

PROJECT MANUAL
FOR
PAVEMENT REHABILITATION PROJECT
AT NEWBERRY MIDDLE AND NEWBERRY HIGH
SCHOOL
NEWBERRY, SOUTH CAROLINA

Prepared For:

School District of Newberry County

Prepared By:



7436 Broad River Road
Suite 212
Irmo SC 29063

June 2014

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INVITATION FOR BIDS

School District of Newberry County Pavement Rehabilitation project

Sealed bids for the School District of Newberry County Pavement Rehabilitation project will be received until 2:00 pm on June 30th, 2014 at the School District Office (Attn: Jim Suber, Asst Superintendent), 3419 Main Street, Newberry, South Carolina, 29108. Bids will be publicly opened and read aloud.

The Owner: School District of Newberry County
3419 Main Street
Newberry SC 29108
803-321-2600

The Engineer: RB Todd Consulting Engineers, Inc.
Clay Cannon, PE
7436 Broad River Road
Suite 212
Irmo SC 29063
803-781-3141, ext 303

The scope of work includes pavement rehabilitation of existing pavement areas at Newberry Middle School and Newberry High School. Specific scope to include milling of existing asphalt pavement, cement modified recycled base with asphalt overlay, concrete pavement installation, pavement striping, and Owner option to remove and replace complete with Graded Aggregate Base Course and Asphalt pavement. The schedule requires work to be started in July 2014 and completed by August 9, 2014.

Bidding documents will be available for inspection at the office of the Engineer, the plan rooms of AGC and Dodge. Requests for hard copies of bid documents will be made to RB Todd Consulting Engineers at the above address. A nonrefundable fee of \$40.00 is required for receipt of the bid package. Please include your physical address, telephone, and email when requesting the bid package.

All project documents, drawings, and specifications are the property of the Owner and Engineer and their agents. Bids will be binding for a period of 30 calendar days from the date bids are opened. Bids are to be submitted on the Form of proposal provided and in strict accordance with the Instructions to Bidders Section of the project manual. All bids must comply with the laws of the State of South Carolina.

A Mandatory Pre-bid Conference will be held at the Newberry School District Office located at 3419 Main Street on June 23, 2014 at 2:00 pm. Therefore bids will be considered only from those bidders who are represented at the pre-bid conference. The Owner shall award a contract without regard to race, religion, color, creed, national origin, sex, age, or handicapping condition. The Owner reserves the right to reject any and all bids and to award the contract in the best interest of the Owner.

INSTRUCTIONS TO BIDDERS

1. All bid sheets must be executed and submitted in a sealed envelope. The face of the envelope shall contain the bid title, the RFP number and the date for the bid closing. Bids not submitted on the attached bid forms will be subject to rejection. The School District of Newberry County assumes no responsibility for the unmarked envelopes being considered for award.
2. All amendments to and interpretations of this solicitation shall be in writing. Neither the procurement officer nor the Owner shall be legally bound by any amendment or interpretation that is not in writing. Should a Bidder find discrepancies or ambiguities in or omissions from, the bid documents, or should he be in doubt as to their meaning, he shall at once, and in any event not later than (7) seven days prior to the bid due date, notify the Owner and/or Engineer whom will send written addenda to all Bidders. Should a Bidder desire any explanation regarding the meaning or interpretation of the bid documents, request should be made in writing at least (7) seven days before the date established for the submission of bids. Any Change interpretation made will be in the form of written addendum to specifications and will be acknowledged on the bid schedule. It shall be the Bidder responsibility to make inquiry as to the addenda issued. All addenda shall become a part of the bid document, and all Bidders shall be bound by such addenda whether or not received by the Bidder.
3. All prices and notations shall be printed in ink or typewritten. Errors shall be crossed out and corrections entered and initialed by the person signing the bid. Erasures or use of typewriter correction fluid may be cause for rejection. No bid shall be altered or amended after the specified time for opening.
4. Unless otherwise required, submit only one copy of each bid.
5. Bidders shall be required to visibly mark as “*CONFIDENTIAL*” each part of their bid which they consider to be proprietary information that could be exempt under the Freedom of Information Act.
6. By submission of a bid, the vendor shall guarantee that all goods and services shall meet the requirements of the solicitation during the contract period.
7. All questions about the meaning or intent of the Bidding Documents are to be submitted to Engineer in writing. Interpretations or clarifications considered necessary by Engineer in response to such questions will be issued by Addenda mailed or delivered to all parties recorded by Engineer as having received the Bidding Documents. Questions received less than 4 days prior to the date for opening of Bids may not be answered. Only questions answered by Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect.
8. Each Proposal must be accompanied by a certified check or by a Bid Bond in the amount equal to not less than five per cent (5%) of the amount of the bid to guarantee that the successful bidder will, within ten (10) days from the date of the notice of awarded Contract, enter into a contract with the Owner. The Bid Bond to be 5% of the higher amount of either Task 1 or Task 2, but not of the Tasks combined. If, for any reason whatsoever, the Bidder withdraws from the competition after the bids have been opened, or refuses to execute the required contract and bonds, if his bid is accepted, the Owner may retain the amount of the certified check, or proceed against the bid bond.

9. Bids, amendments thereto, or withdrawal request received after the time advertised for bid opening will be void regardless of when they were mailed
10. All services, materials, supplies, or equipment offered must be guaranteed to meet the requirements of the specifications indicated, given, or referred to. In order to define requirements for quality and function of manufactured products. The Specifications are based upon products of manufactures as listed. Unless otherwise indicated, alternate or substitute items for bids are acceptable but must be of equal quality and / or aesthetic value to what is specified.
11. Delivery must be FOB destination freight prepaid unless otherwise specified herein. Cost delivery will be included in unit price.
12. Unless otherwise indicated in the bid notice, prices must be firm, if accepted by the District, within thirty days after the bid opening.
13. All taxes, other that South Carolina sales tax, on any item that the Town may be required to pay must be shown separately and not included in the bid prices.
14. Prices bid must be based upon payment in the in the thirty (30) days after delivery and acceptance. Discount for payment in less than thirty (30) days will not be considered in making award. Payment in connection with discount offered will be computed from the time of acceptance.
15. The Owner reserves the right to reject any bid that contains prices for individual items or services that are inconsistent or unrealistic when compared to other prices in the same or other bids if such action would be in the best interest of the Owner. Ambiguous bids which are uncertain as to terms, delivery, quantity, or compliance with specifications may be rejected or otherwise disregarded. The right is reserved to reject any bid in which the delivery time indicated is considered sufficient to delay the operation for which the project or services is intended.
16. Award will be made to the lowest responsible Offeror who submits a responsive bid which is most advantageous to the Owner and meets their requirements.
17. In the event that identical bids are received, the bid shall be awarded by lot in a method determined by Officials of the School District. All involved parties shall be invited to witness the procedure.
18. Offerors must, upon request of the District, furnish satisfactory evidence of their ability to furnish products or services in accordance with the terms and conditions of these specifications. The District may make such investigations as deemed necessary to determine the ability of the Offeror to perform such work. The District reserves the right to make the final determination as to the Offerors ability to provide the product or services requested herein and to reject any Offeror if evidence fails to indicate that the Offeror is qualified to carry out the requirements of the bid documents.

19. Each Offeror shall fully acquaint himself with conditions relating to the scope and restrictions attending the execution of the work under the conditions of this bid. It is expected that this will sometimes require on-site observation. The failure or omission of an Offeror to acquaint himself with existing conditions shall in no way relieve him of any obligation with respect to this bid or to the contract.
20. All applicable laws, codes, regulations, ordinances, etc. shall be deemed to be part of these specifications, and the specifications shall be read and enforced as though they were included.
21. Upon award of a contract under this bid, the person, partnership, association, or corporation to whom the award is made must comply with the laws of South Carolina which require such person or entity to be authorized and / or licensed to do business in this state. Notwithstanding the fact that applicable statutes may exempt or exclude the successful Offeror from requirements that is be authorized and/or licensed to do business in this state, by submission of this signed bid, the Offeror agrees to the subject itself to the jurisdiction and process of the courts of the South Carolina as to all matters, and disputes arising or to arise under the contract and the performance thereof, including any questions as to the liability for taxes, licenses or fees levied by the State.
22. The successful Bidder shall Indemnify and save harmless the School District and all its agents and employees, for all suites or claims of any character brought by reason of infringing on any patent, trademark or copyright.
23. The successful Bidder 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 employee, without regard or discrimination by reason of race, color, religion, sex, national origin or physical handicap.
24. No contract may be assigned, sublet, or transferred without the written consent of the Owner.
25. Any contract entered into by the District resulting from this bid notice shall be subject to cancellation at the end of any fiscal or appropriated year if sufficient funds have not been appropriated for continuation of the contract.
26. Any actual or prospective bidder or contractor who is aggrieved in connection with the solicitation or award of a contract may protest. The protest shall be submitted in writing, setting forth the grounds and facts applicable thereto for the protest within ten (10) days of the issuance of the invitation or other solicitation documents, which ever is applicable, or any amendment thereto if the amendment is at issue. A protest must be filed ten (10) days from the date of notification of award of is protested in accordance with this policy. The filing of a protest shall not stay the solicitation or award of a contract unless fraudulent.
27. All contractors employees shall abide by the Districts employee dress code. The District requires that all personnel working at its facilities, whether owner-employed or contracted, maintain a general standard of dress at all times while on its property. Contractor shall ensure that all personnel wear shoes, full-length trousers and shirts. Shorts and "tank tops" are not permitted.

28. Before executing any contracts, the successful Bidder shall submit the name of all proposed subcontractors for prior approval.

29. Having satisfied all conditions of award as set forth elsewhere in these documents, the successful Bidder shall within ten days after an agreement is presented for signature, furnish a surety bond in a penal sum not less than the amount of the Contract as awarded, as security for faithful performance of the Contract, and for the payment of all persons, firms, or corporations to whom the Contractor may become legally indebted for labor, materials, tools, equipment, or services, employed or used by him in performing this work. Such bond shall be in the form included in the Contract Documents and shall bear the same date as to that of the Agreement. This bond shall be obtained from companies holding certificates of authority as acceptable sureties.

BID SCHEDULE

Bid Number: SDNC/RBTODD #14-361

Invitation Date: June 16, 2014

Opening Date and Time: June 30, 2014 @ 2:00 pm EST

Opening Location: School District of Newberry County
3419 Main Street
School District Conference Room
Newberry SC 29108

Procurement: Pavement Rehabilitation Project: Newberry High and Newberry Middle Schools. Provide all materials, equipment, and labor to repair existing parking areas in accordance with the specifications, conditions, and provisions as provided herein.

Award: The total base bid of Task Item 1 or Task Item 2 will be used as a basis for evaluation of the bids and award of the contract. If the award of a contract is made, it will be to the lowest, responsive, responsible Bidder within the specified time for bids to remain irrevocable.

Time of completion: The successful bidder shall commence work within ten (10) calendar days of receipt of written Notice to Proceed by the Owner and fully execute and complete the project within 30 consecutive calendar days thereafter. The anticipated date of the Notice to Proceed is July 9 2014 and therefore the date of completion will be August 2014.

Liquidated Damages: The Bidder must also agree to pay as liquidated damages, the sum of \$150.00 for each consecutive calendar day thereafter as described in the General Conditions.

Warranty: The successful bidder will provide a written statement of warranty against any defect, failure, etc. caused by the materials, workmanship, etc. for a period of 1-year from the time of completion.

ARTICLE 1 – BID RECIPIENT

1.01 This Bid is submitted to:

*School District of Newberry County
3419 Main Street
Newberry SC 29108*

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

ARTICLE 2 – BIDDER'S ACKNOWLEDGEMENTS

2.01 Bidder accepts all of the terms and conditions of the Instructions to Bidders, including without limitation those dealing with the disposition of Bid security. This Bid will remain subject to acceptance for 30 days after the Bid opening, or for such longer period of time that Bidder may agree to in writing upon request of Owner.

ARTICLE 3 – BIDDER'S REPRESENTATIONS

3.01 In submitting this Bid, Bidder represents that:

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

<u>Addendum No.</u>	<u>Addendum Date</u>
_____	_____
_____	_____
_____	_____

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

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

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

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

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

ARTICLE 4 – FURTHER REPRESENTATIONS

4.01 Bidder further represents that:

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

ARTICLE 5 – BASIS OF BID

5.01 Bidder will complete the Work in accordance with the Contract Documents for one of the following Lump Sum price(s):

Lump Sum Bid Price for Task I only \$ _____

(words)

Lump Sum Bid Price for Task II only \$ _____

(words)

ARTICLE 6 – TIME OF COMPLETION

- 6.01 Bidder agrees that the Work will be substantially complete and will be completed and ready for final payment in accordance with Paragraph 14.07.B of the General Conditions on or before the dates or within the number of calendar days indicated in the Agreement.

- 6.01 Bidder agrees that the Work will be substantially complete on or before August 6, 2014, and will be completed and ready for final payment in accordance with Paragraph 14.07.B of the General Conditions on or before August 20, 2014.

- 6.02 Bidder accepts the provisions of the Agreement as to liquidated damages in the event of failure to complete the Work within the Contract Times.

ARTICLE 7 – ATTACHMENTS TO THIS BID

- 7.01 The following documents are attached to and made a condition of this Bid:
 - A. Required Bid security in the form of _____
 - B. List of Proposed Subcontractors

ARTICLE 8 – DEFINED TERMS

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

ARTICLE 9 – BID SUBMITTAL

- 9.01 This Bid submitted by:

If Bidder is:

An Individual

Name (typed or printed): _____

By: _____ (SEAL)
(Individual's signature)

Doing business as: _____

A Partnership

Partnership Name: _____ (SEAL)

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

Name (typed or printed): _____

A Corporation

Corporation Name: _____ (SEAL)

State of Incorporation: _____

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

By: _____

(Signature -- attach evidence of authority to sign)

Name (typed or printed): _____

Title: _____

(CORPORATE SEAL)

Attest _____

Date of Authorization to do business in *[State Where Project is Located]* is ____/____/____.

A Joint Venture

Name of Joint Venture: _____

First Joint Venturer Name: _____ (SEAL)

By: _____

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

Name (typed or printed): _____

Title: _____

Second Joint Venturer Name: _____ (SEAL)

By: _____

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

Name (typed or printed): _____

Title: _____

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

Bidder's Business Address _____

Phone No. _____ Fax No. _____

SUBMITTED on _____, 20_____.

State Contractor License No. _____. (If applicable)

BID BOND

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

BIDDER (Name and Address):

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

OWNER (Name and Address):

BID

Bid Due Date:

Project (Brief Description Including Location):

BOND

Bond Number:

Date (Not later than Bid due date):

Penal sum

_____)
(Words)

_____)
(Figures)

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

BIDDER

SURETY

(Seal
)

(Seal)

Bidder's Name and Corporate Seal

Surety's Name and Corporate Seal

By: _____
Signature and Title

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

Attest: _____
Signature and Title

Attest: _____
Signature and Title

Note: Above addresses are to be used for giving required notice.

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

**EJCDC
AGREEMENT
BETWEEN OWNER AND CONTRACTOR FOR
CONSTRUCTION CONTRACT (STIPULATED PRICE)**

THIS AGREEMENT is by and between School District of Newberry County

(Owner) and _____

(Contractor).

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

ARTICLE 1 - WORK

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

The project consists of parking lot rehabilitation to include Task I (cement modified recycled base with asphalt surfacing) or Task 2 (Base remove and replace with GABC and asphalt surface) for existing parking areas owned by the Owner.

ARTICLE 2 - THE PROJECT

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

The entire project.

ARTICLE 3 - ENGINEER

3.01 The Project has been designed by: RB Todd Consulting Engineers, INC.
7436 Broad River Road, Suite 212
Irmo SC 29063

(Engineer), who is to act as Owner's representative, assume all duties and responsibilities, and have the rights and authority assigned to Engineer in the Contract Documents in connection with the completion of the Work in accordance with the Contract Documents.

ARTICLE 4 - CONTRACT TIMES

4.01 Time of the Essence

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

4.02 Days to Achieve Substantial Completion and Final Payment

A. the Work will be substantially completed on or before 30 days from issuance of the Notice to Proceed after the date when the Contract Times commence to run as provided in the General Conditions, and completed and ready for final payment in accordance with the General Conditions on or before 14 days following the Substantial Completion.

4.03 Liquidated Damages

A. Contractor and Owner recognize that time is of the essence of this Agreement and that Owner will suffer financial loss if the Work is not completed within the times specified in Paragraph 4.02 above, plus any extensions thereof allowed in accordance with Article 12 of the General Conditions. The parties also recognize the delays, expense, and difficulties involved in proving in a legal or arbitration proceeding the actual loss suffered by Owner if the Work is not completed on time. Accordingly, instead of requiring any such proof, Owner and Contractor agree that as liquidated damages for delay (but not as a penalty), Contractor shall pay Owner \$150 for each day that expires after the time specified in Paragraph 4.02 for Substantial Completion until the Work is substantially complete. After Substantial Completion, if Contractor shall neglect, refuse, or fail to complete the remaining Work within the Contract Time or any proper extension thereof granted by Owner, Contractor shall pay Owner \$300 for each day that expires after the time specified in Paragraph 4.02 for completion and readiness for final payment until the Work is completed and ready for final payment.

ARTICLE 5 - CONTRACT PRICE

5.01 Owner shall pay Contractor for completion of the Work in accordance with the Contract Documents an amount in current funds equal to the sum of the amounts determined pursuant to Paragraphs 5.01.A, 5.01.B, and 5.01.C below:

A. For all Work other than Unit Price Work, a Lump Sum of:

_____ \$
(words) (numerals)

All specific cash allowances are included in the above price and have been computed in accordance with paragraph 11.02 of the General Conditions.

ARTICLE 6 - PAYMENT PROCEDURES

6.01 Submittal and Processing of Payments

A. Contractor shall submit Applications for Payment in accordance with Article 14 of the General Conditions. Applications for Payment will be processed by Engineer as provided in the General Conditions.

6.02 Progress Payments; Retainage

A. Owner shall make progress payments on account of the Contract Price on the basis of Contractor’s Applications for Payment on or about the 20 day of each month during performance of the Work as provided in Paragraphs 6.02.A.1 and 6.02.A.2 below. All such payments will be measured by the schedule of values established as provided in Paragraph 2.07.A of the General Conditions (and in the case of Unit Price Work based on the number of units completed) or, in the event there is no schedule of values, as provided in the General Requirements:

- 1. Prior to Substantial Completion, progress payments will be made in an amount equal to the percentage indicated below but, in each case, less the aggregate of payments previously made and less such amounts as Engineer may determine or Owner may withhold, including but not limited to liquidated damages, in accordance with Paragraph 14.02 of the General Conditions:

a. 90 percent of Work completed (with the balance being retainage). If the Work has been 50 percent completed as determined by Engineer, and if the character and progress of the Work have been satisfactory to Owner and Engineer, Owner, on recommendation of Engineer, may determine that as long as the character and progress of the Work remain satisfactory to them, there will be no additional retainage; and

b. 90 percent of cost of materials and equipment not incorporated in the Work (with the balance being retainage).

6.03 Final Payment

A. Upon final completion and acceptance of the Work in accordance with Paragraph 14.07 of the General Conditions, Owner shall pay the remainder of the Contract Price as recommended by Engineer as provided in said Paragraph 14.07.

ARTICLE 7 - INTEREST

7.01 All moneys not paid when due as provided in Article 14 of the General Conditions shall bear interest at the rate of 1.5 percent per annum.

ARTICLE 8 – CONTRACTOR’S REPRESENTATIONS

8.01 In order to induce Owner to enter into this Agreement Contractor makes the following representations:

A. Contractor has examined and carefully studied the Contract Documents and the other related data identified in the Bidding Documents.

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

C. Contractor is familiar with and is satisfied as to all federal, state, and local Laws and Regulations that may affect cost, progress, and performance of the Work.

D. Contractor has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or contiguous to the Site and all drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site (except Underground Facilities) which have been identified in the Supplementary Conditions as provided in Paragraph 4.02 of the General Conditions and (2) reports and drawings of a Hazardous Environmental Condition, if any, at the Site which has been identified in the Supplementary Conditions as provided in Paragraph 4.06 of the General Conditions.

E. Contractor has obtained and carefully studied (or assumes responsibility for doing so) all additional or supplementary examinations, investigations, explorations, tests, studies, and data concerning conditions (surface, subsurface, and Underground Facilities) at or contiguous to the Site which may affect cost, progress, or performance of the Work or which relate to any aspect of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, including any specific means, methods, techniques, sequences, and procedures of construction expressly required by the Bidding Documents, and safety precautions and programs incident thereto.

F. Contractor does not consider that any further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract Documents.

G. Contractor is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Contract Documents.

H. Contractor has correlated the information known to Contractor, information and observations obtained from visits to the Site, reports and drawings identified in the Contract Documents, and all additional examinations, investigations, explorations, tests, studies, and data with the Contract Documents.

I. Contractor has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Contractor has discovered in the Contract Documents, and the written resolution thereof by Engineer is acceptable to Contractor.

J. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.

ARTICLE 9 - CONTRACT DOCUMENTS

9.01 Contents

- A. The Contract Documents consist of the following:
1. This Agreement (pages 1 to 6, inclusive).
 2. General Conditions (pages 1 to 40, inclusive).
 3. Supplementary Conditions (pages 1 to 4, inclusive).
 4. Specifications as listed in the table of contents of the Project Manual.
 5. Drawings consisting of 4 sheets with Drawings listed on attached sheet index.
 6. Addenda (numbers , inclusive).
 7. Exhibits to this Agreement (enumerated as follows):
 - a. Contractor's Bid Form (pages 1 to 5, inclusive).
 - b. Documentation submitted by Contractor prior to Notice of Award
 8. The following which may be delivered or issued on or after the Effective Date of the Agreement and are not attached hereto:
 - a. Notice to Proceed (pages 1 to 1, inclusive).
 - b. Work Change Directives.
 - c. Change Order(s).
- B. The documents listed in Paragraph 9.01.A are attached to this Agreement (except as expressly noted otherwise above).
- C. There are no Contract Documents other than those listed above in this Article 9.
- D. The Contract Documents may only be amended, modified, or supplemented as provided in Paragraph 3.04 of the General Conditions.

ARTICLE 10 - MISCELLANEOUS

10.01 Terms

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

10.02 Assignment of Contract

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

10.03 Successors and Assigns

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

10.04 Severability

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

IN WITNESS WHEREOF, Owner and Contractor have signed this Agreement in duplicate. One counterpart each has been delivered to Owner and Contractor. All portions of the Contract Documents have been signed or identified by Owner and Contractor or on their behalf.

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

OWNER:

CONTRACTOR:

School District of Newberry County _____

By: _____

By: _____

Title: _____

Title: _____

[CORPORATE SEAL]

[CORPORATE SEAL]

Attest: _____

Attest: _____

Title: _____

Title: _____

Address for giving notices:

Address for giving notices:

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

License No.: _____

(Where applicable)

Agent for service or process: _____

(If Contractor is a corporation or a partnership, attach evidence of authority to sign.)

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

STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

Prepared by

ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

and

Issued and Published Jointly By



PROFESSIONAL ENGINEERS IN PRIVATE PRACTICE
a practice division of the
NATIONAL SOCIETY OF PROFESSIONAL ENGINEERS

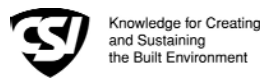
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The Associated General Contractors of America



Construction Specifications Institute

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GENERAL CONDITIONS

ARTICLE 1 - DEFINITIONS AND TERMINOLOGY

1.01 *Defined Terms*

A. Wherever used in the Bidding Requirements or Contract Documents and printed with initial capital letters, the terms listed below will have the meanings indicated which are applicable to both the singular and plural thereof. In addition to terms specifically defined, terms with initial capital letters in the Contract Documents include references to identified articles and paragraphs, and the titles of other documents or forms.

1. *Addenda*--Written or graphic instruments issued prior to the opening of Bids which clarify, correct, or change the Bidding Requirements or the proposed Contract Documents.

2. *Agreement*--The written instrument which is evidence of the agreement between Owner and Contractor covering the Work.

3. *Application for Payment*--The form acceptable to Engineer which is to be used by Contractor during the course of the Work in requesting progress or final payments and which is to be accompanied by such supporting documentation as is required by the Contract Documents.

4. *Asbestos*--Any material that contains more than one percent asbestos and is friable or is releasing asbestos fibers into the air above current action levels established by the United States Occupational Safety and Health Administration.

5. *Bid*--The offer or proposal of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.

6. *Bidder*--The individual or entity who submits a Bid directly to Owner.

7. *Bidding Documents*--The Bidding Requirements and the proposed Contract Documents (including all Addenda).

8. *Bidding Requirements*--The Advertisement or Invitation to Bid, Instructions to Bidders, bid security of acceptable form, if any, and the Bid Form with any supplements.

9. *Change Order*--A document recommended by Engineer which is signed by Contractor and Owner and authorizes an addition, deletion, or revision in the Work or an adjustment in the Contract Price or the Contract Times, issued on or after the Effective Date of the Agreement.

10. *Claim*--A demand or assertion by Owner or Contractor seeking an adjustment of Contract Price or Contract Times, or both, or other relief with respect to the terms of the Contract. A demand for money or services by a third party is not a Claim.

11. *Contract*--The entire and integrated written agreement between the Owner and Contractor concerning the Work. The Contract supersedes prior negotiations, representations, or agreements, whether written or oral.

12. *Contract Documents*-- Those items so designated in the Agreement. Only printed or hard copies of the items listed in the Agreement are Contract Documents. Approved Shop Drawings, other Contractor's submittals, and the reports and drawings of subsurface and physical conditions are not Contract Documents.

13. *Contract Price*--The moneys payable by Owner to Contractor for completion of the Work in accordance with the Contract Documents as stated in the Agreement (subject to the provisions of Paragraph 11.03 in the case of Unit Price Work).

14. *Contract Times*--The number of days or the dates stated in the Agreement to: (i) achieve Milestones, if any, (ii) achieve Substantial Completion; and (iii) complete the Work so that it is ready for final payment as evidenced by Engineer's written recommendation of final payment.

15. *Contractor*--The individual or entity with whom Owner has entered into the Agreement.

16. *Cost of the Work*--See Paragraph 11.01.A for definition.

17. *Drawings*--That part of the Contract Documents prepared or approved by Engineer which graphically shows the scope, extent, and character of the Work to be performed by Contractor. Shop Drawings and other Contractor submittals are not Drawings as so defined.

18. *Effective Date of the Agreement*--The date indicated in the Agreement on which it becomes effective, but if no such date is indicated, it means the date on which the Agreement is signed and delivered by the last of the two parties to sign and deliver.

19. *Engineer*--The individual or entity named as such in the Agreement.

20. *Field Order*--A written order issued by Engineer which requires minor changes in the Work but which does not involve a change in the Contract Price or the Contract Times.

21. *General Requirements*--Sections of Division 1 of the Specifications. The General Requirements pertain to all sections of the Specifications.

22. *Hazardous Environmental Condition*--The presence at the Site of Asbestos, PCBs, Petroleum, Hazardous Waste, or Radioactive Material in such quantities or circumstances that may present a substantial danger to persons or property exposed thereto in connection with the Work.

23. *Hazardous Waste*--The term Hazardous Waste shall have the meaning provided in Section 1004 of the Solid Waste Disposal Act (42 USC Section 6903) as amended from time to time.

24. *Laws and Regulations; Laws or Regulations*--Any and all applicable laws, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.

25. *Liens*--Charges, security interests, or encumbrances upon Project funds, real property, or personal property.

26. *Milestone*--A principal event specified in the Contract Documents relating to an intermediate completion date or time prior to Substantial Completion of all the Work.

27. *Notice of Award*--The written notice by Owner to the Successful Bidder stating that upon timely compliance by the Successful Bidder with the conditions precedent listed therein, Owner will sign and deliver the Agreement.

28. *Notice to Proceed*--A written notice given by Owner to Contractor fixing the date on which the Contract Times will commence to run and on which Contractor shall start to perform the Work under the Contract Documents.

29. *Owner*--The individual or entity with whom Contractor has entered into the Agreement and for whom the Work is to be performed.

30. *PCBs*--Polychlorinated biphenyls.

31. *Petroleum*--Petroleum, including crude oil or any fraction thereof which is liquid at standard conditions of temperature and pressure (60 degrees Fahrenheit and 14.7 pounds per square inch absolute), such as oil, petroleum, fuel oil, oil sludge, oil refuse, gasoline, kerosene, and oil mixed with other non-Hazardous Waste and crude oils.

32. *Progress Schedule*--A schedule, prepared and maintained by Contractor, describing the sequence and duration of the activities comprising the Contractor's plan to accomplish the Work within the Contract Times.

33. *Project*--The total construction of which the Work to be performed under the Contract Documents may be the whole, or a part.

34. *Project Manual*--The bound documentary information prepared for bidding and constructing the Work. A listing of the contents of the Project Manual, which may be bound in one or more volumes, is contained in the table(s) of contents.

35. *Radioactive Material*--Source, special nuclear, or byproduct material as defined by the Atomic Energy Act of 1954 (42 USC Section 2011 et seq.) as amended from time to time.

36. *Related Entity* -- An officer, director, partner, employee, agent, consultant, or subcontractor.

37. *Resident Project Representative*--The authorized representative of Engineer who may be assigned to the Site or any part thereof.

38. *Samples*--Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and which establish the standards by which such portion of the Work will be judged.

39. *Schedule of Submittals*--A schedule, prepared and maintained by Contractor, of required submittals and the time requirements to support scheduled performance of related construction activities.

40. *Schedule of Values*--A schedule, prepared and maintained by Contractor, allocating portions of the Contract Price to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.

41. *Shop Drawings*--All drawings, diagrams, illustrations, schedules, and other data or information which are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work.

42. *Site*--Lands or areas indicated in the Contract Documents as being furnished by Owner upon which the Work is to be performed, including rights-of-way and easements for access thereto, and such other lands furnished by Owner which are designated for the use of Contractor.

43. *Specifications*--That part of the Contract Documents consisting of written requirements for materials, equipment, systems, standards and workmanship as applied to the Work, and certain

administrative requirements and procedural matters applicable thereto.

44. *Subcontractor*--An individual or entity having a direct contract with Contractor or with any other Subcontractor for the performance of a part of the Work at the Site.

45. *Substantial Completion*--The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of Engineer, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms "substantially complete" and "substantially completed" as applied to all or part of the Work refer to Substantial Completion thereof.

46. *Successful Bidder*--The Bidder submitting a responsive Bid to whom Owner makes an award.

47. *Supplementary Conditions*--That part of the Contract Documents which amends or supplements these General Conditions.

48. *Supplier*--A manufacturer, fabricator, supplier, distributor, materialman, or vendor having a direct contract with Contractor or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by Contractor or any Subcontractor.

49. *Underground Facilities*--All underground pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or attachments, and any encasements containing such facilities, including those that convey electricity, gases, steam, liquid petroleum products, telephone or other communications, cable television, water, wastewater, storm water, other liquids or chemicals, or traffic or other control systems.

50. *Unit Price Work*--Work to be paid for on the basis of unit prices.

