place. In such instances, breeching of dikes, levees and cofferdams may be required.

3.2 DEWATERING

A. By the use of well points, pumps, tile drains or other approved methods, the CONTRACTOR shall prevent the accumulation of water in excavated areas. Should water accumulate, it shall be promptly removed.

B. Excavations shall be continuously dewatered to maintain a ground water level no higher than three to four feet below the lowest point in the excavation. Dewatering shall be accomplished well enough in advance of excavation to ensure that groundwater is already lowered prior to completing the final excavation to finish subgrade.

C. All destabilized subgrade conditions caused by inadequate or untimely dewatering operations shall be undercut and backfilled with suitable backfill material at to additional cost to the OWNER.

D. Piezometer wells are required to monitor the ground water level to insure proper dewatering prior to excavation below the static water table. The number of wells required will vary depending on the size and depth of structures.

E. Where the presence of fine grained subsurface materials and a high groundwater table may cause the upward flow of water into the excavation with a resulting quick or unstable condition, the CONTRACTOR shall install and operate a well point system to prevent the upward flow of water during construction. Water pumped or drained from excavations, or any sewers, drains or water coursed encountered in the work, shall be disposed of in a suitable manner without injury to adjacent property, the work under construction, or to pavements, roads, drives, and water courses. No water shall be discharged to sanitary sewers. Sanitary sewage shall be pumped to sanitary sewers or shall be disposed of by an approved method.

END OF SECTION

SECTION 02210 UNCLASSIFIED EXCAVATION AND GRADING

PART ONE – DESCRIPTION:

This portion of the project includes the excavation, undercut excavating, grading, earthwork and compaction required as shown on the plans and all other associated miscellaneous items of earthwork construction, as shown on the plans. The CONTRACTOR shall furnish all materials, labor, equipment and incidental items necessary to complete this portion of the work as detailed on the plans and as called for in these Specifications.

1.1. Any reference to standard specifications refers to the most current published date published of the following specification or regulation unless otherwise noted.

All unclassified excavation shall be in accordance the latest version of the "Standard Specifications for Highway Construction", published by the South Carolina Department of Transportation, unless otherwise directed herein.

1.2. Any reference to standard specifications refers to the most current published date of the following specification unless otherwise noted:

Reference the following specifications for related work:

02110 Clearing and Grubbing
02933 Seeding and Mulching
ASTM D698C
State Highway Specifications referred to in Section 1.1

1.3. Definitions

Trench Rock: That rock within the trenching limits that must be removed for utility construction.

Mass Rock: That rock which must be removed by blasting to permit reaching one foot below the design finish grade.

Geotechnical Engineer, also known as the “Project Geotechnical Engineer”: Professional soils engineer hired by the CONTRACTOR and approved by the ENGINEER for this project.

Surveyor: Licensed surveyor hired by the CONTRACTOR and approved by the ENGINEER for this project.

PART TWO – MATERIALS:

2.1. Topsoil shall be considered to mean original surface soil, typical of the area, which is capable of supporting native plant growth, and shall be free of large stones, roots, brush, waste, construction debris and other undesirable material or contamination.

2.2. All fill used for site grading operations should consist of a clean (free of organics and debris) low plasticity soil (plasticity index less than 30).

PART THREE – INSTALLATION:

3.1. General Requirements

3.1.1. In the event a subsurface investigation report has been prepared for this project, all excavation, filling and grading shall be performed in accordance with the recommendations of the subsurface report, and under the direction of the project geotechnical ENGINEER.

3.1.2. Construction stakeout will be by a licensed survey firm provided by the CONTRACTOR. Exact locations and grade points are to be staked or fixed by the surveying firm before construction. The CONTRACTOR shall not disturb any benchmarks, reference stakes or property line monuments. In the event it becomes necessary to remove any benchmark, reference stake or property line monument in the performance of the work, the CONTRACTOR shall reference such points in preparation for replacement. If any such points are disturbed or damaged, they shall be replaced by a Registered Land Surveyor in the state where the work is located at the expense of the CONTRACTOR.

3.1.3. Existing utility lines (either overhead or underground), sidewalks, fencing, pavement or other structures shown on the drawings, shown to the CONTRACTOR or mentioned in the plans and specifications shall be kept free of damage by the CONTRACTOR's operations. It shall be the responsibility of the CONTRACTOR to verify the existence and location of all underground utilities within the Project Site. The omission from or the inclusion of utility locations on the plans is not to be considered as the non-existence of or a definite location of existing underground utilities. Any existing construction damaged by the CONTRACTOR shall be restored to an equal condition as that existing at the time prior to damage, at the CONTRACTOR's expense. If any existing utility is inadvertently damaged during construction, the CONTRACTOR shall notify the utility, the ENGINEER and the OWNER of said damaged utility at once so that emergency repairs may be made at the CONTRACTOR's expense and to the satisfaction of the party having jurisdiction of the utility.

3.2. Unclassified Excavation

3.2.1. Upon completion of the stripping operations, and after all excavation of the site has been completed to the lines and grades shown on the drawings, the exposed subgrade in cut areas should be proofrolled as specified herein for areas to receive fill. Any areas which deflect, rut or pump excessively during the proof rolling or fail to "tighten up" after successive passes should be undercut to suitable soils and replaced with compacted fill.

3.2.2. All site excavation shall be unclassified regardless of the nature of the materials encountered with the exception of rock excavation. Only that material which in the opinion of the ENGINEER cannot be removed with a caterpillar D-9 or equal, equipped with a properly fitted single tooth ripper, or removed by a caterpillar 225 backhoe or equal, equipped with rock teeth, will be regarded as rock. The ENGINEER should be notified immediately if rock is encountered. All excavation materials which are not required for fills shall be considered as waste and shall be disposed of off the OWNER's property unless directed otherwise by the OWNER in writing.

3.2.3. All site excavation of previously stockpiled or buried construction, clearing or demolition debris or any other refuge shall be properly disposed of offsite at the CONTRACTOR's expense. The CONTRACTOR shall obtain all necessary Federal, State or Local permits for transporting and disposing of such material, at his expense.

3.2.4. Rock in the bottom of roadway cuts shall be excavated to a depth of 1 foot below the roadbed and ditches. Rock in building pad areas shall be excavated to a depth of 1 foot below finished grade or as indicated on the grading plans.

3.2.5. The CONTRACTOR shall provide all sheeting, shoring, underpinning and bracing required to hold the sides of the excavation and for the protection of all adjacent structures. The CONTRACTOR shall be held responsible for any damage to any part of the work by failure of excavated sides or bottoms.

3.3. Blasting

3.3.1. Any and all blasting operations shall be conducted in strict accordance with existing ordinances and regulations relative to storage and use of explosives. Blasting shall be done only by experienced men and extreme caution and care shall be exercised to prevent injury to persons or damage to any pipe, mains, wires, drains, buildings, railroad tracks or other property above or below the surface of the ground. The CONTRACTOR shall use safety nets or other equivalent measures as approved by the ENGINEER to reduce the possibility of flying rock as a result of blasting operations. The CONTRACTOR shall be held strictly responsible for any injury to persons or damage to public or private property.

3.3.2. The CONTRACTOR shall submit blasting plans to the ENGINEER for review and shall not proceed with blasting operations until approval has been granted. As directed by the ENGINEER, blasting operations shall be monitored to insure that vibration levels produced by blasting are within tolerable limits.

3.3.3. The CONTRACTOR shall obtain at his expense, all Federal, State and Local permits required to perform blasting operations.

3.4. Dewatering

3.4.1. The CONTRACTOR shall control the grading in all areas so that the surface of the ground will be properly sloped, diked or ditched to prevent water from entering into excavated areas. The CONTRACTOR shall maintain sufficient personnel and equipment to promptly and continuously remove all water, from any source, entering or accumulating in the excavation or other parts of the work. All water pumped or drained from these areas shall be disposed of in a suitable manner without damaging adjacent property or other work under construction.

3.5. Embankments, Fills and Backfills

3.5.1. Upon completion of the stripping operations, the exposed subgrade in areas to receive fill should be proofrolled with a loaded dumptruck or similar pneumatic-tired vehicle with a

minimum loaded weight of 25 tons, under the supervision of the geotechnical ENGINEER. The proof rolling procedure should consist of four complete passes of the exposed areas with two of the passes being in a direction perpendicular to the preceding ones. Any areas that deflect, rut or pump excessively during the proofrolling or fail to "tighten up" after successive passes should be undercut to suitable soils and replaced with compacted fill.

3.5.2. Embankments and fills shall be constructed at the locations and to the lines and grades indicated on the drawings. Material shall be placed in horizontal layers not to exceed 8 inches in loose depth and thoroughly compacted prior to placing each following layer. All fill material shall be free from roots or other organic material, trash, and from all stones having any one dimension greater than 6 inches. Stones larger than 4 inches, maximum dimension, shall not be permitted in the upper 6 inches of fill or embankment. Fill areas shall be kept level with graders or other approved devices.

3.5.3. Embankment and fill compaction shall be accomplished by thoroughly compacting each layer with sheep foot rollers, pneumatic rollers, and mechanical tampers in places inaccessible to rollers, or other equipment. When material has too much moisture, grading operations shall be limited to drying soil by spreading and turning for drying by the sun and aeration. When material is dry, moisture shall be added by sprinkling by approved means.

3.5.4. All embankments and fills shall be compacted to the following percentages of the maximum dry density as determined by the Standard Proctor Density Test, ASTM D-698, Method C.

3.5.5. The following table shall be used unless otherwise specified:

TABLE OF COMPACTION

Type Fill or Embankment	Zone	Minimum Density %
Structure	All Depths	98
Roadway & Sidewalks	Top l2 Inches	98
Other Areas	Remainder	95

Embankment types are defined as follows:

Structure - beneath concrete slabs of buildings, floors, foundations, etc.
Roadway and Parking - beneath all roads, streets, truck operations, and automobile parking lots

3.5.6. Where backfilling is required after the completion of drainage structures, all forms, trash, and construction debris shall be removed from excavation before backfilling begins. Backfill shall be placed in horizontal layers of 6 inches in loose depth. Compaction shall conform to requirements in the above table. Heavy rollers, crawler equipment, trucks or other heavy equipment shall not be used for compacting backfill within 5 feet of structure walls or other facilities which may be damaged by their weight or operation. No backfilling shall begin until concrete and masonry walls are properly cured.

3.5.7. The CONTRACTOR shall carry the top of embankments, fills, or backfills to the surrounding grade so that upon compaction and subsequent settlement, the grade will be at proper elevation. Should settlement occur during the guarantee period of the contract, the CONTRACTOR shall provide sufficient fill to bring area up to finished grade and shall reseed as required.

3.6. Proof rolling Schedule

3.6.1. Proof rolling under the observation of the geotechnical ENGINEER will be performed using a loaded dumptruck or similar pneumatic-tired vehicle with a minimum loaded weight of 25 tons as specified herein and as follows.

3.6.2. Immediately following stripping, all areas to receive fill shall be proofrolled as specified herein.

3.6.3. Immediately following the completion of excavation to proposed grades in cut areas, proof rolling shall be performed as specified herein.

3.6.4. Immediately prior to stone base course placement in pavement areas and following final floor slab preparation, all subgrade areas will be proofrolled. Any local areas that deflect, rut or pump under the roller shall be undercut and replaced with compacted fill material as specified herein.

3.7. Soil Inspection and Tests

3.7.1. All excavated and fill material shall be removed, selected, placed and compacted under supervision of a representative of a commercial soils testing laboratory which will be selected by the CONTRACTOR and approved by the ENGINEER. A commercial soil testing laboratory shall be any firm properly equipped to perform such compaction tests and who has in their employment a Professional ENGINEER experienced in testing and soil mechanics. The laboratory representative shall have the authority to approve or disapprove the condition of the subgrade on which fill is to be placed, filled material, placement methods, compaction methods, and shall make compaction density tests as necessary to determine that the specified density is obtained. The CONTRACTOR shall notify the laboratory at least three (3) days prior to starting fill operations in order that suitability of material for compaction may be checked and no material shall be used that has not been previously checked and approved by the laboratory. The laboratory shall be notified before any cut is made or fill is placed in order that the laboratory representative may be present during all grading operations. The CONTRACTOR shall remove, replace, recompact and retest all fills failing to meet the density requirements at his own expense.

3.7.2. A soil testing laboratory shall be retained by the CONTRACTOR and approved by the ENGINEER to supervise fill placement and compaction. Extra time and trips caused by excessive delay, failure of the CONTRACTOR to properly coordinate with the laboratory, or failure of the CONTRACTOR to properly compact fill material shall be the responsibility of the CONTRACTOR.

3.7.3. Field density tests shall be performed by the OWNER's testing agency for each one foot of fill material placed at the following frequency: once per day.

3.7.4. A minimum of one field density test shall be made for each 5,000 square feet of fill placement in building areas.

3.7.5. A minimum of one field density test shall be made for each 10,000 square feet of fill placement in all other areas where pavement is to be placed.

3.7.6. Prior to final acceptance, the Soils ENGINEER and Surveyor shall submit certification specifying that the project compaction criteria and subgrading elevations have been satisfactorily obtained. The CONTRACTOR is responsible for the certification statement from the Surveyor. This certification should be in the form of a letter accompanied by a stamped as-built drawing showing spot elevations.

3.8. Borrow and Waste Materials

3.8.1. Borrow

In the event borrow material is required, the borrow material shall be checked for suitability for compaction and approved by the soils testing laboratory. The CONTRACTOR shall notify the laboratory at least three (3) days in advance of beginning borrow operations. Borrow excavation shall be performed in accordance with referenced State Highway construction Specification in which state the project is located except where modified herein.

3.8.2. Waste

Excavated materials not suited for backfill and excavated material in excess of that needed to complete the work shall be wasted on the project site where directed by the ENGINEER or hauled off the OWNER's property at the CONTRACTOR's expense. Waste areas shall be left in a graded and sloped condition to allow natural drainage of surrounding area.

3.9. Residual Soil Areas

If proof rolling indicates that on-site virgin soils supporting any roadway, parking, building or other structural areas are not adequate as determined by the Soils ENGINEER, then these unsuitable areas shall be repaired by the CONTRACTOR. The necessary repair procedure shall be determined by the Soils ENGINEER and may include scarifying, drying and recompaction procedures or undercutting and replacement procedures.

3.10. Final Grading

3.10.1. On completion of all grading, all graded areas (except building pads and pavement areas in rough grading contracts and all cut slopes steeper than 4:1 slope) shall be provided with 4 inches of topsoil and brought to the finished grades shown on the drawings. Areas disturbed by operations of the CONTRACTOR shall be properly returned to their original condition with a topsoil covering of 4 inches.

3.10.2. After the entire graded area has been brought to the finished grades shown on drawings, all areas shall be left smooth and free from erosion, ridges, ditches and evidence of ponding. Final grades shall be free from all roots, debris, rock and soil lumps and left in readiness for seeding.

3.10.3. Prior to acceptance of the entire project, the CONTRACTOR shall correct all embankments and graded areas of all damages due to washes, settlement, erosion, equipment ruts or any other cause at his expense.

3.10.4. Prior to final acceptance, the CONTRACTOR shall provide certification as specified in paragraph 3.7.6 that all grades are + .1 foot of the finished grades shown on project drawings.

3.10.5. The CONTRACTOR shall stabilize all disturbed areas, unless otherwise directed, by seeding and mulching per section 02933 of these specifications or other means of stabilization called for by the contract drawings.

3.11. Clean-Up

Upon completion or termination of the work, and before final payment is made, the CONTRACTOR shall remove from site all equipment, waste materials and rubbish resulting from his operations. In the event of his failure to do so, the same may be done by the OWNER at the expense of the CONTRACTOR.

(End of Section 02210)

SECTION 02222 EXCAVATING, BACKFILLING & COMPACTING FOR UTILITIES

PART 1 DESCRIPTION

The CONTRACTOR shall furnish all labor, material, equipment, and supplies, and shall perform all earthwork including excavation and backfill, pavement removal, sheathing, bracing, shoring, pumping or bailing, dewatering, restoration and cleanup, all as indicated, specified and/or necessary to complete the work.

1.1 Any reference to standard specifications refers to the most current published date of the following specification unless otherwise noted.

1.2 RELATED WORK

Reference the following Specifications Sections for related work:

02270	Erosion and Sediment Control
02933	Seeding and Mulching
03300	Cast-in-Place Concrete

Reference the following National Specifications for related work:

D-2487	ASTM Uniform Soil Classification System, 1991 (US Army Corp of Engineers Standard as revised by the US ACE and the Bureau of Reclamation in 1952)
D-698	ASTM Compaction Testing
P-1926	OSHA Regulations

1.2. REFERENCES

1.2.1 Any reference to Standard National or State Specifications and/or Regulations refers to the most current published date of the specification or regulation unless otherwise noted.

The design, manufacture, and installation of these materials shall meet or exceed the applicable provisions and recommendations of the noted National Specifications and/or Regulations or meet the requirements of the latest revision of these specifications or regulations.

1.2.2. Any reference to SCDOT standard specifications was obtained from the "Standard Specifications for Highway Construction" latest edition, published by the South Carolina Department of Transportation.

PART TWO – MATERIALS:

2.1 Fill Material shall be classified as ML-low plasticity silt or better by the Unified Soil Classification System and tabulated below:

Unified Class	Description

Class I		1/4" - 1-1/2" well graded stone including coral, slag, cinders, crushed stone and crushed shells
Class II	GM	Coarse gravel well graded
	GP	Coarse gravel poorly graded
	SW	Coarse sands well graded
	SP	Coarse sands poorly graded
Class III	GM	Silty-sandy gravel
	GC	Clayey-sandy gravel
	SM	Silty-sands
	SC	Clayey-sands
Class IV	ML	Inorganic silts and fine sands

Fill material shall exhibit a plasticity index of less than 20 and Standard Proctor maximum density at optimum moisture greater than 90 pounds per cubic foot.

The following materials are unacceptable

	Unified Class	Description
Class IV	CL	Inorganic clays - low plasticity
	MH	Inorganic elastic silts
	CH	Inorganic clays - high plasticity
Class V	OL	Organic silts
	OH	Organic clays
	PT	Highly organic soil

2.2 WASHED STONE

Stone material where indicated shall be crushed stone or gravel of strong, durable nature and shall conform to standard size No. 57 stone in SCDOT Appendix 6:

1 ½”	100%
1”	95-100%
½”	25-60%
#4	0-10%
#8	0-5%

2.3 CLASS C CONCRETE

Minimum 28-day compressive strength of 2000 psi.

PART 3 CONSTRUCTION

3.1 EXISTING FACILITIES

3.1.1 Existing Utilities Shown on the Drawings

It shall be the CONTRACTOR's responsibility to conduct the work in such a manner as to avoid damage to or interference with any utilities services shown on the drawings. If such damage, interference, or interruption of service shall occur as a result of his work, then it shall be the CONTRACTOR's responsibility to promptly notify the ENGINEER of the occurrence and to repair or correct it immediately, at his own expense, and to the satisfaction of the ENGINEER and the OWNER of the Utility.

3.1.2 Existing Utilities Not Shown on the Drawings

It shall be the CONTRACTOR's responsibility to exercise all reasonable precaution in the performance of the work to avoid damage to or interference with any utilities services, even though not shown on the drawings. If such damage, interference, or interruption of service shall occur as the result of this work, then the CONTRACTOR's responsibility will be the same as stipulated in Paragraph 3.1.1 above.

3.2 EXCAVATION AND BACKFILL - General Requirements

3.2.1 Pavement, gutters, sidewalks, aprons and curbs which will be disturbed by excavation shall be removed and disposed of as a part of ordinary excavation. That which is to be removed shall be cut or sawn along clean straight lines from that which is to remain. Remove enough such that a minimum of twelve inches of undisturbed earth remain between the excavation and that which is to remain.

3.2.2 Where required, and as approved by the ENGINEER, sheeting and bracing shall be used to prevent injury to persons, caving of trench walls and to conform with all governing laws and ordinances. Sheeting and bracing shall be left in place until the trench is refilled to a safe limit. The top portion may then be removed, but the lower portion shall remain undisturbed.

3.2.3 It is the responsibility of the CONTRACTOR to provide an adequate dewatering system where required. The system shall be capable of removing any water that accumulates in the excavation and maintaining the excavation in a dry condition while construction is in progress. The surface of the ground shall be sloped away from the excavation or piping provided to prevent surface water from entering the excavation. Disposal of water resulting from the dewatering operation shall be done in a manner that does not interfere with normal drainage, and does not cause damage to any portion of the work or adjacent property. All drains, culverts, storm sewers and inlets subject to the dewatering operation shall be kept clean and open for normal surface drainage. The dewatering system shall be maintained until backfilling is completed or as otherwise directed by the ENGINEER. All damage resulting from the dewatering operation shall be repaired by the CONTRACTOR to the satisfaction of the ENGINEER and at no cost to the OWNER.

3.3 The CONTRACTOR shall erect, maintain, and safeguard temporary bridges, walkways, or crossings where it is necessary to maintain traffic. Where trenches are open in the vicinity of pedestrian or vehicular travel lanes, suitable carriers will be constructed and maintained and the work will be further protected from sunset to sunrise with a sufficient number of lights or flares to fully protect the public from accidents on account of construction.

3.4 If the specified depth for foundations proves insufficient to reach firm ground, the ENGINEER shall be notified and will furnish instructions for proceeding with the work.

3.5 ROCK, wherever used as a name for excavation material, shall mean boulders exceeding one-half cubic yard in volume or solid ledge rock, which in the opinion of the ENGINEER, requires for its removal drilling and blasting, or wedging or sledging and barring. Where rock excavation is necessary, the CONTRACTOR shall excavate the same as near the neat lines of the trench as practicable and he shall take all due precautions in the pursuance of the work. He will be held strictly responsible for all injury to life and to public and private property.

3.5.1 Rock shall be removed from the excavation to the following limits:

3.5.1.1 Trenches - The diameter of the pipe plus 8-inches on each side, extending six inches below the pipe wall and bell.

3.5.1.2 Structures - 12-inches beyond the vertical plane of the structure on all sides and on the bottom only to the depth necessary for proper installation.

3.6 BLASTING

Prior to commencing any blasting operations the CONTRACTOR shall notify the ENGINEER and either the Local Fire Department - Fire Prevention Section or the County Fire Administrator (as applicable) and obtain blasting permits as required. Blasting must be done by a licensed blaster. Blasting and magazine permits must be obtained from the South Carolina Department of Labor, Licensing, and Regulation. The CONTRACTOR must furnish proof (certification) of insurance specifically covering any and all obligations assumed pursuant to the use of explosives.

All blasting operations shall be conducted in strict accordance with any and all decrees, rules, regulations, ordinances, laws as may be imposed by any regulatory body and/or agency having jurisdiction over the work relative to handling, transporting, use and storage of explosives. Blasting shall be done only by competent and experienced men whose activities shall be conducted in a workmanlike manner. Satisfactory information must be provided to the ENGINEER, that the blaster meets or exceeds the qualifications enumerated in OSHA Regulations Part 1926, Subpart U, Section 1926.901 - Blaster Qualifications.

The CONTRACTOR shall protect all structures from the effects of the blast and repair any resulting damage. If the CONTRACTOR repeatedly uses excessive blasting charges or blasts in an unsafe or improper manner, the ENGINEER may direct the CONTRACTOR to employ an independent blasting consultant to supervise the preparation for each blast and approve the quantity of each charge.

3.6.1 Overburden

Undisturbed overburden may be deemed adequate in lieu of matting but only after the actual depth of the undisturbed overburden has been determined and adjudged sufficient by the ENGINEER. Under no circumstances will loose or fill overburden be adequate without the use of weighted mats.

3.6.2 Permission to Blast

The CONTRACTOR shall not be allowed to blast before 9 a.m. or after 3 p.m. without approval of the ENGINEER and OWNER. Blasting will not occur within any rights-of-way maintained by any agency (D.O.T., R.R., Gas, OWNER, etc.) without specific approval of the controlling agency and only in accordance with their respective requirements (as exceeded herein). The CONTRACTOR shall be held responsible for any and all injury to persons or damage to public or private property.

3.6.3 The CONTRACTOR shall not use excavated rock as backfill material. Dispose of rock which is surplus or not suitable for use as rip rap.

3.6.4 Monitoring

The CONTRACTOR shall notify the ENGINEER prior to any blasting. Additionally, the CONTRACTOR shall notify the ENGINEER before any charge is set. Following review by the ENGINEER regarding the proximity of permanent structures to the blasting site, the ENGINEER may direct the CONTRACTOR to employ an independent, qualified specialty Sub-Contractor, approved by the ENGINEER, to monitor the blasting by use of seismograph, identify the areas where light charges must be used, conduct pre-blast and post-blast inspections of structures, including photographs or videos, and maintain a detailed written log.

3.7. **STRUCTURE EXCAVATION AND BACKFILL**

3.7.1 Structure Excavation shall be made at the locations shown on the plans and to the exact subgrade required. Bottom of excavations shall be level and in firm, solid material, with soft material or voids treated as specified. Excavated areas shall be kept free of water during the construction period. Where earth will stand, footing trenches may be cut to the exact size of the footings; otherwise, forms shall be used. Where necessary, sides of excavations shall be shored and sheathed, or cofferdams built, as required for protection of the work and personnel.

3.7.1.1 Wherever excavation for a foundation extends below the water table or where specifically indicated on the plans, washed stone shall be placed to a minimum thickness of 12 inches, unless otherwise shown, prior to placing the foundation. The washed stone shall be compacted to 90% of maximum as determined by the Standard Proctor test (ASTM D698).

3.7.1.2 If the specified depth for foundations proves insufficient to reach firm ground, the ENGINEER shall be notified for furnishing instructions and proceeding with the work.

3.7.1.3 An adequate dewatering system shall be provided at all structure excavations and elsewhere as directed by the ENGINEER. If a well-point system is used, the CONTRACTOR shall submit plans to the ENGINEER for approval. The system shall be capable of removing any water that accumulates in the excavation and maintaining the excavation in a dry condition while construction is in progress. The surface of the ground shall be sloped away from the excavation or piping provided to prevent surface water from entering the excavation. Disposal of water resulting from the dewatering operation shall be done in a manner that does not interfere with normal drainage, and does not cause damage to any portion of the work or adjacent property. All drains, culverts, storm sewers and inlets subject to the dewatering operation shall be kept clean and open for normal surface drainage. The dewatering system shall be maintained until backfilling is complete or as otherwise directed by the ENGINEER. All damage resulting from the dewatering operation shall be repaired by the CONTRACTOR to the satisfaction of the ENGINEER and at no cost to the OWNER.

3.8. Structure Backfill shall be done with material free from large clods, frozen earth, organic material or any foreign matter, and shall evenly and carefully be placed and tamped in horizontal layers. Compaction equipment specifically designed for these purposes must be present and operational at the job site and shall be utilized throughout to obtain uniform compaction. The degree of compaction and the density shall be determined by the Standard Proctor Test (ASTM D698), with compaction requirements as follows:

Percent of Maximum Density at Optimum Moisture	Location
100	Top 12" of fill for pavement or surfacing
95	Full depth beneath all roads (paved or unpaved), driveways, sidewalks, undercut backfill for structure excavation, and lots
95	All other areas not defined above

3.8.1 No backfill shall be placed against a structural wall until all connecting structural members are in place. It shall be the CONTRACTOR's responsibility to provide compaction to such a degree that subsidence after placing shall not be detrimental to the stability or appearance of the structure, adjacent ground, or paved areas. The CONTRACTOR shall provide adequate protection to all structures during backfilling and shall use every precaution to avoid damaging or defacing them in any way. CONTRACTOR shall be responsible for the protection of all structures from damage or flotation prior to backfill being placed.

3.8.2 Unless otherwise approved by the ENGINEER, liquid-retaining structures shall not be backfilled until tested for leakage.

3.9. UNSTABLE SUBGRADE

Should unstable soil, organic soil, or soil types classified as fine-grained soils (silts and clays) by ASTM D-2487 be encountered in the bottom of pipe trenches or structure excavations, such soils shall be removed to a depth and width determined by the ENGINEER, properly disposed of and shall be backfilled with crushed stone conforming to the Department of Transportation Specifications, Size 57. Placement shall not exceed 12-inches loose and compacted to 90% of the dry density determined by the Standard Proctor Test ASTM D698 (Class C concrete may be substituted in place of #57 stone at the CONTRACTOR's option. A 24-hour cure must be given before proceeding with the work).

3.10. SITE GRADING

Site grading shall conform to the grades indicated by the finish contours on the plans. Where topsoil, pavement, gravel or crushed stone surfacing and other items are shown, rough grade shall be finished to such depth below finish grade as necessary to accommodate these items. All areas where structures are to be built on fill shall be stripped to such depth as necessary to remove turf, roots, organic matter and other objectionable materials.

3.10.1 Excavation shall be made to the exact elevations, slopes and limits shown on the plans. Material excavated may be used as fill material as long as it meets the material requirements established herein. Acceptable material must be stockpiled neatly onsite and clear of all unsuitable materials to be removed from the site.

3.10.2 Fill shall incorporate only acceptable materials defined herein. It shall not contain organic material, roots, debris or rock larger than 6 inches in diameter.

3.10.2.1 Where fill is to be placed, all existing vegetation, roots and other organic matter down to 12 inches below grade shall be stripped and disposed of as directed.

3.10.2.2 After clearing existing vegetation, at the ENGINEER's discretion, the site may require proof rolling to insure that all unstable material has been removed. Proof rolling shall be done in the ENGINEER's presence, utilizing a loaded dump truck or similar pneumatic-tired vehicle with a minimum loaded weight of 25 tons.

3.10.2.3 Fill shall be placed in successive compacted layers not to exceed 6 inches compacted thickness. Each layer shall be spread evenly and compacted as specified below before the next layer is placed.

3.10.2.4 Rock shall not be incorporated in fill sections supporting pavement or structures.

3.10.2.5 Where natural slopes exceed 3:1, horizontal benches shall be cut to receive fill material. Slopes of less than 3:1 and other areas shall be scarified prior to placing fill material.

3.10.2.6 Borrow material, as required, shall be provided by the CONTRACTOR at his own expense. Borrow material on site may be utilized provided it complies with these specifications.

3.11. COMPACTION

Unless otherwise noted, each layer of fill and backfill and the top 12 inches of existing subgrade material in cuts shall be compacted by approved equipment as specified below. The degree of compaction and the density shall be determined by the Standard Proctor Test (ASTM D698).

	Percent of Max. Dry Density at Optimum Moisture Content
Top 12 inches of fill under pavement or surface	95%
Fill under roads and structures	95%
Fill and backfill in other areas	95%

Material too dry for proper compaction shall be moistened by suitable watering devices, turned and harrowed to distribute moisture, and then properly compacted. When material is too wet for proper compaction, operations shall cease until such material has sufficiently dried.

3.12. COMPACTION TESTS

The OWNER shall provide compaction tests by an independent testing agency selected by the OWNER and approved by the ENGINEER. CONTRACTOR to coordinate with independent testing agency for tests. The compaction tests shall be taken at appropriate locations and frequency to demonstrate that the backfill (or fill) has been placed to meet the minimum compaction density required. The testing agency shall submit written test records to the ENGINEER for all compaction tests performed. Minimum testing shall be one test per 500 CY of material placed at the ENGINEER's option and one test per 10,000 square feet of fill placed for every foot of fill thickness.

In the event that the soil compaction is not in compliance with these specifications, then the CONTRACTOR shall take corrective action, at no cost to the OWNER, to compact the soils within the limits of the specifications. The ENGINEER shall be notified within 24 hours of any failing compaction tests. Any retesting of failed areas shall be performed only after corrective measures have been made by the CONTRACTOR to bring the compacted soils into compliance. All retesting shall be performed with the ENGINEER present.

3.13. SITE RESTORATION

3.13.1 General
All surfaces disturbed by the CONTRACTOR in the work shall be restored to a condition equal to or better than that which existed prior to commencement of the work, except as otherwise specified herein.

3.13.2 Pipe drains, headwalls, catch basins, curbs and gutters, and all incidental drainage structures shall be restored using like materials and details at no additional cost to the OWNER. The CONTRACTOR shall maintain drainage during construction.

3.13.3 All cuts, fills and slopes shall be neatly dressed off to the required grade or subgrade, as indicated on the plans.

3.13.4 Grassed areas shall be restored at no additional cost to the OWNER. Disturbed areas shall be covered with two (2) inches of topsoil, furnished by the CONTRACTOR from an approved source and of approved quality, then shall be fertilized, and seeded to match existing adjoining areas. All ditches shall be restored to their existing grade, line and cross section.

(End of Section 02222)

PART 1 DESCRIPTION:

The work covered by this section consists of the preparation, shaping and compaction of either an un-stabilized or stabilized subgrade, suitable for placement of base course, pavement and shoulders or for the placement of structures as called for on the plans. The CONTRACTOR shall furnish all equipment, tools, labor and materials necessary to complete the work in accordance with the plans and specifications.

1.1 RELATED WORK

Any reference to standard specifications refers to the most current published date published of the following specification unless otherwise noted.

1.1.1. Reference the following specifications for related work:

Section 02200	Earthwork
ASTM C977	
AASHTO T26	
AASHTO T-99	

Subgrade work shall conform to the "Standard Specifications for Roads and Structures" latest edition, published by the South Carolina Department of Transportation.

PART 2 MATERIALS

2.1. WATER

Water shall be clean and free from oil, salt, acid, alkali, organic matter or other substances detrimental to the finished product. Water shall not contain more than 100-PPM chlorides or more than 500 PPM dissolved solids, and shall have a pH in the range of 4.5 to 8.5.

2.1.1. Water from a city water supply may be accepted without being tested. Water from other sources shall be tested in accordance with AASHTO T26, unless the requirement for testing is waived by the ENGINEER. The cost of testing water shall be paid by the CONTRACTOR.

2.2. LIME

Quicklime and Hydrated Lime for soil stabilization shall meet the requirements of ASTM C977 except that it shall contain a minimum of 90 percent available calcium oxide (CaO) on an LOI-free basis.

2.2.1. Hydrated Lime shall have a minimum of 85 percent passing a No. 200 sieve.

2.2.2. Quicklime shall meet one of the following gradation requirements.

"A" Gradation (% Passing)	"B" Gradation (% Passing)
3/4 in. Sieve - 100%	No. 6 Sieve 100%
1/8 in. Sieve - 0% to 5%	

2.2.3. The CONTRACTOR shall furnish material certifications with each shipment of lime attesting that the lime meets the requirements of the specifications; however, the material shall be subject to inspection, test or rejection by the ENGINEER at any time.

2.3. STABILIZER AGGREGATE

Stabilizer Aggregate shall consist of crushed stone or gravel or other similar material having hard, strong, durable particles free of adherent coatings.

STABILIZER AGGREGATE
GRADATION ACCEPTANCE CRITERIA

Column A Sieve Size	Column B % Passing
1½"	98 - 100
1"	60 - 100
½"	36 - 84
No. 4	21 - 61
No. 10	10 - 50
No. 40	0 - 34
No. 200	0 - 13
Material Passing No. 40 Sieve	
L.L.	0 - 30
P.I.	0 - 6

PART 3 INSTALLATION

3.1 GENERAL REQUIREMENTS

All subgrade preparation shall be in conformance with local and state Department of Transportation requirements.

3.1.1 The subgrade for roadways and structures shall be shaped to conform to the lines, grades and typical sections shown on the plans or established by the ENGINEER. All vegetation, organic matter or other deleterious material shall be removed and properly disposed of by the CONTRACTOR. Nor shall the soil contain stone or gravel larger than 2 inches for the full depth of the specified subgrade thickness. In areas where the subgrade is to be stabilized with aggregate, the subgrade surface may be left uniformly below grade to provide for the addition of the stabilizer aggregate.

3.1.2 All material to a depth of 12 inches below the finished surface of the subgrade shall be compacted to at least 98% of the soil's Standard Proctor maximum dry unit weight.

3.1.3 A tolerance of plus or minus 0.1+ foot from the established grade will be permitted after the subgrade has been graded and compacted to a uniform surface.

3.2 PROOF ROLLING

The subgrade for roads, parking areas and other locations designated on the plans or by the ENGINEER shall be proof rolled in accordance with local and state Department of

Transportation requirements, to test for stability and uniformity of compaction. The subgrade shall be proof rolled in the presence of the ENGINEER, the OWNER'S independent testing agency or his designee using a loaded dump truck or similar pneumatic-tired vehicle with a minimum loaded weight of 25 tons. Any area of the subgrade which pumps or ruts excessively shall be considered unsatisfactory and shall be windrowed and dried or shall receive lime or aggregate stabilization as directed by the ENGINEER. The subgrade shall then be recompacted and proof rolled at no additional cost to the OWNER, repeating the above-outlined process until a stable, unyielding and uniformly compacted subgrade is provided.

3.3 LIME STABILIZED SUBGRADE

Where the existing soil is incapable of providing adequate foundation for roadways or structures or where called for on the plans, the subgrade may be stabilized using lime. The treatment of subgrade soils with lime shall be in conformance with local and state Department of Transportation requirements.

3.4 AGGREGATE STABILIZED SUBGRADE

Where the existing soil is incapable of providing adequate foundation for roadways or structures or where called for on the plans, the subgrade may be stabilized using aggregate. The treatment of subgrade soils with aggregate shall be in conformance with local and state Department of Transportation requirements.

(End of Section 02231)

PART 1 DESCRIPTION:

The work covered by this section consists of the construction of a base composed of an approved aggregate material delivered, placed, compacted and shaped to conform to the lines, grades, depths and typical sections shown on the plans or established by the ENGINEER.

1.1. RELATED WORK

Any reference to standard specifications refers to the most current published date of the following specification unless otherwise noted.

1.1.1. Reference the following specifications for related work:

Section 02231	Subgrade
AASHTO T-180	COMPACTION

1.1.2. Aggregate Base Course work shall conform to the "Standard Specifications for Highway Construction" latest edition, published by the South Carolina Department of Transportation.

PART 2 MATERIALS

2.1 General Requirements

Aggregate base course material shall consist of crushed stone, crushed or uncrushed gravel or other similar material having hard, strong, durable, particle free of adherent coatings.

PART 3 INSTALLATION:

3.1 GENERAL REQUIREMENTS

The subgrade shall be prepared as called for on the plans in accordance with Section 32 1216.1 of these specifications prior to placement of the base material.

3.1.1 The aggregate material shall be placed on the subgrade with a mechanical spreader capable of placing the material to a uniform loose depth without segregation except that for areas inaccessible to a mechanical spreader, the aggregate material may be placed by other methods approved by the ENGINEER.

3.1.2 Where the required compacted thickness of base is 8 inches or less, the base material may be spread and compacted in one layer. Where the required compacted thickness is more than 8 inches, the base material shall be spread and compacted in 2 or more approximately equal layers. The minimum compacted thickness of any one layer shall be approximately 4 inches.

3.1.3 Each layer of material shall have been sampled, tested, compacted and approved prior to placing succeeding layers of base material or pavement.

3.1.4 No base material shall be placed on frozen subgrade or base.

3.1.5 Base course which is in place on November 15 shall have been covered with a subsequent layer of pavement structure or with a sand seal. Base course which has been placed between November 16 and March 15, inclusive, shall be covered within 7 calendar days with a subsequent layer of pavement structure or with a sand seal.

3.1.6 Failure of the CONTRACTOR to cover the base course as required above will result in the ENGINEER notifying the CONTRACTOR in writing to cover the base course with a sand seal and to suspend the operations of placing aggregate base course until such cover has been placed. This work shall be performed by the CONTRACTOR at no cost to the OWNER. In the event that the CONTRACTOR fails to apply the sand seal within 72 hours after receipt of such notice, the ENGINEER may proceed to have such work performed with other forces and equipment. The cost of such work performed by the other forces will be deducted from monies due or to become due the CONTRACTOR. The application of the sand seal by the CONTRACTOR or by others will in no way relieve the CONTRACTOR of the responsibility to maintain or repair the damaged base or subgrade, no matter what the cause of damage, at no cost to the OWNER.

3.1.7 No traffic shall be allowed on the completed base course other than necessary local traffic and that developing from the operation of essential construction equipment as may be authorized by the ENGINEER. Any defects that develop in the completed base or any damage caused by local or construction traffic shall be acceptably repaired at no cost to the OWNER.

3.1.8 The CONTRACTOR shall utilize methods of handling, hauling and placing which will minimize segregation and contamination. If segregation occurs, the ENGINEER may require that changes be made in the CONTRACTOR's methods to minimize segregation, and may also require mixing on the road which may be necessary to correct any segregation. No additional compensation will be allowed for the work of road mixing as may be required under this provision. Aggregate which is contaminated with foreign materials to the extent that the base course will not adequately serve its intended use will be removed and replaced by the CONTRACTOR at no additional cost to the OWNER.

3.2 SHAPING AND COMPACTING

Within 48 hours after beginning the placing of a layer of the base, the CONTRACTOR shall begin machining and compacting of the layer. Each layer shall be maintained to the required cross section during compaction and each layer be compacted to the required density prior to placing the next layer. Testing by OWNER’s independent testing agency.

3.2.1 Each layer of the base shall be compacted to at least 100% of the Modified Proctor maximum, dry unit-weight of that obtained by compacting a sample of the material.

3.2.2 The base material shall be compacted at a moisture content which is approximately that required to produce a maximum density indicated by the above test method. The CONTRACTOR shall dry or add moisture to the material when required to provide a uniformly compacted and acceptable base.

3.2.3 The final layer of base material shall be shaped to conform to the lines, grades and typical sections shown on the plans or established by the ENGINEER. When completed, the base

course shall be smooth, hard, dense, unyielding and well bonded. A broom drag may be used in connection with the final finishing and conditioning of the surface of the base course.

3.2.4 After final shaping and compacting of the base, the ENGINEER will check the surface of the base for conformance to the grade and typical section and determine the base thickness.

3.2.5 The thickness of the base shall be within a tolerance of plus or minus 0.1 feet of the base thickness required by the plans. The maximum differential between the established grade and the base within any 100 foot section shall be 0.1 feet.

3.2.6 Where the base material is placed in a trench section, the CONTRACTOR shall provide adequate drainage through the shoulders to protect the subgrade and base until such time as the shoulders are completed.

3.2.7 The CONTRACTOR shall maintain the surface of the base by watering, machining, and rolling or dragging when necessary to prevent damage to the base by weather or traffic.

3.2.8 Where the base or subgrade is damaged, the CONTRACTOR shall repair the damaged area; reshape the base to required lines, grades and typical sections, and re-compact the base to the required density at no cost to the OWNER.

(End of Section 02235)

PART 1 DESCRIPTION

1.1. Erosion and sedimentation control shall be provided by the CONTRACTOR for all areas of the site denuded or otherwise disturbed during construction. The CONTRACTOR shall be responsible for all installation, materials, labor, and maintenance of erosion and sediment control devices, as well as removal of temporary erosion and sediment control devices shown on the plans or required to protect all downstream properties, natural waterways, streams, lakes, ponds, catch basins, drainage ditches, roads, gutters, natural buffer zones, and man-made structures.

1.2. Erosion and sediment control procedures and facilities shall conform to all legally regulated procedures for the control of erosion and sedimentation.

1.3. RELATED WORK

See the following sections for related work.

02271	Engineering Fabrics
02275	Stone for Erosion Control
02277	Temporary Silt Fence
02933	Seeding and Mulching

1.4 REFERENCES

Any reference to standard National or State Specifications and/or Regulations refers to the most current published date of the specification or regulation unless noted otherwise.

The design, manufacture, and installation of these materials shall meet or exceed the applicable provisions and recommendations of the noted National Specifications and/or Regulations or meet the requirements of the latest revision of these specifications or regulations.

1.5 SPECIAL REFERENCES

Erosion and sediment control procedures and facilities shall conform to the "Standard Specifications for Highway Construction" latest edition, published by the South Carolina Department of Transportation and South Carolina Stormwater Management and Sediment Control Handbook as published by EQC, Bureau of Water, SC Department of Health and Environmental Control.

PART 2 MATERIALS

2.1. Washed stone to be used in temporary sediment basins shall be of strong, durable nature, resistant to weathering and shall be graded to conform to local and state Department of Transportation requirements.

2.2. Refer to other sections within these specifications as listed in Item 1.3 above for other material specification required in the installation of erosion and sediment control facilities.

PART 3 INSTALLATION

3.1 GENERAL REQUIREMENTS

3.1.1 The CONTRACTOR shall follow the erosion control construction sequence schedule as shown on the contract drawings, except that should circumstances dictate that extra precaution be taken to prohibit erosion and sedimentation on the project, the CONTRACTOR will, at his own expense, take preventative measures as needed.

3.1.2 The CONTRACTOR is required to maintain all erosion and sediment control facilities to insure proper performance throughout the construction phase and until such time all disturbed areas are permanently stabilized.

3.1.3 Upon completion of construction or successful permanent stabilization of all areas which were disturbed before or during construction operations or as indicated on the construction drawings, whichever occurs last, the CONTRACTOR shall remove all temporary erosion and sediment control devices and facilities from the project site. The CONTRACTOR shall retain these items for future use or properly dispose of these items offsite.

3.1.4 The CONTRACTOR shall provide temporary or permanent ground cover as called for on the construction plans within thirty (30) working days after disturbance of any areas on the site.

(End of Section 02270)

PART ONE – GENERAL:

The work covered by this Section consists of the furnishing, installing, maintaining, replacing as needed, and removing of temporary silt fence. The CONTRACTOR shall furnish all equipment, tools, labor and materials necessary to complete the work in accordance with the plans and specifications. All materials and procedures shall conform to the latest version of local and state Department of Transportation requirements.

1.1. Related Work

Any reference to standard specifications refers to the most current published date published of the following specifications unless otherwise noted.

1.1.1. Reference the following specifications for related work:

02270 Erosion Control

All applicable local design manuals, codes and/or ordinances for Erosion and Sedimentation Control. (Where these design manuals, local codes and ordinances are more stringent then the State Department of Transportation, these codes and/or ordinances will control the erosion and sedimentation control procedures to be followed.)

The temporary silt fence shall conform to the "Standard Specifications for Highway Construction" latest edition, published by the South Carolina Department of Transportation.

PART TWO – MATERIALS:

2.1. General Requirements

Temporary silt fence shall be a water permeable filter type fence for the purposes of removing suspended particles from the water passing through it.

2.2. Posts

Steel posts must be used. Steel posts shall be at least 5 feet in length, approximately 1-3/8 inches wide measured parallel to the fence, and have a minimum weight of 1.25 lb/ft of length. The post shall be equipped with an anchor plate having a minimum area of 14.0 square inches, and shall have a means of retaining wire and fabric in the desired position without displacement.

2.3. Woven Wire Fence

Wire fence fabric shall be at least 32 inches high but no more than 36" high, and shall have at least 6 horizontal wires. Vertical wires shall be spaced 12 inches apart. The top and bottom wires shall be at least 10 gage. All other wires shall be at least 12-1/2 gage.

2.4. Silt Fence Filter Fabric

The filter fabric shall conform to the "Standard Specifications for Highway Construction", latest edition, published by the South Carolina Department of Transportation and the South Carolina Stormwater Management and Sediment Control Handbook as published by EQC, Water Bureau, South Carolina Department of Health and Environmental control.

Silt fence which incorporates filter fabric meeting the requirements of these State Specifications, but which fail to perform in an acceptable manner shall be replaced with silt fences which are capable of acceptable performance. All silt fences shall meet the local governmental requirements as well as the State's requirements.

PART THREE – INSTALLATION:

3.1. General Requirements

3.1.1. The CONTRACTOR shall install temporary silt fence as shown on the plans or as required by field conditions. The silt fence shall be constructed at the locations shown on the plans and at all other locations necessary to prevent sediment transport, as directed by the ENGINEER.

3.1.2. Class A synthetic filter fabric may be used only in conjunction with woven wire fence fabric backing. Filter fabric shall be attached to the wire fence fabric by wire or other acceptable means.

3.1.3. Class B synthetic filter fabric may be used without the woven wire fence fabric backing, subject to the following conditions:

- Post spacing is reduced to a maximum of 6 feet.
- The proposed fabric has been approved by the ENGINEER as being suitable for use without the woven wire fence fabric backing.
- Fence posts shall be inclined toward the runoff source at an angle of not more than 20° from vertical.
- Posts shall be installed so that no more than 3 feet of the post shall protrude above the ground. Where possible, the filter fabric from a continuous roll cut to the length of the barrier shall be used to avoid joints. When joints are necessary, securely fasten the filter cloth only at a support post with overlap to the next post. At the time of installation, the fabric will be rejected if it has defects, rips, holes, flaws, deterioration, or damage incurred during manufacture, transportation, or storage.

3.2. Maintenance and Removal

3.2.1. The CONTRACTOR shall inspect temporary silt fences at least once a week and after each rainfall and shall make any required repairs and remove and dispose of silt accumulation immediately. Should the fabric of the silt fence collapse, tear, decompose or become ineffective, the CONTRACTOR will replace it promptly at his own expense. The CONTRACTOR shall remove sediment deposits as necessary to provide adequate storage volume for the next rain and to reduce pressure on the fence.

3.2.2 The CONTRACTOR shall remove all temporary silt fence and associated appurtenances once all disturbed areas upland of the fence is properly and satisfactorily stabilized as called for on the plans.

(End of Section 02277)

PART ONE - GENERAL:

1.01 - SCOPE

This section covers the furnishing, installation, testing and adjustment based on field conditions of an underground sprinkler system. The irrigation system shall be installed by a CONTRACTOR who specializes in irrigation installation. The CONTRACTOR shall furnish a unit price for each type of head, fitting, pipe, etc. furnished, installed, guaranteed, etc. for the purpose of increasing or decreasing quantities.

1.02 - LINES AND GRADES

The CONTRACTOR shall provide his own lines and grades for this work, and he shall have someone on the site during installation that is familiar with all aspects of irrigation systems.

1.03 - SAFETY CODES AND STANDARDS

Perform excavation work in compliance with applicable requirements of governing authorities having jurisdiction. No water from the irrigation system shall cover or land on any walkway, hardscape surface or roadway.

1.04 - EXISTING UTILITIES

Locate existing underground utilities by careful hand excavation. Utilities are to remain in place; provide protection from damage during ditching operations. Should uncharted or incorrectly charted piping or other utilities be encountered during excavation, consult the OWNER immediately for direction as how to proceed. Cooperate with the utility company in keeping respective service and facilities in operation. Repair damaged facilities to the satisfaction of the utility company.

1.05 - PROTECTION OF PERSONS AND PROPERTY

Barricade open excavation and post with warning lights for safety of persons. Operate warning lights during hours from dusk to dawn each day. Protect structures, utilities, driveways, pavements, and other facilities immediately adjacent to excavation from damage caused by settlement, lateral movement, undermining, washout or other hazards. Take precautions and provide necessary bracing and shoring to guard against movement or settlement of existing improvements. The CONTRACTOR is entirely responsible for the strength and adequacy of bracing and shoring and for the safety and support of construction from damage or injury caused by the lack thereof or by movement or settlement.

1.06 - MATERIALS STORAGE

Stockpile materials where directed. Locate and retain materials away from edge of excavations, even though such excavations may be sheeted and braced, to prevent such material from falling or sliding into excavation to prevent cave-ins.

PART TWO - PRODUCTS:

2.01 - MATERIALS STORAGE

This section covers the furnishings and installation of heads, fittings, pipes, backflow preventers and all other materials shown on the plans or their equivalent. All material shall be new and free of defects.

2.02 - SURPLUS MATERIALS

Remove and dispose of surplus materials from the site at no additional cost to the OWNER.

PART THREE - EXECUTION:

3.01 - COORDINATION

Coordinate work with the OWNER and any other trades on the project to avoid possible conflicts. Before installation is started, the ground shall be within approximately two inches, plus or minus, (2"±) of finished grade.

3.02 - LAYOUT

The arrangement of the system shall be designed by the CONTRACTOR and submitted to the OWNER for approval before proceeding with installation.

3.03 - INSTALLATION OF PIPE

Install pipe in straight runs, without sags and graded for drainage according to applicable code. Cut pipe ends straight, cleanse of dirt before assembly. Lay pipes in trenches, bottoms tamped hard without soft spots.

3.04 - TEST AND INSPECTIONS

Upon completion of tests and inspections, backfill with materials free of rocks and debris; trenches backfilled in six-inch (6") layers with each layer tamped firmly. Remove excess earth from the site.

(End of Section 02441)

PART 1 DESCRIPTION:

1.1 The work covered by this Section consists of the production, delivery, placement and compaction of various types of bituminous pavements for roadway and parking facilities. All bituminous pavement materials and installation shall conform to the "Standard Specifications for Highway Construction" latest edition, published by the South Carolina Department of Transportation (SCDOT).

1.2 The CONTRACTOR shall furnish all equipment, tools, labor and materials necessary to complete the work in accordance with the plans and specifications.

1.3 REFERENCES
Any reference to standard National or State Specifications and/or Regulations refers to the most current published date of the specifications or regulation unless noted otherwise.

The design, manufacture, and installation of these materials shall meet or exceed the applicable provisions and recommendations of the noted National Specifications or meet the requirements of the latest revision of these specifications.

PART 2 MATERIALS:

2.1 PRIME COAT: Cut-back asphalt used as prime coat shall conform to the "Standard Specifications for Highway Construction" latest edition, published by the SCDOT.

2.2 BITUMINOUS TACK COAT: Bituminous tack coat shall conform to the "Standard Specifications for Highway Construction" published by the SCDOT, latest edition.

2.3 NON-STRIP ADDITIVE FOR PLANT MIX: Non-strip additive for plant mix shall conform to the "Standard Specifications for Highway Construction" published by the SCDOT, latest edition.

2.4 BITUMINOUS CONCRETE BASE COURSE: Bituminous concrete base course, shall conform to the "Standard Specifications for Highway Construction" published by the SCDOT, latest edition.

2.5 BITUMINOUS CONCRETE BINDER COURSE: Bituminous concrete binder course shall conform to the "Standard Specifications for Highway Construction" published by the SCDOT, latest edition.

2.6 BITUMINOUS CONCRETE SURFACE COURSE: Bituminous concrete surface course shall conform to the "Standard Specifications for Highway Construction" published by the SCDOT, latest edition.

PART 3 INSTALLATION:

3.1 PRIME COAT: Prime Coat shall be applied to non-bituminous base course except beneath bituminous plant mixed pavements unless otherwise required by the plans. Prime shall be applied only when the surface to be treated is sufficiently dry and the atmospheric temperature in the shade away from artificial heat is 40°F or above for plant mix and 50°F or above for bituminous surface treatment. Prime coat shall not be applied when the weather is foggy or rainy. The base shall be cleaned of objectionable dust, dirt, clay and other deleterious matter prior to placing prime coat.

3.1.1 When directed by the ENGINEER, the CONTRACTOR shall dampen the surface of the base prior to application of the prime coat. Prime coat consisting of asphalt, Grade MC-30 or Grade RC-30 shall be applied at a rate of 0.18 to 0.45 gallons per square yards at an application temperature between 90°F and 130°F.

3.2 TACK COAT:

3.2.1 Tack coat shall be applied beneath each layer of bituminous plant mix base or pavement to be placed except where a prime coat or a newly placed bituminous surface treatment mat coat has been applied, unless otherwise directed by the ENGINEER. The tack coat material shall not be diluted or mixed with water, solvents, or other materials prior to application.

3.2.2 Tack coat shall be applied only when the surface to be treated is sufficiently dry and when the atmospheric temperature is 35°F or above in the shade away from artificial heat. Tack coat shall not be applied when the weather is foggy or rainy.

3.2.3 The existing bituminous or concrete surface to which tack coat is to be applied shall be cleaned of all dust and foreign material prior to placing the tack coat.

3.2.4 Tack coat shall be uniformly applied at a rate from 0.02 to 0.05 gallons per square yard. The exact rate of application will be established by the ENGINEER. The temperature of the tack coat material at the time of application shall be within the ranges shown below:

Bituminous Material	Temperature Range
Asphalt Cement, Grade AC-20	375º F - 500º F
Asphalt, Grade RS-1H	90º F - 150º F
Asphalt, Grade CRS - 1	90º F - 150º F
Asphalt, Grade CRS - 1H	90º F - 150º F
Asphalt, Grade HFMS - 1	90º F - 160º F
Asphalt, Grade CRS - 2	125º F - 185º F

3.2.5 No more tack coat material shall be applied than can be covered with base, binder, or surface course material during the next day's operation.

3.2.6 Tack coat material shall be applied with a distributor spray bar which can be adjusted to uniformly coat the entire surface at the directed rate. A hand hose shall be used for irregular

areas. Application of tack coat shall only be done in the presence of the ENGINEER or ENGINEER's representative. No base or surface mixture shall be deposited thereon until the tack coat has sufficiently cured.

3.2.7 Contact surfaces of headers, curbs, gutters, manholes, vertical faces of pavements, and all exposed traverse and longitudinal edges of each course shall be painted or sprayed with tack coat before mixture is placed adjacent to such surfaces.

3.2.8 After tack coat has been applied it shall be protected until it has cured for a sufficient length of time to prevent it from being picked up by traffic.

3.3 NON-STRIP ADDITIVE FOR PLANT MIX:

The non-strip additive shall be introduced and mixed into the asphalt cement in the presence of the ENGINEER unless it is added at the supplier's terminal and the rate, brand and grade are so noted on the asphalt cement ticket. The non-strip additive and asphalt cement shall be thoroughly mixed before being incorporated into the bituminous plant mix.

3.4 BITUMINOUS CONCRETE BASE COURSE:

3.4.1 The bituminous plant mix shall be compacted to a density of at least 90% of the maximum theoretical density.

3.4.2 No plant mix base course shall be placed that will not be covered with binder course or surface course during the same calendar year or within 15 days of placement if the plant mix is placed in January or February.

3.4.3 Should the CONTRACTOR fail to cover the plant mix as required, it will result in the ENGINEER notifying the CONTRACTOR in writing to cover the plant mix with sand seal. The application of the sand seal shall be done by the CONTRACTOR at no cost to the OWNER.

3.5 BITUMINOUS CONCRETE BINDER COURSE:

3.5.1 The bituminous plant mix shall be compacted to a density of at least 94% of the laboratory density as determined by the Marshall method of test.

3.5.2 No plant mix base course shall be placed that will not be covered with binder course or surface course during the same calendar year or within 15 days of placement if the plant mix is placed in January or February.

3.5.3 Should the CONTRACTOR fail to cover the plant mix as required, it will result in the ENGINEER notifying the CONTRACTOR in writing to cover the plant mix with sand seal. The application of the sand seal shall be done by the CONTRACTOR at no cost to the OWNER.

3.6 BITUMINOUS CONCRETE SURFACE COURSE

The bituminous plant mix shall be compacted to a density of at least 95% of the laboratory density as determined by the Marshall method of test.

3.7 OPEN GRADED ASPHALT FRICTION COURSE

3.7.1 The existing surface shall be cleaned in an acceptable manner prior to placement of any bituminous material.

3.7.2 Any part of finished friction course which shows non-uniform distribution of asphalt cement shall be removed and replaced at no cost to the OWNER.

3.8 ASPHALT DRAINAGE COURSE

A prime coat or tack coat will not be required. The mix shall be compacted to a degree acceptable to the ENGINEER.

PART 4 TESTING:

All testing requested by the ENGINEER shall be done by the CONTRACTOR in accordance with the "Standard Specifications for Highway Construction" published by the SCDOT, latest edition.

(End of Section 02511)

SECTION 02515 EXTERIOR CONCRETE WORK

PART ONE - GENERAL:

1.01 - SCOPE

This section covers Portland cement curbs complete, including such excavation, fine grading, backfilling and shaping adjacent surfaces as required.

1.02 - STANDARDS AND SPECIFICATIONS

Except as indicated or specified otherwise, materials and methods shall conform to the South Carolina State Highway Department Standard Specifications for Highway Construction, latest Edition and latest Sections.

PART TWO - PRODUCTS:

2.01 - CONCRETE

Concrete shall be not less than 3,500 psi at twenty-eight (28) days in accordance with the applicable requirements of the referenced specifications.

PART THREE - EXECUTION:

3.01 – CURBS

Construct in accordance with location, line, grade and details shown on the drawings and in accordance with the applicable requirements of the South Carolina State Highway Department Standard Specifications for Highway Construction, latest Edition. See details.

(End of Section 02515)

PART ONE - GENERAL

1.1 Summary

1.1.1 Concrete sidewalk shall be constructed of Portland cement concrete, at the locations and to the dimensions, lines, grades and cross section indicated on the Drawings or as directed by the ENGINEER and in conformity with the provisions and requirements set out in these Specifications.

1.1.2 Concrete driveways shall be constructed of Portland Cement concrete, at the locations and to the dimensions, lines, grades and cross section indicated on the Drawings or as directed by the ENGINEER, and in conformity with the provisions and requirements set out in these Specifications.

1.1.3 Concrete sidewalk and driveway shall include all the necessary excavation, unless otherwise indicated, subgrade and subbase preparation, backfilling, final CLEANING up and completing all incidentals thereto, as indicated on the Drawings or as directed by the ENGINEER.

1.2 Related Work Specified Elsewhere:

Excavation and Backfill	Section 02220
Cast-In-Place Concrete	Section 03300
Concrete Sidewalks and Brick Foundation	Section 03310

PART TWO - PRODUCTS

2.1 Materials

2.1.1 Materials used in the construction of sidewalks and driveways, in addition to the general requirements of these Specifications, shall conform, unless otherwise stipulated, to the following:

2.1.1.1 Concrete shall be manufactured of the materials meeting the requirements of and in accordance with the provisions and requirements for Class “A” concrete as set out in Section 03300 of these Specifications.

2.1.1.2 Crushed stone for base shall meet the gradation requirements for Size 7 or 8 as specified in ASTM D 448 or AASHTO M43.

2.2 Form Material

2.2.1 Forms may be constructed of wood or metal.

2.2.2 The lumber to be used in the construction of wood forms shall be free of bulge or warp, of uniform width, not less than 2-inches (commercial) in thickness, except that 1-inch thickness may be used on curves and shall be sound and free from loose knots. Stakes shall be not less than 2 x 4-inch lumber of sufficient length that, when driven they will hold the forms rigidly in place.

2.2.3 Metal forms shall be approved sections and shall have a flat surface on top. They shall

present a smooth surface of the desired contour, sufficiently thick and braced to withstand the weight of the concrete without bulging or becoming displaced.

PART THREE - EXECUTION

3.1 Labor

3.1.1 For finishing, competent and skilled finishers shall be provided.

3.2 Equipment

3.2.1 All equipment necessary and required for the construction of concrete sidewalks, curb and gutter, must be on the Project, proven to be in first class working condition and approved by the ENGINEER, before construction will be permitted to begin.

3.2.2 A one bag mixer will be permitted when the total output of concrete, per 10-hour day does not exceed 25 cubic yards.

3.2.3 Satisfactory floats, edgers, spades and tamps shall be furnished. Tamps of not over 8-inch diameter and weighing not less than 25 pounds shall be provided for tamping subgrade. A 10-foot longitudinal float of the inverted T-type with plough handles attached for manipulation, and a rigid float not less than 18-inches longer than the width of the walk being constructed, shall be provided.

3.3 Removal of Structures and Obstructions

3.3.1 Remove existing curbs, gutters, sidewalks, driveways and other structures shown on the drawings to be removed.

3.3.2 Cut existing concrete neatly, load and haul debris to an SCDHEC approved disposal areas.

3.4 Road and Drainage Excavation

3.4.1 Road and drainage excavation, as indicated on the Drawings or as directed by ENGINEER, shall be performed in accordance with the requirements of Section 02200 of these Specifications.

3.5 Embankment Construction

3.5.1 Embankment construction, as indicated on the Drawings or as directed by the ENGINEER, shall be performed in accordance with the provisions of Section 02200 of these Specifications.

3.6 Subgrade Preparation

3.6.1 The subgrade for sidewalks and driveways shall be formed by excavation to a depth equal to the thickness of the concrete plus 2-inches.

3.6.2 All subgrade shall be of such width as to permit the proper installation and bracing of the forms.

3.6.3 Yielding, or unsuitable material shall be removed and backfilled with satisfactory material. Place 6-inches of graded aggregate base under commercial/industrial driveways, compacted

thoroughly and finished to a smooth, unyielding surface and proper line, grade and cross section of the proposed construction.

3.7 Forms

3.7.1 All forms shall be set upon the prepared subgrade, true to lines and grade, and held rigidly in place so as to not to be disturbed or displaced during the placing of the concrete. The top of the form shall be set to exact grade and the height shall be equal to not less than the thickness of the proposed concrete.

3.7.2 All forms shall be so constructed as to form the cross section, contour, etc., of the proposed construction.

3.7.3 Immediately before placing the concrete, the forms shall be given a coat of light oil and where being removed and used again, the forms shall be thoroughly cleaned and oiled each time.

3.7.4 Forms shall be removed within 24 hours after placing concrete and no pressure shall be exerted upon the concrete in removing forms.

3.7.5 When the sidewalk is to be joined to an existing sidewalk, the existing sidewalk, if not in proper condition for the junction, shall be cut to a neat line perpendicular to both the centerline and the surface, or as indicated by the ENGINEER.

3.8 Expansion Joints

3.8.1 Unless otherwise indicated on the Drawings or as directed by the ENGINEER, premoulded expansion joint filler, ½" in thickness, shall be placed at the locations and in line with expansion joints in the adjoining pavement, gutter, and not otherwise indicated on the Drawings, a ½" premoulded expansion joint filler shall be placed at intervals of not over 50 feet apart. All premoulded expansion joint filler must be cut to full width or length of the proposed construction and shall extend to within 1-inch of the top or finished surface. All longitudinal expansion joints shall be placed as indicated on the Drawings or as directed by the ENGINEER.

3.8.2 All expansion joints shall be true, even and present a satisfactory appearance.

3.8.3 All expansion joint material protruding after the concrete has been finished shall be trimmed as directed by the ENGINEER.

3.9 Manufacturing and Placing Concrete

3.9.1 Immediately before placing concrete, the depth of the proposed concrete shall be checked by means of a template cut true to the cross section of the proposed construction and any irregularities shall be corrected.

3.9.2 Immediately before placing concrete, all subgrade shall be thoroughly sprinkled or wetted.

3.9.3 Concrete shall not be placed upon a frozen subgrade or subbase.

3.9.4 Construction joints will be permitted only at grooves or at expansion joints, unless otherwise

approved by the ENGINEER.

3.9.5 The concrete shall be manufactured and placed in accordance with the requirements of Section 03300 of these Specifications.

3.9.6 The concrete shall be placed immediately after mixing, the edges, sides, etc., shall be thoroughly spaded and the surfaces tamped sufficiently to thoroughly compact the concrete and bring the mortar to the surface. The concrete shall be deposited and compacted in a single layer.

3.10 Finishing

3.10.1 The concrete shall be stuck-off with a transverse template resting upon the side forms and then shall be floated with a 10 foot longitudinal float working the float transversely across the concrete with a sawing motion, always maintaining it parallel to the edges of the sidewalk, or driveway, where practicable, and in such a manner that all surplus water, laitance and inert material shall be removed from the surface. This operation shall be continued until the surface of the concrete shows no variation from 10-foot straightedge. If necessary, additional concrete shall be added to fill depressions, and the longitudinal float used again. The longitudinal float shall not be moved ahead more than one-half its length at any time.

3.10.2 When the surface of the concrete is free from water and just before the concrete obtains its initial set, it shall be gone over and finished with a wooden float so as to produce a sandy texture. The longitudinal surface variations shall be not more than 1/4-inch under a 12-foot straightedge, nor more than 1/8-inch on a five foot transverse section. The surface of the concrete must be finished so as to drain completely at all times.

3.10.3 The edges of the sidewalks or driveways shall be carefully finished and rounded with an edging tool having a radius of ½".

3.10.4 The surface of sidewalks shall be divided into blocks by use of a grooving tool. Grooves shall be placed so as to cause contraction joints to be placed at a groove line, where practical. The grooves shall be spaced approximately five feel apart and the blocks shall be rectangular unless otherwise ordered by the ENGINEER. The grooves shall be cut to a depth of not less than 1-inch. The edges of the grooves shall be edged with an edging tool having a radius of 1/4-inch, and any marks caused by edging or otherwise shall be removed with a wetted brush or wooden float so as to give the surface a uniform texture and finish.

3.10.5 The edges of the concrete at contraction joints shall be rounded with an edging tool having a radius of 1/4-inch. The top and ends, where practicable, of expansion joint material shall be cleaned of all concrete and the expansion joint material shall be trimmed so as to be slightly below the surface of the concrete. All marks caused by edging shall be removed with a wetted brush or wooden float.

3.11 Protection and Curing

3.11.1 Immediately after finishing the concrete, it shall be covered and cured in accordance with the requirements of Section 03300 of these Specifications. If the temperature falls to below freezing, satisfactory heating devices shall be placed under suitable covers to keep the temperature around the concrete at above 45 degrees F.

3.11.2 Pedestrians will not be allowed upon concrete sidewalks or driveways until 12 hours after finishing concrete, and no vehicles or loads shall be permitted upon any sidewalk or driveway until the concrete has attained sufficient strength for such traffic.

3.11.3 The CONTRACTOR shall construct such barricades and protection devices as are necessary to keep pedestrians and traffic off the sidewalks or driveways.

3.11.4 If any sidewalk or driveway is damaged at any time previous to final acceptance of the project, it shall be repaired by removing all concrete within the limits of the grooves, and be replaced, at the CONTRACTOR's expense, with concrete of the type, kind and finish in the original construction.

3.12 Backfilling

3.12.1 Immediately after the concrete has set sufficiently, the spaces along the sides or edges of the sidewalk or driveway shall be refilled with suitable material, this material shall be in compacted layer of not over 4-inches each, until firm and solid.

3.13 Cleaning

3.13.1 All excess or unsuitable material shall be removed and disposed of in accordance with requirements of Section 02200 and 02220 of these Specifications.

3.13.2 Final clean-up shall be performed in accordance with the requirement of Section 02995 of these Specifications.

3.13.3 All material becoming the property of the OWNER shall be stored in a manner and at locations near or on the Project as directed by the ENGINEER.

(End of Section 02523)

PART 1 DESCRIPTION

The work covered by this Section consists of the construction of Portland cement concrete curb, curb and gutter, concrete noses and concrete gutter necessary to complete the project. The CONTRACTOR shall furnish all equipment, tools, labor and materials necessary to complete the project in conformance with the plans and specifications.

1.1. RELATED WORK

Any reference to standard specifications refers to the most current published date of the following specification unless otherwise noted.

1.2. Reference the following specifications sections for related work:

02231 Subgrade

References to National Specifications for related work:

ASTM C150 - Type T Portland Cement

ASTM Material Specifications as listed Concrete Products (Section 02513 Part 2)

ASTM Testing Requirements - As listed under testing in Section 02513.3.4.2

AASHTO Material Requirements - As listed under Concrete Products (Section 02513 Part 2)

AASHTO Testing Requirements - As listed under Concrete Products (Section 02513 Part 2)

1.3. REFERENCES

The design, manufacture, and installation of these materials shall meet or exceed the applicable provisions and recommendations of the noted National Specifications or meet the requirements of the latest revision of these specifications.

1.3.1 All concrete curb, curb and gutter, and gutter installation shall conform to the "Standard Specifications for Highway Construction" latest edition, published by the South Carolina Department of Transportation.

1.4. The CONTRACTOR shall furnish all equipment, tools, labor, and materials necessary to complete the work in accordance with the plans and specifications.

PART 2 MATERIALS

All materials shall meet the requirements of Section 03300, Cast In Place Concrete, of these specifications.

PART 3 INSTALLATION

3.1. GENERAL

All concrete curb, curb and gutter, and gutter installation shall conform to the "Standard Specifications for Roads and Structures" latest edition, published by the South Carolina Department of Transportation.

3.2 CONCRETE

Class B concrete shall be used. Prior to placing forms the base or subgrade shall have been compacted to the degree required by the applicable section of these specifications.

3.3 FORMS

Forms shall be of such section and design that they will adequately support the concrete and any construction equipment used to construct the work. Straight forms shall be within a tolerance of 1/8 inch in 10 feet from a true line horizontally and vertically. Form pins shall be metal and shall be capable of holding the forms rigidly in place during construction operations. The form sections shall be connected by a locking joint that shall keep the forms free from vertical and horizontal movement.

3.4 FINISHING

The concrete shall be given a light broom finish with the brush marks parallel to the curb line or gutter line.

3.5 JOINTS

3.5.1 Joints shall be located as shown on the plans except as otherwise provided herein. Joint spacing shall not be less than 10 feet. Where concrete is placed adjacent to Portland cement concrete pavement, the joints shall be located so as to line up with the joints in the concrete pavement.

3.5.2 Grooved contraction joints shall be formed by the use of templates or by other approved methods. Where such joints are not formed by templates, the move shall be of the depth shown on the plans.

3.5.3 Grooved butt joints shall be placed between the work and adjacent pavement except where expansion joints are required by the plans.

3.5.4 All joints shall be sealed except for joints in curb sections not having an integral gutter. In curb and gutter the joint sealer shall not be poured above the top surface of the gutter. Joints in gutter shall be filled with joint sealer to the top surface of the gutter. Joints shall be sealed before backfilling or other adjacent operations are performed.

(End of Section 02527)

PART ONE – DESCRIPTION:

This section covers cutting and replacing pavement for the installation of utilities as shown on the plans and as specified herein. Any reference to sections of state specifications shall be in conformance with the state specifications referred to in the Section 1.2.1 Related Work.

1.1.
Any reference to standard specifications refers to the most current published date of the following specification unless otherwise noted.

1.1.1 Related Work
See the following sections for related specifications:

02222	Excavating, Backfilling & Compacting for Utilities
03300	Cast-in-Place Concrete:

1.3 References
Any reference to standard National or State Specifications and/or Regulations refers to the most current published date of the specification or regulation unless noted otherwise.

The design, manufacture, and installation of these materials shall meet or exceed the applicable provisions and recommendations of the noted National Specifications and/or Regulations or meet the requirements of the latest revision of these specifications or regulations.

1.3.1 See the following References to Nation Specifications for related work:

MP 1	AASHTO
M81	AASHTO
M82	AASHTO
T96	AASHTO
T176	AASHTO

PART TWO – MATERIALS:

2.1 Aggregate Base Course shall be in accordance with the SCDOT Section 305. Aggregate base course material shall consist of crushed stone, crushed stone, crushed or uncrushed gravel and other similar materials displaying hard, strong durable particles free from adherent coatings. All aggregate shall be from and approved sources in accordance with SCDOT Section 305.

2.2 Bituminous Paving

2.2.1 Bituminous Prime Coat: Cut-back asphalt used as prime coat shall conform to SCDOT Section 401.

2.2.2 Bituminous Base Course: Shall conform to SCDOT Section 401and 402.

2.2.3 Bituminous Tack Coat: Shall conform to SCDOT Section 401.

2.2.4 Bituminous Surface Coat: Shall conform to SCDOT Section 403.

2.3. Portland Cement Course

Shall be composed of Portland cement, coarse aggregate, fine aggregate and air entraining agent in accordance with Section 03300. Other admixtures may be added with the ENGINEER's approval. All concrete shall be Class A concrete with a minimum of 3500 psi compressive strength at 28 days. The concrete shall be air entrained to provide an air content of 4.5 percent plus or minus 1.5 percent.

PART THREE – CONSTRUCTION:

3.1 Pavement Cutting: Where the existing pavement is to be cut for installation of pipe or other utilities, the CONTRACTOR shall cut the pavement neatly in advance of trenching. All pavement shall be cut to a straight edge with the method of cutting subject to approval of the ENGINEER. Pavement shall be cut 12 inches wider on each side of the excavated area. Ragged or irregular edges will be redone. Concrete pavement shall be cut with a suitable concrete saw cutting equipment.

3.2 Trench Backfilling: Shall be in accordance to plans or as specified elsewhere herein.

3.3 Aggregate Base Course shall be placed and compacted in accordance with SCDOT Section 305.9 and 305.11. The base course shall be placed at the same time with the trench backfilling.

3.3.1 If the base course is designed to be used as a temporary travel surface, the additional thickness shall be placed, compacted and maintained until the permanent surface is placed. When preparing the base course for the final surface course, the base course material shall be undercut to the thickness to accommodate the surface course(s) and removed from the site, unless otherwise directed by the ENGINEER. The final thickness of the base shall be within a tolerance of plus or minus 1/2 inch of the base thickness required on the plans.

3.3.2 Backfilling with soil above an elevation to accommodate the final base thickness, to be cut-out and replaced with base material at a later date, will not be allowed.

3.4 Prime Coat

Shall be applied to non-bituminous base course beneath bituminous plant mixed pavements unless otherwise shown in the plans. The prime coat shall be applied only when the surface to be treated is dry and the atmosphere temperature in the shade is 40° F or above. Prime coat shall not be applied when the weather is foggy or rainy. The base shall be clear of debris, dirt, clay or other deleterious material prior to placing the prime coat.

3.4.1 Application of the prime coat shall consist of asphalt grade AASHTO 81 for Grade RC-70 except kinematic viscosity at 140° F, centistokes shall be a minimum of 30 and a maximum of 60; the distillate, percentage of volume of total distillate to 680°F, shall be as follows:

To 374°F	15 minimum
To 437°F	55 minimum
To 500°F	75 minimum
To 600°F	90 minimum

and the residue from the distillate to 680°F volume percentage of sample difference shall be a minimum of 50 or of shall be of asphalt grade AASHTO 82. The prime coat shall be applied at a rate of 0.18 to 0.45 gallons per square yard at an application temperature of 90° to 130°F.

3.5 Bituminous Concrete Surface Course, Type I-2

The surface course shall conform to SCDOT using Section 403 Type 1C Asphalt. **Pavement shall be replaced within the same week that it is cut.** If inclement weather delays pavement replacement, the CONTRACTOR shall not cut additional pavement until he has notified the ENGINEER and received specific permission and instructions. Any deviation from this schedule could subject the CONTRACTOR to immediate shut-down or non-payment of additional work performed until pavement repair is complete.

3.5.1 The bituminous plant mix placement and compaction shall conform to SCDOT" Section 401. If directed by the ENGINEER, density control and determination shall be in Accordance to SCDOT" Section 401.

3.6 Portland Cement Concrete shall be placed over a compacted sub-base of CABC stone with the surface damp at time of placement. The concrete patch shall equal the thickness of the surrounding pavement, but shall not be less than 4 inches thick. The concrete shall be handled to prevent segregation and kept free from mud, soil or other foreign matter.

3.6.1 Concrete placement shall not be undertaken or shall be discontinued when any of the following conditions exist:

3.6.1.1. When the descending air temperature in the shade and away from artificial heat reaches 40°F.

3.6.1.2. When the subgrade or base course is frozen.

3.6.1.3. When the temperature of the concrete mix exceeds 90°F.

3.6.1.4. When the time after batching exceeds 90 minutes.

3.6.2 Concrete finishing shall consist of screeding and floating to assist consolidation. The surface texture shall closely resemble the texture of the surrounding pavement. A uniform surface texture shall be applied by burlap dragging or other method acceptable to the ENGINEER. The use of excessive water during finishing will not be permitted.

3.6.3 Concrete curing shall be accomplished with spray compounds, polyethylene film or other methods acceptable to the ENGINEER. In no instance shall the method of curing be allowed to damage the finished surface. Any concrete with excessive surface damage will be considered defective work and removed and replaced at the CONTRACTOR's expense.

3.6.4 Concrete shall be protected from cold for a minimum of 72 hours through thermal blankets or other means acceptable to the ENGINEER. Thermal protection will be required whenever the air temperature is expected to fall below 40°F. Concrete damaged as the result of freezing shall be removed and replaced at the CONTRACTOR's expense.

(End of Section 02575)

SECTION 02614 BRICK WORK

PART ONE - GENERAL

1.1 Related Documents

1.1.1 Requirements of the General Provisions apply to all Work in this Section. Provide all labor, materials, equipment and services indicated on the Drawings, or specified herein, or reasonably necessary for or incidental to a complete job.

1.2 Description of Work

1.2.1 The Work includes furnishing all labor, equipment, and materials and performing all the operations required for the installation of all brick pavers in roadways, sidewalks, driveways, borders, and row-lock paving on a prepared subgrade and concrete base as indicated on the Drawings. Work also includes providing the brick columns as indicated. All brick work shall be constructed to the lines, grades and cross-sections indicated on the Drawings.

1.3 Related Work Specified Elsewhere

Excavation and Backfill	Section 02220
Cast-In-Place Concrete	Section 03300

1.4 Quality Assurance

1.4.1 Installer: The CONTRACTOR or Subcontractor performing the masonry paving work must have at least 5 years of successful experience in the required 'types of paving application.

1.4.2 Product Handling: Protect brick paving and column materials during storage and construction against wetting by rain, snow or ground water and against soilage or intermixture with earth or other types of materials.

1.4.2.1 Protect grout and mortar materials from deterioration by moisture and temperature. Store in a dry location or in waterproof container.

1.4.3 Hot Weather Requirements: Protect brick work in hot weather to prevent excessive evaporation of setting beds and grout. Provide artificial shade, wind breaks and use cooled materials, as required.

1.5 Submittals

1.5.1 Brick: For a brick to be considered as an approved equivalent to the shade specified, the CONTRATOR shall submit a sample panel showing consistent brick color to the following address no later than 5:00 PM, two weeks prior to bid opening.

The LandPlan Group South, Inc.
1206 Scott Street
Columbia, SC 29201
ATTN: Rick McMackin

1.5.2. Sample Panels: The CONTRACTOR shall construct a sample with full range of brick and mortar colors for the pavement prior to the start of any paving. The work will be inspected by the OWNER and ENGINEER. If the original sample panel is not acceptable, the CONTRACTOR shall provide additional samples at no cost to the OWNER. Accepted sample shall become the standards for the entire job, and shall remain undisturbed until completion of all paving and walk work. All work must have full range of previous colors approved in sample.

1.5.3 The following sample panel shall be constructed separate and distinct from the final paving. Panel size indicated will be the minimum size accepted

1.5.3.1 A 4’ x 4’ panel of brick paving with the single brick curb border and brick column in accordance with the drawing details for the work.

PART TWO - PRODUCTS

2.1 Brick/Paver Rowlock: Supply a solid brick that is 4"x 8" x 2-1/4" in size. The paver shall be Pine Hall “Old Town” or approved equal. The brick shall be Triangle Brick “Old Durham”. The brick/paver must conform to meet ASTM C902, Class SX, Type 1 for traffic.

2.2 All brick shall be supplied by the same manufacturer. The brick shall conform to ASTM 216 and/or ASTM C902, as applicable.

2.3 Mortar: Mortar shall conform to the South Carolina Highway Department Standard Specifications and shall be buff in color.

2.4 Joint Filler: Preformed expansion joint fillers shall be non-extruding resilient, non-bituminous type, conforming to AASHTO M153, Type II, and South Carolina State Highway Department Standards.

2.4.1 Unless otherwise indicated on the Drawings, joint filler shall be 1/2inch.

2.5 Sand: Sand shall be a clean aggregate with less that 10% fines.

PART THREE - EXECUTION

3.1 Brick Border

3.1.1 The CONTRACTOR shall install the concrete foundation for the brick border in accordance with the details and Section 03300. The CONTRACTOR shall then spread a damp/sand cement bed on the foundation. The brick is to have the 4”x8” surface exposed. The mortar joint for the brick border course shall be nominal 3/8-inch, with no joint smaller than ¼” and no joints greater than 5/8”. For brick border in a curved pattern that does not conform to this joint maximum and minimum shall be sawn as required.

3.2 Brick Column Cap

3.2.1 The brick column cap is to have the 4”x8” surface exposed. The mortar joint for the row-lock shall be nominal 3/8-inch, with no joint smaller than ¼” and no joints greater than 5/8”.

3.3 Repair, Pointing and Cleaning

3.3.1 Removal of Units: Remove masonry units which are loose, chipped, broken, stained, or otherwise damaged, or if units do not match adjoining units and install in fresh mortar, pointed to eliminate evidence of replacement.

3.3.2 Pointing: During the tooling of joints, enlarge any voids or holes, except weep holes, and completely fill with mortar. Point-up all joints at corners, openings, and adjacent work to provide a neat, uniform appearance, properly prepared for application of sealant compounds.

3.3.2.1 At completion of masonry work, point holes in exposed masonry, and cut out defective joints and tuck point solidly with mortar which has been retempered one or two hours after original mixing.

3.3.3 Cleaning: During construction, keep the exposed faces clean of mortar and other stains. When mortar joints reach thumbprint hardness and are tooled, brush the exposed work with a soft fiber brush to remove adhering mortar, and use a wood paddle to remove more tenacious material. Protect bases of walls from splash stains by covering the adjacent ground with sand, sawdust, or polyethylene.

3.3.3.1 Clean exposed brick masonry surfaces as recommended by BIA Technical Note 20 "Cleaning Clay Products Masonry".

3.3.4 Protection: Advise the ENGINEER of proper procedures required to protect the masonry work from deterioration, discoloration or damage during subsequent construction operations.

3.3.5 Sand-and-Swept Joints: After placement of brick paving, coarse, clean sand shall be swept into the joints for the full depth of the bricks. The CONTRACTOR shall be responsible for reapplication as necessary to achieve the full depth of sand.

(End of Section 02614)

PART ONE - GENERAL

1.1 Related Documents

1.1.1 Requirements of the General and Supplemental Conditions apply to all Work in this Section. Provide all labor, material, equipment, and services indicated on the Drawings or specified herein or reasonably necessary for and incidental to a complete job.

1.2 Description of Work

1.2.1 This work includes the removal of pavement and later reconstruction of base and surface courses affected or damaged by the CONTRACTOR's operations whether inside or outside the normal trench limits as indicated on the Drawings and herein specified.

1.3 Quality Assurance

1.3.1 Referenced Standards: Unless otherwise indicated, all referenced standards shall 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	South Carolina State Highway Department Standard Specification for Highway Construction, Latest Edition

1.3.2 Qualifications of Workmen: For actual finishing of asphaltic concrete surfaces and operation of the required equipment, use only personnel thoroughly trained and experienced in the skills required.

1.4 Product Delivery

1.4.1 General: Transport asphalt cement mixtures from the mixing plant to the project site in trucks having tight, clean compartments. Provide covers over asphalt cement mixture when delivering to protect the mixture from weather and to prevent loss of heat. During period of cool weather or for long-distance deliveries, provide insulation around entire truck bed surfaces.

PART TWO - PRODUCTS

2.1 Surface Course

2.1.1 Asphaltic Concrete: Comply with the requirements of SCDOT Specifications, Section 403, HOT LAID ASPHALTIC CONCRETE SURFACE COURSE.

2.1.2 Composition of Mixture: Comply with the requirements of SCDOT Specifications subsection 403.03, Composition of Mixture, Type 2. Furnish samples if requested by the ENIGEER.

2.2 Base Course

2.2.1 Stabilized Aggregate Base Course: Comply with the requirements of SCDOT Specifications, Section 306, STABILIZED AGGREGATE BASE COURSE, Type I or II gradation, without priming.

PART THREE - EXECUTION

3.1 Inspection

3.1.1 Examine the areas and conditions under which pavement will be removed and replaced and notify the ENGINEER in writing of conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions have been corrected in an acceptable manner.

3.2 Base Course

3.2.1 Preparation of Surfacing: After the back filled trenches have had adequate time to consolidate or have been thoroughly compacted by tamping or rolling, remove the material used for backfilling to a depth required for the base and surface courses. Remove all loose and damaged material in existing paving and trim back the existing surface to ensure a satisfactory bond between it and the new paving.

3.2.2 Gravel Base Course: Construct the stabilize aggregate base course to comply with the applicable sections of SCDOT Specifications, Section 306, STABILIZED AGGREGATE BASE COURSE. Unless otherwise directed by the ENGINEER, construct the base course to the following thickness:

Transverse Cuts: 12 inches

Longitudinal Cuts: 6 inches

3.3 Hot Laid Asphaltic Concrete Surface Course

3.3.1 General: Do not feather the edges between the new and existing pavement. Ragged edges will not be allowed between the new and existing pavements. The existing pavement must be cut back for sufficient width to provide straight edges as shown on the Drawings. Unless otherwise shown on the Drawings, the surface course thickness is 2 inches.

3.3.2 Installation Requirements: Comply with the requirements of SCDOT Specifications, subsection 403.05, Equipment Requirements, and subsection 403.06, Construction Requirements.

3.3.3 Tying to Existing Bituminous Pavement: Where new pavement ties to existing pavement, cut the existing pavement to a straight line and completely remove all materials on the new pavement side of the cut and replace with new materials. Coat the cut line with a tack coat to furnish a bond between the existing surface course and the new surface course. Do not allow the new work to overlap the existing work.

3.3.4 Maintaining Permanently Placed Surfaces Under This Contract: Until the expiration of the guarantee period, maintain surfaces placed under this Contract. Should an area settle that the CONTRACTOR has paved, he will remove the entire pavement in the area; feathering of edges will not be permitted. Add necessary sub-base material as specified herein before to the depth of the applicable surface course. Replace the surface course as herein before specified, all without additional cost to the OWNER.

3.3.5 Clean-Up: Upon completion of paving, remove all surplus materials, dunnage, cartons, and other debris resultant from work of this Section. Leave entire work in satisfactory, acceptable, broom-clean condition.

(End of Section 02616)

PART 1 DESCRIPTION:

The work covered by this section consists of the construction of cast-in-place or precast concrete, brick masonry or block masonry, catch basins, inlets, junction boxes, spring boxes, manholes or other minor drainage structures, excluding endwalls together with all necessary metal grates, covers, frames, steps and other hardware. The CONTRACTOR shall furnish all equipment, tools, labor, and materials necessary to complete the work in accordance with the plans and specifications.

1.1. RELATED WORK

Any reference to standard specifications refers to the most current published date of the following specifications unless otherwise noted.

1.1.1. Reference the following specifications for related work:

- AASHTO – T99 Foundation Compaction
- ASTM A48 Grey iron Casting

All drainage structures and inlets shall conform to the "Standard Specifications for Highway Construction" latest edition, published by the South Carolina Department of Transportation.

PART 2 MATERIALS

2.1. The CONTRACTOR may, at his option, use either cast-in-place concrete, brick masonry, block masonry, or precast concrete construction, provided that the type of construction he wishes to use is permitted by the plans, and is constructed in conformance with the local and state Department of Transportation requirements.

2.2. Shop drawings consisting of catalog cuts or fabricator drawings showing the structure, reinforcing alignment of all wall penetrations and frames, grates, or covers shall be submitted by the CONTRACTOR to the ENGINEER for approval.

2.3 . IRON CASTINGS

2.3.1. Iron castings shall be boldly filleted at angles, and the arises shall be sharp and perfect. No sharp, unfilleted angles or corners will be permitted. They shall be true to pattern in form and dimensions, free from pouring faults, sponginess, cracks, blow holes, and other defects affecting their strength and value for the service intended. All castings shall be sand blasted or otherwise effectively cleaned of scale and sand so as to present a smooth, clean, and uniform surface.

2.3.2. Gray iron castings shall meet the requirements of ASTM A48 for Class 30 iron.

2.3.3. Steps for minor drainage structures shall be fabricated from deformed reinforcing bars, or shall be gray iron castings or shall be of composite plastic-steel construction as shown on the plans, or as referenced above.

2.4. PRECAST DRAINAGE STRUCTURES

2.4.1. Precast drainage structures shall have no more than 4 holes cast or drilled in each unit for the purpose of handling or placing unless otherwise approved by the ENGINEER. All lift holes and handling devices shall be located in accordance with plan and design requirements. Units damaged while being handled or transported will be rejected or shall be repaired in a manner approved by the ENGINEER.

2.4.2. Precast units shall not be transported away from the casting yard until the concrete has reached the minimum required 28-day compressive strength and a period of at least 5 days has elapsed since casting, unless otherwise permitted by the ENGINEER.

2.4.3. Steps for precast drainage structures shall meet the requirements of AASHTO Ml99 for design, materials, and dimensions. Steps shall be incorporated in all drainage structures over 3'-6" in height. The lowest step shall be no more than 16" from the bottom.

2.4.4. The following information shall be clearly shown on each precast member.

- Date of manufacture
- Name of manufacturer

PART 3 INSTALLATION

3.1. The CONTRACTOR shall take the necessary precautions to insure that all excavations for drainage structures are maintained in a dry condition to allow proper compaction beneath the structure and backfill once the structure has been completed.

3.2. Where the foundation material is found to be of poor supporting value or of rock, the ENGINEER may make minor adjustment in the location of the structure to provide a more suitable foundation. Where this is not practical, the foundation shall be conditioned by removing the existing foundation material by undercutting to the depth as directed by the ENGINEER and backfilling with either a suitable local material secured from unclassified excavation or borrow excavation at the nearest accessible location along the project, or foundation conditioning material consisting of crushed stone or gravel or a combination of sand and crushed stone or gravel approved by the ENGINEER as being suitable for the purpose intended. The selection of the type of backfill material to be used for foundation conditioning will be made by the ENGINEER.

3.3. The CONTRACTOR shall install poured concrete foundations or precast concrete bases for all drainage structures.

3.4. Where **PRECAST FOUNDATION** slabs are used, the slab shall be set to within plus or minus ½inch of grade on a bed of size 57 crushed stone measuring 6 inches in thickness minimum after being compacted to 98% maximum density in accordance with AASHTO T99.

3.5. PRECAST STRUCTURES

Joints on precast concrete sections shall be completely filled with bituminous mastic jointing compound or joints shall be made with cement mortar with inside pointing and outside rubber wrap.

3.6. MASONRY STRUCTURES

3.6.1. No masonry drainage structure shall be placed until the foundation has been approved by the ENGINEER.

3.6.2. Brick shall be wet when laid. Lay brick or concrete masonry units in mortar so as to form full bed, with end and side joints in one operation, with joints not more than 3/8" wide except when bricks or concrete masonry units are laid radially, in which case narrowest part of joint shall not exceed ¼". Lay in true line and whenever practical joints shall be carefully struck and pointed on inside.

3.6.3. Protect fresh masonry work from freezing, from drying effects of sun and wind, and for such time as directed by ENGINEER. In freezing weather, heat materials sufficiently to remove ice and frost.

3.6.4. The outside surfaces of brick or concrete masonry portion of drainage structures shall be plastered and troweled smooth with ½" layers of cement mortar.

3.7. BACKFILLING around all drainage structures and inlets shall be done in such a manner so as not to damage either the structure or pipes connecting to the structure. Compaction of backfilled material shall be accomplished in 6-inch lifts (loose) per section 31 2000.1 Earthwork.

(End of Section 02721)

SECTION 02722 DRAINAGE PIPE AND CULVERTS

PART ONE – DESCRIPTION:

The work covered by this section consists of all excavation, bedding, laying pipe, jointing and coupling pipe sections, and backfilling necessary to install the various types of pipes, pipe culverts and fittings required to complete the project. The CONTRACTOR shall furnish all equipment, tools, labor and materials necessary to complete the work in accordance with the plans and specifications.

1.1 **RELATED WORK**

Any reference to standard specifications refers to the most current published date of the following specification unless otherwise noted.

1.2. Reference the following specifications for related work:
ASTM C76 Concrete Pipe
ASTM C507 Reinforced Concrete Elliptical Pipe

1.2.1. All drainage structures and inlets shall conform to, and installed in conformance with, the "Standard Specifications for Highway Construction" latest edition, published by the South Carolina Department of Transportation.

1.3. The CONTRACTOR shall furnish all equipment, tools, labor, and materials necessary to complete the work in accordance with the plans and specifications.

PART TWO – MATERIALS:

2.1. Drainage pipe and culverts shall conform to local and state Department of Transportation requirements.

2.2. Shop drawings consisting of catalog cuts and related data shall be submitted by the CONTRACTOR to the ENGINEER for approval.

2.3. All reinforced concrete pipe, flared end sections, tees and elbows shall be clearly marked showing the pipe class, type of wall and date of manufacture.

2.4. Reinforced concrete drainage pipe shall conform to ASTM C76, Class III, wall thickness B. Joints shall be tongue and groove.

2.5. Concrete flared end sections shall be reinforced. Concrete used in flared end sections shall attain a compressive strength of 3500 psi at 28 days.

2.6. Reinforced concrete elliptical drainage pipe shall conform to ASTM C507, Class HE-ll. Joints shall be tongue and groove.

PART THREE – INSTALLATION:

3.1. GENERAL REQUIREMENTS

3.1.1. Drainage pipes and culverts of the type and quantity and in the locations as called for on the plans or as directed by the ENGINEER shall be installed in conformance with local and state Department of Transportation requirements.

3.1.2. Where proposed culverts are to be installed under existing roadways, the construction shall be performed in such a way that half the roadway will be maintained and available to traffic or as directed by the governing agency.

3.2. Unloading and Handling

All pipes shall be unloaded and handled with reasonable care. When any joint or section of pipe is damaged during unloading or handling, the undamaged portions of the joint or section may be used where partial lengths are needed or, if damaged sufficiently, the ENGINEER will reject the joint or section as being unfit for installation and the CONTRACTOR shall remove such rejected pipe from the project, at no cost to the OWNER.

3.3. PREPARATION OF PIPE FOUNDATION

3.3.1. The pipe foundation shall be prepared in accordance with the applicable method shown on the plans and shall be true to line and grade and uniformly firm. Bedding material shall be placed and shaped beneath the pipe. The pipe foundation shall be shaped to fit the outside of the pipe for at least 10% of its outside diameter under all pipe culverts. Where bell and spigot type pipe is used, recesses shall be excavated to receive the pipe bells.

3.3.2. Where the foundation material is found to be of poor supporting value or of rock, the ENGINEER may make minor adjustment in the location of the pipe to provide a more suitable foundation. Where this is not practical, the foundation shall be conditioned by removing the existing foundation material by undercutting to the depth as directed by the ENGINEER, within the limits established on the plans, and backfilling with either a suitable local material secured from unclassified excavation or borrow excavation at the nearest accessible location within the project, or foundation conditioning material consisting of crushed stone or gravel or a combination of sand and crushed stone or gravel approved by the ENGINEER as being suitable for the purpose intended. The selection of the type of backfill material to be used for foundation conditioning will be made by the ENGINEER.

3.3.3. When necessary, the CONTRACTOR shall provide for the temporary diversion of water or dewatering in order to maintain the pipe foundation in a dry condition, and shall continue to maintain the trench in a dry condition until backfill and compaction activities are complete.

3.4. LAYING PIPE

3.4.1. Rigid pipe shall be carefully laid on the prepared foundation, bell or groove end upgrade with the spigot or tongue fully inserted and each joint check for alignment and grade as the work proceeds. Flexible plastic joint material shall be used. Joint material of other type or design may be used when designated on the plans, by special provisions, or when permitted in writing by the ENGINEER.

