ADVERTISEMENT FOR BIDS

Sealed proposals will be received in the Office of the Procurement Manager, Greenville Utilities Commission, 401 S. Greene Street, Greenville, North Carolina 27834 until 2:00 PM (EDT) on March 10, 2026, and immediately thereafter publicly opened and read for the furnishing of Boviet Substation Site Work.

Instructions for submitting bids and complete specifications will be available in the Office of the Procurement Manager, Greenville Utilities Commission, 401 S. Greene Street, Greenville, North Carolina during regular office hours, which are 8:30AM – 5:00PM Monday through Friday.

Greenville Utilities Commission reserves the right to reject any or all bids. **Late bids will not be considered.**

PRE-BID MEETING – A Pre-Bid meeting will be held at Greenville Utilities Commission, Boviet Substation Site, at 35°39'28.9"N 77°20'59.8"W, on Wednesday, February 25, 2026 at 10:00 am to 12:00 pm (EST).

The intent of the Pre-Bid Meeting is to allow the bidders an opportunity to ask questions and make clarifications prior to submitting a bid.

Only portions of the bid/contract will be discussed. Lack of discussion or clarification of any portion of the bid/contract does not relieve the Bidder from conforming to the provisions of the same.

Questions regarding this Request for Bid (RFB) should be received by or before 5:00 pm, March 3, 2026. All questions shall be directed via e-mail to the attention of Cleve Haddock, Lifetime CLGPO, Procurement Manager at: haddocgc@guc.com, (252) 551-1533.

SECTION I

GENERAL INSTRUCTIONS FOR FORMAL BIDS

RELATED TO THE PURCHASE OF APPARATUS, SUPPLIES,

MATERIALS, AND EQUIPMENT

1.0 NOTICE TO BIDDERS

Sealed bids, subject to the conditions made a part hereof, will be received in the Office of the Procurement Manager, Greenville Utilities Commission, 401 S. Greene Street, Greenville, North Carolina 27834 until 2:00 PM (EDT) on March 10, 2026, the day of opening. **Bids submitted in a fax or e-mail in response to this Invitation for Bids will not be acceptable. Late Bids will not be considered.**

2.0 STANDARD FORMS REQUIRED

Each bidder must submit a proposal on the enclosed bid forms. **The bid must be signed by an authorized official of the firm. Return only the attached Proposal Form. Do not return the Advertisement for Bids, Instructions to Bidders or Specifications.**

3.0 PREPARATION OF BID

Bids must be in sealed envelopes clearly marked on the outside with the name of the bid and the bid opening date and time. Bid shall be addressed to the Procurement Manager, GREENVILLE UTILITIES COMMISSION, P. O. BOX 1847, 401 S. GREENE STREET, GREENVILLE, NORTH CAROLINA 27835-1847.

4.0 TIME FOR OPENING BIDS

Bids will be opened promptly and read at the hour and on the date set forth in the advertisement in the Office of the Procurement Manager, Greenville Utilities Main Office, 401 S. Greene Street, Greenville, North Carolina. Bidders or their authorized agents are invited to be present.

5.0 DEPOSIT

A deposit is required for this bid.

6.0 NC SALES TAX

Do **not** include NC sales taxes in bid figure; however, Greenville Utilities Commission (GUC) does pay sales tax. Sales tax should be added to the invoice as a separate item.

7.0 FEDERAL EXCISE TAX

GUC is exempt from Federal Excise Tax and will issue a Federal Exemption Certificate upon request to the successful bidder.

8.0 EXCEPTIONS TO BE CLEARLY STATED

If bid is not in strict accordance with Section II, "Specifications," bidder must list or note all exceptions **on the Request for Proposal Form**, otherwise, it is fully understood that the successful bidder will furnish equipment and/or materials exactly as specified. GUC reserves the right to accept or reject bids with noted minor deviations from specifications and to determine the lowest responsible, responsive bid from the standpoint of quality, performance, and price.

9.0 EVALUATION AND AWARD OF BIDS

GUC reserves the right to reject any and all bids, to waive any and all informalities, and to disregard all nonconforming or conditional bids or counter proposals. In evaluating bids, GUC shall consider whether the bids comply with the prescribed requirements, plus all alternates or options requested. GUC reserves the right to include or exclude any option or alternative in GUC's opinion is in GUC's best interests. If a bid is to be awarded, it will be awarded to the lowest responsible, responsive bidder whose evaluation by GUC indicates that the award will be in GUC's best interests. Only firm prices will be considered for award of this bid.

10.0 PROMPT PAYMENT DISCOUNTS

Bidders are urged to compute all discounts into the price offered. If a prompt payment discount is offered, it may be considered in the award of the contract.

11.0 NUMERICAL ERRORS

In the case of a discrepancy between a unit price and the extension (the unit price multiplied by the number of units), the unit price governs. In the case where numerical bids are stated both in numbers and in words, the words govern.

12.0 BID WITHDRAWAL

A bidder must notify GUC in writing of its request to withdraw a bid within seventy-two (72) hours after the bid opening, not including Saturdays, Sundays, or holidays. In order to justify withdrawal, the bidder must demonstrate that a substantial error exists and that the bid was submitted in good faith.

13.0 MINORITY BUSINESS PARTICIPATION PROGRAM

GUC has adopted an Affirmative Action and Minority and Women Business Enterprise Plan (M/WBE) Program. Firms submitting a proposal are attesting that they also have taken affirmative action to ensure equality of opportunity in all aspects of employment, and to utilize M/WBE suppliers of materials and/or labor.

14.0 QUANTITIES

Quantities specified are only estimates of GUC's requirements. GUC reserves the right to purchase more or less than the stated quantities at prices indicated in the submitted Proposal Form based on our actual needs.

15.0 DELIVERY

Shipments will be made to GUC only upon releases from a purchase order issued by GUC in accordance with its current needs.
Time is of the essence with respect to all deliveries under this Agreement.
Delivery of all equipment, materials, or supplies shall be made Free on Board (FOB), customer's site, Boviet Substation, at 35°39'28.9"N 77°20'59.8"W, unless otherwise specified. The agreed price for such equipment, materials, or supplies shall include all costs of delivery and ownership, and risks of loss shall not be transferred from Provider to GUC until express written acceptance of delivery and inspection by GUC. Delivery hours are between 8:00 AM and 4:30 PM Monday-Friday only. **GUC's purchase order number is to be shown on the packing slip or any related documents.** GUC reserves the right to refuse or return any delivery with no purchase order number or which is damaged. GUC will not be charged a restocking fee for any delivery which is refused or returned.

16.0 DELIVERY TIME

Delivery time is to be stated and will be considered in the evaluation of bids. Failure by the successful bidder to meet quoted delivery shall be interpreted as non-compliance with these specifications and may be deemed sufficient cause for removal of the manufacturer and/or distributor from our lists as acceptable manufacturers or bidders.

17.0 CONTRACT PERIOD

TBD.

18.0 MANUFACTURER

Bidder is to specify the manufacturer of items being quoted.

19.0 CONTACT INFORMATION

Questions regarding this bid request should be directed to Cleve Haddock, Procurement Manager, Finance Department at (252) 551-1533, haddocgc@guc.com. **All questions must be received via e-mail by or before 5:00pm (EST) March 3, 2026.**

20.0 LIQUIDATED DAMAGES

Time is of the essence, and it is critical that the work be performed on schedule and time is allowed for the completion of the work in the Contract Agreement included herewith. Damages for delay shall be at the rate of four-thousand dollars ($4,000.00) per calendar day for failure of the Contractor to complete the work within the Construction Schedule. No credit shall be given for early completion of the work.

21.0 TERMS AND CONDITIONS

The attached Terms and Conditions apply to all purchases made by Greenville Utilities Commission (GUC) and must be considered as part of the bid proposal.

SECTION II

GREENVILLE UTILITIES COMMISSION

SPECIFICATIONS FOR

BOVIET SUBSTATION SITE WORK

The technical specifications for site work for the proposed Boviet Substation in Greenville, North Carolina prepared by Rivers & Associates, Inc. are as follows:

TECHNICAL SPECIFICATIONS
TABLE OF CONTENTS

SECTION 01010 - PROJECT REQUIREMENTS

RELATED DOCUMENTS:

The general provisions of the Contract, including the General and Special Conditions and Division-1 Specification sections apply to work of this section.

GENERAL DESCRIPTION OF WORK:

The Work to be performed under these Contract Documents consists of

Site Work for the Boviet Substation for Greenville Utilities Commission.

OTHER CONSTRUCTION CONTRACTS:

Work at the site performed by others under separate contracts includes the following:

Electrical Substation Construction

OFF SITE STORAGE:

Off-site storage arrangements shall be acceptable to OWNER for all materials and equipment not incorporated into the work but included in Applications for Payment. Such off-site storage arrangements shall be presented in writing, and shall afford adequate and satisfactory security and protection. Off-site storage facilities shall be accessible to ENGINEER.

EQUIVALENT MATERIALS AND EQUIPMENT:

Whenever a material or article is specified or described by using the name of a propriety product or the name of a particular manufacturer or vendor without the words "or equal" or "or approved equal" etc., the specified item mentioned shall be provided. Other manufacturers' products will not be accepted.

It is the intent of these specifications to insure that materials and equipment of the highest reliability are supplied. The design of the overall product and selection of materials and equipment included in these specifications have been based upon dimensions, structures, connection wiring, etc. required for the first manufacturer listed in every reference to a quality standard. If material or equipment of another manufacturer (including alternatives specifically referenced) is offered, the cost of any changes in structures, building, piping, wiring, etc., as well as any detailed drawings necessary to show such required changes, shall be borne by the CONTRACTOR with no additional cost to the Owner.

PREPARATION FOR SHIPMENT:

All materials shall be suitably packaged to facilitate handling and protection against damage during transit and storage. Painted surfaces shall be protected against impact, abrasion, discoloration and other damage. All painted surfaces which are damaged prior to acceptance of equipment shall be repainted to the satisfaction of ENGINEER.

Each item, package or bundle of material shall be tagged or marked as identified in the delivery schedule or on the Shop Drawings. Complete packing lists and bills of material shall be included with each shipment.

LAND FOR CONSTRUCTION PURPOSES:

CONTRACTOR will be permitted to use available land belonging to OWNER, on or near the site of the Work, for construction purposes and for the storage of materials and equipment. The location and extent of the areas so used shall be as indicated on the drawings or will be as follows:

CONTRACTOR shall immediately move stored material or equipment if any occasion arises, as determined by OWNER, requiring access to the storage area. Materials or equipment shall not be placed on the property of OWNER until OWNER has agreed to the location to be used for storage.

EASEMENTS AND RIGHTS-OF-WAY:

The easements and rights-of-way for the pipelines will be provided by OWNER. CONTRACTOR shall confine his construction operations within the limits indicated on the drawings, and shall use due care in placing construction tools, equipment, excavated materials and pipeline materials and supplies, so as to cause the least possible damage to property and interference with traffic.

On Private Property: Easements across private property are indicated on the drawings. CONTRACTOR shall set stakes to mark the boundaries of construction easement across private property. The stakes shall be protected and maintained until completion of construction and cleanup.

CONTRACTOR shall not enter for pipe delivery or occupy for any other purpose with men, tools, equipment, construction materials or with materials excavated from the pipe trench, any private property outside the designated construction easement boundaries without written permission from the owner and tenant of the property.

Whenever the easement is occupied by crops which will be damaged by construction operations, CONTRACTOR shall notify the owner and tenant sufficiently in advance so that the crops may be removed before excavation or trenching is started. CONTRACTOR shall be responsible for all damage to crops outside of the easement, and shall make satisfactory settlement for the damage directly with the property owner and tenant involved.

Where the line crosses fields which are leveled for irrigation or terraced, CONTRACTOR shall relevel irrigated fields and replace all terraces to their original or better condition, and to the satisfaction of the property owner and tenant involved.

Work Within Highway and Railroad Rights-of-Way: Permits shall be obtained by OWNER. All Work performed and all operations of CONTRACTOR, his employees or subcontractors, within the limits of railroad and highway rights-of-way, shall be in conformity with the requirements and be under the control (through OWNER) of the railroad or highway authority owning, or having jurisdiction over and control of, the right-of-way in each case.

NOTICES TO OWNERS AND AUTHORITIES:

CONTRACTOR shall, as provided in General Conditions, notify owners of adjacent property and utilities when prosecution of the Work may affect them.

When it is necessary to temporarily deny access by owners or tenants to their property, or when any utility service connection must be interrupted, CONTRACTOR shall give notices sufficiently in advance to enable the affected persons to provide for their needs. Notices shall conform to any applicable local ordinance and, whether delivered orally or in writing, shall include appropriate information concerning the interruption and instructions on how to limit their inconvenience.

Utilities and other concerned agencies shall be contacted at least 72 hours prior to cutting or closing streets or other traffic areas or excavating near underground utilities or pole lines.

CONTRACTOR shall contact N.C. ONE-CALL(811) 72 hours prior to any excavation. Locations of existing utilities by 811 are good for only ten (10) days after the date of location.

LINES AND GRADES:

All Work shall be done to the lines, grades, and elevations shown on the drawings.

Basic horizontal and vertical control points have been or will be established or designated by ENGINEER on the Drawings. These points shall be used as datum for the Work. All additional field survey, layout and measurement Work shall be performed by CONTRACTOR as a part of the Work.

CONTRACTOR shall provide an experienced surveyor, instrument man, competent assistants and such instruments, tools, stakes and other materials required to complete the survey, layout and measurement Work. In addition, CONTRACTOR shall furnish, without charge, competent surveyors from his force and such tools, stakes and other materials as ENGINEER may require in establishing or designating control points, in establishing construction easement boundaries or in checking survey, layout and measurement Work performed by CONTRACTOR.

CONTRACTOR shall keep ENGINEER informed, a reasonable time in advance, of the times and places at which he wishes to do Work, so that any checking deemed necessary by ENGINEER may be done with minimum inconvenience to ENGINEER and minimum delay to CONTRACTOR.

CONTRACTOR shall remove and reconstruct Work which is improperly located.

Construction staking shall be performed by a Registered Land Surveyor at least twenty-four hours and three hundred feet in advance of construction.

Construction staking shall be included at the following locations:

1. Along the centerline of proposed water lines or force mains, at all points of horizontal curvature and tangency and at maximum intervals of one hundred feet (100') in tangent sections and twenty-five feet (25') in curved sections.

2. In addition to (1) above, the COMMISSION reserves the right to require that the centerline of proposed water lines or force mains be marked by a continuous paint stripe where there is concern for the quality of work being provided.

3. At offsets out of the way of construction operations for each point on the centerline required by (1) above.

4. At all valves, fittings, hydrants, air release valves, cleanouts, water meters and other appurtenances. Such stakes shall have offsets out of the way of construction.

5. Hubs shall be provided for all pump station plot property or easement corners and at the wet well and valve vault locations.

6. Hubs shall be provided at all manhole locations. Each hub shall have a guard stake indicating the manhole number and station number and shall have an offset out of the way of construction.

7. CONTRACTOR shall stake the easement line location when requested to do so by the COMMISSION.

ALLOWANCES:

The Contract Price includes cash allowances for certain materials, equipment and portions of the Work as follows:

Allowances are shown in the Bid Form.

OWNER, in consultation with ENGINEER, shall select from supplies, samples, information or alternatives submitted by CONTRACTOR. Testing agency shall be selected by and work for the OWNER, but be paid by the CONTRACTOR out of the above allowance.

CONTRACTOR shall cause the Work to be done by materialmen, suppliers or Subcontractors and for amounts satisfactory to ENGINEER. The Contract Price will be adjusted by Change Order for any difference between CONTRACTOR's direct cost for the selected alternative and the cash allowance included in such price adjustments. The cost shall be the actual invoice cost including tax and shipping of items covered by the allowance. The CONTRACTOR shall include any costs for labor overhead and profit in other portions of his bid.

CONNECTIONS TO EXISTING FACILITIES:

Unless otherwise specified or indicated, CONTRACTOR shall make all necessary connections to existing facilities including structures, drain lines and utilities such as water, sewer, gas, telephone and electric. In each case, CONTRACTOR shall receive permission from OWNER or the owning

utility prior to undertaking connections. CONTRACTOR shall protect facilities against deleterious substances and damage.

Connections to existing facilities which are in service shall be thoroughly planned in advance, and all required equipment, materials and labor shall be on hand at the time of undertaking the connections. Work shall proceed continuously (around the clock) if necessary to complete connections in the minimum time. Operation of valves or other appurtenances on existing utilities, when required, shall be by or under the direct supervision of the owning utility.

UNFAVORABLE CONSTRUCTION CONDITIONS:

During unfavorable weather, wet ground or other unsuitable construction conditions, the CONTRACTOR shall confine his operations to work which will not be affected adversely by such conditions. No portion of the Work shall be constructed under conditions which would affect adversely the quality or efficiency thereof, unless special means or precautions are taken by CONTRACTOR to perform the Work in a proper and satisfactory manner.

CUTTING AND PATCHING:

As provided in General Conditions, CONTRACTOR shall perform all cutting and patching required for the Work, and as may be necessary in connection with uncovering Work for inspection or for the correction of defective Work.

CONTRACTOR shall perform all cutting and patching required for the installation of improperly timed Work, to remove samples of installed materials for testing and to provide for alteration of existing facilities or the installation of new Work in existing construction.

Except when the cutting or removal of existing construction is specified or indicated, CONTRACTOR shall not undertake any cutting or demolition which may affect the structural stability of the Work or existing facilities without ENGINEER's concurrence.

CONTRACTOR shall provide all shoring, bracing, supports and protective devices necessary to safeguard all Work and existing facilities during cutting and patching operations.

Materials shall be cut and removed to the extent indicated on the drawings or as required to complete the Work. Materials shall be removed in a careful manner with no damage to adjacent facilities or materials. Materials which are not salvable shall be removed from the site by CONTRACTOR.

All Work and existing facilities affected by cutting operations shall be restored with new materials, or with salvaged materials acceptable to ENGINEER, to obtain a finished installation with the strength, appearance and functional capacity required. If necessary, entire surfaces shall be patched and refinished.

CLEANING UP:

CONTRACTOR shall keep the premises free at all times from accumulations of waste materials and rubbish. CONTRACTOR shall provide adequate trash receptacles about the site, and shall promptly empty the containers when filled.

Construction materials stored on the site shall be kept off the ground, neatly stacked, protected from rain and sun when required by the ENGINEER, and the area around the stored materials shall be kept free of trash, weeds and brush.

Construction materials, such as concrete forms and scaffolding shall be neatly stacked by CONTRACTOR when not in use. CONTRACTOR shall promptly remove splattered concrete, asphalt, oil, paint, corrosive liquids and cleaning solutions from surfaces to prevent marring or other damage.

Volatile wastes shall be properly stored in covered metal containers and removed daily.

Wastes shall not be buried or burned on the site or disposed of into storm drains, sanitary sewers, streams or waterways. All wastes shall be removed from the site and disposed of in a manner complying with local ordinances and antipollution laws.

Adequate cleanup shall be a condition for recommendation of progress payment applications.

APPLICABLE CODES:

References in the Contract Documents to local codes mean the North Carolina State Building Code and any applicable County or municipal codes.

Other standard codes which apply to the Work are designated in the specifications.

REFERENCE STANDARDS:

Reference to the standards of any technical society, organization or association, or to codes of local or state authorities, shall mean the latest standard, code, specification or tentative standard adopted and published at the date of receipt of bids, unless specifically stated otherwise.

ABBREVIATIONS AND SYMBOLS:

Abbreviations used in the Contract Documents are defined as follows:

AAMA	Architectural Aluminum Manufacturers Association
AASHTO	American Association of State Highway and Transportation Officials
ACI	American Concrete Institute
AFBMA	Antifriction Bearing Manufacturers Association
AGA	American Gas Association
AGMA	American Gear Manufacturers Association
AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute
AMCA	Air Moving and Conditioning Association
ANSI	American National Standards Institute
APA	American Plywood Association
API	American Petroleum Institute
ASCE	American Society of Civil Engineers
ASHRAE	American Society of Heating, Refrigerating and Air Conditioning Engineers
ASME	American Society of Mechanical Engineer
ASSE	American Society of Sanitary Engineering
ASTM	American Society for Testing and Materials
AWG	American Wire Gauge
AWPA	American Wood Products Association
AWS	American Welding Society
AWWA	American Water Works Association
CGA	Compressed Gas Association, Inc.
CISPI	Cast Iron Soil Pipe Institute
CRSI	Concrete Reinforcing Steel Institute
CS	Commercial Standard
DEQ	Department of Environmental Quality
DHI	Door and Hardware Institute
Fed Spec	Federal Specifications

FGMA	Flat Glass Marketing Association
IBBM	Iron Body, Bronze Mounted
IEEE	Institute Electrical and Electronics Engineers
IFI	Industrial Fasteners Institute
IPS	Iron Pipe Size
MIL	Military Specification
NAAMM	National Association of Architectural Metals Manufacturers
NCDOT	North Carolina Department of Transportation
NEC	National Electrical Code
NEMA	National Electrical Manufacturers Association
NFPA	National Fire Protection Association
NPT	National Pipe Thread
NSPC	National Standard Plumbing Code
OSHA	Occupational Safety and Health Administration
PCI	Prestressed Concrete Institute
PS	Product Standard
SAE	Society of Automotive Engineers
SCPRF	Structural Clay Products Research Foundation
SMACNA	Sheet Metal and Air Conditioning Contractors National Association
SPI	Society of the Plastics Industry
SSPC	Steel Structures Painting Council
UL	Underwriters' Laboratories
US	U. S. Bureau of Standards
USBR	U. S. Bureau of Reclamation

PRECONSTRUCTION CONFERENCE:

Prior to the commencement of Work at the site, a preconstruction conference will be held at a mutually agreed time and place. The conference shall be attended by:

CONTRACTOR and his superintendent

Principal Subcontractors

Representatives of principal suppliers and manufacturers as appropriate

ENGINEER and his Resident Project Representative

Representatives of OWNER

Governmental representatives as appropriate

Others as requested by CONTRACTOR, OWNER, or ENGINEER

Unless previously submitted to ENGINEER, CONTRACTOR shall bring to the conference a tentative schedule for each of the following:

Progress

Procurement

Values for progress payment purposes

Shop Drawings and other submittals

The purpose of the conference is to designate responsible personnel and establish a working relationship. Matters requiring coordination will be discussed and procedures for handling such matters established. The agenda will include:

CONTRACTOR's tentative construction schedules

Transmittal, review, and distribution of CONTRACTOR's submittals

Processing applications for payment

Maintaining record documents

Critical Work sequencing

Processing of Field Orders, Work Change Directives, and Change Orders

Use of premises, office and storage areas, security, housekeeping, working hours, and OWNER's needs

Major equipment deliveries and priorities

CONTRACTOR'S assignments for safety and first aid

ENGINEER will preside at the conference and will arrange for keeping the minutes and distributing the minutes to all persons in attendance.

PROGRESS MEETINGS:

CONTRACTORS shall attend regular progress meetings at least monthly and at other times as requested by ENGINEER or required by progress of the Work.

CONTRACTOR, ENGINEER, OWNER, and all subcontractors active on the site shall be represented at each meeting. CONTRACTORS may at their discretion request attendance by representatives of their suppliers, manufacturers and other subcontractors. Representatives at the progress meeting must be authorized to make decisions and to act on behalf of the organization they represent.

ENGINEER shall preside at the meetings and provide for keeping and distribution of the minutes. The purpose of the meetings will be to review the progress of the Work, maintain coordination of efforts, discuss changes in scheduling and resolve other problems which may develop.

The CONTRACTOR shall generate documentation to list and/or illustrate work/tasks begun or completed since the previous progress meeting, and work/tasks expected to begin or be completed in the next 30 days following the current progress meeting. Preliminary or draft versions of this documentation should be circulated among critical subcontractors, the ENGINEER, and the OWNER, at least two (2) days prior to the scheduled progress meeting, such that schedule conflicts and other scheduling issues can be discussed during the progress meeting. CONTRACTOR shall provide sufficient copies of the documentation for distribution at the progress meeting.

OTHER MEETINGS AND CONFERENCES:

The OWNER and ENGINEER reserve the right to conduct other site meetings and conferences as necessary to monitor and facilitate the quality of the work and operation of the existing facility. Specific meetings and conferences have been outlined in individual specification sections. Other meetings and/or conferences may include, but not be limited to, pre-installation and pre-startup.

These meetings and/or conferences shall be attended by the CONTRACTOR, the ENGINEER, the OWNER, critical subcontractors, regulatory officials (if necessary), and representatives of manufacturers and suppliers as deemed necessary.

END OF SECTION 01010

SECTION 01150 - PAYMENT

RELATED DOCUMENTS:

The general provisions of the Contract, including the General, Special Conditions and Division-1 Specification sections apply to work of this section.

SCOPE:

This section covers methods of payment for items of Work under this Contract.

GENERAL:

The total Bid Price for each part of the Project shall cover all Work required by the Contract Documents. All costs in connection with the proper and successful completion of the Work, including furnishing all materials, equipment, supplies and appurtenances; providing all construction plant, equipment and tools; and performing all necessary labor and supervision to fully complete the Work shall be included in the unit and lump sum prices bid. All Work not specifically set forth as a pay item in the Bid Form shall be considered a subsidiary obligation of CONTRACTOR and all costs in connection therewith shall be included in the prices bid.

ESTIMATED QUANTITIES:

Payment will be made or lump sum prices adjusted according to unit prices bid and as described below.

Base Bid: This item shall include labor, equipment and materials necessary to accomplish all work specified and shown on the plans (Including but not limited to clearing & grubbing, demolition, mucking out existing ditches, excavation of new ditches, earthwork, storm drainage, stone placement, general grading and incidentals). Payment shall be lump sum based upon the price shown in the proposal.

Soil and Materials Testing Allowance: This item shall include an allowance as indicated in the Bid Forms as herein established. Payment shall be for the actual amount invoiced by the Testing Company.

Subsidiary Obligations: All work not specifically set forth as a pay item in the Bid Schedule shall be considered a subsidiary obligation of the Contractor and all costs in connection there with shall be included in the prices bid. Subsidiary obligations include, but are not limited to: temporary drainage provisions, dewatering, removal and off-site disposal of excess or unsuitable materials and debris, removal and replacement of existing features.

Undercut Excavation with Off Site Disposal and Select Borrow Excavation: This item includes the excavation and off site disposal and materials as directed by the Engineer, as well as the excavation, transportation and compaction of off site select borrow material used in filling undercut areas. No additional compensation will be made for proof-rolling subgrade. Payment for the allotted amount shall be included in the Base Bid. The unit price shown in the Proposal shall be used as an add/deduct for adjustment costs, based upon the actual number of cubic yards of material used.

END OF SECTION 01150

SECTION 01300 - SUBMITTALS

PART 1 - GENERAL

RELATED DOCUMENTS:

The general provisions of the Contract, including the General and Special Conditions and Division-1 Specification sections apply to work of this section.

CONSTRUCTION SCHEDULE:

Before Work is started, CONTRACTOR for Contract of the project shall submit to ENGINEER for review a minimum of five copies of the schedule of the proposed construction operations. OWNER shall cooperate with CONTRACTOR in arrangements for continuity of service and operation of valves and other control facilities. The construction schedule shall indicate the sequence of the Work, the time of starting and completion of each part for the general contractor and all subcontractors, the installation date for each major item of equipment, and the time for making connections to existing piping, structures, or facilities, for water testing of below grade structures prior to backfilling operations, and time for testing and start of each part or piece of equipment.

The construction schedule shall be a comprehensive, fully developed, horizontal Gantt-Chart or bar-chart type schedule, and shall include sufficient detail to communicate and/or illustrate the construction progress for such items/tasks as listed above. At least one copy of the construction schedule shall be submitted on one sheet, large enough to show the entire schedule for the entire construction period.

At least every 90 days the schedule shall be revised as necessary to reflect changes in the progress of the Work. Reviewed and approved construction schedules which indicate one or more tasks more than 30 days behind schedule shall also be revised and submitted to review. These revised schedules shall include a progress report as described in this section.

Failure of the CONTRACTOR to provide acceptable, updated/revised construction schedules and required progress reports will be grounds for the ENGINEER to recommend the OWNER withhold a portion of requested partial payment.

OWNER may require CONTRACTOR to add to his plant, equipment, or construction forces, as well as increase the working hours, if operations fall behind schedule at any time during the construction period.

In preparation of the construction schedule, the CONTRACTOR shall coordinate the schedule with his subcontractors schedules, the schedule of values, submittals schedule, progress reports, schedule of payments, and other required schedules and reports.

The following requirements shall be taken into consideration in preparing the proposed schedule of construction operations:

Shop drawing submittal schedule, review time, and any revision and resubmittal time.

The CONTRACTOR shall allow ample time in the schedule for equipment testing, startup, and acceptance prior to final completion.

PROGRESS REPORTS:

A progress report shall be furnished to ENGINEER with each copy of the application for progress payment. If the Work falls behind schedule, CONTRACTOR shall submit additional progress reports at such intervals as ENGINEER may request.

Each progress report shall include sufficient narrative to describe current and anticipated delaying factors, their effect on the construction schedule, and proposed corrective actions. Any Work reported complete, but which is not readily apparent to ENGINEER, must be substantiated with satisfactory evidence.

SCHEDULE OF PAYMENTS:

Within 30 days after award of Contract, CONTRACTOR shall furnish to ENGINEER three copies of schedule of estimated monthly payments. The schedule shall be revised and resubmitted each time an application for payment varies more than l0 percent from the estimated payment schedule.

SURVEY DATA:

All field books, notes, and other data developed by CONTRACTOR in performing surveys required as part of the Work shall be available to ENGINEER for examination throughout the construction

period. All such data shall be submitted to ENGINEER with the other documentation required for final acceptance of the Work.

SHOP DRAWINGS, MATERIAL CERTIFICATES AND PRODUCT DATA:

Engineering data covering all equipment and fabricated materials which will become a permanent part of the Work under this contract shall be submitted to ENGINEER for review prior to installation.

Shop drawings are technical drawings and data that have been specially prepared for this project.

Material Certificates are notarized statements by an official of the supplier certifying that the materials meet the specifications and are used in lieu of or in addition to shop drawings and product data.

Product data includes standard printed information on manufactured products that has not been specially-prepared for this project.

These data shall include drawings and descriptive information in sufficient detail to show the kind, size, arrangement and operation of component materials and devices; the external connections, anchorages and supports required; performance characteristics; and dimensions needed for installation and correlation with other materials and equipment.

All submittals, regardless of origin, shall be stamped with the approval of CONTRACTOR and identified with the name and number of the Contract, CONTRACTOR's name, and references to applicable specification paragraphs and Contract Drawings. Each submittal shall indicate the intended use of the item in the Work. When catalog pages are submitted, applicable items shall be clearly identified. The current revision, issue number, and date shall be indicated on all drawings and other descriptive data.

CONTRACTOR's stamp of approval is a representation to OWNER and ENGINEER that CONTRACTOR accepts full responsibility for determining and verifying all quantities, dimensions, field construction criteria, materials, catalog numbers, and similar data, and that he has reviewed or coordinated each submittal with the requirements of the Work and the Contract Documents.

All deviations from the Contract Documents shall be identified on each submittal and shall be tabulated in CONTRACTOR's letter of transmittal. Such submittals shall, as pertinent to the deviation, indicate essential details of all changes proposed by CONTRACTOR (including

modifications to other facilities that may be a result of the deviation) and all required piping and wiring diagrams.

CONTRACTOR shall accept full responsibility for the completeness of each submission, and, in the case of a resubmission, shall verify that all exceptions previously noted by ENGINEER have been taken into account. In the event that more than one resubmission is required because of failure of CONTRACTOR to account for exceptions previously noted, CONTRACTOR shall reimburse OWNER for the charges of ENGINEER for review of the additional resubmissions.

Any need for more than one resubmission, or any other delay in obtaining ENGINEER's review of submittals, will not entitle CONTRACTOR to extension of the Contract Time unless delay of the Work is directly caused by a change in the Work authorized by a Change Order or by failure of ENGINEER to return any submittal within 21 days after its receipt in ENGINEER's office.

ENGINEER's review of drawings and data submitted by CONTRACTOR will cover only general conformity to the drawings and specifications, external connections, and dimensions which affect the layout. ENGINEER's review does not indicate a thorough review of all dimensions, quantities, and details of the material, equipment, device, or item shown. ENGINEER's review of submittals shall not relieve CONTRACTOR from responsibility for errors, omissions, or deviations, nor responsibility for compliance with the Contract Documents.

Five copies of each drawing and necessary data shall be submitted to ENGINEER. ENGINEER will not accept submittals from anyone but CONTRACTOR. Submittals shall be consecutively numbered in direct sequence of submittal and without division by subcontracts or trades. Resubmittals shall bear the number of the first submittal followed by a letter (A, B, etc.,) to indicate the sequence of the resubmittal.

When the drawings and data are returned marked DISAPPROVED or RESUBMIT, the corrections shall be made as noted thereon and as instructed by ENGINEER and five corrected copies resubmitted.

When corrected copies are resubmitted, CONTRACTOR shall in writing direct specific attention to all revisions and shall list separately any revisions made other than those called for by ENGINEER on previous submissions.

When the drawings and data are returned marked APPROVED AS NOTED, APPROVED, or RECORD COPY, no additional copies need be furnished.

LAYOUT DATA:

CONTRACTOR shall keep neat and legible notes of measurements and calculations made by him in connection with the layout of the Work. Copies of such data shall be furnished to the Resident Project Representative for use in checking CONTRACTOR's layout as provided under Lines and Grades. All such data considered of value to OWNER will be transmitted to OWNER by ENGINEER with other records upon completion of the Work.

RECORD DRAWING:

CONTRACTOR shall keep one record copy of all specifications, drawings, addenda, modifications, and shop drawings at the site in good order and annotated to show all changes made during the construction process. These shall be available to the ENGINEER and shall be delivered to the ENGINEER upon completion of the project. Complete record drawings shall be submitted to the ENGINEER and then approved by the ENGINEER before final payment is approved.

Updated record drawings shall be submitted for all work that is covered up including piping and electrical work within 30 days of the installation.

An updated record drawing shall be prepared by the CONTRACTOR and submitted to the ENGINEER as a condition for approval for any pay request which includes pay items for sanitary sewer or water items.

Annotations on the drawings shall include the exact location of each service stub in relation to the next lowest manhole and centerline of street. Lengths, sizes and types of materials for mains and services shall also be shown.

REPORTS:

DAILY REPORTS:

The CONTRACTOR'S Site Superintendent shall prepare and maintain, at the site, daily construction reports recording the following information concerning events at the Project site:

List of subcontractors at Project site.
Approximate count of personnel at Project site.
Time of arrival and departure of testing agency representative.

Equipment at Project site.
Material deliveries.
High and low temperatures and general weather conditions.
Accidents.
Meetings and significant decisions.
Unusual events.
Stoppages, delays, shortages, and losses.
Emergency procedures.
Orders and requests of authorities having jurisdiction.
Change Orders, Field Orders, and/or Work Change Directives received and implemented.
Services connected and disconnected.
Equipment or system tests and startups.
Work/tasks started and/or completed.
Substantial Completions authorized.

These daily reports shall be made available to the Engineer, Owner, or the Resident Project Representative for examination. These reports, as with Record Drawings, shall be kept up-to-date and will be checked as a partial basis for approval of the Pay Request.

MATERIAL LOCATION REPORTS:

The CONTRACTOR'S Site Superintendent shall prepare and submit to the Resident Project Representative prior to review of the monthly pay request, a comprehensive list of materials delivered to and stored at the Project site. The list shall be cumulative, with item numbers corresponding to the Schedule of Values and the Stored Materials as outlined in the Supplementary Conditions, showing materials previously reported plus items recently delivered. Include with the list, items which are stored away from the Project site. Items stored at locations away from the site have to be approved by the Owner, as outlined in Section 01010 - Project Requirements. The CONTRACTOR shall prepare a maintenance schedule and log of maintenance activities for the individual stored materials. This schedule and log should be kept up-to-date for review by the RPR and OWNER.

The Contractor shall also submit to the RPR, a site map of the storage area, indicating the location of the stored materials, for confirmation of storage by the RPR during review of the Pay Request. The site map should be neat, legible, and of sufficient size to illustrate the location of the individual stored materials.

CLARIFICATION/INFORMATION REQUEST REPORTS:

The CONTRACTOR, in requesting clarification, information, and/or deviation, shall prepare and submit to the ENGINEER a Request for Information (RFI). The RFI should include a detailed description of the request, and in the case of a clarification or deviation, any proposed changes requested to complete the Work. Multiple RFI's should be sequentially numbered and dated to logically track the submittals.

END OF SECTION 01300

SECTION 01400 - QUALITY CONTROL

PART 1 - GENERAL

RELATED DOCUMENTS:

The general provisions of the Contract; including the General and Special Conditions and Division-1 Specification sections apply to work of this section.

TESTING LABORATORY SERVICES:

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

Testing Laboratory Services for Materials Qualification: CONTRACTOR shall be responsible for all testing laboratory services in connection with concrete materials and mix designs, the design of asphalt mixtures, gradation tests for embedment, fill, and backfill materials, and all other tests and engineering data required for ENGINEER's review of materials and equipment proposed to be used in the Work. CONTRACTOR shall pay all costs for services for materials qualifications.

Testing Laboratory Services for Field Quality Control: The testing laboratory for field quality control shall be selected by and work for the OWNER but be paid for by the CONTRACTOR from the testing allowance. A copy of the Testing Laboratory's monthly invoices shall be submitted to the Engineer for review prior to being included in the Contractor's monthly pay request. All charges of testing laboratories for field quality control tests made in the field or laboratory on concrete, asphalt mixtures, moisture-density (Proctor) and relative density tests on embedment, fill, and backfill materials, in-place field density tests on embedments and fills, and other materials and equipment, during and after their incorporation in the Work shall be paid by CONTRACTOR out of the testing allowance as discussed in SECTION 01010. The CONTRACTOR shall be responsible for scheduling of testing agency for field quality control. To verify that equipment, materials, and installations conform to the requirements outlined in the contract documents, the CONTRACTOR shall also schedule such additional testing as deemed necessary by the ENGINEER. Testing due to failed tests and wasted time due to improper scheduling by the CONTRACTOR will be paid for by the CONTRACTOR, not out of the testing allowance. Field sampling and testing will be performed by the testing laboratory personnel, in the general manner indicated in the specifications, with

minimum interference with construction operations. ENGINEER shall determine the exact time and location of field sampling and testing, and may require such additional sampling and testing as necessary to determine that materials and equipment conform with data previously furnished by CONTRACTOR and with the Contract Documents.

Arrangements for delivery of samples and test specimens to the testing laboratory will be made by CONTRACTOR. The testing laboratory shall perform all laboratory tests within a reasonable time consistent with the specified standards and shall furnish a written report of each test.

CONTRACTOR shall furnish all sample materials and cooperate in the sampling and field testing activities, interrupting the Work when necessary. When sampling or testing activities are performed in the field by testing laboratory personnel, CONTRACTOR shall furnish personnel and facilities to assist in the activities.

OWNER shall not require the CONTRACTOR to retain any testing laboratory against which CONTRACTOR has reasonable objection, and if at any time during the construction process the services become unacceptable to CONTRACTOR, he may request in writing that such services be terminated. The request must be supported with evidence of improper testing. If ENGINEER and OWNER determine that sufficient cause exists, CONTRACTOR may terminate the services and engage a different testing laboratory.

Transmittal of Test Reports: Written reports of tests and engineering data furnished by CONTRACTOR for ENGINEER's review of materials and equipment proposed to be used in the Work shall be submitted as specified for Shop Drawings in Section 01300.

The testing laboratory will furnish four copies of a written report of each test performed by laboratory personnel in the field or laboratory. Three copies of each test report will be transmitted to the ENGINEER and one copy to CONTRACTOR within three days after each test is completed. Testing laboratory will provide Resident Inspector and CONTRACTOR copies of field reports and test results on a daily basis prior to leaving the site. Notify ENGINEER and CONTRACTOR immediately of failing test results.

END OF SECTION 01400

SECTION 01500 - TEMPORARY FACILITIES

RELATED DOCUMENTS:

The general provisions of the Contract, including the General and Special Conditions and Division-1 Specification sections apply to work of this section.

OFFICE AT SITE OF WORK:

During the performance of this Contract, CONTRACTOR for each Contract shall maintain a suitable office at or near the site of the Work which shall be the headquarters of his representative authorized to receive drawings, instructions, or other communication or articles. Any communication given to the said representative or delivered at CONTRACTOR's office at the site of the Work in his absence shall be deemed to have been delivered to CONTRACTOR.

Copies of the drawings, specifications, and other contract documents shall be kept at CONTRACTOR's office at the site of the Work and available for use at all times.

WATER:

All water required for and in connection with the Work to be performed and for any specified tests of piping, equipment, devices, etc., or for any other use as may be required for proper completion of the Work shall be provided by and at the expense of CONTRACTOR. No separate payment for water used or required will be made and all costs in connection therewith shall be included in the Bid.

POWER:

CONTRACTOR shall provide all power for heating, lighting, operation of CONTRACTOR's plant or equipment, or for any other use by CONTRACTOR. Temporary heat and lighting shall be maintained until the work is accepted.

SANITARY FACILITIES:

CONTRACTOR under Contract shall furnish temporary sanitary facilities at the site, as provided herein, for the needs of all construction workers and others performing work or furnishing services on the Project.

Sanitary facilities shall be of reasonable capacity, properly maintained throughout the construction period, and obscured from public view to the greatest practical extent. If toilets of the chemically treated type are used, at least one toilet will be furnished for each 20 men. CONTRACTOR shall enforce the use of such sanitary facilities by all personnel at the site.

MAINTENANCE OF TRAFFIC:

CONTRACTOR shall conduct his work to interfere as little as possible with public travel, whether vehicular or pedestrian. Whenever it is necessary to cross, obstruct, or close roads, driveways and walks, whether public or private, CONTRACTOR shall provide and maintain suitable and safe bridges, detours, or other temporary expedients for the accommodation of public and private travel, and shall give reasonable notice to owners of private drives before interfering with them. Such maintenance of traffic will not be required when CONTRACTOR has obtained permission from the owner and tenant of private property, or from the authority having jurisdiction over public property involved, to obstruct traffic at the designated point.

In making open cut street crossings, CONTRACTOR shall not block more than one-half of the street at a time. Whenever possible, CONTRACTOR shall widen the shoulder on the opposite side to facilitate traffic flow. Temporary surfacing shall be provided as necessary on shoulders.

Temporary Bridges: CONTRACTOR shall construct substantial bridges at all points where it is necessary to maintain traffic across pipeline construction. Bridges in public streets, roads, and highways shall be acceptable to the authority having jurisdiction thereover. Bridges erected in private roads and driveways shall be adequate for the service to which they will be subjected. Bridges shall be provided with substantial guard rails and with suitably protected approaches. Foot bridges shall be not less than 4 feet wide, provided with handrails and uprights of dressed lumber. Bridges shall be maintained in place as long as the conditions of the Work require their use for safety of the public, except that when necessary for the proper prosecution of the Work in the immediate vicinity of a bridge, the bridge may be relocated or temporarily removed for such period as ENGINEER may permit.

Detours: Where required by the authority having jurisdiction thereover that traffic be maintained over any construction work in a public street, road, or highway, and the traffic cannot be maintained

on the alignment of the original roadbed or pavement, CONTRACTOR shall, at his own expense, construct and maintain a detour around the construction work. Each detour shall include a bridge across the pipe trench and all necessary barricades, guard rails, approaches, lights, signals, signs, and other devices and precautions necessary for protection of the Work and safety of the public.

BARRICADES AND LIGHTS:

All streets, roads, highways, and other public thoroughfares which are closed to traffic shall be protected by effective barricades on which shall be placed acceptable warning signs. Barricades shall be located at the nearest intersecting public highway or street on each side of the blocked section.

All open trenches and other excavations shall have suitable barricades, signs, and lights to provide adequate protection to the public. Obstructions such as material piles and equipment shall be provided with similar warning signs and lights.

All barricades and obstructions shall be illuminated with warning lights from sunset to sunrise. Material storage and conduct of the Work on or alongside public streets and highways shall cause the minimum obstruction and inconvenience to the traveling public.

All barricades, signs, lights and other protective devices shall be installed and maintained in conformity with applicable statutory requirements and, where within railroad and highway rights-of-way, as required by the authority having jurisdiction thereover.

FENCES:

All existing fences affected by the Work shall be maintained by CONTRACTOR until completion of the Work. Fences which interfere with construction operations shall not be relocated or dismantled until written permission is obtained from the owner of the fence, and the period the fence may be left relocated or dismantled has been agreed upon. Where fences must be maintained across the construction easement, adequate gates shall be installed. Gates shall be kept closed and locked at all times when not in use.

On completion of the Work across any tract of land, CONTRACTOR shall restore all fences to their original or to a better condition and to their original location.

PROTECTION OF PUBLIC AND PRIVATE PROPERTY:

CONTRACTOR shall protect, shore, brace, support, and maintain all underground pipes, conduits, drains, and other underground construction uncovered or otherwise affected by his construction operations. All pavement, surfacing, driveways, curbs, walks, buildings, utility poles, guy wires, fences, and other surface structures affected by construction operations, together with all sod and shrubs in yards and parkings, shall be restored to their original condition, whether within or outside the easement. All replacements shall be made with new materials.

CONTRACTOR shall be responsible for all damage to streets, roads, highways, shoulders, ditches, embankments, culverts, bridges, and other public or private property, regardless of location or character, which may be caused by transporting equipment, materials, or men to or from the Work or any part or site thereof, whether by him or his Subcontractors. CONTRACTOR shall make satisfactory and acceptable arrangements with the owner of, or the agency or authority having jurisdiction over, the damaged property concerning its repair or replacement or payment of costs incurred in connection with the damage.

All fire hydrants and water control valves shall be kept free from obstruction and available for use at all times.

DAMAGE TO EXISTING PROPERTY:

CONTRACTOR will be held responsible for any damage to existing structures, Work, materials or equipment because of his operations and shall repair or replace any damaged structures, Work, materials, or equipment to the satisfaction of, and at no additional cost to, OWNER.

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

CONTRACTOR shall be responsible for all damage to streets, roads, curbs, sidewalks, highways, shoulders, ditches, embankments, culverts, bridges, or other public or private property, which may be caused by transporting equipment, materials, or men to or from the Work. CONTRACTOR shall make satisfactory and acceptable arrangements with the agency having jurisdiction over the damaged property concerning its repair or replacement.

TREE AND PLANT PROTECTION:

All trees and other vegetation which must be removed to perform the Work shall be removed and disposed of by CONTRACTOR; however, no trees or cultured plants shall be unnecessarily removed unless their removal is indicated on the drawings. All trees and plants not removed shall be protected against injury from construction operations.

Trees considered by ENGINEER to have any significant effect on construction operations are indicated on the drawings and those which are to be preserved are so indicated.

CONTRACTOR shall take extra measures to protect trees designated to be preserved, such as erecting barricades, trimming to prevent damage from construction equipment, and installing pipe and other Work by means of hand excavation or tunneling methods. Such trees shall not be endangered by stockpiling excavated material or storing equipment against the trunk.

When the injury or removal of trees designated to be preserved cannot be avoided, or when removal and replacement is indicated on the drawings, each tree injured beyond repair or removed shall be replaced with a similar tree of the nearest size possible.
All trimming, repair, and replacement of trees and plants shall be performed by qualified nurserymen or horticulturists.

SECURITY:

CONTRACTOR shall be responsible for protection of the site, and all work, materials, equipment and existing facilities thereon, against vandals and other unauthorized persons.

No claim shall be made against OWNER by reason of any act of an employee or trespasser, and CONTRACTOR shall make good all damage to OWNER's property resulting from his failure to provide security measures as specified.

Security measures shall be at least equal to those usually provided by OWNER to protect his existing facilities during normal operation, but shall also include such additional security fencing, barricades, lighting, watchman services and other measures as required to protect the site.

ACCESS ROADS:

CONTRACTOR under Contract shall establish and maintain temporary access roads to various parts of the site as required to complete the Project. Such roads shall be available for the use of all others performing work or furnishing services in connection with the Project.

PARKING:

CONTRACTOR under Contract shall provide and maintain suitable parking areas for the use of all construction workers and others performing work or furnishing services in connection with the Project as required to avoid any need for parking personal vehicles where they may interfere with public traffic, OWNER's operations or construction activities.

TEMPORARY DRAINAGE PROVISIONS:

CONTRACTOR shall provide for the drainage of stormwater and such water as may be applied or discharged on the site in performance of the Work. Drainage facilities shall be adequate to prevent damage to the Work, the site, and adjacent property.

Existing drainage channels and conduits shall be cleaned, enlarged or supplemented as necessary to carry all increased runoff attributable to CONTRACTOR's operations. Dikes shall be constructed as necessary to divert increased runoff from entering adjacent property (except in natural channels), to protect OWNER's facilities and the Work, and to direct water to drainage channels or conduits. Ponding shall be provided as necessary to prevent downstream flooding.

END OF SECTION 01500

SECTION 01700 - PROJECT CLOSEOUT

PART 1 - GENERAL

RELATED DOCUMENTS:

The general provisions of the Contract, including the General and Special Conditions and Division-1 Specification sections apply to work of this section.

DESCRIPTION OF REQUIREMENTS:

Provisions of this section apply to the procedural requirements for the actual closeout of the Work, not to administrative matters such as final payment or the change over of insurance. Closeout requirements relate to both substantial and final completion of the Work; they also apply to individual portions of completed work as well as the total Work. Specific requirements contained in other sections have precedence over the general requirements contained in this section.

PROCEDURES AT SUBSTANTIAL COMPLETION:

Prerequisites: Comply with the General Conditions, Special Conditions and complete the following before requesting the ENGINEER's inspection of the work, or a designated portion of the Work, for certification of substantial completion.

Submit executed warranties, workmanship bonds, maintenance agreements, inspection certificates and similar required documentation for specific units of work, enabling OWNER's unrestricted occupancy and use.

Submit record drawing documentation, maintenance manuals, tools, spare parts, keys and similar operational items.

Complete final cleaning, and remove temporary facilities and tools.

Inspection Procedures: Upon receipt of CONTRACTOR's request, ENGINEER will proceed with inspection or advise CONTRACTOR of prerequisites not fulfilled. Following initial inspection, ENGINEER will either prepare CERTIFICATE OF SUBSTANTIAL COMPLETION, or advise CONTRACTOR of work which must be performed prior to issuance of the CERTIFICATE OF SUBSTANTIAL COMPLETION. The ENGINEER will repeat the inspection when requested and

assure that the Work has been substantially completed. Results of the completed inspection will form the initial "punch-list" for final acceptance.

PROCEDURES AT FINAL ACCEPTANCE:

Reinspection Procedure: The ENGINEER will reinspect the Work upon receipt of the CONTRACTOR's notice that, except for those items whose completion has been delayed due to circumstances that are acceptable to the ENGINEER, the Work has been completed, including punch-list items from earlier inspections. Upon completion of reinspection, the ENGINEER will either recommend final acceptance and final payment, or will advise the CONTRACTOR of work not completed or obligations not fulfilled as required for final acceptance. If necessary, this procedure will be repeated.

RECORD DOCUMENTATION:

Record Drawings: Maintain at the construction site a complete set of either blue- or black-line prints of the Contract Drawings and shop drawings for record mark-up purposes throughout the Contract Time. Mark-up these drawings during the course of the work to show both changes and the actual installation, in sufficient detail to form a complete record for the OWNER's purposes. Give particular attention to work which will be concealed and difficult to measure and record at a later date, and work which may require servicing or replacement during the life of the project. Record Drawings shall show all field changes of dimension and detail, station number of all service laterals, wyes, and tees measured from the nearest downstream manhole and the lengths of all service lines.

END OF SECTION 01700

SECTION 02200 - EARTHWORK

PART 1 - GENERAL

RELATED DOCUMENTS:

Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division-1 Specification sections, apply to work of this section.

DESCRIPTION OF WORK:

Extent of earthwork is indicated on drawings.

Preparation of subgrade for slabs is included as part of this work.

Definition: "Excavation" consists of removal of material encountered to subgrade elevations indicated and subsequent disposal of materials removed.

QUALITY ASSURANCE:

Codes and Standards: Perform excavation work in compliance with applicable requirements of governing authorities having jurisdiction.

Testing and Inspection Service: Owner will engage soil testing and inspection service for quality control testing during earthwork operations.

SUBMITTALS:

Test Reports-Excavating: Submit following reports directly to Architect/Engineer from the testing services, with copy to Contractor:

Test reports on soil and embedment.