51. *Work*--The entire construction or the various separately identifiable parts thereof required to be provided under the Contract Documents. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such construction, and furnishing, installing, and incorporating all materials and equipment into such construction, all as required by the Contract Documents.

52. *Work Change Directive*--A written statement to Contractor issued on or after the Effective Date of the Agreement and signed by Owner and recommended by Engineer ordering an addition, deletion, or revision in the Work, or responding to differing or unforeseen subsurface or physical conditions under which the Work is to be performed or to emergencies. A Work Change Directive will not change the Contract Price or the Contract Times

but is evidence that the parties expect that the change ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order following negotiations by the parties as to its effect, if any, on the Contract Price or Contract Times.

1.02 Terminology

A. The following words or terms are not defined but, when used in the Bidding Requirements or Contract Documents, have the following meaning.

B. Intent of Certain Terms or Adjectives

1. The Contract Documents include the terms "as allowed," "as approved," "as ordered," "as directed" or terms of like effect or import to authorize an exercise of professional judgment by Engineer. In addition, the adjectives "reasonable," "suitable," "acceptable," "proper," "satisfactory," or adjectives of like effect or import are used to describe an action or determination of Engineer as to the Work. It is intended that such exercise of professional judgment, action or determination will be solely to evaluate, in general, the Work for compliance with the requirements of and information in the Contract Documents and conformance with the design concept of the completed Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective is not intended to and shall not be effective to assign to Engineer any duty or authority to supervise or direct the performance of the Work or any duty or authority to undertake responsibility contrary to the provisions of Paragraph 9.09 or any other provision of the Contract Documents.

C. Day

1. The word "day" means a calendar day of 24 hours measured from midnight to the next midnight.

D. Defective

1. The word "defective," when modifying the word "Work," refers to Work that is unsatisfactory, faulty, or deficient in that it:

- a. does not conform to the Contract Documents, or
- b. does not meet the requirements of any applicable inspection, reference standard, test, or approval referred to in the Contract Documents, or
- c. has been damaged prior to Engineer's - recommendation of final payment (unless responsibility for the protection thereof has been assumed by Owner at Substantial Completion in accordance with Paragraph 14.04 or 14.05).

E. Furnish, Install, Perform, Provide

1. The word “furnish,” when used in connection with services, materials, or equipment, shall mean to supply and deliver said services, materials, or equipment to the Site (or some other specified location) ready for use or installation and in usable or operable condition.

2. The word “install,” when used in connection with services, materials, or equipment, shall mean to put into use or place in final position said services, materials, or equipment complete and ready for intended use.

3. The words “perform” or “provide,” when used in connection with services, materials, or equipment, shall mean to furnish and install said services, materials, or equipment complete and ready for intended use.

4. When “furnish,” “install,” “perform,” or “provide” is not used in connection with services, materials, or equipment in a context clearly requiring an obligation of Contractor, “provide” is implied.

F. Unless stated otherwise in the Contract Documents, words or phrases which have a well-known technical or construction industry or trade meaning are used in the Contract Documents in accordance with such recognized meaning.

ARTICLE 2 - PRELIMINARY MATTERS

2.01 *Delivery of Bonds and Evidence of Insurance*

A. When Contractor delivers the executed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner such bonds as Contractor may be required to furnish.

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

2.02 *Copies of Documents*

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

2.03 *Commencement of Contract Times; Notice to Proceed*

A. The Contract Times will commence to run on the thirtieth day after the Effective Date of the Agreement

or, if a Notice to Proceed is given, on the day indicated in the Notice to Proceed. A Notice to Proceed may be given at any time within 30 days after the Effective Date of the Agreement. In no event will the Contract Times commence to run later than the sixtieth day after the day of Bid opening or the thirtieth day after the Effective Date of the Agreement, whichever date is earlier.

2.04 *Starting the Work*

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

2.05 *Before Starting Construction*

A. *Preliminary Schedules:* Within 10 days after the Effective Date of the Agreement (unless otherwise specified in the General Requirements), Contractor shall submit to Engineer for timely review:

1. a preliminary Progress Schedule; indicating the times (numbers of days or dates) for starting and completing the various stages of the Work, including any Milestones specified in the Contract Documents;

2. a preliminary Schedule of Submittals; and

3. a preliminary Schedule of Values for all of the Work which includes quantities and prices of items which when added together equal the Contract Price and subdivides the Work into component parts in sufficient detail to serve as the basis for progress payments during performance of the Work. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work.

2.06 *Preconstruction Conference*

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

2.07 *Initial Acceptance of Schedules*

A. At least 10 days before submission of the first Application for Payment a conference attended by Contractor, Engineer, and others as appropriate will be held to review for acceptability to Engineer as provided below the schedules submitted in accordance with Paragraph 2.05.A. Contractor shall have an additional 10 days to make corrections and adjustments and to complete and resubmit the schedules. No progress payment shall be made to Contractor until acceptable schedules are submitted to Engineer.

1. The Progress Schedule will be acceptable to Engineer if it provides an orderly progression of the Work to completion within the Contract Times. Such acceptance will not impose on Engineer responsibility for the Progress Schedule, for sequencing, scheduling, or progress of the Work nor interfere with or relieve Contractor from Contractor's full responsibility therefor.

2. Contractor's Schedule of Submittals will be acceptable to Engineer if it provides a workable arrangement for reviewing and processing the required submittals.

3. Contractor's Schedule of Values will be acceptable to Engineer as to form and substance if it provides a reasonable allocation of the Contract Price to component parts of the Work.

ARTICLE 3 - CONTRACT DOCUMENTS: INTENT, AMENDING, REUSE

3.01 *Intent*

A. The Contract Documents are complementary; what is required by one is as binding as if required by all.

B. It is the intent of the Contract Documents to describe a functionally complete Project (or part thereof) to be constructed in accordance with the Contract Documents. Any labor, documentation, services, materials, or equipment that may reasonably be inferred from the Contract Documents or from prevailing custom or trade usage as being required to produce the intended result will be provided whether or not specifically called for at no additional cost to Owner.

C. Clarifications and interpretations of the Contract Documents shall be issued by Engineer as provided in Article 9.

3.02 *Reference Standards*

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

1. Reference to standards, specifications, manuals, or codes of any technical society, organization, or association, or to Laws or Regulations, whether such reference be specific or by implication, shall mean the standard, specification, manual, code, or Laws or Regulations in effect at the time of opening of Bids (or on the Effective Date of the Agreement if there were no Bids), except as may be otherwise specifically stated in the Contract Documents.

2. No provision of any such standard, specification, manual or code, or any instruction of a Supplier shall be effective to change the duties or

responsibilities of Owner, Contractor, or Engineer, or any of their subcontractors, consultants, agents, or employees from those set forth in the Contract Documents. No such provision or instruction shall be effective to assign to Owner, or Engineer, or any of, their Related Entities, any duty or authority to supervise or direct the performance of the Work or any duty or authority to undertake responsibility inconsistent with the provisions of the Contract Documents.

3.03 *Reporting and Resolving Discrepancies*

A. Reporting Discrepancies

1. *Contractor's Review of Contract Documents Before Starting Work:* Before undertaking each part of the Work, Contractor shall carefully study and compare the Contract Documents and check and verify pertinent figures therein and all applicable field measurements. Contractor shall promptly report in writing to Engineer any conflict, error, ambiguity, or discrepancy which Contractor may discover and shall obtain a written interpretation or clarification from Engineer before proceeding with any Work affected thereby.

2. *Contractor's Review of Contract Documents During Performance of Work:* If, during the performance of the Work, Contractor discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents or between the Contract Documents and any provision of any Law or Regulation applicable to the performance of the Work or of any standard, specification, manual or code, or of any instruction of any Supplier, Contractor shall promptly report it to Engineer in writing. Contractor shall not proceed with the Work affected thereby (except in an emergency as required by Paragraph 6.16.A) until an amendment or supplement to the Contract Documents has been issued by one of the methods indicated in Paragraph 3.04.

3. Contractor shall not be liable to Owner or Engineer for failure to report any conflict, error, ambiguity, or discrepancy in the Contract Documents unless Contractor knew or reasonably should have known thereof.

B. Resolving Discrepancies

1. Except as may be otherwise specifically stated in the Contract Documents, the provisions of the Contract Documents shall take precedence in resolving any conflict, error, ambiguity, or discrepancy between the provisions of the Contract Documents and:

a. the provisions of any standard, specification, manual, code, or instruction (whether or not specifically incorporated by reference in the Contract Documents); or

b. the provisions of any Laws or Regulations applicable to the performance of the Work

(unless such an interpretation of the provisions of the Contract Documents would result in violation of such Law or Regulation).

3.04 *Amending and Supplementing Contract Documents*

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

B. The requirements of the Contract Documents may be supplemented, and minor variations and deviations in the Work may be authorized, by one or more of the following ways:

1. A Field Order;

2. Engineer's approval of a Shop Drawing or Sample; (Subject to the provisions of Paragraph 6.17.D.3); or

3. Engineer's written interpretation or clarification.

3.05 *Reuse of Documents*

A. Contractor and any Subcontractor or Supplier or other individual or entity performing or furnishing all of the Work under a direct or indirect contract with Contractor, shall not:

1. have or acquire any title to or ownership rights in any of the Drawings, Specifications, or other documents (or copies of any thereof) prepared by or bearing the seal of Engineer or Engineer's consultants, including electronic media editions; or

2. reuse any of such Drawings, Specifications, other documents, or copies thereof on extensions of the Project or any other project without written consent of Owner and Engineer and specific written verification or adaption by Engineer.

B. The prohibition of this Paragraph 3.05 will survive final payment, or termination of the Contract. Nothing herein shall preclude Contractor from retaining copies of the Contract Documents for record purposes.

3.06 *Electronic Data*

A. Copies of data furnished by Owner or Engineer to Contractor or Contractor to Owner or Engineer that may be relied upon are limited to the printed copies (also known as hard copies). Files in electronic media format of text, data, graphics, or other types are furnished only for the convenience of the receiving party. Any conclusion or information obtained or derived from such electronic files will be at the user's

sole risk. If there is a discrepancy between the electronic files and the hard copies, the hard copies govern.

B. Because data stored in electronic media format can deteriorate or be modified inadvertently or otherwise without authorization of the data's creator, the party receiving electronic files agrees that it will perform acceptance tests or procedures within 60 days, after which the receiving party shall be deemed to have accepted the data thus transferred. Any errors detected within the 60-day acceptance period will be corrected by the transferring party..

C. When transferring documents in electronic media format, the transferring party makes no representations as to long term compatibility, usability, or readability of documents resulting from the use of software application packages, operating systems, or computer hardware differing from those used by the data's creator.

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

4.01 *Availability of Lands*

A. Owner shall furnish the Site. Owner shall notify Contractor of any encumbrances or restrictions not of general application but specifically related to use of the Site with which Contractor must comply in performing the Work. Owner will obtain in a timely manner and pay for easements for permanent structures or permanent changes in existing facilities. If Contractor and Owner are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, as a result of any delay in Owner's furnishing the Site or a part thereof, Contractor may make a Claim therefor as provided in Paragraph 10.05.

B. Upon reasonable written request, Owner shall furnish Contractor with a current statement of record legal title and legal description of the lands upon which the Work is to be performed and Owner's interest therein as necessary for giving notice of or filing a mechanic's or construction lien against such lands in accordance with applicable Laws and Regulations.

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

4.02 *Subsurface and Physical Conditions*

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

1. those reports of explorations and tests of subsurface conditions at or contiguous to the Site that Engineer has used in preparing the Contract Documents; and

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

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

1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto; or

2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or

3. any Contractor interpretation of or conclusion drawn from any "technical data" or any such other data, interpretations, opinions, or information.

4.03 *Differing Subsurface or Physical Conditions*

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

1. is of such a nature as to establish that any "technical data" on which Contractor is entitled to rely as provided in Paragraph 4.02 is materially inaccurate; or

2. is of such a nature as to require a change in the Contract Documents; or

3. differs materially from that shown or indicated in the Contract Documents; or

4. is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents;

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

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

C. Possible Price and Times Adjustments

1. The Contract Price or the Contract Times, or both, will be equitably adjusted to the extent that the existence of such differing subsurface or physical condition causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:

a. such condition must meet any one or more of the categories described in Paragraph 4.03.A; and

b. with respect to Work that is paid for on a Unit Price Basis, any adjustment in Contract Price will be subject to the provisions of Paragraphs 9.07 and 11.03.

2. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times if:

a. Contractor knew of the existence of such conditions at the time Contractor made a final commitment to Owner with respect to Contract Price and Contract Times by the submission of a Bid or becoming bound under a negotiated contract; or

b. the existence of such condition could reasonably have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and contiguous areas required by the Bidding Requirements or Contract Documents to be conducted by or for Contractor prior to Contractor's making such final commitment; or

c. Contractor failed to give the written notice as required by Paragraph 4.03.A.

3. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, a Claim may be made therefor as provided in Paragraph 10.05. However, Owner and Engineer, and any of their Related Entities shall not be liable to Contractor for any claims, costs, losses, or damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Contractor on or in connection with any other project or anticipated project.

4.04 *Underground Facilities*

A. *Shown or Indicated:* The information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or contiguous to the Site is based on information and data furnished to Owner or Engineer by the owners of such Underground Facilities, including Owner, or by others. Unless it is otherwise expressly provided in the Supplementary Conditions:

1. Owner and Engineer shall not be responsible for the accuracy or completeness of any such information or data; and

2. the cost of all of the following will be included in the Contract Price, and Contractor shall have full responsibility for:

a. reviewing and checking all such information and data,

b. locating all Underground Facilities shown or indicated in the Contract Documents,

c. coordination of the Work with the owners of such Underground Facilities, including Owner, during construction, and

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

B. *Not Shown or Indicated*

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

promptly review the Underground Facility and determine the extent, if any, to which a change is required in the Contract Documents to reflect and document the consequences of the existence or location of the Underground Facility. During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.

2. If Engineer concludes that a change in the Contract Documents is required, a Work Change Directive or a Change Order will be issued to reflect and document such consequences. An equitable adjustment shall be made in the Contract Price or Contract Times, or both, to the extent that they are attributable to the existence or location of any Underground Facility that was not shown or indicated or not shown or indicated with reasonable accuracy in the Contract Documents and that Contractor did not know of and could not reasonably have been expected to be aware of or to have anticipated. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment in Contract Price or Contract Times, Owner or Contractor may make a Claim therefor as provided in Paragraph 10.05.

4.05 *Reference Points*

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

4.06 *Hazardous Environmental Condition at Site*

A. *Reports and Drawings:* Reference is made to the Supplementary Conditions for the identification of those reports and drawings relating to a Hazardous Environmental Condition identified at the Site, if any, that have been utilized by the Engineer in the preparation of the Contract Documents.

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

1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences and procedures of construction to be employed by Contractor and safety precautions and programs incident thereto; or

2. other data, interpretations, opinions and information contained in such reports or shown or indicated in such drawings; or

3. any Contractor interpretation of or conclusion drawn from any "technical data" or any such other data, interpretations, opinions or information.

C. Contractor shall not be responsible for any Hazardous Environmental Condition uncovered or revealed at the Site which was not shown or indicated in Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work. Contractor shall be responsible for a Hazardous Environmental Condition created with any materials brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible.

D. If Contractor encounters a Hazardous Environmental Condition or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, Contractor shall immediately: (i) secure or otherwise isolate such condition; (ii) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by Paragraph 6.16.A); and (iii) notify Owner and Engineer (and promptly thereafter confirm such notice in writing). Owner shall promptly consult with Engineer concerning the necessity for Owner to retain a qualified expert to evaluate such condition or take corrective action, if any.

E. Contractor shall not be required to resume Work in connection with such condition or in any affected area until after Owner has obtained any required permits related thereto and delivered to Contractor written notice: (i) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work; or (ii) specifying any special conditions under which such Work may be resumed safely. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times, or both, as a result of such Work stoppage or such special conditions under which Work is agreed to be resumed by Contractor, either party may make a Claim therefor as provided in Paragraph 10.05.

F. If after receipt of such written notice Contractor does not agree to resume such Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under such special conditions, then Owner may order the portion of the Work that is in the area affected by such condition to be deleted from the Work. If Owner and Contractor cannot agree as to

entitlement to or on the amount or extent, if any, of an adjustment in Contract Price or Contract Times as a result of deleting such portion of the Work, then either party may make a Claim therefor as provided in Paragraph 10.05. Owner may have such deleted portion of the Work performed by Owner's own forces or others in accordance with Article 7.

G. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, Subcontractors, and Engineer, and the officers, directors, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition, provided that such Hazardous Environmental Condition: (i) was not shown or indicated in the Drawings or Specifications or identified in the Contract Documents to be included within the scope of the Work, and (ii) was not created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 4.06. G shall obligate Owner to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

H. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 4.06.H shall obligate Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

I. The provisions of Paragraphs 4.02, 4.03, and 4.04 do not apply to a Hazardous Environmental Condition uncovered or revealed at the Site.

ARTICLE 5 - BONDS AND INSURANCE

5.01 *Performance, Payment, and Other Bonds*

A. Contractor shall furnish performance and payment bonds, each in an amount at least equal to the Contract Price as security for the faithful performance and payment of all of Contractor's obligations under the Contract Documents. These bonds shall remain in effect until one year after the date when final payment becomes due or until completion of the correction period specified

in Paragraph 13.07, whichever is later, except as provided otherwise by Laws or Regulations or by the Contract Documents. Contractor shall also furnish such other bonds as are required by the Contract Documents.

B. All bonds shall be in the form prescribed by the Contract Documents except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in the current list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (amended) by the Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury. All bonds signed by an agent must be accompanied by a certified copy of the agent's authority to act.

C. If the surety on any bond furnished by Contractor is declared bankrupt or becomes insolvent or its right to do business is terminated in any state where any part of the Project is located or it ceases to meet the requirements of Paragraph 5.01.B, Contractor shall promptly notify Owner and Engineer and shall, within 20 days after the event giving rise to such notification, provide another bond and surety, both of which shall comply with the requirements of Paragraphs 5.01.B and 5.02.

5.02 *Licensed Sureties and Insurers*

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

5.03 *Certificates of Insurance*

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

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

5.04 *Contractor's Liability Insurance*

A. Contractor shall purchase and maintain such liability and other insurance as is appropriate for the Work being performed and as will provide protection

from claims set forth below which may arise out of or result from Contractor's performance of the Work and Contractor's other obligations under the Contract Documents, whether it is to be performed by Contractor, any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to perform any of the Work, or by anyone for whose acts any of them may be liable:

1. claims under workers' compensation, disability benefits, and other similar employee benefit acts;

2. claims for damages because of bodily injury, occupational sickness or disease, or death of Contractor's employees;

3. claims for damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees;

4. claims for damages insured by reasonably available personal injury liability coverage which are sustained:

a. by any person as a result of an offense directly or indirectly related to the employment of such person by Contractor, or

b. by any other person for any other reason;

5. claims for damages, other than to the Work itself, because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom; and

6. claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance or use of any motor vehicle.

B. The policies of insurance required by this Paragraph 5.04 shall:

1. with respect to insurance required by Paragraphs 5.04.A.3 through 5.04.A.6 inclusive, include as additional insured (subject to any customary exclusion regarding professional liability) Owner and Engineer, and any other individuals or entities identified in the Supplementary Conditions, all of whom shall be listed as additional insureds, and include coverage for the respective officers, directors, partners, employees, agents, consultants and subcontractors of each and any of all such additional insureds, and the insurance afforded to these additional insureds shall provide primary coverage for all claims covered thereby;

2. include at least the specific coverages and be written for not less than the limits of liability provided in the Supplementary Conditions or required by Laws or Regulations, whichever is greater;

3. include completed operations insurance;

4. include contractual liability insurance covering Contractor's indemnity obligations under Paragraphs 6.11 and 6.20;

5. contain a provision or endorsement that the coverage afforded will not be canceled, materially changed or renewal refused until at least 30 days prior written notice has been given to Owner and Contractor and to each other additional insured identified in the Supplementary Conditions to whom a certificate of insurance has been issued (and the certificates of insurance furnished by the Contractor pursuant to Paragraph 5.03 will so provide);

6. remain in effect at least until final payment and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work in accordance with Paragraph 13.07; and

7. with respect to completed operations insurance, and any insurance coverage written on a claims-made basis, remain in effect for at least two years after final payment.

a. Contractor shall furnish Owner and each other additional insured identified in the Supplementary Conditions, to whom a certificate of insurance has been issued, evidence satisfactory to Owner and any such additional insured of continuation of such insurance at final payment and one year thereafter.

5.05 *Owner's Liability Insurance*

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

5.06 *Property Insurance*

A. Unless otherwise provided in the Supplementary Conditions, Owner shall purchase and maintain property insurance upon the Work at the Site in the amount of the full replacement cost thereof (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). This insurance shall:

1. include the interests of Owner, Contractor, Subcontractors, and Engineer, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as an insured or additional insured;

2. be written on a Builder's Risk "all-risk" or open peril or special causes of loss policy form that shall at least include insurance for physical loss or damage to the Work, temporary buildings, false work, and materials and equipment in transit, and shall insure against at least the following perils or causes of loss: fire, lightning, extended coverage, theft, vandalism and malicious mischief, earthquake, collapse, debris removal, demolition occasioned by enforcement of Laws and Regulations, water damage, (other than caused by flood) and such other perils or causes of loss as may be specifically required by the Supplementary Conditions;

3. include expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects);

4. cover materials and equipment stored at the Site or at another location that was agreed to in writing by Owner prior to being incorporated in the Work, provided that such materials and equipment have been included in an Application for Payment recommended by Engineer;

5. allow for partial utilization of the Work by Owner;

6. include testing and startup; and

7. be maintained in effect until final payment is made unless otherwise agreed to in writing by Owner, Contractor, and Engineer with 30 days written notice to each other additional insured to whom a certificate of insurance has been issued.

B. Owner shall purchase and maintain such boiler and machinery insurance or additional property insurance as may be required by the Supplementary Conditions or Laws and Regulations which will include the interests of Owner, Contractor, Subcontractors, and Engineer, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as an insured or additional insured.

C. All the policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained in accordance with Paragraph 5.06 will contain a provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least 30 days prior written notice has been given to Owner and Contractor and to each other additional insured to whom a certificate of insurance has been issued and will contain waiver provisions in accordance with Paragraph 5.07.

D. Owner shall not be responsible for purchasing and maintaining any property insurance specified in this Paragraph 5.06 to protect the interests of Contractor, Subcontractors, or others in the Work to the extent of any

deductible amounts that are identified in the Supplementary Conditions. The risk of loss within such identified deductible amount will be borne by Contractor, Subcontractors, or others suffering any such loss, and if any of them wishes property insurance coverage within the limits of such amounts, each may purchase and maintain it at the purchaser's own expense.

E. If Contractor requests in writing that other special insurance be included in the property insurance policies provided under Paragraph 5.06, Owner shall, if possible, include such insurance, and the cost thereof will be charged to Contractor by appropriate Change Order. Prior to commencement of the Work at the Site, Owner shall in writing advise Contractor whether or not such other insurance has been procured by Owner.

5.07 *Waiver of Rights*

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

B. Owner waives all rights against Contractor, Subcontractors, and Engineer, and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them for:

1. loss due to business interruption, loss of use, or other consequential loss extending beyond direct physical loss or damage to Owner's property or the Work caused by, arising out of, or resulting from fire or other perils whether or not insured by Owner; and

2. loss or damage to the completed Project or part thereof caused by, arising out of, or resulting from fire or other insured peril or cause of loss covered by any property insurance maintained on the completed Project or part thereof by Owner during partial utilization pursuant to Paragraph 14.05, after Substantial Completion pursuant to Paragraph 14.04, or after final payment pursuant to Paragraph 14.07.

C. Any insurance policy maintained by Owner covering any loss, damage or consequential loss referred to in Paragraph 5.07.B shall contain provisions to the effect that in the event of payment of any such loss, damage, or consequential loss, the insurers will have no rights of recovery against Contractor, Subcontractors, or Engineer, and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them.

5.08 *Receipt and Application of Insurance Proceeds*

A. Any insured loss under the policies of insurance required by Paragraph 5.06 will be adjusted with Owner and made payable to Owner as fiduciary for the insureds, as their interests may appear, subject to the requirements of any applicable mortgage clause and of Paragraph 5.08.B. Owner shall deposit in a separate account any money so received and shall distribute it in accordance with such agreement as the parties in interest may reach. If no other special agreement is reached, the damaged Work shall be repaired or replaced, the moneys so received applied on account thereof, and the Work and the cost thereof covered by an appropriate Change Order .

B. Owner as fiduciary shall have power to adjust and settle any loss with the insurers unless one of the parties in interest shall object in writing within 15 days after the occurrence of loss to Owner's exercise of this power. If such objection be made, Owner as fiduciary shall make settlement with the insurers in accordance with such agreement as the parties in interest may reach. If no such agreement among the parties in interest is reached, Owner as fiduciary shall adjust and settle the loss with the insurers and, if required in writing by any party in interest, Owner as fiduciary shall give bond for the proper performance of such duties.

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

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

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

5.10 *Partial Utilization, Acknowledgment of Property Insurer*

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

ARTICLE 6 - CONTRACTOR'S RESPONSIBILITIES

6.01 *Supervision and Superintendence*

A. Contractor shall supervise, inspect, and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents. Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction. Contractor shall not be responsible for the negligence of Owner or Engineer in the design or specification of a specific means, method, technique, sequence, or procedure of construction which is shown or indicated in and expressly required by the Contract Documents.

B. At all times during the progress of the Work, Contractor shall assign a competent resident superintendent who shall not be replaced without written notice to Owner and Engineer except under extraordinary circumstances. The superintendent will be Contractor's representative at the Site and shall have authority to act on behalf of Contractor. All communications given to or

received from the superintendent shall be binding on Contractor.

6.02 *Labor; Working Hours*

A. Contractor shall provide competent, suitably qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents. Contractor shall at all times maintain good discipline and order at the Site.

B. Except as otherwise required for the safety or protection of persons or the Work or property at the Site or adjacent thereto, and except as otherwise stated in the Contract Documents, all Work at the Site shall be performed during regular working hours. Contractor will not permit the performance of Work on a Saturday, Sunday, or any legal holiday without Owner's written consent (which will not be unreasonably withheld) given after prior written notice to Engineer.

6.03 *Services, Materials, and Equipment*

A. Unless otherwise specified in the Contract Documents, Contractor shall provide and assume full responsibility for all services, materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities, and all other facilities and incidentals necessary for the performance, testing, start-up, and completion of the Work.

B. All materials and equipment incorporated into the Work shall be as specified or, if not specified, shall be of good quality and new, except as otherwise provided in the Contract Documents. All special warranties and guarantees required by the Specifications shall expressly run to the benefit of Owner. If required by Engineer, Contractor shall furnish satisfactory evidence (including reports of required tests) as to the source, kind, and quality of materials and equipment.

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

6.04 *Progress Schedule*

A. Contractor shall adhere to the Progress Schedule established in accordance with Paragraph 2.07 as it may be adjusted from time to time as provided below.

1. Contractor shall submit to Engineer for acceptance (to the extent indicated in Paragraph 2.07) proposed adjustments in the Progress Schedule that will not result in changing the Contract Times. Such adjustments will comply with any provisions of the General Requirements applicable thereto.

2. Proposed adjustments in the Progress Schedule that will change the Contract Times shall be submitted in accordance with the requirements of Article 12. Adjustments in Contract Times may only be made by a Change Order.

6.05 *Substitutes and "Or-Equals"*

A. Whenever an item of material or equipment is specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier, the specification or description is intended to establish the type, function, appearance, and quality required. Unless the specification or description contains or is followed by words reading that no like, equivalent, or "or-equal" item or no substitution is permitted, other items of material or equipment or material or equipment of other Suppliers may be submitted to Engineer for review under the circumstances described below.

1. *"Or-Equal" Items:* If in Engineer's sole discretion an item of material or equipment proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, it may be considered by Engineer as an "or-equal" item, in which case review and approval of the proposed item may, in Engineer's sole discretion, be accomplished without compliance with some or all of the requirements for approval of proposed substitute items. For the purposes of this Paragraph 6.05.A.1, a proposed item of material or equipment will be considered functionally equal to an item so named if:

a. in the exercise of reasonable judgment Engineer determines that:

1) it is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;

2) it will reliably perform at least equally well the function and achieve the results imposed by the design concept of the completed Project as a functioning whole,

3) it has a proven record of performance and availability of responsive service; and

b. Contractor certifies that, if approved and incorporated into the Work:

1) there will be no increase in cost to the Owner or increase in Contract Times, and

2) it will conform substantially to the detailed requirements of the item named in the Contract Documents.

2. Substitute Items

a. If in Engineer's sole discretion an item of material or equipment proposed by Contractor does not qualify as an "or-equal" item under Paragraph 6.05.A.1, it will be considered a proposed substitute item.

b. Contractor shall submit sufficient information as provided below to allow Engineer to determine that the item of material or equipment proposed is essentially equivalent to that named and an acceptable substitute therefor. Requests for review of proposed substitute items of material or equipment will not be accepted by Engineer from anyone other than Contractor.

c. The requirements for review by Engineer will be as set forth in Paragraph 6.05.A.2.d, as supplemented in the General Requirements and as Engineer may decide is appropriate under the circumstances.

d. Contractor shall make written application to Engineer for review of a proposed substitute item of material or equipment that Contractor seeks to furnish or use. The application:

1) shall certify that the proposed substitute item will:

a) perform adequately the functions and achieve the results called for by the general design,

b) be similar in substance to that specified, and

c) be suited to the same use as that specified;

2) will state:

a) the extent, if any, to which the use of the proposed substitute item will prejudice Contractor's achievement of Substantial Completion on time;

b) whether or not use of the proposed substitute item in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with Owner for other work on the Project) to adapt the design to the proposed substitute item; and

c) whether or not incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty;

3) will identify:

a) all variations of the proposed substitute item from that specified, and

b) available engineering, sales, maintenance, repair, and replacement services;

4) and shall contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including costs of redesign and claims of other contractors affected by any resulting change,

B. Substitute Construction Methods or Procedures: If a specific means, method, technique, sequence, or procedure of construction is expressly required by the Contract Documents, Contractor may furnish or utilize a substitute means, method, technique, sequence, or procedure of construction approved by Engineer. Contractor shall submit sufficient information to allow Engineer, in Engineer's sole discretion, to determine that the substitute proposed is equivalent to that expressly called for by the Contract Documents. The requirements for review by Engineer will be similar to those provided in Paragraph 6.05.A.2.

C. Engineer's Evaluation: Engineer will be allowed a reasonable time within which to evaluate each proposal or submittal made pursuant to Paragraphs 6.05.A and 6.05.B. Engineer may require Contractor to furnish additional data about the proposed substitute item. Engineer will be the sole judge of acceptability. No "or equal" or substitute will be ordered, installed or utilized until Engineer's review is complete, which will be evidenced by either a Change Order for a substitute or an approved Shop Drawing for an "or equal." Engineer will advise Contractor in writing of any negative determination.