3.4.2. Flexible pipe (except structural plate pipe) shall be carefully placed on the prepared foundation starting at the downstream end with the inside circumferential laps pointing downstream and with the longitudinal laps at the side or quarter points.

3.5. BACKFILLING

3.5.1. The fill around the pipe shall be placed in accordance with the applicable method shown on the plans, and shall be placed in layers not to exceed 6 inches loose unless otherwise approved by the ENGINEER and compacted to the density required. Select backfill material shall be used when called for on the plans.

3.5.2. Care shall be taken during backfill and compaction operations to maintain alignment and prevent damage to the joints. The backfill shall be kept free from stones, frozen lumps, chunks of highly plastic clay, or other objectionable material.

3.5.3. All pipe backfill areas shall be graded and maintained in such a condition that erosion or saturation will not damage the pipe bed or backfill.

3.5.4. Heavy equipment shall not be operated over any pipe until it has been properly backfilled and has a minimum cover as required by the plans. Where any part of the required cover is above the proposed finish grade, the CONTRACTOR shall place, maintain, and finally remove such material at no cost to the OWNER. Pipe which becomes misaligned, shows excessive settlement, or has been otherwise damaged by the CONTRACTOR's operations shall be removed and replaced by the CONTRACTOR at no cost to the OWNER.

3.6. MAINTENANCE

3.6.1. The CONTRACTOR shall maintain all pipe installations in a condition such that they will function continuously from the time the pipe is installed until the project is accepted.

3.6.2. The ENGINEER may require the CONTRACTOR to thoroughly clean out and maintain all existing pipe and drainage structures at his own expense when necessary erosion control measures not taken by the CONTRACTOR resulted in fouling existing drainage systems.

3.7. REINFORCED CONCRETE PIPE

3.7.1. Reinforced concrete drainage pipe shall be installed so as to prevent damage to the pipe. Joints shall be mortar or packing type, and shall be close fitting and generally watertight. Elliptical pipe shall be installed with the major axis horizontal.

3.8. CORRUGATED STEEL PIPE

3.8.1. Bituminous coated corrugated steel pipe and paved invert pipe shall be handled with special care to avoid damage to coatings. Paved invert pipe shall be installed with the paved invert centered on the bottom.

3.8.2. The pipe sections shall be joined with coupling bands, fully bolted and properly sealed. Coupling bands for annular and helical corrugated metal pipe shall provide circumferential and

longitudinal strength sufficient to preserve the alignment, prevent separation of the sections, and prevent infiltration of backfill material.

3.8.3. All pipe 72 inches or larger in diameter shall be wire braced at the place of fabrication to retain its shape while being handled, installed, and backfilled. Wire bracing shall be removed by the CONTRACTOR when no longer needed.

3.9. CORRUGATED ALUMINUM PIPE

3.9.1. The pipe sections shall be joined with coupling aluminum bands, fully bolted and properly sealed. Coupling bands for annular and helical corrugated aluminum pipe shall provide circumferential and longitudinal strength sufficient to preserve the alignment, prevent separation of the sections, and prevent infiltration of backfill material.

3.9.2. All pipe 72 inches or larger in diameter shall be wire braced at the place of fabrication to retain its shape while being handled, installed, and backfilled. Wire bracing shall be removed by the CONTRACTOR when no longer needed.

3.10. CORRUGATED STEEL AND CORRUGATED ALUMINUM ALLOY, STRUCTURAL PLATE PIPE AND PIPE ARCH

3.10.1. Erection shall be in accordance with the manufacturer's assembly diagrams and instruction sheets. All erection procedures and methods shall meet with the approval of the ENGINEER. All structural plate shall be handled with reasonable care. The plate shall not be dragged or skidded. If the spelter coating has been broken during handling or backfilling operations, the plate or the assembled pipe or pipe arch will be rejected, or shall be repaired as directed by the ENGINEER.

3.10.2. The entire pipe line shall be completely assembled before any backfill is placed, unless otherwise permitted by the ENGINEER. Elongated pipe shall be erected with the long diameter in a vertical position. Should spiraling occur during erection, the bolts shall be loosened and the pipe assembly adjusted to the correct position.

3.10.3. All bolting shall be done in a careful and workmanlike manner in accordance with the procedure specified by the manufacturer and approved by the ENGINEER before backfill is placed. All nuts shall be tightened to a minimum of 100 foot-pounds and a maximum of 200 foot-pounds of torque. Nut tightness shall be checked with a properly calibrated torque wrench before, during, and after backfill is placed.

3.10.4. Where necessary, the invert grade shall be cambered by an amount sufficient to prevent the development of sag or back slope in the flow line. The amount of camber used will be determined by the ENGINEER.

3.10.5. First class workmanship shall be used in installing the pipe and pipe arch. Evidence of defective workmanship shall include but not be limited to the following.

- Uneven laps
- Improper shaping
- Variation from a straight center line

- Ragged edges
- Loose, unevenly lined or spaced bolts
- Illegible identification stamp on any plate
- Bruised, scaled or broken spelter coating
- Dents or bends in the metal itself

3.10.6. Defective workmanship may constitute sufficient cause for rejection of the completed or partially completed work, or of any materials proposed for use in the work.

(End of Section 02722)

SECTION 02820 GRASSING

PART ONE - GENERAL

1.1 – Limits of Work

All areas disturbed by grading and construction operations except as covered by surface construction or where noted on the plans, including the areas where surplus material is stockpiled, shall be put into perennial vegetation by seeding for temporary grassing and sodding as directed on the plans. If not directly noted on the plans then revegetation shall be by sodding.

1.2 - Scope

The type of work required includes the following: Fine grading and preparation of grass areas, seeding, and sodding.

1.3 – Lines and Grades

The CONTRACTOR shall provide his own lines and grades for the work required.

1.4 – Standards and Specifications

Generally, materials and methods shall conform to the South Carolina State Highway Department Standard Specifications for Highway Construction, latest edition and as specified herein.

1.5 - Submittals

Submit five (5) copies of type written instructions recommending procedures to be followed by the OWNER for proper maintenance and care of grasses. Submit proof that all materials meet the requirements of this section. Bag tag figures will be evidence of purity and germination of seed. No seed will be accepted with a date of test of more than nine (9) months prior to date of use. Where fertilizer is furnished from bulk storage, the CONTRACTOR shall furnish a supplier's certification of weight and analysis.

PART TWO - PRODUCTS

2.1 – Grass Seed

Provide fresh, clean, new crop seed complying with the tolerance for purity and germination established by the Official Seed Analysis of North America and certified by the Seed Certification Department of Clemson University, as follows:

A. PENNISETUM GLAUCUM (Browntop Millet)

Testing ninety-eight percent (98%) purity and eighty-five percent (85%) germination.

B. CYNODON DACTYLON (Bermudagrass) / or EREMOCHLOA OPHIUOIDES (Centipede) – see plans

Testing ninety-eight percent (98%) purity and eighty-five percent (85%) germination.

C. LOLIUM MULTIFLORUM (Domestic Italian Rye)

Testing ninety-eight percent (98%) purity and ninety percent (90%) germination.

2. 2 – Other Planting Materials

Provide the following materials, all meeting or exceeding regulations of the South Carolina State Department of Agriculture, as follows:

A. Fertilizer: 15-15-15 (50% organic) with trace elements.

B. Basic Slag: Standard Grade.

C. Agricultural Sulfur: Standard Grade.

2.3 – Special Requirements

Where construction activities are stopped in an area for over fourteen (14) days, the entire area must be vegetated temporarily or permanently. This shall be in accordance with the requirements as outlined in the "NPDES General Permit for Stormwater Discharge from Construction Activities that are Classified as Associates with Industrial Activity" by EPA Regulations Permit No. SCR100000. This is in addition to the requirements for a permanent grass cover and shall be at no additional cost to the OWNER
. The CONTRACTOR shall make every effort to complete permanent grassing operations at the earliest practical date in order to complete a grass cover sufficient to protect the site from wind and water erosion.

PART THREE - EXECUTION

3.1 – Planting Seasons

Summer dates are:

3/15 to 9/1 for hulled Bermuda and unhulled Bermuda
5/15 to 9/1 for Browntop Millet

Winter dates are:

9/1 to 3/15 for unhulled Bermuda.
9/1 to 5/15 for Common Rye.

3.2 – General Requirements

A. Equipment

Equipment required for proper execution of these operations shall be present on the job site and in good working order.

B. Maintain Grades

Maintain grades in a true and even condition, including necessary repairs to previous grades and topsoiled areas.

3.3 – Soil Preparation

Limit preparation to areas which will be planted in the near future.

A. Fine Grading

Fine grade all areas to receive grassing. Care shall be taken not to disturb existing trees. Perform this work only during period of favorable weather.

B. After Fine Grading

After fine grading, clean surface of all stones and other objects larger than one inch (1") in any direction. Also, remove roots, sticks, grade stakes and other extraneous matter.

C. Aerate and Disc

Aerate and disc to a depth of three inches (3") to four inches (4") to promote acceptance and germination of seeds.

3.4 - pH Reading

Test pH reading. If reading is below 6.0, adjust to that level with an application of slag; if reading is above 6.5, adjust to that level with an application of sulfur. The testing laboratory shall be by Clemson University Soil Testing Laboratory or a laboratory approved by the Extension Service.

3.5 - Initial Application of Fertilizer

A. Flat Areas

Apply at rate of eight pounds (8lbs.) per 1,000 square feet. Distribute fertilizer and slag or sulfur uniformly over areas incorporating into soil to a depth of two inches (2") by means of hand raking, harrowing, or other approved method. At the CONTRACTOR's option, this operation may be combined with topsoil spreading specified above. NOTE: No pure nitrogen shall be applied.

B. Slopes and Swales

Combine with grassing operations as specified below. Correct any surface irregularities resulting from this operation by hand raking if necessary, and perform any other required "clean up" work before planting is begun.

3.6 - Planting

A. Temporary Lawn Seed (per 1,000 square feet)

Eight pounds (8 lbs.) of fertilizer, 15-15-15; five pounds (5 lbs.) rye grass seed; nine ounces (9 oz.) unhulled bermudagrass seed, thirty-five pounds (35 lbs) of wood fiber, one-gallon (1 gal.) tac material mixed with water.

B. Sodding

Sod shall be viable, weed free and recently harvested. Sod shall be placed on the prepared topsoil. The surface on which sod is to be laid shall be firm and free of footprints. Begin by placing sod along a straight edge and work outward. Sod of the next course shall be matched against the edge of the first line in such a way that the joints between the individual sod pieces do not coincide. Successive courses are matched against the last line laid, in the same manner. The joints shall be closely laid, filled with topsoil and rolled lightly. Surface sod shall be smooth and free of depressions.

C. Establish Lawns

It is the responsibility of the CONTRACTOR to establish a complete vegetative cover with viable healthy plants.

D. Seeding for Temporary Erosion Control Only (per 1,000 square feet)

August 1 to April 1: Three pounds (3lbs.) of rye grass seed and four pounds (4lbs.) of fertilizer.

April 1 to August 1: One-half pound (1/2lb.) browntop millet seed and four pounds (4lbs.) of fertilizer.

3.7 - Maintenance

A. Begin maintenance immediately after any lawn area is planted and continue until the completion of the project.

B. Maintain Lawns

Maintain lawns by weeding, cultivating, mowing at least twice, trimming, hydroseeding, seeding, or re-sodding and other operations such as re-grading and re-planting as required to establish an acceptable stand of grass.

C. Provide Adequate Protection

Provide adequate protection at all times for all grass areas. Lay or place planks over grass for the movement of heavy materials or equipment.

D. Repair or Replace

Repair or replace, at no additional cost to the OWNER, any portion of grassed areas not in good viable condition if so determined by the OWNER before or on the date of completion for work done prior to that time.

3.8 - Acceptance

Lawns will be acceptable provided all requirements, including maintenance, have been complied with, and a healthy, uniform stand of specified grass is established, free of weeds, bare spots and surface irregularities. A full stand of grass is not required where irrigation has not been installed.

(End of Section 02820)

PART ONE - GENERAL:

1.01 - SCOPE

This section includes furnishing all materials, equipment, and labor necessary for the installation of trees and shrubs; protection, maintenance, guarantee and replacement of plants; and all related items required to complete the work shown on the drawings and as specified. The CONTRACTOR shall furnish a unit price for each type of plant specified for the purpose of adding or deleting plants. The price shall be the same for adding or deleting plants. The price shall include the total cost for furnishing each plant and installation, complete to include mulch. The unit price shall be the same for additions and deletions in bid quantities.

Existing plant material that is to remain shall be thinned, pruned, and all weeds, vines, trash, etc., removed. These plants shall be fertilized the same as for new plantings.

PART TWO - PRODUCTS:

2.01 - TOPSOIL

Topsoil shall be tested for the pH and corrected, if necessary, before planting operations are started. Test results shall be submitted to the OWNER/LANDSCAPE ARCHITECT prior to beginning planting operations.

2.02 - TOPSOIL TO BE FURNISHED

The CONTRACTOR shall furnish, at his expense, additional topsoil to properly install all work as specified and as shown on the drawings. The CONTRACTOR shall provide a soil analysis and report for any area which topsoil is to be stripped and used for this project. Topsoil shall have a "high" rating in each of the basic nutrients tested and a pH ranging from 6.0 to 6.5. Necessary additives shall be incorporated in a proper quantity as recommended in the soil analysis or as necessary to bring the soil supplied up to standards specified. Topsoil shall be from naturally well drained areas. It shall be classified as a loam, silt loam, clay loam or a combination thereof, as determined from the Bureau of Plant Industry, Soils and Agricultural Engineering, USDA triangular soil texture chart. Topsoil shall be without admixture of subsoil and shall be clean.

2.03 - BASIC SLAG AND AGRICULTURE SULPHUR

Basic slag and agricultural sulfur (for correcting soil pH) shall be standard grade.

2.04 - COW MANURE OR SLUDGE

Cow manure shall be heat treated, weed seed free, and commercially bagged.

2.05 - COMMERCIAL FERTILIZER

Commercial fertilizer shall be 15-15-15 (50% organic) formula with trace elements and shall conform to the applicable State Fertilizer Laws. It shall be uniform in composition, dry and free flowing and shall be delivered to the site in the original, unopened containers, each bearing the manufacturer's guaranteed analysis. Any fertilizer which becomes caked or otherwise damaged, making it unsuitable for use, will not be accepted.

2.06 - PEAT

Peat shall be a domestic product consisting of partially decomposed vegetable matter of natural occurrence. It shall be brown, clean, low in content of mineral and woody material, mildly acidic and granulated or shredded.

2.07 - MULCH

Hardwood/pine straw mulch mix shall be used. Mix shall be 1 part pine straw to 2 parts hardwood mulch. Mulch shall be double ground from decomposed wood products.

2.08 - WATER

The CONTRACTOR may use the OWNER's water if it is available. The CONTRACTOR shall insure that an adequate supply of water is available for the planting. The CONTRACTOR shall furnish all necessary hoses, equipment, attachments and accessories for the adequate irrigation of planted areas.

2.09 - PLANT MATERIALS

A. Plants

Plants are shown on the drawings with sizes and spacing.

B. Nomenclature

The names of plants required under this contract conform to those given in Standard Plant Names, latest edition, prepared by American Joint Committee on Horticultural Nomenclature. Names of varieties not included therein conform generally with names accepted in the nursery trade.

C. Quantities

Quantities are shown for information only. The CONTRACTOR is responsible for calculating his own quantities. If there is a conflict between quantities and spacing, spacing shall prevail.

D. Quality and Size

Plants shall have a habit of growth that is normal for the species and shall be sound, healthy and free from insect pests, plant diseases and injuries. All plants shall equal

or exceed the measurements specified in the plant list, which are minimum acceptable sizes. They shall be measured before pruning, with branches in normal position. Any necessary pruning shall be done at time of planting; however, no plants supplied under this contract shall be pruned back to such extent that it no longer meets specifications. Requirements for the measurement, branching, grading, quality, balling and bur lapping of plants in the plant list generally follow the code of standard currently recommended by the American Association of Nurserymen, Inc., in the latest edition of the American Standard for Nursery Stock.

E. Substitution

Substitution will be permitted only upon submission of proof that any plant is not obtainable within four hundred (500) miles of the site and authorized by the OWNER of a changed order providing the use of the nearest equivalent obtainable size or variety of plant having the same essential characteristics with an equitable adjustment of contract price.

2.10 - TYPE OF PROTECTION TO ROOTS

A. Balled and Burlapped Plants

Plants designated "B & B" in the plant list shall be balled and burlapped. They shall be dug with firm, natural balls of earth of sufficient diameter and depth to encompass the fibrous and feeding root system necessary over all be firmly wrapped with burlap or similar material and bound with twine, cord or wire mesh. Where necessary to prevent breaking or cracking of the ball during the process of planting, the ball may be secured to a platform.

The balls of "B & B" plants which cannot be planted immediately on delivery, shall be covered with moist soil or mulch, or other protection from drying winds and sun.

B. Container Plants

Container grown plants in cans or pots or equal quality as balled and burlapped plants may be substituted in lieu thereof. The plants in the containers shall be delivered to the site and remain in the containers until planted. Plants in containers that are severely root bound shall not be acceptable. All plants shall be carefully removed from their containers in such a manner not to injure the roots.

2.11 - SAMPLES, TESTS AND INSPECTIONS

A. Notice of Sources

Within ten (10) days following acceptance of the bid, the OWNER shall be notified of the sources of the materials required or desired to be inspected or tested.

B. Topsoil to be Furnished:

The OWNER reserves the right to inspect the topsoil to be furnished, to determine

whether or not it meets the requirements specified, and approve the depth to which it may be stripped. At the time of inspection, the CONTRACTOR shall be required to take representative soil samples from several locations in the area under consideration. Tests shall be conducted by a State or Commercial Soil Testing Laboratory using methods approved by the Association of Official Agricultural Chemists or the State Agricultural Experimental Station. Delivery of topsoil may begin after approval of the sample. Soil test results shall be submitted to the OWNER/LANDSCAPE ARCHITECT prior to beginning planting operations.

C. Plants

The CONTRACTOR shall be responsible for all certificates of inspection of plant materials that may be required by Federal, State or other authorities to accompany shipments of plants. Inspection of plants to be balled and burlapped may be made at the place of growth. All plants must be inspected and approved before they are planted. Inspection and approval by the OWNER of plants at the place of growth or upon delivery shall be for quality, size and variety only and shall not in any way impair the right of rejection for failure to meet other requirements during progress of this work.

PART THREE - EXECUTION:

3.01 - TIME OF PLANTING

It is the responsibility of the CONTRACTOR to coordinate all phases of the planting. Planting operations shall be conducted under favorable weather conditions during the next season or seasons which are normal for such work. At the option and on the full responsibility of the CONTRACTOR, planting operations may be conducted under unseasonable conditions without additional compensation.

3.02 - SPRAYING

Plant material shall be sprayed, as may be necessary to control diseases and insects and to prevent their spread to other plantings. Materials and methods employed shall be as are commonly used to control the diseases and pests found present and shall not be injurious to person or structures.

3.03 - PRUNING AND REPAIR

Upon completion of the work under this contract, all trees and shrubs shall be pruned and any injuries repaired. The amount of pruning shall be limited to the minimum necessary to remove dead or injured twigs and branches and to compensate for the loss of roots as a result of transplanting operations. Pruning shall be done in such a manner as not to change the natural habit or shape of the plant, however, no plants applied under this contract shall be pruned back to such extent that it no longer meets specifications. All cuts shall be made flush, leaving no stubs. On all cuts over three-fourths inch (3/4") in diameter and bruises or

scars on the bark, the injured cambium shall be traced back to living tissue and removed; wounds shall be smoothed and shaped so as not to retain water and the treated area shall be

coated with an acceptable tree wound paint.

3.04 - OBSTRUCTION BELOW GROUND OR OVERHEAD

A. It is not contemplated that planting shall be done where the depth of soil over underground construction and obstructions is insufficient to accommodate the roots or where pockets of impervious soil will require drainage. Where such conditions are encountered in excavation of planted areas and where the obstruction cannot be removed by hand methods in the course of digging plant pits of the usual size, and where trees to be planted are found to be under overhead wires, other locations for plant material may be designated by the OWNER.

B. Removal of underground obstructions, relocation of construction and provision of drainage for planting areas shall be done only as directed by the OWNER.

C. If changes in the location of the work, or if the removal of obstructions involves additional work, the CONTRACTOR shall not proceed until authorized in writing by the OWNER.

3.05 - NEW PLANTING

A. Layout

New plantings shall be located where shown on the plans except where obstructions below ground or overhead are encountered or where changes have been made in the construction. If adjustments are necessary they shall be made only after approval by the OWNER or LANDSCAPE ARCHITECT. No planting shall be placed closer than one foot (1') to pavements or structures except where indicated.

B. Planting Pits

Reasonable care shall be exercised to have pits dug and soil prepared prior to moving plants to their respective locations for planting to insure that they will not be unnecessarily exposed to drying elements or physical damage. Circular pits with vertical sides shall be excavated for all plants, except for hedge and plants specifically designated on the plans to be planted in beds. Diameter of pits for plant material, trees, and shrubs shall be at least twice the width of the diameter of the ball or spread roots. The depth of pits for trees and shrubs shall be enough to accommodate the ball or roots when the plant is set to finished grade allowing for compacted, prepared soil in the bottom of the pit.

C. Percolation Tests

Subsurface drains have not been included as part of the project, therefore, the CONTRACTOR shall make such percolation tests as may be necessary to determine if subsurface drainage conditions in landscape areas are so poor as to support moisture conditions potentially fatal to plantings.

The following procedure is recommended:

1. Wait at least twenty-four (24) hours after rain and dig test pit twelve inches (12") square or twelve and one-half inches (12-1/2") in diameter to depth of bottom of plant trench or pit; remove all loose soil (if standing water is visible, notify the OWNER).

2. Quickly fill bottom with six inches (6"), approximately three and one-fourth gallons (3-1/4 gal.) of water.

3. Record length of time from filling until disappearance of water and divide number of minutes by six (6) to give average time of one-inch (1") fall.

4. Compare one-inch (1") fall time with the following table:

   a. One-inch (1") in zero to three (0 - 3) minutes indicates rapid absorption.

   b. One-inch (1") in three to five (3 - 5) minutes indicates medium absorption.

   c. One-inch (1") in five to thirty (5 - 30) minutes indicates slow absorption.

   d. One-inch (1") in over sixty (60) minutes indicates impervious soil.

5. If test indicates soil to be semi-impervious or impervious, or if water is initially found in test pit, notify the OWNER in writing before proceeding further.

6. If the CONTRACTOR does not make tests at representative locations and file records or results with the OWNER, or if he plants in areas shown to have poor drainage without a written release from the OWNER, he shall be liable for any further guaranteed replacements due to subsurface water damage.

7. If the CONTRACTOR makes proper tests and files complete records indicating semi-impervious soil or worse conditions, he will not be held responsible for future subsurface water damage to work of this contract. The OWNER may observe the testing at any time, and shall be informed in advance of the time and place of testing.

D. Planting Mixture

Soil used in planting shall be topsoil, as herein before specified, or suitable existing soil, either of which shall be thoroughly mixed with one (1) part peat and one (1) part manure to five (5) parts soil. Very poor soils, grave, hardpan or other soil injurious to plants shall not be used. Except for ericaceous plants, very acidic or sour soil (having a pH of less than six {6}) shall be thoroughly mixed with sufficient slag to produce a slightly acid reaction (a pH of 6.0 to 6.5). Soil used in planting shall be thoroughly mixed with five pounds (5 lbs.) of 16-4-12 (50% organic) formula commercial fertilizer per cubic yard.

E. Excess Soil

Excess excavated soil from planting operations shall be disposed off the site or as directed by the OWNER.

F. Setting Plants

Unless otherwise specified, all plants shall be planted in pits, centered, and set on compacted planting mixture to such a depth that the finished grade level at the plant after settlement will be the same as that at which the plant was grown. They shall be planted upright and faced to give the best appearance or relationship to adjacent structures. No burlap shall be pulled from under the balls. Platform wire and surplus binding from top and sides of the balls shall be removed. Roots shall be spread in their normal position. All broken or frayed roots shall be cut off evenly. Planting mixture shall be placed and compacted carefully to avoid injury to roots and to fill all voids. When the hole is nearly filled, add water as necessary and allow it to soak away. Fill the holes to finished grade and form a shallow saucer around each plant by placing settles, additional soil shall be filled into the level of the finished grade.

G. Mulching

All plants shall be mulched with a three-inch (3") layer of pine straw within two (2) days after planting. This mulch shall entirely cover the area of the planting pit, bed, or saucer around each plant.

3.06 - MAINTENANCE

Maintenance shall begin immediately following the last operation of installation for each plant and shall continue in accordance with the following requirements: New planting shall be protected and maintained until installation of all planting is completed plus a minimum of ninety (90) days. Maintenance shall include watering, weeding, cultivating, mulching, removal of dead material, re-inserting plants to proper grades or upright position and restoration of the planting saucer, re-staking or additional staking and other necessary operations. If planting is done after lawn preparation, proper protection to lawn areas shall be provided and any damage resulting from planting operations repaired promptly.

3.07 - INSPECTION FOR ACCEPTANCE

A. Substantial Completion
Substantial completion is determined when installed material is alive and in a healthy condition.

B. Inspection

Inspection of the work of planting to determine completion of contract work will be made by the OWNER at the conclusion of the maintenance period upon written notice requesting such inspection submitted to the OWNER at least ten (10) days prior to the anticipated date.

C. Acceptance

After inspection, the CONTRACTOR will be notified by the OWNER of acceptance of all work of this section, or, if there are any deficiencies, of the requirements for completion of the work. Maintenance or other work remaining to be done shall be subject to re-inspection before acceptance. Maintenance of all work will be required by the CONTRACTOR until the entire plantings have been accepted by the OWNER.

D. Acceptance In-Part

The work of planting may be accepted in part by the OWNER upon written acceptance by the OWNER clearly stating the portion accepted and the conditions of the acceptance. This in no way voids the replacement on plants under "Plant Guarantee and Replacement".

3.08 - PLANT GUARANTEE AND REPLACEMENT

A. Guarantee

At the discretion of the OWNER, ten percent (10%) of the Contract Price can be withheld for a period of twelve (12) months from acceptance to ensure replacement of plant material not meeting the guarantee. Provided that plants are maintained in accordance with the CONTRACTOR's maintenance schedule, plants shall be guaranteed for one (1) year and shall be alive and in satisfactory growth at the end of the guarantee period.

B. The CONTRACTOR shall provide the OWNER with a written detailed outline for maintenance for the first year. This shall cover all plant requirements needed to assure healthy material at the conclusion of the guarantee period.

C. Replacement

At the end of the guarantee period, inspection will be made by the OWNER upon written notice requesting such inspection submitted by the CONTRACTOR at least ten (10) days before the requested date. Any plant required under this contract that is dead or not in satisfactory growth, as determined by the OWNER, shall be removed from the site; these and any plants missing due to the CONTRACTOR's negligence, shall be replaced as soon as conditions permit, but during the normal planting season. At the successful completion of this work the ten percent (10%) retention shall be released.

D. Materials and Operations

All replacements shall be plants of the same kind and size as specified in the plant list. They shall be furnished and planted as specified under "New Planting". The cost of such replacements shall be borne by the CONTRACTOR.

E. The CONTRATOR shall visit the site on his own schedule during the one (1) year guarantee period to determine if proper maintenance is being conducted. If the

CONTRACTOR determines that the OWNER is not performing proper maintenance, then he shall outline in writing, in detail, his concerns.

3.09 - SUBMITTALS

The CONTRACTOR shall submit results of pH tests and his plans for correcting the pH to the OWNER and the results of the percolation tests prior to beginning planting operations.

(End of Section 02830)

PART 1 - DESCRIPTION:

The work covered by this section consists of furnishing all labor, materials, and equipment to perform all necessary operations to topsoil, fine grade, fertilize, mulch and maintain temporary and permanent seeding of all graded, cleared, or disturbed areas during construction. The work covered by this section shall be in conformance with the latest version of local and state Department of Transportation requirements.

1.1. RELATED WORK

See following sections for related work.

02110	Clearing and Grubbing
02270	Erosion Control
SS-A617A	FS Liquid Mulch Binder

1.2 REFERENCES

Any reference to standard National or State Specifications and/or Regulations refers to the most current published date of the specification or regulation unless otherwise noted.

The work covered by this section shall be in conformance with the "Standard Specifications for Highway Construction" latest edition, published by the South Carolina Department of Transportation and the Sediment Control handbook as published by EQC, Bureau of Water, SC Department of Health and Environmental Control.

PART 2 MATERIALS

2.1. TOPSOIL

Topsoil shall be from stockpiles created from stripping and required excavation. Should additional topsoil be required in excess of that obtained from stripping and excavation, the Contractor shall obtain material from other sources at Contractor's expense, or from approved sources off the site. The topsoil shall be natural, friable soil, possessing characteristics of representative soils in the vicinity which produce heavy growths of crops of grass. It shall be obtained from naturally well-drained areas, shall be reasonably free from subsoil, brush, objectionable weeds, and other litter and shall be free from toxic substances, clay lumps, stones, roots and other objects larger than 1 inch in diameter, or any other material which might be harmful to plant growth or be a hindrance to grading, planting, and maintenance operations.

2.2. FERTILIZER

Fertilizer shall be the product of an approved commercial fertilizer manufacturer and shall be 15-15-15 grade, uniform in composition, free-flowing material suitable for application with approved standard equipment. The fertilizer shall conform to the applicable State fertilizer laws and shall be delivered to the site in bags or other convenient containers each fully labeled and bearing the name, trademark, and warranty of the producer.

2.3. LIME

Lime shall be ground limestone containing not less than 85% of total carbonates and shall be ground to such fineness that at least 50% will pass through a 100-mesh sieve and at least 90%

will pass through a 20-mesh sieve. Coarser materials will be acceptable provided the specified rates of application are increased proportionately on the basis of quantities passing the 100-mesh sieve, but no additional payment will be made for the increased quantity.

2.4. MULCH

Mulch shall be straw from wheat or oats. Materials for securing mulch may be one of the following.

- Mulch Netting: Lightweight plastic, cotton, jute, wire orpaper nets shall be used.
- Peg and Twine: Bailing twine and soft wood pegs 1/2" x 1" x 12".
- Liquid Mulch Binder: RC-2 cut back asphalt conforming to the requirements of Federal Specifications SS-A67lA, and asphalt emulsion shall conform to the requirements of Federal Specification SS-A-674, Type V.
- Seed: Seed used shall conform to all state laws and regulations of the SCDA. Seed that has become wet, moldy, or otherwise damaged in transit or storage will not be acceptable. The seed used shall be that shown in seeding schedule specified herein or on the plans.

PART 3 INSTALLATION

3.1. SEEDBED PREPARATION

3.1.1. Clearing

Prior to or during grading and tillage operations, the ground surface shall be well drained, cleared of all brush, roots, stones larger than 2 inches in diameter, or any other material which may hinder proper grading, tillage, or subsequent maintenance operations.

3.1.2. Fine Grading

Areas to be seeded shall be graded as shown on the drawings or as directed and all surfaces shall be left in an even and properly compacted condition so as to prevent the formation of depressions where water will stand. Areas to be topsoiled shall be graded to a smooth surface and to a grade that will allow topsoiling to finished grade.

3.1.3. Topsoiling

Immediately prior to placing topsoil, the subgrade, where excessively compacted by traffic or other causes, shall be loosened by scarifying to a depth of at least 2 inches to permit bonding of the topsoil to the subgrade. Topsoil shall be uniformly spread by approved equipment in sufficient quantity to provide a compacted layer of 4 inches in thickness over the designated areas and in such manner that planting can proceed with little additional soil preparation or tillage. Topsoil shall not be placed when the subgrade is frozen, excessively wet, extremely dry, or in a condition otherwise detrimental to the proposed planting or to proper grading. Topsoil shall be graded to the lines indicated or as directed and any irregularities in the surface resulting from topsoiling or other operations shall be corrected to prevent formations of depressions where water will stand.

3.1.4. Tillage

After topsoiled areas required to be seeded have been brought to the grades shown on the plans and as specified, they shall be thoroughly tilled to a depth of 3 inches by approved methods, until the condition of the soil is acceptable to the ENGINEER. Any objectionable undulations or irregularities in the surface resulting from tillage or other operations shall be removed before

planting operations are begun. The work shall be performed only during periods when satisfactory results are likely to be obtained. When conditions are such, by reason of drought, excessive moisture or other factors, which results are not likely to be satisfactory, the ENGINEER will stop the work and it shall be resumed only when, in his opinion, the desired results are likely to be obtained.

3.2. LIMESTONE, FERTILIZER AND SEED

3.2.1. General
Seasonal limitations for seeding operations, the kinds and grades of fertilizers, the kinds of seed, and the rates of application of limestone, fertilizer, and seed shall be as shown in the seeding schedule.

3.2.2. Equipment to be used for the application, covering, or compaction of limestone, fertilizer, and seed shall have been approved by the ENGINEER before being used on the project. Approval may be revoked at any time if equipment is not maintained in satisfactory working condition, or if the equipment operation damages the seed.

3.2.3. Limestone, fertilizer, and seed shall be applied within 24 hours after completion of seedbed preparation unless otherwise permitted by the ENGINEER, but no limestone or fertilizer shall be distributed and no seed shall be sown when the ENGINEER determines that weather and soil conditions are unfavorable for such operations.

3.2.4. During the application of fertilizer, adequate precautions shall be taken to prevent damage to structures or any other appurtenances. The CONTRACTOR shall either provide adequate covering or change methods of application as required to avoid such damage. When such damage occurs, the CONTRACTOR shall repair it, including any cleaning that may be necessary.

3.3. LIMESTONE AND FERTILIZER

Limestone may be applied as a part of the seedbed preparation, provided it is immediately worked into the soil. If not so applied, limestone and fertilizer shall be distributed uniformly over the prepared seedbed at a specified rate of application and then harrowed, raked, or otherwise thoroughly worked or mixed into the seedbed.

3.3.1. If liquid fertilizer is used, storage containers for the liquid fertilizer shall be located on the project and shall be equipped for agitation of the liquid prior to its use. The storage containers shall be equipped with approved measuring or metering devices which will enable the ENGINEER to record at any time the amount of liquid that has been removed from the container. Application equipment for liquid fertilizer, other than a hydraulic seeder, shall be calibrated to insure that the required rate of fertilizer is applied uniformly.

3.4. SEEDING

Seed shall be distributed uniformly over the seedbed at the rate indicated in the seeding schedule, and immediately harrowed, dragged, raked, or otherwise worked so as to cover the seed with a layer of soil. The depth of covering shall be as directed by the ENGINEER. If two kinds of seed are to be used which require different depths of covering, they shall be sown separately.

3.4.1. When a combination seed and fertilizer drill is used, fertilizer may be drilled in with the seed after limestone has been applied and worked into the soil. If two kinds of seed are being used which require different depths of covering, the seed requiring the lighter covering may be sown broadcast or with a special attachment to the drill, or drilled lightly following the initial drilling operation.

3.4.2. When a hydraulic seeder is used for application of seed and fertilizer, the seed shall not remain in water containing fertilizer for more than 30 minutes prior to application unless otherwise permitted by the ENGINEER.

3.4.3. Immediately after seed has been properly covered, the seedbed shall be compacted in the manner and degree approved by the ENGINEER.

3.5. MODIFICATIONS

When adverse seeding conditions are encountered due to steepness of slope, height of slope, or soil conditions, the ENGINEER may direct or permit that modifications be made in the above requirements which pertain to incorporating limestone into the seedbed; covering limestone, seed, and fertilizer; and compaction of the seedbed.

3.5.1. Such modifications may include but not be limited to the following.

3.5.1.1. The incorporation of limestone into the seedbed may be omitted on (a) cut slopes steeper than 2:1 (b) on 2:1 cut slopes when a seedbed has been prepared during the excavation of the cut and is still in an acceptable condition; or (c) on areas of slopes where the surface of the area is too rocky to permit the incorporation of the limestone.

3.5.1.2. The rates of application of limestone, fertilizer, and seed on slopes 2:1 or steeper or on rocky surfaces may be reduced or eliminated.

3.5.1.3. Compaction after seeding may be reduced or eliminated on slopes 2:1 or steeper, on rocky surfaces, or on other areas where soil conditions would make compaction undesirable.

3.6. MULCH

3.6.1. General

All seeded areas shall be mulched unless otherwise indicated on the plans or directed by the ENGINEER. Application rate of mulch shall be indicated in seeding schedule.

3.6.2. Mulching

Mulch shall be applied within 36 hours after the completion of seeding unless otherwise permitted by the ENGINEER. Care shall be exercised to prevent displacement of soil or seed or other damage to the seeded area during the mulching operations.

3.6.3. Mulch shall be uniformly spread by hand or by approved mechanical spreaders or blowers that will provide an acceptable application. An acceptable application will be that which will allow some sunlight to penetrate and air to circulate but also partially shade the ground, reduce erosion, and conserve soil moisture.

3.6.4. Mulch Binding

Mulch shall be held in place using devices approved by the ENGINEER as per manufacturer's recommendations. During application, the CONTRACTOR shall take adequate precautions to prevent damage to structures or appurtenances.

3.7. MAINTENANCE

3.7.1. General

The CONTRACTOR shall be responsible for the proper care and maintenance of the seeded areas until the work under the entire contract has been completed and accepted by the ENGINEER. Maintenance shall consist of repair and replacement of eroded areas, watering, re-fertilizing, re-liming, reseeding, and re-mulching as necessary to provide an even, fixed growth of grass. In addition, the CONTRACTOR shall provide protection against traffic and shall erect the necessary barricades and warning signs immediately after planting is completed.

3.7.2. Mowing

The seeded areas shall be mowed with approved mowing equipment as per seeding schedule. If weeds or other undesirable vegetation threaten to smother the planted species, such vegetation shall be removed at no cost to the OWNER.

3.8 INSPECTION AND TESTING

3.8.1 Fertilizer and Lime

The ENGINEER shall be furnished with duplicate copies of invoices for all fertilizer and lime used on the project. Invoices for fertilizer shall show the grade furnished. Invoices for lime shall show total minimum carbonates and minimum percentages of the material furnished that pass 100-mesh and 20-mesh sieve. Upon completion of the project, a final check of the total quantities of fertilizer and lime used will be made against the total area topsoiled and seeded, and if the minimum rates of application have not been met, the ENGINEER may require the distribution of additional quantities of these materials to make up the minimum application specified at no additional cost to the OWNER.

3.8.2 Seed

The ENGINEER shall be furnished duplicate signed copies of a statement from the Vendor, certifying that each container of seed delivered is fully labeled and in full accordance with the specifications in this section and the seeding schedule.

(End of Section 02933)

PART ONE – GENERAL:

1.1 RELATED DOCUMENTS

Provide all labor, materials, equipment and services indicated on the drawings, or specified herein, or reasonably necessary for, or incidental to a complete job.

PART TWO – PRODUCTS: (This section not applicable.)

PART THREE – EXECUTION:

3.1 CLEAN UP

3.1.1 During the progress of the work, keep the site and affected adjacent areas in a neat and clean condition at all times. Remove all trash, rubbish, surplus materials, and un-needed construction equipment from the site. Repair all damages so that the public and property OWNERS will be inconvenienced as little as possible.

3.1.2 Where materials or debris has washed or flowed into, or has been placed in, existing water-courses, ditches, gutters, drains, pipes, and/or structures by work performed under this contract, or elsewhere during the course of the CONTRACTOR's operations, remove and satisfactorily dispose of such material or debris during the progress of the work. Upon completion of the work, leave all ditches, channels, drains, pipes, and/or structures and work, etc., in a clean and neat condition.

3.1.3 On or before completion of the work, unless otherwise directed or permitted in writing, tear down all temporary buildings and structures built by the CONTRACTOR for his own use. Remove all temporary works, tools, and machinery or other construction equipment furnished by the CONTRACTOR. Remove all rubbish from any grounds which have been occupied by the CONTRACTOR; leave all roads and all parts of the premises and adjacent property affected by the CONTRACTOR's operations in a neat and satisfactory condition.

3.1.4 Remove, acceptably disinfect and cover all organic matter and materials containing organic matter in, under, and around all privies, houses, and other buildings used.

3.1.5 Restore or replace, when and as directed, any public or private property damaged by CONTRACTOR's work, equipment or employees to a condition at least equal to that existing immediately prior to the beginning of the operations. Perform, as required, all necessary highway or driveway reshaping of shoulders and ditches, walks and landscaping work. Use suitable materials, equipment and methods for such restoration. The CONTRACTOR shall be responsible for obtaining releases from the various property OWNERS, stating that all restoration work is satisfactory.

(End of Section 02995)

PART 1 - GENERAL:

1.1 - DESCRIPTION

1.1.1 Form cast-in-place concrete indicated on drawings and subsequently remove such forms except earth forms.

1.1.2 Related Work Described Elsewhere

1.1.2.1 Cast-In-Place Concrete, Section 03300

1.2 – QUALITY ASSURANCE

1.2.1 Qualifications of Workmen
Provide superintendent or foreman who will be present during this portion of work, who shall be thoroughly familiar with materials being installed, referenced standards and requirements of this work, and who shall direct work performed under this section.

1.2.2 Codes and Standards

1.2.2.1 In addition to complying with pertinent codes and regulations, comply with pertinent recommendations contained in publication ACI 347 of the American Concrete Institute, "Recommended Practice for Concrete Formwork".

1.2.2.2 Where provisions of pertinent codes and standards conflict with this specification, the more stringent provisions shall govern.

1.3 - SUBMITTALS

1.3.1 Manufacturer's Data
Submit two (2) copies manufacturer's data and installation instructions for proprietary materials, including form coatings, manufactured form systems, ties and accessories to the OWNER for approval.

1.4 – PRODUCT HANDLING

1.4.1 Protection
Use means necessary to protect formwork materials before, during and after installation and to protect installed work and materials of other trades.

1.4.2 Replacements
In the event of damage, immediately make repairs and replacements necessary at no additional cost to the OWNER.

PART 2 - PRODUCTS:

2.1 - MATERIALS

2.1.2 Forms for Smooth Finished Exposed Concrete Plywood, metal, metal-framed plywood faced, or other acceptable panel type materials providing continuous, straight surfaces.

2.1.2.1 Plywood shall comply with U.S. Product Standard PS-1, "B-B High Density Overlaid Concrete Form", Class I.

2.1.2.2 Furnish in largest practicable sizes to minimize joints.

2.1.2.3 Furnish in thickness sufficient to withstand pressure of newly placed concrete without bow Or deflection.

2.1.3 Forms for Other Unexposed Concrete
Plywood, lumber, metal or other material acceptable to the OWNER; lumber shall be dressed
on at least two (2) edges and one (1) side for tight fit.

2.2 – ACCESSORIES

2.2.1 Form Ties

2.2.1.1 Factory fabricated, adjustable length, removable or snap off metal ties, designed to prevent deflection and to prevent spilling upon removal.

2.2.1.2 Do not use form ties fabricated on job site or wire ties.

2.2.2 Form Coatings
Commercially formulated compounds that will not bond with, stain or adversely affect concrete surfaces, and will not impede wetting of surfaces to be cured with water or curing compounds.

2.3 - FORMWORK DESIGN

2.3.1 Safety
Design, erect, support, brace and maintain formwork to safely support vertical and lateral loads until such loads can be supported by structure.

2.3.1.1 Construct formwork so that concrete members and structures are of correct size, shape, alignment, elevation and position.

2.3.2 Removable
Design formwork to be readily removable without impact, shock or damage to cast-in-place concrete or adjacent materials.

2.3.3 Tighten

Tighten formwork to prevent leakage of wet concrete. Solidly butt joints and provide backup material at joints to prevent leakage and fins.

2.3.4 Side Forms

Side forms of footings may be omitted, and concrete placed directly against excavation.

PART 3 - EXECUTION:

3.1 – SURFACE CONDITIONS

3.1.1 Inspection

3.1.1.1. Before work of this section, inspect installed work of other trades and verify that such work is complete to the point where this installation may properly begin.

3.1.1.2 Verify that forms may be constructed in accordance with pertinent codes and regulations, referenced standards and original design.

3.1.2 Discrepancies

3.1.2.1 In the event of discrepancy, immediately notify the OWNER.

3.1.2.2 Do not proceed with installation in areas of discrepancy until such discrepancies have been fully resolved.

3.2 - FORM CONSTRUCTION

3.2.1 General

3.2.1.1 Construct to dimensions shown, level, plumb and alignment.

3.2.1.2 Fabricate for easy removal without hammering or prying against concrete surfaces.

3.2.1.3 Examine drawings and specifications and consult with other trades relative to provision for openings.

3.2.1.4 Set required time to be embedded in concrete.

3.2.1.5 Keep form sufficiently wetted to prevent joints opening before concrete placement.

3.2.1.6 Brace and tie forms so as to maintain position and shape. Space forms apart and securely tie together, using metal spreader ties that give positive tying and accurate spreading.

3.2.1.7 Exercise care in form layout to avoid necessity for cutting in-place concrete.

3.2.2 Footing Forms

Footing side forms may be of earth, provided soil will stand without caving and sides are made with neat cuts to minimum dimensions shown on drawings. Make necessary provisions to prevent cave-ins during concrete placement.

3.2.3 Forms for Exposed Construction
Provide sharp, clean corners at intersecting planes, without visible edges or offsets.

3.2.4 Form Coatings
Coat form surfaces before reinforcement is placed. Do not allow excess coating material to accumulate in forms or to come into contact with surfaces to be bonded to fresh concrete.

3.3 – FORM REMOVAL

3.3.1 General

Do not remove forms until concrete is twenty-four (24) hours old.

3.3.2 Non-Supporting Formwork

3.3.2.1 Formwork not supporting concrete, such as walls and similar parts of the work, may be Removed after cumulatively curing at not less than fifty degrees fahrenheit (50 F) for twenty-four (24) hours after concrete placement, provided that:

3.3.2.1.1 Concrete is sufficiently hard to not be damaged by removal.

3.3.2.1.2 Curing and protection operations are maintained.

3.4 – FORM RE-USE

3.4.1 Form re-use shall be subject to advance approval by the OWNER.

3.4.2 Unless specifically approved in advance by the OWNER, form re-use shall in no way delay or
change schedule for concrete placement from schedule obtainable if all forms were new.

(End of Section 03100)

SECTION 03200 CONCRETE REINFORCEMENT

PART ONE – GENERAL:

1.1 Description

1.1.1 Work Included

Concrete reinforcement and associated items required for this work as shown on the drawings.

1.1.2 Related Work Described Elsewhere

1.1.2.1. Placement of other embedded items

Concrete Formwork, Section 03100
Cast-In-Place Concrete, Section 03300

1.2 – Quality Assurance

1.2.1 Qualifications of Workmen

Provide the superintendent or foreman who will be present during this portion of the work, who shall be thoroughly familiar with materials being installed and the best methods for installation and who shall direct work performed under this section.

1.2.2 Codes and Standards

1.2.2.1 In addition to complying with pertinent codes and regulations, comply with pertinent recommendations contained in publication ACI 315 of the American Concrete Institute, "Manual of Standard Practice for Detailing Reinforcing Concrete Structures" and ACI 318 (latest edition) "Building Code Requirements for Reinforced Concrete".

1.2.2.2 Where provisions of pertinent codes and standards conflict with this specification, the more stringent provisions shall govern.

1.3 – Submittals

1.3.1 Shop Drawings

1.3.1.1 Submit shop drawings to the OWNER for review.

1.3.1.2 Do not deliver concrete reinforcement to job site until receipt of reviewed shop drawings from the OWNER.

1.4 – Product Handling

1.4.1 Protection

1.4.1.1 Use means necessary to protect concrete reinforcement before, during, and after installation and to protect installed work and materials of other trades.

1.4.1.2 Store in a manner to prevent excessive rusting and fouling with dirt, grease, and other bond breaking coatings.

1.4.1.3 Use necessary precautions to maintain to maintain identification after bundles are broken.

1.4.2 Replacements

In the event of damage, immediately make repairs and replacements necessary, at no additional cost to the OWNER.

PART TWO – PRODUCTS:

2.1 – Concrete Reinforcement

Concrete reinforcement materials shall be new, free from loose rust and scale and complying with the following referenced standards:

2.1.1 Reinforcement Bars

ASTM A-615, Grade 60. All reinforcing bars, except No. 2 shall be deformed in accordance with ASTM A-305, latest edition.

2.1.2 Welded Wire Fabric

Welded wire fabric shall conform to ASTM A-185, latest edition.

2.2 – Other Materials

Other materials not specifically described, but required for complete and proper installation of concrete reinforcement, shall be selected by the CONTRACTOR and subject to approval by the OWNER.

PART THREE – EXECUTION:

3.1 – Surface Conditions

3.1.1 Inspection

3.1.1.1 Before installation of work of this section, inspect installed work of other trades and verify that such work is complete to the point where this installation may properly begin.

3.1.1.2 Verify that concrete reinforcement may be installed in strict accordance with pertinent codes and regulations, shop drawings and original design.

3.1.2 Discrepancies

3.1.2.1 In the event of discrepancy, immediately notify the OWNER.

3.1.2.2 Do not start installation until discrepancies and unsatisfactory conditions are corrected.

3.2 – Bending

3.2.1 General

3.2.1.1 Fabricate reinforcement in accordance with shop drawing.

3.2.1.2 Do not use bars with kinks or bends not shown on drawing or shop drawing.

3.2.1.3 Do not bend or straighten steel in a manner that will damage material.

3.2.2 Design

3.2.2.1 Bend all bars cold unless approved by the OWNER.

3.2.2.2 Make bends for ties around pins having diameter not less that two (2) times minimum bar thickness.

3.2.2.3 Make bends for other bars, including hooks, around pins having diameter not less than six (6) times minimum bar thickness.

3.3 – PLACEMENT

3.3.1 General

Before start of concrete placement, accurately place concrete reinforcement, positively securing and supporting by metal chairs or spacers, or by metal hangers.

3.3.2 Inspection

Prior to placement of concrete, the OWNER shall be notified in ample time to inspect placement of reinforcement. Inspection of reinforcement will be made only after the placement of each section to be poured. The OWNER shall always be notified of pouring schedule well in advance.

3.3.3 Clearance

3.3.3.1 Preserve clear space between bars of not less than the normal diameter of round bars.

3.3.3.2 In no case allow clear distance of less than three-quarter inch (3/4”) or less than one and one-third (1-1/3) times maximum aggregate size.

3.3.3.3 Minimum clearance for reinforcing shall be two and one-half inches (2-1/2”) when in contact with the ground, two inches (2”) in concrete walls and three-quarters inch (3/4”) in concrete not exposed to weather or in contact with the ground.

3.3.4 Dowels

Place required steel dowels securely anchored into position before concrete is placed.

3.3.5 Obstructions

In the event conduits, piping, inserts, sleeves or other items interfere with placing reinforcement as indicated on drawings or as otherwise required, immediately consult the OWNER and obtain approval of new procedures before placing concrete.

3.3.6 Splicing

3.3.6.1 Splices shall conform to ACI 238, Chapter 12. Splices shall be Class C unless otherwise indicated.

3.3.6.2 Welded wire fabric shall lap one (1) full mesh and shall be securely wired at each end and side.

3.4 – Cleaning Reinforcement

Concrete reinforcement, at the time concrete is placed, shall be free from rust scale, loose mill scale, oil paint and other coatings which will destroy or reduce bond between steel and concrete.

(End of Section 03200)

PART 1 DESCRIPTION:

1.1. The work covered by this section consists of1 all cast-in-place concrete work and related items as shown on the plans and as specified herein.

1.2. The CONTRACTOR shall furnish all equipment, tools, labor and materials necessary to complete the work in accordance with the plans and specification.

1.3 RELATED WORK AND REFERENCES

1.3.1 Related Specifications: General Conditions, Special Conditions, and Sections in Division 1 of these Specifications as well as Division 2 affecting work in this Section.

1.3.2 References: Any reference to standard National or State Specifications and/or Regulations refers to the most current published date of the specifications and/or regulations listed in Section 01016 of these specifications unless noted otherwise.

The design, manufacture, and installation of these materials shall meet or exceed the applicable provisions and recommendations of the noted National Specifications and/or Regulations or meet the requirements of the latest revision of these specifications or regulations.

Nation Codes affecting work in this Section of the Specifications:

- ACI Codes as stated in Part 2 and 3 of this Section
- ASTM Codes as stated in Part 2 and 3 of this Section
- U. S Army Corps of ENGINEERs Standard Specifications as stated in Part 2 and 3 of this Section
- National Ready Mixed Concrete Association's Plant Certification Check List

1.4 QUALITY ASSURANCE

1.4.1 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.

1.4.2 A testing laboratory will be retained by the OWNER to perform material evaluation tests as required by these Specifications.

1.4.3 The CONTRACTORs performing the concrete work shall have a minimum of two (2) years experience on comparable concrete projects.

1.4.4 The concrete supplier's plant equipment and facilities shall meet all requirements of the "Check List for Certification of Ready Mixed Concrete Production Facilities" of the National Ready Mixed Concrete Association and ASTM C94.

1.5 SUBMITTALS

1.5.1 Comply with the pertinent provisions for submittal of Shop Drawings, Product Data and Samples.

1.5.2 Within 21 days after receiving the OWNER's Notice to Proceed, submit proposed concrete mix designs for approval. Submit two copies of each laboratory trial mix design proposed in accordance with ACI 301, Method 1, which is based on trial batches and requires an average strength 1200 psi greater than the specified strength; or ACI 301, Method 2, which is based on at least 30 consecutive strength tests of a similar mix obtained within the past year. The cost of this work is to be borne by the CONTRACTOR.

1.5.3 Submit manufacturer's specification with application instructions for proprietary materials and items, including curing compounds, form release agents, admixtures, patching compounds and others as required by the ENGINEER.

1.5.4 Submit reinforcing steel shop drawings and manufacturer's data for approval to the ENGINEER before work is started.

1.5.4.1 Metal Reinforcement: Shop drawings shall show complete information for placing reinforcement, including type or shape of each bar, dimensions to ends of bars, amount of concrete (clear) cover, spacing of bars, number of bars at each location and other pertinent dimensions. All wall reinforcing steel shall be detailed and shown in elevations of the walls. Shop Drawings of the following items shall be submitted to the ENGINEER for review prior to fabrication or delivery to the job site.

1.5.5 Concrete Tests: Two copies of all concrete test results shall be submitted to the ENGINEER. Each test report shall indicate the specific structure where the concrete was placed.

1.5.6 Other: For each batch (truckload) of concrete, the concrete supplier shall provide a delivery ticket in accordance with ASTM C94. The ticket shall also indicate the time the concrete is placed. One copy of each delivery ticket shall be furnished to the ENGINEER or his representative. CONTRACTOR shall keep another copy of each delivery ticket at the job site until final acceptance.

PART 2 MATERIALS:

2.1. GENERAL

2.1.1. Class of Concrete: All concrete shall be Class A, as hereinafter specified, except where specifically noted otherwise.

2.1.2. References: Materials and work shall conform to the requirements of all specifications, standards, codes and recommended practices referenced herein. References to specifications, standards, codes, etc., shall mean the latest edition or revision in effect at the time of bid opening, unless otherwise specified. In conflicts between referenced standards and this specification, or this specification and the local building code, the more stringent requirements shall govern.

2.1.3. Publications: CONTRACTOR shall keep the following publications on file at the site at all times during construction.

ACI SP 15	Field Reference Manual; Specification for structural concrete for buildings with selected ACI and ASTM references.
ACI SP 66	ACI Detailing Manual
ACI 311	Recommended Practice for Concrete Inspection
ACI 318	Building Code Requirements for Reinforced Concrete
ACI 350R	Concrete Sanitary ENGINEERING Structures

2.1.4. General Specifications: Concrete work shall conform to all requirements of ACI 301, "Specifications for Structural Concrete for Buildings," except as modified by these contract documents.

2.2. TESTING AND INSPECTION

Materials and operations shall be tested and inspected as work progresses. Failure to detect defective work will not prevent rejection when the defect is discovered, nor shall it obligate the ENGINEER for final acceptance. Testing agencies will be selected by the OWNER and approved by the ENGINEER, and shall meet the requirements of ASTM E329.

2.2.1. Concrete Testing: OWNER shall have a qualified technician from an independent laboratory take samples, prepare specimens and perform on-site testing, at the CONTRACTOR's expense. Technician shall be on site prior to starting the pour and shall remain on site until the pour is completed. He shall immediately notify the CONTRACTOR and ENGINEER of any concrete that does not meet the specifications. For very small pours, the ENGINEER may waive the requirements for an independent testing laboratory and for the tests specified in paragraphs 2.2.1.3 and 2.2.1.5 below. CONTRACTOR shall request this waiver in writing at least seven days before the pour. These requirements will normally be waived only for concrete that is not in a liquid-retaining structure nor exposed to the weather. CONTRACTOR shall also pay the cost of qualification of proposed materials, establishment of mix designs in accordance with ACI 301, shipment of specimens to the testing laboratory, laboratory testing and reports, and additional testing required if initial tests indicate that the material may be substandard (even if the additional test reveals that the material is satisfactory). The following tests shall be the minimum required.

2.2.1.1. Samples from which test specimens are made shall be secured in accordance with ASTM C172 requirements for composite samples. Specimens shall be molded and cured in accordance with ASTM C31. Specimens shall be tested in accordance with ASTM C39. Four strength specimens shall be taken for each 50 cu. yd., or fraction thereof, of each mix design of concrete placed in any one day; one tested at 7 days, two tested at 28 days and one to be retained as a spare.

2.2.1.2. Slump test shall be made in accordance with ASTM C143. One test shall be made from each sample taken for a strength test specimen, or whenever the consistency of concrete appears to vary. If the slump in any test is outside the design range, at least one strength specimen shall be taken from that sample.

2.2.1.3. Entrained air content shall be determined in accordance with ASTM C231 or ASTM C173, as applicable. One test shall be made from each sample taken for a strength test specimen.

2.2.1.4. Temperature of each sample taken for a strength test specimen shall be determined.

2.2.1.5. Unit weight, yield and air content (gravimetric) of concrete shall be determined in accordance with ASTM C138.

2.3. EVALUATION AND ACCEPTANCE

2.3.1. Field Conditions: Concrete materials and operations shall be tested and inspected prior to concrete being placed. Whenever a concrete truckload is rejected for any reason, the truck will not be allowed on the site for at least three hours. The contents of rejected truckloads shall remain the property of the concrete supplier and shall be disposed of properly off the site.

2.3.2. Failure to meet the maximum time limits as specified in ASTM C94 for mixing and placing of concrete, or if concrete has attained its initial set before placing, will result in rejection of each individual truckload. No tests shall be performed and the delivery ticket shall remain at the site with the reason for rejection written thereon.

2.3.3. Failure to meet the requirements of the tests specified herein will result in rejection of each individual truckload.

2.3.4. Laboratory Testing: Evaluation and acceptance based on laboratory testing shall be in accordance with ACI 318, except that the ENGINEER will be the referenced "building official".

2.4. SUBMITTALS

CONTRACTOR shall make the following submittals to the ENGINEER.

2.4.1. Mix Designs: Submit two copies of each laboratory trial mix design proposed in accordance with ACI 301, Method 1, which is based on trial batches and requires an average strength 1200 psi greater than the specified strength; or ACI 301, Method 2, which is based on at least 30 consecutive strength tests of a similar mix obtained within the past year.

2.4.2. Shop Drawings of the following items shall be submitted to the ENGINEER for review prior to fabrication or delivery to the job site.

2.4.2.1. Metal Reinforcement: Shop drawings shall show complete information for placing reinforcement, including type or shape of each bar, dimensions to ends of bars, amount of concrete (clear) cover, spacing of bars, number of bars at each location and other pertinent dimensions. All wall reinforcing steel shall be detailed and shown in elevations of the walls.

2.4.2.2. Other Materials and Products: Catalog cuts and other descriptive data shall be submitted for all manufactured materials and products to be used in the work.

2.4.3. Concrete Tests: Two copies of all concrete test results shall be submitted to the ENGINEER. Each test report shall indicate the specific structure where the concrete was placed.

2.4.4. Other: For each batch (truckload) of concrete, the concrete supplier shall provide a delivery ticket in accordance with ASTM C94. The ticket shall also indicate the time the concrete is placed. One copy of each delivery ticket shall be furnished to the ENGINEER or his representative. CONTRACTOR shall keep another copy of each delivery ticket at the job site until final acceptance.

2.5. MATERIALS AND PRODUCTS

2.5.1. Cement: ASTM C150, Type I or II. Air-entraining cement shall not be used. Cement used in the work shall correspond to that upon which the selection of concrete proportions was based. Only one brand and manufacture of approved cement shall be used for exposed concrete.

2.5.1.1. Type III cement shall be used where specifically noted on the plans or when prior written approval has been obtained by the CONTRACTOR from the ENGINEER.

2.5.2. Aggregates: ASTM C33. Local aggregates not complying with ASTM C33 may be used provided it can be shown by special test or a record of past performance that these aggregates produce concrete of adequate strength and durability.

2.5.2.1. Fine Aggregate shall be clean, sharp, natural sand.

2.5.2.2. Coarse Aggregate shall be Size No. 57, 67 or 467.

2.5.3. Water shall be fresh, clean and potable.

2.5.4. Admixtures: When requested, a qualified concrete technician employed by the admixture manufacturer shall be available to assist in proportioning concrete materials for optimum use, and to advise on proper use of the admixture and adjustment of concrete mix proportions to meet job-site and climatic conditions.

2.5.4.1. Water Reducing Admixture: "Eucon WR-75" by Euclid Chemical Co., "Pozzolith 122N" by Master Builders, "Plastocrete" by Sika Chemical Corp., or equal. Admixture shall conform to ASTM C494, Type A, and shall not contain more than 1% chloride ions.

2.5.4.2. High Range Water Reducing (HRWR) Admixture (Superplasticizer): "Eucon 37" by Euclid Chemical Co., "Sikament" by Sika Chemical Corp., "Melment" by American Admixtures Co., or equal. Admixture shall conform to ASTM C494, Type F or G, and shall not contain more than 1% chloride ions.

2.5.4.3. Non-Corrosive Accelerator: "Accelguard 80" by Euclid Chemical Co., "Daraset" by W. R. Grace, or equal. Admixture shall conform to ASTM C494, Type C or E, and shall not contain more than 1% chloride ions.

2.5.4.4. Air-Entraining Admixture: ASTM C260

2.5.4.5. Retarding Admixture: "Eucon Retarder 75" by Euclid Chemical Co., "Pozzolith 300R" by Master Builders, or equal. Admixture shall conform to ASTM C494, Type B or D, and shall not contain more than 1% chloride ions.

2.5.4.6. Fly Ash: ASTM C618. Quantity of fly ash shall be less than 25% of the combined weight of cement and fly ash.

2.6. CURING MATERIALS

2.6.1. Waterproof Sheet Material: ASTM C171.

2.6.2. Curing Compounds: "Super Pliocure" by Euclid, "Super Floor Coat" by Euclid, or "Masture Kure-CRC" by Master Builders or equal. Product shall be a curing, sealing and hardening product with approximately 30% solids and shall meet the requirements of ASTM C-309.

2.7. WATERSTOPS shall be steel plate, 1/8 x 6-inch; except where non-metallic waterstops are specified or noted on the plans.

2.7.1 Waterstops at submerged expansion joints shall be the dumbbell or center bulb type, and shall be of rubber, PVC, styrenebutadiene or neoprene. Unless otherwise noted, dumbbell type shall be 3/8 x 6-inch with 3/4-inch end bulbs and center bulb type shall be 1/4 x 6-inch with 5/8-inch end bulbs and 1-1/8 inch center bulb.

2.8. NON-SHRINK GROUT

Non-metallic conforming to "Corps of ENGINEERs Specification for Non-Shrink Grout" CRD-C-621, Type D; "Euco N-S" by Euclid Chemical Co., "Masterflow 713" by Master Builders, Crystex" by L & M Construction Chemicals, or equal.

2.9. BONDING COMPOUND

2.9.1. Not Exposed to Water after Placement: Polyvinyl acetate, rewettable type; "Euco Weld" by Euclid Chemical Co., "Weldcrete" by Larsen, "Everbond" by L & M Construction Chemicals, or equal.

2.9.2. Exposed to Water after Placement: "SBR Latex" or "Flex-Con" by Euclid Chemical Co., "Sikatop" polymer when used with "Sikatop" by Sika Chemical Corp., "Everbond" by L & M Construction Chemicals, or equal. Epoxy adhesives may also be used.

2.10. METAL REINFORCEMENT shall be reinforcing steel or welded wire fabric, as shown on the plans. If requested, manufacturer's certificates showing conformance with the specifications shall be furnished to the ENGINEER.

2.10.1. Reinforcing Steel shall be deformed steel bars conforming to ASTM A615, Grade 60 unless otherwise noted.

2.10.2. Welded Wire Fabric: ASTM A185.

2.11. JOINT FILLERS shall be preformed bituminous self-sealing type conforming to ASTM D994, unless otherwise noted.

2.12 FORMWORK

2.12.1. Forms for Exposed Concrete shall be of plywood, and shall provide continuous, straight, smooth surfaces. Plywood shall be B-B Plyform, Class I Exterior, 5/8-inch thick minimum. Metal and other types of forms shall be used only upon approval of the ENGINEER. Symons forms with plywood, or equivalent, shall be acceptable.

2.12.2. Forms for Unexposed Concrete may be of undressed square-edge tongue-and-groove lumber, or of plywood.

2.12.3. Form Oil shall be a light colored, non-staining form coating compound. Form oil for steel forms shall be rust-preventive type.

2.12.4. Form Ties shall be factory fabricated, adjustable length type designed to prevent from deflection and spalling of concrete surfaces upon removal. Ties shall be of the type to have metal not less than 1 inch from exposed concrete surfaces. Wire ties will not be permitted where wire is embedded in finished concrete. Form ties fabricated at the job site will not be acceptable. Ties in liquid-retaining structures shall have a waterstop in the middle of the tie.

2.12.5. Vertical sides of excavations may be used for placing concrete in lieu of forms, provided that the sides are clean cut and remain stable while the concrete work is being accomplished.

2.13. MATERIAL STORAGE: Storage of materials shall be subject to approval of the ENGINEER and shall be such that damage from water, freezing and other sources is prevented. No damaged or deteriorated material shall be used for concrete.

2.13.1. Cement shall be stored in enclosed shelters to prevent damage from moisture. Supporting floors shall be at least 1 foot above ground or otherwise suitably protected against moisture penetration.

2.13.2. Aggregates shall be stored in separate piles, and in such manner as to prevent inclusion of dirt and other foreign materials.

2.13.3. Admixtures: Dry admixtures shall be stored as specified for cement. Liquid admixtures shall be protected from freezing and from settling out of solution.

2.13.4. Metal Reinforcement shall be stored off the ground, protected from the weather, and so that it can be easily identified.

2.13.5. Other Materials shall be suitably stored to prevent damage or misuse.

2.14. SELECTION OF PROPORTIONS

Concrete shall be composed of cement, fine and coarse aggregate, water and the required admixtures. Proportions of ingredients shall produce concrete of the proper consistency that works readily into corners and angles of forms and around reinforcement without excessive segregation or bleed water forming on the surface; concrete that provides resistance to freezing,

thawing and other aggressive actions; and concrete that meets the strength and other requirements specified herein. Proportioning of materials shall be in accordance with ACI 211.1, ACI 318 and ACI 301 (Method 1 or Method 2).

2.15. CONCRETE QUALITY

Concrete work shall conform to all requirements of ACI 301, except where specifically modified by the plans and specifications for this project. Concrete shall be composed so as to obtain the following compressive strengths at 28 days.

Class AA	4000 psi
Class A	3500 psi
Class B	2500 psi
Class C	2000 psi

Note: Water-cement ration requirements may be more restrictive than the strength requirements.

2.15.1. Minimum Cement Content for Class A Concrete shall be 517 lb./cu. yd. for coarse aggregate size No. 467, and 564 lb./cu. yd. for coarse aggregate size No. 57 or 67.

2.15.2. Air-Entrained Concrete: Concrete exposed to the weather or in liquid-retaining structures shall be air-entrained. Total air content required shall be 5-1/2% + 1% for coarse aggregate size No. 467, and 6% + 1% for coarse aggregate size No. 57 or 67. The design mix shall be based on the midpoint of the applicable range, and the field delivered concrete shall be within that range.

2.15.3. Air content shall be measured in accordance with ASTM C173, or ASTM C231.

2.15.4. Slump shall be determined in accordance with ASTM C143.

2.15.5. Maximum slump for walls shall be 3 inches prior to addition of the HRWR admixture. Admixture shall be added in sufficient quantities to provide a minimum slump of 5 inches prior to placement of concrete.

2.15.6. The maximums specified above may be increased to 8 inches by using the HRWR admixture. However, slump will be checked prior to the addition of the HRWR admixture, and shall meet the restrictions specified above.

2.16. HARDENING OF CONCRETE: Concrete shall be adjusted to produce the required rate of hardening for various climatic and job-site conditions. The rate of hardening shall be as follows:

Ambient Temperature	Admixture (ASTM C494)
Under 50 degrees F	Type E (accelerating)
Over 80 degrees F	Type D (retarding)
50 degrees F to 80 degrees F	Type A (normal rate of hardening)

2.17. ADMIXTURES

All other concrete shall contain a water reducing admixture. All thin slabs, less than 8 inches thick, placed at air temperatures below 50 degrees F, shall contain the specified non-corrosive accelerator. All concrete required to be air-entrained shall contain an approved air-entraining admixture. When increased ultimate and/or early strengths are required, the appropriate admixture shall be used.

2.18. WATER-CEMENT RATIO

Class A concrete or better shall have a maximum water-cement ration of 0.45. When used, fly ash shall be included with the cement to determine the water-cement ratio.

PART 3 INSTALLATION:

3.1. CONSTRUCTION OF FORMS

Forms for concrete shall conform to the shapes, lines and dimensions of the members as shown on the plans, and shall be sufficiently tight to prevent leakage of mortar. Forms shall have sufficient strength to withstand forces from the placement and vibration of concrete, and shall be properly braced or tied together to maintain position and shape.

3.1.1. Design: Formwork shall be designed for loads, lateral pressure and allowable stresses in accordance with ACI 347. All tolerances, preparation of form surfaces, removal of forms, reshoring and removal strength shall be in accordance with ACI 301. Design, ENGINEERing and construction of formwork shall be the responsibility of the CONTRACTOR.

3.1.2. Erection of Forms:

3.1.2.1. Forms shall be erected to the sizes, shapes and dimensions shown on the plans, true to line and grade. Forms shall be fabricated to permit easy removal without damage to concrete.

3.1.2.2. All formwork shall be provided with adequate cleanout openings to permit inspection and easy cleaning. Wood chips, sawdust, dirt and other debris shall be removed just before concrete is placed.

3.1.2.3. All exposed corners and edges of forms shall be provided with a 3/4-inch chamfer. Chamfer strips shall be of wood, metal, PVC or rubber.

3.1.2.4. Contact surfaces of forms shall be oiled and allowed to dry before reinforcement is placed. Form oil shall be applied in accordance with the manufacturer's instructions. All excess oil shall be removed.

3.1.2.5. Forms to be re-used in the work shall be thoroughly clean and free of splits, distortion and other damage. Re-used forms shall be oiled as specified for new forms.

3.1.3. Extreme Weather Requirements: During cold weather, forms shall be kept free from frost or ice. In hot weather, forms shall be properly prepared to prevent loss of water prior to placing concrete, and shall be well oiled and sprinkled as necessary to keep them cool.

3.2. CONCRETE REINFORCEMENT

Reinforcement shall be accurately formed to the required lengths, dimensions and shapes as shown on the plans, prior to shipment to the job site. Shop drawings shall be reviewed prior to fabrication. All bars shall be bent cold, unless otherwise directed by the ENGINEER. Bars partially embedded in concrete shall not be field bent, unless otherwise shown on the plans or specifically permitted by the ENGINEER. All requirements for reinforcement not shown on the plans or specified herein shall be in accordance with ACI 315.

3.2.1. Shipping and Handling: Reinforcement shall be delivered to the job site tied in bundles so as to be easily handled, and tagged with non-rusting metal tags showing shop drawing numbers.

3.2.2. Placing: Reinforcement shall be carefully and accurately placed as shown on the plans, and adequately secured in position by concrete, metal or other approved chairs, spacers or ties to prevent displacement during the concreting operation. At the time concrete is placed, reinforcement shall be free from thick rust, mill scale, ice, frost, oil, grease or other coatings that destroy or reduce the bond.

3.2.3. Splices: Unless otherwise noted, splices in reinforcement shall be Class C in accordance with ACI 318. All splices shall be approved by the ENGINEER, and shall be securely tied with wire or cable clamps.

3.2.4. Cutting of reinforcement in the field will not be allowed, unless specifically approved by the ENGINEER.

3.2.5. Concrete Protection: Unless otherwise noted, the minimum cover of concrete over reinforcement shall be in accordance with ACI 318 or shall be as shown on the plans.

3.2.6. Exposed Reinforcing Bars intended for bonding with future work shall be adequately protected against corrosion.

3.2.7. Field Bending of reinforcement is strictly prohibited, except where specifically approved by the ENGINEER on a limited basis for each particular case. When approved, field bending shall be done using cold bends conforming to all applicable codes; heat will not be allowed.

3.3. JOINTS AND EMBEDDED ITEMS shall be provided where shown on the plans or as directed by the ENGINEER.

3.3.1. Joints not shown on the plans shall be made and located to least impair the strength of the structure, and shall be approved by the ENGINEER.

3.3.1.1. All reinforcement shall be continued across construction and contraction joints, unless noted otherwise; keys and dowels shall be provided as directed by the ENGINEER.

3.3.1.2. Joint filler shall be placed in all expansion and isolation joints.

3.3.1.3. Contraction joints shall be formed, tooled or sawed approximately equal to 1/4 the thickness of the member.

3.3.1.4. All joints in liquid-retaining structures shall be provided with a waterstop, unless otherwise directed in each instance by the ENGINEER.

3.3.1.5. Dowel length into adjoining concrete shall be considered a minimum of full splice length, and shall conform to all requirements for splices as specified above.

3.4. SUBMERGED EXPANSION AND CONTRACTION JOINTS shall be provided as detailed on the plans. All manufactured products shall be applied in accordance with the manufacturer's instructions.

3.4.1. Other Embedded Items: All sleeves, wall pipe, nipples, inserts, anchors, hangers and other embedded items required for adjoining work or for its support shall be placed prior to placing concrete, and shall be positioned accurately and supported against displacement.

3.5. MIXING AND PLACING

CONTRACTOR shall provide access for delivery and sufficient equipment and manpower to rapidly place all concrete. All work shall be done in accordance with ACI 304.

3.5.1. Preparation of Equipment and Place of Deposit: Before placement of concrete, equipment used for mixing and transporting concrete shall be thoroughly cleaned. All formwork shall be complete; snow, ice, water and debris shall be removed from within forms. Expansion joints material, anchors and other embedded items shall be properly secured in position. Subgrades shall be sprinkled sufficiently to eliminate water loss from the concrete. Concrete shall not be placed on frozen ground. All laitance and other unsound material shall be removed from hardened concrete before additional concrete is placed.

3.5.2. Ready-Mixed Concrete shall be batched, mixed and transported in accordance with ASTM C94. Plant equipment and facilities shall conform to the "Checklist for Certification of Ready Mixed Concrete Production Facilities" of the National Ready-Mixed Concrete Association.

3.5.3. Job-Mixed Concrete: For job-mixed concrete, mixer shall be rotated at a speed recommended by the manufacturer. If mixer performance tests are not made, each batch of 1 cu. yd. or less shall be mixed for at least 1 minute after all materials are in the mixer. Mixing time shall be increased 15 seconds for each additional cubic yard or fraction thereof. Entire batch shall be discharged before the mixer is recharged.

3.5.4. Conveying: Concrete shall be handled from the mixer to final deposit rapidly by methods that will prevent segregation or loss of ingredients to maintain the required quality of concrete.

3.5.5. Depositing: Concrete shall be deposited continuously; when continuous placement is not possible, construction joints shall be located as approved by the ENGINEER. Concrete shall be placed as nearly as possible to its final position to avoid rehandling or flowing. A tremie, pump or chute shall be used where a lift is between 5 and 12 feet. A pump shall be used where a lift is more than 12 feet.

3.5.5.1. Concrete shall be consolidated by vibration. Concrete shall be worked around reinforcement, embedded items and into corners to eliminate all air or stone pockets and other causes of honeycombing, pitting or planes of weakness. Internal vibrators shall be used on

concrete 6 inches or more in thickness. Form or surface vibration may be used on sidewalks or concrete less than 6 inches thick, instead of internal vibration. Consolidation shall be done in accordance with the recommendations of ACI 309.

3.5.5.2. Internal vibrators shall be inserted and withdrawn approximately every 18 inches for 5 to 15 seconds. Vibrators shall have a minimum frequency of 8000 rpm, with amplitude to consolidate effectively. Vibrators shall be operated by competent workmen. Use of vibrators to transport concrete will not be allowed.

3.5.5.3. Flat chutes shall not be used. Chutes shall be deep with rounded bottoms and constructed of or lined with metal.

3.5.5.4. Concrete shall not be dumped in piles and then spread horizontally. Concrete shall be placed in uniform layers 1 to 1-1/2 feet thick and rodded or vibrated to consolidate the various layers.

3.5.5.5. Construction joints shall be limited to those shown on the plans, unless additional construction joints are approved by the ENGINEER. Surface shall be roughened to remove the soft mortar and expose the coarse aggregate. Prior to placing new concrete, hardened concrete shall be cleaned and dampened. On horizontal joints, first layer of new concrete shall be 4 to 5 inches thick and shall be of the same mix as the concrete in the wall, except that the coarse aggregate is omitted.

3.5.5.6. Waterstops shall be provided at all construction joints of liquid-retaining structures. Joints of steel waterstops shall be butt welded; joints of non-metallic waterstops shall be made by gluing or vulcanizing.

3.6 COLD WEATHER CONDITIONS

All concrete work during cold weather shall be done in accordance with ACI 306. Calcium chloride will not be permitted as an accelerator.

3.6.1. Temperature of concrete delivered at the job site shall conform to the following:

Air Temperature	Concrete Temperature
30 to 45 degrees F	55 to 80 degrees F
0 to 30 degrees F	60 to 80 degrees F
Below 0 degrees F	65 to 80 degrees F

3.6.2. Water heated to above 100 degrees F shall be combined with the aggregates before cement is added. Cement shall not be added to water to aggregates having a temperature greater than 100 degrees F.

3.6.3. When the outdoor temperature is less than 40 degrees F, the temperature of the concrete shall be maintained at not less than 50 degrees F for the required curing time. Arrangements shall be made before placement to maintain the required temperature without injury from excessive heat. Where combustion heaters are used, precautions shall be taken to prevent exposure of concrete and workmen to exhaust gases containing carbon dioxide and carbon monoxide.

3.7 HOT WEATHER CONDITIONS

All concrete work during hot weather shall be done in accordance with ACI 305.

3.7.1. Temperature of concrete delivered at the job site shall not exceed 90 degrees F. Ingredients shall be cooled before mixing to prevent concrete temperature in excess of 90 degrees F.

3.7.2. Provisions shall be made for windbreaks, shading, fog spraying, sprinkling or wet cover when necessary.

3.7.3. Concrete exposed or subject to rapid evaporation due to hot weather, drying winds and sunlight may be protected by a set-retarding admixture, applied in accordance with the manufacturer's recommendations.

3.8. CURING AND PROTECTION

Immediately following placement, concrete shall be protected from premature drying, hot and cold temperatures, rain, flowing water and mechanical injury. Materials and methods of curing shall be approved by the ENGINEER. Final curing shall continue for not less than 7 days.

3.8.1. Approved methods of curing include ponding, continuous sprinkling, fog spray, wet burlap or mats, clean sand kept continuously wet, curing compound and waterproof sheet material.

3.8.2. If a waterproof sheet material is used for curing, it shall be placed over the wetted surface of fresh concrete as soon as practicable without marring the surface. Each sheet shall be overlapped and firmly secured in placed to insure moisture seal.

3.8.3 If a curing compound is used, two coats shall be applied at right angles to each other. The product shall meet the requirements for curing compounds in the materials and products section of these specifications. The product shall be applied in accordance with the manufacturer's recommendations.

3.9. REMOVAL OF FORMS

Forms shall be removed in such a manner as to insure complete safety of the structure and to prevent damage to concrete. Unless specifically approved otherwise by the ENGINEER, form removal shall be as specified below.

3.9.1. Wall and Column Forms: Formwork not supporting the weight of the concrete, such as wall and column forms and side forms of beams and girders, shall remain in place a minimum of 12 hours.

3.9.1.1. On vertical surfaces of liquid-retaining structures, forms shall be left in place, or the surface covered with burlap and the concrete kept wet, for at least seven days.

3.9.2. Bottom Forms for beams and girders shall not be disturbed for at least six days, and auxiliary supports shall be maintained until the concrete reaches its design strength.

3.9.3. Elevated Slab Forms shall not be disturbed for at least seven days, and slabs shall be adequately supported for at least 28 days. Auxiliary slab supports, acceptable to the ENGINEER, may be provided to support slabs at the center of the clear span.

3.10. CONCRETE FINISHES: All exposed concrete surfaces shall be true to the required lines and contours, and shall be free from stone pockets or honeycomb.

3.10.1. Patching and Repair: All imperfect or honeycomb spots and tie holes shall be chipped out to firm concrete and patched with cement grout immediately after form removal and before concrete is thoroughly dry. Fins shall be removed and repaired as necessary. Patching and repair shall be done so that the patched and repaired areas appear as a homogeneous part of the main concrete.

3.10.1.1. Edges of honeycomb spots shall be perpendicular to the surface or slightly undercut; no featheredges will be permitted. Area to be patched, including adjacent surfaces extending at least 6 inches in all directions from the patched area, shall be dampened to prevent absorption of water from the patching mortar. If patching is not done within seven days after form removal, an approved bonding compound (as specified) shall be applied prior to patching. Defective areas shall not be patched until permission is obtained from the ENGINEER in each specified case. Cement and sand shall be obtained from the concrete supplier so as to match adjacent work.

3.10.2. Formed Concrete: Concrete which is not formed as shown on the plans, is out of level or alignment, or is defective in appearance, shall be corrected or replaced to the ENGINEER's satisfaction at the CONTRACTOR's expense.

3.10.2.1. Concrete surfaces not exposed to view, surfaces more than 1 foot below finished grade and interior surfaces of tanks and basins more than 1 foot below the water level need not be finished except for correcting imperfect spots.

3.10.2.2. Unless otherwise noted, all exposed concrete surfaces, including exterior and interior of buildings and exposed basin and tank walls, shall be given a trowel and float finish using a cement-base waterproof coating material such as Thoroseal Plaster Mix or equal. The material shall be mixed and applied in accordance with the manufacturer's instructions to provide a smooth uniform dense finish without holes, voids, uneven surfaces or other defects. Work shall be done to the satisfaction of the ENGINEER. Rubbing concrete with stones or similar abrasives will not be permitted.

3.10.2.3. Tops of walls and walk beams shall be screeded to a uniform surface and finished with a wood float.

3.10.3. Flatwork: Surfaces shall be screeded to the elevations and profiles indicated before bleedwater accumulates. Finishing shall not be started until all bleedwater has disappeared from the surface.

3.10.3.1. Float Finish: Bottoms of tanks and slabs not otherwise specified shall be power floated to a true plane so that depressions between high spots will not exceed 5/16-inch under a 10-foot straightedge. Surfaces shall be refloated immediately to a uniform texture. Hand float shall be used in areas inaccessible to power floats.

3.10.3.2. Broom or Belt Finish: Exterior slabs shall be given a float finish as specified above. A broom or burlap belt shall then be drawn at right angles to the long dimension to obtain a textured finish.

3.11. WALKS

Concrete walks shall be provided where shown on the plans. Walks shall be 4 inches thick, unless otherwise noted. Contraction joints shall be provided every 5 linear feet, cut to a depth of 1-inch with a small radius-jointing tool. Expansion joints shall be provided at 30-foot intervals and at crosswalks, curbs and other structures, and shall be made with premolded bituminous joint filler. Walks shall be brought to the proper grade and cross section with a float, and finished with a broom or brush at right angles to the direction of traffic. All edges shall be tooled with a small radius-edging tool.

3.12. ADDITIONAL FOUNDATION CONCRETE

If required by foundation conditions, additional concrete shall be placed under footings of structures, as directed by the ENGINEER. This additional concrete shall be Class C. The joint between the Class C concrete and foundation concrete shall be coated with a bonding compound.

3.12. GROUT

Cement-sand grout shall be pumped into existing pipes being abandoned in place shown on the plans. Grout shall consist of 1 part Portland cement and 2½ parts sand by weight. Sand shall be a maximum diameter of 1/8-inch.

(End of Section 03300)

SECTION 03310 BRICK FOUNDATIONS

PART ONE - GENERAL

1.1 Scope

1.1.1 The work shall include construction of four inch (4") concrete base slabs (foundations) as specified herein and to the dimensions, typical section(s) and notations as shown on the drawings. Construction shall be to the lines and grades as shown on the drawings and/or as directed by the ENGINEER.

1.2 Quality Assurance

1.2.1 Reference Standards

1.2.1.1 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.

1.2.1.1.1 South Carolina State Highway Department Standard Specifications, Latest Edition.

1.2.1.1.2 AASHTO M-213, Joint Material.

1.2.1.1.3 ASTM A-82, Specification for Cold Drawn Steel Wire for Concrete Reinforcement.

1.2.1.1.4 ASTM A-185, Standard Specifications for Welded Steel Wire Fabric Steel Bars for Concrete Reinforcement.

1.3 Workmanship

1.3.1 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.

PART TWO - PRODUCTS

2.1 Forms

2.1.1 Forms shall be of wood or metal and of a depth equal to or greater than the typical section shown on the 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.

2.1.1. a Forms shall be free from warp and of sufficient strength when staked to hold the alignment specified during concrete placing and finishing operations.

2.1.1. b All forms shall be cleaned and oiled prior to placement of concrete.

2.2 Portland Cement Concrete

2.2.1 Concrete shall be 3,000 psi, twenty-eight (28) day, as defined by the South Carolina State Highway Department Standard Specifications, Latest Edition. All concrete shall be ready mixed as produced by a reputable manufacturer, acceptable to the ENGINEER. Submit current approved South Carolina Highway Department mix design to ENGINEER prior to pouring concrete.

2.3 Expansion Joints

2.3.1 Bituminous preformed joint filler complying with requirements of AASHTO M-213 shall be used.

PART THREE - EXECUTION

3.1 General

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

3.2 Reinforcement

3.2.1 Place welded steel wire fabric one inch (1") from the bottom of the slab. Fabric to be placed on stools and the fabric pulled up as the concrete is poured.

3.3 Placing Concrete

3.3.1 Concrete shall be placed on a prepared subgrade conforming to Section 02200. Deposit and consolidate concrete in a continuous operation within limits of construction joints until the placing of a panel or section is completed. Bring slab surfaces to the correct level with a straight edge and strike off. Use bull floats or darbies to smooth the surface, leaving it free of lumps or hollows. Do not sprinkle water on the plastic surface. Do not disturb the slab surfaces prior to beginning finishing operations.

3.4 Joints

3.4.1 Expansion joints shall be three-fourths inch (3/4") thick extending for the full depth of the sidewalk section(s). The maximum distance between expansion joints shall be thirty feet (30').

3.4.1.1 Contraction (weakened) joints shall be placed at five foot (5') intervals and shall be formed by cutting the finished sidewalk section(s) with a masonry trowel or by other approved methods.

3.4.1.b The manner of construction of all joints shall be approved by the ENGINEER and shall, after edging, present a smooth acceptable finish.

3.5 Concrete Finishes

3.5.1 Concrete slabs that provide the foundation for brick paving shall be given a wood float finish.

3.6 Protection

3.6.1 Concrete shall be protected and cured in the manner specified for Portland Cement Concrete Pavement, in the South Carolina State Highway Department Standard Specifications, Latest Edition.

(End of Section 03310)

DIVISION 03 CONCRETE

03 30 00 CAST-IN-PLACE CONCRETE

1.1 GENERAL

A. See Structural Drawings for detailed project notes and specifications for concrete work. Any discrepancies between the Structural Drawings/Specifications and this document, shall be brought to the Architect's attention immediately for clarification before work proceeds.

B. All workmanship, materials and practices of concrete design and construction not specifically covered herein shall be governed by the standards of the American Concrete Institute building code requirements for structural concrete, and the Portland Cement Association.

C. Cooperate with other trades regarding installation of embedded items and install anchors, bolts, ties, etc. as required.

1.2 STORAGE OF MATERIALS

A. Store cement off ground on platforms and protect from the elements.

B. Provide cover for reinforcement prior to use. Remove any rust or scale from reinforcement before placing.

1.3 CONCRETE FORM WORK

A. Construct forms to slope lines and dimensions shown, plumb and straight and sufficiently tight to prevent leakage.

B. Securely brace and shore forms to prevent displacement and to safely support construction loads.

C. Keep forms wet as necessary to prevent shrinkage.

1.4 CONCRETE REINFORCEMENT

A. Reinforcing steel: New billet steel, conforming to ASTM A615, Grade 60.

B. Steel fabric reinforcing: ASTM A185, 6"x 6" W2.9 x W2.9, 6" x 6" W1.4 x W1.4, or as shown on the Structural and Civil drawings, spot-welded at intersections. Use at all slabs (interior and exterior) unless otherwise noted. See Civil and Structural Drawings.

C. Support all reinforcing at proper distances from face of concrete; no wood supports will be allowed. Wire mesh shall be lapped at least twelve (12) inches.

1.5 EXPANSION JOINTS

A. Pre-molded ½" thick asphalt-saturated coarse fiber, as manufactured by Celotex Corporation, J&P Petroleum Products, or approved equal.

B. Keyed joint from pre-formed construction joint by J&P Petroleum Products or Vulcan, or approved equal.

C. Concrete shall be installed so that no pour exceeds 1600 square feet with no side of pour exceeding 40 feet in length and as other indicated on the drawings. The Contractor shall submit a proposed pouring sequence to the Architect for approval and location and layout of joints shall be approved by the Architect prior to pouring concrete.

1.6 VAPOR BARRIER

A. Under all building slabs on grade: .006 polyethylene membrane, Visqueen, or approved equal. Lap joints 8" minimum.

1.7 FIBER MESH REINFORCING

A. Where shown on the drawings, and if approved by the project Structural Engineer, provide fiber mesh reinforcing 1.5 pounds per cubic yard. Fiber mesh shall be “Hi-Tech Commercial Fibers” by Martin Color-Fi or approved equal. Add to redi-mix concrete as per manufacturer’s instructions.

1.8 CONCRETE

A. Concrete shall be furnished by a ready mix plant. No water shall be added in the field either for placing or finishing. Slump shall be no more than 4 inches. All concrete shall obtain a minimum compressive strength of 3,000 PSI or 4,000 PSI at 28 days, as per the requirements of the Structural and/or Civil Drawings.

1.10 PLACING CONCRETE

A. Place no concrete until all anchors, bolts, ties, reinforcing, pipes, conduits and vapor barriers have been placed and inspected by the Architect.

B. Before placing concrete set continuous expansion joint strips where indicated or otherwise where concrete edge of slab abuts a vertical surface; seal joints tightly around pipes penetrating floors using asphalt mastic.

C. Concrete shall be placed only when the temperature is 40 degrees Fahrenheit and rising or above.

D. Concrete shall be deposited as nearly as practicable in its final position to avoid segregation due to re-handling or flowing. Concrete shall not be subjected to any procedure which will cause segregation. Concrete shall not be dropped onto exposed earth from a distance of more than 3 feet unless approved by the Architect.

E. Concrete shall be in its final position within 90 minutes after its ingredients are mixed together. No concrete addition shall be used without permission from the Architect.

F. Pitch of slabs: On exterior horizontal surfaces, slabs with floor drains, or where indicated on drawings, a slope shall be provided to remove water. If the slope is not indicated, the slab shall be finished with a slope of 1" per 12' so that water will not puddle.

2.1 PROTECTION AND CURING

Protect concrete against frost, temperatures below 40 degrees and rapid drying, and keep moist for at least 7 days after placing.

2.2 FINISHING

A. Finish concrete in accordance with current ACI and PCA Standards of Practice.

B. Exterior walks, slabs and ramps: All exterior concrete slabs shall have a broom finish of a texture approved by the Architect.

C. Interior Slabs: All interior floor slabs shall have a steel trowel finish with no addition of dry cement and sand. Troweling shall be delayed until concrete has stiffened to a degree that no free water is drawn to the top of the slab by troweling.

2.3 INSPECTION AND TESTS

A. Slump tests shall be made following ASTM Specifications C-143 and C-138 respectively.

B. Cylinder tests shall be made as follows: Three (3) compressive test cylinders shall be required for each pour of each class of concrete and not less than one test (3 cylinders) for each 100 C.Y. of each class of concrete (or fraction thereof) placed on any one day.

1. The testing of concrete at the project site is part of Chapter 17 Special Inspections and is to be paid for by the Owner's testing consultants.

2. Compressive strength test to follow ASTM method of Test C-39.

3. Cylinders to be made by the Owner's testing vendor. Tag each with an approved label.

4. Cylinders to be tested by an approved laboratory at the Contractor's expense. Original reports shall be sent directly to the Architect. Test one cylinder and 7 days and the other two at 28 days.

END OF DIVISION 03

DIVISION 04 MASONRY

04 20 00 UNIT MASONRY

1.1 GENERAL

A. See Structural Drawings for detailed project notes and specifications for masonry work. Any discrepancies between the Structural Drawings/Specifications and this document, shall be brought to the Architect's attention immediately for clarification before work proceeds.

B. All materials, principals and practices of concrete masonry design and construction , such as control joints, bond beams, joint reinforcement, intersecting walls, etc. not specifically covered herein or on the drawings, shall be governed by the standards as set forth by the Portland Cement Association and the National Concrete Masonry Association.

C. Cooperate with other trades regarding installation of embedded items and install anchors, bolts, ties, etc., as required.

1.2 PROTECTION OF MATERIALS

A. Protect all materials in storage and in place from damage.

B. Keep all walls dry by covering at end of day's work.

C. Lay no masonry unless outside temperature is 40 degrees Fahrenheit and rising.

1.3 CLEANING AND POINTING MASONRY

A. Pursue work in as clean a manner as possible. Remove excess materials and mortar droppings daily. Remove mortar droppings on adjacent work before final set.

B. Upon completion of all masonry, the work shall be thoroughly roughly cleaned using stiff fiber brushes and a cleaning solution as recommended by manufacturer of masonry units.

C. The Contractor and subcontractor shall follow the recommendations of the Portland Cement Association and the National Concrete Masonry Association concerning the avoidance of efflorescence and the cleaning of efflorescence of masonry.

1.4 LAYING MASONRY

A. All brick and block shall be laid plumb, level and true to line in full mortar so as to fill all joints, both horizontal and vertical, completely full of mortar. Joints shall be uniform, matching joint width of adjacent existing joints where installed in existing construction, and shall match and member with existing coursing where required. Type of joint shall be selected by the Architect.

B. Brick coursing shall be established as approved by the Architect. Joints shall be uniform, approximately 3/8" wide. Modular size brick will be used on this project. Three vertical brick courses and three joints shall equal approximately eight (8") inches. One vertical block course and one block joint shall equal eight (8") inches.

C. Lay all walls and piers in running bond unless indicated otherwise on drawings. Edges of all brick and blocks shall be straight and true, free and clear form chips and cracks.

D. All cutting shall be done with a masonry saw.

1.5 CONCEALED BASE FLASHING AND BASE FLASHING ACCESSORIES

A. Composite Flexible Base Flashing shall be self-sealing, self-healing, fully adhering composite flexible flashing consisting of 32 mil thick pliable and highly adhesive rubberized asphalt compound bonded completely and integrally to 8 mil thick, high-density, four plies of cross-laminated polyethylene film to produce an overall 40 mil thickness. This flashing shall be protected from contamination from dust or dirt by a silicone-coated release sheet to be removed immediately before installation.

B. Surface Conditioner for Composite Flexible Base Flashing shall be latex-based, water soluble liquid for substrate preparation.

C. Termination Mastic for Composite Flexible Base Flashing shall be as recommended by the manufacturer.

1.6 REINFORCEMENT AND ACCESSORIES

A. **Uncoated-Steel Reinforcing Bars**: ASTM A 615/A 615M OR ASTM 996/A 996M.

B. **Masonry Joint Reinforcement, General**: ASTM A951/A 951M.

1. Interior and Exterior Walls: Hot-dip galvanized carbon steel.
2. Wire Size for Side Rods: 0.148-inch (3.77 mm) diam.
3. Wire Size for Cross Rods: 0.148-inch (3.77 mm) diam.
4. Wire Size for Veneer Ties: 0.148-inch (3.77 mm) diam.
5. Spacing of Cross Rods, Tabs and Cross Ties: Not more than 16 inches o.c.
6. Provide in lengths not less than 10 feet, with pre-fabricated corner and tee units.

C. **Masonry Joint Reinforcement for Single-wythe Masonry**: Ladder type with single pair of rods (12" or 8" width as required).

D. **Masonry Joint Reinforcement for Multi-wythe Masonry**:

1. Adjustable (two-piece) type, ladder design, with one side rod at each face shell of backing wythe and with separate adjustable ties with pintle-and-eye connections, having a maximum horizontal play of 1/16 inch (1.5 mm) and maximum vertical adjustment of 1-1/4 inches (32 mm). Size ties to extend at least halfway through facing wythe, but with at least 5/8" (16 mm) cover on outside face for Seismic Zone D.

E. **Compressible Filler**: Pre-molded filler strips complying with ASTM D 1056, Grade 2A1, compressible up to 35 percent, of width and thickness indicated; formulated from neoprene urethane or PVC.

F. **Bond Breaker Strips**: Asphalt-saturated felt strips complying with ASTM D 226/D 226M, Type 1 (No. 15 Asphalt Felt).

1.7 MORTAR

A. Above ground: Type “S” mortar by Santee, Giant or Magnolia.

B. Below grade and in contact with earth: Type “M” mortar by Santee, Giant or Magnolia.

C. Use “colored” mortar as selected by the Architect to match existing facilities.

1.8 BRICK MASONRY

A. Brick masonry shall be Modular Size.

B. It is the intent of the project to match the details and colors of the existing facilities at the park.

1. Final brick colors to be selected by Owner. Below color selections are preliminary and shall be used for pricing only.

2. **Color One:** Chestnut Velour
by U.S. Brick, or approved equal.

1.9 CONCRETE MASONRY UNITS

A. Concrete block shall be ASTM c-90, Grade A, Standard Weight Concrete Block. Each block shall attain a minimum strength of 100 p.s.i. in 7 days.