Field density test reports.

One optimum moisture-maximum density curve for each type of soil encountered.

JOB CONDITIONS:

Site Information: Data on indicated subsurface conditions are not intended as representations or warranties of accuracy or continuity between soil bearings. It is expressly understood that Owner will not be responsible for interpretations or conclusions drawn therefrom by Contractor. Data are made available for convenience of Contractor.

Additional test borings and other exploratory operations may be made by Contractor at no cost to Owner.

Existing Utilities: Locate existing underground utilities in areas of work. If utilities are to remain in place, provide adequate means of support and protection during earthwork operations.

Should uncharted, or incorrectly charted, piping or other utilities be encountered during excavation, consult utility owner immediately for directions. Cooperate with Owner and utility companies in keeping respective services and facilities in operation. Repair damaged utilities to satisfaction of utility owner.

Do not interrupt existing utilities serving facilities occupied and used by Owner or others, during occupied hours, except when permitted in writing by Architect/Engineer and then only after acceptable temporary utility services have been provided.

Provide minimum of 48-hour notice to Architect/Engineer, and receive written notice to proceed before interrupting any utility.

Demolish and completely remove from site existing underground utilities indicated to be removed. Coordinate with utility companies for shut-off of services if lines are active.

Use of Explosives: The use of explosives is not permitted.

Protection of Persons and Property: Barricade open excavations occurring as part of this work and post with warning lights.

Operate warning lights as recommended by authorities having jurisdiction.

Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout and other hazards created by earthwork operations.

PART 2 - PRODUCTS

SOIL MATERIALS:

Definitions:

Satisfactory soil materials are defined as those complying with ASTM D2487 soil classification Groups CL, GW, GP, GM, GC, SC, SM, SW and SP.

Unsatisfactory soil materials are defined as those complying with ASTM D2487 soil classification groups ML, MH, CH, OL, OH and PT.

Aggregate for Aggregate Base Course: Aggregate meeting the requirements of Section 520, Paragraph (a) of "Standard Specifications for Roads and Structures" as issued by NCDOT.

Drainage Fill: Washed, evenly graded mixture of crushed stone, or crushed or uncrushed gravel, with 100% passing a 1-1/2" sieve and not more than 5% passing a No. 4 sieve.

Backfill and Fill Materials: Satisfactory soil materials free of clay, rock or gravel larger than 2" in any dimension, debris, waste, frozen materials, vegetable and other deleterious matter.

Select Backfill: Job excavation or borrow material consisting of coarse sands and fine sands with not more than 15% by weight, passing the No. 200 sieve. This does not include clays, silts, organic soils or any materials not acceptable as fill material. Select backfill must receive prior approval from the Engineer before use.

Backfill and Fill Materials: Satisfactory soil materials free of clay, rock or gravel larger than 2" in any dimension, debris, waste, frozen materials, vegetables and other deleterious matter.

PART 3 - EXECUTION

EXCAVATION:

Substation Yard Excavation: Excavation for the gravel substation yard shall conform to the lines, grades, cross sections, and dimensions indicated on the drawings and shall include the excavation of all unsuitable materials from the subgrade. Subgrade shall conform to the proposed line, grade and cross-section. This operation shall include any reshaping and wetting or drying required to obtain

the proper compaction. All soft or otherwise unsuitable material shall be removed and replaced with suitable material.

Excavation is Unclassified, and includes excavation to subgrade elevations indicated, regardless of character of materials and obstructions encountered.

Unauthorized excavation consists of removal of materials beyond indicated subgrade elevations or dimensions without specific direction of Engineer. Unauthorized excavation, as well as remedial work directed by Engineer, shall be at Contractor's expense.

Undercut Excavation: When excavation has reached required subgrade elevations, notify Engineer and Geotech who will make an inspection of conditions.

If unsuitable bearing materials are encountered at required subgrade elevations, carry excavations deeper and replace excavated material as directed by Geotech.

Removal of unsuitable material and its replacement as directed will be paid on basis of contract conditions relative to changes in work.

Stability of Excavations: Slope sides of excavations to comply with local codes and ordinances having jurisdiction. Shore and brace where sloping is not possible because of space restrictions or stability of material excavated.

Maintain sides and slopes of excavations in safe condition until completion of backfilling.

Shoring and Bracing: Provide materials for shoring and bracing, such as sheet piling, uprights, stringers and cross-braces, in good serviceable condition.

Establish requirements for trench shoring and bracing to comply with local codes and authorities having jurisdiction.

Maintain shoring and bracing in excavations regardless of time period excavations will be open. Carry down shoring and bracing as excavation progresses.
Dewatering: Prevent surface water and subsurface or ground water from flowing into excavations and from flooding project site and surrounding area.

Do not allow water to accumulate in excavations. Remove water to prevent softening of foundation bottoms, undercutting footings, and soil changes detrimental to stability of subgrades and foundations. Provide and maintain pumps, well points, sumps, suction and discharge lines, and other dewatering system components necessary to convey water away from excavations.

Establish and maintain temporary drainage ditches and other diversions outside excavation limits to convey rain water and water removed from excavations to collecting or run-off areas. Do not use trench excavations as temporary drainage ditches.

Material Storage: Stockpile satisfactory excavated materials where directed, until required for backfill or fill. Place, grade and shape stockpiles for proper drainage.

Locate and retain soil materials away from edge of excavations. Do not store within drip line of trees indicated to remain.

Dispose of excess soil material and waste materials as herein specified.

Excavation for Structures: Conform to elevations and dimensions shown within a tolerance of plus or minus 0.10', and extending a sufficient distance from footings and foundations to permit placing and removal of concrete formwork, installation of services, other construction, and for inspection.

In excavating for footings and foundations, take care not to disturb bottom of excavation. Excavate by hand to final grade just before concrete reinforcement is placed. Trim bottoms to required lines and grades to leave solid base to receive other work.

Excavation for Trenches: Dig trenches to the uniform width required for particular item to be installed, sufficiently wide to provide ample working room. Provide 6" to 9" clearance on both sides of pipe or conduit.

Excavate trenches to depth indicated or required. Carry depth of trenches for piping to establish indicated flow lines and invert elevations. Beyond building perimeter, keep bottoms of trenches sufficiently below finish grade to avoid freeze-ups.

Where rock is encountered, carry excavation 6" below require elevation and backfill with a 6" layer of crushed stone or gravel prior to installation of pipe.

For pipes or conduit 5" or less in nominal size and for flat-bottomed multiple-duct conduit units, do not excavate beyond indicated depths. Hand excavate bottom cut to accurate elevations and support pipe or conduit on undisturbed soil.

For pipes or conduit 6" or larger in nominal size, tanks and other mechanical/electrical work indicated to receive subbase, excavate to subbase depth indicated, or, if not otherwise indicated, to 6" below bottom of work to be supported.

Except as otherwise indicated, excavate for exterior water- bearing piping (water, steam, condensate, drainage) so top of piping is not less than 3'-6" below finished grade.

Grade bottoms of trenches as indicated, notching under pipe bells to provide solid bearing for entire body of pipe.

Backfill trenches with concrete where trench excavations pass within 18" of column or wall footings and which are carried below bottom of such footings, or which pass under wall footings. Place concrete to level of bottom of adjacent footing.

Concrete is specified in Division 3.

Do not backfill trenches until tests and inspections have been made and backfilling authorized by Architect/Engineer. Use care in backfilling to avoid damage or displacement of pipe systems.

For piping or conduit less than 2'-6" below surface of roadways, provide 4" thick concrete base slab support. After installation and testing of piping or conduit, provide minimum 4" thick encasement (sides and top) of concrete prior to backfilling or placement of roadway subbase.

Cold Weather Protection: Protect excavation bottoms against freezing when atmospheric temperature is less than 35 degree F (1 degee C).

COMPACTION:

General: Control soil compaction during construction providing minimum percentage of density specified for each area classification as indicated below.

Percentage of Maximum Density Requirements: Compact soil to not less than the following percentages of maximum density at optimum moisture content as determined by ASTM D 698.

Structures, Building Slabs and Steps, Pavements: Compact top 12" of subgrade and each layer of backfill or fill material at 98% maximum density. Each layer of backfill or fill material below top 12" shall be compacted to 95% maximum density.

Lawn or Unpaved Areas: Compact top 6" of subgrade and each layer of backfill or fill material at 95% maximum density.

Walkways: Compact top 6" of subgrade and each layer of backfill or fill material at 95% maximum density.

Moisture Control: Where subgrade or layer of soil material must be moisture conditioned before compaction, uniformly apply water to surface of subgrade, or layer of soil material, to prevent free water appearing on surface during or subsequent to compaction operations.

Remove and replace, or scarify and air dry, soil material that is too wet to permit compaction to specified density.

Soil material that has been removed because it is too wet to permit compaction may be stockpiled or spread and allowed to dry. Assist drying by discing, harrowing or pulverizing until moisture content is reduced to a satisfactory value.

BACKFILL AND FILL:

General: Place acceptable soil material in layers to required subgrade elevations, for each area classification listed below.

In excavations, use satisfactory excavated or borrow material.

Under grassed areas, use satisfactory excavated or borrow material.

Under walks and pavements, use subbase material, or satisfactory excavated or borrow material, or combination of both.

Under piping and conduit, use subbase material where subbase is indicated under piping or conduit; shape to fit bottom 90 degee of cylinder.

Backfill excavations as promptly as work permits, but not until completion of the following:

Inspection, testing, approval, and recording locations of underground utilities.

Removal of trash and debris.

Ground Surface Preparation: Remove vegetation, debris, unsatisfactory soil materials, obstructions, and deleterious materials from ground surface prior to placement of fills. Plow, strip, or break-up sloped surfaces steeper than 1 vertical to 4 horizontal so that fill material will bond with existing surface.

When existing ground surface has a density less than that specified under "Compaction" for particular area classification, break up ground surface, pulverize, moisture-condition to optimum moisture content, and compact to required depth and percentage of maximum density.

Placement and Compaction: Place backfill and fill materials in layers not more than 8" in loose depth for material compacted by heavy compaction equipment, and not more than 4" in loose depth for material compacted by hand-operated tampers.

Before compaction, moisten or aerate each layer as necessary to provide optimum moisture content. Compact each layer to required percentage of maximum dry density or relative dry density for each area classification. Do not place backfill or fill material on surfaces that are muddy, frozen, or contain frost or ice.

Place backfill and fill materials evenly adjacent to structures, piping or conduit to required elevations. Take care to prevent wedging action of backfill against structures or displacement of piping or conduit by carrying material uniformly around structure, piping or conduit to approximately same elevation in each lift.

Backfill compacted to 95 percent of maximum density at optimum moisture content as determined by ASTM D698 will be required in the following locations:

Where beneath pavements, surfacing, driveways, curbs, gutters, walks or other surface construction or structures.

Where in street, road or highway shoulders.

Where beneath fills or embankments.

In established lawn areas.

In other areas the backfill shall be compacted to 90 percent or equal to existing.

GRADING:

General: Uniformly grade areas within limits of grading under this section, including adjacent transition areas. Smooth finished surface within specified tolerances, compact with uniform levels or slopes between points where elevations are indicated, or between such points and existing grades.

Lawn or Unpaved Areas: Finish areas to receive topsoil to within not more than 0.10' above or below required subgrade elevations.

Walks: Shape surface of areas under walks to line, grade and cross-section, with finish surface not more than 0.10' above or below required subgrade elevation.

Gravel Substation Yard: Shape surface of areas under pavement to line, grade and cross-section, with finish surface not more than 1/2" above or below required subgrade elevation.

Compaction: After grading, compact subgrade surfaces to the depth and indicated percentage of maximum or relative density for each area classification.

PAVEMENT SUBBASE COURSE:

General: Subbase course consists of placing subbase material, in layers of specified thickness, over subgrade surface to support a pavement base course.

See other Division-2 sections for paving specifications.

Grade Control: During construction, maintain lines and grades including crown and cross-slope of subbase course.

Shoulders: Place shoulders along edges of subbase course to prevent lateral movement. Construct shoulders of acceptable soil materials, placed in such quantity to compact to thickness of each subbase course layer. Compact and roll at least a 12" width of shoulder simultaneously with compacting and rolling of each layer of subbase course.

Placing: Place subbase course material on prepared subgrade in layers of uniform thickness, conforming to indicated cross-section and thickness. Maintain optimum moisture content for compacting subbase material during placement operations.

When a compacted subbase course is shown to be 6" thick or less, place material in a single layer. When shown to be more than 6" thick, place material in equal layers, except no single layer more than 6" or less than 3" in thickness when compacted.

FIELD QUALITY CONTROL:

Quality Control Testing During Construction: Allow testing service to inspect and approve subgrades and fill layers before further construction work is performed.

Perform field density tests in accordance with ASTM D 1556 (sand cone method) or ASTM D 2167 (rubber balloon method), as applicable.

Footing Subgrade: For each strata of soil on which footings will be placed, conduct at least one test to verify required design bearing capacities. Subsequent verification and approval of each footing subgrade may be based on a visual comparison of each subgrade with related tested strata, when acceptable to Architect/Engineer.

Paved Areas and Building Slab Subgrade: Make at least one field density test of subgrade for every 2000 sq. ft. of paved area or building slab, but in no case less than 3 tests. In each compacted fill

layer, make one field density test for every 2000 sq. ft. of overlaying building slab or paved area, but in no case less than 3 tests.

MAINTENANCE:

Protection of Graded Areas: Protect newly graded areas from traffic and erosion. Keep free of trash and debris.

Repair and re-establish grades in settled, eroded, and rutted areas to specified tolerances.

Reconditioning Compacted Areas: Where completed compacted areas are disturbed by subsequent construction operations or adverse weather, scarify surface, re-shape, and compact to required density prior to further construction.

Settling: Where settling is measurable or observable at excavated areas during general project warranty period, remove surface (pavement, lawn or other finish), add backfill material, compact, and replace surface treatment. Restore appearance, quality, and condition of surface or finish to match adjacent work, and eliminate evidence of restoration to greatest extent possible.

DISPOSAL OF EXCESS AND WASTE MATERIALS:

Removal from Owner's Property: Remove waste materials, including unacceptable excavated material, trash and debris, and dispose of it off Owner's property.

END OF SECTION 02200

SECTION 02220 - TRENCHING, BACKFILLING AND COMPACTION

PART 1 - GENERAL

RELATED DOCUMENTS:

The general provisions of the Contract, including the General and Special Conditions and Division-1 Specification sections apply to work of this section.

DESCRIPTION OF WORK:

This section covers excavation and trenching work and shall include the necessary clearing, grubbing, and preparation of the site; removal and disposal of all debris; excavation and trenching as required; the handling, storage, transportation, and disposal of all excavated material; all necessary sheeting, shoring, and protection work; preparation of subgrades; pumping and dewatering as necessary or required; protection of adjacent property; backfilling; pipe embedment; and other appurtenant work.

RELATED WORK SPECIFIED ELSEWHERE:

Storm Sewer Systems: Section 02735

QUALITY ASSURANCE:

Codes and Standards: Perform excavation work in compliance with applicable requirements of governing authorities having jurisdiction and the Occupational Safety and Health Administration.

SUBMITTALS:

Test Reports-Excavating: Submit following reports directly to ENGINEER from the testing services, with copy to CONTRACTOR:

Test reports on soil and embedment.

Field density test reports.

One optimum moisture-maximum density curve for each type of soil encountered.

JOB CONDITIONS:

Classification of Excavated Materials: No classification of excavated materials will be made. Excavation and trenching work shall include the removal and subsequent handling of all materials excavated or otherwise removed in performance of the contract work, regardless of the type, character, composition, or condition thereof.

Site Information: Data on indicated subsurface conditions are not intended as representations or warranties of accuracy or continuity between soil borings. It is expressly understood that OWNER will not be responsible for interpretations or conclusions drawn therefrom by CONTRACTOR. Data are made available for convenience of CONTRACTOR and are not a part of this specification.

Additional test borings and other exploratory operations may be made by CONTRACTOR at no cost to OWNER.

Existing Utilities: Locate existing underground utilities in areas of work. If utilities are to remain in place, provide adequate means of support and protection during earthwork operations.

Should uncharted, or incorrectly charted, piping or other utilities be encountered during excavation, consult utility OWNER immediately for directions. Cooperate with OWNER and utility companies in keeping respective services and facilities in operation. Repair damaged utilities to satisfaction of utility OWNER.

Demolish and completely remove from site existing underground utilities indicated to be removed. Coordinate with utility OWNER for shut-off of services if lines are active.

Use of Explosives: The use of explosives is not permitted.

Protection of Persons and Property: Barricade open excavations occurring as part of this work and post with warning lights.

Operate warning lights as recommended by authorities having jurisdiction.

Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout and other hazards created by earthwork operations.

PART 2 - PRODUCTS

DEFINITIONS:

Satisfactory soil materials are defined as those complying with ASTM D 2487 soil classification groups GW, GP, GM, GC, SM, SW and SP.

Provisionally satisfactory soil materials are defined as those complying with ASTM D 2487 soil classification group SC. Provisionally satisfactory soil materials are moisture sensitive soils which are expected to require moisture conditioning, particularly in wetter times of the year, in order be considered satisfactory. If proper densities cannot be achieved by moisture conditioning prior to backfill, the soils shall be deemed unsatisfactory and replaced with satisfactory materials at no additional cost to the OWNER.

Unsatisfactory soil materials are defined as those complying with ASTM D 2487 soil classification groups ML, MH, CL, CH, SC, OL, OH and PT.

GENERAL MATERIALS:

Clean Sand: Washed or natural sand with less than 10 percent by weight passing the No. 200 sieve.

Filter Cloth: Spun synthetic fiber, 10 oz/sy, burst strength 500 psi, vertical water flow 265 gpm/sf. Trevira 1135, Mirafi or equal.

Granular Fill (Granular Embedment and Stabilization Material): Granular fill or embedment material shall be crushed rock or gravel, shall be free from dust, clay, or trash, and shall be #67 or #57 stone as defined in ASTM C 33 except that larger stone may be used for stabilization if approved by the ENGINEER.

Aggregate Base Course Material: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, crushed slag, natural or crushed sand as specified in NC DOT Standard Specifications for Roads and Structures Section 1010 Type A.

Fill Material (Backfill): All material deposited in trenches shall be satisfactory soils free from rocks or stones larger than 2 inches, brush, stumps, logs, roots, debris, and organic or other objectionable materials, and shall be wetted or dried as required and thoroughly mixed to ensure uniform moisture content.

Select Backfill: Job excavation or borrow material consisting of coarse sands and fine sands with not more than 15% by weight passing the no. 200 sieve. This does not include clays, silts, organic

soils or any materials not acceptable as fill material. Select backfill must receive prior approval from the ENGINEER before use. (ASTM D2321 Class II)

Groundwater Barrier: Barrier material shall meet ASTM D2487 soil classification GC, SC, CL, or ML-CL and shall be compacted to 95 percent of maximum density. Material may be finely divided suitable job excavated material, free from stones, organic matter and debris.

PIPE EMBEDMENT:

Embedment materials both below and above the bottom of the pipe, classes of embedment to be used, and placement and compaction of embedment materials shall conform to the requirements shown on the drawings and to the following supplementary requirements.

Embedment materials shall contain no cinders or other material which may cause pipe corrosion.

Class B Bedding shall be used for all ABS and PVC Truss pipelines.

Class B bedding shall include granular embedment compacted from 4" below the pipe to the springline and compacted select backfill embedment at least 12" above the pipe as shown on the drawings.

Class C Bedding shall be used for all reinforced and nonreinforced concrete pipelines.

Class C bedding shall include granular fill compacted from 4" below the pipe to 1/6 of the outside diameter of the pipe and satisfactory backfill embedment compacted to at least 12" above the top of the pipe as shown on the drawings.

Class D Bedding shall be used for all PVC gravity sewer pipe.

Class D bedding shall include granular embedment from 4" below the pipe to the top of the pipe and at least 12" of compacted select backfill embedment above that as shown on the drawings.

Class E Bedding shall be used for all PVC pressure pipe.

Class E embedment shall include select backfill embedment compacted from 4" below the pipe to at least 12" above the pipe as shown on the drawings.

Class F Bedding shall be used for all ductile iron pipe. (AWWA C150/C151 Type 2)

Class F embedment shall include satisfactory backfill material compacted from the bottom of the pipe (and bell holes) to at least 12" above the pipe as shown on the drawings.

PART 3 - EXECUTION

GENERAL REQUIREMENTS:

Excavation shall provide adequate working space and clearances for the work to be performed therein and for installation and removal of concrete forms. In no case shall excavation faces be undercut for extended footings.

Subgrade surfaces shall be clean and free of loose material of any kind when concrete is placed thereon.

Backfilling and construction of fills and embankments during freezing weather shall not be done except by permission of the ENGINEER. No backfill, fill, or embankment materials shall be installed on frozen surfaces, nor shall frozen materials, snow or ice be placed in any backfill, fill or embankment.

SITE PREPARATION, CLEARING AND GRUBBING:

All sites to be occupied by permanent construction or embankments shall be cleared of all logs, trees, roots, brush, tree trimmings and other objectionable materials and debris. All stumps shall be grubbed. Subgrades for fills and embankments shall be cleaned and stripped of all surface vegetation, sod, and organic topsoil. All waste materials shall be removed from the site and disposed of by and at the expense of the CONTRACTOR.

Clear and grub the entire width of the permanent right of way. All other clearing shall be performed as necessary for access, stringing of pipeline materials, and construction of the pipeline and appurtenant structures.

DEWATERING:

Dewatering equipment shall be provided to remove and dispose of all surface and ground water entering excavations, trenches, or other parts of the work. Each excavation shall be kept dry during subgrade preparation and continually thereafter until the structure to be built, or the pipe to be installed therein, is completed to the extent that no damage from hydrostatic pressure, flotation, or other cause will result.

All excavations for concrete structures or trenches which extend down to or below ground water shall be dewatered by lowering and keeping the ground water level beneath such excavations 12 inches or more below the bottom of the excavation. Well pointing will be required for dewatering pipe trenches ahead of trenching and pipe laying, so that excavations are free from ground water.

Surface water shall be diverted or otherwise prevented from entering excavated areas or trenches to the greatest extent practicable without causing damage to adjacent property.

The CONTRACTOR shall be responsible for the condition of any pipe or conduit which he may use for drainage purposes, and all such pipe or conduit shall be left clean and free of sediment.

SHEETING AND SHORING:

Except where banks are cut back on a stable slope, excavation for structures and trenches shall be sheeted, braced, and shored as necessary to prevent caving or sliding.

Trench sheeting shall not be pulled before backfilling unless the pipe strength is sufficient to carry trench loads based on trench width to the back of sheeting. Where trench sheeting is left in place, such sheeting shall not be braced against the pipe, but shall be supported in a manner which will preclude concentrated loads or horizontal thrusts on the pipe. Cross braces installed above the pipe to support sheeting may be removed after pipe embedment has been completed.

STABILIZATION:

Subgrades for concrete structures and trench bottoms shall be firm, dense, and thoroughly compacted and consolidated; shall be free from mud and muck; and shall be sufficiently stable to remain firm and intact under the feet of the workmen.

Subgrades for concrete structures or trench bottoms which are otherwise solid, but which become mucky on top due to construction operations, shall be reinforced with crushed rock or gravel. The stabilizing material shall be as specified for granular fills. Not more than 1/2 inch depth of mud or muck shall be allowed to remain on stabilized trench bottoms when the pipe bedding material is placed thereon. The finished elevation of stabilizing subgrades shall not be above subgrade elevations indicated on the drawings.

EXCAVATION FOR STRUCTURES:

Conform to elevations and dimensions shown within a tolerance of plus or minus 0.10', and extending a sufficient distance from footings and foundations to permit placing and removal of concrete formwork, installation of services, other construction, and for inspection.

In excavation for footings and foundations, take care not to disturb bottom of excavation. Trim bottoms to required lines and grades to leave solid base to receive other work.

Except where exterior surfaces are specified to be dampproofed, monolithic concrete manholes and other concrete structures, or parts thereof, which do not have footings that extend beyond the outside face of exterior walls, may be placed directly against excavation faces without the use of outer forms, provided that such faces are stable.

Excavations for manholes and similar structures constructed of masonry units shall have such horizontal dimensions that not less than 6 inches clearance is provided for outside plastering.

Engineering Fabric: Install in areas indicated in accordance with manufacturers' instructions and NCDOT specification Section 1056.

TRENCH EXCAVATION:

General: No more trench shall be opened in advance of pipe laying than is necessary to expedite the work. One block or 400 feet (whichever is the shorter) shall be the maximum length of open trench on any line under construction.

Except where tunneling or boring is indicated on the drawings, is specified, or is permitted by the ENGINEER, all trench excavation shall be open cut from the surface.

Alignment, Grade, and Minimum Cover: Vertical and horizontal alignment of pipes, and the maximum joint deflection used in connection therewith, shall be in conformity with requirements of the section covering installation of pipe.

Where pipe grades or elevations are not definitely fixed on the contract drawings or shown in profile, trenches shall be excavated with an absolute a minimum depth of backfill cover over the top of the pipe of 36 inches, but no more than five (5) feet, unless otherwise indicated. Greater than minimum pipe cover depths may be necessary on vertical curves or to provide necessary clearance beneath existing pipes, conduits, drains, drainage structures, or other obstructions encountered at normal pipe grades. Measurement of pipe cover depth shall be made vertically from the outside top of pipe to finished ground or pavement surface elevation except where future surface elevations are

indicated on the drawings. Where this requirement cannot be met due to unavoidable conflicts in grade, the ENGINEER shall be consulted so that a solution acceptable to the ENGINEER and OWNER may be determined.

Limiting Trench Widths: Trenches shall be excavated to a width which will provide adequate working space and sidewall clearances for proper pipe installations, jointing, and embedment. However, the limiting trench widths from the bottom of the trench to an elevation one foot above the top of installed pipe, and the minimum permissible sidewall clearances between the installed pipe and each trench wall shall be as follows:

Nominal Pipe Size (inches)	Minimum Trench Width (inches)	Maximum Trench Width (inches)
Less than 18	Pipe O.D. Plus 18	Pipe O.D. Plus 24
18 through 27	Pipe O.D. Plus 24	Pipe O.D. Plus 30
28 through 42	Pipe O.D. Plus 24	Pipe O.D. Plus 36
43 through 60	Pipe O.D. Plus 30	Pipe O.D. Plus 36

Stipulated minimum sidewall clearances are not minimum average clearances but are minimum clear distances which will be required.

Cutting trench banks on slopes to reduce earth load to prevent sliding and caving shall be used in areas where the increased trench width will not interfere with surface features or encroach on right-of-way limits. Slopes shall not extend lower than one foot above the top of the pipe.

Unauthorized Trench Widths: Where, for any reason, the width of the lower portion of the trench, as excavated at any point, exceeds the maximum permitted in the foregoing tables, either pipe of adequate strength, special pipe embedment, or arch concrete encasement, as required by loading conditions and with the concurrence of the ENGINEER, shall be furnished and installed by and at the expense of the CONTRACTOR.

Mechanical Excavation: The use of mechanical equipment will not be permitted in locations where its operation would cause damage to trees, buildings, culverts, or other existing property, utilities, or structures above or below ground. In all such locations, hand excavating methods shall be used.

Only rubber-tired equipment will be permitted on paved streets unless specifically allowed by the owner and engineer on a case-by-case basis.

Mechanical equipment used for trench excavation shall be of a type, design, and construction, and shall be so operated that the rough trench excavation bottom elevation can be controlled, that

uniform trench widths and vertical sidewalls are obtained at least from an elevation one foot above the top of the installed pipe to the bottom of the trench, and that trench alignment is such that pipe when accurately laid to specified alignment will be centered in the trench with adequate clearance between the pipe and sidewalls of the trench. Undercutting the trench sidewall to obtain clearance will not be permitted.

Cutting Concrete and Asphalt Surface Construction: Cuts in concrete and asphalt pavements shall be no larger than necessary to provide adequate working space for proper installation of pipe and appurtenances. Cutting shall be started with a concrete saw in a manner which will provide a clean groove at least 2 inches deep along each side of the trench and along the perimeter of cuts for structures.

Concrete and asphalt pavement over trenches excavated for pipelines shall be removed so that the width at any point is not greater than the top edge of the trench. Trench width at the bottom shall not be greater than at the top and no undercutting will be permitted. Pavement cuts shall be made to and between straight or accurately marked curved lines which, unless otherwise required, shall be parallel to the centerline of the trench.

Pavement removed for connections to existing lines or structures shall not be of greater extent than necessary for the installation.

Where the trench parallels the length of concrete walks and the trench location is all or partially under the walk, the entire walk shall be removed and replaced. Where the trench crosses drives, walks, curbs, or other surface construction, the surface construction shall be removed and replaced between existing joints or between saw cuts as specified for pavement.

Excavation Below Pipe Subgrade: Where required, pipe trenches shall be excavated below the underside of the pipe, to provide for the installation of granular embedment.

Artificial Foundations in Trenches (Stabilization Material): Whenever unsuitable or unstable soil conditions which cannot be corrected by dewatering are encountered, trenches shall be excavated below grade and the trench bottom shall be brought to grade with additional embedment material for stabilization.

Bell Holes: Bell holes shall provide adequate clearance for tools and methods used in installing pipe. No part of any bell or coupling shall be in contact with the trench bottom, trench walls, or granular embedment when the pipe is jointed.

PIPE EMBEDMENT:

Placement and Compaction: Granular embedment material shall be spread and the surface graded to provide a uniform and continuous support beneath the pipe at all points between bell holes or pipe joints. It will be permissible to slightly disturb the finished subgrade surface by withdrawal of pipe slings or other lifting tackle.

After each pipe has been graded, aligned, and placed in final position on the bedding material or trench bottom and shoved home, sufficient pipe embedment material shall be deposited and compacted under and around each side of the pipe and back of the bell or end thereof to hold the pipe in proper position and alignment during subsequent pipe jointing and embedment operations.

Embedment material shall be deposited and compacted uniformly and simultaneously on each side of the pipe to prevent lateral displacement.

Hand placed embedment shall be compacted to the top of the pipe in all areas where compacted backfill is specified.

Whenever crushed rock is used as embedment for 36 inch and larger pipe, the portion above the bottom of the pipe shall be vibrated with a mechanical probe type vibrator during placement to ensure that all spaces beneath the pipe are filled.

Ground Water Barrier: Continuity of embedment material shall be interrupted by low permeability ground water barriers to impede passage of water through the embedment. Ground water barriers for sewer lines shall be compacted soil around each manhole. Barriers for all other pipelines shall be compacted soil the full depth of granular material, the full trench width, approximately 4 feet long, and spaced not more than 400 feet apart.

TRENCH BACKFILL:

A layer of backfill material not more than 8 inches deep may be placed over concrete arch encasement or concrete reaction blocking after the concrete has reached its initial set, to aid curing. No additional backfill shall be placed over arch encasement or blocking until the concrete has been in place for at least 3 days.

Backfill compacted to 95 percent of maximum density at optimum moisture content as determined by ASTM D698 will be required for the full depth of the trench above the embedment in the following locations:

Where beneath pavements, surfacings, driveways, curbs, gutters, walks or other surface construction or structures.

Where in street, road, or highway shoulders.

Where beneath fills or embankments.

In established lawn areas.

In other areas the backfill shall be compacted to 90 percent or equal to existing.

Where the trench for one pipe passes beneath the trench for another pipe, backfill for the lower trench shall be compacted to the level of the bottom of the upper trench.

The ENGINEER may require select backfill in upper portion or all portions of trenches in roadways. Refer to payment section.

Job excavation material may be used for compacted backfill when the job excavated material is finely divided and free from debris, organic material, cinders or other corrosive material, and stones larger than 3 inches in greatest dimension. Masses of moist, stiff clay shall not be used. Each layer of material shall have the best practicable moisture content for satisfactory compaction. The material in each layer shall be wetted or dried as required and thoroughly mixed to ensure uniform moisture content and adequate compaction. Backfill materials shall be placed in uniform layers not exceeding 8 inches in uncompacted thickness. Increased layer thickness may be permitted for noncohesive material if the CONTRACTOR demonstrates to the satisfaction of the ENGINEER that the specified compacted density will be obtained.

The method of compaction and the equipment used shall be appropriate for the material to be compacted and shall not transmit damaging shocks to the pipe.

The top portion of backfill beneath established lawn areas shall be finished with not less than 4 inches of topsoil corresponding to, or better than, that underlying adjoining lawn areas.

STRUCTURE BACKFILL:

The quality and moisture content of materials for backfill around and outside of structures shall conform to the requirements for fill materials. Backfill materials shall be deposited in layers not to exceed 8 inches in uncompacted thickness and compacted to at least 95 percent of maximum density at optimum moisture content as determined by ASTM D 698. Compaction of structure backfill by rolling will be permitted provided the desired compaction is obtained and damage to the structure is prevented. Compaction of structure backfill by inundation with water will not be permitted.

No backfill shall be deposited or compacted in water. Particular care shall be taken to compact structure backfill which will be beneath pipes, drives, roads, parking areas, walks, curbs, gutters, or other surface construction or structures. In addition, wherever a trench is to pass through structure backfill, the structure backfill shall be placed and compacted to an elevation not less than 12 inches above the top of pipe elevation before the trench is excavated. Compacted areas, in each case, shall be adequate to support the item to be constructed or placed thereon.

DRAINAGE MAINTENANCE:

Trenches across roadways, driveways, walks, or other trafficways adjacent to drainage ditches or water courses shall not be backfilled prior to completion of backfilling the trench on the upstream side of the trafficway, to prevent impounding water after the pipe has been laid. Bridges and other temporary structures required to maintain traffic across such unfilled trenches shall be constructed and maintained by the CONTRACTOR. Backfilling shall be done so that water will not accumulate in unfilled or partially filled trenches. All material deposited in roadway ditches or other water courses by the line of trench shall be removed immediately after backfilling is completed and the original section, grades, and contours of ditches or water courses shall be restored. Surface drainage shall not be obstructed longer than necessary.

DISPOSAL OF EXCESS EXCAVATED MATERIALS:

Except as otherwise permitted, all excess excavated materials shall be disposed of away from the site of the work by the CONTRACTOR.

Broken concrete and other debris resulting from pavement or sidewalk removal, excavated rock, debris encountered in excavation work, and other similar waste materials shall be properly disposed of away from the site of the work.

Excess earth from excavations located in unimproved property may be distributed directly over the pipe trench and within the pipeline right-of-way to a maximum depth of 6 inches above the original ground surface elevation at and across the trench and sloping uniformly each way. Material thus wasted shall be carefully finished with a drag, blade machine, or other suitable tool to a smooth, uniform surface without obstructing drainage at any point. Wasting of excess excavated material in the above manner will not be permitted where the line of trench crosses or is within proposed or existing railroad, public road, or highway right-of-way. The disposal of waste and excess excavated materials, including hauling, handling, grading, and surfacing shall be a subsidiary obligation of the CONTRACTOR and no separate payment will be made therefore. Disposal shall be onto property of the OWNER unless otherwise directed.

SETTLEMENT:

The CONTRACTOR shall be responsible for all settlement of backfill, fills, and embankments which may occur within the correction period stipulated in the General Conditions.

The CONTRACTOR shall also save the OWNER and ENGINEER harmless of any and all claims that might arise out of the dewatering operation.

Survey adjacent structures and improvements, as outlined in Section 02260 – EXCAVATION SUPPORT AND PROTECTION, in conjunction with dewatering operations. CONTRACTOR shall adjust or modify dewatering operations to prevent off-site damage.

The CONTRACTOR shall make, or cause to be made, all repairs or replacements made necessary by settlement within 30 days after notice from the ENGINEER or OWNER.

TESTS:

As stipulated in the quality control section, all tests required for preliminary review of materials shall be made by an acceptable independent testing laboratory at the expense of the CONTRACTOR. Two initial gradation tests shall be made for each type of embedment, fill or backfill material and one additional gradation test shall be made for each additional 500 tons of each material.

Moisture-density (Proctor) tests and relative density tests on the materials, and all in-place field density tests, shall be paid for out of the testing allowance.

END OF SECTION 02220

SECTION 02735 - STORM SEWER SYSTEM

PART 1 - GENERAL

RELATED DOCUMENTS:

The plans and general provisions of the Contract, including General and Supplementary Conditions and Division-1 Specification sections, apply to work of this section.

DESCRIPTION OF WORK:

The extent of storm sewer system work is shown on the drawings.

Storm sewer system work includes, but is not limited to, all of the following:

Storm sewer pipe

Drop inlet, frames and covers

Rip Rap

Related Work Specified Elsewhere:

Clearing, Excavation, and Trenching: See Division-2 sections.

Concrete: See Division-3 sections.

All other Piping: See Division-15 sections.

Comply with the requirements of applicable Division-2 sections for excavation and backfilling required in connection with storm sewer system work.

Comply with requirements of applicable Division-3 sections for concrete work required in connection with storm and sanitary sewer system work.

SUBMITTALS:

Shop Drawings: Submit shop drawings, product data or material certificates for the materials including details of underground structures, metal accessories, fittings, connections and any variations from those details shown on the drawings.

PART 2 - PRODUCTS

CONDUIT MATERIALS:

General: Furnish fittings, transitions and end caps of the same type and class of material as the conduit, or of material having equal or superior physical and chemical properties as acceptable to the Engineer.

Ductile Iron Pipe (DIP): Pipe shall be Class 50 conforming to the most recent revision of AWWA Standard C151 (ANSI A21.51). Pipe shall be mechanical joint in accordance with AWWA Standard C111 (ANSI A21.11) or rubber ring gasket, compression type joint in accordance with AWWA C151 (ANSI A21.51). Above ground installation shall be mechanical joints. Standard length shall be 18 feet.

Pipe shall be cement lined, in accordance with ANSI A21.4, coated interior and exterior with bituminous coating approximately 1 mil thick. The outside coating shall be a minimum of 1 mil bituminous paint according to ANSI/AWWA C151/A21.51 Section 51-8.1.

Reinforced Concrete Pipe (RCP): ASTM C 76, Class III unless otherwise noted, with "O" ring compression gasket joints complying with ASTM C 443. ConSeal, Henry, Sealing Systems or approved equal Preformed Plastic for Pipe Joint ASTM C990 may be used with approval of the Engineer.

PVC Pipe (PVC): ASTM D 3034, SDR 35 with push-on type elastomeric gasket joints ASTM D 3212.

MASONRY MATERIALS:

Concrete Masonry Units (Manhole Block): ASTM C 139

Manhole Drop Inlet Brick: ASTM C 32, Grade MS

Concrete Brick: ASTM C 55, Grade N1

Masonry Mortar: ASTM C 270, Type M, approximately 1:1/4:2 Portland cement, lime, sand

For minor amounts of mortar, packaged materials complying with ASTM C 387, Type M, will be acceptable.

Plasticizing Agent - Use in accordance with manufacturer's instructions.

METAL ACCESSORIES:

General: All metal accessories for manholes, catch basins and drop inlets shall be gray cast iron, ASTM A 48, Class 30B. Frames, grates and covers shall be factory coated with an asphalt base paint. Install metal accessories as shown on the drawings and as follows:

Drop inlet frames and grates shall be V5660 by East Jordan Iron Works or approved equal by U.S. Foundry or NEENAH Foundry.

Manhole steps shall be steel reinforcing bar encased in rubber plastic coating resistant to deterioration and chemical action, spaced a maximum of 16" on center. Plastic encapsulated reinforcing bars shall be ½ inch or larger equal to Federal Specification RR-F-621C.

Rip Rap: Rip rap shall be accomplished in accordance with Section 868 of the N.C. State Highway Specifications for Roads and Structures. Rip rap shall be located and be of the class shown on plans.

Filter Cloth: Filter Cloth shall be composed of strong rot proof synthetic fibers formed into a fabric of either the woven or nonwoven type. Either type of fabric shall be free of any treatment or coating which might significantly alter its physical properties after installation.

The filter cloth shall have a puncture strength to withstand a minimum force of 100 lbs., in accordance to ASTM D751. Filter cloth as manufactured by Contech, Carthage Mills, Inc., or approved equal will be acceptable.

Temporary Silt Fence: Temporary silt fence shall be accomplished in accordance with Section 1605 of the N.C. State Highway Specifications for Roads and structures as shown on plans.

PART 3 - EXECUTION

INSPECTION:

CONTRACTOR must examine the areas and conditions under which storm sewer and sanitary sewer system work is to be installed 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 a manner acceptable to the ENGINEER.

INSTALLATION OF CONDUIT (PIPE):

General: Perform excavation, trenching and backfilling as specified in appropriate Division-2 sections. Conduct backfill operations of open-cut trenches closely following laying, jointing and bedding of pipe, and after initial inspection and testing are completed.

Inspect conduit before installation to detect any apparent defects. Mark defective materials with white paint and promptly remove from the site.

Particular care shall be taken to prevent damage to pipe and fitting linings and coatings. Pipe shall be protected during handling against impact shocks and free fall. Proper facilities shall be provided for lowering sections of pipe into trenches.

Installation: Lay conduit beginning at the low point of a system, true to the grades and alignment indicated with unbroken continuity of invert. The line and invert grade of each pipe shall be checked from top line carried on batter boards not over 24' apart or by a laser and target. The pipe shall be laid true to line and grade on a bed which is uniformly firm throughout its entire length and carefully shaped to fit the outside of the pipe for at least 10% of its outside diameter. Place bell ends of conduit or the groove end of concrete facing upstream.

Cross above or below other pipe a minimum of 6" unless otherwise directed by the Engineer. Bell holes shall be excavated for each joint to assure bedding supports the barrel of the pipe and to facilitate making a perfect joint. Preparatory to making pipe joints, all surfaces of the portion of the pipe to be jointed or of the factory-made jointing materials shall be clean and dry.

Joints shall be filled with Preformed Plastic Gaskets. Install gaskets in accordance with manufacturer's recommendations for the use of lubricants, cements and other special installation requirements.

Gasket Application: Clean and dry all surfaces of tongue and groove to be joined. Remove paper wrapper from one side only of the two-piece wrapper. The outside paper will protect the gasket and assure against stretching. Remove the outside paper prior to forcing pipe home. The application of plastic gaskets strips to the joint of tongue-and-groove concrete pipe can be achieved by two different methods. For small pipe 12" diameter up to and including 24" diameter, place the plastic gasket on the outer edge of the tongue. For larger pipe, 30" diameter up to and including 72" diameter, place the plastic gasket on the outer edge of the top half of the tongue and the lower half of the groove so that the gasket will overlap at the springline. The same procedure for small diameter pipe is acceptable for large diameter pipe if the gasket adheres to the tongue and there is no

sagging or separation of the gasket. Pipe handling after the plastic gasket has been affixed shall be carefully controlled to avoid bumping the gasket and thus displacing it or covering it with dirt or other foreign material. Any gasket so disturbed shall be removed and replaced if damaged or repositioned if displaced. Care shall be taken to properly align the pipe before joints are forced home. During insertion of the tongue, the pipe shall be partially supported by the crane to maintain concentricity until the plastic gasket is properly compressed in the joint space. Sufficient pressure shall be applied in making the joint to assure that the joint is home and evidence of a slight squeeze-out of the plastic gasket occurs at the outside or inside of the pipe joint. Backfilling can proceed as soon as jointing has been completed.

NOTE: For maximum adhesion, or in cold or wet weather, it is recommended that both the gasket strip and the joint surfaces to be sealed be slightly heated immediately prior to application.

Embedment: Comply with Section 02210 or 02220 requirements for embedment.

Backfilling: Comply with Section 02210 or 02220 requirements for backfill.

Concrete Pipe: Install in accordance with applicable provisions of the American Concrete Pipe Association "Concrete Pipe Field Manual", unless otherwise indicated.

Place circular concrete pipe with elliptical reinforcing so that the reference lines indicating the top of the pipe are not more than 5 degrees from the vertical plane through the longitudinal axis of the pipe.

PVC Pipe: All joint preparation and jointing operations shall comply with the instructions and recommendations of the pipe manufacturer. Immediately before joints are pushed together, all joint surfaces shall be coated with the lubricant furnished with the pipe. The position and condition of each rubber gasket (unbonded gaskets) shall be checked with a feeler after the joint is completed.

Cleaning Conduit: Clear the interior of conduit of dirt and other superfluous material as the work progresses. Maintain a swab or drag in the line and pull past each joint as it is completed. In large, accessible conduit, brushes and brooms may be used for cleaning. Place plugs in the ends of uncompleted conduit at the end of the day or whenever work stops. Flush lines between manholes if required to remove collected debris.

Interior Inspection: Inspect conduit to determine whether line displacement or other damage has occurred. A light held in a manhole shall show a full circle of light when viewed from the adjoining end of the line. Make inspections after lines between manholes, or manhole locations, have been installed and approximately two feet of backfill is in place and at completion of the project. If the inspection indicates poor alignment, debris, displaced pipe, infiltration or other defects, take whatever steps are necessary to correct such defects to the satisfaction of the Engineer.

Connection to Existing Structures: Pipe connections to existing structures shall be made in such manner that the finished work will conform as nearly as practicable to the essential applicable requirements specified for new structures, including all necessary concrete work, cutting and shaping.

UNDERGROUND STRUCTURES:

General: Drop inlets or curb inlets may be precast sections or constructed with concrete brick or manhole brick masonry as specified under Part 2 - Products. Construct all drainage structures with a grouted invert to channel flow through structure from inlet pipes to outlet pipe. Where pipes are skewed, the grouted channel shall form a smooth radius. Structures shall not be backfilled until inspected by the Engineer or his representative unless otherwise directed.

Construct all structures in accordance with all authorities having jurisdiction and as hereinafter specified.

Masonry Construction Manholes: At Contractor's option, use either manhole brick, concrete brick or concrete masonry (manhole block) units to construct masonry manholes.

Mix mortar with only enough water for workability. Retempering of mortar will not be permitted. Keep mortar mixing and conveying equipment clean. Do not deposit mortar upon, or permit contact with, the ground.

Lay masonry in mortar so as to form full bed with ends and side joints in one operation, and with full bed and vertical joints, not more than 3/8" wide on the inside. Protect fresh masonry from freezing and from too rapid drying.

Apply a 1/2" thick mortar coating on interior walls and 1" thick on exterior wall surfaces.

Curb Inlet and Drop Inlets: Construct curb inlet or drop inlet to the sizes and shapes as shown on the drawings and as specified for masonry manholes.

Use concrete which will attain a 28-day compressive strength of not less than 4,000 psi.

Set cast iron frames and gratings to the elevations indicated.

Installation of filter cloth shall be in accordance with the manufacture's recommendations. Care shall be taken to insure that the cloth develops no rips, holes, deterioration, or damage during installation. During all periods of shipment and storage, the cloth shall be maintained, wrapped in a heavy-duty protection covering to protect the fabric from direct sunlight ultraviolet rays, mud, dirt, dust and debris.

END OF SECTION 02735

SECTION 02910 - EROSION AND POLLUTION CONTROL

PART 1 - GENERAL

RELATED DOCUMENTS:

The general provisions of the Contract, including the General and Special Conditions and Division-1 Specification sections apply to work of this section.

DESCRIPTION OF WORK:

The extent of the work required under this section is that required to minimize water, air, and noise pollution and soil erosion and siltation.

Temporary erosion control measures which may be necessary include, but are not limited to, temporary berms, dikes, dams, drainage ditches, silt basins, silt ditches, perimeter swales, slope drains, structures, vegetation, mulches, mats, netting, gravel or any other methods or devices that are necessary to control or restrict erosion. Temporary erosion control measures may include work outside the right-of-way or construction limits where such work is necessary as a result of construction such as borrow pit operations, haul roads, plant sites, equipment storage sites and disposal of waste or debris. The CONTRACTOR shall be liable for all damages to public or private property caused by silting or slides originating in waste areas furnished by the CONTRACTOR.

RELATED WORK SPECIFIED ELSEWHERE:

Fertilizing, Seeding and Mulching: Section 02920

QUALITY ASSURANCE:

Codes and Standards:

North Carolina Sedimentation Pollution Control Act of 1973 and the Rules and Regulations promulgated pursuant to the provisions of said act.

NCDEQ Soil Erosion and Sedimentation Control Ordinance.

"Standard Specifications for Roads and Structures", North Carolina Department of Transportation (DOT).

In the event of conflict between the regulations listed above and the requirements of these specifications, the more restrictive requirement shall apply.

SANCTIONS:

Failure of the CONTRACTOR to fulfill any of the requirements of this section may result in the OWNER ordering the stopping of construction operations in accordance with the General Conditions until such failure has been corrected. Such suspension of operations will not justify an extension of Contract time nor additional compensation.

Failure on the part of the CONTRACTOR to perform the necessary measures to control erosion, siltations, and pollution will result in the ENGINEER notifying the CONTRACTOR to take such measures. In the event that the CONTRACTOR fails to perform such measures within 24 hours after receipt of such notice, the OWNER may suspend the work as provided above, or may proceed to have such measures performed with other forces and equipment, or both. The cost of such work performed by other forces will be deducted from monies due the CONTRACTOR on his contract.

PART 2 - PRODUCTS

SILT FENCES:

Posts: Wooden posts shall be a minimum of 4" in diameter and 6' in length. Posts shall be of creosote or pentachlorophenol treated southern pine.

Steel posts shall be 5' in height and be of the self-fastener angle steel type.

Posts shall be spaced at 8' max. when silt fence is backed with wire mesh, and 5' when no wire mesh is used or as required by the ENGINEER.

Woven Wire: Woven wire fencing shall conform to ASTM A116 for Class 3 galvanizing. Fabric shall be a minimum of 32" in width and shall have a minimum of 6 line wires with 12" stay spacing. The top and bottom wires shall be 10 gauge while the intermediate wires shall be 12-1/2 gauge. Wire fabric shall be fastened to wood posts with not less than #9 wire staples 1-1/2" long.

Fabric: Provide woven synthetic fiber designed specifically for silt fence conforming to NCDOT specifications.

DRAINAGE STONE:

Class I material NCDOT No. 57 or No. 5 as required.

RIP RAP:

Class I and Class II in accordance with NCDOT specifications.

Class B Erosion Control Stone may be used in lieu of Class I Rip Rap.

FILTER CLOTH:

For use under rip rap provide spun synthetic fiber; 10 oz/sy; burst strength of 500 psi, vertical water flow, 265 gpm/sy; Trivera 1135, MIRAFI 140 or approved equal.

MATTING FOR EROSION CONTROL:

Matting for erosion control shall be excelsior matting in accordance with NCDOT SPECIFICATIONS SECTION 1631, DITCH LINER AND EROSION CONTROL BLANKET. Other acceptable material manufactured especially for erosion control may be used when approved by the ENGINEER in writing before being used.

TEMPORARY SEEDING:

Temporary seeding, when required, shall be performed in accordance with the recommendations contained in "Guide for Sediment Control on Construction Sites in North Carolina", published by the Soil Conservation Service and Section 02920 of these specifications.

PART 3 - EXECUTION

GENERAL:

The CONTRACTOR shall take whatever measures are necessary to minimize soil erosion and siltation, and water, air, and noise pollution caused by his operations. The CONTRACTOR shall also comply with the applicable regulations of all legally constituted authorities relating to pollution prevention and control. The CONTRACTOR shall keep himself fully informed of all such regulations which in any way affect the conduct of the Work, and shall at all times observe and comply with all such regulations. In the event of conflict between such regulations and the requirements of the specifications, the more restrictive requirements shall apply.

EROSION AND SILTATION CONTROL:

The CONTRACTOR shall exercise every reasonable precaution throughout the life of the project to prevent the eroding of soil and the silting of rivers, streams, lakes, reservoirs, other water impoundments, ground surfaces or other property.

Prior to suspension of operations on the project or any portion thereof, the CONTRACTOR shall take all necessary measures to protect the construction area, including but not limited to borrow sources, soil type base course sources and waste areas from erosion during the period of suspension.

Provide diversion ditches and berms as necessary to prevent concentrated flow of water across disturbed areas.

Stockpile excavated material on the opposite side of the utility trenches from the watercourses to the extent that is possible.

In the event that stockpiles are placed on the watercourse side of the trench, provide silt fence or silt berms with stone filter outlets along the entire length of the stockpile that is on the watercourse side of the trench. Upon the completion of backfilling, the measures shall be removed and the site graded to its natural grade or as shown on plans.

Maintain natural buffer zones along all watercourses sufficient to retain all visible siltation within the first 25 percent of the buffer width.

Provide a settling basin with a gravel filter outlet for all water pumped from trenches or dewatering equipment. Pumping of that water directly into any stream, pond or watercourse is prohibited.

Tamp, fertilize, seed and mulch the disturbed areas as soon as practicable after line is installed and, in all cases, no later than 30 days after completion of the line segment or work at a particular site.