D. Special Guarantee: Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.

E. Engineer's Cost Reimbursement: Engineer will record Engineer's costs in evaluating a substitute proposed or submitted by Contractor pursuant to Paragraphs 6.05.A.2 and 6.05.B. Whether or not Engineer approves a substitute item so proposed or submitted by Contractor, Contractor shall reimburse Owner for the charges of Engineer for evaluating each such proposed substitute. Contractor shall also reimburse Owner for the charges of Engineer for making changes in the Contract

Documents (or in the provisions of any other direct contract with Owner) resulting from the acceptance of each proposed substitute.

F. Contractor's Expense: Contractor shall provide all data in support of any proposed substitute or "or-equal" at Contractor's expense.

6.06 Concerning Subcontractors, Suppliers, and Others

A. Contractor shall not employ any Subcontractor, Supplier, or other individual or entity (including those acceptable to Owner as indicated in Paragraph 6.06.B), whether initially or as a replacement, against whom Owner may have reasonable objection. Contractor shall not be required to employ any Subcontractor, Supplier, or other individual or entity to furnish or perform any of the Work against whom Contractor has reasonable objection.

B. If the Supplementary Conditions require the identity of certain Subcontractors, Suppliers, or other individuals or entities to be submitted to Owner in advance for acceptance by Owner by a specified date prior to the Effective Date of the Agreement, and if Contractor has submitted a list thereof in accordance with the Supplementary Conditions, Owner's acceptance (either in writing or by failing to make written objection thereto by the date indicated for acceptance or objection in the Bidding Documents or the Contract Documents) of any such Subcontractor, Supplier, or other individual or entity so identified may be revoked on the basis of reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor, Supplier, or other individual or entity, and the Contract Price will be adjusted by the difference in the cost occasioned by such replacement, and an appropriate Change Order will be issued. No acceptance by Owner of any such Subcontractor, Supplier, or other individual or entity, whether initially or as a replacement, shall constitute a waiver of any right of Owner or Engineer to reject defective Work.

C. Contractor shall be fully responsible to Owner and Engineer for all acts and omissions of the Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work just as Contractor is responsible for Contractor's own acts and omissions. Nothing in the Contract Documents:

1. shall create for the benefit of any such Subcontractor, Supplier, or other individual or entity any contractual relationship between Owner or Engineer and any such Subcontractor, Supplier or other individual or entity, nor

2. shall anything in the Contract Documents create any obligation on the part of Owner or Engineer to pay or to see to the payment of any moneys due any such Subcontractor, Supplier, or other individual

or entity except as may otherwise be required by Laws and Regulations.

D. Contractor shall be solely responsible for scheduling and coordinating the Work of Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work under a direct or indirect contract with Contractor.

E. Contractor shall require all Subcontractors, Suppliers, and such other individuals or entities performing or furnishing any of the Work to communicate with Engineer through Contractor.

F. The divisions and sections of the Specifications and the identifications of any Drawings shall not control Contractor in dividing the Work among Subcontractors or Suppliers or delineating the Work to be performed by any specific trade.

G. All Work performed for Contractor by a Subcontractor or Supplier will be pursuant to an appropriate agreement between Contractor and the Subcontractor or Supplier which specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract Documents for the benefit of Owner and Engineer. Whenever any such agreement is with a Subcontractor or Supplier who is listed as an additional insured on the property insurance provided in Paragraph 5.06, the agreement between the Contractor and the Subcontractor or Supplier will contain provisions whereby the Subcontractor or Supplier waives all rights against Owner, Contractor, and Engineer, and all other individuals or entities identified in the Supplementary Conditions to be listed as insureds or additional insureds (and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them) for all losses and damages caused by, arising out of, relating to, or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work. If the insurers on any such policies require separate waiver forms to be signed by any Subcontractor or Supplier, Contractor will obtain the same.

6.07 *Patent Fees and Royalties*

A. Contractor shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work or the incorporation in the Work of any invention, design, process, product, or device which is the subject of patent rights or copyrights held by others. If a particular invention, design, process, product, or device is specified in the Contract Documents for use in the performance of the Work and if to the actual knowledge of Owner or Engineer its use is subject to patent rights or copyrights calling for the payment of any license fee or royalty to others, the existence of such rights shall be disclosed by Owner in the Contract Documents.

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

6.08 *Permits*

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

6.09 *Laws and Regulations*

A. Contractor shall give all notices required by and shall comply with all Laws and Regulations applicable to the performance of the Work. Except where otherwise expressly required by applicable Laws and Regulations, neither Owner nor Engineer shall be responsible for monitoring Contractor's compliance with any Laws or Regulations.

B. If Contractor performs any Work knowing or having reason to know that it is contrary to Laws or Regulations, Contractor shall bear all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such Work. However, it shall not be Contractor's primary responsibility to make certain that the Specifications and Drawings are in accordance with Laws and Regulations, but this shall not relieve Contractor of Contractor's obligations under Paragraph 3.03.

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

6.10 Taxes

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

6.11 Use of Site and Other Areas

A. Limitation on Use of Site and Other Areas

1. Contractor shall confine construction equipment, the storage of materials and equipment, and the operations of workers to the Site and other areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and other areas with construction equipment or other materials or equipment. Contractor shall assume full responsibility for any damage to any such land or area, or to the owner or occupant thereof, or of any adjacent land or areas resulting from the performance of the Work.

2. Should any claim be made by any such owner or occupant because of the performance of the Work, Contractor shall promptly settle with such other party by negotiation or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law.

3. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any claim or action, legal or equitable, brought by any such owner or occupant against Owner, Engineer, or any other party indemnified hereunder to the extent caused by or based upon Contractor's performance of the Work.

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

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

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

6.12 Record Documents

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

6.13 Safety and Protection

A. Contractor shall be solely responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work. Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury or loss to:

1. all persons on the Site or who may be affected by the Work;

2. all the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and

3. other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction.

B. Contractor shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection. Contractor shall notify owners of adjacent property and of Underground Facilities and other utility owners when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property.

C. All damage, injury, or loss to any property referred to in Paragraph 6.13.A.2 or 6.13.A.3 caused, directly or indirectly, in whole or in part, by Contractor, any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be remedied by Contractor (except damage or loss attributable to the fault of Draw-

ings or Specifications or to the acts or omissions of Owner or Engineer or , or anyone employed by any of them, or anyone for whose acts any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of Contractor or any Subcontractor, Supplier, or other individual or entity directly or indirectly employed by any of them).

D. Contractor's duties and responsibilities for safety and for protection of the Work shall continue until such time as all the Work is completed and Engineer has issued a notice to Owner and Contractor in accordance with Paragraph 14.07.B that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion).

6.14 *Safety Representative*

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

6.15 *Hazard Communication Programs*

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

6.16 *Emergencies*

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

6.17 *Shop Drawings and Samples*

A. Contractor shall submit Shop Drawings and Samples to Engineer for review and approval in accordance with the acceptable Schedule of Submittals (as required by Paragraph 2.07). Each submittal will be identified as Engineer may require.

1. Shop Drawings

a. Submit number of copies specified in the General Requirements.

b. Data shown on the Shop Drawings will be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show Engineer the services, materials, and equipment Contractor proposes to provide and to enable Engineer to review the information for the limited purposes required by Paragraph 6.17.D.

2. *Samples*: Contractor shall also submit Samples to Engineer for review and approval in accordance with the acceptable schedule of Shop Drawings and Sample submittals.

a. Submit number of Samples specified in the Specifications.

b. Clearly identify each Sample as to material, Supplier, pertinent data such as catalog numbers, the use for which intended and other data as Engineer may require to enable Engineer to review the submittal for the limited purposes required by Paragraph 6.17.D.

B. Where a Shop Drawing or Sample is required by the Contract Documents or the Schedule of Submittals , any related Work performed prior to Engineer's review and approval of the pertinent submittal will be at the sole expense and responsibility of Contractor.

C. Submittal Procedures

1. Before submitting each Shop Drawing or Sample, Contractor shall have determined and verified:

a. all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect thereto;

b. the suitability of all materials with respect to intended use, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work;

c. all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto; and

d. shall also have reviewed and coordinated each Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents.

2. Each submittal shall bear a stamp or specific written certification that Contractor has satisfied Contractor's obligations under the Contract Documents

with respect to Contractor's review and approval of that submittal.

3. With each submittal, Contractor shall give Engineer specific written notice of any variations, that the Shop Drawing or Sample may have from the requirements of the Contract Documents. This notice shall be both a written communication separate from the Shop Drawing's or Sample Submittal; and, in addition, by a specific notation made on each Shop Drawing or Sample submitted to Engineer for review and approval of each such variation.

D. Engineer's Review

1. Engineer will provide timely review of Shop Drawings and Samples in accordance with the Schedule of Submittals acceptable to Engineer. Engineer's review and approval will be only to determine if the items covered by the submittals will, after installation or incorporation in the Work, conform to the information given in the Contract Documents and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.

2. Engineer's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction (except where a particular means, method, technique, sequence, or procedure of construction is specifically and expressly called for by the Contract Documents) or to safety precautions or programs incident thereto. The review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.

3. Engineer's review and approval shall not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has complied with the requirements of Paragraph 6.17.C.3 and Engineer has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample. Engineer's review and approval shall not relieve Contractor from responsibility for complying with the requirements of Paragraph 6.17.C.1.

E. Resubmittal Procedures

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

6.18 Continuing the Work

A. Contractor shall carry on the Work and adhere to the Progress Schedule during all disputes or

disagreements with Owner. No Work shall be delayed or postponed pending resolution of any disputes or disagreements, except as permitted by Paragraph 15.04 or as Owner and Contractor may otherwise agree in writing.

6.19 Contractor's General Warranty and Guarantee

A. Contractor warrants and guarantees to Owner that all Work will be in accordance with the Contract Documents and will not be defective. Engineer and its Related Entities shall be entitled to rely on representation of Contractor's warranty and guarantee.

B. Contractor's warranty and guarantee hereunder excludes defects or damage caused by:

1. abuse, modification, or improper maintenance or operation by persons other than Contractor, Subcontractors, Suppliers, or any other individual or entity for whom Contractor is responsible; or

2. normal wear and tear under normal usage.

C. Contractor's obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents or a release of Contractor's obligation to perform the Work in accordance with the Contract Documents:

1. observations by Engineer;

2. recommendation by Engineer or payment by Owner of any progress or final payment;

3. the issuance of a certificate of Substantial Completion by Engineer or any payment related thereto by Owner;

4. use or occupancy of the Work or any part thereof by Owner;

5. any review and approval of a Shop Drawing or Sample submittal or the issuance of a notice of acceptability by Engineer;

6. any inspection, test, or approval by others; or

7. any correction of defective Work by Owner.

6.20 Indemnification

A. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or

arbitration or other dispute resolution costs) arising out of or relating to the performance of the Work, provided that any such claim, cost, loss, or damage is attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom but only to the extent caused by any negligent act or omission of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work or anyone for whose acts any of them may be liable .

B. In any and all claims against Owner or Engineer or any of their respective consultants, agents, officers, directors, partners, or employees by any employee (or the survivor or personal representative of such employee) of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under Paragraph 6.20.A shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for Contractor or any such Subcontractor, Supplier, or other individual or entity under workers' compensation acts, disability benefit acts, or other employee benefit acts.

C. The indemnification obligations of Contractor under Paragraph 6.20.A shall not extend to the liability of Engineer and Engineer's officers, directors, partners, employees, agents, consultants and subcontractors arising out of:

1. the preparation or approval of, or the failure to prepare or approve, maps, Drawings, opinions, reports, surveys, Change Orders, designs, or Specifications; or
2. giving directions or instructions, or failing to give them, if that is the primary cause of the injury or damage.

6.21 *Delegation of Professional Design Services*

A. Contractor will not be required to provide professional design services unless such services are specifically required by the Contract Documents for a portion of the Work or unless such services are required to carry out Contractor's responsibilities for construction means, methods, techniques, sequences and procedures. Contractor shall not be required to provide professional services in violation of applicable law.

B. If professional design services or certifications by a design professional related to systems, materials or equipment are specifically required of Contractor by the Contract Documents, Owner and Engineer will specify all performance and design criteria that such services must satisfy. Contractor shall cause such services or certifications to be provided by a properly licensed professional, whose signature and seal

shall appear on all drawings, calculations, specifications, certifications, Shop Drawings and other submittals prepared by such professional. Shop Drawings and other submittals related to the Work designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to Engineer.

C. Owner and Engineer shall be entitled to rely upon the adequacy, accuracy and completeness of the services, certifications or approvals performed by such design professionals, provided Owner and Engineer have specified to Contractor all performance and design criteria that such services must satisfy.

D. Pursuant to this Paragraph 6.21, Engineer's review and approval of design calculations and design drawings will be only for the limited purpose of checking for conformance with performance and design criteria given and the design concept expressed in the Contract Documents. Engineer's review and approval of Shop Drawings and other submittals (except design calculations and design drawings) will be only for the purpose stated in Paragraph 6.17.D.1.

E. Contractor shall not be responsible for the adequacy of the performance or design criteria required by the Contract Documents.

ARTICLE 7 - OTHER WORK AT THE SITE

7.01 *Related Work at Site*

A. Owner may perform other work related to the Project at the Site with Owner's employees, or via other direct contracts therefor, or have other work performed by utility owners. If such other work is not noted in the Contract Documents, then:

1. written notice thereof will be given to Contractor prior to starting any such other work; and
2. if Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times that should be allowed as a result of such other work, a Claim may be made therefor as provided in Paragraph 10.05.

B. Contractor shall afford each other contractor who is a party to such a direct contract, each utility owner and Owner, if Owner is performing other work with Owner's employees, proper and safe access to the Site, a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work, and shall properly coordinate the Work with theirs. Contractor shall do all cutting, fitting, and patching of the Work that may be required to properly connect or otherwise make its several parts come together and

properly integrate with such other work. Contractor shall not endanger any work of others by cutting, excavating, or otherwise altering their work and will only cut or alter their work with the written consent of Engineer and the others whose work will be affected. The duties and responsibilities of Contractor under this Paragraph are for the benefit of such utility owners and other contractors to the extent that there are comparable provisions for the benefit of Contractor in said direct contracts between Owner and such utility owners and other contractors.

C. If the proper execution or results of any part of Contractor's Work depends upon work performed by others under this Article 7, Contractor shall inspect such other work and promptly report to Engineer in writing any delays, defects, or deficiencies in such other work that render it unavailable or unsuitable for the proper execution and results of Contractor's Work. Contractor's failure to so report will constitute an acceptance of such other work as fit and proper for integration with Contractor's Work except for latent defects and deficiencies in such other work.

7.02 *Coordination*

A. If Owner intends to contract with others for the performance of other work on the Project at the Site, the following will be set forth in Supplementary Conditions:

1. the individual or entity who will have authority and responsibility for coordination of the activities among the various contractors will be identified;

2. the specific matters to be covered by such authority and responsibility will be itemized; and

3. the extent of such authority and responsibilities will be provided.

B. Unless otherwise provided in the Supplementary Conditions, Owner shall have sole authority and responsibility for such coordination.

7.03 *Legal Relationships*

A. Paragraphs 7.01.A and 7.02 are not applicable for utilities not under the control of Owner.

B. Each other direct contract of Owner under Paragraph 7.01.A shall provide that the other contractor is liable to Owner and Contractor for the reasonable direct delay and disruption costs incurred by Contractor as a result of the other contractor's actions or inactions.

C. Contractor shall be liable to Owner and any other contractor for the reasonable direct delay and disruption costs incurred by such other contractor as a result of Contractor's action or inactions.

ARTICLE 8 - OWNER'S RESPONSIBILITIES

8.01 *Communications to Contractor*

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

8.02 *Replacement of Engineer*

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

8.03 *Furnish Data*

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

8.04 *Pay When Due*

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

8.05 *Lands and Easements; Reports and Tests*

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

8.06 *Insurance*

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

8.07 *Change Orders*

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

8.08 *Inspections, Tests, and Approvals*

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

8.09 *Limitations on Owner's Responsibilities*

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

8.10 *Undisclosed Hazardous Environmental Condition*

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

8.11 *Evidence of Financial Arrangements*

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

ARTICLE 9 - ENGINEER'S STATUS DURING CONSTRUCTION

9.01 *Owner's Representative*

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

9.02 *Visits to Site*

A. Engineer will make visits to the Site at intervals appropriate to the various stages of construction as Engineer deems necessary in order to observe as an experienced and qualified design professional the progress that has been made and the quality of the various aspects of Contractor's executed Work. Based on information obtained during such visits and observations, Engineer, for the benefit of Owner, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. Engineer will not be required to make exhaustive or continuous inspections on the Site to check the quality or quantity of the Work. Engineer's efforts will be directed toward providing for Owner a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits and observations, Engineer will keep

Owner informed of the progress of the Work and will endeavor to guard Owner against defective Work.

B. Engineer's visits and observations are subject to all the limitations on Engineer's authority and responsibility set forth in Paragraph 9.09. Particularly, but without limitation, during or as a result of Engineer's visits or observations of Contractor's Work Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work.

9.03 *Project Representative*

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

9.04 *Authorized Variations in Work*

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

9.05 *Rejecting Defective Work*

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

9.06 *Shop Drawings, Change Orders and Payments*

A. In connection with Engineer's authority, and limitations thereof, as to Shop Drawings and Samples, see Paragraph 6.17.

B. In connection with Engineer's authority, and limitations thereof, as to design calculations and design drawings submitted in response to a delegation of professional design services, if any, see Paragraph 6.21.

C. In connection with Engineer's authority as to Change Orders, see Articles 10, 11, and 12.

D. In connection with Engineer's authority as to Applications for Payment, see Article 14.

9.07 *Determinations for Unit Price Work*

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

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

A. Engineer will be the initial interpreter of the requirements of the Contract Documents and judge of the acceptability of the Work thereunder. All matters in question and other matters between Owner and Contractor arising prior to the date final payment is due relating to the acceptability of the Work, and the interpretation of the requirements of the Contract Documents pertaining to the performance of the Work, will be referred initially to Engineer in writing within 30 days of the event giving rise to the question

B. Engineer will, with reasonable promptness, render a written decision on the issue referred. If Owner or Contractor believe that any such decision entitles them to an adjustment in the Contract Price or Contract Times or both, a Claim may be made under Paragraph 10.05. The date of Engineer's decision shall be the date of the event giving rise to the issues referenced for the purposes of Paragraph 10.05.B.

C. Engineer's written decision on the issue referred will be final and binding on Owner and Contractor, subject to the provisions of Paragraph 10.05.

D. When functioning as interpreter and judge under this Paragraph 9.08, Engineer will not show

partiality to Owner or Contractor and will not be liable in connection with any interpretation or decision rendered in good faith in such capacity.

9.09 *Limitations on Engineer's Authority and Responsibilities*

A. Neither Engineer's authority or responsibility under this Article 9 or under any other provision of the Contract Documents nor any decision made by Engineer in good faith either to exercise or not exercise such authority or responsibility or the undertaking, exercise, or performance of any authority or responsibility by Engineer shall create, impose, or give rise to any duty in contract, tort, or otherwise owed by Engineer to Contractor, any Subcontractor, any Supplier, any other individual or entity, or to any surety for or employee or agent of any of them.

B. Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Engineer will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

C. Engineer will not be responsible for the acts or omissions of Contractor or of any Subcontractor, any Supplier, or of any other individual or entity performing any of the Work.

D. Engineer's review of the final Application for Payment and accompanying documentation and all maintenance and operating instructions, schedules, guarantees, bonds, certificates of inspection, tests and approvals, and other documentation required to be delivered by Paragraph 14.07.A will only be to determine generally that their content complies with the requirements of, and in the case of certificates of inspections, tests, and approvals that the results certified indicate compliance with the Contract Documents.

E. The limitations upon authority and responsibility set forth in this Paragraph 9.09 shall also apply to, the Resident Project Representative, if any, and assistants, if any.

ARTICLE 10 - CHANGES IN THE WORK; CLAIMS

10.01 *Authorized Changes in the Work*

A. Without invalidating the Contract and without notice to any surety, Owner may, at any time or from time to time, order additions, deletions, or revisions in the Work by a Change Order, or a Work Change Directive. Upon receipt of any such document, Contractor shall

promptly proceed with the Work involved which will be performed under the applicable conditions of the Contract Documents (except as otherwise specifically provided).

B. If Owner and Contractor are unable to agree on entitlement to, or on the amount or extent, if any, of an adjustment in the Contract Price or Contract Times, or both, that should be allowed as a result of a Work Change Directive, a Claim may be made therefor as provided in Paragraph 10.05.

10.02 *Unauthorized Changes in the Work*

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

10.03 *Execution of Change Orders*

A. Owner and Contractor shall execute appropriate Change Orders recommended by Engineer covering:

1. changes in the Work which are: (i) ordered by Owner pursuant to Paragraph 10.01.A, (ii) required because of acceptance of defective Work under Paragraph 13.08.A or Owner's correction of defective Work under Paragraph 13.09, or (iii) agreed to by the parties;

2. changes in the Contract Price or Contract Times which are agreed to by the parties, including any undisputed sum or amount of time for Work actually performed in accordance with a Work Change Directive; and

3. changes in the Contract Price or Contract Times which embody the substance of any written decision rendered by Engineer pursuant to Paragraph 10.05; provided that, in lieu of executing any such Change Order, an appeal may be taken from any such decision in accordance with the provisions of the Contract Documents and applicable Laws and Regulations, but during any such appeal, Contractor shall carry on the Work and adhere to the Progress Schedule as provided in Paragraph 6.18.A.

10.04 *Notification to Surety*

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

10.05 *Claims*

A. *Engineer's Decision Required:* All Claims, except those waived pursuant to Paragraph 14.09, shall be referred to the Engineer for decision. A decision by Engineer shall be required as a condition precedent to any exercise by Owner or Contractor of any rights or remedies either may otherwise have under the Contract Documents or by Laws and Regulations in respect of such Claims.

B. *Notice:* Written notice stating the general nature of each Claim, shall be delivered by the claimant to Engineer and the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto. The responsibility to substantiate a Claim shall rest with the party making the Claim. Notice of the amount or extent of the Claim, with supporting data shall be delivered to the Engineer and the other party to the Contract within 60 days after the start of such event (unless Engineer allows additional time for claimant to submit additional or more accurate data in support of such Claim). A Claim for an adjustment in Contract Price shall be prepared in accordance with the provisions of Paragraph 12.01.B. A Claim for an adjustment in Contract Time shall be prepared in accordance with the provisions of Paragraph 12.02.B. Each Claim shall be accompanied by claimant's written statement that the adjustment claimed is the entire adjustment to which the claimant believes it is entitled as a result of said event. The opposing party shall submit any response to Engineer and the claimant within 30 days after receipt of the claimant's last submittal (unless Engineer allows additional time).

C. *Engineer's Action:* Engineer will review each Claim and, within 30 days after receipt of the last submittal of the claimant or the last submittal of the opposing party, if any, take one of the following actions in writing:

1. deny the Claim in whole or in part,

2. approve the Claim, or

3. notify the parties that the Engineer is unable to resolve the Claim if, in the Engineer's sole discretion, it would be inappropriate for the Engineer to do so. For purposes of further resolution of the Claim, such notice shall be deemed a denial.

D. In the event that Engineer does not take action on a Claim within said 30 days, the Claim shall be deemed denied.

E. Engineer's written action under Paragraph 10.05.C or denial pursuant to Paragraphs 10.05.C.3 or 10.05.D will be final and binding upon Owner and Contractor, unless Owner or Contractor invoke the dispute resolution procedure set forth in Article 16 within 30 days of such action or denial.

F. No Claim for an adjustment in Contract Price or Contract Times will be valid if not submitted in accordance with this Paragraph 10.05.

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

11.01 *Cost of the Work*

A. *Costs Included:* The term Cost of the Work means the sum of all costs, except those excluded in Paragraph 11.01.B, necessarily incurred and paid by Contractor in the proper performance of the Work. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, the costs to be reimbursed to Contractor will be only those additional or incremental costs required because of the change in the Work or because of the event giving rise to the Claim. Except as otherwise may be agreed to in writing by Owner, such costs shall be in amounts no higher than those prevailing in the locality of the Project, shall include only the following items, and shall not include any of the costs itemized in Paragraph 11.01.B.

1. Payroll costs for employees in the direct employ of Contractor in the performance of the Work under schedules of job classifications agreed upon by Owner and Contractor. Such employees shall include, without limitation, superintendents, foremen, and other personnel employed full time at the Site. Payroll costs for employees not employed full time on the Work shall be apportioned on the basis of their time spent on the Work. Payroll costs shall include, but not be limited to, salaries and wages plus the cost of fringe benefits, which shall include social security contributions, unemployment, excise, and payroll taxes, workers' compensation, health and retirement benefits, bonuses, sick leave, vacation and holiday pay applicable thereto. The expenses of performing Work outside of regular working hours, on Saturday, Sunday, or legal holidays, shall be included in the above to the extent authorized by Owner.

2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts shall accrue to Contractor unless Owner deposits funds with Contractor with which to make payments, in which case the cash discounts shall accrue to Owner. All trade discounts, rebates and refunds and returns from sale of surplus materials and equipment shall accrue to Owner, and Contractor shall make provisions so that they may be obtained.

3. Payments made by Contractor to Subcontractors for Work performed by Subcontractors. If required by Owner, Contractor shall obtain competitive bids from subcontractors acceptable to Owner and

Contractor and shall deliver such bids to Owner, who will then determine, with the advice of Engineer, which bids, if any, will be acceptable. If any subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work plus a fee, the Subcontractor's Cost of the Work and fee shall be determined in the same manner as Contractor's Cost of the Work and fee as provided in this Paragraph 11.01.

4. Costs of special consultants (including but not limited to Engineers, architects, testing laboratories, surveyors, attorneys, and accountants) employed for services specifically related to the Work.

5. Supplemental costs including the following:

a. The proportion of necessary transportation, travel, and subsistence expenses of Contractor's employees incurred in discharge of duties connected with the Work.

b. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office, and temporary facilities at the Site, and hand tools not owned by the workers, which are consumed in the performance of the Work, and cost, less market value, of such items used but not consumed which remain the property of Contractor.

c. Rentals of all construction equipment and machinery, and the parts thereof whether rented from Contractor or others in accordance with rental agreements approved by Owner with the advice of Engineer, and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs shall be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts shall cease when the use thereof is no longer necessary for the Work.

d. Sales, consumer, use, and other similar taxes related to the Work, and for which Contractor is liable, imposed by Laws and Regulations.

e. Deposits lost for causes other than negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.

f. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by Contractor in connection with the performance of the Work (except losses and damages within the deductible amounts of property insurance established in accordance with Paragraph 5.06.D), provided such losses and damages have

resulted from causes other than the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses shall include settlements made with the written consent and approval of Owner. No such losses, damages, and expenses shall be included in the Cost of the Work for the purpose of determining Contractor's fee.

g. The cost of utilities, fuel, and sanitary facilities at the Site.

h. Minor expenses such as telegrams, long distance telephone calls, telephone service at the Site, expresses, and similar petty cash items in connection with the Work.

i. The costs of premiums for all bonds and insurance Contractor is required by the Contract Documents to purchase and maintain.

B. Costs Excluded: The term Cost of the Work shall not include any of the following items:

1. Payroll costs and other compensation of Contractor's officers, executives, principals (of partnerships and sole proprietorships), general managers, safety managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expeditors, timekeepers, clerks, and other personnel employed by Contractor, whether at the Site or in Contractor's principal or branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in Paragraph 11.01.A.1 or specifically covered by Paragraph 11.01.A.4, all of which are to be considered administrative costs covered by the Contractor's fee.

2. Expenses of Contractor's principal and branch offices other than Contractor's office at the Site.

3. Any part of Contractor's capital expenses, including interest on Contractor's capital employed for the Work and charges against Contractor for delinquent payments.

4. Costs due to the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of defective Work, disposal of materials or equipment wrongly supplied, and making good any damage to property.

5. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in Paragraphs 11.01.A and 11.01.B.

C. Contractor's Fee: When all the Work is performed on the basis of cost-plus, Contractor's fee shall

be determined as set forth in the Agreement. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, Contractor's fee shall be determined as set forth in Paragraph 12.01.C.

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

11.02 Allowances

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

B. Cash Allowances

1. Contractor agrees that:

a. the cash allowances include the cost to Contractor (less any applicable trade discounts) of materials and equipment required by the allowances to be delivered at the Site, and all applicable taxes; and

b. Contractor's costs for unloading and handling on the Site, labor, installation, overhead, profit, and other expenses contemplated for the cash allowances have been included in the Contract Price and not in the allowances, and no demand for additional payment on account of any of the foregoing will be valid.

C. Contingency Allowance

1. Contractor agrees that a contingency allowance, if any, is for the sole use of Owner to cover unanticipated costs.

D. Prior to final payment, an appropriate Change Order will be issued as recommended by Engineer to reflect actual amounts due Contractor on account of Work covered by allowances, and the Contract Price shall be correspondingly adjusted.

11.03 Unit Price Work

A. Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to the sum of the unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement.

B. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Determinations of the actual quantities and classifications of Unit Price Work performed by Contractor will be made by Engineer subject to the provisions of Paragraph 9.07.

C. Each unit price will be deemed to include an amount considered by Contractor to be adequate to cover Contractor's overhead and profit for each separately identified item.

D. Owner or Contractor may make a Claim for an adjustment in the Contract Price in accordance with Paragraph 10.05 if:

1. the quantity of any item of Unit Price Work performed by Contractor differs materially and significantly from the estimated quantity of such item indicated in the Agreement; and

2. there is no corresponding adjustment with respect any other item of Work; and

3. Contractor believes that Contractor is entitled to an increase in Contract Price as a result of having incurred additional expense or Owner believes that Owner is entitled to a decrease in Contract Price and the parties are unable to agree as to the amount of any such increase or decrease.

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

12.01 *Change of Contract Price*

A. The Contract Price may only be changed by a Change Order. Any Claim for an adjustment in the Contract Price shall be based on written notice submitted by the party making the Claim to the Engineer and the other party to the Contract in accordance with the provisions of Paragraph 10.05.

B. The value of any Work covered by a Change Order or of any Claim for an adjustment in the Contract Price will be determined as follows:

1. where the Work involved is covered by unit prices contained in the Contract Documents, by application of such unit prices to the quantities of the items involved (subject to the provisions of Paragraph 11.03); or

2. where the Work involved is not covered by unit prices contained in the Contract Documents, by a mutually agreed lump sum (which may include an

allowance for overhead and profit not necessarily in accordance with Paragraph 12.01.C.2); or

3. where the Work involved is not covered by unit prices contained in the Contract Documents and agreement to a lump sum is not reached under Paragraph 12.01.B.2, on the basis of the Cost of the Work (determined as provided in Paragraph 11.01) plus a Contractor's fee for overhead and profit (determined as provided in Paragraph 12.01.C).