B. Install units as recommended by manufacturer and as approved by the Architect.

SECTION 04-72-00 Architectural Cast Stone

1.0 General

1.1. Section Includes - Architectural Cast Stone.

A. Scope - All labor, materials, and equipment to provide the Cast Stone shown on architectural drawings and as described in this specification.

1. Manufacturer shall furnish Cast Stone covered by this specification.

2. Installing contractor shall unload, store, furnish all anchors, set, patch, clean and seal (optional) the Cast Stone as required.

1.2. Related Sections

A. Section – 01 33 00 – Submittal Procedures.

B. Section – 04 05 13 – Masonry Mortaring.

C. Section – 04 05 16 – Masonry Grouting.

D. Section – 04 05 19 – Masonry Anchorage and Reinforcing.

E. Section – 07 90 00 – Joint Protection.

1.3. References

A. ACI 318 – Building Code Requirements for Reinforced Concrete.

B. ASTM A 185 - Standard Specification for Steel Welded Wire Reinforcement, Plain, for Concrete.

C. ASTM A 615/A 615M - Standard Specification for Deformed and Plain Billet-Steel Bars for Reinforced Concrete.

D. ASTM C 33 – Standard Specification for Concrete Aggregates.

E. ASTM C 150 - Standard Specification for Portland Cement.

F. ASTM C 173 - Standard Test Method for Air Content of Freshly Mixed Concrete by the Volume Method.

G. ASTM C 231 - Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method.

H. ASTM C 260 - Standard Specification for Air-Entrained Admixtures for Concrete.

I. ASTM C 270 - Standard Specification for Mortar for Unit Masonry.

J. ASTM C 426 – Standard Test Method for Linear Shrinkage of Concrete Masonry Units.

K. ASTM C 494/C 494M - Standard Specification for Chemical Admixtures for Concrete.

L. ASTM C 618 – Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use as a Mineral Admixture in Concrete.

M. ASTM C 666 – Standard Test Method for Resistance of Concrete to Rapid Freezing and Thawing.

N. ASTM C 979 - Standard Specification for Coloring Pigments for Integrally Pigmented Concrete.

O. ASTM C 989 – Standard Specification for Ground Granulated Blast-Furnace Slag for Use in Concrete.

P. ASTM C 1194 - Standard Test Method for Compressive Strength of Architectural Cast Stone.

Q. ASTM C 1195 - Standard Test Method for Absorption of Architectural Cast Stone.

R. ASTM C 1364 - Standard Specification for Architectural Cast Stone.

S. ASTM D 2244 – Standard Test Method for Calculation of Color Differences from Instrumentally Measured Color Coordinates.

T. Cast Stone Institute® Technical Manual (Current Edition)

1.5. Submittal Procedures

A. Comply with Section 01 33 00 – Submittal Procedures.

B. Samples: Submit pieces of the Cast Stone that are representative of the general range of finish and color proposed to be furnished for the project.

C. Test results: Submit manufacturers test results of Cast Stone previously made by the manufacturer.

Shop Drawings: Submit manufacturers shop drawings including profiles, cross-sections, reinforcement, exposed faces, arrangement of joints (optional for standard or semi-custom installations), anchoring methods, anchors (if required), annotation of stone types and their location.

1.6. Quality Assurance

A. Manufacturer Qualifications:

1. Manufacturer shall have sufficient plant facilities to produce the shapes, quantities and size of Cast Stone required in accordance with the project schedule.

2. Manufacturer shall submit a written list of projects similar in scope and at least three (3) years of age, along with owner, architect, and contractor references.

B. Standards: Comply with the requirements of the Cast Stone Institute® Technical Manual and the project specifications. Where a conflict may occur, the contract documents shall prevail.

C. Mock-up (Optional) Provide full size unit(s) for use in construction of sample wall. The approved mock-up shall become the standard for appearance and workmanship for the project.

1.7 Acceptable Manufacturer

A. Bassco Cast Stone, or approved equal

Part 2: Products

2.1. Architectural Cast Stone

A. Comply with ASTM C 1364

1. Physical properties: Provide the following:

2. Compressive Strength - ASTM C 1194: 6,500 psi (45 Mpa) minimum for products at 28 days.

3. Absorption - ASTM C 1195: 6% maximum by the cold water method, or 10% maximum by the boiling method for products at 28 days.

4. Air Content – ASTM C173 or C 231, for wet cast product shall be 4-8% for units exposed to freeze-thaw environments. Air entrainment is not required for VDT products.

5. Freeze-thaw – ASTM C 1364: The CPWL shall be less than 5% after 300 cycles of freezing and thawing.

6. Linear Shrinkage – ASTM C 426: Shrinkage shall not exceed 0.065%.

2.2. Raw Materials

A. Portland cement – Type I or Type III, white and/or grey, ASTM C 150.

B. Coarse aggregates - Granite, quartz or limestone, ASTM C 33, except for gradation, and are optional for the VDT casting method.

C. Fine aggregates - Manufactured or natural sands, ASTM C 33, except for gradation.

D. Colors - Inorganic iron oxide pigments, ASTM C 979 except that carbon black pigments shall not be used.

E. Admixtures- Comply with the following:

1. ASTM C 260 for air-entraining admixtures.

2. ASTM C 494/C 495M Types A - G for water reducing, retarding, accelerating and high range admixtures.

3. Other admixtures: integral water repellents and other chemicals, for which no ASTM Standard exists, shall be previously established as suitable for use in concrete by proven field performance or through laboratory testing.

4. ASTM C 618 mineral admixtures of dark and variable colors shall not be used in surfaces intended to be exposed to view.

5. ASTM C 989 granulated blast furnace slag may be used to improve physical properties. Tests are required to verify these features.

F. Water – Potable

G. Reinforcing bars:

1. ASTM A 615/A 615M. Grade 40 or 60 steel galvanized or epoxy coated when cover is less than 1.5 in. (37 mm).

2. Welded Wire Fabric: ASTM A 185 where applicable for wet cast units.

H. All anchors, dowels and other anchoring devices and shims shall be standard building stone anchors commercially available in a non-corrosive material such as zinc plated, galvanized steel, brass, or stainless steel Type 302 or 304.

2.3. Color And Finish

A. Match sample on file in architect's office.

B. All surfaces intended to be exposed to view shall have a fine-grained texture similar to natural stone, with no air voids in excess of 1/32 in. (0.8 mm) and the density of such voids shall be less than 3 occurrences per any 1 in.2 (25 mm2) and not obvious under direct daylight illumination at a 5 ft (1.5m) distance.

C. Units shall exhibit a texture approximately equal to the approved sample when viewed under direct daylight illumination at a 10 ft (3 m) distance.

1. ASTM D 2244 permissible variation in color between units of comparable age subjected to similar weathering exposure.

a. Total color difference – not greater than 6 units.

b. Total hue difference – not greater than 2 units.

D. Minor chipping resulting from shipment and delivery shall not be grounds for rejection. Minor chips shall not be obvious under direct daylight illumination from a 10-ft (3 m) distance.

E. The occurrence of crazing or efflorescence shall not constitute a cause for rejection.

F. Remove cement film, if required, from exposed surfaces prior to packaging for shipment.

2.4. Reinforcing

A. Reinforce the units as required by the drawings and for safe handling and structural stress.

B. Minimum reinforcing shall be 0.25 percent of the cross section area.

C. Reinforcement shall be noncorrosive where faces exposed to weather are covered with less than 1.5 in. (38 mm) of concrete material. All reinforcement shall have minimum coverage of twice the diameter of the bars.

D. Panels, soffits and similar stones greater than 24 in. (600 mm) in one direction shall be reinforced in that direction. Units less than 24 in. (600 mm) in both their length and width dimension shall be non-reinforced unless otherwise specified.

E. Welded wire fabric reinforcing shall not be used in dry cast products.

2.5. Curing

A. Cure units in a warm curing chamber approximately 100ºF (37.8ºF) at 95 percent relative humidity for approximately 12 hours, or cure in a 95 percent moist environment at a minimum 70ºF (21.1ºF) for 16 hours after casting. Additional yard curing at 95 percent relative humidity shall be 350 degree-days (i.e. 7 days @ 50ºF (10ºF) or 5 days @ 70ºF (21ºF)) prior to shipping. Form cured units shall be protected from moisture evaporation with curing blankets or curing compounds after casting.

2.6. Manufacturing Tolerances

A. Cross section dimensions shall not deviate by more than 1/8 in. (3 mm) from approved dimensions.

B. Length of units shall not deviate by more than length/ 360 or 1/8 in. (3 mm), whichever is greater, not to exceed 1/4 in. (6 mm).

1. Maximum length of any unit shall not exceed 15 times the average thickness of such unit unless otherwise agreed by the manufacturer.

C. Warp, bow or twist of units shall not exceed length/ 360 or 1/8 in. (3 mm), whichever is greater.

D. Location of dowel holes, anchor slots, flashing grooves, false joints and similar features – On formed sides of unit, 1/8 in. (3 mm), on unformed sides of unit, 3/8 in. (9 mm) maximum deviation.

Part 3: Delivery, Storage, And Handling

3.1. Examination

A. Installing contractor shall check Cast Stone materials for fit and finish prior to installation. Do not set unacceptable units.

3.2. Setting Tolerances

A. Comply with Cast Stone Institute® Technical Manual.

B. Set stones 1/8 in. (3 mm) or less, within the plane of adjacent units.

C. Joints, plus - 1/16 in. (1.5 mm), minus - 1/8 in. (3 mm).

3.3. Jointing

A. Joint size:

1. At stone/brick joints 3/8 in. (9.5 cm).

2. At stone/stone joints in vertical position 1/4 in. (6 mm) (3/8 in. (9.5 mm) optional).

3. Stone/stone joints exposed on top 3/8 in. (9.5 mm).

B. Joint materials:

1. Mortar, Type N, ASTM C 270.

2. Use a full bed of mortar at all bed joints.

3. Flush vertical joints full with mortar.

4. Leave all joints with exposed tops or under relieving angles open for sealant.

5. Leave head joints in copings and projecting components open for sealant.

C. Location of joints:

1. As shown on shop drawings.

2. At control and expansion joints unless otherwise shown.

3.4. Setting

A. Drench units with clean water prior to setting.

B. Fill dowel holes and anchor slots completely with mortar or non-shrink grout.

C. Set units in full bed of mortar, unless otherwise detailed.

D. Rake mortar joints 3/4 in. (18 mm) in. for pointing.

E. Remove excess mortar from unit faces immediately after setting.

F. Tuck point unit joints to a slight concave profile.

3.5. Joint Protection

A. Comply with requirements of Section 07 90 00.

B. Prime ends of units, insert properly sized backing rod and install required sealant.

3.6. Repair and Cleaning

A. Repair chips with touchup materials furnished by manufacturer.

B. Saturate units to be cleaned prior to applying an approved masonry cleaner.

C. Consult with manufacturer for appropriate cleaners

3.7. Inspection and Acceptance

A. Inspect finished installation according to Bulletin #36.

B. Do not field apply water repellant until repair, cleaning, inspection and acceptance is completed.

DIVISION 05 METALS

05 12 00 STRUCTURAL STEEL FRAMING

1.1 GENERAL

A. See Structural Drawings for detailed project notes and specifications for structural steel work. Any discrepancies between the Structural Drawings/Specifications and this document, shall be brought to the Architect's attention immediately for clarification before work proceeds.

B. The Contractor shall furnish and install all columns, trusses, frames, girders, beams, angles, lintels, joists, bearing plates, anchor bolts, channels, structural steel, and other metal items as shown on or required by the drawings and as herein specified or reasonably implied.

C. The "Specification for the Design, Fabrication and Erection of Structural Steel for Buildings" of the American Institute of Steel Construction shall be considered as a part of this specification.

1.2 MATERIALS

A. Steel: ASTM A-36; Tubes: ASTM A500; steel joists: steel joist institute.

B. High Strength Bolts: A325 bolts with threading excluded from the shear planes, unless otherwise noted on drawings.

C. Machine Bolts: ASTM Specifications for Structural Steel for Bridges and Buildings.

1.3 CONNECTIONS

A. Shop: welded

B. Field: 3/4" high strength bolts, unless otherwise noted.

C. All connections shall develop the full strength of the member and/or the loads shown on the drawings.

D. No connection shall have less than four bolts.

1.4 WORKMANSHIP

A. All workmanship shall meet AISC Specifications "The Design, Fabrication and Erection of Structural Steel for Buildings."

B. Dissimilar metals: Where dissimilar metals come in contact with each other, paint each surface with heavy coat of asphalt paint or otherwise insulate from each other to prevent galvanic action.

1.5 SHOP DRAWINGS

A. A minimum of three (3) sets of Shop Drawings comparable to those in AISC "Structural Steel Detailing" shall be prepared by fabricator and submitted to Architect for review in accordance with General Conditions.

1.6 ERECTION

A. All erection shall meet AISC Specification, "The Design, Fabrication and Erection of Structural Steel for Buildings."

1.7 ANCHOR BOLTS AND COLUMN BASE SETTINGS

A. Where exposed to view and/or weather, all anchor bolts shall be hot double-dipped galvanized.

B. Column base plates shall be thoroughly grouted to elevation shown on plans. Grout shall consist of Embeco grout or approved equal.

1.8 QUALITY CONTROL

A. All bolts shall achieve 380 lbs. of torque.

END OF DIVISION 05

DIVISION 06 WOOD, PLASTICS, AND COMPOSITES

06 00 00 GENERAL

A. Lumber must be sound, thoroughly seasoned, well manufactured and free from warp. All lumber shall comply with the American Lumber Standard using only the recognized official marks of the Association under whose rules it is graded.

B. Moisture content shall not exceed 19 percent (19%) for framing lumber and 15 percent (15%) for millwork and finish lumber.

C. Treated Lumber: All lumber touching concrete or masonry, or exposed to the weather or roof deck, or used to apply or hold in place the roof flashing and where indicated on the drawings or specifications, and unless specified otherwise, shall be pressure treated WOLMONIZED using Kopper WOLMAN CCA treatment or approved equal in accordance with the latest specifications for treatment of Koppers Co., Inc.

06 10 00 ROUGH CARPENTRY

A. Where required by job conditions, provide all sills, joists, studs, bracing, furring, blocking and rough hardware, such as nails, bolts, anchors as needed for a complete installation. Concealed blocking to include, but is not limited to that which is required to install overhead cabinets, grab bars, baby changing stations, urinal screens and toilet room equipment.

B. Wood framing shall be cut square on bearing, closely filled, accurately set to required lines and levels, and rigidly secured in place.

C. Where wood structural members, wood blocking and anchoring elements are used to anchor items used by disabled persons, all such elements shall meet the minimum requirements for structural strength of the Americans with Disabilities Act of 1991.

D. Concealed framing lumber, including all concealed blocking , bracing and furring shall be Standard Grade Spruce or Construction Grade Cedar or better.

06 17 53 SHOP-FABRICATED WOOD TRUSSES

A. See Structural Drawings for detailed project notes and specifications for wood trusses. Any discrepancies between the Structural Drawing/Specifications and this document shall be brought to the Architect's attention immediately, for clarification, before work proceeds.

B. Furnish and install over the entire roof area a wood trussed rafter system with clear span as shown on drawings supporting roof system. Trusses to be designed to support a roof live load of 20 pounds per square foot, dead load of 15 pounds per square foot, ceiling load of 15 pounds p.s.f., wind pressure of 30 pounds p.s.f., seismic forces in accordance with the 2006 International Building Code. No reduction in live load for short duration loading. Maximum spacing shall be 24" on center.

C. Design standards shall conform with the applicable provision of the *National Design Specification for Wood Construction* published by The National Forest Products Association and the *Design Specification for Light Metal Plate Connected Wood Trusses* published by The Truss Plate Institute.

D. Truss design and connector plates shall be by Alpine Engineered Products, Inc. or approved equal; and fabrication by Builder's First Choice of Sumter, South Carolina or an approved equal. Furnish shop drawings and design calculations bearing the seal of an engineer registered in South Carolina for review prior to fabrication.

E. Trusses to be constructed of No. 2 Southern Yellow Pine or better. Truss fabricator to provide all bridging, plates and straps required for anchoring of and connecting to or between trusses and as otherwise indicated on the drawings.

F. Where wood is treated, all plates and connectors are to be stainless steel or other non-corroding metal suitable for use with the treatment of the wood.

1. Wood connectors: Where called for on the drawings, furnish and install galvanized strong-tie connectors by Simpson or approved equal in shapes and sizes indicated on the DRAWINGS.

END OF DIVISION 06

SECTION 06 10 10 CARPENTRY

PART 1 – GENERAL

1.1 DESCRIPTION:

Section specifies wood blocking, framing, sheathing, furring, nailers, sub-flooring, rough hardware, and light wood construction.

1.3 SUMBITTALS:

A. Submit in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.

B. Shop Drawings showing framing connection details, fasteners, connections and dimensions.

1.4 PRODUCT DELIVERY, STORAGE AND HANDLING:

A. Protect lumber and other products from dampness both during and after delivery at site.

B. Pile lumber in stacks in such manner as to provide air circulation around surfaces of each piece.

C. Stack plywood and other board products so as to prevent warping.

D. Locate stacks on well drained areas, supported at least (6 inches) above grade and cover with well ventilated sheds having firmly constructed over hanging roof with sufficient end wall to protect lumber from driving rain.

1.5 APPLICABLE PUBLICATIONS:

A. Publications listed below form a part of this specification to extent referenced. Publications are referenced in the text by basic designation only.

B. American Forest and Paper Association (AFPA):
National Design Specification for Wood Construction
NDS-05 .....Conventional Wood Frame Construction

C. American Institute of Timber Construction (AITC):
A190.1-07 .....Structural Glued Laminated Timber

D. American Society of Mechanical Engineers (ASME):

B18.2.1-96(R2005) .....Square and Hex Bolts and Screws

B18.2.2-87.....Square and Hex Nuts

B18.6.1-97.....Wood Screws

B18.6.4-98(R2005) .....Thread Forming and Thread Cutting Tapping Screws and Metallic Drive Screws

E. American Plywood Association (APA):

E30-07.....Engineered Wood Construction Guide

F. American Society for Testing And Materials (ASTM):

A47-99(R2009).....Ferritic Malleable Iron Castings

A48-03(R2008).....Gray Iron Castings

A653/A653M-10.....Steel Sheet Zinc-Coated (Galvanized) or Zinc-Iron Alloy Coated (Galvannealed) by the Hot Dip Process

C954-10.....Steel Drill Screws for the Application of Gypsum Board or Metal Plaster Bases to Steel Studs from 0.033 inch (2.24 mm) to 0.112-inch (2.84 mm) in thickness

C1002-07.....Steel Self-Piercing Tapping Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Metal Studs

D143-09 .....Small Clear Specimens of Timber, Method of Testing

D1760-01 .....Pressure Treatment of Timber Products

D2559-10 .....Adhesives for Structural Laminated Wood Products for Use Under Exterior (Wet Use) Exposure Conditions

D3498-11 .....Adhesives for Field-Gluing Plywood to Lumber Framing for Floor Systems

F844-07.....Washers, Steel, Plan (Flat) Unhardened for General Use

F1667-08.....Nails, Spikes, and Staples

G. Federal Specifications (Fed. Spec.):

MM-L-736C.....Lumber; Hardwood

H. Commercial Item Description (CID):

A-A-55615 .....Shield, Expansion (Wood Screw and Lag Bolt Self Threading Anchors)

I. Military Specification (Mil. Spec.):
MIL-L-19140E.....Lumber and Plywood, Fire-Retardant Treated

J. Truss Plate Institute (TPI):
TPI-85 .....Metal Plate Connected Wood Trusses

K. U.S. Department of Commerce Product Standard (PS)
PS 1-95.....Construction and Industrial Plywood
PS 20-05.....American Softwood Lumber Standard

PART 2 – PRODUCTS

2.1 LUMBER:

A. Unless otherwise specified, each piece of lumber bear grade mark, stamp, or other identifying marks indicating grades of material, and rules or standards under which produced.
   1. Identifying marks in accordance with rule or standard under which material is produced, including requirements for qualifications and authority of the inspection organization, usage of authorized identification, and information included in the identification.
   2. Inspection agency for lumber approved by the Board of Review, American Lumber Standards Committee, to grade species used.

B. Structural Members: Species and grade as listed in the AFPA, National Design Specification for Wood Construction having design stresses as shown.

C. Lumber Other Than Structural:
   1. Unless otherwise specified, species graded under the grading rules of an inspection agency approved by Board of Review, American Lumber Standards Committee.
   2. Framing lumber: Minimum extreme fiber stress in bending of 1100.
   3. Furring, blocking, nailers and similar items (4 inches) and narrower Standard Grade; and, members 150 mm (6 inches) and wider, Number 2 Grade.
   4. Board Sub-flooring: Shiplap edge, (1 inch) thick, not less than (8 inches) wide. //

D. Sizes:
   1. Conforming to Prod. Std., PS20.
   2. Size references are nominal sizes, unless otherwise specified, actual sizes within manufacturing tolerances allowed by standard under which produced.

E. Moisture Content:
   1. At time of delivery and maintained at the site.
   2. Boards and lumber (2 inches) and less in thickness: 19 percent or less.
   3. Lumber over (2 inches) thick: 25 percent or less.

F. Fire Retardant Treatment:
   1. Mil Spec. MIL-L-19140 with piece of treated material bearing identification of testing agency and showing performance rating.
   2. Treatment and performance inspection, by an independent and qualified testing agency that establishes performance ratings.

G. Preservative Treatment:
   1. Do not treat Heart Redwood and Western Red Cedar.
   2. Treat wood members and plywood exposed to weather or in contact with plaster, masonry or concrete, including framing of open roofed structures; sills, sole plates, furring, and sleepers that are less than (24 inches) from ground; nailers, edge strips, blocking, crickets, curbs, cant, vent strips and other members used in connection with roofing and flashing materials.
   3. Treat other members specified as preservative treated (PT).
   4. Preservative treat by the pressure method complying with ASTM D1760, except any process involving the use of Chromated Copper arsenate (CCA) for pressure treating wood is not permitted.

2.2 PLYWOOD

A. Comply with Prod. Std., PS 1.

B. Bear the mark of a recognized association or independent inspection agency that maintains continuing control over quality of plywood which identifies compliance by veneer grade, group number, span rating where applicable, and glue type.

C. Sheathing:
   1. APA rated Exposure 1 or Exterior; panel grade CD or better.

2. Wall sheathing:
    a. Minimum (11/32 inch) thick with supports (16 inches) on center and (15/32 inch) thick with supports (24 inches) on center unless specified otherwise.
    b. Minimum (48 inches) wide at corners without corner bracing of framing.

3. Roof sheathing:
    a. Minimum (11/32 inch) thick with span rating 24/0 or (15/32 inch) thick with span rating for supports (16 inches) on center unless specified otherwise.
    b. Minimum (19/32 inch) thick or span rating of 40/20 or (23/32 inch) thick or span rating of 48/24 for supports (24 inches) on center.

D. Subflooring:
1. Under finish wood flooring or underlayment:
    a. APA Rated sheathing, Exposure 1. panel grade CD.
    b. Minimum (19/32 inch) thick with span rating 32/16 or greater for supports at (16 inches) on center and (23/32 inch) thick with span rating 48/24 for supports at (24 inches) on center.
2. Combination subflooring-underlayment under resilient flooring or carpet:
    a. APA Rated Stud-I-Floor Exterior or Exposure 1, T and G.
    b. Minimum (19/32 inch) thick or greater, span rating 16, for supports at (16 inches) on center; (23/32 inch) thick or greater, span rating 24, for supports at (24 inches) on center.
    c. Minimum (3/4-inch) thick or greater, span rating 32, for supports at (32 inches) on center; (1-1/8 inch) thick, span rating 48 for supports at (48 inches) on center.

E. Underlayment:
1. APA rated Exposure 1 or Exterior, panel grade C-C Plugged.
2. Minimum (1/4 inch) thick or greater over plywood subflooring // and (3/8 inch) thick or greater over board subflooring, // unless otherwise shown.

2.3 STRUCTURAL-USE PANELS

A. Comply with APA.

B. Bearing the mark of a recognized association or independent agency that maintains continuing control over quality of panel which identifies compliance by end use, Span Rating, and exposure durability classification.

C. Wall and Roof Sheathing:
   1. APA Rated sheathing panels, durability classification of Exposure 1 or Exterior Span Rating of 16/0 or greater for supports (16 inches) on center and 24/0 or greater for supports (24 inches) on center.

D. Subflooring:
   1. Under finish wood flooring or underlayment:
      a. APA rated sheathing panels, durability classification of Exposure 1 or Exterior.
      b. Span Rating of 24/16 or greater for supports (16 inches) on
   2. Under resilient floor or carpet.
      a. APA rated combination subfloor-underlayment grade panels, durability classification of Exposure 1 or Exterior T and G.
      b. Span Rating of 16 or greater for supports (16 inches) on center and 24 or greater for supports (24 inches) on center.

E. Underlayment:
   1. APA rated Exposure l.
   2. Minimum (1/4 inch) thick or greater over subfloor.

F. Wood "I" Beam Members:
   1. Size and Shape as shown.
   2. Cambered and marked "Top up".
   3. Plywood webs: PS-1, minimum (3/8 inch) thick, unless shown otherwise.
   4. Flanges: Kiln dried stress rated dense lumber minimum (1-1/2 inch) thick, width as shown.
   5. Plywood web fitted into flanges and joined with ASTM D2559 adhesive to form "I" beam section unless shown otherwise.

G. Laminated Veneer Lumber (LVL):
   1. Bonded jointed wood veneers with ASTM D2559 adhesive.
   2. Scarf jointed wood veneers with grain of wood parallel.
   3. Size as shown.

2.4 ROUGH HARDWARE AND ADHESIVES:

A. Anchor Bolts:
   1. ASME B18.2.1 and ANSI B18.2.2 galvanized, (1/2 inch) unless shown otherwise.
   2. Extend at least (8 inches) into masonry or concrete with ends bent (2 inches).

B. Miscellaneous Bolts: Expansion Bolts: C1D, A-A-55615; lag bolt, long enough to extend at least (2-1/2 inches) into masonry or concrete. Use (1/2 inch) bolt unless shown otherwise.

C. Washers
   1. ASTM F844.
   2. Use zinc or cadmium coated steel or cast iron for washers exposed to weather.

D. Screws:
   1. Wood to Wood: ANSI B18.6.1 or ASTM C1002.
   2. Wood to Steel: ASTM C954, or ASTM C1002.

E. Nails:
   1. Size and type best suited for purpose unless noted otherwise. Use aluminum-alloy nails, plated nails, or zinc-coated nails, for nailing wood work exposed to weather and on roof blocking.
   2. ASTM F1667:
      a. Common: Type I, Style 10.
      b. Concrete: Type I, Style 11.
      c. Barbed: Type I, Style 26.
      d. Underlayment: Type I, Style 25.
      e. Masonry: Type I, Style 27.
      f. Use special nails designed for use with ties, strap anchors, framing connectors, joists hangers, and similar items. Nails not less than 32 mm (1-1/4 inches) long, 8d and deformed or annular ring shank.

F. Framing and Timber Connectors:
   1. Fabricate of ASTM A446, Grade A; steel sheet not less than (0.052 inch) thick unless specified otherwise. Apply standard plating to steel timber connectors after punching, forming and assembly of parts.

2. Framing Angles: Angle designed with bendable legs to provide three way anchors.
3. Straps:
    a. Designed to provide wind and seismic ties with sizes as shown or specified.
    b. Strap ties not less than (1-1/4 inches) wide.
    c. Punched for fastener.
4. Metal Bridging:
    a. Optional to wood bridging.
    b. V shape deformed strap with not less than 2 nail holes at ends, designed to nail to top and side of framing member and bottom and side of opposite member.
    c. Not less than by (3/4 by 5 inches) bendable nailing flange on ends.
    d. Fabricated of (0.04 inch) minimum thick sheet.
5. Joist Hangers:
    a. Fabricated of (0.063 inch) minimum thick sheet, U design unless shown otherwise.
    b. Heavy duty hangers fabricated of minimum (0.108 inch) thick sheet, U design with bent top flange to lap over beam.
6. Timber Connectors: Fabricated of steel to shapes shown.
7. Joist Ties: Mild steel flats, (3/16 by 1-1/4 inch size with ends bent about 30 degrees from horizontal, and extending at least (16 inches) onto framing. Punch each end for three spikes.
8. Wall Anchors for Joists and Rafters:
    a. Mild steel strap, (3/16 by 1-1/4 inch) with wall ends bent 50 mm (2 inches), or provide (3/8 by 5 inch) pin through strap end built into masonry.
    b. Strap long enough to extend onto three joists or rafters, and punched for spiking at each bearing.
    c. Strap not less than (4 inches) embedded end.
9. Joint Plates:
    a. Steel plate punched for nails.
    b. Steel plates formed with teeth or prongs for mechanically clamping plates to wood.
    c. Size for axial eccentricity, and fastener loads.

G. Adhesives:

1. For field-gluing plywood to lumber framing floor or roof systems: ASTM D3498.
2. For structural laminated Wood: ASTM D2559.

PART 3 – EXECUTION

3.1 INSTALLATION OF FRAMING AND MISCELLANEOUS WOOD MEMBERS:

A. Conform to applicable requirements of the following:

1. AFPA National Design Specification for Wood Construction for timber connectors.
2. AITC Timber Construction Manual for heavy timber construction.
3. AFPA WCD-number 1, Manual for House Framing for nailing and framing unless specified otherwise.
4. APA for installation of plywood or structural use panels.
5. ASTM F 499 for wood underlayment.
6. TPI for metal plate connected wood trusses.

B. Fasteners:

1. Nails.
    a. Nail in accordance with the Recommended Nailing Schedule as specified in AFPA Manual for House Framing where detailed nailing requirements are not specified in nailing schedule. Select nail size and nail spacing sufficient to develop adequate strength for the connection without splitting the members.
    b. Use special nails with framing connectors.
    c. For sheathing and subflooring, select length of nails sufficient to extend (1 inch) into supports.
    d. Use eight penny or larger nails for nailing through (1 inch) thick lumber and for toe nailing (2 inch) thick lumber.
    e. Use 16 penny or larger nails for nailing through (2 inch) thick lumber.
    f. Select the size and number of nails in accordance with the Nailing Schedule except for special nails with framing anchors.
    g. Nailing Schedule; Using Common Nails:
        1) Joist bearing on sill or girder, toe nail three-8d or framing anchor
        2) Bridging to joist, toe nail each end two-8d

3) Ledger strip to beam or girder three-16d under each joint.
4) Subflooring or Sheathing:
   a) (6 inch) wide or less to each joist face nail two-8d.
   b) Subflooring, more than (6 inches) wide, to each stud or joint, face nail three-8d.
   c) Plywood or structural use panel to each stud or joist face nail 8d, at supported edges (6 inches) on center and at intermediate supports (10 inches) on center. When gluing plywood to joint framing increase nail spacing to (12 inches) at supported edges and (20 inches) o.c. at intermediate supports.
5) Sole plate to joist or blocking, through sub floor face nail 20d nails, (16 inches) on center.
6) Top plate to stud, end nail two-16d.
7) Stud to sole plate, toe nail or framing anchor. Four-8d
8) Doubled studs, face nail 16d at (24 inches) on center.
9) Built-up corner studs 16d at (24 inches) (24 inches) on center.
10) Doubled top plates, face nails 16d at (16 inches) on center.
11) Top plates, laps, and intersections, face nail two-16d.
12) Continuous header, two pieces 16d at (16 inches) on center along each edge.
13) Ceiling joists to plate, toenail three-8d or framing anchor.
14) Continuous header to stud, four 16d.
15) Ceiling joists, laps over partitions, face nail three-16d or framing anchor.
16) Ceiling joists, to parallel rafters, face nail three-16d.
17) Rafter to plate, toe nail three-8d. or framing anchor. Brace (1 inch) thick board to each stud and plate, face nail three-8d.
18) Built-up girders and beams 20d at (32 inches) on center along each edge.

2. Bolts:
   a. Fit bolt heads and nuts bearing on wood with washers.
   b. Countersink bolt heads flush with the surface of nailers.

c. Embed in concrete and solid masonry or use expansion bolts. Special bolts or screws designed for anchor to solid masonry or concrete in drilled holes may be used.
d. Use toggle bolts to hollow masonry or sheet metal.
e. Use bolts to steel over (0.112 inch, 11 gage) in thickness. Secure wood nailers to vertical structural steel members with bolts, placed one at ends of nailer and 600 mm (24 inch) intervals between end bolts. Use clips to beam flanges.

3. Drill Screws to steel less than (0.112 inch) thick.
   a. ASTM C1002 for steel less than (0.033 inch) thick.
   b. ASTM C 954 for steel over (0.033 inch) thick.
4. Power actuated drive pins may be used where practical to anchor to solid masonry, concrete, or steel.
5. Do not anchor to wood plugs or nailing blocks in masonry or concrete. Use metal plugs, inserts or similar fastening.
6. Screws to Join Wood:
   a. Where shown or option to nails.
   b. ASTM C1002, sized to provide not less than (1 inch) penetration into anchorage member.
   c. Spaced same as nails.
7. Installation of Timber Connectors:
   a. Conform to applicable requirements of the NFPA National Design Specification for Wood Construction.
   b. Fit wood to connectors and drill holes for fasteners so wood is not split.

C. Set sills or plates level in full bed of mortar on masonry or concrete walls.
1. Space anchor bolts (4 feet) on centers between ends and within (6 inches) of end. Stagger bolts from side to side on plates over (7 inches) in width.
2. Use shims of slate, tile or similar approved material to level wood members resting on concrete or masonry. Do not use wood shims or wedges.
3. Closely fit, and set to required lines.

D. Cut notch, or bore in accordance with NFPA Manual for House-Framing for passage of ducts wires, bolts, pipes, conduits and to accommodate other work. Repair or replace miscut, misfit or damaged work.

E. Blocking Nailers, and Furring:

1. Install furring, blocking, nailers, and grounds where shown.
2. Use longest lengths practicable.
3. Use fire retardant treated wood blocking where shown at openings and where shown or specified.
4. Layers of Blocking or Plates:
   a. Stagger end joints between upper and lower pieces.
   b. Nail at ends and not over (24 inches) between ends.
   c. Stagger nails from side to side of wood member over (5 inches) in width.
5. Unless otherwise shown, use wall furring (1 inch by 3 inch) continuous wood strips installed plumb on walls, using wood shims where necessary so face of furring forms a true, even plane. Space furring not over (16 inches on centers, butt joints over bearings and rigidly secure in place. Anchor furring on (16 inches) centers. //

F. Floor / Ceiling Framing :

1. Set with crown edge up.
2. Bear on not less than (4 inches) on concrete and masonry, and (1-1/2 inches) on wood and metal unless shown otherwise.
3. Support joist, trimmer joists, headers, and beams framing into carrying members at same relative levels on joist hangers unless shown otherwise.
5. Lap and spike wood joists together at bearing, or butt end-to-end with scab ties at joint and spike to plates. Scab tie lengths not less than (8 inches) lap on joist ends. Install wood I beam joists as shown.
6. Frame openings with headers and trimmer joist. Double headers carrying more than two tail joists and trimmer joists supporting headers carrying more than one tail joist unless otherwise shown.
7. Drive nails through headers into joists using two nails for (2 inch by 6 inch); three nails for 50 mm by 200 mm (2 inch by 8 inch) and four nails for (2 inch by 10 inch) and over in size.

8. Install nearest joist to double headers and spike joist to both header members before trimmer joist is installed and secured together.
9. Doubled joists under partitions parallel with floor joists. // Fire cut joists built into masonry or concrete. //
10. Where joists run perpendicular to masonry or concrete, anchor every third joist to masonry or concrete with one metal wall anchor. Securely spike anchors with three nails to side of joist near its bottom.
11. Anchor joists running parallel with masonry or concrete walls to walls with steel flats spaced not over (6 feet) apart. Extend steel flats over at least three joists and into masonry (4 inches) with ends turned (2 inches); bolt to concrete. Set top of flats flush with top of joists, and securely nail steel flats to each joist.
12. Hook ties at steel framing over top flange of steel members.
13. Nonbearing partitions running parallel with ceiling joists, install solid (2 inch) thick bridging same depth as ceiling joists cut to fit snug between joists for securing top plate of partitions. Securely spike bridging to joists. Space (4 feet) on center.

G. Bridging:
1. Use (1 inch by 3 inch) lumber with ends beveled for slope. Option: Metal bridging may be used for wood bridging.
2. Install one row of bridging for joist spans over (8 feet), but less than (16 feet) long; install two rows for spans over (16 feet) long.
3. Install an extra row of bridging between trimmer and next two joists if header is more than (2 feet) from end of trimmer or from regular row of bridging.
4. Secure with two nails at ends.
5. Leave bottom ends loose until after subflooring or roof sheathing is installed.
6. Install single row of bridging at centerline of span and two rows at the third points of span unless otherwise shown.

H. Roof Framing:
1. Set rafters with crown edge up.
2. Form a true plane at tops of rafters.
3. Valley, Ridge, and Hip Members:
   a. Size for depth of cut on rafters.

b. Straight and true intersections of roof planes.
c. Secure hip and valley rafters to wall plates by using framing connectors.
d. Double valley rafters longer than the available lumber, with pieces lapped not less than (4 feet) and spiked together.
e. Butt joint and scab hip rafters longer than the available lumber.

4. Spike to wall plate and to ceiling joists except when secured with framing connectors.
5. Frame openings in roof with headers and trimmer rafters. Double headers carrying more than one rafter unless shown otherwise.
6. Install (2 inch by 4 inch) strut between roof rafters and ceiling joists at (4 feet) on center unless shown otherwise.

I. Framing of Dormers:
1. Frame as shown, with top edge of ridge beveled to pitch of roof header.
2. Set studs on doubled trimmer rafters.
3. Double studs at corners of dormers.
4. Double plate on studs and notch rafters over plate and bear at least (3 inches) on plates.
5. Frame opening to receive window frame or louver frame.

J. Partition and Wall Framing:
1. Use (2 inch by 4 inch) studs spaced (16 inches) on centers; unless shown otherwise.
2. Install double studs at openings and triple studs at corners.
3. Installation of sole plate:
a. Anchor plates of walls or partitions resting on concrete floors in place with expansion bolts, one near ends of piece and at intermediate intervals of not more than (4 feet) or with power actuated drive pins with threaded ends of suitable type and size, spaced 600 mm (2 feet) on center unless shown otherwise.
b. Nail plates to wood framing through subfloor as specified in nailing schedule.
4. Headers or Lintels:
a. Make headers for openings of two pieces of (2 inch) thick lumber of size shown with plywood filler to finish flush with face of studs or solid lumber of equivalent size.

b. Support ends of headers on top of stud cut for height of opening. Spike cut stud to adjacent stud. Spike adjacent stud to header.

5. Use double top plates, with members lapped at least (2-feet) spiked together.
6. Install intermediate cut studs over headers and under sills to maintain uniformity of stud spacing.
7. Use single sill plates at bottom of opening unless shown otherwise. Toe nail to end stud, face nail to intermediate studs.
8. Install (2 inch) blocking for firestopping so that maximum dimension of any concealed space is not over (8 feet) in accordance with NFPA Manual for House Framing.
9. Install corner bracing when plywood or structured use panel sheathing is not used.
   a. Let corner bracing into exterior surfaces of studs at an angle of approximately 45 degrees, extended completely over walls plates, and secured at bearing with two nails.
   b. Use (1 inch by 4 inch) corner bracing.

K. Rough Bucks:

1. Install rough wood bucks at opening in masonry or concrete where wood frames or trim occur.
2. Brace and maintain bucks plumb and true until masonry has been built around them or concrete cast in place.
3. Cut rough bucks from (2 inch) thick stock, of same width as partitions in which they occur and of width shown in exterior walls.
4. Extend bucks full height of openings and across head of openings; fasten securely with anchors specified.

L. Subflooring:

1. Subflooring may be either boards, structural-use panels, or plywood.
2. Lay board subflooring diagonally, with close joints. Stagger end joints and make joints over supports. Bear each board on at least three supports.
3. Provide a clearance of approximately (1/2 inch) at masonry or concrete at walls.

4. Apply plywood and structural-use panel subflooring with face grain or long dimension at right angles to the supports, with edges (1/4 inch) apart at side joints, and 3 mm (1/8 inch) apart at end joints.
5. Combination subfloor-underlayment:
    a. Space edges (1/8 inch) apart.
    b. Provide a clearance of (1/4 inch) at masonry on concrete at walls.
6. Stagger panel end joints and make over support.

M. Underlayment:
1. Where finish flooring of different thickness is used in adjoining areas, use underlayment of thickness required to bring finish flooring surfaces into same plane.
2. Apply to dry, level, securely nailed, clean, wood subfloor without any projections.
3. Fasten to subfloor as specified in ASTM F499.
4. Plywood and particle underlayment may be glue-nailed to subfloor.
5. Butt underlayment panels to a light contact with a (1/32 inch) space between plywood or hardboard underlayment panels and walls, and approximately (3/8 inch) between particleboard underlayment panels and walls.
6. Stagger underlayment panel end joints with respect to each other and offset joints with respect to joints in the subfloor at least (2 inches).
7. After installation, avoid traffic on underlayment and damage to its finish surface.

N. Sheathing:
1. Use plywood or structural-use panels for sheathing.
2. Lay panels with joints staggered, with edge and ends 3 mm (1/8 inch) apart and nailed over bearings as specified.
3. Set nails not less than (3/8 inch) from edges.
4. Install (2 inch by 4 inch) blocking spiked between joists, rafters and studs to support edge or end joints of panels.

End of Section

DIVISION 07 THERMAL AND MOISTURE PROTECTION

07 21 00 THERMAL INSULATION

A. **VAPOR BARRIER**: Provide .006 polyethylene membrane under all concrete slabs on grade. Lap all joints 8" minimum. Grade shall be free of any sharp objects that would damage vapor barrier.

B. **INSULATION:**

1. **EXTERIOR ROOF AND WALL INSULATION** as called for on the drawings:

    a. R-38 and R-19 unfaced batt fiberglass insulation by Owens-Corning or approved equal.

2. **RIGID INSULATION** as called for on the drawings:

    a. Foamlar - R-3.8 as manufactured by Owens Corning, or approved equal.

3. All insulation shall comply with 2021 International Building Code, Section 719.

07 24 00 EXTERIOR INSULATION AND FINISH SYSTEMS (EIFS)

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Manufacturer's requirements for the proper design, use and installation of and Exterior Insulation and Finish System.

1.2 REFERENCES

A. ASTM B117: TEST METHOD FOR SALT SPRAY (FOG) TESTING

B. ASTM C1135 : TEST METHOD FOR DETERMINING TENSILE ADHESION PROPERTIES OF STRUCTURAL SEALANTS

C. ASTM D968: STANDARD TEST METHODS FOR ABRASION RESISTANCE OF ORGANIC COATINGS BY FALLING ABRASIVE

D. ASTM D1037: STANDARD TEST METHODS FOR EVALUATING PROPERTIES OF WOOD-BASE FIBER AND PARTICLE PANEL MATERIALS

E. ASTM D2247: PRACTICE FOR TESTING WATER RESISTANCE OF COATINGS IN 100 PERCENT RELATIVE HUMIDITY

F. ASTM D2294: STANDARD TEST METHOD FOR CREEP PROPERTIES OF ADHESIVES IN SHEAR BY TENSION LOADING (METAL TO METAL)

G. ASTM D2794: STANDARD TEST METHOD FOR RESISTANCE OF ORGANIC COATINGS TO THE EFFECTS OF RAPID DEFORMATION (IMPACT)

H. ASTM D3273: STANDARD TEST METHOD FOR RESISTANCE TO GROWTH OF MOLD ON THE SURFACE OF INTERIOR COATINGS IN AN ENVIRONMENTAL CHAMBER

I. ASTM E84: TEST METHOD FOR SURFACE BURNING CHARACTERISTICS OF BUILDING MATERIALS

J. ASTM E108: STANDARD TEST METHODS FOR FIRE TESTS OF ROOF COVERINGS

K. ASTM E119: STANDARD TEST METHOD FOR FIRE TESTS OF BUILDING CONSTRUCTION AND MATERIALS

L. ASTM E330: TEST METHOD FOR STRUCTURAL PERFORMANCE BY UNIFORM STATIC AIR PRESSURE DIFFERENCE

M. ASTM E331: TEST METHOD FOR WATER PENETRATION BY UNIFORM STATIC AIR PRESSURE DIFFERENCE

N. ASTM E695: METHOD FOR MEASURING RELATIVE RESISTANCE TO IMPACT LOADING

O. ASTM E2134: STANDARD TEST METHOD FOR EVALUATING THE TENSILE-ADHESION PERFORMANCE OF AND EXTERIOR INSULATION AND FINISH SYSTEM (EIFS)

P. ASTM E2430: STANDARD SPECIFICATION FOR EXPANDED POLYSTYRENE (EPS) THERMAL INSULATION BOARDS FOR USE IN EXTERIOR INSULATION AND FINISH SYSTEMS (EIFS)

Q. ASTM E2485: STANDARD TEST METHOD FOR FREEZE/THAW RESISTANCE OF EXTERIOR INSULATION AND FINISH SYSTEMS (EIFS) AND WATER RESISTIVE BARRIER COATINGS

R. ASTM E2486: STANDARD TEST METHOD FOR IMPACT RESISTANCE OF CLASS PB AND PI EXTERIOR INSULATION AND FINISH SYSTEMS (EIFS)

S. ASTM G155/G153: ACCELERATED WEATHERING FOR EXPOSURE OF NONMETALLIC MATERIALS

T. FED. SPEC. TT-C-555B: COATING, TEXTURED (FOR INTERIOR AND EXTERIOR MASONRY SURFACES)

U. MIL STD 810B: MILITARY STANDARD, ENVIRONMENTAL TEST METHODS

V. NFPA 259: TEST METHOD FOR POTENTIAL HEAT OF BUILDING MATERIALS

W. NFPA 268: STANDARD TEST METHOD FOR DETERMINING IGNITABILITY OF EXTERIOR WALL ASSEMBLIES USING A RADIANT HEAT ENERGY SOURCE

X. NFPA 285: STANDARD METHOD OF TEST FOR THE EVALUATION OF FLAMMABILITY CHARACTERISTICS OF EXTERIOR NON-LOAD BEARING WALL ASSEMBLIES CONTAINING COMBUSTIBLE COMPONENTS USING THE INTERMEDIATE-SCALE, MULTISTORY TEST APPARATUS

1.3 ASSEMBLY DESCRIPTION

A. Standard Class PB Exterior Insulation and Finish System (EIFS): Adhesive, Expanded Polystyrene Insulation (EPS) Board, Base Coat with embedded Reinforcing Fiber Mesh, Primer (Optional), and Finish Coat. This system is installed over glass mat gypsum sheathing, cement board sheathing, CDX plywood, Exposure 1, OSB, concrete or CMU.

B. Functional Criteria:

1. General:

a. Insulation Board: At system termination, completely encapsulate insulation board edges by mesh reinforced base coat. The use of and maximum thickness of insulation board shall be in accordance with applicable building codes and EIFS manufacturer's requirements.

b. Flashing: Flashing shall be continuous and watertight. Flashing shall be designed and installed to prevent water infiltration behind the cladding. Refer to Division 07 Flashing Section for specified flashing materials.

c. See current ICC Evaluation Service Report or contact EIFS manufacturer's technical department for design windloads.

d. Inclined surfaces shall follow the guidelines listed below:

(1) Minimum Slope: 6" (152 mm) of vertical rise in 12" (305 mm) of horizontal run.
(2) For sloped surfaces, run of slope shall be a maximum of 12" (305mm).
(3) Usage not meeting above criteria shall be approved in writing prior to installation.

e. The building interior shall be separated from the insulation board by ½" (12.7 mm) of gypsum board or equivalent 15 minute thermal barrier.

2. Performance Requirements:

   a. System to meet the performance and testing requirements of the International Code Council Acceptance Criteria AC 219.

   b. Shall meet the testing requirements of the Product Performance Sheet.

3. Substrate Systems:

   a. Shall be engineered to withstand applicable design loads including required safety factor.

   b. Maximum deflection of substrate system under positive or negative design loads shall not exceed L/240 of span.

   c. Substrate dimensional tolerance: Flat within 1/4" (6.4mm) in any 4 ft. (122 cm) radius.

   d. Surface irregularities: Sheathing not over 1/8" (3mm): masonry not over 3/16" (4.8 mm).

4. Impact Resistance Classification:

   a. Standard Impact Resistance, 25-49 in-lbs (2.8 -5.6J) Impact Range

5. Expansion Joints: Continuous expansion joints shall be installed at the following locations in accordance with the manufacturer's recommendations:

   a. At building expansion joints.
   b. At substrate expansion joints.
   c. At floor lines in wood frame construction.
   d. Where EIFS panels abut one another.
   e. Where EIFS abuts other materials.
   f. Where significant structural movement occurs, such as at:
      (1) Changes in roof line
      (2) Changes in building shape and/or structural system
   g. Where substrate changes.

h. Substrate movement and expansion and contraction of EIFS and adjacent materials shall be taken into account in design of expansion joints, with proper consideration given to sealant properties, installation conditions, temperature range, coefficients of expansion of materials, joint width to depth ratios, and other material factors. Minimum width of expansion joints shall be as follows:
   (1) ½" (12.7 mm) where EIFS abuts other materials.
   (2) 3/4" (19 mm) when EIFS abuts the EIFS
   (3) Larger width where indicated on the drawings.

6. Manufacture's Detail:

   a. EIFS latest published information shall be followed for standard detail treatments.

   b. Non-standard detail treatments shall be as recommended by manufacturer, approved by the Architect and be part of the Contract Documents.

7. Building Code Conformance: EIFS shall be acceptable for use on this project under building code having jurisdiction.

1.4 SUBMITTALS

A. General: Submit Samples, Evaluation Reports, Warranties and Certificates in accordance with Division 01 General Requirements Submittal Section.

1.5 QUALITY ASSURANCE:

A. Qualifications:

1. All EIFS assembly materials must be manufactured or sold by a single-source manufacturer and must be purchased direct from the manufacturer or its authorized distributor.

2. Applicator: Must be experienced and competent in installation of plaster-like materials.

B. Regulatory Requirements:

1. Insulation Board: Shall be produced and labeled under a third party quality program as required by applicable building code.

1.6 DELIVERY, STORAGE AND HANDLING

A. Delivery: Deliver materials in original packaging with manufacturer's identification.

B. Storage: Store materials in a cool, dry location, out of sunlight, protected from weather and other harmful environment, and at a temperature above 40 degrees F (4 degrees C) and below 110 degrees F (43 degrees C) in accordance with manufacturer's instructions.

1.7 PROJECT/SITE CONDITIONS

A. Installation Ambient Air Temperature: Minimum of 40 degrees F (4 degrees C) and rising, and remain so for 24 hours thereafter.

B. Substrate Temperature: Do not apply materials to substrates whose temperature are below 40 degrees F (4 degrees C) or contain frost or ice.

C. Inclement Weather: Do not apply materials during inclement weather unless appropriate protection is employed.

D. Sunlight Exposure: Avoid, when possible, installation of materials in direct sunlight. Application of acrylic finishes in direct sunlight in hot weather may adversely affect aesthetics.

E. Materials shall be applied if ambient temperature exceeds 120 degrees F (49 degrees C) or falls below 40 degrees F (4 degrees C) within 24 hours of application. Protect materials from uneven and excessive evaporation during hot, dry weather.

F. Prior to installation, the substrate shall be inspected for surface contamination, or other defects that may adversely affect the performance of the materials and shall be free of residual moisture.

1.8 COORDINATION AND SCHEDULING

A. Coordination: Coordinate water-resistive membrane and air barrier coating materials installation with other construction operations.

1.9 WARRANTY

A. Warranty: Upon request, at completion of installation, provide manufacturer's Standard Limited Warranty.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Dryvit, Sto, Parex, Senergy or approved equal.

B. Components: Obtain components from authorized distributors. No substitutions or additions of other materials are permitted without prior written permission from the EIFS manufacturer for this project.

2.2 MATERIALS

A. Adhesives:

1. 100% acrylic polymer based; ready to use, applied without the addition of cement; used as an adhesive to laminate EPS Insulation Board to gypsum sheathing, glass mat gypsum sheathing or wood based sheathing.

B. Insulation Board: In compliance with manufacturer's requirements for Standard System EIFS.

1. Produced and labeled under a third party quality program as required by applicable building code; and produced by a manufacturer approved by the EIFS manufacturer.
2. Shall conform to ASTM C578 and ASTM E2430, Type 1 for Molded Expanded Polystyrene Insulation Board.
3. Maximum size shall be 2 ft. x 4 ft. (610 mm x 1219 mm).
4. Thickness: 3/4" minimum (19 mm) after rasping.

C. Base Coats:

1. 121 Base Coat: 100% acrylic polymer base, requiring the addition of Portland Cement.

D. Reinforcing Mesh:

1. 355 Standard Mesh: Weight 4.5 oz. Per sq. yd. (153 g/sq m); coated for protection against alkali. Standard reinforcement of EIFS, or for use with High Impact 358.14 Mesh or Ultra High Impact 358.20 Mesh.

E. Primer:

1. 100% acrylic based coating to perpare surfaces for acrylic or elastomeric finishes.

F. Finish:
   1. Factory blended, 100% acrylic polymer based finish, integrally colored. Finish type, texture and color as selected by the Architect.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify project site conditions under provisions of Section 01 00 00.

B. Compliance: Comply with manufacturer's instructions for installation.

C. Substrate Examination: Examine prior to installation of EIFS assembly materials as follows:

   1. Substrate shall by of a type approved by the manufacturer**.** Plywood and OSB substrates shall be gapped 1/8" (3.2 mm) at all edges.
   2. Substrate shall be examined for soundness, and other harmful conditions.
   3. Substrate shall be free of dust, dirt, laitance, efflorescence and other harmful contaminants.
   4. Substrate construction in accordance with substrate material manufacturer's specifications and applicable building codes.

D. Sealants and Backer Rod: To be installed, where required, in accordance with the sealant manufacturer's specifications and published literature, and using the sealant manufacturer's recommended primers.

E. Advise Contractor of discrepancies preventing proper installation of EIFS materials. Do not proceed with the work until unsatisfactory conditions are corrected.

3.2 PREPARATION

A. Protection: Protect surrounding material surfaces and areas during installation of system.

B. Clean surfaces thoroughly prior to installation.

C. Prepare surfaces using the methods recommended by the manufacture for achieving the best result for the substrate under the project conditions.

3.3 MIXING

A. Mix materials in accordance with manufacturer's instructions.

3.4 APPLICATION

A. General: Installation shall conform to this specification and manufacturer's written instructions.

B. Insulation Board:

1. Install back-wrap mesh or edge-mesh at system terminations.
2. Apply EIFS adhesive to backs of insulation boards with a notched trowel, with ribbons of adhesive oriented in a vertical direction (parallel to the 2 ft. (61 mm) dimension of the EPS board).
3. Install insulation board without gaps in a running bond pattern and interlocked at corners.
4. Rasp irregularities off insulation board after adhesive has dried a minimum of 24 hours.

C. Apply base coat and fully embed mesh in base coat; include diagonal mesh patched at corners of openings and reinforcing mesh patches at joints of track sections. Apply multiple layers of base coat and mesh where required for specified impact resistance classification.

D. Apply primer to base coat after drying. Primer may be omitted if it is not required by the manufacturer's product data sheets for the specified finish coat or otherwise specified for the project.

E. Finish Coat: Apply finish coat to match specified finish type, texture and color. Do not apply finish coat to surfaces to receive sealant. Keep finish out of sealant joint gaps.

3.5 CLEAN-UP

A. Removal: Remove and legally dispose of EIFS material from job site.

B. Clean surfaces and work area of foreign materials resulting from material installation.

3.6 Protection

A. Provide protection of installed materials from water infiltration into or behind them.

B. Provide protection of installed materials from dust, dirt, precipitation, and freezing during installation, and continuous high humidity until fully cured and dry.

C. Clean exposed surfaces using materials and methods recommended by the manufacturer of the material or product being cleaned. Remove and replace work that cannot be cleaned to the satisfaction of the Architect and/or Owner.

07 62 00 SHEET METAL FLASHING AND TRIM

A. The Contractor shall furnish all sheet metal work as required. Install flashing in accordance with details and specifications as descried in the handbook *Sheet Copper Application* as published by the Copper Development Association.

1. **Exposed flashing:** .019" aluminum (match siding and roofing finish color where flashing is in contact with either).

2. **Concealed flashing**: .019" aluminum.

3. **Flashing through roof**: All pipes, metal chimneys, vents, etc. passing through the roof shall have base flashing and counter-flashing furnished and installed by the contractor installing the roof.

4. All concealed flashing shall contain water tight dams where applicable.

5. **Dissimilar metals**: Where dissimilar metals come in contact with each other, paint each surface with a heavy coat of asphalt paint or otherwise insulate from each other to prevent galvanic action.

END OF DIVISION 07

SECTION 07 31 13 ASPHALT SHINGLES

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PART 1 – GENERAL

1.1 DESCRIPTION

This section specifies organic felt and fiberglass asphalt shingles.

1.2 RELATED WORK

A. Counterflashing and flashing of roof projections: Section 07 60 00, FLASHING AND SHEET METAL.

1.3 SUMITTALS

A. Submit in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.

B. Samples: Shingles, each type, color and texture.

C. Manufacturer's Literature and Data:

1. Shingles, each type
2. Installation instructions

1.4 DELIVERY AND STORAGE

A. Deliver materials in manufacturer's unopened bundles or containers with the manufacturer's brand and name clearly marked thereon.

B. Shingle bundle wrapping shall bear the label of Underwriters Laboratories, Inc.

C. Store shingles in accordance with manufacturer's printed instructions. Store roll goods on end in an upright position.

D. Keep materials dry, covered completely and protected from the weather.

1.5 APPLICABLE PUBLICATIONS

A. Publications listed below form a part o this specification to the extent referenced. Publications are referenced in the text by the basic designation only.

B. American Society for Testing and Materials (ASTM):

D226-09 .....Asphalt-Saturated Organic Felt Used in Roofing and Waterproofing

D2178-04 .....Asphalt Glass Felt used in Roofing and Waterproofing

D3018-10 .....Class A Asphalt Shingles Surfaced with Mineral Granules

F1667-11 .....Driven Fasteners: Nails, Spikes, and Staples

C. Underwriter's Laboratories Inc. (UL):
UL790-04.....Fire Tests of Roof Covering

PART 2 - PRODUCTS

2.1 SHINGLES

A. Class A: GAF -Timberline Natural Shadow Shingles with Stain Guard or prior approved equal. Color to be selected by the owner from standard chart.

2.2 ROOFING NAILS

A. ASTM F1667; Type I, Style 20, galvanized steel, deformed shanks, with heads 9.5 mm to 11 mm (3/8-inch to 7/16-inch) diameter.
B. Use nails 32 mm (1-1/4 inches) long for shingles and 19 mm (3/4-inch long) for felt.

2.3 UNDERLAYMENT

A. Grace Ice and Water shield or prior approved equal

PART 3 EXECUTION

3.1 PREPARATION

A. Roof surfaces shall be sound, reasonably smooth and free from defects which would interfere with roofing installation.
B. Roof accessories, vent pipes and other projections through the roof must be in place and roof flashing installed or ready for installation before laying shingles.

3.2 LAYING

A. Lay felt under shingles over entire roof.
B. Install asphalt felt underlayment, lapping a minimum of 100 mm (four inches) at ends, 50 mm (2 inches) at head and 300 mm (12 inches) over ridge. Extend felt 13 mm (1/2-inch) beyond edges of roof. Nail felt 125 mm (five inches) on centers along laps.
C. At eaves, install strip of 41 Kg (90 pound) mineral surface roll roofing not less than 460 mm (18 inches) wide and starter course of roof shingles with tabs reversed. Both shall overhang lower edge of roof 13 mm (1/2-inch).

D. Lay shingles with maximum exposure of 125 mm (5 inches). Nail shingles in accordance with manufacturer's published directions.

3.3 METAL DRIP EDGES

A. At rakes, install metal drip edges made of stainless steel specified under Section 07 60 00, FLASHING AND SHEET METAL. Apply the metal drip edge directly over the underlayment along the rakes.

B. Secure metal drip edges with compatible nails spaced not more than 250 mm (10 inches) on center along the inner edges.

3.4 FLASHINGS

Provide metal flashings specified under Section 07 60 00, FLASHING AND SHEET METAL at the intersections of roofs, adjoining walls, or projections through the deck such as chimneys and vent stacks. Give careful attention to the installation of all flashings.

3.5 RIDGE VENT SYSTEM

A. Bend each shingle lengthwise down center to provide equal exposure on each side of ridge. Beginning at one end of ridge, apply shingles with maximum 125 mm (5 inches) exposure.

B. Secure each shingle with one nail on each side, 210 mm (8-1/2 inches) back from exposed end and one inch up from edge.

3.6 VALLEY FLASHING

A. Install metal valley flashing shown and as specified under Section 07 60 00, FLASHING AND SHEET METAL.

B. Secure valley flashing in accordance with shingle manufacturer's printed instructions.

C. Expose flashing in open portion of valley a minimum of 125 mm (5 inches) and lap the shingles over the flashing a minimum of 125 mm (5 inches).

3.7 ROOF ACCESSORIES

A. Install ridge vent as specified by manufacturers printed innstructions prior to placing shingles.

B. Lap shingles over the accessories flashing a minimum of 125 mm (5 inches).

DIVISION 08 OPENINGS

08 11 13 HOLLOW METAL DOORS AND FRAMES

A. Furnish and install hollow metal frames as shown on drawings and as specified herein. See drawings and schedule for types, sizes, design and location of hollow metal frames and accessories.

B. Hollow metal frames shall be manufactured by Steelcraft, Cincinnati, Ohio or approved equal as conforming ANSI ICC A117.1-2017 and the Americans with Disabilities Act of 1991.

C. Underwriter's Labels: Provide door and/or frames with labels of Underwriters' Laboratories, Inc. where required in Door Schedule on drawings. Labels shall indicate compliance with class required in schedule and shall be furnished with metal labels securely attached to the door. Plastic or paper labels are not permitted on this project.

D. **Materials:**

1. Steel shall be commercial quality, carbon steel sheets free from scale, pitting and surface defects. Gauges shall be U.S. Standard.
2. Steel for face sheets for broad frame faces shall be stretcher-leveled.
3. Sheet steel for exposed surfaces of frame for exterior openings shall be hot-dipped galvanized, phosphatized steel sheet with not less than light commercial zinc coating in accordance with ASTM A 526-71.
4. Steel shall have a shop coating of the manufacturer's standard rust-inhibitive baked primer over phosphatizing treatment.

E. **Fabrication:**

1. Fabricate all frame shapes as shown on drawings. Jamb widths as required.
2. Frames shall be manufactured of cold-rolled steel except where shown otherwise in the Contract Documents. Fabricate frames from 16 gauge steel except where required otherwise in Contract Documents.
3. Corner joints shall have contact edges closed tight. Grind exposed welds smooth and with no depressions.

4. At hardware locations, install reinforcing plates.
5. Provide a minimum of 3 anchors in each jamb. Anchors shall be 14 gauge steel. Anchors shall be appropriate type for wall material.
6. Before shipment, install a temporary spreader at bottom of frames. Do not remove until frames are secured in place.

F. **HOLLOW METAL DOORS:**

1. Doors shall be made of commercial quality, level, cold-rolled steel conforming to ASTM A 366 or hot-rolled, pickled and oiled steel conforming to ASTM A 569 and free of scale, pitting or surface defects.
2. **Interior Doors**: Face sheets shall be not less than 18 guage.
3. **Exterior Doors**: Face sheets shall be not less than 18 guage and shall have a zinc coating applied by the hot-dip process conforming to ASTM A526 (A60 or G60) with a coating weight of not less than 0.60 ounces per square foot (0.30 per square foot per side).
4. All doors shall be of the types and sizes shown on approved submittal drawings and shall be constructed in accordance with the specifications.
5. Door face sheets shall be joined at their vertical edges with no visible seams on their faces. Minimum door thickness shall be 1-3/4".
6. Face sheets shall be stiffened by polystyrene core or 22 guage steel stiffeners welded in place no more than 6 inches apart with the void between the stiffeners filled with fiberglass insulation.

7. Top and bottom edges of all doors shall be closed and continuous steel channels not less than 16 guage, spot welded to both faces.

8. **Hardware reinforcements**:

   a. Doors shall be mortised, reinforced at the factory for fully templated mortised hardware only, in accordance with the approved hardware schedule and templates provided by the hardware supplier. Where surface mounted or non-templated hardware is to be applied, doors shall have reinforcing plates only; all drilling and tapping shall be done by others.

b. Minimum guage for hardware reinforcing plates shall be as follows:
   - Full mortise hinges and piviots - 7 guage
   - Reinforcements for lock face, flush bolts - 14 guage
   - Reinforcements fr all other surface mounted hardware - 16 guage

9. **Finish**: After fabrication, all tool marks and surface blemishes shall be filled and sanded as required to make both faces and both vertical edges smooth and free from irregularities. After appropriate preparation, all exposed surfaces shall receive a rust inhibitive primer which meets or exceeds ASTM B 117 salt spray for 150 hours and whcih is fully cured prior to shipment.

08 41 13 ALUMINUM-FRAMED ENTRANCES, STOREFRONTS AND CURTAIN WALLS

PART 1 GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. **Section includes**: Architectural Aluminum Storefront Systems, including perimeter trims, stools, accessories, shims and anchors, and perimeter sealing of storefront units.

1. **Types of Kawneer Aluminum Storefront Systems include**:
   a. EnCORE Framing System - 1-3/4" (44.5) x 3-9/16" (90.5), 4-1/2" (114.3) or 6" (228.6) nominal dimension. Thermally improved; Front, Center, or Structural Silicone Glazed; Screw Spline, Shear Block, or Punched Opening (Type B) Fabrication; or approved equal.
2. **Types of Kawneer Standard Entrance Doors**: Series 350; or approved equal.

1.3 SUBMITTALS

A. **Product Data**: Include construction details, material descriptions, dimensions of individual components and profiles, hardware, finishes, and installation instructions for each type of aluminum-framed storefront system indicated.

B. **Shop Drawings**: Include plans, elevations, sections, details, hardware and attachments to other work, operational clearances and installation details.

C. **Sample for Initial Selection**: For units with factory-applied color finishes, including samples of hardware and accessories receiving color selection.

D. **Samples for Verification**: For aluminum-framed storefront system and components required.

1.4 QUALITY ASSURANCE

A. **Installer Qualifications**: An installer which has had successful experience with installation of the same or similar units required for the project and other projects of similar size and scope.

B. **Manufacturer Qualifications**: A manufacturer capable of providing aluminum-framed storefront system that meets or exceeds performance requirements indicated and of documenting this performance by inclusion of test reports and calculations.

C. **Source Limitations**: Obtain aluminum-framed storefront system through one source from a single manufacturer.

D. **Product Options**: Drawings indicate size, profiles and dimensional requirements of aluminum-framed storefront system and are based on the specific system indicated. Refer to Division 01 Section "Product Requirements." Do not modify size and dimensional requirements.

1. Do not modify intended aesthetic effects, as judged solely by Architect, except with Architect's approval. If modifications are proposed, submit comprehensive explanatory data to Architect for review.

1.5 PROJECT CONDITIONS

A. **Field Measurements**: Verify actual dimensions of aluminum-framed storefront openings by field measurements before fabrication and indicate field measurements os Shop Drawings.

1.6 WARRANTY

A. **Manufacturer's Warranty**: Submit for Owner's acceptance, manufacturer's standard warranty.

1. **Warranty Period**: Two (2) years from date of Substantial Completion of the project, provided, however, that the Limited Warranty shall begin in no event later than six months from date of shipment by manufacturer.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Kawneer Company, Inc., or approved equal.

2.2 MATERIALS

A. **Aluminum Extrusions**: Alloy and temper recommended by aluminum storefront manufacturer for strength, corrosion resistance, and application of required finish and not less than 0.070" (1.8mm) wall thickness at any location for the main frame and complying with ASTM B221: 6063-T6 alloy and temper.

B. **Fasteners**: Aluminum, nonmagnetic stainless steel or other materials to be non-corrosive and compatible with aluminum members, trim hardware, anchors, and other components.

C. **Anchors, Clips, and Accessories**: Aluminum, nonmagnetic stainless steel, or zinc-coated steel or iron complying with ASTM B 633 for SC 3 severe service conditions or other suitable zinc coating; provide sufficient strength to withstand design pressure indicated.

D. **Reinforcing Members**: Aluminum, nonmagnetic stainless steel, or nickel/chrome-plated steel complying with ASTM B 456 for Type SC 3 severe service conditions, or zinc-coated steel or iron complying with ASTM B 633 for SC 3 severe service conditions, or other suitable zinc coating; provide sufficient strength to withstand design pressure indicated.

E. **Sealant**: For sealants required within fabricated storefront system, provide permanently elastic, non-shrinking, and non-migrating type recommended by sealant manufacturer for joint size and movement.

2.3 STOREFRONT FRAMING SYSTEM

A. **Brackets and Reinforcements**: Manufacturer's standard high-strength aluminum with non-staining, nonferrous shims for aligning system components.

B. **Fasteners and Accessories**: Manufacturer's standard corrosion-resistant, non-staining, non-bleeding fasteners and accessories compatible with adjacent materials. Where exposes shall be stainless steel.

C. **Perimeter Anchors**: When steel anchors are used, provide insulation between steel material and aluminum material to prevent galvanic action.

D. **Packing, Shipping, Handling and Unloading**: Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact.

E. **Storage and Protection**: Store materials protected from exposure to harmful weather conditions. Handle storefront material and components to avoid damage. Protect storefront material against damage from elements, construction activities, and other hazards before, during and after storefront installation.

2.4 GLAZING SYSTEMS

A. **Glazing**: As specified in Division 08 Section "Glazing."

B. **Glazing Gaskets**: Manufacturer's standard compression types; replaceable, extruded EPDM rubber.

C. **Spacers and Setting Blocks**: Manufacturer's standard elastomeric type.

D. **Bond-Breaker Tape**: Manufacturer's standard TFE-fluorocarbon or polyethylene material to which sealants will not develop adhesion.

E. **Glazing Sealants**: For structural sealant-glazed systems, as recommended by manufacturer for joint type, and as follows:

1. **Structural Sealant**: ASTM C 1184 single-component neutral-curing silicone formulation that is compatible with system components with which it comes in contact, specifically formulated and tested for use as structural sealant and approved by a structural sealant manufacturer for use in aluminum-framed systems indicated.
   a. **Color**: Black

2. **Weather Seal Sealant**: ASTM C 920 for Type S, Grade NS, Class 25, Uses NT, G, A and O; single-component neutral-curing formulation that is compatible with structural sealant and other system components with which it comes in contact; recommended by structural-sealant, weather-sealant, and aluminum-framed system manufacturer for this use.
   a. **Color**: To match structural sealant

08 71 00 DOOR HARDWARE

A. **HARDWARE ALLOWANCE**: The Contractor shall allow $1,000.00 (ONE THOUSAND DOLLARS) for the purchase, delivery and installation of finish door hardware.

B. **SUBMITTALS**

1. Product Data: Submittal data shall include installation and maintenance instructions for operating parts and finish.

2. Hardware submittal shall be organized into "hardware sets" indicating complete designations of every item required for each door or opening, including:

   a. Type, style, function, size and finish of each hardware item.
   b. Name and manufacturer of each item.
   c. Fastenings and other pertinent information.
   d. Location of hard set cross-referenced to indications on drawings both on floor plans and in door and frame schedule.
   e. Explanation of all abbreviations, symbols, codes, etc. contained in schedule.
   f. Mounting locations for hardware.
   g. Door and frame sizes and materials.

C. Submit schedule at earliest possible date particularly where acceptance of hardware schedule must precede fabrication of other work (e.g. Hollow metal frames) which is critical in the project construction schedule.

D. Templates: Furnish for the installation of all hardware and to the manufacturer of related equipment for his preparation of that equipment for all hardware that must be attached thereto. Templates shall also be furnished to the manufacturer of wood doors for use on all wood doors that are factory fitting and factory machined for hardware.

E. Submit separate detail schedule indicating clearly how the Owner's final instruction on keying of locks has been fulfilled.

08 80 00 GLAZING

A. Interior and exterior glass type shall be as required by the International Building Code for the location and use of the door and/or window in which it occurs. The glass supplier and Contractor shall verify the appropriate usage of each glass type as it is used in each location as required to meet the minimum requirements of the International Building Code. Any glass which does not meet the minimum requirements of the International Building Code for its type, use, and location shall be removed and an appropriate glass installed in its place at no additional cost to the Owner.

B. Glazing shall comply with the most recent manual and recommendations of the Flat Glass Marketing Association. Glazing compound shall be permanently elastic.

C. Window Schedule: See drawings.

D. Install glass in windows and doors as instructed and recommended by glass manufacturer's latest printed instructions and manufacturer of the storefront system.

END OF DIVISION 08

SECTION 09 91 00 PAINTS AND COATINGS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Exterior Paint Systems: Surface preparation and field painting of exposed exterior items and surfaces.

B. Interior Paint Systems: Surface preparation and field painting of exposed interior items and surfaces.

C. Interior stain and natural finish woodwork systems.

D. Exterior High Performance Coating Systems: Surface preparation and field application of exterior high-performance coating systems to items and surfaces scheduled.

E. Interior High Performance Coating Systems: Surface preparation and field application of interior high-performance coating systems to items and surfaces scheduled.

1.2 RELATED SECTIONS

A. Section 03 30 00 - Cast-in-Place Concrete.

B. Section 05 12 13 - Architecturally-Exposed Structural Steel Framing.

C. Section 05 50 00 - Metal Fabrications.

D. Section 06 20 00 - Finish Carpentry.

E. Section 08 11 13.13 - Standard Hollow Metal Doors and Frames.

F. Section 09 21 16.33 - Gypsum Board Area Separation Wall Assemblies.

G. Section 22 05 00 - Common Work Results for Plumbing.

H. Section 26 05 00 - Common Work Results for Electrical.

1.3 REFERENCES

A. American Society for Testing and Materials (ASTM) D 16 - Standard Terminology for Paint, Related Coatings, Materials, and Applications.

B. Steel Structures Painting Council (SSPC) SP6 - Commercial Blast Cleaning Procedures.

C. Steel Structures Painting Council (SSPC) SP10 - Near White Blast Cleaning Procedure.

1.4 DEFINITIONS

A. General: Standard coating terms defined in ASTM D 16.
   1. Flat: lusterless or matte. Gloss Range: Max 15 measured at 85 degree meter.
   2. Eggshell: Low-sheen. Gloss Range: 20 to 35 measured at 60 degree meter.
   3. Semi-Gloss: Medium-sheen. Gloss Range: 35 to 70 measured at 60 degree meter.
   4. Full Gloss: High-sheen. Gloss Range: Above 70 measured at a 60 degree meter.

B. Environments: The following terms distinguish between different corrosive exposures:
   1. Severe Environments: Highly corrosive industrial atmospheres. Sustained exposure to high humidity and condensation and with frequent cleaning using strong chemicals. Environments with heavy concentrations of strong chemical fumes and frequent splashing and spilling of harsh chemical products are severe environments.
   2. Moderate Environments: Corrosive industrial atmospheres with intermittent exposure to high humidity and condensation, occasional mold and mildew development, and regular cleaning with strong chemicals. Environments with exposure to heavy concentrations of chemical fumes and occasional splashing and spilling of chemical products are moderate environments.
   3. Mild Environment: industrial atmospheres with normal exposure to moderate humidity and condensation, occasional mold and mildew development, and infrequent cleaning with strong chemicals. Environments with low levels of mild chemical fumes and occasional splashing and spilling of chemical products are mild environments. Normal outdoor weathering is also considered a mild environment.

1.5 SUBMITTALS

A. Submit under provisions of Section 01 30 00 - Administrative Requirements.

B. Product Data: For each paint system indicated, including:
   1. Material List: An inclusive list of required coating materials. Indicate each material and cross reference specific coating, finish system, and application. Identify each material by manufacturer's catalog number and general classification.
   2. Preparation instructions and recommendations.
   3. Manufacturer's Information: Manufacturer's technical information, including label analysis and instructions for handling, storing, and applying each coating material.

C. Selection Samples: For each finish product specified, two complete sets of color

chips representing manufacturer's full range of available colors and patterns.

D. Verification Samples: For each finish product specified, two samples, minimum size 6 inches (150 mm) square, representing actual product, color, and patterns.

1.6 QUALITY ASSURANCE

A. Installer Qualifications: A firm or individual experienced in applying paints and coatings similar in material, design, and extent to those indicated for this Project, whose work has resulted in applications with a record of successful in-service performance.

B. Obtain block fillers and primers for each coating system from the same manufacturer as the finish coats.

C. Paint exposed surfaces. If an item or a surface is not specifically mentioned, paint the item or surface the same as similar adjacent materials or surfaces. If a color of finish is not indicated, Architect will select from standard colors and finishes available.

D. Do not paint prefinished items, concealed surfaces, finished metal surfaces, operating parts, and labels.

E. Mock-Up: Provide a mock-up for evaluation of surface preparation techniques and application workmanship.
   1. Finish areas designated by Architect.
   2. Do not proceed with remaining work until workmanship, color, and sheen are approved by Architect.
   3. Refinish mock-up area as required to produce acceptable work.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials to Project site in manufacturer's original, unopened packages and containers bearing manufacturer's name and label:

B. Store materials not in use in tightly covered containers in a well-ventilated area at a minimum ambient temperature of 45 deg F (7 deg C). Maintain storage containers in a clean condition, free of foreign materials and residue.

1.8 PROJECT CONDITIONS

A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

B. Apply waterborne paints only when temperatures of surfaces to be painted and surrounding air are between 50 and 90 deg F (10 and 32 deg C).

C. Apply solvent-thinned paints only when temperatures of surfaces to be painted and surrounding air are between 45 and 95 deg F (7 and 35 deg C).

D. Do not apply paint in snow, rain, fog, or mist: or when relative humidity exceeds 85 percent: or at temperatures less than 5 deg F (3 deg C) above the dew point: or to damp or wet surfaces.
   1. Painting may continue during inclement weather if surfaces and areas to be painted are enclosed and heated within temperature limits specified by manufacturer during application and drying periods.

1.9 EXTRA MATERIALS

A. Furnish extra paint materials from the same production run as the materials applied and in the quantities described below. Package with protective covering for storage and identify with labels describing contents. Deliver extra materials to Owner.

B. Quantity: Furnish Owner with an additional three percent, but not less than 1 gal (3.8 l) or 1 case, as appropriate, of each material and color applied.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturer: PPG Architectural Finishes, Sherwin Williams, or prior approved equal.

B. Basis of Design: PPG Paints as manufactured and supplied by PPG Architectural Finishes, Incorporated.

C. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00 - Product Requirements.

2.2 PAINT MATERIALS - GENERAL

A. Material Compatibility: Provide block fillers, primers, and finish-coat materials that are compatible with one another and with the substrates indicated under conditions of service and application, as demonstrated by manufacturer based on testing and field experience.

B. VOC Classification: Provide high-performance coating materials, including primers, undercoats, and finish-coat materials, that meet the applicable local, state or federal VOC requirements.

C. Color: Refer to Finish Schedule and Paint Legend for paint colors.

2.3 EXTERIOR PAINT SYSTEMS

A. Concrete, Stucco, and Masonry (Other Than Concrete Masonry Units): Provide the following finish systems over exterior concrete, stucco, and brick masonry substrates.
   1. Acrylic Finish: Two finish coats over a primer.
      a. Primer: PPG Paints. 4-603XI PERMA-CRETE Interior/Exterior Alkali

Resistant Primer. Applied Dry Film Thickness: 1.4 mils min.

b. Exterior Flat Acrylic Finish: PPG Paints. 6-610XI Series Speedhide Exterior House Paint Flat Latex. Applied Dry Film Thickness: 1.3 mils min.

c. Exterior High Build Flat Acrylic Finish: PPG Paints. 4-22XI Series Perma-Crete High Build 100 Percent Acrylic Topcoat. Applied Dry Film Thickness: 3.2 mils min.

d. Exterior Eggshell Acrylic Finish: PPG Paints. 6-2045XI Series Speedhide Exterior House and Trim Satin-Acrylic Latex. Applied Dry Film Thickness: 1.0 mil min.

e. Exterior Semi-Gloss Acrylic Enamel Finish: PPG Paints. 6-900XI Series Speedhide Exterior House and Trim Semi-Gloss Acrylic Latex Paint. Applied Dry Film Thickness: 1.5 mils min.

f. Exterior Acrylic Texture Finish: PPG Paints. 4-50 Series Perma-Crete 100 Percent Acrylic Texture Coating. Applied Dry Film Thickness: 6.8 mils min.

B. Concrete Masonry Unit: Provide the following finish systems over exterior concrete masonry units.

1. Acrylic Finish: Two finish coats over a block filler.

a. Block Filler: PPG Paints. 6-15XI Speedhide Interior/Exterior Acrylic Masonry Block Filler. Applied Dry Film Thickness: 8.0 mils min.

b. Exterior Flat Acrylic Finish: PPG Paints. 6-610XI Series Speedhide Exterior House Paint Flat Latex. Applied Dry Film Thickness: 1.3 mils min.

c. Exterior Eggshell Acrylic Finish: PPG Paints. 6-2045XI Series Speedhide Exterior House and Trim Satin-Acrylic Latex. Applied Dry Film Thickness: 1.0 mil min.

d. Exterior Semi-Gloss Acrylic Enamel Finish: PPG Paints. 6-900XI Series Speedhide Exterior House and Trim Semi-Gloss Acrylic Latex Paint. Applied Dry Film Thickness: 1.5 mils min .

C. Wood Trim: Provide the following finish systems over exterior wood trim.

1. Acrylic or Alkyd Finish: Two finish coats over a primer.

a. Primer: PPG Paints. 17-921XI Series Seal Grip 100 Percent Acrylic Universal Primer. Applied Dry Film Thickness. 1.6 mils min.

b. Exterior Eggshell Acrylic Finish: PPG Paints. 6-2045XI Series Speedhide Exterior House and Trim Satin-Acrylic Latex. Applied Dry Film Thickness: 1.0 mils min.

c. Exterior Semi-Gloss Acrylic Enamel Finish: PPG Paints. 6-900XI Series Speedhide Exterior House and Trim Semi-Gloss Acrylic Latex Paint. Applied Dry Film Thickness: 1.5 mils min.

D. Ferrous Metal: Provide the following finish systems over exterior ferrous metal. Primer is not required on shop-primed items.

1. Acrylic or Alkyd Finish: Two finish coats over a rust-inhibitive primer.

a. Primer/Flat Acrylic Finish: PPG Paints. 4020 PF Pitt-Tech Plus Interior/Exterior Waterborne Acrylic Primer Finish. Applied Dry Film Thickness: 2.2 mils min.
b. Exterior Semi-Gloss Acrylic Enamel Finish: PPG Paints. 4216 HP Series Pitt-Tech Plus Interior/Exterior high performance waterborne Semi-Gloss DTM Enamel. Applied Dry Film Thickness: 1.5 mils min.
c. Exterior Semi-Gloss Alkyd Enamel Finish: PPG Paints. 4336H Series HPC Urethane Alkyd Semi-Gloss Enamel. Not Compliant in OTC Phase II, CARB 2007, SCAQMD, CT, DE, MD and UT Air Quality Districts. Applied Dry Film Thickness: 2.0 mils min.

E. Aluminum: Provide the following finish systems over exterior aluminum surfaces.
1. Acrylic or Alkyd Finish: Two finish coats over a primer.
a. Primer/Flat Acrylic Finish: PPG Paints. 4020 PF Pitt-Tech Plus Interior/Exterior Waterborne Acrylic Primer Finish. Applied Dry Film Thickness: 2.2 mils min.
b. Exterior Satin Acrylic Enamel Finish: PPG Paints. 90-1110 Series Pitt-Tech Plus Interior/Exterior Satin DTM Industrial Enamel. Applied Dry Film Thickness: 2.0 mils min.
c. Exterior Semi-Gloss Acrylic Enamel Finish: PPG Paints. 4216 HP Series Pitt-Tech Plus Interior/Exterior high performance waterborne Semi-Gloss DTM Enamel. Applied Dry Film Thickness: 1.5 mils min.

2.4 INTERIOR PAINT SYSTEMS

A. Concrete Unit Masonry: Provide the following finish systems over interior concrete masonry.
1. Acrylic or Alkyd Finish: Two finish coats over a block filler.
a. Block Filler: PPG Paints. 6-7 Speedhide Interior/Exterior Masonry Latex Block Filler. Applied Dry Film Thickness: 6.0 to 14.0 mils min.
b. Interior Flat Acrylic Finish-Zero VOC: PPG Paints. 6-4110XI Series Speedhide zero Interior Zero VOC Flat Latex. Applied Dry Film Thickness: 1.4 mils min.
c. Interior Eggshell Acrylic Enamel Finish-Zero VOC: PPG Paints. 6-4310XI Series Speedhide zero Interior Zero VOC Eggshell Latex. Applied Dry Film Thickness: 1.5 mils min.
d. Interior Semi-Gloss Acrylic Enamel-Zero VOC: PPG Paints. 6-4510XI Series Speedhide zero Interior Zero VOC Semi-Gloss Latex. Applied Dry Film Thickness: 1.3 mils min.

B. Gypsum Board: Provide the following finish systems over interior gypsum board surfaces.
1. Acrylic or Alkyd Finish: Two finish coats over a primer.
a. Primer-Zero VOC: PPG Paints. 6-4900XI Speedhide zero Interior Zero VOC Latex Primer. Applied Dry Film Thickness: 1.2 mils min.
b. Interior Flat Acrylic Finish-Zero VOC: PPG Paints. 6-4110XI Series

Speedhide zero Interior Zero VOC Flat Latex. Applied Dry Film Thickness: 1.4 mils min.

c. Interior Eggshell Acrylic Enamel Finish-Zero VOC: PPG Paints. 6-4310XI Series Speedhide zero Interior Zero VOC Eggshell Latex. Applied Dry Film Thickness: 1.5 mils min.

d. Interior Eggshell Water-Based Epoxy Finish: PPG Paints. 16-310 Series Pitt Glaze WB1 Interior Pre-Catalyzed Acrylic Epoxy. Applied Dry Film Thickness: 1.5 mils min.

e. Interior Semi-Gloss Acrylic Enamel-Zero VOC: PPG Paints. 6-4510XI Series Speedhide zero Interior Zero VOC Semi-Gloss Latex. Applied Dry Film Thickness: 1.3 mils min.

f. Interior Semi-Gloss Water-Based Epoxy Finish: PPG Paints. 16-510 Series Pitt Glaze WB1 Interior Pre-Catalyzed Acrylic Epoxy. Applied Dry Film Thickness: 1.5 mils min.

C. Wood and Hardboard: Provide the following paint finish systems over new interior wood surfaces.

1. Acrylic or Alkyd Finish: Two finish coats over a primer.
   a. Primer for Acrylic-Enamel Finishes: PPG Paints. 17-921XI Series Seal Grip 100 Percent Acrylic Universal Primer. Applied Dry Film Thickness: 1.6 mils min.
   b. Interior Semi-Gloss Acrylic Enamel-Zero VOC: PPG Paints. 6-4510XI Series Speedhide zero Interior Zero VOC Semi-Gloss Latex. Applied Dry Film Thickness: 1.3 mils min.

D. Ferrous Metal: Provide the following finish systems over ferrous metal.

1. Acrylic or Alkyd Finish: Two finish coats over a primer.
   a. Primer/Flat Acrylic Finish: PPG Paints. 4020 PF Pitt-Tech Plus Interior/Exterior Waterborne Acrylic Primer Finish. Applied Dry Film Thickness: 2.2 mils min.
   b. Interior Satin Acrylic Enamel Finish: PPG Paints. 90-1110 Series Pitt-Tech Plus Interior/Exterior Satin DTM Industrial Enamel. Applied Dry Film Thickness: 2.0 mils min.
   c. Interior Semi-Gloss Acrylic Enamel-Zero VOC: PPG Paints. 6-4510XI Series Speedhide zero Interior Zero VOC Semi-Gloss Latex. Applied Dry Film Thickness: 1.3 mils min.
   d. Interior Semi-Gloss Acrylic Enamel Finish: PPG Paints. 4216 HP Series Pitt-Tech Plus Interior/Exterior high performance waterborne Semi-Gloss DTM Enamel. Applied Dry Film Thickness: 1.5 mils min.
2. Dry Fall Finish: Two finish coats over a primer.
   a. Primer/Flat Acrylic Finish: PPG Paints. 4020 PF Pitt-Tech Plus Interior/Exterior Waterborne Acrylic Primer Finish. Applied Dry Film Thickness: 2.2 mils min.
   b. Interior Water-Based Flat Finish: PPG Paints. 6-725XI Series Speedhide Super Tech WB Interior Dry-Fog Flat Latex. Applied Dry Film Thickness: 2.2 mils min.

c. Interior Water-Based Eggshell: PPG Paints. 6-724XI Speedhide Super Tech WB Interior 100 percent Acrylic Dry-Fog Eggshell Latex. Applied Dry Film Thickness: 2.0 mils min.
d. Interior Water-Based Semi-Gloss: PPG Paints. 6-727XI Speedhide Super Tech WB Interior 100 percent Acrylic Dry-Fog Semi-Gloss Latex. Applied Dry Film Thickness: 2.2 mils min.

2.5 INTERIOR STAIN AND NATURAL FINISH WOODWORK SYSTEMS

A. Stained Woodwork: Provide the following stained finishes over new interior woodwork.
1. Alkyd Varnish Finish over Stain: Two finish coats of alkyd-based clear varnish over a sealer coat and wood stain. Wipe wood filler before applying stain.
a. Filler Coat: Open-Grain Wood Filler.
2. Waterborne Varnish Finish over Stain: Two finish coats of waterborne clear varnish over a sealer coat and wood stain. Wipe wood filler before applying stain.
a. Stain Coat: Deft. DFT300 Water-Based Wood Stain.
b. Sealer Coat: Deft. DFT61 Sanding Sealer Interior Water-Based.
c. Finish Coats: Deft. DFT159 Clear Polyurethane Interior Water-Based Acrylic Satin.
d. Finish Coats: Deft. DFT158 Clear Polyurethane Interior Water-Based Acrylic Semi-Gloss.
e. Finish Coats: Deft. DFT157 Clear Polyurethane Interior Water-Based Acrylic Gloss.

2.6 EXTERIOR HIGH PERFORMANCE COATING SYSTEMS

A. Ferrous Metal: Provide the following finish systems over exterior ferrous-metal surfaces:
1. Epoxy with Urethane Finish: One finish coat over an intermediate coat and a primer.
a. Primer: PPG Paints. AK2V-3 Series Amerlock 2 VOC Fast Dry, High Solids Semi-Gloss Epoxy Coating. Applied Dry Film Thickness: 4.0 mils min.
b. Intermediate Coat: Aliphatic Polyurethane Enamel: PPG Paints: 95-8801/95-859 Series Pitthane High Build Semi-Gloss Urethane Enamel. Not Compliant in OTC Phase II, CARB 2007, SCAQMD, CT, DE, MD and UT Air Quality Districts. Applied Dry Film Thickness: 2.0 mils min.
2. Fluoropolymer System: One finish coat applied over an epoxy primer.
a. Primer: PPG Paints. Coraflon ADS Epoxy Primer ADS 573/ADS574. Not Compliant in SCAQMD. Applied Dry Film Thickness: 3.0 mils min.
b. Finish: PPG Paints. Coraflon ADS Fluoropolymer. Not Compliant in SCAQMD. Apply per instructions on the technical data bulletin. Metallic finishes may require an additional clear coat of Coraflon ADS.

2.7 INTERIOR HIGH PERFORMANCE COATING SYSTEMS

A. Concrete Masonry Units: Provide the following finish systems over interior concrete masonry block:
   1. Epoxy with Urethane Finish: One finish coat over an intermediate coat and a block filler.
      a. Block Filler: PPG Paints. Amerlock 400BF Epoxy Block Filler. Applied Dry Film Thickness: 4.0 mils min.
      b. Intermediate Coat: PPG Paints. 97-1212/97-139 Series Aquapon High Build Semi-Gloss Polyamide Epoxy Coating. Not Compliant in OTC Phase II, CARB 2007, SCAQMD, CT, DE, MD and UT Air Quality Districts. Applied Dry Film Thickness: 4.0 mils min.
      c. Intermediate Coat: PPG Paints. AK2V-3 Series Amerlock 2 VOC Fast Dry, High Solids Semi-Gloss Epoxy Coating. Applied Dry Film Thickness: 4.0 mils min.

B. Ferrous Metal: Provide the following finish systems over interior ferrous-metal surfaces:
   1. Epoxy with Urethane Finish: One finish coat over an intermediate coat and a primer.
      a. Primer: PPG Paints. AK2V-3 Series Amerlock 2 VOC Fast Dry, High Solids Semi-Gloss Epoxy Coating. Applied Dry Film Thickness: 4.0 mils min.
      b. Intermediate Coat: PPG Paints. AK2V-3 Series Amerlock 2 VOC Fast Dry, High Solids Semi-Gloss Epoxy Coating. Applied Dry Film Thickness: 4.0 mils min.

PART 3 EXECUTION

3.1 EXAMINATION

A. Do not begin installation until substrates have been properly prepared.

B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

C. Coordination of Work: Review other Sections in which primers are provided to ensure compatibility of the total system for various substrates. On request, furnish information on characteristics of finish materials to ensure use of compatible primers.
   1. Notify Architect about anticipated problems when using the materials specified over substrates primed by others.
   2. If a potential incompatibility of primers applied by others exists, obtain the following from the primer Applicator before proceeding:
      a. Confirmation of primer's suitability for expected service conditions.
      b. Confirmation of primer's ability to be top coated with materials specified.

3.2 PREPARATION

A. General: Remove hardware and hardware accessories, plates, machined surfaces, lighting fixtures, and similar items already installed that are not to be painted. If removal is impractical or impossible because of size or weight of the item, provide surface-applied protection before surface preparation and painting.
   1. After completing painting operations in each space or area, reinstall items removed using workers skilled in the trades involved.

B. Cleaning: Before applying paint or other surface treatments, clean substrates of substances that could impair bond of the various coatings. Remove oil and grease before cleaning.
   1. Schedule cleaning and painting so dust and other contaminants from the cleaning process will not fall on wet, newly painted surfaces.

C. Surface Preparation: Clean and prepare surfaces to be painted according to manufacturer's written instructions for each particular substrate condition and as specified.
   1. Provide barrier coats over incompatible primers or remove and reprime.
   2. Provide barrier coats over incompatible primers or remove primers and reprime substrate.
   3. Cementitious Substrates: Prepare concrete, brick, concrete masonry block, and cement plaster surfaces to be coated. Remove efflorescence, chalk, dust, dirt, grease, oils, and release agents. Roughen as required to remove glaze. If hardeners or sealers have been used to improve curing, use mechanical methods to prepare surfaces.
      a. Use abrasive blast-cleaning methods if recommended by coating manufacturer.
      b. Determine alkalinity and moisture content of surfaces by performing appropriate tests. If surfaces are sufficiently alkaline to cause the finish paint to blister and burn, correct this condition before application. Do not coat surfaces if moisture content exceeds that permitted in manufacturer's written instructions.
   4. Wood Substrates: Clean surfaces of dirt, oil, and other foreign substances with scrapers, mineral spirits, and sandpaper, as required. Smoothly sand surfaces exposed to view and dust off.
      a. Scrape and clean small, dry, seasoned knots, and apply a thin coat of white shellac or other recommended knot sealer, before applying primer.
      b. Immediately on delivery, prime edges, ends, faces, undersides, and backsides of wood to be coated.
      c. After priming, fill holes and imperfections in the finish surfaces with putty or plastic wood filler. Sand smooth when dried.
   5. Ferrous Metal Substrates: Clean ungalvanized ferrous-metal surfaces that have not been shop coated: remove oil, grease, dirt, loose mill scale, and other foreign substances. Use solvent or mechanical cleaning methods that comply with SSPC recommendations.

a. Blast-clean steel surfaces as recommended by coating manufacturer and according to SSPC-SP 10.
b. Treat bare and sandblasted or pickled clean metal with a metal treatment wash coat before priming.
c. Touch up bare areas and shop-applied prime coats that have been damaged. Wire brush, solvent clean, and touch up with same primer as the shop coat.

6. Nonferrous-Metal Substrates: Clean nonferrous and galvanized surfaces according to manufacturer's written instructions for the type of service, metal substrate, and application required.
a. Remove pretreatment from galvanized sheet metal fabricated from coil stock by mechanical methods.

D. Material Preparation: Carefully mix and prepare coating materials according to manufacturer's written instructions.
1. Maintain containers used in mixing and applying coatings in a clean condition, free of foreign materials and residue.
2. Stir materials before applying to produce a mixture of uniform density. Stir as required during application. Do not stir surface film into the material. Remove film and, if necessary, strain coating material before using.
3. Use only the type of thinners approved by manufacturer and only within recommended limits.
4. Tinting: Tint each undercoat a lighter shade to simplify identification of each coat when multiple coats of same material are applied. Tint undercoats to match the color of the finish coat, but provide sufficient differences in shade of undercoats to distinguish each separate coat.

3.3 APPLICATION

A. General: Apply paint according to manufacturer's written instructions. Use applicators and techniques best suited for substrate and type of material being applied.

B. General: Apply high-performance coatings according to manufacturer's written instructions.
1. Use applicators and techniques best suited for the material being applied.
2. Do not apply high-performance coatings over dirt, rust, scale, grease, moisture, scuffed surfaces, or conditions detrimental to forming a durable coating film.
3. Coating surface treatments, and finishes are indicated in the coating system descriptions.
4. Provide finish coats compatible with primers used.
5. The term "exposed surfaces" includes areas visible when permanent or built-in fixtures, convector covers, grilles, covers for finned-tube radiation, and similar components are in place. Extend coatings in these areas, as required, to maintain system integrity and provide desired protection.

C. Application Procedures: Apply coatings by brush, roller, spray, or other applicators

according to manufacturer's written instructions.

1. The number of coats and film thickness required is the same regardless of application method.
2. Completed Work: Match approved Samples for color, texture, and coverage. Remove, refinish, or recoat work that does not comply with specified requirements.

3.4 FIELD QUALITY CONTROL

A. Owner reserves the right to invoke the following test procedure at any time and as often as Owner deems necessary during the period when paint is being applied:

1. Owner will engage a qualified independent testing agency to sample paint material being used. Samples of material delivered to Project will be taken, identified, sealed, and certified in the presence of Contractor.
2. Owner may direct Contractor to stop painting if test results show material being used does not comply with specified requirements. Contractor shall remove noncomplying paint from Project site, pay for testing, and repaint surfaces previously coated with the noncomplying paint. If necessary, Contractor may be required to remove noncomplying paint from previously painted surfaces if, on repainting with specified paint, the two coatings are incompatible.