When construction operations are suspended for more than 30 days, provide temporary seeding and mulching of all disturbed areas including those areas in which further construction is necessary.

Erosion control measures installed by the CONTRACTOR shall be acceptably maintained by the CONTRACTOR.

Silt fences shall be provided where shown on the drawings and/or as necessary to prevent erosion.

Catch basins shall be protected from silt by placing straw bales or silt fence around the openings until vegetative cover is established.
Temporary rock check dams shall be constructed where shown on the drawings and/or as necessary.

Seeding for erosion control shall be performed in accordance with Section 02920. Matting shall be installed where shown on the drawings or where required for erosion control. Install matting in accordance with NCDOT SPECIFICATIONS SECTION 1631, DITCH LINER AND EROSION CONTROL BLANKETS.

WATER AND AIR POLLUTION:

The CONTRACTOR shall exercise every reasonable precaution throughout the life of the project to prevent pollution of rivers, streams, and water impoundments. Pollutants such as chemicals, fuels, lubricants, bitumens, raw sewage, and other harmful waste shall not be discharged into or alongside of rivers, streams, or impoundments, or into natural or manmade channels leading thereto.

The CONTRACTOR shall comply with all State or local air pollution regulations throughout the life of the project.

DUST CONTROL:

The CONTRACTOR shall control dust throughout the life of the project within the project area and at all other areas affected by the construction of the project, including, but not specifically limited to, unpaved secondary roads, haul roads, access roads, disposal sites, borrow and material sources and production sites. Dust control shall not be considered effective where the amount of dust creates a potential or actual unsafe condition, public nuisance, or condition endangering the value, utility or appearance of any property.

NOISE CONTROL:

The CONTRACTOR shall exercise every reasonable precaution throughout the life of the project to prevent excessive and unnecessary noise. The CONTRACTOR shall choose his methods so as to minimize the disturbance of area residents.

END OF SECTION 02910

SECTION 02920 - FERTILIZING, SEEDING AND MULCHING

PART 1 - GENERAL

RELATED DOCUMENTS:

The general provisions of the Contract, including the General and Special Conditions and Division-1 Specification sections apply to work of this section.

DESCRIPTION OF WORK:

Permanent Seeding: Permanent seeding is required for all areas disturbed by construction, except for areas covered by structures, pavements, etc.

Temporary Seeding: Temporary seeding of disturbed areas shall be performed whenever one or more of the following conditions exist.

The ENGINEER determines temporary seeding is necessary to prevent or stop erosion of disturbed areas.

Work is suspended or delayed on any portion of the project for 15 days and the potential for erosion exists.

Whenever permanent seeding is delayed beyond that required by the Contract Documents.

QUALITY ASSURANCE:

Codes and Standards: In general, follow procedures and guides published by the Soil Conservation Service, United States Department of Agriculture.

PART 2 - PRODUCTS

FERTILIZER:

Provide commercial fertilizer conforming to statutory requirements and all rules and regulations adopted by the North Carolina Board of Agriculture.

LIMESTONE:

Provide dolematic or hydrated limestone conforming to all statutory requirements and all rules and regulations adopted by the North Carolina Board of Agriculture.

SEED:

Provide seed conforming to all statutory requirements and all rules and regulations adopted by the North Carolina Board of Agriculture.

Provide seed in accordance with requirements shown below. Deliver to site in original containers, labeled to show that the requirements of the N.C. Seed Law are met.

Quality of seed shall conform to the following:

Common Name	Minimum Pure Live Seed %	Maximum Total Other Crop Seed %	Maximum Total Weed Seed %
Grasses			
Pensacola Bahiagrass	70	2.00	1.00
Fescue Tall (KY.-31)	80	2.00	1.00
Centipede	80	2.00	1.00
Kobe Lespedeza	80	2.00	1.00

Seeding containing prohibited noxious weed seed shall not be accepted. Seed shall be in conformance with state seed law restrictions for restricted noxious weeds.

If seed of the accepted quality cannot be bought, secure prior approval before making changes or exceptions.

MULCH:

Mulch for erosion control shall consist of grain straw or other acceptable material, and shall have been approved by the ENGINEER before being used. All mulch shall be reasonably free from mature seedbearing stalks, roots, or bulblets of Johnson Grass, Nutgrass, Sandbur, Wild Garlic, Wild Onion, Bermuda Grass, Crotalaria and Witchweed, and free of excessive amount of restricted noxious weeds as defined by the North Carolina Board of Agriculture at the time of use of the mulch. Also there shall be compliance with all applicable State and Federal domestic plant quarantines. Straw mulch that is matted or lumpy shall be loosened and separated before being used.

Material for holding mulch in place shall be asphalt or other approved binding material applied in accordance with this section.

MATTING:

Use matting on seeded areas where slope is steeper than 2 horizontal to one vertical (2:1 slope). Matting shall comply with NCDOT SPECIFICATIONS SECTION 1631, DITCH LINER AND EROSION CONTROL BLANKETS.

PART 3 - EXECUTION

GENERAL:

Follow procedures set forth in the publication "Guide for Sediment Control on Construction Sites in North Carolina" by the United States Department of Agriculture, Soil Conservation Service, and as specified herein.

Scarify soil to a depth of three (3) inches and work into a satisfactory seed bed by discing, use of cultipackers, harrows, drags and other approved means.

Preparation outlined above shall not be done when the soil is frozen, wet or otherwise in an unfavorable condition.

Begin and complete seeding operations as outlined below as soon as possible after final grading is completed, but in no event later than 30 days after completion of final grading.

Distribute lime and fertilizer uniformly over seed bed and harrow, rake or otherwise work same into seed bed.

Distribute seed uniformly over seed bed. Cover seed lightly after seeding.

No lime, fertilizer or seed shall be applied during a strong wind, when soil is wet or otherwise unworkable. Should rain follow seeding before rolling is begun, the bed shall not be rolled.

PERMANENT SEEDING:

Apply dolematic limestone at the rate of 2 tons per acre. If hydrated lime is used, follow recommendation from soil test. Cost of the test shall be borne by the CONTRACTOR.

Apply 10-10-10 fertilizer outside of NCDOT right-of-way at a rate of 1,000 pounds per acre.

Apply 10-20-20 fertilizer within NCDOT right-of-way at a rate of 500 pounds.

Provide permanent seeding in accordance with the following schedule:

Planting Date	Seeding Mixture and Rate
Outside NCDOT R/W:	
March through August	80#/acre Fescue, KY-31 50#/acre Pensacola Bahiagrass 40#/acre Kobe Lespedeza
September through February	80#/acre Fescue, Ky-31 50#/acre Pensacola Bahiagrass 40#/acre Kobe Lespedeza
Within NCDOT R/W:	
January through December	50#/acre Fescue, Ky-31 25#/acre Pensacola Bahiagrass 5#/acre Centipede

TEMPORARY SEEDING:

Seed in accordance with Soil Conservation Service recommendations with regard to seed type, rate of application, fertilizer, etc.

APPLICATION OF MULCH:

Apply mulch immediately after permanent seeding at a uniform rate sufficient to achieve approximately 80% coverage of ground surface. Care must be taken to prevent the mulch from being applied too thickly and smothering the seedlings. Mulch for temporary seeding should be applied based upon the recommendations of the Soil Conservation Service for the particular type of seed to be used.

Mulch Anchoring:

On ground slopes less than 4%, anchor mulch with a straight blade disk or anchoring tool. Press mulch into soil about three inches. Operate equipment across slopes.

On ground slopes greater than 4%, apply asphalt with suitable applicator at a rate of not less than 150 gallons per ton of mulch.

Peg and twine anchoring may be used on steep slopes. Drive 8" wood stakes every 3 to 4 feet in all directions. Stretch in a crisscross and square in all directions. Secure twine around pegs and drive pegs flush with surface.

MATTING:

Install matting as shown on the drawings and in accordance with NCDOT SPECIFICATIONS SECTION 1631, DITCH LINER AND EROSION CONTROL BLANKETS.

REPAIR AND MAINTENANCE:

Maintain the grass on the area for a period of 90 days after the grass growth appears. Reseed bare areas and repair all eroded areas during that period.

Repairs: Inspect all seeded areas and make necessary repairs or reseedings within the planting season, if possible. If stand should be over 60% damaged, re-establish following original lime, fertilizer and seeding recommendations.

All areas which do not exhibit satisfactory ground cover within 45 days of seed application shall be replanted.

END OF SECTION 02920

SECTION 03305 - CONCRETE

PART 1 - GENERAL

RELATED DOCUMENTS:

Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division - 1 Specification Sections apply to work of this section.

DESCRIPTION OF WORK:

Concrete work includes, but is not specifically limited to, concrete piers, pipe encasement, pipe blocking, manhole inverts, concrete slabs, concrete curbs and gutters, concrete drives, walks and other concrete items required in the project.

RELATED ITEMS SPECIFIED ELSEWHERE:

Storm Sewer System - 02735

QUALITY ASSURANCE:

Codes and Standards: AC1 301 "Specifications for Structural Concrete for Buildings"; AC1 347 "Recommended Practice for Concrete Formwork", AC1 304 "Recommended Practice for Measuring, Mixing, Transporting, and Placing Concrete"; comply with applicable provisions except as otherwise indicated.
Workmanship: 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.

Concrete Testing Service: Employ a testing laboratory acceptable to the ENGINEER to perform material evaluation tests and to design concrete mixes at CONTRACTOR's expense.

Certificates of material properties and compliance with specified requirements may be submitted in lieu of testing. Certificates of compliance must be signed by the materials producer and the CONTRACTOR.

PART 2 - PRODUCTS

CONCRETE MATERIALS:

Portland Cement: ASTM C150, Type 1, unless otherwise acceptable to the ENGINEER.

Aggregates: ASTM C33, except local aggregates of proven durability may be used when acceptable to the ENGINEER.

Water: Clean, potable.

Design strength: 4000 psi unless otherwise noted (Not less than 564 lbs. cement per yard); 3,000 PSI with 3/8" aggregate for masonry fill; 2500 psi for pipe blocking and encasement.

No admixtures containing calcium chloride may be used. Use Pozzolith by Master Builders, Plastiment or Plasticrete by Silka and Chemstrong A, R, or W by Castle Chemical Company or approved equal.

Air-Entraining Admixture: ASTM C260. Only use admixtures having neutralized vensol resins. Use MB-VR by Master Builders, SIKA AER by Sika Chemical Company, or CASTLE VR by Castle Chemical Company, or approved equal.

Use air-entraining admixture in all concrete, providing not less than 4% nor more than 8% entrained air.

Water-Reducing Admixture: ASTM C494, Type A, D, and E. Only use admixtures which have been tested and accepted in mix designs, unless otherwise acceptable.

FORM MATERIALS:

Provide form materials with sufficient stability to withstand pressure of placed concrete without bow or deflection.

Exposed Concrete Surfaces: Acceptable panel-type to provide continuous, straight, smooth, as-cast surfaces. Use largest practical sizes to minimize form joints.

Unexposed Concrete Surfaces: Suitable material to suit project conditions.

CURING COMPOUND:

Liquid membrane forming curing compound shall comply with ASTM C300, Type I Class A, minimum 22% solids.

REINFORCING MATERIALS:

Reinforcing Bars: ASTM A615, Grade 40

Welded Wire Fabric: ASTM A185.

JOINT MATERIALS:

Self-Expanding Cork Joint Filler: Provide resilient and non- extruding type premolded cork units complying with ASTM D1752, Type III.

Water Stop: PVC meeting Corps of Engineers CRD-C572 with center bulb.

PART 3 - EXECUTION

FORMING AND PLACING CONCRETE:

Ready-Mixed Concrete: ASTM C94. Furnish delivery tickets for each load showing amount of each material in the batch, time batched, date, job.

Formwork: Construct so that concrete members and structures are of correct size, shape, alignment, elevation and position, complying with ACI 347. Provide 3/4" chamfer on all exposed corners.

Provide openings in formwork to accommodate work of other trades. Accurately place and securely support items built into forms.

Clean and adjust forms prior to concrete placement. Apply form release agents or wet forms, as required. Retighten forms during and after concrete placement if required to eliminate mortar leaks.

Reinforcement: Position, support and secure reinforcement against displacement. Locate and support with metal chairs, runners, bolsters, spacers and hangers, as required. Set wire ties so ends are directed into concrete, not toward exposed concrete surfaces.

Install welded wire fabric in as long lengths as practicable, lapping at least one mesh.

Joints: Provide construction, expansion, weakened-plane (contraction), isolation, and control joints as indicated or required. Locate construction joints so as to not impair the strength and appearance of the structure. Place isolation and control joints in slabs-on-ground to stabilize differential settlement and random cracking.

Provide expansion and weakened-plane (contraction) joints where shown or required. Construct weakened-plane joints for a depth equal to at least 1/4 concrete thickness, either tooled, or with inserts unless otherwise shown. Tool edges of joints where slabs, walks, drives, curbs and gutters, etc. are constructed or replaced.

Place construction joints at the end of pours and at locations where placement operations are stopped for more than 1/2 hour, except where such pours terminate at expansion joints. Construct joints as shown or, if not shown, use standard metal keyway sections.

Provide premolded joint filler for expansion joints abutting curbs, manholes, and other fixed objects. Locate at 20' o.c. for pavement lanes unless otherwise specified.

Installation of Embedded Items: Set and build into the work anchorage devices and other embedded items required for other work that is attached to, or supported by cast-in-place concrete. Use setting diagrams, templates and instructions provided by others for locating and setting.

Concrete Placement: Comply with ACI 304, placing concrete in a continuous operation within planned joints or sections. Do not begin placement until work of other trades affecting concrete is completed.

Consolidate placed concrete using mechanical vibrating equipment with hand rodding and tamping, so that concrete is worked around reinforcement and other embedded items and into all parts of forms.

Protect concrete from physical damage or reduced strength due to weather extremes during mixing, placement and curing.

In cold weather comply with ACI 306.

In hot weather comply with ACI 305.

CONCRETE FINISHES:

Exposed-to-view Surfaces: Provide a smooth rubbed finish for exposed formed concrete surfaces and surfaces that are to be covered with a coating or covering material applied directly to concrete. Remove fins and projects, patch defective areas with cement grout, and rub smooth.

Slab Trowel Finish: Apply trowel finish to interior monolithic slab surfaces that are exposed-to-view or are to be covered with resilient covering, paint or other thinfilm coating. Consolidate concrete surface by finish troweling, free of trowel marks, uniform in texture and appearance.

Drives, Walks, Curbs and Gutter Finishing: After striking-off and consolidating, smooth the concrete surface by screeding and floating. Work edges of slabs, gutters, and other formed joints with an edging tool to a 1/2" radius.

After floating and when excess moisture or surface sheen has disappeared, complete surface finishing as follows:

Broom finish, by drawing a fine-hair broom perpendicular to line of traffic, as acceptable to the ENGINEER.

Curing: Begin initial curing as soon as free water has disappeared from exposed surfaces. Where possible, keep continuously moist for not less than 72 hours. Cure formed surfaces by moist curing until forms are removed. Continue curing by use of moisture-retaining cover or membrane-forming curing compound. Apply curing compound according to manufacturer's instructions and Federal Specification TT-C-00800. Provide protections as required to prevent damage to exposed concrete surfaces.

END OF SECTION 03305

Vendor Name: _____

GREENVILLE UTILITIES COMMISSION

PROPOSAL FORM BOVIET SUBSTATION SITE WORK

The undersigned bidder hereby declares that it has carefully examined the enclosed detailed specifications for furnishing GUC with the below listed item(s). The undersigned bidder further agrees, if this proposal is accepted within thirty (60) days from the date of the opening, to furnish any or all of the item(s) upon the quoted price.

ITEM NO.	DESCRIPTION	DELIVERY TIME (DAYS)	PRICE
I	Site Construction		$
II	Soils and Materials Testing Allowance	N/A	$
III	Subsidiary Obligations	N/A	$
IV	**TOTAL BASE BID**		**$**
	Complete and Check All Math: It is the responsibility of the Bidder to extend unit prices and supply a total for all items.		
	Unit Prices Undercut Excavation w/ Off-site Disposal and Select Borrow Excavation		$_____/CY
	BID SCHEDULE NO. 1 – Delivery Schedule Calendar Days The Contractor shall achieve Substantial Completion of the entire Work not later than the number of Calendar Days as indicated from the date of commencement as fixed in a Notice to Proceed issued by the Owner. The time to achieve Substantial Completion shall be extended for the period of any reasonable delay due exclusively to causes beyond the control and without fault of the Bidder, including acts of God, fires, floods, strikes, and delays in transportation.	_____Days	

Method of Award: GUC will award this bid as a total bid.

Complete and Check All Math: It is the responsibility of the Bidder to extend bid prices and supply a total for all items. It is certified that this proposal is made in good faith and without collusion or connection with any other person bidding on the same above listed items. It is also certified that this proposal is made in good faith and without collusion or connection with any GUC employee(s).

[Balance of page left blank intentionally]

It is certified that this proposal is made in good faith and without collusion or connection with any other person bidding on the same above listed items. It is also certified that this proposal is made in good faith and without collusion or connection with any GUC employee(s).

Certified check or cash for $_____ or bid bond for $_____ attached.

Firm Name _____ Phone (_____)_____

Address_____

City _____ State _____ Zip Code _____

Fax (____)_____ E-Mail _____

Authorized Official _____ Title _____
Typed Name

_____ Date _____
Signature

Two (2) copies of your proposal should be received no later than March 10, 2026 at 2:00 PM (EDT).

NO BIDS CONSIDERED UNLESS SUBMITTED ON THIS FORM(S)

(RETURN ONLY THIS FORM(S) AND EXCEPTION, E-VERIFY, GOOD FAITH EFFORTS)

Vendor Name: _____

GREENVILLE UTILITIES COMMISSION

Exception/Variation Form

Specifications for: Boviet Substation Site Work

Provider's Certification: This is to certify that it is our intent to furnish equipment, material, services, etc. in absolute compliance with the bid specification except where expressly noted below.

Instructions: List all exceptions or variations to these bid specifications. Providers shall identify each exception or variation by specification page. The omission of exception or variation information shall be deemed by the Commission as the Provider's intent to absolutely comply with the bid specification. If additional space is required, Provider may reproduce this form as necessary.

Page #	Exception/Variation

Authorized Signature of Certification: _____
Print Name: _____

Firm Represented: _____
Address: _____

Letter of Compliance to E-Verify for Greenville Utilities Commission

1. I have submitted a bid for contract or desire to enter into a contract with the Greenville Utilities Commission;
2. As part of my duties and responsibilities pursuant to said bid and/or contract, I affirm that I am aware of and in compliance with the requirements of E-Verify, Article 2 of Chapter 64 of the North Carolina General Statutes, to include (mark which applies):

3. ____ After hiring an employee to work in the United States I verify the work authorization of said employee through E-Verify and retain the record of the verification of work authorization while the employee is employed and for one year thereafter; or
4. ____ I employ less than twenty-five (25) employees in the State of North Carolina.

5. As part of my duties and responsibilities pursuant to said bid and/or contract, I affirm that to the best of my knowledge and subcontractors employed as a part of this bid and/or contract, are in compliance with the requirements of E-Verify, Article 2 of Chapter 64 of the North Carolina General Statutes, to include (mark which applies):

6. ____ After hiring an employee to work in the United States the subcontractor verifies the work authorization of said employee through E-Verify and retains the record of the verification of work authorization while the employee is employed and for one year thereafter; or
7. ____ Employ less than twenty-five (25) employees in the State of North Carolina.
   Specify subcontractor: _____

_____ (Company Name)

By: _____ (Typed Name)

_____ (Authorized Signatory)

_____ (Title)

_____ (Date)

Special Instructions to Bidders

City of Greenville/Greenville Utilities Commission
Minority and/or Women Business Enterprise (M/WBE) Program

GUC
Construction Guidelines and Affidavits
$100,000 and above

These instructions shall be included with each bid solicitation.

City of Greenville/Greenville Utilities Commission
Minority and/or Women Business Enterprise Program

$100,000 and Construction Guidelines for M/WBE Participants

Policy Statement
It is the policy of the City of Greenville and Greenville Utilities Commission to provide minorities and women equal opportunity for participating in all aspects of the City's and Utilities' contracting and procurement programs, including but not limited to, construction projects, supplies and materials purchases, and professional and personal service contracts.

Goals and Good Faith Efforts
Bidders responding to this solicitation shall comply with the M/WBE program by making Good Faith Efforts to achieve the following aspiration goals for participation.

	GUC	
	MBE	**WBE**
Construction This Goal includes Construction Manager at Risk	7%	4%

Bidders shall submit M/WBE information with their bids on the forms provided. This information will be subject to verification by GUC prior to contract award. **As of July 1, 2009, contractors, subcontractors, suppliers, service providers, or M/WBE members of joint ventures intended to satisfy GUC M/WBE goals shall be certified by the NC Office of Historically Underutilized Businesses (NC HUB) only**. Firms qualifying as "WBE" for GUC's goals must be designated as a "women-owned business" by the HUB Office. Firms qualifying as "MBE" for GUC's goals must be certified in one of the other categories (i.e.: Black, Hispanic, Asian American, American Indian, Disabled, or Socially and Economically Disadvantaged). Those firms who are certified as both a "WBE" and "MBE" may only satisfy the "MBE" requirement. A complete database of NC HUB certified firms may be found at http://www.doa.nc.gov/hun/. An internal database of firms who have expressed interest to do business with the City and GUC is available at www.greenvillencmwbe.org. However, the HUB status of these firms must be verified by the HUB database. GUC shall accept NCDOT certified firms on federally funded projects only. Please note: A contractor may utilize any firm desired. However, for participation purposes, all M/WBE vendors who wish to do business as a minority, or a female must be certified by NC HUB.

The Bidder shall make good faith efforts to encourage participation of M/WBEs prior to submission of bids in order to be considered as a responsive bidder. Bidders are cautioned that even though their submittal indicates they will meet the M/WBE goal, they should document their good faith efforts and be prepared to submit this information, if requested.

The M/WBE's listed by the Contractor on the **Identification of Minority/Women Business Participation** which are determined by the GUC to be certified shall perform the work and supply the materials for which they are listed unless the Contractors receive prior authorization

from the GUC to perform the work with other forces or to obtain materials from other sources. If a contractor is proposing to perform all elements of the work with his own forces, he must be prepared to document evidence satisfactory to the owner of similar government contracts where he has self-performed.

The Contractor shall enter into and supply copies of fully executed subcontracts with each M/WBE or supply signed Letter(s) of Intent to the Project Manager after award of contract and prior to Notice to Proceed. Any amendments to subcontracts shall be submitted to the Project Manager prior to execution.

Instructions

The Bidders Shall Provide with the bid the following documentation:

☐ Identification of Minority/Women Business Participation
(if participation is zero, please mark zero – Blank forms will be considered nonresponsive)

☐ Affidavit A (if subcontracting)

OR

☐ Identification of Minority/Women Business Participation
(if participation is zero, please mark zero – Blank forms will be considered nonresponsive)

☐ Affidavit B (if self-performing; must attest that bidder does not customarily subcontract work on this type of project – includes supplies and materials)

Within 72 hours or 3 business days after notification of being the apparent low bidder who is subcontracting anything must provide the following information:

☐ Affidavit C (if aspirational goals are met or are exceeded)

OR

☐ Affidavit D (if aspirational goals are not met)

After award of contract and prior to issuance of notice to proceed:

☐ Letter(s) of Intent or Executed Contracts

****With each pay request, the prime contractors will submit the Proof of Payment Certification, listing payments made to M/WBE subcontractors.**

*****If a change is needed in M/WBE Participation, submit a Request to Change M/WBE Participation Form. Good Faith Efforts to substitute with another M/WBE contractor must be demonstrated.**

Minimum Compliance Requirements:

All written statements, affidavits, or intentions made by the Bidder shall become a part of the agreement between the Contractor and the GUC for performance of contracts. Failure to comply with any of these statements, affidavits or intentions or with the minority business guidelines shall constitute a breach of the contract. A finding by the GUC that any information submitted (either prior to award of the contract or during the performance of the contract) is inaccurate, false, or incomplete, shall also constitute a breach of the contract. Any such breach may result in termination of the contract in accordance with the termination provisions contained in the contract. It shall be solely at the option of the GUC whether to terminate the contract for breach or not. In determining whether a contractor has made Good Faith Efforts, the GUC will evaluate all efforts made by the Contractor and will determine compliance regarding quantity, intensity, and results of these efforts.

Identification of Minority/Women Business Participation

I, _____,
(Name of Bidder)
do hereby certify that on this project, we will use the following minority/women business enterprises as construction subcontractors, vendors, suppliers, or providers of professional services

Firm Name, Address and Phone #	Work Type	M/WBE Category

*****M/WBE categories: Black, African American (**B**), Hispanic, Latino (**L**), Asian American (**A**), American Indian (**I**), Female (**F**), Socially and Economically Disadvantaged (**S**), Disabled (**D**)

If you will not be utilizing M/WBE contractors, please certify by entering "0"

The total value of MBE business contracting will be ($) _____.

The total value of WBE business contracting will be ($) _____.

Greenville Utilities Commission AFFIDAVIT A – Listing of Good Faith Efforts

County of _____

Affidavit of _____

(Name of Bidder)

I have made a good faith effort to comply under the following areas checked:

Bidders must earn at least 50 points from the good faith efforts listed for their bid to be considered responsive. (1 NC Administrative Code 30 I.0101)

☐ **1 – (10 pts)** Contacted minority businesses that reasonably could have been expected to submit a quote and that were known to the contractor, or available on State or local government-maintained lists, at least 10 days before the bid date and notified them of the nature and scope of the work to be performed.

☐ **2 – (10 pts)** Made the construction plans, specifications and requirements available for review for review by prospective minority businesses or providing these documents to them at least 10 days before the bids are due.

☐ **3 – (15 pts)** Broken down or combined elements of work into economically feasible units to facilitate minority participation.

☐ **4 – (10 pts)** Worked with minority trade, community, or contractor organizations identified by the Office of Historically Underutilized Businesses and included in the bid documents that provide assistance in recruitment of minority businesses.

☐ **5 – (10 pts)** Attended Prebid meetings scheduled by the public owner.

☐ **6 – (20 pts)** Provided assistance in getting required bonding or insurance or provided alternatives to bonding or insurance for subcontractors.

☐ **7 – (15 pts)** Negotiated in good faith with interested minority businesses and did not reject them as unqualified without sound reasons based on their capabilities. Any rejection of a minority business based on lack of qualification should have the reasons documented in writing.

☐ **8 – (25 pts)** Provided assistance to an otherwise qualified minority business in need of equipment, loan capital, lines of credit, or joint pay agreements to secure loans, supplies, or letters of credit, including waiving credit that is ordinarily required. Assisted minority businesses in obtaining the same unit pricing with the bidder's suppliers in order to help minority businesses in establishing credit.

☐ **9 – (20 pts)** Negotiated joint venture and partnership arrangements with minority businesses in order to increase opportunities for minority business participation on a public construction or repair project when possible.

☐ **10 – (20 pts)** Provided quick pay agreements and policies to enable minority contractors and suppliers to meet cash-flow demands.

The undersigned, if apparent low bidder, will enter into a formal agreement with the firms listed in the identification of Minority/Women Business Participation schedule conditional upon scope of contract to be executed with the Owner. Substitution of contractors must be in accordance with GS143-128.2(d). Failure to abide by this statutory provision will constitute a breach of the contract.

The undersigned hereby certifies that he or she has read the terms of the minority/women business commitment and is authorized to bind the bidder to the commitment herein set forth.

Date:_____ Name of Authorized Officer: _____

Signature:_____

Title:_____

SEAL

State of _____, County of _____

Subscribed and sworn to before me this _____ day of _____ 20___

Notary Public _____

My Commission expires _____

Greenville Utilities Commission - AFFIDAVIT B - Intent to Perform Contract with Own Workforce

County of _____

Affidavit of _____
(Name of Bidder)

In making this certification, the Bidder states that the Bidder does not customarily subcontract elements of this type of project, and normally performs and has the capability to perform and will perform all elements of the work on this project with his/her own current work forces; and

The Bidder agrees to provide any additional information or documentation requested by the owner in support of the above statement.

The undersigned hereby certifies that he or she has read this certification and is authorized to bind the Bidder to the commitments herein contained.

Date: _____ Name of Authorized Officer: _____

Signature: _____

Title: _____

SEAL

State of _____, County of _____

Subscribed and sworn to before me this _____ day of _____ 20 _____

Notary Public _____

My commission expires _____

Greenville Utilities Commission – AFFIDAVIT C – Portion of the Work to be Performed by M/WBE Firms

County of _____

(Note this form is to be submitted only by the apparent lowest responsible, responsive bidder.)
If the portion of the work to be executed by M/WBE businesses as defined in GS143-128.2(g) and the COG/GUC M/WBE Plan sec. III is equal to or greater than 11% of the bidder's total contract price, then the bidder must complete this affidavit. This affidavit shall be provided by the apparent lowest responsible, responsive bidder within **72 hours** after notification.

Affidavit of _____I do hereby certify that on the
(Name of Bidder)

_____
(Project Name)
Project ID#_____ Amount of Bid $_____

I will expend a minimum of _____% of the total dollar amount of the contract with minority business enterprises and a minimum of _____% of the total dollar amount of the contract with women business enterprises. Minority/women businesses will be employed a construction subcontractors, vendors, suppliers, or providers of professional services. Such work will be subcontracted to the following firms listed below.

Name and Phone Number	*M/WBE Category	Work Description	Dollar Value

*M/WBE categories: Black, African American (**B**), Hispanic, Latino (**L**), Asian American (**A**), American Indian (**I**), Female (**F**), Socially and Economically Disadvantaged (**S**), Disabled (**D**)

Pursuant to GS143-128.2(d), the undersigned will enter into a formal agreement with M/WBE Firms for work listed in this schedule conditional upon execution of a contract with the Owner. Failure to fulfill this commitment may constitute a breach of the contract.

The undersigned hereby certifies that he or she has read the terms of this commitment and is authorized to bind the bidder to the commitment herein set forth.

Date:_____ Name of Authorized Officer:_____

Signature:_____

Title:_____

SEAL

State of _____, County of _____

Subscribed and sworn to before me this_____ day of _____20___

Notary Public _____

My commission expires _____

Greenville Utilities Commission – AFFIDAVIT D – Good Faith Efforts

County of _____
(Note this form is to be submitted only by the apparent lowest responsible, responsive bidder)

If the goal of 11% participation by minority/women business **is not** achieved, the Bidder shall provide the following documentation to the Owner of his good faith efforts:

Affidavit of _____ I do hereby certify that on the
(Name of Bidder)

_____
(Project Name)

Project ID# _____ Amount of Bid $_____

I will expend a minimum of _____% of the total dollar amount of the contract with minority business enterprises and a minimum of _% of the total dollar amount of the contract with women business enterprises. Minority/women businesses will be employed a construction subcontractors, vendors, suppliers, or providers of professional services. Such work will be subcontracted to the following firms listed below.

Name and Phone Number	*M/WBE Category	Work Description	Dollar Value

*****M/WBE categories: Black, African American (**B**), Hispanic, Latino (**L**), Asian American (**A**), American Indian (**I**), Female (**F**), Socially and Economically Disadvantaged (**S**), Disabled (**D**)

Examples of documentation required to demonstrate the Bidder's good faith efforts to meet the goals set forth in these provisions include, but are not necessarily limited to, the following:

A. Copies of solicitations for quotes to at least three (3) minority business firms from the source list provided by the State for each subcontract to be let under this contract (if 3 or more firms are shown on the source list). Each solicitation shall contain a specific description of the work to be subcontracted, location where bid documents can be reviewed, representative of the Prime Bidder to contact, and location, date and time when quotes must be received.

B. Copies of quotes or responses received from each firm responding to the solicitation.

C. A telephone log of follow-up calls to each firm sent a solicitation.

D. For subcontracts where a minority business firm is not considered the lowest responsible, responsive sub-bidder, copies of quotes received from all firms submitting quotes for that subcontract.

E. Documentation of any contacts or correspondence to minority business, community, or contractor organizations in an attempt to meet the goal.

F. Copy of pre-bid roster.

G. Letter documenting efforts to provide assistance in obtaining required bonding or insurance for minority business.

H. Letter detailing reasons for rejection of minority business due to lack of qualification.

I. Letter documenting proposed assistance offered to minority business in need of equipment, loan capital, lines of credit, or joint pay agreements to secure loans, supplies, or letter of credit, including waiving credit that is ordinarily required.

Failure to provide the documentation as listed in these provisions may result in rejection of the bid and award to the next lowest responsible and responsive bidder

Pursuant to GS143-128.2(d), the undersigned will enter into a formal agreement with M/WBE Firms for work listed in this schedule conditional upon execution of a contract with the Owner. Failure to fulfill this commitment may constitute a breach of the contract.

The undersigned hereby certifies that he or she has read the terms of this commitment and is authorized to bind the bidder to the commitment herein set forth.

Date:_____ Name of Authorized Officer:_____

Signature:_____

Title:_____

SEAL

State of _____, County of _____

Subscribed and sworn to before me this_____ day of _____20___

Notary Public _____

My commission expires _____

LETTER OF INTENT

M/WBE Subcontractor Performance

Please submit this form or executed subcontracts with M/WBE firms after award of contract and prior to issuance of notice to proceed.

PROJECT:_____
(Project Name)

TO: _____
(Name of Prime Bidder/Architect)

The undersigned intends to perform work in connection with the above project as a:

____ Minority Business Enterprise _____ Women Business Enterprise

The M/WBE status of the undersigned is certified by the NC Office of Historically Underutilized Businesses (required). ____ Yes ____ No

The Undersigned is prepared to perform the following described work or provide materials or services in connection with the above project at the following dollar amount:

Work/Materials/Service Provided	Dollar Amount of Contract	Projected Start Date	Projected End Date

_____
(Date)

_____ _____
(Address) (Name & Phone No. of M/WBE Firm)

_____ _____
(Name & Title of Authorized Representative of M/WBE) (Signature of Authorized Representative of M/WBE)

REQUEST TO CHANGE M/WBE PARTICIPATION

Submit changes only if notified as apparent lowest bidder, continuing through project completion)

Project: _____

Bidder or Prime Contractor: _____

Name & Title of Authorized Representative: _____

Address: _____ **Phone #:** _____

_____ **Email Address:**_____

Total Contract Amount (including approved change orders or amendments): $ _____

Name of Subcontractor: _____

Good or service provided: _____

Proposed Action:

_____ Replace subcontractor
_____ Perform work with own forces

For the above actions, you must provide one of the following reasons (Please check applicable reason):

_____ The listed MBE/WBE, after having had a reasonable opportunity to do so, fails or refuses to execute a written contract.

_____ The listed MBE/WBE is bankrupt or insolvent.

_____ The listed MBW/WBE fails or refuses to perform his/her subcontract or furnish the listed materials.

_____ The work performed by the listed subcontractor is unsatisfactory according to industry standards and is not in accordance with the plans and specifications; or the subcontractor is substantially delaying or disrupting the progress of the work.

If replacing subcontractor:

Name of replacement subcontractor: _____

The M/WBE status of the contractor is certified by the NC Office of Historically Underutilized Businesses (required). _____ Yes _____ No

Dollar amount of original contract $_____

Dollar amount of amended contract $_____

Other Proposed Action:

____ Increase total dollar amount of work
____ Decrease total dollar amount of work
____ Add additional subcontractor
____ Other

Please describe reason for requested action: _____

If adding additional subcontractor*

The M/WBE status of the contractor is certified by the NC Office of Historically Underutilized Businesses (required). ___ Yes ___ No

Please attach Letter of Intent or executed contract document

Dollar amount of original contract $_____

Dollar amount of amended contract $_____

Interoffice Use Only:

Approval __ Y __ N

Date_____

Signature_____

Proof of Payment Certification
M/WBE Contractors, Suppliers, Service Providers

Project Name: _____ Pay Application No._____

Prime Contractor: _____ Purchase Order No. _____

Current Contract Amount (including change orders): $_____

Requested Payment Amount for this Period: $_____

Is this the final payment? ___ Yes ___ No

Firm Name	*M/WBE Category	Total Amount Paid from this Pay Request	Total Contract Amount (including changes)	Total Amount Remaining

*M/WBE categories: Black, African American (**B**), Hispanic, Latino (**L**), Asian American (**A**), American Indian (**I**), Female (**F**), Socially and Economically Disadvantaged (**S**), Disabled (**D**)

Date: _____ Certified By: _____
Name

_____
Title

_____
Signature

BID BOND

KNOW ALL MEN BY THESE PRESENT, THAT WE _____

_____

as Principal, and _____

as Surety, who is duly licensed to act as Surety in North Carolina, are held and firmly bound unto the Greenville Utilities Commission, Greenville, NC, as Obligee, in the penal sum of _____ _____ DOLLARS ($_____) (5% Bid Bond), lawful money of the United States of America, for the payment of which, well and truly to be made, we bind ourselves, our heirs, administrators, successors and assigns, jointly and severally, firmly by these present.

SIGNED, Sealed and dated this _____day of _____, 2026.

WHEREAS, the said Principal is herewith submitting a Proposal for

BOVIET SUBSTATION SITE WORK

and the Principal desires to file this Bid Bond in Lieu of making the cash deposit as required by the bidding documents contained herein;

NOW, THEREFORE, THE CONDITION OF THE ABOVE OBLIGATION is such that if the principal shall be awarded the Purchase Order for which the bid is submitted and shall accept the Purchase Order within ten (10) days after the award of same to the principal, then this obligation shall be null and void; but if the principal fails to so accept such purchase order as required by the bidding documents contained herein, the Surety shall, upon demand, forthwith pay to the Obligee the amount set forth in the first paragraph hereof, and upon failure to forthwith make such payment, the Surety shall pay the Obligee an amount equal to double the amount of this Bid Bond as set forth in the first paragraph hereof. Power of Attorney from the surety to is Attorney-in-Fact is attached hereto.

_____

Principal

By _____(SEAL)

_____

Corporate Surety

By _____(SEAL)

PERFORMANCE BOND/PAYMENT BOND

Date of Execution: _____

Name of Principal: _____

(Contractor) _____

Name of Surety: _____

Name of Contracting Body: _____

Amount of Bond: _____

Project: _____

KNOW ALL THESE MEN BY THESE PRESENT, That We, the Principal and Surety above named, are held and firmly bound unto the above named Contracting Body, hereinafter called the Contracting Body, in the penal sum of the amount stated above the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, and successors, jointly and severally, firmly by these present.

THE CONDITION OF THIS OBLIGATION IS SUCH that whereas the Principal entered into a certain Contract with the Contracting Body, identified as shown above and hereto attached.

NOW, THEREFORE, if the Principal shall well and truly perform and fulfill all the undertakings, covenants, terms, conditions, and agreements of said Contract during the original term of said Contract and any extensions there of that may be granted by the Contracting Body, with or without notice to the Surety, and during the life of any guaranty required under the Contract, and shall also well and truly perform and fulfill all the undertakings, covenants, terms, conditions, and agreements of any and all duly authorized modifications of said Contract that may hereafter be made, notice of which modifications to the Surety being hereby waived, then, this obligation to be void; otherwise to remain in full force and virtue.

IN WITNESS WHEREOF, the above bounded parties have executed this instrument under the several seals on the date indicated above, the name and corporate seal of each corporate party being hereto affixed, and these present duly signed by its undersigned representative, pursuant to authority of its governing body.

Executed in five (5) counterparts.

Witness:

_____
(Proprietorship or Partnership)

ATTEST:

By: _____

Title: _____
(Corporate Secretary or
Assistant Secretary Only)

CONTRACTOR:

_____
(Trade or Corporate Name)

By: _____

Title: _____

(CORPORATE SEAL)

Witness:

_____

Countersigned:

_____

_____
N.C. Licensed Resident Agent

_____

_____
(Name and Address – Surety Agent)

_____

_____
Surety Company Name and N.C.
Regional or Branch Office Address

SURETY COMPANY:

_____

By: _____

Title: _____
(Attorney-in-Fact)

(SURETY SEAL)

SECTION III

TERMS AND CONDITIONS FOR THE PURCHASE OF

APPARATUS, SUPPLIES, MATERIALS, LABOR AND EQUIPMENT

These Terms and Conditions, made and entered into on this the __ day of _____, by and between GREENVILLE UTILITIES COMMISSION OF THE CITY OF GREENVILLE, PITT COUNTY, NORTH CAROLINA, with one of its principal offices and places of business at 401 S. Greene Street, Post Office Box 1847, Greenville, Pitt County, North Carolina 27835-1847, hereinafter referred to as "GUC" and _____, a _____ organized and existing under and by virtue of the laws of the State of _____, with one of its principal offices and places of business at _____, hereinafter referred to as "PROVIDER";

1.0 TAXES

No taxes shall be included in any bid prices. GUC is exempt from Federal Excise Tax. GUC is not exempt from North Carolina state sales and use tax or, if applicable, Pitt County sales and use tax. Such taxes shall be shown as a separate item on the invoice.

2.0 INVOICES

It is understood and agreed that orders will be shipped at the established contract prices and quantities in effect on dates orders are placed. Invoicing at variance with this provision may subject the contract to cancellation. Applicable North Carolina sales tax shall be invoiced as a separate line item. All invoices must bear the GUC purchase order number. Mail all invoices to Greenville Utilities Commission, Finance Department, P. O. Box 1847, Greenville, NC 27835-1847.

3.0 PAYMENT TERMS

Payments for equipment, materials, or supplies will be made after the receipt and acceptance of the equipment, materials, supplies or services and after submission of a proper invoice. GUC's normal payment policy is thirty (30) days. GUC will not be responsible for any goods delivered without a purchase order having been issued. Payment will be made in U. S. currency only.

4.0 QUANTITIES

Quantities specified are only estimates of GUC's requirements. GUC reserves the right to purchase more or less than the stated quantities at prices indicated in the submitted Proposal Form based on our actual needs.

5.0 AFFIRMATIVE ACTION

The Provider will take affirmative action in complying with all Federal and State requirements concerning fair employment and employment of the handicapped, and concerning the treatment of all employees, without discrimination by reason of race, color, religion, sex, national origin, or physical handicap.

6.0 CONDITION AND PACKAGING

Unless otherwise indicated in the bid, it is understood and agreed that any item offered or shipped shall be new and in first class condition, that all containers shall be new and suitable for storage or shipment, and that prices include standard commercial packaging.

7.0 SAMPLES

Samples of items, if required, must be furnished free of expense to GUC, and if not destroyed, will, upon request, be returned at the Provider's expense. Request for the return of samples must be made at the bid opening, otherwise, the samples will become GUC's property. Each individual sample must be labeled with Provider's name.

8.0 SPECIFICATIONS

Any deviation from specifications must be clearly pointed out, otherwise, it will be considered that items offered are in strict compliance with specifications, and the Provider will be held responsible. Deviations must be explained in detail. **The Provider shall not construe this paragraph as inviting deviation or implying that any deviation will be acceptable.**

9.0 INFORMATION AND DESCRIPTIVE LITERATURE

Providers are to furnish all information requested. Further, as may be specified elsewhere, each Provider must submit with its proposal: cuts, sketches, descriptive literature, and/or complete specifications covering the products offered. Reference to literature submitted with a previous bid does not satisfy this provision. Bids which do not comply with these requirements will be subject to rejection.

10.0 AWARD OF CONTRACT

As directed by statute, qualified bids will be evaluated and acceptance made of the lowest responsible, responsive bid most advantageous to GUC as determined upon consideration of such factors as prices offered, the quality of the article(s) offered, the general reputation and performance capabilities of the Provider, substantial conformity with the specifications and other conditions set forth in the bid, the suitability of the article(s) for the intended use, the related services needed, the date(s) of delivery and performance, and such other factors deemed by GUC to be pertinent or peculiar to the purchase in question.

Acceptance of the order includes acceptance of all terms, conditions, prices, delivery instructions, and specifications as shown on this set of Terms and Conditions and in this order or attached to and made a part of this order.

The conditions of this order cannot be modified except by written amendment in the form of "Amended Purchase Order," which has been approved by GUC's Procurement Manager.

In the event of a Provider's failure to deliver or perform as specified, GUC reserves the right to cancel the order or any part thereof, without prejudice to GUC's other rights. The Provider agrees that GUC may return part of or all of any shipment at Provider's expense. GUC may charge the Provider with all reasonable expenses resulting from such failure to deliver or perform.

11.0 MEDIATION/BINDING ARBITRATION

In the event of any dispute between the Parties, the Parties agree to submit any dispute to non-binding mediation before a mutually agreeable Mediator prior to initiating litigation. If the Parties are unable to agree upon a Mediator within thirty (30) days after demand therefore, either Party may petition a Court of competent jurisdiction for the designation of a qualified Mediator for these purposes. Each Party shall bear its own costs and expenses of participating in the mediation (including, without limitation, reasonable attorneys' fees), and each Party shall bear one-half (1/2) of the costs and expenses of the Mediator. Unless otherwise agreed, the Parties will hold the mediation in Greenville, North Carolina. The matters discussed or revealed in the mediation session shall not be disclosed in any subsequent litigation.

In the event the matter is not resolved in mediation, either Party may request arbitration. The parties shall jointly select an Arbitrator, and shall be bound by the decision of the Arbitrator with respect to any dispute between the parties with respect to this Agreement. If the parties are unable to mutually agree upon an Arbitrator, the Parties shall each select an Arbitrator, and the two Arbitrators so selected shall select a third Arbitrator, and the decision of the majority of the Arbitrators shall be conclusive and binding upon the Parties. The Parties at all times agree to equally split the costs of any Arbitrator(s) selected in an effort to resolve the dispute between the Parties. Any party desiring to resolve a dispute under the terms of this Agreement shall notify the other Party in writing, and the Parties shall seek to agree upon a mutually agreed-upon Arbitrator within a period of ten (10) days from the date of such written demand. If the Parties are unable to agree within such ten (10) day period, the Parties shall each select an Arbitrator, and the two (2) Arbitrators so selected shall select a third Arbitrator within fifteen (15) days from the date of the written demand for arbitration, and a decision shall be rendered by the Arbitrator(s) so selected within five (5) days after such Arbitrator(s) is selected.

12.0 GOVERNMENT RESTRICTIONS

In the event any Governmental restrictions may be imposed which would necessitate alteration of the material, quality, workmanship, or performance of the items offered on this bid prior to their delivery, it shall be the responsibility of the successful Provider to notify the GUC Procurement Manager, at once, indicating in its letter the specific regulation which required such alterations. GUC reserves the right to accept any such alterations, including any price adjustments occasioned thereby, or, in the sole discretion of GUC, to cancel the contract.

13.0 INSURANCE

13.1 Coverage – During the term of the contract, the Provider at its sole cost and expense shall provide commercial insurance of such type and with the following coverage and limits:

13.1.1 Workers' Compensation – The Provider shall provide and maintain Workers' Compensation Insurance, as required by the laws of North Carolina, as well as employer's liability coverage with minimum limits of $1,000,000 each accident, covering all Provider's employees who are engaged in any work under the contract. If any work is sublet, the Provider shall require the subcontractor to provide the same coverage for any of its employees engaged in any work under the contract.

13.1.2 General Liability – Commercial Liability Coverage written on an "occurrence" basis in the minimum amount of $1,000,000 per occurrence.

13.1.3 Automobile – Automobile Liability Insurance, to include coverage for all owned, hired, and non-owned vehicles used in connection with the contract with a minimum combined single limit of $1,000,000 per accident.

13.1.4 Cyber –The Vendor shall maintain Cyber Liability Insurance with limits of $3,000,000 per occurrence, providing protection against liability for: (1) privacy breaches (including liability arising from the loss or disclosure of confidential information no matter how it occurs); (2) system breach; (3) denial or loss of service; (4) introduction, implantation, or spread of malicious software code; and (5) unauthorized access to or use of computer systems. Cyber Liability Insurance shall not include any exclusion or restriction for unencrypted portable devices or other media. Vendor shall provide evidence of continuation or renewal for a period of two (2) years following termination of the Agreement.

13.2 Requirements - Providing and maintaining adequate insurance coverage is a material obligation of the Provider. All such insurance shall meet all laws of the State of North Carolina. Such insurance coverage shall be obtained from companies that are authorized to provide such coverage and that are authorized to do business in North Carolina by the Commissioner of Insurance. The Provider shall at all times comply with the terms of such insurance policies and all requirements of the insurer under any of such insurance policies, except as they may conflict with existing North Carolina laws or this contract. The limits of coverage under each insurance policy maintained by the Provider shall not be interpreted as limiting the Provider's liability and obligations under the contract. It is agreed that the coverage as stated shall not be canceled or changed until thirty (30) days after written notice of such termination or alteration has been sent by registered mail to GUC's Procurement Manager.

14.0 PATENTS AND COPYRIGHTS

The Provider shall hold and save GUC, its officers, agents, and employees, harmless from liability of any kind, including costs and expenses, including reasonable attorney fees, on account of any copyrighted articles or any patented or unpatented invention, device or appliance manufactured or used in the performance of this contract.

15.0 PATENT AND COPYRIGHT INDEMNITY

The Provider will defend or settle, at its own expense, any action brought against GUC to the extent that it is based on a claim that the product(s) provided pursuant to this agreement infringe any U.S. copyright or patent; and will pay those costs, damages, and attorney fees finally awarded against GUC in any such action attributable to any such claim, but such defense, settlements, and payments are conditioned on the following: (1) that Provider shall be notified promptly in writing by GUC of any such claim; (2) that Provider shall have sole control of the defense of any action on such claim and of all negotiations for its settlement or compromise; (3) that GUC shall cooperate with Provider in a reasonable way to facilitate the settlement of defense of such claim; (4) that such claim does not arise from GUC modifications not authorized

by the Provider or from the use of combination of products provided by the Provider with products provided by GUC or by others; and (5) should such product(s) become, or in the Provider's opinion likely to become, the subject of such claim of infringement, then GUC shall permit Provider, at Provider's option and expense, either to procure for GUC the right to continue using the product(s), or replace or modify the same so that it becomes non-infringing and performs in a substantially similar manner to the original product.

16.0 EXCEPTIONS

All proposals are subject to the terms and conditions outlined herein. All responses will be controlled by such terms and conditions and the submission of other terms and conditions, price catalogs, and other documents as part of a Provider's response will be waived and have no effect on this Request for Proposal or any other contract that may be awarded resulting from this solicitation. The submission of any other terms and conditions by a Provider may be grounds for rejection of the Provider's proposal. The Provider specifically agrees to the terms and conditions set forth in this set of Terms and Conditions by affixing its name on the signatory page contained herein.

17.0 CONFIDENTIAL INFORMATION

Except as provided by statute and rule of law, GUC will keep trade secrets which the Provider does not wish disclosed confidential. Each page shall be identified in boldface at the top and bottom as "CONFIDENTIAL" by the Provider. Cost information shall not be deemed confidential. The determination of whether a matter is confidential will be determined by North Carolina law.

18.0 ASSIGNMENT

No assignment of the Provider's obligations or the Provider's right to receive payment hereunder shall be permitted without the express written consent of GUC, provided however, upon written request approved by the GUC Procurement Manager, solely as a convenience to the Provider, GUC may:

- Forward the Provider's payment check directly to any person or entity designated by the Provider, and
- Include any person or entity designated by Provider as a joint payee on the Provider's payment check.
- In no event shall such approval and action obligate GUC to anyone other than the Provider, and the Provider shall remain responsible for fulfillment of all contract obligations.

19.0 ACCESS TO PERSON AND RECORDS

GUC shall have reasonable access to persons and records of Provider as a result of all contracts entered into by GUC.

20.0 INSPECTION AT BIDDER'S SITE

GUC reserves the right to inspect, at a reasonable time, the item, plant, or other facilities of a prospective Provider prior to contract award and during the contract term as necessary for GUC's determination that such item, plant, or other facilities conform with the specifications/requirements and are adequate and suitable for the proper and effective performance of the contract. Provider may limit GUC's access to restricted areas.

21.0 AVAILABILITY OF FUNDS

Any and all payments of compensation of this specific transaction and any continuation or any renewal or extension are dependent upon and subject to the allocation of GUC funds for the purpose set forth in this Agreement.

22.0 GOVERNING LAWS

All contracts, transactions, agreements, etc., are made under and shall be governed by and construed in accordance with the laws of the State of North Carolina.

23.0 ADMINISTRATIVE CODE

Bids, proposals, and awards are subject to applicable provisions of the North Carolina Administrative Code and General Statues and Laws of the State of North Carolina.

24.0 EXECUTION

In the discretion of GUC, failure of a duly authorized official of Provider to sign the Signatory Page may render the bid invalid.