C. *Contractor's Fee:* The Contractor's fee for overhead and profit shall be determined as follows:

1. a mutually acceptable fixed fee; or

2. if a fixed fee is not agreed upon, then a fee based on the following percentages of the various portions of the Cost of the Work:

a. for costs incurred under Paragraphs 11.01.A.1 and 11.01.A.2, the Contractor's fee shall be 15 percent;

b. for costs incurred under Paragraph 11.01.A.3, the Contractor's fee shall be five percent;

c. where one or more tiers of subcontracts are on the basis of Cost of the Work plus a fee and no fixed fee is agreed upon, the intent of Paragraph 12.01.C.2.a is that the Subcontractor who actually performs the Work, at whatever tier, will be paid a fee of 15 percent of the costs incurred by such Subcontractor under Paragraphs 11.01.A.1 and 11.01.A.2 and that any higher tier Subcontractor and Contractor will each be paid a fee of five percent of the amount paid to the next lower tier Subcontractor;

d. no fee shall be payable on the basis of costs itemized under Paragraphs 11.01.A.4, 11.01.A.5, and 11.01.B;

e. the amount of credit to be allowed by Contractor to Owner for any change which results in a net decrease in cost will be the amount of the actual net decrease in cost plus a deduction in Contractor's fee by an amount equal to five percent of such net decrease; and

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

12.02 *Change of Contract Times*

A. The Contract Times may only be changed by a Change Order. Any Claim for an adjustment in the Contract Times shall be based on written notice submitted

by the party making the Claim to the Engineer and the other party to the Contract in accordance with the provisions of Paragraph 10.05.

B. Any adjustment of the Contract Times covered by a Change Order or any Claim for an adjustment in the Contract Times will be determined in accordance with the provisions of this Article 12.

12.03 *Delays*

A. Where Contractor is prevented from completing any part of the Work within the Contract Times due to delay beyond the control of Contractor, the Contract Times will be extended in an amount equal to the time lost due to such delay if a Claim is made therefor as provided in Paragraph 12.02.A. Delays beyond the control of Contractor shall include, but not be limited to, acts or neglect by Owner, acts or neglect of utility owners or other contractors performing other work as contemplated by Article 7, fires, floods, epidemics, abnormal weather conditions, or acts of God.

B. If Owner, Engineer, or other contractors or utility owners performing other work for Owner as contemplated by Article 7, or anyone for whom Owner is responsible, delays, disrupts, or interferes with the performance or progress of the Work, then Contractor shall be entitled to an equitable adjustment in the Contract Price or the Contract Times, or both. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.

C. If Contractor is delayed in the performance or progress of the Work by fire, flood, epidemic, abnormal weather conditions, acts of God, acts or failures to act of utility owners not under the control of Owner, or other causes not the fault of and beyond control of Owner and Contractor, then Contractor shall be entitled to an equitable adjustment in Contract Times, if such adjustment is essential to Contractor's ability to complete the Work within the Contract Times. Such an adjustment shall be Contractor's sole and exclusive remedy for the delays described in this Paragraph 12.03.C.

D. Owner, Engineer and the Related Entities of each of them shall not be liable to Contractor for any claims, costs, losses, or damages (including but not limited to all fees and charges of Engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Contractor on or in connection with any other project or anticipated project.

E. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delays within the control of Contractor. Delays attributable to and within the control of a Subcontractor or Supplier shall be deemed to be delays within the control of Contractor.

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

13.01 *Notice of Defects*

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

13.02 *Access to Work*

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

13.03 *Tests and Inspections*

A. Contractor shall give Engineer timely notice of readiness of the Work for all required inspections, tests, or approvals and shall cooperate with inspection and testing personnel to facilitate required inspections or tests.

B. Owner shall employ and pay for the services of an independent testing laboratory to perform all inspections, tests, or approvals required by the Contract Documents except:

1. for inspections, tests, or approvals covered by Paragraphs 13.03.C and 13.03.D below;

2. that costs incurred in connection with tests or inspections conducted pursuant to Paragraph 13.04.B shall be paid as provided in said Paragraph 13.04.C; and

3. as otherwise specifically provided in the Contract Documents.

C. If Laws or Regulations of any public body having jurisdiction require any Work (or part thereof) specifically to be inspected, tested, or approved by an employee or other representative of such public body, Contractor shall assume full responsibility for arranging and obtaining such inspections, tests, or approvals, pay all costs in connection therewith, and furnish Engineer the required certificates of inspection or approval.

D. Contractor shall be responsible for arranging and obtaining and shall pay all costs in connection with any inspections, tests, or approvals required for Owner's and Engineer's acceptance of materials or equipment to

be incorporated in the Work; or acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work. Such inspections, tests, or approvals shall be performed by organizations acceptable to Owner and Engineer.

E. If any Work (or the work of others) that is to be inspected, tested, or approved is covered by Contractor without written concurrence of Engineer, it must, if requested by Engineer, be uncovered for observation.

F. Uncovering Work as provided in Paragraph 13.03.E shall be at Contractor's expense unless Contractor has given Engineer timely notice of Contractor's intention to cover the same and Engineer has not acted with reasonable promptness in response to such notice.

13.04 *Uncovering Work*

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

B. If Engineer considers it necessary or advisable that covered Work be observed by Engineer or inspected or tested by others, Contractor, at Engineer's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as Engineer may require, that portion of the Work in question, furnishing all necessary labor, material, and equipment.

C. If it is found that the uncovered Work is defective, Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such uncovering, exposure, observation, inspection, and testing, and of satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others); and Owner shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount thereof, Owner may make a Claim therefor as provided in Paragraph 10.05.

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

13.05 *Owner May Stop the Work*

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

13.06 *Correction or Removal of Defective Work*

A. Promptly after receipt of notice, Contractor shall correct all defective Work, whether or not fabricated, installed, or completed, or, if the Work has been rejected by Engineer, remove it from the Project and replace it with Work that is not defective. Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or removal (including but not limited to all costs of repair or replacement of work of others).

B. When correcting defective Work under the terms of this Paragraph 13.06 or Paragraph 13.07, Contractor shall take no action that would void or otherwise impair Owner's special warranty and guarantee, if any, on said Work.

13.07 *Correction Period*

A. If within one year after the date of Substantial Completion (or such longer period of time as may be prescribed by the terms of any applicable special guarantee required by the Contract Documents) or by any specific provision of the Contract Documents, any Work is found to be defective, or if the repair of any damages to the land or areas made available for Contractor's use by Owner or permitted by Laws and Regulations as contemplated in Paragraph 6.11.A is found to be defective, Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions:

1. repair such defective land or areas; or
2. correct such defective Work; or
3. if the defective Work has been rejected by Owner, remove it from the Project and replace it with Work that is not defective, and
4. satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others or other land or areas resulting therefrom.

B. If Contractor does not promptly comply with the terms of Owner's written instructions, or in an emergency where delay would cause serious risk of loss or damage, Owner may have the defective Work corrected or repaired or may have the rejected Work removed and replaced. All claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others) will be paid by Contractor.

C. In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications .

D. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this Paragraph 13.07, the correction period hereunder with respect to such Work will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.

E. Contractor's obligations under this Paragraph 13.07 are in addition to any other obligation or warranty. The provisions of this Paragraph 13.07 shall not be construed as a substitute for or a waiver of the provisions of any applicable statute of limitation or repose.

13.08 *Acceptance of Defective Work*

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

13.09 *Owner May Correct Defective Work*

A. If Contractor fails within a reasonable time after written notice from Engineer to correct defective Work or to remove and replace rejected Work as required by Engineer in accordance with Paragraph 13.06.A, or if Contractor fails to perform the Work in accordance with the Contract Documents, or if Contractor fails to comply with any other provision of the Contract Documents, Owner may, after seven days written notice to Contractor, correct or remedy any such deficiency.

B. In exercising the rights and remedies under this Paragraph 13.09, Owner shall proceed expeditiously. In connection with such corrective or remedial action, Owner may exclude Contractor from all or part of the Site, take possession of all or part of the Work and suspend Contractor's services related thereto, take possession of Contractor's tools, appliances, construction equipment and machinery at the Site, and incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere. Contractor shall allow Owner, Owner's representatives, agents and employees, Owner's other contractors, and Engineer and Engineer's consultants access to the Site to enable Owner to exercise the rights and remedies under this Paragraph.

C. All claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) incurred or sustained by Owner in exercising the rights and remedies under this Paragraph 13.09 will be charged against Contractor, and a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work; and Owner shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount of the adjustment, Owner may make a Claim therefor as provided in Paragraph 10.05. Such claims, costs, losses and damages will include but not be limited to all costs of repair, or replacement of work of others destroyed or damaged by correction, removal, or replacement of Contractor's defective Work.

D. Contractor shall not be allowed an extension of the Contract Times because of any delay in the performance of the Work attributable to the exercise by Owner of Owner's rights and remedies under this Paragraph 13.09.

ARTICLE 14 - PAYMENTS TO CONTRACTOR AND COMPLETION

14.01 *Schedule of Values*

A. The Schedule of Values established as provided in Paragraph 2.07.A will serve as the basis for progress

payments and will be incorporated into a form of Application for Payment acceptable to Engineer. Progress payments on account of Unit Price Work will be based on the number of units completed.

14.02 *Progress Payments*

A. Applications for Payments

1. At least 20 days before the date established in the Agreement for each progress payment (but not more often than once a month), Contractor shall submit to Engineer for review an Application for Payment filled out and signed by Contractor covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the Site or at another location agreed to in writing, the Application for Payment shall also be accompanied by a bill of sale, invoice, or other documentation warranting that Owner has received the materials and equipment free and clear of all Liens and evidence that the materials and equipment are covered by appropriate property insurance or other arrangements to protect Owner's interest therein, all of which must be satisfactory to Owner.

2. Beginning with the second Application for Payment, each Application shall include an affidavit of Contractor stating that all previous progress payments received on account of the Work have been applied on account to discharge Contractor's legitimate obligations associated with prior Applications for Payment.

3. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.

B. *Review of Applications*

1. Engineer will, within 10 days after receipt of each Application for Payment, either indicate in writing a recommendation of payment and present the Application to Owner or return the Application to Contractor indicating in writing Engineer's reasons for refusing to recommend payment. In the latter case, Contractor may make the necessary corrections and resubmit the Application.

2. Engineer's recommendation of any payment requested in an Application for Payment will constitute a representation by Engineer to Owner, based on Engineer's observations on the Site of the executed Work as an experienced and qualified design professional and on Engineer's review of the Application for Payment and the accompanying data and schedules, that to the best of Engineer's knowledge, information and belief:

a. the Work has progressed to the point indicated;

b. the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, to the results of any subsequent tests called for in the Contract Documents, to a final determination of quantities and classifications for Unit Price Work under Paragraph 9.07, and to any other qualifications stated in the recommendation); and

c. the conditions precedent to Contractor's being entitled to such payment appear to have been fulfilled in so far as it is Engineer's responsibility to observe the Work.

3. By recommending any such payment Engineer will not thereby be deemed to have represented that:

a. inspections made to check the quality or the quantity of the Work as it has been performed have been exhaustive, extended to every aspect of the Work in progress, or involved detailed inspections of the Work beyond the responsibilities specifically assigned to Engineer in the Contract Documents; or

b. that there may not be other matters or issues between the parties that might entitle Contractor to be paid additionally by Owner or entitle Owner to withhold payment to Contractor.

4. Neither Engineer's review of Contractor's Work for the purposes of recommending payments nor Engineer's recommendation of any payment, including final payment, will impose responsibility on Engineer:

a. to supervise, direct, or control the Work, or

b. for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or

c. for Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work, or

d. to make any examination to ascertain how or for what purposes Contractor has used the moneys paid on account of the Contract Price, or

e. to determine that title to any of the Work, materials, or equipment has passed to Owner free and clear of any Liens.

5. Engineer may refuse to recommend the whole or any part of any payment if, in Engineer's opinion, it would be incorrect to make the representations to Owner stated in Paragraph 14.02.B.2. Engineer may also refuse to recommend any such payment or, because of subsequently discovered evidence or the results of subsequent

inspections or tests, revise or revoke any such payment recommendation previously made, to such extent as may be necessary in Engineer's opinion to protect Owner from loss because:

- a. the Work is defective, or completed Work has been damaged, requiring correction or replacement;
- b. the Contract Price has been reduced by Change Orders;
- c. Owner has been required to correct defective Work or complete Work in accordance with Paragraph 13.09; or
- d. Engineer has actual knowledge of the occurrence of any of the events enumerated in Paragraph 15.02.A.

C. Payment Becomes Due

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

D. Reduction in Payment

1. Owner may refuse to make payment of the full amount recommended by Engineer because:

- a. claims have been made against Owner on account of Contractor's performance or furnishing of the Work;
- b. Liens have been filed in connection with the Work, except where Contractor has delivered a specific bond satisfactory to Owner to secure the satisfaction and discharge of such Liens;
- c. there are other items entitling Owner to a set-off against the amount recommended; or
- d. Owner has actual knowledge of the occurrence of any of the events enumerated in Paragraphs 14.02.B.5.a through 14.02.B.5.c or Paragraph 15.02.A.

2. If Owner refuses to make payment of the full amount recommended by Engineer, Owner will give Contractor immediate written notice (with a copy to Engineer) stating the reasons for such action and promptly pay Contractor any amount remaining after deduction of the amount so withheld. Owner shall promptly pay Contractor the amount so withheld, or any adjustment thereto agreed to by Owner and Contractor, when Contractor corrects to Owner's satisfaction the reasons for such action.

3. If it is subsequently determined that Owner's refusal of payment was not justified, the amount wrongfully withheld shall be treated as an amount due as determined by Paragraph 14.02.C.1.

14.03 Contractor's Warranty of Title

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

14.04 Substantial Completion

A. When Contractor considers the entire Work ready for its intended use Contractor shall notify Owner and Engineer in writing that the entire Work is substantially complete (except for items specifically listed by Contractor as incomplete) and request that Engineer issue a certificate of Substantial Completion.

B. Promptly after Contractor's notification, , Owner, Contractor, and Engineer shall make an inspection of the Work to determine the status of completion. If Engineer does not consider the Work substantially complete, Engineer will notify Contractor in writing giving the reasons therefor.

C. If Engineer considers the Work substantially complete, Engineer will deliver to Owner a tentative certificate of Substantial Completion which shall fix the date of Substantial Completion. There shall be attached to the certificate a tentative list of items to be completed or corrected before final payment. Owner shall have seven days after receipt of the tentative certificate during which to make written objection to Engineer as to any provisions of the certificate or attached list. If, after considering such objections, Engineer concludes that the Work is not substantially complete, Engineer will within 14 days after submission of the tentative certificate to Owner notify Contractor in writing, stating the reasons therefor. If, after consideration of Owner's objections, Engineer considers the Work substantially complete, Engineer will within said 14 days execute and deliver to Owner and Contractor a definitive certificate of Substantial Completion (with a revised tentative list of items to be completed or corrected) reflecting such changes from the tentative certificate as Engineer believes justified after consideration of any objections from Owner.

D. At the time of delivery of the tentative certificate of Substantial Completion, Engineer will deliver to Owner and Contractor a written recommendation as to division of responsibilities pending final payment between Owner and Contractor with respect to security, operation, safety, and protection of the Work, maintenance, heat, utilities, insurance, and warranties and guarantees. Unless Owner and Contractor agree otherwise in writing and so inform Engineer in writing prior to Engineer's issuing the definitive certificate of Substantial

Completion, Engineer's aforesaid recommendation will be binding on Owner and Contractor until final payment.

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

14.05 *Partial Utilization*

A. Prior to Substantial Completion of all the Work, Owner may use or occupy any substantially completed part of the Work which has specifically been identified in the Contract Documents, or which Owner, Engineer, and Contractor agree constitutes a separately functioning and usable part of the Work that can be used by Owner for its intended purpose without significant interference with Contractor's performance of the remainder of the Work, subject to the following conditions.

1. Owner at any time may request Contractor in writing to permit Owner to use or occupy any such part of the Work which Owner believes to be ready for its intended use and substantially complete. If and when Contractor agrees that such part of the Work is substantially complete, Contractor will certify to Owner and Engineer that such part of the Work is substantially complete and request Engineer to issue a certificate of Substantial Completion for that part of the Work.

2. Contractor at any time may notify Owner and Engineer in writing that Contractor considers any such part of the Work ready for its intended use and substantially complete and request Engineer to issue a certificate of Substantial Completion for that part of the Work.

3. Within a reasonable time after either such request, Owner, Contractor, and Engineer shall make an inspection of that part of the Work to determine its status of completion. If Engineer does not consider that part of the Work to be substantially complete, Engineer will notify Owner and Contractor in writing giving the reasons therefor. If Engineer considers that part of the Work to be substantially complete, the provisions of Paragraph 14.04 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.

4. No use or occupancy or separate operation of part of the Work may occur prior to compliance with the requirements of Paragraph 5.10 regarding property insurance.

14.06 *Final Inspection*

A. Upon written notice from Contractor that the entire Work or an agreed portion thereof is complete, Engineer will promptly make a final inspection with Owner and Contractor and will notify Contractor in writing of all particulars in which this inspection reveals

that the Work is incomplete or defective. Contractor shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies.

14.07 *Final Payment*

A. Application for Payment

1. After Contractor has, in the opinion of Engineer, satisfactorily completed all corrections identified during the final inspection and has delivered, in accordance with the Contract Documents, all maintenance and operating instructions, schedules, guarantees, bonds, certificates or other evidence of insurance certificates of inspection, marked-up record documents (as provided in Paragraph 6.12), and other documents, Contractor may make application for final payment following the procedure for progress payments.

2. The final Application for Payment shall be accompanied (except as previously delivered) by:

a. all documentation called for in the Contract Documents, including but not limited to the evidence of insurance required by Paragraph 5.04.B.7;

b. consent of the surety, if any, to final payment;

c. a list of all Claims against Owner that Contractor believes are unsettled; and

d. complete and legally effective releases or waivers (satisfactory to Owner) of all Lien rights arising out of or Liens filed in connection with the Work.

3. In lieu of the releases or waivers of Liens specified in Paragraph 14.07.A.2 and as approved by Owner, Contractor may furnish receipts or releases in full and an affidavit of Contractor that: (i) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (ii) all payrolls, material and equipment bills, and other indebtedness connected with the Work for which Owner or Owner's property might in any way be responsible have been paid or otherwise satisfied. If any Subcontractor or Supplier fails to furnish such a release or receipt in full, Contractor may furnish a bond or other collateral satisfactory to Owner to indemnify Owner against any Lien.

B. *Engineer's Review of Application and Acceptance*

1. If, on the basis of Engineer's observation of the Work during construction and final inspection, and Engineer's review of the final Application for Payment and accompanying documentation as required by the Contract Documents, Engineer is satisfied that the Work has been completed and Contractor's other obligations

under the Contract Documents have been fulfilled, Engineer will, within ten days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of payment and present the Application for Payment to Owner for payment. At the same time Engineer will also give written notice to Owner and Contractor that the Work is acceptable subject to the provisions of Paragraph 14.09. Otherwise, Engineer will return the Application for Payment to Contractor, indicating in writing the reasons for refusing to recommend final payment, in which case Contractor shall make the necessary corrections and resubmit the Application for Payment.

C. Payment Becomes Due

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

14.08 *Final Completion Delayed*

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

14.09 *Waiver of Claims*

A. The making and acceptance of final payment will constitute:

1. a waiver of all Claims by Owner against Contractor, except Claims arising from unsettled Liens, from defective Work appearing after final inspection pursuant to Paragraph 14.06, from failure to comply with the Contract Documents or the terms of any special guarantees specified therein, or from Contractor's continuing obligations under the Contract Documents; and

2. a waiver of all Claims by Contractor against Owner other than those previously made in accordance

with the requirements herein and expressly acknowledged by Owner in writing as still unsettled.

ARTICLE 15 - SUSPENSION OF WORK AND TERMINATION

15.01 *Owner May Suspend Work*

A. At any time and without cause, Owner may suspend the Work or any portion thereof for a period of not more than 90 consecutive days by notice in writing to Contractor and Engineer which will fix the date on which Work will be resumed. Contractor shall resume the Work on the date so fixed. Contractor shall be granted an adjustment in the Contract Price or an extension of the Contract Times, or both, directly attributable to any such suspension if Contractor makes a Claim therefor as provided in Paragraph 10.05.

15.02 *Owner May Terminate for Cause*

A. The occurrence of any one or more of the following events will justify termination for cause:

1. Contractor's persistent failure to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment or failure to adhere to the Progress Schedule established under Paragraph 2.07 as adjusted from time to time pursuant to Paragraph 6.04);

2. Contractor's disregard of Laws or Regulations of any public body having jurisdiction;

3. Contractor's disregard of the authority of Engineer; or

4. Contractor's violation in any substantial way of any provisions of the Contract Documents.

B. If one or more of the events identified in Paragraph 15.02.A occur, Owner may, after giving Contractor (and surety) seven days written notice of its intent to terminate the services of Contractor:

1. exclude Contractor from the Site, and take possession of the Work and of all Contractor's tools, appliances, construction equipment, and machinery at the Site, and use the same to the full extent they could be used by Contractor (without liability to Contractor for trespass or conversion),

2. incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere, and

3. complete the Work as Owner may deem expedient.

C. If Owner proceeds as provided in Paragraph 15.02.B, Contractor shall not be entitled to receive any further payment until the Work is completed. If the unpaid balance of the Contract Price exceeds all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Owner arising out of or relating to completing the Work, such excess will be paid to Contractor. If such claims, costs, losses, and damages exceed such unpaid balance, Contractor shall pay the difference to Owner. Such claims, costs, losses, and damages incurred by Owner will be reviewed by Engineer as to their reasonableness and, when so approved by Engineer, incorporated in a Change Order. When exercising any rights or remedies under this Paragraph Owner shall not be required to obtain the lowest price for the Work performed.

D. Notwithstanding Paragraphs 15.02.B and 15.02.C, Contractor's services will not be terminated if Contractor begins within seven days of receipt of notice of intent to terminate to correct its failure to perform and proceeds diligently to cure such failure within no more than 30 days of receipt of said notice.

E. Where Contractor's services have been so terminated by Owner, the termination will not affect any rights or remedies of Owner against Contractor then existing or which may thereafter accrue. Any retention or payment of moneys due Contractor by Owner will not release Contractor from liability.

F. If and to the extent that Contractor has provided a performance bond under the provisions of Paragraph 5.01.A, the termination procedures of that bond shall supersede the provisions of Paragraphs 15.02.B, and 15.02.C.

15.03 *Owner May Terminate For Convenience*

A. Upon seven days written notice to Contractor and Engineer, Owner may, without cause and without prejudice to any other right or remedy of Owner, terminate the Contract. In such case, Contractor shall be paid for (without duplication of any items):

1. completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such Work;

2. expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials, or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses;

3. all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) incurred in settlement of terminated contracts with Subcontractors, Suppliers, and others; and

4. reasonable expenses directly attributable to termination.

B. Contractor shall not be paid on account of loss of anticipated profits or revenue or other economic loss arising out of or resulting from such termination.

15.04 *Contractor May Stop Work or Terminate*

A. If, through no act or fault of Contractor, (i) the Work is suspended for more than 90 consecutive days by Owner or under an order of court or other public authority, or (ii) Engineer fails to act on any Application for Payment within 30 days after it is submitted, or (iii) Owner fails for 30 days to pay Contractor any sum finally determined to be due, then Contractor may, upon seven days written notice to Owner and Engineer, and provided Owner or Engineer do not remedy such suspension or failure within that time, terminate the Contract and recover from Owner payment on the same terms as provided in Paragraph 15.03.

B. In lieu of terminating the Contract and without prejudice to any other right or remedy, if Engineer has failed to act on an Application for Payment within 30 days after it is submitted, or Owner has failed for 30 days to pay Contractor any sum finally determined to be due, Contractor may, seven days after written notice to Owner and Engineer, stop the Work until payment is made of all such amounts due Contractor, including interest thereon. The provisions of this Paragraph 15.04 are not intended to preclude Contractor from making a Claim under Paragraph 10.05 for an adjustment in Contract Price or Contract Times or otherwise for expenses or damage directly attributable to Contractor's stopping the Work as permitted by this Paragraph.

ARTICLE 16 - DISPUTE RESOLUTION

16.01 *Methods and Procedures*

A. Either Owner or Contractor may request mediation of any Claim submitted to Engineer for a decision under Paragraph 10.05 before such decision becomes final and binding. The mediation will be

governed by the Construction Industry Mediation Rules of the American Arbitration Association in effect as of the Effective Date of the Agreement. The request for mediation shall be submitted in writing to the American Arbitration Association and the other party to the Contract. Timely submission of the request shall stay the effect of Paragraph 10.05.E.

B. Owner and Contractor shall participate in the mediation process in good faith. The process shall be concluded within 60 days of filing of the request. The date of termination of the mediation shall be determined by application of the mediation rules referenced above.

C. If the Claim is not resolved by mediation, Engineer's action under Paragraph 10.05.C or a denial pursuant to Paragraphs 10.05.C.3 or 10.05.D shall become final and binding 30 days after termination of the mediation unless, within that time period, Owner or Contractor:

1. elects in writing to invoke any dispute resolution process provided for in the Supplementary Conditions, or

2. agrees with the other party to submit the Claim to another dispute resolution process, or

3. gives written notice to the other party of their intent to submit the Claim to a court of competent jurisdiction.

ARTICLE 17 - MISCELLANEOUS

17.01 *Giving Notice*

A. Whenever any provision of the Contract Documents requires the giving of written notice, it will be deemed to have been validly given if:

1. delivered in person to the individual or to a member of the firm or to an officer of the corporation for whom it is intended, or

2. delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the giver of the notice.

17.02 *Computation of Times*

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

17.03 *Cumulative Remedies*

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

17.04 *Survival of Obligations*

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

17.05 *Controlling Law*

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

17.06 *Headings*

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

SUPPLEMENTARY CONDITIONS

These Supplementary Conditions amend or supplement the Standard General Conditions of the Construction Contract (No. C-700, 2001 Ed.) and other provisions of the Contract Documents as indicated below. All provisions that are not so amended or supplemented remain in full force and effect.

SC-1.01 Definitions

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

Act of God - An unanticipated grave natural disaster or other natural phenomenon of an exceptional, inevitable and irresistible character, the effects of which could not have been prevented or avoided by exercise.

SC-2.01.B Evidence of Insurance

Delete Paragraph 2.01.B of the General Conditions in its entirety and insert the following in its place:

“2.01.B Before any work at the site is started, Contractor shall deliver to Owner, with a copy to Architect/Engineer, Certificates of Insurance which Contractor is to purchase and maintain according to requirements of Article 5 of the General Conditions, as supplemented by these Supplementary Conditions.”

According to Paragraph 2.01.B the certificate holder should read as follows:

School District of Newberry County
1539 Martin Street
Newberry SC 29108

Contractor's General Public Liability and Property Damage Insurance including vehicle coverage issued to the Contractor and protecting the Contractor from all claims for personal injury, including death, and all claims for destruction of or damage to property, arising out of or in connection with any operations under the Contract Documents, whether such operations be by the Contractor or by any Subcontractor employed by the Contractor or anyone directly or indirectly employed by the Contractor or by Subcontractor employed by the Contractor. Insurance shall be written with a limit of liability of not less than \$1,000,000 for damages arising out of bodily injury, including death, at any time resulting there from, sustained by any one person in any one accident; and a limit of liability of not less than \$1,000,000 aggregate for any such damages sustained by two or more persons in any one accident. Insurance shall be written with a limit of liability of not less than \$300,000 for all property damage sustained by any one person in any one accident; and a limit of liability of not less than \$300,000 aggregate for any such damage sustained by two or more persons in any one accident.

The Contractor shall acquire and maintain, if applicable, Fire and Extended Coverage insurance

upon the Project to the full insurable value thereof for the benefit of the Owner, the Contractor, and Subcontractors as their interest may appear. This provision shall in no way release the Contractor or Contractor's surety from obligations under the Contract Documents to fully complete the Project.

SC-2.02 Copies of Documents

Amend the first sentence of paragraph 2.02 of the General Conditions to read as follows:

"OWNER shall furnish to CONTRACTOR up to four (4) copies of the Contract Documents as are necessary for the execution of the Work."

General

1. Amendments: All amendments to and interpretations of this solicitation shall be in writing from the Purchasing Department. The Owner shall not be legally bound by any amendment or interpretation that is not in writing.
2. Rejection: The Owner reserves the right to reject any bid that contains prices for individual items or services that are unreasonable when compared to the same or other bids if such action is in the best interest of the Owner.
3. Non-Appropriations: Any contract entered into by the Owner or other entities resulting from this Invitation for Bid shall be subject to cancellation without damages of further obligation when funds are not appropriated or otherwise made available to support continuation of performance in a subsequent fiscal period or appropriated year.
4. Quality of Products: Unless otherwise indicated in this bid, it is understood and agreed that any item offered or shipped on this bid 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.
5. S.C. Law Clause: Upon award of a contract under this bid, the person, partnership, association, or corporation to whom the award is made must comply with the laws of South Carolina which require such person or entity to be authorized and/or licensed to do business in this State. By submission of this signed bid, the bidders agrees to subject himself to the jurisdiction and process of the courts of the State of South Carolina as to all matters and disputes arising or to arise under the contract and the performance thereof, including any questions as to the liability for taxes, licenses, or fees levied by the State.
7. Termination: Subject to the provisions below, the contract may be terminated for any reason by the Owner providing a 30-day advance notice in writing to the contractor.
 - (a) Termination for Convenience: In the event that this contract is terminated or canceled upon request and for the convenience of the Owner without the required thirty (30) days advance written notice, then the district may negotiate reasonable termination costs, if applicable.
 - (b) Termination for Cause: Termination by the Owner for cause, default or negligence on the part of the contractor shall be excluded from the foregoing provision; termination costs, if any, shall not apply. The thirty (30) days advance notice requirement is waived and the default provision in this bid shall apply. (See

General Conditions No.1)

8. Payment: Payment for services pursuant to a successful contract will be made within thirty (30) days after receipt of a detailed invoice.
9. Bid Prices: Bid prices must include all labor, materials, and 7% S.C. Sales tax.
10. Contractor's License: S.C. law requires that contractors awarded contracts in excess of \$5,000 be licensed by the S.C. Contractors Licensing Board. The contractor's S.C. General Contractor's License must be clearly indicated on the face of the envelope of bids exceeding this amount.
11. Insurance: The contractor shall provide and maintain during the entire period of performance under this contract, the following insurance:
 - A. Workman's Compensation: Must meet requirements of S.C. Law regarding Workman's Compensation Insurance.
 - B. Contractor's General Liability Insurance: Limits of coverage shall not be less than \$1,000,000 single limit coverage for premises operations, contractual liability, independent contractors, personal injury, and completed operations.
 - C. Vehicle Insurance: Limits of coverage shall not be less than \$250,000/\$500,000 bodily injury and \$100,000 property damage.

The School District, its officers and employees, shall be named as "additional insured" in the automobile and General Liability policies and it shall be stated on the Insurance Certificate with the provision that this coverage "is primary to all other coverage the District may possess."
12. References: The Owner reserves the right to request references from each bidder and to consider responses from references in award of bid.
13. Licenses, Permits, Insurance and Taxes: All costs for required business licenses, permits, insurance, and taxes shall be borne by the Contractor. It shall be noted that this work is located within the City of Newberry and therefore a City business license will be required.
14. Work Hours: The normal working hours per day will be limited from 7 am to 7 pm Monday through Friday provided sufficient daylight is available. No work shall be performed on Saturday, Sunday, or Holidays.