3.5 CLEANING

A. After completing painting, clean glass and paint spattered surfaces. Remove spattered paint by washing and scraping without scratching or damaging adjacent finished surfaces.

3.6 PROTECTION

A. Protect work of other trades, whether being painted or not, against damage from painting. Correct damage by cleaning, repairing or replacing, and repainting, as approved by Architect.

B. Provide "Wet Paint" signs to protect newly painted finishes. After completing painting operations, remove temporary protective wrappings provided by others to protect their work.

C. After work of other trades is complete, touch up and restore damaged or defaced painted surfaces.

END OF SECTION

DIVISION 10 SPECIALTIES

10 14 00 SIGNAGE

A. Allow TWO THOUSAND DOLLARS ($2,000.00) for the purchase, delivery and installation of the signage package.

B. Final signage font, attachment method, size and color shall be selected by the Owner.

END OF DIVISION 10

SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION
Encroachment Permit

Permit No : 293882
Permit Decision Date : 6/12/2025
Expiration Date : 6/12/2026

Type Permit :MUNICIPALITY / LOCAL FUNDED PROJECT

Location:

District	Work County	Type	Route	Aux	Begin MP	End MP
1	Sumter, SC	S-	5	None	1.533	1.533

Contact Information

Applicant: CityofSumter Phone: (803)436-2672
Contact: Charles Howell
Address: 303 E. Liberty Street,
City: Sumter State: SC Zip: 29150

Comments

Intersection of West College Street (Local) at SC-43-5 North Main Street

Special Provisions:

0004 - SCDOT SHALL BE NOTIFIED WHEN WORK DEFINED IN THE PERMIT STARTS AS WELL AS WHEN THE WORK IS COMPLETED. REFERENCE SHALL BE MADE BY PERMIT NUMBER.

0005 - APPLICANT SHALL PROVIDE TO THE DEPARTMENT THE OPPORTUNITY OF ATTENDING ANY PRE-CONSTRUCTION MEETING PRIOR TO THE BEGINNING OF WORK.

0101 - SHOULDER SOD DESTROYED BY THIS INSTALLATION TO BE REPLACED FOR THE ENTIRE AREA. THE AREA SHALL BE RE-SHAPED AND ROLLED TO THE CROSS SECTION EXISTING PRIOR TO THIS WORK.

0120 - RESTORATION OF PAVEMENT, SHOULDERS, DITCHES, ETC., TO BE PERFORMED AS SOON AS POSSIBLE AFTER CONSTRUCTION, OR SCHEDULED SO THAT THE CONSTRUCTION IS NO FURTHER THAN 2,000 L.F. AHEAD OF COMPLETE RESTORATION.

0123 - ALL WORK PERFORMED IN CONNECTION WITH THIS PERMIT SHALL CONFORM TO THE SCDOT "A POLICY FOR ACCOMODATING UTILITIES ON HIGHWAY RIGHT-OF-WAY" MOST CURRENT EDITION.

0202 - PAVEMENT DESIGN SHALL BE AS SHOWN ON ATTACHED DOCUMENTATION

0203 - ENTIRE WIDTH OF SIDEWALK TO BE REMOVED AND DISPOSED OF OFF RIGHT-OF-WAY. SIDEWALK TO BE REPLACED USING CLASS 2500 CONCRETE, 4"

THICK, AND FINISHED TO SCDOT SPECIFICAIONS.

0204 - SIDEWALK OR CURB AND GUTTER REMOVAL SHALL BE REPLACED FROM JOINT TO JOINT.

0210 - ALL SIDEWALKS TO INCLUDE AT DRIVEWAY RADIUS SHALL MEET (ADAAG) AMERICANS WITH DISABILITIES ACT ACCESSIBILITY GUIDELINES.

0304 - PAVEMENT MARKINGS ALTERED DURING THIS INSTALLATION SHALL BE RESTORED BY THE APPLICANT.

0306 - TRAFFIC CONTROL, LIGHTS, SIGNS AND FLAG-MEN WILL BE FURNISHED BY APPLICANT AND WILL CONFORM TO PART VI OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

0307 - NO PART OF THE TRAVEL-WAY IS TO BE BLOCKED DURING CONSTRUCTION AND MAINTENANCE.

0308 - WORK SHALL NOT BE PERFORMED DURING THE HOURS OF 7-9 AM OR 4-6 PM.

0310 - FIELD CHANGES, IF NECESSARY, MUST BE APPROVED IN WRITING BEFORE ACTUAL CONSTRUCTION OF PROPOSED CHANGES.

0311 - SEDIMENT AND EROSION CONTROL DEVICES SHALL BE USED TO MINIMIZE THE MOVEMENT OF SEDIMENT.

0312 - THE PERMITTEE SHALL HOLD THE DEPARTMENT HARMLESS FOR DAMAGES TO BOTH UPSTREAM AND DOWNSTREAM PROPERTIES.

0316 - ALL NON-PERMITTED OBJECTS ON THE RIGHT-OF-WAY, WHICH MUST BE REMOVED, SHALL NOT BE REPLACED ON THE RIGHT-OF-WAY WITHOUT WRITTEN PERMISSION OF THE DEPARTMENT.

0318 - THE APPLICANT SHALL BE RESPONSIBLE FOR IMMEDIATE REMOVAL OF SUCH TRAFFIC HAZARDS AS MUD, DEBRIS, LOOSE STONE, AND TRASH AS MAY BE WASHED OR SPILLED ON THE TRAVELED ROADWAY AS A RESULT OF THE PROPOSED WORK.

0320 - ALL DEBRIS TO BE CLEARED FROM THE RIGHTS-OF-WAY WITHIN TEN (10) DAYS.

9999 - See Attached for Additional Special Provisions

Additional Special Provisions for
Application # 200149512

1. Note: Plans within approved permit package have been assessed by District permit staff with regards to forseeable permit and construction issues based on information available at the time of review and permitting. Should field issues arise during construction, applicant, contractor, and/or engineer to coordinate with SCDOT District Permit Office to organize and facilitate field or plan adjustments as necessary. Any construction within SCDOT right-of-way is subject to modifications and changes from approved plan set at the discretion of District Engineering staff, in order to adhere with SCDOT standards and specifications.
2. SCDOT District Permit Office shall be notified prior to the start of work. A pre-construction meeting shall take place prior to any work being performed under this encroachment permit. Please contact Ted Allison at 803-737-4511 to set up the meeting.
3. Contractor to notify SCDOT District Permit Staff for any plan questions, conflicts, or misunderstandings for clarification prior to construction of affected features.
4. For any field related questions, permit modifications or amendments, or construction scheduling updates please contact Michael Todd. Plan or construction changes implemented without written permission from SCDOT will be subject to review and may result in removal and/or modification at the applicant and/or contractor's expense.
    a. ToddJM@scdot.org
    b. Office: 803-737-0208
    c. Cell: 803-847-4422
5. Work hour restrictions within SCDOT roadway(s) open to traffic and/or pedestrian area(s) are as follows:
    a. **Monday through Friday:** No work may be completed between the hours of 7:00 a.m. to 9:00 a.m. and 4:00 p.m. to 6:00 p.m.
    b. **Sundays and Holidays:** No work may be completed in the roadway or pedestrian areas unless otherwise noted or approved in writing by SCDOT.
    c. Additional restrictions may apply based on traffic conditions. All multilane primary and secondary routes during those times of the day when traffic volumes that exceed 800 vehicles per hour per lane per direction are subject to hourly lane closure restrictions.
    d. Extended work hours and workdays may be requested with a written request to the SCDOT District One Permits Office. This request must be submitted at least five (5) working days prior to the extended work periods.
    e. Contractor shall abide by all additional lane closure restrictions during holidays as publicized by SCDOT officials. The most recent holiday lane closure restrictions are available here.
6. Existing residential or commercial business access shall be maintained throughout project.

7. All existing SCDOT Signs located within this project shall be replaced once construction is complete.
8. Provisions shall be made for temporary pavement markings immediately after completion of paving prior to opening to traffic.
    a. Temporary pavement markings must be made to be retroreflective
9. All markings within SCDOT ROW shall be approved permanent pavement markings per Sections 625, 626, or 627 within the SCDOT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.. New asphalt surfaces must be in place a minimum of 7 days before application of thermoplastic pavement markings.
10. Note: Existing ditch-lines and SCDOT drainage structures utilized within the limits of the project shall be cleaned of debris and sediment at the conclusion of construction activities.
11. A final inspection shall be requested by the applicant with SCDOT once the project is complete. Please contact Ted Allison at 803-737-4511 to schedule the final inspection.
12. All trees/obstacles blocking sight distance within SCDOT ROW and the limits of the project shall be removed or adjusted as necessary.Minimum intersection sight distance, as shown on the approved plans/exhibit, shall be maintained indefinitely by applicant or any future property owner.
    a. No obstructions to sight distance shall be placed, installed, or allowed within the "line of sight" as shown on approved plans/sight distance exhibit, including, but not limited to, vegetation, signs, vehicles, structures, etc.
    b. SCDOT may require any sight distance obstructions be removed or modified in order to achieve and maintain adequate sight distance.
13. Any physical appurtenances installed under this approved permit shall be maintained indefinitely by the applicant, or subsequent property owners, so as to preserve the intended and safe traffic operations of the approved access.
    a. Per the signed permit application included in this approved permit package, the maintenance of physical appurtenances shall be completed at the expense of the applicant and at the direction of SCDOT.
    b. If desired or requested, the removal of any physical appurtenances installed under this approved permit shall be submitted for review by SCDOT via a subsequent encroachment permit.
14. Applicant shall be responsible for ensuring all contractors and subcontractors are provided with a copy of this permit, all special provisions, and the approved plan set associated with this permits.
15. Prior to final acceptance, applicant MAY be required to provide fully surveyed and certified as-built sight distance exhibits.
    a. This shall be certified and submitted by an SC licensed professional surveyor experienced with sight line surveying
    b. These exhibits will verify minimum sight distance is available or as presented by the Engineer of Record on the approved permitted plans

c. If minimum sight distance is determined to not be met applicant/engineer must schedule on-site meeting and propose potential solutions including, but not limited to, access relocation, additional clearing, property acquisition, etc.

16. Pavement transition between milled surface at butt joints shall be tied-in smoothly and shall be free of "bumps".
17. Any and all aesthetic design incorporations are to be maintained by the applicant. This includes the crosswalk markings as well as the brick pavers that may fall within SCDOT right-of-way.

Application # 20014951 2

Permit # 293882

Application for Encroachment Permit

S.C. Department of Transportation
Form 637 (Rev 09/2015)

Contact Information

Applicant: CityofSumter

Street: 303 E. Liberty Street

City: Sumter

State: SC **Zip Code:** 29150

Phone: (803)436-2672 **Fax:**

Email: chowell@landplansouth.com

Contact: Charles Howell

Project Location

Primary County: Sumter

County	Road Name
Sumter	N Main St (S-5)

1. Type of Encroachment: MUNICIPALITY / LOCAL FUNDED PROJECT

Streetscape improvements along West College Street (Local) at SC-43-5 North Main Street

2. Description of Location:

Intersection of West College Street (Local) at SC-43-5 North Main Street

(Attach sketch indicating roadway features such as: pavement width, shoulder width, sidewalk and curb and gutter location, significant drainage structure, north arrow, right of way width, and location of the proposed encroachment with respect to the roadway centerline and the nearest intersecting road on the State system.)

* See Attached Additional/Special Provisions *

Application # 20014951 2

Permit # 293882

Customer Agreement

3. **The undersigned Applicant hereby requests SCDOT to permit encroachment on SCDOT right of way as described herein. It is expressly understood that every encroachment, if and when constructed, shall be installed in accordance with the sketch attached hereto and made a part hereof. Applicant agrees to comply with and be bound by SCDOT's "A Policy for Accommodating Utilities on Highways Rights of way", "Standard Specifications for Highway Construction", the "General Provisions" and "Special Provisions", attached hereto or made a part hereof by reference, during the installation, operation and maintenance of said encroachment within SCDOT's right of way.**

DISCHARGES OF STORM WATER AND NON-STORM WATER: Work within State Highway right of way shall be conducted in compliance with all applicable requirements of the National Pollutant Discharge Elimination System (NPDES) permit(s) issued to SCDOT, to govern the discharge of storm water and non-storm water from SCDOT properties. Work shall also be in compliance with all other applicable Federal, State and Local laws and regulations, and with SCDOT's Encroachment Permits Manual and the encroachment permit. The encroachment permit will not be issued until Applicant has received an NPDES construction permit from SC Department of Health and Environmental Control.

Applicant and Permittee agrees to comply with all current SCDOT Standards Specifications for Highway Construction including all Supplemental Technical Specifications. Applicant and Permittee hereby further agrees, and binds his/her/its heirs, personal representatives, successors and assigns, to assume any and all liability for accidents or injuries to persons, or damage to property, including the highway and all SCDOT facilities in the right of way, that may be caused by the construction, maintenance, use, moving or removing of the physical appurtenances contemplated herein.

Applicant's Name: Deron McCormick **Date:** 02/06/2025

(Please print or type)

Applicant's Sign: Deron McCormick **Title:** City Manager

For Office Use Only

For Office Use Only

In accordance with your request and subject to all the provisions, terms, conditions, and restrictions stated in the application and the general and special provisions attached hereto, the SCDOT hereby approves your application for an encroachment permit. This permit shall become null and void unless the work contemplated herein shall have been completed prior to: 6/12/2024

~~See~~ **Attached Special Provision and/or Permit Requirements**

NPDES Permit Nbr:

(Date received by res. Maint. Engr.) **(SCDOT Approval)** 6/12/2025 **(Date)**

General Provisions

Application for Encroachment Permit
General Provisions

1. **DEFINITIONS: The word "Permittee" used herein shall mean the name of the person, firm, or corporation to whom this permit is addressed, his, her, its, heirs, personal representatives, successors and assigns. The word "DEPARTMENT" shall mean the South Carolina Department of Transportation.**
2. **NOTICE PRIOR TO STARTING WORK: Before starting the work contemplated herein within the limits of the highway right of way, the Department's Resident Maintenance Engineer in the county in which the proposed work is located shall be notified 24 hours in advance so that he may be present while the work is under way.**
3. **PERMIT SUBJECT TO INSPECTION: This permit shall be kept at the site of the work at all times while said work is under way and must be shown to any representative of the Department or law enforcement officer on demand.**
4. **PROTECTION OF HIGHWAY TRAFFIC: The applicant shall be responsible for the protection of the highway traffic at all times during the construction, maintenance, removing or moving of the encroachment permitted herein. Detours, barricades, warning signs and flagmen, as necessary, shall be provided by and at the expense of the Permittee and shall be in accordance with the "Manual on Uniform Traffic Control Devices" (MUTCD). The work shall be planned and carried out so that there will be the least possible inconvenience to the motoring public. The Permittee agrees to observe all rules and regulations of the Department while carrying on the work contemplated herein and take all other precautions that circumstances warrant.**
5. **STANDARDS OF CONSTRUCTION: All work shall conform to the Department's standards of construction and shall be performed in a workman-like manner. The applicant shall make adequate provisions for maintaining the proper drainage of the highway as it may be affected by the encroachment permitted herein. All work shall be subject to the supervision and satisfaction of the Department.**
6. **FUTURE MOVING OF PHYSICAL APPURTENANCES: If, in the opinion of the State Highway Engineer, it should ever become necessary to move or remove the physical appurtenances, or any part thereof contemplated herein, on account of change in location of the highway, widening of the highway, or for any other sufficient reason, such moving shall be done on demand of the Department at the expense of the Permittee.**
7. **RESTORATION OF HIGHWAY FACILITIES UPON MOVING OR REMOVING OF PHYSICAL APPURTENANCES: If, and when, the physical appurtenances contemplated herein shall be moved or removed, either on the demand of the Department or at the option of the Permittee, the highway and facilities shall immediately be restored to their original condition at the expense of the Permittee.**
8. **COSTS: All work in connection with the construction, maintenance, moving or removing of the physical appurtenances contemplated herein shall be done by and at the expense of the Permittee.**
9. **ADDITIONAL PERMISSIONS:**
   (a) It is distinctly understood that this permit does not in any way grant or release any rights lawfully possessed by the abutting property owners. The Permittee shall secure any such rights, as necessary, from said abutting property owners.
   (b) The Permittee shall be responsible for obtaining all other approvals or permits necessary for installation of the encroachment from other government entities.

(c) There shall be no excavation of soil nearer than two feet to any public utility line or appurtenant facility except with the consent of the owner thereof, or except upon special permission of this Department after an opportunity to be heard is given the owner of such line or appurtenant facility.

10. ADDITIONAL WORK PERFORMANCE:

(a) All crossings over the highway shall be constructed in accordance with "Specifications for Overhead Crossings of Light and Power Transmission Lines and Telegraph Lines over each other and over Highway Rights of Way in South Carolina," as approved by the Public Service Commission of South Carolina and effective as of date of this permit.

(b) All tunneling, boring, or jacking shall be done in such a way as not to disturb the highway surfacing.

(c) No pavement shall be cut unless specifically authorized herein.

(d) No excavation shall be nearer than three feet to the edge of pavement unless specifically authorized herein.

(e) Underground facilities will be located at minimum depths as defined in the "Utility Accommodations Manual" for the transmittant, generally as follows: 4 feet minimum for hazardous or dangerous transmittant, 3 feet minimum for other lines. The Department may approve shallower depths if adequate protection is provided. Such approval must be obtained in writing.

(f) Service and other small diameter pipes shall be jacked, driven, or otherwise forced underneath the pavements on any surfaced road without disturbing the pavement. The section under the highway pavement and within a distance of three (3) feet on either side shall be continuous without joints.

11. ACCESS:

(a) Permittee is responsible for maintaining reasonable access to private driveways during construction.

(b) It is expressly provided that, with respect to any limited access highway, the Permittee shall not have or gain access from the main traveled way of the highway, or the on or off ramps to such facility, except upon approval by the Department.

12. DRIVEWAYS:

(a) The existing crown of the highway shall be continued to the outside shoulder line of the highway.

(b) If the driveway or approach is concrete pavement, the pavement shall be constructed at least 6 inches thick and with a minimum of class 2500 concrete. There shall be a bituminous expansion joint, not less than 3/4 inches in thickness, placed between the highway paving and the paving of the approach for the full width of the approach.

13. BEAUTIFICATION:

(a) All trees, plants, flowers, etc. shall be placed in accordance with the provisions specifically stipulated herein.

(b) All trees, plants, flowers, etc. shall be maintained by, and at the expense of, the Permittee and the provisions of this permit shall become null and void, if and when said Permittee ceases to maintain aid trees, plants, flowers, etc.

14. AS-BUILT PLANS:

(a) The applicant shall provide the Department with survey-quality as-built plans in accordance with the requirements set forth in the Department's "A Policy for Accommodating Utilities on Highway Rights of Way".

15. COMPLETE STREETS:

Reference Departmental Directive 28, "Complete Streets". For encroachment permit types that require a Traffic Impact Study (TIS), the applicant shall consider the inclusion of walking, bicycling, and transit accommodations within the scope of the encroachment. The applicant shall review walking, bicycling, and transit plans from Metropolitan Planning Organizations (MPOs), Councils of Government (COGs), and regional transit providers to determine the scope of accommodations for complete streets. Coordination with the District Permit Engineer is required to determine if the inclusion of walking, bicycling, and transit accommodations are conducive for implementation based on the scope of the encroachment.

THE LANDPLAN GROUP SOUTH
Landscape Architecture | Engineering | Planning

North Main Street Drainage Improvements
Sumter SC

To whom it may concern,

The attached project is a linear project, and no drainage calculations are required,

Regarding the drainage calculations for this phase of the project, an analysis shows that the total increase in impervious area from pre to post-development conditions will be approximately 5,700 ft^2. Using the SCDOT idf curve information for Sumter County, the following estimates of peak flow are as follows:

SUMTER								
Frequency (years)	Rational Coefficients			Rainfall Intensity ("/hr) for Time of Concentration (T_c)				
	a	b	c	$T_c = 5$	$T_c = 10$	$T_c = 15$	$T_c = 30$	$T_c = 60$
2	68.6000	11.6900	0.8480	6.30	5.05	4.23	2.90	1.83
5	53.9000	9.6340	0.7512	7.18	5.76	4.86	3.40	2.22
10	50.9900	8.5850	0.7028	8.15	6.54	5.53	3.91	2.61
25	42.7900	6.6630	0.6271	9.17	7.33	6.22	4.47	3.07
50	38.5300	5.3070	0.5739	10.10	8.05	6.84	4.98	3.50
100	36.0600	4.3990	0.5340	10.90	8.68	7.40	5.45	3.90

10 year storm event:
Q=CIACf
C=0.9
I=8.15 (in/hr) (assumes Tc=5 min)
A=0.13 (acre)
Cf=1.0
Q=0.95 cfs net increase

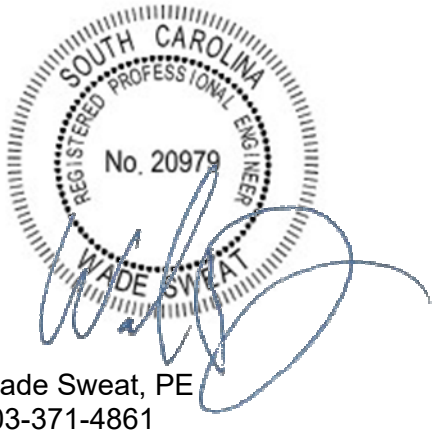
25 year storm event:
Q=CIACf
C=0.9
I=9.17 (in/hr) (assumes Tc=5 min)
A=0.13 (acre)
Cf=1.1
Q=1.18 cfs net increase

It is my professional opinion that these minor increases in peak flows are insignificant and will not adversely affect the existing SCDOT drainage system. These small increases will also be negated by overall planned project's eventual net decrease in impervious area in the adjacent phases of North Main Street currently under design by SCDOT, which will result in a net decrease in peak flow runoff rates as those phases of the project and completed.

1206 Scott Street
Columbia, SC 29201
O: 803.256.0562
www.landplansouth.com

THE LANDPLAN GROUP SOUTH
Landscape Architecture | Engineering | Planning

Thank You



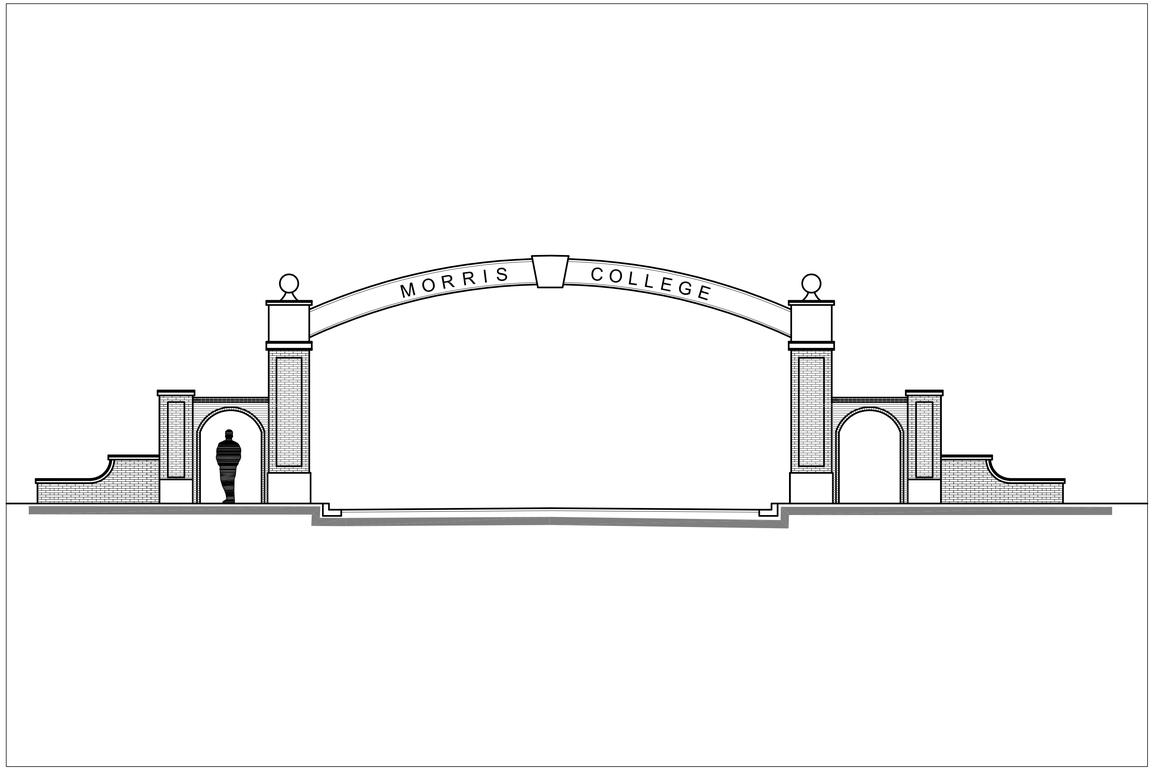
Wade Sweat, PE
803-371-4861

If you should need any additional information or have any questions, please don't hesitate to contact me.

1206 Scott Street
Columbia, SC 29201
O: 803.256.0562
www.landplansouth.com

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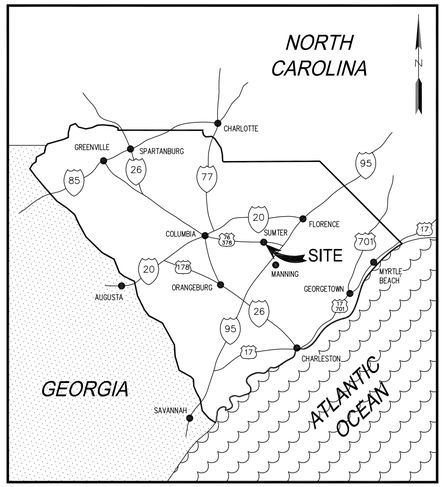
City of Sumter
Sumter County, South Carolina



North Main Street Improvement Project Phase II

Review Set

ITB# x-23-24



VICINITY MAP NOT TO SCALE

SHEET INDEX

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--- ---	DUKE ENERGY LIGHTING PLAN

PROJECT OWNER

CITY OF SUMTER
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SUMTER, SC 29150
803.436.2500

CIVIL ENGINEER/ LANDSCAPE ARCHITECTURE

THE LANDPLAN GROUP SOUTH, INC.
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SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION
THE LANDPLAN GROUP SOUTH INC.
No. 153

NORTH MAIN STREET
IMPROVEMENT PROJECT - PHASE II
SUMTER, SC
COVER

State of South Carolina
REGISTERED LANDSCAPE ARCHITECT
No. 1730
W. HOWELL CREECH

REVISION	BY	APP'D.	MM.DD.YY
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DWN. | CHK'D. | DSGN. | MM.DD.YY
FILE NAME:

JOB #: 0885
SCALE: NO SCALE
SHEET: 1 OF 19

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General Notes:

1. THIS DRAWING IS BASED ON A SURVEY DONE BY: LINDLER SURVEYING, INC. 1990 BOYKIN ROAD, REMBERT SC 29128. LINDLERSURVEYING@AOL.COM 803-238.6850. NOTE, SOME DATA USE ASSUMED ELEVATIONS AND SOME USE STATE PLANE COORDINATES. DATA ALSO TAKEN FROM FUTURE SCDOT PLANS ANDS AERIAL PHOTOGRAPHY. PLEASE REFERENCE BENCH MARKS ON PLANS AND CONTACT SURVEYOR WITH ANY QUESTIONS.
2. THE CONTRACTOR SHALL PROVIDE HIS OWN LINE AND GRADE.
3. THE CONTRACTOR SHALL COORDINATE BI-MONTHLY MEETINGS BETWEEN THE CONTRACTOR AND PARK STAFF. THE CONTRACTOR SHALL BE PREPARED TO DISCUSS PROGRESS AND SCHEDULE AT THESE MEETINGS.
4. THE CONTRACTOR SHALL SCHEDULE THE WORK OF THE PROJECT TO FACILITATE ACTIVITY IN THE PARK AREA. THE PREFERRED SEQUENCE OF WORK IN THIS PROJECT AND CONSTRUCTION PARAMETERS SHALL BE APPROVED BY OWNER.
5. THE CONTRACTOR IS RESPONSIBLE FOR FIELD STAKING ALL CONSTRUCTION ELEMENTS AND REVIEWING THIS LAYOUT WITH THE OWNER PRIOR TO BEGINNING ANY CONSTRUCTION.
6. THE CONTRACTOR IS ADVISED THAT THE LOCATION OF THE WORK SHOWN ON THE DRAWINGS IS SUBJECT TO SLIGHT ADJUSTMENT IN THE FIELD TO AVOID NEW AND EXISTING UTILITIES AND AS FIELD CONDITIONS DICTATE. ALL CHANGES SHALL BE AUTHORIZED BY THE ENGINEER AND OWNER. THERE WILL BE NO ADDITIONAL COMPENSATION FOR MAKING THESE ADJUSTMENTS UNLESS THE ADJUSTMENT CHANGES THE SCOPE OF THE WORK AS STATED IN THE GENERAL CONDITIONS.
7. THE CONTRACTOR SHALL MAINTAIN TRAFFIC IN ALL DIRECTIONS AT ALL TIMES. ANY TRAFFIC REROUTING SHALL BE SUBMITTED TO THE SCDOT AT 803-778-5466 AND THE CITY OF SUMTER AT 803-436-2558 FOR APPROVAL PRIOR TO ANY LANE CLOSURES OR REROUTING OF TRAFFIC. IN ADDITION THE CONTRACTOR SHALL NOTIFY THE OWNER, FIRE DEPARTMENT, POLICE DEPARTMENT, AND ANY OTHER EMERGENCY AGENCIES OF OF ANY CLOSURE AND TRAFFIC ROUTINGS AT LEAST 24 HOURS PRIOR TO ANY CLOSURES.
8. THE CONTRACTOR SHALL PROVIDE SHOP DRAWINGS AND SAMPLES FOR ALL MATERIALS AND EQUIPMENT TO BE INSTALLED PRIOR TO ORDERING.
9. WHERE NEW CONSTRUCTION IS TO TAKE PLACE, THE CONTRACTOR IS RESPONSIBLE FOR RELOCATING ANY MATERIAL, I.E. SIGNAGE, LIGHT POLE, ETC., AT HIS OR HER OWN COST.
10. ALL UNDERGROUND CONSTRUCTION SHALL BE COMPLETED AND ACCEPTED PRIOR TO NEW SURFACE CONSTRUCTION.
11. ALL STRUCTURES ADJACENT TO BRICK AND CONCRETE PAVEMENT SHALL HAVE EXPANSION MATERIAL BETWEEN THE STRUCTURE AND THE NEW OR EXISTING PAVEMENT.
12. FOR IRRIGATION MODIFICATION NOTES, SEE LANDSCAPE DRAWINGS.
13. FOR PLANTING NOTES AND SCHEDULE SEE LANDSCAPE PLAN AND DETAILS.
14. ALL WORK SHALL MEET OR EXCEED SCDOT SPECIFICATIONS.
15. THE CONTRACTOR SHALL BE AWARE THAT THE CITY OF SUMTER PUBLIC WORKS AT 803-436-2558 MAY BE REPLACING WATER AND SEWER SERVICE LINES FROM THE WATER AND SEWER MAINS TO THE BUILDING AS WELL AS THE METER BOXES AND FIRE HYDRANTS. THIS WORK WOULD BE DONE AFTER DEMOLITION
16. BUT BEFORE INSTALLATION OF THE NEW WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WITH THE CITY AND ALLOW UP TO FOUR (4) HOURS FOR EACH SERVICE AND METER BOX ONE (1) DAY FOR EACH FIRE HYDRANT. THIS WORK IF ANY WOULD BE COVERED UNDER MOBILIZATION.
17. ALL SIGNAGE AFFECTED BY PROJECT MUST BE PLACED IN ORIGINAL LOCATION AT END OF PROJECT.

Demolition and Site Preparation

1. CONSTRUCTION LIMITS OF PROJECT ARE PROPERTY LINES AND RIGHT-OF-WAY LINES AND THE EXTENT OF WORK SHOWN ON THE PLANS, WHICHEVER IS LARGEST IN SCOPE. THE CONTRACTOR WILL BE RESPONSIBLE FOR DAMAGE TO EXISTING BUILDINGS AND STRUCTURES CAUSED BY THE DEMOLITION AND/OR CONSTRUCTION PROCESS. THE DEMOLITION LINE AT THE PROJECT LIMITS SHALL BE A CLEAN, SAW CUT LINE WITHOUT IRREGULARITIES. THE CITY AND/OR ENGINEER SHALL APPROVE THIS LINE PRIOR TO COMMENCEMENT OF DEMOLITION.
2. THE LIMIT OF DEMOLITION AND SITE PREPARATION IS AS SHOWN ON THE DRAWINGS AND HAS BEEN LOCATED TO PROVIDE SUFFICIENT AREA FOR INSTALLING THE NEW WORK.ANY DEMOLITION THAT OCCURS OUTSIDE OF THESE LIMITS WILL BE AT THE CONTRACTORS EXPENSE UNLESS APPROVAL HAS BEEN GRANTED BY THE OWNER.
3. CONTRACTOR TO COORDINATE WITH SCDOT AND CITY OF SUMTER FOR DEMOLITION OF EXISTING SIDEWALK AND WATER AND SEWER FACILITIES, THROUGHOUT THE PROJECT.
4. ALL EXISTING ITEMS DESIGNATED TO BE REMOVED AND SALVAGED, SUCH AS SIGNS, DRAINAGE, GRATES, WHEEL STOPS, ETC., SHALL BE DELIVERED TO THE CITY OF SUMTER'S DESIGNATED STORAGE YARD FACILITY, AT NO ADDITIONAL COST TO THE OWNER.
5. THE CONTRACTOR SHALL CONTACT THE UNDERGROUND UTILITIES LOCATING SERVICE AT 1-888-721-7877 AND THE CITY OF SUMTER AT 803-436-2558 BEFORE EXCAVATING AS REQUIRED BY THE SUPPLEMENTAL CONDITIONS AND SOUTH CAROLINA LAW.
6. DISPOSAL OF MATERIALS OFF-SITE AND HAULING OF FILL MATERIAL THAT IS REQUIRED FOR CONSTRUCTION SHALL BE FULL RESPONSIBILTY OF THE CONTRACTOR.
7. ANY AREAS DISTURBED BY CONSTRUCTION NOT COVERED BY NEW WORK SHALL BE PLACED IN PERMANENT GRASS SOD AT NO ADDITIONAL COST TO THE OWNER.
8. CONTRACTOR SHALL COMPLETELY DEMOLISH, REMOVE, AND DISPOSE OF PAVEMENT (MILLINGS SHALL BE DELIVEREED TO THE CITY), FOUNDATIONS, CURB AND SIDEWALK (OUTSIDE THE SCDOT DEMOLITION AREA) AS NECESSARY TO INSTALL THE NEW WORK. THIS LIMIT SHALL BE AT THE CONTRACTORS EXPENSE UNLESS SPECIFICALLY APPROVED BY THE OWNER OR ENGINEER. THE LIMIT SHOWN ON THE DEMOLITION INDICATES THE SCOPE TO BE PAID BY UNIT PRICE IN THE CONTRACT. DEMOLITION AND REPLACEMENT BEYOND
9. PAYMENT FOR DEMOLITION IS FOR REMOVAL OF CONCRETE, TREES AND SHRUBS OR OTHER HARD SURFACES. THE CONTRACTOR WILL NOT BE PAID FOR GRASS OR EARTH AREAS TO BE GRADED AND/OR REPLACED.
10. SIDEWALK AND CURB & GUTTER TO BE REMOVED AND REPALCED FROM JOINT TO JOINT.
11. CONTRACTOR TO SAWCUT EXISTING ASPHALT FOR SMOOTH JOINT NOT ALIGNED WITH WHEEL PATH.

Stormwater Sewer Lines, Structures & Electric Utilities

1. EXISTING OVERHEAD & UNDERGROUND UTILITIES ARE SHOWN ON THE DRAWINGS BASED ON THE BEST AVAILABLE INFORMATION PROVIDED BY THE SURVEYOR. IT IS THE CONTRACTORS RESPONSIBILITY TO CORRDINATE WITH THE UTILITY COMPANIES PRIOR TO ANY EXCAVATION TO VERIFY ACTUAL FIELD LOCATION, PROTECTION AND/OR RELOCATION OF EXISTING UTILITY LINES IN CONFLICT OR ADJACENT TO THE PROPOSED WORK.

Layout Notes

1. ALL DIMENSIONS ARE TAKEN FROM FACE OF CURB OR WALL UNLESS OTHERWISE NOTED.
2. LAYOUT PLANS AND THE DETAILS SHEETS SHOW THE LAYOUT FOR THE WORK TO BE DONE. IF IT IS DISCOVERED THAT THERE IS A DIFFERENCE BETWEEN SCALED DIMENSIONS AND LAYOUT, THE CONTRACTOR SHALL NOTIFY THE ENGINEER FOR CLARIFICATION.
3. THE CONTRACTOR SHALL LAYOUT ENTIRE JOB TO BE REVIEWED BY THE OWNER OR OWNER'S REPRESENATIVE PRIOR TO BEGINNING ANY CONSTRUCTION.

Sidewalk, Paving and Grading

1. THE NEW SIDEWALKS, ROADS, LANDSCAPED ISLANDS AND CROSSWALKS SHALL BE GRADED IN ACCORDANCE WITH THE PROPOSED ELEVATIONS SHOWN IN THE GRADING AND DRAINAGE PLANS. IN CASES WHERE THE GRADES ARE NOT SHOWN, THE PROPOSED GRADE WILL BE INTERPOLATED BETWEEN SPOT ELEVATIONS. GENERALLY, THE FINISHED SURFACES ARE GRADED FOR PROPER CONVEYANCE OF STORMWATER RUNOFF TO NEW AND EXISTING DRAINAGE INLETS. NO SIDEWALK WITHIN THE SCDOT RIGHT OF WAY WILL HAVE A CROSS SLOPE GREATER THAN 2%.
2. THE CONTRACTOR SHALL ADJUST, AS NECESSARY, THE EXISTING MANHOLE COVERS, DRAINAGE GRATES, VENT GRATES, VALVE COVERS, ETC. TO MATCH GRADE OF NEW ASPHALT PAVEMENT OR CONCRETE SIDEWALK SURFACES AT NO ADDITIONAL COST TO THE OWNER. ALL WATER METER ADJUSTMENTS (IF APPLICABLE) SHALL BE PERFORMED BY THE CITY OF SUMTER AND COORDINATED WITH THE CONTRACTOR. METER BOXES TO BE TRAFFIC RATED.
3. SIDEWALK SHALL HAVE A MINIMUM ONE-PERCENT (1%) CROSS SLOPE TO ASSURE POSITIVE DRAINAGE TOWARDS THE ROAD. IF POSITIVE DRAINAGE IS NOT ACHIEVED BASED ON ELEVATIONS SHOWN, INFORM THE ENGINEER IMMEDIATELY. MAXIMUM CROSS SLOPE SHALL BE TWO PERCENT (2%) UNLESS WHERE SPECIFICALLY SHOWN.
4. THE CONTRACTOR SHALL CONSTRUCT A SAMPLE PANEL OF THE CONCRETE COURT SURFACING AND CONCRETE SIDEWALK. THESE PANELS SHALL BE APPROVED BEFORE ANY SIDEWALK OR BRICK WORK IS PERFORMED AND WILL BE USED AS A BASIS FOR THE QUALITY WORKMANSHIP OF CONCRETE FINISH AND WORK FOR THE REMAINDER OF THE PROJECT.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COMPACTION IN ACCORDANCE WITH THE SPECIFICATIONS. THERE IS NO SEPARATE PAY ITEM FOR THIS WORK.
6. THE CONTRACTOR SHALL VERIFY POSITIVE DRAINAGE IS ACHIEVED FROM ALL AREAS TO NEW AND/OR EXISTING STORM DRAIN INLETS.
7. ANY DRAINAGE STRUCTURES WITHIN SCDOT RIGHT OF WAYS SHALL BE SCDOT STANDARD.
8. ALL MARKINGS WITH THE SCDOT RIGHT OF WAY SHALL BE APPROVED PERMANENT PAVEMENT MARKINGS PER SECTIONS 625, 626, OR 627 WITHIN THE SCDOT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.
9. ANY PROPOSED SIDEWALK WITHIN THE R.O.W. (OF PROJECT BOUNDARY) SHALL NOT EXCEED 2% CROSS SLOPE PER ADA GUIDELINES. ALL RAMPS SHALL NOT EXCEED 8.33% FOR EVERY SCENARIO. IN PRESENCE OF SIDEWALK OR OTHER ADA PATHWAY, ACCESS(ES) TO PROVIDE A MINIMUM OF 3' PEDESTRIAN PATH NO GREATER CROSS SLOPE THAN 2% ACROSS THROAT OF DRIVEWAY.

Landscaping Notes

1. ALL NEW TREES IN THE PROXIMITY OF INTERSECTIONS AND DRIVEWAYS SHALL BE DE-LIMBED TO SEVEN (7) FEET TO ENSURE APPROPRIATE SITE DISTANCE. ALL SHRUBS SHALL NOT EXCEED 30" IN HEIGHT.
2. ALL NEW PLANTINGS SHALL MEET THE CITY OF SUMTER LANDSCAPE AND NURSERY CARE SHEETS INCLUDED IN THIS DRAWING SET.

Lighting Notes

1. CONTRACTOR SHALL COORDINATE WITH DUKE ENERGY FOR PLACEMENT OF PROPOSED LIGHT POLES AND FIXTURES. CONTRACTOR SHALL INSTALL DUKE ENERGY SUPPLIED CONDUIT AS SHOWN ON DUKE PLANS.

Erosion Control Notes

1. IF NECESSARY, SLOPES WHICH EXCEED EIGHT (8) VERTICAL FEET SHOULD BE STABILIZED WITH SYNTHETIC OR VEGETATIVE MATS, IN ADDITION TO GRASSING/HYDROSEEDING. IT MAY BE NECESSARY TO INSTALL TEMPORARY SLOPE DRAINS DURING CONSTRUCTION. TEMPORARY BERMS MAY BE NEEDED 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 FOURTEEN (14) DAYS AFTER WORK HAS CEASED , EXCEPT AS STATED BELOW.
   »WHERE STABILIZATION BY THE 14TH 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.
3. ALL SEDIMENT AND EROSION CONTROL DEVICES SHALL BE INSPECTED ONCE EVERY CALENDAR WEEK. IF PERIODIC INSPECTION OR OTHER INFORMATION INDICATES THAT A BMP HAS BEEN INAPPROPRIATELY INSTALLED, THE PERMITTEE MUST ADDRESS THE NECESSARY REPLACEMENT OR MODIFICATION REQUIRED TO CORRECT THE BMP WITHIN 48 HOURS OF IDENTIFICATION.
4. 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 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 COMPLETED AND THE SITE IS STABILIZED.
6. THE CONTRACTOR MUST TAKE NECESSARY ACTION TO MINIMIZE 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.
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 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-FT BUFFER CAN'T BE MAINTAINED BETWEEN THE DISTURBED AREA AND ALL WoS. A 10-FT 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 STORM WATER 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 THE FINAL STABILIZATION IS REACHED.
12. INITIATE STABILIZATION MEASURES ON ANY EXPOSED SLOPE (3H:1V OR GREATER) WHERE LAND-DISTURBIUNG ACTIVITIES HAVE PERMANENTLY OR TEMPORARILY CEASED, AND WILL NOT RESUME FOR A PERIOD OF SEVEN (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 BMPs (SEDIMENT BASIN, 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, FROM CONSTRUCTION MATERIALS	RELEASE OILS, CURING COMPOUNDS AND OTHER
»FUELS, OILS, OR OTHER POLLUTANTS USED IN VEHICLE AND EQUIPMENT	OPERATION AND MAINTENANCE
»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. INSPECTIONS TO BE PERFORMED BY A SCDHEC CEPSCI CERTIFIED INSPECTOR.
18. 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 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 MORE THAN 10 ACRES OR MORE THIS CONFERENCE MUST BE HELD ON-SITE UNLESS THE DEPARTMENT HAS APPROVED OTHERWISE.
20. SILT FENCING LINE ON EROSION CONTROL PLAN SHEETS ARE SHOWN FOR GRAPHICAL PURPOSES. SILT FENCING SHALL BE PLACED AT THE LIMIITS OF DISTURBANCE

Sequence of Construction

ITEMS MUST OCCUR IN THE ORDER LISTED; ITEMS CANNOT OCCUR CONCURRENTLY UNTIL SPECIFICALLY NOTED. IF ITEMS DESCRIBED BELOW ARE NOT A PART OF THE SWPPP CONTRACTOR TO ADDRESS NEXT ITEM ON THIS LIST.

1. RECEIVE NPDES COVERAGE FROM DHEC.
2. NOTIFY CITY OF SUMTER'S STORMWATER MANAGEMENT OFFICE 48 HOURS PRIOR TO BEGINNING LAND-DISTURBING ACTIVITIES.
3. PRE-CONSTRUCTION MEETING (ON-SITE). A REPRESENTATIVE FROM THE CITY OF SUMTER'S STORMWATER MANAGEMENT OFFICE MUST BE PRESENT AT THE ON-SITE PRE-CONSTRUCTION MEETING.
4. INSTALLATION OF CONSTRUCTION ENTRANCES.
5. CLEARING AND GRUBBING ONLY AS NECESSARY FOR INSTALLATION OF PERIMETER CONTROLS.
6. INSTALLATION OF PERIMETER CONTROLS SUCH AS SILT FENCING.
7. CLEARING AND GRUBBING ONLY IN AREAS OF BASINS/TRAPS/PONDS.
8. INSTALLATION OF BASINS/TRAPS/PONDS AND INSTALLATION OF DIVERSIONS TO THOSE STRUCTURES. OUTLET STRUCTURES MUST BE COMPLETELY INSTALLED AS SHOWN ON THE DETAILS BEFORE PROCEEDING TO NEXT STEP; AREAS DRAINING TO THESE STRUCTURES CANNOT BE DISTURBED UNTIL THE STRUCTURES AND DIVERSIONS TO THE STRUCTURE ARE COMPLETELY INSTALLED.
9. CLEARING AND GRUBBING OF SITE OR DEMOLITION.
10. ROUGH GRADING.
11. INSTALLATION OF STORM DRAIN SYSTEM AND PLACEMENT OF INLET PROTECTION AS EACH INLET IS INSTALLED.
12. FINE GRADING, PAVING, ETC.
13. PERMANENT/FINAL STABILIZATION.
14. INSTALLATION OF POST PAVING INLET PROTECTION.
15. CLEAN-OUT OF DETENTION BASINS THAT WERE USED AS SEDIMENT CONTROL STRUCTURES AND RE-GRADING OF DETENTION POND BOTTOMS; IF NECESSARY. MODIFICATION OF SEDIMENT BASIN RISER TO CONVERT TO DETENTION BASIN OUTLET STRUCTURE.
16. REMOVAL OF TEMPORARY SEDIMENT AND EROSION CONTROL MEASURES AFTER ENTIRE AREA DRAINING TO THE STRUCTURE IS FINALLY STABILIZED (THE DEPARTMENT RECOMMENDS THAT THE PROJECT OWNER/OPERATOR HAVE THE SWPPP PREPARER OR REGISTRATION EQUIVALENT APPROVE THE REMOVAL OF TEMPORARY STRUCTURES.)
17. PERFORM AS-BUILT SURVEYS OF ALL DETENTION STRUCTURES AND SUBMIT TO SCDHEC OR MS4 FOR ACCEPTANCE.
18. SUBMIT NOTICE OF TERMINATION (NOT) TO DHEC AS APPROPRIATE.

- NOTE: IF NPDES COVERAGE IS BEING ISSUED AFTER LAND-DISTURBING ACTIVITIES HAVE ALREADY STARTED (E.G., IN RESPONSE TO A NOTICE TO COMPLY, NOTICE OF VIOLATION, OR ENFORCEMENT ACTION), THEN THE CONSTRUCTION SEQUENCE MUST SPECIFICALLY INDICATE THE ITEMS THAT HAVE ALREADY OCCURRED AND THE ITEMS THAT WILL BE OCCURRING AFTER NPDES COVERAGE IS ISSUED.
- NOTE: IF FLOWS FROM OFFSITE AREAS WILL BE DIVERTED AROUND THE SITE AND THE ON-SITE STRUCTURES ARE NOT DESIGNED TO HANDLE FLOWS FROM THE OFFSITE AREAS, THEN THE DIVERSION/PIPING FOR THE OFFSITE FLOWS MUST BE INSTALLED BEFORE LAND-DISTURING ACTIVITIES BEGIN ON THE SITE; INCLUDE THIS IN THE SEQUENCE. SEDIMENT AND EROSION CONTROL MEASURES FOR THE DISTURBED AREAS FOR THE DIVERSION/PIPING MUST BE INSTALLED BEFORE THOSE AREAS ARE DISTURBED AND SHOULD BE SHOWN ON THE PLANS.
- NOTE: IF AN EXISTING DETENTION/SEDIMENT BASIN IS BEING MODIFIED TO HANDLE THE FLOWS FROM THE PROPOSED DEVELOPMENT, THEN IT MUST BE MODIFIED BEFORE LAND-DISTURBING ACTIVITIES BEGIN ON THE SITE. THIS SHOULD BE INCLUDED IN THE SEQUENCE.
- NOTE: INCLUDE INDIVIDUAL LOT DEVELOPMENT/CONSTRUCTION IN THE SEQUENCE IF THE SITE WILL NOT BE MASS-GRADED.
- NOTE: INSTALLATION OF SOME PERMANENT WATER QUALITY DEVICES SHOULD OCCUR AFTER THE SITE IS STABILIZE; INCLUDE THIS IN THE SEQUENCE. CLEAN OUT OF OTHER WATER QUALITY DEVICES THAT WERE USED.
- NOTE: MAINTENANCE OF SEDIMENT AND EROSION CONTROL MEASURES MUST CONTINUE UNTIL THE SITE IS PERMANENTLY STABILIZED AND THE CONTROLS ARE REMOVED.

Sumter County Notes

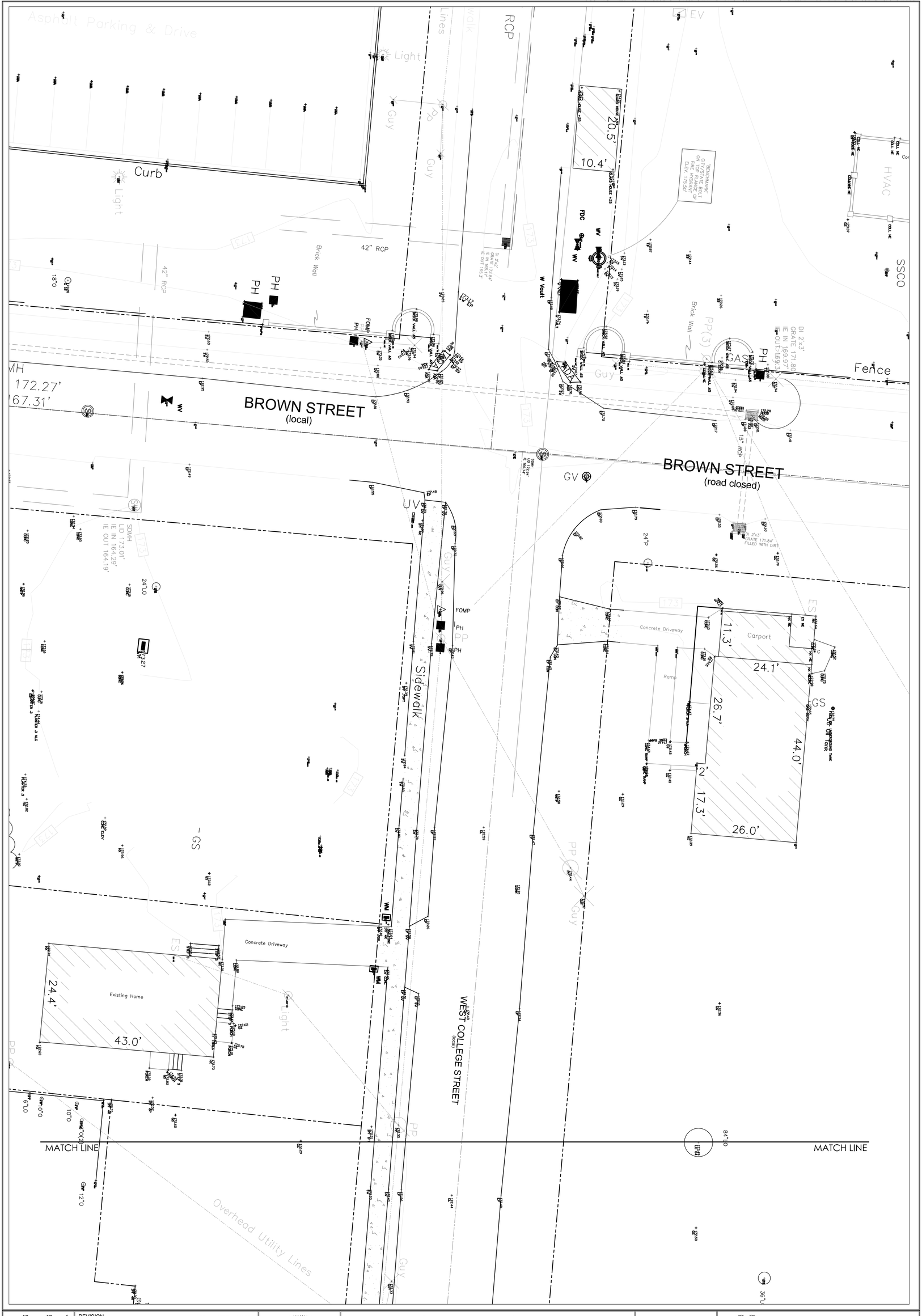
1. SOIL SHOULD BE TESTED TO DETERMINE THE PROPER APPLICATION OF NUTRIENTS/PH AMENDMENTS REQUIRED FOR ESTABLISHMENT OF VEGETATIVE COVER. SOIL SAMPLES CAN BE PROVIDED TO THE LOCAL CLEMSON EXTENSION AGENT FOR THEIR EVALUATION OF SITE NEEDS. THIS IS CRITICAL FOR POND AREAS AND FILL SLOPES. THE RESPONSIBLE STORMWATER INSPECTOR SHALL MAKE COMMENTS RELATIVE TO SOIL PREPARATION, PROPER SEED MIX, AND THE CORRECT MATTING/MULCH APPLICATION IN WEEKLY INSPECTION REPORTS WHEN PLANTING IS IN PROGRESS.
2. IF DUE TO INLET CONTROLS, STORMWATER BY-PASSES DROP INLETS AND EXITS SITE UNFILTERED, ADDITIONAL CONTROLS SHALL BE INSTALLED AS REQUIRED.
3. CONDUCT A PRE-JOB MEETING WITH THE OWNER, RESPONSIBLE CONTRACTOR, RESPONSIBLE ENGINEER, SITE STORMWATER INSPECTOR, AND THE STORMWATER MANAGER PRIOR TO THE START OF ANY LAND DISTURBING AND/OR DEMOLITION ACTIVITIES ASSOCIATED WITH THE PROJECT SHALL BE CONDUCTED. THE STORMWATER MANAGER MAY ELECT TO REQUIRE ADDITIONAL SITE MEETINGS FOR COMPLEX OR MULTI-PHASED PROJECTS
4. WEEKLY REPORT MUST BE KEPT ON SITE. REPORTS TO BE PERFORMED BY A SCDHEC CEPSCI CERTIFIED INSPECTOR. THE REPORT MUST INCLUDE AT A MINIMUM:
   A. A SUMMARY OF THE INSPECTIONS CONDUCTED DURING THE MONTH,
   B. A LISTING OF DEFICIENCIES AND THE DATE NOTED,
   C. CONCERNING DEFICIENCIES, LIST THE NAME, ADDRESS, AND TELEPHONE NUMBER OF THE PARTY(S) RESPONSIBLE FOR ADDRESSING THE DEFICIENCIES,
   D. WHETHER THE DEFICIENCY WAS LISTED IN A PREVIOUS REPORT,
   E. CORRECTIVE ACTIONS TAKEN AND THE DATE THE ACTIONS WERE COMPLETED,
   F. WHETHER THE SWPPP WAS UPDATED TO DEAL WITH THE NOTED DEFICIENCIES
   G. A COPY OF EACH INSPECTION CONDUCTED. IN ADDITION, THE REPORT MUST INCLUDE ALL CO-PERMITTEE AGREEMENTS AND CONTRACTOR CERTIFICATIONS STATEMENTS.

Pollution Prevention + Best Management Practices

1. WASTE DISPOSAL. NO SOLID MATERIALS, INCLUDING BUILDING MATERIALS, SHALL BE DISCHARGED TO WATERS OF SOUTH CAROLINA, EXCEPT AS AUTHORIZED BY A SECTION 404 PERMIT.
2. OFFSITE VEHICLE TRACKING OF SEDIMENTS AND THE GENERATION OF DUST SHALL BE MINIMIZED.
3. STATE AND/OR LOCAL WASTE DISPOSAL AND SANITARY SEWER REGULATIONS SHALL BE FOLLOWED.
4. PROPER APPLICATION RATES AND METHODS FOR FERTILIZERS ARE TO BE USED AT THE CONSTRUCTION SITE TO INSURE PROPER NUTRIENT MANAGEMENT CONTROL.
5. USE OF PESTICIDES SHALL BE IN ACCORDANCE WITH STATE/FEDERAL/LOCAL REGULATIONS.
6. REQUIREMENTS FOR CONTROLLING AND DISPOSAL OF CHEMICALS, HAZARDOUS SUBSTANCES AND OIL SHALL MEET LOCAL/STATE/FEDERAL REQUIREMENTS.
7. CONTRACTOR TO USE PROPER TECHNIQUES FOR DEWATERING AND FLUSHING OF LINES WITH CONTROLS TO ASSURE THAT WATER QUALITY IS NOT IMPACTED.
8. THE CONSTRUCTION SITE WITH ASSOCIATED LAYDOWN AND FABRICATION AREAS SHOULD BE CONSIDERED UNDER THE SCOPE OF THE STORMWATER MANAGEMENT PLAN. THE LOCATION OF DROP INLETS, CONCENTRATED FLOW AREAS, AND WETLANDS/WATERS OF THE STATE DOWNSTREAM OF THESE AREAS SHALL BE IDENTIFIED PRIOR TO WORK.
9. CONCRETE TRUCK WASH OUT AREAS ARE TO BE DESIGNATED AND PROVISIONS TAKEN TO PREVENT IMPACT TO WATERS OF THE STATE. WASTE SHALL BE DISPOSED OF PER STATE/FEDERAL/LOCAL REGULATIONS.
10. POLLUTANTS WITH POTENTIAL TO BE EXPOSED TO STORMWATER IN THE WORK AREA, LAYDOWN AREAS OR FABRICATION AREA ARE REQUIRED TO BE PROTECTED USING BEST MANAGEMENT PRACTICES. THIS WOULD INCLUDE APPROPRIATE CONTAINMENT DIKES, USE OF CLAMSHELL TYPE CONTAINERS, STORAGE OF MATERIALS IN SHEDS, MINIMIZING POLLUTANTS ON SITE, ETC. PROPER SPILL CONTAINMENT AND CLEANUP SHALL BE ADDRESSED PRIOR TO WORK AND TRAINING SHALL BE DOCUMENTED. THE RESPONSIBILITIES FOR SPILL CLEANUP AND REPORTING SHALL BE DEFINED. CONTINGENCY PLANS AS APPLICABLE SHALL BE IMPLEMENTED AND BE POSTED APPROPRIATELY. SPILL KITS RELATIVE TO POLLUTANTS EXPECTED ON SITE SHALL BE AVAILABLE. SPILL CONTACTS (AGENCY NAME/PHONE NUMBER) RELATIVE TO THE POTENTIAL POLLUTANT USED ON SITE SHALL BE LISTED IN THE PLAN.
11. WHERE POSSIBLE, LAYOUT OF SITE SHALL UTILIZE BEST MANAGEMENT PRACTICES TO LOCATE ACTIVITIES WITH SIGNIFICANT POTENTIAL IN PLACES LESS PRONE TO IMPACT TO SENSITIVE AREAS DOWNSTREAM OF THE CONSTRUCTION SITE. THIS WOULD INCLUDE AVOIDING STORING POTENTIAL POLLUTANTS NEAR DROP INLETS, OUTFALLS, OR AREAS PRONE TO CONCENTRATED FLOW. ACTIVITIES HAVING A HIGH POTENTIAL OF POLLUTANT EXPOSURE SHOULD BE PERFORMED USING BEST MANAGEMENT PRACTICES (BMP) SUCH AS USING TEMPORARY SHEDS OR COVERINGS, LOCATING WORK SUCH THAT AREA DOWNSTREAM OF ACTIVITY IS WELL VEGETATED TO ALLOW FOR VEGETATIVE FILTERING OR OTHER REASONABLE MEASURES BMPS. WHERE FEASIBLE CONSIDER PERFORMING THESE OPERATIONS AT OFFSITE ESTABLISHED FABRICATION AREAS.

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SHEET: 3 OF 19
SCALE: 1" = 10'
JOB #: 0885

NORTH MAIN STREET IMPROVEMENT PROJECT - PHASE II

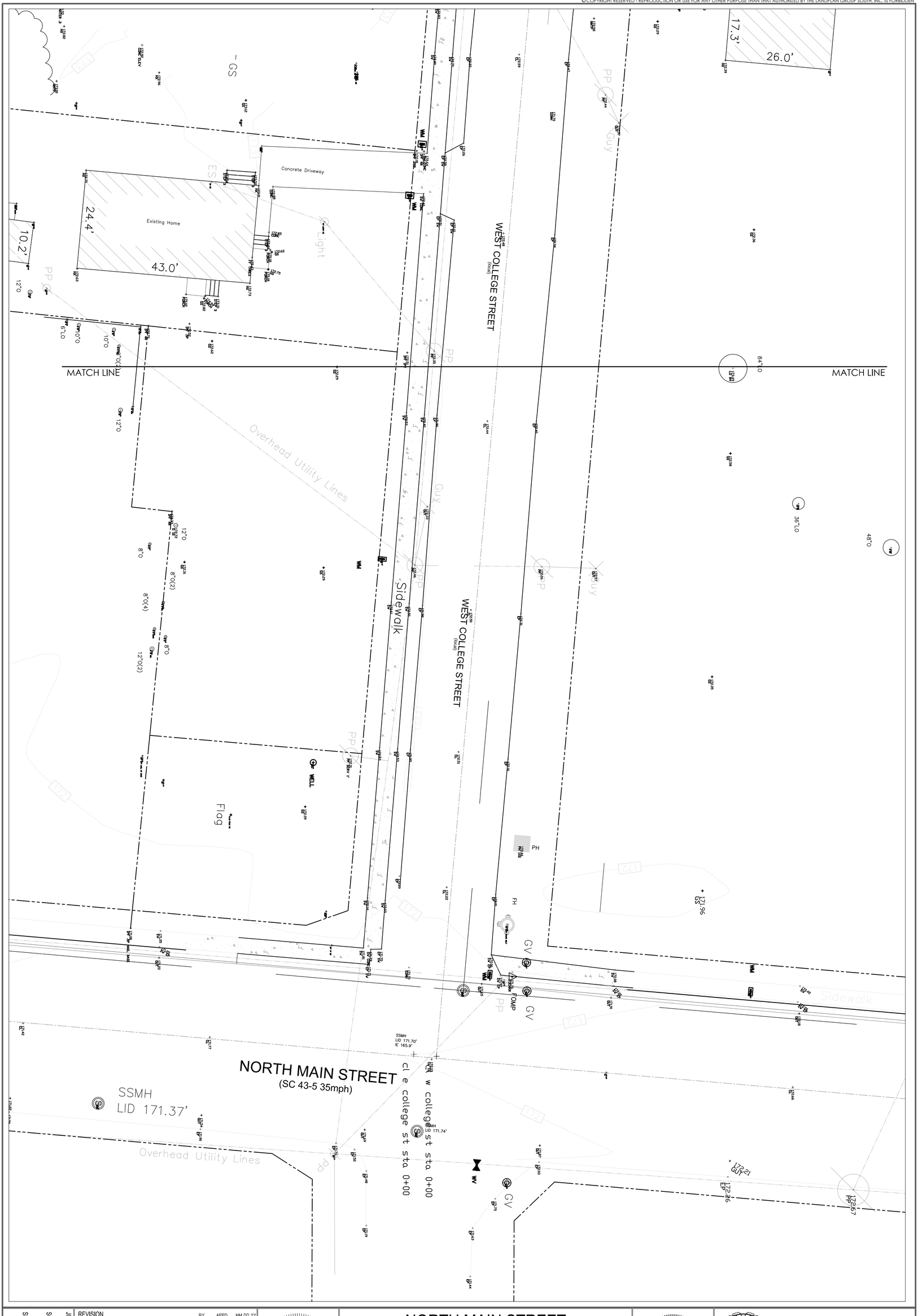
SUMTER, SC

EXISTING CONDITIONS

THE LANDPLAN GROUP SOUTH, INC. No. 153 CERTIFICATE OF AUTHORIZATION

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SHEET: 4 OF 19

REGISTERED LANDSCAPE ARCHITECT — STATE OF SOUTH CAROLINA — STEPHEN M. POWELL, JR.

NORTH MAIN STREET IMPROVEMENT PROJECT - PHASE II

SUMTER, SC

EXISTING CONDITIONS

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SSCO
HVAC
Fence
DI 2'x3'
GRATE 171.80'
IE IN 169.97'
IE OUT 169.3'
PH
GAS
PP(3)
Brick Wall
"BENCHMARK"
CITY/STATE BOLT
ON TOP FLANGE OF
FIRE HYDRANT
ELEV. 175.50'
EV
20.5'
10.4'
WV
FDC
ADA
Guy
BROWN STREET
(road closed)
15" RCP
INLET PROTECTION TYP.
SEE DETAILS
MILL AND OVERLAY SHALL MEET
ROADWAY WITH A SMOOTH
TRANSITION AND MATCHING
CROWN OR SLOPE
24"P
ADJUST MANHOLE TO
NEW ASPHALT PAVING
W Vault
MILL AND OVERLAY SHALL MEET
ROADWAY WITH A SMOOTH
TRANSITION AND MATCHING
CROWN OR SLOPE
RCP
DI 2'x2'
GRATE 172.84'
IE IN 165.17'
IE OUT 165.3'
walk
Lines
PP
Guy
Light
42" RCP
FOMP
PH
Brick Wall
PH
PH
Curb
Asphalt Parking & Drive
Light
18"O
42" RCP
SDMH
LID 173.01'
IE IN 164.29'
IE OUT 164.19'
24"LO
SW
S
MH
172.27'
167.31'
UG Oil Tank
ES
GS
44.0'
24.1'
Carport
11.3'
26.7'
26.0'
17.3'
Concrete Driveway
Ramp
SAWCUT AND REMOVE
EXISTING DRIVEWAY
AREAS OF MINOR
DEMOLITION
ADD TREE PROTECTION
FENCING, AROUND LARGE
OAK TREE, SEE DETAIL
COORDINATE WITH DUKE
FOR POWER LINE UNDER
GROUNDING
AREA OF ASPHALT
PATCH TYPICAL
AREA OF MINOR
DEMOLITION
MATCH LINE
84"LO
36"LO
WEST COLLEGE STREET
Sidewalk
FOMP
PH
UV
WM
COORDINATE WITH DUKE ENERGY AND
COMMUNICATION UTILITIES FOR
RELOCATION, BEHIND NEW SIDEWALK,
AND BURIAL
REMOVE EXISTING
SIDEWALK
AREA OF ASPHALT
PATCH TYPICAL
AREAS OF MINOR
DEMOLITION
MILL AND OVERLAY SHALL MEET
ROADWAY WITH A SMOOTH
TRANSITION AND MATCHING
CROWN OR SLOPE
COORDINATE WITH DUKE ENERGY AND
COMMUNICATION UTILITIES FOR
RELOCATION, BEHIND NEW SIDEWALK,
AND BURIAL
REMOVE EXISTING
SIDEWALK, TYP.
MAINTAIN ACCESS FOR
HOMEOWNER, DURING
CONSTRUCTION
COORDINATE WITH DUKE
FOR POWER LINE UNDER
GROUNDING AND
RE-FEED TO EXISTING
HOUSE
COORDINATE WITH DUKE
FOR POWER LINE UNDER
GROUNDING
AREA OF ASPH
PATCH TYPI
Concrete Driveway
Light
COORDINATE WITH DUKE
FOR POWER LINE UNDER
GROUNDING AND
RE-FEED TO EXISTING
HOUSE
Overhead Utility Lines
DEMOLITION KEY
AREAS OF MINOR
DEMOLITION
AREAS OF MAJOR
DEMOLITION
MILLING AND
OVERLAY
GS
ES
Existing Home
43.0'
24.4'
8"O(2
10"O
10"O
6"LO
12"O
MATCH LINE
PP
Guy

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SOUTH CAROLINA
THE LANDPLAN GROUP SOUTH, INC.
No. 153
CERTIFICATE OF AUTHORIZATION

NORTH MAIN STREET IMPROVEMENT PROJECT - PHASE II
SUMTER, SC

DEMOLITION PLAN

REGISTERED LANDSCAPE ARCHITECT
State of South Carolina
No. 1744
JAMES W. HOWELL, JR.

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JOB #: 885A
SCALE: 1" = 10'-0"
SHEET: 5 OF 19

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MATCH LINE

48"O

36"LO

84"LO

ADD TREE PROTECTION FENCING, AROUND LARGE OAK TREE, SEE DETAIL

ADD TREE PROTECTION FENCING, AROUND LARGE OAK TREE, SEE DETAIL

SAWCUT EXISTING SIDEWALK

MINOR LITION

COORDINATE WITH DUKE FOR POWER LINE UNDER GROUNDING

AREA OF ASPHALT PATCH TYPICAL

AREA OF MINOR DEMOLITION

AREA OF ASPHALT PATCH TYPICAL

COORDINATE WITH DUKE FOR POWER LINE UNDER GROUNDING

COORDINATE WITH COMMUNICATION UTILITIES FOR RELOCATION, BEHIND NEW SIDEWALK, AND BURIAL

PH

FH

WEST COLLEGE STREET
NCSR

WEST COLLEGE STREET
NCSR

WM

WV

FOMP

COORDINATE WITH CITY OF SUMTER FOR HYDRANT RELOCATION

ALL ANCILLARY SIGNAGE WILL BE REMOVED AND REINSTALL PER REVIEW W/ OWNER

COORDINATE WITH DUKE FOR POWER LINE UNDER GROUNDING

MILL AND OVERLAY SHALL MEET SCDOT ROADWAY WITH A SMOOTH TRANSITION AND MATCHING CROWN OR SLOPE

ALL ANCILLARY SIGNAGE WILL BE REMOVED AND REINSTALL PER REVIEW W/ OWNER

ASPHALT TYPICAL

AREAS OF MINOR DEMOLITION

REMOVE EXISTING SIDEWALK, TYP.

MAINTAIN ACCESS FOR HOMEOWNER, DURING CONSTRUCTION

COORDINATE WITH DUKE FOR POWER LINE UNDER GROUNDING AND RE-FEED TO EXISTING HOUSE

COORDINATE WITH DUKE FOR POWER LINE UNDER GROUNDING

AREA OF ASPHALT PATCH TYPICAL

COORDINATE WITH DUKE FOR POWER LINE UNDER GROUNDING OF WELL METER SERVICE

EX. WELL TO REMAIN

WELL

Concrete Driveway

COORDINATE WITH DUKE FOR POWER LINE UNDER GROUNDING AND RE-FEED TO EXISTING HOUSE

Existing Home

DEMOLITION KEY

AREAS OF MINOR DEMOLITION

AREAS OF MAJOR DEMOLITION

MILLING AND OVERLAY

REMOVE EXISTING FLAG POLE FOR RELOCATION SEE LAYOUT PLAN

Flag

AREAS OF MINOR DEMOLITION

SAWCUT EXISTING SIDEWALK

NORTH MAIN STREET
(SC 43-5 35mph)

Sidewalk

12"O

8"O(2)

8"O

8"O

8"O(4)

12"O(2)

8"O(2)

10"O

12"O

10"O

6"LO

MATCH LINE

12"O

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THE LANDPLAN GROUP SOUTH, INC.
No. 153

NORTH MAIN STREET IMPROVEMENT PROJECT - PHASE II
SUMTER, SC

DEMOLITION PLAN

State of South Carolina
REGISTERED LANDSCAPE ARCHITECT
No. 1750
JAMES W. HOWELL, JR.

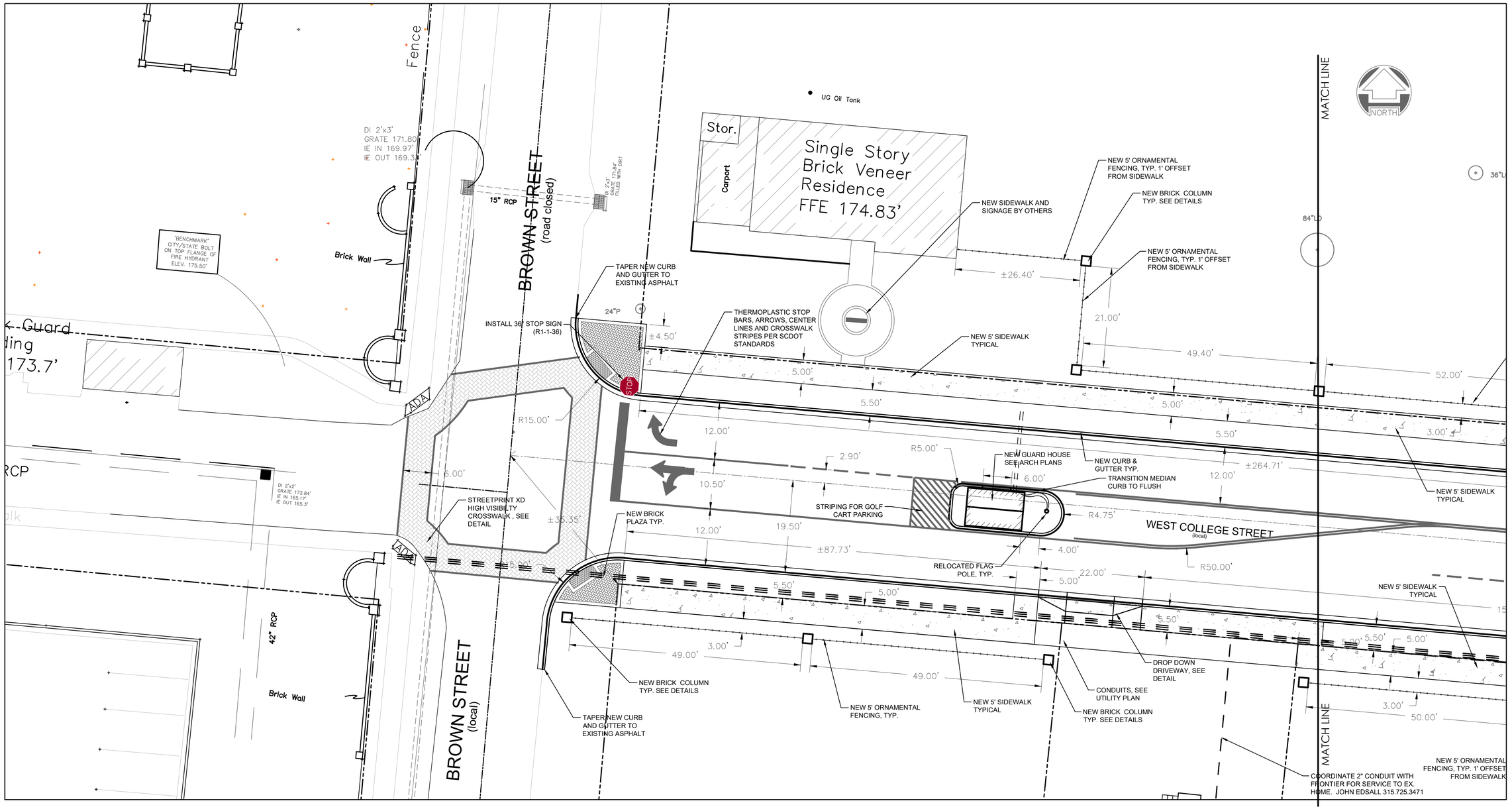
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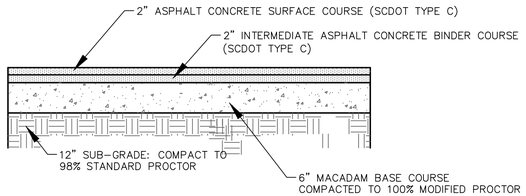
SCALE: 1" = 10'

SHEET: 6 OF 19

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NOTES:
1. ALL MARKINGS WITHIN SCDOT RIGHT OF WAY SHALL BE APPROVED PERMANENT PAVEMENT MARKINGS PER SECTIONS 625, 626, OR 627 WITHIN "SCDOT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION."
2. REPLACE OR RELOCATE EXISTING SIGNAGE AS NECESSARY ALONG BROAD STREET (TYP.)
3. REFER TO SHEET 11 FOR ASPHALT SECTION WITHIN SCDOT R/W (IF APPLICABLE)
3. REFER TO THIS SHEET FOR ACCESS DRIVEWAY PROFILE AND SHEET 7 FOR GRADING PLAN.
4. CONTRACTOR SHALL BE RESPONSIBLE FOR UTILIZING ALL APPLICABLE AND CURRENT SCDOT STANDARD DRAWINGS INCLUDED, BUT NOT LIMITED TO, THE DRAWINGS INCLUDED WITHIN THESE PLANS AND THE APPROVED PERMIT PACKAGE.
5. UPON SUBSTANTIAL PROJECT COMPLETION, CONTRACTOR TO CLEAR EXISTING CULVERTS/PIPES, CATCH BASINS, AND DITCHES ALONG FRONTAGE AND DOWNSTREAM AS NECESSARY TO ACHIEVE POSITIVE DRAINAGE.
6. CONTRACTOR TO SAWCUT EXISTING ASPHALT FOR SMOOTH JOINT NOT ALIGNED WITH WHEEL PATH, TYP.
7. PAVEMENT TRANSITION BETWEEN MILLED SURFACE AT BUTT JOINTS SHALL BE TIED IN SMOOTHLY AND SHALL BE FREE OF "BUMPS".
8. IF APPLICABLE, CONTRACTOR SHALL INSTALL RAISED PAVEMENT MARKERS AS REQUIRED BY SCDOT.
9. CONTRACTOR SHALL ENSURE POSITIVE DRAINAGE FOR ALL CURB LINES.



NOTES:
1. PAVEMENT DESIGN PER GEOTECHNICAL REPORT PREPARED BY SUMMIT DATED JAN 23, 2024. REFER TO REPORT FOR SPECIFIC INFORMATION.
2. LIGHT DUTY PAVEMENT TO BE INSTALLED AS SHOWN ON PLANS.
3. ASPHALT CONCRETE AND ALL CRUSHED STONE MATERIALS SHOULD CONFORM TO THE SCDOT STANDARD SPECIFICATIONS.

SCDOT ASPHALT PAVEMENT SECTION DETAIL

SCDOT NOTES:
1. All proposed or relocated signage shall be placed or replaced in accordance with section 650+000 and installed on SCDOT approved breakaway sign supports as detailed in Section 654-000 in the SCDOT Standard Drawings.
2. Contractor to remove and replace damaged sidewalk or curb & gutter along property frontage as necessary and/or as specified by District Permit Staff.
3. Sidewalk and curb and gutter to be removed and replaced from joint to joint.
4. Any proposed sidewalk within the R/W shall not exceed 2% cross slope per ADA and PR/WAG guidelines. All ramps shall not exceed 8.33% for every scenario except where allowed by PROWAG.
5. In presence of sidewalk or other ADA pathway, access(es) to provide a minimum of 3' pedestrian path of no greater cross slope than 2% across throat of driveway.

SCDOT SEQUENCE OF CONSTRUCTION NOTES:

CONTRACTOR SHALL IMPLEMENT THE FOLLOWING ITEMS, AND PROVIDE SCHEDULE AND OBTAIN APPROVAL FROM LOCAL SCDOT MAINTENANCE OFFICE PRIOR TO BEGINNING ANY WORK WITHIN THE SCDOT RIGHT OF WAY.

1. ONCE SCDOT PERMIT IS RECEIVED: 1 MONTH FOR BIDDING, 1.5 MONTHS FOR COUNCIL AND CONTRACT SIGNING. ASSUME A SEPT, 2025 START DATE.
2. CONTACT OWNER AND SCDOT MAINTENANCE OFFICE & WADE WARR, SEPTEMBER, 2025.
3. CONTRACTOR SHALL SUBMIT TRAFFIC CONTROL PLAN AND GET APPROVAL FROM SCDOT SUMTER MAINT. OFFICE OR SCDOT DISTRICT 1 PERMITTING OFFICE AND WADE WARR, SEPTEMBER 2025
4. INSTALL CONSTRUCTION ENTRANCE AND ALL REQUIREMENTS UNDER SUMTER LAND DISTURBANCE PERMIT, SEPTEMBER/OCT 2025
5. DEMOLISH EXISTING SIDEWALKS, MILL ROADWAY AND POUR NEW CURB AND GUTTER AND ASPHALT PATCH PER SCDOT REQUIREMENTS. OCT/DEC. 2025
6. CONSTRUCTION OF MEDIAN CURB & SIDEWALK IMPROVEMENTS DEC 2025—JAN 2026
7. CONSTRUCT GUARD SHACK, ARCH AND FENCING AND COLUMNS DEC.2025 – MARCH 2026
8. PAVING OF ASPHALT ON PRIVATE ROAD AND SCDOT RIGHT OF WAY MAR—APRIL 2026
9. INSTALL PLANTINGS AT ENTRANCE ON PRIVATE ROAD APRIL—MAY 2026
10. CLOSE OUT TEMPORARY CONSTRUCTION ENTRANCE MAY—JUNE 2026
11. CLOSE OUT AND CALL SCDOT DISTRICT 1, SUMTER MAINT. AND WADE WARR FOR INSPECTION.

Note: entire schedule submit to change based on when SCDOT permit received, budget of bid and low bid contractors available and proposed schedule. A more detailed schedule will be made available once bids are receive and a contractor is selected.

APPLICABLE SCDOT STANDARD DRAWINGS:
720-405-00 DRIVEWAY WITH SIDEWALK ADJACENT TO CURB
720-150-00 SIDEWALK ADJACENT TO CURB
610-005-10 FLAGGING OPERATIONS
610-205-00 RIGHT SHOULDER CLOSURE
610-025-00 PRIMARY DAYTIME LANE CLOSURE
815-605-00 TEMPORARY SILT FENCE
720-105-01 CURB AND GUTTER (CONCRETE)

SPECIAL PROVISION NOTES:
1. PAVEMENT TRANSITION BETWEEN MILLED SURFACE AT BUTT JOINTS SHALL BE TIED-IN SMOOTHLY AND SHALL BE FREE OF "BUMPS"
2. ANY AND ALL AESTHETIC DESIGN INCORPORATIONS ARE TOP BE MAINTAINED BY THE APPLICANT. THIS INCLUDES THE CROSSWALK STRIPING AS WELL AS THE BRICK PAVERS THAT MAY FALL WITHIN THE R/W

APPLICANT CONTACT:

DERON MCCORMICK
EMAIL:

UTILITY NOTE:
1. ANY UTILITY WORK WITHIN THE R./W SHALL BE APPLIED FOR SEPARATELY BY CONTROLLING ENTITY.
2. APPROPRIATE PAVEMENT REPAIR AND TRAFFIC CONTROL SHOULD ACCOMPANY THIS PERMIT

FLAGGING NOTE:
1. FLAGGING OPERATIONS MAY NOT BE UTILIZED ON N. MAIN ST.

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NORTH MAIN STREET IMPROVEMENT PROJECT - PHASE II
SUMTER, SC

LAYOUT PLAN

STATE of South Carolina REGISTERED LANDSCAPE ARCHITECT No. 1190 JAMES W. HONEYCUTT

REVISION	BY	APPR.	MM.DD.YY
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FILE NAME:

JOB #: 885A
SCALE: 1" = 00'
SHEET: 7 OF 19

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NORTH

MATCH LINE

48"O

36"LO

84"LO

NEW 5' ORNAMENTAL FENCING, TYP. 1' OFFSET FROM SIDEWALK

NEW BRICK COLUMN TYP. SEE DETAILS

NEW SIDEWALK AND SIGNAGE BY OTHERS

±26.40'

21.00'

NEW 5' ORNAMENTAL FENCING, TYP. 1' OFFSET FROM SIDEWALK

NEW 5' SIDEWALK TYPICAL

49.40'

52.00'

NEW 5' ORNAMENTAL FENCING, TYP. 1' OFFSET FROM SIDEWALK

NEW BRICK COLUMN TYP. SEE DETAILS

52.00'

NEWLY INSTALLED BRICK COLUMN BY OTHERS

NEW 5' ORNAMENTAL FENCING, AND COLUMNS TYP. TIE TO NEWLY INSTALLED FENCE AND COLUMNS

16.00'

9.50'

SIGHT DISTANCE AREA TO REMAIN CLEAR OF ANY OBSTRUCTIONS

RELOCATED HYDRANT, COORDINATE WITH CITY STAFF FOR TYPE, VALVES AND RELOCATION, AND TERMINATING EXISTING WATER LINE AT OLD HYDRANT LOCATION AND FEED TO MORRIS COLLEGE

OBSERVABLE SIGHT DISTANCE=600' REQ'D SIGHT DISTANCE FOR S.U. TRUCK=490'

RIGHT OF WAY

Ex. Sidewalk

TIE NEW OR EXISTING SIDEWALK INTO NEW BRICK PLAZA, TYP.

TAPER NEW CURB AND GUTTER TO EXISTING ASPHALT

R20.00'

ADA PAVERS SEE DETAILS

NEW BRICK PLAZA TYP.

±4.46'

R30.00'

6.00'

TRANSITION CURB & GUTTER TO FLUSH

THERMOPLASTIC STOP BARS, ARROWS, CENTER LINES AND CROSSWALK STRIPES PER SCDOT STANDARDS

±380' (EDGE TO EDGE) FROM COLLEGE ST. TO PHILLIPS ST. (ON OPPOSITE SIDE OF N. MAIN ST)

NORTH MAIN STREET
(SC 43-5 35mph)

R5.00'

NEW GUARD HOUSE SEE ARCH PLANS

6.00'

NEW CURB & GUTTER TYP.

TRANSITION MEDIAN CURB TO FLUSH

±264.71'

12.00'

R4.75'

WEST COLLEGE STREET
(local)

4.00'

R50.00'

RELOCATED FLAG POLE, TYP.

5.00'

22.00'

5.50'

5.00'

3.00'

5.50'

5.00'

20.60'

NEW 5' SIDEWALK TYPICAL

NEW CURB & GUTTER TYP.

12.00'

WEST COLLEGE STREET
(local)

NEW 5' SIDEWALK TYPICAL

155.84'

25.00'

NEW CURB & GUTTER TYPICAL

10.50'

11.50'

4.00'

6.00'

INSTALL 36" STOP SIGN (R1-1-36)

±42.58'

STREETPRINT XD HIGH VISIBILITY CROSSWALK TO MATCH SCDOT WORK.

ADA PAVERS, SEE DETAIL

OBSERVABLE SIGHT DISTANCE=600' REQ'D SIGHT DISTANCE FOR S.U. TRUCK=490'

±240' (EDGE TO EDGE FROM COLLEGE ST. TO F.C. JAMES CT (ON OPPOSITE SIDE OF N. MAIN ST)

STOP

6.00'

TRANSITION MEDIAN CURB TO FLUSH

R30.00'

REPLACE/RELOCATE EXISTING CROSSWALK SIGN AS REQ'D.

TAPER NEW CURB AND GUTTER TO EXISTING ASPHALT

R20.00'

4.39'

40.64'

NEW MORRIS COLLEGE GATEWAY ARCH, SEE DETAILS

NEW 5' ORNAMENTAL FENCING, AND COLUMNS TYP. TIE TO NEWLY INSTALLED FENCE AND COLUMNS

NEWLY INSTALLED BRICK COLUMN BY OTHERS

TIE NEW OR EXISTING SIDEWALK INTO NEW BRICK PLAZA, TYP.

SIGHT DISTANCE AREA TO REMAIN CLEAR OF ANY OBSTRUCTIONS

Ex. Sidewalk

RIGHT OF WAY

20008
8 PVC

DROP DOWN DRIVEWAY, SEE DETAIL

CONDUITS, SEE UTILITY PLAN

NEW 5' SIDEWALK TYPICAL

NEW BRICK COLUMN TYP. SEE DETAILS

49.00'

MENTAL P.

COORDINATE 2" CONDUIT WITH FRONTIER FOR SERVICE TO EX. HOME. JOHN EDSALL 315.725.3471

NEW 5' ORNAMENTAL FENCING, TYP. 1' OFFSET FROM SIDEWALK

NEW BRICK COLUMN TYP. SEE DETAILS

3.00'

50.00'

52.00'

9.50'

15.00'

Single Story Wood Frame Residence FFE 175.43'

12"O

8"O(2)

8"O

8"O(4)

12"O(2)

8"O(2)

10"O

12"O

10"O

6"LO

MATCH LINE

RIGHT OF WAY

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NORTH MAIN STREET IMPROVEMENT PROJECT - PHASE II

SUMTER, SC

LAYOUT PLAN

State of South Carolina
REGISTERED LANDSCAPE ARCHITECT
No. 1430
CHARLES W. HONEYCUTT, JR.

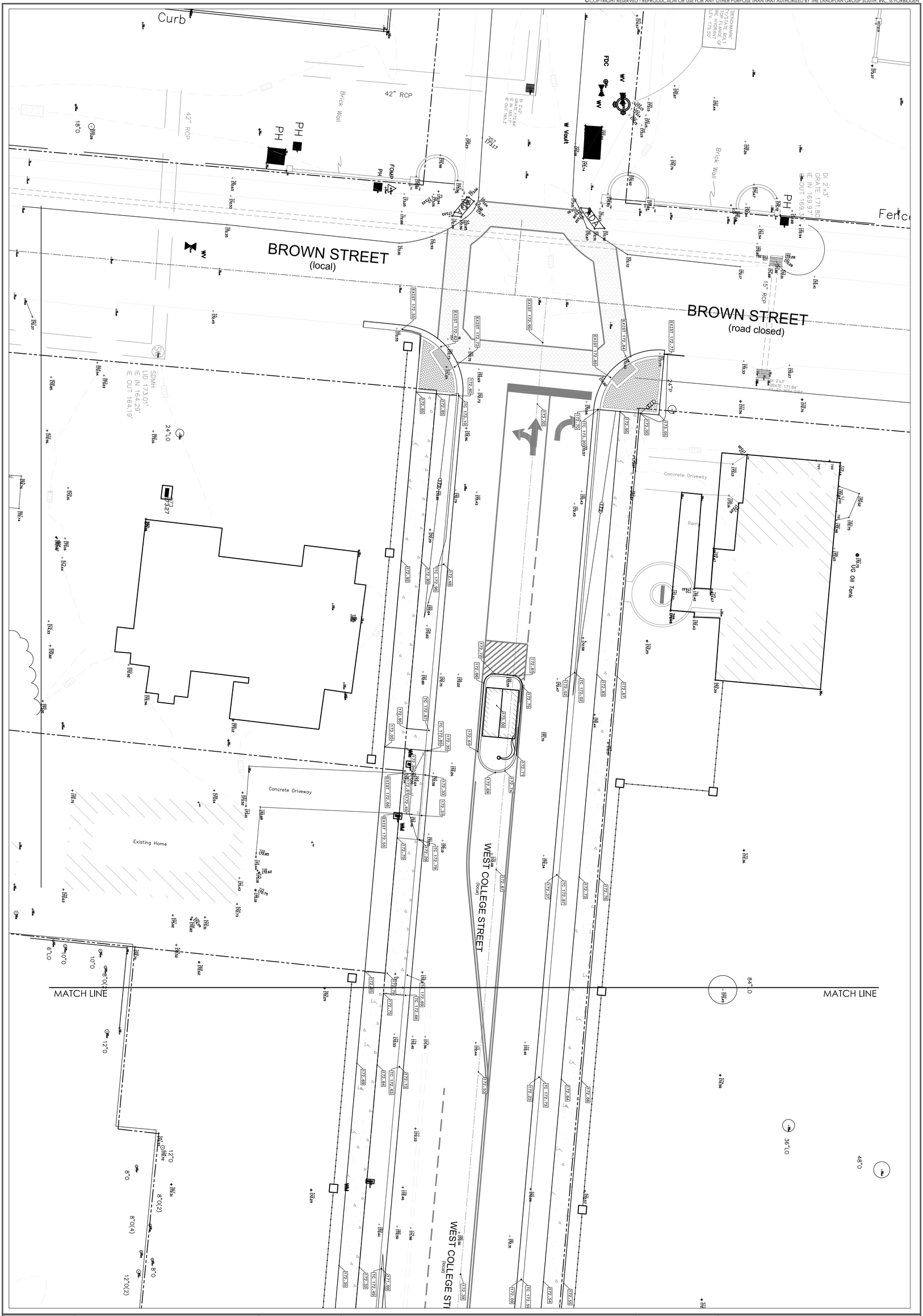
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FILE NAME:	DWN.	CHKD.	DSGN.	MM.DD.YY

JOB #: 0885A

SCALE: 1" = 10'

SHEET: 8 OF 19

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BROWN STREET
(local)
BROWN STREET
(road closed)
WEST COLLEGE STREET
(local)
WEST COLLEGE STREET
(local)
MATCH LINE
MATCH LINE
Existing Home
Concrete Driveway
Concrete Driveway
Ramp
Curb
42" RCP
Brick Wall
Brick Wall
15" RCP
Fence
Fence
Ug Oil Tank
SDMH
LID 173.01'
IE IN 164.29'
IE OUT 164.19'
DI 2'x3'
GRATE 171.80'
IE IN 169.97'
IE OUT 169.87'
DI 2'x3'
GRATE 171.84'
IE IN 165.13'
IE OUT 165.03'
DI 2'x2'
GRATE 172.47'
IE IN 165.13'
IE OUT 165.3'
BENCHMARK
TOP OF STATE ROAD
ROD, FLANGE OF
HYDRANT
ELEV. 175.50'
W Vault
FDC
WV
PH
FOWP
EXISTING
EXISTING
EXISTING

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MATCH LINE

48"O

36"LO

84"LO

WEST COLLEGE STREET
(local)

WEST COLLEGE STREET
(local)

NORTH MAIN STREET
(SC 43-5 35mph)

Concrete Driveway

Existing Home

NEW R/W
PROJECT

20008
8 PVC

513

1/2RB

EXIST 172.00

EXIST 171.67

EXIST 171.44

EXIST 172.66

EXIST 172.50

12"O
8"O(2)
8"O
8"O
8"O(4)
12"O(2)
12"O
8"O(2)
10"O
10"O
6"LO
12"O

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NOTICE OF CERTIFICATE OF AUTHORIZATION
SOUTH CAROLINA
THE LANDPLAN GROUP SOUTH INC.
No. 153

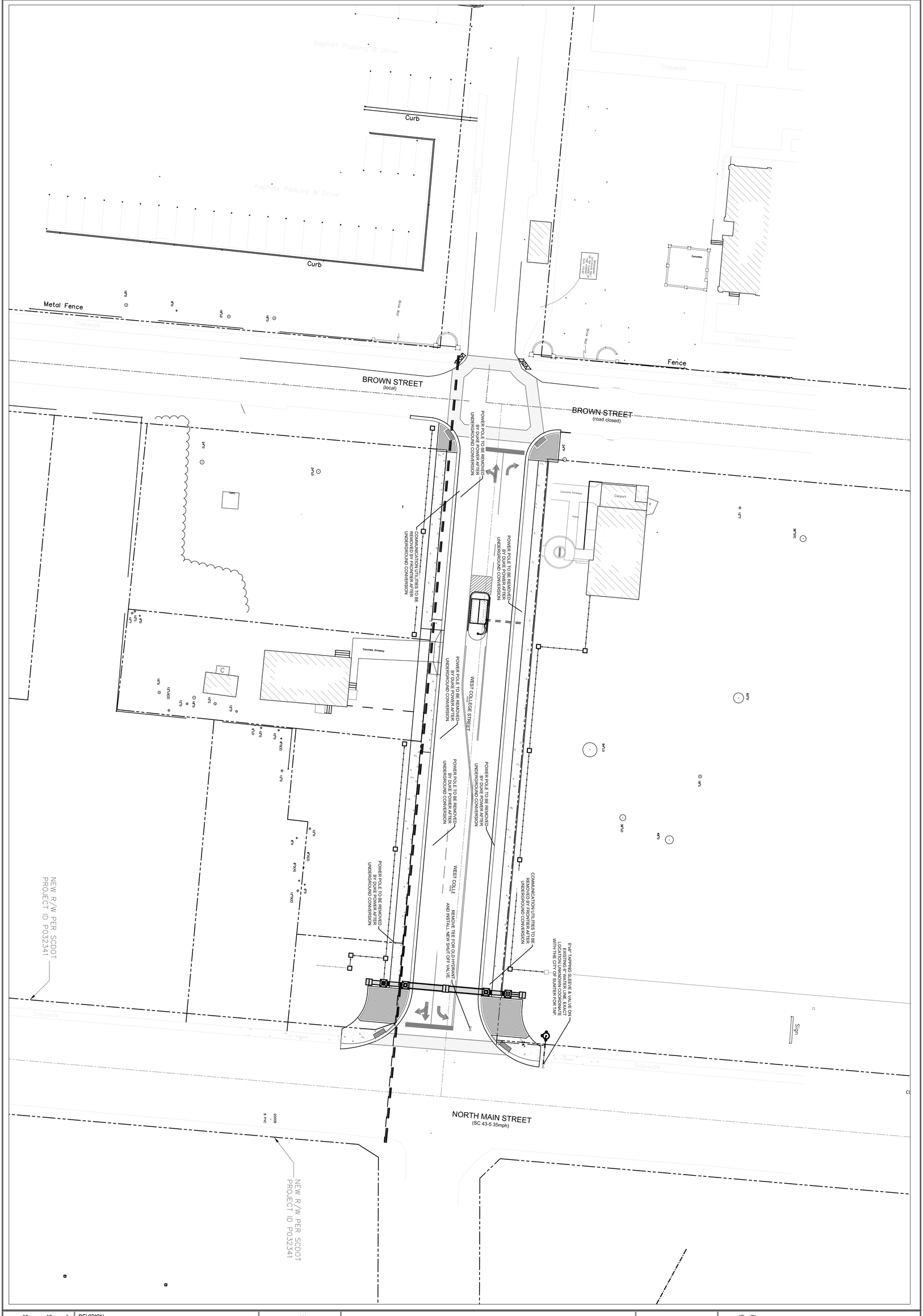
NORTH MAIN STREET
IMPROVEMENT PROJECT - PHASE II
SUMTER, SC
GRADING & DRAINAGE

STATE OF SOUTH CAROLINA
REGISTERED LANDSCAPE ARCHITECT
No. 1350
JAMES W. HOWELL, JR.