25.0 CLARIFICATIONS/INTERPRETATIONS

Any and all questions regarding these Terms and Conditions must be addressed to the GUC Procurement Manager. Do not contact the user directly. **These Terms and Conditions are a complete statement of the parties' agreement and may only be modified in writing signed by Provider and the GUC Procurement Manager.**

26.0 SITUS

The place of all contracts, transactions, agreements, their situs and forum, shall be North Carolina, where all matters, whether in contract or tort, relating to the validity, construction, interpretation, and enforcement shall be determined.

27.0 TERMINATION OF AGREEMENT

GUC or Provider may terminate this Agreement for just cause at any time. Provider will be paid for all time and expenses incurred as of the termination date. Termination for just cause by either party shall be by certified letter and shall be effective thirty (30) days after signed and acknowledged receipt of said letter. Just cause shall be based on reasonable grounds, and there must be a fair and honest cause or reason for such action. The causes for termination, include, but are not limited to: (1) Provider's persistent failure to perform in accordance with the Terms and Conditions, (2) Provider's disregard of laws and regulations related to this

transaction, and/or (3) Provider's substantial violation of the provisions of the Terms and Conditions.

28.0 DELIVERY

Shipments will be made only upon releases from a purchase order issued by GUC in accordance with GUC's current needs.
Time is of the essence with respect to all deliveries under this Agreement.
Delivery of all equipment, materials, or supplies shall be made Free on Board (FOB), customer's site, Boviet Substation, at 35°39'28.9"N 77°20'59.8"W, unless otherwise specified. The agreed price for such equipment, materials, or supplies shall include all costs of delivery and ownership, and risks of loss shall not be transferred from Provider to GUC until express written acceptance of delivery and inspection by GUC. Delivery hours are between 8:00 AM and 4:30 PM Monday-Friday only. **GUC's purchase order number is to be shown on the packing slip or any related documents.** GUC reserves the right to refuse or return any delivery with no purchase order number or which is damaged. GUC will not be charged a restocking fee for any delivery which is refused or returned.

29.0 INDEMNITY PROVISION

Provider agrees to indemnify and save GREENVILLE UTILITIES COMMISSION of the City of Greenville, Pitt County, North Carolina, and the City of Greenville, North Carolina, its co-owners, joint venturers, agents, employees, and insurance carriers harmless from any and all losses, claims, actions, costs, expenses including reasonable attorney fees, judgments, subrogations, or other damages resulting from injury to any person (including injury resulting in death), or damage (including loss or destruction) to property of whatsoever nature of any person arising out of or incident to the performance of the terms of this Contract by Provider, including, but not limited to, Provider's employees, agents, subcontractors, and others designated by Provider to perform work or services in, about, or attendant to, the work and services under the terms of this Contract. Provider shall not be held responsible for any losses, expenses, claims, subrogations, actions, costs, judgments, or other damages, directly, solely, and proximately caused by the negligence of Greenville Utilities Commission of the City of Greenville, Pitt County, North Carolina. Insurance covering this indemnity agreement by the Provider in favor of Greenville Utilities Commission of the City of Greenville, Pitt County, North Carolina, and the City of Greenville, North Carolina, shall be provided by Provider.

30.0 FORCE MAJEURE

Neither party shall be considered in default in the performance of its obligations hereunder to the extent that the performance of any such obligation is prevented or delayed by any cause, existing or future, which is beyond the reasonable control of such party. In any such event of force majeure, the parties shall advise each other of such event, and the parties shall negotiate an equitable adjustment to their respective obligations under this Agreement.

31.0 WARRANTY(IES)

The Provider hereby includes all warranties, whether expressed or implied, including, but not limited to, the Implied Warranty of Merchantability and the Implied Warranty of Fitness for a Particular Purpose.

32.0 INTEGRATED CONTRACT

These Terms and Conditions, Instructions to Bidders, Specifications, and the selected Provider's bid represents the entire contract between the Parties. No verbal or other written agreement(s) shall be held to vary the provisions of this Agreement.

33.0 CONTRACT PROVISIONS

Each of the provisions of these Terms and Conditions shall apply to the full extent permitted by law, and the invalidity in whole or in part of any provision shall not affect the remainder of such provision or any other provisions.

34.0 E-VERIFY

E-Verify - I understand that E-Verify is the federal E-Verify program operated by the United States Department of Homeland Security and other federal agencies, or any successor or equivalent program used to verify the work authorization of newly hired employees pursuant to federal law in accordance with NCGS §64-25 et seq. I am aware of and in compliance with the requirements of E-Verify and Article 2 of Chapter 64 of the North Carolina General Statutes. To the best of my knowledge, any subcontractors employed by me as a part of this contract are in compliance with the requirements of E-Verify and Article 2 of Chapter 64 of the North Carolina General Statutes.

35.0 IRAN DIVESTMENT ACT CERTIFICATION

By acceptance of this purchase order, Vendor/Contractor certifies that, as of the date of the purchase order or contract, it is not on the Final Divestment List as created by the State Treasurer pursuant to N.C.G.S. § 143-6A-4. In compliance with the requirements of the Iran Divestment Act and N.C.G.S. § 143C-6A-5(b), Vendor/Contractor shall not utilize in the performance of the contract any subcontractor that is identified on the Final Divestment List.

36.0 UNIFORM GUIDANCE

Contracts funded with federal grant or loan funds must be procured in a manner that conforms with all applicable federal laws, policies, and standards, including those under the Uniform Guidance (2 C.F.R. Part 200).

37.0 SAFETY STATEMENTS

Safety Culture Commitment Statement:
At Greenville Utilities, we are committed to a culture of safety that prioritizes the well-being of our employees, contractors, and the communities we serve.
We believe that everyone deserves to work in a safe environment, and we are dedicated to fostering a culture where **safety is a core value, not just a priority**.
Here's what that means to us:

- **Employee and Contractor Safety:** We are committed to providing a safe work environment for all employees and contractors. We will invest in safety training, resources, and equipment to prevent accidents and injuries.
- **Open Communication:** We encourage open and honest communication about safety concerns. We believe everyone has a right and responsibility to speak up about unsafe work practices and potential hazards.

- **Continuous Improvement:** We are committed to continuous improvement in safety performance. We will learn from incidents and near misses, and we will actively seek ways to improve our safety processes and procedures.
- **Accountability:** We hold ourselves and our contractors accountable for safe work practices. This includes providing clear safety expectations, enforcing safety rules, and recognizing safe behavior.
- **Collaboration:** We believe in working collaboratively with employees, contractors, and regulatory agencies to achieve the highest level of safety.

Our commitment to safety extends beyond our employees. We work closely with our contractors to ensure they share our safety values. We expect them to implement robust safety programs, train their workers thoroughly, and adhere to all safety regulations.
We are confident that by working together, we can create a culture of safety where everyone goes home safe and healthy every day.
This commitment statement is a public declaration of our unwavering dedication to safety. We will continue to strive for zero incidents while promoting a positive safety culture that prioritizes the well-being of everyone involved in our utility operations.

Safety Management System Commitment Statement:
At Greenville Utilities, we are unwavering in our commitment to delivering safe and reliable utility service through a robust Safety Management System (SMS). This system forms the foundation of our safety culture, ensuring the well-being of our employees, contractors, and the communities we serve.
Our SMS commitment emphasizes:

- **Zero Incidents:** We believe all incidents are preventable. We strive for zero incidents by proactively managing risks and continuously improving our safety practices.
- **Empowered Workforce:** We foster a culture where safety is everyone's responsibility. This includes providing comprehensive safety training for both employees and contractors, empowering them to identify and report hazards.
- **Data-Driven Decisions:** We utilize data from inspections, incident investigations, and performance metrics to make informed decisions for risk mitigation and continuous improvement of our SMS.
- **Leadership Engagement:** Our leadership team actively demonstrates a commitment to safety by participating in safety reviews, audits, and promoting safety as a core value.
- **Contractor Collaboration:** We extend our safety commitment to our contractors. We require contractors working on our system to adhere to SMS principles, participate in safety briefings, and maintain strong safety programs within their own organizations.
- **Transparent Communication:** We believe in open communication about safety. We encourage employees and contractors to report concerns without fear of reprisal. We also maintain transparent communication with stakeholders about SMS performance.

This SMS commitment is a continuous journey, not a destination. We are dedicated to regularly reviewing and updating our system to reflect best practices and emerging technologies. Through continuous improvement and a commitment to a positive safety culture, we aim to remain an industry leader in safe and reliable utility service.

38.0 INFORMATION TECHNOLOGY

All Contracts are subject to Greenville Utilities Commission Information Technology Contract Provisions. These may be viewed at www.guc.com/doing-business-us.

39.0 NOTICES

Notices to the Parties should be sent to the names and addresses specified below:

Cleve Haddock, Lifetime CLGPO
Procurement Manager
Greenville Utilities Commission
P.O. Box 1847
Greenville, NC 27835-1847

Vendor Specified on Page 1 of Section III when awarded.

GREENVILLE UTILITIES COMMISSION

By: _____
Anthony C. Cannon

Title: General Manager/CEO
(Authorized Signatory)

Date: _____

Attest: _____

Name (Print): Amy Wade

Title: Executive Secretary

Date: _____

(OFFICIAL SEAL)

COMPANY NAME:

By: _____

Name (Print): _____

Title: _____
(Authorized Signatory)

Date: _____

Attest: _____

Name (Print): _____

Title: Corporate Secretary

Date: _____

(CORP. SEAL)

APPROVED AS TO FORM AND LEGAL CONTENT:

By: _____
Phillip R. Dixon

Title: General Counsel

Date: _____

APPENDIX A – SITE PLANS

CIVIL ENGINEER

Rivers & Associates, Inc.
Greenville, NC

Rivers & ASSOCIATES, INC. Since 1918

107 East Second Street
Greenville, NC 27858
(252) 752-4135

Contact: J. DWIGHT VERNELSON, PE
dvernelson@riversandassociates.com

OWNER / DEVELOPER

Greenville Utilities Commission

3355 NC Highway 43
Greenville, NC 27834

P.O. Box 1847
Greenville, NC 27835
(252) 551-1580

Contact: Nicholas L. Peaden, PE
Substation & Controls Engineer
peadennl@guc.com

SITE DEVELOPMENT PLANS FOR

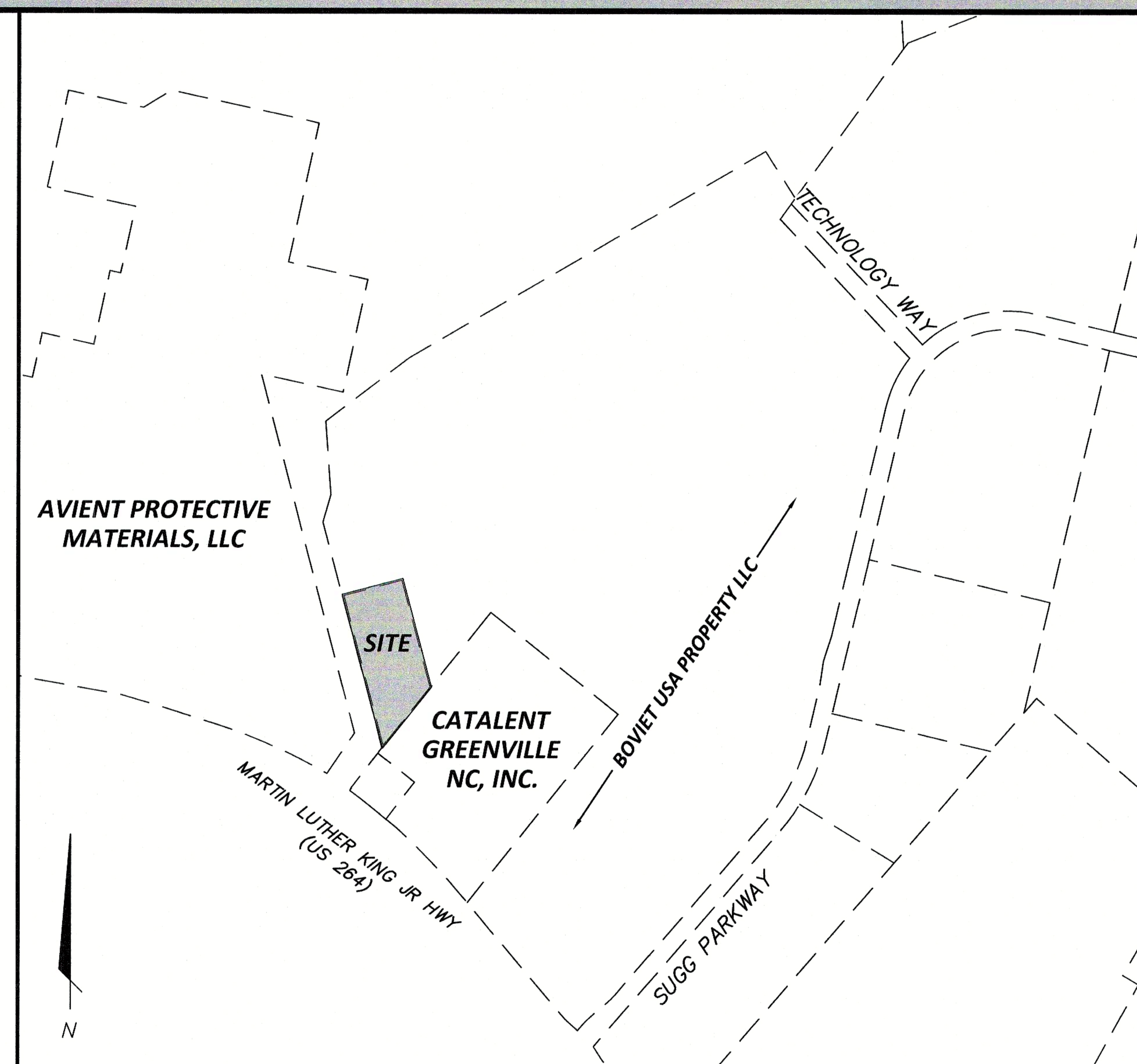
GREENVILLE UTILITIES COMMISSION
BOVIET SUBSTATION

SITE DATA:

- PARCEL NO. 93613
- SITE ADDRESS: 5442 MLK, JR. HWY GREENVILLE, NC 27834 (1)
- REFERENCE: D.B. 4723, PGs. 695-702 & M.B. 94, PGs. 107-108
- TOTAL AREA: 3.62 ACRES (157,902 S.F.)
- ZONING: IU (UNOFFENSIVE INDUSTRY)
- LAND USE CLASSIFICATION (LUC): 3
- PUBLIC STREET SETBACK: 25 FEET (PER ARTICLE G)
- SIDE SETBACK: 6 FEET (PER ARTICLE G)
- REAR SETBACK: 6 FEET (PER ARTICLE G)
- MAX HEIGHT (ABOVE GRADE): NONE
- MAX. LOT COVERAGE (EXCLUDING DRIVES AND PARKING): 50%
- PROPOSED LOT COVERAGE: 33.3%
- BUFFER REQUIREMENT ADJACENT TO IU ZONING; 6' TYPE 'B'
- PARKING: N/A
- IMPERVIOUS AREA:
  A. EXISTING: 0 S.F.
  B. PROPOSED: 104,125 S.F.
  C. PERCENT IMPERVIOUS: 66.0%
- TOTAL DISTURBED AREA: 4.5 ACRES

GENERAL NOTES:

1. CONTACT NORTH CAROLINA ONE CALL CENTER, INC. (NC811) TO HAVE ALL UNDERGROUND UTILITIES LOCATED 72 HOURS PRIOR TO EXCAVATION OR TRENCHING.
2. ALL REQUIRED IMPROVEMENTS SHALL CONFROM TO THE CITY OF GREENVILLE AND GREENVILLE UTILITIES DESIGN STANDARDS AND SPECIFICATIONS.
3. PROPERTY IS LOCATED IN A ZONE 'X' (AREA DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE 500 YEAR FLOODPLAIN), PER FEMA FLOOD INSURANCE RATE MAP 3720468800K PANEL 4688, EFFECTIVE 7/7/2014.
4. STORMWATER: THIS PROJECT IS LOCATED IN THE TAR-PAMLICO BASIN.
5. WATER AND SEWER: NO OCCUPIABLE STRUCTURE IS PROPOSED. WATER AND SEWER SERVICE ARE NOT PROVIDED.
6. REFUSE COLLECTION SHALL BE PROVIDED BY PRIVATE SERVICE.
7. REFER TO ELECTRICAL PLAN FOR COORDINATION OF PROPOSED ELECTRICAL SUBSTATION FACILITIES.
8. EROSION CONTROL PLAN APPROVAL FROM NCDEQ REQUIRED PRIOR TO SITE PLAN APPROVAL. (1)
9. STORMWATER PLAN APPROVAL REQUIRED PRIOR TO SITE PLAN APPROVAL.



Vicinity Map

SCALE: 1" = 500'

SHEET INDEX

811 CALL BEFORE YOU DIG! WWW.NC811.ORG N.C. ONE-CALL CENTER IT'S THE LAW!

30' 0 15' 30'
SCALE 1 inch = 30 ft

City of Greenville Site Plan Approval
Date ____________

☐ Approved ☐ Approved as Noted ____________

Zoning	Engineering
Surveyor/Floodplain	Inspections
Fire/Rescue	GUC Electric
GUC Water/Sewer	GUC Gas
NCDOT	Vegetation
Traffic Services	Notes

**Site Plan Approval ONLY. Engineer/Architect/Surveyor shall be responsible for adequacy of design, errors or omissions in the plans. All plans shall meet all specifications, standards, and applicable regulations.*

NC License: F-0334
Rivers & ASSOCIATES, INC. Since 1918
riversandassociates.com
107 East Second Street
Greenville, NC 27858
(252) 752-4135
Engineers Planners Surveyors Landscape Architects

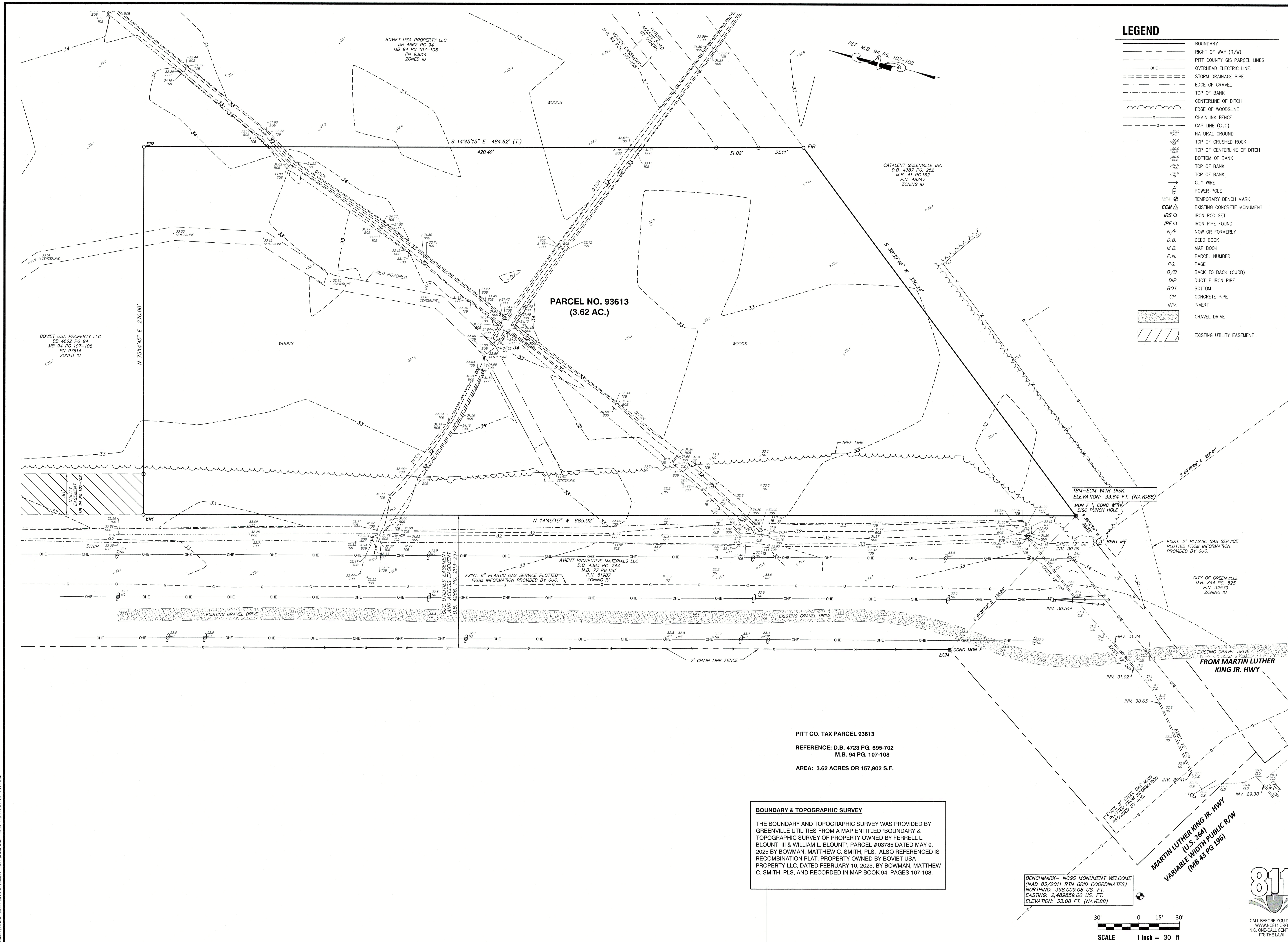
NORTH CAROLINA PROFESSIONAL SEAL 13055 ENGINEER DWIGHT VERNELSON
01-28-26

REVISIONS:

NO.	DESCRIPTION	DATE	BY
1	CITY REVIEW COMMENTS	1/28/26	KB

BOVIET SUBSTATION
GREENVILLE UTILITIES COMMISSION
CITY OF GREENVILLE ~ PITT COUNTY ~ NORTH CAROLINA
COVER SHEET

DATE:	JANUARY 12, 2026
DESIGNED BY:	JW
DRAWN BY:	KB
CHECKED BY:	JDV
PROJECT No.	2025087
DRAWING No.	W-4267
SCALE:	AS NOTED
SHEET No.	C1



LEGEND

	BOUNDARY
	RIGHT OF WAY (R/W)
	PITT COUNTY GIS PARCEL LINES
—OHE—	OVERHEAD ELECTRIC LINE
	STORM DRAINAGE PIPE
	EDGE OF GRAVEL
	TOP OF BANK
	CENTERLINE OF DITCH
	EDGE OF WOODSLINE
—x—	CHAINLINK FENCE
—G—	GAS LINE (GUC)
×50.0 NG	NATURAL GROUND
×50.0 CR	TOP OF CRUSHED ROCK
×50.0 CLD	TOP OF CENTERLINE OF DITCH
×50.0 BOB	BOTTOM OF BANK
×50.0 TOB	TOP OF BANK
×50.0 TB	TOP OF BANK
	GUY WIRE
	POWER POLE
TBM	TEMPORARY BENCH MARK
ECM	EXISTING CONCRETE MONUMENT
IRS	IRON ROD SET
IPF	IRON PIPE FOUND
N/F	NOW OR FORMERLY
D.B.	DEED BOOK
M.B.	MAP BOOK
P.N.	PARCEL NUMBER
PG.	PAGE
B/B	BACK TO BACK (CURB)
DIP	DUCTILE IRON PIPE
BOT.	BOTTOM
CP	CONCRETE PIPE
INV.	INVERT
	GRAVEL DRIVE
	EXISTING UTILITY EASEMENT

PITT CO. TAX PARCEL 93613

REFERENCE: D.B. 4723 PG. 695-702
M.B. 94 PG. 107-108

AREA: 3.62 ACRES OR 157,902 S.F.

BOUNDARY & TOPOGRAPHIC SURVEY

THE BOUNDARY AND TOPOGRAPHIC SURVEY WAS PROVIDED BY GREENVILLE UTILITIES FROM A MAP ENTITLED "BOUNDARY & TOPOGRAPHIC SURVEY OF PROPERTY OWNED BY FERRELL L. BLOUNT, III & WILLIAM L. BLOUNT", PARCEL #03785 DATED MAY 9, 2025 BY BOWMAN, MATTHEW C. SMITH, PLS. ALSO REFERENCED IS RECOMBINATION PLAT, PROPERTY OWNED BY BOVIET USA PROPERTY LLC, DATED FEBRUARY 10, 2025, BY BOWMAN, MATTHEW C. SMITH, PLS, AND RECORDED IN MAP BOOK 94, PAGES 107-108.

BENCHMARK– NCGS MONUMENT WELCOME
(NAD 83/2011 RTN GRID COORDINATES)
NORTHING: 398,009.08 US. FT.
EASTING: 2,489859.00 US. FT.
ELEVATION: 33.08 FT. (NAVD88)

SCALE 30' 0 15' 30' — 1 inch = 30 ft

811 — CALL BEFORE YOU DIG! WWW.NC811.ORG N.C. ONE-CALL CENTER IT'S THE LAW!

NC License: F-0334

Rivers & ASSOCIATES, INC. Since 1918
riversandassociates.com
107 East Second Street
Greenville, NC 27858
(252) 752-4135
Engineers Planners Surveyors Landscape Architects

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 13055 — 01-28-26

REVISIONS:

NO.	DESCRIPTION	DATE	BY
1	CITY REVIEW COMMENTS	1/28/26	KB

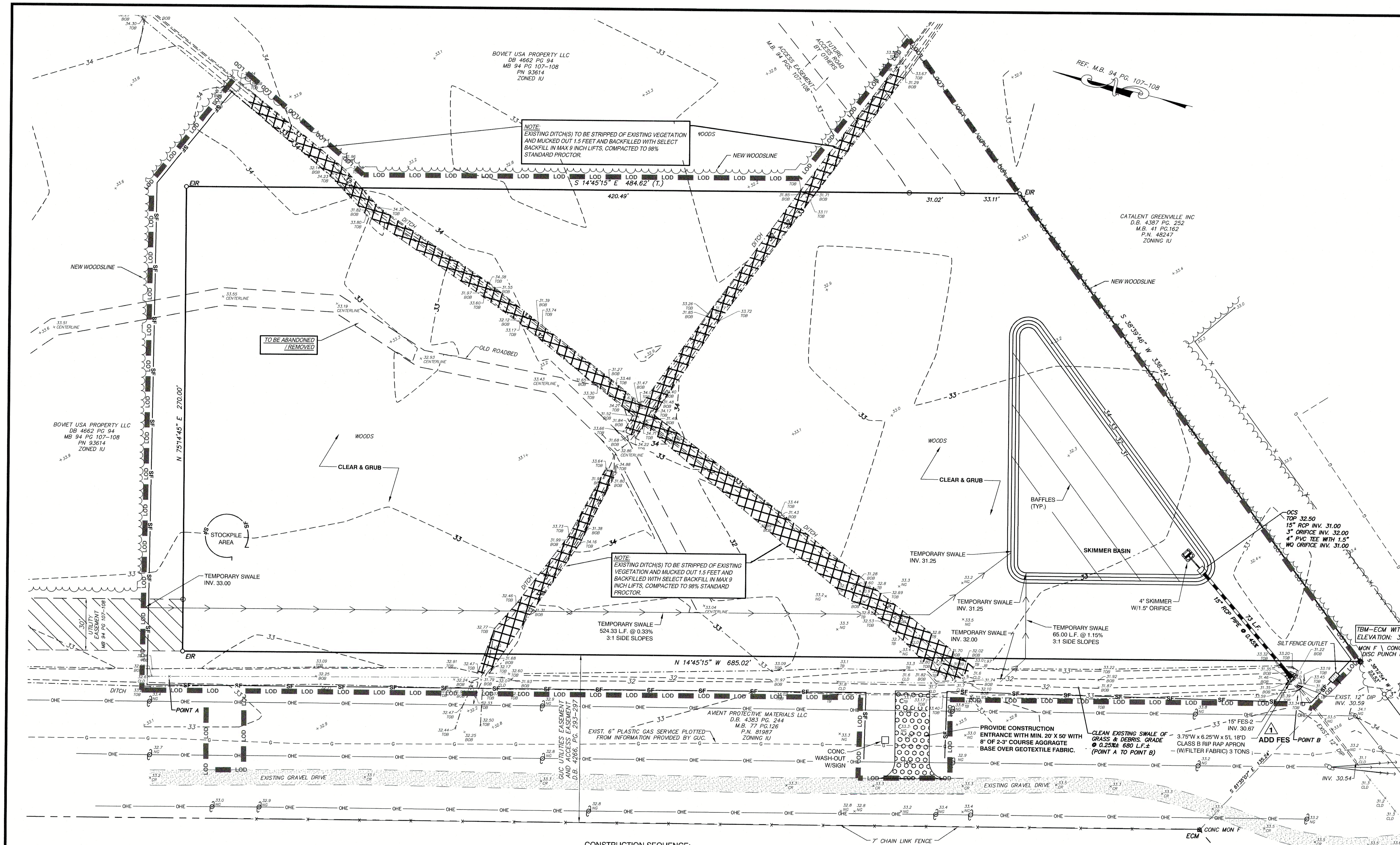
BOVIET SUBSTATION

GREENVILLE UTILITIES COMMISSION

CITY OF GREENVILLE – PITT COUNTY – NORTH CAROLINA

EXISTING CONDITIONS

DATE:	JANUARY 12, 2026
DESIGNED BY:	JW
DRAWN BY:	KB
CHECKED BY:	JDV
PROJECT No.	2025087
DRAWING No.	W-4267
SCALE:	AS NOTED
SHEET No.	C2



LEGEND:

LIMITS OF DISTURBANCE	LOD
SILT FENCE	SF
SILT FENCE OUTLET	SF
TEMP SWALE	
EXISTING CONTOURS	
PROPOSED CONTOURS	
CONSTRUCTION ENTRANCE	
CONCRETE WASHOUT	
ROCK INLET SEDIMENT TRAP	
TSB	TEMPORARY SEDIMENT BASIN
TDS	TEMPORARY DIVERSION SWALE
WATTLE	
OCS	OUTLET CONTROL STRUCTURE
RCP	REINFORCED CONCRETE PIPE
WQ	WATER QUALITY
L.F.	LINEAR FEET
INV.	INVERT
DI	DROP INLET
DIP	DUCTILE IRON PIPE
PROPOSED GRAVEL DRIVE	
EXISTING GRAVEL DRIVE	

CONSTRUCTION SCHEDULE:

1. OBTAIN PLAN APPROVALS AND ALL APPLICABLE PERMITS.
2. FLAG LIMITS OF ROUGH GRADING FOR SUBSTATION SITE AND ESTABLISH GRADE LIMITS AS NEEDED.
3. SCHEDULING OF A PRECONSTRUCTION CONFERENCE WITH THE ENGINEERING DIVISION IS REQUIRED PRIOR TO INITIATING LAND DISTURING ACTIVITIES. FOR SCHEDULING PLEASE CALL (252) 329-4467. A 24-HOUR NOTICE IS REQUIRED. NO PERSON MAY INITIATE A LAND DISTURBING ACTIVITY BEFORE NOTIFYING THE CITY OF THE DATE TO THE LAND DISTURBING ACTIVITY.

PHASE 1 . CLEARING,GRUBBING,SEDIMENT BASIN, AND PIPING

1. INSTALL TEMPORARY GRAVEL CONSTRUCTION ENTRANCE
2. INSTALL THE PERIMETER SILT FENCES AS THE FIRST CONSTRUCTION ACTIVITY, CLEAR ENOUGH TO INSTALL SILT FENCE, DIVERSION SWALES AND TEMPORARY SKIMMER BASIN.
3. INSTALL TEMPORARY SKIMMER BASIN, DIVERSIONS, AND PERMANENT PIPING AS PER PHASE 1 PLAN
4. BEGIN CLEARING AND GRUBBING STRIP SITE OF TOPSOIL AND STOCKPILE IN THE DESIGNATED AREA.
5. TEMPORARY SEED ALL FILL SLOPES AND COMPLETE PHASE 1 CLEARING, GRUBBING, SEDIMENT BASIN, AND PIPING.
   CONTINUE TO PHASE 2: SITE, GRADING, AND PIPING - SHEET C4.

PHASE 2. SITE, GRADING, AND PIPING

1. INSTALL CONCRETE WASHOUT AREA PRIOR TO CONSTRUCTION OF STORM DRAINAGE STRUCTURES.
2. INSTALL STORM DRAINAGE PIPING AND END OF DAY MEASURES.
3. INSTALL HARDWARE CLOTH AND INLET PROTECTION AROUND ALL INLET CATCH BASINS.AND YARD INLETS
4. INSTSTALL SILT BAGS WITHIN ALL FINISHED OR EXISTING CATCH BASINS
5. BEGIN IMPORTING FILL FOR THE CONSTRUCTION OF THE SUBSTATION PADS.
6. ROUGH GRADE YARD AREA.
7. INSTALL UTILITIES ACROSS SITE
8. FINAL GRADE THE SUBSTATION PADS.
9. FINE GRADE AND POUR PADS, FINE GRADE PARKING SUBGRADE. AND INSTALL GRAVEL.
10. PROVIDE A GROUND COVER (TEMPORARY OR PERMANENT) ON EXPOSED SLOPES 14 CALENDAR DAYS FOLLOWING COMPLETION OF ANY PHASE OF GRADING FOR SLOPES 3:1 OR FLATTER INCLUDING ALL OTHER SLOPES 4:1 OR FLATTER. PROVIDE A GROUND COVER (TEMPORARY OR PERMANENT) ON EXPOSED SLOPES WITHIN 7 CALENDAR DAYS FOLLOWING COMPLETION OF ANY PHASE OF GRADING FOR SLOPES 3:1 OR STEEPER INCLUDING ALL PERMANENT DIKES, SWALES, DITCHES AND SLOPES AND DISTRUBANCES WITHIN HIGH QUALITY WATER (HQWQ) ZONES.
11. PERMANENT GROUND COVER SHALL BE PROVIDED FOR ALL DISTURBED AREAS WITHIN 15 WORKING DAYS OR NO MORE THAN 90 CALENDAR DAYS (WHICHEVER IS SHORTER).
12. INSTALL E&SC MEASURES AT ANY AREAS USED FOR CONTRACTOR EQUIPMENT STAGING, MATERIALS LAYDOWN, SPOIL OR WASTE AREAS. TO FACILITATE IN CLEANUP, A LAYER OF FINES, SANDS OR SCREENINGS SHOULD BE PLACED ON ANY PAVED SURFACES BEFORE DEPOSITION OF EXCAVATED MATERIAL.
13. DE-WATERING OF ANY TRENCHES IS TO BE DONE THROUGH A SILT BAG.
14. ADDITIONAL EROSION AND SEDIMENTATION CONTROL MEASURES MAY BE REQUIRED BY THE CITY ENGINEER OR OWNER IF DEEMED NECESSARY.
15. FINE GRADE DISTURBED AREAS, AND INSTALL PERMANENT VEGETATION ON THE DISTURBED AREAS.
16. ONCE 80% STABILIZATION HAS BEEN ACHIEVED, REMOVE ALL TEMPORARY MEASURES AND CONVERT TEMPORARY SEDIMENT BASIN TO PERMANENT WET POND.
17. MAINTAIN PERMANENT VEGETATION BY TOP DRESSING WITH 700 LBS PER ACRE OF FERTILIZER EVERY 6 MONTHS UNTIL THE COMPLETION OF THE PROJECT.
18. WITHIN 6" OF FINAL GRADE, RE-DISTRIBUTE 6" OF TOP SOIL
19. FINE GRADE, PERMANENTLY SEED AND MULCH ALL LANDSCAPED AREAS
20. REMOVE ALL REMAINING TEMPORARY EROSION AND SEDIMENTATION CONTROL MEASURES UPON COMPLETION AND STABILIZATION OF PROJECT.

CONSTRUCTION SEQUENCE:

THE PROJECT CONSISTS OF CONSTRUCTING AN ELECTRICAL SUBSTATION, STORMWATER FACILITY, DEMOLITION, CLEARING & GRUBBING.

1.	CONTRACTOR MUST SCHEDULE A PRE-CONSTRUCTION CONFERENCE WITH THE EROSION CONTROL OFFICER PRIOR TO INITIATING ANY LAND DISTURBING ACTIVITY.	
2.	INSTALLATION OF EROSION CONTROL MEASURES (SILT FENCE)	1 WEEK
3.	INSTALLATION OF TEMPORARY SKIMMER BASIN	3 WEEKS
4.	DEMOLITION / CLEARING & GRUBBING OPERATIONS	3 WEEKS
5.	CONSTRUCTION OF STORM DRAINAGE	1 WEEK
6.	ROUGH GRADING SITE	3 WEEKS
7.	PLACEMENT OF STONE BASE	2 WEEKS
8.	INSTALLATION OF CONCRETE PADS	2 WEEKS
9.	FINE GRADING	1 WEEK
10.	REMOVAL OF TEMPORARY SKIMMER BASIN, AFTER EROSION CONTROL OFFICER APPROVAL AND INSTALLATION OF PERMANENT STORMWATER FACILITY.	3 WEEKS
11.	LANDSCAPING / SEEDING AND MULCHING/SOD	1 WEEK
12.	CONSTRUCTION OF SUBSTATION STRUCTURES AND GENERATORS	24 WEEKS

SEVERAL OF THE ITEMS LISTED ABOVE MAY BE CONSTRUCTED SIMULTANEOUSLY. AN ANTICIPATED TIME SCHEDULE OF 7 MONTHS IS ANTICIPATED FOR THIS PROJECT.

SKIMMER BASIN DEWATERING SEQUENCE:

1. AFTER SITE IS STABILIZED WITH 80% OF PERMANENT GROUND COVER (GRASS, MULCH, ROCK, PAVEMENT, ETC), THEN CONTRACTOR SHALL CONTACT EROSION CONTROL INSPECTOR AND REQUEST PERMISSION TO REMOVE THE TEMPORARY SKIMMER BASIN.
2. IF THERE IS STANDING WATER IN THE BASIN, THEN DEWATER THE BASIN USING A PORTABLE PUMP, GENERATOR AND SEDIMENT FILTER BAG. PLACE THE PUMP ON TOP OF THE BERM. HOOK UP THE INTAKE HOSE TO THE TEMPORARY SKIMMER AND PLACE THE SKIMMER IN THE BASIN WATER. HOOK UP THE DISCHARGE HOSE TO A SEDIMENT FILTER BAG AND PLACE THE SEDIMENT FILTER BAG ON THE DOWNHILL SIDE OF THE BERM AT THE DRAINAGE OUTLET.
3. RUN THE DEWATERING PUMP UNTIL THE BASIN IS DEWATERED. CONTRACTOR TO OBSERVE THE DEWATERING PROCESS TO ENSURE THAT THE SEDIMENT FILTER BAG IS FUNCTIONING PROPERLY AND NO SEDIMENT IS LEAVING THE SITE. EMPTY THE SEDIMENT FROM THE FILTER BAG AS NEEDED IN AN APPROVED SPOIL MATERIAL LOCATION AND PROMPTLY INSTALL SEED, STRAW AND TACK ON THE SEDIMENT. DO NOT DUMP SEDIMENT IN STREAM BUFFERS, WETLANDS, STREAMS, STORM PIPE SYSTEMS, OR OTHER ENVIRONMENTAL AREAS.
4. FOLLOWING THIS, THEN THE BASIN CAN BE REMOVED. CONTINUE WITH SITE IMPROVEMENTS AND CONSTRUCTION OF WET POND.

Temporary Skimmer Basin
GUC Boviet Substation
MLK JR Hwy
Greenville, NC

Discharge Calculation	
4.50	Disturbed Area (Acres)
0.35	Rational C
5	Time of Concentration (min)
8.03	Intensity (in/hr) Atlas 14
12.65	Peak Flow from 10-year Storm (cfs)

SKIMMER	
4	Skimmer Size (inches)
0.333	Head on Skimmer (ft)
1.5	Orifice Size (1/4 inch increments)
2.70	Dewatering Time (days)
	Suggest about 3 days

Skimmer Size
(inches)
1.5
2
2.5
3

Dimension Calculation				
8,100	Required Volume (ft^3) = 1800 x DA			
4,110	Required Surface Area (ft^2) = 325 * Q(cfs)			
45.3	Suggested Width (ft)			
90.7	Suggested Length (ft)			
--	Trial Top Width at Spillway Invert (ft)			
--	Trial Top Length at Spillway Invert (ft)			
--	Trial Side Slope Ratio Z:1			
--	Trial Depth (ft)			
Elevation (ft)	Area (sq. ft)	Inc Vol (cu ft)	Total Vol (cu ft)	
31	8600	0	0	
32	9469	9035	9035	
32.75	10137	7352	16387	
33	10363	9916	18951	
34	11281	10822	29773	
16,387	Actual Volume (ft^3)			Okay
10,137	Actual Surface Area (ft^2)			Okay

Spillway Calculation		
25	Trial Weir Length (ft)	
0.5	Trial Depth of Flow (ft)	
26.5	Spillway Capacity (cfs)	Okay
0.31	Actual Depth (ft)	
1.66	Velocity (cfs)	
32.75	Spillway Top Elev (ft)	
33.06	10-yr WSEL (ft)	
34	Basin Top	
0.94	Freeboard	

△1 REVISED CALCS

LIMITS OF DISTURBANCE = 4.5 AC.

BENCHMARK– NCGS MONUMENT WELCOME (NAD 83/2011 RTN GRID COORDINATES)
NORTHING: 398,009.08 US. FT.
EASTING: 2,489859.00 US. FT.
ELEVATION: 33.08 FT. (NAVD88)

30' 0 15' 30'
SCALE 1 inch = 30 ft

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107 East Second Street
Greenville, NC 27858
(252) 752-4135
Engineers Planners Surveyors Landscape Architects

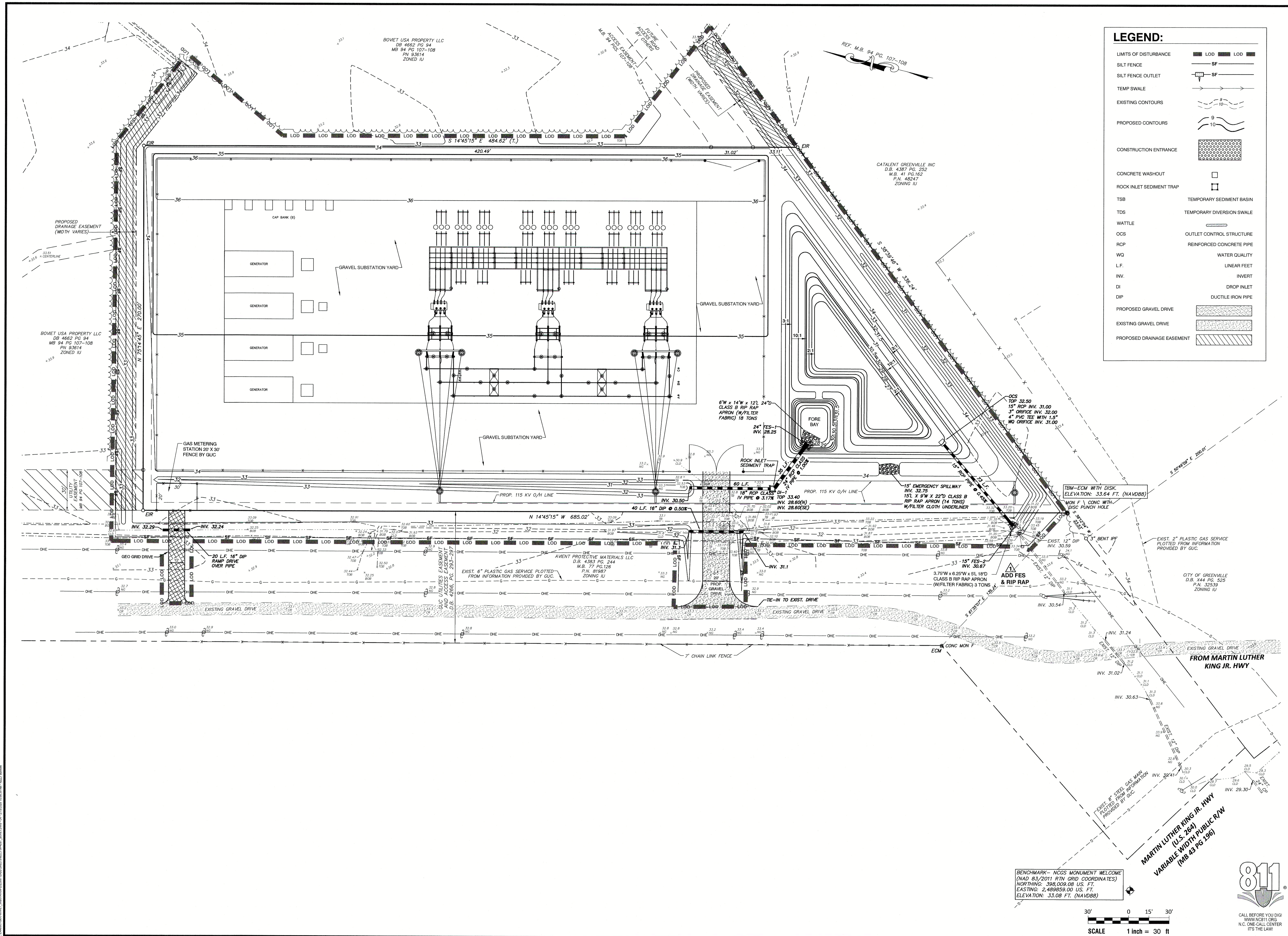
NORTH CAROLINA PROFESSIONAL SEAL 13055 ENGINEER J. DWIGHT VERNELSON
01-28-26

REVISIONS:

NO.	DESCRIPTION	DATE	BY
△1	CITY REVIEW COMMENTS	1/28/26	KB

BOVIET SUBSTATION
GREENVILLE UTILITIES COMMISSION
CITY OF GREENVILLE ~ PITT COUNTY ~ NORTH CAROLINA
EROSION CONTROL - PHASE I

DATE:	JANUARY 12, 2026
DESIGNED BY:	JW
DRAWN BY:	KB
CHECKED BY:	JDV
PROJECT No.	2025087
DRAWING No.	W-4267
SCALE:	AS NOTED
SHEET No.	C3



BENCHMARK– NCGS MONUMENT WELCOME
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IT'S THE LAW!

LEGEND:

LIMITS OF DISTURBANCE	LOD LOD
SILT FENCE	SF
SILT FENCE OUTLET	SF
TEMP SWALE	
EXISTING CONTOURS	9 10
PROPOSED CONTOURS	9 10
CONSTRUCTION ENTRANCE	
CONCRETE WASHOUT	
ROCK INLET SEDIMENT TRAP	
TSB	TEMPORARY SEDIMENT BASIN
TDS	TEMPORARY DIVERSION SWALE
WATTLE	
OCS	OUTLET CONTROL STRUCTURE
RCP	REINFORCED CONCRETE PIPE
WQ	WATER QUALITY
L.F.	LINEAR FEET
INV.	INVERT
DI	DROP INLET
DIP	DUCTILE IRON PIPE
PROPOSED GRAVEL DRIVE	
EXISTING GRAVEL DRIVE	
PROPOSED DRAINAGE EASEMENT	

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NORTH CAROLINA PROFESSIONAL SEAL 13055 ENGINEER J. DWIGHT VERNELSON
01-28-26

REVISIONS:

NO.	DESCRIPTION	DATE	BY
1	CITY REVIEW COMMENTS	1/28/26	KB

BOVIET SUBSTATION

GREENVILLE UTILITIES COMMISSION

CITY OF GREENVILLE ~ PITT COUNTY ~ NORTH CAROLINA

EROSION CONTROL - PHASE II

DATE:	JANUARY 12, 2026
DESIGNED BY:	JW
DRAWN BY:	KB
CHECKED BY:	JDV
PROJECT No.	2025087
DRAWING No.	W-4267
SCALE:	AS NOTED
SHEET No.	C4

EROSION CONTROL NOTES:

1. ALL WORK WILL BE DONE IN ACCORDANCE WITH NCDEQ EROSION AND SEDIMENT CONTROL ORDINANCE. SCHEDULING A PRE-CONSTRUCTION CONFERENCE WITH NCDEQ EROSION CONTROL OFFICER IS REQUIRED PRIOR TO INITIATING LAND DISTURBING ACTIVITIES. FOR SCHEDULING, PLEASE CALL (252) 946-6481. A 24 HOUR NOTICE IS REQUIRED. NO PERSON MAY INITIATE LAND DISTURBING ACTIVITY BEFORE NOTIFYING THE CITY OF THE DATE OF THE LAND DISTURBING ACTIVITY. NO LAND DISTURBING ACTIVITY BEYOND THAT REQUIRED TO INSTALL THE APPROPRIATE EROSION CONTROL MEASURES MAY PROCEED UNTIL MEASURES ARE INSPECTED AND APPROVED BY THE NCDEQ EROSION CONTROL OFFICER.

2. PRIOR TO CLEARING OPERATIONS, SILT FENCE SHALL BE INSTALLED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ROCK INLET SEDIMENT TRAPS SHALL BE PLACED AROUND ALL DRAINAGE STRUCTURES TO COLLECT SURFACE RUNOFF AND CONTROL SILTATION AND AND RELEASE WATER AT A GRADUAL RATE. ALL EASEMENTS OUTSIDE OF THE PARKING LOT WHERE STORM PIPES ARE INSTALLED WILL BE GRADED, SEEDED AND MULCHED. THE SILT FENCE, CONSTRUCTION ENTRANCES, TEMPORARY DIVERSION SWALES AND THE SKIMMER BASINS SHOULD BE INSTALLED PRIOR TO DEMOLITION, GRADING, AND INSTALLING STORM SEWER.

3. SUBSTATION YARD SHALL HAVE STONE BASE PLACED ON THEM FOR STABILIZATION AND SHOULDERS SHALL BE SEEDED TO STABILIZE THE SOIL. ALL OTHER DISTURBED AREAS SHALL HAVE VEGETATION ESTABLISHED TO PROVIDE STABILIZATION. SEED BED PREPARATION SHALL BE CONDUCTED ACCORDING TO NORTH CAROLINA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES (D.O.T.). THE GROUND SURFACE SHALL BE CLEARED OF STUMPS, STONES, ROOTS, CABLES, WIRE, GRADE STAKES, AND OTHER MATERIALS THAT MIGHT HINDER PROPER GRADING, TILLAGE, SEEDING OR SUBSEQUENT MAINTENANCE OPERATIONS. GRADES ON THE AREA TO BE SEEDED SHALL BE MAINTAINED IN A TRUE AND EVEN CONDITION. MAINTENANCE SHALL INCLUDE ANY NECESSARY REPAIRS TO PREVIOUSLY GRADED AREAS. ALL GRADED AREAS SHALL BE THOROUGHLY TILLED TO A DEPTH OF AT LEAST FOUR (4) INCHES BY PLOWING, DISKING, HARROWING, OR OTHER APPROVED METHODS UNTIL THE CONDITION OF THE SOIL IS ACCEPTABLE. ON SITES WHERE SOIL CONDITIONS ARE SUCH THAT HIGH CLAY CONTENT AND EXCESSIVE COMPACTION CAUSE DIFFICULTY IN GETTING CLODS AND LUMPS EFFECTIVELY PULVERIZED, THE CONTRACTOR SHALL USE THE ROTARY TILLAGE MACHINERY UNTIL THE MIXING OF THE SOIL IS ACCEPTABLE AND NO CLODS OR CLUMPS REMAIN LARGER THAN 1 1/2 INCHES IN DIAMETER. A FIRM AND COMPACT SEEDBED IS REQUIRED AND AFTER BEING GRADED, THE SEEDBED SHALL BE LIGHTLY COMPACTED WITH A LAND ROLLER, SUCH AS A CULTIPACKER, BEFORE AND AFTER SEEDING. LIMESTONE SHALL BE DOLOMITIC AGRICULTURE GROUND LIMESTONE CONTAINING NOT LESS THAN 10 PERCENT MAGNESIUM OXIDE. LIME SHALL BE UNIFORMLY APPLIED AT THE RATE OF 2 TONS PER ACRE. FERTILIZER SHALL BE UNIFORMLY APPLIED AT A RATE OF 500 POUNDS PER ACRE OF 10_20_20 ANALYSIS. THE FERTILIZER SHALL BE INCORPORATED INTO THE UPPER THREE OR FOUR INCHES OF PREPARED SEEDBED JUST PRIOR TO THE LAST TILLAGE OPERATION, BUT IN NO CASE SHALL IT BE APPLIED MORE THAN THREE DAYS PRIOR TO SEEDING. FERTILIZER SHALL BE USED IMMEDIATELY AFTER DELIVERY OR STORED IN A MANNER THAT WILL NOT PERMIT IT TO HARDEN OR DESTROY ITS EFFECTIVENESS.