END OF SECTION

PERFORMANCE BOND

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

CONTRACTOR (Name and Address):

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

OWNER (Name and Address):

School District of Newberry County
1539 Martin Street
Newberry SC 29108

CONTRACT

Date:

Amount:

Description (Name and Location):

BOND

Bond Number:

Date (Not earlier than Contract Date):

Amount:

Modifications to this Bond Form:

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

CONTRACTOR AS PRINCIPAL

Company:

Signature: _____ (Seal)

Name and Title:

SURETY

(Seal)

Surety's Name and Corporate Seal

By:

Signature and Title

(Attach Power of Attorney)

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

Attest:

Signature and Title

CONTRACTOR AS PRINCIPAL

Company:

Signature: _____ (Seal)

Name and Title:

SURETY

(Seal)

Surety's Name and Corporate Seal

By:

Signature and Title

(Attach Power of Attorney)

Attest:

Signature and Title:

EJCDC No. C-610 (2002 Edition)

Originally prepared through the joint efforts of the Surety Association of America, Engineers Joint Contract Documents Committee, the Associated General Contractors of America, and the American Institute of Architects.

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

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

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

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

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

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

1. Surety in accordance with the terms of the Contract;
2. Another contractor selected pursuant to Paragraph 4.3 to perform the Contract.

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

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

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

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

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

1. After investigation, determine the amount for which it may be liable to Owner and, as soon as practicable after the amount is determined, tender payment therefor to Owner; or
2. Deny liability in whole or in part and notify Owner citing reasons therefor.

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

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

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

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

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

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

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

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

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

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

12. Definitions.

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

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

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

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

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

PAYMENT BOND

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

CONTRACTOR (Name and Address):

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

OWNER (Name and Address):

School District of Newberry County
1539 Martin Street
Newberry SC 29108

CONTRACT

Date:

Amount:

Description (Name and Location):

BOND

Bond Number:

Date (Not earlier than Contract Date):

Amount:

Modifications to this Bond Form:

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

CONTRACTOR AS PRINCIPAL

Company:

Signature: _____ (Seal)

Name and Title:

SURETY

(Seal)

Surety's Name and Corporate Seal

By:

Signature and Title

(Attach Power of Attorney)

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

Attest:

Signature and Title

CONTRACTOR AS PRINCIPAL

Company:

Signature: _____ (Seal)

Name and Title:

SURETY

(Seal)

Surety's Name and Corporate Seal

By:

Signature and Title

(Attach Power of Attorney)

Attest:

Signature and Title:

1. Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to Owner to pay for labor, materials, and equipment furnished by Claimants for use in the performance of the Contract, which is incorporated herein by reference.

2. With respect to Owner, this obligation shall be null and void if Contractor:

2.1. Promptly makes payment, directly or indirectly, for all sums due Claimants, and

2.2. Defends, indemnifies, and holds harmless Owner from all claims, demands, liens, or suits alleging non-payment by Contractor by any person or entity who furnished labor, materials, or equipment for use in the performance of the Contract, provided Owner has promptly notified Contractor and Surety (at the addresses described in Paragraph 12) of any claims, demands, liens, or suits and tendered defense of such claims, demands, liens, or suits to Contractor and Surety, and provided there is no Owner Default.

3. With respect to Claimants, this obligation shall be null and void if Contractor promptly makes payment, directly or indirectly, for all sums due.

4. Surety shall have no obligation to Claimants under this Bond until:

4.1. Claimants who are employed by or have a direct contract with Contractor have given notice to Surety (at the addresses described in Paragraph 12) and sent a copy, or notice thereof, to Owner, stating that a claim is being made under this Bond and, with substantial accuracy, the amount of the claim.

4.2. Claimants who do not have a direct contract with Contractor:

1. Have furnished written notice to Contractor and sent a copy, or notice thereof, to Owner, within 90 days after having last performed labor or last furnished materials or equipment included in the claim stating, with substantial accuracy, the amount of the claim and the name of the party to whom the materials or equipment were furnished or supplied, or for whom the labor was done or performed; and

2. Have either received a rejection in whole or in part from Contractor, or not received within 30 days of furnishing the above notice any communication from Contractor by which Contractor had indicated the claim will be paid directly or indirectly; and

3. Not having been paid within the above 30 days, have sent a written notice to Surety and sent a copy, or notice thereof, to Owner, stating that a claim is being made under this Bond and enclosing a copy of the previous written notice furnished to Contractor.

5. If a notice by a Claimant required by Paragraph 4 is provided by Owner to Contractor or to Surety, that is sufficient compliance.

6. When a Claimant has satisfied the conditions of Paragraph 4, the Surety shall promptly and at Surety's expense take the following actions:

6.1. Send an answer to that Claimant, with a copy to Owner, within 45 days after receipt of the claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed.

6.2. Pay or arrange for payment of any undisputed amounts.

7. Surety's total obligation shall not exceed the amount of this Bond, and the amount of this Bond shall be credited for any payments made in good faith by Surety.

8. Amounts owed by Owner to Contractor under the Contract shall be used for the performance of the Contract and to satisfy claims, if any, under any performance bond. By Contractor furnishing and Owner accepting this Bond, they agree that all funds earned by Contractor in the performance of the Contract are dedicated to satisfy obligations of Contractor and Surety under this Bond, subject to Owner's priority to use the funds for the completion of the Work.

9. Surety shall not be liable to Owner, Claimants, or others for obligations of Contractor that are unrelated to the Contract. Owner shall not be liable for payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligations to make payments to, give notices on behalf of, or otherwise have obligations to Claimants under this Bond.

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

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

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

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

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

15. DEFINITIONS

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

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

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

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

GUARANTEES & WARRANTY

General

- 1) All work under this Contract shall be guaranteed by the Contractor against defects in materials or workmanship for a period of one year from the Date of Substantial Completion, as established in writing by the Engineer.
- 2) Prior to the end of the Guarantee Period, the Owner may have the Engineer inspect the work, and shall advise the Engineer of any known defects. The Engineer or the Owner shall notify the Contractor, in writing, of any defects found.
- 3) The Contractor shall agree to repair or replace any defects in material or workmanship within the time frame specified on the notification given in item 2, unless additional time is authorized by the Owner.
- 4) The Contractor shall furnish the Owner with three copies of a written one-year guarantee delivered with the close-out documents, on the Contractor's stationary with original signatures on each copy, signed and sealed the same as the Bid Form, stating:
 - a. The undersigned guarantees all work furnished by (Company Name) for a period of one year from the date of substantial completion, and agrees to repair or replace defects within the time frames specified on the warranty notification, unless additional time is authorized by the Owner.

PROJECT CLOSE-OUT

1.0 General

1.0.1 Deficiency Lists

- A. During the construction of the work, the Engineer shall inspect the work for conformance to the Contract Documents.
- B. Should an inspection reveal work that is not in conformance with the Contract Documents, and if the nature of the non-conformance warrants, at the sole discretion of the Engineer, a written list of deficiencies will be issued.
- C. The “deficiency list” as hereinafter called, shall stipulate the item or items of work that are in non-conformance and shall specify a reasonable time for the deficient work to be brought into conformance with the Contract Documents.
- D. Upon receipt of the deficiency list the contractor shall by any and all means at his disposal, endeavor to correct the work within the time stipulated. The Contractor shall notify the Engineer in writing when the work has been corrected and request inspection.
- E. If the inspection reveals the deficiency to be corrected, then the deficiency list shall be rescinded.
- F. During the period that the deficiency list is in effect, the Engineer may, at his option, not authorize the payment of progress billings until the deficiency list is rescinded or, in the opinion of the Construction Manager, the Contractor is making a good faith effort to correct the deficiency.

1.0.2 Punch Lists/Final Inspection

- A. At a mutually agreeable time the Engineer and Contractor shall conduct a preliminary inspection of the work for completeness and conformance to the Contract Documents. A punch list of incomplete or non-conformance work shall be made by the Contractor and Engineer.
- C. The Engineer shall establish a reasonable time period for the completion or correction of all items on the preliminary inspection punch list. At the end of this time period a pre-final inspection shall be conducted.
- D. The pre-final inspection shall include the Engineer, Owner, and Contractor. The Contractor shall present to the Engineer a written list of all work incomplete, a reason why the item of work is incomplete and give a date when the work will be complete. The

pre-final inspection shall not be conducted unless the Contractor presents this list.

- E. Should the Engineer find any item of work to be unacceptable he shall prepare a punch list of those items. The Contractor shall complete all items on the list within fourteen (14) days of the inspection.
- F. At the conclusion of the pre-final inspection and if the completeness of the work allows; the Engineer shall issue a Certificate of Substantial Completion. Should the amount of incomplete work be such that a Certificate of Substantial Completion cannot be issued, another pre-final inspection shall be scheduled.
- G. Upon completion of the pre-final punch list and provided a Certificate of Substantial Completion has been issued a final inspection shall be held with the Engineer, Owner, and Contractor. Provided the inspection reveals work to be complete the Engineer shall establish the date of final completion.

1.0.3 Project Close-Out

- A. Final Close-Out and Payment
 - 1) The Contractor may make Application for Final Payment after the Certificate of Substantial Completion has been issued. The following items must be submitted to the Project Manager prior to processing of the Final Application for Payment:
 - a. Affidavit of Payment of Debts and Claims
 - b. Consent of Surety
 - c. Release of Liens, from: Contractors, Sub-Contractors, and Materials Suppliers;
 - d. Guarantees and Warranties as required by Specifications;
 - 2) **No final payment application will be processed for payment until final inspection and final acceptance.**
- B. The following amounts will be held from the Contract amount until all paperwork is complete. This amount does not include any amount held for change orders pending, backcharges, project deficiencies or punch list items. Release of Liens (AIA G706A), Consent of Surety (AIA G707) and Affidavit of Payment of Debts and Claims (AIA G706) are required before billing this amount.
 - 1) 5% of the contract amount.

1.0.4 Responsibility

- A. It shall be the Contractor's responsibility to see that all requirements of this Section of the Specifications are executed and completed in a timely manner.
- B. No Provisions of this Section of the Specifications shall in any way relieve the Contractor of completing his work on time and in accordance with the Project Schedule.

END OF SECTION

SECTION 01 55 26 – TRAFFIC CONTROL

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes all labor and material necessary to maintain traffic, both vehicular and pedestrian, on, along, or through the designated work areas. This item sets forth the traffic control requirements necessary for the safe and continuous maintenance of traffic throughout the affected work area. All Traffic control to meet the requirements of MUTCD and SCDOT specification 600.

1.2 SUBMITTALS

- A. Contractor shall submit a schematic traffic control plan seven calendar days prior to beginning any construction. The plan shall be submitted to the Engineer for review. The plan shall conform to the Manual of Uniform Traffic Control Devices (MUTCD), latest edition. Any modification of this plan for specific work areas to be closely coordinated with the Engineer and Owner.

PART 2 - PRODUCTS

2.1 SIGNS, SIGNALS, AND DEVICES

- A. All materials to conform to the MUTCD and SCDOT requirements. All signs and devices to be in good condition.

2.2 FLAGMEN

- A. Contractor to provide adequate number of flagmen and take all necessary precautions for the protection of the work area and safety of the public. If not in visual contact, flagmen to be equipped with appropriate technology to facilitate two way traffic through the construction zone.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Traffic control devices and signage shall be erected prior to commencement of work operations each day. It shall be maintained until work operations are complete.

School District of Newberry County
Pavement Maintenance Project

3.2 GENERAL

- A. Any closures and times shall be closely coordinated with the Owner and Engineer.
- B. Work Hours are 7am to 7 pm Monday through Friday unless special permission is otherwise granted from the Owner or Engineer.
- C. Contractor to provide traffic control per SCDOT specifications at Newberry Middle when working near SCDOT roadways.
- D. All costs for necessary traffic control to be included in lump sum costs of each Task provided.

END OF SECTION 01 55 26

School District of Newberry County
Pavement Maintenance Project

SECTION 31 20 00 – EXCAVATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Excavating Existing asphalt and Base material and replacement as part of Task 2.

1.3 UNIT PRICES

- A. See Bid Form for Quantity and Unit price required to remove unsuitable subgrade material and replace with approved Graded Aggregate Base Course as part of Task 2 work only.

1.4 DEFINITIONS

- A. Excavation consists of the removal of material encountered to subgrade elevations and the disposal of materials removed.
- B. Subgrade: The uppermost surface of an excavation or the top surface of a fill or backfill immediately below subbase, drainage fill, or topsoil materials.
- C. Unauthorized excavation consists of removing materials beyond indicated subgrade elevations or dimensions without direction by the Engineer. Unauthorized excavation shall be at the Contractor's expense.

1.5 QUALITY ASSURANCE

- A. Testing and Inspection Service: Testing will be provided by the Owner to classify proposed on-site and borrow materials to verify that soils comply with specified requirements and to perform required field and laboratory testing.
- B. The Contractor shall fully comply with all provisions of the Contract Documents including, but not limited to, providing and installing such entities as the products, materials, equipment, components, or systems that were proposed at the time bids were received. Except for extenuating circumstances as determined by the Architect, notification of not being able to meet any of the provisions of the Contract Documents or communicating conflicts in the Contract Documents to the Engineer will not be considered after receipt of bids; and the Contractor shall fully comply with the Contract Documents at no increase in Contract Sum or Contract Time.

1.7 PROJECT CONDITIONS

School District of Newberry County
Pavement Maintenance Project

- A. Existing Utilities: Contact PULS prior to performing any roadway work to determine location of existing utilities. Do not interrupt existing utilities serving facilities or others except when permitted in writing by the Engineer and/or utility company.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. General: Unsuitable Material Excavation is required when it is determined that unsuitable subgrade material is present and/or in need of replacement. Unsuitable Excavation shall not be performed without prior approval from the Engineer and testing firm. Provide approved material to replace any unsuitable material excavation as directed by testing Engineer.
- B. Materials for Import: Contractor to replace any unsuitable material excavation with Graded Aggregate Base Course that meets requirements of SCDOT Section 305.

PART 3 - CONSTRUCTION

3.1 GENERAL

- A. Protect structures, utilities, sidewalks, curbs, and adjacent pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by excavation operations.
- B. Following existing surface and excavation removal required in Task 2, the proposed subgrade area should be inspected by the testing firm and proofrolled to detect locally yielding soil.
- C. Proofroll shall be performed as follows:
 - a. Proofroll with a fully loaded tandem axle dump truck or equivalent approved by the testing firm. Use only quipment with air-filled pneumatic tires. Use equipment with tires mounted on articulated axles so that all wheels on the same axle carry equal loads when operated. Perform in the presence of the testing firm inspector. Operate proof roll equipment at speed between 200 and 300 feet per minute. Make a minimum of two passes over each area proofrolled and correct areas considered to be unstable as directed by the testing inspector. After correction of these areas, repeat proof roll of these areas.

3.2 APPROVAL OF SUBGRADE

- A. If unsuitable material is to be removed, notify Testing Firm when excavations have reached required subgrade.
- B. When Testing Firm determines that unforeseen unsatisfactory soil is present, continue excavation and replace with compacted backfill material as directed.

School District of Newberry County
Pavement Maintenance Project

1. Unforeseen additional excavation and replacement material will be paid according to the Contract provisions for changes in Work.
 - C. Reconstruct subgrades damaged by freezing temperatures, frost, rain, accumulated water, or construction activities, as directed by the Testing Firm.
- 3.3 Aggregate Base Patch – Task 2 only
- A. Fill any unsuitable excavation areas with SCDOT Section 305 Graded Aggregate Base Course in accordance with SCDOT Section 305 specifications.
 - B. Testing Agency to inspect and determine if areas are suitable for support of new asphalt material.
- 3.4 COMPACTION
- A. Place backfill materials in layers not more than 8 inches in loose depth for material compacted by heavy compaction equipment, and not more than 4 inches in loose depth for material compacted by hand-operated tampers.
 - B. Place backfill materials evenly on all sides of excavations to required elevations and cross sections.
- 3.5 FIELD QUALITY CONTROL
- A. Testing Agency Services: Allow testing agency to inspect and test each subgrade and each backfill layer. Do not proceed until test results for previously completed work verify compliance with requirements.
 - B. When testing agency reports that subgrades, or backfill is below required density, scarify and moisten or aerate, or remove and replace to the depth required, recompact and retest until required density is obtained or as directed by geotechnical engineer.
- 3.6 DISPOSAL OF WASTE MATERIALS
- A. Disposal
 1. Remove all excavated materials including unsatisfactory soil and legally dispose of it off the Owner's property.

END OF SECTION 31 20 00

SECTION 32 01 16 – MILLING EXISTING ASPHALT PAVMENT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
- B. SCDOT Standard Specifications, 2007 edition.

1.2 SUMMARY

- A. This Section includes all labor, supervisions, material, equipment and services necessary for repairing asphalt pavements by milling the existing asphalt to provide a uniform tie-in with existing pavements and curb and gutter. All pavement milling shall become property of the Contractor. Note that Milling will only be required as part of Task 1 – Reclaimed Base Option.

1.3 QUALITY ASSURANCE

- A. Regulatory Requirements: Comply with SCDOT for asphalt milling guidelines.

PART 2 - EQUIPMENT

2.1 EQUIPMENT

- A. General: Use a milling machine capable of performing the work to the specified width, depth, and cross-slope as shown on the plans or as directed by the Engineer.

PART 3 - CONSTRUCTION

3.1 MILLING

- A. Mill the existing asphalt pavement to the specified width, depth, and cross slope indicated on the plans or as directed by the Engineer. Monitor the milled surface to ensure smoothness and to reduce excessive scarification marks or other damage as determined by the Engineer. Establish the longitudinal profile of the milled surface by using a skid sensor on the side of the cut. Legally dispose of all milled material offsite. Thoroughly clean the milled surface of all loose particles.
- B. Areas around catch basins, inlets, intersection, manholes, valves etc. should be milled or chipped to the uniform depth. Any damages to the materials shall be replaced.

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- C. Following milling operations, contractor to prepare Reclaimed soil cement base accordingly.

3.8 FIELD QUALITY CONTROL

- A. Testing Agency: testing agency to be present during milling operations to confirm milling at required depth and section.

3.10 DISPOSAL

- A. Remove milled materials from Project site and legally dispose of them.

END OF SECTION

SECTION 32 11 23 – AGGREGATE BASE COURSE

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Graded Aggregate base course.

1.2 RELATED SECTIONS

- A. Section 32 12 16 – Asphalt Paving

1.3 REFERENCES

- A. ANSI/ASTM D1557 - Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using 10 lb (4.54 Kg) Rammer and 18 inch (457 mm) Drop.
- B. South Carolina Department of Transportation Standard Specifications for Highway Construction, latest edition.

1.4 SUBMITTALS

- A. Submit Documentation that Aggregate Base Course meets SCDOT Standard 305, latest specification.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Aggregate Base Course: Materials comply with SCDOT Specifications Section 305, Graded Aggregate Base Course. The composition mixture of course aggregate and binder material shall meet the grading requirements specified for Macadam base course.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify subgrade has been inspected, is acceptable, and is ready for base material.

3.2 AGGREGATE PLACEMENT

- A. Spread aggregate over prepared subgrade to a total compacted thickness as shown on plans.
- B. Place aggregate in maximum 8-inch layers and roller compact.
- C. Level and contour surfaces to elevations and appropriate cross section.

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- D. Add small quantities of fine aggregate to course aggregate as appropriate to assist compaction.
- E. Add water to assist compaction. If excess water is apparent, remove aggregate and aerate to reduce moisture content.
- F. Use mechanical tamping equipment in areas inaccessible to compaction equipment.

3.3 FIELD QUALITY CONTROL

- A. Compaction testing shall be performed in accordance with SCDOT Section 305.4.3 by the Owner's testing agency.
- B. If tests indicate Work does not meet specified requirements, remove Work, replace and retest.

END OF SECTION

SECTION 32 11 33 – Cement Modified Recycled Base Course

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Cement Modified Recycled Base Course – Task 1

1.2 RELATED SECTIONS

- A. Section 32 12 16 – Asphalt Paving

1.3 REFERENCES

- A. South Carolina Department of Transportation Standard Specifications for Highway Construction, latest edition.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Portland Cement: Use Portland cement that conforms to the requirements of SCDOT specification 701.2.1 with the allowable maximum alkali content increased to 1.0%.
- B. Water: free of salt, oil, acid, alkali, organic matter, sewage, or other substances and from a public water supply.
- C. Soil consisting of the material in the existing subgrade as verified by the testing engineer.
- D. Asphalt material: for the asphalt curing coat, use RC-70, or EA-P Special.

2.2 EQUIPMENT

- A. Ensure that the equipment necessary for the proper construction of the work is onsite, in acceptable working condition, and approved by the testing inspection firm as to the type and condition before the start of the work under this section. Provide sufficient equipment to enable prosecution of the work in accordance with the project schedule and completion of work in the specified allowable time.
- B. Accomplish the base work by using a single pass traveling mixing plant. Construction the base with a single or combination of machines and auxiliary equipment that will produce results as outlined in this specification. Use only experienced and capable contractors to perform and operate this equipment.

PART 3 CONSTRUCTION

3.1 GENERAL

- A. Regulate the sequence of work to process the necessary quantity of material to provide the full depth of modification as indicated on the plans.

1. Use the proper amount of Portland cement.
2. Maintain the work.
3. Rework the course as necessary to meet the requirement of this specification.

3.2 PULVERIZATION AND SCARIFICATION

- A. Pulverize the pavement so that at the completion of moist mixing 100% (by weight) passes a 1-1/2 inch sieve. Carefully control the depth of scarification and conduct blading operations in a matter to ensure that the surface of the subgrade area below the scarified and pulverized material remains undisturbed and conforms to the required cross section.

3.3 APPLICATION OF CEMENT

- A. Spread Portland cement uniformly on the pulverized soil at a rate of 8 percent by weight of the blended materials. This rate is established by the soil testing firm. Spread the cement with equipment that can be calibrated and adjusted so that the established rate is attained uniformly throughout the extents of area to be paved. Use spreading equipment that has adjustable openings or gate headers and that is not solely dependent on vehicle speed to obtain the required spread rate. A tolerance of +/- 5% will be allowed in the spread rate, however adjustments should be made in order to keep the actual spread rate as close as possible to that established by the soil testing engineer. Only apply cement to such an area that the operations can be continuous and completed in a days work, unless artificial light is provided and within 6 hours of such application.
- B. Do not allow the percentage of moisture in the soil at the time of cement application to exceed the quantity that permits uniform and intimate mixture of soil and cement during dry mixing operations and do not exceed the specified optimum moisture content for the soil-cement mixture. Do not allow equipment, except that used in spreading and mixing, to pass over the freshly spread cement until it is mixed with the soil.

3.4 MIXING AND PROCESSING

- A. Single Pass Traveling Mixing Plant: After cement is spread, perform mixing in one continuous operation as follows:
 1. Mix the airdry soil and cement full depth using the mixer.
 2. Add the required moisture uniformly
 3. Thoroughly moist-mix the soil, cement, and water.
 4. Spread the completed soil and cement mixture evenly over the machine processed width of the subgrade and,
 5. Leave it in a loose condition ready for immediate compaction.
- B. Ensure that the mixing plant provided a sufficient period of dry mixing to prevent the formation of cement balls when water is applied. Do not allow unpulverized dry soil lumps in the soil-cement mixture immediately behind the mixer. If this condition prevails, "pre-wet" the raw soil as necessary to correct this condition. Ensure that the mixer operator has a means to gauge the water application visibly and accurately. Apply the water uniformly through a pressure spray bar. Do not allow the soil-cement mixture to remain undisturbed after mixing and before compacting for more than 30 minutes.

3.5 COMPACTION

- A. Before beginning compaction, ensure that the mixture is in a loose condition for its full depth. Compact until the entire depth of the base course mixture is uniformly compacted to not less than 95.0% of the maximum density. SCDOT test SC-T-25 or T-29 are to be used to determine the maximum density of the composite mix. Adjust compaction operations to obtain the above noted density if needed. Complete the compaction within 2 hours from the mixing effort. Perform light scarifying as required to reshape the surface of the base course to conform to the lines and grades of the pavement to promote positive drainage. Perform compacting and finishing in a manner that produces a smooth, closely knit surface, free from equipment imprints, cracks, ridges, or loose material. Maintain the moisture content of the material within 2% of the specified optimum moisture content during operations.

3.6 CONSTRUCTION LIMITATIONS

- A. Perform work in daylight hours unless artificial light is provided by the contractor. Limit the area over which the cement-pavement mixture is spread so that all operations are performed continuously until completion of that given section. Complete all work within 2 hours after the application of water to the aggregate and cement mixture.
- B. If operations are interrupted for greater than 1 hour after the cement has been mixed with the aggregate, reconstruct the entire affected section in accordance with these specifications.
- C. Apply cement only when the temperature is 40 degrees F in the shade and rising. Do not perform work on frozen or wet subgrade.
- D. Contractor to provide appropriate traffic control measures to keep traffic off of construction areas to maximum extent possible. Take all necessary measures to prevent traffic from entering construction areas.

3.7 CURING

- A. After the cement modified recycled base has been finished as specified, protect the surface from rapid drying by immediately applying a curing membrane. Use an asphalt membrane material consisting of RC-70 or EA-P Special as approved by SCDOT applied at a minimum rate of 0.15 gallons per square yard of asphalt and completely covering and sealing the total surface of the modified base. Allow the base to cure for not less than 3 days before applying the asphalt surface course. If the contractor elects to pave within 2 days of base preparation, keep the base continuously moist until the surface course is placed.

3.8 CONSTRUCTION JOINTS

- A. At the end of each days construction, form a straight transverse construction joint by cutting back into the completed work to form a true vertical face, free of loose material. Construct the base course for large areas in a series of parallel lanes of convenient length and width.

3.9 FIELD QUALITY CONTROL

- A. Thickness Tolerance of Base: The thickness of the completed modified base is measured at intervals not to exceed 250 feet in length for each lane pull. The depth measurement is made by test holes through the base course. Where base areas are less than the specified thickness by more than 1 inch, correct such areas.
- B. Compaction testing shall be performed according to SCDOT Specification Section 306.4.5.
- C. If tests indicate Work does not meet specified requirements, remove Work, replace and retest.

END OF SECTION

SECTION 32 12 16 - HOT-MIX ASPHALT PAVING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
- B. SCDOT Standard Specifications, 2007 edition.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Hot-mix asphalt paving.
 - 2. Pavement Markings

1.3 SYSTEM DESCRIPTION

- A. Provide hot-mix asphalt paving according to materials, workmanship, and other applicable requirements of standard specifications of SCDOT.
 - 1. Standard Specification: SCDOT Standard Specifications, latest edition.

1.4 SUBMITTALS

- A. Job-Mix Designs: Certification of approval of each job mix proposed for the Work and that it meets SCDOT Mix Design.
- B. Material Certificates: For each paving material, signed by manufacturers, to be delivered to testing agency.

1.5 QUALITY ASSURANCE

- A. Manufacturer Qualifications: A qualified manufacturer.
 - 1. Manufacturer shall be a paving-mix manufacturer registered with and approved by SCDOT.
- B. Regulatory Requirements: Comply with SCDOT for asphalt paving work.

1.6 PROJECT CONDITIONS

- A. Environmental Limitations: Do not apply asphalt materials if subgrade is wet or excessively damp or if the following conditions are not met:
 - 1. Asphalt Base Course: Minimum surface temperature of 40 deg F and rising at time of placement
 - 2. Asphalt Surface Course: Minimum surface temperature of 50 deg F at time of placement and Season installation limitations as established by SCDOT.

PART 2 - MATERIALS

2.1 MIXES

- A. Hot-Mix Asphalt Surface Course Type C: Contractor to use materials that meet the applicable requirements of SCDOT specification 403.2 in its entirety for HMA Surface Type C.
- B. Hot Mix Asphalt Intermediate Course Type C.

PART 3 - CONSTRUCTION

3.1 EXAMINATION

- A. Proceed with paving only after unsatisfactory conditions have been corrected and approved by Testing Agency.

3.2 HOT-MIX ASPHALT PLACING

- A. Machine place hot-mix asphalt on prepared surface, spread uniformly, and strike off. Place asphalt mix by hand to areas inaccessible to equipment in a manner that prevents segregation of mix. Place each course to required grade, cross section, and thickness when compacted.
 - 1. Place hot-mix asphalt in accordance with SCDOT Standard Specification 401.4.19.

3.3 COMPACTION

- A. General: Begin compaction as soon as placed hot-mix paving will bear roller weight without excessive displacement. Compact hot-mix paving with hot, hand tampers or vibratory-plate compactors in areas inaccessible to rollers. Ensure that compaction is obtained following the requirements stated in SCDOT Standard Specification SC-M-400 and Spec Section 401.4.20.
 - 1. Complete intermediate rolling before the mat temperature cools to 175 deg F.
- B. Edge Shaping: While surface is being compacted and finished, trim edges of pavement to proper alignment. Bevel edges while asphalt is still hot; compact thoroughly.
- C. Ensure that the surface of the HMA after compaction is smooth and true to the established crown and grade. Remove any mixture that becomes loose and broken, mixed with dirt, or in

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any way defective and replace it with fresh HMA. Immediately compact the fresh HMA to conform to the surrounding area.

- D. Protection: After final rolling, do not permit vehicular traffic on pavement until it has cooled and hardened.
- E. Erect barricades to protect paving from traffic until mixture has cooled enough not to become marked. Maintain one lane of traffic open at all times in existing residential areas.

3.5 JOINTS

- A. Joints to be constructed according to SCDOT Specification 401.4.23, latest edition.

3.6 INSTALLATION TOLERANCES

- A. Thickness: Compact each course to produce the thickness indicated within the following tolerances:
 - 1. Surface Course: Plus 1/4 inch, no minus.
- B. Finished Surface to meet requirements of SCDOT Section 401.4.27.

3.7 PAVEMENT MARKING

- A. All Onsite Pavement-Marking Paint to be performed using Traffic Marking Paint. Paint shall be Sherwin Williams ProMar Traffic Marking paint or Glidden Traffic Paint. Apply in strict accordance to manufacturer's recommendations and allow new asphalt surface as much curing time as possible.
 - 1. Color: White, Yellow, Blue
- B. Contractor to apply Thermoplastic pavement markings in accordance with SCDOT specifications at driveway to SCDOT highways at Newberry Middle School.

3.8 FIELD QUALITY CONTROL

- A. Testing Agency: Owner will engage a qualified independent testing and inspecting agency to perform field tests and inspections and to prepare test reports.
 - 1. Testing agency will conduct and interpret tests and state in each report whether tested Work complies with or deviates from specified requirements.
- B. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.
- C. Thickness: Geotechnical Engineer to witness all pavement placement operations and randomly check compacted thickness during installation.

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- D. In-Place Density: Testing agency will determine target asphalt density prior to asphalt placement in accordance with SCDOT Standard procedures. Prior to asphalt surface course placement, a roller pattern with random density testing should be performed to establish the designated number and passes of the compaction equipment per lift of material.
- E. Bird Bath Tolerance: After paving operations are complete, inspect pavement after first substantial rainfall (0.5 inch plus) to inspect for depressions. If depression is found, where water ponds to a depth of 1/8" in more than 6 feet, fill or correct depression to provide proper drainage.
- F. Remove and replace or install additional hot-mix asphalt where test results or measurements indicate that it does not comply with specified requirements.