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FILE NAME:	DWN.	CHKD.	DSGN.

JOB #: 0885A
SCALE: 1" = 10'
SHEET: 10 OF 19

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JOB #: 0885A
SCALE: 1" = 20'
SHEET: 11 OF 19

NORTH MAIN STREET IMPROVEMENT PROJECT - PHASE II

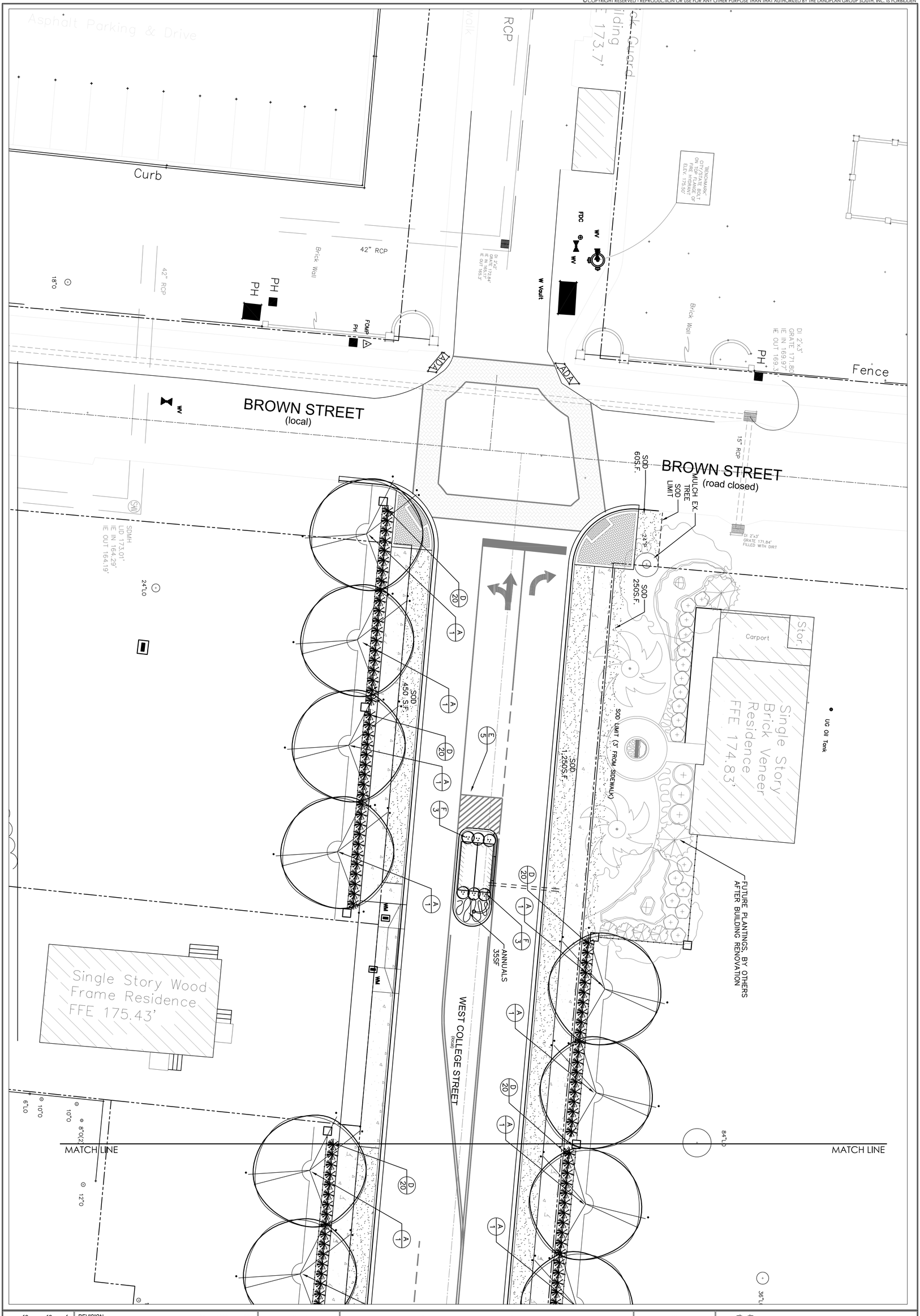
SUMTER, SC

UTILTY PLAN

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	DWN.	CHK'D.	DSGN.	MM.DD.YY

JOB #: 885A
SCALE: 1" = 10'-0"
SHEET: 12 OF 19

NORTH MAIN STREET IMPROVEMENT PROJECT - PHASE II
SUMTER, SC

LANDSCAPE PLAN

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MATCH LINE

48"O

36"LO

84"LO

FUTURE PLANTINGS, BY OTHERS AFTER BUILDING RENOVATION

NEWLY PLANTED TREES AND SHRUBS TYPICAL

EX. SOD

REMOVE EX. SOD AND MULCH NEW PLANT BEDS TOGETHER WITH NEWLY PLANTED PLANT BEDS.

C 12

E 14

I 55

SOD 1,200S.F.

NORTH MAIN STREET
(SC 43-5 35mph)

EWALK)

ANNUALS 35SF

WEST COLLEGE STREET
(local)

SOD

D 20 | A 1 | F 3 | A 1 | D 20 | A 1 | A 1 | D 21 | A 1 | A 1 | B 3 | G 5 | H 1

SOD 550 S.F.

Concrete Driveway

B 3 | C 13

12"O | 8"O(2) | 8"O | 8"O | 8"O(4) | 12"O(2)

REMOVE EX. SOD AND MULCH NEW PLANT BEDS TOGETHER WITH NEWLY PLANTED PLANT BEDS.

NEWLY PLANTED TREES AND SHRUBS TYPICAL

EX. SOD

12"O | 8"O(2) | 10"O | 10"O | 6"LO | MATCH LINE | 12"O | 12"O

513

1/2RB

20008

8 PVC

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NORTH MAIN STREET IMPROVEMENT PROJECT - PHASE II
SUMTER, SC

LANDSCAPE PLAN

State of South Carolina
REGISTERED LANDSCAPE ARCHITECT
No. 1160
W. HOWELL, JR.

REVISION	BY	APP'D.	MM.DD.YY
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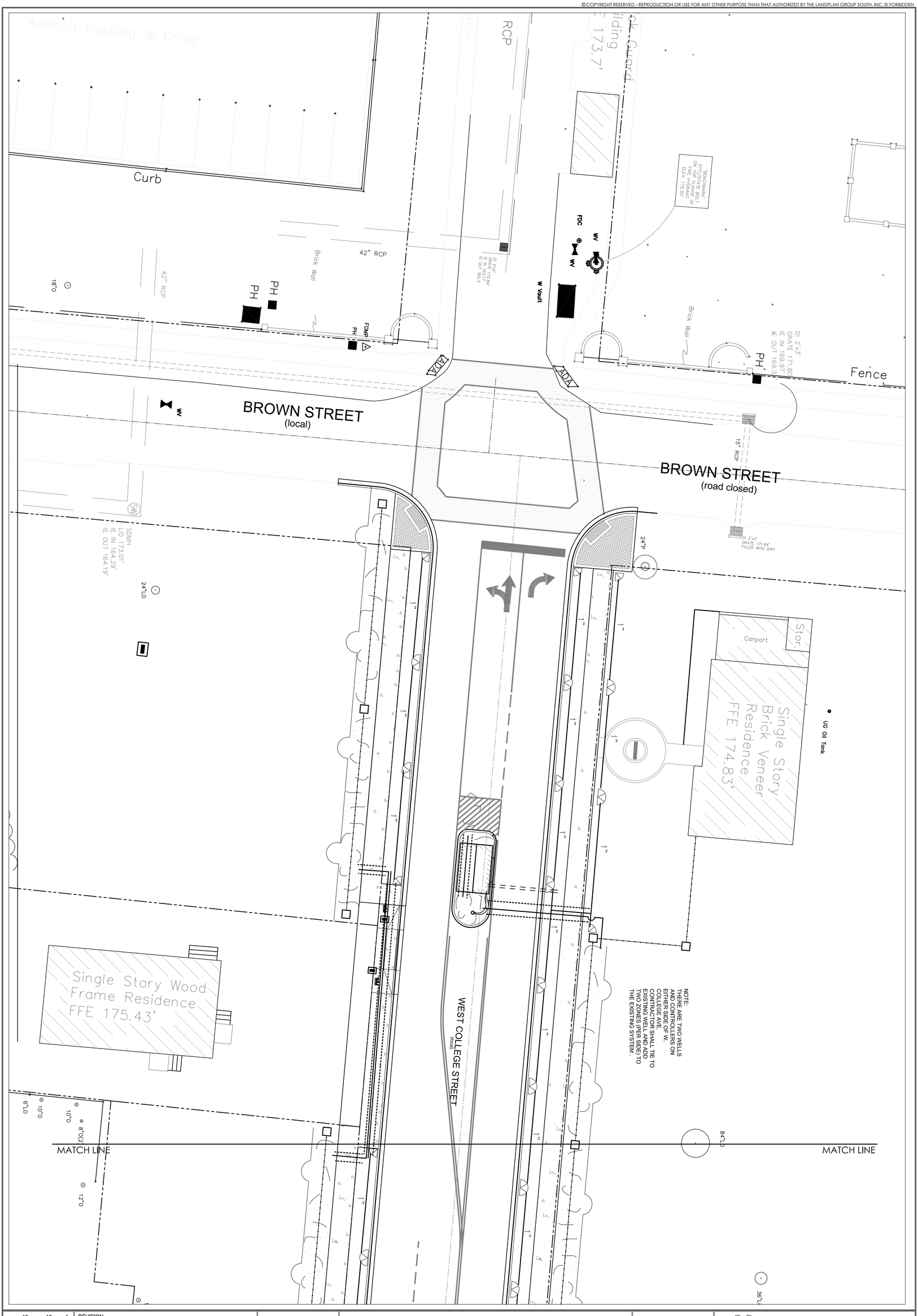
FILE NAME:

JOB #: 0885A

SCALE: 1" = 10'

SHEET: 13 OF 19

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FILE NAME:			
	DWN.	CHKD.	DSGN. MM.DD.YY

JOB #: 885A
SCALE: 1" = 10'-0"
SHEET: 14 OF 19

STATE OF SOUTH CAROLINA REGISTERED LANDSCAPE ARCHITECT JAMES W. HOWELL, JR. 1031

NORTH MAIN STREET IMPROVEMENT PROJECT - PHASE II

SUMTER, SC

IRRIGATION PLAN

SOUTH CAROLINA THE LANDPLAN GROUP SOUTH, INC. No. 153 CERTIFICATE OF AUTHORIZATION

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MATCH LINE

48"O

36"LO

84"LO

NOTE:
THERE ARE TWO WELLS AND CONTROLLERS ON EITHER SIDE OF W. COLLEGE AVE. CONTRACTOR SHALL TIE TO EXISTING WELL AND ADD TWO ZONES (PER SIDE) TO THE EXISTING SYSTEM .

PULL LINE FROM EXISTING WELL, APPROX. 125 LF NORTH OF EXISTING R.O.W. ADD ZONES TO EXISTING CONTROLLER

V3

V4

1"

WEST COLLEGE STREET
(local)

WEST COLLEGE STREET
(local)

WM

V2

V1

WELL

PULL LINE FROM EXISTING WELL, NORTH OF EXISTING R.O.W., ADD ZONES TO EXISTING CONTROLLER

Single Story Wood Frame Residence FFE 175.43'

12"O

8"O(2)

8"O

8"O

8"O(4)

12"O(2)

8"O(2)

10"O

12"O

10"O

6"LO

MATCH LINE

12"O

NORTH MAIN STREET
(SC 43-5 35mph)

Sidewalk

FOMP

SMH
RIM=171.75'
IE 165.99'

WV

SMH
RIM=
IE=16

513

1/2RB

NEW R/W
PROJECT

20008

8" PVC

8" PVC

SSMH
RIM 171.37'
IE 166.04'

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NORTH MAIN STREET IMPROVEMENT PROJECT - PHASE II

SUMTER, SC

IRRIGATION PLAN

State of South Carolina
REGISTERED LANDSCAPE ARCHITECT
No. 1301
JAMES W. HOWELL

REVISION	BY	APPD.	MM.DD.YY
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FILE NAME:	DWN.	CHKD.	DSGN.

JOB #: 0885A

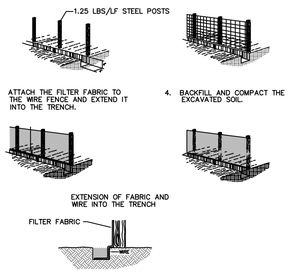
SCALE: 1" = 10'

SHEET: 15 OF 19

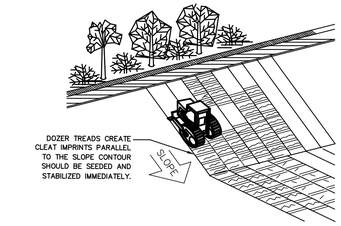
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NOTES:
1. THE HEIGHT OF A SILT FENCE SHOULD NOT EXCEED 36 INCHES. HIGHER FENCES MAY IMPOUND VOLUMES OF WATER SUFFICIENT TO CAUSE THE STRUCTURE TO FAIL.
2. THE FILTER FABRIC SHOULD BE PURCHASED IN A CONTINUOUS ROLL CUT TO THE LENGTH OF THE FENCE TO AVOID THE USE OF JOINTS. WHEN JOINTS ARE NECESSARY, A FILTER CLOTH SHOULD BE SPLICED TOGETHER ONLY AT A SUPPORT POST, WITH A MINIMUM 6-INCH OVERLAP AND SEALED SECURELY.
3. METAL POSTS SHOULD BE SPACED A MAXIMUM OF 6 FEET APART AT THE FENCE LOCATION AND DRIVEN SECURELY INTO THE GROUND A MINIMUM OF 12 INCHES. WHEN EXTRA STRENGTH FABRIC IS USED WITHOUT THE WIRE SUPPORT FENCE. POST SPACING SHOULD NOT EXCEED 6 FEET.
4. A TRENCH SHOULD BE EXCAVATED APPROXIMATELY 4 INCHES WIDE AND 4 INCHES DEEP ALONG THE LINE OF POSTS, UPSLOPE FROM THE FENCE.
5. WHEN STANDARD STRENGTH FILTER IS USED, A WIRE MESH SUPPORT FENCE SHOULD BE FASTENED SECURELY TO THE UPSLOPE SIDE OF THE POSTS USING HEAVY DUTY TIE WIRES OR HOG RINGS. THE WIRE SHOULD EXTEND INTO THE TRENCH A MINIMUM OF 2 INCHES AND SHOULD NOT EXCEED MORE THAN 36 INCHES ABOVE THE ORIGINAL GROUND SURFACE.
6. THE STANDARD STRENGTH FILTER FABRIC SHOULD BE WIRED TO THE FENCE, AND 8 INCHES OF THE THE FABRIC SHOULD BE EXTENDED INTO THE TRENCH. THE FABRIC SHOULD NOT EXTEND MORE THAN 36 INCHES ABOVE THE ORIGINAL GROUND SURFACE. DO NOT STAPLE FILTER FABRIC TO TREES.
7. WHEN EXTRA STRENGTH FILTER FABRIC AND CLOSER POST SPACING ARE USED, THE WIRE MESH SUPPORT FENCE MAY BE ELIMINATED. IN SUCH A CASE, THE FILTER FABRIC IS STAPLED OR WIRED DIRECTLY TO THE POSTS WITH ALL OTHER PROVISIONS OF NO. 6 APPLYING.
8. THE TRENCH SHOULD BE BACKFILLED AND THE SOIL COMPACTED OVER THE FILTER FABRIC.

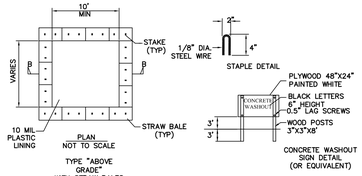
1. SET POSTS AND EXCAVATE A 4"x4" TRENCH UPSLOPE ALONG THE LINE OF POSTS.
2. TIE WIRE FENCING TO THE POST.
3. ATTACH THE FILTER FABRIC TO THE WIRE FENCE AND EXTEND IT INTO THE TRENCH.
4. BACKFILL AND COMPACT THE EXCAVATED SOIL.

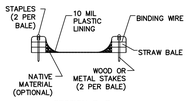


TEMPORARY SILT FENCE DETAIL
NOT TO SCALE



TRACKING DETAIL
NOT TO SCALE

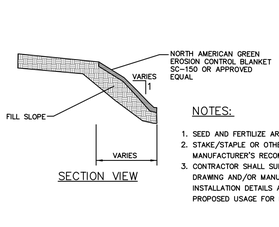




SECTION B–B
NOT TO SCALE

NOTES
1. ACTUAL LOCATION SHOWN ON SHEET 5.
2. ONLY CONCRETE FROM MIXER TRUCK CHUTES SHOULD BE WASHED INTO CONCRETE WASHOUT AREA.
3. THE CONCRETE WASHOUT SIGN SHALL BE INSTALLED WITHIN 30 FT. OF THE TEMPORARY CONCRETE WASHOUT FACILITY.
4. ONCE CONCRETE WASTES ARE WASHED INTO THE WASHOUT AREA AND ALLOWED TO HARDEN, THE CONCRETE SHOULD BE BROKEN UP, REMOVED, AND DISPOSED OF PER WM-5, SOLID WASTE MANAGEMENT.
5. WASHOUT AREAS MUST BE CLEANED OUT WHEN IT IT 75% FULL.
6. WHEN WASHOUT AREA IS NO LONGER NEEDED, MATERIALS USED TO CONSTRUCT THE WASHOUT AREA SHOULD BE REMOVED FROM THE SITE AND DISPOSED OF.
7. HOLES, DEPRESSIONS OR OTHER GROUND DISTURBANCE CAUSED BY THE REMOVAL OF THE CONCRETE WASHOUT AREA SHOULD BE BACKFILLED AND REPAIRED.

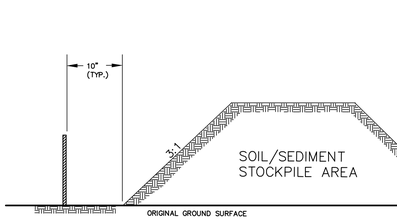
CONCRETE WASHOUT AREA DETAIL (IF NECESSARY)
NOT TO SCALE



SECTION VIEW

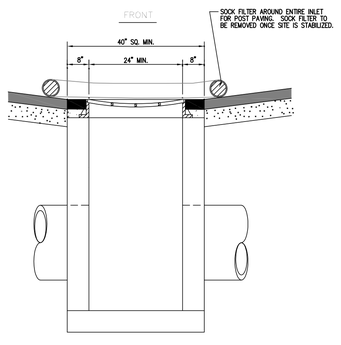
NOTES:
1. SEED AND FERTILIZE AREA PRIOR TO BLANKET INSTALLATION.
2. STAKE/STAPLE OR OTHERWISE FIX BLANKET IN PLACE PER MANUFACTURER'S RECOMMENDATIONS.
3. CONTRACTOR SHALL SUBMIT EROSION CONTROL BLANKET SHOP DRAWING AND/OR MANUFACTURER SUPPLIED SPECIFICATIONS. INSTALLATION DETAILS AND INSTRUCTIONS 10 DAYS PRIOR TO PROPOSED USAGE FOR ENGINEER'S APPROVAL.

EROSION CONTROL MATTING DETAIL (IF NECESSARY)
NOT TO SCALE

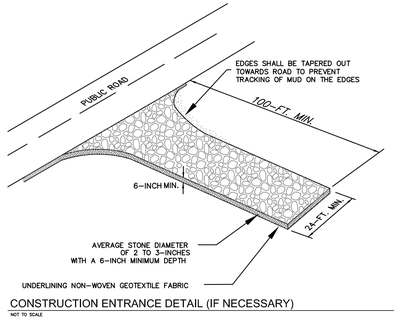


NOTES:
1. SILT FENCE TO EXTEND AROUND ENTIRE PERIMETER OF STOCKPILE, OR IF STOCKPILE AREA IS LOCATED ON/NEAR A SLOP THE SILT FENCE IS TO EXTEND ALONG CONTOURS OF THE DOWN-GRADIENT AREA.
2. IF STOCKPILE IS TO REMAIN FOR MORE THAN 14 DAYS, TEMPORARY STABILIZATION MEASURES MUST BE IMPLEMENTED.
3. SILT FENCE SHALL BE MAINTAINED UNTIL STOCKPILE AREA HAS EITHER BEEN REMOVED OR PERMANENTLY STABILIZED.
4. THE KEY TO FUNCTIONAL TEMPORARY STOCKPILE AREAS IS WEEKLY INSPECTIONS, ROUTINE MAINTENANCE, AND REGULAR SEDIMENT REMOVAL.

TEMPORARY TOPSOIL STOCKPILE DETAIL
NOT TO SCALE



DROP INLET POST PAVING DETAIL
NOT TO SCALE



CONSTRUCTION ENTRANCE DETAIL (IF NECESSARY)
NOT TO SCALE

SOCK FILTER AROUND ENTIRE INLET

When and Where to Use It

Stabilized construction entrances should be used at all points where traffic will be leaving a construction site and moving directly onto a public road.

Important Considerations

If washing is used, provisions must be made to intercept the wash water and trap the sediment before it is carried offsite. Washdown facilities shall be required as directed by SCDHEC as needed. Washdown areas in general must be established with crushed gravel and drain into a sediment trap or sediment basin.
Construction entrances should be used in conjunction with the stabilization of construction roads to reduce the amount of mud picked up by vehicles.

Installation:
–Remove all vegetation and any objectionable material from the foundation area.
–Divert all surface runoff and drainage from stones to a sediment trap or basin.
–Install a non–woven geotextile fabric prior to placing any stone.
–Install a culvert pipe across the entrance when needed to provide positive drainage.
–The entrance shall consist of 1–inch to 3–inch DSO stone placed at a minimum depth of 6–inches.
–Minimum dimensions of the entrance shall be 24–feet wide by 100–feet long, and may be modified as necessary to accommodate site constraints.
–The edges of the entrance shall be tapered out towards the road to prevent tracking of mud at the edge of the entrance.

Inspection and Maintenance:

Inspect construction entrances every seven (7) calendar days and within 24–hours after each rainfall event that produces ½–inches or more of precipitation, or after heavy use. Check for mud and sediment buildup and pad integrity. Make daily inspections during periods of wet weather. Maintenance is required more frequently in wet weather conditions. Reshape the stone pad as needed for drainage and runoff control.

Wash or replace stones as needed and as directed by the Inspector. The stone in the entrance should be washed or replaced whenever the entrance fails to reduce mud being carried off–site by vehicles. Frequent washing will extend the useful life of stone.

Immediately remove mud and sediment tracked or washed onto public roads by brushing or sweeping. Flushing should only be used when the water can be discharged to a sediment trap or basin.

Repair any broken pavement immediately.

FILTER FABRIC INLET PROTECTION

MATERIALS:
Use filter fabric that conforms to SCDOT standard specifications for highway construction (latest edition). Refer to the silt fence geotextile fabrics Approval Sheet #34.

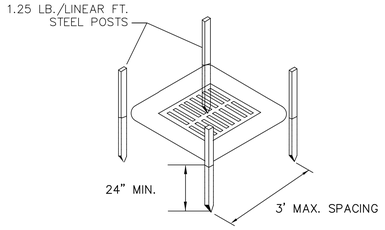
Use steel posts that meet the following minimum physical requirements:
Be composed of high strength steel with minimum yield strength of 50,000 psi.
Have a standard "T" section with a nominal face width of 1.38–inches and nominal "T" length of 1.48–inches.
Weigh 1.25 pounds per foot (± 8%).
Be painted with a water based baked enamel paint.

Attach fabric to metal posts with heavy–duty plastic ties.

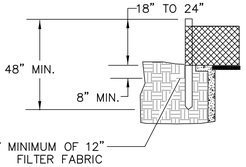
INSTALLATION:
Excavate a trench 6–inches wide and 6–inches deep around the outside perimeter of the inlet unless the fabric is pneumatically installed.
Extend the filter fabric a minimum of 12–inches into the trench. Backfill the trench with soil or crushed stone and compact over the filter fabric unless the fabric is pneumatically installed.
Use steel posts with a minimum post length of 60–inches consisting of standard "T" sections with a weight of 1.25 pounds per foot (±8%). Install the filter fabric to a minimum height of 24–inches above grade. Space the steel posts around the perimeter of the inlet a maximum of 3–feet apart and drive them into the ground a minimum of 24–inches. Cut the filter fabric from a continuous roll to the length of the protected area to avoid the use of joints. When joints are necessary, wrap filter fabric together only at a support post with both ends securely fastened to the post, with a minimum 6–inch overlap.
Attach fabric to steel posts with heavy–duty plastic ties.
Attach at least four (4) evenly spaced ties in a manner to prevent sagging or tearing of the fabric. In all cases, affix ties in no less than four (4) places.

INSPECTION AND MAINTENANCE:
Inspections should be made every 7 calendar days and within 24–hours after each storm that produces ½–inches or more of rain.If the fabric becomes clogged, it should be replaced.
Sediment should be removed when it reaches approximately 1/3 the height of the fence. Take care not to damage or undercut fabric when removing sediment.If a sump is used, sediment should be removed when it
fills approximately 1/3 the depth of the hole.Maintain the pool area, always providing adequate sediment storage volume for the next storm.

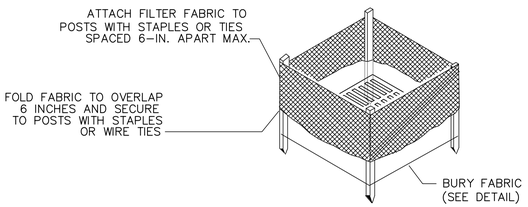
Storm drain inlet protection structures should be removed only after the disturbed areas are permanently stabilized. Remove all construction material and sediment, and dispose of them properly.
Grade the disturbed area to the elevation of the drop inlet structure crest. Use appropriate permanent stabilization methods to stabilize bare areas around the inlet.



POST INSTALLATION DETAIL

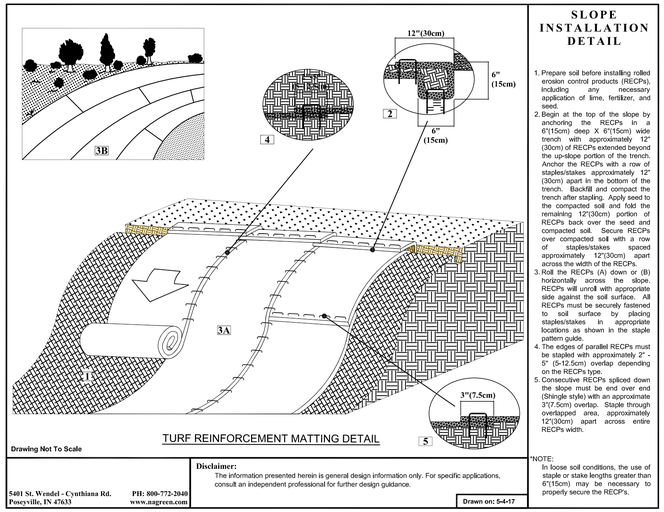


FILTER FABRIC BURIAL DETAIL



FILTER FABRIC INSTALLATION

FILTER FABRIC INLET PROTECTION - TYPE A
NOT TO SCALE



TURF REINFORCEMENT MATTING DETAIL

Drawing Not To Scale

SLOPE INSTALLATION DETAIL

1. Prepare soil before installing rolled erosion control products (RECPs), including any necessary application of lime, fertilizer, and seed.
2. Begin at the top of the slope by anchoring the RECPs in a 6"(15cm) deep X 6"(15cm) wide trench with approximately 12" (30cm) of RECPs extended beyond the up-slope portion of the trench. Anchor the RECPs with a row of staples/stakes approximately 12" (30cm) apart in the bottom of the trench. Backfill and compact the trench after stapling. Apply seed to the compacted soil and fold the remaining 12"(30cm) portion of RECPs back over the seed and compacted soil. Secure RECPs over compacted soil with a row of staples/stakes spaced approximately 12"(30cm) apart across the width of the RECPs.
3. Roll the RECPs (A) down or (B) horizontally across the slope. RECPs will unroll with appropriate side against the soil surface. All RECPs must be securely fastened to soil surface by placing staples/stakes in appropriate locations as shown in the staple pattern guide.
4. The edges of parallel RECPs must be stapled with approximately 2" - 5" (5-12.5cm) overlap depending on the RECPs type.
5. Consecutive RECPs spliced down the slope must be end over end (Shingle style) with an approximate 3"(7.5cm) overlap. Staple through overlapped area, approximately 12"(30cm) apart across entire RECPs width.

*NOTE:
In loose soil conditions, the use of staple or stake lengths greater than 6"(15cm) may be necessary to properly secure the RECP's.

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Poseyville, IN 47633
PH: 800-772-2040
www.nagreen.com

Disclaimer:
The information presented herein is general design information only. For specific applications, consult an independent professional for further design guidance.

Drawn on: 5-4-17

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THE LANDPLAN GROUP SOUTH INC.
No. 153
CERTIFICATE OF AUTHORIZATION

NORTH MAIN STREET IMPROVEMENT PROJECT - PHASE II
SUMTER, SC

DETAILS

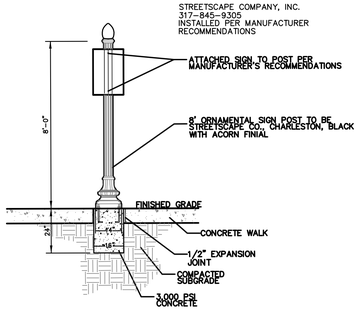
State of South Carolina
REGISTERED LANDSCAPE ARCHITECT
JAMES W. HOWELL, JR.

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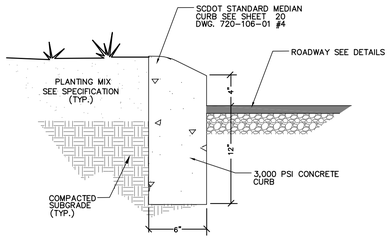
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FILE NAME:				

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SHEET: 16 OF 19

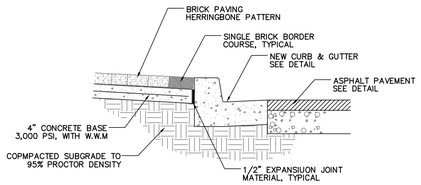
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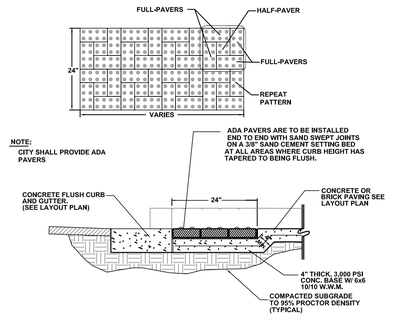
DECORATIVE SIGN DETAIL
NOT TO SCALE



MEDIAN DETAIL
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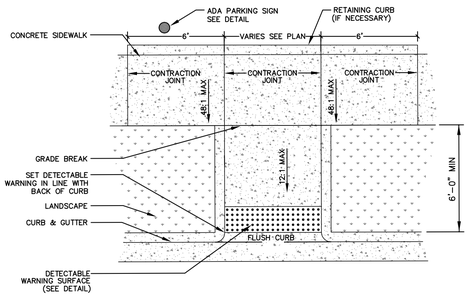
BRICK PLAZA DETAIL
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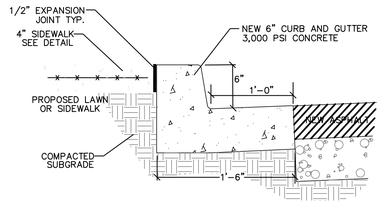
DETECTABLE WARNING SURFACE DETAIL
NOT TO SCALE

DETECTABLE WARNING SURFACE DETAIL NOTES

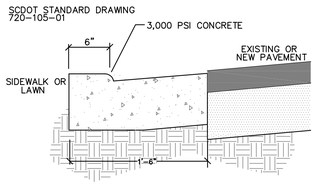
1. DETECTABLE WARNING SURFACES SHALL BE PROVIDED AT THE FOLLOWING LOCATIONS:
   (A) WHERE A SIDEWALK CROSSES A VEHICULAR WAY, EXCLUDING UN-SIGNALIZED DRIVEWAY CROSSINGS.
   (B) WHERE A RAIL SYSTEM CROSSES A PEDESTRIAN FACILITY THAT IS NOT SHARED WITH VEHICLES.
   (C) AT ISLANDS AND MEDIANS THAT ARE CUT THROUGH LEVEL WITH THE ROADWAY.
2. AT CURB RAMPS AND BLENDED TRANSITIONS, DETECTABLE WARNING SURFACES SHALLBE LOCATED SO THE EDGE NEAREST THE CURB LINE IS 6" MINIMUM AND 8" MAXIMUM DISTANCE FROM THE CURB LINE. THE SURFACE SHALL EXTEND A MINIMUM OF 24" ONTO THE RAMP IN THE DIRECTION OF TRAVEL FOR THE FULL WIDTH OF THE CURB RAMP.
3. AT RAIL CROSSINGS, THE DETECTABLE WARNING SURFACE SHALL BE 24" DEEP AND FULL WIDTH OF THE SIDEWALK. THE EDGE OF THE SURFACE NEAREST THE RAIL CROSSING IS 6" MINIMUM AND 8" MAXIMUM DISTANCE FROM THE VEHICLE DYNAMIC ENVELOPE (6' FROM THE NEAREST RAIL) UNLESS OTHERWISE NOTED BY THE RAILROAD.
4. DETECTABLE WARNING SURFACES SHALL CONSIST OF AN AREA OF TRUNCATED DOMES ALIGNED IN A SQUARE GRID PATTERN.
5. WHEN DOMES IN ANY ONE FOOT SQUARE AREA WEAR TO AN AVERAGE HEIGHT BELOW 0.151", THE SURFACE IS TO BE REPLACED.
6. FOR ALL DETECTABLE WARNING SURFACES, THE DEPARTMENT'S DEFAULT COLOR IS SAFETY YELLOW (FEDERAL NUMBER 33538) UNLESS A SPECIFIC PROJECT REQUIRES ANOTHER COLOR. WHEN A COLOR OTHER THAN SAFETY YELLOW IS SELECTED FOR A PROJECT, THE COLOR SELECTED WILL CONTRAST EITHER LIGHT-ON-DARK OR DARK-ON LIGHT.
7. ADA PAVERS ARE TO BE INSTALLED END TO END WITH SAND SWEPT JOINTS ON A 3/8"SAND CEMENT SETTING BED AT ALL AREAS WHERE CURB HEIGHT HAS TAPERED TO BEING FLUSH.



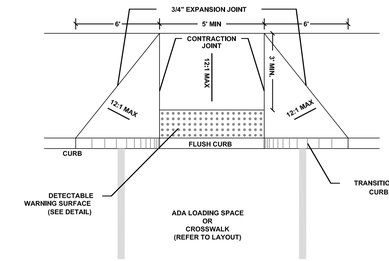
PEDESTRIAN RAMP DETAIL
NOT TO SCALE



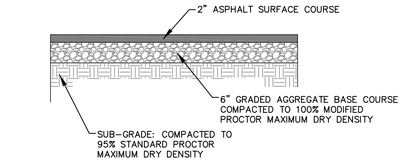
6" CURB AND GUTTER DETAIL
NOT TO SCALE



FLUSH CURB AND GUTTER DETAIL
NOT TO SCALE

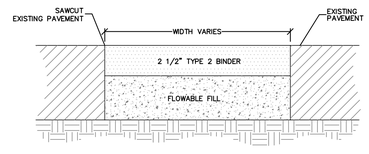


SIDEWALK RAMP DETAIL
NOT TO SCALE



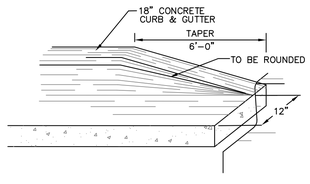
NOTES:
1. PAVEMENT DESIGN PER GEOTECHNICAL REPORT PREPARED BY SUMMIT DATED JAN 23, 2024. REFER TO REPORT FOR SPECIFIC INFORMATION.
2. LIGHT DUTY PAVEMENT TO BE INSTALLED AS SHOWN ON PLANS.
3. ASPHALT CONCRETE AND ALL CRUSHED STONE MATERIALS SHOULD CONFORM TO THE SCDOT STANDARD SPECIFICATIONS.

LIGHT-DUTY ASPHALT PAVEMENT SECTION DETAIL
NOT TO SCALE



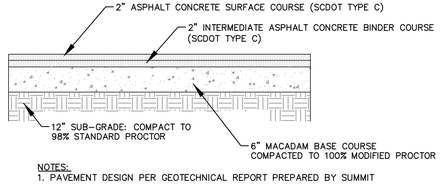
NOTES:
1. FULL DEPTH BINDER MATERIAL SHALL BE INSTALLED
2. ASPHALT PAVEMENT PATCH SHALL BE USED FOR UTILITY TRENCHES AND TO REPLACE PAVEMENT SECTION ADJACENT TO NEW CURB. THERE IS NO ADDITIONAL PAY ITEM FOR THIS WORK.

ASPHALT PAVEMENT PATCH SECTION DETAIL
NOT TO SCALE



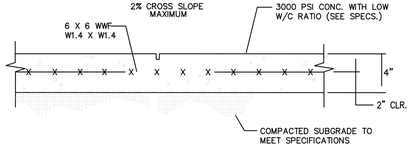
CURB TAPER DETAIL/ CURB TURN DOWN
NOT TO SCALE

ALL PAVEMENT WITHIN THE SCDOT R/W SHALL MEET ASPHALT PAVEMENT DESIGN GUIDELINES.



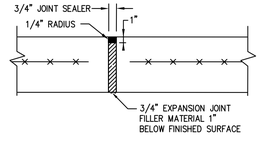
NOTES:
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2. LIGHT DUTY PAVEMENT TO BE INSTALLED AS SHOWN ON PLANS.
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SCDOT ASPHALT PAVEMENT SECTION DETAIL
NOT TO SCALE



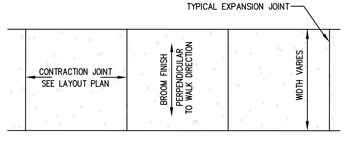
NOTES
1. SIDEWALK CROSS SLOPE BE NO STEEPER THAN 1:48 AND SHALL MEET 2010 ADA STANDARDS FOR ACCESSIBLE DESIGN (SECTION 403.3).
2. EXPANSION JOINTS SHALL BE PROVIDED EVERY 30' IN ACCORDANCE WITH TYPICAL EXPANSION JOINT DETAIL.

SIDEWALK DETAIL
NOT TO SCALE



TYPICAL EXPANSION JOINT

NOTES
1. CONCRETE SCORING 5' O.C. AND EXPANSION JOINTS AT 30' O.C.
2. SIDEWALK CROSS SLOPE BE NO STEEPER THAN 1:48 AND SHALL MEET 2010 ADA STANDARDS FOR ACCESSIBLE DESIGN (SECTION 403.3).



CONCRETE SIDEWALK

NOTES
1. EXPANSION JOINTS SHALL BE PROVIDED EVERY 30' IN ACCORDANCE WITH TYPICAL EXPANSION JOINT DETAIL.

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No. 153
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NORTH MAIN STREET IMPROVEMENT PROJECT - PHASE II
SUMTER, SC

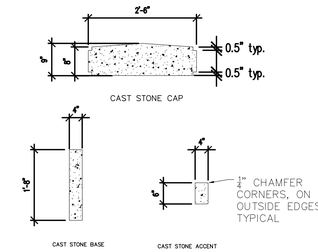
DETAILS

REVISION

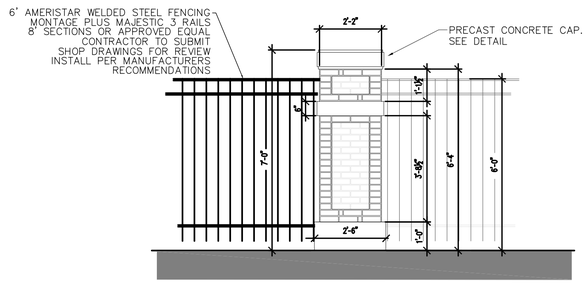
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JOB #: 0885A
SCALE: 1" = 10'
SHEET: 17 OF 19

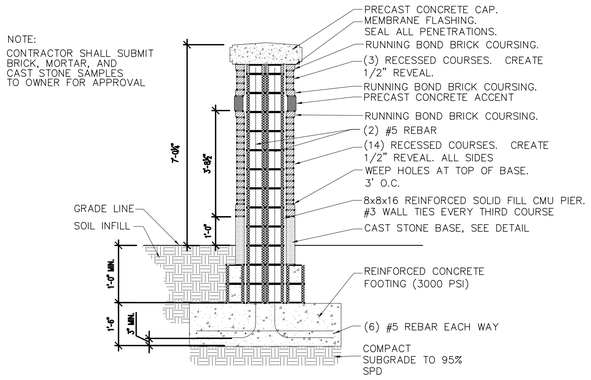
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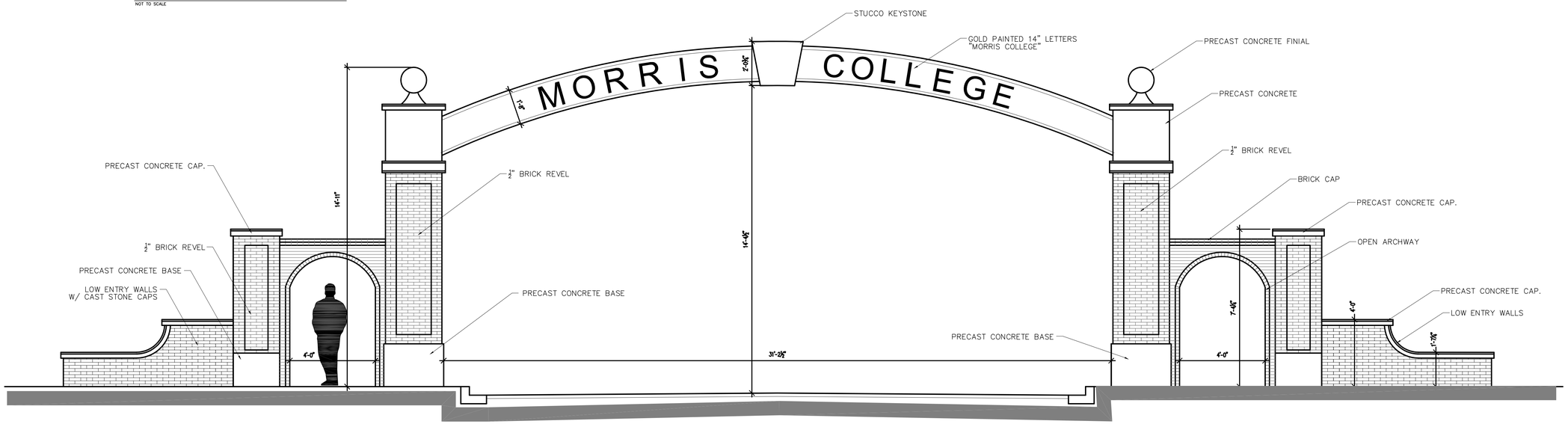
CAST STONE DETAILS
NOT TO SCALE



LARGE COLUMN TYPICAL
NOT TO SCALE



LARGE COLUMN SECTION
NOT TO SCALE



GATEWAY ARCH
NOT TO SCALE

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NORTH MAIN STREET IMPROVEMENT PROJECT - PHASE II

SUMTER, SC

DETAILS

State of South Carolina
REGISTERED LANDSCAPE ARCHITECT
No. 1234
LEE W. HOWELL, JR.

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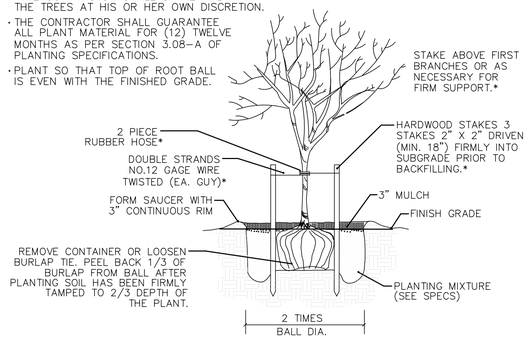
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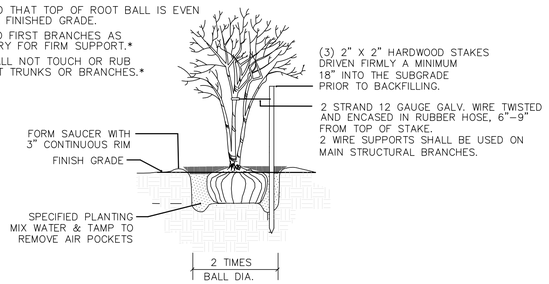
PLANT DETAILS

NOTE:
- *THE CONTRACTOR SHALL STAKE AND WRAP THE TREES AT HIS OR HER OWN DISCRETION.
- THE CONTRACTOR SHALL GUARANTEE ALL PLANT MATERIAL FOR (12) TWELVE MONTHS AS PER SECTION 3.08-A OF PLANTING SPECIFICATIONS.
- PLANT SO THAT TOP OF ROOT BALL IS EVEN WITH THE FINISHED GRADE.



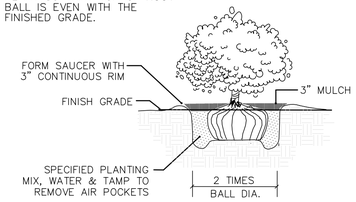
LARGE TREE PLANTING & STAKING DETAIL
not to scale

NOTE:
- *THE CONTRACTOR SHALL STAKE AND WRAP THE TREES AT HIS OR HER OWN DISCRETION.
- THE CONTRACTOR SHALL GUARANTEE ALL PLANT MATERIAL FOR (12) TWELVE MONTHS AS PER SECTION 3.08-A OF PLANTING SPECIFICATIONS.
- PLANT SO THAT TOP OF ROOT BALL IS EVEN WITH THE FINISHED GRADE.
- STAKE TO FIRST BRANCHES AS NECESSARY FOR FIRM SUPPORT.*
- WIRE SHALL NOT TOUCH OR RUB ADJACENT TRUNKS OR BRANCHES.*

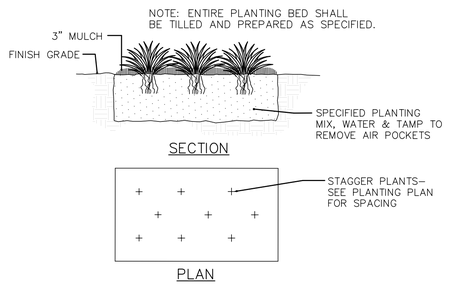


SMALL & MULTI-TRUNK TREE PLANTING & STAKING DETAIL
not to scale

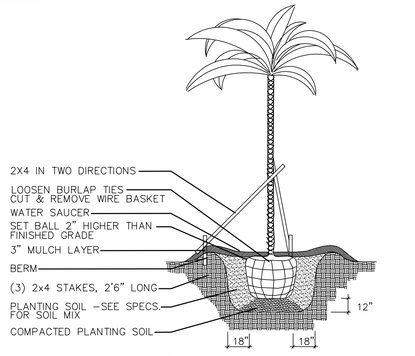
NOTE:
- PLANT SO THAT TOP OF ROOT BALL IS EVEN WITH THE FINISHED GRADE.



SHRUB PLANTING DETAIL
not to scale



PLANTING BED DETAIL
not to scale



PALMETTO TREE PLANTING DETAIL
not to scale

PLANT SCHEDULE

KEY	BOTANICAL NAME	COMMON NAME	QUANTITY	SIZE	SPACING
A	QUERCUS PHELLOS	WILLOW OAK	14	3" CAL.	AS SHOWN
B	THUJA 'GREEN GIANT'	GREEN GIANT ARBORVITAE	6	10' HT.	AS SHOWN
C	LOROPETALUM 'PURPLE DIAMOND'	PURPLE DIAMOND LOROPETALUM	25	3 GAL.	AS SHOWN
D	ILEX CORNUTA 'BUFORDII NANA'	DWARF BUFORD HOLLY	141	3 GAL.	AS SHOWN
E	MUHLENBERGIA CAPILLARIS	PINK MUHLY GRASS	33	3 GAL.	AS SHOWN
F	DISTYILLUM 'CANDACE JADE'	CANDANCE JADE DISTYILLUM	6	3 GAL.	AS SHOWN
G	ILEX VOMITORIA 'BORDEAUX'	BOURDEAUX YAUPON HOLLY	10	3 GAL.	AS SHOWN
H	JUNIPERUS VIRGINIANA 'TAYLOR'	TAYLOR JUNIPER TREE	2	8'-10' HT.	AS SHOWN
I	TULBAGHIA VIOLACEA	SOCIETY GARLIC	110	12" POT	2' O.C.
	CENTIPEDE SOD	CENTIPEDE SOD	±2,250 S.F.		
	DBL. HAMMERED HARDWOOD MULCH	DBL. HAMMERED HARDWOOD MULCH	3" MIN. DEPTH		

GENERAL NOTES:
- QUANTITIES ARE SHOWN FOR INFORMATION ONLY. THE CONTRACTOR IS RESPONSIBLE FOR HIS OR HER OWN QUANTITIES. IF THERE IS A CONFLICT BETWEEN QUANTITIES AND SPACING, SPACING SHALL PREVAIL.
- ALL AREAS NOT COVERED BY CONSTRUCTION OR PLANT BED AREAS, SHALL BE PLACED IN TURF. ALL R.O.W. AREAS BETWEEN PLANT BEDS AND EDGE OF PAVEMENT SHALL BE PLACED IN TURF.
- THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS AND LICENSEES FROM THE PROPER AUTHORITIES BEFORE BEGINNING ANY WORK WITHIN THE R.O.W. OR OFF SITE.
- STEEL EDGING TO BE BORDER CONCEPTS "BORDER STRETCH" IN BLACK OR APPROVED EQUAL. BORDER CONCEPTS -WWW.BORDERCONCPETS.COM 800-845-3343.
- ALL NEW PLANTINGS TO BE MECHANICALLY IRRIGATED. EXISTING FIELD NOT TO BE IRRIGATED. CONTRACTOR TO CONNECT TO EXISTING IRRIGATION; SEE IRRIGATION PLAN. CONTRACTOR TO ADJUST AS NECESSARY.
- ALL DISTURBED AREAS NOT SODDED TO BE HYDROSEEDED; SEE EROSION CONTROL PLANS FOR LIMITS OF DISTURBANCE.
- ALL CANOPY TREES SHALL BE LIMBED TO 7' HEIGHT MINIMUM.
- ALL PLANTINGS SHALL BE INSTALLED ACCORDING TO ANLA'S AMERICAN STANDARDS FOR NURSERY STOCK. (ANSI) RECOMMENDATIONS.

3 DAYS BEFORE DIGGING IN SOUTH CAROLINA
CALL 1-800-922-0983
UNDERGROUND LOCATORS. CONTRACTOR SHALL CONTACT THE UNDERGROUND LOCATORS EVERY 10 DAYS FOR AN UPDATE TO UTILITY LOCATIONS.

PLANT KEY
QUANTITY

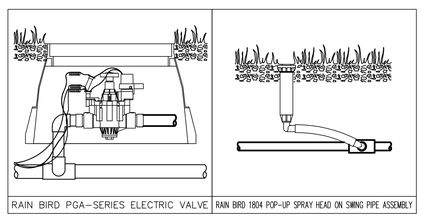
LEGEND

SYMBOL	DESCRIPTION
	RAIN BIRD INLINE DRIP TUBING ON 18" SPACING
	RAIN BIRD 1804 POP-UP SPRAY HEADS WITH THE FOLLOWING NOZZLES:
	8H 12Q
	RAIN BIRD 100-PGA ELECTRIC VALVES (SEE VALVE SCHEDULE)
	12H 15Q
	1" RAIN BIRD XCZ-LC DRIP ASSEMBLY
	4" PVC SLEEVING
	PVC LATERAL PIPING
	2" PVC MAINLINE PIPING

NOTES: SYSTEM DESIGNED FOR 30-35 GPM WITH A MAXIMUM FLOW OF 50 GPM.

VALVE SCHEDULE

VALVE #	GPM	SIZE WM	HEAD TYPE
V1	---	1"	DRIP
V2	---	1"	1804
V3	----	1"	DRIP
V4	TBD	1"	1804



*NOTE:
IRRIGATION PLAN IS CONCEPTUAL IN NATURE; CONTRACTOR TO DESIGN BUILD AND MODIFY AS NECESSARY. DRIP IRRIGATION IS TO BE USED IN ALL NEW PLANT BEDS, NEW SOD IS TO BE SPRAYED WITH ROTARS. CONTRACTOR TO COORDINATE WITH BROCK MCDANIEL TO FIND EXISTING 2' IRRIGATION LINE AND TIE ALL NEW ZONES TO EXISTING. INSTALL NEW TBOS CONTROLLER

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NORTH CAROLINA LANDSCAPE ARCHITECTURAL CORP. No. 1301 — THE LANDPLAN GROUP SOUTH INC. No. 153 — CERTIFICATE OF AUTHORIZATION

NORTH MAIN STREET IMPROVEMENT PROJECT - PHASE II
SUMTER, SC
DETAILS

State of South Carolina — REGISTERED LANDSCAPE ARCHITECT — No. 1301 — JAMES W. HONELL, JR.

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JOB #: 0885A
SCALE: 1" = 10'
SHEET: 19 OF 19

ELECTRICAL LEGEND

SYMBOL	DESCRIPTION
A–1	CONDUIT AND CONDUCTORS HOMERUN TO PANELBOARD. NUMERALS INDICATE CIRCUIT NUMBER(S). LETTERS INDICATE PANELBOARD TO WHICH CIRCUITS ARE RUN. MINIMUM CONDUCTOR SIZE SHALL BE #12 AWG. CONDUIT SIZED PER NATIONAL ELECTRICAL CODE. MINIMUM CONDUIT SIZE SHALL BE 3/4".
	IN–GROUND FIXTURE, SEE LIGHTING FIXTURE SCHEDULE
	WALL–MOUNTED LIGHTING FIXTURE. LETTER DENOTES FIXTURE TYPE, SEE LIGHTING FIXTURE SCHEDULE.

GENERAL ELECTRICAL NOTES

G1. DO NOT SCALE THESE DRAWINGS. ALL ROUGHING-IN SHALL BE TAKEN FROM THE ARCHITECTURAL DRAWINGS AND DIMENSIONS.

G2. ALL ELECTRICAL APPARATUS SHOWN ON THESE DRAWINGS SHALL BE UL LISTED AND SHALL COMPLY WITH ALL LOCAL AND NATIONAL CODES.

G3. WHERE PENETRATIONS ARE MADE THROUGH A REQUIRED FIRE-RESISTANT WALL, FLOOR OR PARTITION FOR THE PURPOSE OF RUNNING RACEWAY CARRYING ELECTRICAL CIRCUITS, TELEPHONE, TELEVISION OR LOCAL COMMUNICATION AND/OR SIGNAL CIRCUITS, THE OPENING AROUND THE RACEWAY(S) SHALL BE FIRE STOPPED BY A "UL" TESTED SYSTEM FOR THE TYPE CONSTRUCTION AND WALL MATERIAL AS OUTLINED IN THE INTERNATIONAL BUILDING CODE. COORDINATION WITH THE GENERAL CONTRACTOR SHALL BE MAINTAINED TO ENSURE THAT THE FIRE STOPPING IS ACCOMPLISHED.

G4. ALL WORK SHALL COMPLY WITH ALL LOCAL, STATE AND NATIONAL CODES.

G5. EQUIPMENT SHALL BE SUITABLE FOR ITS APPLICATION (E.G. WHEN INSTALLED OUTDOORS, IT SHALL BE WEATHERPROOF, ETC.)

G6. THE CONTRACTOR SHALL FURNISH ALL MATERIALS AND LABOR NECESSARY TO PROVIDE A COMPLETE AND PROPERLY FUNCTIONING ELECTRICAL SYSTEM.

G7. ALL MATERIAL, EQUIPMENT, AND DEVICES SHALL BE NEW.

G8. COORDINATE THE EXACT LOCATION OF LIGHT FIXTURES WITH THE ARCHITECT.

G9. NEUTRALS ON BRANCH CIRCUITS SHALL NOT BE SHARED. EACH BRANCH CIRCUIT WILL BE SUPPLIED WITH ITS OWN DEDICATED NEUTRAL.

G10. ALL SWITCHES INSTALLED ON THIS JOB SHALL BE RATED AT 20 AMPS UNLESS OTHERWISE INDICATED ON PLANS.

G11. DURING CONSTRUCTION OPERATIONS THE ELECTRICAL CONTRACTOR SHALL FAITHFULLY MAKE A RECORD OF ALL APPROVED CHANGES FROM THE CONTRACT DRAWINGS, INCLUDING ACCURATE DIMENSIONS WHERE APPLICABLE, AND SHALL ALSO RECORD ACCURATE DIMENSIONS LOCATING ALL BELOW GRADE OUTSIDE ELECTRICAL UTILITIES WITH REFERENCE TO PERMANENT ABOVE GRADE OBJECTS. AT THE COMPLETION OF WORK ALL SUCH CHANGES SHALL BE RECORDED NEATLY WITH RED INK BY THE ELECTRICAL CONTRACTOR ON AN UNUSED SET OF ELECTRICAL CONTRACT DRAWINGS AND RETURNED TO THE ARCHITECT.

G12. ALL CONDUCTORS SHALL BE RUN IN RIGID CONDUITS, EMT, OR MC CABLE PER CONDUIT INSTALLATION SCHEDULE.

LIGHTING FIXTURE SCHEDULE

SYMBOL	DESCRIPTION	MANUFACTURER	CATALOG NUMBER	LAMPS	TOTAL WATTAGE
C	ACORN LED POLE TOP FIXTURE WITH 7,900 LUMEN OUTPUT, PAINTED BLK, 3500'K COLOR TEMP, 3" SLIP–FIT TENON. POLE: 14 FOOT 4" ROUND STEEL POLE PAINTED BLACK WITH TENON MOUNT AND HAND HOLE.	STERNBERG	PTA850–5P–VCOB–4L–35–TS–MDL05–A POLE: 450–P4–14–.125–BKT	(1) LED	75 WATTS
D	WALL MOUNT LED LANTERN WITH 4,600 LUMENS PAINTED BLACK	STERNBERG	1W–6130CHLED–12L–35K–T4–MDL014–CTA–BKT WALL BRACKET: 50HWB	(1) LED	45 WATTS
F	LED FLOOD LIGHT WITH 5000 LUMEN OUTPUT, INTEGRAL PHOTOCELL, PAINTED DARK BRONZE, 3K COLOR TEMP, AND 1/2" KNUCKLE MOUNT.	ILP	VFS–5L–U–CCTS–KNK–BRZ	(1) LED	42 WATTS
G	LED IN GROUND ACCENT UP LIGHT 350 LUMENS	HYDREL	IGF4–SS–LED–P1–80CRI–30K–MVOLT–15DEG–OT–FLCSR–34B–BZ	(1) LED	5 WATTS
H	TOP BEND STATIC WHITE LINEAR LIGHTING STRIP WITH 238 LUMENS/FOOT OUTPUT RATED FOR OUTDOOR USE. PROJECT REQUIRES TWO 18' STRIPS.	NOVA FLEX	NF–NEON–O–120–TB–3000K SUPPORTING CLIPS: NF–LINE2–CLIP–KIT MINIMUM OF 40 CLIPS		3.6 WATTS/FT

NOTE: PANEL–A IS PROVIDED WITH THE ELECTRICAL FOR THE BUILDING

Panel: A

VOLTAGE: 120 /240 VOLTS
PHASE-WIRE: 1 PHASE - 3 WIRE
MAIN TYPE: MCB
MAIN SIZE: 100 AMPS

INTERRUPT: 10,000 AIC
MOUNTING: SURFACE
EATON: PRL1a
BUS TYPE: COPPER

DESCRIPTION	POLE	WIRE AWG	TRIP AMPS	Cir.	Phase Loads KVA A-Phase	Phase Loads KVA B-Phase	Cir.	TRIP AMPS	WIRE AWG	POLE	DESCRIPTION
RECEPTACLES	1	12	20	1	0.6 / 0.3		2	20	12	1	LIGHTING
RECEPTACLES	1	12	20	3		0.4 / 0.8	4	20	12	1	LIGHTING STREET AND ENRTY
TWHP-1 RECEPTACLE	2	12	20	5	1.4 /		6	20	-	1	SPARE
				7		1.4 /	8	20	-	1	SPARE
SPARE	1	-	20	9	/		10	20	-	1	SPARE
SPARE	1	-	20	11		/	12	20	-	1	SPARE
Total KVA per Phase					2.3	2.6					
Total Amps per Phase					19	22					

NOTES:
1) PANEL TO BE LISTED FOR SERVICE ENTRANCE
2) BREAKERS FOR HVAC EQUIPMENT TO BE TYPE HACR
3) PANEL TO RATED AS NEMA 3R

CONDUIT INSTALLATION SCHEDULE

A. Installations In or Under Concrete Slab: Schedule 40 PVC.
B. Underground not covered or encased in concrete: Schedule 40 PVC. Where the underground conduit emerges from grade it shall be converted to rigid metal conduit or IMC from 18" below grade to a point 8' above grade, or to a point where it is protected from physical damage.
C. Exposed Outdoor Locations: Intermediate galvanized steel conduit (IMC).
D. Wet Interior Locations: Intermediate galvanized steel conduit (IMC).
E. Concealed Dry Interior Locations: Electric Metallic Tubing (EMT).
F. Exposed Dry Interior Locations: Electric Metallic Tubing (EMT).

Home runs from each interior space to be in EMT. MC cable may be used from junction boxes in each space to receptacles and lighting within that space.

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SOUTH CAROLINA — PROFESSIONAL ENGINEER — No. 21953 — BARRY JOE STANLEY

STANLEY ENGINEERING, LLC
1025 Oak Brook Blvd.
Sumter, SC 29150
(803) 840-1138

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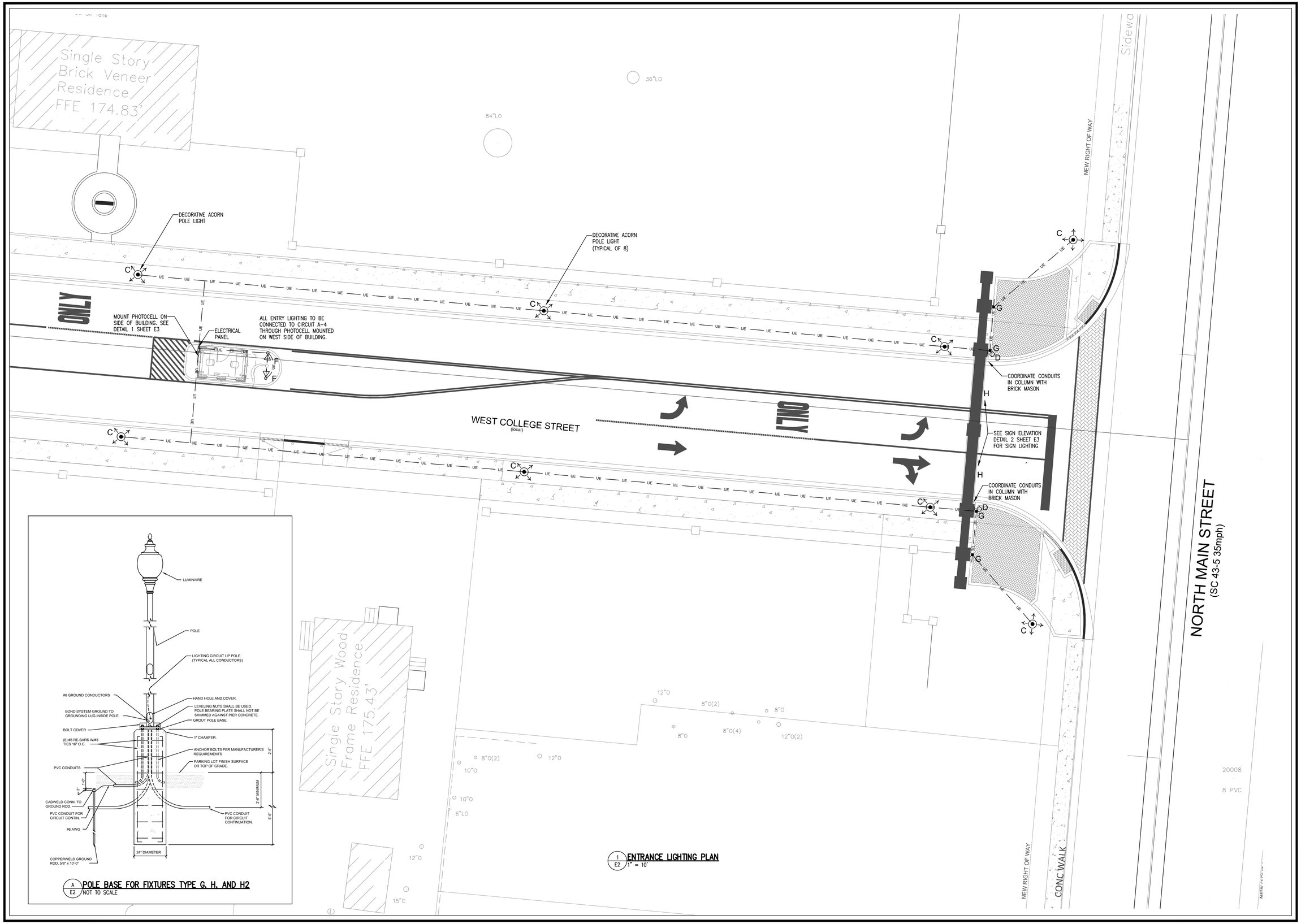
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DATE: 2/21/25
JOB #: ----
SCALE: AS NOTED

NORTH MAIN STREET
IMPROVEMENT PROJECT - PHASE II
SUMTER, SC

Electrical Notes and Legend

DRAWING NUMBER
E1
OF 3



1 E2 **ENTRANCE LIGHTING PLAN**
1" = 10'

A E2 **POLE BASE FOR FIXTURES TYPE G, H, AND H2**
NOT TO SCALE

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JOB # : ----
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ENTRY LIGHTING PLAN

DRAWING NUMBER
E2
OF 3

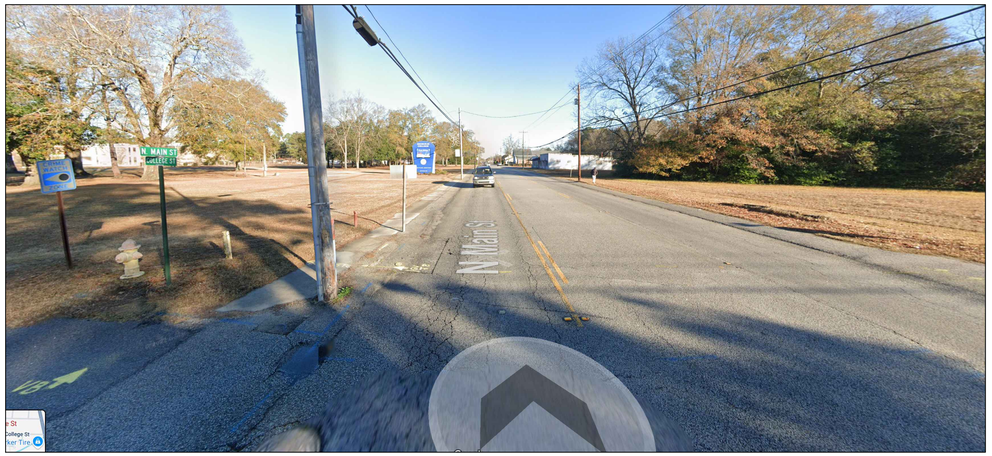
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SITE DISTANCE EXHIBIT

SCALE:1"=40'



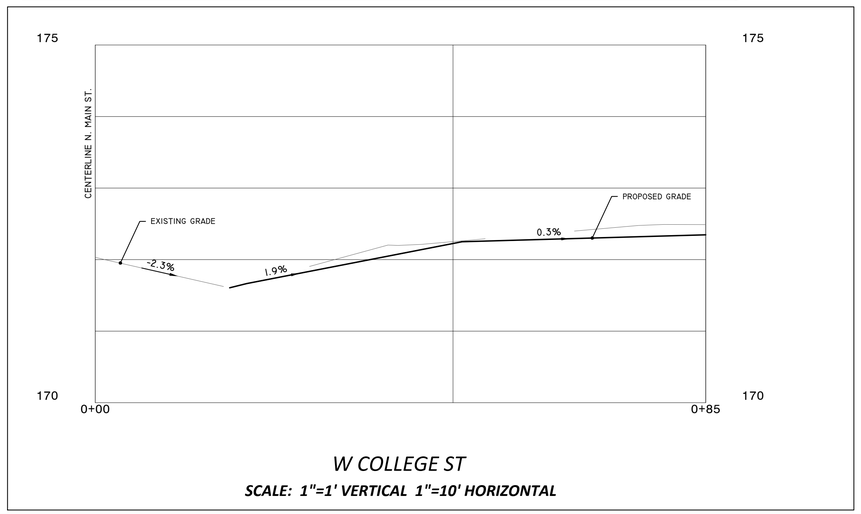
STREETVIEW LOOKING NORTH



STREETVIEW LOOKING SOUTH



W. COLLEGE ST. PROFILE AT INTERSECTION W/ N. MAIN ST.



W COLLEGE ST

SCALE: 1"=1' VERTICAL 1"=10' HORIZONTAL

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SUMTER, SC

SCDOT SIGHT DISTANCE EXHIBIT

State of South Carolina REGISTERED LANDSCAPE ARCHITECT No. 730 JAMES W. HOWELL, JR.

REVISION	BY:	APPD.	MM.DD.YY
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JOB #: 0885A

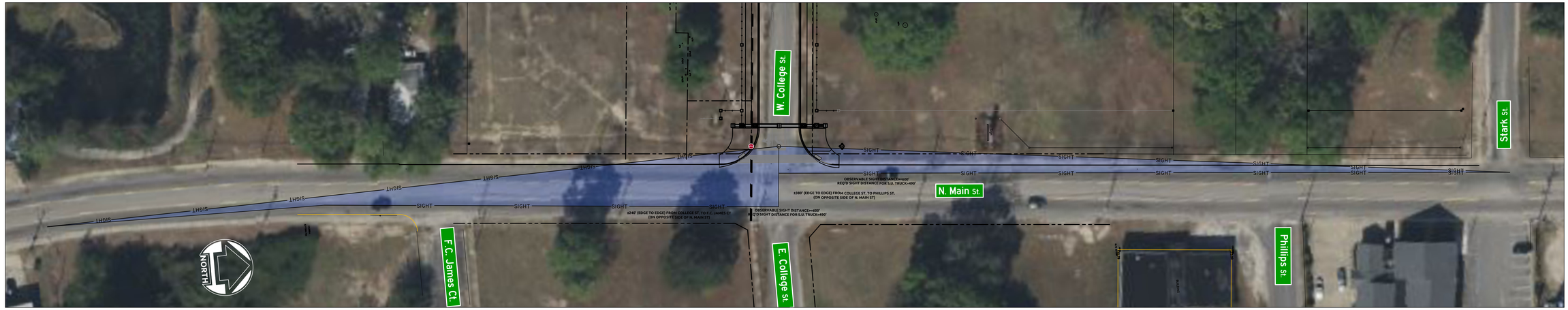
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SHEET: 20 OF 20

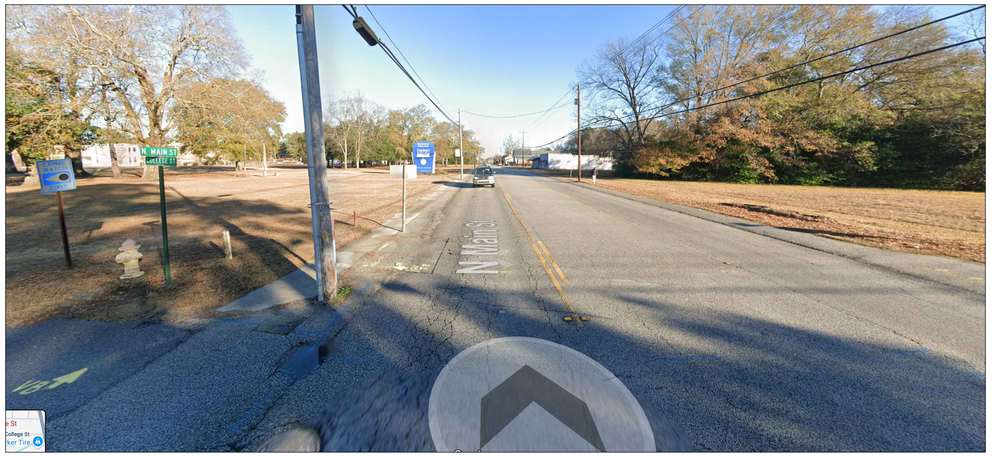
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SITE DISTANCE EXHIBIT

SCALE:1"=40'



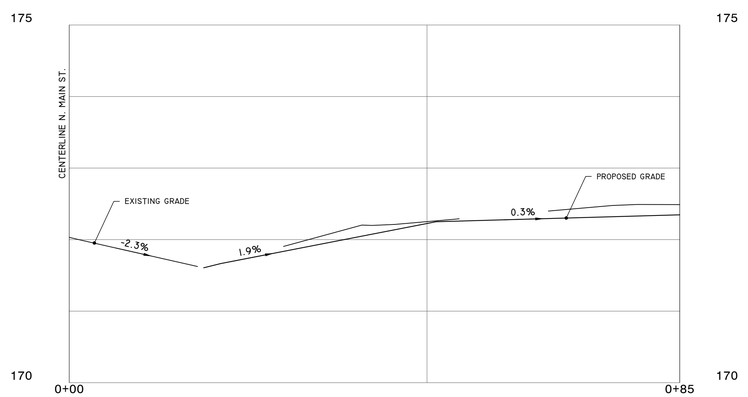
STREETVIEW LOOKING NORTH



STREETVIEW LOOKING SOUTH



W. COLLEGE ST. PROFILE AT INTERSECTION W/ N. MAIN ST.



W COLLEGE ST

SCALE: 1"=1' VERTICAL 1"=10' HORIZONTAL

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NORTH MAIN STREET IMPROVEMENT PROJECT - PHASE II

SUMTER, SC

SCDOT SIGHT DISTANCE EXHIBIT

STATE OF SOUTH CAROLINA
REGISTERED LANDSCAPE ARCHITECT
No. 1788
JAMES W. HOWELL, JR.

REVISION	BY:	APPD.	MM.DD.YY
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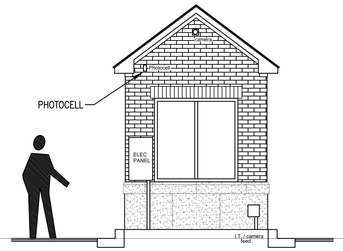
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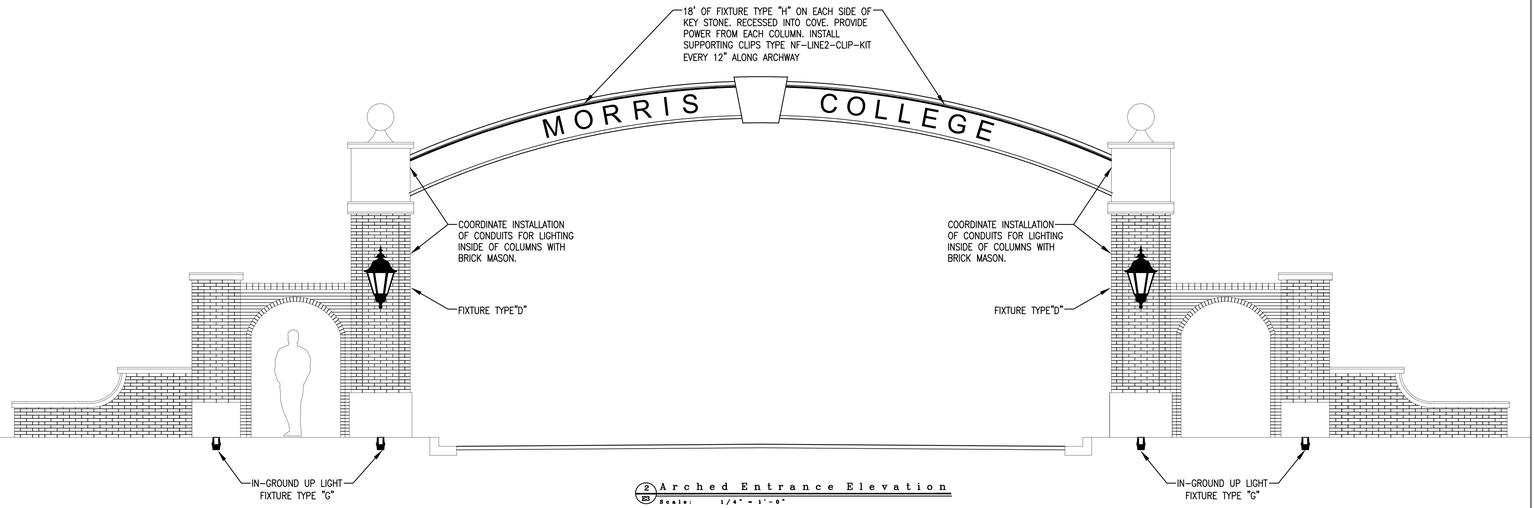
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SCALE: 1" = 10'

SHEET: 20 OF 20



1 R3 Gaurd Shack Elevation
Scale: 1/4" = 1'-0"



2 R3 Arched Entrance Elevation
Scale: 1/4" = 1'-0"

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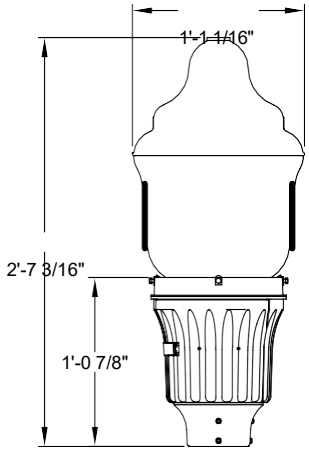
ELECTRICAL ELEVATIONS

DRAWING NUMBER
E3
OF 3

HOLOPHANE®
LEADER IN LIGHTING SOLUTIONS

Attachment 1





* Shown with MS Housing

Maximum weight - 47 lbs
Maximum effective projected area - 1.38 sq. ft.

GVD3

Granville Classic Utility LED3

SPECIFICATIONS

General Description

The GranVille Classic Utility LED3 is designed for ease of maintenance with the plug-in electrical module commontoeach of the luminaires in Holophane's Utility Luminaire Series.The traditional acorn-shaped luminaire, while reminiscent of the 1920's, contains a powerful, stalk-mounted Chip-On-Board LED platform with a precision optical system that maximizes post spacings while maintaining uniform illumination.

Mechanical Specifications

The luminaire housing shall:
- Be heavy grade A360 cast aluminum (aluminum with <1% copper)
- IP55 rated housing provides tool-less access with a spring-loaded latch
- Incorporate a hidden hinge door allowing the door to swing open and remain open
- Offer units with an EEI- NEMA twist lock photocontrol receptacle, the housing contains a tempered glass window to allow light to reach the cell
- Mount to slip-fitter that will accept 3" high by 2-7/8" to 3-1/8" O.D. pole tenon
- Provide four uniquely designed stainless steel spring clips, enclosed in a clear polyvinyl chloride sleeve and adjusted by 1/4-20 hex-head bolts that securely cradle the prismatic glass refractor. The same ¼-20 bolts also support the decorative rib and banding assembly.

The finish shall:
- Utilize a polyester power coat paint to ensure maximum durability
- Meet 5,000-hour salt spray
- Offer Tiger Drylac finishes that are applied by a Tiger Drylac certified facility.

Electrical Specifications

The driver shall meet the following requirements:
- Certified by UL or CSA for wet locations
- A factory programmable electronic driver with 0-10V dimming control leads
- LEDs shall have a minimum of 70 CRI and available in 2700K, 3000K, 4000K, and 5000K CCT
- The electrical system shall be designed to meet ANSI/IEEE C62.41.2 and shall offer a 10kV/5kA surge protection, fail off, as standard with an upgradable 20kV/10kA surge protection, fail off with indicator light, option
- Lumen output can be customized prior to manufacturing by way of FPDxx Options
- The electrical components are mounted on an aluminum plate that is removeable with minimum use of tools. A matching five conductor plug connects to the receptacle in the luminaire housing to complete the wiring. For photoelectric operation, the electrical module is provided with an EEI-NEMA twist-lock photocell receptacle.

Optical Specifications

The optical system is IP66 rated and consists of a precisely molded thermal resistant borosilicate glass refractor and top reflector mounted within the decorative glass optic. The top reflector redirects over 50% of the upward light into the controlling refractor while allowing a soft up-light component to define the traditional acorn shape of the luminaire. The lower refractor uses precisely molded prisms to maximize the pole spacings while maintaining uniform illuminance. Two refractors are available, designed for IES type III and V distributions. Lunar Optics shielding is available for asymmetric and symmetric distributions.

Control Options

The control options shall include, but not limited to, the following:
- Field adjustable output to adjust output to luminaire - AO
- Long life photocontrol, 20 years – PCLL, P34 and P48 with DTL
- 3 and 7 pin receptacles internally in housing (PR3, PR7) or inside glass mounted (PR7E)
- nLight Air rSBOR6 outdoor fixture-mounted motion and photo-sensor, features a dual radio to communicate wirelessly to other nLight Air devices for group response to motion, on/off control in response to daylight and by switch – RSBOR6
- Fixture embedded nLight Air network interface for individual fixture control and dimming - NLTAIR2.

Certification and Standards
- Luminaire shall be UL or CSA listed.
- Suitable for operation in an ambient temperature up to 40°C / 105°F per UL or CSA certification
- LM79 compliant
- DesignLights Consortium® (DLC) Premium qualified product and DLC qualified product. Not all versions of this product may be DLC Premium qualified or DLC qualified. Please check with the DLC Qualified Products List at www.designlights.org/QPL to confirm which versions are qualified.

Warranty – 5 Years Limited

Complete warranty terms located at: www.acuitybrands.com/support/warranty/terms-and-conditions

Note: Actual performance may differ as a result of end-user environment and application. All values are design or typical values, measured under laboratory conditions at 25 °C.

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ORDERING INFORMATION

Example: GVD3 P30 30K MVOLT MS GL3 BK RB ST TBK AO

Series		LED Performance Package		LED Color temperature		Voltage		Housing Style	
GVD3	Granville Classic Utility LED3	P10	3,300 nominal lumens	27K	2700K CCT	MVOLT	AUTO-SENSING 120-277V 50/60HZ	MS	Modern Style Swing Open Design
		P20	5,500 nominal lumens	30K	3000K CCT	HVOLT	AUTO-SENSING 347-480V 50/60HZ	LS	Leaf Style Swing Open Design
		P30	8,400 nominal lumens	40K	4000K CCT				
		P40	10,900 nominal lumens	50K	5000K CCT				
		P50	13,200 nominal lumens						

Optics		Housing Color		Trim		Finial		Finial Color	
GL3	Glass, Type III	BK	Black	[Blank]	No Trim	[Blank]	No Finial	TBK	Black
GL5	Glass, Type V	BZ	Bronze	RB	Ribs & Band	BL	Ball	TBZ	Bronze
GL3LU	Glass, Type III Lunar Optics	GH	Graphite	SY	Syracuse Style with Cover (MS Housing only)	CL	Clear	TGL	Gold
GL5LU	Glass, Type V Lunar Optics	GN	Green			EG	Eagle	TGH	Graphite
		GR	Grey			FL	Flower	TGN	Green
		PP	Prime Paint			PN	Pawn	TGR	Grey
		WH	White			CR	Cross	TPP	Prime Paint
		CMC	CustomMatchColor Finish			ST	Standard	TWH	White
		XX	STD Finish, TBD			RM	Roman Cross	TCMC	CustomMatchColor Finish
		RAL	RAL Specified					TRAL	RAL Color
								TXX	STD FINISH, TBD

Options: *Option Compatibility Matrix on page 3 of 4*

CONTROLS OPTIONS

AO	Field Adjustable Output
DE	ROAM 0-10 Volt Dimming Controls, includes NEMA twistlock photocontrol receptacle
PR3	NEMA twistlock photocontrol receptacle - 3 pin
PR7	NEMA twistlock dimming photocontrol receptacle - 7 pin
PR7E	NEMA twistlock dimming photocontrol receptacle - 7 Pin (Under Glass)
PCLL	Long Life DTL Twistlock Photocontrol for Solid State, MVOLT
P34	Long Life DTL Twistlock Photocontrol for Solid State, 347V
P48	Long Life DTL Twistlock Photocontrol for Solid State, 480V
SH	Shorting Cap
RSBOR6	nLight Motion Sensing Photocontrols
NLTAIR2	nLight rIO 2.0 Antenna

DRIVER ELECTRICAL OPTIONS

FPDxx	Factory Programmed Driver
20KV	Extreme surge protection 20kV/10kA, fail off with indicator light

PREWIRED LEAD OPTIONS

L1H	1.5 ft prewired leads
L03	3ft prewired leads
L10	10 ft prewired leads
L20	20 ft prewired leads
L25	25 ft prewired leads
L30	30 ft prewired leads

COVER OPTIONS

FC	Full Cover
MC	Mayfield Half Cover

NEMA LABEL OPTIONS

NL1X1	1" X 1" ANSI Wattage Label
NL2X2	2" X 2" ANSI Wattage Label

Accessories: *Order as separate catalog number.*

DECORATIVE BAND OPTIONS

GVBANDX Decorative Band

NOTE:
Field installed. For use with units without factory installed ribs and band.
X = Band color, example GVBANDBK (black).

HOUSE-SIDE SHIELD OPTIONS

GVDHSS90	House Side Shield Solid 90˚
GVDHSS12	House Side Shield Solid 120˚
GVDHSS18	House Side Shield Solid 180˚
GVDHSL90	House Side Shield Solid 90˚ (Lunar)
GVDHSL12	House Side Shield Solid 120˚ (Lunar)
GVDHSL18	House Side Shield Solid 180˚ (Lunar)

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OPTIONS MATRIX

GVD3 (Utility Housing)		Housing Style		LED Package					Voltage		Distribution				Trims		Options												Covers	
		MS	LS	P10	P20	P30	P40	P50	MVOLT	HVOLT	GL3	GL5	GL3LU	GL5LU	RB	SY	AO	DE	FPDxx	PR3	PR7	PR7E	PCLL	P34	P48	SH	RSBOR6	NLTAIR2	20kV	FC	MC
Housing Style	MS		N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	LS	N		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
LED Package	P10	Y	Y		N	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y
	P20	Y	Y	N		N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	P30	Y	Y	N	N		N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	P40	Y	Y	N	N	N		N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	P50	Y	Y	N	N	N	N		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Voltage	MVOLT	Y	Y	Y	Y	Y	Y	Y		N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	Y	Y	Y	Y	Y	Y
	HVOLT	Y	Y	Y	Y	Y	Y	Y	N		Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	N	Y	Y	Y	Y	N	Y	Y	Y
Distributions	GL3	Y	Y	Y	Y	Y	Y	Y	Y	Y		N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	GL5	Y	Y	Y	Y	Y	Y	Y	Y	Y	N		N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	GL3LU	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N		N	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	N	Y	Y	Y
	GL5LU	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N		Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	N	Y	Y	Y
Trims	RB	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	SY	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N		Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	N	Y	N	N
Options	AO	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		N	Y	Y	Y	N	Y	Y	Y	Y	N	N	Y	Y	Y
	DE	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	N		Y	I	N	N	N	N	N	N	N	N	Y	Y	Y
	FPDxx	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	PR3	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	I	Y		N	N	Y	Y	Y	Y	N	N	Y	Y	Y
	PR7	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	N		N	Y	Y	Y	Y	N	N	Y	Y	Y
	PR7E	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	Y	N	Y	N	Y	N	N		Y	Y	Y	Y	N	N	Y	N	N
	PCLL	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y		N	N	N	N	N	Y	Y	Y
	P34	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	N		N	N	N	N	Y	Y	Y
	P48	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	N	N		N	N	N	Y	Y	Y
	SH	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	N	N	N		N	N	Y	Y	Y
	RSBOR6	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	Y	N	N	N	N	N	N	N		N	Y	Y	Y
	NLTAIR2	Y	Y	N	Y	Y	Y	Y	Y	N	Y	Y	N	N	Y	N	N	N	Y	N	N	N	N	N	N	N	N		Y	N	N
	20kV	Y	Y	Y			Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y
Covers	FC	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	N	Y		N
	MC	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	N	Y	N	
Finials	BL	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	CL	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	EG	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	FL	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	NONE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N
	PN	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	CR	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	ST	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	RM	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
House-Side Shield	GVDHSS90	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	GVDHSS12	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	GVDHSS18	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	GVDHSL90	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	N	Y	Y	Y
	GVDHSL12	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	N	Y	Y	Y
	GVDHSL18	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	N	Y	Y	Y

MATRIX KEY

I = Combined Options Included

N = Combination Not available

Y = Valid Option Combination

ROAM OPTION DETAILS

DE = UL listed components without GPS capability, external antenna is black and includes ROAM capable node only, ROAM service package sold separately via Acuity Controls

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LUMEN AMBIENT TEMPERATURE (LAT) MULTIPLIERS

Use the factors to determine relative lumen output for average ambient temperatures from 0-40°C (32-104°F)

Ambient Temp		Lumen Multiplier	
°C	°F	P10, P20	P30, P40, P50
0	32	1.03	1.04
5	41	1.02	1.03
10	50	1.02	1.03
15	59	1.01	1.02
20	68	1.01	1.01
25	77	1.00	1.00
30	86	0.99	0.99
35	94	0.99	0.98
40	104	0.98	0.97

PROJECTED LED LUMEN MAINTENANCE

Data references the extrapolated performance projections for the platforms noted in 25°C ambient, based on 6,000 hours of LED testing (tested per IESNA LM-80-08 and projected per IESNA TM-21-11). To calculate LLF, use the lumen maintenance factor that corresponds to the desired number of operating hours below. For other lumen maintenance values, contact factory.

Lumen Maintenance - LLD (Same for all LED packages)							
Hours	**0**	**25,000**	**36,000**	**50,000**	***60,000***	***75,000***	***100,000***
Factor	1	0.96	0.94	0.91	*0.90*	*0.87*	*0.83*

The *italicized* data is extrapolated beyond the TM-21 standard.

PERFORMANCE DATA

Performance Package	Distribution	Input Watts	27K (2700K CCT, 70 CRI)					30K (3000K CCT, 70 CRI)					40K (4000K CCT, 70 CRI)					50K (5000K CCT, 70 CRI)				
			Lumens	LPW	B	U	G	Lumens	LPW	B	U	G	Lumens	LPW	B	U	G	Lumens	LPW	B	U	G
P10	GL3	23	2,891	126	1	3	3	3,281	143	1	3	3	3,342	145	1	3	3	3,403	148	1	3	3
	GL5		2,890	126	2	3	2	3,281	143	2	3	2	3,341	145	2	3	2	3,402	148	2	3	2
	GL3LU		2,386	104	1	3	2	2,709	118	1	3	2	2,759	120	1	3	2	2,809	122	1	3	2
	GL5LU		2,397	104	2	3	1	2,720	118	2	3	1	2,771	120	2	3	1	2,821	123	2	3	2
P20	GL3	37	4,753	128	2	4	4	5,395	146	2	4	4	5,494	148	2	4	4	5,594	151	2	4	4
	GL5		4,752	128	3	4	3	5,394	146	3	4	3	5,494	148	3	4	3	5,594	151	3	4	3
	GL3LU		3,923	106	2	3	3	4,453	120	2	3	3	4,536	123	2	3	3	4,618	125	2	3	3
	GL5LU		3,940	106	3	3	2	4,472	121	3	3	2	4,555	123	3	3	2	4,638	125	3	3	2
P30	GL3	57	7,273	128	2	4	5	8,256	145	2	5	5	8,409	148	2	5	5	8,562	150	3	5	5
	GL5		7,272	128	3	5	3	8,255	145	3	5	4	8,408	148	3	5	4	8,561	150	3	5	4
	GL3LU		6,004	105	2	3	3	6,815	120	2	4	3	6,942	122	2	4	3	7,068	124	2	4	3
	GL5LU		6,030	106	3	3	2	6,845	120	3	3	3	6,972	122	3	3	3	7,099	125	3	3	3
P40	GL3	78	9,460	121	3	5	5	10,738	138	3	5	5	10,937	140	3	5	5	11,136	143	3	5	5
	GL5		9,459	121	3	5	4	10,736	138	4	5	4	10,935	140	4	5	4	11,134	143	4	5	4
	GL3LU		7,809	100	3	4	3	8,864	114	3	4	4	9,028	116	3	4	4	9,192	118	3	4	4
	GL5LU		7,843	101	4	4	3	8,902	114	4	4	3	9,067	116	4	4	3	9,232	118	4	4	3
P50	GL3	95	11,419	120	3	5	5	12,961	136	3	5	5	13,202	139	3	5	5	13,442	141	3	5	5
	GL5		11,417	120	4	5	4	12,959	136	4	5	5	13,200	139	4	5	5	13,440	141	4	5	5
	GL3LU		9,426	99	3	4	4	10,699	113	3	4	4	10,898	115	3	4	4	11,096	117	3	4	4
	GL5LU		9,467	100	4	4	3	10,746	113	4	4	3	10,945	115	4	4	3	11,144	117	4	4	3

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FPDXX DATA OPTIONS

FPDxx Setting	Wattage
Standard	23
FPD95	22
FPD90	21

P10 27K			
GL3	GL5	GL3LU	GL5LU
2,891	2,890	2,386	2,397
2,754	2,753	2,273	2,284
2,617	2,616	2,160	2,170

P10 30K			
GL3	GL5	GL3LU	GL5LU
3,281	3,281	2,709	2,720
3,126	3,126	2,581	2,591
2,970	2,970	2,453	2,463

P10 40K			
GL3	GL5	GL3LU	GL5LU
3,342	3,341	2,759	2,771
3,184	3,183	2,629	2,640
3,026	3,025	2,498	2,509

P10 50K			
GL3	GL5	GL3LU	GL5LU
3,403	3,402	2,809	2,821
3,242	3,241	2,676	2,688
3,081	3,080	2,543	2,554

FPDxx Setting	Wattage
Standard	37
FPD95	35
FPD90	34
FPD85	32
FPD80	30
FPD75	28
FPD70	26

P20 27K			
GL3	GL5	GL3LU	GL5LU
4,753	4,752	3,923	3,940
4,530	4,529	3,739	3,755
4,306	4,305	3,554	3,570
4,081	4,080	3,368	3,383
3,855	3,854	3,182	3,196
3,628	3,627	2,994	3,007
3,399	3,398	2,806	2,818

P20 30K			
GL3	GL5	GL3LU	GL5LU
5,395	5,394	4,453	4,472
5,142	5,141	4,244	4,262
4,888	4,887	4,034	4,052
4,632	4,632	3,824	3,840
4,376	4,375	3,612	3,627
4,118	4,117	3,399	3,413
3,858	3,858	3,185	3,198

P20 40K			
GL3	GL5	GL3LU	GL5LU
5,494	5,494	4,536	4,555
5,236	5,236	4,323	4,341
4,978	4,978	4,110	4,127
4,717	4,717	3,895	3,911
4,456	4,456	3,679	3,694
4,193	4,193	3,462	3,476
3,929	3,929	3,244	3,258

P20 50K			
GL3	GL5	GL3LU	GL5LU
5,594	5,594	4,618	4,638
5,332	5,332	4,401	4,421
5,068	5,068	4,184	4,202
4,803	4,803	3,965	3,982
4,537	4,537	3,745	3,762
4,269	4,269	3,525	3,540
4,001	4,001	3,303	3,317

FPDxx Setting	Wattage
Standard	57
FPD95	54
FPD90	51
FPD85	48
FPD80	45
FPD75	43
FPD70	40

P30 27K			
GL3	GL5	GL3LU	GL5LU
7,273	7,272	6,004	6,030
6,941	6,940	5,730	5,754
6,605	6,605	5,453	5,477
6,267	6,266	5,174	5,196
5,789	5,789	4,779	4,800
5,394	5,393	4,453	4,472
5,034	5,033	4,156	4,174

P30 30K			
GL3	GL5	GL3LU	GL5LU
8,256	8,255	6,815	6,845
7,879	7,878	6,504	6,532
7,498	7,497	6,189	6,217
7,114	7,113	5,872	5,898
6,572	6,571	5,425	5,449
6,123	6,122	5,054	5,076
5,714	5,714	4,717	4,738

P30 40K			
GL3	GL5	GL3LU	GL5LU
8,409	8,408	6,942	6,972
8,025	8,024	6,625	6,653
7,637	7,636	6,305	6,332
7,246	7,245	5,982	6,008
6,694	6,693	5,526	5,550
6,236	6,235	5,148	5,170
5,820	5,820	4,805	4,826

P30 50K			
GL3	GL5	GL3LU	GL5LU
8,562	8,561	7,068	7,099
8,171	8,170	6,745	6,775
7,776	7,775	6,419	6,447
7,378	7,377	6,090	6,117
6,815	6,815	5,626	5,651
6,350	6,349	5,242	5,265
5,926	5,926	4,892	4,914

FPDxx Setting	Wattage
Standard	78
FPD95	73
FPD90	69
FPD85	65
FPD80	61

P40 27K			
GL3	GL5	GL3LU	GL5LU
9,460	9,459	7,809	7,843
9,045	9,044	7,467	7,499
8,624	8,623	7,119	7,150
8,197	8,196	6,767	6,796
7,764	7,763	6,409	6,437

P40 30K			
GL3	GL5	GL3LU	GL5LU
10,738	10,736	8,864	8,902
10,267	10,265	8,475	8,512
9,789	9,788	8,081	8,116
9,305	9,303	7,681	7,714
8,813	8,811	7,275	7,306

P40 40K			
GL3	GL5	GL3LU	GL5LU
10,937	10,935	9,028	9,067
10,457	10,456	8,632	8,669
9,971	9,969	8,231	8,266
9,477	9,475	7,823	7,857
8,976	8,975	7,409	7,442

P40 50K			
GL3	GL5	GL3LU	GL5LU
11,136	11,134	9,192	9,232
10,648	10,646	8,789	8,827
10,152	10,151	8,380	8,417
9,650	9,648	7,965	8,000
9,140	9,138	7,544	7,577

FPDxx Setting	Wattage
Standard	95
FPD95	90
FPD90	85
FPD85	80

P50 27K			
GL3	GL5	GL3LU	GL5LU
11,419	11,417	9,426	9,467
10,940	10,939	9,031	9,070
10,452	10,450	8,628	8,665
9,953	9,951	8,215	8,251

P50 30K			
GL3	GL5	GL3LU	GL5LU
12,961	12,959	10,699	10,746
12,418	12,416	10,251	10,296
11,863	11,861	9,793	9,836
11,297	11,295	9,325	9,366

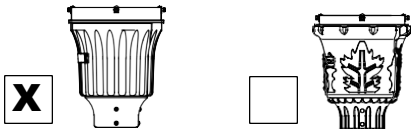
P50 40K			
GL3	GL5	GL3LU	GL5LU
13,202	13,200	10,898	10,945
12,649	12,647	10,441	10,486
12,084	12,082	9,975	10,018
11,507	11,505	9,498	9,539

P50 50K			
GL3	GL5	GL3LU	GL5LU
13,442	13,440	11,096	11,144
12,879	12,877	10,631	10,677
12,303	12,301	10,156	10,200
11,716	11,714	9,671	9,713

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Mark Appropriate Box for Trim Option

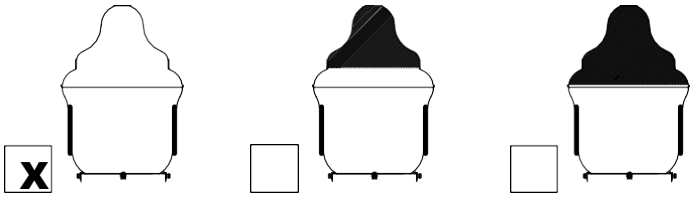
Housing



X Modern (MS)

☐ Leaf (LS)

Cover



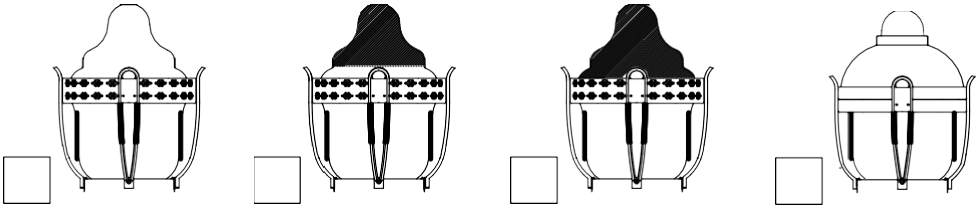
X No Cover

☐ Mayfield Cover (MC)

☐ Full Cover (FC)

Ribs & Bands

Finial

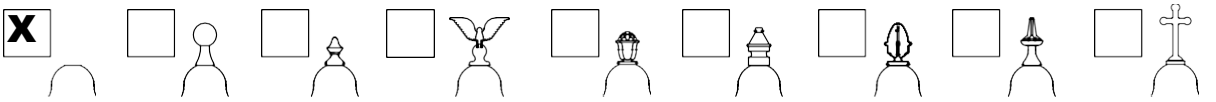


☐ Ribs and Band (RB)

☐ Ribs, Band and Mayfield Cover (RB & MC)

☐ Ribs, Band and Full Cover (RB & FC)

☐ Syracuse Ribs, Band and Cover (MS Housing Only) (SY)



X NONE (Blank)

☐ BALL (BL)

☐ CLEAR (CL)

☐ EAGLE (EG)

☐ FLOWER (FL)

☐ PAWN (PN)

☐ CROSS (CR)

☐ STANDARD (ST)

☐ ROMAN CROSS (RM)

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JOB NAME

Notes

Type IGLED**E04**

IN-GROUND LIGHT

Features & Specifications Recommended

Flagpole Height: 45'
Multiple lights may be needed for your application.