WHEN HYDROSEEDING EQUIPMENT IS USED FOR SEEDING, FERTILIZER SHALL BE APPLIED SIMULTANEOUSLY WITH SEED, USING THE ABOVE RATES OF APPLICATION. SEED SHALL BE CERTIFIED SEED OR EQUIVALENT BASED ON NORTH CAROLINA SEED IMPROVEMENT ASSOCIATION REQUIREMENTS FOR CERTIFICATION. ALL SEED SHALL BE FURNISHED IN SEALED STANDARD CONTAINERS. SEED THAT HAS BECOME WET, MOLDY, OR OTHERWISE DAMAGED PRIOR TO SEEDING WILL NOT BE ACCEPTABLE. SEEDING SHALL BE ACCOMPLISHED WITH HAND PLANTERS, POWER_DRAWN PLANTERS, HAND PACKERS, OR HYDROSEEDING EQUIPMENT AT THE FOLLOWING RATES:

SEED BED PREPARATION:

1. CHISEL COMPACTED AREAS AND SPREAD TOPSOIL 3" DEEP OVER ADVERSE SOIL CONDITIONS, IF AVAILABLE.
2. RIP ENTIRE AREA 8" DEEP.
3. REMOVE ALL LOOSE ROCK, ROOTS AND OTHER OBSTRUCTIONS LEAVING SURFACE REASONABLY SMOOTH AND UNIFORM.
4. APPLY AGRICULTURAL LIME AND FERTILIZER UNIFORMLY AND MIX WITH SOIL.
5. CONTINUE TILLAGE UNTIL A WELL PULVERIZED, REASONABLY UNIFORM SEEDBED IS PREPARED 4" TO 6" DEEP.
6. SPREAD SEED ON FRESHLY PREPARED SEEDBED AND COVER LIGHTLY WITH SEEDING EQUIPMENT OR CULTIPACKER AFTER SEEDING.
7. MULCH IMMEDIATELY AFTER SEEDING AND ANCHOR MULCH.

PERMANENT SEEDING:

APPLY DOLEMATIC LIMESTONE AT THE RATE OF 2 TONS PER ACRE. IF HYDRATED LIME IS USED, FOLLOW RECOMMENDATION FROM SOIL TEST. COST OF THE TEST SHALL BE BORNE BY THE CONTRACTOR.

APPLY 10-10-10 FERTILIZER OUTSIDE OF NCDOT RIGHT-OF-WAY AT A RATE OF 1,000 POUNDS PER ACRE.

APPLY 10-20-20 FERTILIZER WITHIN NCDOT RIGHT-OF-WAY AT A RATE OF 500 POUNDS PER ACRE.

PROVIDE PERMANENT SEEDING IN ACCORDANCE WITH THE FOLLOWING SCHEDULE:

THE CONTRACTOR SHALL ADHERE TO THE FOLLOWING SEEDING SCHEDULES:

OUTSIDE OF DOT R/W	
(JANUARY 1 - MARCH 31)	
COMMON BERMUDA GRASS (UNHULLED)	- 20 POUNDS PER ACRE
(APRIL 1 - JULY 31)	
COMMON BERMUDA GRASS (HULLED)	- 15 POUNDS PER ACRE
CENTIPEDE	- 8 POUNDS PER ACRE
(AUGUST 1 - DECEMBER 31)	
COMMON BERMUDA GRASS (UNHULLED)	- 15 POUNDS PER ACRE
TALL FESCUE	- 120 POUNDS PER ACRE
CENTIPEDE	- 8 POUNDS PER ACRE
WITHIN DOT R/W	
(JANUARY 1 - DECEMBER 31)	
FESCUE	-50 POUNDS PER ACRE
PENSACOLA BAHIAGRASS	-25 POUNDS PER ACRE
CENTIPEDE	-5 POUNDS PER ACRE

TEMPORARY SEEDING:

SUMMER (APRIL 15 - AUGUST 15)	
GERMAN MILLET	-40 POUNDS PER ACRE
WINTER (AUGUST 16 - APRIL 14)	
RYE GRAIN	-120 POUNDS PER ACRE
SOIL AMENDMENTS FOR TEMPORARY SEEDING	
LIMESTONE	-2000 POUNDS PER ACRE
FERTILIZER 10-10-10	-750 POUNDS PER ACRE
SEED BED PROTECTION:	
STRAW MULCH	- 2 TONS PER ACRE (VISUAL)
ASPHALT TACK	- 0.03 GALLONS PER SQUARE YARD

4. GROUND STABILIZATION (PER NCG010000)
   a. SOIL STABILIZATION SHALL BE ACHIEVED ON ANY AREA OF A SITE WHERE LAND-DISTURBING ACTIVITIES HAVE TEMPORARILY OR PERMANENTLY CEASED ACCORDING TO THE FOLLOWING SCHEDULE:
   i. ALL PERIMETER DIKES, SWALES, DITCHES, PERIMETER SLOPES AND ALL SLOPES STEEPER THAN 3 HORIZONTAL TO 1 VERTICAL (3:1) SHALL BE PROVIDED TEMPORARY OR PERMANENT STABILIZATION WITH GROUND COVER AS SOON AS PRACTICABLE BUT IN ANY EVENT WITHIN 7 CALENDAR DAYS FROM THE LAST LAND-DISTURBING ACTIVITY.
   ii. ALL OTHER DISTURBED AREAS SHALL BE PROVIDED TEMPORARY OR PERMANENT STABILIZATION WITH GROUND COVER AS SOON AS PRACTICABLE BUT IN ANY EVENT WITHIN 14 CALENDAR DAYS FROM THE LAST LAND-DISTURBING ACTIVITY.
   b. CONDITIONS - IN MEETING THE STABILIZATION REQUIREMENTS ABOVE, THE FOLLOWING CONDITIONS OR EXEMPTIONS SHALL APPLY:
   i. EXTENSIONS OF TIME MAY BE APPROVED BY THE PERMITTING AUTHORITY BASED ON WEATHER OR OTHER SITE-SPECIFIC CONDITIONS THAT MAKE COMPLIANCE IMPRACTICABLE.
   ii. ALL SLOPES 50' IN LENGTH OR GREATER SHALL APPLY THE GROUND COVER WITHIN 7 DAYS EXCEPT WHEN THE SLOPE IS FLATTER THAN 4:1. SLOPES LESS THAN 50' SHALL APPLY GROUND COVER WITHIN 14 DAYS EXCEPT WHEN SLOPES ARE STEEPER THAN 3:1, THE 7 DAY-REQUIREMENT APPLIES.
   iii. ANY SLOPED AREA FLATTER THAN 4:1 SHALL BE EXEMPT FROM THE 7-DAY GROUND COVER REQUIREMENT.
   iv. SLOPES 10' OR LESS IN LENGTH SHALL BE EXEMPT FROM THE 7-DAY GROUND COVER REQUIREMENT EXCEPT WHEN THE SLOPE IS STEEPER THAN 2:1.
   v. ALTHOUGH STABILIZATION IS USUALLY SPECIFIED AS GROUND COVER, OTHER METHODS, SUCH AS CHEMICAL STABILIZATION, MAY BE ALLOWED ON A CASE-BY-CASE BASIS.
   vi. FOR PORTIONS OF PROJECTS WITHIN ONE MILE AND DRAINING TO TROUT WATERS AND HIGH QUALITY WATERS AS CLASSIFIED BY THE ENVIRONMENTAL MANAGEMENT COMMISSION, STABILIZATION WITH GROUND COVER SHALL BE ACHIEVED AS SOON AS PRACTICABLE BUT IN ANY EVENT ON ALL AREAS OF THE SITE WITHIN 7 CALENDAR DAYS FROM THE LAST LAND-DISTURBING ACT.
   vii. FOR PORTIONS OF PROJECTS LOCATED IN OUTSTANDING RESOURCE WATERS WATERSHEDS AS CLASSIFIED BY THE ENVIRONMENTAL MANAGEMENT COMMISSION, STABILIZATION WITH GROUND COVER SHALL BE ACHIEVED AS SOON AS PRACTICABLE BUT IN ANY EVENT ON ALL AREAS WITHIN 7 CALENDAR DAYS FROM THE LAST LAND-DISTURBING ACT.
   viii. PORTIONS OF A SITE THAT ARE LOWER IN ELEVATION THAN ADJACENT DISCHARGE LOCATIONS AND ARE NOT EXPECTED TO DISCHARGE DURING CONSTRUCTION MAY BE EXEMPT FROM THE TEMPORARY GROUND COVER REQUIREMENTS IF IDENTIFIED ON THE APPROVED E&SC PLAN OR ADDED BY THE PERMITTING AUTHORITY.

5. SELF INSPECTION AND REPORTING REQUIREMENTS (PER NCG010000)

MINIMUM SELF INSPECTION AND REPORTING REQUIREMENTS ARE AS FOLLOWS UNLESS OTHERWISE APPROVED IN WRITING BY THE DIVISION OF WATER QUALITY.

   a. A RAIN GAUGE SHALL BE MAINTAINED IN GOOD WORKING ORDER ON THE SITE UNLESS ANOTHER RAIN MONITORING DEVICE HAS BEEN APPROVED BY THE PERMITTING AUTHORITY.
   b. A WRITTEN RECORD OF THE DAILY RAINFALL AMOUNTS SHALL BE RETAINED AND ALL RECORDS SHALL BE MADE AVAILABLE TO DWQ OR AUTHORIZED AGENT UPON REQUEST (NOTE: IF NO RAINFALL OCCURRED, THE PERMITTEE MUST RECORD "ZERO").
   c. EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE INSPECTED TO ENSURE THAT THEY ARE OPERATING CORRECTLY. INSPECTION RECORDS MUST BE MAINTAINED FOR EACH INSPECTION EVENT AND FOR EACH MEASURE. AT A MINIMUM, INSPECTION OF MEASURES MUST OCCUR AT THE FREQUENCY INDICATED BELOW:
      I. ALL EROSION AND SEDIMENTATION CONTROL MEASURES MUST BE INSPECTED BY OR UNDER THE DIRECTION OF THE PERMITTEE AT LEAST ONCE EVERY SEVEN CALENDAR DAYS, AND
      II. ALL EROSION AND SEDIMENT CONTROL MEASURES MUST BE INSPECTED BY OR UNDER THE DIRECTION OF THE PERMITTEE WITHIN 24 HOURS AFTER ANY STORM EVENT OF GREATER THAN 0.50 INCHES OF RAIN PER 24 HOUR PERIOD.
      III. TIMES WHEN A DETERMINATION THAT ADVERSE WEATHER CONDITIONS PREVENTED INSPECTIONS SHOULD BE DOCUMENTED ON THE INSPECTION RECORD.
   d. ONCE LAND DISTURBANCE HAS BEGUN ON THE SITE, STORMWATER RUNOFF DISCHARGE OUTFALLS SHALL BE INSPECTED BY OBSERVATION FOR EROSION, SEDIMENTATION AND OTHER STORMWATER DISCHARGE CHARACTERISTICS SUCH AS CLARITY, FLOATING SOLIDS, AND OIL SHEENS. INSPECTIONS OF THE OUTFALLS SHALL BE MADE AT LEAST ONCE EVERY SEVEN CALENDAR DAYS AND WITHIN 24 HOURS AFTER ANY STORM EVENT OF GREATER THAN 0.50 INCHES OF RAIN PER 24 HOUR PERIOD.
   e. INSPECTIONS ARE ONLY REQUIRED TO BE MADE DURING NORMAL BUSINESS HOURS. WHEN ADVERSE WEATHER CONDITIONS WOULD CAUSE THE SAFETY OF THE INSPECTION PERSONNEL TO BE IN JEOPARDY, THE INSPECTION CAN BE DELAYED UNTIL IT IS DEEMED SAFE TO PERFORM THESE DUTIES. IF THE INSPECTION CANNOT BE DONE ON THAT DAY, IT MUST BE COMPLETED ON THE FOLLOWING BUSINESS DAY.
   f. TWENTY-FOUR HOUR REPORTING FOR VISIBLE SEDIMENT DEPOSITION
      I. THE PERMITTEE SHALL REPORT TO THE DIVISION OF WATER QUALITY CENTRAL OFFICE OR THE APPROPRIATE REGIONAL OFFICE ANY VISIBLE SEDIMENT BEING DEPOSITED IN ANY STREAM OR WETLAND OR ANY NONCOMPLIANCE WHICH MAY ENDANGER HEALTH OR THE ENVIRONMENT. (SEE SECTION IX OF THIS PERMIT FOR CONTACT INFORMATION.) ANY INFORMATION SHALL BE PROVIDED ORALLY OR ELECTRONICALLY WITHIN 24 HOURS FROM THE TIME THE PERMITTEE BECAME AWARE OF THE CIRCUMSTANCES. VISIBLE DISCOLORATION OR SUSPENDED SOLIDS IN THE EFFLUENT SHOULD BE RECORDED ON THE INSPECTION RECORD AS PROVIDED BELOW.
      II. A WRITTEN SUBMISSION SHALL BE PROVIDED TO THE APPROPRIATE REGIONAL OFFICE OF THE DWQ WITHIN 5 DAYS OF THE TIME THE PERMITTEE BECOMES AWARE OF THE CIRCUMSTANCES. THE WRITTEN SUBMISSION SHALL CONTAIN A DESCRIPTION OF THE SEDIMENT DEPOSITION AND ACTIONS TAKEN TO ADDRESS THE CAUSE OF THE DEPOSITION. THE DIVISION OF WATER QUALITY STAFF MAY WAIVE THE REQUIREMENT FOR A WRITTEN REPORT ON A CASE-BY-CASE BASIS.
   g. RECORDS OF INSPECTIONS MADE DURING THE PREVIOUS 30 DAYS SHALL REMAIN ON THE SITE AND AVAILABLE FOR AGENCY INSPECTORS AT ALL TIMES DURING NORMAL WORKING HOURS, UNLESS THE PERMITTING AUTHORITY PROVIDES A SITE-SPECIFIC EXEMPTION BASED ON UNIQUE SITE CONDITIONS THAT MAKE THIS REQUIREMENT NOT PRACTICAL. OLDER RECORDS MUST BE MAINTAINED FOR A PERIOD OF ONE YEAR AFTER PROJECT COMPLETION AND MADE AVAILABLE UPON REQUEST. THE RECORDS MUST PROVIDE THE DETAILS OF EACH INSPECTION INCLUDING OBSERVATIONS, AND ACTIONS TAKEN IN ACCORDANCE WITH THIS PERMIT. THE PERMITTEE SHALL RECORD THE REQUIRED RAINFALL AND MONITORING OBSERVATIONS ON THE "INSPECTION RECORD FOR ACTIVITIES UNDER STORMWATER GENERAL PERMIT NCG010000" FORM PROVIDED BY THE DIVISION OR A SIMILAR INSPECTION FORM THAT IS INCLUSIVE OF ALL OF THE ELEMENTS CONTAINED IN THE DIVISION'S FORM. ELECTRONIC STORAGE OF RECORDS WILL BE ALLOWED IF APPROVED BY THE PERMITTING AUTHORITY.
   h. INSPECTION RECORDS MUST INCLUDE, AT A MINIMUM, THE FOLLOWING:
      I. CONTROL MEASURE INSPECTIONS: INSPECTION RECORDS MUST INCLUDE AT A MINIMUM:
         1. IDENTIFICATION OF THE MEASURES INSPECTED,
         2. DATE AND TIME OF THE INSPECTION,
         3. NAME OF THE PERSON PERFORMING THE INSPECTION,
         4. INDICATION OF WHETHER THE MEASURES WERE OPERATING PROPERLY,
         5. DESCRIPTION OF MAINTENANCE NEEDS FOR THE MEASURE,
         6. CORRECTIVE ACTIONS TAKEN AND
         7. DATE OF ACTIONS TAKEN.
      II. STORMWATER DISCHARGE INSPECTIONS: INSPECTION RECORDS MUST INCLUDE AT A MINIMUM:
         1. IDENTIFICATION OF THE DISCHARGE OUTFALL INSPECTED,
         2. DATE AND TIME OF THE INSPECTION,
         3. NAME OF THE PERSON PERFORMING THE INSPECTION,
         4. EVIDENCE OF INDICATORS OF STORMWATER POLLUTION SUCH AS OIL SHEEN, FLOATING OR SUSPENDED SOLIDS OR DISCOLORATION,
         5. INDICATION OF VISIBLE SEDIMENT LEAVING THE SITE,
         6. ACTIONS TAKEN TO CORRECT/PREVENT SEDIMENTATION AND
         7. DATE OF ACTIONS TAKEN.
      III. VISIBLE SEDIMENTATION FOUND OUTSIDE THE SITE LIMITS: INSPECTION RECORDS MUST INCLUDE:
         1. AN EXPLANATION AS TO THE ACTIONS TAKEN TO CONTROL FUTURE RELEASES,
         2. ACTIONS TAKEN TO CLEAN UP OR STABILIZE THE SEDIMENT THAT HAS LEFT THE SITE LIMITS AND
         3. THE DATE OF ACTIONS TAKEN.
      IV. VISIBLE SEDIMENTATION FOUND IN STREAMS OR WETLANDS: ALL INSPECTIONS SHOULD INCLUDE EVALUATION OF STREAMS OR WETLANDS ONSITE OR OFFSITE (WHERE ACCESSIBLE) TO DETERMINE IF VISIBLE SEDIMENTATION HAS OCCURRED.
      V. VISIBLE STREAM TURBIDITY - IF THE DISCHARGE FROM A SITE RESULTS IN VISIBLE STREAM TURBIDITY, INSPECTION RECORDS MUST RECORD THAT EVIDENCE AND ACTIONS TAKEN TO REDUCE SEDIMENT CONTRIBUTIONS. SITES DISCHARGING TO STREAMS NAMED ON THE STATE'S 303(D) LIST AS IMPAIRED FOR SEDIMENT-RELATED CAUSES MAY BE REQUIRED TO PERFORM ADDITIONAL MONITORING, INSPECTIONS OR APPLICATION OF MORE-STRINGENT MANAGEMENT PRACTICES IF IT IS DETERMINED THAT THE ADDITIONAL REQUIREMENTS ARE NEEDED TO ASSURE COMPLIANCE WITH THE FEDERAL OR STATE IMPAIRED-WATERS CONDITIONS. IF A DISCHARGE COVERED BY THIS PERMIT ENTERS A STREAM SEGMENT THAT IS LISTED ON THE IMPAIRED STREAM LIST FOR SEDIMENT-RELATED CAUSES, AND A TOTAL MAXIMUM DAILY LOAD (TMDL) HAS BEEN PREPARED FOR THOSE POLLUTANTS, THE PERMITTEE MUST IMPLEMENT MEASURES TO ENSURE THAT THE DISCHARGE OF POLLUTANTS FROM THE SITE IS CONSISTENT WITH THE ASSUMPTIONS AND MEETS THE REQUIREMENTS OF THE APPROVED TMDL. THE DWQ 303(D) LIST CAN BE FOUND AT: HTTP://H2O.ENR.STATE.NC.US/TMDL/GENERAL_303D.HTM/

6. ALL EROSION AND SEDIMENTATION CONTROL DEVICES SHALL REMAIN IN PLACE AND BE MAINTAINED BY THE CONTRACTOR UNTIL ALL SEEDING IS ESTABLISHED AND CONSTRUCTION AREAS HAVE BEEN STABILIZED.

7. TEMPORARY SEEDING - SEED IN ACCORDANCE WITH SOIL CONSERVATION SERVICE RECOMMENDATIONS WITH REGARD TO SEED TYPE, RATE OF APPLICATION, FERTILIZER, ETC. TEMPORARY SEEDING WILL BE DONE IN THOSE AREAS THAT ARE BARE AND NO WORK WITHIN 14 DAYS.

8. INSTALL AND MAINTAIN ROCK INLET SEDIMENT TRAPS AROUND ALL CATCH BASINS, DROP INLETS OR JUNCTION BOXES AND ELSEWHERE AS INDICATED ON PLAN OR AS DIRECTED BY ENGINEER.

9. EROSION CONTROL MEASURES TO BE REMOVED UPON STABILIZATION, WHEN ADEQUATE VEGETATION HAS OCCURRED (±80%).

10. PROVIDE 20' X 50' X 8" STONE CONSTRUCTION ENTRANCES AS NEEDED.

11. ALL DEWATERING OPERATIONS WILL BE FILTERED PRIOR TO LEAVING THE SITE.

12. STREETS WILL BE SWEPT AS NEEDED, BUT A MINIMUM OF ONCE A WEEK WHILE GRADING OPERATIONS ARE UNDERWAY.

13. STOCKPILE TOPSOIL FOR USE IN LANDSCAPING.

14. SEED OR OTHERWISE PROVIDE GROUND COVER DEVICES OR STRUCTURES SUFFICIENT TO RESTRAIN EROSION FOR ALL EXPOSED SLOPES STEEPER THAN 3:1. ALL OTHER AREAS SHALL BE STABILIZED WITHIN 14 DAYS.

15. CONTRACTOR SHALL INSPECT AND MAINTAIN AS NEEDED ALL EROSION CONTROL DEVICES ON A WEEKLY BASIS AND AFTER EACH MAJOR STORM EVENT. WHEN INSPECTION REVEALS THE TRAP TO BE REDUCED TO 50% OF DESIGN CAPACITY, OR THE DEVICE TO BE DEFICIENT IN ITS INTENDED PURPOSE SUCH AS FABRIC DETERIORATION FOR SILT FENCES, THE CONTRACTOR SHALL RESTORE THE DEVICE TO ITS ORIGINAL CONDITION. FAILURE TO KEEP ALL EROSION CONTROL DEVICES IN PROPER WORKING ORDER MAY RESULT IN A STOP WORK ORDER OR CIVIL PENALTIES UP TO $5,000.00 PER DAY OF VIOLATION.

16. THE CITY ENGINEER RESERVES THE RIGHT TO REQUIRE ADDITIONAL EROSION CONTROL MEASURES SHOULD THE PLAN OR ITS IMPLEMENTATION PROVE TO BE INADEQUATE.

17. ACCEPTANCE AND APPROVAL OF THIS PLAN IS CONDITIONED UPON YOUR COMPLIANCE WITH FEDERAL AND STATE WATER QUALITY LAWS, REGULATIONS AND RULES. IN ADDITION, LOCAL CITY AND COUNTY ORDINANCES OR RULES MAY ALSO APPLY TO THIS LAND-DISTURBING ACTIVITY. APPROVAL BY THE CITY DOES NOT SUPERSEDE ANY OTHER PERMIT OR APPROVAL.

18. "EROSION AND SEDIMENT CONTROL (E&SC) PERMIT AND A CERTIFICATE OF COVERAGE (COC) MUST BE OBTAINED BEFORE ANY LAND DISTURBING ACTIVITIES (INCLUDING TIMBERING AND DEMOLITION) OCCUR." THE COC CAN BE OBTAINED BY FILLING OUT THE ELECTRONIC NOTICE OF INTENT (E-NOI) FORM AT DEQ.NC.GOV/NCG01. PLEASE NOTE, THE E-NOI FORM MAY ONLY BE FILLED ONCE THE PLANS HAVE BEEN APPROVED. A COPY OF THE E&SC PERMIT, THE COC, AND A HARD COPY OF THE PLAN MUST BE KEPT ON SITE, PREFERABLY IN A PERMITS BOX, AND ACCESSIBLE DURING INSPECTION.

19. "WHEN THE PROJECT IS COMPLETE, THE PERMITTEE SHALL CONTACT DEMLR TO CLOSE OUT THE E&SC PLAN." AFTER DEMLR INFORMS THE PERMITTEE OF THE PROJECT CLOSE OUT, VIA INSPECTION REPORT, THE PERMITTEE SHALL VISIT DEQ.NC.GOV/NCG01 TO SUBMIT AN ELECTRONIC NOTICE OF TERMINATION (E-NOT). AN ANNUAL GENERAL PERMIT FEE WILL BE CHARGED UNTIL THE E-NOT HAS BEEN FILLED OUT.

20. PERIMETER MEASURES MUST BE LEFT IN PLACE UNTIL ALL UPLAND AREAS ARE PERMANENTLY STABILIZED. AFTER SITE IS PERMANENTLY STABILIZED, REMOVE ALL TEMPORARY EROSION CONTROL MEASURES AND PROVIDE PERMANENT SEEDING WHERE TEMPORARY MEASURES HAVE BEEN REMOVED AND GROUND COVER IS NOT ADEQUATE. SEDIMENT BASINS MAY NOT BE REMOVED OR CONVERTED TO PERMANENT SCMS UNTIL ALL UPLAND AREAS ARE PERMANENTLY STABILIZED. NCDEQ EROSION CONTROL OFFICER SHOULD BE NOTIFIED 10-DAYS PRIOR TO REMOVAL OF A BASIN." (GS 113A-57(3), 15A NCAC 04B .0113)

21. "PER NPDES REQUIREMENTS, A RAIN GAUGE, SELF-INSPECTIONS RECORDS, PERMIT, CERTIFICATE OF COVERAGE, AND S&E PLAN ARE REQUIRED TO BE MAINTAINED ON SITE AND ACCESSIBLE DURING INSPECTION. IT IS RECOMMENDED THAT THESE ITEMS BE PLACED IN A PERMITS BOX AT THE BEGINNING OR ENTRANCE OF PROJECT." (NCG01 PART III SECTIONS A AND B, 15A NCAC 04B .0131)

22. PLEASE BE ADVISED OF THE RULES TO PROTECT AND MAINTAIN EXISTING BUFFERS ALONG WATERCOURSES IN THE NEUSE AND TAR-PAMLICO RIVER BASINS. THESE RULES ARE ENFORCED BY THE DIVISION OF WATER QUALITY (DWQ). DIRECT ANY QUESTIONS ABOUT THE APPLICABILITY OF THESE RULES TO YOUR PROJECT TO THE REGIONAL WATER QUALITY SUPERVISOR, WASHINGTON REGIONAL OFFICE AT (252) 946-6481.

CONSTRUCTION SCHEDULE

PHASE 1

1. OBTAIN PLAN APPROVALS AND ALL APPLICABLE PERMITS.
2. FLAG LIMITS OF CLEARING/GRUBBING AND ROUGH GRADING.
3. HOLD PRECONSTRUCTION MEETING WITH CONTRACTOR, EROSION CONTROL ADMINISTRATOR (252-946-3900), PROJECT ENGINEER AND OWNER BEFORE WORK BEGINS.
4. INSTALL THE PERIMETER SEDIMENT FENCES AS THE FIRST CONSTRUCTION ACTIVITY.
5. INSTALL TEMPORARY GRAVEL CONSTRUCTION ENTRANCE.
6. INSTALL TEMPORARY SEDIMENT BASIN AND TEMPORARY DIVERSION SWALE PER PLAN.
7. INSTALL CONCRETE WASHOUT AREA WITH SIGN.
8. INSTALL STORM SEWER WITH ROCK INLET SEDIMENT TRAPS.
9. PROVIDE A GROUND COVER (TEMPORARY OR PERMANENT) ON EXPOSED SLOPES 14 CALENDAR DAYS FOLLOWING COMPLETION OF ANY PHASE OF GRADING FOR SLOPES 3:1 OR FLATTER INCLUDING ALL OTHER SLOPES 4:1 OR FLATTER. PROVIDE A GROUND COVER (TEMPORARY OR PERMANENT) ON EXPOSED SLOPES WITHIN 7 CALENDAR DAYS FOLLOWING COMPLETION OF ANY PHASE OF GRADING FOR SLOPES 3:1 OR STEEPER.
10. ADDITIONAL EROSION AND SEDIMENTATION CONTROL MEASURES MAY BE REQUIRED BY THE STATE OR OWNER IF DEEMED NECESSARY.

PHASE 2

11. INSTALL STONE IN GRAVEL SUBSTATION YARD.
12. REMOVE TEMPORARY SKIMMER BASIN AFTER EROSION CONTROL OFFICER APPROVAL HAS BEEN GRANTED.
13. INSTALL STORMWATER WET POND AND REVISE OUTLET STRUCTURE AND PIPING.
14. INSTALL ALL PLANTING RELATED TO STORMWATER WET POND.
15. UPON STABILIZATION OF THE STORMWATER WET POND, INSTALL STORM DRAINAGE INCLUDING ALL TEMPORARY EROSION CONTROL MEASURES ASSOCIATED WITH DRAINAGE STRUCTURES AN OUTLETS.
16. PROVIDE A GROUND COVER (TEMPORARY OR PERMANENT) ON EXPOSED SLOPES 14 CALENDAR DAYS FOLLOWING COMPLETION OF ANY PHASE OF GRADING FOR SLOPES 3:1 OR FLATTER INCLUDING ALL OTHER SLOPES 4:1 OR FLATTER. PROVIDE A GROUND COVER (TEMPORARY OR PERMANENT) ON EXPOSED SLOPES WITHIN 7 CALENDAR DAYS FOLLOWING COMPLETION OF ANY PHASE OF GRADING FOR SLOPES 3:1 OR STEEPER.
17. AFTER SITE IS STABILIZED, REMOVE ALL TEMPORARY MEASURES, FINE GRADE DISTURBED AREAS, AND INSTALL PERMANENT VEGETATION ON THE DISTURBED AREAS.
18. MAINTAIN PERMANENT VEGETATION BY TOP DRESSING WITH 700 LBS PER ACRE OF FERTILIZER EVERY 6 MONTHS UNTIL THE COMPLETION OF THE PROJECT.
19. WITHIN 6" OF FINAL GRADE, RE-DISTRIBUTE 6" OF TOP SOIL
20. FINE GRADE, PERMANENTLY SEED AND MULCH ALL LANDSCAPED AREAS.
21. REMOVE ALL REMAINING TEMPORARY EROSION AND SEDIMENTATION CONTROL MEASURES UPON COMPLETION AND STABILIZATION OF PROJECT.

NCG01 GROUND STABILIZATION AND MATERIALS HANDLING

EFFECTIVE: 04/01/19

GROUND STABILIZATION AND MATERIALS HANDLING PRACTICES FOR COMPLIANCE WITH THE NCG01 CONSTRUCTION GENERAL PERMIT

Implementing the details and specifications on this plan sheet will result in the construction activity being considered compliant with the Ground Stabilization and Materials Handling sections of the NCG01 Construction General Permit (Sections E and F, respectively). The permittee shall comply with the Erosion and Sediment Control plan approved by the delegated authority having jurisdiction. All details and specifications shown on this sheet may not apply depending on site conditions and the delegated authority having jurisdiction.

SECTION E: GROUND STABILIZATION

Required Ground Stabilization Timeframes

Site Area Description	Stabilize within this many calendar days after ceasing land disturbance	Timeframe variations
(a) Perimeter dikes, swales, ditches, and perimeter slopes	7	None
(b) High Quality Water (HQW) Zones	7	None
(c) Slopes steeper than 3:1	7	If slopes are 10' or less in length and are not steeper than 2:1, 14 days are allowed
(d) Slopes 3:1 to 4:1	14	-7 days for slopes greater than 50' in length and with slopes steeper than 4:1 -7 days for perimeter dikes, swales, ditches, perimeter slopes and HQW Zones -10 days for Falls Lake Watershed
(e) Areas with slopes flatter than 4:1	14	-7 days for perimeter dikes, swales, ditches, perimeter slopes and HQW Zones -10 days for Falls Lake Watershed unless there is zero slope

Note: After the permanent cessation of construction activities, any areas with temporary ground stabilization shall be converted to permanent ground stabilization as soon as practicable but in no case longer than 90 calendar days after the last land disturbing activity. Temporary ground stabilization shall be maintained in a manner to render the surface stable against accelerated erosion until permanent ground stabilization is achieved.

GROUND STABILIZATION SPECIFICATION

Stabilize the ground sufficiently so that rain will not dislodge the soil. Use one of the techniques in the table below:

POLYACRYLAMIDES (PAMS) AND FLOCCULANTS

1. Select flocculants that are appropriate for the soils being exposed during construction, selecting from the *NC DWR List of Approved PAMS/Flocculants*.
2. Apply flocculants at or before the inlets to Erosion and Sediment Control Measures.
3. Apply flocculants at the concentrations specified in the *NC DWR List of Approved PAMS/Flocculants* and in accordance with the manufacturer's instructions.
4. Provide ponding area for containment of treated Stormwater before discharging offsite.
5. Store flocculants in leak-proof containers that are kept under storm-resistant cover or surrounded by secondary containment structures.

EQUIPMENT AND VEHICLE MAINTENANCE

1. Maintain vehicles and equipment to prevent discharge of fluids.
2. Provide drip pans under any stored equipment.
3. Identify leaks and repair as soon as feasible, or remove leaking equipment from the project.
4. Collect all spent fluids, store in separate containers and properly dispose as hazardous waste (recycle when possible).
5. Remove leaking vehicles and construction equipment from service until the problem has been corrected.
6. Bring used fuels, lubricants, coolants, hydraulic fluids and other petroleum products to a recycling or disposal center that handles these materials.

LITTER, BUILDING MATERIAL AND LAND CLEARING WASTE

1. Never bury or burn waste. Place litter and debris in approved waste containers.
2. Provide a sufficient number and size of waste containers (e.g dumpster, trash receptacle) on site to contain construction and domestic wastes.
3. Locate waste containers at least 50 feet away from storm drain inlets and surface waters unless no other alternatives are reasonably available.
4. Locate waste containers on areas that do not receive substantial amounts of runoff from upland areas and does not drain directly to a storm drain, stream or wetland.
5. Cover waste containers at the end of each workday and before storm events or provide secondary containment. Repair or replace damaged waste containers.
6. Anchor all lightweight items in waste containers during times of high winds.
7. Empty waste containers as needed to prevent overflow. Clean up immediately if containers overflow.
8. Dispose waste off-site at an approved disposal facility.
9. On business days, clean up and dispose of waste in designated waste containers.

PAINT AND OTHER LIQUID WASTE

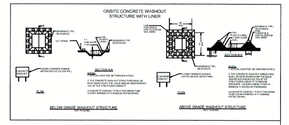
1. Do not dump paint and other liquid waste into storm drains, streams or wetlands.
2. Locate paint washouts at least 50 feet away from storm drain inlets and surface waters unless no other alternatives are reasonably available.
3. Contain liquid wastes in a controlled area.
4. Containment must be labeled, sized and placed appropriately for the needs of site.
5. Prevent the discharge of soaps, solvents, detergents and other liquid wastes from construction sites.

PORTABLE TOILETS

1. Install portable toilets on level ground, at least 50 feet away from storm drains, streams or wetlands unless there is no alternative reasonably available. If 50 foot offset is not attainable, provide relocation of portable toilet behind silt fence or place on a gravel pad and surround with sand bags.
2. Provide staking or anchoring of portable toilets during periods of high winds or in high foot traffic areas.
3. Monitor portable toilets for leaking and properly dispose of any leaked material. Utilize a licensed sanitary waste hauler to remove leaking portable toilets and replace with properly operating unit.

EARTHEN STOCKPILE MANAGEMENT

1. Show stockpile locations on plans. Locate earthen-material stockpile areas at least 50 feet away from storm drain inlets, sediment basins, perimeter sediment controls and surface waters unless it can be shown no other alternatives are reasonably available.
2. Protect stockpile with silt fence installed along toe of slope with a minimum offset of five feet from the toe of stockpile.
3. Provide stable stone access point when feasible.
4. Stabilize stockpile within the timeframes provided on this sheet and in accordance with the approved plan and any additional requirements. Soil stabilization is defined as vegetative, physical or chemical coverage techniques that will restrain accelerated erosion on disturbed soils for temporary or permanent control needs.



CONCRETE WASHOUTS

1. Do not discharge concrete or cement slurry from the site.
2. Dispose of, or recycle settled, hardened concrete residue in accordance with local and state solid waste regulations and at an approved facility.
3. Manage washout from mortar mixers in accordance with the above item and in addition place the mixer and associated materials on impervious barrier and within lot perimeter silt fence.
4. Install temporary concrete washouts per local requirements, where applicable. If an alternate method or product is to be used, contact your approval authority for review and approval. If local standard details are not available, use one of the two types of temporary concrete washouts provided on this detail.
5. Do not use concrete washouts for dewatering or storing defective curb or sidewalk sections. Stormwater accumulated within the washout may not be pumped into or discharged to the storm drain system or receiving surface waters. Liquid waste must be pumped out and removed from project.
6. Locate washouts at least 50 feet from storm drain inlets and surface waters unless it can be shown that no other alternatives are reasonably available. At a minimum, install protection of storm drain inlet(s) closest to the washout which could receive spills or overflow.
7. Locate washouts in an easily accessible area, on level ground and install a stone entrance pad in front of the washout. Additional controls may be required by the approving authority.
8. Install at least one sign directing concrete trucks to the washout within the project limits. Post signage on the washout itself to identify this location.
9. Remove leavings from the washout when at approximately 75% capacity to limit overflow events. Replace the tarp, sand bags or other temporary structural components when no longer functional. When utilizing alternative or proprietary products, follow manufacturer's instructions.
10. At the completion of the concrete work, remove remaining leavings and dispose of in an approved disposal facility. Fill pit, if applicable, and stabilize any disturbance caused by removal of washout.

HERBICIDES, PESTICIDES AND RODENTICIDES

1. Store and apply herbicides, pesticides and rodenticides in accordance with label restrictions.
2. Store herbicides, pesticides and rodenticides in their original containers with the label, which lists directions for use, ingredients and first aid steps in case of accidental poisoning.
3. Do not store herbicides, pesticides and rodenticides in areas where flooding is possible or where they may spill or leak into wells, stormwater drains, ground water or surface water. If a spill occurs, clean area immediately.
4. Do not stockpile these materials onsite.

HAZARDOUS AND TOXIC WASTE

1. Create designated hazardous waste collection areas on-site.
2. Place hazardous waste containers under cover or in secondary containment.
3. Do not store hazardous chemicals, drums or bagged materials directly on the ground.

NCG01 SELF-INSPECTION, RECORDKEEPING AND REPORTING

EFFECTIVE: 04/01/19

PART III
SELF-INSPECTION, RECORDKEEPING AND REPORTING

SECTION A: SELF-INSPECTION

Self-inspections are required during normal business hours in accordance with the table below. When adverse weather or site conditions would cause the safety of the inspection personnel to be in jeopardy, the inspection may be delayed until the next business day on which it is safe to perform the inspection. In addition, when a storm event of equal to or greater than 1.0 inch occurs outside of normal business hours, the self-inspection shall be performed upon the commencement of the next business day. Any time when inspections were delayed shall be noted in the Inspection Record.

Inspect	Frequency (during normal business hours)	Inspection records must include:
(1) Rain gauge maintained in good working order	Daily	Daily rainfall amounts. If no daily rain gauge observations are made during weekend or holiday periods, and no individual-day rainfall information is available, record the cumulative rain measurement for those unattended days (and this will determine if a site inspection is needed). Days on which no rainfall occurred shall be recorded as "zero." The permittee may use another rain-monitoring device approved by the Division.
(2) E&SC Measures	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours	1. Identification of the measures inspected, 2. Date and time of the inspection, 3. Name of the person performing the inspection, 4. Indication of whether the measures were operating properly, 5. Description of maintenance needs for the measure, 6. Description, evidence, and date of corrective actions taken.
(3) Stormwater discharge outfalls (SDOs)	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours	1. Identification of the discharge outfalls inspected, 2. Date and time of the inspection, 3. Name of the person performing the inspection, 4. Evidence of indicators of stormwater pollution such as oil sheen, floating or suspended solids or discoloration, 5. Indication of visible sediment leaving the site, 6. Description, evidence, and date of corrective actions taken.
(4) Perimeter of site	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours	If visible sedimentation is found outside site limits, then a record of the following shall be made: 1. Actions taken to clean up or stabilize the sediment that has left the site limits, 2. Description, evidence, and date of corrective actions taken, and 3. An explanation as to the actions taken to control future releases.
(5) Streams or wetlands onsite or offsite (where accessible)	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours	If the stream or wetland has increased visible sedimentation or a stream has visible increased turbidity from the construction activity, then a record of the following shall be made: 1. Description, evidence and date of corrective actions taken, and 2. Records of the required reports to the appropriate Division Regional Office per Part III, Section C, Item (2)(a) of this permit.
(6) Ground stabilization measures	After each phase of grading	1. The phase of grading (installation of perimeter E&SC measures, clearing and grubbing, installation of storm drainage facilities, completion of all land-disturbing activity, construction or redevelopment, permanent ground cover). 2. Documentation that the required ground stabilization measures have been provided within the required timeframe or an assurance that they will be provided as soon as possible.

NOTE: The rain inspection resets the required 7 calendar day inspection requirement.

PART III
SELF-INSPECTION, RECORDKEEPING AND REPORTING

SECTION B: RECORDKEEPING

1. E&SC Plan Documentation

The approved E&SC plan as well as any approved deviation shall be kept on the site. The approved E&SC plan must be kept up-to-date throughout the coverage under this permit. The following items pertaining to the E&SC plan shall be kept on site and available for inspection at all times during normal business hours.

Item to Document	Documentation Requirements
(a) Each E&SC measure has been installed and does not significantly deviate from the locations, dimensions and relative elevations shown on the approved E&SC plan.	Initial and date each E&SC measure on a copy of the approved E&SC plan or complete, date and sign an inspection report that lists each E&SC measure shown on the approved E&SC plan. This documentation is required upon the initial installation of the E&SC measures or if the E&SC measures are modified after initial installation.
(b) A phase of grading has been completed.	Initial and date a copy of the approved E&SC plan or complete, date and sign an inspection report to indicate completion of the construction phase.
(c) Ground cover is located and installed in accordance with the approved E&SC plan.	Initial and date a copy of the approved E&SC plan or complete, date and sign an inspection report to indicate compliance with approved ground cover specifications.
(d) The maintenance and repair requirements for all E&SC measures have been performed.	Complete, date and sign an inspection report.
(e) Corrective actions have been taken to E&SC measures.	Initial and date a copy of the approved E&SC plan or complete, date and sign an inspection report to indicate the completion of the corrective action.

2. Additional Documentation to be Kept on Site

In addition to the E&SC plan documents above, the following items shall be kept on the site and available for inspectors at all times during normal business hours, unless the Division provides a site-specific exemption based on unique site conditions that make this requirement not practical:

(a) This General Permit as well as the Certificate of Coverage, after it is received.

(b) Records of inspections made during the previous twelve months. The permittee shall record the required observations on the Inspection Record Form provided by the Division or a similar inspection form that includes all the required elements. Use of electronically-available records in lieu of the required paper copies will be allowed if shown to provide equal access and utility as the hard-copy records.

3. Documentation to be Retained for Three Years

All data used to complete the e-NOI and all inspection records shall be maintained for a period of three years after project completion and made available upon request. [40 CFR 122.41]

PART III
SELF-INSPECTION, RECORDKEEPING AND REPORTING

SECTION C: REPORTING

1. Occurrences that Must be Reported

Permittees shall report the following occurrences:

(a) Visible sediment deposition in a stream or wetland.

(b) Oil spills if:
- They are 25 gallons or more,
- They are less than 25 gallons but cannot be cleaned up within 24 hours,
- They cause sheen on surface waters (regardless of volume), or
- They are within 100 feet of surface waters (regardless of volume).

(c) Releases of hazardous substances in excess of reportable quantities under Section 311 of the Clean Water Act (Ref: 40 CFR 110.3 and 40 CFR 117.3) or Section 102 of CERCLA (Ref: 40 CFR 302.4) or G.S. 143-215.85.

(d) Anticipated bypasses and unanticipated bypasses.

(e) Noncompliance with the conditions of this permit that may endanger health or the environment.

2. Reporting Timeframes and Other Requirements

After a permittee becomes aware of an occurrence that must be reported, he shall contact the appropriate Division regional office within the timeframes and in accordance with the other requirements listed below. Occurrences outside normal business hours may also be reported to the Department's Environmental Emergency Center personnel at (800) 858-0368.

Occurrence	Reporting Timeframes (After Discovery) and Other Requirements
(a) Visible sediment deposition in a stream or wetland	- ***Within 24 hours***, an oral or electronic notification. - ***Within 7 calendar days***, a report that contains a description of the sediment and actions taken to address the cause of the deposition. Division staff may waive the requirement for a written report on a case-by-case basis. - If the stream is named on the NC 303(d) list as impaired for sediment-related causes, the permittee may be required to perform additional monitoring, inspections or apply more stringent practices if staff determine that additional requirements are needed to assure compliance with the federal or state impaired-waters conditions.
(b) Oil spills and release of hazardous substances per Item 1(b)-(c) above	- ***Within 24 hours***, an oral or electronic notification. The notification shall include information about the date, time, nature, volume and location of the spill or release.
(c) Anticipated bypasses [40 CFR 122.41(m)(3)]	- ***A report at least ten days before the date of the bypass, if possible.*** The report shall include an evaluation of the anticipated quality and effect of the bypass.
(d) Unanticipated bypasses [40 CFR 122.41(m)(3)]	- ***Within 24 hours***, an oral or electronic notification. - ***Within 7 calendar days,*** a report that includes an evaluation of the quality and effect of the bypass.
(e) Noncompliance with the conditions of this permit that may endanger health or the environment[40 CFR 122.41(l)(7)]	- ***Within 24 hours***, an oral or electronic notification. - ***Within 7 calendar days***, a report that contains a description of the noncompliance, and its causes; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time noncompliance is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance. [40 CFR 122.41(l)(6). - Division staff may waive the requirement for a written report on a case-by-case basis.

PART II, SECTION G, ITEM (4)
DRAW DOWN OF SEDIMENT BASINS FOR MAINTENANCE OR CLOSE OUT

Sediment basins and traps that receive runoff from drainage areas of one acre or more shall use outlet structures that withdraw water from the surface when these devices need to be drawn down for maintenance or close out unless this is infeasible. The circumstances in which it is not feasible to withdraw water from the surface shall be rare (for example, times with extended cold weather). Non-surface withdrawals from sediment basins shall be allowed only when all of the following criteria have been met:

(a) The E&SC plan authority has been provided with documentation of the non-surface withdrawal and the specific time periods or conditions in which it will occur. The non-surface withdrawal shall not commence until the E&SC plan authority has approved these items,
(b) The non-surface withdrawal has been reported as an anticipated bypass in accordance with Part III, Section C, Item (2)(c) and (d) of this permit,
(c) Dewatering discharges are treated with controls to minimize discharges of pollutants from stormwater that is removed from the sediment basin. Examples of appropriate controls include properly sited, designed and maintained dewatering tanks, weir tanks, and filtration systems,
(d) Vegetated, upland areas of the sites or a properly designed stone pad is used to the extent feasible at the outlet of the dewatering treatment devices described in Item (c) above,
(e) Velocity dissipation devices such as check dams, sediment traps, and riprap are provided at the discharge points of all dewatering devices, and
(f) Sediment removed from the dewatering treatment devices described in Item (c) above is disposed of in a manner that does not cause deposition of sediment into waters of the United States.

NEW STABILIZATION TIMEFRAMES

SITE AREA DESCRIPTION	STABILIZATION	TIMEFRAME EXCEPTIONS
PERIMETER DIKES, SWALES, DITCHES, SLOPES	7 DAYS	IF SLOPES ARE 10' OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1, 14 DAYS ARE ALLOWED
HIGH QUALITY WATER (HQW) ZONES	7 DAYS	7 DAYS FOR SLOPES GREATER THAN 50' IN LENGTH
SLOPES STEEPER THAN 3:1	7 DAYS	NONE EXCEPT FOR PERIMETER AND HQW ZONES
SLOPES 3:1 OR FLATTER	14 DAYS	NONE
ALL OTHER AREAS WITH SLOPES FLATTER THAN 4:1	14 DAYS	NONE

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REVISIONS:

NO.	DESCRIPTION	DATE	BY
△	CITY REVIEW COMMENTS	1/28/26	KB

BOVIET SUBSTATION

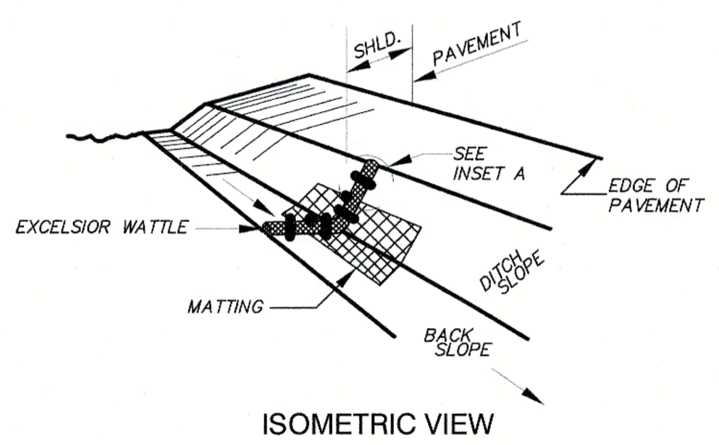
GREENVILLE UTILITIES COMMISSION

CITY OF GREENVILLE ~ PITT COUNTY ~ NORTH CAROLINA

EROSION CONTROL NOTES & DETAILS

DATE:	JANUARY 12, 2026
DESIGNED BY:	JW
DRAWN BY:	KB
CHECKED BY:	JDV
PROJECT No.	2025087
DRAWING No.	W-4267
SCALE:	AS NOTED
SHEET No.	C5

L:\LANDDEV\GUC-BOVIET_SUBSTATION-2025087\CADD\SHEETS\KELLY\W-4267_BOVIET.DWG - C5 - 2/11/2026 2:53:34 PM - KELLY BERRINI



NOTES:

USE MINIMUM 12 IN. DIAMETER EXCELSIOR WATTLE.

USE 2 FT. WOODEN STAKES WITH A 2 IN. BY 2 IN. NOMINAL CROSS SECTION.

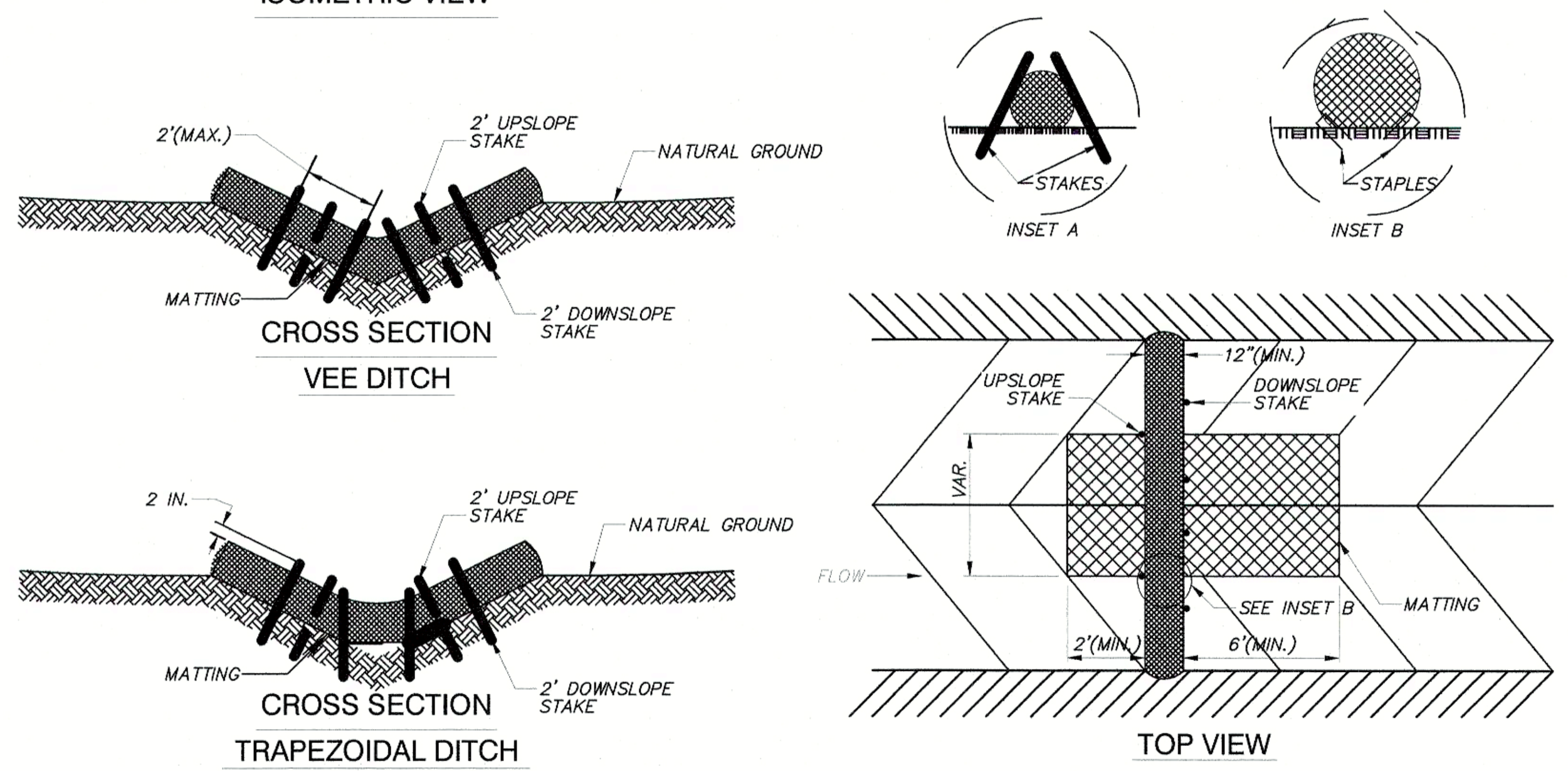
ONLY INSTALL WATTLE(S) TO A HEIGHT IN DITCH SO FLOW WILL NOT WASH AROUND WATTLE AND SCOUR DITCH SLOPES AND AS DIRECTED.

INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.

PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A "U" SHAPE NOT LESS THAN 12" IN LENGTH.

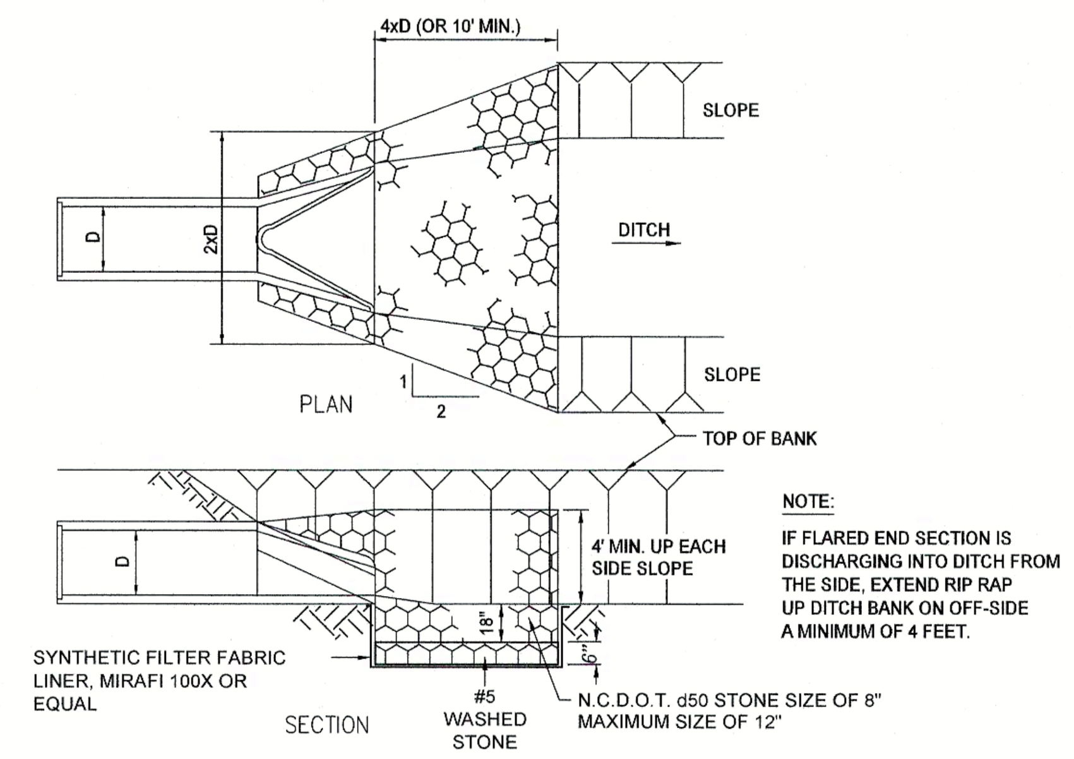
INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.

INSTALL MATTING IN ACCORDANCE WITH SECTION 1631 OF THE STANDARD SPECIFICATIONS.



1 EXCELSIOR WATTLE DETAIL

N.T.S.



RIP RAP OUTLET PROTECTION

CONSTRUCTION SPECIFICATIONS:

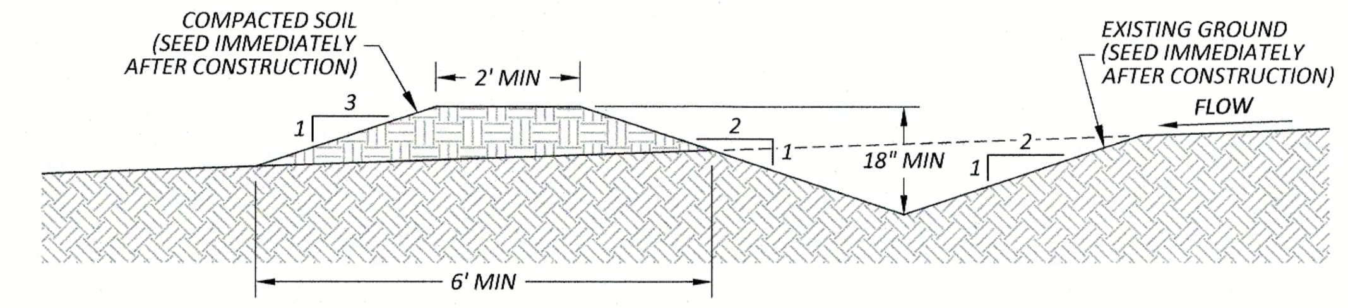
1. ENSURE THAT THE SUBGRADE FOR THE FILTER AND RIPRAP FOLLOWS THE REQUIRED LINES AND GRADES SHOWN ON THE PLAN. COMPACT ANY FILL REQUIRED IN THE SUBGRADE TO THE DENSITY OF THE SURROUNDING UNDISTURBED MATERIAL. LOW AREAS IN THE SUBGRADE ON UNDISTURBED SOIL MAY ALSO BE FILLED BY INCREASING THE RIPRAP THICKNESS.
2. THE RIPRAP AND GRAVEL FILTER MUST CONFORM TO THE SPECIFIED GRADING LIMITS SHOWN ON THE PLANS.
3. FILTER CLOTH, WHEN USED, MUST MEET DESIGN REQUIREMENTS AND BE PROPERLY PROTECTED FROM PUNCHING OR TEARING DURING INSTALLATION. REPAIR ANY DAMAGE BY REMOVING THE RIPRAP AND PLACING ANOTHER PIECE OF FILTER CLOTH OVER THE DAMAGED AREA. ALL CONNECTING JOINTS SHOULD OVERLAP SO THE TOP LAYER IS ABOVE THE DOWNSTREAM LAYER A MINIMUM OF 1 FOOT. IF THE DAMAGE IS EXTENSIVE, REPLACE THE ENTIRE FILTER CLOTH.
4. RIPRAP MAY BE PLACED BY EQUIPMENT, BUT TAKE CARE TO AVOID DAMAGING THE FILTER.
5. THE MINIMUM THICKNESS OF THE RIPRAP SHOULD BE 1.5 TIMES THE MAXIMUM STONE DIAMETER.
6. RIPRAP MAY BE FIELD STONE OR ROUGH QUARRY STONE. IT SHOULD BE HRD, ANGULAR, HIGHLY WEATHER-RESISTANT AND WELL GRADED.
7. CONSTRUCT THE APRON ON ZERO GRADE WITH NO OVERFILL AT THE END. MAKE THE TOP OF THE RIPRAP AT THE DOWNSTREAM END LEVEL WITH THE RECEIVING AREA OR SLIGHTLY BELOW IT.
8. ENSURE THAT THE APRON IS PROPERLY ALIGNED WITH THE RECEIVING STREAM AND PREFERABLE STRAIGHT THROUGHOUT ITS LENGTH. IF A CURVE IS NEEDED TO FIT THE SITE CONDITIONS, PLACE IT IN THE UPPER SECTION OF THE APRON.
9. IMMEDIATELY AFTER CONSTRUCTION, STABILIZE ALL DISTURBED AREAS WITH VEGETATION.

MAINTENANCE:

INSPECT RIPRAP OUTLET STRUCTURES WEEKLY AND AFTER SIGNIFICANT ($\frac{1}{2}$ INCH OR GREATER) RAINFALL EVENTS TO SEE IF ANY EROSION AROUND OR BELOW THE RIPRAP HAS TAKEN PLACE, OR IF STONES HAVE BEEN DISLODGED. IMMEDIATELY MAKE ALL NEEDED REPAIRS TO PREVENT FURTHER DAMAGE.

3 FLARED END SECTION WITH RIP RAP

N.T.S.



6 TEMPORARY DIVERSION DITCH

N.T.S.

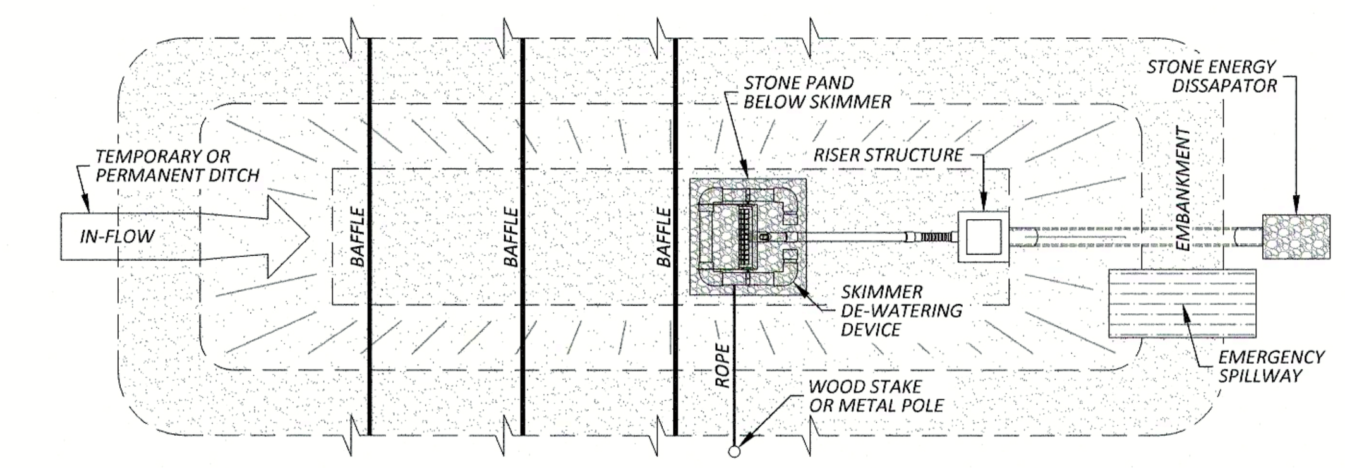
TEMPORARY DIVERSIONS

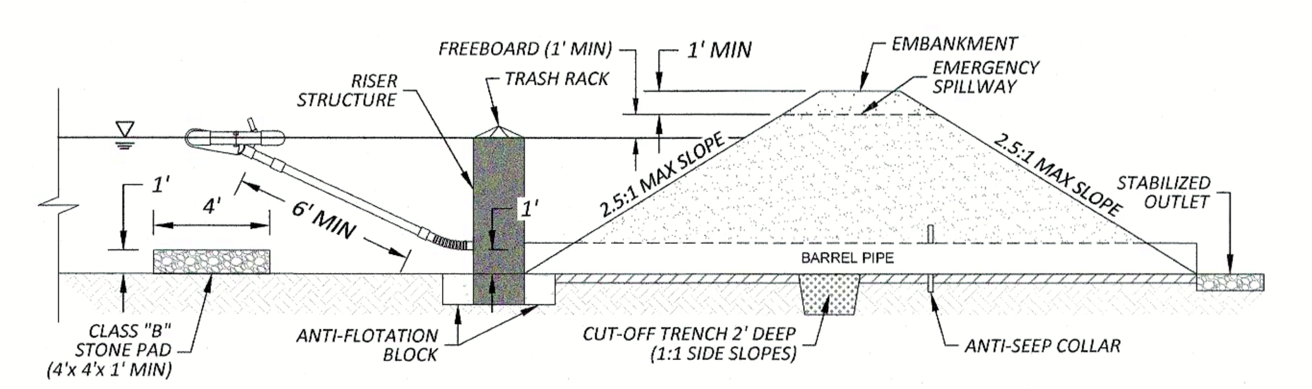
CONSTRUCTION SPECIFICATIONS:

1. REMOVE AND PROPERLY DISPOSE OF ALL TREES, BRUSH, STUMPS, AND OTHER OBJECTIONABLE MATERIAL.
2. ENSURE THAT THE MINIMUM CONSTRUCTED CROSS SECTION MEETS ALL DESIGN REQUIREMENTS.
3. ENSURE THAT THE TOP OF THE DIKE IS NOT LOWER AT ANY POINT THAN THE DESIGN ELEVATION PLUS THE SPECIFIED SETTLEMENT.
4. PROVIDE SUFFICIENT ROOM AROUND DIVERSIONS TO PERMIT MACHINE REGARDING AND CLEANOUT.
5. VEGETATE THE RIDGE IMMEDIATELY AFTER CONSTRUCTION, UNLESS IT WILL REMAIN IN PLACE LESS THAN 30 WORKING DAYS.

MAINTENANCE:

INSPECT TEMPORARY DIVERSIONS ONCE A WEEK AND AFTER EVERY RAINFALL. IMMEDIATELY REMOVE SEDIMENT FROM THE FLOW AREA AND REPAIR THE DIVERSION RIDGE. CAREFULLY CHECK OUTLETS AND MAKE TIMELY REPAIRS AS NEEDED. WHEN THE AREA PROTECTED IS PERMANENTLY STABILIZED, REMOVE THE RIDGE AND THE CHANNEL TO BLEND WITH THE NATURAL GROUND LEVEL AND APPROPRIATELY STABILIZE IT.





TEMPORARY SKIMMER BASIN (TSB) WITH RISER BARREL

SKIMMER BASIN

CONSTRUCTION SPECIFICATIONS:

1. CLEAR, GRUB AND STRIP THE AREA UNDER THE EMBANKMENT OF ALL VEGETATION AND ROOT MAT. REMOVE ALL SURFACE SOIL CONTAINING HIGH AMOUNTS OF ORGANIC MATTER AND STOCKPILE OR DISPOSE OF IT PROPERLY. HAUL ALL OBJECTIONABLE MATERIAL TO THE DESIGNATED DISPOSAL AREA. PLACE TEMPORARY SEDIMENT CONTROL MEASURES BELOW BASIN AS NEEDED.
2. ENSURE THAT FILL MATERIAL FOR THE EMBANKMENT IS FREE OF ROOTS, WOODY VEGETATION, ORGANIC MATTER, AND OTHER OBJECTIONABLE MATERIAL. PLACE THE FILL IN LIFTS NOT TO EXCEED 9 INCHES, AND MACHINE COMPACT IT. OVER FILL THE EMBANKMENT 6 INCHES TO ALLOW FOR SETTLEMENT.
3. SHAPE THE BASIN TO THE SPECIFIED DIMENSIONS. PREVENT THE SKIMMING DEVICE FROM SETTLING INTO THE MUD BY EXCAVATING A SHALLOW PIT UNDER THE SKIMMER OF PROVIDING A LOW SUPPORT UNDER THE SKIMMER OF STONE OR TIMBER.
4. PLACE THE BARREL (TYPICALLY 4-INCH SCHEDULE 40 PVC PIPE) ON A FIRM, SMOOTH FOUNDATION OF IMPERVIOUS SOIL. DO NOT USE PERVIOUS MATERIAL SUCH AS SAND, GRAVEL, OR CRUSHED STONE AS BACKFILL AROUND THE PIPE. PLACE THE FILL MATERIAL AROUND THE PIPE SPILLWAY IN 4-INCH LAYERS AND COMPACT IT UNDER AND AROUND THE PIPE TO AT LEAST THE SAME DENSITY AS THE ADJACENT EMBANKMENT. CARE MUST BE TAKEN NOT TO RAISE THE PIPE FROM THE FIRM CONTACT WITH ITS FOUNDATION WHEN COMPACTING UNDER THE PIPE HAUNCHES.

PLACE A MINIMUM DEPTH OF 2 FEET OF COMPACTED BACKFILL OVER THE PIPE SPILLWAY BEFORE CROSSING IT WITH CONSTRUCTION EQUIPMENT. IN NO CASE SHOULD THE PIPE CONDUIT BE INSTALLED BY CUTTING A TRENCH THROUGH THE DAM AFTER THE EMBANKMENT IS COMPLETE.

5. ASSEMBLE THE SKIMMER FOLLOWING THE MANUFACTURERS INSTRUCTIONS, OR AS DESIGNED.
6. LAY THE ASSEMBLED SKIMMER ON THE BOTTOM OF THE BASIN WITH THE FLEXIBLE JOINT AT THE INLET OF THE BARREL PIPE. ATTACH THE FLEXIBLE JOINT TO THE BARREL PIPE AND POSITION THE SKIMMER OVER THE EXCAVATED PIT OR SUPPORT. BE SURE TO ATTACH A ROPE TO THE SKIMMER AND ANCHOR IT TO THE SIDE OF THE BASIN. THIS WILL BE USED TO PULL THE SKIMMER TO THE SIDE FOR MAINTENANCE.
7. EARTHEN SPILLWAYS - INSTALL THE SPILLWAY IN UNDISTURBED SOIL TO THE GREATEST EXTENT POSSIBLE. THE ACHIEVEMENT OF PLANNED ELEVATIONS, GRADE, DESIGN WIDTH, AND ENTRANCE AND EXIT CHANNEL SLOPES ARE CRITICAL TO THE SUCCESSFUL OPERATION OF THE SPILLWAY. THE SPILLWAY SHOULD BE LINED WITH LAMINATED PLASTIC OR IMPERMEABLE GEOTEXTILE FABRIC. THE FABRIC MUST BE WIDE AND LONG ENOUGH TO COVER THE BOTTOM AND SIDES AND EXTEND ONTO THE TOP OF THE DAM FOR ANCHORING IN A TRENCH. THE EDGES MAY BE SECURED WITH 8-INCH STAPLES OR PINS. THE FABRIC MUST BE LONG ENOUGH TO EXTEND DOWN THE SLOPE AND EXIT ONTO STABLE GROUND. THE WIDTH OF THE FABRIC MUST BE ONE PIECE, NOT JOINED OR SPLICED; OTHERWISE WATER CAN GET UNDER THE FABRIC. IF THE LENGTH OF THE FABRIC IS INSUFFICIENT FOR THE ENTIRE LENGTH OF THE SPILLWAY, MULTIPLE SECTIONS, SPANNING THE COMPLETE WIDTH, MAY BE USED. THE UPPER SECTION(S) SHOULD OVERLAP THE LOWER SECTION(S) SO THAT WATER CANNOT FLOW UNDER THE FABRIC. SECURE THE UPPER EDGE AND SIDES OF THE FABRIC IN A TRENCH WITH STAPLES OR PINS.
8. INLETS - DISCHARGE WATER INTO THE BASIN IN A MANNER TO PREVENT EROSION. USE TEMPORARY SLOPE DRAINS OR DIVERSIONS WITH OUTLET PROTECTION TO DIVERT SEDIMENT-LADEN WATER TO THE UPPER END OF THE POOL AREA TO IMPROVE BASIN TRAP EFFICIENCY
9. EROSION CONTROL - CONSTRUCT THE STRUCTURE SO THAT THE DISTURBED AREA IS MINIMIZED. DIVERT SURFACE WATER AWAY FROM BARE AREAS. COMPLETE THE EMBANKMENT BEFORE THE AREA IS CLEARED. STABILIZE THE EMERGENCY SPILLWAY EMBANKMENT AND ALL OTHER DISTURBED AREAS ABOVE THE CREST OF THE PRINCIPAL SPILLWAY IMMEDIATELY AFTER CONSTRUCTION.
10. INSTALL POROUS BAFFLES.
11. AFTER ALL THE SEDIMENT-PRODUCING AREAS HAVE BEEN PERMANENTLY STABILIZED, REMOVE THE STRUCTURE AND ALL THE UNSTABLE SEDIMENT. SMOOTH THE AREA TO BLEND WITH THE ADJOINING AREAS AND STABILIZE PROPERLY.

MAINTENANCE:

INSPECT SKIMMER SEDIMENT BASINS AT LEAST WEEKLY AND AFTER EACH SIGNIFICANT (ONE-HALF INCH OR GREATER) RAINFALL EVENT AND REPAIR IMMEDIATELY. REMOVE SEDIMENT AND RESTORE THE BASIN TO ITS ORIGINAL DIMENSIONS WHEN SEDIMENT ACCUMULATES TO ONE-HALF THE HEIGHT OF THE FIRST BAFFLE PULL THE SKIMMER TO ONE SIDE SO THAT THE SEDIMENT UNDERNEATH IT CAN BE EXCAVATED. EXCAVATE THE SEDIMENT FROM THE ENTIRE BASIN, NOT JUST AROUND THE SKIMMER OF THE FIRST CELL. MAKE SURE VEGETATION GROWING IN THE BOTTOM OF THE BASIN DOES NOT HOLD DOWN THE SKIMMER.

REPAIR THE BAFFLES IF THEY ARE DAMAGED. RE-ANCHOR THE BAFFLES IF WATER IS FLOWING UNDERNEATH OR AROUND THEM.

IF THE SKIMMER IS CLOGGED WITH TRASH AND THERE IS WATER IN THE BASIN, USUALLY JERKING ON THE ROPE WILL MAKE THE SKIMMER BOB UP AND DOWN AND DISLODGE THE DEBRIS AND RESTORE FLOW. IF THIS DOES NOT WORK, PULL THE SKIMMER OVER TO THE SIDE OF THE BASIN AND REMOVE THE DEBRIS. ALSO CHECK THE ORIFICE INSIDE THE SKIMMER TO SEE IF IT IS CLOGGED; IF SO REMOVE THE DEBRIS.

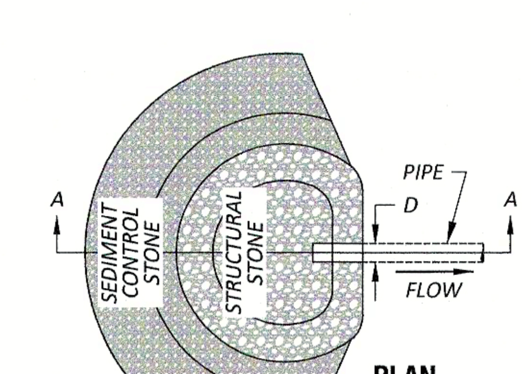
IF THE SKIMMER ARM OR BARREL PIPE IS CLOGGED, THE ORIFICE CAN BE REMOVED AND THE OBSTRUCTION CLEARED WITH A PLUMBER'S SNAKE OR BY FLUSHING WITH WATER. BE SURE AND REPLACE THE ORIFICE BEFORE REPOSITIONING THE SKIMMER.

CHECK THE FABRIC LINED SPILLWAY FOR DAMAGE AND MAKE ANY REQUIRED REPAIRS WITH FABRIC THAT SPANS THE FULL WIDTH OF THE SPILLWAY. CHECK THE EMBANKMENT, SPILLWAYS, AND OUTLET FOR EROSION DAMAGE, AND INSPECT THE EMBANKMENT FOR PIPING AND SETTLEMENT. MAKE ALL NECESSARY REPAIRS IMMEDIATELY. REMOVE ALL TRASH AND OTHER DEBRIS FROM THE SKIMMER AND POOL AREAS.

FREEZING WEATHER CAN RESULT IN ICE FORMING IN THE BASIN. SOME SPECIAL PRECAUTIONS SHOULD BE TAKEN IN THE WINTER TO PREVENT THE SKIMMER FROM PLUGGING WITH ICE.

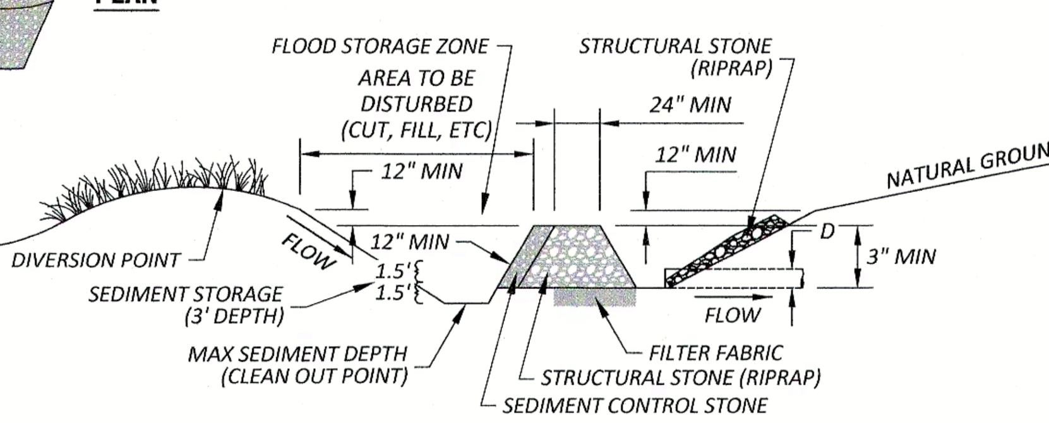
7 SEDIMENT BASIN WITH SKIMMER

N.T.S.
W-SPEC-3



NOTES:

1. STRUCTURAL STONE SHALL BE CLASS "1" RIPRAP.
2. SEDIMENT CONTROL STONE SHALL BE WASHED # 57 STONE PER NCDOT SSRS SECTION 1042.
3. GRAVEL & RIPRAP FILTER BERM BASIN DETAIL IS DESIGNED TO PROTECT EXISTING PIPE INVERTS AT 10 ACRES OR LESS.



8 TEMPORARY ROCK PIPE INLET PROTECTION

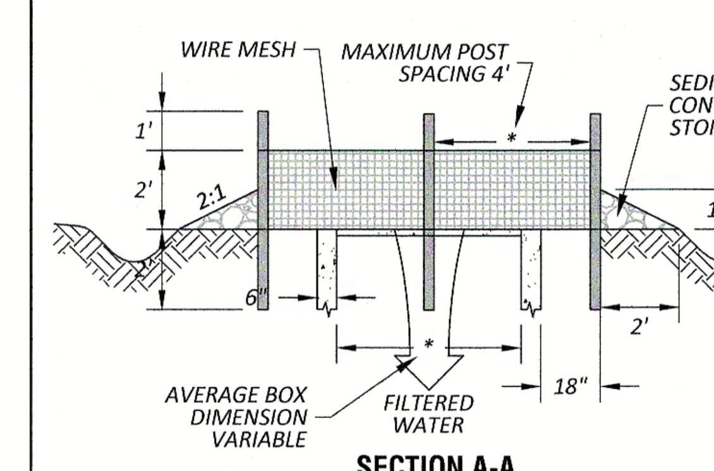
N.T.S.

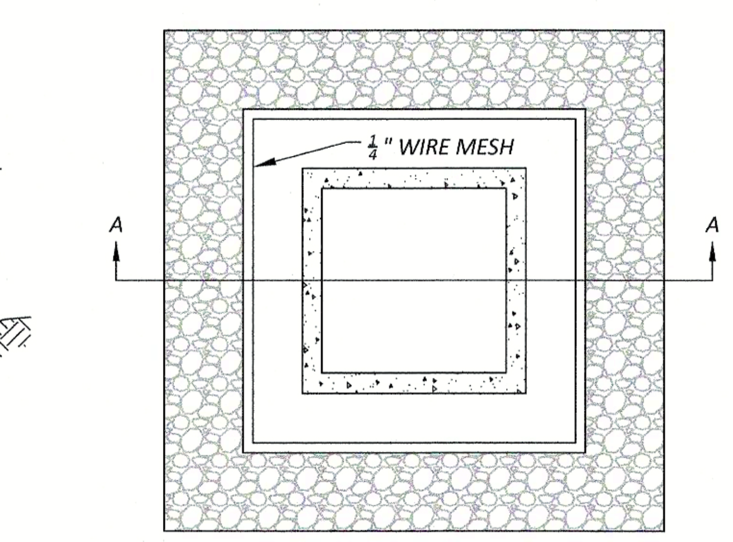
NOTES:

1. SEDIMENT CONTROL STONE SHALL BE # 5 OR # 57 WASHED STONE.
2. WIRE MESH SHALL BE HARDWARE CLOTH, 19 GUAGE (MIN) & SHALL HAVE $\frac{1}{4}$" MESH OPENINGS.
3. TOP OF WIRE MESH SHALL BE A MINIMUM OF 1' BELOW THE SHOULDER OR ANY DIVERSION POINT.
4. PLACE A 2-FOOT FLAP OF THE WIRE MESH UNDER THE GRAVEL FOR ANCHORING.
5. 5) THE SELF-FASTENER ANGLE STEEL TYPE POST SHALL BE 5' IN HEIGHT & INSTALLED 2' DEEP (MIN).

MAINTENANCE:

INSPECT INLETS AT LEAST WEEKLY AND AFTER EACH SIGNIFICANT ($\frac{1}{2}$" OR GREATER) RAINFALL EVENT. CLEAR THE MESH WIRE OF ANY DEBRIS OR OTHER OBJECTS TO PROVIDE ADEQUATE FLOW FOR SUBSEQUENT RAINS. TAKE CARE NOT TO DAMAGE OR UNDERCUT THE WIRE MESH DURING SEDIMENT REMOVAL. REPLACE STONE AS NEEDED.





9 ROCK INLET SEDIMENT TRAP

N.T.S.

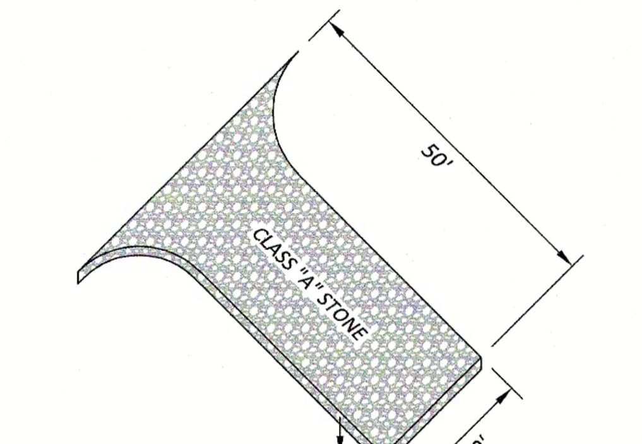
TEMPORARY GRAVEL CONSTRUCTION ENTRANCE

CONSTRUCTION SPECIFICATIONS:

1) CLEAR THE ENTRANCE AND EXIT AREA OF ALL VEGETATION, ROOTS, AND OTHER OBJECTIONABLE MATERIAL AND PROPERLY GRADE IT.
2) PLACE THE GRAVEL TO THE SPECIFIC GRADE AND DIMENSIONS SHOWN ON THE PLANS, AND SMOOTH IT.
3) PROVIDE DRAINAGE TO CARRY WATER TO A SEDIMENT TRAP OR OTHER SUITABLE OUTLET.
4) USE GEOTEXTILE FABRICS BECAUSE THEY IMPROVE STABILITY OF THE FOUNDATION IN LOCATIONS SUBJECT TO SEEPAGE OR HIGH WATER TABLE.

MAINTENANCE:

MAINTAIN THE GRAVEL PAD IN A CONDITION TO PREVENT MUD OR SEDIMENT FROM LEAVING THE CONSTRUCTION SITE. THIS MAY REQUIRE PERIODIC TOPDRESSING WITH 2-INCH STONE. AFTER EACH RAINFALL, INSPECT ANY STRUCTURE USED TO TRAP SEDIMENT AND CLEAN IT OUT AS NECESSARY. IMMEDIATELY REMOVE ALL OBJECTIONABLE MATERIALS SPILLED, WASHED, OR TRACKED ONTO PUBLIC ROADWAYS.



NOTES

1. PROVIDE TURNING RADIUS SUFFICIENT TO ACCOMMODATE LARGE TRUCKS.
2. LOCATE ENTRANCES TO PROVIDE FOR UTILIZATION BY ALL CONSTRUCTION VEHICLES.
3. MUST BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR DIRECT FLOW OF MUD ONTO STREETS.
4. ANY MATERIAL TRACKED ONTO THE ROADWAY MUST BE CLEANED UP IMMEDIATELY.
5. LOCATE GRAVEL CONSTRUCTION ENTRANCE AT ALL POINTS OF INGRESS AND EGRESS UNTIL SITE IS STABILIZED. PROVIDE FREQUENT CHECKS OF THE DEVICE AND TIMELY MAINTENANCE.
6. NUMBER AND LOCATION OF CONSTRUCTION ENTRANCES TO BE DETERMINED BY THE ENGINEER.
7. USE CLASS "A" STONE OR OTHER COARSE AGGREGATE APPROVED BY THE ENGINEER.
8. INSTALL CONSTRUCTION ENTRANCES IN A WAY TO PREVENT VEHICLES FROM BYPASSING CONSTRUCTION ENTRANCE LEAVING PROJECT SITE

NOTE: PLACE FILTRATION GEOTEXTILE BENEATH STONE

4 TEMPORARY GRAVEL CONSTRUCTION ENTRANCE

N.T.S.
W-SPEC-6

ROCK CHECK DAM

CONSTRUCTION SPECIFICATIONS

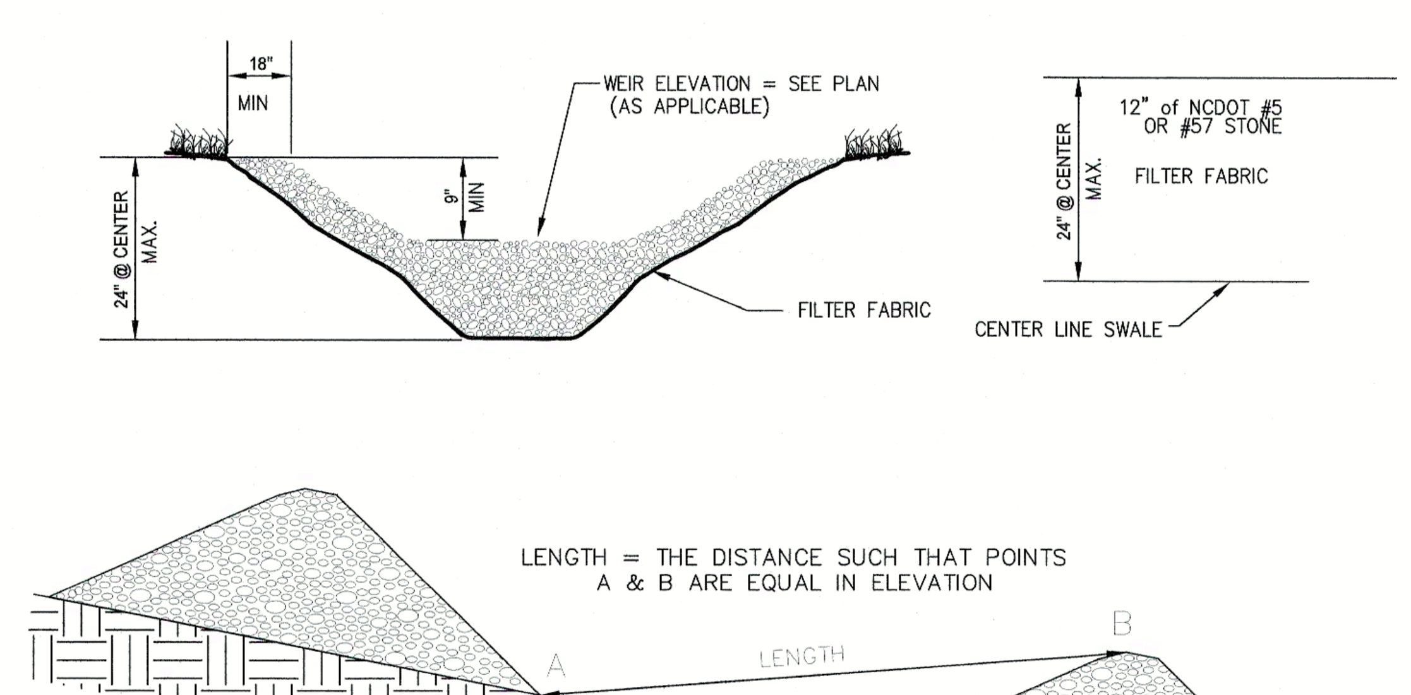
1. PLACE STONE TO THE LINES AND DIMENSIONS SHOWN IN THE PLAN ON A FILTER FABRIC FOUNDATION.
2. KEEP THE CENTER STONE SECTION AT LEAST 9 INCHES BELOW NATURAL GROUND LEVEL WHERE THE DAM ABUTS THE CHANNEL BANKS.
3. EXTEND STONE AT LEAST 1.5 FEET BEYOND THE DITCH BANK TO KEEP WATER FROM CUTTING AROUND THE ENDS OF THE CHECK DAM.
4. SET SPACING BETWEEN DAMS TO ASSURE THAT THE ELEVATION AT THE TOP OF THE LOWER DAM IS THE SAME AS THE TOE ELEVATION OF THE UPPER DAM.
5. PROTECT THE CHANNEL AFTER THE LOWEST CHECK DAM FROM HEAVY FLOW THAT COULD CAUSE EROSION.
6. MAKE SURE THAT THE CHANNEL REACH ABOVE THE MOST UPSTREAM DAM IS STABLE.
7. ENSURE THAT OTHER AREAS OF THE CHANNEL, SUCH AS CULVERT ENTRANCES BELOW THE CHECK DAMS, ARE NOT SUBJECT TO DAMAGE OR BLOCKAGE FROM DISPLACED STONES.

MAINTENANCE

INSPECT CHECK DAMS AND CHANNELS AT LEAST WEEKLY AND AFTER EACH SIGNIFICANT (1/2 INCH OR GREATER) RAINFALL EVENT AND REPAIR IMMEDIATELY. CLEAN OUT SEDIMENT, STRAW, LIMBS, OR OTHER DEBRIS THAT COULD CLOG THE CHANNEL WHEN NEEDED.

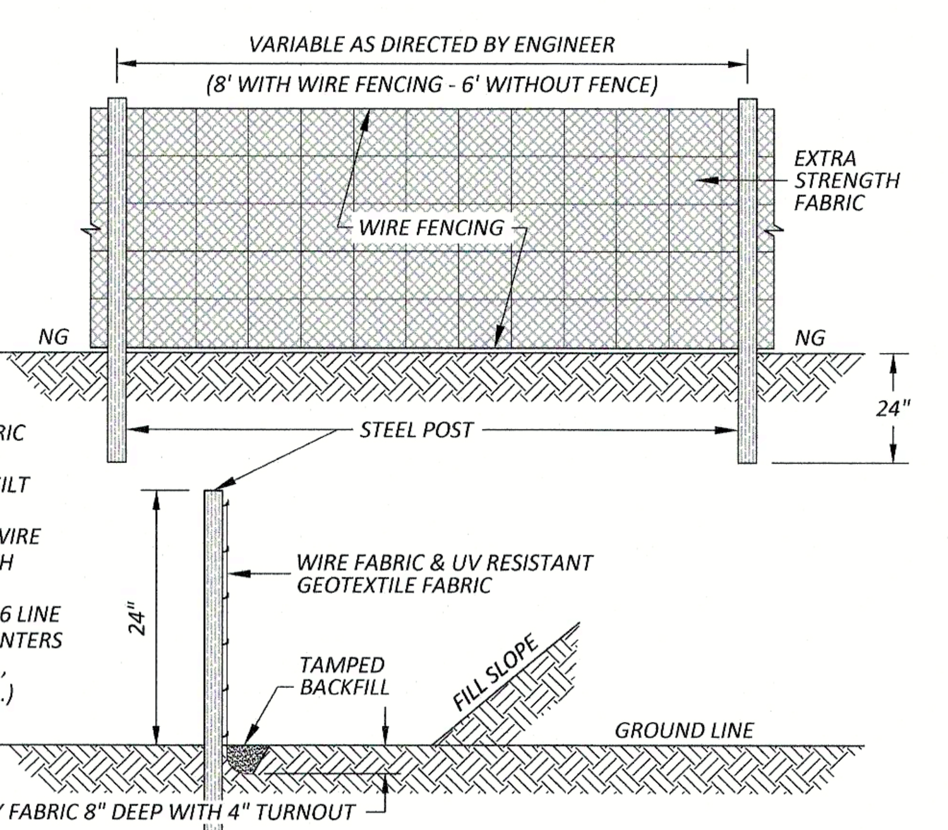
ANTICIPATE SUBMERGENCE AND DEPOSITION ABOVE THE CHECK DAM AND EROSION FROM HIGH FLOWS AROUND THE EDGES OF THE DAM. CORRECT ALL DAMAGE IMMEDIATELY IF SIGNIFICANT EROSION OCCURS BETWEEN DAMS, ADDITIONAL MEASURES CAN BE TAKEN SUCH AS, INSTALLING A PROTECTIVE RIPRAP LINER IN THAT PORTION OF THE CHANNEL

REMOVE SEDIMENT ACCUMULATED BEHIND THE DAMS AS NEEDED TO PREVENT DAMAGE TO CHANNEL VEGETATION, ALLOW THE CHANNEL TO DRAIN THROUGH THE STONE CHECK DAM, AND PREVENT LARGE FLOWS FROM CARRYING SEDIMENT OVER THE DAM. ADD STONES TO DAMS AS NEEDED TO MAINTAIN DESIGN HEIGHT AND CROSS SECTION.



2 ROCK SILT CHECK DAM

N.T.S.



NOTES:

1. USE STANDARD STRENGTH FABRIC WITH 8' POST SPACING & WIRE FENCING WHERE REINFORCED SILT FENCE IS REQUIRED.
2. USE 6' POST SPACING AND NO WIRE FENCING WITH EXTRA STRENGTH FABRIC.
3. WIRE FENCING TO BE 32" WITH 6 LINE WIRES & STAY WIRES ON 12" CENTERS (BOTTOM & TOP WIRES - 10 GA., INTERMEDIATE WIRES - 12.5 GA.)

SILT FENCE

MAINTENANCE:

INSPECT SEDIMENT FENCES AT LEAST ONCE A WEEK AND AFTER EACH RAINFALL, MAKE ANY REQUIRED REPAIRS IMMEDIATELY.

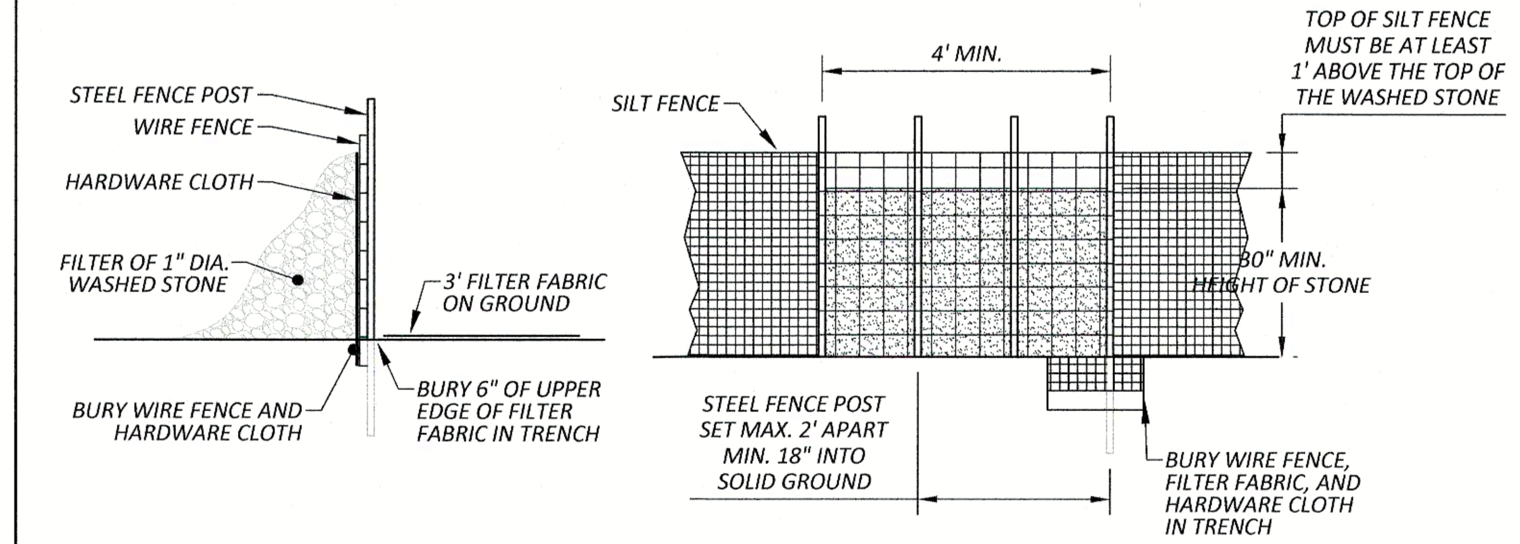
SHOULD THE FABRIC OF A SEDIMENT FENCE COLLAPSE, TEAR, DECOMPOSE OR BECOME INEFFECTIVE, REPLACE IT PROMPTLY.

REMOVE SEDIMENT DEPOSITS AS NECESSARY TO PROVIDE ADEQUATE STORAGE VOLUME FOR THE NEXT RAIN AND TO REDUCE PRESSURE ON THE FENCE. TAKE CARE TO AVOID UNDERMINING THE FENCE DURING CLEANOUT.

REMOVE ALL FENCING MATERIALS AND UNSTABLE SEDIMENT DEPOSITS AND BRING THE AREA TO GRADE AND STABILIZE IT AFTER THE CONTRIBUTING DRAINAGE AREA HAS BEEN PROPERLY STABILIZED.

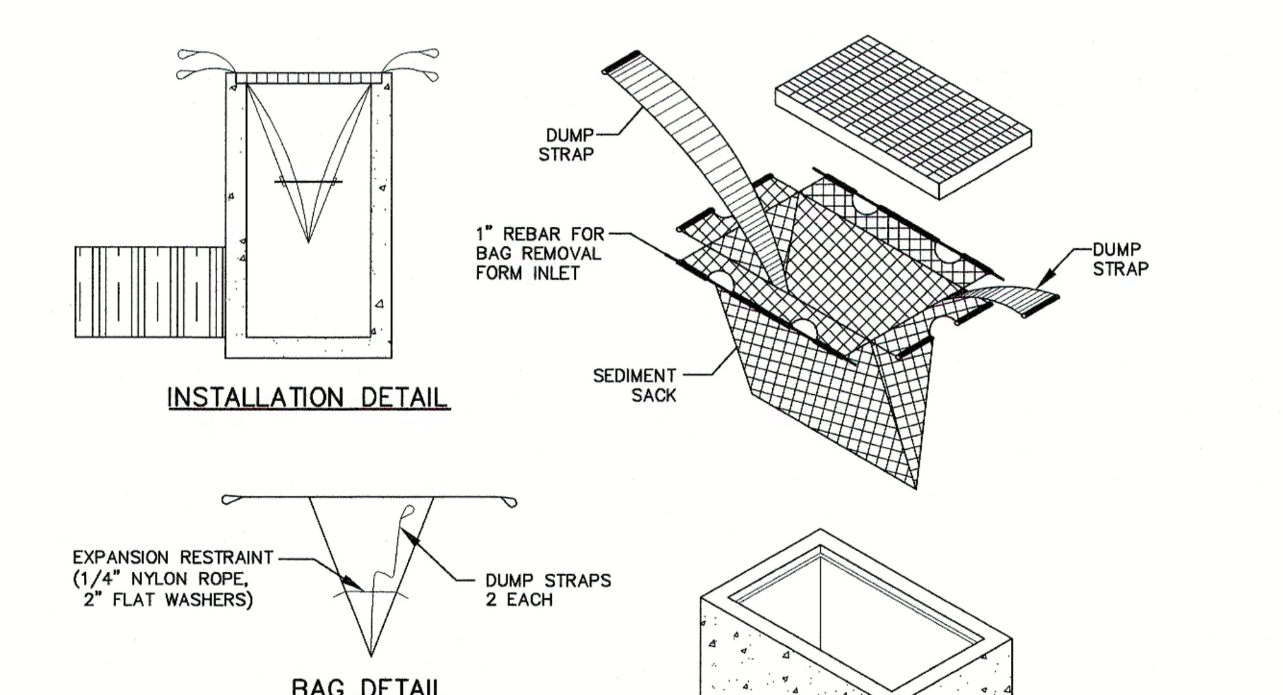
5 STANDARD SILT FENCE

N.T.S.



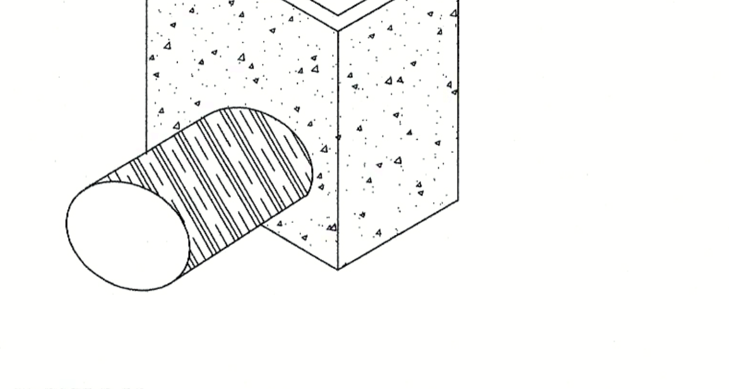
10 SILT FENCE OUTLET

N.T.S.



NOTES:

1. SOME MUNICIPALITIES DO NOT ALLOW GUTTER PROTECTION ON PUBLIC ROADS. SILT BAGS SHOULD BE USED WITH THESE CASES.
2. BAGS SHOULD BE CLEANED OUT AFTER EVERY RAIN EVENT AND/OR AS NEEDED.