3.10 DISPOSAL

- A. Except for material indicated to be recycled, remove excavated materials from Project site and legally dispose of them in an EPA-approved landfill.
 - 1. Do not allow excavated materials to accumulate on-site.

END OF SECTION

SECTION 321313 – CONCRETE WALKS, CURB, & PAVEMENT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
- B. SCDOT Standard Specifications, Latest Edition.

1.2 SUMMARY

- A. This Section includes exterior cement concrete pavement for the following:
 - 1. Sidewalks
 - 2. Curbs and gutters.
 - 3. Concrete Pavement at Loading Areas.

1.3 SUBMITTALS

- A. Design Mixtures: For each concrete pavement mixture. Include alternate mixture designs when characteristics of materials, Project conditions, weather, test results, or other circumstances warrant adjustments.

1.4 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Manufacturer of ready-mixed concrete products who complies with ASTM C 94/C 94M requirements for production facilities and equipment.
 - 1. Manufacturer certified according to NRMCA's "Certification of Ready Mixed Concrete Production Facilities."
- B. Perform Concrete Work in accordance with SCDOT Spec Section 720.

1.5 PROJECT CONDITIONS

- A. Traffic Control: Maintain access for vehicular and pedestrian traffic as required for other construction activities.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. SCDOT Qualified Manufacturer of Concrete. Batch and Mix concrete in accordance with SCDOT Section 701.

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2.2 FORMS

- A. Forms to be in accordance with SCDOT Standard Specification 720.4.2. for Concrete sidewalk and curb. Forms for Concrete pavement to be in accordance with SCDOT Standard Specification 501.3.8.
- B. In lieu of wood or metal forms, curb may be placed by a curb extrusion or slip form machine. Construct expansion and contraction joints at the same locations as required when form construction is used. Make contraction joints, spaces at 10 ft intervals, by cutting the concrete with a trowel or by other means to ensure the joints has a workmanlike finish after edging.

2.3 CONCRETE MATERIALS

- A. Cementitious Material: Use the following cementitious materials, of the same type, brand, and source throughout the Project:
 - 1. Portland Cement: per SCDOT Standard Specification 701.2.1
 - 2. Normal-Weight Aggregates: per SCDOT Standard Specifications SC-M-501.
- B. Water: SCDOT Specification 701.2.11.
- C. Air-Entraining Admixture: In accordance with SCDOT Specification 701.2.5.1.

2.4 CURING MATERIALS

- A. Liquid membrane-forming compounds meeting the requirements of SCDOT Section 702.2.2.11.

2.5 CONCRETE MIXTURES

- A. Proportion mixtures to provide normal-weight concrete with the following properties:
 - 1. Concrete Walks and Curbs and Gutters: Class 3000 per SCDOT Table 701.2.12.2.
 - 2. Concrete Pavement: Class 4000 per SCDOT Table 701.2.12.2.
- B. Add air-entraining admixture per SCDOT Specifications.
- C. Chemical Admixtures: Use admixtures according to manufacturer's written instructions.
 - 1. Use plasticizing and retarding admixture in concrete, as required, for placement and workability.
 - 2. Use water-reducing and retarding admixture when required by high temperatures, low humidity, or other adverse placement conditions.

2.6 CONCRETE MIXING AND PLACING

- A. Batch and mix the concrete in accordance with SCDOT Section 701.
- B. Construct concrete curbs and curb and gutter in uniform 10 ft. sections, except where shorter sections are necessary for closure. Ensure that no section is less than 4 feet. Separate the sections by sheet steel templates or dividing plates set normal to the face and top of curb. Carefully set the plates during the placing of concrete and keep in place until the concrete has set sufficiently to hold its shape. Remove the plates while the forms are still in place.

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- C. Deposit concrete in forms so that the forms do not displace out of grade or alignment. During placing operations, spade or vibrate the concrete throughout the entire mass and especially against forms and joints. Tamp, float, trowel, broom, edge, and finish the surface of the concrete to the typical section, lines, and grades as soon as practicable after the placing of concrete.
- D. Extruded or Slip Form Curb may be used in lieu of wood or metal forms. Construct expansion and contraction joints at the same locations as required when form construction is used. Make contraction joints, spaces at 10 ft intervals, by cutting the concrete with a trowel or by other means to ensure the joints has a workmanlike finish after edging.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine exposed subgrades and subbase surfaces for compliance with requirements for dimensional, grading, and elevation tolerances.

3.2 PREPARATION FOR SIDEWALKS AND CURB

- A. Thoroughly compact the subgrade and finish to a smooth, firmly compacted surface, which is moist at the time the concrete is placed. In areas where it is impractical to use standard type rollers, compact by vibratory hand compactors. Remove and replace any concrete that settles or cracks after placement due to poor compaction at no expense to the Owner.

3.3 PREPARATION FOR CONCRETE PAVEMENT

- A. Construct Base Course in accordance with SCDOT Section 305 and verify compaction has been met prior to scheduling concrete placement.

3.4 CONCRETE PAVEMENT PLACEMENT

- A. Place concrete pavement to allow continuous placement for the working period.
- B. Deposit concrete in a manner requiring as little handling as possible. Do not allow workers to walk on fresh concrete with footwear coated with earth or foreign matter.
- C. Take precautions to prevent segregation of the concrete ingredients while being placed. Provide baffles or other equipment in the discharge end of depositing equipment if necessary.
- D. Place concrete over and against the joints to ensure that joints, dowel bars, and/or load transfer assemblies are retained in correct position.
- E. Thoroughly consolidate concrete against the face of all forms and joints, including against previously constructed pavement, by means of vibrators inserted into the concrete. Do not permit vibrators to contact a joint assembly, the grade, or side form. Do not operate the vibrator more than 15 seconds in any one location. Do not operate the vibrator in a way that brings excess mortar to the surface or causes segregation in the mix. Use vibrators that meet SCDOT section 501.3.9.2.
- F. Do not place concrete around a manhole or structure until it has been adjusted to proper grade or alignment and keep the casting surrounded by preformed joint material.

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- G. Repair or replace any damage caused by the operation of mechanical equipment on existing pavement at no cost to the Owner. If concrete material falls on or is worked into the surface of a completed slab or existing pavement, remove the material immediately.
- H. In order that the concrete be properly protected against the effects of rain before the concrete is sufficiently set, have available at all times the necessary material for the protection of the surface and edges of fresh concrete. When rain appears imminent, cease all paving operations and direct personnel to begin placing materials to protect the fresh concrete. Immediately after rain ceases, if any damage occurs, make all repairs to pavement caused by a rain event.

3.5 JOINTS FOR WALKS AND CURB.

- A. Expansion Joints: Ensure that preformed expansion joints are $\frac{3}{4}$ inch thick and extend the full depth of the concrete. Construct joints at the following locations:
 - 1. Wherever a sidewalk is constructed between an adjoining structure on one side and curbing on the other side, form an expansion joint adjacent to the curbing.
 - 2. Place an expansion joint between the sidewalk and the radius curbing at street intersections.
 - 3. Where existing structures such as light poles, bases, fire hydrants, etc. are within the limits of sidewalk or curb.
 - 4. Where concrete sidewalks are constructed adjacent to existing or new concrete pavement or structures, place a transverse expansion joint in the sidewalk opposite such joints in the concrete pavement or structure.
 - 5. Place expansion joints at intervals of not more than 100 feet in all concrete.
- B. Contraction Joints:
 - 1. Divide concrete slabs in sidewalks between expansion joints into blocks 10 feet in length, by scoring transversely after floating operations are complete. Where the sidewalk slabs are more than 10 feet in width, score them longitudinally in the center. Extend transverse and longitudinal scoring for a depth of 1 inch and not less than $\frac{1}{4}$ inch or more than $\frac{1}{2}$ inch in width. Edge and finish joints smooth and true to line.
 - 2. Form weakened-plane contraction joints, sectioning concrete into areas as indicated above for curb and gutter.
- C. Edging: Tool edges of pavement, gutters, curbs, and joints in concrete after initial floating with an edging tool to a $\frac{3}{8}$ -inch radius. Repeat tooling of edges after applying surface finishes. Eliminate tool marks on concrete surfaces.

3.6 JOINTS FOR CONCRETE PAVEMENT

- A. Construct longitudinal and transverse joints at all locations and in accordance with the dimensions and other requirements shown on the plans. Cut all joints using a diamond-bladed saw; parting strips and tools are not acceptable.
- B. Longitudinal Joints
 - 1. Construct longitudinal joints (sawed) in all concrete pavement 16 feet or more in width. Use suitable guides or devices to ensure cutting the joint on the true line shown on the plans. Saw the longitudinal joint before the end of the curing period, or immediately thereafter, and before equipment is allowed on the pavement. Seal the joint in accordance with SCDOT section 501.4.14.
- C. Transverse Contraction Joints

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1. Construct transverse contraction joints to the dimensions, lines, and spacing shown on the plans. Only sawed transverse contraction joints are permitted.
2. Establish sawed joints by sawing grooves in the surface of the pavement with an approved concrete saw. After each joint is sawed, clean the saw cut and adjacent concrete.
3. Commence sawing of the joints as soon as the concrete has hardened sufficiently, usually 4 to 6 hours after placement.
4. Continue sawing until all joints in the days paving have been sawed, regardless of time and weather conditions.
5. If uncontrolled cracking is observed due to late sawing, replace the pavement at no cost to the Owner.

D. Expansion Joints

1. Construct expansion joints of the type specified, at the locations shown on the plans, or as directed by the field engineer.
2. Use expansion joint filler that is continuous from form to form and shaped to the subgrade along the form. Furnish preformed joint filler in lengths equal to the pavement width. Do not use damaged or repaired joint filler.
3. Ensure that expansion joint filler is held in position normal to the surface. Use an approved installing bar or other device to secure preformed expansion joint filler at the proper grade and alignment during placing and finishing of concrete. Allow finished joints to deviate not more than ¼ inch in the horizontal alignment from a straight line. Plugs of concrete are not allowed anywhere within the expansion space.

E. Sealing Joints

1. Contractor to seal concrete pavement saw joints in accordance with SCDOT Section 501.4.14. Use a Non-sag silicone sealant meeting the SCDOT Product List 8 as stated in SCDOT specification 501.2.6.2.

3.7 CONCRETE PAVEMENT FINAL STRIKE OFF, CONSOLIDATION, AND FINISHING

- A. Contractor to Consolidate, Float, and Finish Concrete Pavement in accordance with SCDOT specification 501.4.10.

3.8 CONCRETE WALK/CURB PROTECTION AND CURING

- A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures.
- B. Protect the concrete as specified in SCDOT Section 702.4.6 and cure with liquid membrane-forming compound meeting the requirements of SCDOT Section 702.2.2.11.

3.9 CONCRETE PAVEMENT CURING

- A. Immediately after the finishing operations are complete and immediately after the surface water has disappeared, cure the entire surface of the pavement by mechanically applying a uniform coating of white-pigmented curing compound.
- B. If the compound is not applied immediately, keep the surface thoroughly wetted with water fog until the application of compound is started. Protect joints so that the compound does not enter the joint.
- C. Apply the compound in a continuous uniform film by means of a power operated pressure spraying or distributing equipment at the approved rate, but not less than 0.06 gallon per square yard of surface. If

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the compound is too thick for application during cold weather, warm the material in water with a temperature not exceeding 100 degrees F. Do not thin the compound with solvents.

3.10 PROTECTION OF CONCRETE PAVEMENT

- A. Exclude all vehicle traffic from newly constructed pavement for a period of 14 days. Do not count the time during weather less than 40 degrees F.
- B. Erect and maintain suitable barricades to exclude traffic from the newly constructed pavement for the above mentioned period.
- C. If needed, place and construct a earth berm adjacent to any exposed pavement to prevent undermining of the pavement slab.

3.11 FIELD QUALITY CONTROL

- A. Testing Agency: Owner will engage a qualified independent testing and inspecting agency to perform field tests and inspections and prepare test reports. Testing agency to perform compressive concrete strength testing in accordance with SC-T-50.
- B. Test results shall be reported in writing to Engineer, concrete manufacturer, and Contractor within 48 hours of testing. Reports of compressive-strength tests shall contain Project identification name and number, date of concrete placement, name of concrete testing and inspecting agency, location of concrete batch in Work, design compressive strength at 28 days, concrete mixture proportions and materials, compressive breaking strength, and type of break for both 7- and 28-day tests.
- C. Additional Tests: Testing and inspecting agency shall make additional tests of concrete when test results indicate that slump, compressive strengths, or other requirements have not been met, as directed.
- D. Remove and replace concrete pavement where test results indicate that it does not comply with specified requirements.
- E. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.

3.12 REPAIRS AND PROTECTION

- A. Remove and replace concrete pavement that is broken, damaged, or defective or that does not comply with requirements in this Section.
- B. Protect concrete from damage. Exclude traffic from pavement for at least 14 days after placement.
- C. Maintain concrete pavement free of stains, discoloration, dirt, and other foreign material. Sweep concrete pavement not more than two days before date scheduled for Substantial Completion inspections.

END OF SECTION 321313

February 18, 2011

Cumming/SMG
1213 Lady Street
Columbia, South Carolina 29210

Attention: Mr. Barry Evans (bevans@southernmgt.com)

Reference: Results of Asphalt Coring and Subgrade Investigation
Newberry Middle School – Existing Pavements
125 O’Neal Street
Newberry, South Carolina
GS2 Project Number 11-3508G



Corporate Headquarters
1200 Veterans Road
Columbia, South Carolina 29209

Columbia Office
241 Business Park Boulevard
Columbia, South Carolina 29203

Charleston Office
4301 Dorchester Road, Suite 12A
North Charleston, South Carolina 29405

Greenville Office
350 Feaster Road, Suite A
Greenville, South Carolina 29615

Florence Office
2353-D Walker Swinton Road
Timmonsville, South Carolina 29161

Environmental Department
1345 Gamer Lane, Suite 308
Columbia, South Carolina 29210

www.gs2engineering.com

Dear Mr. Evans:

As requested, our personnel were present on the above referenced site on February 13, 2011, in order to core the existing asphalt pavement within the driveway areas and perform a subgrade investigation of the existing Newberry Middle School pavements, in order to assess the in-place conditions of the in-place asphalt and subbase materials as well as determine soil types and densities/consistencies of the in-situ subgrade soils.

Project Information

We understand that the asphaltic materials at the above-referenced site were placed over 10 years ago. Furthermore, we understand that the failure of the in-place asphalt appears to consist primarily of, but was not limited to, Alligator Cracking, Raveling and localized Consolidation. Additionally, it is understood that several areas have previously been patched, presumably due to severely failed areas being previously repaired.

Summary of Field and Laboratory Activities

During our initial visual observation and our subsequent site visit in order to perform the investigation services of the existing asphalt pavement within the bus loop, cafeteria delivery drive, and student drop-off loop, areas of distress were noted within the surface of the asphalt. Furthermore, we observed that the failure of the in-place asphalt appears to consist of, but was not limited to, alligator cracking, raveling and localized consolidation due to age related conditions or possible subgrade failure. Furthermore, these failing areas also appear to be a result of possible unstable subgrade materials, inadequate thickness of subbase materials or inadequate thickness of asphalt materials. Several areas of patching were noted presumably due to severely failed areas being previously repaired.

The asphalt pavement of the aforementioned driveway areas was cored at eighteen (18) locations with subsequent mechanically-augered borings performed. Prior to backfilling the cored holes with cold-patch asphalt, the thickness of the underlying graded aggregate base course (GABC) was

Corporate
(803) 776-2105
(803) 776-2106

Columbia
(803) 750-1510
(803) 750-0773

Charleston
(843) 763-4093
(843) 763-4094

Bluffton
(843) 297-2035
(843) 763-4094

Greenville
(864) 312-9994
(864) 312-9995

Florence
(843) 292-9660
(843) 292-9661

Myrtle Beach
(843) 444-2766
(843) 444-2799

Environmental
(803) 772-2031
(803) 772-2034

measured. The results of our coring and visual examinations of the asphalt and subbase materials are recorded in the table below.

Table 1: Asphalt and Graded Aggregate Base Course Measurement Results

Boring	Location	Base Course Thickness (in.)	Asphalt Pavement Thickness (in.)
B-1	See Coring and Boring Location Plan	2.0	2.0
B-2	See Coring and Boring Location Plan	7.0	2.0
B-3	See Coring and Boring Location Plan	7.0	2.0
B-4	See Coring and Boring Location Plan	5.0	2.0
B-5	See Coring and Boring Location Plan	3.0	2.0
B-6	See Coring and Boring Location Plan	7.0	2.0
B-7	See Coring and Boring Location Plan	2.0	2.0
B-8	See Coring and Boring Location Plan	5.0	1.5
B-9	See Coring and Boring Location Plan	4.0	1.0
B-10	See Coring and Boring Location Plan	2.0	2.0
B-11	See Coring and Boring Location Plan	2.0	1.0
B-12	See Coring and Boring Location Plan	2.0	1.0
B-13	See Coring and Boring Location Plan	3.0	1.0
B-14	See Coring and Boring Location Plan	3.0	3.0
B-15	See Coring and Boring Location Plan	3.0	2.0
B-16	See Coring and Boring Location Plan	3.0	3.0
B-17	See Coring and Boring Location Plan	3.0	2.0
B-18	See Coring and Boring Location Plan	2.0	2.0

As stated above, eighteen (18) mechanically-augered soil borings with Standard Penetration Tests (SPT) taken at regular intervals were advanced to termination depths of 4½ feet below the existing pavement surface to determine the soil types and densities/consistencies below the existing asphalt. These test borings generally encountered intermittent layers of sandy silts (ML), some with organics and/or rocks, silts (ML and MH), sandy clays (CL) and silty sands (SM) to the termination depths. The boring log summaries are attached. The approximate coring and boring locations are shown on the attached Coring and Boring Location Plan, Figures 1 and 2, attached.

The aforementioned subgrade soils were sampled and transported to our laboratory for testing. The testing performed included three (3) Gradation Tests (ASTM D422) and two (2) Atterberg Limits (ASTM D4318) for material classification.



Conclusions and Recommendations

Based on the results of the coring, measuring, soil borings and laboratory testing, it appears that the failure of the drives at the site appear to be the result of inadequate graded aggregate base course and asphalt thickness, with some isolated areas of unstable and unsuitable subgrade soils, therefore, we recommend the following options for remediation of the failed pavements at the site.

Suitability of Soils – As previously stated, the near-surface soils at the site have been identified to have a **SM**, **CL**, **ML** and **MH** USCS soil classification. Most text includes soils with Unified Soil Classifications of SW, SP, SM, SC, SM-SC, ML and CL as suitable for support of structure or for use as structural fill, while soils with classifications of MH, CH, OL and OH are considered unsuitable. Therefore, it is important to note the site contains soils that are considered in the industry to be suitable (SM), marginally suitable (ML and CL) and unsuitable (MH). The following sections provide more insight into each soil classification, with emphasis placed on their workability and preferred structural loading.

Soils that have ML and CL designations are less preferable fill soils that exhibit fair to good structural support characteristics under pavements, less ease in workability, with little flexibility in achieving compaction at various moisture contents. Consequently, these soils are less preferred for use as roadway subgrade, with a fair to poor rating, due to their instability when exposed to excessive moisture. These soils may be used as roadway subgrade, if adequate moisture control is maintained during placement and if stormwater is not allowed to pond or penetrate these soils, ultimately preventing subgrade degradation due to over-saturation.

Fine-grained soils (CL and ML) and more crucially plastic soils (MH), are typically sensitive to variations in moisture content with a relatively narrow range of workable moisture contents. Therefore, close control of moisture content will probably be necessary during grading and fill placement operations, where these soils are involved. In addition, these soils may become difficult to work during periods of wet weather. Grading operations under wet conditions may result in the deterioration of otherwise suitable soil conditions, or of previously placed and properly compacted fill.

Soils that have CH and MH designations (or plastic soils) are even less preferable fill soils that exhibit poor structural support characteristics under pavements, less ease in workability, with little to no flexibility in achieving compaction at various moisture contents. Generically, plastic soils tend to have very elastic and cohesive properties, i.e. they are "sticky" that stem from the atomic composition of some clays and silts (i.e. covalent bonds). Most plastic soils can be molded and rolled into a ball and thin strands, like putty. Dry or unsaturated clays and silts may appear to be deceptively non-plastic in nature until they are subjected to moisture, and when plastic soils become wet, their true nature is evident. Soils that are plastic in nature (clays and silts) are typically sensitive to variations in moisture content with mild to severe volume changes between wet and dry conditions. Plastic soils exhibit longer periods of time to undergo total consolidation than do non-plastic soils, with longer duration of time consolidation for soils that exhibit larger Plasticity Indexes



anticipated. These inherent soil properties make these soils less desirable for support of subgrade, with degradation of their support capabilities due to their capacity for large volume changes and their long-term consolidation. The presence of high plasticity soils, and the variance between mild and highly plastic bearing soils within the same structure typically lends a high probability of differential settlement. ***When these soils are encountered during grading operations at the site our geotechnical engineer should be contacted immediately for further recommendations, as these soils will likely be required to be removed from structurally loaded areas. It is pertinent that the contractor provide a bid item for the unclassified removal of these materials prior to the commencement of grading at the site.***

Option One – Stabilization by means of Reclaimed Cement Stabilized Base – The existing GABC and asphaltic paving materials should be milled and blended to a depth of approximately 6 (student drop-off loop) to 10 (bus loop and cafeteria delivery drive) inches for heavy-duty areas. Then Cement should then be mixed with the blended materials at a rate of at least 8 percent by weight. If desired, a soil cement mix design can be performed on these materials to better determine a more accurate blend percentage of cement.

Option Two – Stabilization by means of Over-excavation and Replacement – The existing asphalt surface and GABC materials should be removed from the drives and wasted off site. Any organic laden soils, such as encountered within Borings B-13 and B-18, should be removed from structurally loaded or fill areas and wasted off site prior to placement of controlled structural fill.

Once the existing asphalt, GABC and organic laden soils have been removed, the areas should be proofrolled. Proofrolling should be performed with a twenty-ton rubber-tired tandem axle vehicle or similarly loaded vehicle or construction equipment, and should be observed by a qualified geotechnical engineer. A final proofroll is recommended to be performed within 24 hours of pavement construction. If inclement weather occurs or if the proofroll fails to yield favorable results within this 24-hour window, then reworking of the subgrade soils may be required to achieve a suitable subgrade.

Any localized areas of yielding, soft/loose and/or saturated soils identified during proofrolling will need to be densified in-place; undercut and the removed soil replaced with properly compacted structural fill, or modified by the use of mechanical or chemical means.

Upon achieving a stable subgrade, the resulting excavation bottom of any over-excavated areas should then be tamped and backfilled with properly compacted structural fill to near original elevations. Prior to the placement of fill soils, representative soil samples should be obtained and tested to determine their classification and compaction characteristics. Optimum fill material should be free of debris and any fibrous organic material or organic soils and should have a Plasticity Index (PI) less than 15. We recommend that fibrous organic material found in the fill materials be no more than 5 percent by weight. Compaction characteristics of the fill soils should be determined using the laboratory Standard Proctor density test, ASTM D698, "Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using 5.5-lb. Rammer and 12-in. Drop".



Fill material should be placed in no more than 8-inch thick lifts, loose measurement, and within +1 to -3 percent of the optimum moisture content determined by ASTM D698. Fills placed beneath the pavements should be compacted to a minimum of **98** percent of the laboratory Standard Proctor maximum dry density (ASTM D698).

Asphaltic Pavement – We have assumed both light and heavy-duty paved areas will be required for this project. We define light-duty areas as areas having a heavy concentration of automobiles and no loaded trucks, such as a car parking lot pavement. We define heavy-duty paved areas as areas receiving a heavy concentration of automobiles and loaded trucks such as an access drive or a loading dock area. No traffic loading was provided at the time of this report. Therefore, we have assumed that the estimated total traffic design loading for the student drop-off loop pavements as roughly 2 cars per day per parking space (135 parking spaces), 300 cars per day of drive-through/drop-off traffic and 1 emergency vehicle per year, while the estimated total traffic design loading for the bus loop and cafeteria delivery drive was assumed as roughly 2 cars per day per parking space (77 parking spaces), 5 delivery trucks per week, 30 school buses per day, 2 tractor trailers per week, 2 garbage trucks per week, and 1 emergency vehicle per year. We calculate a total traffic loading of an equivalent axle loading (EAL) for light-duty (student drop-off loop) and heavy-duty (bus loop and cafeteria delivery drive) pavements of about 2,665 and 293,310 passes, respectively, of an 18-kip equivalent axle load over a life span of 20 years. These traffic volumes do not account for construction traffic. Therefore, proper roadway construction staging techniques should be used or the pavement thicknesses recalculated with respect to this traffic.

Our thickness analyses for flexible pavements were performed in general accordance with the *AASHTO Guide for Design of Pavement Structures, 1993*. Based on the above assumptions, we recommend that the pavement sections over the stabilized subgrade adhere to the thicknesses presented in Tables 2 and 3 below.

Table 2: Pavement Thickness Recommendations – Student Drop-off Loop

Pavement Type	Layers	Material	Thickness (inches)		
Flexible – Light Duty	a.	Asphaltic Concrete Surface Course	1½	or	1½
	b.	Asphaltic Concrete Binder Course	---		---
	c.	Graded Aggregate Base Course	---		6
	d.	Reclaimed Cement Stabilized Base	6		---
	e.	Properly Prepared Subgrade	18		



Table 3: Pavement Thickness Recommendations – Bus Loop and Cafeteria Delivery Drive

Pavement Type	Layers	Material	Thickness (inches)						
Flexible – Heavy Duty	a.	Asphaltic Concrete Surface Course	1½	or	2	or	2	or	1½
	b.	Asphaltic Concrete Binder Course	1½		---		2		3
	c.	Graded Aggregate Base Course	---		---		11		10
	d.	Reclaimed Cement Stabilized Base	8		10		---		---
	e.	Properly Prepared Subgrade	18						

Cement Stabilized Section: If Option One provided above is utilized, the reclaimed materials should conform to the SCDOT Standard Specification, Section 306, for Cement Modified Recycled Base. The base course should be compacted to 100 percent of the laboratory Modified Proctor (ASTM D-1557) maximum dry density.

Base Material Section: If Option Two provided above is utilized, the base course material should be a Graded Aggregate Base Course (GABC) conforming to SCDOT Standard Specification, Section 305, for Graded Aggregate Base. The base course should be compacted to 100 percent of the laboratory Modified Proctor (ASTM D-1557) maximum dry density.

Flexible Pavement Section: The asphalt surface course should conform to the SCDOT Standard Specification, Section 403, for Type 1 Hot Laid Asphalt Concrete Surface Course. The binder material, if utilized, should conform to SCDOT Standard Specification Section 402.

General Pavement Recommendations: Related civil design factors such as subgrade drainage, shoulder support, cross-sectional configurations, surface elevations, and environmental factors that will significantly affect the service life must be included in the preparation of the construction drawings and specifications. Normal periodic maintenance will be required.

Additionally, we recommend that the reclamation and grading activities be observed and tested by a geotechnical engineer or qualified engineering technician as placement of the fill progresses. Compaction testing should be performed at a minimum frequency of one test per lift per 200 feet of lane. Furthermore, construction activities and exposure to the environment can cause deterioration of the prepared subgrades; therefore, we recommend that the subgrades be inspected prior to the placement of the asphalt.

Basis of Conclusions and Recommendations

The recommendations presented in this report are based on our understanding of the project information, our interpretation of the data obtained during our investigation and our experience with



similar soil and project conditions. The Standard Penetration Test (SPT) values obtained at the boring locations have been used to estimate existing soil conditions at this specific site. Regardless of the thoroughness of this investigation, it is possible that the soil conditions intermediate of the borings vary from the soil conditions encountered at the boring locations. Therefore, it will be necessary for a geotechnical engineer or qualified engineering technician to be present during grading operations in order to evaluate and document that the anticipated design conditions actually exist.

We appreciate the opportunity to provide our services for your project needs. If you have any questions, or if additional information becomes available, please contact us at 803-750-1510.

Sincerely,
GS2 ENGINEERING & ENVIRONMENTAL CONSULTANTS, INC.