Construction:

Compression molded, fiberglass reinforced polyester composite housing, will not peel or flake.

Mounting:

This well light is an in-ground fixture and should be installed according to Eagle Mountain TDB installation instructions. A ¾" conduit entry is supplied into the anti-siphon chamber. All ballast trays are thermally protected and come pre-wired to specific line voltages via quick connects. Preinstalled 15' cord.

- **Comes standard with composite ring/convex lens.***
- **120V**
- **PAR 38 LED BULB**
- **Narrow spot beam****
- **Fixture can be aimed 15 degrees to either side of vertical.**
- **Lamp hours with photocell: 35,000**
- **ETL LISTED**
- **Three year warranty on the fixture and finish.**
- **90 day warranty on lamp.**

***Also available with rock guard or walk over lens.**
****Variable flood available.**

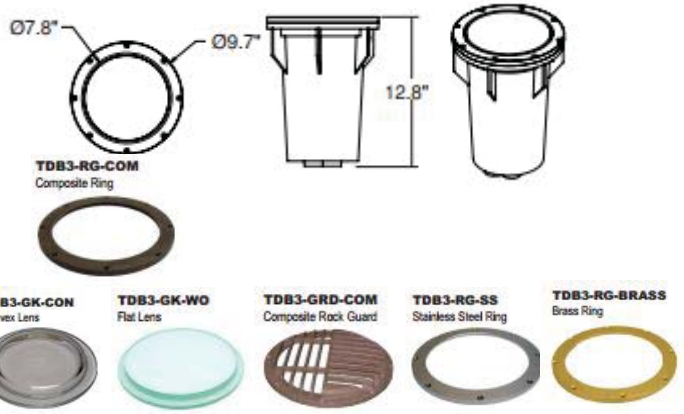
In-Ground Light Series

IGLEDE04

120 Volt



Dimensions



Re-Designed Anti-Siphon Chamber

With the increasing problem of water build-up inside the fixture, we have redesigned all of our in-ground buckets with a new anti-siphon chamber. This chamber keeps all ballast components separated from the wiring conduit. This keeps any water absorbed from the ground confined to a separate section.



Accessories



Concrete Pour Kit



Photo Cell



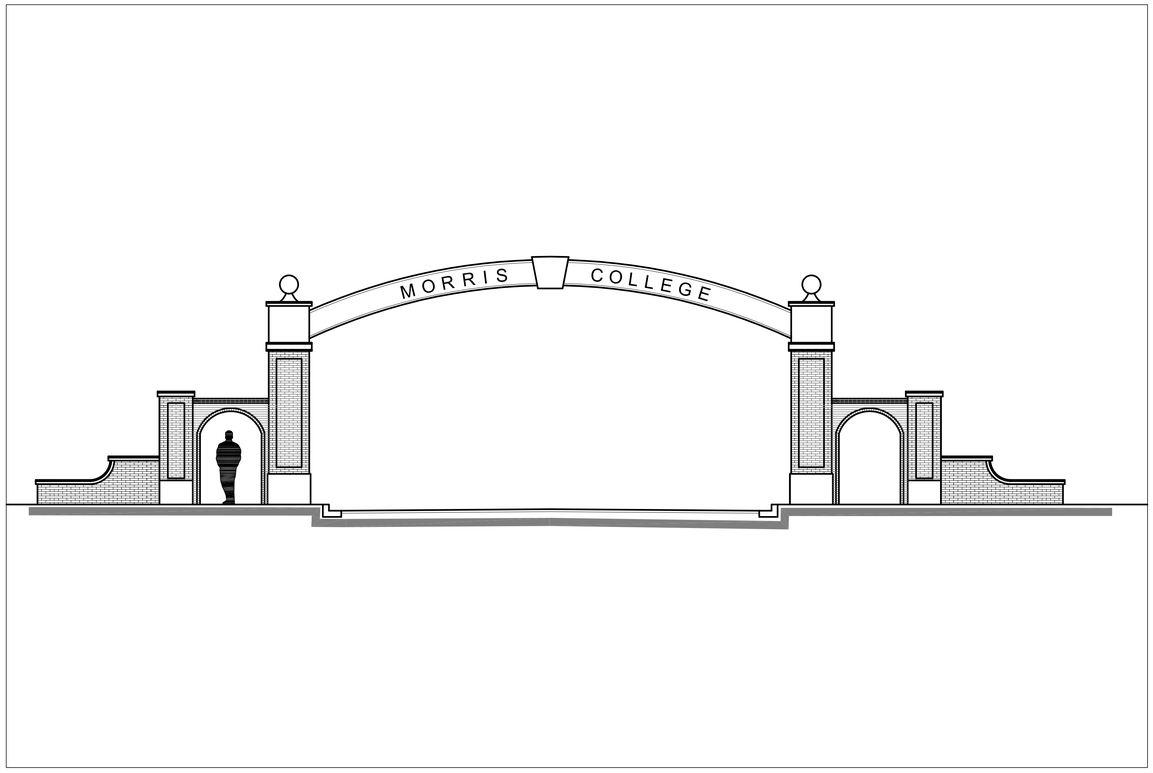


Eagle Mountain Flag and Flagpole
(800) 385-5605 • (512) 847-0010

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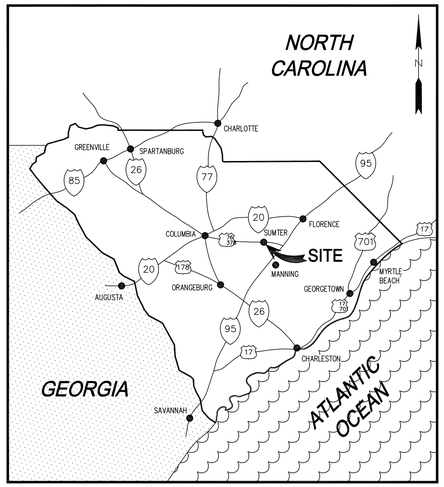
City of Sumter
Sumter County, South Carolina

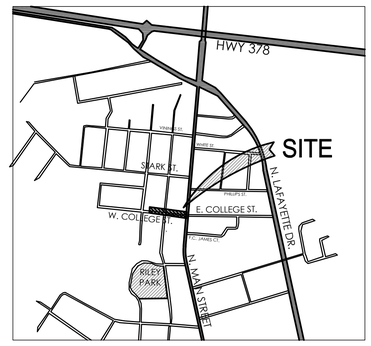


North Main Street Improvement Project Phase II

Issued for Bid June 2025

ITB# 4-25-26





VICINITY MAP NOT TO SCALE

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SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION
THE LANDPLAN GROUP SOUTH INC.
No. 153

NORTH MAIN STREET
IMPROVEMENT PROJECT - PHASE II
SUMTER, SC
COVER

STATE OF SOUTH CAROLINA REGISTERED LANDSCAPE ARCHITECT
No. 1730
W. HOWELL CREECH

REVISION	BY	APPD.	MM.DD.YY
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DWN. | CHKD. | DSGN. | MM.DD.YY

FILE NAME:

JOB #: 0885
SCALE: NO SCALE
SHEET: 1 OF 19

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General Notes:

1. THIS DRAWING IS BASED ON A SURVEY DONE BY: LINDLER SURVEYING, INC. 1990 BOYKIN ROAD, REMBERT SC 29128. LINDLERSURVEYING@AOL.COM 803-238.6850. NOTE, SOME DATA USE ASSUMED ELEVATIONS AND SOME USE STATE PLANE COORDINATES. DATA ALSO TAKEN FROM FUTURE SCDOT PLANS ANDS AERIAL PHOTOGRAPHY. PLEASE REFERENCE BENCH MARKS ON PLANS AND CONTACT SURVEYOR WITH ANY QUESTIONS.
2. THE CONTRACTOR SHALL PROVIDE HIS OWN LINE AND GRADE.
3. THE CONTRACTOR SHALL COORDINATE BI-MONTHLY MEETINGS BETWEEN THE CONTRACTOR AND PARK STAFF. THE CONTRACTOR SHALL BE PREPARED TO DISCUSS PROGRESS AND SCHEDULE AT THESE MEETINGS.
4. THE CONTRACTOR SHALL SCHEDULE THE WORK OF THE PROJECT TO FACILITATE ACTIVITY IN THE PARK AREA. THE PREFERRED SEQUENCE OF WORK IN THIS PROJECT AND CONSTRUCTION PARAMETERS SHALL BE APPROVED BY OWNER.
5. THE CONTRACTOR IS RESPONSIBLE FOR FIELD STAKING ALL CONSTRUCTION ELEMENTS AND REVIEWING THIS LAYOUT WITH THE OWNER PRIOR TO BEGINNING ANY CONSTRUCTION.
6. THE CONTRACTOR IS ADVISED THAT THE LOCATION OF THE WORK SHOWN ON THE DRAWINGS IS SUBJECT TO SLIGHT ADJUSTMENT IN THE FIELD TO AVOID NEW AND EXISTING UTILITIES AND AS FIELD CONDITIONS DICTATE. ALL CHANGES SHALL BE AUTHORIZED BY THE ENGINEER AND OWNER. THERE WILL BE NO ADDITIONAL COMPENSATION FOR MAKING THESE ADJUSTMENTS UNLESS THE ADJUSTMENT CHANGES THE SCOPE OF THE WORK AS STATED IN THE GENERAL CONDITIONS.
7. THE CONTRACTOR SHALL MAINTAIN TRAFFIC IN ALL DIRECTIONS AT ALL TIMES. ANY TRAFFIC REROUTING SHALL BE SUBMITTED TO THE SCDOT AT 803-778-5466 AND THE CITY OF SUMTER AT 803-436-2558 FOR APPROVAL PRIOR TO ANY LANE CLOSURES OR REROUTING OF TRAFFIC. IN ADDITION THE CONTRACTOR SHALL NOTIFY THE OWNER, FIRE DEPARTMENT, POLICE DEPARTMENT, AND ANY OTHER EMERGENCY AGENCIES OF OF ANY CLOSURE AND TRAFFIC ROUTINGS AT LEAST 24 HOURS PRIOR TO ANY CLOSURES.
8. THE CONTRACTOR SHALL PROVIDE SHOP DRAWINGS AND SAMPLES FOR ALL MATERIALS AND EQUIPMENT TO BE INSTALLED PRIOR TO ORDERING.
9. WHERE NEW CONSTRUCTION IS TO TAKE PLACE, THE CONTRACTOR IS RESPONSIBLE FOR RELOCATING ANY MATERIAL, I.E. SIGNAGE, LIGHT POLE, ETC., AT HIS OR HER OWN COST.
10. ALL UNDERGROUND CONSTRUCTION SHALL BE COMPLETED AND ACCEPTED PRIOR TO NEW SURFACE CONSTRUCTION.
11. ALL STRUCTURES ADJACENT TO BRICK AND CONCRETE PAVEMENT SHALL HAVE EXPANSION MATERIAL BETWEEN THE STRUCTURE AND THE NEW OR EXISTING PAVEMENT.
12. FOR IRRIGATION MODIFICATION NOTES, SEE LANDSCAPE DRAWINGS.
13. FOR PLANTING NOTES AND SCHEDULE SEE LANDSCAPE PLAN AND DETAILS.
14. ALL WORK SHALL MEET OR EXCEED SCDOT SPECIFICATIONS.
15. THE CONTRACTOR SHALL BE AWARE THAT THE CITY OF SUMTER PUBLIC WORKS AT 803-436-2558 MAY BE REPLACING WATER AND SEWER SERVICE LINES FROM THE WATER AND SEWER MAINS TO THE BUILDING AS WELL AS THE METER BOXES AND FIRE HYDRANTS. THIS WORK WOULD BE DONE AFTER DEMOLITION
16. BUT BEFORE INSTALLATION OF THE NEW WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WITH THE CITY AND ALLOW UP TO FOUR (4) HOURS FOR EACH SERVICE AND METER BOX ONE (1) DAY FOR EACH FIRE HYDRANT. THIS WORK IF ANY WOULD BE COVERED UNDER MOBILIZATION.
17. ALL SIGNAGE AFFECTED BY PROJECT MUST BE PLACED IN ORIGINAL LOCATION AT END OF PROJECT.

Demolition and Site Preparation

1. CONSTRUCTION LIMITS OF PROJECT ARE PROPERTY LINES AND RIGHT-OF-WAY LINES AND THE EXTENT OF WORK SHOWN ON THE PLANS, WHICHEVER IS LARGEST IN SCOPE. THE CONTRACTOR WILL BE RESPONSIBLE FOR DAMAGE TO EXISTING BUILDINGS AND STRUCTURES CAUSED BY THE DEMOLITION AND/OR CONSTRUCTION PROCESS. THE DEMOLITION LINE AT THE PROJECT LIMITS SHALL BE A CLEAN, SAW CUT LINE WITHOUT IRREGULARITIES. THE CITY AND/OR ENGINEER SHALL APPROVE THIS LINE PRIOR TO COMMENCEMENT OF DEMOLITION.
2. THE LIMIT OF DEMOLITION AND SITE PREPARATION IS AS SHOWN ON THE DRAWINGS AND HAS BEEN LOCATED TO PROVIDE SUFFICIENT AREA FOR INSTALLING THE NEW WORK.ANY DEMOLITION THAT OCCURS OUTSIDE OF THESE LIMITS WILL BE AT THE CONTRACTORS EXPENSE UNLESS APPROVAL HAS BEEN GRANTED BY THE OWNER.
3. CONTRACTOR TO COORDINATE WITH SCDOT AND CITY OF SUMTER FOR DEMOLITION OF EXISTING SIDEWALK AND WATER AND SEWER FACILITIES, THROUGHOUT THE PROJECT.
4. ALL EXISTING ITEMS DESIGNATED TO BE REMOVED AND SALVAGED, SUCH AS SIGNS, DRAINAGE, GRATES, WHEEL STOPS, ETC., SHALL BE DELIVERED TO THE CITY OF SUMTER'S DESIGNATED STORAGE YARD FACILITY, AT NO ADDITIONAL COST TO THE OWNER.
5. THE CONTRACTOR SHALL CONTACT THE UNDERGROUND UTILITIES LOCATING SERVICE AT 1-888-721-7877 AND THE CITY OF SUMTER AT 803-436-2558 BEFORE EXCAVATING AS REQUIRED BY THE SUPPLEMENTAL CONDITIONS AND SOUTH CAROLINA LAW.
6. DISPOSAL OF MATERIALS OFF-SITE AND HAULING OF FILL MATERIAL THAT IS REQUIRED FOR CONSTRUCTION SHALL BE FULL RESPONSIBILITY OF THE CONTRACTOR.
7. ANY AREAS DISTURBED BY CONSTRUCTION NOT COVERED BY NEW WORK SHALL BE PLACED IN PERMANENT GRASS SOD AT NO ADDITIONAL COST TO THE OWNER.
8. CONTRACTOR SHALL COMPLETELY DEMOLISH, REMOVE, AND DISPOSE OF PAVEMENT (MILLINGS SHALL BE DELIVERED TO THE CITY), FOUNDATIONS, CURB AND SIDEWALK (OUTSIDE THE SCDOT DEMOLITION AREA) AS NECESSARY TO INSTALL THE NEW WORK. THIS LIMIT SHALL BE AT THE CONTRACTORS EXPENSE UNLESS SPECIFICALLY APPROVED BY THE OWNER OR ENGINEER. THE LIMIT SHOWN ON THE DEMOLITION INDICATES THE SCOPE TO BE PAID BY UNIT PRICE IN THE CONTRACT. DEMOLITION AND REPLACEMENT BEYOND
9. PAYMENT FOR DEMOLITION IS FOR REMOVAL OF CONCRETE, TREES AND SHRUBS OR OTHER HARD SURFACES. THE CONTRACTOR WILL NOT BE PAID FOR GRASS OR EARTH AREAS TO BE GRADED AND/OR REPLACED.
10. SIDEWALK AND CURB & GUTTER TO BE REMOVED AND REPLACED FROM JOINT TO JOINT.
11. CONTRACTOR TO SAWCUT EXISTING ASPHALT FOR SMOOTH JOINT NOT ALIGNED WITH WHEEL PATH.

Stormwater Sewer Lines, Structures & Electric Utilities

1. EXISTING OVERHEAD & UNDERGROUND UTILITIES ARE SHOWN ON THE DRAWINGS BASED ON THE BEST AVAILABLE INFORMATION PROVIDED BY THE SURVEYOR. IT IS THE CONTRACTORS RESPONSIBILITY TO COORDINATE WITH THE UTILITY COMPANIES PRIOR TO ANY EXCAVATION TO VERIFY ACTUAL FIELD LOCATION, PROTECTION AND/OR RELOCATION OF EXISTING UTILITY LINES IN CONFLICT OR ADJACENT TO THE PROPOSED WORK.

Layout Notes

1. ALL DIMENSIONS ARE TAKEN FROM FACE OF CURB OR WALL UNLESS OTHERWISE NOTED.
2. LAYOUT PLANS AND THE DETAILS SHEETS SHOW THE LAYOUT FOR THE WORK TO BE DONE. IF IT IS DISCOVERED THAT THERE IS A DIFFERENCE BETWEEN SCALED DIMENSIONS AND LAYOUT, THE CONTRACTOR SHALL NOTIFY THE ENGINEER FOR CLARIFICATION.
3. THE CONTRACTOR SHALL LAYOUT ENTIRE JOB TO BE REVIEWED BY THE OWNER OR OWNER'S REPRESENTATIVE PRIOR TO BEGINNING ANY CONSTRUCTION.

Sidewalk, Paving and Grading

1. THE NEW SIDEWALKS, ROADS, LANDSCAPED ISLANDS AND CROSSWALKS SHALL BE GRADED IN ACCORDANCE WITH THE PROPOSED ELEVATIONS SHOWN IN THE GRADING AND DRAINAGE PLANS. IN CASES WHERE THE GRADES ARE NOT SHOWN, THE PROPOSED GRADE WILL BE INTERPOLATED BETWEEN SPOT ELEVATIONS. GENERALLY, THE FINISHED SURFACES ARE GRADED FOR PROPER CONVEYANCE OF STORMWATER RUNOFF TO NEW AND EXISTING DRAINAGE INLETS. NO SIDEWALK WITHIN THE SCDOT RIGHT OF WAY WILL HAVE A CROSS SLOPE GREATER THAN 2%.
2. THE CONTRACTOR SHALL ADJUST, AS NECESSARY, THE EXISTING MANHOLE COVERS, DRAINAGE GRATES, VENT GRATES, VALVE COVERS, ETC. TO MATCH GRADE OF NEW ASPHALT PAVEMENT OR CONCRETE SIDEWALK SURFACES AT NO ADDITIONAL COST TO THE OWNER. ALL WATER METER ADJUSTMENTS (IF APPLICABLE) SHALL BE PERFORMED BY THE CITY OF SUMTER AND COORDINATED WITH THE CONTRACTOR. METER BOXES TO BE TRAFFIC RATED.
3. SIDEWALK SHALL HAVE A MINIMUM ONE-PERCENT (1%) CROSS SLOPE TO ASSURE POSITIVE DRAINAGE TOWARDS THE ROAD. IF POSITIVE DRAINAGE IS NOT ACHIEVED BASED ON ELEVATIONS SHOWN, INFORM THE ENGINEER IMMEDIATELY. MAXIMUM CROSS SLOPE SHALL BE TWO PERCENT (2%) UNLESS WHERE SPECIFICALLY SHOWN.
4. THE CONTRACTOR SHALL CONSTRUCT A SAMPLE PANEL OF THE CONCRETE COURT SURFACING AND CONCRETE SIDEWALK. THESE PANELS SHALL BE APPROVED BEFORE ANY SIDEWALK OR BRICK WORK IS PERFORMED AND WILL BE USED AS A BASIS FOR THE QUALITY WORKMANSHIP OF CONCRETE FINISH AND WORK FOR THE REMAINDER OF THE PROJECT.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COMPACTION IN ACCORDANCE WITH THE SPECIFICATIONS. THERE IS NO SEPARATE PAY ITEM FOR THIS WORK.
6. THE CONTRACTOR SHALL VERIFY POSITIVE DRAINAGE IS ACHIEVED FROM ALL AREAS TO NEW AND/OR EXISTING STORM DRAIN INLETS.
7. ANY DRAINAGE STRUCTURES WITHIN SCDOT RIGHT OF WAYS SHALL BE SCDOT STANDARD.
8. ALL MARKINGS WITH THE SCDOT RIGHT OF WAY SHALL BE APPROVED PERMANENT PAVEMENT MARKINGS PER SECTIONS 625, 626, OR 627 WITHIN THE SCDOT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.
9. ANY PROPOSED SIDEWALK WITHIN THE R.O.W. (OF PROJECT BOUNDARY) SHALL NOT EXCEED 2% CROSS SLOPE PER ADA GUIDELINES. ALL RAMPS SHALL NOT EXCEED 8.33% FOR EVERY SCENARIO. IN PRESENCE OF SIDEWALK OR OTHER ADA PATHWAY, ACCESS(ES) TO PROVIDE A MINIMUM OF 3' PEDESTRIAN PATH NO GREATER CROSS SLOPE THAN 2% ACROSS THROAT OF DRIVEWAY.

Landscaping Notes

1. ALL NEW TREES IN THE PROXIMITY OF INTERSECTIONS AND DRIVEWAYS SHALL BE DE-LIMBED TO SEVEN (7) FEET TO ENSURE APPROPRIATE SITE DISTANCE. ALL SHRUBS SHALL NOT EXCEED 30" IN HEIGHT.
2. ALL NEW PLANTINGS SHALL MEET THE CITY OF SUMTER LANDSCAPE AND NURSERY CARE SHEETS INCLUDED IN THIS DRAWING SET.

Lighting Notes

1. CONTRACTOR SHALL COORDINATE WITH DUKE ENERGY FOR PLACEMENT OF PROPOSED LIGHT POLES AND FIXTURES. CONTRACTOR SHALL INSTALL DUKE ENERGY SUPPLIED CONDUIT AS SHOWN ON DUKE PLANS.

Erosion Control Notes

1. IF NECESSARY, SLOPES WHICH EXCEED EIGHT (8) VERTICAL FEET SHOULD BE STABILIZED WITH SYNTHETIC OR VEGETATIVE MATS, IN ADDITION TO GRASSING/HYDROSEEDING. IT MAY BE NECESSARY TO INSTALL TEMPORARY SLOPE DRAINS DURING CONSTRUCTION. TEMPORARY BERMS MAY BE NEEDED 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 FOURTEEN (14) DAYS AFTER WORK HAS CEASED , EXCEPT AS STATED BELOW.
   »WHERE STABILIZATION BY THE 14TH 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.
3. ALL SEDIMENT AND EROSION CONTROL DEVICES SHALL BE INSPECTED ONCE EVERY CALENDAR WEEK. IF PERIODIC INSPECTION OR OTHER INFORMATION INDICATES THAT A BMP HAS BEEN INAPPROPRIATELY INSTALLED, THE PERMITTEE MUST ADDRESS THE NECESSARY REPLACEMENT OR MODIFICATION REQUIRED TO CORRECT THE BMP WITHIN 48 HOURS OF IDENTIFICATION.
4. 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 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 COMPLETED AND THE SITE IS STABILIZED.
6. THE CONTRACTOR MUST TAKE NECESSARY ACTION TO MINIMIZE 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.
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 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-FT BUFFER CAN'T BE MAINTAINED BETWEEN THE DISTURBED AREA AND ALL WoS. A 10-FT 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 STORM WATER 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 THE FINAL STABILIZATION IS REACHED.
12. INITIATE STABILIZATION MEASURES ON ANY EXPOSED SLOPE (3H:1V OR GREATER) WHERE LAND-DISTURBING ACTIVITIES HAVE PERMANENTLY OR TEMPORARILY CEASED, AND WILL NOT RESUME FOR A PERIOD OF SEVEN (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 BMPs (SEDIMENT BASIN, 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, FROM CONSTRUCTION MATERIALS RELEASE OILS, CURING COMPOUNDS AND OTHER
    »FUELS, OILS, OR OTHER POLLUTANTS USED IN VEHICLE AND EQUIPMENT OPERATION AND MAINTENANCE
    »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. INSPECTIONS TO BE PERFORMED BY A SCDES CEPSCI CERTIFIED INSPECTOR.
18. 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 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 MORE THAN 10 ACRES OR MORE THIS CONFERENCE MUST BE HELD ON-SITE UNLESS THE DEPARTMENT HAS APPROVED OTHERWISE.
20. SILT FENCING LINE ON EROSION CONTROL PLAN SHEETS ARE SHOWN FOR GRAPHICAL PURPOSES. SILT FENCING SHALL BE PLACED AT THE LIMITS OF DISTURBANCE

Sequence of Construction

ITEMS MUST OCCUR IN THE ORDER LISTED; ITEMS CANNOT OCCUR CONCURRENTLY UNTIL SPECIFICALLY NOTED. IF ITEMS DESCRIBED BELOW ARE NOT A PART OF THE SWPPP CONTRACTOR TO ADDRESS NEXT ITEM ON THIS LIST.

1. RECEIVE NPDES COVERAGE FROM DES.
2. NOTIFY CITY OF SUMTER'S STORMWATER MANAGEMENT OFFICE 48 HOURS PRIOR TO BEGINNING LAND-DISTURBING ACTIVITIES.
3. PRE-CONSTRUCTION MEETING (ON-SITE). A REPRESENTATIVE FROM THE CITY OF SUMTER'S STORMWATER MANAGEMENT OFFICE MUST BE PRESENT AT THE ON-SITE PRE-CONSTRUCTION MEETING.
4. INSTALLATION OF CONSTRUCTION ENTRANCES.
5. CLEARING AND GRUBBING ONLY AS NECESSARY FOR INSTALLATION OF PERIMETER CONTROLS.
6. INSTALLATION OF PERIMETER CONTROLS SUCH AS SILT FENCING.
7. CLEARING AND GRUBBING ONLY IN AREAS OF BASINS/TRAPS/PONDS.
8. INSTALLATION OF BASINS/TRAPS/PONDS AND INSTALLATION OF DIVERSIONS TO THOSE STRUCTURES. OUTLET STRUCTURES MUST BE COMPLETELY INSTALLED AS SHOWN ON THE DETAILS BEFORE PROCEEDING TO NEXT STEP; AREAS DRAINING TO THESE STRUCTURES CANNOT BE DISTURBED UNTIL THE STRUCTURES AND DIVERSIONS TO THE STRUCTURE ARE COMPLETELY INSTALLED.
9. CLEARING AND GRUBBING OF SITE OR DEMOLITION.
10. ROUGH GRADING.
11. INSTALLATION OF STORM DRAIN SYSTEM AND PLACEMENT OF INLET PROTECTION AS EACH INLET IS INSTALLED.
12. FINE GRADING, PAVING, ETC.
13. PERMANENT/FINAL STABILIZATION.
14. INSTALLATION OF POST PAVING INLET PROTECTION.
15. CLEAN-OUT OF DETENTION BASINS THAT WERE USED AS SEDIMENT CONTROL STRUCTURES AND RE-GRADING OF DETENTION POND BOTTOMS; IF NECESSARY. MODIFICATION OF SEDIMENT BASIN RISER TO CONVERT TO DETENTION BASIN OUTLET STRUCTURE.
16. REMOVAL OF TEMPORARY SEDIMENT AND EROSION CONTROL MEASURES AFTER ENTIRE AREA DRAINING TO THE STRUCTURE IS FINALLY STABILIZED (THE DEPARTMENT RECOMMENDS THAT THE PROJECT OWNER/OPERATOR HAVE THE SWPPP PREPARE OR REGISTRATION EQUIVALENT APPROVE THE REMOVAL OF TEMPORARY STRUCTURES.)
17. PERFORM AS-BUILT SURVEYS OF ALL DETENTION STRUCTURES AND SUBMIT TO SCDES OR MS4 FOR ACCEPTANCE.
18. SUBMIT NOTICE OF TERMINATION (NOT) TO DES AS APPROPRIATE.

- NOTE: IF NPDES COVERAGE IS BEING ISSUED AFTER LAND-DISTURBING ACTIVITIES HAVE ALREADY STARTED (E.G., IN RESPONSE TO A NOTICE TO COMPLY, NOTICE OF VIOLATION, OR ENFORCEMENT ACTION), THEN THE CONSTRUCTION SEQUENCE MUST SPECIFICALLY INDICATE THE ITEMS THAT HAVE ALREADY OCCURRED AND THE ITEMS THAT WILL BE OCCURRING AFTER NPDES COVERAGE IS ISSUED.
- NOTE: IF FLOWS FROM OFFSITE AREAS WILL BE DIVERTED AROUND THE SITE AND THE ON-SITE STRUCTURES ARE NOT DESIGNED TO HANDLE FLOWS FROM THE OFFSITE AREAS, THEN THE DIVERSION/PIPING FOR THE OFFSITE FLOWS MUST BE INSTALLED BEFORE LAND-DISTURBING ACTIVITIES BEGIN ON THE SITE; INCLUDE THIS IN THE SEQUENCE. SEDIMENT AND EROSION CONTROL MEASURES FOR THE DISTURBED AREAS FOR THE DIVERSION/PIPING MUST BE INSTALLED BEFORE THOSE AREAS ARE DISTURBED AND SHOULD BE SHOWN ON THE PLANS.
- NOTE: IF AN EXISTING DETENTION/SEDIMENT BASIN IS BEING MODIFIED TO HANDLE THE FLOWS FROM THE PROPOSED DEVELOPMENT, THEN IT MUST BE MODIFIED BEFORE LAND-DISTURBING ACTIVITIES BEGIN ON THE SITE. THIS SHOULD BE INCLUDED IN THE SEQUENCE.
- NOTE: INCLUDE INDIVIDUAL LOT DEVELOPMENT/CONSTRUCTION IN THE SEQUENCE IF THE SITE WILL NOT BE MASS-GRADED.
- NOTE: INSTALLATION OF SOME PERMANENT WATER QUALITY DEVICES SHOULD OCCUR AFTER THE SITE IS STABILIZE; INCLUDE THIS IN THE SEQUENCE. CLEAN OUT OF OTHER WATER QUALITY DEVICES THAT WERE USED.
- NOTE: MAINTENANCE OF SEDIMENT AND EROSION CONTROL MEASURES MUST CONTINUE UNTIL THE SITE IS PERMANENTLY STABILIZED AND THE CONTROLS ARE REMOVED.

Sumter County Notes

1. SOIL SHOULD BE TESTED TO DETERMINE THE PROPER APPLICATION OF NUTRIENTS/PH AMENDMENTS REQUIRED FOR ESTABLISHMENT OF VEGETATIVE COVER. SOIL SAMPLES CAN BE PROVIDED TO THE LOCAL CLEMSON EXTENSION AGENT FOR THEIR EVALUATION OF SITE NEEDS. THIS IS CRITICAL FOR POND AREAS AND FILL SLOPES. THE RESPONSIBLE STORMWATER INSPECTOR SHALL MAKE COMMENTS RELATIVE TO SOIL PREPARATION, PROPER SEED MIX, AND THE CORRECT MATTING/MULCH APPLICATION IN WEEKLY INSPECTION REPORTS WHEN PLANTING IS IN PROGRESS.
2. IF DUE TO INLET CONTROLS, STORMWATER BY-PASSES DROP INLETS AND EXITS SITE UNFILTERED, ADDITIONAL CONTROLS SHALL BE INSTALLED AS REQUIRED.
3. CONDUCT A PRE-JOB MEETING WITH THE OWNER, RESPONSIBLE CONTRACTOR, RESPONSIBLE ENGINEER, SITE STORMWATER INSPECTOR, AND THE STORMWATER MANAGER PRIOR TO THE START OF ANY LAND DISTURBING AND/OR DEMOLITION ACTIVITIES ASSOCIATED WITH THE PROJECT SHALL BE CONDUCTED. THE STORMWATER MANAGER MAY ELECT TO REQUIRE ADDITIONAL SITE MEETINGS FOR COMPLEX OR MULTI-PHASED PROJECTS
4. WEEKLY REPORT MUST BE KEPT ON SITE. REPORTS TO BE PERFORMED BY A SCDHEC CEPSCI CERTIFIED INSPECTOR. THE REPORT MUST INCLUDE AT A MINIMUM:
   A. A SUMMARY OF THE INSPECTIONS CONDUCTED DURING THE MONTH,
   B. A LISTING OF DEFICIENCIES AND THE DATE NOTED,
   C. CONCERNING DEFICIENCIES, LIST THE NAME, ADDRESS, AND TELEPHONE NUMBER OF THE PARTY(S) RESPONSIBLE FOR ADDRESSING THE DEFICIENCIES,
   D. WHETHER THE DEFICIENCY WAS LISTED IN A PREVIOUS REPORT,
   E. CORRECTIVE ACTIONS TAKEN AND THE DATE THE ACTIONS WERE COMPLETED,
   F. WHETHER THE SWPPP WAS UPDATED TO DEAL WITH THE NOTED DEFICIENCIES
   G. A COPY OF EACH INSPECTION CONDUCTED. IN ADDITION, THE REPORT MUST INCLUDE ALL CO-PERMITTEE AGREEMENTS AND CONTRACTOR CERTIFICATIONS STATEMENTS.

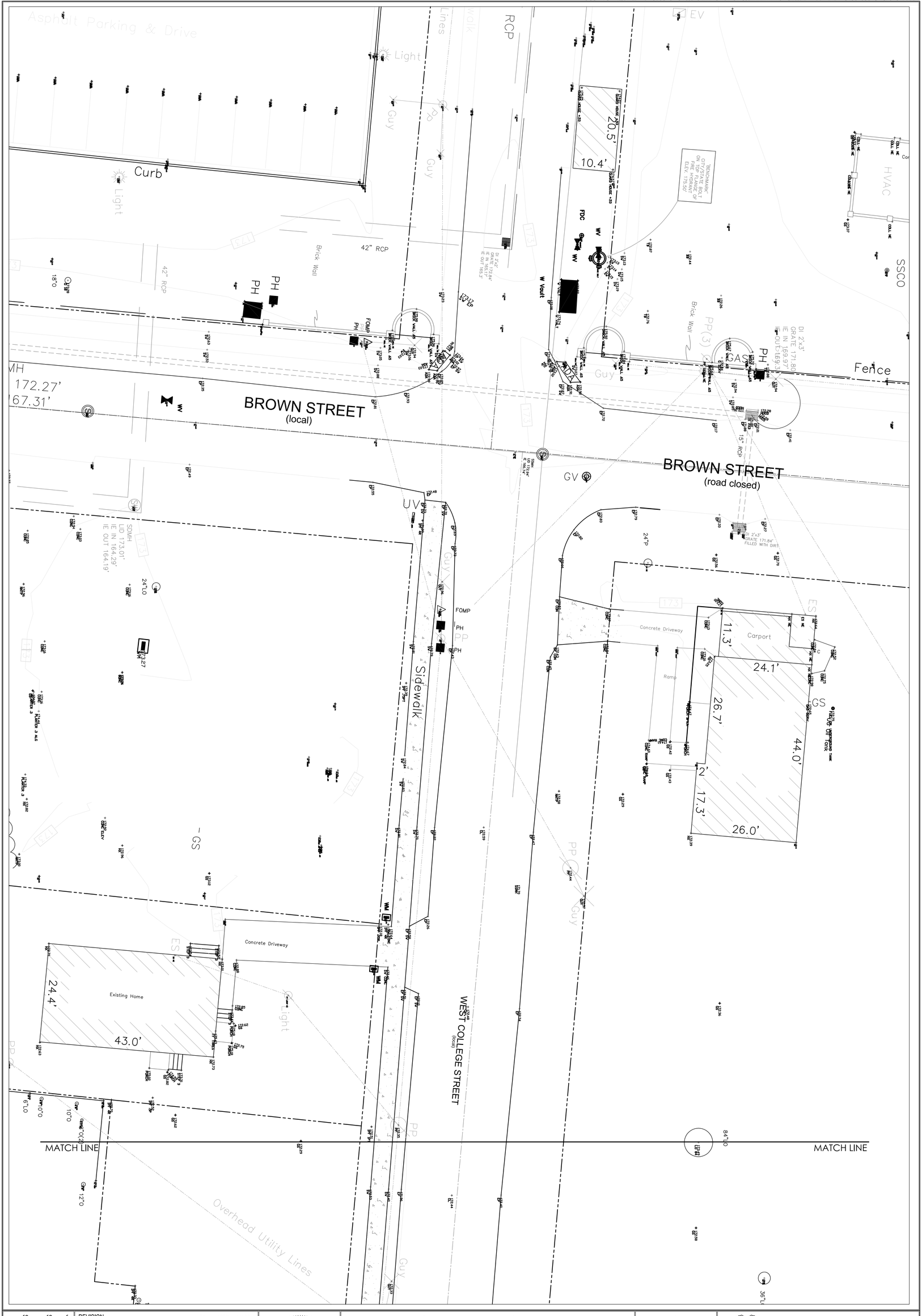
Pollution Prevention + Best Management Practices

1. WASTE DISPOSAL. NO SOLID MATERIALS, INCLUDING BUILDING MATERIALS, SHALL BE DISCHARGED TO WATERS OF SOUTH CAROLINA, EXCEPT AS AUTHORIZED BY A SECTION 404 PERMIT.
2. OFFSITE VEHICLE TRACKING OF SEDIMENTS AND THE GENERATION OF DUST SHALL BE MINIMIZED.
3. STATE AND/OR LOCAL WASTE DISPOSAL AND SANITARY SEWER REGULATIONS SHALL BE FOLLOWED.
4. PROPER APPLICATION RATES AND METHODS FOR FERTILIZERS ARE TO BE USED AT THE CONSTRUCTION SITE TO INSURE PROPER NUTRIENT MANAGEMENT CONTROL.
5. USE OF PESTICIDES SHALL BE IN ACCORDANCE WITH STATE/FEDERAL/LOCAL REGULATIONS.
6. REQUIREMENTS FOR CONTROLLING AND DISPOSAL OF CHEMICALS, HAZARDOUS SUBSTANCES AND OIL SHALL MEET LOCAL/STATE/FEDERAL REQUIREMENTS.
7. CONTRACTOR TO USE PROPER TECHNIQUES FOR DEWATERING AND FLUSHING OF LINES WITH CONTROLS TO ASSURE THAT WATER QUALITY IS NOT IMPACTED.
8. THE CONSTRUCTION SITE WITH ASSOCIATED LAYDOWN AND FABRICATION AREAS SHOULD BE CONSIDERED UNDER THE SCOPE OF THE STORMWATER MANAGEMENT PLAN. THE LOCATION OF DROP INLETS, CONCENTRATED FLOW AREAS, AND WETLANDS/WATERS OF THE STATE DOWNSTREAM OF THESE AREAS SHALL BE IDENTIFIED PRIOR TO WORK.
9. CONCRETE TRUCK WASH OUT AREAS ARE TO BE DESIGNATED AND PROVISIONS TAKEN TO PREVENT IMPACT TO WATERS OF THE STATE. WASTE SHALL BE DISPOSED OF PER STATE/FEDERAL/LOCAL REGULATIONS.
10. POLLUTANTS WITH POTENTIAL TO BE EXPOSED TO STORMWATER IN THE WORK AREA, LAYDOWN AREAS OR FABRICATION AREA ARE REQUIRED TO BE PROTECTED USING BEST MANAGEMENT PRACTICES. THIS WOULD INCLUDE APPROPRIATE CONTAINMENT DIKES, USE OF CLAMSHELL TYPE CONTAINERS, STORAGE OF MATERIALS IN SHEDS, MINIMIZING POLLUTANTS ON SITE, ETC. PROPER SPILL CONTAINMENT AND CLEANUP SHALL BE ADDRESSED PRIOR TO WORK AND TRAINING SHALL BE DOCUMENTED. THE RESPONSIBILITIES FOR SPILL CLEANUP AND REPORTING SHALL BE DEFINED. CONTINGENCY PLANS AS APPLICABLE SHALL BE IMPLEMENTED AND BE POSTED APPROPRIATELY. SPILL KITS RELATIVE TO POLLUTANTS EXPECTED ON SITE SHALL BE AVAILABLE. SPILL CONTACTS (AGENCY NAME/PHONE NUMBER) RELATIVE TO THE POTENTIAL POLLUTANT USED ON SITE SHALL BE LISTED IN THE PLAN.
11. WHERE POSSIBLE, LAYOUT OF SITE SHALL UTILIZE BEST MANAGEMENT PRACTICES TO LOCATE ACTIVITIES WITH SIGNIFICANT POTENTIAL IN PLACES LESS PRONE TO IMPACT TO SENSITIVE AREAS DOWNSTREAM OF THE CONSTRUCTION SITE. THIS WOULD INCLUDE AVOIDING STORING POTENTIAL POLLUTANTS NEAR DROP INLETS, OUTFALLS, OR AREAS PRONE TO CONCENTRATED FLOW. ACTIVITIES HAVING A HIGH POTENTIAL OF POLLUTANT EXPOSURE SHOULD BE PERFORMED USING BEST MANAGEMENT PRACTICES (BMP) SUCH AS USING TEMPORARY SHEDS OR COVERINGS, LOCATING WORK SUCH THAT AREA DOWNSTREAM OF ACTIVITY IS WELL VEGETATED TO ALLOW FOR VEGETATIVE FILTERING OR OTHER REASONABLE MEASURES BMPS. WHERE FEASIBLE CONSIDER PERFORMING THESE OPERATIONS AT OFFSITE ESTABLISHED FABRICATION AREAS.

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803.256.0562
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FILE NAME:	DWN.	CHKD.	DSGN. MM.DD.YY

SHEET: 3 OF 19
SCALE: 1" = 10'
JOB #: 0885

NORTH MAIN STREET IMPROVEMENT PROJECT - PHASE II

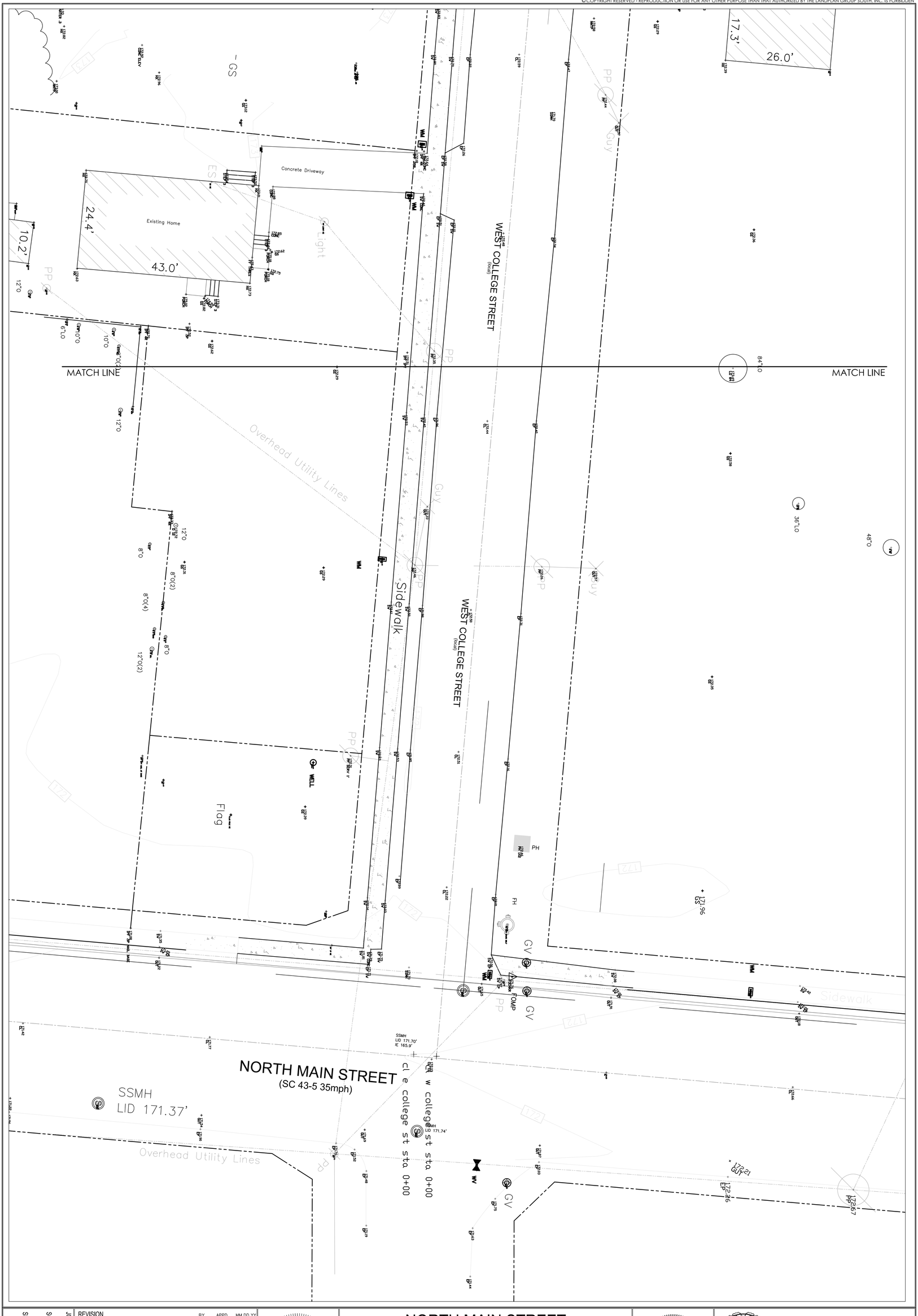
SUMTER, SC

EXISTING CONDITIONS

THE LANDPLAN GROUP SOUTH, INC. No. 153 CERTIFICATE OF AUTHORIZATION

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FILE NAME:

DWN. CHKD. DSGN. MM.DD.YY

JOB #: 0885A

SCALE: 1" = 10'

SHEET: 4 OF 19

REGISTERED LANDSCAPE ARCHITECT — STATE OF SOUTH CAROLINA — STEPHEN M. POWELL, JR.

NORTH MAIN STREET IMPROVEMENT PROJECT - PHASE II

SUMTER, SC

EXISTING CONDITIONS

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SSCO
HVAC
Fence
DI 2'x3'
GRATE 171.80'
IE IN 169.97'
IE OUT 169.3'
PH
GAS
PP(3)
Brick Wall
"BENCHMARK"
CITY/STATE BOLT
ON TOP FLANGE OF
FIRE HYDRANT
ELEV. 175.50'
EV
20.5'
10.4'
WV
FDC
ADA
Guy
BROWN STREET
(road closed)
15" RCP
INLET PROTECTION TYP.
SEE DETAILS
MILL AND OVERLAY SHALL MEET
ROADWAY WITH A SMOOTH
TRANSITION AND MATCHING
CROWN OR SLOPE
24"P
ADJUST MANHOLE TO
NEW ASPHALT PAVING
W Vault
MILL AND OVERLAY SHALL MEET
ROADWAY WITH A SMOOTH
TRANSITION AND MATCHING
CROWN OR SLOPE
RCP
DI 2'x2'
GRATE 172.84'
IE IN 165.17'
IE OUT 165.3'
walk
Lines
PP
Guy
Light
42" RCP
FOMP
PH
Brick Wall
PH
PH
Curb
Asphalt Parking & Drive
Light
18"O
42" RCP
SDMH
LID 173.01'
IE IN 164.29'
IE OUT 164.19'
24"LO
SW
S
MH
172.27'
167.31'
UG Oil Tank
ES
GS
44.0'
24.1'
Carport
11.3'
26.7'
26.0'
17.3'
Concrete Driveway
Ramp
SAWCUT AND REMOVE
EXISTING DRIVEWAY
AREAS OF MINOR
DEMOLITION
ADD TREE PROTECTION
FENCING, AROUND LARGE
OAK TREE, SEE DETAIL
COORDINATE WITH DUKE
FOR POWER LINE UNDER
GROUNDING
AREA OF ASPHALT
PATCH TYPICAL
AREA OF MINOR
DEMOLITION
MATCH LINE
84"LO
36"LO
WEST COLLEGE STREET
Sidewalk
FOMP
PH
UV
WM
COORDINATE WITH DUKE ENERGY AND
COMMUNICATION UTILITIES FOR
RELOCATION, BEHIND NEW SIDEWALK,
AND BURIAL
REMOVE EXISTING
SIDEWALK
AREA OF ASPHALT
PATCH TYPICAL
AREAS OF MINOR
DEMOLITION
MILL AND OVERLAY SHALL MEET
ROADWAY WITH A SMOOTH
TRANSITION AND MATCHING
CROWN OR SLOPE
COORDINATE WITH DUKE ENERGY AND
COMMUNICATION UTILITIES FOR
RELOCATION, BEHIND NEW SIDEWALK,
AND BURIAL
REMOVE EXISTING
SIDEWALK, TYP.
MAINTAIN ACCESS FOR
HOMEOWNER, DURING
CONSTRUCTION
COORDINATE WITH DUKE
FOR POWER LINE UNDER
GROUNDING AND
RE-FEED TO EXISTING
HOUSE
COORDINATE WITH DUKE
FOR POWER LINE UNDER
GROUNDING
AREA OF ASPH
PATCH TYPI
Concrete Driveway
Light
COORDINATE WITH DUKE
FOR POWER LINE UNDER
GROUNDING AND
RE-FEED TO EXISTING
HOUSE
Overhead Utility Lines
DEMOLITION KEY
AREAS OF MINOR
DEMOLITION
AREAS OF MAJOR
DEMOLITION
MILLING AND
OVERLAY
GS
ES
Existing Home
43.0'
24.4'
8"O(2
10"O
10"O
6"LO
12"O
MATCH LINE
PP
Guy

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NOTICE OF CONSTRUCTION
SOUTH CAROLINA
THE LANDPLAN GROUP SOUTH, INC.
No. 153
CERTIFICATE OF AUTHORIZATION

NORTH MAIN STREET IMPROVEMENT PROJECT - PHASE II
SUMTER, SC

DEMOLITION PLAN

REGISTERED LANDSCAPE ARCHITECT
State of South Carolina
No. 1744
JAMES W. HOWELL, JR.

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FILE NAME:	DWN.	CHKD.	DSGN.

JOB #: 885A
SCALE: 1" = 10'-0"
SHEET: 5 OF 19

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MATCH LINE

48"O

36"LO

84"LO

ADD TREE PROTECTION FENCING, AROUND LARGE OAK TREE, SEE DETAIL

ADD TREE PROTECTION FENCING, AROUND LARGE OAK TREE, SEE DETAIL

SAWCUT EXISTING SIDEWALK

MINOR LITION

COORDINATE WITH DUKE FOR POWER LINE UNDER GROUNDING

AREA OF ASPHALT PATCH TYPICAL

AREA OF MINOR DEMOLITION

AREA OF ASPHALT PATCH TYPICAL

COORDINATE WITH DUKE FOR POWER LINE UNDER GROUNDING

COORDINATE WITH COMMUNICATION UTILITIES FOR RELOCATION, BEHIND NEW SIDEWALK, AND BURIAL

PH

FH

WEST COLLEGE STREET
NCSR

WEST COLLEGE STREET
NCSR

WM

WV

FOMP

COORDINATE WITH CITY OF SUMTER FOR HYDRANT RELOCATION

ALL ANCILLARY SIGNAGE WILL BE REMOVED AND REINSTALL PER REVIEW W/ OWNER

COORDINATE WITH DUKE FOR POWER LINE UNDER GROUNDING

MILL AND OVERLAY SHALL MEET SCDOT ROADWAY WITH A SMOOTH TRANSITION AND MATCHING CROWN OR SLOPE

ALL ANCILLARY SIGNAGE WILL BE REMOVED AND REINSTALL PER REVIEW W/ OWNER

ASPHALT TYPICAL

AREAS OF MINOR DEMOLITION

REMOVE EXISTING SIDEWALK, TYP.

MAINTAIN ACCESS FOR HOMEOWNER, DURING CONSTRUCTION

COORDINATE WITH DUKE FOR POWER LINE UNDER GROUNDING AND RE-FEED TO EXISTING HOUSE

COORDINATE WITH DUKE FOR POWER LINE UNDER GROUNDING

AREA OF ASPHALT PATCH TYPICAL

COORDINATE WITH DUKE FOR POWER LINE UNDER GROUNDING OF WELL METER SERVICE

EX. WELL TO REMAIN

WELL

Concrete Driveway

COORDINATE WITH DUKE FOR POWER LINE UNDER GROUNDING AND RE-FEED TO EXISTING HOUSE

Existing Home

DEMOLITION KEY

AREAS OF MINOR DEMOLITION

AREAS OF MAJOR DEMOLITION

MILLING AND OVERLAY

REMOVE EXISTING FLAG POLE FOR RELOCATION SEE LAYOUT PLAN

Flag

AREAS OF MINOR DEMOLITION

SAWCUT EXISTING SIDEWALK

NORTH MAIN STREET
(SC 43-5 35mph)

Sidewalk

12"O

8"O(2)

8"O

8"O

8"O(4)

12"O(2)

8"O(2)

10"O

12"O

10"O

6"LO

MATCH LINE

12"O

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THE LANDPLAN GROUP SOUTH, INC.
No. 153

NORTH MAIN STREET IMPROVEMENT PROJECT - PHASE II
SUMTER, SC

DEMOLITION PLAN

State of South Carolina
REGISTERED LANDSCAPE ARCHITECT
No. 1750
JAMES W. HOWELL, JR.

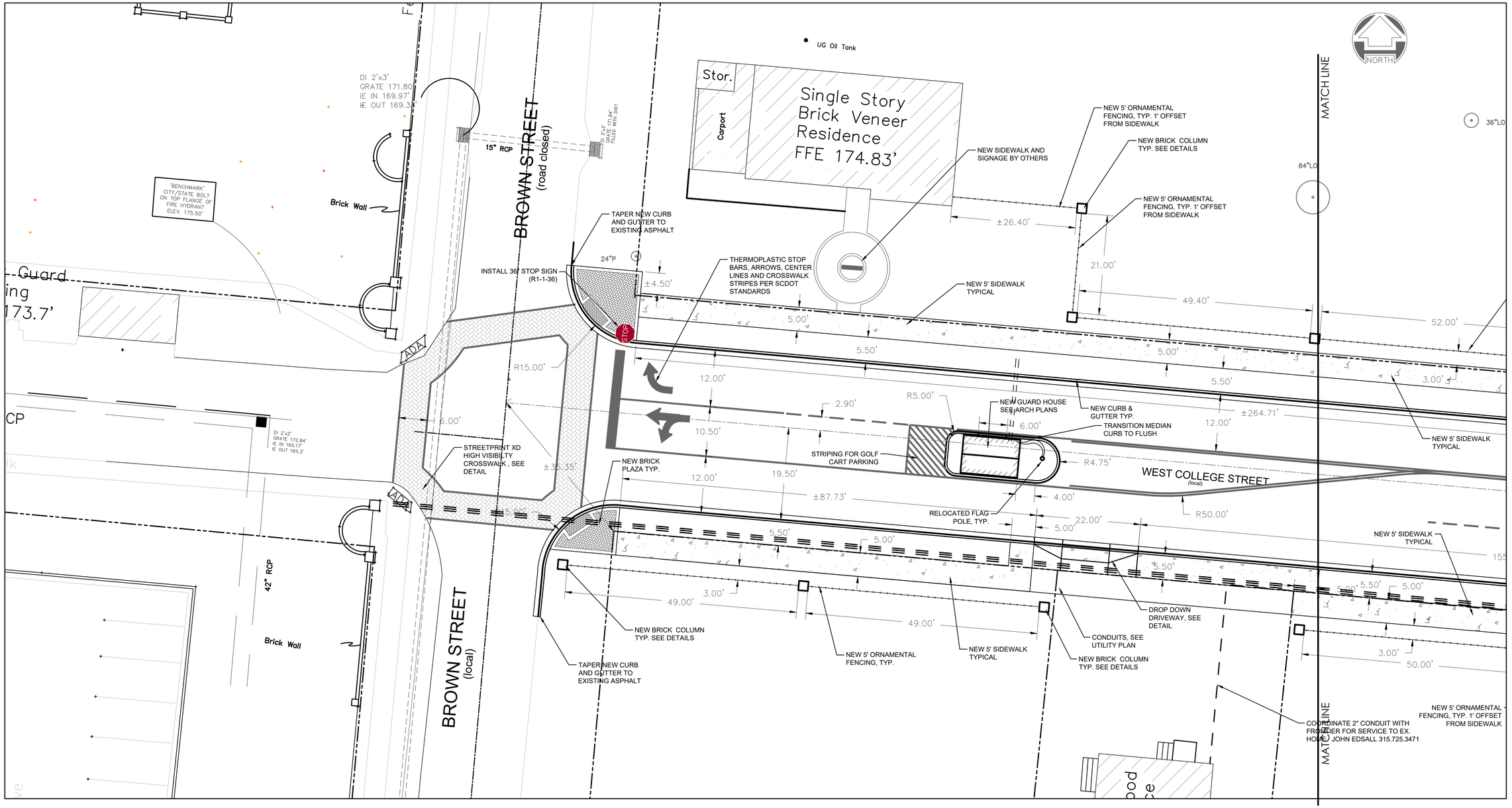
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JOB #: 0885A

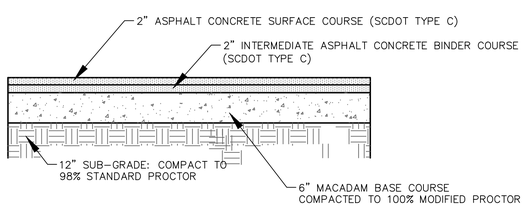
SCALE: 1" = 10'

SHEET: 6 OF 19

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NOTES:
1. ALL MARKINGS WITHIN SCDOT RIGHT OF WAY SHALL BE APPROVED PERMANENT PAVEMENT MARKINGS PER SECTIONS 625, 626, OR 627 WITHIN "SCDOT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION."
2. REPLACE OR RELOCATE EXISTING SIGNAGE AS NECESSARY ALONG BROAD STREET (TYP.)
3. REFER TO SHEET 11 FOR ASPHALT SECTION WITHIN SCDOT R/W (IF APPLICABLE)
3. REFER TO THIS SHEET FOR ACCESS DRIVEWAY PROFILE AND SHEET 7 FOR GRADING PLAN.
4. CONTRACTOR SHALL BE RESPONSIBLE FOR UTILIZING ALL APPLICABLE AND CURRENT SCDOT STANDARD DRAWINGS INCLUDED, BUT NOT LIMITED TO, THE DRAWINGS INCLUDED WITHIN THESE PLANS AND THE APPROVED PERMIT PACKAGE.
5. UPON SUBSTANTIAL PROJECT COMPLETION, CONTRACTOR TO CLEAR EXISTING CULVERTS/PIPES, CATCH BASINS, AND DITCHES ALONG FRONTAGE AND DOWNSTREAM AS NECESSARY TO ACHIEVE POSITIVE DRAINAGE.
6. CONTRACTOR TO SAWCUT EXISTING ASPHALT FOR SMOOTH JOINT NOT ALIGNED WITH WHEEL PATH, TYP.
7. PAVEMENT TRANSITION BETWEEN MILLED SURFACE AT BUTT JOINTS SHALL BE TIED IN SMOOTHLY AND SHALL BE FREE OF "BUMPS".
8. IF APPLICABLE, CONTRACTOR SHALL INSTALL RAISED PAVEMENT MARKERS AS REQUIRED BY SCDOT.
9. CONTRACTOR SHALL ENSURE POSITIVE DRAINAGE FOR ALL CURB LINES.



NOTES:
1. PAVEMENT DESIGN PER GEOTECHNICAL REPORT PREPARED BY SUMMIT DATED JAN 23, 2024. REFER TO REPORT FOR SPECIFIC INFORMATION.
2. LIGHT DUTY PAVEMENT TO BE INSTALLED AS SHOWN ON PLANS.
3. ASPHALT CONCRETE AND ALL CRUSHED STONE MATERIALS SHOULD CONFORM TO THE SCDOT STANDARD SPECIFICATIONS.

SCDOT ASPHALT PAVEMENT SECTION DETAIL

SCDOT NOTES:
1. All proposed or relocated signage shall be placed or replaced in accordance with section 650+000 and installed on SCDOT approved breakaway sign supports as detailed in Section 654-000 in the SCDOT Standard Drawings.
2. Contractor to remove and replace damaged sidewalk or curb & gutter along property frontage as necessary and/or as specified by District Permit Staff.
3. Sidewalk and curb and gutter to be removed and replaced from joint to joint.
4. Any proposed sidewalk within the R/W shall not exceed 2% cross slope per ADA and PROWAG guidelines. All ramps shall not exceed 8.33% for every scenario except where allowed by PROWAG.
5. In presence of sidewalk or other ADA pathway, access(es) to provide a minimum of 3' pedestrian path of no greater cross slope than 2% across throat of driveway.

SCDOT SEQUENCE OF CONSTRUCTION NOTES:

CONTRACTOR SHALL IMPLEMENT THE FOLLOWING ITEMS, AND PROVIDE SCHEDULE AND OBTAIN APPROVAL FROM LOCAL SCDOT MAINTENANCE OFFICE PRIOR TO BEGINNING ANY WORK WITHIN THE SCDOT RIGHT OF WAY.

1. ONCE SCDOT PERMIT IS RECEIVED: 1 MONTH FOR BIDDING, 1.5 MONTHS FOR COUNCIL AND CONTRACT SIGNING. ASSUME A SEPT. 2025 START DATE.
2. CONTACT OWNER AND SCDOT MAINTENANCE OFFICE & WADE WARR. SEPTEMBER 2025.
3. CONTRACTOR SHALL SUBMIT TRAFFIC CONTROL PLAN AND GET APPROVAL FROM SCDOT SUMTER MAINT. OFFICE OR SCDOT DISTRICT 1 PERMITTING OFFICE AND WADE WARR. SEPTEMBER 2025
4. INSTALL CONSTRUCTION ENTRANCE AND ALL REQUIREMENTS UNDER SUMTER LAND DISTURBANCE PERMIT. SEPTEMBER/OCT 2025
5. DEMOLISH EXISTING SIDEWALKS, WALL ROADWAY AND POUR NEW CURB AND GUTTER AND ASPHALT PATCH PER SCDOT REQUIREMENTS. OCT/DEC. 2025
6. CONSTRUCTION OF MEDIAN CURB & SIDEWALK IMPROVEMENTS DEC 2025--JAN 2026
7. CONSTRUCT GUARD SHACK, ARCH AND FENCING AND COLUMNS DEC.2025 – MARCH 2026
8. PAVING OF ASPHALT ON PRIVATE ROAD AND SCDOT RIGHT OF WAY MAR--APRIL 2026
9. INSTALL PLANTING AND IRRIGATION ON PRIVATE ROAD APRIL –MAY 2026
10. CLOSE OUT TEMPORARY CONSTRUCTION ENTRANCE MAY---JUNE 2026
11. CLOSE OUT AND CALL SCDOT DISTRICT 1, SUMTER MAINT. AND WADE WARR FOR INSPECTION.

Note: entire schedule subject to change based on when SCDOT permit received, budget of bid and low bid contractors available and proposed schedule. A more detailed schedule will be made available once bids are receive and a contractor is selected.

APPLICABLE SCDOT STANDARD DRAWINGS:
720-405-00 DRIVEWAY WITH SIDEWALK ADJACENT TO CURB
720-150-00 SIDEWALK ADJACENT TO CURB
610-005-10 FLAGGING OPERATIONS
610-205-00 RIGHT SHOULDER CLOSURE
610-025-00 PRIMARY DAYTIME LANE CLOSURE
815-605-00 TEMPORARY SILT FENCE
720-105-01 CURB AND GUTTER (CONCRETE)

SPECIAL PROVISION NOTES:
1. PAVEMENT TRANSITION BETWEEN MILLED SURFACE AT BUTT JOINTS SHALL BE TIED-IN SMOOTHLY AND SHALL BE FREE OF "BUMPS"
2. ANY AND ALL AESTHETIC DESIGN INCORPORATIONS ARE TOP BE MAINTAINED BY THE APPLICANT. THIS INCLUDES THE CROSSWALK STRIPING AS WELL AS THE BRICK PAVERS THAT MAY FALL WITHIN THE R/W

APPLICANT CONTACT:

DERON MCCORMICK
EMAIL:

UTILITY NOTE:
1. ANY UTILITY WORK WITHIN THE R./W SHALL BE APPLIED FOR SEPARATELY BY CONTROLLING ENTITY.
2. APPROPRIATE PAVEMENT REPAIR AND TRAFFIC CONTROL SHOULD ACCOMPANY THIS PERMIT

FLAGGING NOTE:
1. FLAGGING OPERATIONS MAY NOT BE UTILIZED On N. MAIN ST.

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NOTICE OF VIOLATION
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NOTICE: IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, LANDSCAPE ARCHITECT OR LAND SURVEYOR, TO ALTER IN ANY WAY ANY DOCUMENT BEARING THE SEAL OF A LICENSED PROFESSIONAL ENGINEER, LANDSCAPE ARCHITECT OR LAND SURVEYOR.

NORTH MAIN STREET IMPROVEMENT PROJECT - PHASE II
SUMTER, SC

LAYOUT PLAN

REGISTERED LANDSCAPE ARCHITECT
State of South Carolina
No. 1040
JAMES W. HONELL, JR.

REVISION	BY	APPD.	DWN.	CHKD.	DSGN.
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FILE NAME:

JOB #: 885A
SCALE: 1" = 00'
SHEET: 7 OF 19

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NORTH

MATCH LINE

NEW 5' ORNAMENTAL FENCING, TYP. 1' OFFSET FROM SIDEWALK

NEW BRICK COLUMN TYP. SEE DETAILS

NEW SIDEWALK AND SIGNAGE BY OTHERS

±26.40'

21.00'

49.40'

NEW 5' SIDEWALK TYPICAL

5.00'

5.50'

12.00'

R5.00'

NEW GUARD HOUSE SEE ARCH PLANS

6.00'

NEW CURB & GUTTER TYP.

TRANSITION MEDIAN CURB TO FLUSH

R4.75'

WEST COLLEGE STREET (local)

4.00'

R50.00'

RELOCATED FLAG POLE, TYP.

22.00'

5.00'

5.50'

49.00'

NEW 5' SIDEWALK TYPICAL

CONDUITS, SEE UTILITY PLAN

NEW BRICK COLUMN TYP. SEE DETAILS

DROP DOWN DRIVEWAY, SEE DETAIL

MENTAL P.

COORDINATE 2" CONDUIT WITH FRONTIER FOR SERVICE TO EX. HOME. JOHN EDSALL 315.725.3471

Single Story Wood Frame Residence FFE 175.43'

48"O

36"LO

84"LO

10"O

6"LO

12"O

8"O(2)

8"O

8"O(4)

12"O(2)

NEW 5' ORNAMENTAL FENCING, TYP. 1' OFFSET FROM SIDEWALK

NEW BRICK COLUMN TYP. SEE DETAILS

NEW 5' ORNAMENTAL FENCING, TYP. 1' OFFSET FROM SIDEWALK

NEW 5' SIDEWALK TYPICAL

52.00'

52.00'

3.00'

±264.71'

5.00'

5.50'

20.60'

NEW CURB & GUTTER TYP.

12.00'

WEST COLLEGE STREET (local)

NEW 5' SIDEWALK TYPICAL

155.84'

25.00'

NEW CURB & GUTTER TYPICAL

10.50'

11.50'

5.00'

5.50'

5.00'

3.00'

50.00'

52.00'

NEW 5' ORNAMENTAL FENCING, TYP. 1' OFFSET FROM SIDEWALK

NEW BRICK COLUMN TYP. SEE DETAILS

NEW MORRIS COLLEGE GATEWAY ARCH, SEE DETAILS

NEW 5' ORNAMENTAL FENCING, AND COLUMNS TYP. TIE TO NEWLY INSTALLED FENCE AND COLUMNS

NEWLY INSTALLED BRICK COLUMN BY OTHERS

SIGHT DISTANCE AREA TO REMAIN CLEAR OF ANY OBSTRUCTIONS

SIGHT DISTANCE AREA TO REMAIN CLEAR OF ANY OBSTRUCTIONS

RELOCATED HYDRANT, COORDINATE WITH CITY STAFF FOR TYPE, VALVES AND RELOCATION, AND TERMINATING EXISTING WATER LINE AT OLD HYDRANT LOCATION AND FEED TO MORRIS COLLEGE

NEWLY INSTALLED BRICK COLUMN BY OTHERS

NEW 5' ORNAMENTAL FENCING, AND COLUMNS TYP. TIE TO NEWLY INSTALLED FENCE AND COLUMNS

16.00'

9.50'

15.00'

9.50'

4.39'

40.64'

R20.00'

R20.00'

ADA PAVERS SEE DETAILS

NEW BRICK PLAZA TYP.

±44.58'

±44.58'

TIE NEW OR EXISTING SIDEWALK INTO NEW BRICK PLAZA, TYP.

TIE NEW OR EXISTING SIDEWALK INTO NEW BRICK PLAZA, TYP.

TAPER NEW CURB AND GUTTER TO EXISTING ASPHALT

TAPER NEW CURB AND GUTTER TO EXISTING ASPHALT

R30.00'

R30.00'

6.00'

6.00'

TRANSITION CURB & GUTTER TO FLUSH

THERMOPLASTIC STOP BARS, ARROWS, CENTER LINES AND CROSSWALK STRIPES PER SCDOT STANDARDS

4.00'

INSTALL 36" STOP SIGN (R1-1-36)

±42.58'

STREETPRINT XD HIGH VISIBILITY CROSSWALK TO MATCH SCDOT WORK.

ADA PAVERS, SEE DETAIL

6.00'

TRANSITION MEDIAN CURB TO FLUSH

R30.00'

REPLACE/RELOCATE EXISTING CROSSWALK SIGN AS REQ'D.

TAPER NEW CURB AND GUTTER TO EXISTING ASPHALT

RIGHT OF WAY

Ex. Sidewalk

RIGHT OF WAY

Ex. Sidewalk

RIGHT OF WAY

OBSERVABLE SIGHT DISTANCE>=600' REQ'D SIGHT DISTANCE FOR S.U. TRUCK=490'

+380' (EDGE TO EDGE) FROM COLLEGE ST. TO PHILLIPS ST. (ON OPPOSITE SIDE OF N. MAIN ST)

NORTH MAIN STREET (SC 43-5 35mph)

OBSERVABLE SIGHT DISTANCE>=600' REQ'D SIGHT DISTANCE FOR S.U. TRUCK=490'

+380' (EDGE TO EDGE) FROM COLLEGE ST. TO E.C. JAMES CT (ON OPPOSITE SIDE OF N. MAIN ST)

20008

8 PVC

171.88

1/2RB

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THE LANDPLAN GROUP SOUTH INC.
No. 153
CERTIFICATE OF AUTHORIZATION

NORTH MAIN STREET IMPROVEMENT PROJECT - PHASE II

SUMTER, SC

LAYOUT PLAN

REGISTERED LANDSCAPE ARCHITECT
State of South Carolina
No. 1360
CAROL L. HOWELL, RLA

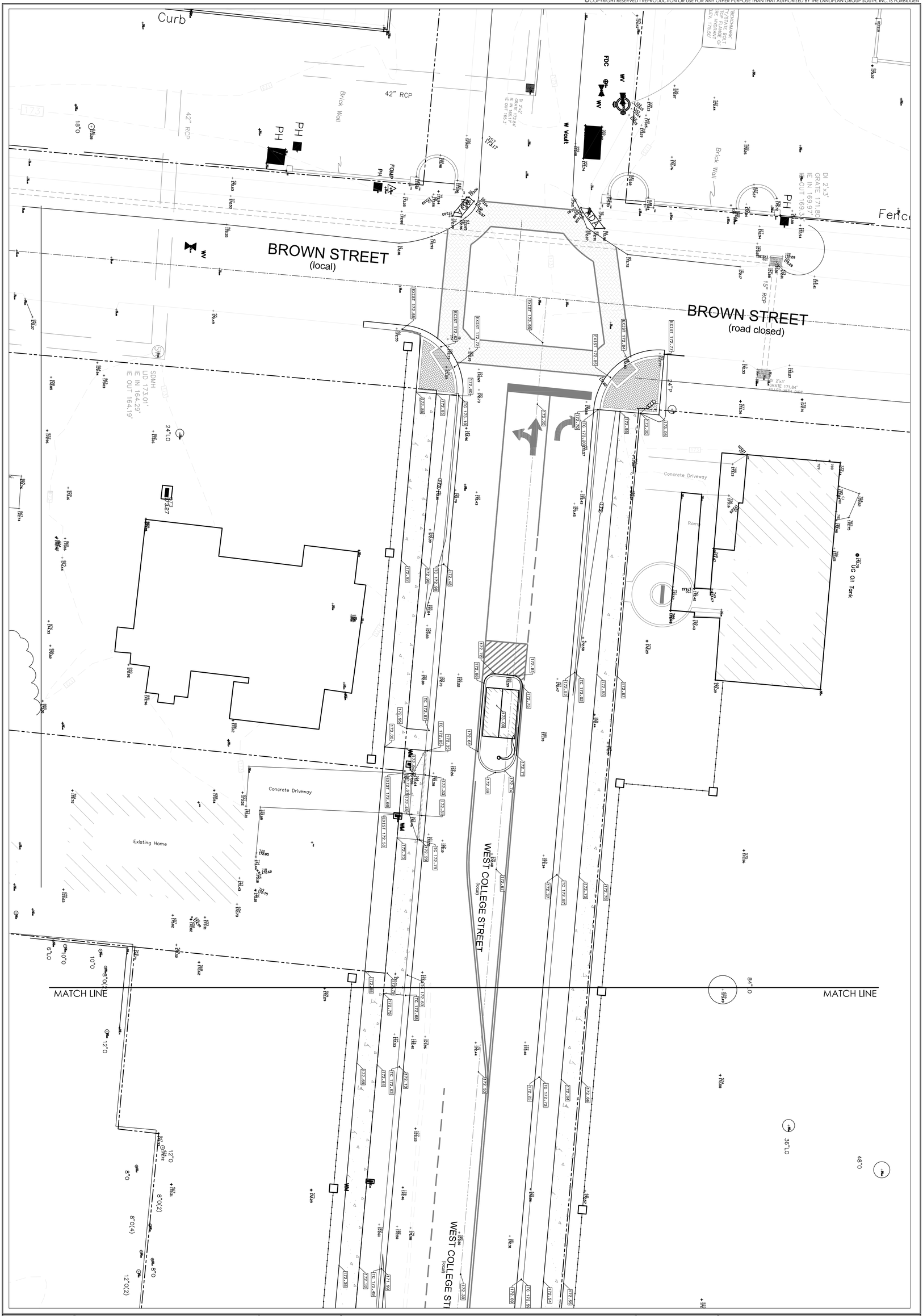
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		DSGN.	

JOB #: 0885A

SCALE: 1" = 10'

SHEET: 8 OF 19

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BROWN STREET
(local)
BROWN STREET
(road closed)
WEST COLLEGE STREET
(local)
WEST COLLEGE STREET
(local)
MATCH LINE
MATCH LINE
Existing Home
Concrete Driveway
Concrete Driveway
Ramp
Curb
42" RCP
Brick Wall
Brick Wall
15" RCP
Fence
Fence
Ug Oil Tank
SDMH
LID 173.01'
IE IN 164.29'
IE OUT 164.19'
DI 2'x3'
GRATE 171.80'
IE IN 169.97'
IE OUT 169.87'
DI 2'x3'
GRATE 171.84'
IE IN 165.13'
IE OUT 165.03'
DI 2'x2'
GRATE 172.47'
IE IN 165.13'
IE OUT 165.3'
BENCHMARK
TOP OF STATE ROAD
ROD, FLANGE OF
HYDRANT
ELEV. 175.50'
W Vault
FDC
WV
PH
FOWP
EXISTING
EXISTING
EXISTING

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MATCH LINE

48"O

36"LO

84"LO

WEST COLLEGE STREET
(local)

WEST COLLEGE STREET
(local)

NORTH MAIN STREET
(SC 43-5 35mph)

Concrete Driveway

Existing Home

NEW R/W
PROJECT

20008
8 PVC

513

1/2RB

EXIST 172.00

EXIST 171.67

EXIST 171.44

EXIST 172.66

EXIST 172.50

12"O
8"O(2)
8"O
8"O
8"O(4)
12"O(2)
12"O
8"O(2)
10"O
10"O
6"LO
12"O

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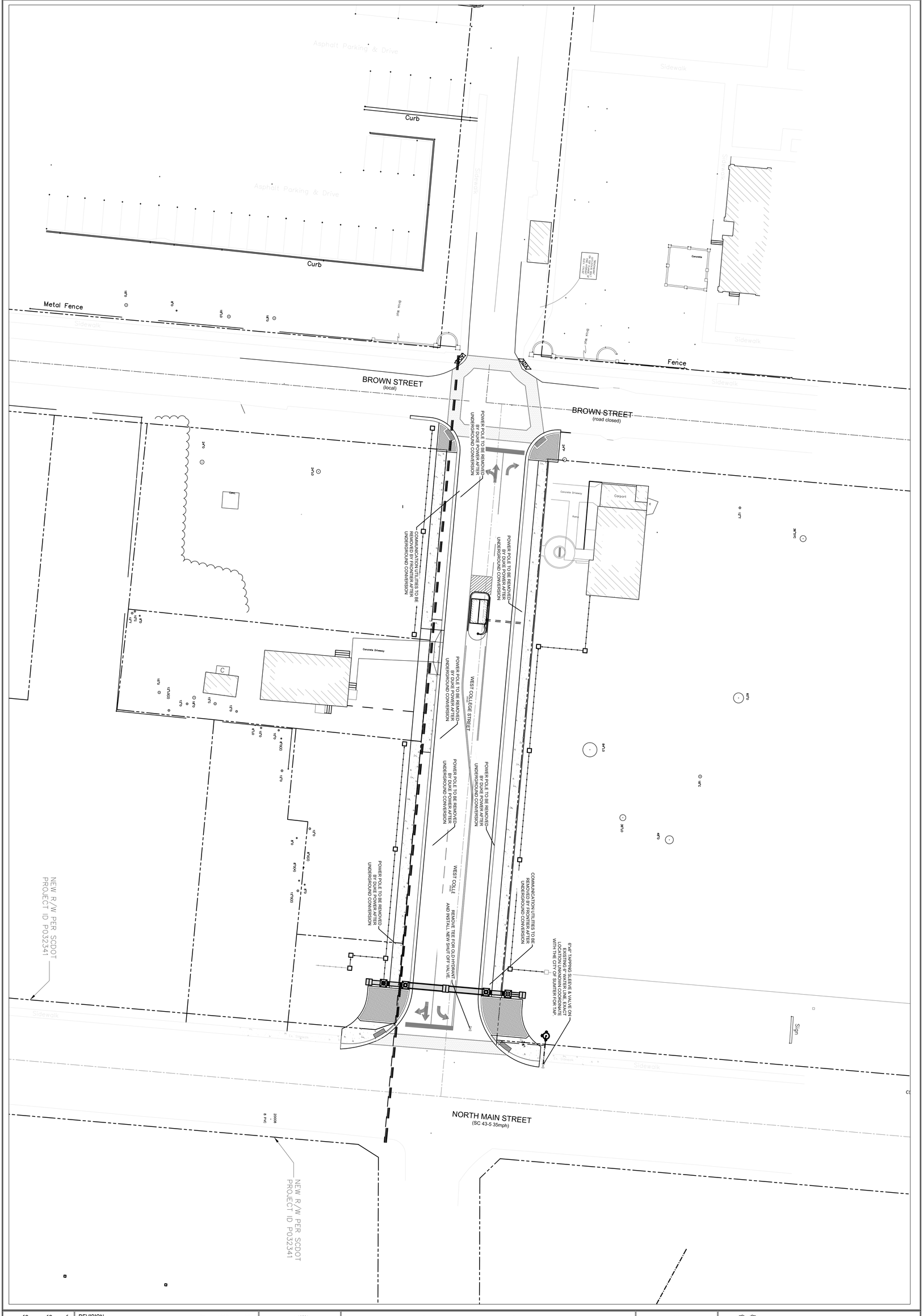
NORTH MAIN STREET
IMPROVEMENT PROJECT - PHASE II
SUMTER, SC
GRADING & DRAINAGE

STATE OF SOUTH CAROLINA
REGISTERED LANDSCAPE ARCHITECT
No. 1350
JAMES W. HOWELL, JR.

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JOB #: 0885A
SCALE: 1" = 10'
SHEET: 10 OF 19

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JOB #: 0885A
SCALE: 1" = 20'
SHEET: 11 OF 19

NORTH MAIN STREET IMPROVEMENT PROJECT - PHASE II

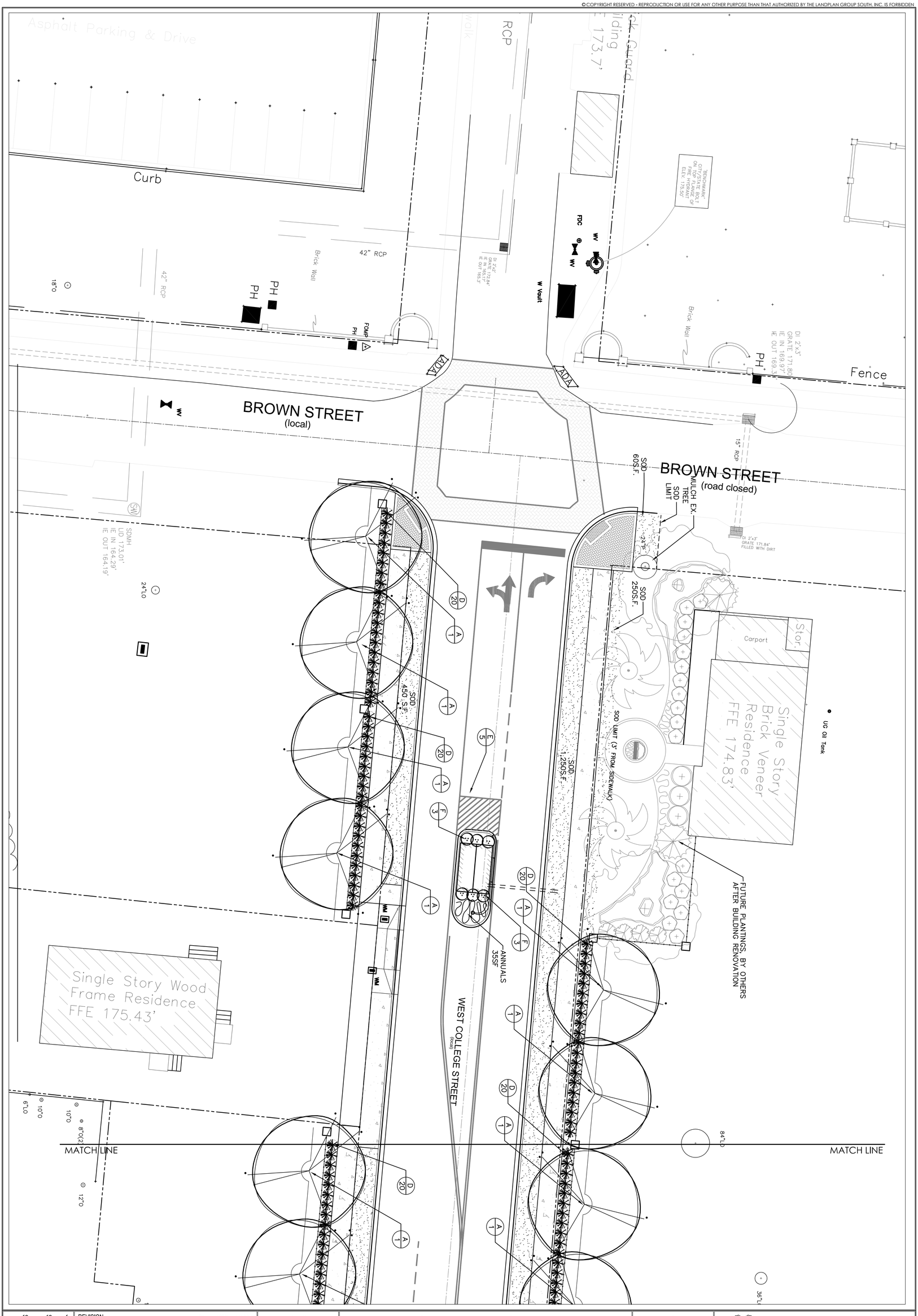
SUMTER, SC

UTILTY PLAN

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JOB #: 885A
SCALE: 1" = 10'-0"
SHEET: 12 OF 19

NORTH MAIN STREET IMPROVEMENT PROJECT - PHASE II

SUMTER, SC

LANDSCAPE PLAN

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MATCH LINE

48"O

36"LO

84"LO

FUTURE PLANTINGS, BY OTHERS AFTER BUILDING RENOVATION

NEWLY PLANTED TREES AND SHRUBS TYPICAL

EX. SOD

REMOVE EX. SOD AND MULCH NEW PLANT BEDS TOGETHER WITH NEWLY PLANTED PLANT BEDS.

C 12

E 14

I 55

SOD 1,200S.F.

NORTH MAIN STREET
(SC 43-5 35mph)

EWALK)

ANNUALS 35SF

WEST COLLEGE STREET
(local)

SOD

D 20 | A 1 | F 3 | A 1 | D 20 | A 1 | A 1 | D 21 | A 1 | A 1 | B 3 | G 5 | H 1

SOD 550 S.F.

Concrete Driveway

B 3 | C 13

12"O | 8"O(2) | 8"O | 8"O | 8"O(4) | 12"O(2)

REMOVE EX. SOD AND MULCH NEW PLANT BEDS TOGETHER WITH NEWLY PLANTED PLANT BEDS.

NEWLY PLANTED TREES AND SHRUBS TYPICAL

EX. SOD

12"O | 8"O(2) | 10"O | 10"O | 6"LO | MATCH LINE | 12"O | 12"O

513

1/2RB

20008

8 PVC

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NORTH MAIN STREET IMPROVEMENT PROJECT - PHASE II
SUMTER, SC

LANDSCAPE PLAN

State of South Carolina
REGISTERED LANDSCAPE ARCHITECT
No. 1160
W. HOWELL, JR.

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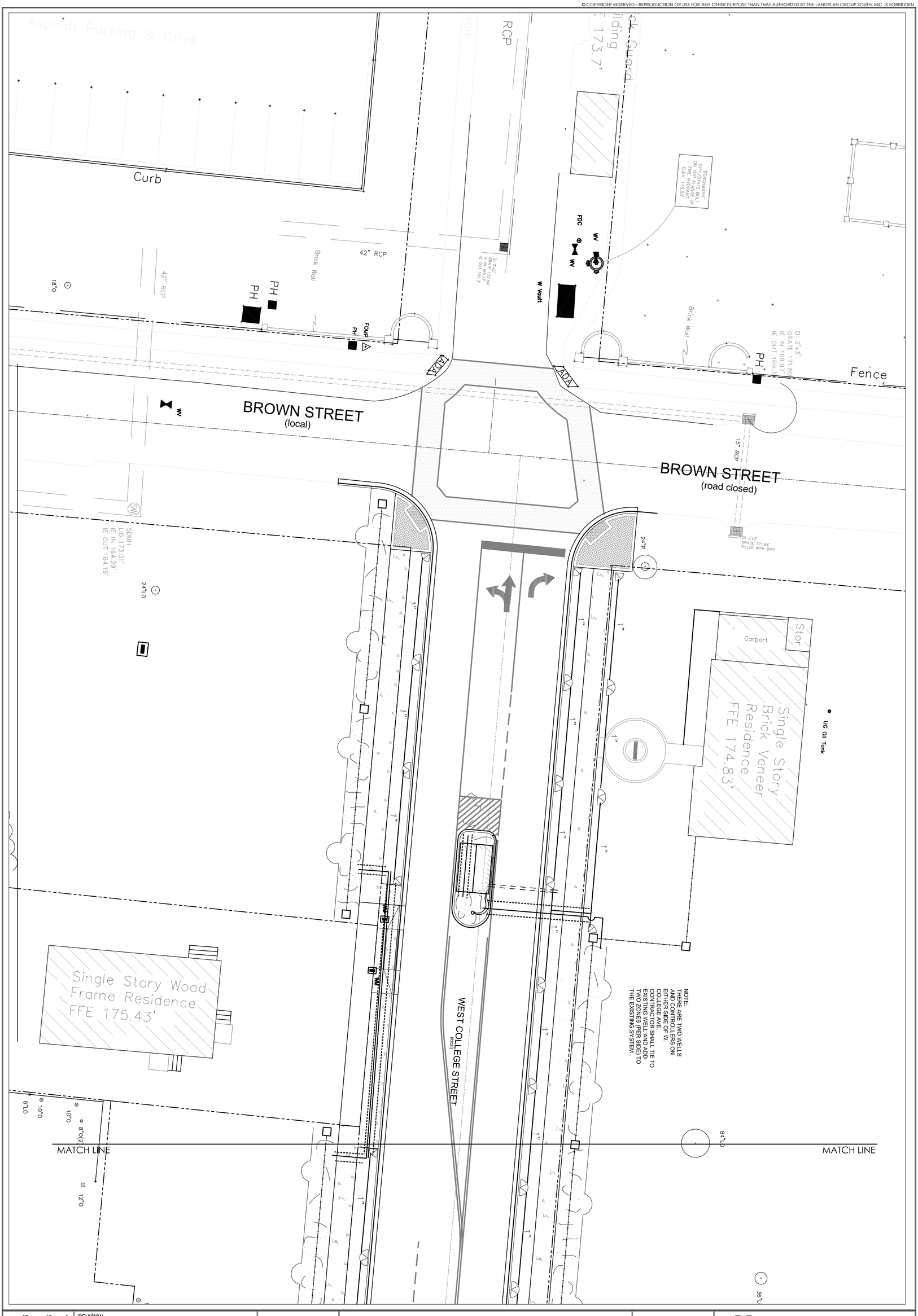
FILE NAME:

JOB #: 0885A

SCALE: 1" = 10'

SHEET: 13 OF 19

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JOB #: 885A
SCALE: 1" = 10'-0"
SHEET: 14 OF 19

STATE OF SOUTH CAROLINA REGISTERED LANDSCAPE ARCHITECT JAMES W. HOWELL, JR. 1031

NORTH MAIN STREET IMPROVEMENT PROJECT - PHASE II

SUMTER, SC

IRRIGATION PLAN

SOUTH CAROLINA THE LANDPLAN GROUP SOUTH, INC. No. 153 CERTIFICATE OF AUTHORIZATION

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MATCH LINE

48"O

36"LO

84"LO

NOTE:
THERE ARE TWO WELLS AND CONTROLLERS ON EITHER SIDE OF W. COLLEGE AVE. CONTRACTOR SHALL TIE TO EXISTING WELL AND ADD TWO ZONES (PER SIDE) TO THE EXISTING SYSTEM .

PULL LINE FROM EXISTING WELL, APPROX. 125 LF NORTH OF EXISTING R.O.W. ADD ZONES TO EXISTING CONTROLLER

V3

V4

1"

WEST COLLEGE STREET
(local)

WEST COLLEGE STREET
(local)

WM

V2

V1

WELL

PULL LINE FROM EXISTING WELL, NORTH OF EXISTING R.O.W., ADD ZONES TO EXISTING CONTROLLER

Single Story Wood Frame Residence FFE 175.43'

12"O

8"O(2)

8"O

8"O

8"O(4)

12"O(2)

8"O(2)

10"O

12"O

10"O

6"LO

MATCH LINE

12"O

NORTH MAIN STREET
(SC 43-5 35mph)

Sidewalk

FOMP

SMH
RIM=171.75'
IE 165.99'

WV

SMH
RIM=
IE=16

513

1/2RB

NEW R/W
PROJECT

20008

8" PVC

8" PVC

SSMH
RIM 171.37'
IE 166.04'

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NORTH MAIN STREET IMPROVEMENT PROJECT - PHASE II

SUMTER, SC

IRRIGATION PLAN

State of South Carolina
REGISTERED LANDSCAPE ARCHITECT
No. 1301
JAMES W. HOWELL

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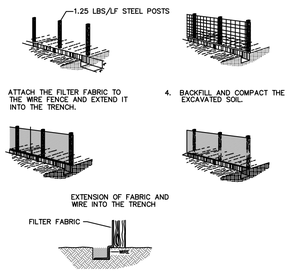
SCALE: 1" = 10'

SHEET: 15 OF 19

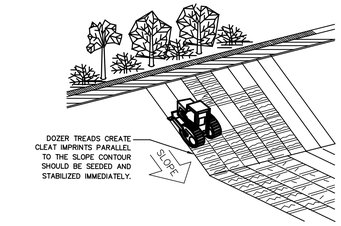
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NOTES:
1. THE HEIGHT OF A SILT FENCE SHOULD NOT EXCEED 36 INCHES. HIGHER FENCES MAY IMPOUND VOLUMES OF WATER SUFFICIENT TO CAUSE THE STRUCTURE TO FAIL.
2. THE FILTER FABRIC SHOULD BE PURCHASED IN A CONTINUOUS ROLL CUT TO THE LENGTH OF THE FENCE TO AVOID THE USE OF JOINTS. WHEN JOINTS ARE NECESSARY, A FILTER CLOTH SHOULD BE SPLICED TOGETHER ONLY AT A SUPPORT POST, WITH A MINIMUM 6-INCH OVERLAP AND SEALED SECURELY.
3. METAL POSTS SHOULD BE SPACED A MAXIMUM OF 6 FEET APART AT THE FENCE LOCATION AND DRIVEN SECURELY INTO THE GROUND A MINIMUM OF 12 INCHES. WHEN EXTRA STRENGTH FABRIC IS USED WITHOUT THE WIRE SUPPORT FENCE. POST SPACING SHOULD NOT EXCEED 6 FEET.
4. A TRENCH SHOULD BE EXCAVATED APPROXIMATELY 4 INCHES WIDE AND 4 INCHES DEEP ALONG THE LINE OF POSTS, UPSLOPE FROM THE FENCE.
5. WHEN STANDARD STRENGTH FILTER IS USED, A WIRE MESH SUPPORT FENCE SHOULD BE FASTENED SECURELY TO THE UPSLOPE SIDE OF THE POSTS USING HEAVY DUTY TIE WIRES OR HOG RINGS. THE WIRE SHOULD EXTEND INTO THE TRENCH A MINIMUM OF 2 INCHES AND SHOULD NOT EXCEED MORE THAN 36 INCHES ABOVE THE ORIGINAL GROUND SURFACE.
6. THE STANDARD STRENGTH FILTER FABRIC SHOULD BE WIRED TO THE FENCE, AND 8 INCHES OF THE THE FABRIC SHOULD BE EXTENDED INTO THE TRENCH. THE FABRIC SHOULD NOT EXTEND MORE THAN 36 INCHES ABOVE THE ORIGINAL GROUND SURFACE. DO NOT STAPLE FILTER FABRIC TO TREES.
7. WHEN EXTRA STRENGTH FILTER FABRIC AND CLOSER POST SPACING ARE USED, THE WIRE MESH SUPPORT FENCE MAY BE ELIMINATED. IN SUCH A CASE, THE FILTER FABRIC IS STAPLED OR WIRED DIRECTLY TO THE POSTS WITH ALL OTHER PROVISIONS OF NO. 6 APPLYING.
8. THE TRENCH SHOULD BE BACKFILLED AND THE SOIL COMPACTED OVER THE FILTER FABRIC.