11 SILT BAG DETAIL

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NORTH CAROLINA PROFESSIONAL SEAL 13055 ENGINEER DWIGHT VERNON [signature] 01-28-26

REVISIONS:

NO.	DESCRIPTION	DATE	BY
1	CITY REVIEW COMMENTS	1/28/26	KB

BOVIET SUBSTATION

GREENVILLE UTILITIES COMMISSION

CITY OF GREENVILLE ~ PITT COUNTY ~ NORTH CAROLINA

EROSION CONTROL NOTES & DETAILS

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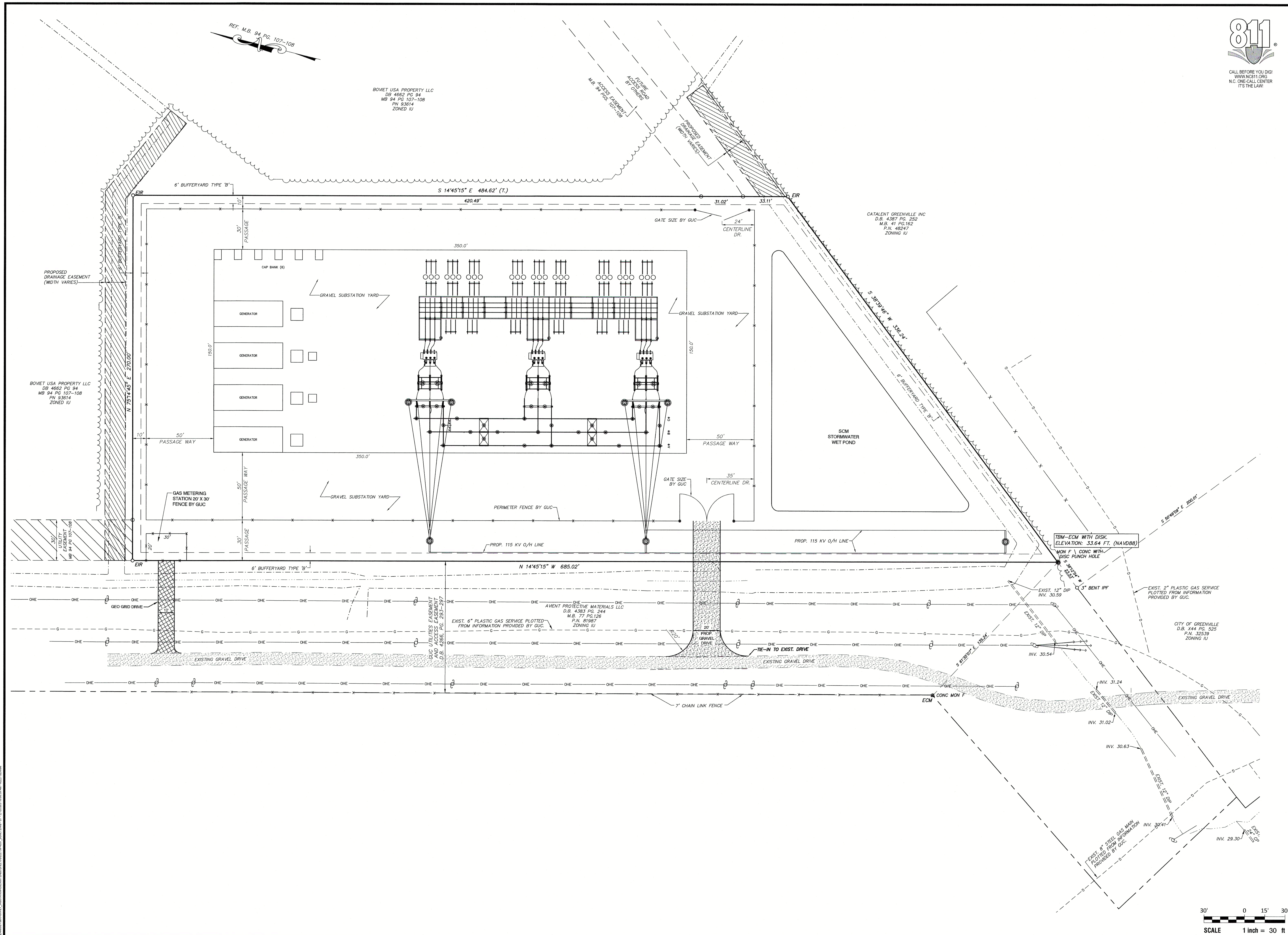

REF. M.B. 94 PG. 107-108
BOVIET USA PROPERTY LLC
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FUTURE ACCESS ROAD BY OTHERS
ACCESS EASEMENT M.B. 94 PGS. 107-108
PROPOSED DRAINAGE EASEMENT (WIDTH VARIES)
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6' BUFFERYARD TYPE 'B'
S 14°45'15" E 484.62' (T.)
420.49'
31.02'
33.11'
EIR
GATE SIZE BY GUC
24' CENTERLINE DR.
CATALENT GREENVILLE INC
D.B. 4387 PG. 252
M.B. 41 PG.162
P.N. 48247
ZONING IU
350.0'
CAP BANK (6)
GRAVEL SUBSTATION YARD
GENERATOR
150.0'
N 75°14'45" E 270.00'
S 38°39'46" W 336.24'
BOVIET USA PROPERTY LLC
DB 4662 PG 94
MB 94 PG 107-108
PN 93614
ZONED IU
50' PASSAGE WAY
30' PASSAGE
SCM STORMWATER WET POND
GAS METERING STATION 20' X 30' FENCE BY GUC
GATE SIZE BY GUC
35' CENTERLINE DR.
PERIMETER FENCE BY GUC
PROP. 115 KV O/H LINE
30' UTILITY EASEMENT MB 94 PG 107-108
TBM-ECM WITH DISK. ELEVATION: 33.64 FT. (NAVD88)
MON F CONC WITH DISC PUNCH HOLE
N 14°45'15" W 685.02'
S 50°48'09" E 200.01'
3" BENT IPF
EXIST. 12" DIP INV. 30.59
EXIST. 2" PLASTIC GAS SERVICE PLOTTED FROM INFORMATION PROVIDED BY GUC.
GEO GRID DRIVE
AVIENT PROTECTIVE MATERIALS LLC
D.B. 4383 PG. 244
M.B. 77 PG.126
P.N. 81987
ZONING IU
GUC UTILITIES EASEMENT AND ACCESS EASEMENT D.B. 4266, PG. 293-297
EXIST. 6" PLASTIC GAS SERVICE PLOTTED FROM INFORMATION PROVIDED BY GUC.
PROP. GRAVEL DRIVE
TIE-IN TO EXIST. DRIVE
EXISTING GRAVEL DRIVE
CITY OF GREENVILLE
D.B. X44 PG. 525
P.N. 32539
ZONING IU
INV. 30.54
INV. 31.24
INV. 31.02
INV. 30.63
INV. 30.41
INV. 29.30
7' CHAIN LINK FENCE
CONC MON F
ECM
EXIST. 12" DIP
EXIST. 8" STEEL GAS MAIN PLOTTED FROM INFORMATION PROVIDED BY GUC.
SCALE 1 inch = 30 ft

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NORTH CAROLINA PROFESSIONAL SEAL 13055 ENGINEER J. DWIGHT VERMETSON
01-28-26

REVISIONS:

NO.	DESCRIPTION	DATE	BY
1	CITY REVIEW COMMENTS	1/28/26	KB

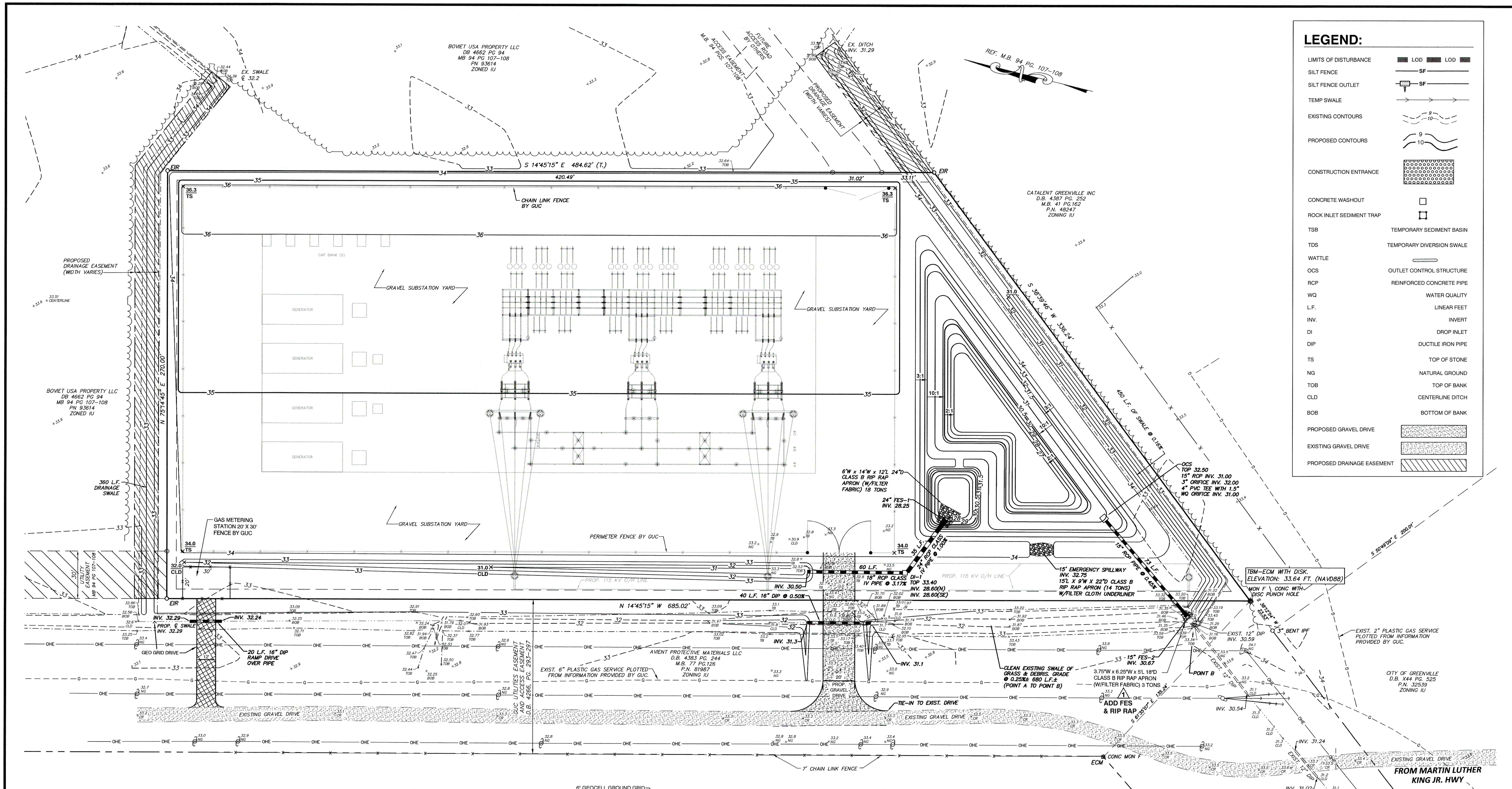
BOVIET SUBSTATION

GREENVILLE UTILITIES COMMISSION

CITY OF GREENVILLE ~ PITT COUNTY ~ NORTH CAROLINA

SITE PLAN

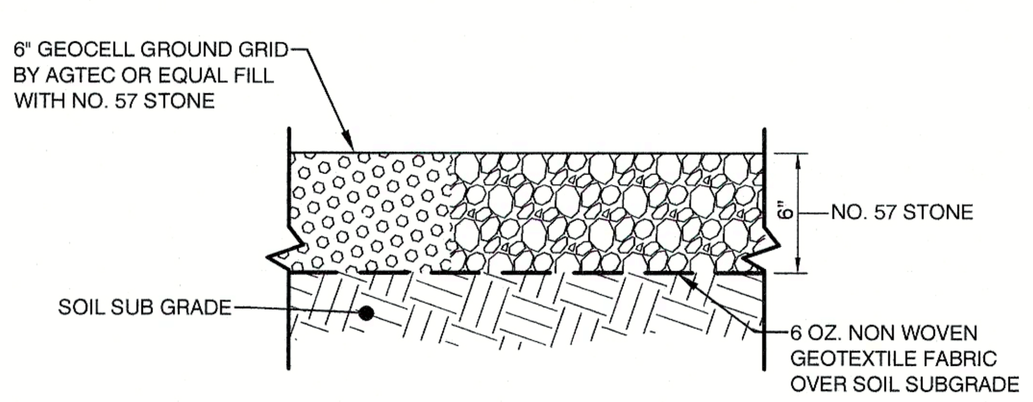
DATE:	JANUARY 12, 2026
DESIGNED BY:	JW
DRAWN BY:	KB
CHECKED BY:	JDV
PROJECT No.	2025087
DRAWING No.	W-4267
SCALE:	AS NOTED
SHEET No.	C7



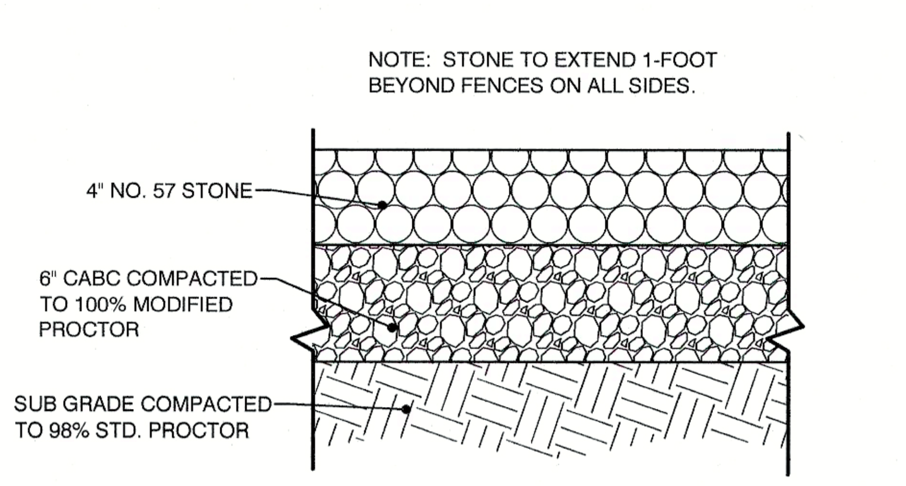
LEGEND:

LIMITS OF DISTURBANCE	LOD
SILT FENCE	SF
SILT FENCE OUTLET	SF
TEMP SWALE	
EXISTING CONTOURS	9, 10
PROPOSED CONTOURS	9, 10
CONSTRUCTION ENTRANCE	
CONCRETE WASHOUT	
ROCK INLET SEDIMENT TRAP	
TSB	TEMPORARY SEDIMENT BASIN
TDS	TEMPORARY DIVERSION SWALE
WATTLE	
OCS	OUTLET CONTROL STRUCTURE
RCP	REINFORCED CONCRETE PIPE
WQ	WATER QUALITY
L.F.	LINEAR FEET
INV.	INVERT
DI	DROP INLET
DIP	DUCTILE IRON PIPE
TS	TOP OF STONE
NG	NATURAL GROUND
TOB	TOP OF BANK
CLD	CENTERLINE DITCH
BOB	BOTTOM OF BANK
PROPOSED GRAVEL DRIVE	
EXISTING GRAVEL DRIVE	
PROPOSED DRAINAGE EASEMENT	

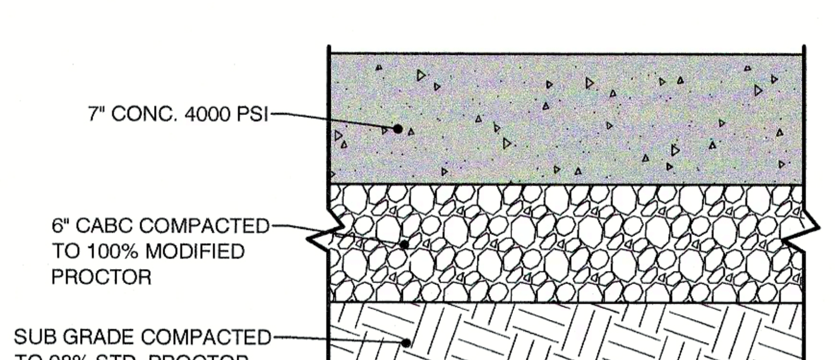
NOTE: FOR SOIL CONDITIONS AND PAVEMENT DESIGN SEE GEOTECHNICAL REPORT BY SOLID GROUND NC DATED MAY 29, 2025, PROJECT NO. NC25-0130



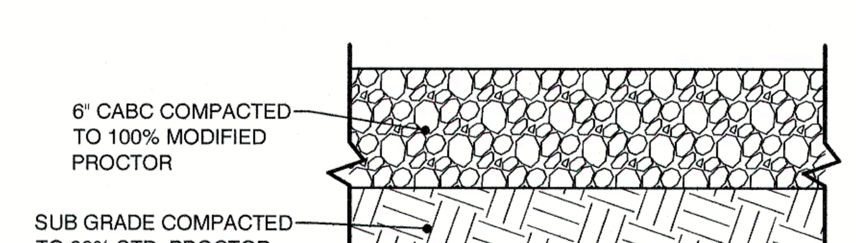
GEO GRID DRIVE - CROSS SECTION
NTS



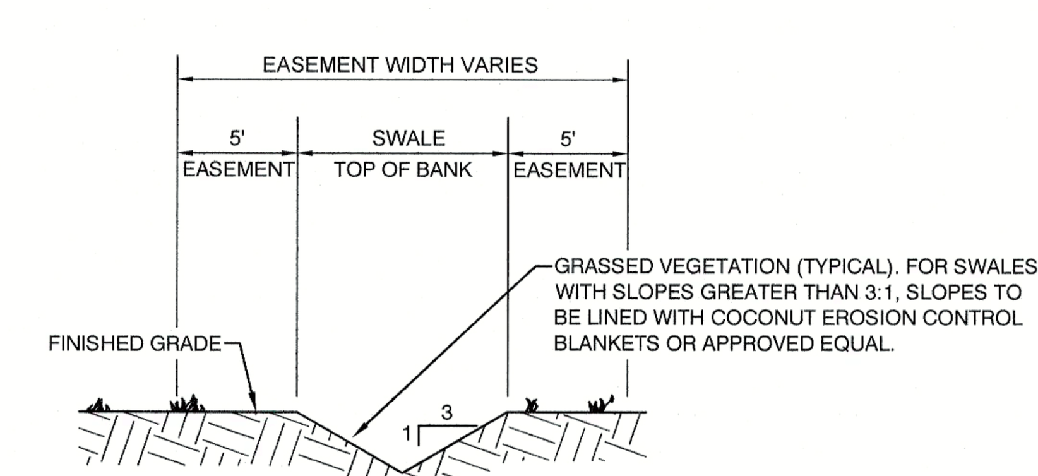
GRAVEL SUB-STATION YARD PAVEMENT SECTION
NTS



CONCRETE PAVEMENT SECTION
NTS



GRAVEL DRIVE - PAVEMENT SECTION
NTS



TYPICAL SWALE CROSS SECTION

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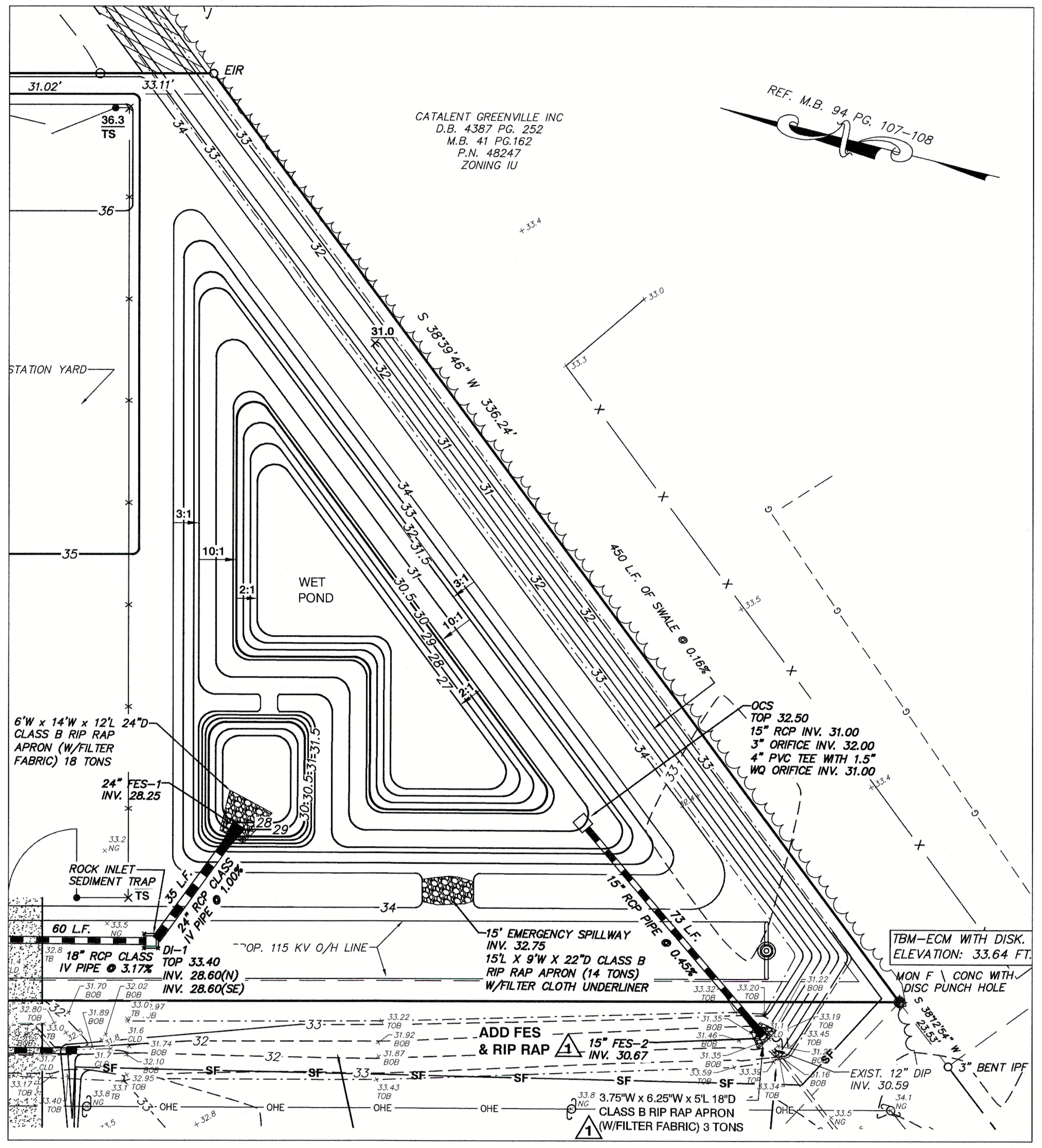
NORTH CAROLINA PROFESSIONAL SEAL 13055 ENGINEER
01-28-26

REVISIONS:

NO.	DESCRIPTION	DATE	BY
1	CITY REVIEW COMMENTS	1/28/26	KB

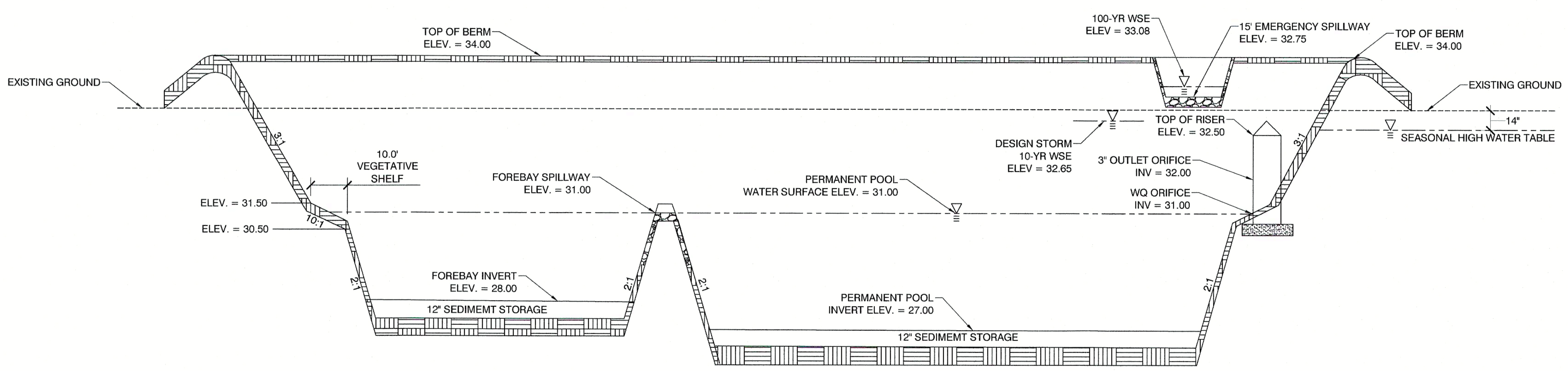
BOVIET SUBSTATION
GREENVILLE UTILITIES COMMISSION
CITY OF GREENVILLE ~ PITT COUNTY ~ NORTH CAROLINA
GRADING PLAN

DATE:	JANUARY 12, 2026
DESIGNED BY:	JW
DRAWN BY:	KB
CHECKED BY:	JDV
PROJECT No.	2025087
DRAWING No.	W-4267
SCALE:	AS NOTED
SHEET No.	C8



SCM PLAN VIEW

SCALE 1 inch = 30 ft



SCM SECTION VIEW

N.T.S.

PERMANENT SEEDING SPECIFICATIONS

SEEDING MIXTURE

SPECIES	RATE (LB/ACRES)
PREMIUM BERMUDA	60

NURSE PLANTS

BETWEEN APR. 15 AND AUG. 15, ADD 10 LB/ACRE GERMAN MILLET OR 15 LB/ACRE SUDAN GRASS PRIOR TO MAY 1 OR AFTER AUG 15, ADD 25 LB/ACRE RYE (GRAIN)

SEEDING DATES

	BEST	POSSIBLE
EARLY SPRING:	FEB. 15-MAR. 20	FEB. 15-APR. 30
FALL:	SEPT. 1-SEPT. 30	SEPT. 1-OCT. 31

SOIL AMENDMENTS

APPLY LIME AND FERTILIZER ACCORDING TO SOIL TEST. IF SOIL TEST IS NOT AVAILABLE APPLY 2 TONS/ACRE AGRICULTURAL GRADE LIMESTONE AND 1,000LBS/ACRE OF 10-10-10 FERTILIZER, OR APPLY 3,000-5,000 LB/ACRE SUDANGRASS. PRIOR TO MAY 1 OR AFTER AUG. 15, ADD 25 LB/ACRE RYE (GRASS)

MULCH

APPLY 4,000 LB/ACRE GRAIN STRAW OR EQUIVALENT COVER OF ANOTHER SUITABLE MULCH. ANCHOR STRAW BY TACKING WITH ASPHALT, NETTING, OR ROVING OR BY CRIMPING WITH A MULCH ANCHORING TOOL. A DICK WITH BLADES SET NEARLY STRAIGHT CAN BE USED AS A MULCH ANCHORING TOOL.

MAINTENANCE

IF GROWTH IS LESS THAN FULL ADEQUATE, REFERTILIZE THE SECOND YEAR. ACCORDING TO SOIL TESTS OR TOPDRESS WITH 500 LB/ACRE 10-10-10 FERTILIZER. MOW AS NEEDED. RESEED, FERTILIZE AND MULCH DAMAGED AREAS IMMEDIATELY.

MAINTENANCE

INSPECTION ACTIVITIES - (FREQUENCY)

WHERE MAINTENANCE REQUIRES DEWATERING, DO SO BY MEANS OF DEWATERING PUMP.

AFTER CONSTRUCTION

INSPECT AFTER SEVERAL STORM EVENTS FOR BANK STABILITY, VEGETATION GROWTH, DRAINAGE SYSTEM FUNCTIONING, AND STRUCTURAL DAMAGE.

SEMI-ANNUAL INSPECTION

INSPECT FOR INVASIVE VEGETATION, DIFFERENTIAL SETTLEMENT, CRACKING; EROSION, LEAKAGE, OR TREE GROWTH ON THE EMBANKMENT; THE CONDITION OF THE RIPRAP IN THE INLET, OUTLET, AND PILOT CHANNELS; SEDIMENT ACCUMULATION IN THE BASIN; CLOGGING OF OUTLET; AND THE VIGOR AND DENSITY OF THE VEGETATION ON THE BASIN SIDE SLOPES AND FLOOR. CORRECT OBSERVED PROBLEMS AS NECESSARY.

NOTE SIGNS OF HYDROCARBON BUILDUP SUCH AS FLOATING OIL ON WATER SURFACE. - INSPECT FOR DAMAGE TO THE EMBANKMENT AND INLET/OUTLET STRUCTURES. REPAIR AS NECESSARY. -MONITOR FOR SEDIMENT ACCUMULATION IN THE FACILITY AND FOREBAY. EXAMINE INLET AND OUTLET DEVICES TO ENSURE THEY ARE FREE OF DEBRIS AND ARE OPERATIONAL.

MAINTENANCE ACTIVITIES - (FREQUENCY)

ONE TIME

- REPLACE WET POND VEGETATION TO MAINTAIN AT LEAST 50% OF SURFACE AREA COVERAGE IN WET POND PLANTS AFTER THE SECOND GROWING SEASON.

AS NEEDED

- REPAIR UNDERCUT AREAS, EROSION TO BANKS, AND BOTTOM AS REQUIRED. WHERE PERMITTED BY THE DEPARTMENT OF FISH AND GAME OR OTHER AGENCY REGULATIONS, STOCK CONSTRUCTED WET PONDS REGULARLY WITH MOSQUITO FISH (GAMBUSIA SPP.) TO ENHANCE NATURAL MOSQUITO AND MIDGE CONTROL.

3 TO 4 TIMES PER YEAR

- CLEAN AND REMOVE DEBRIS FROM INLET AND OUTLET STRUCTURES.
- MOW SIDE SLOPES AND REMOVE GRASS CLIPPINGS. REMOVE LITTER AND DEBRIS FROM BANKS, BASIN BOTTOM, TRASH RACKS, OUTLET STRUCTURES, AND VALVES AS REQUIRED.

ANNUAL (IF NEEDED)

- -SUPPLEMENT WET POND PLANTS IF A SIGNIFICANT PORTION HAVE NOT ESTABLISHED (AT LEAST 50% OF THE SURFACE AREA).
- -REMOVE NUISANCE PLANT SPECIES.
- -CLEAN FOREBAY TO AVOID ACCUMULATION IN MAIN WET POND AREA TO MINIMIZE WHEN THE MAIN WET POND AREA NEEDS TO BE CLEANED.
- -HARVEST PLANT SPECIES IF VEGETATION BECOMES TOO THICK CAUSING FLOW BACKUP AND FLOODING. MORE FREQUENT PLANT HARVESTING MAY BE REQUIRED BY LOCAL VECTOR CONTROL AGENCIES.
- -FERTILIZE NEW VEGETATION ONE TIME ONLY. THE OWNER SHALL NOT FERTILIZE VEGETATION AFTER THE INITIAL OCCURRENCE.
- -MONITOR SEDIMENT ACCUMULATIONS, AND REMOVE SEDIMENT WHEN THE ACCUMULATED SEDIMENT VOLUME EXCEEDS 10-20% OF THE BASIN VOLUME, PLANTS ARE "CHOKED" WITH SEDIMENT, OR THE WET POND BECOMES EUTROPHIC. IT IS SUGGESTED THAT THE MAIN AREA BE CLEANED ONE HALF AT A TIME WITH AT LEAST ONE GROWING SEASON IN BETWEEN CLEANINGS. THIS WILL HELP TO PRESERVE THE VEGETATION AND ENABLE THE WET POND TO RECOVER MORE QUICKLY FROM THE CLEANING.

EMBANKMENT COMPACTION

1. ALL FILL MATERIAL FOR THE EMBANKMENT SHOULD BE PLACED IN LAYERS (OR LIFTS) NO GREATER THAN 6" THICK.
2. THE LARGEST SIZE PARTICLE SHOULD NOT BE GREATER THAN ⅓rd THE HEIGHT OF THE LIFT THAT IS 2".
3. EACH LAYER SHOULD BE THOROUGHLY COMPACTED BEFORE THE NEXT LAYER IS PLACED.
4. THE COMPACTION EFFORT ACHIEVED SHOULD BE ON AVERAGE 98% STANDARD PROCTOR ASTM D698.
5. THE MINIMUM COMPACTION EFFORT SHOULD BE 95% STANDARD PROCTOR ASTM D698.
6. THE MATERIAL FORMING THE EMBANKMENT SHOULD BE PLACED WITH SUFFICIENT MOISTURE TO ENSURE PROPER COMPACTION. THE MOISTURE CONTENT SHOULD BE IN THE RANGE OF -1% TO +3% OF OPTIMUM MOISTURE CONTENT (OMC).
7. BEFORE EACH ADDITIONAL 6" LIFT IS ADDED TO THE EMBANKMENT, THE PRECEDING LIFT SHOULD BE SCARIFIED TO ENSURE THAT THE TWO LIFTS ARE PROPERLY JOINED.
8. A WHEELED SCRAPER OR TRUCK SHOULD BE USED FOR PLACING THE CLAY ON THE DAM SITE. THE CLAY SHOULD THEN BE SPREAD BY THE USE OF THE BLADE ON A TAMPER FOOT ROLLER FROM A BULLDOZER TOWING A TAMPER FOOT ROLLER (SHEEPSFOOT ROLLER).

POND NOTES

1. TOP OF BERM AND ALL SIDE SLOPES SHALL BE EITHER SODDED OR HYDROSEEDED TO ESTABLISH A DENSE STAND OF NON CLUMPING TURF GRASS.
2. NO TREES SHRUBS OR WOODY VEGETATION IS ALLOWED ON THE TOP OF BERM OR SLOPES.
3. NO RIP RAP OR STONE IS ALLOWED IN THE BERM EMBANKMENT.
4. CONTRACTOR TO WATER PLANTINGS AND GRASS AS NEEDED
5. CONTRACTOR SHALL NOT BE RELEASED UNTIL AFTER THE POND HAS BEEN ASBUILT SURVEYED, PE CERTIFIED AND ACCEPTED BY CITY OF GREENVILLE.

STORMWATER WET POND PLANTING SPECIFICATIONS

1. ALL HERBACEOUS PLANTS WITHIN THE WET POND PROPER SHALL BE INSTALLED BETWEEN MARCH 15 AND JULY 31.
2. UNLESS OTHERWISE DESIGNATED, PLANTS SHOULD BE INSTALLED AS LARGE DRIFTS (I.E., MASSES OF A SINGLE SPECIES) WITHIN THEIR RESPECTIVE PLANTING AREAS.
3. INSTALL A SLOW RELEASE FERTILIZER TABLET NEXT TO EACH PLANT WITHIN THE WET POND PROPER. FOR HERBACEOUS SPECIES USE AG SAFE AQUATIC-TABS 20-10-5, 90 DAY CONTINUOUS FEEDING, 5 GRAMS, OR EQUIVALENT.
4. ALL PLANTS SHALL BE DIRECTLY DESCENDED FROM INDIVIDUALS GROWING WILD WITHIN 200 MILES OF THE PROJECT SITE. IF SUITABLE STOCK CANNOT BE OBTAINED, PLANTS OF OTHER GENETIC PROVENANCES MAY BE UTILIZED WITH THE APPROVAL OF THE OWNER OR OWNER'S REPRESENTATIVE.
5. PLANT MATERIAL SHOULD CONFORM TO AMERICAN STANDARD NURSERY STOCK, PUBLISHED BY THE AMERICAN ASSOCIATION OF NURSERYMEN. (SEE PLANT LIST AND NOTES 6 & 7).
6. ALL PLANT MATERIAL TO BE CONTAINER GROWN PLANTS OF AT LEAST 4.0 CUBIC INCHES CAPACITY.
7. A MINIMUM OF THREE(3) DIFFERENT SPECIES.

VEGETATIVE SHELF PLANTS:	(50 PLANTS PER 200 SF)
TOTAL:	4,568 SF = 1142 PLANTS

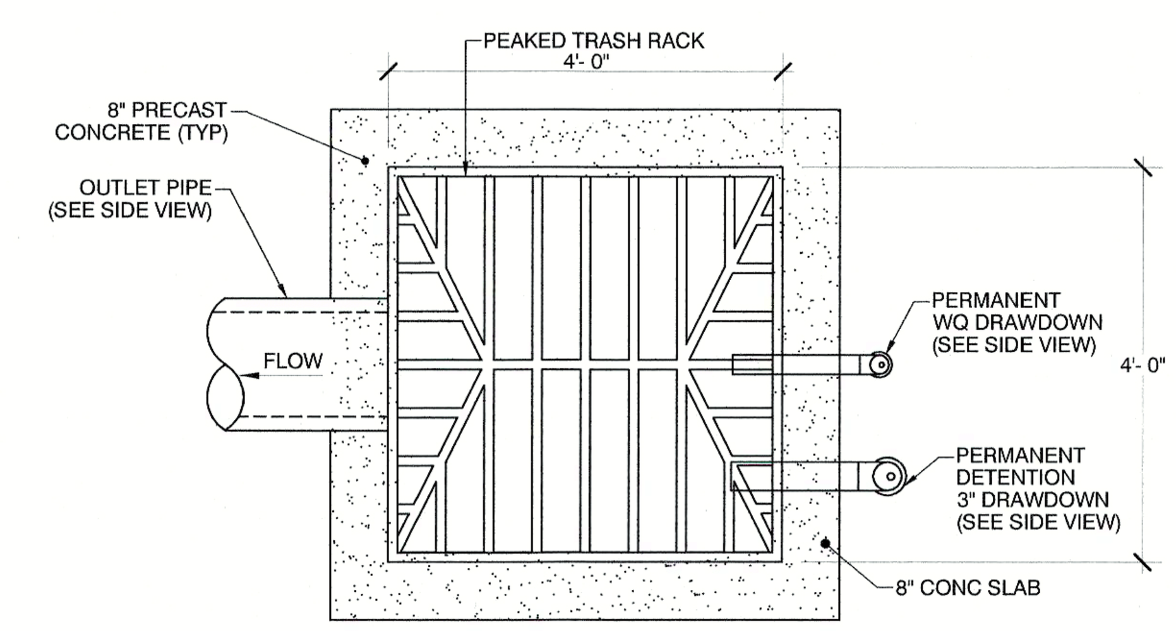
STORMWATER WET POND PLANTING TABLE

BOTANICAL NAME	COMMON NAME	QUANTITY
ASCLEPIAS INCARNATA	SWAMP MILKWEED	191
EUPATORIADELPHUS DUBIUS	DWARF JOE PYE WEED	191
CAREX TENERA	QUILL SEDGE	190
HIBISCUS LAEVIS	SCARLET ROSE MALLOW	190
RHYNCHOSPORA COLORATA	STARRUSH WHITETOP	190
LOBELIA ELONGATA	LONGLEAF LOBELIA	190

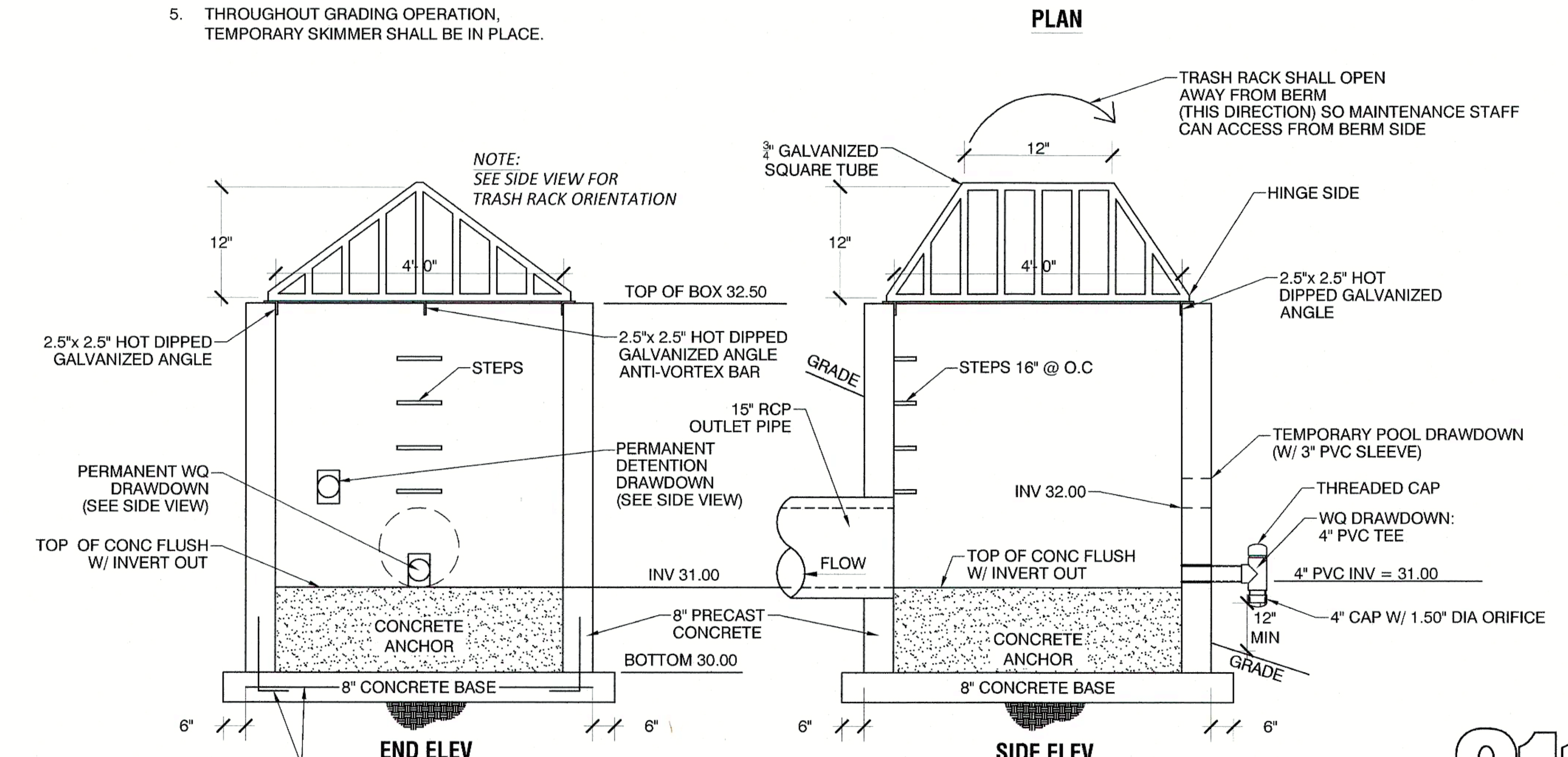
MELLOW MARSH FARMS (919) 742 1200

OUTLET CONTROL STRUCTURE NOTES

1. STRUCTURE SHALL BE PRECAST CONCRETE
2. PRECASTER SHALL DESIGN AND FURNISH ALL STEEL REINFORCING, WALL THICKNESS AND HARDWARE.
3. MANUFACTURE ENTIRE CONCRETE AS ONE SECTION WITH NO JOINTS IF PRACTICAL.
4. ANY JOINTS SHALL BE WATER TIGHT AND BE CONSTRUCTED FOR ANTI-FLOTATION. THEY SHALL HAVE (4) GALVANIZED STEEL PLATES 12" X 12" X ¼", ONE PER SIDE. EACH PLATE SHALL HAVE (4) GALVANIZED STEEL BOLTS (¼" DIA X 8" L MIN), FOR ANTI-FLOTATION.
5. THROUGHOUT GRADING OPERATION, TEMPORARY SKIMMER SHALL BE IN PLACE.



PLAN



OUTLET CONTROL STRUCTURE

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NORTH CAROLINA PROFESSIONAL SEAL 13055 ENGINEER J. DWIGHT HERMETSON 01-28-26

REVISIONS:

NO.	DESCRIPTION	DATE	BY
1	CITY REVIEW COMMENTS	1/28/26	KB

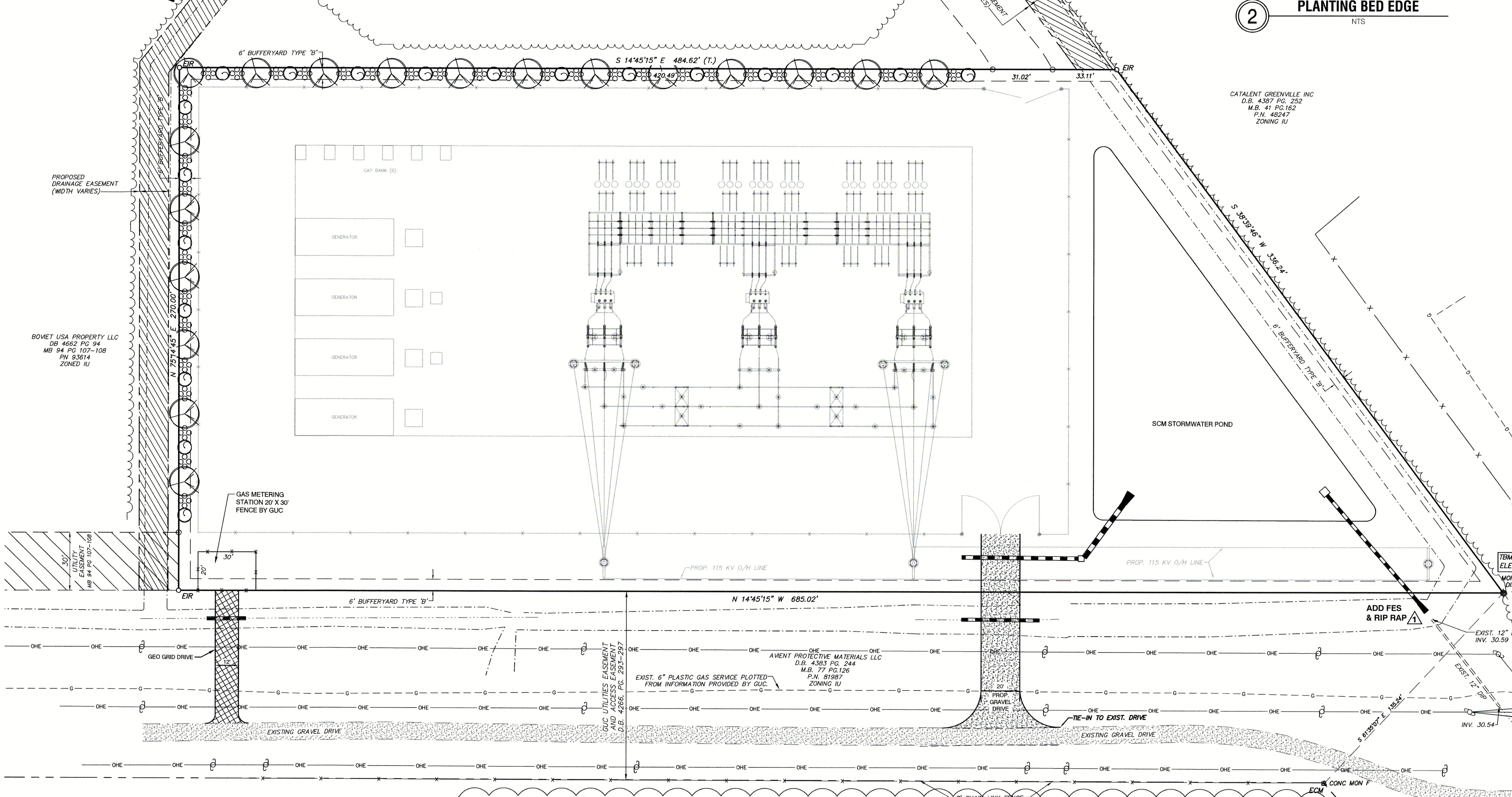
BOVIET SUBSTATION

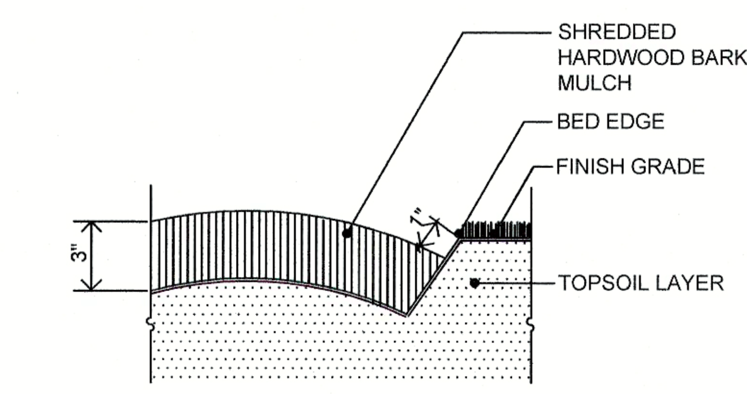
GREENVILLE UTILITIES COMMISSION

CITY OF GREENVILLE ~ PITT COUNTY ~ NORTH CAROLINA

STORMWATER CONTROL PLAN - DETAILS

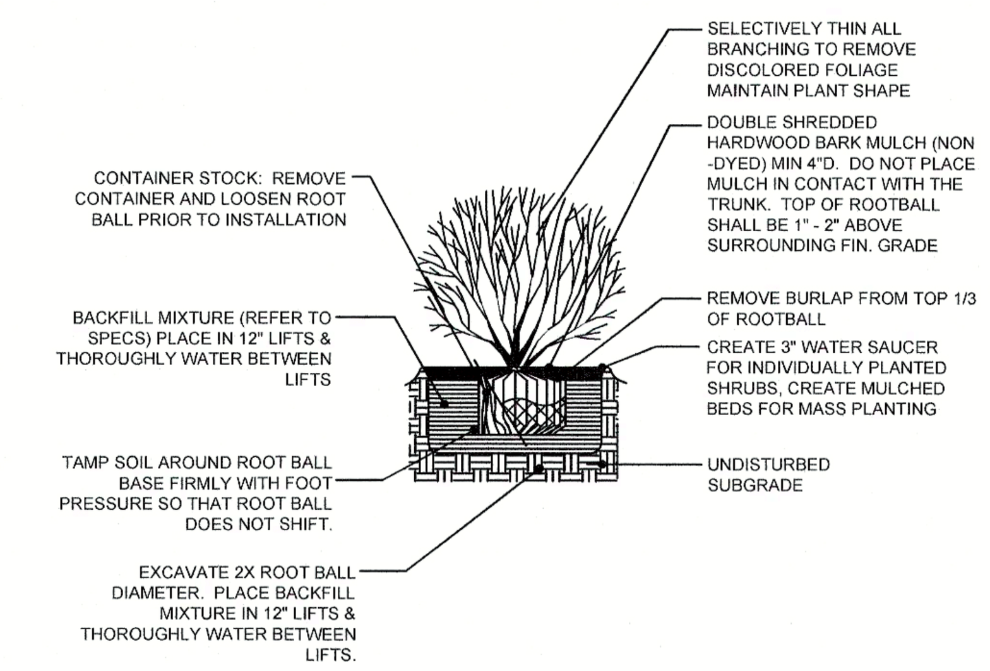
DATE:	JANUARY 12, 2026
DESIGNED BY:	MP
DRAWN BY:	KB
CHECKED BY:	MP
PROJECT No.	2025087
DRAWING No.	W-4267
SCALE:	AS NOTED
SHEET No.	C9





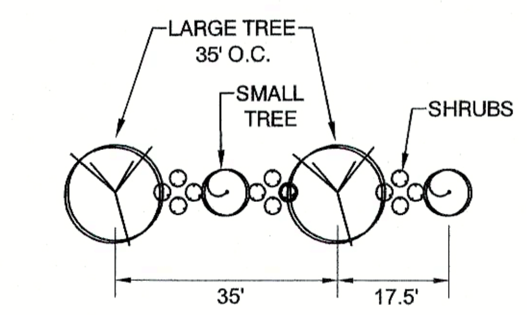
2 PLANTING BED EDGE

NTS



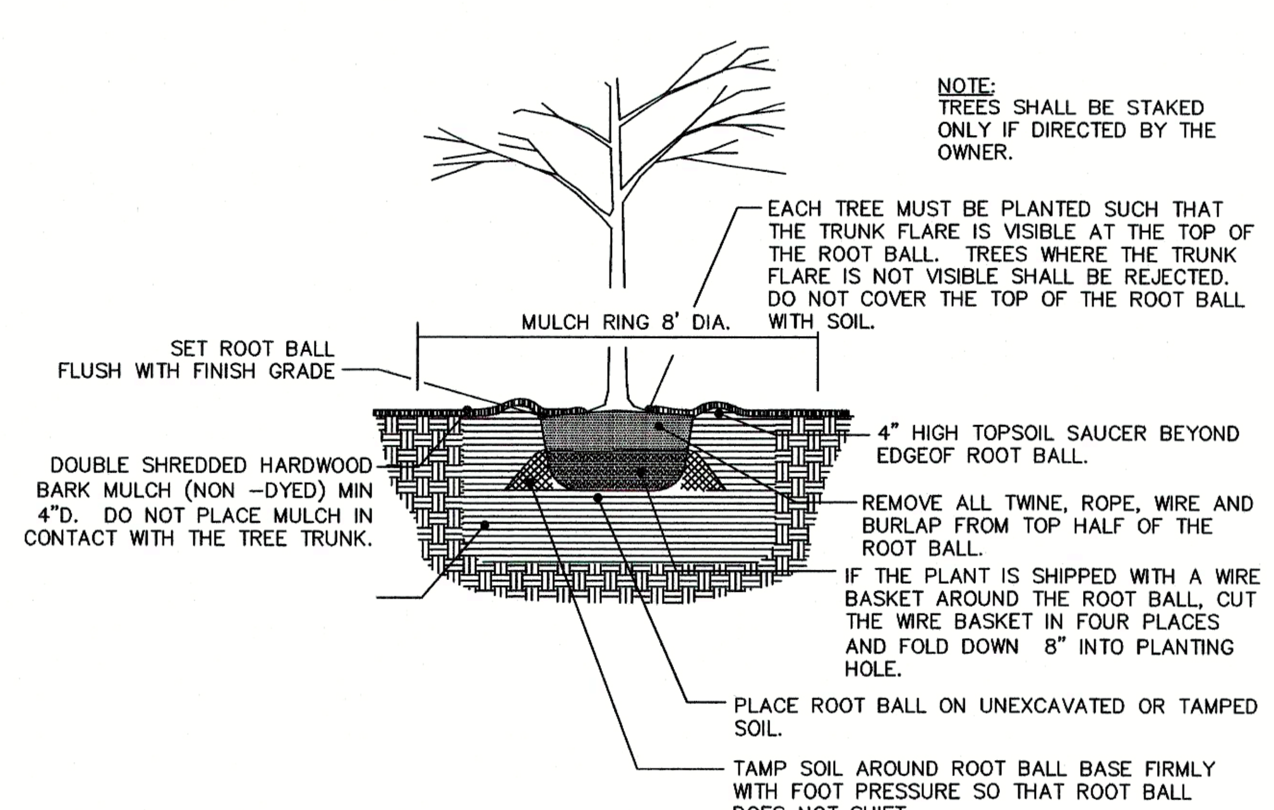
3 SHRUB PLANTING

NTS



TYPICAL LANDSCAPE

NTS



4 LARGE & SMALL TREE PLANTING

NTS

BUFFERYARD: (Revision 1)

1. SITE DATA: LAND AREA FOR VEGETATION REQUIREMENTS: 3.62 ACRES

   A. REQ'D VEGETATION FOR LOT
   - FIVE (5) LARGE TREES: X 3.6 = 18 REQUIRED - 18 PROVIDED
   - TEN (10) SMALL TREES: X 3.6 = 36 REQUIRED - 19 PROVIDED (51 SHRUBS SUBSTITUTED FOR 17 SMALL TREES)
   - TWENTY FIVE (25) SHRUBS: X 3.6 = 90 REQUIRED - 144 PROVIDED

   B. VEGETATION SUBSTITUTION
   - ONE (1) LARGE TREE MAY SUBSTITUTE FOR TWO (2) SMALL TREES OR FIVE (5) SHRUBS
   - ONE (1) SMALL TREE MAY SUBSTITUTE FOR THREE (3) SHRUBS

   C. REQUIRED STREET VEGETATION: NONE

   D. REQUIRED SCREENING VEGETATION: NONE

2. MINIMUM PLANT SIZES SHALL BE IN ACCORDANCE WITH THE ZONING REQUIREMENTS AS FOLLOWS: CALIPER MEASUREMENTS SHALL BE TAKEN AT SIX INCHES ABOVE GRADE.