John P. Lewis, E.I.T.
Project Manager



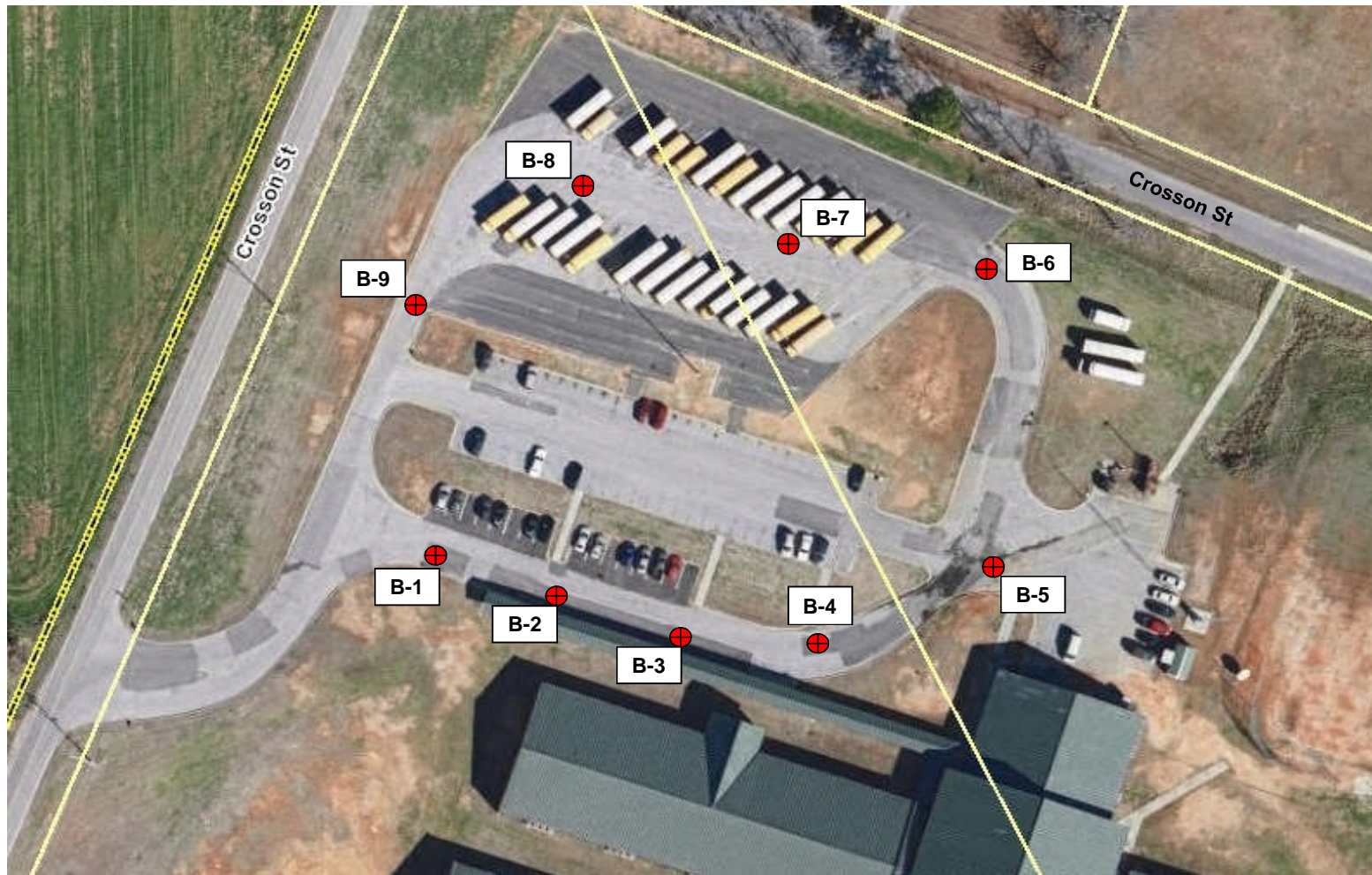
Jayson E. Floyd, P.E.
Operations Manager



Robert C. Bruorton, P.E.
Chief Technical Officer, AVP

Attachments: Boring Location Plan
 Soil Test Boring Logs
 Laboratory Testing Results





LEGEND

SPT Borings



Source: Newberry County GIS, 2008



Boring Location Plan
Newberry Middle School - Existing Pavements
GS2 Project Number 11-3508C
125 O'Neal Street
Newberry, South Carolina

Cumming/SMG
1213 Lady Street
Columbia, South Carolina

Prepared By/Date: JL-1/11
Checked By/Date: CB-1/11

Scale
1 inch = 100 feet

Figure 1



Source: Newberry County GIS, 2008

Prepared By\Date: JL-1/11
 Checked By\Date: CB-1/11



Coring and Boring Location Plan
 Newberry Middle School - Existing Pavements
 GS2 Project Number 11-3508G
 125 O'Neal Street
 Newberry, South Carolina

Cumming/SMG
 1213 Lady Street
 Columbia, South Carolina

Scale
 1 inch = 70 feet

Figure 2

SOIL TEST BORING LOG



Project Name: Newberry Middle School - Existing Pavements

Project Number: 11-3508-G

Date of Test: February 13, 2011

Boring Number: B-1

Depth (feet)	Soil Description	Sample Interval	Blow Counts*	Remarks
1	SURFACE MATERIAL: 2 Inches of Asphalt Pavement and 2 Inches of GAB. POSSIBLE FILL: Stiff Light Brown and Orange Fine Sandy SILT. (ML)	0 to 1-1/2'	13	
2	PIEDMONT: Very Stiff Orange Fine Sandy SILT. (ML)			
3		1-1/2' to 3'	21	
4	Stiff White, Orange and Brown Fine Silty Fine SAND. (SM)			
5	Boring Terminated at 4-1/2 feet.	3' to 4-1/2'	14	
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Depth of Boring (ft): <u>4-1/2 Feet</u>	Location of Boring: <u>See Coring and Boring Location Plan</u>
Depth of Groundwater T.O.B. (feet): <u>Not Encountered</u>	Method of Drilling: <u>Hollow Stem Auger</u>
Depth of Groundwater 24 hrs. (feet): <u>Not Available</u>	Performed By: <u>GS2 Engineering</u>

* The Blow Counts given above are recorded for a 140 pound hammer (falling 30 inches/blow) to drive a 2 inch O.D., 1.375 inch I.D. split-barrel sampler 12 inches, after an initial 6 inch seating increment.

SOIL TEST BORING LOG



Project Name: Newberry Middle School - Existing Pavements

Project Number: 11-3508-G

Date of Test: February 13, 2011

Boring Number: B-2

Depth (feet)	Soil Description	Sample Interval	Blow Counts*	Remarks
1	SURFACE MATERIAL: 2 Inches of Asphalt Pavement and 7 Inches of GAB. FILL: Loose Orange and Dark Red Silty Fine SAND. (SM)	0 to 1-1/2'	6	
2	PIEDMONT: Stiff Light Brown and Red Fine Sandy SILT with mica. (ML)			
3		1-1/2' to 3'	11	
4	Very Stiff Dark Red Fine Sandy SILT with mica. (ML)	3' to 4-1/2'	17	
5	Boring Terminated at 4-1/2 feet.			
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Depth of Boring (ft): <u>4-1/2 Feet</u> Depth of Groundwater T.O.B. (feet): <u>Not Encountered</u> Depth of Groundwater 24 hrs. (feet): <u>Not Available</u>	Location of Boring: <u>See Coring and Boring Location Plan</u> Method of Drilling: <u>Hollow Stem Auger</u> Performed By: <u>GS2 Engineering</u>
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* The Blow Counts given above are recorded for a 140 pound hammer (falling 30 inches/blow) to drive a 2 inch O.D., 1.375 inch I.D. split-barrel sampler 12 inches, after an initial 6 inch seating increment.

SOIL TEST BORING LOG



Project Name: Newberry Middle School - Existing Pavements

Project Number: 11-3508-G

Date of Test: February 13, 2011

Boring Number: B-3

Depth (feet)	Soil Description	Sample Interval	Blow Counts*	Remarks
1	SURFACE MATERIAL: 2 Inches of Asphalt Pavement and 7 Inches of GAB.	0 to 1-1/2'	6	
2	POSSIBLE FILL: Firm Light Brown and Orange Fine Sandy SILT with mica. (ML)			
3		1-1/2' to 3'	7	
4	PIEDMONT: Stiff Light Brown and Orange Fine Sandy SILT with mica. (ML)	3' to 4-1/2'	13	
5	Boring Terminated at 4-1/2 feet.			
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Depth of Boring (ft): 4-1/2 Feet

Location of Boring: See Coring and Boring Location Plan

Depth of Groundwater T.O.B. (feet): Not Encountered

Method of Drilling: Hollow Stem Auger

Depth of Groundwater 24 hrs. (feet): Not Available

Performed By: GS2 Engineering

* The Blow Counts given above are recorded for a 140 pound hammer (falling 30 inches/blow) to drive a 2 inch O.D., 1.375 inch I.D. split-barrel sampler 12 inches, after an initial 6 inch seating increment.

SOIL TEST BORING LOG



Project Name: Newberry Middle School - Existing Pavements

Project Number: 11-3508-G

Date of Test: February 13, 2011

Boring Number: B-4

Depth (feet)	Soil Description	Sample Interval	Blow Counts*	Remarks
1	SURFACE MATERIAL: 2 Inches of Asphalt Pavement and 5 Inches of GAB. FILL: Soft Red Fine Sandy SILT with mica. (ML)	0 to 1-1/2'	3	
2	POSSIBLE FILL: Firm Brownish-orange, Sandy SILT. (ML)			
3		1-1/2' to 3'	8	
4	PIEDMONT: Stiff Brownish-orange, Sandy SILT. (ML)	3' to 4-1/2'	13	
5	Boring Terminated at 4-1/2 feet.			
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Depth of Boring (ft): <u>4-1/2 Feet</u>	Location of Boring: <u>See Coring and Boring Location Plan</u>
Depth of Groundwater T.O.B. (feet): <u>Not Encountered</u>	Method of Drilling: <u>Hollow Stem Auger</u>
Depth of Groundwater 24 hrs. (feet): <u>Not Available</u>	Performed By: <u>GS2 Engineering</u>

* The Blow Counts given above are recorded for a 140 pound hammer (falling 30 inches/blow) to drive a 2 inch O.D., 1.375 inch I.D. split-barrel sampler 12 inches, after an initial 6 inch seating increment.

SOIL TEST BORING LOG



Project Name: Newberry Middle School - Existing Pavements

Project Number: 11-3508-G

Date of Test: February 13, 2011

Boring Number: B-5

Depth (feet)	Soil Description	Sample Interval	Blow Counts*	Remarks
1	SURFACE MATERIAL: 2 Inches of Asphalt Pavement and 3 Inches of GAB.	0 to 1-1/2'	7	
2	POSSIBLE FILL: Firm Dark Red Fine Sandy SILT with mica. (ML)			
3	PIEDMONT: Loose Orange and Light Brown Silty Fine SAND with mica. (ML)	1-1/2' to 3'	9	
4		3' to 4-1/2'	10	
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Depth of Boring (ft): 4-1/2 Feet

Location of Boring: See Coring and Boring Location Plan

Depth of Groundwater T.O.B. (feet): Not Encountered

Method of Drilling: Hollow Stem Auger

Depth of Groundwater 24 hrs. (feet): Not Available

Performed By: GS2 Engineering

* The Blow Counts given above are recorded for a 140 pound hammer (falling 30 inches/blow) to drive a 2 inch O.D., 1.375 inch I.D. split-barrel sampler 12 inches, after an initial 6 inch seating increment.

SOIL TEST BORING LOG



Project Name: Newberry Middle School - Existing Pavements

Project Number: 11-3508-G

Date of Test: February 13, 2011

Boring Number: B-6

Depth (feet)	Soil Description	Sample Interval	Blow Counts*	Remarks
1	SURFACE MATERIAL: 2 Inches of Asphalt Pavement and 7 Inches of GAB. FILL: Firm Brown and Red Sandy CLAY. (CL)	0 to 1-1/2'	5	
2	PIEDMONT: Very Stiff Orange and Red SILT. (ML)			
3		1-1/2' to 3'	20	
4		3' to 4-1/2'	29	
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Depth of Boring (ft): 4-1/2 Feet

Location of Boring: See Coring and Boring Location Plan

Depth of Groundwater T.O.B. (feet): Not Encountered

Method of Drilling: Hollow Stem Auger

Depth of Groundwater 24 hrs. (feet): Not Available

Performed By: GS2 Engineering

* The Blow Counts given above are recorded for a 140 pound hammer (falling 30 inches/blow) to drive a 2 inch O.D., 1.375 inch I.D. split-barrel sampler 12 inches, after an initial 6 inch seating increment.

SOIL TEST BORING LOG

Project Name: Newberry Middle School - Existing Pavements

Project Number: 11-3508-G

Date of Test: February 13, 2011



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Boring Number: B-7

Depth (feet)	Soil Description	Sample Interval	Blow Counts*	Remarks
1	SURFACE MATERIAL: 2 Inches of Asphalt Pavement and 2 Inches of GAB. POSSIBLE FILL: Stiff Brown and Red Sandy CLAY. (CL)	0 to 1-1/2'	10	
2	PIEDMONT: Very Stiff to Hard Dark Red SILT. (ML)			
3		1-1/2' to 3'	27	
4		3' to 4-1/2'	31	
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Depth of Boring (ft): 4-1/2 Feet

Location of Boring: See Coring and Boring Location Plan

Depth of Groundwater T.O.B. (feet): Not Encountered

Method of Drilling: Hollow Stem Auger

Depth of Groundwater 24 hrs. (feet): Not Available

Performed By: GS2 Engineering

* The Blow Counts given above are recorded for a 140 pound hammer (falling 30 inches/blow) to drive a 2 inch O.D., 1.375 inch I.D. split-barrel sampler 12 inches, after an initial 6 inch seating increment.

SOIL TEST BORING LOG



Project Name: Newberry Middle School - Existing Pavements

Project Number: 11-3508-G

Date of Test: February 13, 2011

Boring Number: B-8

Depth (feet)	Soil Description	Sample Interval	Blow Counts*	Remarks
1	SURFACE MATERIAL: 1.5 Inches of Asphalt Pavement and 5 Inches of GAB. FILL: Soft Brownish-red, Sandy lean CLAY. (CL)	0 to 1-1/2'	4	
2	POSSIBLE FILL: Stiff Brownish-red, Sandy lean CLAY. (CL)			
3		1-1/2' to 3'	12	
4	PIEDMONT: Very Stiff Red SILT. (ML)			
5	Boring Terminated at 4-1/2 feet.	3' to 4-1/2'	19	
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Depth of Boring (ft): 4-1/2 Feet

Location of Boring: See Coring and Boring Location Plan

Depth of Groundwater T.O.B. (feet): Not Encountered

Method of Drilling: Hollow Stem Auger

Depth of Groundwater 24 hrs. (feet): Not Available

Performed By: GS2 Engineering

* The Blow Counts given above are recorded for a 140 pound hammer (falling 30 inches/blow) to drive a 2 inch O.D., 1.375 inch I.D. split-barrel sampler 12 inches, after an initial 6 inch seating increment.

SOIL TEST BORING LOG



Project Name: Newberry Middle School - Existing Pavements

Project Number: 11-3508-G

Date of Test: February 13, 2011

Boring Number: B-9

Depth (feet)	Soil Description	Sample Interval	Blow Counts*	Remarks
1	SURFACE MATERIAL: 1 Inch of Asphalt Pavement and 4 Inches of GAB. FILL: Firm Orange and Light Brown Fine Sandy SILT. (ML)	0 to 1-1/2'	8	
2	POSSIBLE FILL: Stiff Light Brown and Red Fine Sandy SILT with mica. (ML)			
3		1-1/2' to 3'	10	
4	PIEDMONT: Stiff Brown Fine Sandy SILT. (ML)	3' to 4-1/2'	15	
5	Boring Terminated at 4-1/2 feet.			
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Depth of Boring (ft): 4-1/2 Feet

Location of Boring: See Coring and Boring Location Plan

Depth of Groundwater T.O.B. (feet): Not Encountered

Method of Drilling: Hollow Stem Auger

Depth of Groundwater 24 hrs. (feet): Not Available

Performed By: GS2 Engineering

* The Blow Counts given above are recorded for a 140 pound hammer (falling 30 inches/blow) to drive a 2 inch O.D., 1.375 inch I.D. split-barrel sampler 12 inches, after an initial 6 inch seating increment.

SOIL TEST BORING LOG



Project Name: Newberry Middle School - Existing Pavements

Project Number: 11-3508-G

Date of Test: February 13, 2011

Boring Number: B-10

Depth (feet)	Soil Description	Sample Interval	Blow Counts*	Remarks
1	SURFACE MATERIAL: 2 Inches of Asphalt Pavement and 2 Inches of GAB. FILL: Firm Red Fine Sandy SILT with mica. (ML)	0 to 1-1/2'	5	
2	POSSIBLE FILL: Stiff Red Fine Sandy SILT with rocks. (ML)			
3		1-1/2' to 3'	9	
4	PIEDMONT: Stiff Dark Brown and Dark Red Fine Sandy SILT with mica. (ML)	3' to 4-1/2'	12	
5	Boring Terminated at 4-1/2 feet.			
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Depth of Boring (ft): <u>4-1/2 Feet</u>	Location of Boring: <u>See Coring and Boring Location Plan</u>
Depth of Groundwater T.O.B. (feet): <u>Not Encountered</u>	Method of Drilling: <u>Hollow Stem Auger</u>
Depth of Groundwater 24 hrs. (feet): <u>Not Available</u>	Performed By: <u>GS2 Engineering</u>

* The Blow Counts given above are recorded for a 140 pound hammer (falling 30 inches/blow) to drive a 2 inch O.D., 1.375 inch I.D. split-barrel sampler 12 inches, after an initial 6 inch seating increment.

SOIL TEST BORING LOG



Project Name: Newberry Middle School - Existing Pavements

Project Number: 11-3508-G

Date of Test: February 13, 2011

Boring Number: B-11

Depth (feet)	Soil Description	Sample Interval	Blow Counts*	Remarks
1	SURFACE MATERIAL: 1 Inch of Asphalt Pavement and 2 Inches of GAB. FILL: Soft Black, Grayish Blue and Dark Brown Fine Sandy SILT with mica. (ML)	0 to 1-1/2'	4	
2	POSSIBLE FILL: Firm Brownish-orange and Gray, Sandy elastic SILT. (MH)			
3		1-1/2' to 3'	7	
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5		3' to 4-1/2'	8	
5	Boring Terminated at 4-1/2 feet.			
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Depth of Boring (ft): 4-1/2 Feet

Location of Boring: See Coring and Boring Location Plan

Depth of Groundwater T.O.B. (feet): Not Encountered

Method of Drilling: Hollow Stem Auger

Depth of Groundwater 24 hrs. (feet): Not Available

Performed By: GS2 Engineering

* The Blow Counts given above are recorded for a 140 pound hammer (falling 30 inches/blow) to drive a 2 inch O.D., 1.375 inch I.D. split-barrel sampler 12 inches, after an initial 6 inch seating increment.

SOIL TEST BORING LOG



Project Name: Newberry Middle School - Existing Pavements

Project Number: 11-3508-G

Date of Test: February 13, 2011

Boring Number: B-12

Depth (feet)	Soil Description	Sample Interval	Blow Counts*	Remarks
1	SURFACE MATERIAL: 1 Inch of Asphalt Pavement and 2 Inches of GAB. FILL: Firm Brown and Red Fine Sandy SILT with mica. (ML)	0 to 1-1/2'	5	
2	POSSIBLE FILL: Stiff Dark Gray, Brown and Orange Fine Sandy SILT with mica. (ML)			
3		1-1/2' to 3'	10	
4	PIEDMONT: Stiff Brown and Red Fine Sandy SILT with mica. (ML)	3' to 4-1/2'	12	
5	Boring Terminated at 4-1/2 feet.			
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Depth of Boring (ft): 4-1/2 Feet

Location of Boring: See Coring and Boring Location Plan

Depth of Groundwater T.O.B. (feet): Not Encountered

Method of Drilling: Hollow Stem Auger

Depth of Groundwater 24 hrs. (feet): Not Available

Performed By: GS2 Engineering

* The Blow Counts given above are recorded for a 140 pound hammer (falling 30 inches/blow) to drive a 2 inch O.D., 1.375 inch I.D. split-barrel sampler 12 inches, after an initial 6 inch seating increment.

SOIL TEST BORING LOG



Project Name: Newberry Middle School - Existing Pavements

Project Number: 11-3508-G

Date of Test: February 13, 2011

Boring Number: B-13

Depth (feet)	Soil Description	Sample Interval	Blow Counts*	Remarks
1	SURFACE MATERIAL: 1 Inch of Asphalt Pavement and 3 Inches of GAB. FILL: Soft Dark Red Fine Sandy SILT. (ML)	0 to 1-1/2'	4	
2	POSSIBLE FILL: Very Stiff Gray, Brown and Red Fine Sandy SILT with mica, rocks and organics. (ML)			
3		1-1/2' to 3'	16	
4	PIEDMONT: Hard Gray, Red and Brown Fine Sandy SILT with mica. (ML)	3' to 4-1/2'	34	
5	Boring Terminated at 4-1/2 feet.			
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Depth of Boring (ft): 4-1/2 Feet

Location of Boring: See Coring and Boring Location Plan

Depth of Groundwater T.O.B. (feet): Not Encountered

Method of Drilling: Hollow Stem Auger

Depth of Groundwater 24 hrs. (feet): Not Available

Performed By: GS2 Engineering

* The Blow Counts given above are recorded for a 140 pound hammer (falling 30 inches/blow) to drive a 2 inch O.D., 1.375 inch I.D. split-barrel sampler 12 inches, after an initial 6 inch seating increment.

SOIL TEST BORING LOG



Project Name: Newberry Middle School - Existing Pavements

Project Number: 11-3508-G

Date of Test: February 13, 2011

Boring Number: B-14

Depth (feet)	Soil Description	Sample Interval	Blow Counts*	Remarks
1	SURFACE MATERIAL: 3 Inches of Asphalt Pavement and 3 Inches of GAB. FILL: Soft Dark Red Fine Sandy SILT. (ML)	0 to 1-1/2'	5	
2	PIEDMONT: Stiff Gray and Red Fine Sandy SILT with mica. (ML)			
3	Stiff Dark Red SILT with mica. (ML)	1-1/2' to 3'	13	
4		3' to 4-1/2'	10	
5	Boring Terminated at 4-1/2 feet.			
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Depth of Boring (ft): 4-1/2 Feet

Location of Boring: See Coring and Boring Location Plan

Depth of Groundwater T.O.B. (feet): Not Encountered

Method of Drilling: Hollow Stem Auger

Depth of Groundwater 24 hrs. (feet): Not Available

Performed By: GS2 Engineering

* The Blow Counts given above are recorded for a 140 pound hammer (falling 30 inches/blow) to drive a 2 inch O.D., 1.375 inch I.D. split-barrel sampler 12 inches, after an initial 6 inch seating increment.

SOIL TEST BORING LOG



Project Name: Newberry Middle School - Existing Pavements

Project Number: 11-3508-G

Date of Test: February 13, 2011

Boring Number: B-15

Depth (feet)	Soil Description	Sample Interval	Blow Counts*	Remarks
1	SURFACE MATERIAL: 2 Inch of Asphalt Pavement and 3 Inches of GAB. FILL: Firm Gray, Brown and Red Fine Sandy SILT with mica. (ML)	0 to 1-1/2'	7	
2	POSSIBLE FILL: Firm Light Brown and Red Fine Sandy SILT with mica. (ML)			
3		1-1/2' to 3'	7	
4	PIEDMONT: Stiff Light Brown and Red Fine Sandy SILT with mica and rocks. (ML)	3' to 4-1/2'	10	
5	Boring Terminated at 4-1/2 feet.			
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Depth of Boring (ft): <u>4-1/2 Feet</u>	Location of Boring: <u>See Coring and Boring Location Plan</u>
Depth of Groundwater T.O.B. (feet): <u>Not Encountered</u>	Method of Drilling: <u>Hollow Stem Auger</u>
Depth of Groundwater 24 hrs. (feet): <u>Not Available</u>	Performed By: <u>GS2 Engineering</u>

* The Blow Counts given above are recorded for a 140 pound hammer (falling 30 inches/blow) to drive a 2 inch O.D., 1.375 inch I.D. split-barrel sampler 12 inches, after an initial 6 inch seating increment.

SOIL TEST BORING LOG



Project Name: Newberry Middle School - Existing Pavements

Project Number: 11-3508-G

Date of Test: February 13, 2011

Boring Number: B-16

Depth (feet)	Soil Description	Sample Interval	Blow Counts*	Remarks
1	SURFACE MATERIAL: 3 Inches of Asphalt Pavement and 3 Inches of GAB. FILL: Soft Dark Red Fine Sandy SILT. (ML)	0 to 1-1/2'	5	
2	PIEDMONT: Very Stiff Orange and Red Fine Sandy SILT. (ML)			
3		1-1/2' to 3'	19	
4		3' to 4-1/2'	29	
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Depth of Boring (ft): <u>4-1/2 Feet</u>	Location of Boring: <u>See Coring and Boring Location Plan</u>
Depth of Groundwater T.O.B. (feet): <u>Not Encountered</u>	Method of Drilling: <u>Hollow Stem Auger</u>
Depth of Groundwater 24 hrs. (feet): <u>Not Available</u>	Performed By: <u>GS2 Engineering</u>

* The Blow Counts given above are recorded for a 140 pound hammer (falling 30 inches/blow) to drive a 2 inch O.D., 1.375 inch I.D. split-barrel sampler 12 inches, after an initial 6 inch seating increment.

SOIL TEST BORING LOG



Project Name: Newberry Middle School - Existing Pavements

Project Number: 11-3508-G

Date of Test: February 13, 2011

Boring Number: B-17

Depth (feet)	Soil Description	Sample Interval	Blow Counts*	Remarks
1	SURFACE MATERIAL: 2 Inches of Asphalt Pavement and 3 Inches of GAB. FILL: Firm Red and Brown Fine Sandy SILT with mica. (ML)	0 to 1-1/2'	6	
2	POSSIBLE FILL: Firm Red and Brown Fine Sandy SILT with mica and organics. (ML)			
3		1-1/2' to 3'	14	
4	PIEDMONT: Very Stiff Red and Brown SILT. (ML)	3' to 4-1/2'	16	
5	Boring Terminated at 4-1/2 feet.			
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Depth of Boring (ft): <u>4-1/2 Feet</u>	Location of Boring: <u>See Coring and Boring Location Plan</u>
Depth of Groundwater T.O.B. (feet): <u>Not Encountered</u>	Method of Drilling: <u>Hollow Stem Auger</u>
Depth of Groundwater 24 hrs. (feet): <u>Not Available</u>	Performed By: <u>GS2 Engineering</u>

* The Blow Counts given above are recorded for a 140 pound hammer (falling 30 inches/blow) to drive a 2 inch O.D., 1.375 inch I.D. split-barrel sampler 12 inches, after an initial 6 inch seating increment.

SOIL TEST BORING LOG



Project Name: Newberry Middle School - Existing Pavements

Project Number: 11-3508-G

Date of Test: February 13, 2011

Boring Number: B-18

Depth (feet)	Soil Description	Sample Interval	Blow Counts*	Remarks
1	SURFACE MATERIAL: 2 Inch of Asphalt Pavement and 2 Inches of GAB. FILL: Firm Red and Brown Fine Sandy SILT with mica. (ML)	0 to 1-1/2'	5	
2	POSSIBLE FILL: Firm Gray, Dark Brown and Red Fine Sandy SILT with mica. (ML)			
3		1-1/2' to 3'	8	
4	PIEDMONT: Stiff Brown and Red Fine Sandy SILT with mica and rocks. (ML)	3' to 4-1/2'	11	
5	Boring Terminated at 4-1/2 feet.			
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Depth of Boring (ft): 4-1/2 Feet

Location of Boring: See Coring and Boring Location Plan

Depth of Groundwater T.O.B. (feet): Not Encountered

Method of Drilling: Hollow Stem Auger

Depth of Groundwater 24 hrs. (feet): Not Available

Performed By: GS2 Engineering

* The Blow Counts given above are recorded for a 140 pound hammer (falling 30 inches/blow) to drive a 2 inch O.D., 1.375 inch I.D. split-barrel sampler 12 inches, after an initial 6 inch seating increment.



Amount of Material Finer than No. 200 (75-m) Sieve

Project Name : Newberry Middle School - Existing Pavements
 Job Number: 11-3508G

Client: Cumming/SMG
 Date: February 15, 2011

1	2	3	4	5	6	7	8	9	10	11
Laboratory Number	Boring Location	Soil Classification	Sample Depth (ft.)	Pan Number	Weight of Pan (grams)	Initial Weight Soil (grams)	Final Weight Pan + Soil (grams)	(7-5) Weight Retained (grams)	(6-8) Weight Passing (grams)	(9/6)*100 Percent Passing (%)
GS-5040	B-11	MH	1.5 to 5.0	B-4	260.4	200.0	356.9	96.5	103.5	51.8
GS-5041	B-4	ML	1.5 to 5.0	D	367.9	200.0	466.3	98.4	101.6	50.8
GS-5042	B-8	CL	0.0 to 3.0	#2	425.6	200.0	492.4	66.8	133.2	66.6

Test Method: ASTM D1140

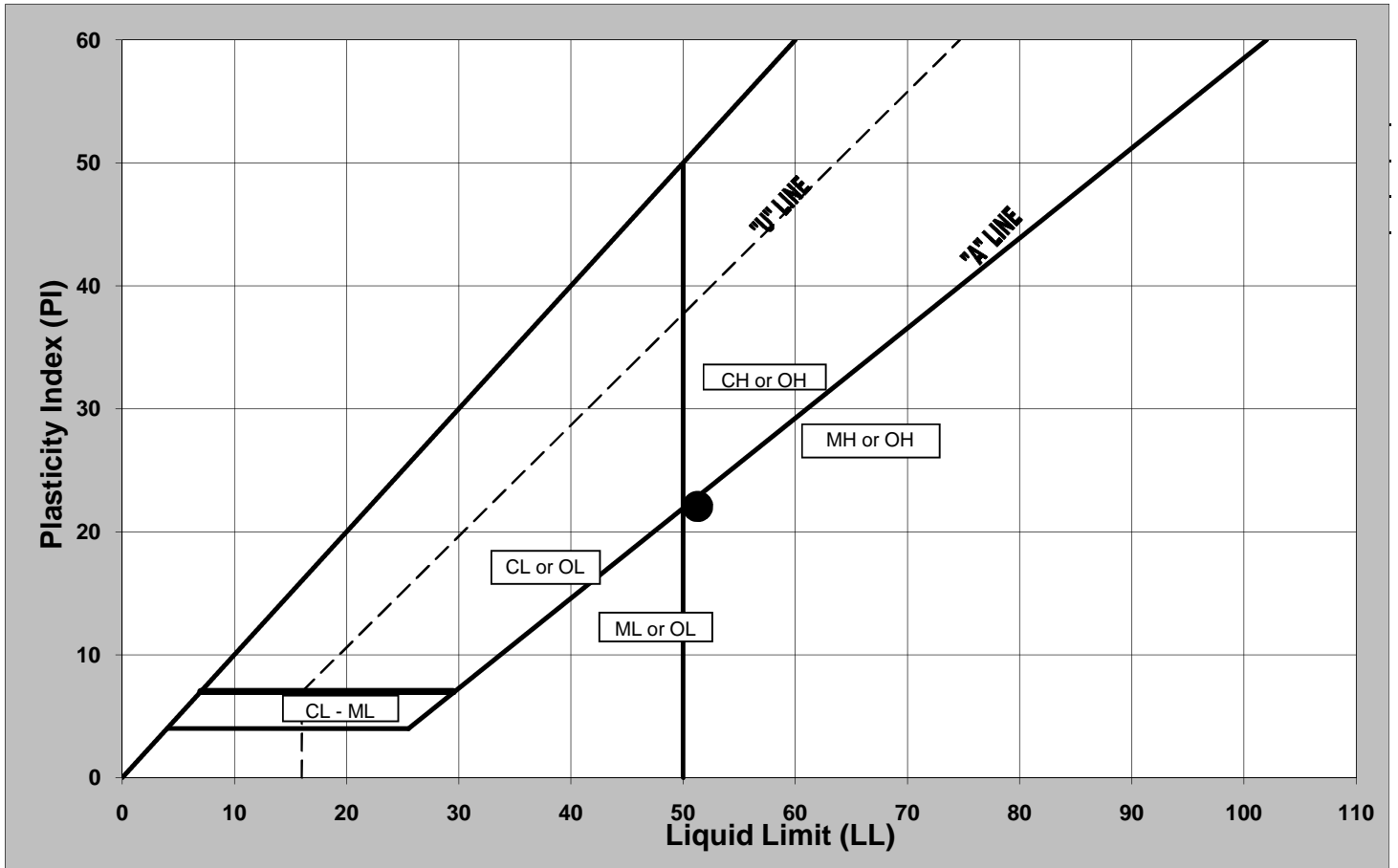
Performed By: Sandra Witherspoon

Checked By: Jeffrey G. Kremlick

Liquid Limit, Plastic Limit and Plasticity Index of Soils
ASTM D4318

Project Name: Newberry Middle School - Existing Pavements
 Project Number: 11-3508G
 Date of Test: 16-Feb-2011
 Laboratory Id: GS-5040

Soil Description: Brownish-orange and Gray, Sandy elastic SILT. (MH)
 Sample No.: B-11
 Location of Sample: 1.5' to 4.5' Deep
 Performed By: S. Witherspoon



Estimated percentage of material retained on # 40 Sieve: 17

* Properties of Soil	
Liquid Limit:	<u>51</u>
Plastic Limit:	<u>29</u>
Plastic Index:	<u>22</u>
Fines Classification:	MH

Respectfully Submitted,



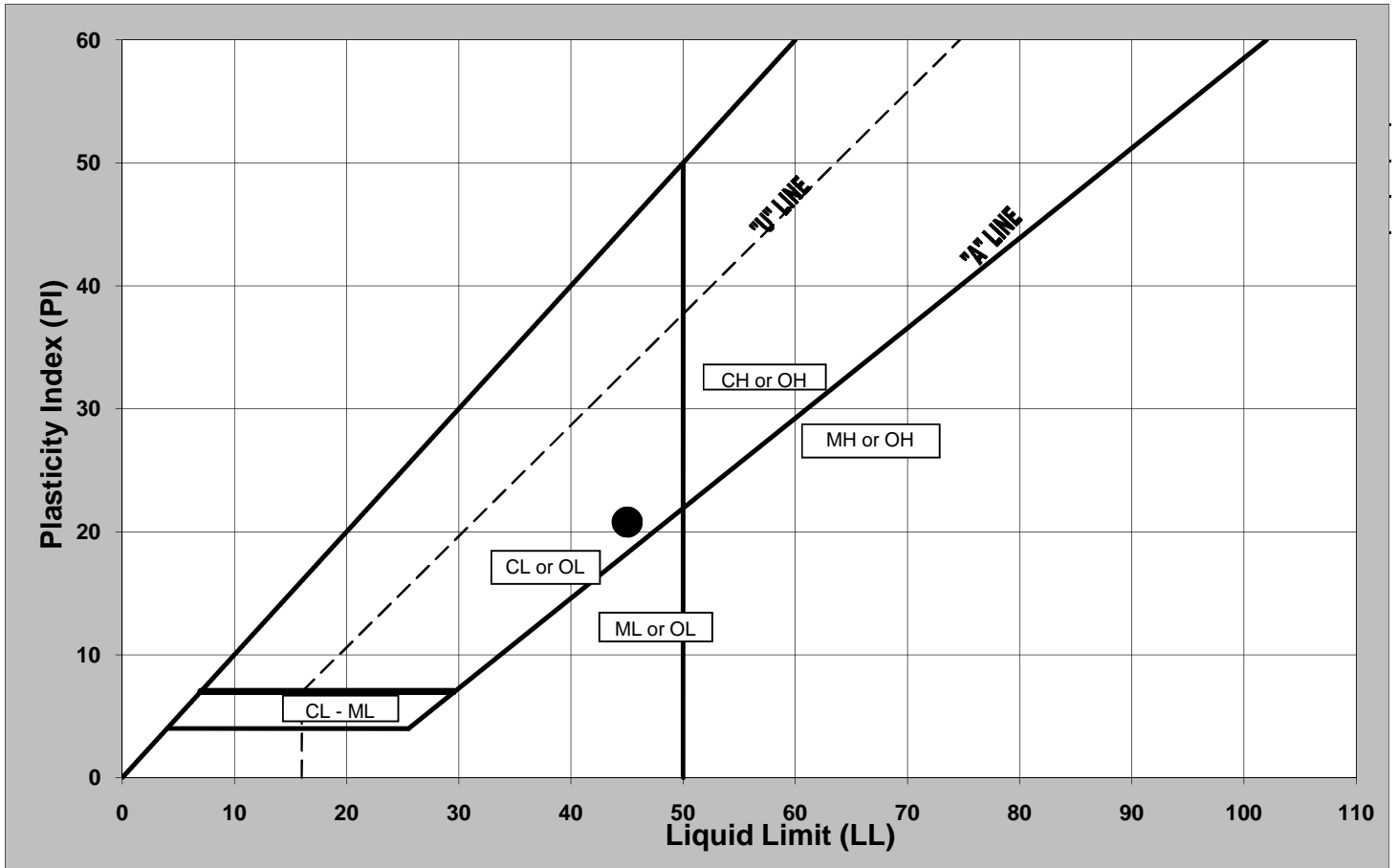
Jeffrey G. Kremlick
Laboratory Manager

* Unless otherwise noted, soils were air-dried and the index was determined using the multipoint test method.