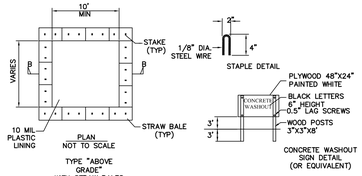
1. SET POSTS AND EXCAVATE A 4"x4" TRENCH UPSLOPE ALONG THE LINE OF POSTS.
2. TIE WIRE FENCING TO THE POST.
3. ATTACH THE FILTER FABRIC TO THE WIRE FENCE AND EXTEND IT INTO THE TRENCH.
4. BACKFILL AND COMPACT THE EXCAVATED SOIL.

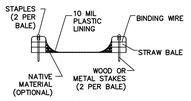


TEMPORARY SILT FENCE DETAIL
NOT TO SCALE



TRACKING DETAIL
NOT TO SCALE

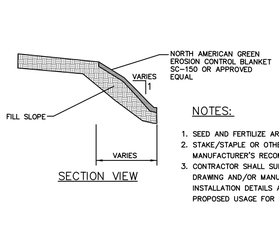




SECTION B–B
NOT TO SCALE

NOTES
1. ACTUAL LOCATION SHOWN ON SHEET 5.
2. ONLY CONCRETE FROM MIXER TRUCK CHUTES SHOULD BE WASHED INTO CONCRETE WASHOUT AREA.
3. THE CONCRETE WASHOUT SIGN SHALL BE INSTALLED WITHIN 30 FT. OF THE TEMPORARY CONCRETE WASHOUT FACILITY.
4. ONCE CONCRETE WASTES ARE WASHED INTO THE WASHOUT AREA AND ALLOWED TO HARDEN, THE CONCRETE SHOULD BE BROKEN UP, REMOVED, AND DISPOSED OF PER WM-5, SOLID WASTE MANAGEMENT.
5. WASHOUT AREAS MUST BE CLEANED OUT WHEN IT IT 75% FULL.
6. WHEN WASHOUT AREA IS NO LONGER NEEDED, MATERIALS USED TO CONSTRUCT THE WASHOUT AREA SHOULD BE REMOVED FROM THE SITE AND DISPOSED OF.
7. HOLES, DEPRESSIONS OR OTHER GROUND DISTURBANCE CAUSED BY THE REMOVAL OF THE CONCRETE WASHOUT AREA SHOULD BE BACKFILLED AND REPAIRED.

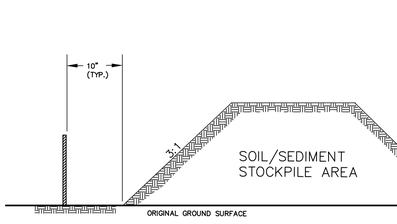
CONCRETE WASHOUT AREA DETAIL (IF NECESSARY)
NOT TO SCALE



SECTION VIEW

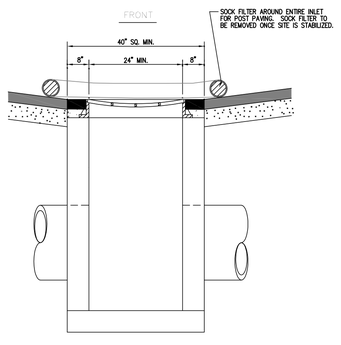
NOTES:
1. SEED AND FERTILIZE AREA PRIOR TO BLANKET INSTALLATION.
2. STAKE/STAPLE OR OTHERWISE FIX BLANKET IN PLACE PER MANUFACTURER'S RECOMMENDATIONS.
3. CONTRACTOR SHALL SUBMIT EROSION CONTROL BLANKET SHOP DRAWING AND/OR MANUFACTURER SUPPLIED SPECIFICATIONS. INSTALLATION DETAILS AND INSTRUCTIONS 10 DAYS PRIOR TO PROPOSED USAGE FOR ENGINEER'S APPROVAL.

EROSION CONTROL MATTING DETAIL (IF NECESSARY)
NOT TO SCALE

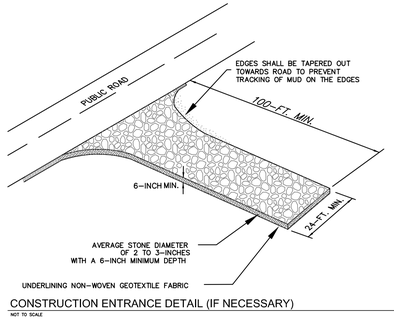


NOTES:
1. SILT FENCE TO EXTEND AROUND ENTIRE PERIMETER OF STOCKPILE, OR IF STOCKPILE AREA IS LOCATED ON/NEAR A SLOP THE SILT FENCE IS TO EXTEND ALONG CONTOURS OF THE DOWN-GRADIENT AREA.
2. IF STOCKPILE IS TO REMAIN FOR MORE THAN 14 DAYS, TEMPORARY STABILIZATION MEASURES MUST BE IMPLEMENTED.
3. SILT FENCE SHALL BE MAINTAINED UNTIL STOCKPILE AREA HAS EITHER BEEN REMOVED OR PERMANENTLY STABILIZED.
4. THE KEY TO FUNCTIONAL TEMPORARY STOCKPILE AREAS IS WEEKLY INSPECTIONS, ROUTINE MAINTENANCE, AND REGULAR SEDIMENT REMOVAL.

TEMPORARY TOPSOIL STOCKPILE DETAIL
NOT TO SCALE



DROP INLET POST PAVING DETAIL
NOT TO SCALE



CONSTRUCTION ENTRANCE DETAIL (IF NECESSARY)
NOT TO SCALE

SOCK FILTER AROUND ENTIRE INLET

When and Where to Use It

Stabilized construction entrances should be used at all points where traffic will be leaving a construction site and moving directly onto a public road.

Important Considerations

If washing is used, provisions must be made to intercept the wash water and trap the sediment before it is carried offsite. Washdown facilities shall be required as directed by SCDHEC as needed. Washdown areas in general must be established with crushed gravel and drain into a sediment trap or sediment basin.
Construction entrances should be used in conjunction with the stabilization of construction roads to reduce the amount of mud picked up by vehicles.

Installation:
–Remove all vegetation and any objectionable material from the foundation area.
–Divert all surface runoff and drainage from stones to a sediment trap or basin.
–Install a non–woven geotextile fabric prior to placing any stone.
–Install a culvert pipe across the entrance when needed to provide positive drainage.
–The entrance shall consist of 1–inch to 3–inch DSO stone placed at a minimum depth of 6–inches.
–Minimum dimensions of the entrance shall be 24–feet wide by 100–feet long, and may be modified as necessary to accommodate site constraints.
–The edges of the entrance shall be tapered out towards the road to prevent tracking of mud at the edge of the entrance.

Inspection and Maintenance:

Inspect construction entrances every seven (7) calendar days and within 24–hours after each rainfall event that produces ½–inches or more of precipitation, or after heavy use. Check for mud and sediment buildup and pad integrity. Make daily inspections during periods of wet weather. Maintenance is required more frequently in wet weather conditions. Reshape the stone pad as needed for drainage and runoff control.

Wash or replace stones as needed and as directed by the Inspector. The stone in the entrance should be washed or replaced whenever the entrance fails to reduce mud being carried off–site by vehicles. Frequent washing will extend the useful life of stone.

Immediately remove mud and sediment tracked or washed onto public roads by brushing or sweeping. Flushing should only be used when the water can be discharged to a sediment trap or basin.

Repair any broken pavement immediately.

FILTER FABRIC INLET PROTECTION

MATERIALS:
Use filter fabric that conforms to SCDOT standard specifications for highway construction (latest edition). Refer to the silt fence geotextile fabrics Approval Sheet #34.

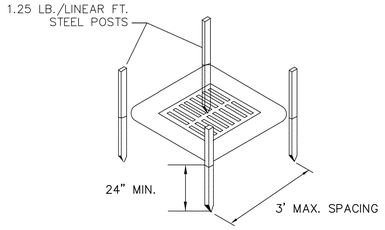
Use steel posts that meet the following minimum physical requirements:
Be composed of high strength steel with minimum yield strength of 50,000 psi.
Have a standard "T" section with a nominal face width of 1.38–inches and nominal "T" length of 1.48–inches.
Weigh 1.25 pounds per foot (± 8%).
Be painted with a water based baked enamel paint.

Attach fabric to metal posts with heavy–duty plastic ties.

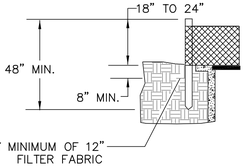
INSTALLATION:
Excavate a trench 6–inches wide and 6–inches deep around the outside perimeter of the inlet unless the fabric is pneumatically installed.
Extend the filter fabric a minimum of 12–inches into the trench. Backfill the trench with soil or crushed stone and compact over the filter fabric unless the fabric is pneumatically installed.
Use steel posts with a minimum post length of 60–inches consisting of standard "T" sections with a weight of 1.25 pounds per foot (±8%). Install the filter fabric to a minimum height of 24–inches above grade. Space the steel posts around the perimeter of the inlet a maximum of 3–feet apart and drive them into the ground a minimum of 24–inches. Cut the filter fabric from a continuous roll to the length of the protected area to avoid the use of joints. When joints are necessary, wrap filter fabric together only at a support post with both ends securely fastened to the post, with a minimum 6–inch overlap.
Attach fabric to steel posts with heavy–duty plastic ties.
Attach at least four (4) evenly spaced ties in a manner to prevent sagging or tearing of the fabric. In all cases, affix ties in no less than four (4) places.

INSPECTION AND MAINTENANCE:
Inspections should be made every 7 calendar days and within 24–hours after each storm that produces ½–inches or more of rain.If the fabric becomes clogged, it should be replaced.
Sediment should be removed when it reaches approximately 1/3 the height of the fence. Take care not to damage or undercut fabric when removing sediment.If a sump is used, sediment should be removed when it
fills approximately 1/3 the depth of the hole.Maintain the pool area, always providing adequate sediment storage volume for the next storm.

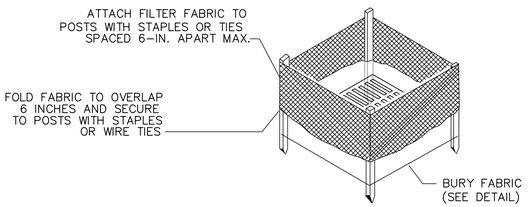
Storm drain inlet protection structures should be removed only after the disturbed areas are permanently stabilized. Remove all construction material and sediment, and dispose of them properly.
Grade the disturbed area to the elevation of the drop inlet structure crest. Use appropriate permanent stabilization methods to stabilize bare areas around the inlet.



POST INSTALLATION DETAIL

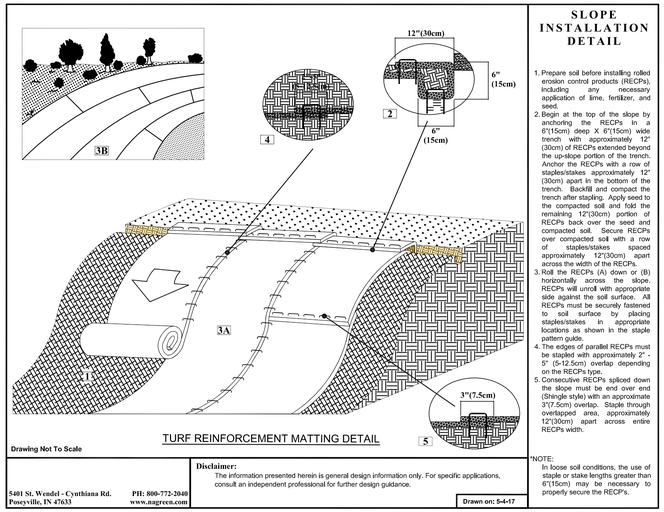


FILTER FABRIC BURIAL DETAIL



FILTER FABRIC INSTALLATION

FILTER FABRIC INLET PROTECTION - TYPE A
NOT TO SCALE



TURF REINFORCEMENT MATTING DETAIL

Drawing Not To Scale

SLOPE INSTALLATION DETAIL

1. Prepare soil before installing rolled erosion control products (RECPs), including any necessary application of lime, fertilizer, and seed.
2. Begin at the top of the slope by anchoring the RECPs in a 6"(15cm) deep X 6"(15cm) wide trench with approximately 12" (30cm) of RECPs extended beyond the up-slope portion of the trench. Anchor the RECPs with a row of staples/stakes approximately 12" (30cm) apart in the bottom of the trench. Backfill and compact the trench after stapling. Apply seed to the compacted soil and fold the remaining 12"(30cm) portion of RECPs back over the seed and compacted soil. Secure RECPs over compacted soil with a row of staples/stakes spaced approximately 12"(30cm) apart across the width of the RECPs.
3. Roll the RECPs (A) down or (B) horizontally across the slope. RECPs will unroll with appropriate side against the soil surface. All RECPs must be securely fastened to soil surface by placing staples/stakes in appropriate locations as shown in the staple pattern guide.
4. The edges of parallel RECPs must be stapled with approximately 2" - 5" (5-12.5cm) overlap depending on the RECPs type.
5. Consecutive RECPs spliced down the slope must be end over end (Shingle style) with an approximate 3"(7.5cm) overlap. Staple through overlapped area, approximately 12"(30cm) apart across entire RECPs width.

*NOTE:
In loose soil conditions, the use of staple or stake lengths greater than 6"(15cm) may be necessary to properly secure the RECP's.

5401 St. Wendel - Cynthiana Rd.
Poseyville, IN 47633
PH: 800-772-2040
www.nagreen.com

Disclaimer:
The information presented herein is general design information only. For specific applications, consult an independent professional for further design guidance.

Drawn on: 5-4-17

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THE LANDPLAN GROUP SOUTH INC.
No. 153
CERTIFICATE OF AUTHORIZATION

NORTH MAIN STREET IMPROVEMENT PROJECT - PHASE II
SUMTER, SC

DETAILS

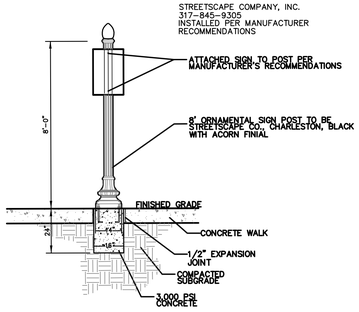
State of South Carolina
REGISTERED LANDSCAPE ARCHITECT
JAMES W. HOWELL, JR.

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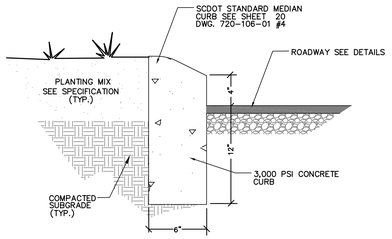
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		DWN.		
FILE NAME:				

JOB #: 0885A
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SHEET: 16 OF 19

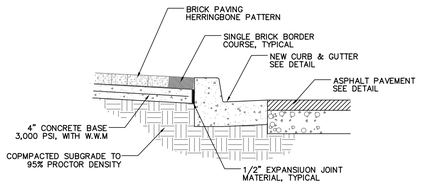
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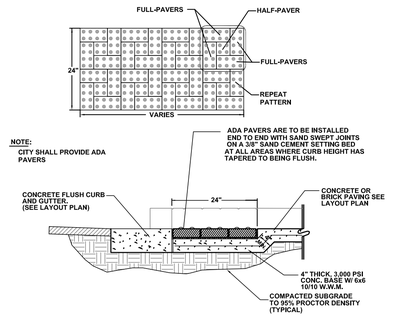
DECORATIVE SIGN DETAIL
NOT TO SCALE



MEDIAN DETAIL
NOT TO SCALE



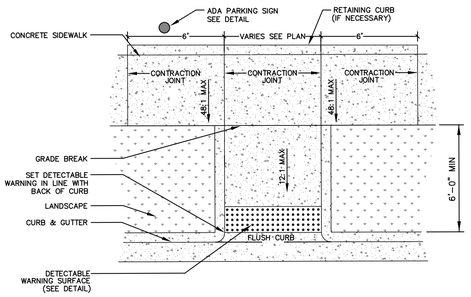
BRICK PLAZA DETAIL
NOT TO SCALE



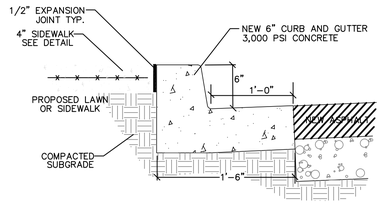
DETECTABLE WARNING SURFACE DETAIL
NOT TO SCALE

DETECTABLE WARNING SURFACE DETAIL NOTES

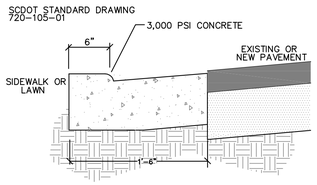
1. DETECTABLE WARNING SURFACES SHALL BE PROVIDED AT THE FOLLOWING LOCATIONS:
   (A) WHERE A SIDEWALK CROSSES A VEHICULAR WAY, EXCLUDING UN-SIGNALIZED DRIVEWAY CROSSINGS.
   (B) WHERE A RAIL SYSTEM CROSSES A PEDESTRIAN FACILITY THAT IS NOT SHARED WITH VEHICLES.
   (C) AT ISLANDS AND MEDIANS THAT ARE CUT THROUGH LEVEL WITH THE ROADWAY.
2. AT CURB RAMPS AND BLENDED TRANSITIONS, DETECTABLE WARNING SURFACES SHALLBE LOCATED SO THE EDGE NEAREST THE CURB LINE IS 6" MINIMUM AND 8" MAXIMUM DISTANCE FROM THE CURB LINE. THE SURFACE SHALL EXTEND A MINIMUM OF 24" ONTO THE RAMP IN THE DIRECTION OF TRAVEL FOR THE FULL WIDTH OF THE CURB RAMP.
3. AT RAIL CROSSINGS, THE DETECTABLE WARNING SURFACE SHALL BE 24" DEEP AND FULL WIDTH OF THE SIDEWALK. THE EDGE OF THE SURFACE NEAREST THE RAIL CROSSING IS 6" MINIMUM AND 8" MAXIMUM DISTANCE FROM THE VEHICLE DYNAMIC ENVELOPE (6' FROM THE NEAREST RAIL) UNLESS OTHERWISE NOTED BY THE RAILROAD.
4. DETECTABLE WARNING SURFACES SHALL CONSIST OF AN AREA OF TRUNCATED DOMES ALIGNED IN A SQUARE GRID PATTERN.
5. WHEN DOMES IN ANY ONE FOOT SQUARE AREA WEAR TO AN AVERAGE HEIGHT BELOW 0.151", THE SURFACE IS TO BE REPLACED.
6. FOR ALL DETECTABLE WARNING SURFACES, THE DEPARTMENT'S DEFAULT COLOR IS SAFETY YELLOW (FEDERAL NUMBER 33538) UNLESS A SPECIFIC PROJECT REQUIRES ANOTHER COLOR. WHEN A COLOR OTHER THAN SAFETY YELLOW IS SELECTED FOR A PROJECT, THE COLOR SELECTED WILL CONTRAST EITHER LIGHT-ON-DARK OR DARK-ON LIGHT.
7. ADA PAVERS ARE TO BE INSTALLED END TO END WITH SAND SWEPT JOINTS ON A 3/8"SAND CEMENT SETTING BED AT ALL AREAS WHERE CURB HEIGHT HAS TAPERED TO BEING FLUSH.



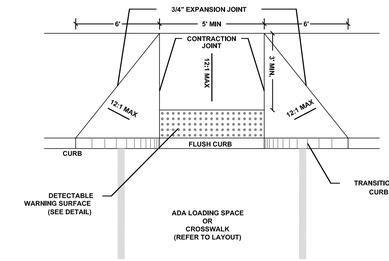
PEDESTRIAN RAMP DETAIL
NOT TO SCALE



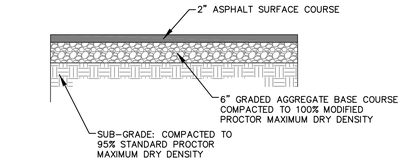
6" CURB AND GUTTER DETAIL
NOT TO SCALE



FLUSH CURB AND GUTTER DETAIL
NOT TO SCALE

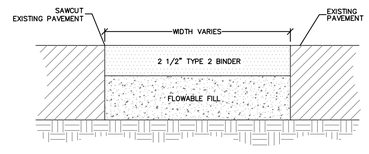


SIDEWALK RAMP DETAIL
NOT TO SCALE



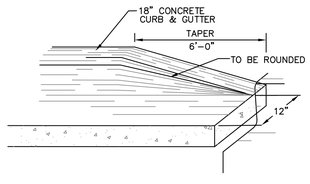
NOTES:
1. PAVEMENT DESIGN PER GEOTECHNICAL REPORT PREPARED BY SUMMIT DATED JAN 23, 2024. REFER TO REPORT FOR SPECIFIC INFORMATION.
2. LIGHT DUTY PAVEMENT TO BE INSTALLED AS SHOWN ON PLANS.
3. ASPHALT CONCRETE AND ALL CRUSHED STONE MATERIALS SHOULD CONFORM TO THE SCDOT STANDARD SPECIFICATIONS.

LIGHT-DUTY ASPHALT PAVEMENT SECTION DETAIL
NOT TO SCALE



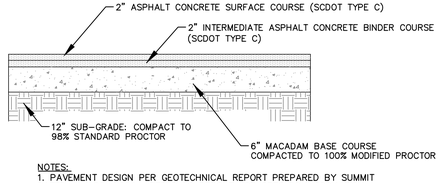
NOTES:
1. FULL DEPTH BINDER MATERIAL SHALL BE INSTALLED
2. ASPHALT PAVEMENT PATCH SHALL BE USED FOR UTILITY TRENCHES AND TO REPLACE PAVEMENT SECTION ADJACENT TO NEW CURB. THERE IS NO ADDITIONAL PAY ITEM FOR THIS WORK.

ASPHALT PAVEMENT PATCH SECTION DETAIL
NOT TO SCALE



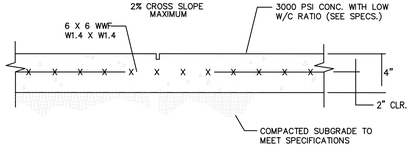
CURB TAPER DETAIL/ CURB TURN DOWN
NOT TO SCALE

ALL PAVEMENT WITHIN THE SCDOT R/W SHALL MEET ASPHALT PAVEMENT DESIGN GUIDELINES.



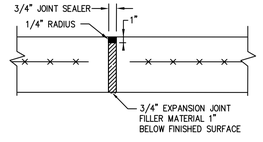
NOTES:
1. PAVEMENT DESIGN PER GEOTECHNICAL REPORT PREPARED BY SUMMIT DATED JAN 23, 2024. REFER TO REPORT FOR SPECIFIC INFORMATION.
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SCDOT ASPHALT PAVEMENT SECTION DETAIL
NOT TO SCALE



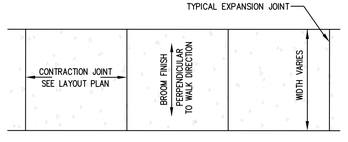
NOTES
1. SIDEWALK CROSS SLOPE BE NO STEEPER THAN 1:48 AND SHALL MEET 2010 ADA STANDARDS FOR ACCESSIBLE DESIGN (SECTION 403.3).
2. EXPANSION JOINTS SHALL BE PROVIDED EVERY 30' IN ACCORDANCE WITH TYPICAL EXPANSION JOINT DETAIL.

SIDEWALK DETAIL
NOT TO SCALE



TYPICAL EXPANSION JOINT

NOTES
1. CONCRETE SCORING 5' O.C. AND EXPANSION JOINTS AT 30' O.C.
2. SIDEWALK CROSS SLOPE BE NO STEEPER THAN 1:48 AND SHALL MEET 2010 ADA STANDARDS FOR ACCESSIBLE DESIGN (SECTION 403.3).



CONCRETE SIDEWALK

NOTES
1. EXPANSION JOINTS SHALL BE PROVIDED EVERY 30' IN ACCORDANCE WITH TYPICAL EXPANSION JOINT DETAIL.

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NORTH CAROLINA / SOUTH CAROLINA
THE LANDPLAN GROUP SOUTH INC.
No. 153
CERTIFICATE OF AUTHORIZATION

NORTH MAIN STREET IMPROVEMENT PROJECT - PHASE II
SUMTER, SC

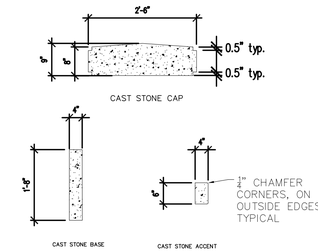
DETAILS

REVISION

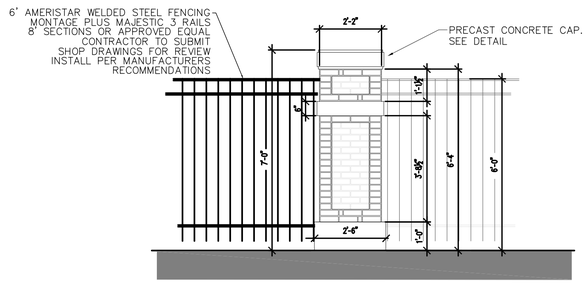
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	5.		FILE NAME:	

JOB #: 0885A
SCALE: 1" = 10'
SHEET: 17 OF 19

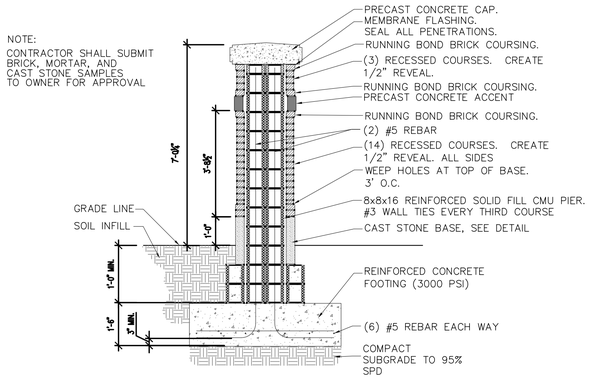
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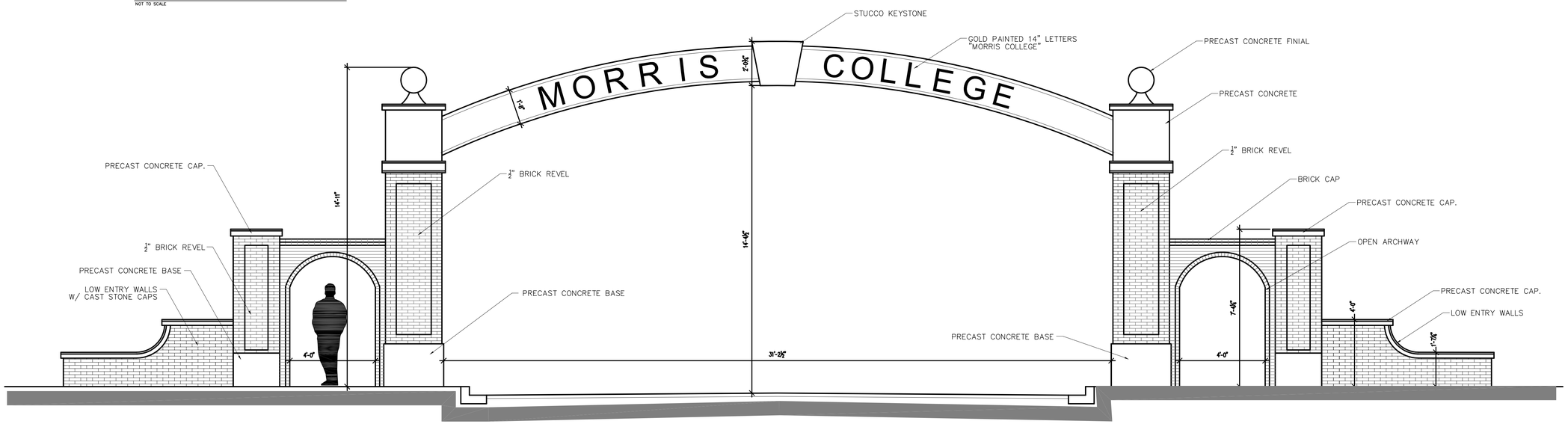
CAST STONE DETAILS
NOT TO SCALE



LARGE COLUMN TYPICAL
NOT TO SCALE



LARGE COLUMN SECTION
NOT TO SCALE



GATEWAY ARCH
NOT TO SCALE

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NORTH MAIN STREET IMPROVEMENT PROJECT - PHASE II

SUMTER, SC

DETAILS

State of South Carolina
REGISTERED LANDSCAPE ARCHITECT
No. 1234
LEE W. HOWELL, JR.

REVISION	BY	APP'D.	MM.DD.YY
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DWN.	CHK'D.	DSGN.	MM.DD.YY

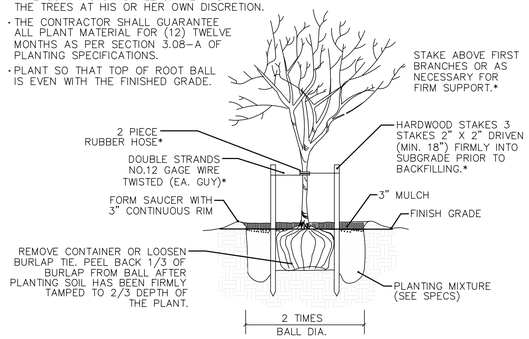
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JOB #: 0885A
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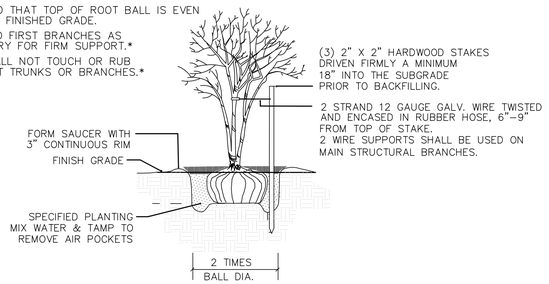
PLANT DETAILS

NOTE:
- *THE CONTRACTOR SHALL STAKE AND WRAP THE TREES AT HIS OR HER OWN DISCRETION.
- THE CONTRACTOR SHALL GUARANTEE ALL PLANT MATERIAL FOR (12) TWELVE MONTHS AS PER SECTION 3.08-A OF PLANTING SPECIFICATIONS.
- PLANT SO THAT TOP OF ROOT BALL IS EVEN WITH THE FINISHED GRADE.



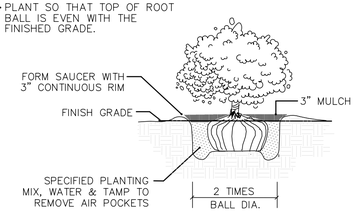
LARGE TREE PLANTING & STAKING DETAIL
not to scale

NOTE:
- *THE CONTRACTOR SHALL STAKE AND WRAP THE TREES AT HIS OR HER OWN DISCRETION.
- THE CONTRACTOR SHALL GUARANTEE ALL PLANT MATERIAL FOR (12) TWELVE MONTHS AS PER SECTION 3.08-A OF PLANTING SPECIFICATIONS.
- PLANT SO THAT TOP OF ROOT BALL IS EVEN WITH THE FINISHED GRADE.
- STAKE TO FIRST BRANCHES AS NECESSARY FOR FIRM SUPPORT.*
- WIRE SHALL NOT TOUCH OR RUB ADJACENT TRUNKS OR BRANCHES.*

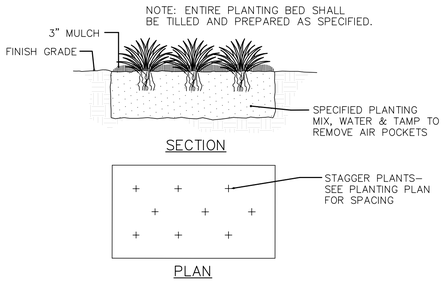


SMALL & MULTI-TRUNK TREE PLANTING & STAKING DETAIL
not to scale

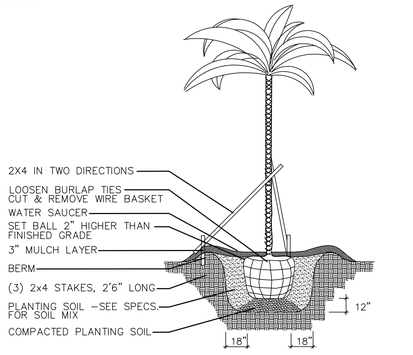
NOTE:
- PLANT SO THAT TOP OF ROOT BALL IS EVEN WITH THE FINISHED GRADE.



SHRUB PLANTING DETAIL
not to scale



PLANTING BED DETAIL
not to scale



PALMETTO TREE PLANTING DETAIL
not to scale

PLANT SCHEDULE

KEY	BOTANICAL NAME	COMMON NAME	QUANTITY	SIZE	SPACING
A	QUERCUS PHELLOS	WILLOW OAK	14	3" CAL.	AS SHOWN
B	THUJA 'GREEN GIANT'	GREEN GIANT ARBORVITAE	6	10' HT.	AS SHOWN
C	LOROPETALUM 'PURPLE DIAMOND'	PURPLE DIAMOND LOROPETALUM	25	3 GAL.	AS SHOWN
D	ILEX CORNUTA 'BUFORDII NANA'	DWARF BUFORD HOLLY	141	3 GAL.	AS SHOWN
E	MUHLENBERGIA CAPILLARIS	PINK MUHLY GRASS	33	3 GAL.	AS SHOWN
F	DISTYILLUM 'CANDACE JADE'	CANDANCE JADE DISTYILLUM	6	3 GAL.	AS SHOWN
G	ILEX VOMITORIA 'BORDEAUX'	BOURDEAUX YAUPON HOLLY	10	3 GAL.	AS SHOWN
H	JUNIPERUS VIRGINIANA 'TAYLOR'	TAYLOR JUNIPER TREE	2	8'-10' HT.	AS SHOWN
I	TULBAGHIA VIOLACEA	SOCIETY GARLIC	110	12" POT	2' O.C.
	CENTIPEDE SOD	CENTIPEDE SOD	±2,250 S.F.		
	DBL. HAMMERED HARDWOOD MULCH	DBL. HAMMERED HARDWOOD MULCH	3" MIN. DEPTH		

GENERAL NOTES:
- QUANTITIES ARE SHOWN FOR INFORMATION ONLY. THE CONTRACTOR IS RESPONSIBLE FOR HIS OR HER OWN QUANTITIES. IF THERE IS A CONFLICT BETWEEN QUANTITIES AND SPACING, SPACING SHALL PREVAIL.
- ALL AREAS NOT COVERED BY CONSTRUCTION OR PLANT BED AREAS, SHALL BE PLACED IN TURF. ALL R.O.W. AREAS BETWEEN PLANT BEDS AND EDGE OF PAVEMENT SHALL BE PLACED IN TURF.
- THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS AND LICENSEES FROM THE PROPER AUTHORITIES BEFORE BEGINNING ANY WORK WITHIN THE R.O.W. OR OFF SITE.
- STEEL EDGING TO BE BORDER CONCEPTS "BORDER STRETCH" IN BLACK OR APPROVED EQUAL. BORDER CONCEPTS -WWW.BORDERCONCPETS.COM 800-845-3343.
- ALL NEW PLANTINGS TO BE MECHANICALLY IRRIGATED. EXISTING FIELD NOT TO BE IRRIGATED. CONTRACTOR TO CONNECT TO EXISTING IRRIGATION; SEE IRRIGATION PLAN. CONTRACTOR TO ADJUST AS NECESSARY.
- ALL DISTURBED AREAS NOT SODDED TO BE HYDROSEEDED; SEE EROSION CONTROL PLANS FOR LIMITS OF DISTURBANCE.
- ALL CANOPY TREES SHALL BE LIMBED TO 7' HEIGHT MINIMUM.
- ALL PLANTINGS SHALL BE INSTALLED ACCORDING TO ANLA'S AMERICAN STANDARDS FOR NURSERY STOCK. (ANSI) RECOMMENDATIONS.

3 DAYS BEFORE DIGGING IN SOUTH CAROLINA
CALL 1-800-922-0983
UNDERGROUND LOCATORS. CONTRACTOR SHALL CONTACT THE UNDERGROUND LOCATORS EVERY 10 DAYS FOR AN UPDATE TO UTILITY LOCATIONS.

PLANT KEY
QUANTITY

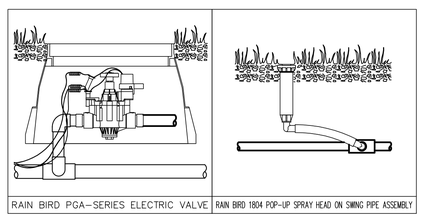
LEGEND

SYMBOL	DESCRIPTION
	RAIN BIRD INLINE DRIP TUBING ON 18" SPACING
	RAIN BIRD 1804 POP-UP SPRAY HEADS WITH THE FOLLOWING NOZZLES:
	8H 12Q
	RAIN BIRD 100-PGA ELECTRIC VALVES (SEE VALVE SCHEDULE)
	12H 15Q
	1" RAIN BIRD XCZ-LC DRIP ASSEMBLY
	4" PVC SLEEVING
	PVC LATERAL PIPING
	2" PVC MAINLINE PIPING

NOTES: SYSTEM DESIGNED FOR 30-35 GPM WITH A MAXIMUM FLOW OF 50 GPM.

VALVE SCHEDULE

VALVE #	GPM	SIZE	HEAD TYPE
V1	---	1"	DRIP
V2	---	1"	1804
V3	----	1"	DRIP
V4	TBD	1"	1804



*NOTE:
IRRIGATION PLAN IS CONCEPTUAL IN NATURE; CONTRACTOR TO DESIGN BUILD AND MODIFY AS NECESSARY. DRIP IRRIGATION IS TO BE USED IN ALL NEW PLANT BEDS, NEW SOD IS TO BE SPRAYED WITH ROTARS. CONTRACTOR TO COORDINATE WITH BROCK MCDANIEL TO FIND EXISTING 2' IRRIGATION LINE AND TIE ALL NEW ZONES TO EXISTING. INSTALL NEW TBOS CONTROLLER

THE LANDPLAN GROUP SOUTH
LANDSCAPE ARCHITECTURE • ENGINEERING • PLANNING
1206 SCOTT STREET
COLUMBIA, SC 29201
803.256.0562
WWW.LANDPLANSOUTH.COM

NORTH CAROLINA LANDSCAPE ARCHITECTURAL CORP. No. 153 THE LANDPLAN GROUP SOUTH INC. CERTIFICATE OF AUTHORIZATION

NORTH MAIN STREET IMPROVEMENT PROJECT - PHASE II

SUMTER, SC

DETAILS

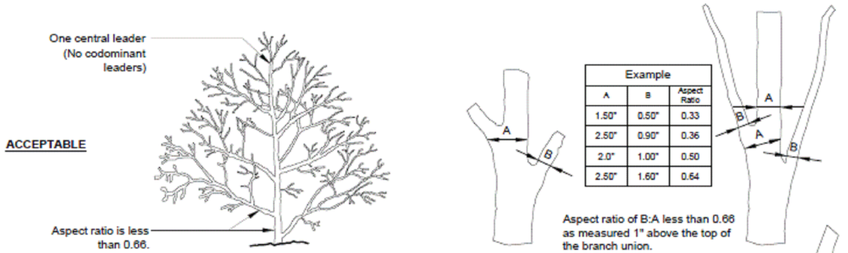
State of South Carolina REGISTERED LANDSCAPE ARCHITECT No. 1140 JAMES W. HONELL

REVISION	BY	APPD.	MM.DD.YY
1			
2			
3			
4			
5			

DWN.	CHKD.	DSGN.	MM.DD.YY

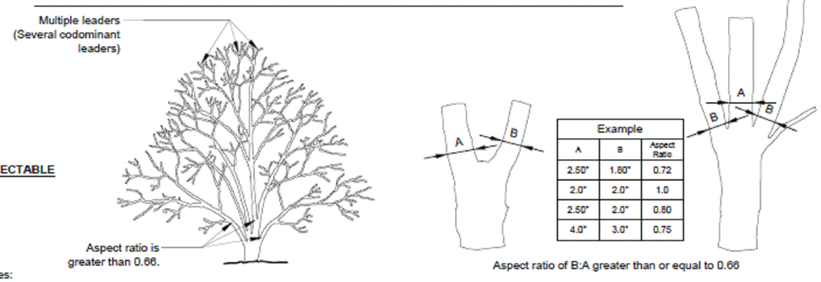
FILE NAME:

JOB #: 0885A
SCALE: 1" = 10'
SHEET: 19 OF 19



Example		
A	B	Aspect Ratio
1.50"	0.50"	0.33
2.50"	0.90"	0.36
2.0"	1.00"	0.50
2.50"	1.60"	0.64

Aspect ratio of B:A less than 0.66 as measured 1" above the top of the branch union.



Example		
A	B	Aspect Ratio
2.50"	1.80"	0.72
2.0"	2.0"	1.0
2.50"	2.0"	0.80
4.0"	3.0"	0.75

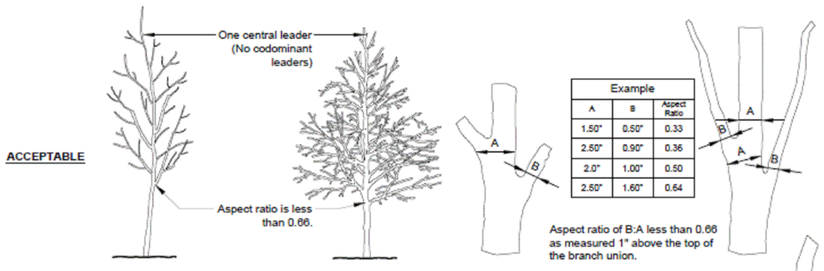
Aspect ratio of B:A greater than or equal to 0.66

Notes:
1- Aspect ratio shall be less than 0.66 on all branch unions. Aspect ratio is the diameter of branch (B) divided by the diameter of the trunk (A) as measured 1" above the top of the branch union.

2- Any tree not meeting the crown observations detail may be rejected.

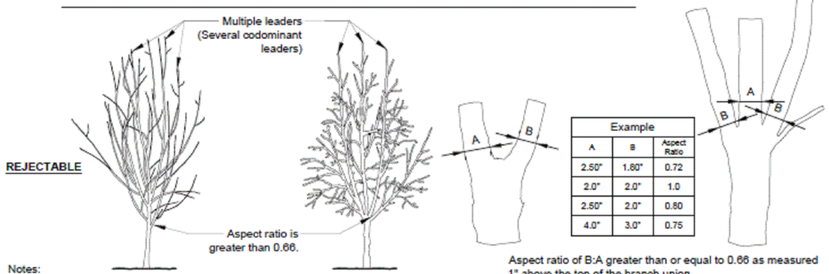
P-X CROWN OBSERVATIONS - LOW BRANCHED

URBAN TREE FOUNDATION © 2014
OPEN SOURCE FREE TO USE



Example		
A	B	Aspect Ratio
1.50"	0.50"	0.33
2.50"	0.90"	0.36
2.0"	1.00"	0.50
2.50"	1.60"	0.64

Aspect ratio of B:A less than 0.66 as measured 1" above the top of the branch union.



Example		
A	B	Aspect Ratio
2.50"	1.80"	0.72
2.0"	2.0"	1.0
2.50"	2.0"	0.80
4.0"	3.0"	0.75

Aspect ratio of B:A greater than or equal to 0.66 as measured 1" above the top of the branch union.

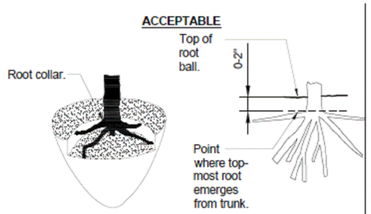
Notes:
1- Aspect ratio shall be less than 0.66 on all branch unions. Aspect ratio is the diameter of branch (B) divided by the diameter of the trunk (A) as measured 1" above the top of the branch union.

2- Any tree not meeting the crown observations detail may be rejected.

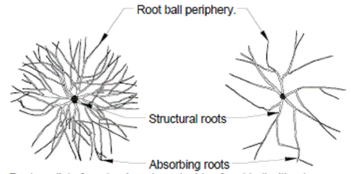
P-X CROWN OBSERVATIONS - HIGH BRANCHED

URBAN TREE FOUNDATION © 2014
OPEN SOURCE FREE TO USE

ACCEPTABLE



The point where top-most root(s) emerges from the trunk (root collar) should be within the top 2" of substrate. The root collar and the root ball interior should be free of defects including circling, kinked, ascending, and stem girdling roots. Structural roots shall reach the periphery near the top of the root ball.

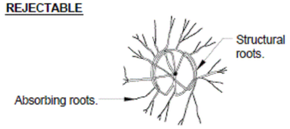


Roots radiate from trunk and reach side of root ball without defecting down or around.

REJECTABLE



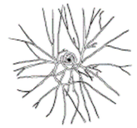
Structural roots circle interior of root ball. No structural roots are horizontal and reach the root ball periphery near the top of the root ball.



Only absorbing roots reach the periphery near the top of the root ball. Structural roots mostly wrap or are deflected on the root ball interior.



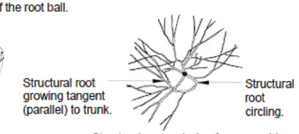
Structural roots descend into root ball interior. No structural roots are horizontal and reach the root ball periphery near the top of the root ball.



Structural roots circle and do not radiate from the trunk.



Structural roots primarily grow to one side.



Structural roots missing from one side, and/or grow tangent to trunk.

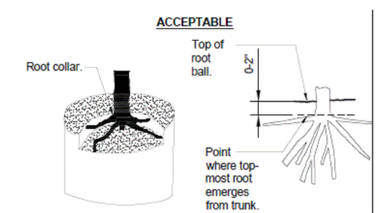
Notes:
1- Observations of roots shall occur prior to acceptance. Roots and soil may be removed during the observation process; substrate/soil shall be replaced after the observations have been completed.

2- See specifications for observation process and requirements.

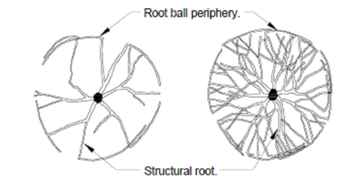
P-X ROOT OBSERVATIONS DETAIL - BALLED AND BURLAPPED

URBAN TREE FOUNDATION © 2014
OPEN SOURCE FREE TO USE

ACCEPTABLE



The point where top-most root(s) emerges from the trunk (root collar) should be within the top 2" of substrate. The root collar and the root ball interior should be free of defects including circling, kinked, ascending, and stem girdling roots. Structural roots shall reach the periphery near the top of the root ball.

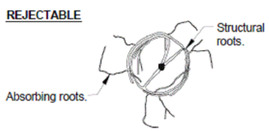


Roots radiate from trunk and reach side of root ball without deflecting down or around.

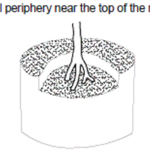
REJECTABLE



Structural roots circle interior of root ball. No structural roots are horizontal and reach the root ball periphery near the top of the root ball.



Only absorbing roots reach the periphery near the top of the root ball. Structural roots mostly wrap or are deflected on the root ball interior.



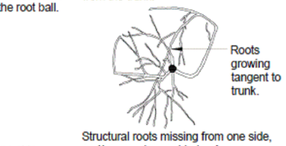
Structural roots descend into root ball interior. No structural roots are horizontal and reach the root ball periphery near the top of the root ball.



Structural roots circle and do not radiate from the trunk.



Structural roots primarily grow to one side.



Structural roots missing from one side, and/or grow tangent to trunk.

Notes:
1- Observations of roots shall occur prior to acceptance. Roots and substrate may be removed during the observation process; substrate/soil shall be replaced after observation has been completed.
2- Small roots (½" or less) that grow around, up, or down the root ball periphery are considered a normal condition in container production and are acceptable however they should be eliminated at the time of planting. Roots on the periperhy can be removed at the time of planting. (See root ball shaving container detail).
3- See specifications for observation process and requirements.

P-X ROOT OBSERVATIONS DETAIL - CONTAINER

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General Notes

CITY OF Sumter
UNCOMMON PATRIOTISM

No.	Revision/Issue	Date

Firm Name and Address

CITY OF SUMTER
PARKS & GARDENS

Project Name and Address

Project	Sheet
Date	1 OF 2
Scale	



Before planting, tree has three codominant stems. The two that compete with the one in the center should be pruned to supress their growth.

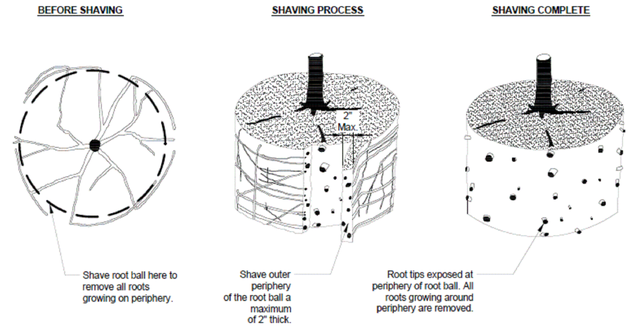
Two competing stems were reduced substantially, in this case removing about 70% of their foliage using reduction cuts.

After pruning, tree has only one dominant stem.

Notes:
1- All trees shown are rejectable unless they undergo recommended treatment.
2- Tree shall meet crown observation detail following correction.

S-X CROWN CORRECTION DETAIL

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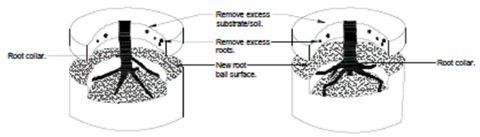
Notes:
1- Shaving to be conducted using a sharp blade or hand saw eliminating no more than needed to remove all roots on the periphery of root ball.

2- Shaving can be performed just prior to planting or after placing in the hole.

P-X ROOT BALL SHAVING CONTAINER DETAIL

URBAN TREE FOUNDATION© 2014
OPEN SOURCE FREE TO USE

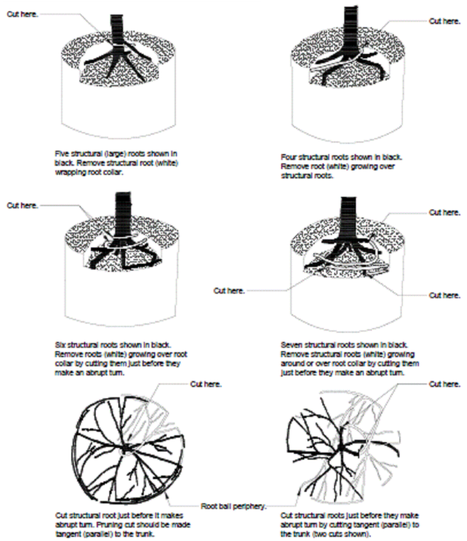
Step 1 - Remove substrate over root collar.



Tree planted too deeply in root ball. Remove excess substrate and roots to meet root inspection detail.

Tree planted too deeply in root ball. Remove excess substrate and roots to meet root inspection detail.

Step 2 - Remove defects.



Five structural (large) roots shown in black. Remove structural root (white) wrapping root collar.

Four structural roots shown in black. Remove root (white) growing over structural roots.

Six structural roots shown in black. Remove roots (white) growing over root collar by cutting them just before they make an abrupt turn.

Seven structural roots shown in black. Remove structural roots (white) growing around or over root collar by cutting them just before they make an abrupt turn.

Cut structural root just before it makes abrupt turn. Pruning cut should be made tangent (parallel) to the trunk.

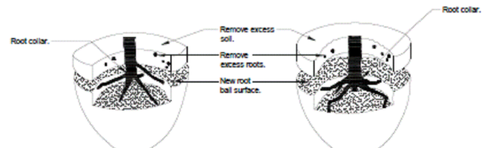
Cut structural roots just before they make abrupt turn by cutting tangent (parallel) to the trunk (two cuts shown).

Notes:
1- All trees shown are rejectable unless they undergo recommended correction.
2- First Step 1, then Step 2. Roots and soil may be removed during the correction process; substrate/soil shall be replaced after correction has been completed.
3- Trees shall meet root observations detail following correction.
4- Small roots (1/4" or less) on the periphery of the root ball are common with container plant production. These small roots are not defined as "defects" and can be addressed at the time of installation (See root ball shaving container detail).

P-X ROOT CORRECTION DETAIL - CONTAINER

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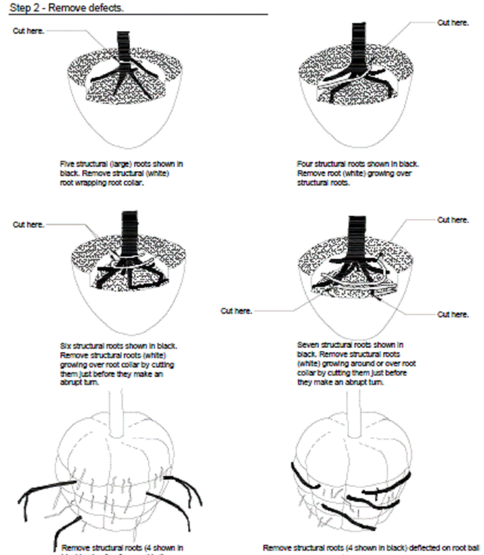
Step 1 - Remove soil and roots over the root collar.



Tree planted too deeply in root ball. Remove excess soil and roots to meet root inspection detail.

Tree planted too deeply in root ball. Remove excess soil and roots to meet root inspection detail.

Step 2 - Remove defects.



Five structural (large) roots shown in black. Remove structural (white) root wrapping root collar.

Four structural roots shown in black. Remove root (white) growing over structural roots.

Six structural roots shown in black. Remove structural roots (white) growing over root collar by cutting them just before they make an abrupt turn.

Seven structural roots shown in black. Remove structural roots (white) growing around or over root collar by cutting them just before they make an abrupt turn.

Remove structural roots (4 shown in black) extending from root ball.

Remove structural roots (4 shown in black) deflected on root ball periphery. Small roots (½" or less) at the periphery of the root ball are not defined as defects and do not need to be removed.

Notes:
1- All trees shown are rejectable unless they undergo recommended correction.
2- First step 1, then step 2. Adjust hole depth to allow for the removal of excess soil and roots over the root collar.
3- Roots and soil may be removed during the correction process; substrate/soil shall be replaced after the correction has been completed.
4- Trees shall pass root observations detail following correction.

P-X ROOT CORRECTION DETAIL - BALLED AND BURLAPPED

URBAN TREE FOUNDATION© 2014
OPEN SOURCE FREE TO USE

General Notes

CITY OF Sumter
UNCOMMON PATRIOTISM

STATE OF SOUTH CAROLINA
REGISTERED LANDSCAPE ARCHITECT
1236
BROCK A. MCDANIEL

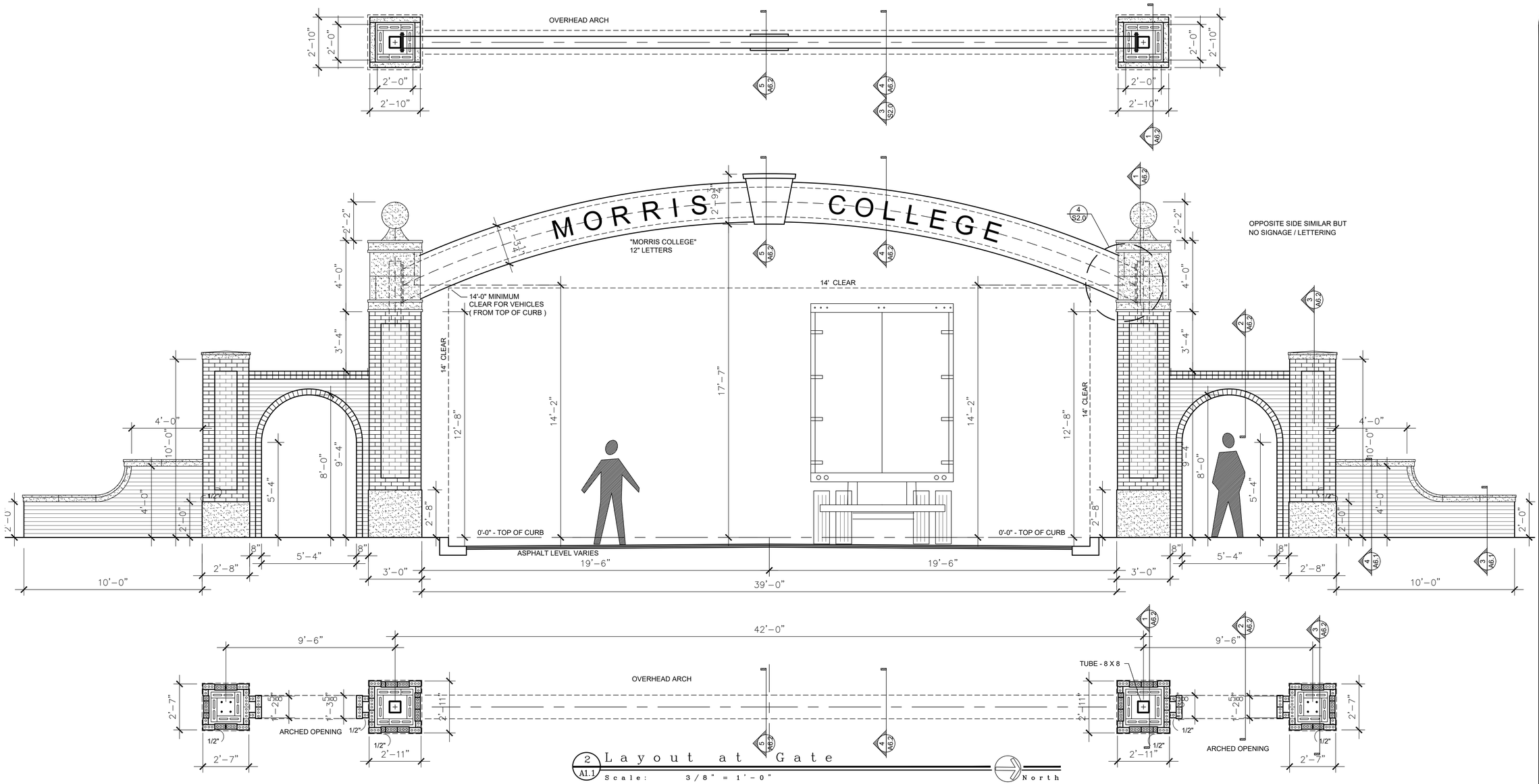
No.	Revision/Issue	Date

Firm Name and Address

CITY OF SUMTER
PARKS & GARDENS

Project Name and Address

Project	Sheet
Date	2 OF 2
Scale	

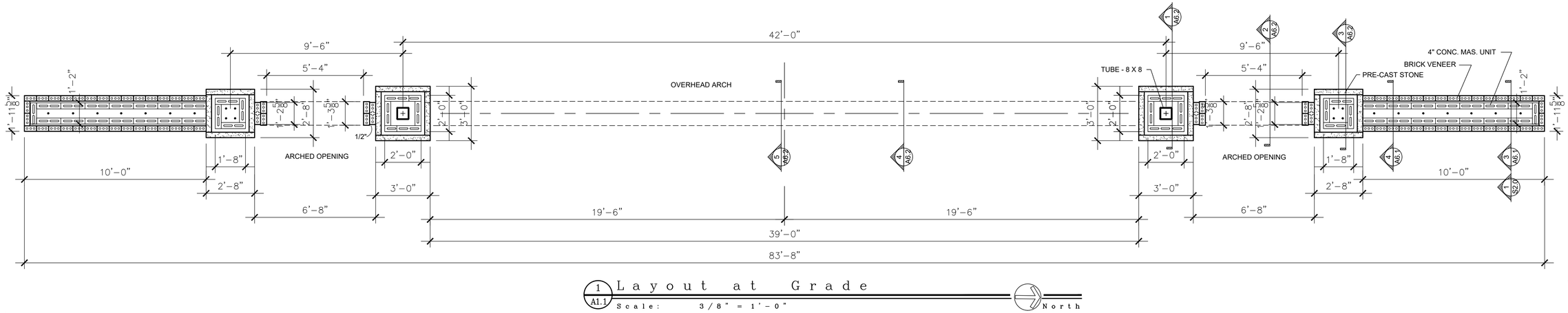


2 A1.1 Layout at Gate

Scale: 3/8" = 1'-0"

1 A1.1 Layout at Grade

Scale: 3/8" = 1'-0"



RS Bell
ARCHITECTS
LLC
134 N. Main Street
Sumter, South Carolina
803 774-3025

Date:
October 20, 2024

STATE OF SOUTH CAROLINA
RS Bell
Architects, LLC
Sumter, S.C.
100266
REGISTERED ARCHITECTS

STATE OF SOUTH CAROLINA
Ronald
Scott Bell
5044
REGISTERED ARCHITECT

Proposed Entry
Area For :

Morris College

100 W. College Street
Sumter, South Carolina

Entrance Gate

Scale:
3/8" = 1'-0"

Project No. : 24-020
File No. : 68-979904

Revisions:

0 2 4 6
GRAPHIC SCALE: 3/8" = 1'-0"

Sheet:
A 1.1

HVAC SCHEDULE

TWHP-1

THRU WALL HEAT PUMP BY-
FRIEDRICH - MODEL PVH12K (R 32)

750 CFM

11.8 MBH TOTAL COOLING, 11.5 MBH HEATING CAPACITY AT STANDARD CONDITIONS

2.7 kW ELECTRIC HEATER AT 208 - 1 - 60

FURNISH WITH WALL SLEEVE, ARCHITECTURAL WALL GRILL AND CONDENSATE DRAIN KIT.

COORDINATE PLUG TYPE AND LOCATION OF OUTLET WITH ELECTRICAL SUB.

Electrical LEGEND

- CEILING MOUNTED LIGHT FIXTURE
- TYPICAL DUPLEX OUTLET
- WP — WEATHER PROOF DUPLEX OUTLET
- EXTERIOR FLOOD LIGHTS
- SECURITY CAMERA LOCATION
- I T / TELE BOX -
- S — SWITCH
- S DIM — DIMMER SWITCH

INTERIOR FINISH SCHEDULE

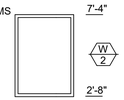
#	DESCRIPTION	FLOOR	BASEBOARD	WALLS	CEILING	NOTES / TRIM
101	SECURITY	LUX. VINYL TILE	4" VINYL BASE	PAINTED CONC. MASORY UNIT	PAINTED 5/8" GYP. BOARD	PLASTIC LAMINATE COUNTERTOPS

WINDOW / DOOR SCHEDULE

MARK W-3
SIZE 3'-4" WIDE BY 4'-8" HIGH
TYPE FIXED EXTRUDED ALUMINUM STOREFRONT
MFG. KAWNEER - TRI-FAB VERSAGLAZE 451 FRAMING SYSTEM
CENTER GLAZED OR APPROVED EQUAL
RATING NONE
NOTES INTEGRATED SILL RECEPTOR/FLASHING WITH END DAMS
FRAME COLOR - TO BE DETERMINED FROM MFG. STD. COLOR CHART

1" DOUBLE PANE INSULATED GLASS
COLOR - CLEAR
SAFETY GLASS WHERE REQUIRED BY IBC

PER TABLE 502.3 IECC
PF = 0
REQUIRED U FACTOR - .60
REQD. SOLAR HEAT GAIN COEF - .25



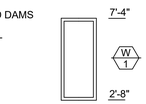
MARK A
SIZE 7'-0" x 3'-0" x 1 3/4"
TYPE 16 GAGE INSULATED METAL DOOR - SINGLE DOOR - SINGLE SWING
MFG. STEELCRAFT OR APPROVED EQUAL
FRAME 16 GAGE HOLLOW METAL FRAME - WELDED CORNERS
MFG. STEELCRAFT OR APPROVED EQUAL
RATING NONE
LITE 4" x 24" - W/ PAINTED TRIM KIT
ALL GLASS TO BE SAFETY GLASS WHERE REQUIRED BY IBC
NOTES TO BE INSTALLED IN A 8" C.M.U. WALL WITH BRICK VENEER 4" HEAD FOR MASONRY COURSING
HARDWARE HD HINGES, SILENCERS, WEATHER STRIPPING, LEVER LOCKSET

WINDOW / DOOR SCHEDULE

MARK W-1
SIZE 2'-0" WIDE BY 4'-8" HIGH
TYPE FIXED EXTRUDED ALUMINUM STOREFRONT
MFG. KAWNEER - TRI-FAB VERSAGLAZE 451 FRAMING SYSTEM
CENTER GLAZED OR APPROVED EQUAL
RATING NONE
NOTES INTEGRATED SILL RECEPTOR/FLASHING WITH END DAMS
FRAME COLOR - TO BE DETERMINED FROM MFG. STD. COLOR CHART

1" DOUBLE PANE INSULATED GLASS
COLOR - CLEAR
SAFETY GLASS WHERE REQUIRED BY IBC

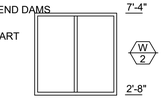
PER TABLE 502.3 IECC
PF = 0
REQUIRED U FACTOR - .60
REQD. SOLAR HEAT GAIN COEF - .25

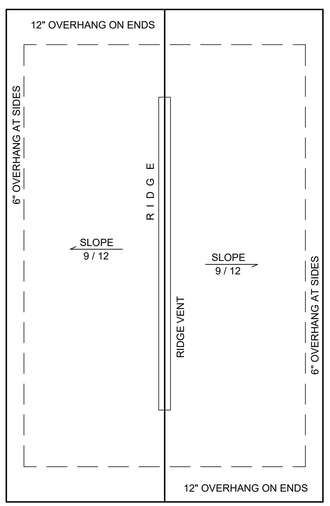


MARK W-2
SIZE 4'-8" WIDE BY 4'-8" HIGH
TYPE FIXED EXTRUDED ALUMINUM STOREFRONT
MFG. KAWNEER - TRI-FAB VERSAGLAZE 451 FRAMING SYSTEM
CENTER GLAZED OR APPROVED EQUAL
RATING NONE
NOTES INTEGRATED SILL RECEPTOR/FLASHING WITH END DAMS
FRAME COLOR - TO BE DETERMINED FROM MFG. STD. COLOR CHART

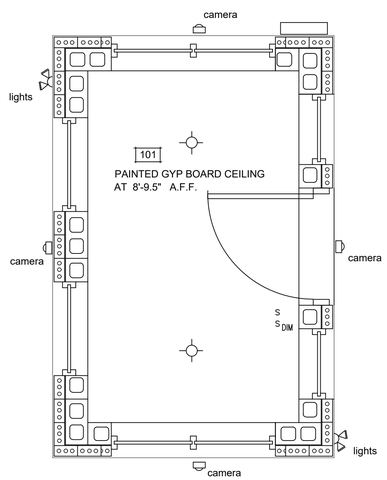
1" DOUBLE PANE INSULATED GLASS
COLOR - CLEAR
SAFETY GLASS WHERE REQUIRED BY IBC

PER TABLE 502.3 IECC
PF = 0
REQUIRED U FACTOR - .60
REQD. SOLAR HEAT GAIN COEF - .25

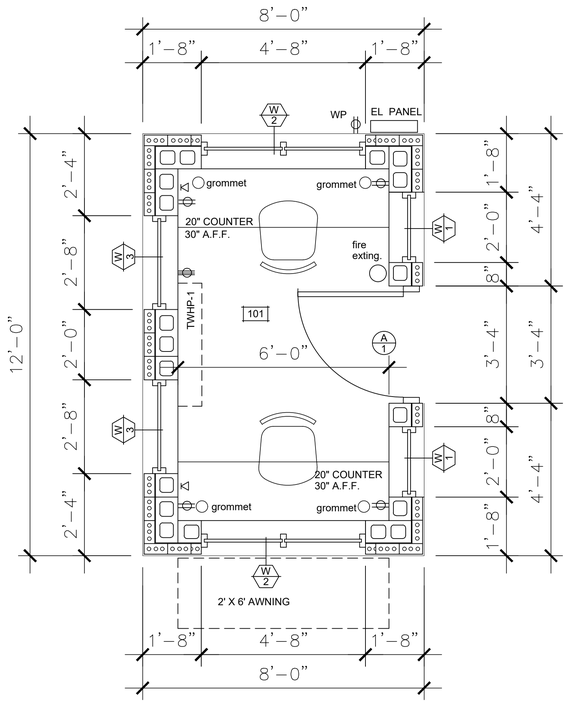




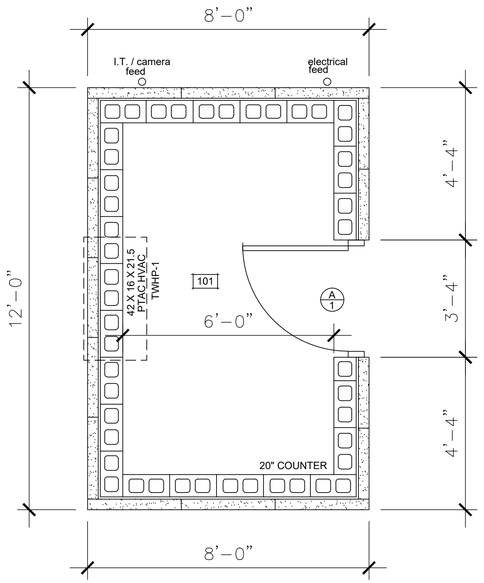
4 A1.2 Roof Plan
Scale: 1/2" = 1'-0" North



3 A1.2 Ceiling Plan
Scale: 1/2" = 1'-0" North



2 A1.2 Layout at Windows
Scale: 1/2" = 1'-0" North



1 A1.2 Layout at Grade
Scale: 1/2" = 1'-0" North

RS Bell
ARCHITECTS LLC
134 N. Main Street
Sumter, South Carolina
803 774-3025

Date:
October 20, 2024

STATE OF SOUTH CAROLINA — RS Bell — Architects, LLC — Sumter, S.C. — 100266 — REGISTERED ARCHITECTS

STATE OF SOUTH CAROLINA — Ronald Scott Bell — 5044 — REGISTERED ARCHITECTS

Proposed Entry Area For :

Morris College

100 W. College Street
Sumter, South Carolina

Security Office Plans

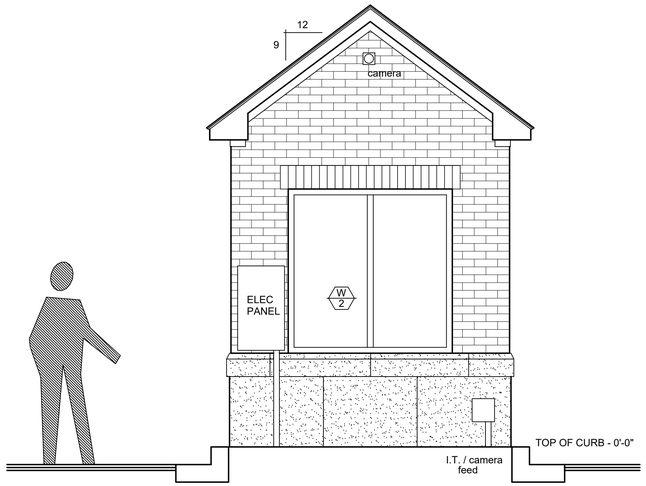
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1/2" = 1'-0"

Project No. : 24-020
File No. : 68-979904

Revisions:

0 1 2 3 4
GRAPHIC SCALE: 1/2" = 1'-0"

Sheet:
A 1.2



5 A1.3 West (Rear) Elevation

Scale: 1/2" = 1'-0"



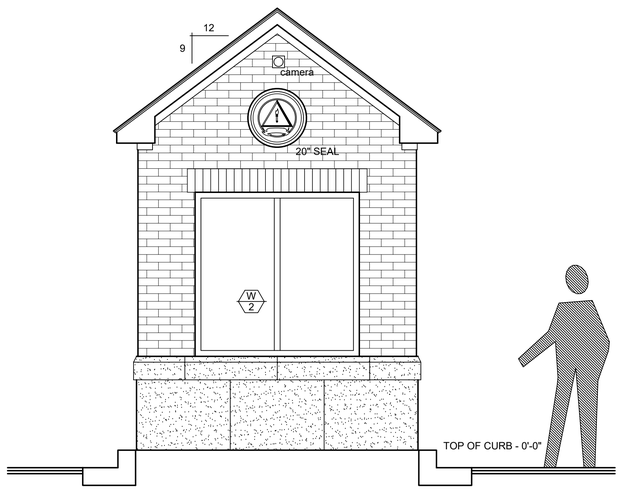
4 A1.3 South (Side) Elevation

Scale: 1/2" = 1'-0"



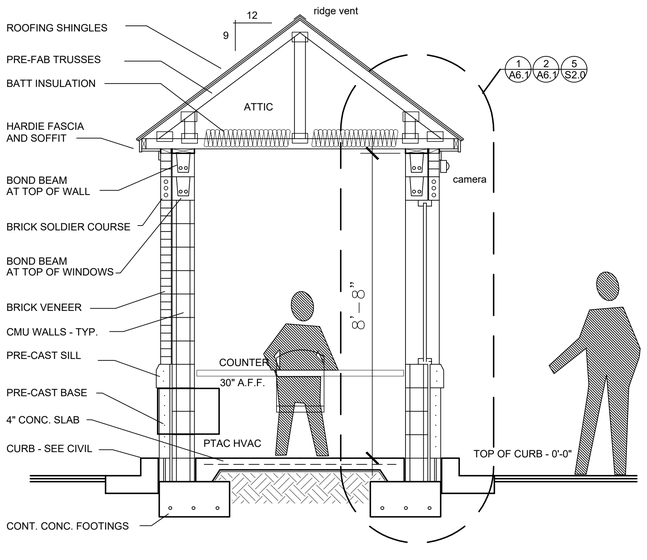
3 A1.3 North (Door) Elevation

Scale: 1/2" = 1'-0"



2 A1.3 East (Front) Elevation

Scale: 1/2" = 1'-0"



1 A1.3 Building Section

Scale: 1/2" = 1'-0"

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Ronald Scott Bell
5044
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Proposed Entry Area For :

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Security Office Elevations

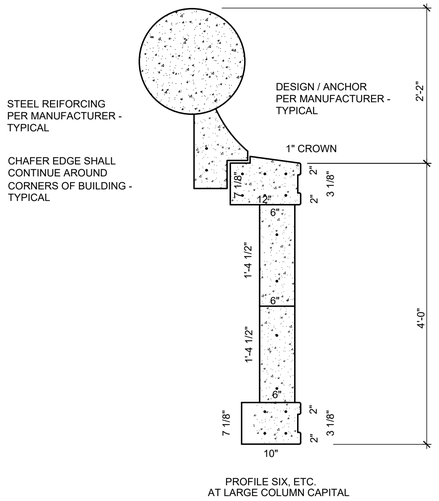
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Project No. : 24-020
File No. : 68-979904

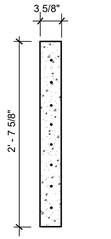
Revisions:

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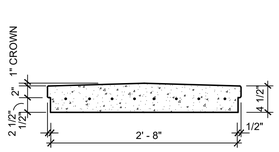
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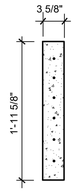
PROFILE SIX, ETC.
AT LARGE COLUMN CAPITAL



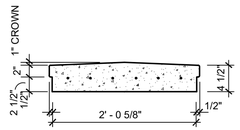
PROFILE FIVE
AT LARGE COLUMN



PROFILE FIVE



PROFILE FOUR
AT 10' COLUMN

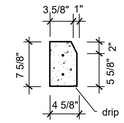


PROFILE THREE

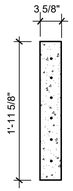
STEEL REIFORCING
PER MANUFACTURER -
TYPICAL

CHAFER EDGE SHALL
CONTINUE AROUND
CORNERS OF BUILDING -
TYPICAL

IT IS THE DESIGN INTENT
THAT "PROFILE ONE" SHALL
COURSE OUT WITH 3 BRICKS



PROFILE ONE

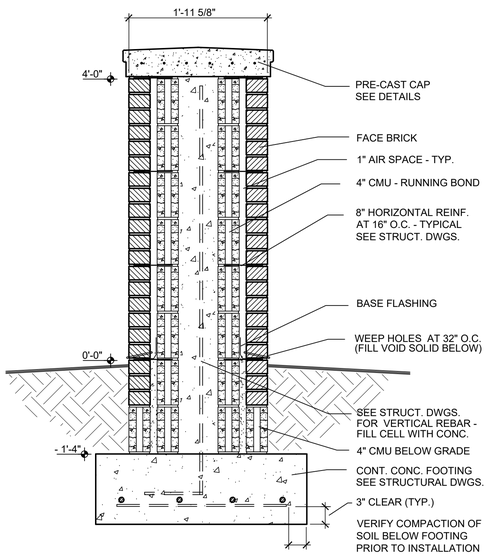


PROFILE TWO

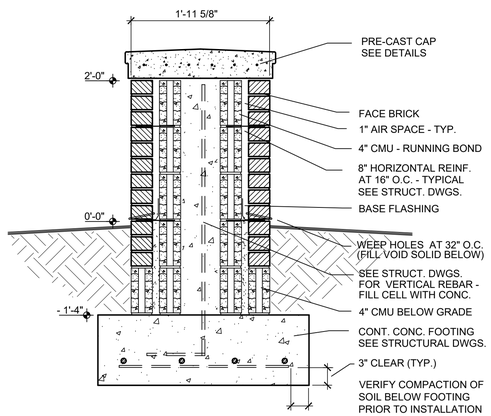
LENGTHS OF UNITS
SHALL BE DETERMINED
BY THE MANUFACTURER
TYPICALLY PER THE
EXACT PLACEMENT OF
THE PIECE -
THE DESIGN INTENT OF
THE DETAIL IS THAT EACH
SECTION BE APPROX
2'-8" LONG

ALL EXPOSED CORNERS
TO BE "EASED"

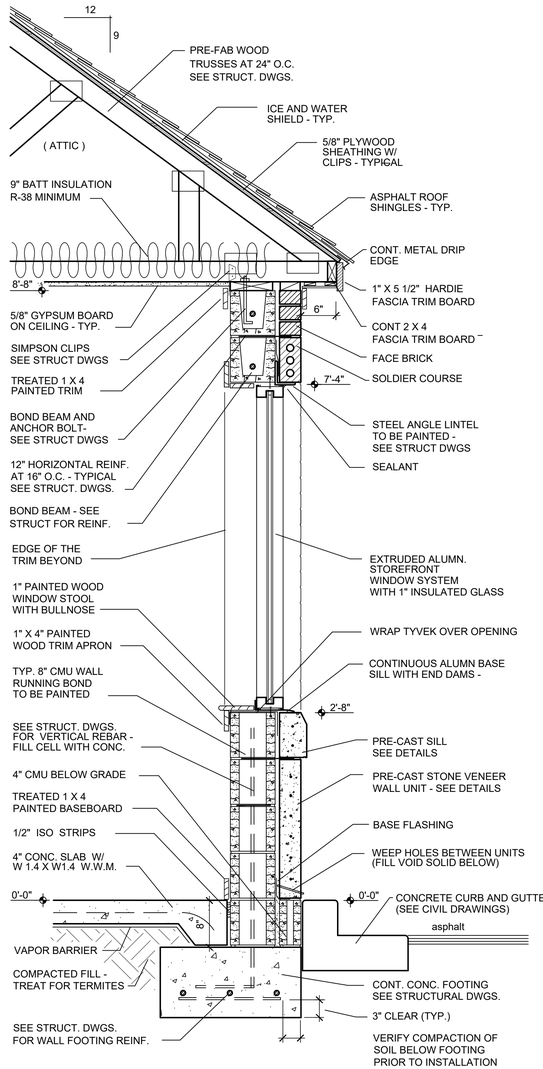
5 A6.1 Pre-cast Stone Profiles
Scale: 1" = 1'-0"



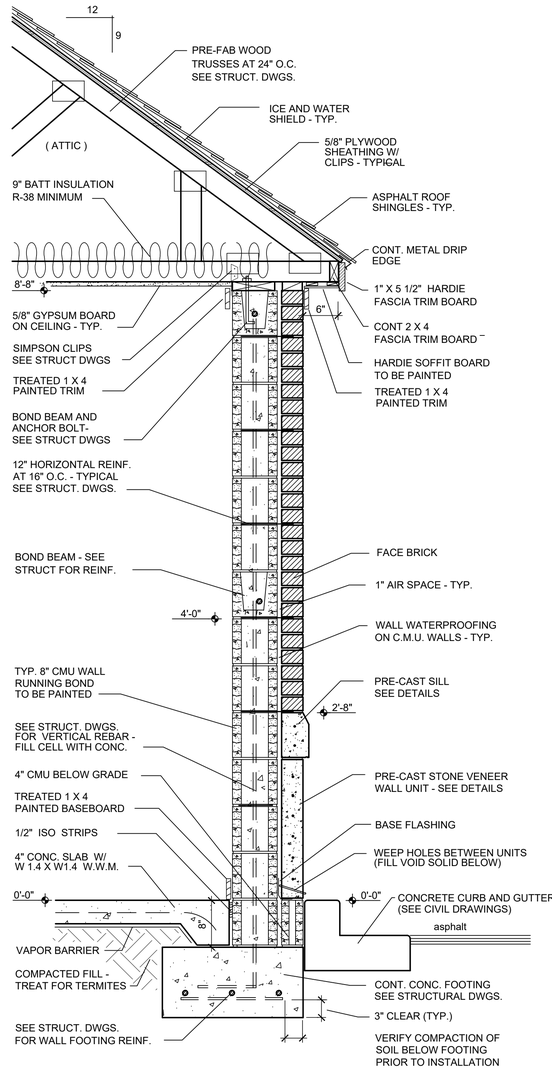
4 A6.1 Wall Section
Scale: 1" = 1'-0"



3 A6.1 Wall Section
Scale: 1" = 1'-0"



2 A6.1 Wall Section
Scale: 1" = 1'-0"



1 A6.1 Wall Section
Scale: 1" = 1'-0"

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100266

STATE OF SOUTH CAROLINA
REGISTERED ARCHITECTS
Ronald
Scott Bell
Sumter, S.C.
5044

Proposed Entry
Area For :

Morris College

100 W. College Street
Sumter, South Carolina

Wall Sections /
Details

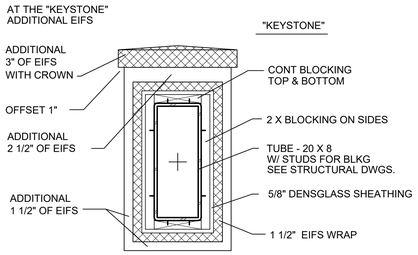
Scale:
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Project No. : 24-020
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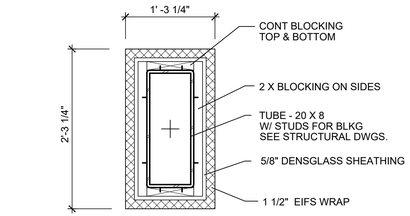
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GRAPHIC SCALE: 1" = 1'-0"

Sheet:
A 6.1



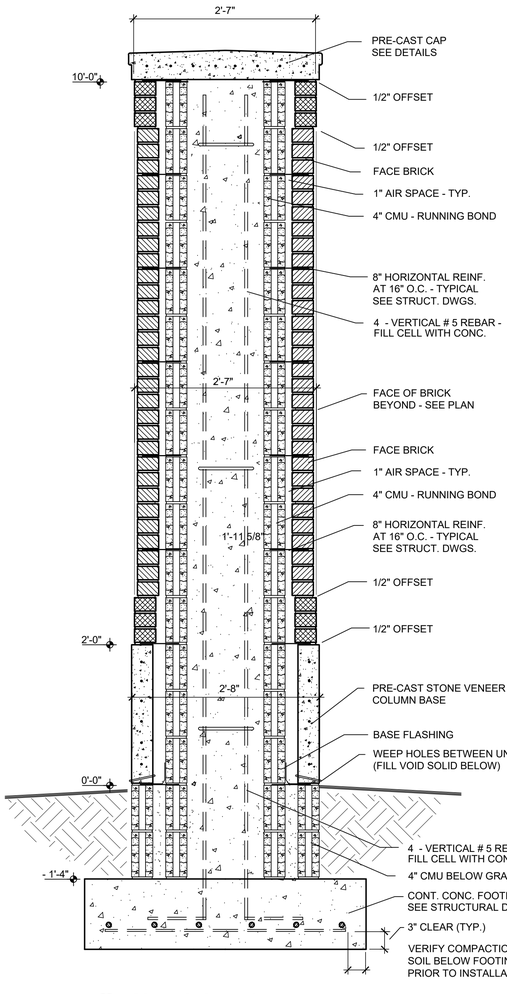
5 A6.2 Beam Section

Scale: 1" = 1'-0"



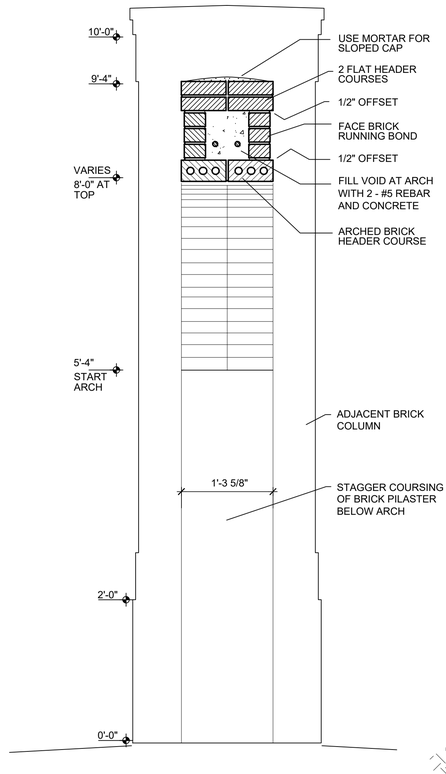
4 A6.2 Beam Section

Scale: 1" = 1'-0"



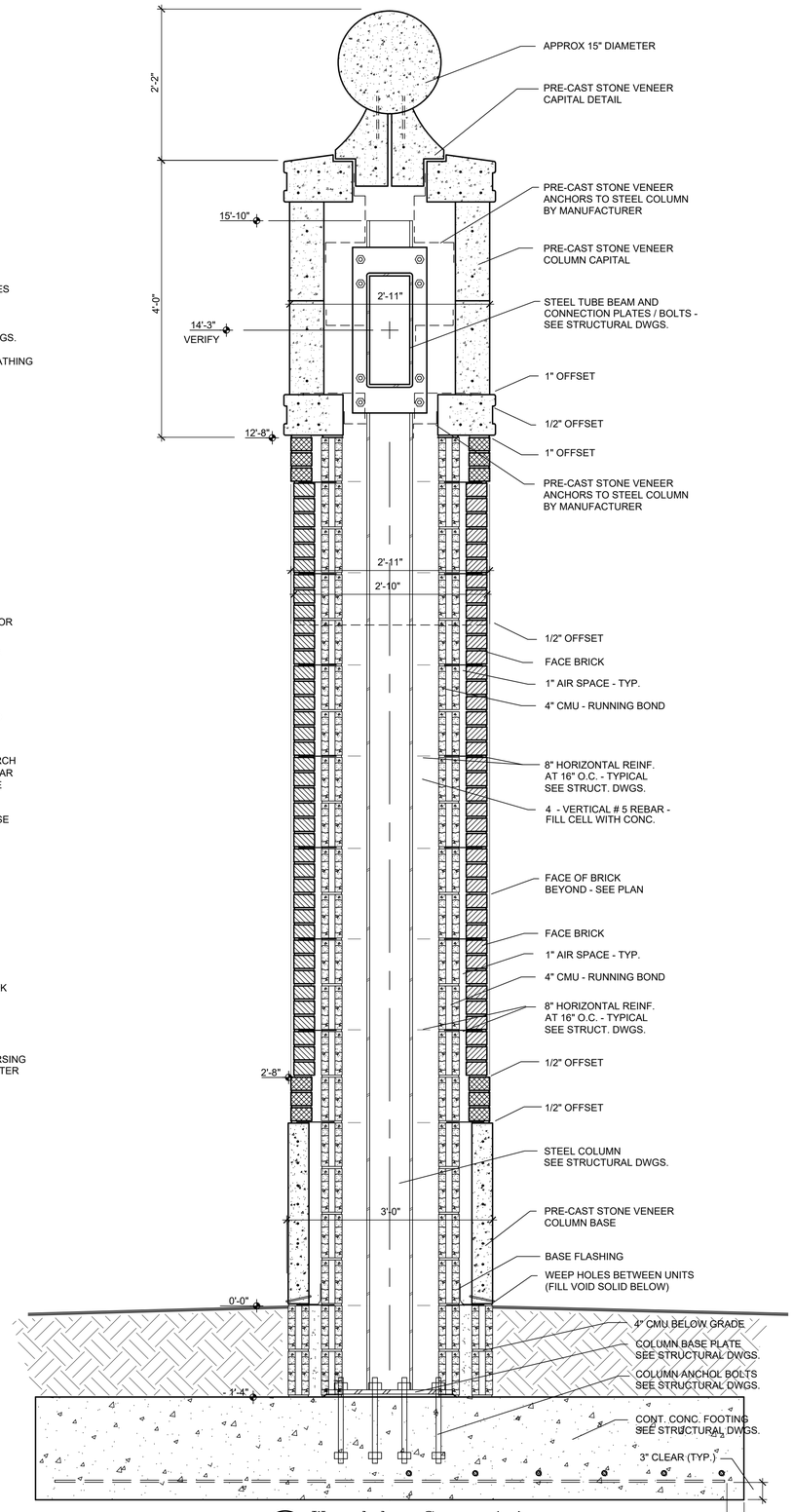
3 A6.2 Wall Section

Scale: 1" = 1'-0"



2 A6.2 Wall Section

Scale: 1" = 1'-0"



1 A6.2 Wall Section

Scale: 1" = 1'-0"

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Proposed Entry
Area For :

Morris College

100 W. College Street
Sumter, South Carolina

Wall Sections /
Details

Scale:
1" = 1'-0"

Project No. : 24-020
File No. : 68-979904

Revisions:

0 6" 1' 2'
GRAPHIC SCALE: 1" = 1'-0"

Sheet:
A 6.2

STRUCTURAL DESIGN CRITERIA:

APPLICABLE BUILDING CODES:
- A. 2021 SOUTH CAROLINA BUILDING CODE
- B. ASCE STANDARD: ASCE 7-16

PROJECT LOCATION: SUMTER, SOUTH CAROLINA

DESIGN LOADS:

A. WIND LOADS

a.	ULTIMATE DESIGN WIND SPEED V_{ult}:	122 MPH
b.	RISK CATEGORY:	II
c.	WIND EXPOSURE CATEGORY:	B

B. SEISMIC LOADS

a.	SEISMIC IMPORTANCE FACTOR:	1.0
b.	RISK CATEGORY:	II
c.	S_s:	0.38g
d.	S_1:	0.128g
e.	SITE CLASS:	D
f.	S_{ds}:	0.379g
g.	S_{d1}:	0.205g
h.	SEISMIC DESIGN CATEGORY:	C

GENERAL NOTES:

- THE CONTRACTOR SHALL REVIEW AND BE THOROUGHLY FAMILIAR WITH THESE STRUCTURAL DRAWINGS. PLEASE NOTIFY PROJECT ENGINEER IN WRITING WITH ANY QUESTIONS/CLARIFICATIONS NECESSARY TO CONTINUE CONSTRUCTION.
- THE CONTRACTOR SHALL MAKE NO DEVIATIONS FROM THE STRUCTURAL DRAWINGS WITHOUT OBTAINING WRITTEN PERMISSION FROM THE PROJECT ENGINEER. ANY QUESTIONS RELATING TO THESE STRUCTURAL DRAWINGS MAY BE DIRECTED TO:

RIVAL ENGINEERING, LLC
466 N GUIGNARD DR.
SUMTER, SC 29151
TEL: (803) 883-0079

1. WORK NOT INDICATED ON A PART OF THE DRAWINGS BUT REASONABLY IMPLIED TO BE SIMILAR TO THAT SHOWN AT CORRESPONDING PLACES SHALL BE REPEATED. ALL DETAILS AND SECTIONS ARE INTENDED TO BE TYPICAL FOR THE GENERAL CONDITIONS INDICATED.
2. THE STRUCTURAL DESIGN TAKES INTO CONSIDERATION ALL GRAVITY AND LATERAL LOADS IMPOSED ON STRUCTURE. THE PROJECT ENGINEER RESERVES THE RIGHT TO MODIFY THE LOADS AS NEEDED DURING THE SHOP DRAWING REVIEW PROCESS.
3. REFER TO ARCHITECTURAL DRAWINGS FOR ALL NON-STRUCTURAL ELEMENTS INCLUDING BUT NOT LIMITED TO: FLOOR AND WALL FINISHES, FIXTURES, DOOR AND WINDOW SIZES AND STYLES..
4. THESE DRAWINGS ARE BASED ON THE LATEST DIMENSIONS PROVIDED BY THE ARCHITECT/PLAN DESIGNER. SOME DIMENSIONS MAY BE TAKEN FROM AN ELECTRONIC FILE PROVIDED BY THE ARCHITECT/PLAN DESIGNER. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS PROVIDED ON ARCHITECTURAL DRAWINGS.
5. STRUCTURAL DRAWINGS SHALL BE USED IN CONJUNCTION WITH ARCHITECTURAL, CIVIL, MECHANICAL, PLUMBING, AND ELECTRICAL CONTRACT DRAWINGS, AND ASSOCIATED SHOP DRAWING SUBMITTALS.
6. IN CASE OF CONFLICT BETWEEN VARIOUS STRUCTURAL DRAWINGS, STRUCTURAL PLANS AND DETAILS, NOTES, AND SPECIFICATIONS; THE MORE STRINGENT REQUIREMENT SHALL GOVERN.
7. THESE DRAWINGS SHALL NOT BE REUSED, ALTERED, OR REPRODUCED IN WHOLE OR IN PART WITHOUT THE WRITTEN PERMISSION OF RIVAL ENGINEERING.
8. CONTRACTOR MINIMUM RESPONSIBILITIES:
   - A. THE CONTRACTOR SHALL NOTIFY THE PROJECT ENGINEER OF ANY UNUSUAL AND/OR EXCESSIVE LOADS NOT SHOWN ON THE DESIGN DRAWINGS.
   - B. THE CONTRACTOR SHALL MAINTAIN ADEQUATE QUALITY CONTROL OVER ALL HIS WORK AND ANY WORK BY SUBCONTRACTORS UNDER HIS SUPERVISION.
   - C. THE CONTRACTOR SHALL VERIFY FIELD DIMENSIONS AND SITE CONDITIONS AND NOTIFY PROJECT ENGINEER IMMEDIATELY OF ANY DISCREPANCIES IN WRITING.
   - D. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN AND ERECTION OF ALL TEMPORARY BRACING AND SHORING DURING ALL PHASES OF CONSTRUCTION.
   - E. THE CONTRACTOR SHALL PROTECT EXISTING FACILITIES, STRUCTURES, UTILITY LINES, ETC. FROM DAMAGE DURING CONSTRUCTION.
9. SHOP DRAWING SUBMITTALS
   - A. SHOP DRAWINGS AND SUBMITTALS SHALL BE SUBMITTED TO RIVAL ENGINEERING FOR REVIEW BEFORE ANY CONSTRUCTION BEGINS. THESE SUBMITTALS WILL BE REVIEWED FOR OVERALL COMPLIANCE AS IT RELATES TO THE STRUCTURAL DESIGN OF THIS PROJECT. VERIFICATION OF THE SHOP DRAWINGS FOR DIMENSIONS OR FOR ACTUAL FIELD CONDITIONS IS NOT THE RESPONSIBILITY OF RIVAL ENGINEERING.
   - B. THE CONTRACTOR SHALL BE RESPONSIBLE FOR GATHERING AND SUBMITTING ALL RELEVANT SHOP DRAWINGS FOR REVIEW TO THE A/E PRIOR TO CONSTRUCTION/ERECTION.
   - C. THE A/E'S REVIEW OF SHOP DRAWINGS SHALL NOT RELIEVE CONTRACTOR OF HIS RESPONSIBILITY TO VERIFY ALL DIMENSIONS, ELEVATIONS, DETAILS, ETC SHOWN ON THE SHOP DRAWINGS.
   - D. ALLOW THE PROJECT ENGINEER AMPLE TIME TO REVIEW THE SHOP DRAWINGS, INCLUDING TIME FOR RE-SUBMITTALS. TIME FOR REVIEW SHALL COMMENCE ON RIVAL ENGINEERING'S RECEIPT OF SUBMITTAL. ALLOW 15 DAYS FOR INITIAL REVIEW OF EACH SUBMITTAL AND 15 DAYS FOR EACH RE-SUBMITTAL.
   - E. HIGHLIGHT, ENCIRCLE OR OTHERWISE SPECIFICALLY IDENTIFY DEVIATIONS FROM THE CONTRACT DOCUMENTS ON SUBMITTALS.
10. ALL CONSTRUCTION MATERIALS AND INSTALLATION OF SAID MATERIALS SHALL CONFORM TO PROJECT SPECIFICATIONS.