   A. LARGE TREE: SINGLE STEM — 10 FT. HEIGHT & 2" CALIPER; MULTI-STEM — 10 FT. HEIGHT

   B. SMALL TREE: 8 FT. HEIGHT & 1.5" CALIPER

   C. SHRUBS: 18" HEIGHT, EXCEPT AS PROVIDED UNDER SECTION 9-4-267(a)

3. ALL REQUIRED PLANT MATERIAL (LARGE AND SMALL TREES, SCRUBS) LOCATED IN A SCREENING BUFFERYARD (C, D, E & F) SHALL BE EVERGREEN.

4. EXISTING SUBSTITUTE VEGETATION MATERIALS HAVE BEEN NOTED INCLUDING THEIR SPECIFIC LOCATION(S), TYPE(S), AND SIZE(S).

5. EXISTING SUBSTITUTE MATERIAL SHALL BE PROTECTED FROM SITE DEVELOPMENT ACTIVITIES IN ACCORDANCE WITH SECTION 9-4-265(F). [IF APPLICABLE]

6. NO PORTION OF ANY PARKING AREA, INCLUDING ANY DRIVEWAY, PARKING SPACE, DRIVE AISLE, OR TURNING AREA, SHALL BE LOCATED MORE THAN THIRTY (30) FEET FROM AN ON-SITE SMALL TREE OR MORE THAN SEVENTY-FIVE (75) FEET FROM AN ON-SITE LARGE TREE. FOR PURPOSES OF THIS SECTION, THE MEASUREMENT SHALL BE FROM THE FARTHEST EDGE OF THE SUBJECT AREA TO THE CENTER OF THE BASE OF THE CLOSEST QUALIFYING TREE.

7. SITE PLAN APPROVAL FROM THE RESPECTIVE EASEMENT HOLDER SHALL BE CONSTRUED AS APPROVAL OF ALL NOTED ENCROACHMENTS AS SHOWN ON THIS PLAN.

8. THE FOLLOWING VEGETATION MATERIALS, AS LISTED BY COMMON NAME, SHALL CONSTITUTE NOT MORE THAN TWENTY-FIVE (25) PERCENT OF THE TOTAL REQUIREMENT FOR THE SPECIFIC CATEGORY:

   LARGE TREE CATEGORY - RIVER BIRCH.

   (3) EVERGREEN SHRUB CATEGORY - RED TIP PHOTINIA.

   SMALL TREE CATEGORY - ARISTOCRAT PEAR, CAPITOL PEAR, AND CLEVELAND SELECT PEAR.

9. ALL CONTAINER PADS SHALL BE ENCLOSED ON THREE (3) SIDES IN ACCORDANCE WITH SECTION 9-4-268(H).

10. ALL PARKING AREAS SHALL BE SCREENED IN ACCORDANCE WITH SECTION 9-4-268(L)(9) OF THE CITY CODE. VEGETATION MATERIALS SHALL BE EVERGREEN.

11. EXISTING VEGETATION TO BE VERIFIED AT TIME OF INSPECTION.

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SCALE: 30' 0 15' 30' — 1 inch = 30 ft

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(252) 752-4135

NORTH CAROLINA PROFESSIONAL SEAL 13055 ENGINEER DWIGHT VERNELSON — 01-28-26

REVISIONS:

NO.	DESCRIPTION	DATE	BY
1	CITY REVIEW COMMENTS	1/28/26	KB

BOVIET SUBSTATION

GREENVILLE UTILITIES COMMISSION

CITY OF GREENVILLE – PITT COUNTY – NORTH CAROLINA

LANDSCAPING PLAN

DATE:	JANUARY 12, 2026
DESIGNED BY:	JW
DRAWN BY:	KB
CHECKED BY:	JDV
PROJECT No.	2025087
DRAWING No.	W-4267
SCALE:	AS NOTED
SHEET No.	L1

APPENDIX B – ESTIMATED QUANTITIES

GUC Boviet Substaion - Estiamated Quantities
Boviet Substation Site Improvements
February 17, 2026

Line Item	Description	Quantity	Unit
1	Clearing & Grubbing	3.4	AC
2	Silt Fence	1,125	LF
3	Geo-Grid Driveway	95	SY
4	Gravel Driveway	250	SY
5	16" DIP	60	LF
6	15" RCP	75	LF
7	18" RCP	60	LF
8	24" RCP	35	LF
9	15" FES	1	EA
10	24" FES	1	EA
11	Stormwater Pond (includes excavation, wetland plantings, erosion control and outlet device, etc)	1	LS
12	Class B Rip Rap w/ Underliner	35	TN
13	Swales	925	LF
14	Substation Yard	11,500	SY
15	Common Excavation	1	LS
16	Undercut Excation & Off Site Borrow	4,000	CY

APPENDIX C – GEOTECHNICAL REPORT

SOLID GROUND
NC

REPORT OF SUBSURFACE EXPLORATION AND GEOTECHNICAL SERVICES
BOVIET SOLAR SUBSTATION
MARTIN LUTHER KING JR HIGHWAY
GREENVILLE, PITT COUNTY, NORTH CAROLINA

PREPARED FOR:
BOVIET SOLAR
1125 SUGG PARKWAY
GREENVILLE NORTH CAROLINA 27834

SOLID GROUND NC PROJECT NO. NC25-0130
MAY 29, 2025

Solid Ground Engineering NC, PLLC • 3714 Alliance Drive, Suite 400 • Greensboro, North Carolina 27407
Office: 919-800-9093 • website: www.solidgroundnc.co • NC License No. P-3004

SOLID GROUND
NC

May 29, 2025

Eunice Weng
Program Office, Manager
Boviet Solar
1125 Sugg Parkway
Greenville North Carolina 27834

RE: Report of Subsurface Exploration and Geotechnical Services
Boviet Solar Substation
Martin Luther King Jr Highway
Greenville, Pitt County, North Carolina
Solid Ground Project: NC24-0130

Dear Ms. Weng:

As authorized, Solid Ground Engineering NC, PLLC (Solid Ground NC) has completed the subsurface exploration and geotechnical analysis for the above referenced project.

This report presents the findings of our subsurface exploration and our evaluations, as well as recommendations regarding geotechnical-related design and construction considerations for the site.

Thank you for the opportunity to work with you on this project. Should you have any questions or if we could be of further assistance, please do not hesitate to contact us at 919-800-9093 or aric@solidgroundnc.com.

Sincerely,
Solid Ground Engineering NC, PLLC
NC Firm License No. P3004

Aric V. Geda, P.E.
Principal Engineer

TABLE OF CONTENTS

EXECUTIVE SUMMARY

Solid Ground NC, PLLC (Solid Ground NC) has completed the report of subsurface exploration and geotechnical engineering services for the Boviet Solar Substation to be located along the north side of MLK Jr. Boulevard, west of the existing Boviet Solar facility located at 1125 Sugg Parkway, Greenville, Pitt County, North Carolina. This summary should not be considered apart from the entire text of the report with all the qualifications and conditions mentioned herein.

We understand that the development consists of an electrical substation structure approximately 112,500 SF in size, 115,000 SF storage area, and drive lanes. We have not been provided loading information; however, we anticipate maximum column and wall loads will be on the order of 200 kips and 5 kips per linear foot, respectively. While a grading plan has not been provided for the site, we anticipate fill placement across the site.

Topsoil containing silty organic soil was encountered in each of the borings. Topsoil ranged from approximately 3 to 8 inches in thickness. Root mat in wooded and brush areas likely extend to a significantly deeper depth. Below the topsoil is the natural residual soil which contains an upper layer of medium stiff to stiff sandy clay extending to a depth of three to eight feet below ground surface. The upper clays transition into medium dense clayey sands, followed by clean fine sands which extend to the terminal depths of the borings.

Groundwater was encountered in several borings at varying depths between 2 and 4 feet below ground surface. It is anticipated that dewatering measures such as trenching, ditching, sumping, and pumping may be used to control surface water, however some dewatering may be required for deeper utilities.

Provided the recommendations presented in this report are followed, the proposed structures may be supported on conventional shallow footing foundations and ground-supported floor slab. Based on maximum anticipated column loads of 200 kips and wall loads of 5 kips per lineal foot, a design soil bearing pressure of 2000 PSF can generally be achieved immediately below surfacing materials and any softened clays across the site. This design pressure can also be used for any footings placed on newly placed engineered fill.

Based on results of soil test borings, past experience, and information provided in Section 1615 of the building code, it is our opinion it is our opinion that the subsurface characteristics reflect those of Seismic Site Classification D.

The recommended pavement sections are presented as follows:

Material Designation	Medium Duty Asphalt Pavement	Heavy Duty Asphalt Pavement	Rigid Concrete Pavement
Asphalt Surface Course (SF9.5A)	3.0 inches	1.5 inches	-
Asphalt Intermediate Course (I19.0B)	-	2.5 inches	-
Portland Cement Concrete	-	-	7.0 inches
Aggregate Base Course (NCDOT)	6.0 inches	10.0 inches	6.0 inches

1.0 PROJECT OVERVIEW

1.1 Project Description and Scope of Work

This report presents the results of the subsurface exploration and geotechnical engineering services for the Boviet Solar Substation to be located along the north side of MLK Jr. Boulevard, west of the existing facility located at 1125 Sugg Parkway, Greenville, Pitt County, North Carolina. A site location map is shown as Figure 1 in Appendix A. The explored area is a portion of the approximately 44-acre Blount Parcel and generally appears as undeveloped woodland.

The site was explored by eight (8) soil test borings (Borings B-101 through B-108) and sampling the soils to depths of up to 20 feet below existing site grades. The boring locations were located in the field by Solid Ground NC personnel using GPS and from known site features. The locations shown should be considered approximate given the methods used. A boring location plan is provided as Figure 2 in Appendix A of this report.

This report was prepared based upon the results of the boring and laboratory data. The purpose of this exploration is to describe the soil and groundwater conditions that were encountered in the test borings, to analyze and evaluate the test data obtained, and to submit preliminary recommendations regarding foundations, slabs, pavements, earthwork, construction, and other geotechnical-related considerations of design and construction.

1.2 Proposed Construction

We understand that the development consists of an electrical substation structure approximately 112,500 SF in size, 115,000 SF storage area, and drive lanes. We have not been provided loading information; however, we anticipate maximum column and wall loads will be on the order of 200 kips and 5 kips per linear foot, respectively. While a grading plan has not been provided for the site, we anticipate fill placement across the site.

2.0 FIELD EXPLORATION

2.1 Exploration Procedures

The soil borings were performed with a CME 550 ATV auger drilling rig, which utilized hollow stem augers to advance the boreholes. Drilling fluid was not used to advance the borings.

Representative soil samples were obtained by means of the split-barrel sampling procedure in general accordance with ASTM Specification D-1586. In this procedure, a 2-inch O. D. split-barrel sampler is driven into the soil a distance of 18 inches by a 140-pound hammer with a free fall of 30 inches. The number of blows required to drive the sampler through the final 12-inch interval is termed the Standard Penetration Test (SPT) N-value and is indicated for each sample on the boring logs.

The SPT N-value can be used to provide a qualitative indication of the in-place relative density of cohesionless soils. In a less reliable way, SPT N-values provide an indication of consistency for cohesive soils. These indications of relative density and consistency are qualitative, since many factors can significantly affect the SPT N-value and prevent a direct correlation between drill crews, drill rigs, drilling procedures, and hammer-rod-sampler assemblies.

Field logs of the soils encountered in the borings were maintained by a Solid Ground NC engineer. The soil samples obtained from the drilling operations were sealed and were brought to our laboratory for further examination.

3.0 EXPLORATION RESULTS

3.1 Site Conditions

The parcel is currently primarily woodland. The property is surrounded by undeveloped woodland to the north, with Catalent Pharma Solutions and Boviet Solar facilities to the east. Martin Luther King Jr Highway appears south of the subject property, beyond which is Gregory Pool Lift Systems, Coca-Cola Bottling Co Cons Manufacturer, and undeveloped woodland. The subject property is bound to the west by a power easement, beyond which is Avient Protective Materials LLC manufacturing complex. The site is accessed from Martin Luther King Jr Highway through the power easement west of the site.

3.2 Site Geology

The subject site is located in the Coastal Plain Physiographic Province. The Coastal Plain soils consist mainly of marine sediments that were deposited during successive periods of fluctuating sea level and moving shoreline. The soils include sands, silts, and clays with irregular deposits of shells, which are typical of those lain down in a shallow sloping sea bottom. Recent alluvial sands, silts, and clays are typically present near rivers and creeks. According to the 1985 Geologic Map of North Carolina, the site is mapped within the Yorktown and Duplin Formation, Undivided.

3.3 Subsurface Conditions

The specific soil conditions at each boring location are noted on the individual boring logs. A general description is also provided below. Subsurface conditions may vary between boring locations.

Surface Materials (Topsoil): Topsoil containing clayey organic soil was encountered in each of the borings. Topsoil ranged from approximately 3 to 8 inches in thickness. Root mat in the wooded areas likely extend to a significantly deeper depth.

Fill Soils: No fill soils were encountered at the site.

Natural Soil: Below the topsoil is the natural residual soil which contains an upper layer of medium stiff to stiff sandy clay extending to a depth of three to eight feet below ground surface. The upper clays transition into medium dense clayey sands, followed by clean fine sands which extend to the terminal depths of the borings.

3.4 Groundwater

Groundwater was encountered in each of the borings at varying depths between 2 and 4 feet below ground surface. It is anticipated that dewatering measures such as trenching, ditching, sumping, and pumping may be used to control surface water if construction is performed in the rainy portion of the year.

4.0 ANALYSIS AND RECOMMENDATIONS

The following preliminary design and construction recommendations are based on our above-stated understanding of the proposed construction and on the data obtained from the field exploration and visual soil classification. The following recommendations are for design purposes and may require modification if loads or building locations change.

4.1 Foundations

Provided the recommendations presented in this report are followed, the proposed structures may be supported on conventional shallow footing foundations and ground-supported floor slab.

Based on maximum anticipated column loads of 200 kips and wall loads of 5 kips per lineal foot, a design soil bearing pressure of 2000 PSF can generally be achieved immediately below surfacing materials and any softened clays across the site. This design pressure can also be used for any footings placed on newly placed engineered fill.

In order to provide adequate frost cover protection and embedment for bearing capacity, we recommend that footings be located at minimum depths of 18 inches below finished exterior grades. In order to prevent disproportionately small footing sizes, we recommend that strip footings have a minimum width of 18 inches and that isolated column footings have a minimum lateral dimension of 24 inches. The minimum dimension sizes, as recommended above, are utilized to reduce foundation difficulties as a result of local shear or "punching" action.

A representative of the geotechnical engineer should observe the foundation subgrade to verify that conditions exposed at the subgrade are suitable for the design bearing pressures. If unsuitable materials are encountered, it may be necessary to lower the base of the footing through the unsuitable materials or to undercut the unsuitable soils and to restore original bearing levels by placing engineered fill materials, NCDOT No. 57 or No. 67 stone or lean concrete.

4.2 Settlement

We anticipate that foundations designed according to the above recommendations should experience total settlements of less than 1 inch for footings designed and constructed as previously recommended. In our opinion, this should limit differential settlements between similarly loaded adjacent columns to magnitudes of ½ inch. Sufficient time should be allowed for any newly-placed fill settlements to stabilize prior to beginning foundation construction.

4.3 Floor Slabs

The floor slab subgrade should consist of new engineered fill or approved existing soils and should include a minimum 4-inch-thick layer of washed stone (NCDOT #57). For point loading conditions, the slab may be designed based on a 100 psi/in value for the modulus of subgrade reaction.

We recommend that a capillary cutoff layer be provided under the floor slabs to prevent the rise of water through the slab. The capillary layer should consist, at a minimum, of a 4-inch thick clean, crushed stone or washed gravel layer, having a maximum size of 1.5 inches with a maximum of 2 percent passing the No. 200 sieve. A vapor retarder should be considered beneath concrete slabs on grade that will be covered with wood, tile, carpet or other moisture sensitive or impervious coverings. The slab designer should refer to ACI 302 and/or ACI 360 for procedures and cautions regarding the use and placement of a vapor retarder.

4.4 Seismic Conditions

Per Section 1615 of the North Carolina Building Code, the design of a structure must consider dynamic forces resulting from seismic events, regardless of their likelihood of occurrence. As part of a generalized procedure to estimate seismic forces, the code assigns a Seismic Site Classification (letter designation of Class A through F) based on the subgrade soil/rock conditions within the upper 100 feet of the ground surface at the subject site. Based on results of soil test borings, past experience, and information provided in Section 1615, it is our opinion it is our opinion that the subsurface characteristics reflect those of Site Class D.

If the design and construction cost savings associated with an improved Site Class are favorable, it may be prudent to perform Shear Wave Velocity measurements at the site to determine if the more favorable Site Class is available. We would be pleased to further discuss these options with the client and design team, if warranted.

Liquefaction is not expected based on its fines content and the relatively low level of ground motions projected for a seismic event.

4.5 Site Drainage

We recommend the ground surface be sloped away from the foundations and building pad for a minimum distance of at least 10 feet, and that all downspouts be connected to tightline drains that discharge to a suitable location downslope of the foundations. Paved areas should also have positive drainage.

4.6 Groundwater Control

Based on the results of the borings, we anticipate that some dewatering may be necessary during construction of deeper utility lines. For most shallow excavations, we expect groundwater can be controlled through the use of ditches, sumps, and pumps.

If water collects in foundation excavations, it will be necessary to remove the water from the excavation, remove the saturated soils, and re-test the adequacy of the bearing surface to support the design bearing pressure prior to concrete placement. Establishing a system of drainage ditches to carry surface and shallow groundwater away from building sites and roadways should reduce grading costs.

4.7 Excavation Considerations

Most of the upper 15 to 20 feet of on-site soils are OSHA Type C soils for the purpose of temporary excavation support. Excavations should be constructed in compliance with current OSHA standards for excavation and trenching safety. Excavations should be observed by a “competent person”, as defined by OSHA, who should evaluate the specific soil type and other conditions, which may control the excavation side slopes or the need for shoring or bracing.

4.8 Pavement

Pavement subgrades should be prepared as outlined in Sections 5.1 and 5.2 of this report. We were not provided with details regarding traffic conditions at the site. Pavement section alternatives have been provided below. Medium duty pavement sections are recommended for areas that will be subjected to passenger cars and pickup truck traffic. Heavy duty areas are recommended for areas that will experience truck traffic. For our heavy-duty design, we have assumed 500,000 equivalent single axle loads (ESALs) over a 20-year design life.

The recommended pavement sections are presented below:

Material Designation	Medium Duty Asphalt Pavement	Heavy Duty Asphalt Pavement	Rigid Concrete Pavement
Asphalt Surface Course (SF9.5A)	3.0 inches	1.5 inches	-
Asphalt Intermediate Course (I19.0B)	-	2.5 inches	-
Portland Cement Concrete	-	-	7.0 inches
Aggregate Base Course (NCDOT)	6.0 inches	10.0 inches	6.0 inches

The base course materials beneath pavements should be compacted to at least 100 percent of their modified Proctor maximum dry density (ASTM D 1557). The asphalt concrete and the crushed stone materials should conform to the current North Carolina Department of Transportation Standard Specifications. If concrete pavement sections are incorporated into the site design, Rigid sections should consist of 4,000 psi compressive strength concrete or greater.

Regardless of the section and type of construction utilized, saturation of the subgrade materials will result in a softening of the subgrade materials and shortened life span for the pavement. Risk of subgrade softening can be reduced by means of quickly removing surface and subsurface water, resulting in an increased likelihood of improved pavement performance. Therefore, we recommend that both the surface and subsurface materials for the pavement be properly graded to enhance surface and subgrade drainage. In addition, placement of ½-inch diameter holes drilled through catch basins at or slightly above the subgrade elevation will facilitate base course drainage into the catch basin.

Gravel Yards / Fire Lanes

A stable subgrade is a priority to gravel pavement performance. Immediately prior to paving, the subgrade should be proof rolled and any unstable areas that are not firm and unyielding be repaired. A 6” ABC gravel course should be compacted to at least 100% of the maximum dry density, as determined by the Modified Proctor Compaction Test (ASTM D1557). To document that the base course has been uniformly compacted, in-place field density tests should be performed by Solid Ground and the area should be methodically proof rolled under the engineer’s observation.

The performance of gravel pavements will be dependent upon a number of factors, including subgrade conditions at the time of paving, rainwater runoff, and traffic. With the near surface soils onsite consisting of silts, they are susceptible to softening when exposed to moisture and excessive construction traffic. Rainwater runoff should not be allowed to seep below pavements from adjacent areas. Therefore, drainage swales should be designed around the paved area. We recommend that the parking lot be shaped with a minimum of 3% slope to the swales to allow for proper drainage.

5.0 CONSTRUCTION CONSIDERATIONS

5.1 Site Preparation and Clearing

The site should be cleared of topsoil, vegetation, root mat, and other deleterious materials. We recommend that any soft or unsuitable material be removed from the proposed construction area. Areas that are being rough graded and used as staging areas or left for more than a few weeks should be crowned and left 12 inches above the final subgrade elevation to help protect the finished subgrade from disturbance. Leaving the subgrade high may reduce the disturbance and saturation of the subgrade that would normally require undercutting.

Once the site is stripped, cleared and prepared as outlined above, and prior to placing any new fill to raise the grade, the site should be proofrolled using a loaded dump truck, having an axle weight of at least 10 tons, and observed by an experienced geotechnical engineer, or his representative, at the time of construction to aid in identifying any areas with soft or unsuitable materials. Probing may be used at this time to aid in identifying areas of soft or unsuitable material. Any soft or unsuitable materials encountered during this proofrolling should be removed and replaced with an approved backfill compacted to the criteria given in Section 5.2 *Fill Placement and Soil Compaction*.

Grading operations at this site will be more economical if performed during the drier periods of the year (typically April to November). However, during the wetter periods of the year, wet soils probably can be dried by using discing or other drying procedures, such as lime or cement stabilization, to achieve moisture contents necessary to achieve adequate degrees of compaction. The site should be graded to enhance surface water runoff to reduce the ponding of water. Ponding of water often results in softening of the near-surface soils. When rainfall is anticipated during grading operations, we recommend areas of disturbed soil be rolled with a smooth drum roller and that the grading activities cease until the site has had a chance to dry.

5.2 Fill Placement and Soil Compaction

Soils used as fill should be approved materials, free of organics, debris, frozen and foreign material, and generally having a maximum Liquid Limit of 50 and a maximum Plasticity Index of 20. Most of the on-site low plasticity soils (SP and SM) can be used as backfill material for this project provided their moisture contents are within acceptable range outlined in this report. The maximum particle size in the fill should be less than ½ the thickness of the compacted lift.

Any fill or backfill placed in footing, slab, and pavement areas should be compacted to a minimum of 95 percent of the maximum dry density obtained in accordance with ASTM Specification D-698, Standard Proctor Method. However, the upper 18 inches of fill below any structural or pavement areas should be compacted to 98 percent of the maximum dry density. Any fill or backfill placed in utility trench and sidewalk areas should be compacted to a minimum of 95 percent of the maximum dry density obtained in accordance with ASTM Specification D-698, Standard Proctor Method. Fill should be placed in lifts of approximately 8 to 10 inches in loose thickness with fill operations continuing until the subgrade elevations are achieved. To aid in achieving compaction, we recommend that the moisture content of the fill materials at the time of placement be within +/- 3 percentage points of the optimum moisture content established by the above referenced laboratory compaction tests.

Any fill or backfill placed in landscaped areas should be compacted to a minimum of 90 percent of the maximum dry density obtained in accordance with ASTM Specification D-698, Standard Proctor Method.

We recommend that the placement of compacted structural fill and recompaction of the subgrade soils in the construction area be observed by a representative of the geotechnical engineer to determine if proper compaction is being achieved. In-place density tests made in accordance with ASTM Designation D-1556, D-6938, or equivalent should be used to verify compaction. We recommend a minimum of one test per lift for every 5,000 square foot area, or fraction thereof, for the building pad area and every 10,000 square foot area, or fraction thereof, elsewhere. We also recommend at least one test per lift for every 100 linear feet of utility trench backfill, or fraction thereof.

6.0 GENERAL COMMENTS

This report has been prepared in order to aid in the evaluation of this property and to assist the architect and/or engineers in the preliminary design of this project. The scope is limited to the specific project and locations described herein and our description of the project represents our understanding of the significant aspects relative to soil and foundation characteristics. In the event that any changes in the nature or location of the proposed construction outlined in this report are planned, we should be informed so that the changes can be reviewed and the conclusions of this report modified or approved in writing by the geotechnical engineer. It is recommended that all construction operations dealing with earthwork and foundations are reviewed by an experienced geotechnical engineer to provide information as to whether the design requirements are fulfilled in the actual construction. We would welcome the opportunity to provide field construction services for you during construction.

The analysis and recommendations submitted in this report are based upon the data obtained from the soil borings and tests performed at the locations as indicated on the Boring Location Diagram and other information referenced in this report. This report does not reflect any variations which may occur between the borings. In the performance of the subsurface exploration, specific information is obtained at specific locations at specific times. However, it is a well-known fact that variations in soil conditions exist on most sites between boring locations and also such situations as groundwater levels vary from time to time. The nature and extent of variations may not become evident until during the course of construction. If site conditions vary from those identified during the subsurface exploration, the recommendations contained in this report may require revision. Once final layouts are established, additional subsurface explorations need to be performed.

APPENDIX A

Figures

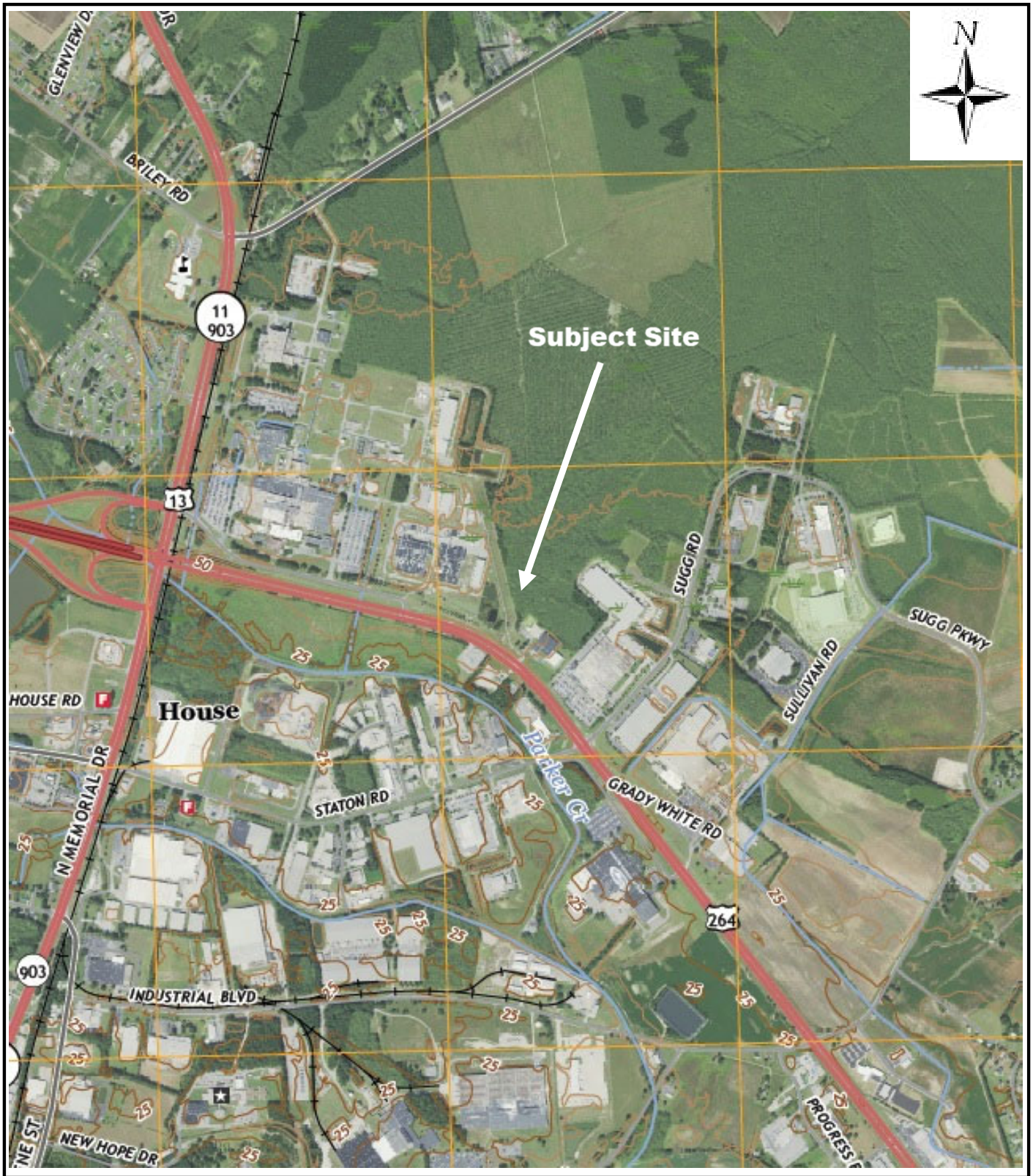

FIGURE 1- SUBJECT PROPERTY LOCATION MAP

Boviet Solar Substation Martin Luther King Jr Highway Greenville, North Carolina	SOLID GROUND NC 3714 Alliance Drive, Suite 400 Greensboro, North Carolina 27407 (919) 800-9093	Project No: NC25-0130 May 2025 Map Source: USGS 2022

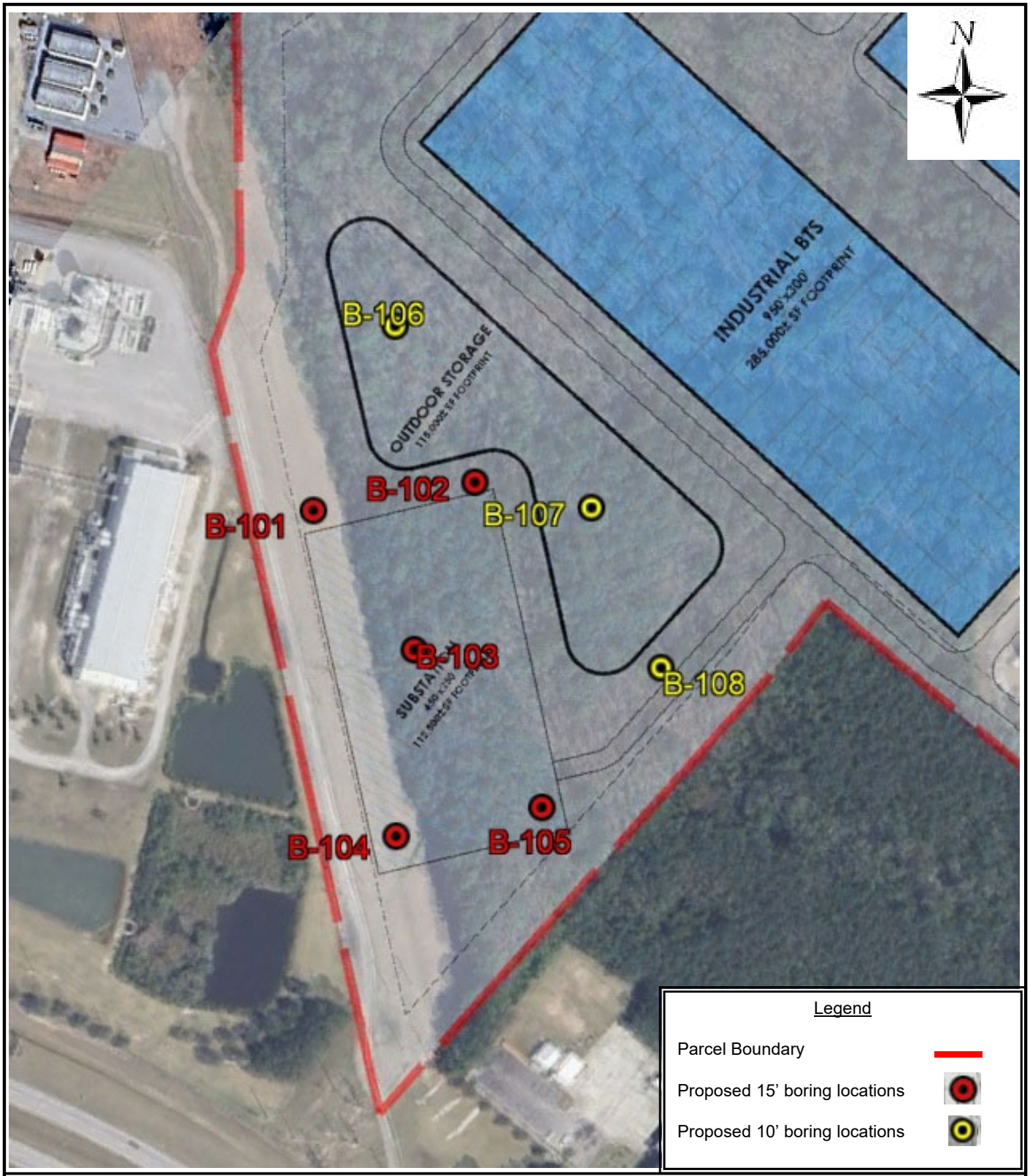

FIGURE 2- BORING LOCATIONS ON CONCEPTUAL PLAN

Boviet Solar Substation
Martin Luther King Jr Highway
Greenville, North Carolina

SOLID GROUND NC
3714 Alliance Drive, Suite 400
Greensboro, North Carolina 27407
(919) 800-9093

Project No: NC25-0130

May 2025
Map Source: ARCO

APPENDIX B

Boring Logs

Project:	Project Number:	Client:	Boring No.
Boviet Solar Substation	**NC25-0130**	**Boviet Solar**	**B-101**
Address, City, State		Drilling Contractor:	Drill Rig Type:
MLK JR HWY		**J&L**	**CME 550**
Logged By:	Date — Started:	Bit Type:	Diameter:
Geda	**5/23/25**	**HS**	**2-1/4"**
Drill Crew:	Date — Completed:	Hammer Type:	
Casey	**5/23/25**	**Safety**	
Ticket Number:	Backfilled:	Hammer Weight:	Hammer Drop:
	Cuttings	**140#**	**30"**

Surface Elev.	GW Depth	GW Elevation	Total Depth of Boring:
33.0	**3.8**	**29.2**	**20 feet**

Depth (feet)	Sample Type	Sample Number	N-value (blows/foot)	Graphic Log	Lithology	Groundwater	Moisture Content (%)	Unconfined Compression (tsf)
					Soil Group Name: modifier, color, moisture, density/consistency, grain size, other descriptors **Rock Description:** modifierm color, hardness/degree of concentration, bedding and joint characteristics, solutions, void conditions.			
					3" Clayey Topsoil			
2	SS	1	7		Sandy CLAY, tan-gray, moist, medium stiff (CL)			
4	SS	2	6			▼		
6	SS	3	11		Clayey fine SAND, tan-gray, wet, loose (SC)			
8	SS	4	12		Sandy CLAY, gray, moist, stiff (CL)			
10								
12								
14	SS	5	12					
16					Fine SAND, gray, wet, medium dense (SP)			
18								
20	SS	6	15		End of Boring-20'			
22								
24								

Modulus, PLLC

Boring Log: Sheet 1 of 1

SS- Standard Penetration Slit Spoon Sampler (SPT)

WR- Weathered Rock

California Sampler

▼ Stabllized Ground water

Shelby Tube

▽ Groundwater At time of Drilling

CPP Sampler

Bulk/ Bag Sample

Project:	Project Number:	Client:	Boring No.
Boviet Solar Substation	**NC25-0130**	**Boviet Solar**	**B-102**
Address, City, State		Drilling Contractor:	Drill Rig Type:
MLK JR HWY		**J&L**	**CME 550**
Logged By:	Date — Started:	Bit Type:	Diameter:
Geda	**5/23/25**	**HS**	**2-1/4"**
Drill Crew:	Date — Completed:	Hammer Type:	
Casey	**5/23/25**	**Safety**	
Ticket Number:	Backfilled:	Hammer Weight:	Hammer Drop:
	Cuttings	**140#**	**30"**

Surface Elev.	GW Depth	GW Elevation	Total Depth of Boring:
33.0	**3.5**	**29.5**	**20 feet**

Depth (feet)	Sample Type	Sample Number	N-value (blows/foot)	Graphic Log	Lithology	Groundwater	Moisture Content (%)	Unconfined Compression (tsf)
					Soil Group Name: modifier, color, moisture, density/consistency, grain size, other descriptors **Rock Description:** modifierm color, hardness/degree of concentration, bedding and joint characteristics, solutions, void conditions.			
					4" Clayey Topsoil			
2	SS	1	9		Sandy CLAY, brown-gray, moist, stiff (CL)			
4	SS	2	10		Clayey fine SAND, brown-gray, wet, medium dense (SC)	▼		
6	SS	3	13					
8	SS	4	15					
10								
12								
14	SS	5	8		Fine SAND, gray, wet, loose (SP)			
16								
18								
20	SS	6	5					
					End of Boring-20'			
22								
24								

Modulus, PLLC

Boring Log: Sheet 1 of 1

SS- Standard Penetration Slit Spoon Sampler (SPT)

WR- Weathered Rock

California Sampler

▼ Stabllized Ground water

Shelby Tube

▽ Groundwater At time of Drilling

CPP Sampler

Bulk/ Bag Sample

Project:	Project Number:	Client:	Boring No.
Boviet Solar Substation	**NC25-0130**	**Boviet Solar**	**B-103**
Address, City, State		Drilling Contractor:	Drill Rig Type:
MLK JR HWY		**J&L**	**CME 550**
Logged By:	Date — Started:	Bit Type:	Diameter:
Geda	**5/23/25**	**HS**	**2-1/4"**
Drill Crew:	Date — Completed:	Hammer Type:	
Casey	**5/23/25**	**Safety**	
Ticket Number:	Backfilled:	Hammer Weight:	Hammer Drop:
	Cuttings	**140#**	**30"**

Surface Elev.	GW Depth	GW Elevation	Total Depth of Boring:
32.0	**3.2**	**28.8**	**20 feet**

Depth (feet)	Sample Type	Sample Number	N-value (blows/foot)	Graphic Log	Lithology	Groundwater	Moisture Content (%)	Unconfined Compression (tsf)
0					3" Clayey Topsoil			
2	SS	1	6		Sandy CLAY, tan-gray, moist, medium stiff (CL)	▼		
4	SS	2	6					
6	SS	3	8					
8					Clayey fine SAND, tan-gray, wet, loose (SC)			
10	SS	4	5					
12								
14	SS	5	5					
16					Fine SAND, gray, wet, loose (SP)			
18								
20	SS	6	5		End of Boring-20'			
22								
24								

Lithology

Soil Group Name: modifier, color, moisture, density/consistency, grain size, other descriptors

Rock Description: modifierm color, hardness/degree of concentration, bedding and joint characteristics, solutions, void conditions.

Modulus, PLLC

Boring Log: Sheet 1 of 1

SS- Standard Penetration Slit Spoon Sampler (SPT)

California Sampler

Shelby Tube

CPP Sampler

Bulk/ Bag Sample

WR- Weathered Rock

▼ Stabllized Ground water

▽ Groundwater At time of Drilling

Project:	Project Number:	Client:	Boring No.
Boviet Solar Substation	**NC25-0130**	**Boviet Solar**	**B-104**
Address, City, State		Drilling Contractor:	Drill Rig Type:
MLK JR HWY		**J&L**	**CME 550**
Logged By:	Date — Started:	Bit Type:	Diameter:
Geda	**5/23/25**	**HS**	**2-1/4"**
Drill Crew:	Date — Completed:	Hammer Type:	
Casey	**5/23/25**	**Safety**	
Ticket Number:	Date — Backfilled:	Hammer Weight:	Hammer Drop:
	Cuttings	**140#**	**30"**
	Surface Elev. **31.0** / GW Depth **2.3**	GW Elevation **28.7**	Total Depth of Boring: **20 feet**

Depth (feet)	Sample Type	Sample Number	N-value (blows/foot)	Graphic Log	Lithology	Groundwater	Moisture Content (%)	Unconfined Compression (tsf)
0					4" Clayey Topsoil			
2	SS	1	6		Sandy CLAY, tan-gray, moist, medium stiff (CL)	▼		
4	SS	2	6					
6	SS	3	14		Clayey fine SAND, tan-gray, wet, medium dense (SC)			
8	SS	4	20		Sandy CLAY, gray, moist, very stiff (CL)			
10								
12					Fine SAND, gray, wet, medium dense (SP)			
14	SS	5	25					
16								
18								
20	SS	6	18					
22					End of Boring-20'			
24								

Lithology

Soil Group Name: modifier, color, moisture, density/consistency, grain size, other descriptors

Rock Description: modifierm color, hardness/degree of concentration, bedding and joint characteristics, solutions, void conditions.

Modulus, PLLC

Boring Log: Sheet 1 of 1

SS- Standard Penetration Slit Spoon Sampler (SPT)

California Sampler

Shelby Tube

CPP Sampler

Bulk/ Bag Sample

WR- Weathered Rock

▼ Stabllized Ground water

▽ Groundwater At time of Drilling

Project:	Project Number:	Client:	Boring No.
Boviet Solar Substation	**NC25-0130**	**Boviet Solar**	**B-105**
Address, City, State		Drilling Contractor:	Drill Rig Type:
MLK JR HWY		**J&L**	**CME 550**
Logged By:	Date — Started:	Bit Type:	Diameter:
Geda	**5/23/25**	**HS**	**2-1/4"**
Drill Crew:	Date — Completed:	Hammer Type:	
Casey	**5/23/25**	**Safety**	
Ticket Number:	Date — Backfilled:	Hammer Weight:	Hammer Drop:
	Cuttings	**140#**	**30"**
	Surface Elev. / GW Depth	GW Elevation	Total Depth of Boring:
	31.0 / **2.5**	**28.5**	**20 feet**

Depth (feet)	Sample Type	Sample Number	N-value (blows/foot)	Graphic Log	Lithology	Groundwater	Moisture Content (%)	Unconfined Compression (tsf)
0					3" Clayey Topsoil			
2	SS	1	6		Sandy CLAY, tan-gray, moist, medium stiff (CL)	▼		
4	SS	2	7					
6	SS	3	5					
8	SS	4	10		Clayey fine SAND, tan-gray, wet, medium dense (SC)			
10								
12								
14	SS	5	16					
16					Fine SAND, gray, wet, medium dense (SP)			
18								
20	SS	6	19		End of Boring-20'			
22								
24								

Lithology

Soil Group Name: modifier, color, moisture, density/consistency, grain size, other descriptors

Rock Description: modifierm color, hardness/degree of concentration, bedding and joint characteristics, solutions, void conditions.

Modulus, PLLC

Boring Log: Sheet 1 of 1

SS- Standard Penetration Slit Spoon Sampler (SPT)

California Sampler

Shelby Tube

CPP Sampler

Bulk/ Bag Sample

WR- Weathered Rock

Stabllized Ground water

Groundwater At time of Drilling

Project:	Project Number:	Client:	Boring No.
Boviet Solar Substation	**NC25-0130**	**Boviet Solar**	**B-106**
Address, City, State		Drilling Contractor:	Drill Rig Type:
MLK JR HWY		**J&L**	**CME 550**
Logged By:	Date — Started:	Bit Type:	Diameter:
Geda	**5/23/25**	**HS**	**2-1/4"**
Drill Crew:	Date — Completed:	Hammer Type:	
Casey	**5/23/25**	**Safety**	
Ticket Number:	Date — Backfilled:	Hammer Weight:	Hammer Drop:
	Cuttings	**140#**	**30"**
	Surface Elev. **34.0** / GW Depth **3.9**	GW Elevation **30.1**	Total Depth of Boring: **10 feet**

Depth (feet)	Sample Type	Sample Number	N-value (blows/foot)	Graphic Log	Lithology	Groundwater	Moisture Content (%)	Unconfined Compression (tsf)
0					8" Clayey Topsoil			
2	SS	1	4		Sandy CLAY, gray, moist, medium stiff (CL)			
4	SS	2	11		Clayey fine SAND, gray, wet, medium dense (SC)	▼		
6	SS	3	26					
8								
10	SS	4	12		End of Boring-10'			
12								
14								
16								
18								
20								
22								
24								

Lithology

Soil Group Name: modifier, color, moisture, density/consistency, grain size, other descriptors

Rock Description: modifierm color, hardness/degree of concentration, bedding and joint characteristics, solutions, void conditions.

Modulus, PLLC

Boring Log: Sheet 1 of 1

SS- Standard Penetration Slit Spoon Sampler (SPT)

California Sampler

Shelby Tube

CPP Sampler

Bulk/ Bag Sample

WR- Weathered Rock

▼ Stabllized Ground water

▽ Groundwater At time of Drilling

Project:	Project Number:	Client:	Boring No.
Boviet Solar Substation	**NC25-0130**	**Boviet Solar**	**B-107**
Address, City, State		Drilling Contractor:	Drill Rig Type:
MLK JR HWY		**J&L**	**CME 550**
Logged By:	Date — Started:	Bit Type:	Diameter:
Geda	**5/23/25**	**HS**	**2-1/4"**
Drill Crew:	Date — Completed:	Hammer Type:	
Casey	**5/23/25**	**Safety**	
Ticket Number:	Date — Backfilled:	Hammer Weight:	Hammer Drop:
	Cuttings	**140#**	**30"**
	Surface Elev. / GW Depth	GW Elevation	Total Depth of Boring:
	33.0 / **3.9**	**29.1**	**10 feet**

Depth (feet)	Sample Type	Sample Number	N-value (blows/foot)	Graphic Log	Lithology	Groundwater	Moisture Content (%)	Unconfined Compression (tsf)
0					4" Clayey Topsoil			
2	SS	1	8		Sandy CLAY, gray, moist, stiff (CL)			
4	SS	2	21		Clayey fine SAND, gray, wet, medium dense (SC)	▼		
6	SS	3	22					
8	SS	4	15					
10					End of Boring-10'			
12								
14								
16								
18								
20								
22								
24								

Lithology

Soil Group Name: modifier, color, moisture, density/consistency, grain size, other descriptors

Rock Description: modifierm color, hardness/degree of concentration, bedding and joint characteristics, solutions, void conditions.

Modulus, PLLC

Boring Log: Sheet 1 of 1

SS- Standard Penetration Slit Spoon Sampler (SPT)

WR- Weathered Rock

California Sampler

▼ Stabllized Ground water

Shelby Tube

▽ Groundwater At time of Drilling

CPP Sampler

Bulk/ Bag Sample

Project:	Project Number:	Client:	Boring No.
Boviet Solar Substation	**NC25-0130**	**Boviet Solar**	**B-108**
Address, City, State		Drilling Contractor:	Drill Rig Type:
MLK JR HWY		**J&L**	**CME 550**
Logged By:	Date — Started:	Bit Type:	Diameter:
Geda	**5/23/25**	**HS**	**2-1/4"**
Drill Crew:	Date — Completed:	Hammer Type:	
Casey	**5/23/25**	**Safety**	
Ticket Number:	Date — Backfilled:	Hammer Weight:	Hammer Drop:
	Cuttings	**140#**	**30"**
	Surface Elev. / GW Depth	GW Elevation	Total Depth of Boring:
	32.0 / **3.2**	**28.8**	**10 feet**

Depth (feet)	Sample Type	Sample Number	N-value (blows/foot)	Graphic Log	Lithology	Groundwater	Moisture Content (%)	Unconfined Compression (tsf)
					7" Clayey Topsoil			
2	SS	1	10		Sandy CLAY, tan-gray, moist, stiff to medium stiff (CL)	▼		
4	SS	2	7					
6	SS	3	6					
8	SS	4	6		Clayey fine SAND, tan-gray, wet, loose (SC)			
10					End of Boring-10'			
12								
14								
16								
18								
20								
22								
24								

Lithology

Soil Group Name: modifier, color, moisture, density/consistency, grain size, other descriptors

Rock Description: modifierm color, hardness/degree of concentration, bedding and joint characteristics, solutions, void conditions.

Modulus, PLLC

Boring Log: Sheet 1 of 1

SS- Standard Penetration Slit Spoon Sampler (SPT)

California Sampler

Shelby Tube

CPP Sampler

Bulk/ Bag Sample

WR- Weathered Rock

▼ Stabllized Ground water

▽ Groundwater At time of Drilling

APPENDIX C

GENERAL CONDITIONS

The analysis, conclusions, and recommendations submitted in this report are based on the exploration previously outlined and the data collected at the points shown on the attached location plan. This report does not reflect specific variations that may occur between test locations. The borings were located where site conditions permitted and where it is believed representative conditions occur, but the full nature and extent of variations between borings and of subsurface conditions not encountered by any boring may not become evident until the course of construction. If variations become evident at any time before or during the course of construction, it will be necessary to make a re-evaluation of the conclusions and recommendations of this report and further exploration, observation, and/or testing may be required.

This report has been prepared in accordance with generally accepted soil and foundation engineering practices and makes no other warranties, either express or implied, as to the professional advice under the terms of our agreement and included in this report. The recommendations contained herein are made with the understanding that the contract documents between the owner and foundation or earthwork contractor or between the owner and the general contractor and the caisson, foundation, excavating and earthwork subcontractors, if any, shall require that the contractor certify that all work in connection with foundations, piles, caissons, compacted fills and other elements of the foundation or other support components are in place at the locations, with proper dimensions and plumb, as shown on the plans and specifications for the project.

Further, it is understood the contract documents will specify that the contractor will, upon becoming aware of apparent or latent subsurface conditions differing from those disclosed by the original soil exploration work, promptly notify the owner, both verbally to permit immediate verification of the change, and in writing, as to the nature and extent of the differing conditions and that no claim by the contractor for any conditions differing from those anticipated in the plans and specifications and disclosed by the soil explorations will be allowed under the contract unless the contractor has so notified the owner both verbally and in writing, as required above, of such changed conditions. The owner will, in turn, promptly notify this firm of the existence of such unanticipated conditions and will authorize such further exploration as may be required to properly evaluate these conditions.

Further, it is understood that any specific recommendations made in this report as to on-site construction review by this firm will be authorized and funds and facilities for such review will be provided at the times recommended if we are to be held responsible for the design recommendations.

APPENDIX D

PROCEDURES REGARDING FIELD LOGS, LABORATORY DATA SHEETS, AND SAMPLES

In the process of obtaining and testing samples and preparing this report, procedures are followed that represent reasonable and accepted practice in the field of soil and foundation engineering.

Specifically, field logs are prepared during performance of the drilling and sampling operations which are intended to portray essentially field occurrences, sampling locations, and other information.

Samples obtained in the field are frequently subjected to additional testing and reclassification in the laboratory by more experienced soil engineers, and differences between the field logs and the final logs exist.

The engineer preparing the report reviews the field and laboratory logs, classifications and test data, and his judgment in interpreting this data, may make further changes.

Samples are taken in the field, some of which are later subjected to laboratory tests, are retained in our laboratory for sixty days and are then discarded unless special disposition is requested by our client. Samples retained over a long period of time, even if sealed in jars, are subject to moisture loss which changes the apparent strength of cohesive soil generally increasing the strength from what was originally encountered in the field. Since they are then no longer representative of the moisture conditions initially encountered, an inspection of these samples should recognize this factor.