GEOTECHNICAL:

1. THESE DESIGNS ARE BASED ON THE FOLLOWING SOIL ASSUMED PROPERTIES. IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR, OWNER OR OWNER'S AGENT TO CONTACT RIVAL ENGINEERING IF ADVERSE SOIL CONDITIONS ARE ENCOUNTERED DURING CONSTRUCTION. IT IS ALSO THE RESPONSIBILITY OF THE CONTRACTOR, OWNER OR OWNER'S AGENT TO VERIFY THE FOLLOWING SOIL PROPERTIES:

A.	ALLOWABLE SOIL BEARING CAPACITY	**1500 PSF**
B.	SUBGRADE MODULUS (K)	130 PCI
C.	ULTIMATE FRICTION COEFFICIENT B/T CONCRETE FOUNDATION AND SOIL	0.35
D.	UNIT WEIGHT OF SOIL	115 PCF
E.	ACTIVE LATERAL EARTH PRESSURE, KA	45 PSF/FT
F.	PASSIVE LATERAL EARTH PRESSURE, KP	270 PSF/FT

2. THE AREA WITHIN THE FOUNDATION WALLS SHALL HAVE ALL VEGETATION, TOP SOIL AND FOREIGN MATERIAL REMOVED.FILL MATERIAL SHALL BE FREE OF VEGETATION AND FOREIGN MATERIAL. THE FILL SHALL BE COMPACTED TO ASSURE UNIFORM SUPPORT OF THE SLAB. FILL DEPTHS OVER 24" FOR CLEAN SAND OR GRAVEL OR 12" FOR EARTH SHALL BE APPROVED BY BUILDING OFFICIAL.BACKFILL AND FILL MATERIAL SHALL BE PLACED IN THIN SUCCESSIVE LAYERS, 8" LOOSE MEASUREMENT FOR MATERIAL COMPACTED BY HEAVY COMPACTION EQUIPMENT AND NOT MORE THAN 4" LOOSE MEASUREMENT FOR MATERIAL COMPACTED BY HAND OPERATED TAMPERS. COMPACT EACH LAYER TO AT LEAST 95% OF THE MAXIMUM DRY DENSITY ACCORDING TO ASTM D698, UNLESS A HIGHER PERCENTAGE IS RECOMMENDED BY THE GEOTECHNICAL ENGINEER. UNDER SLAB ON GRADE LOCATIONS AND STEPS, TOP 12" OF FILL MATERIAL SHALL BE COMPACTED TO AT LEAST 98% OF MAXIMUM DRY DENSITY PER ASTM D698.
3. THE TOP OF ALL SPREAD FOOTINGS SHALL BE A MINIMUM OF 8" BELOW FINISHED GRADE UNLESS NOTED OTHERWISE.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROPER FORMING OF FOOTINGS AND FOUNDATION WALLS.
5. ALL TRENCHES SHALL BE DEWATERED PRIOR TO PLACING CONCRETE.

CONCRETE:

1. ALL STRUCTURAL CONCRETE AND REINFORCING SHALL CONFORM TO THE STANDARDS SET FORTH BY THE LATEST EDITION OF ACI 318 "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE."
2. STEEL REINFORCEMENT SHALL COMPLY WITH THE FOLLOWING SPECIFICATIONS:

A.	REINFORCING BARS	ASTM A615, GRADE 60, DEFORMED
B.	PLAIN STEEL WIRE	ASTM A82, AS DRAWN
C.	EPOXY COATED BARS	ASTM A775
D.	PLAIN-STEEL WELDED WIRE REINF.	ASTM A185, FABRICATED FROM AS-DRAWING STEEL WIRE INTO FLAT SHEETS
E.	DEFORMED-STEEL WWF	ASTM A497, FLAT SHEET

3. CONCRETE SHALL HAVE A UNIT WEIGHT OF 145 PCF. CONCRETE MATERIALS SHALL COMPLY WITH THE FOLLOWING SPECIFICATIONS:

A.	PORTLAND CEMENT	ASTMC150, TYPE I OR TYPE II
a.	FLY ASH	ASTM C618, CLASS F
B.	BLENDED HYDRAULIC CEMENT	ASTM C595, TYPE I (PM)
C.	NORMAL WEIGHT AGGREGATE	ASTM C33, GRADED, 1-1/2" NOMINAL MAX AGG SIZE
D.	WATER POTABLEXX	

4. NO ADMIXTURES SHALL BE ADDED TO ANY STRUCTURAL CONCRETE WITHOUT WRITTEN PERMISSION OF RIVAL ENGINEERING. ALL PROPOSED ADMIXTURES SHALL BE SUBMITTED TO RIVAL ENGINEERING, LLC WITH THE PROPOSED MIX DESIGNS AND SHALL INCLUDE CERTIFICATION FROM THE MANUFACTURER THAT THE ADMIXTURE IS COMPATIBLE WITH OTHER ADMIXTURES PRESENT AND WILL NOT CONTRIBUTE WATER-SOLUBLE CHLORIDE IONS EXCEEDING THOSE PERMITTED IN HARDENED CONCRETE. DO NOT USE CALCIUM CHLORIDE OR ANY OTHER ADMIXTURE CONTAINING CALCIUM CHLORIDE.
5. COMPLY WITH CRSI'S "MANUAL OF STANDARD PRACTICE" FOR FABRICATING, PLACING AND SUPPORTING REINFORCEMENT.
6. COMPLY WITH THE MINIMUM CONCRETE COVER FOR REINFORCEMENT AS FOLLOWS:

A.	CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH	3"
B.	CONCRETE EXPOSED TO EARTH OR WEATHER (#5 BARS OR SMALLER)	1-1/2"
C.	CONCRETE EXPOSED TO EARTH OR WEATHER (#6 BARS OR LARGER)	2"
D.	CONCRETE NOT EXPOSED TO EARTH OR WEATHER OR IN CONTACT W/ GROUND	
a.	SLABS, WALLS, JOISTS (#11 BAR AND SMALLER)	3/4"
b.	SLABS, WALLS, JOISTS (#14 BAR AND #18 BARS)	1-1/2"
c.	PRIMARY REINF., TIES, STIRRUPS, & SPIRALS FOR BEAMS & COLUMNS	1-1/2"

7. NORMAL WEIGHT CONCRETE MIXTURES SHALL HAVE THE FOLLOWING PROPERTIES:

	ELEMENT	MIN. COMPRESSIVE STRENGTH @ 28 DAYS	MAX WATER-CEMENT RATIO	MAX SLUMP LIMIT	AIR CONTENT
5.1	FOOTINGS	3000 PSI	0.45	4"	2%-5%
5.2	SLAB-ON-GRADE	3000 PSI	0.45	4"	2%-5%

CONCRETE SLAB ON GRADE

1. THE SLAB ON GRADE IS NOT DESIGNED AS A STRUCTURAL DIAPHRAGM AND IS NOT PART OF THE LATERAL FORCE-RESISTING-SYSTEM.
2. MINIMUM 28 DAY COMPRESSIVE STRENGTH FOR ALL STRUCTURAL CONCRETE ELEMENTS SHALL BE 3000 PSI.XX
3. NO ADMIXTURES SHALL BE ADDED TO ANY STRUCTURAL CONCRETE WITHOUT WRITTEN PERMISSION OF MOTLEY STRUCTURAL DESIGN, LLC. ALL PROPOSED ADMIXTURES SHALL BE SUBMITTED TO MOTLEY STRUCTURAL DESIGN, LLC WITH THE PROPOSED MIX DESIGNS AND SHALL INCLUDE CERTIFICATION FORM THE MANUFACTURER THAT THE ADMIXTURE IS OMPATIBLE WITH OTHER ADMIXTURES PRESENT AND WILL NOT CONTRIBUTE WATER-SOLUBLE CHLORIDE IONS EXCEEDING THOSE PERMITTED IN HARDENED CONCRETE. DO NOT USE CALCIUM CHLORIDE OR ANY OTHER ADMIXTURE CONTAINING CALCIUM CHLORIDE.
4. THE CONTRACTOR SHALL FOLLOW AMERICAN CONCRETE ASSOCIATION (ACI) RECOMMENDATIONS FOR PLACING CONCRETE DURING EXTREMELY HOT OR COLD WEATHER.
5. SLABS ON GRADE DEPEND ON THE INTEGRITY OF BOTH THE SLAB AND FULL SOIL SUPPORT. PROVIDE SATISFACTORY SOIL MATERIALS UNDER SLAB ON GRADE ACCORDING TO THE GEOTECHNICAL ENGINEER'S WRITTEN RECOMMENDATIONS. PROOF-ROLL SUBGRADE BELOW THE BUILDING SLAB ON GRADE WITH HEAVY PNEUMATIC-TIRED EQUIPMENT TO IDENTIFY SOFT POCKETS AND AREAS OF EXCESS YIELDING.
6. PROVIDE PLASTIC VAPOR RETARDER AS SHOWN ON PLANS. VAPOR RETARDER SHALL CONFORM TO ASTM E 1745, CLASS C, OR POLYETHYLENE SHEET, ASTM D 4397, NOT LESS THAN 10 MILS THICK. LAP EDGES MIN. 6".
7. PROVIDE A MINIMUM 4" OF GRANULAR FILL DIRECTLY UNDER SLAB ON GRADE. FILL SHALL CONSIST OF A CLEAN MIXTURE OF CRUSHED STONE OR CRUSHED OR UNCRUSHED GRAVEL PER ASTM D448, SIZE 57 WITH 100% PASSING A 1-1/2" SIEVE AND 0-5% PASSING A NO. 8 SIEVE.
8. REINFORCE CONCRETE SLAB ON GRADE WITH REINFORCING BARS (ASTM A615, GRADE 60, DEFORMED) OR WELDED WIRE REINFORCEMENT (FABRIC) AS INDICATED ON PLANS. WELDED WIRE REINFORCEMENT SHALL BE SUPPLIED IN FLAT SHEETS AND INSTALLED IN LONGEST PRACTICAL LENGTH ON BAR SUPPORTS OR CONCRETE BRICKS SPACED TO MINIMZE SAGGING. LAP ALL EDGES OF WELDED WIRE FABRIC A MINIMUM DISTANCE OF 1'-0".
9. PROVIDE CONTROL JOINTS PER ACI RECOMMENDATIONS.
10. THE CONCRETE SLAB HAS BEEN DESIGNED USING A SUBGRADE MODULUS OF K=150 PCI AND A DESIGN LOADING AS NOTED IN THE "DESIGN CRITERIA" SECTION OF THESE SPECIFICATIONS. RIVAL ENGINEERING IS NOT RESPONSIBLE FOR DIFFERENTIAL SETTLEMENT, SLAB CRACKING OR OTHER FUTURE DEFECTS RESULTING FROM UNREPORTED CONDITIONS MITIGATING THE ABOVE ASSUMPTIONS.

MASONRY:

1. ALL STRUCTURAL MASONRY AND REINFORCING SHALL CONFORM TO THE STANDARDS SET FORTH BY THE LATEST EDITION OF ACI 402 "BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES" & ACI 402 "SPECIFICATION FOR MASONRY STRUCTURES."
2. PROVIDE CONCRETE MASONRY UNIT ASSEMBLIES AS INDICATED ON THE DRAWINGS THAT DEVELOP A MINIMUM NET-AREA COMPRESSIVE STRENGTH (F'M) OF 1500 PSI AT 28 DAYS BY USING THE FOLLOWING:
   - A. NORMAL WEIGHT CONCRETE MASONRY UNITS (CMU) CONFORMING TO ASTM C90 WITH A MINIMUM AVERAGE NET-AREA COMPRESSIVE STRENGTH OF 1900 PSI. TYPE M OR S GROUT CONFORMING TO ASTM C270.
3. PROVIDE MORTAR AND GROUT MATERIALS AS INDICATED ON THE DRAWINGS AND CONFORMING TO THE REQUIREMENTS BELOW:
   - A. MORTAR FOR MASONRY ASSEMBLIES SHALL BE EITHER TYPE M OR S CONFORMING TO ASTM C270.
   - B. GROUT SHALL CONFORM TO ASTM C476 AND HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 2000 PSI. GROUT SLUMP SHALL BE 8" TO 11" ACCORDING TO ASTM C143.
   - C. ALL CELLS CONTAINING REINFORCEMENT, CELLS BELOW GRADE, AND ANY LOCATIONS NOTED ON THE PLANS SHALL BE GROUTED SOLID. DO NOT USE CALCIUM CHLORIDE IN THE GROUT OR MORTAR MIX.
   - D. ALL MASONRY SHALL BE PLACED IN FULL MORTAR BED.
4. PROVIDE VERTICAL REINFORCEMENT AS NOTED ON PLANS AND PER REQUIREMENTS BELOW:
   - A. ALL REBAR SHALL BE UNCOATED STEEL REINFORCING BARS CONFORMING TO ASTM A615, GRADE 60.
   - B. GROUT ALL CELLS CONTAINING REINFORCEMENT. LIMIT POUR HEIGHTS TO 60" MAX.
5. PROVIDE MASONRY JOINT REINFORCING AT 32" O.C. VERTICALLY IN ADDITION TO CONTINUOUS REINFORCEMENT, AND NOT MORE THAN 8" ABOVE AND BELOW OPENINGS IN MASONRY WALLS AND EXTENDING 12" BEYOND THE OPENING. JOINT REINFORCING SHALL CONSIST OF HOT-DIPPED GALVANIZED WIRE CONFORMING TO ASTM A951.
6. PROVIDE CONTROL AND EXPANSION JOINTS AS INDICATED IN THE ARCHITECTURAL DRAWINGS.
7. CONSULT PORTLAND CEMENT ASSOCIATION RECOMMENDATION FOR CONSTRUCTION DURING EXTREMELY HOT OR EXTREMELY COLD WEATHER.
8. ALL MASONRY LINTELS SHALL HAVE A MINIMUM 16" OF BEARING. BRICK VENEER SUPPORT TO BEAR 8" MIN. EA. SIDE OF OPENINGS.

STRUCTURAL STEEL

1. DESIGN, FABRICATION AND ERECTION SHALL BE AS PER SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS (AISC 360, LATEST ED.)
2. STRUCTURAL STEEL SHALL CONFORM TO THE FOLLOWING STANDARDS UNLESS NOTED OTHERWISE ON PLANS:
   - A. ALL PIPE STEEL SHALL BE ASTM A501 OR A53 GRADE B.
   - B. ALL TUBE STEEL SHALL BE ASTM A500 GRADE B.
   - C. ALL WIDE FLANGES SHALL BE ASTM A992 GRADE 50
   - D. ALL CHANNELS, ANGLES, M-SHAPES, S-SHAPES SHALL BE ASTM A36
   - E. ALL ANCHOR BOLTS SHALL BE ASTM A307.
   - F. ALL OTHER STEEL SHALL BE ASTM A36
3. ANCHOR BOLTS SHALL CONFORM TO ASTM F1554, GRADE 105 U.N.O.
4. ALL BOLTED CONNECTIONS SHALL BE MADE WITH 3/4" DIAM. ASTM A325N BOLTS IN SNUG TIGHT CONDITION U.N.O.
5. THE CONTRACTOR SHALL SUBMIT DETAILED STRUCTURAL STEEL SHOP DRAWINGS TO INCLUDE (BUT NOT LIMITED TO) COLUMNS, BEAMS, JOIST, BRIDGING, DECKING, STAIRS AND ALL CONNECTIONS. AS PART OF THE SHOP DRAWINGS, THE CONTRACTOR SHALL SUPPLY ADDITIONAL STEEL PLATE AND BRACKET LOCATION DRAWINGS. IN NO CIRCUMSTANCES SHALL THE STRUCTURAL DRAWINGS BE REPRODUCED FOR SHOP DRAWINGS (SECTION SHEETS, ERECTION PLANS, ETC). SHOP DRAWINGS SHALL BE REVIEWED AND APPROVED BY THE CONTRACTOR FOR (BUT NOT LIMITED TO) DIMENSIONS, ELEVATIONS, AND ERECTION PROCEDURES PRIOR TO ARCHITECT AND STRUCTURAL ENGINEER'S REVIEW. AMPLE TIME, AS REQUIRED AND DETERMINED BY THE STRUCTURAL ENGINEER, SHALL BE ALLOTTED TO PERFORM HIS REVIEW OF SHOP DRAWINGS.
6. UNLESS SPECIFICALLY DETAILED ON THE PLANS, PROVIDE THE FOLLOWING BEAM CONNECTIONS:
   - A. WHERE BEAM REACTIONS ARE SHOWN, PROVIDE CONNECTIONS TO PROVIDE THE REACTION SHOWN.
   - B. WHERE BEAM REACTIONS ARE NOT SHOWN, PROVIDE CONNECTIONS TO DEVELOP 1/2 THE TOTAL UNIFORM LOAD CAPACITY SHOWN IN THE MAXIMUM TOTAL UNIFORM LOAD TABLES, IN PART 3 OF THE STEEL CONSTRUCTION MANUAL.
      - a. IF COMPOSITE BEAM CONSTRUCTION IS USED, PROVIDE CONNECTIONS TO DEVELOP 1.5 X THE CAPACITY FOR NON-COMPOSITE BEAMS.
7. BASE AND OR BEARING PLATES WHICH ARE SUPPORTED OVER CONCRETE OR MASONRY SHALL BE PLACED OVER 1" OF GROUT WITH A TOLERANCE OF +- 1/2" UNLESS OTHERWISE NOTED. CLEAN CONCRETE AND MASONRY SURFACES OF BOND REDUCING MATERIAL AND ROUGHEN SURFACE PRIOR TO PLACING GROUT. ANCHOR RODS AFTER MEMBER IS POSITIONED AND PLUMBED. PROMPTLY PACK GROUT SOLIDLY BETWEEN BEARING SURFACES SO NO VOIDS REMAIN. GROUT SHALL CONFORM TO ASTM C1107, FACTORY PACKAGED, NON METALLIC AGGREGATE GROUT, NONCORROSIVE, NON-STAINING, MIXED WITH WATER TO CONSISTENCY SUITABLE FOR APPLICATION. GROUT SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 5000 PSI.
8. PROVIDE TEMPORARY SHORES, GUYS, BRACES, AND OTHER SUPPORTS DURING ERECTION TO KEEP STRUCTURAL STEEL SECURE, PLUMB AND IN ALIGNMENT AGAINST TEMPORARY CONSTRUCTION LOADS AND LOADS EQUAL IN INTENSITY TO DESIGN LOADS. ALSO, PROVIDE TEMPORARY SUPPORTS IN STEEL TO STEEL CONNECTIONS AND ALL OTHER LOCATIONS PER OSHA REQUIREMENTS.
9. ALL FABRICATION AND ERECTION PROCEDURES SHALL BE IN ACCORDANCE WITH AISC SPECIFICATIONS.
10. ALL SHOP AND FIELD WELDING SHALL BE PERFORMED BY QUALIFIED PERSONNEL IN ACCORDANCE WITH A.W.S. SPECIFICATIONS, LATEST EDITION. BOTH SHOP AND FIELD WELDER CERTIFICATIONS SHALL BE CURRENT THROUGH THE DURATION OF THE STEEL WORK AND MADE AVAILABLE UPON REQUEST OF THE ARCHITECT AND/OR ENGINEER. ALL WELDS SHALL BE DONE WITH E-70XX ELECTRODES.
11. ALL STEEL PERMANENTLY EXPOSED TO WEATHER SHALL BE HOT-DIPPED GALVANIZED.
12. ALL WELDS IN EXPOSED STEEL SHALL BE FIELD COATED WITH ZINC-RICH PAINT.
13. STIFFENER PLATES SHALL BE INSTALLED ON EA. SIDE OF THE WEB AT SUPPORTS AND LOCATIONS OF POINT LOADS FROM BEAMS AND COLUMNS.
14. IF LEVELING PLATES AND LEVELING NUTS ARE USED, A SUITABLE NON-SHRINK GROUT SHALL BE USED UNDER THE COLUMN BASE PLATES AFTER THE COLUMN IS PLUMB AND LEVEL.

WOOD TRUSS COMPONENTS:

- PRE-MANUFACTURED TRUSSES SHALL BE DESIGNED PER THE FOLLOWING:

ASCE7-16 VULT: 122 mph

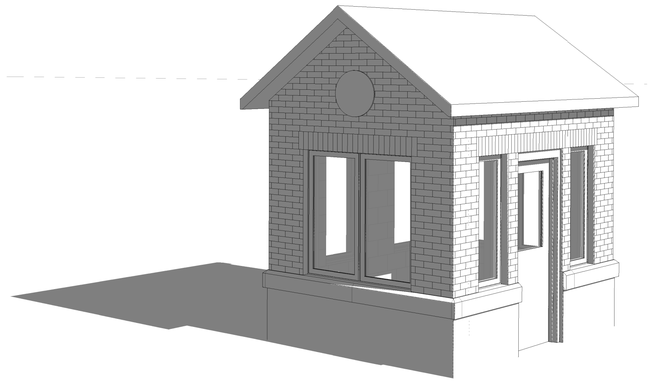
ENCLOSURE: ENCLOSED

ROOF LOADS
TCLL: 20psf
TCDL: 10psf
BCLL: 0psf*
BCDL: 5psf

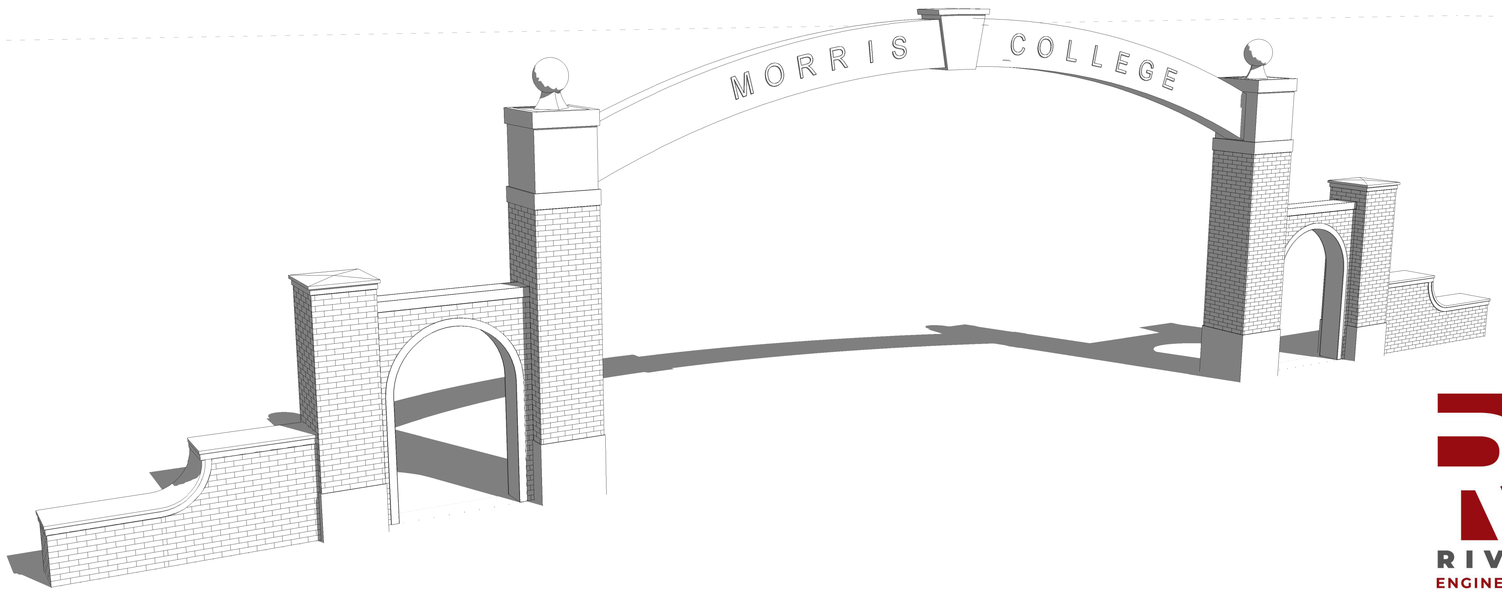
1. PRE-MANUFACTURED WOOD TRUSSES SHALL BE DESIGNED IN ACCORDANCE WITH ACCEPTED ENGINEERING PRACTICE AND SHALL CONFORM TO ASI/TPI 1. THE TRUSS DESIGN DRAWINGS SHALL BE PREPARED BY A REGISTERED DESIGN PROFESSIONAL. SHOP DRAWINGS SHALL BEAR THE SEAL OF A PROFESSIONAL ENGINEER REGISTERED IN THE PROJECT STATE.
2. TRUSS DESIGN DRAWINGS SHALL BE SUBMITTED TO MSD FOR APPROVAL PRIOR TO ERECTION.
3. ENDS OF ALL ROOF TRUSSES SHALL BE ANCHORED WITH UPLIFT CONNECTORS PER SIMPSON STRONG-TIE OR EQUAL.
4. SCISSOR OR PARALLEL CHORD ROOF TRUSSES THAT EXHIBIT A HORIZONTAL THRUST SHALL BE ATTACHED WITH A FIXED ATTACHMENT ON ONE END AND A SLIDE ATTACHMENT (E.G. SIMPSON TC CONNECTOR) ON THE OTHER END. THE SLIDE ATTACHMENT SHALL ALLOW THE TRUSS TO SLIDE FREELY UNTIL ALL DEAD LOAD IS APPLIED. WHEN DEAD LOAD IS FULLY APPLIED TO TRUSS THE SLIDE TYPE CONNECTOR SHALL BE FULLY FASTENED TO THE TRUSS TO PREVENT ANY FURTHER MOVEMENT. ADDITIONAL CONNECTOR HARDWARE MAY BE REQUIRED FOR UPLIFT DEMANDS ON TRUSS. THE TRUSS MANUFACTURER SHALL NOT DESIGN THE TRUSSES IN A WAY THAT IMPARTS LATERAL LOAD TO THE WALL.
5. TRUSSES WITH EXTREMELY LONG SPANS AND/OR UNUSUAL CONFIGURATIONS SHALL BE HANDLED WITH EXTREME CARE IN SHIPPING AND ERECTION. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PROPERLY BRACE THE TRUSS SYSTEM ADEQUATELY PER THE TRUSS MANUF. RECOMMENDATIONS. CONSULT WTCA FOR ADDITIONAL INFO ON LONG SPAN TRUSSES.
6. TRUSS MEMBERS SHALL NOT BE CUT, NOTCHED, DRILLED, SPLICED OR OTHERWISE ALTERED IN ANY WAY WITHOUT THE APPROVAL OF THE TRUSS DESIGNER.
7. ENGINEERED WOOD MEMBERS SUPPORTING ROOF FRAMING SHALL BE ANCHORED FOR UPLIFT AT EACH END WITH THE APPROPRIATE ANCHORING DEVICE.
8. THE CONTRACTOR SHALL PROVIDE A MIN. (2) PLY STUD COLUMN UNDER THE END OF ALL GIRDER TRUSSES AND BEAMS UNLESS NOTED OTHERWISE ON STRUCTURAL DRAWINGS.
9. ALL ENGINEERED LUMBER BEAMS (LVL, PSL OR GLULAM) SHALL HAVE MIN E = 2000000 psi, Fb = 2900 psi, Fv = 285 psi.

Sheet List

Sheet Number	Sheet Name	Current Revision	Current Rev. Date	Current Revision Description
S0.0	GENERAL NOTES	1	10-20-24	PERMIT SET
S1.0	FOUNDATION AND FRAMING PLANS	1	10-20-24	PERMIT SET
S2.0	SECTIONS AND DETAILS	1	10-20-24	PERMIT SET
S3.0	STANDARD DETAILS	1	10-20-24	PERMIT SET



2 S0.0 GUARD SHACK 3D VIEW



1 S0.0 ENTRY WALL 3D VIEW

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RS Bell
ARCHITECTS
LLC
134 N. Main St.
Sumter, South Carolina
803 774-3025

Date:
10-20-24

SOUTH CAROLINA
RIVAL ENGINEERING LLC
CO 7183
CERTIFICATE OF AUTHORIZATION

SOUTH CAROLINA
TAYLOR W. MOTLEY
27141
10-20-24

Proposed Entry Area for:

Morris College

100 W. College Street,
Sumter, South Carolina

GENERAL NOTES

Scale:
1/4" = 1'-0"

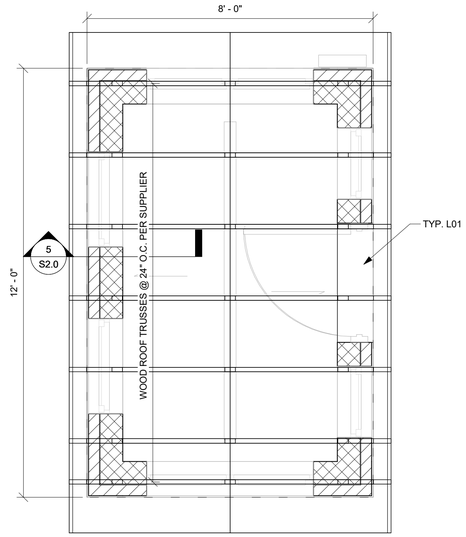
Project No.: 2480RE

Revision Schedule

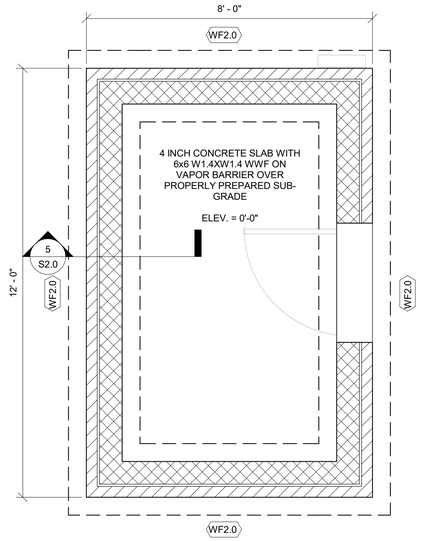
Rev #	Description	Date
1	PERMIT SET	10-20-24

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4 S1.0 GUARD SHACK FRAMING PLAN
1/2" = 1'-0"



3 S1.0 GUARD SHACK FOUNDATION PLAN
1/2" = 1'-0"

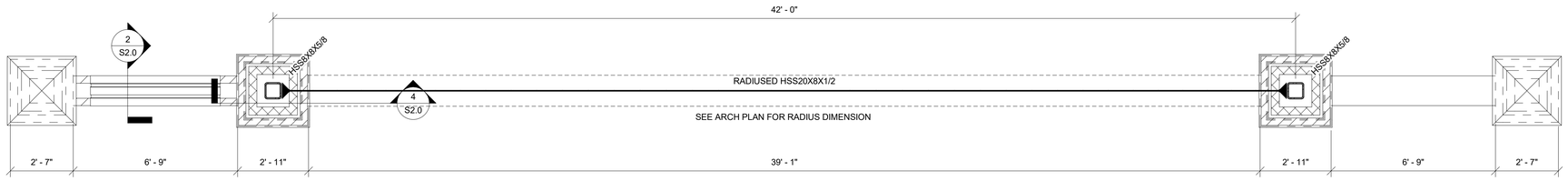
NOTES:

1. SEE ARCHITECTURAL PLANS FOR ALL DIMENSIONS NOT SHOWN
2. PLAN SYMBOLS:

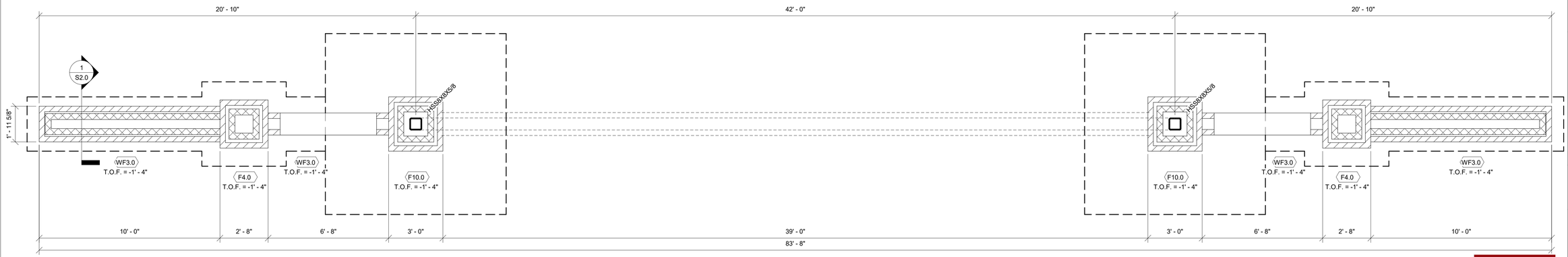
1t — INDICATES FOOTING SIZE. SEE FOOTING SCHEDULE.

INDICATES 4" BRICK VENEER

INDICATES 8" CMU WALL



2 S1.0 ARCH FRAMING
3/8" = 1'-0"



1 S1.0 ENTRY WALL FOUNDATION PLAN
3/8" = 1'-0"

NOTES:

1. SEE ARCHITECTURAL PLANS FOR ALL DIMENSIONS NOT SHOWN
2. SEE DETAIL 2/S3.0 FOR HSS COL BASEPLATE
3. PLAN SYMBOLS:

1t — INDICATES FOOTING SIZE. SEE FOOTING SCHEDULE.

INDICATES 4" BRICK VENEER

INDICATES 4" CMU

Wall Footing Schedule

Mark	Width	Foundation Thickness	Reinforcement	Notes
WF2.0	2' - 0"	1' - 0"	(3) #5 Rebar Cont. & (1) #5 @ 32" o.c. Transv.	CMU WALL SPREAD FOUNDATION
WF3.0	3' - 0"	1' - 0"	(4) #5 Rebar Cont. & (1) #5 @ 32" o.c. Transv.	CMU WALL SPREAD FOUNDATION

Column Footing Schedule

Mark	Width	Length	Thickness	Reinforcement	Notes
F4.0	4' - 8"	4' - 8"	1' - 0"	(6) #5 Rebar Ea. Way Top & Bottom	
F10.0	10' - 0"	10' - 0"	1' - 6"	(11) #5 Rebar Ea. Way Top & Bottom	

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803 774-3025

Date:
10-20-24

SOUTH CAROLINA
RIVAL ENGINEERING LLC
CO 7183
CERTIFICATE OF AUTHORIZATION

SOUTH CAROLINA
REGISTERED
24741
10-20-24
TAYLOR W. MOTLEY

Proposed Entry Area for:

Morris College

100 W. College Street,
Sumter, South Carolina

FOUNDATION AND FRAMING PLANS

Scale:
As indicated

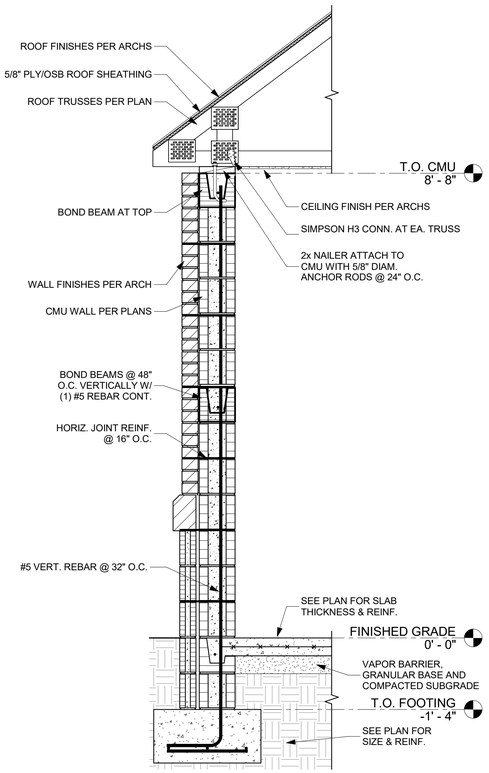
Project No.: 2480RE

Revision Schedule

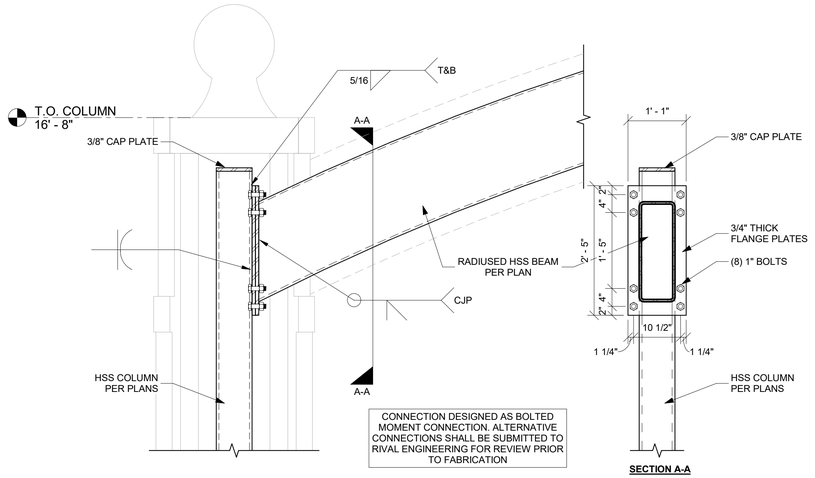
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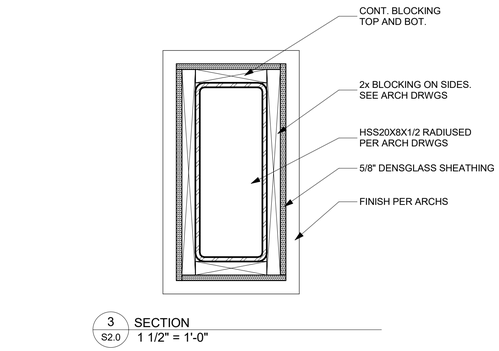
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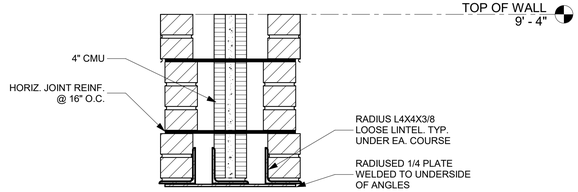
5 S2.0 SECTION
3/4" = 1'-0"



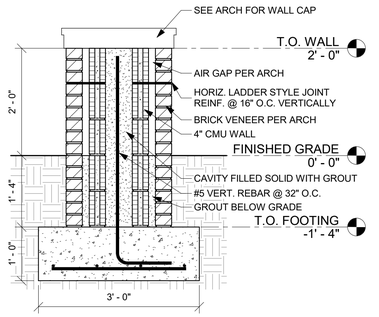
4 S2.0 SECTION
3/4" = 1'-0"



3 S2.0 SECTION
1 1/2" = 1'-0"



2 S2.0 SECTION
1 1/2" = 1'-0"



1 S2.0 SECTION
3/4" = 1'-0"

RS Bell
ARCHITECTS LLC
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803 774-3025

Date:
10-20-24

SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION
RIVAL ENGINEERING LLC
CO 7183

SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER
TAYLOR W. MOTLEY
26741
10-20-24

Proposed Entry Area for:

Morris College

100 W. College Street,
Sumter, South Carolina

SECTIONS AND DETAILS

Scale:
As indicated

Project No.: 2480RE

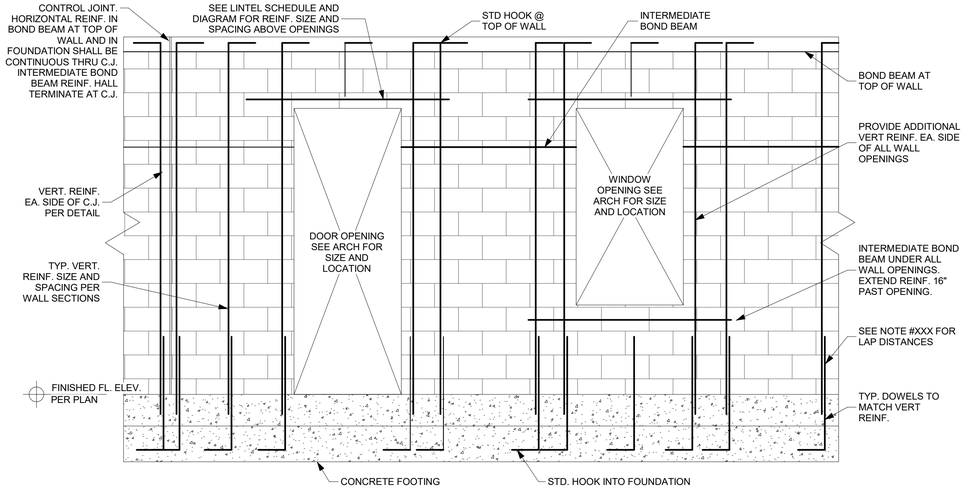
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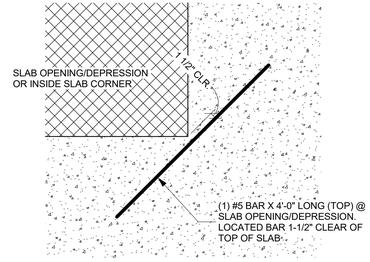
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9 S3.0 CMU - WALL OPENING DETAIL
1/2" = 1'-0"

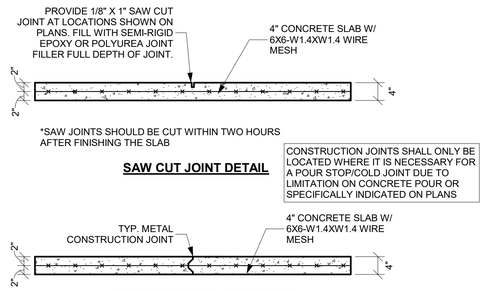


* DETAIL APPLIES AT DEPRESSIONS GREATER THAN 1/4 SLAB THICKNESS

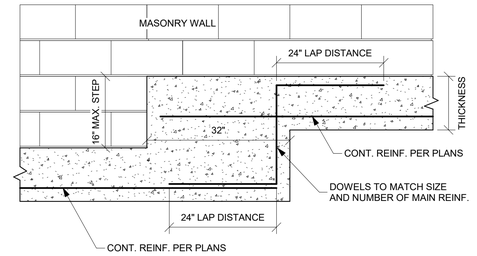
4 S3.0 FND - RE-ENTRANT CORNER DETAIL
3/4" = 1'-0"

LINTEL SCHEDULE

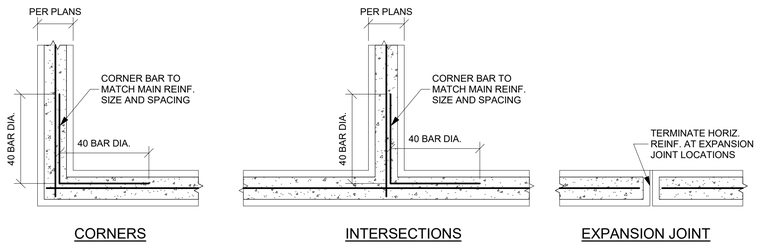
LABEL	OPENING WIDTH	DESCRIPTION	BEARING EACH END	DETAIL
L01	UP TO 6'-8"	8" CMU BOND BEAM W (1) #5 REBAR BOTTOM. FILL W/ CONC. + L4X4X3/8 LOOSE LINTEL	8" BEARING EA. END	



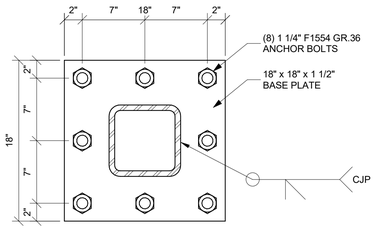
6 S3.0 FND - SLAB JOINT DETAILS
3/4" = 1'-0"



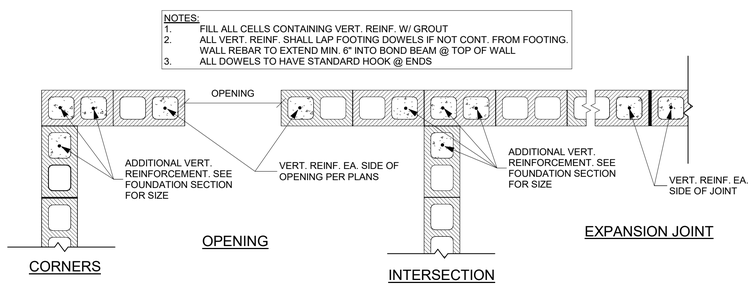
3 S3.0 FND - STEPPED FOOTING DETAIL
3/4" = 1'-0"



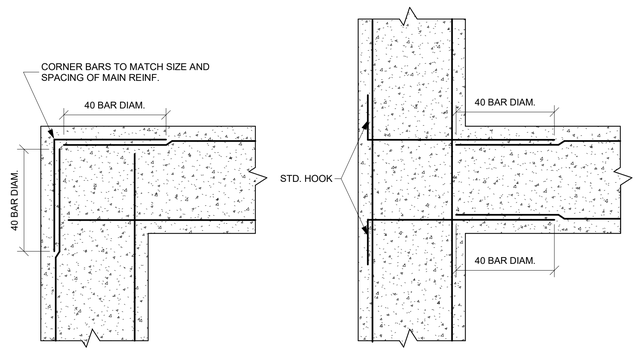
8 S3.0 FND - CMU STEM-WALL BOND BEAM REINF DETAIL
3/4" = 1'-0"



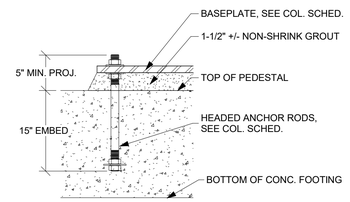
2 S3.0 STL - TYP. HSS BASE PLATE DETAIL
1 1/2" = 1'-0"



7 S3.0 FND - CMU STEM-WALL VERTICAL REINF
3/4" = 1'-0"



5 S3.0 FND - FTG CORNERS/INTER.
3/4" = 1'-0"



1 S3.0 STL - ANCHOR BOLT DETAIL
1 1/2" = 1'-0"

RIVAL ENGINEERING
466. N. GUIGNARD DRIVE
SUMTER SC 29150
803-883-0079
WWW.RIVALDB.COM

RS Bell
ARCHITECTS LLC
134 N. Main St.
Sumter, South Carolina
803 774-3025

Date:
10-20-24

SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION RIVAL ENGINEERING LLC CO 7183

SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER 29141 TAYLOR W. MOTLEY
10-20-24

Proposed Entry Area for:

Morris College

100 W. College Street, Sumter, South Carolina

STANDARD DETAILS

Scale:
As indicated

Project No.: 2480RE

Revision Schedule

Rev #	Description	Date
1	PERMIT SET	10-20-24

Sheet:
S3.0

10/21/2024 11:17:04 AM

ELECTRICAL LEGEND

SYMBOL	DESCRIPTION
A–1	CONDUIT AND CONDUCTORS HOMERUN TO PANELBOARD. NUMERALS INDICATE CIRCUIT NUMBER(S). LETTERS INDICATE PANELBOARD TO WHICH CIRCUITS ARE RUN. MINIMUM CONDUCTOR SIZE SHALL BE #12 AWG. CONDUIT SIZED PER NATIONAL ELECTRICAL CODE. MINIMUM CONDUIT SIZE SHALL BE 3/4".
	CONCEALED CONDUIT RUN BELOW FLOOR, IN WALLS OR ABOVE CEILINGS. NOTATIONS SAME AS HOMERUN SYMBOL ABOVE.
A	RECESSED LIGHTING FIXTURE, SEE LIGHTING FIXTURE SCHEDULE
	WALL–MOUNTED EMERGENCY BATTERY PACK. SEE LIGHTING FIXTURE SCHEDULE
1	DUPLEX CONVENIENCE RECEPTACLE OF THE COMMERCIAL GRADE TYPE. NUMERAL DENOTES CIRCUIT TO WHICH RECEPTACLE IS CONNECTED. MOUNT 18" TO CENTER ABOVE FINISHED FLOOR UNLESS OTHERWISE INDICATED.
WP	GROUND FAULT CIRCUIT INTERRUPTER (GFCI) DUPLEX CONVENIENCE RECEPTACLE OF THE COMMERCIAL GRADE TYPE. NUMBERS DENOTE CIRCUIT TO WHICH RECEPTACLE SHALL BE CONNECTED. WP DENOTES THAT RECEPTACLE SHALL BE LISTED AS WEATHER RESISTANT AND HAVE A COVER LISTED AS WEATHERPROOF WHILE IN USE. MOUNT 18" TO CENTER ABOVE FINISHED FLOOR UNLESS OTHERWISE INDICATED.
	TAMPER RESISTANT GROUND FAULT CIRCUIT INTERRUPTER (GFCI) DUPLEX CONVENIENCE RECEPTACLE OF THE COMMERCIAL GRADE TYPE. NUMBERS DENOTE CIRCUIT TO WHICH RECEPTACLE SHALL BE CONNECTED. MOUNT 6" ABOVE COUNTERTOP
	COMBINATION PHONE AND DATA OUTLET BOX. STUB 3/4" CONDUIT ABOVE CEILING. MOUNT 18" TO CENTER ABOVE FINISHED FLOOR UNLESS OTHERWISE INDICATED.
	PANELBOARD
S or Sa	SPST WALL SWITCH. LOWER CASE LETTER DENOTES LIGHTING FIXTURE CONTROLLED. MOUNT 44" TO CENTER ABOVE FINISHED FLOOR UNLESS OTHERWISE INDICATED.

GENERAL ELECTRICAL NOTES

G1. DO NOT SCALE THESE DRAWINGS. ALL ROUGHING–IN SHALL BE TAKEN FROM THE ARCHITECTURAL DRAWINGS AND DIMENSIONS.

G2. ALL CONDUCTORS SHALL BE RUN IN RIGID CONDUITS, EMT, OR MC CABLE PER CONDUIT INSTALLATION SCHEDULE.

G3. ALL ELECTRICAL APPARATUS SHOWN ON THESE DRAWINGS SHALL BE UL LISTED, SPECIFICATION GRADE AND SHALL COMPLY WITH ALL LOCAL AND NATIONAL CODES.

G4. WHERE PENETRATIONS ARE MADE THROUGH A REQUIRED FIRE–RESISTANT WALL, FLOOR OR PARTITION FOR THE PURPOSE OF RUNNING RACEWAY CARRYING ELECTRICAL CIRCUITS, TELEPHONE, TELEVISION OR LOCAL COMMUNICATION AND/OR SIGNAL CIRCUITS, THE OPENING AROUND THE RACEWAY(S) SHALL BE FIRE STOPPED BY A "UL" TESTED SYSTEM FOR THE TYPE CONSTRUCTION AND WALL MATERIAL AS OUTLINED IN THE INTERNATIONAL BUILDING CODE. COORDINATION WITH THE GENERAL CONTRACTOR SHALL BE MAINTAINED TO INSURE THAT THE FIRE STOPPING IS ACCOMPLISHED.

G5. ALL CONDUIT AND CABLE SHALL BE INSTALLED ABOVE CEILINGS, IN WALLS, OR BELOW FLOORS, EXCEPT IN EQUIPMENT ROOMS WHERE EXPOSED CONDUIT IS ACCEPTABLE.

G6. ALL WORK SHALL COMPLY WITH ALL LOCAL, STATE AND NATIONAL CODES.

G7. EQUIPMENT SHALL BE SUITABLE FOR ITS APPLICATION (E.G. WHEN INSTALLED OUTDOORS, IT SHALL BE WEATHERPROOF, ETC.)

G8. ALL MECHANICAL EQUIPMENT SHALL BE WIRED THROUGH A DISCONNECT SWITCH THAT IS INTEGRAL TO THE UNIT, OR LOCATED ON OR IMMEDIATELY ADJACENT TO THE EQUIPMENT BEING SERVED. THIS SWITCH SHALL BE RATED ACCORDING TO THE MECHANICAL EQUIPMENT MANUFACTURER'S RECOMMENDATIONS.

G9. THE CONTRACTOR SHALL FURNISH ALL MATERIALS AND LABOR NECESSARY TO PROVIDE A COMPLETE AND PROPERLY FUNCTIONING ELECTRICAL SYSTEM.

G10. ALL MATERIAL, EQUIPMENT, AND DEVICES SHALL BE NEW.

G11. COORDINATE THE EXACT LOCATION OF LIGHT FIXTURES WITH THE ARCHITECT.

G12. NEUTRALS ON BRANCH CIRCUITS SHALL NOT BE SHARED. EACH BRANCH CIRCUIT WILL BE SUPPLIED WITH ITS OWN DEDICATED NEUTRAL.

G13. CONTRACTOR TO LABEL ALL PANELS WITH ENGRAVED PHENOLIC TAGS. LETTERS TO BE MINIMUM ¼" HIGH, BLACK LETTERS ON WHITE BACKGROUND.

G14. ALL SWITCHES INSTALLED ON THIS JOB SHALL BE RATED AT 20 AMPS UNLESS OTHERWISE INDICATED ON PLANS.

G15. DURING CONSTRUCTION OPERATIONS THE ELECTRICAL CONTRACTOR SHALL FAITHFULLY MAKE A RECORD OF ALL APPROVED CHANGES FROM THE CONTRACT DRAWINGS, INCLUDING ACCURATE DIMENSIONS WHERE APPLICABLE, AND SHALL ALSO RECORD ACCURATE DIMENSIONS LOCATING ALL BELOW GRADE OUTSIDE ELECTRICAL UTILITIES WITH REFERENCE TO PERMANENT ABOVE GRADE OBJECTS. AT THE COMPLETION OF WORK ALL SUCH CHANGES SHALL BE RECORDED NEATLY WITH RED INK BY THE ELECTRICAL CONTRACTOR ON AN UNUSED SET OF ELECTRICAL CONTRACT DRAWINGS AND RETURNED TO THE ARCHITECT.

CONDUIT INSTALLATION OF SCHEDULE

A. Installations In or Under Concrete Slab: Schedule 40 PVC.
B. Underground not covered or encased in concrete: Schedule 40 PVC. Where the underground conduit emerges from grade it shall be converted to rigid metal conduit or IMC from 18" below grade to a point 8' above grade, or to a point where it is protected from physical damage.
C. Exposed Outdoor Locations: Intermediate galvanized steel conduit (IMC).
D. Wet Interior Locations: Intermediate galvanized steel conduit (IMC).
E. Concealed Dry Interior Locations: Electric Metallic Tubing (EMT).
F. Exposed Dry Interior Locations: Electric Metallic Tubing (EMT).

Home runs from each interior space to be in EMT. MC cable may be used from junction boxes in each space to receptacles and lighting within that space.

Panel: A

VOLTAGE: 120 /240 VOLTS
PHASE-WIRE: 1 PHASE - 3 WIRE
MAIN TYPE: MCB
MAIN SIZE: 100 AMPS

INTERRUPT: 10,000 AIC
MOUNTING: SURFACE
EATON: PRL1a
BUS TYPE: COPPER

DESCRIPTION	POLE	WIRE AWG	TRIP AMPS	Cir.	Phase Loads KVA A-Phase	Phase Loads KVA B-Phase	Cir.	TRIP AMPS	WIRE AWG	POLE	DESCRIPTION
RECEPTACLES	1	12	20	1	0.6 /	0.3	2	20	12	1	LIGHTING
RECEPTACLES	1	12	20	3		0.4 /	4	20	-	1	SPARE
TWHP-1 RECEPTACLE	2	12	20	5	1.4 /		6	20	-	1	SPARE
				7		1.4 /	8	20	-	1	SPARE
SPARE	1	-	20	9	/		10	20	-	1	SPARE
SPARE	1	-	20	11		/	12	20	-	1	SPARE
Total KVA per Phase					2.3	1.8					
Total Amps per Phase					19	15					

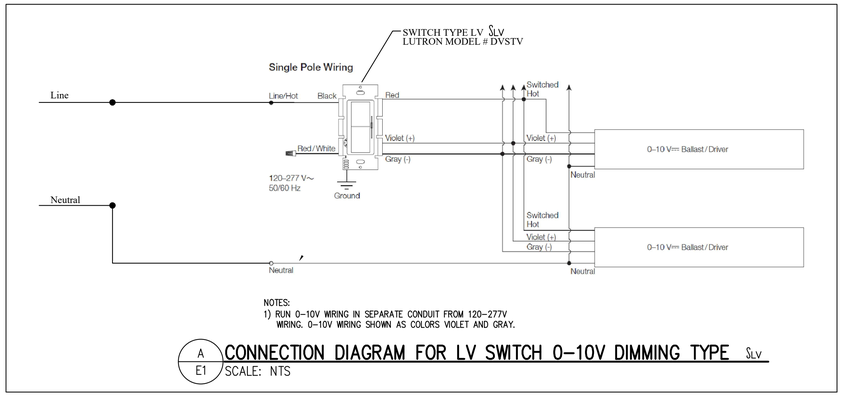
NOTES:
1) PANEL TO BE LISTED FOR SERVICE ENTRANCE
2) BREAKERS FOR HVAC EQUIPMENT TO BE TYPE HACR
3) PANEL TO RATED AS NEMA 3R

LIGHTING FIXTURE SCHEDULE

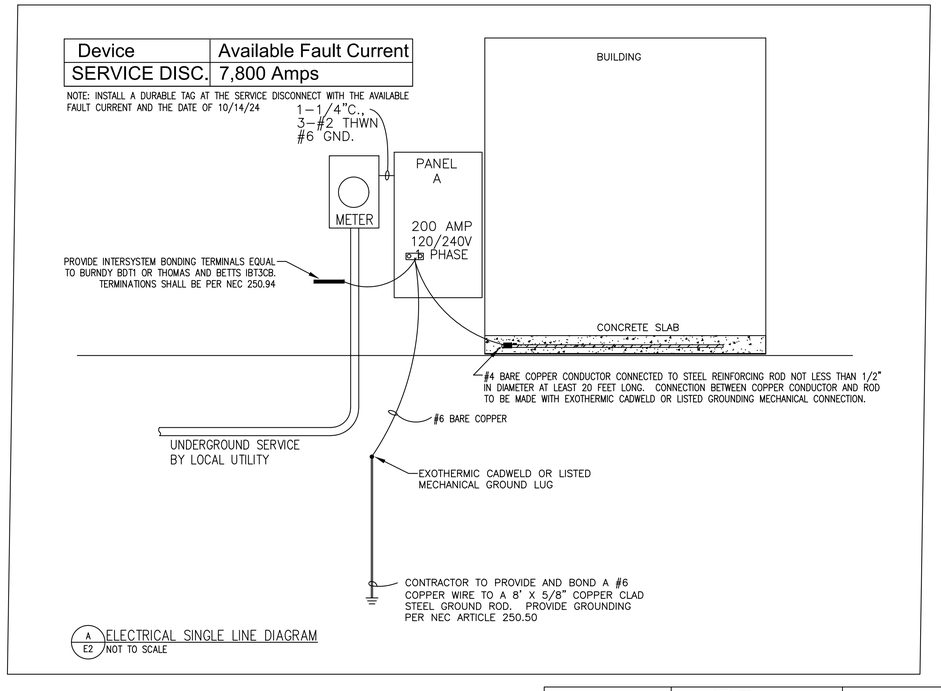
SYMBOL	DESCRIPTION	MANUFACTURER	CATALOG NUMBER	LAMPS	TOTAL WATTAGE
A	6" LED RECESSED CAN FIXTURE WITH 2000 LUMEN OUTPUT AND 4000°K COLOR TEMPERATURE, 0–10V DIMMING, AND WOOD JOIST MOUNTING BARS.	INTENSE LIGHTING	SS6C4DR–L3–408–I400 (0–10V DIM) REFLECTOR: IC630–C–SF	(1) LED	17 WATTS
B	DARK BRONZE TWIN HEAD LED FLOOD LIGHT	LITHONIA	HGX LED 2RH 40K 120 DDB	(1) LED	25 WATTS
	SURFACE WALL–MOUNTED 2–HEAD EMERGENCY LIGHT WITH BATTERY BACK–UP AND REMOTE HEAD CAPACITY	DUAL–LITE	LZ15– 03L	INCLUDED EGRESS:3W MR16	3 WATTS
RE	REMOTE WEATHER PROOF EMERGENCY HEADS	DUAL–LITE	OCR–D–W–03L	INCLUDED EGRESS:3W MR16	2 WATTS

LIGHTING CONTROLS SCHEDULE

SYMBOL	DESCRIPTION	MANUFACTURER	CATALOG NUMBER
SLV	WALL MOUNT LOW VOLTAGE 0–10V DIMMER (8 AMP SWITCH)	LUTRON	DVSTV



A / E1 CONNECTION DIAGRAM FOR LV SWITCH 0–10V DIMMING TYPE SLV
SCALE: NTS



A / E2 ELECTRICAL SINGLE LINE DIAGRAM
NOT TO SCALE

SOUTH CAROLINA PROFESSIONAL ENGINEER No. 21953 10–14–24 BARRY JOE STANLEY

Stanley Engineering
STANLEY ENGINEERING, LLC
1025 Oak Brook Blvd.
Sumter, SC 29150
(803) 840–1138

SOUTH CAROLINA STANLEY ENGINEERING, LLC. No. C03001 CERTIFICATE OF AUTHORIZATION

RS Bell
ARCHITECTS LLC
134 N. Main Street
Sumter, South Carolina
803 774-3025

Date:
August 23, 2024

Proposed Entry Area For :

Morris College

100 W. College Street
Sumter, South Carolina

Electrical Notes & Legend

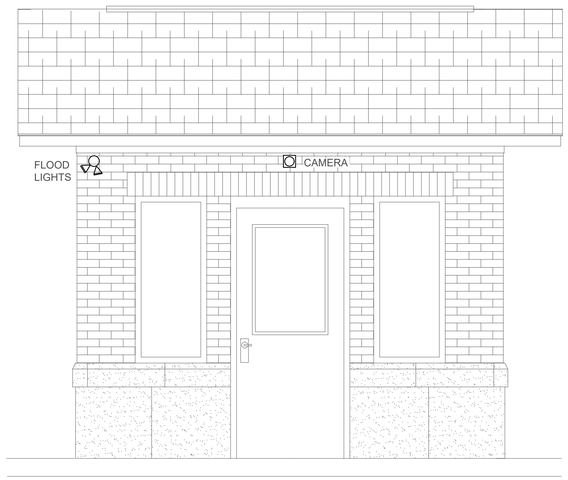
Scale:
1/2" = 1'-0"

Project No. : 24-020
File No. : 68-979904

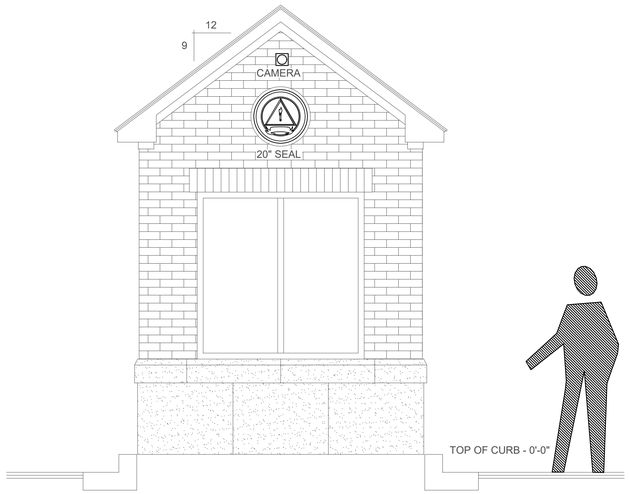
Revisions:

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GRAPHIC SCALE: 1/2" = 1'-0"

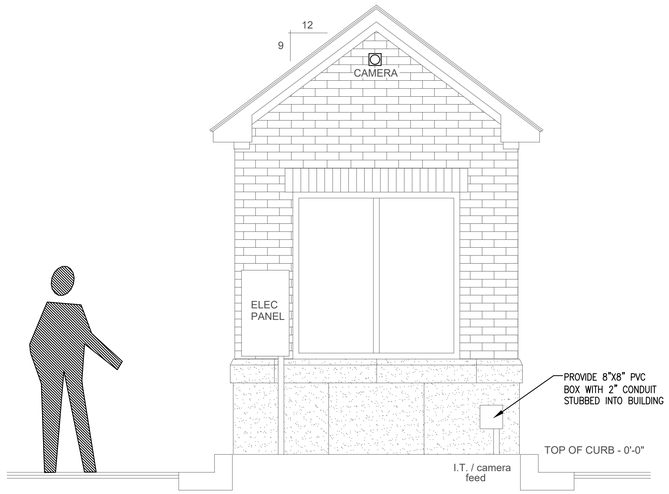
E-1 of 2



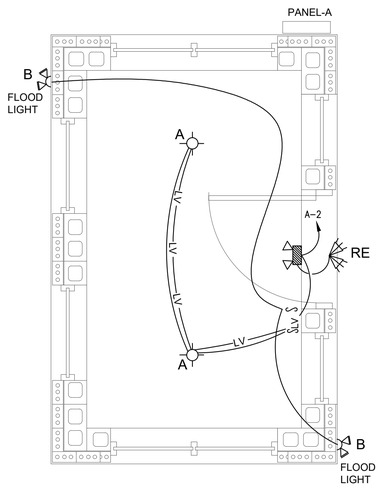
3 E2 North (Door) Elevation
Scale: 1/2" = 1'-0"



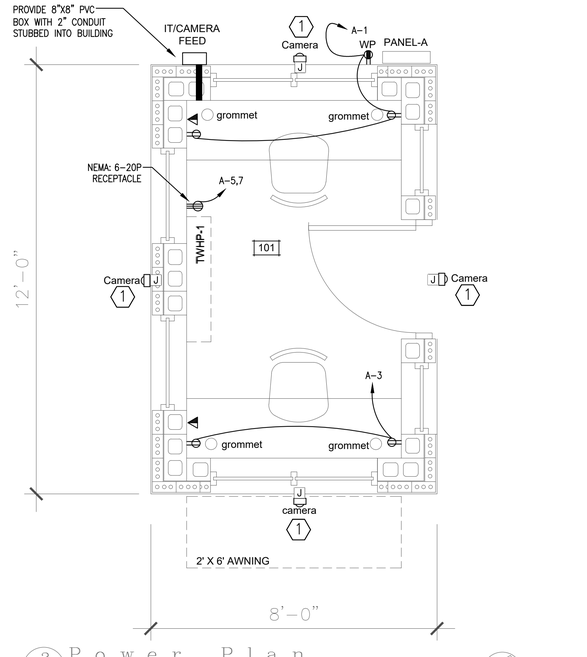
2 E2 East (Front) Elevation
Scale: 1/2" = 1'-0"



5 E2 West (Rear) Elevation
Scale: 1/2" = 1'-0"

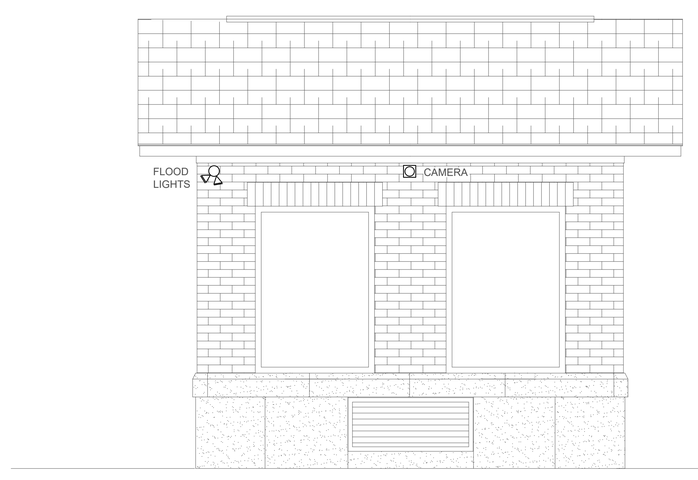


1 E1 Lighting Plan
Scale: 1/2" = 1'-0"



2 E1 Power Plan
Scale: 1/2" = 1'-0"
North

KEYED NOTES THIS SHEET	
SYMBOL	DESCRIPTION
1	PROVIDE JUNCTION BOX FOR CAMERAS AT HEIGHTS SHOWN ON ELEVATIONS. PROVIDE 3/4" CONDUIT FROM JUNCTION BOX TO AREA BELOW COUNTER ON WEST END.



4 E2 South (Side) Elevation
Scale: 1/2" = 1'-0"

SOUTH CAROLINA PROFESSIONAL ENGINEER No. 21953 10-14-24 STANLEY JOE STANLEY

Stanley Engineering
STANLEY ENGINEERING, LLC
1025 Oak Brook Blvd.
Sumter, SC 29150
(803) 840-1138

SOUTH CAROLINA STANLEY ENGINEERING, LLC No. C03001 CERTIFICATE OF AUTHORIZATION

RS Bell
ARCHITECTS LLC
134 N. Main Street
Sumter, South Carolina
803 774-3025

Date:
August 23, 2024

Proposed Entry Area For :

Morris College

100 W. College Street
Sumter, South Carolina

Electrical Power & Lighting Plan

Scale:
1/2" = 1'-0"

Project No. : 24-020
File No. : 68-979904

Revisions:

0 1 2 3 4
GRAPHIC SCALE: 1/2" = 1'-0"

E-2 of 2

ELECTRICAL LEGEND

SYMBOL	DESCRIPTION
A–1	CONDUIT AND CONDUCTORS HOMERUN TO PANELBOARD. NUMERALS INDICATE CIRCUIT NUMBER(S). LETTERS INDICATE PANELBOARD TO WHICH CIRCUITS ARE RUN. MINIMUM CONDUCTOR SIZE SHALL BE #12 AWG. CONDUIT SIZED PER NATIONAL ELECTRICAL CODE. MINIMUM CONDUIT SIZE SHALL BE 3/4".
	IN–GROUND FIXTURE, SEE LIGHTING FIXTURE SCHEDULE
	WALL–MOUNTED LIGHTING FIXTURE. LETTER DENOTES FIXTURE TYPE, SEE LIGHTING FIXTURE SCHEDULE.

GENERAL ELECTRICAL NOTES

G1. DO NOT SCALE THESE DRAWINGS. ALL ROUGHING-IN SHALL BE TAKEN FROM THE ARCHITECTURAL DRAWINGS AND DIMENSIONS.

G2. ALL ELECTRICAL APPARATUS SHOWN ON THESE DRAWINGS SHALL BE UL LISTED AND SHALL COMPLY WITH ALL LOCAL AND NATIONAL CODES.

G3. WHERE PENETRATIONS ARE MADE THROUGH A REQUIRED FIRE-RESISTANT WALL, FLOOR OR PARTITION FOR THE PURPOSE OF RUNNING RACEWAY CARRYING ELECTRICAL CIRCUITS, TELEPHONE, TELEVISION OR LOCAL COMMUNICATION AND/OR SIGNAL CIRCUITS, THE OPENING AROUND THE RACEWAY(S) SHALL BE FIRE STOPPED BY A "UL" TESTED SYSTEM FOR THE TYPE CONSTRUCTION AND WALL MATERIAL AS OUTLINED IN THE INTERNATIONAL BUILDING CODE. COORDINATION WITH THE GENERAL CONTRACTOR SHALL BE MAINTAINED TO ENSURE THAT THE FIRE STOPPING IS ACCOMPLISHED.

G4. ALL WORK SHALL COMPLY WITH ALL LOCAL, STATE AND NATIONAL CODES.

G5. EQUIPMENT SHALL BE SUITABLE FOR ITS APPLICATION (E.G. WHEN INSTALLED OUTDOORS, IT SHALL BE WEATHERPROOF, ETC.)

G6. THE CONTRACTOR SHALL FURNISH ALL MATERIALS AND LABOR NECESSARY TO PROVIDE A COMPLETE AND PROPERLY FUNCTIONING ELECTRICAL SYSTEM.

G7. ALL MATERIAL, EQUIPMENT, AND DEVICES SHALL BE NEW.

G8. COORDINATE THE EXACT LOCATION OF LIGHT FIXTURES WITH THE ARCHITECT.

G9. NEUTRALS ON BRANCH CIRCUITS SHALL NOT BE SHARED. EACH BRANCH CIRCUIT WILL BE SUPPLIED WITH ITS OWN DEDICATED NEUTRAL.

G10. ALL SWITCHES INSTALLED ON THIS JOB SHALL BE RATED AT 20 AMPS UNLESS OTHERWISE INDICATED ON PLANS.

G11. DURING CONSTRUCTION OPERATIONS THE ELECTRICAL CONTRACTOR SHALL FAITHFULLY MAKE A RECORD OF ALL APPROVED CHANGES FROM THE CONTRACT DRAWINGS, INCLUDING ACCURATE DIMENSIONS WHERE APPLICABLE, AND SHALL ALSO RECORD ACCURATE DIMENSIONS LOCATING ALL BELOW GRADE OUTSIDE ELECTRICAL UTILITIES WITH REFERENCE TO PERMANENT ABOVE GRADE OBJECTS. AT THE COMPLETION OF WORK ALL SUCH CHANGES SHALL BE RECORDED NEATLY WITH RED INK BY THE ELECTRICAL CONTRACTOR ON AN UNUSED SET OF ELECTRICAL CONTRACT DRAWINGS AND RETURNED TO THE ARCHITECT.

G12. ALL CONDUCTORS SHALL BE RUN IN RIGID CONDUITS, EMT, OR MC CABLE PER CONDUIT INSTALLATION SCHEDULE.

LIGHTING FIXTURE SCHEDULE

SYMBOL	DESCRIPTION	MANUFACTURER	CATALOG NUMBER	LAMPS	TOTAL WATTAGE
C	ACORN LED POLE TOP FIXTURE WITH 7,900 LUMEN OUTPUT, PAINTED BLK, 3500'K COLOR TEMP, 3" SLIP–FIT TENON. POLE: 14 FOOT 4" ROUND STEEL POLE PAINTED BLACK WITH TENON MOUNT AND HAND HOLE.	STERNBERG	PTA850–5P–VCOB–4L–35–TS–MDL05–A POLE: 450–P4–14–.125–BKT	(1) LED	75 WATTS
D	WALL MOUNT LED LANTERN WITH 4,600 LUMENS PAINTED BLACK	STERNBERG	1W–6130CHLED–12L–35K–T4–MDL014–CTA–BKT WALL BRACKET: 50HWB	(1) LED	45 WATTS
F	LED FLOOD LIGHT WITH 5000 LUMEN OUTPUT, INTEGRAL PHOTOCELL, PAINTED DARK BRONZE, 3K COLOR TEMP, AND 1/2" KNUCKLE MOUNT.	ILP	VFS–5L–U–CCTS–KNK–BRZ	(1) LED	42 WATTS
G	LED IN GROUND ACCENT UP LIGHT 350 LUMENS	HYDREL	IGF4–SS–LED–P1–80CRI–30K–MVOLT–15DEG–OT–FLCSR–34B–BZ	(1) LED	5 WATTS
H	TOP BEND STATIC WHITE LINEAR LIGHTING STRIP WITH 238 LUMENS/FOOT OUTPUT RATED FOR OUTDOOR USE. PROJECT REQUIRES TWO 18' STRIPS.	NOVA FLEX	NF–NEON–O–120–TB–3000K SUPPORTING CLIPS: NF–LINE2–CLIP–KIT MINIMUM OF 40 CLIPS		3.6 WATTS/FT

NOTE: PANEL–A IS PROVIDED WITH THE ELECTRICAL FOR THE BUILDING

Panel: A

VOLTAGE: 120 /240 VOLTS
PHASE-WIRE: 1 PHASE - 3 WIRE
MAIN TYPE: MCB
MAIN SIZE: 100 AMPS

INTERRUPT: 10,000 AIC
MOUNTING: SURFACE
EATON: PRL1a
BUS TYPE: COPPER

DESCRIPTION	POLE	WIRE AWG	TRIP AMPS	Cir.	Phase Loads KVA A-Phase	Phase Loads KVA B-Phase	Cir.	TRIP AMPS	WIRE AWG	POLE	DESCRIPTION
RECEPTACLES	1	12	20	1	0.6 / 0.3		2	20	12	1	LIGHTING
RECEPTACLES	1	12	20	3		0.4 / 0.8	4	20	12	1	LIGHTING STREET AND ENRTY
TWHP-1 RECEPTACLE	2	12	20	5	1.4 /		6	20	-	1	SPARE
				7		1.4 /	8	20	-	1	SPARE
SPARE	1	-	20	9	/		10	20	-	1	SPARE
SPARE	1	-	20	11		/	12	20	-	1	SPARE
Total KVA per Phase					2.3	2.6					
Total Amps per Phase					19	22					

NOTES:
1) PANEL TO BE LISTED FOR SERVICE ENTRANCE
2) BREAKERS FOR HVAC EQUIPMENT TO BE TYPE HACR
3) PANEL TO RATED AS NEMA 3R

CONDUIT INSTALLATION SCHEDULE

A. Installations In or Under Concrete Slab: Schedule 40 PVC.
B. Underground not covered or encased in concrete: Schedule 40 PVC. Where the underground conduit emerges from grade it shall be converted to rigid metal conduit or IMC from 18" below grade to a point 8' above grade, or to a point where it is protected from physical damage.
C. Exposed Outdoor Locations: Intermediate galvanized steel conduit (IMC).
D. Wet Interior Locations: Intermediate galvanized steel conduit (IMC).
E. Concealed Dry Interior Locations: Electric Metallic Tubing (EMT).
F. Exposed Dry Interior Locations: Electric Metallic Tubing (EMT).

Home runs from each interior space to be in EMT. MC cable may be used from junction boxes in each space to receptacles and lighting within that space.

SOUTH CAROLINA — STANLEY ENGINEERING, LLC — No. C03001 — CERTIFICATE OF AUTHORIZATION

SOUTH CAROLINA — PROFESSIONAL ENGINEER — No. 21953 — BARRY JOE STANLEY

STANLEY ENGINEERING, LLC
1025 Oak Brook Blvd.
Sumter, SC 29150
(803) 840-1138

Stanley Engineering
DESIGN•PLANNING•ENGINEERING

REVISIONS

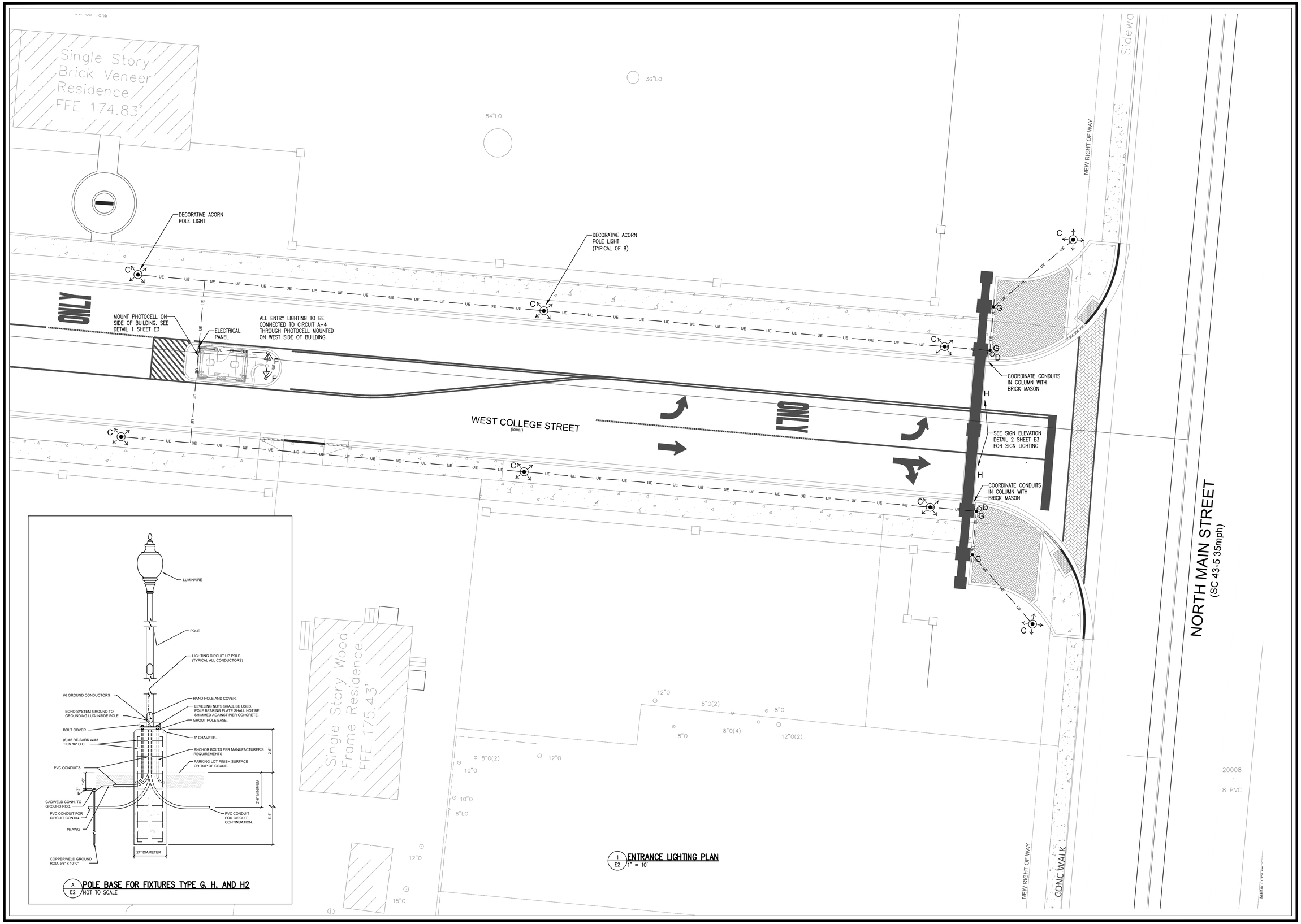
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BJS	BJS	BJS

DATE: 2/21/25
JOB #: ----
SCALE: AS NOTED

NORTH MAIN STREET
IMPROVEMENT PROJECT - PHASE II
SUMTER, SC

Electrical Notes and Legend

DRAWING NUMBER
E1
OF 3



1 E2 **ENTRANCE LIGHTING PLAN**
1" = 10'

A E2 **POLE BASE FOR FIXTURES TYPE G, H, AND H2**
NOT TO SCALE

STANLEY ENGINEERING, LLC
No. C03001
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SOUTH CAROLINA

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Stanley Engineering
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REVISIONS

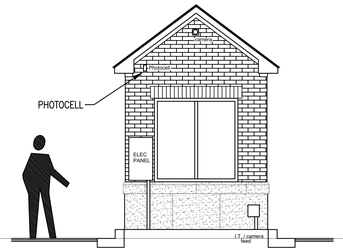
DRAWN	DESIGNED	CHECKED
BJS	BJS	BJS

DATE: 2/21/25
JOB # : ----
SCALE: 1" = 10'

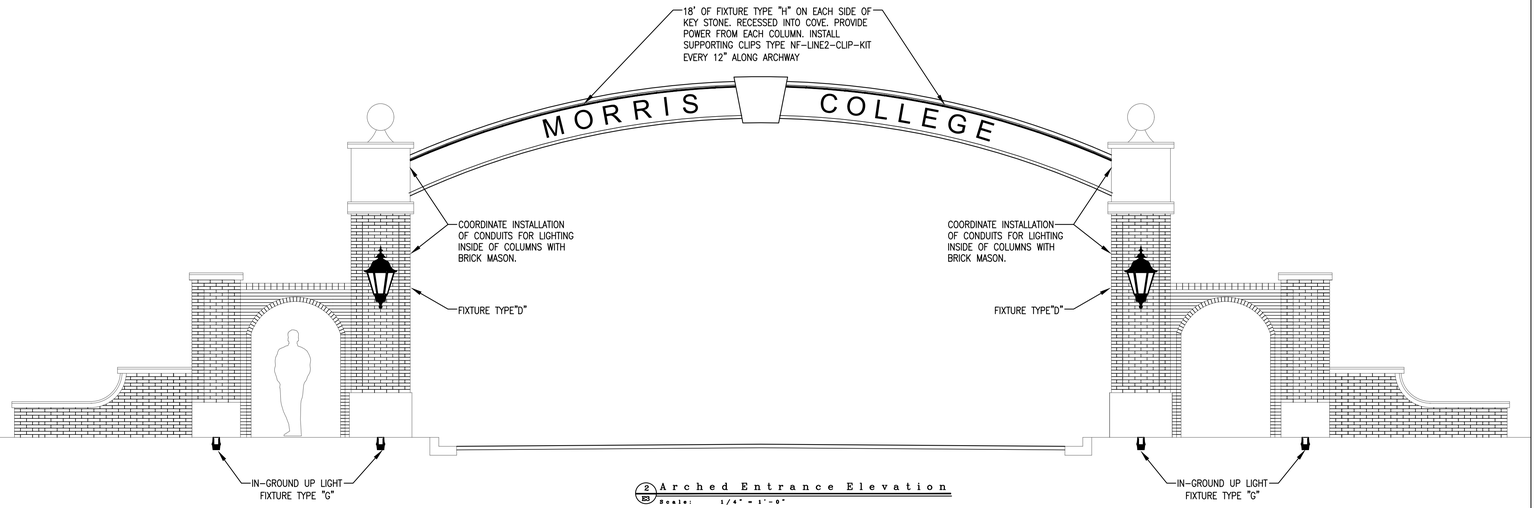
NORTH MAIN STREET
IMPROVEMENT PROJECT - PHASE II
SUMTER, SC

ENTRY LIGHTING PLAN

DRAWING NUMBER
E2
OF 3



1 R3 Gaurd Shack Elevation
Scale: 1/4" = 1'-0"



2 R3 Arched Entrance Elevation
Scale: 1/4" = 1'-0"

SOUTH CAROLINA
STANLEY ENGINEERING, LLC
No. C03001
CERTIFICATE OF AUTHORIZATION

SOUTH CAROLINA
PROFESSIONAL ENGINEER
No. 21953
BARRY JOE STANLEY

STANLEY ENGINEERING, LLC
1025 Oak Brook Blvd.
Sumter, SC 29150
(803) 840-1138

Stanley Engineering
DESIGN•PLANNING•ENGINEERING

REVISIONS

DRAWN: BJS	DESIGNED: BJS	CHECKED: BJS
DATE: 2/21/25	JOB #: ----	SCALE: AS NOTED

NORTH MAIN STREET IMPROVEMENT PROJECT - PHASE II
SUMTER, SC

ELECTRICAL ELEVATIONS

DRAWING NUMBER
E3
OF 3

LEGEND

- INSTALL (RED)
- REMOVE (GREEN)
- EXISTING (BLUE)
- ABANDON (ORANGE)
- TEMPORARY (YELLOW)
- PERMANENT UTILITIES EASEMENT
- AERIAL UTILITIES EASEMENT

SAFETYFirst
- PERSONAL ACCOUNTABILITY
- ACTIVE CARING
- HAZARD RECOGNITION

USP: UPSTREAM DEVICE: SRY90(SWITCH)
USP: FEEDER: NORTH MAIN 24kV
USP: SUBSTATION: SUMTER NORTH 230kV (T3980B05)
USP:
USP:

Safety Reminders / Adverse Conditions
?: TRAFFIC CONTROL NEEDED
?:
?:
?:

WZS: LIGHT TRAFFIC IN THIS AREA
WZS:
WZS:
WZS:
WZS:

REMEMBER: Work zone area conditions may have changed for this job! Everyone is responsible for verifying the above safety information is correct prior to any work being performed each day.

LAND AGENT & VEGETATION MANAGEMENT
PROJECT#: OPS CENTER:
RESP. CENTER - ENG: TREE CLEARING: ROW:
ACTIVITY - ENG: E TREE CLEARING: I ROW: E

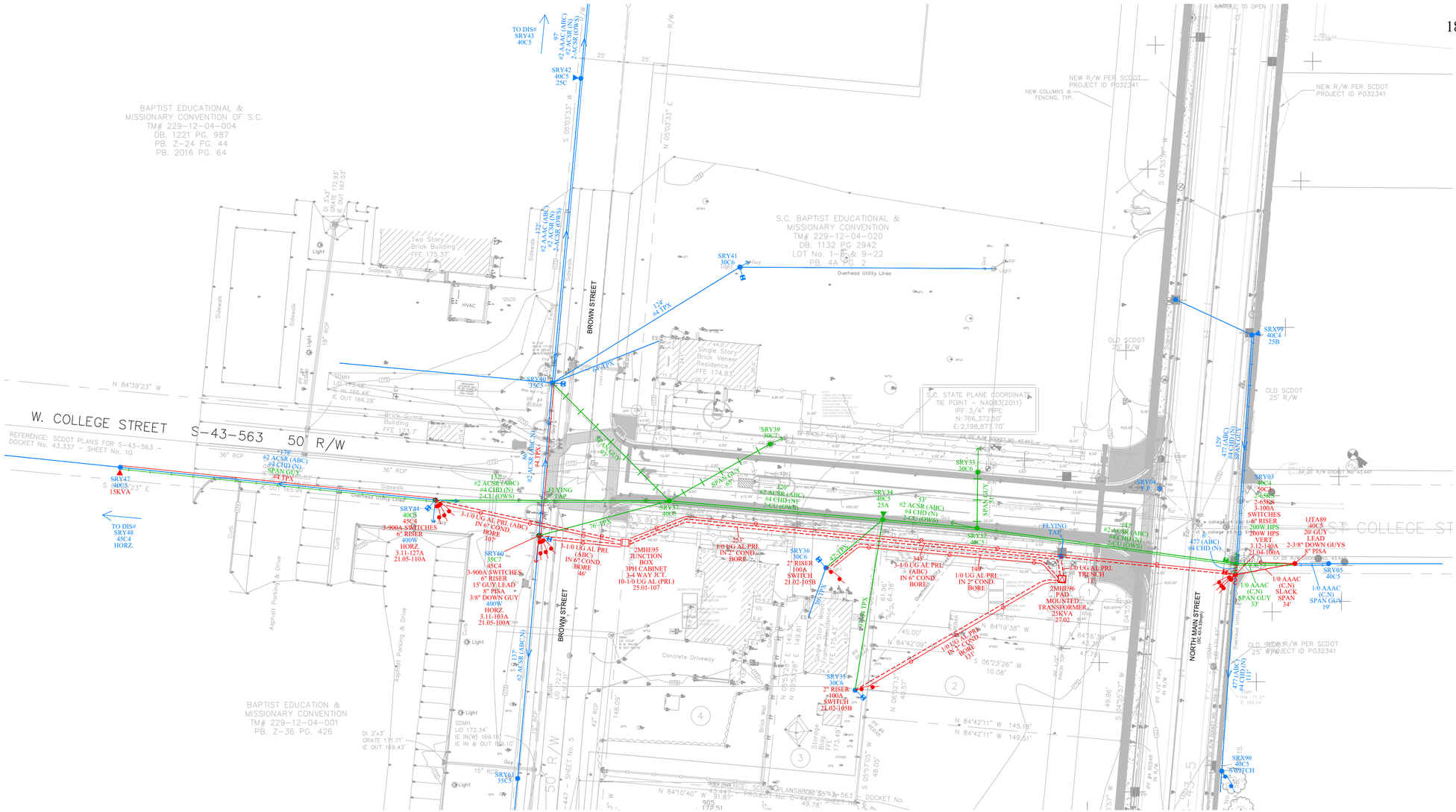
DUKE ENERGY. PROGRESS

PIKE ENGINEERING

Funding #: PFP814980	Designed By: Tyler Robinson
Work Order #: 55814980	Design Completed: 12-31-24
Address: City of Sumter Project Morris College Ave. College Ave. Morris College, S.C. Sumter County	Scale: 1" = 30' Office Phone: 803-835-2253 Cell Phone: 843-468-1030 Sheet: 1 OF 1

PIKE ENGINEERING
1838 HABERSHAM SQUARE
SUITE B
FLORENCE, SC 29501
LICENSURE# 4286

PRELIMIMARY
NOT FOR
CONSTRUCTION


TO DIS# SRY43 40C5
97' #2 AAAC (ABC) #2 ACSR (N) 2-ACSR (OWS)
SRY42 40C5 25C
S 05°03'33" W
N 05°03'33" E
R/W
25'
BAPTIST EDUCATIONAL & MISSIONARY CONVENTION OF S.C. TM# 229-12-04-004 DB. 1221 PG. 987 PB. Z-24 PG. 44 PB. 2016 PG. 64
S.C. BAPTIST EDUCATIONAL & MISSIONARY CONVENTION TM# 229-12-04-020 DB. 1132 PG 2942 LOT No. 1-5 & 9-22 PB. 4A PG. 2
Two Story Brick Building TFF 175.37'
Single Story Brick Veneer Residence FFE 174.83'
Brick Guard Building FFE 173.7'
Overhead Utility Lines
SRY41 30C6
SRY40 35C5
SRY39 30C7
SRY33 30C6
SRY34 40C5 25A
SRY32 40C5
SRY37 30C8
SRY36 30C6 2" RISER 100A SWITCH 21.02-105B
SRY35 30C6 2" RISER 100A SWITCH 21.02-105B
SRY44 40C5 45C4 3-900A SWITCHES 6" RISER 400W HORZ. 3.11-127A 21.05-110A
SRY60 35C7 45C4 3-900A SWITCHES 6" RISER 15' GUY LEAD 8" PISA 3/8" DOWN GUY 400W HORZ. 3.11-103A 21.05-100A
SRY61 35C5
SRY47 40C5 15KVA
TO DIS# SRY48 45C4 HORZ.
W. COLLEGE STREET S-43-563 50' R/W
REFERENCE: SCDOT PLANS FOR S-43-563 - DOCKET No. 43,337 - SHEET No. 10.
N 84°39'23" W
S 84°39'23" E
BROWN STREET
50' R/W
SHEET No. 5
DOCKET No. 43,447
SHEET No. 10
#2 ACSR (ABC) #4 CHD.(N) SPAN GUYS 4 TPX
#2 ACSR (ABC) #4 CHD.(N) 2-CU (OWS)
#2 ACSR (ABC) #4 CHD.(N) 2-CU (OWS) FLYING TAP
3-1/0 UG AL PRI (ABC) IN 6" COND. BORE 107'
3-1/0 UG AL PRI (ABC) IN 6" COND. BORE 46'
2MHE95 JUNCTION BOX 3PH CABINET 3-4 WAY JCT. 10-1/0 UG AL (PRI.) 25.01-107
2MHE96 PAD MOUNTED TRANSFORMER 25KVA 27.02-
1/0 UG AL PRI TRENCH 140'
1/0 UG AL PRI IN 2" COND. BORE 143'
1/0 UG AL PRI IN 2" COND. BORE 54'
SDMH LID 175.48' IE IN(W) 166.48' IE OUT 166.28'
SDMH LID 172.34' IE IN(W) 169.16' IE IN & OUT 169.10'
DI 2'x3' GRATE 171.71' IE OUT 169.43'
DI 3'x3' GRATE 172.93' IE OUT 167.53'
Asphalt Parking & Drive
Concrete Driveway
Brick Wall
Storage Bldg FFE 173.49'
BAPTIST EDUCATION & MISSIONARY CONVENTION TM# 229-12-04-001 PB. Z-36 PG. 426
S.C. STATE PLANE COORDINATE TIE POINT - NAD83(2011) IPF 3/4" PIPE N: 766,372.50' E: 2,198,877.70'
NEW R/W PER SCDOT PROJECT ID P032341
NEW COLUMNS & FENCING, TYP.
UNABLE TO OPEN
OLD SCDOT 25' R/W
NORTH MAIN STREET
SRX09 40C4 25B
SRX90 40C5 SWITCH
SRY03 40C4 20C 2-6 SRS 3-100A SWITCHES 6" RISER 200W HPS VERT. 3.12-140A 21.04-100A
1JTA89 40C5 20' GUY LEAD 8" PISA
2-3/8" DOWN GUYS
SRY05 40C5
1/0 AAAC (C.N) SLACK SPAN 34'
1/0 AAAC (C.N) SPAN GUY 33'
1/0 AAAC (C.N) SPAN GUY 19'
ST. COLLEGE ST
OLD SCDOT R/W PER SCDOT PROJECT ID P032341
SRY04 T.P.
#2 ACSR (ABC) #4 CHD.(N) 2-CU (OWS)
477 (ABC) #4 CHD.(N) 117'
SPAN GUY 45'
SPAN GUY 15'
SPAN GUY 45'
SPAN GUY 45'
SPAN GUY 45

SHT 6

NEW POLE DUKE ENERGY SRX60 45C4
SMTR 1107 L-23366

SPLICE & 100' COIL

PHILLIPS ST

SPLICE TO NEW CABLE, CHANGE COUNT, RIPPLE TO FIELD
AE-200 26
*4189375:10
(SUGT5 12,2201-2300+)
(SUGT5 12,2101-2200)
XD12,1-100+
SUGT5 12,2101-2200

RETIRE CABLE
(789') (01.1994)
(AKF200)
(SUGT5 FH,1-200)

CONSTRUCTION NOTE:
1. REMOVE ALL FRONTIER
2. DUKE TO REMOVE THEIR POLES

RETIRE CABLE
(85') (08.2007)
(AKF400)
(SUGT5 12,1801-2051+
XD12,2052+
SUGT5 12,2053-2100+
XD12,2101-2200)

RETIRE CABLE
(436') (08.2007)
(AKF600)
(SUGT5 12,1801-2051+
XD12,2052+
SUGT5 12,2053-2100+
XD12,2101-2400)

RETIRE CABLE
(85') (08.2007) (AKF400)
(XD12,2201-2600)

REMOVE PED
(SMTR 1101.00)
(PED) (07.2020)

NEW POLE DUKE ENERGY SRX99 45C4
SMTR 1103 L-23366

REMOVE POLE
(SMTR 1101.00)
(35-5) (08.2007)

DO NOT SPLICE TO NEW CABLE, CHANGE COUNT
AE-12 22
*4189375:18
(SUGT5 12,1901-1912)
XD12,1-12

W COLLEGE ST

E COLLEGE ST

RETIRE CABLE
(120') (01.1994)
(AKF25)
(SUGT5 FH,701-725)

PLACE 6 PR DROP
300' 2423.101
SUGT5 12,1803+
SUGT5 12,1805+
XD,3-6

8

REMOVE PED
(SMTR 1.00)
(PED) (07.2020)

NEW POLE DUKE
ENERGYSRY03 45C4
SMTR 1007 L-23366

SPLICE TO NEW CABLE, CHANGE COUNT, RIPPLE TO FIELD
AE-25 24
*4189375:8
(SUGT5 7,26-50)
SUGT5 7,1-25

N MAIN ST (SC-5)

REMOVE X-BOX
(SUGT5 3031)
(XCONN601) (01.1994)
IN: SUGT5 12,1801-2051+
XD12,2052+
SUGT5 12,2053-2100+
XD12,2101-2400
OUT: SUGT5 FH,1-1200

REMOVE POLE
(SMTR 1007.00)
(40-4) (01.1984)

RETIRE CABLE
(427') (01.1994)
(AKF300)
(SUGT5 FH,801-1100)

NEW POLE DUKE ENERGY 1JFR97 40C5
SMTR 101 L-23821

SPLICE TO NEW CABLE
266' 2421.101
AE 25 24
SUGT5 7,1-25

FC JAMES CT

REMOVE POLE
(SMTR 1005.00)
(40-4) (01.2000)

NEW POLE DUKE ENERGY 1J1M61 45C4
SMTR 1005 L-23366

SPLICE & 100' COIL

NEW POLE DUKE ENERGY SKA04 45C4
SMTR 1003 L-23366

REMOVE POLE
(SMTR 1003.00)
(40-4) (01.1995)

SHT 4

5

UNITS / ACCT CODES

REVISIONS

10/31/24	REMOVAL OF PEDS	JE

FRONTIER

SMTR-SCDOT RDMV-RELOC CBLS TO NEW POLES N.MAIN ST

PROJECT NUMBER:	4189375	C.O. AREA: 51390 EXCH. CODE: SC SUMTER	
DRAWN DATE: 02/03/2023	ENGR: JOHN EDSALL PHONE: 315-725-3471	CNTY: SUMTER FILE: 2023_JE_4189375.DWG	
SCALE: 1:100	TAX DISTRICT: 001	DWG 6 OF 9	
TWNSHP: —	RNG: —	SEC: —	