Liquid Limit, Plastic Limit and Plasticity Index of Soils
ASTM D4318

Project Name: Newberry Middle School - Existing Pavements
 Project Number: 11-3508G
 Date of Test: 16-Feb-2011
 Laboratory Id: GS-5042

Soil Description: Brownish-red, Sandy lean CLAY (CL)
 Sample No.: B-8
 Location of Sample: 0.0' to 3.0' Deep
 Performed By: S. Witherspoon



Estimated percentage of material retained on # 40 Sieve: 11

* Properties of Soil	
Liquid Limit:	<u>45</u>
Plastic Limit:	<u>24</u>
Plastic Index:	<u>21</u>
Fines Classification:	<u>CL</u>

Respectfully Submitted,



Jeffrey G. Kremlick
Laboratory Manager

* Unless otherwise noted, soils were air-dried and the index was determined using the multipoint test method.



Client: Cumming/SMG
 Job Name: Newberry Middle School - Existing Pavements
 Material: Brownish-red, Sandy lean CLAY. (CL)
 GS2 Lab ID: GS-5042

GS2 Project No. : 11-3508G
 Performed By: S. Witherspoon
 Date of Test: 18-Feb-11
 Sample Location: B-8 (0.0' to 3.0' Deep)

GRADATION SPECIFICATIONS ASTM D422

U.S. STANDARD SIEVE

#4
 #10
 #20
 #30
 #40
 #60
 #100
 #200
 PAN

GRADATION TEST DATA

Sieve Size (inches)	Individual		Cumulative		Permissible Limits % by Weight, Passing
	Wt. Retained (grams)	% Retained	% Retained	% Passing	
#4	1.5	0.8	0.8	99.3	-----
#10	2.3	1.2	1.9	98.1	-----
#20	5.8	2.9	4.8	95.2	-----
#30	5.4	2.7	7.5	92.5	-----
#40	7.4	3.7	11.2	88.8	-----
#60	14.9	7.5	18.7	81.4	-----
#100	15.1	7.6	26.2	73.8	-----
#200	14.3	7.2	33.4	66.7	-----
PAN	133.3	66.7	100.0	0.0	-----

Total: 200.0 % Loss 0.00 < 0.3% O.K.

Total weight of sample in grams: **200.0**

RESPECTFULLY SUBMITTED

Jeffrey G. Kremlick
 Laboratory Manager

February 18, 2011

Cumming/SMG
1213 Lady Street
Columbia, South Carolina 29210

Attention: Mr. Barry Evans (bevans@southernmgt.com)

Reference: Results of Asphalt Coring and Subgrade Investigation
Newberry High School – Existing Pavements
3113 Main Street
Newberry, South Carolina
GS2 Project Number 11-3509G

Dear Mr. Evans:

As requested, our personnel were present on the above referenced site on February 12, 2011, in order to core the existing asphalt pavement within the driveway and parking lot areas and perform a subgrade investigation of the existing Newberry High School pavements, in order to assess the in-place conditions of the in-place asphalt and subbase materials as well as determine soil types and densities/consistencies of the in-situ subgrade soils.

Project Information

We understand that the asphaltic materials at the above-referenced site were placed over 30 years ago. Furthermore, we understand that the failure of the in-place asphalt appears to consist primarily of, but was not limited to, Alligator Cracking, Raveling and localized Consolidation. Additionally, it is understood that several areas have previously been patched, presumably due to severely failed areas being previously repaired.

Summary of Field and Laboratory Activities

During our initial visual observation and our subsequent site visit in order to perform the investigation services of the existing asphalt pavement within the East student parking area, bus loop, and cafeteria delivery drive, areas of distress were noted within the surface of the asphalt. Furthermore, we observed that the failure of the in-place asphalt appears to consist of, but was not limited to, alligator cracking, raveling and localized consolidation due to age related conditions or possible subgrade failure. Furthermore, these failing areas also appear to be a result of possible unstable subgrade materials, inadequate thickness of subbase materials or inadequate thickness of asphalt materials. Several areas of patching were noted, presumably due to severely failed areas being previously repaired.

The asphalt pavement of the aforementioned driveway and parking lot areas were cored at twelve (12) locations with subsequent mechanically-augered borings performed. Prior to backfilling the cored holes with cold-patch asphalt, the thickness of the underlying graded aggregate base course



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(864) 312-9995

Florence
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(843) 292-9661

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(803) 772-2034

(GABC), where present, was measured. The results of our coring and visual examinations of the asphalt and subbase materials are recorded in the table below.

Table 1: Asphalt and Graded Aggregate Base Course Management Testing Results

Boring	Location	Base Course Thickness (in.)	Asphalt Pavement Thickness (in.)
B-1	See Coring and Boring Location Plan	Not Encountered	3.0
B-2	See Coring and Boring Location Plan	Not Encountered	3.0
B-3	See Coring and Boring Location Plan	Not Encountered	3.0
B-4	See Coring and Boring Location Plan	Not Encountered	3.0
B-5	See Coring and Boring Location Plan	Not Encountered	3.0
B-6	See Coring and Boring Location Plan	Not Encountered	3.0
B-7	See Coring and Boring Location Plan	Not Encountered	3.0
B-8	See Coring and Boring Location Plan	Not Encountered	3.0
B-9	See Coring and Boring Location Plan	3.0	6.0
B-10	See Coring and Boring Location Plan	Not Encountered	3.0
B-11	See Coring and Boring Location Plan	3.0	3.0
B-12	See Coring and Boring Location Plan	5.0	3.0

As stated above, twelve (12) mechanically-augered soil borings with Standard Penetration Tests (SPT) taken at regular intervals were advanced to termination depths of 4½ feet below the existing pavement surface to determine the soil types and densities/consistencies below the existing asphalt. These test borings generally encountered intermittent layers of sandy silts (ML and MH) and silts (ML) to the termination depths. The boring log summaries are attached. The approximate coring and boring locations are shown on the attached Coring and Boring Location Plan, Figure 1, attached.

The aforementioned subgrade soils were sampled and transported to our laboratory for testing. The testing performed included three (3) Gradation Tests (ASTM D422) and two (2) Atterberg Limits (ASTM D4318) for material classification

Conclusions and Recommendations

Based on the results of the coring, measuring, soil borings and laboratory testing, it appears that the failure of the East parking area and bus/delivery drives at the site appear to be the result of inadequate graded aggregate base course and asphalt thickness, with some isolated areas of unstable and unsuitable subgrade soils, therefore, we recommend the following options for remediation of the failed pavements at the site.



Suitability of Soils – As previously stated, the near-surface soils at the site have been identified to have a **ML** and **MH** USCS soil classification. Most text includes soils with Unified Soil Classifications of SW, SP, SM, SC, SM-SC, ML and CL as suitable for support of structure or for use as structural fill, while soils with classifications of MH, CH, OL and OH are considered unsuitable. Therefore, it is important to note the site contains soils that are considered in the industry to be marginally suitable (ML) and unsuitable (MH). The following sections provide more insight into each soil classification, with emphasis placed on their workability and preferred structural loading.

Soils that have ML designations are less preferable fill soils that exhibit fair to good structural support characteristics under pavements, less ease in workability, with little flexibility in achieving compaction at various moisture contents. Consequently, these soils are less preferred for use as roadway subgrade, with a fair to poor rating, due to their instability when exposed to excessive moisture. These soils may be used as roadway subgrade, if adequate moisture control is maintained during placement and if stormwater is not allowed to pond or penetrate these soils, ultimately preventing subgrade degradation due to over-saturation.

Fine-grained soils (ML) and more crucially plastic soils (MH), are typically sensitive to variations in moisture content with a relatively narrow range of workable moisture contents. Therefore, close control of moisture content will probably be necessary during grading and fill placement operations, where these soils are involved. In addition, these soils may become difficult to work during periods of wet weather. Grading operations under wet conditions may result in the deterioration of otherwise suitable soil conditions, or of previously placed and properly compacted fill.

Soils that have MH designations (or plastic soils) are even less preferable fill soils that exhibit poor structural support characteristics under pavements, less ease in workability, with little to no flexibility in achieving compaction at various moisture contents. Generically, plastic soils tend to have very elastic and cohesive properties, i.e. they are "sticky" that stem from the atomic composition of some clays and silts (i.e. covalent bonds). Most plastic soils can be molded and rolled into a ball and thin strands, like putty. Dry or unsaturated clays and silts may appear to be deceptively non-plastic in nature until they are subjected to moisture, and when plastic soils become wet, their true nature is evident. Soils that are plastic in nature (clays and silts) are typically sensitive to variations in moisture content with mild to severe volume changes between wet and dry conditions. Plastic soils exhibit longer periods of time to undergo total consolidation than do non-plastic soils, with longer duration of time consolidation for soils that exhibit larger Plasticity Indexes anticipated. These inherent soil properties make these soils less desirable for support of subgrade, with degradation of their support capabilities due to their capacity for large volume changes and their long-term consolidation. The presence of high plasticity soils and the variance between mild and highly plastic bearing soils within the same structure typically lends a high probability of differential settlement. ***When these soils are encountered during grading operations at the site our geotechnical engineer should be contacted immediately for further recommendations, as these soils will likely be required to be removed from structurally loaded areas. It is pertinent that the contractor provide a bid item for the unclassified removal of these materials prior to the commencement of grading at the site.***



Option One – Stabilization by means of Reclaimed Cement Stabilized Base – The existing GABC, where present, and asphaltic paving materials should be milled and blended to a depth of approximately 4 (East student parking lot) to 10 (bus loop and cafeteria delivery drive) inches for light and heavy-duty areas, respectively. Cement should then be mixed with the blended materials at a rate of at least 8 percent by weight. If desired, a soil cement mix design can be performed on these materials to better determine a more accurate blend percentage of cement.

Option Two – Stabilization by means of Over-excavation and Replacement – The existing asphalt surface and GABC materials should be removed from the drives and parking lot and wasted off site. Any organic laden soils or unsuitable soils should be removed from structurally loaded or fill areas and wasted off site prior to placement of controlled fill.

Once the existing asphalt, GABC and non-performing subgrade soils have been removed, the areas should be proofrolled. Proofrolling should be performed with a twenty-ton rubber-tired tandem axle vehicle or similarly loaded vehicle or construction equipment, and should be observed by a qualified geotechnical engineer. A final proofroll is recommended to be performed within 24 hours of pavement construction. If inclement weather occurs or if the proofroll fails to yield favorable results within this 24-hour window, then reworking of the subgrade soils may be required to achieve a suitable subgrade.

Any localized areas of yielding, soft/loose and/or saturated soils identified during proofrolling will need to be densified in-place; undercut and the removed soil replaced with properly compacted structural fill, or modified by the use of mechanical or chemical means.

Upon achieving a stable subgrade, the resulting excavation bottom of any over-excavated areas should then be tamped and backfilled with properly compacted structural fill to near original elevations. Prior to the placement of fill soils, representative soil samples should be obtained and tested to determine their classification and compaction characteristics. Optimum fill material should be free of debris and any fibrous organic material or organic soils and should have a Plasticity Index (PI) less than 15. We recommend that fibrous organic material found in the fill materials be no more than 5 percent by weight. Compaction characteristics of the fill soils should be determined using the laboratory Standard Proctor density test, ASTM D698, "Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using 5.5-lb. Rammer and 12-in. Drop".

Fill material should be placed in no more than 8-inch thick lifts, loose measurement, and within +1 to -3 percent of the optimum moisture content determined by ASTM D698. Fills placed beneath the pavements should be compacted to a minimum of **98** percent of the laboratory Standard Proctor maximum dry density (ASTM D698).

Asphaltic Pavement – We have assumed both light and heavy-duty paved areas will be required for this project. We define light-duty areas as areas having a heavy concentration of automobiles and no loaded trucks, such as a car parking lot pavement. We define heavy-duty paved areas as areas receiving a heavy concentration of automobiles and loaded trucks such as an access drive or a loading dock area. No traffic loading was provided at the time of this report, therefore we have



assumed that the estimated total traffic design loading for the East parking area pavements as roughly 2 cars per day per parking space (approximately 210 spaces), 400 cars per day of drive-through/drop-off traffic and 1 emergency vehicle per year, while the estimated total traffic loading for the bus loop and cafeteria delivery drive was assumed as roughly 2 cars per day per parking space (approximately 50 spaces), 5 delivery trucks per week, 15 school buses per day, 2 tractor trailers per week, 2 garbage trucks per week, and 1 emergency vehicle per year. We calculate a total traffic loading of an equivalent axle loading (EAL) for light and heavy-duty pavements of about 3,815 and 155,060 passes, respectively, of an 18-kip equivalent axle load over a life span of 20 years. These traffic volumes do not account for construction traffic. Therefore, proper roadway construction staging techniques should be used, or the pavement thicknesses recalculated with respect to this traffic.

Our thickness analyses for flexible pavements were performed in general accordance with the *AASHTO Guide for Design of Pavement Structures, 1993*. Based on the above assumptions, we recommend that the pavement sections over the stabilized subgrade adhere to the thicknesses presented in Tables 2 and 3 below.

Table 2: Pavement Thickness Recommendations – East Parking Area

Pavement Type	Layers	Material	Thickness (inches)		
Flexible – Light Duty	a.	Asphaltic Concrete Surface Course	1½	or	1½
	b.	Asphaltic Concrete Binder Course	---		---
	c.	Graded Aggregate Base Course	---		6
	d.	Reclaimed Cement Stabilized Base	4		---
	e.	Properly Prepared Subgrade	18		



Table 3: Pavement Thickness Recommendations – Bus Loop and Cafeteria Delivery Drive

Pavement Type	Layers	Material	Thickness (inches)						
			1½	or	1½	or	1½	or	2
Flexible – Heavy Duty	a.	Asphaltic Concrete Surface Course	1½	or	1½	or	1½	or	2
	b.	Asphaltic Concrete Binder Course	---		1½		1½		2
	c.	Graded Aggregate Base Course	---		---		12		10
	d.	Reclaimed Cement Stabilized Base	10		7		---		---
	e.	Properly Prepared Subgrade	18						

Cement Stabilized Section: If Option One provided above is utilized, the reclaimed materials should conform to the SCDOT Standard Specification, Section 306, for Cement Modified Recycled Base. The base course should be compacted to 100 percent of the laboratory Modified Proctor (ASTM D-1557) maximum dry density.

Base Material Section: If Option Two provided above is utilized, the base course material should be a Graded Aggregate Base Course (GABC) conforming to SCDOT Standard Specification, Section 305, for Graded Aggregate Base. The base course should be compacted to 100 percent of the laboratory Modified Proctor (ASTM D-1557) maximum dry density.

Flexible Pavement Section: The asphalt surface course should conform to the SCDOT Standard Specification, Section 403, for Type 1 Hot Laid Asphalt Concrete Surface Course. The binder material, if utilized, should conform to SCDOT Standard Specification Section 402.

General Pavement Recommendations: Related civil design factors such as subgrade drainage, shoulder support, cross-sectional configurations, surface elevations, and environmental factors that will significantly affect the service life must be included in the preparation of the construction drawings and specifications. Normal periodic maintenance will be required.

Additionally, we recommend that the reclamation and grading activities be observed and tested by a geotechnical engineer or qualified engineering technician as placement of the fill progresses. Compaction testing should be performed at a minimum frequency of one test per lift per 200 feet of lane. Furthermore, construction activities and exposure to the environment can cause deterioration of the prepared subgrades; therefore, we recommend that the subgrades be inspected prior to the placement of the asphalt.

Basis of Conclusions and Recommendations

The recommendations presented in this report are based on our understanding of the project information, our interpretation of the data obtained during our investigation and our experience with



similar soil and project conditions. The Standard Penetration Test (SPT) values obtained at the boring locations have been used to estimate existing soil conditions at this specific site. Regardless of the thoroughness of this investigation, it is possible that the soil conditions intermediate of the borings vary from the soil conditions encountered at the boring locations. Therefore, it will be necessary for a geotechnical engineer or qualified engineering technician to be present during grading operations in order to evaluate and document that the anticipated design conditions actually exist.

We appreciate the opportunity to provide our services for your project needs. If you have any questions, or if additional information becomes available, please contact us at 803-750-1510.

Sincerely,
GS2 ENGINEERING & ENVIRONMENTAL CONSULTANTS, INC.



John P. Lewis, E.I.T.
Project Manager



Jayson E. Floyd, P.E.
Operations Manager



Robert C. Bruorton, P.E.
Chief Technical Officer, AVP

Attachments: Boring Location Plan
 Soil Test Boring Logs
 Laboratory Testing Results





LEGEND

SPT Borings 

Source: Newberry County GIS, 2008



Coring and Boring Location Plan
 Newberry High School - Existing Pavements
 GS2 Project Number 11-3509C
 3113 Main Street
 Newberry, South Carolina

Cumming/SMG
 1213 Lady Street
 Columbia, South Carolina

Prepared By/Date: JL-1/11
 Checked By/Date: CB-1/11

Scale
 1 inch = 110 feet

Figure 1

SOIL TEST BORING LOG



Project Name: Newberry High School - Existing Pavements

Project Number: 11-3509-G

Date of Test: February 12, 2011

Boring Number: B-1

Depth (feet)	Soil Description	Sample Interval	Blow Counts*	Remarks
1	SURFACE MATERIAL: 3 Inches of Asphalt Pavement.	0 to 1-1/2'	6	
	FILL: Firm Brownish-red elastic SILT with sand and mica. (MH)			
2	PIEDMONT: Hard to Very Hard Brownish-red elastic SILT with sand and mica. (MH)	1-1/2' to 3'	32	
3				
4				
5				
5	Boring Terminated at 4-1/2 feet.	3' to 4-1/2'	61	
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25				

Depth of Boring (ft): <u>4-1/2 Feet</u>	Location of Boring: <u>See Coring and Boring Location Plan</u>
Depth of Groundwater T.O.B. (feet): <u>Not Encountered</u>	Method of Drilling: <u>Hollow Stem Auger</u>
Depth of Groundwater 24 hrs. (feet): <u>Not Available</u>	Performed By: <u>GS2 Engineering</u>

* The Blow Counts given above are recorded for a 140 pound hammer (falling 30 inches/blow) to drive a 2 inch O.D., 1.375 inch I.D. split-barrel sampler 12 inches, after an initial 6 inch seating increment.

SOIL TEST BORING LOG



Project Name: Newberry High School - Existing Pavements

Project Number: 11-3509-G

Date of Test: February 12, 2011

Boring Number: B-2

Depth (feet)	Soil Description	Sample Interval	Blow Counts*	Remarks
1	SURFACE MATERIAL: 3 Inches of Asphalt Pavement.	0 to 1-1/2'	4	
	FILL: Soft Red SILT with mica and GAB. (ML)			
2	PIEDMONT: Stiff to Very Stiff Brownish-red elastic SILT with sand and mica. (MH)	1-1/2' to 3'	10	
3				
4				
5	Boring Terminated at 4-1/2 feet.	3' to 4-1/2'	24	
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25				

Depth of Boring (ft): 4-1/2 Feet

Location of Boring: See Coring and Boring Location Plan

Depth of Groundwater T.O.B. (feet): Not Encountered

Method of Drilling: Hollow Stem Auger

Depth of Groundwater 24 hrs. (feet): Not Available

Performed By: GS2 Engineering

* The Blow Counts given above are recorded for a 140 pound hammer (falling 30 inches/blow) to drive a 2 inch O.D., 1.375 inch I.D. split-barrel sampler 12 inches, after an initial 6 inch seating increment.

SOIL TEST BORING LOG



Project Name: Newberry High School - Existing Pavements

Project Number: 11-3509-G

Date of Test: February 12, 2011

Boring Number: B-3

Depth (feet)	Soil Description	Sample Interval	Blow Counts*	Remarks
1	SURFACE MATERIAL: 3 Inches of Asphalt Pavement.	0 to 1-1/2'	8	
	FILL: Firm Red SILT with mica and GAB. (ML)			
2	PIEDMONT: Stiff Red Fine Sandy SILT with mica. (ML)	1-1/2' to 3'	12	
3				
4	Stiff Red SILT with mica. (ML)			
5	Boring Terminated at 4-1/2 feet.	3' to 4-1/2'	8	
6				
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8				
9				
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24				
25				

Depth of Boring (ft): 4-1/2 Feet

Location of Boring: See Coring and Boring Location Plan

Depth of Groundwater T.O.B. (feet): Not Encountered

Method of Drilling: Hollow Stem Auger

Depth of Groundwater 24 hrs. (feet): Not Available

Performed By: GS2 Engineering

* The Blow Counts given above are recorded for a 140 pound hammer (falling 30 inches/blow) to drive a 2 inch O.D., 1.375 inch I.D. split-barrel sampler 12 inches, after an initial 6 inch seating increment.

SOIL TEST BORING LOG



Project Name: Newberry High School - Existing Pavements

Project Number: 11-3509-G

Date of Test: February 12, 2011

Boring Number: B-4

Depth (feet)	Soil Description	Sample Interval	Blow Counts*	Remarks
1	SURFACE MATERIAL: 3 Inches of Asphalt Pavement.	0 to 1-1/2'	8	
	POSSIBLE FILL: Firm Red Fine Sandy SILT with mica. (ML)			
2	PIEDMONT: Stiff Red Fine Sandy SILT with mica. (ML)	1-1/2' to 3'	13	
3				
4	Stiff Light Brown and Red Fine Sandy SILT with mica. (ML)			
5	Boring Terminated at 4-1/2 feet.	3' to 4-1/2'	15	
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25				

Depth of Boring (ft): 4-1/2 Feet

Location of Boring: See Coring and Boring Location Plan

Depth of Groundwater T.O.B. (feet): Not Encountered

Method of Drilling: Hollow Stem Auger

Depth of Groundwater 24 hrs. (feet): Not Available

Performed By: GS2 Engineering

* The Blow Counts given above are recorded for a 140 pound hammer (falling 30 inches/blow) to drive a 2 inch O.D., 1.375 inch I.D. split-barrel sampler 12 inches, after an initial 6 inch seating increment.

SOIL TEST BORING LOG



Project Name: Newberry High School - Existing Pavements

Project Number: 11-3509-G

Date of Test: February 12, 2011

Boring Number: B-5

Depth (feet)	Soil Description	Sample Interval	Blow Counts*	Remarks
1	SURFACE MATERIAL: 3 Inches of Asphalt Pavement.	0 to 1-1/2'	14	
2	PIEDMONT: Stiff Red Fine Sandy SILT with mica. (ML)			
3		1-1/2' to 3'	14	
4	Stiff Brownish-orange Sandy SILT with mica. (ML)			
5	Boring Terminated at 4-1/2 feet.	3' to 4-1/2'	15	
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25				

Depth of Boring (ft): <u>4-1/2 Feet</u>	Location of Boring: <u>See Coring and Boring Location Plan</u>
Depth of Groundwater T.O.B. (feet): <u>Not Encountered</u>	Method of Drilling: <u>Hollow Stem Auger</u>
Depth of Groundwater 24 hrs. (feet): <u>Not Available</u>	Performed By: <u>GS2 Engineering</u>

* The Blow Counts given above are recorded for a 140 pound hammer (falling 30 inches/blow) to drive a 2 inch O.D., 1.375 inch I.D. split-barrel sampler 12 inches, after an initial 6 inch seating increment.

SOIL TEST BORING LOG



Project Name: Newberry High School - Existing Pavements

Project Number: 11-3509-G

Date of Test: February 12, 2011

Boring Number: B-6

Depth (feet)	Soil Description	Sample Interval	Blow Counts*	Remarks
1	SURFACE MATERIAL: 3 Inches of Asphalt Pavement.	0 to 1-1/2'	5	
	FILL: Firm Red and Light Brown SILT with mica. (ML)			
2	PIEDMONT: Stiff to Very Stiff Brownish-orange Sandy SILT. (ML)	1-1/2' to 3'	11	
3				
4				
5				
5	Boring Terminated at 4-1/2 feet.	3' to 4-1/2'	18	
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Depth of Boring (ft): 4-1/2 Feet

Location of Boring: See Coring and Boring Location Plan

Depth of Groundwater T.O.B. (feet): Not Encountered

Method of Drilling: Hollow Stem Auger

Depth of Groundwater 24 hrs. (feet): Not Available

Performed By: GS2 Engineering

* The Blow Counts given above are recorded for a 140 pound hammer (falling 30 inches/blow) to drive a 2 inch O.D., 1.375 inch I.D. split-barrel sampler 12 inches, after an initial 6 inch seating increment.

SOIL TEST BORING LOG



Project Name: Newberry High School - Existing Pavements

Project Number: 11-3509-G

Date of Test: February 12, 2011

Boring Number: B-7

Depth (feet)	Soil Description	Sample Interval	Blow Counts*	Remarks
1	SURFACE MATERIAL: 3 Inches of Asphalt Pavement.	0 to 1-1/2'	6	
	FILL: Firm Red Fine Sandy SILT with mica. (ML)			
2	PIEDMONT: Firm to Stiff Light Brown and Red Fine Sandy SILT with mica. (ML)	1-1/2' to 3'	7	
3				
4				
5				
5	Boring Terminated at 4-1/2 feet.	3' to 4-1/2'	9	
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Depth of Boring (ft): 4-1/2 Feet

Location of Boring: See Coring and Boring Location Plan

Depth of Groundwater T.O.B. (feet): Not Encountered

Method of Drilling: Hollow Stem Auger

Depth of Groundwater 24 hrs. (feet): Not Available

Performed By: GS2 Engineering

* The Blow Counts given above are recorded for a 140 pound hammer (falling 30 inches/blow) to drive a 2 inch O.D., 1.375 inch I.D. split-barrel sampler 12 inches, after an initial 6 inch seating increment.

SOIL TEST BORING LOG



Project Name: Newberry High School - Existing Pavements

Project Number: 11-3509-G

Date of Test: February 12, 2011

Boring Number: B-8

Depth (feet)	Soil Description	Sample Interval	Blow Counts*	Remarks
1	SURFACE MATERIAL: 3 Inches of Asphalt Pavement.	0 to 1-1/2'	10	
	POSSIBLE FILL: Stiff Red Fine Sandy SILT with mica. (ML)			
2	PIEDMONT: Stiff Red and Orange Fine Sandy SILT with mica. (ML)	1-1/2' to 3'	25	
3				
4				
5	Boring Terminated at 4-1/2 feet.	3' to 4-1/2'	27	
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Depth of Boring (ft): <u>4-1/2 Feet</u>	Location of Boring: <u>See Coring and Boring Location Plan</u>
Depth of Groundwater T.O.B. (feet): <u>Not Encountered</u>	Method of Drilling: <u>Hollow Stem Auger</u>
Depth of Groundwater 24 hrs. (feet): <u>Not Available</u>	Performed By: <u>GS2 Engineering</u>

* The Blow Counts given above are recorded for a 140 pound hammer (falling 30 inches/blow) to drive a 2 inch O.D., 1.375 inch I.D. split-barrel sampler 12 inches, after an initial 6 inch seating increment.

SOIL TEST BORING LOG



Project Name: Newberry High School - Existing Pavements

Project Number: 11-3509-G

Date of Test: February 12, 2011

Boring Number: B-9

Depth (feet)	Soil Description	Sample Interval	Blow Counts*	Remarks
1	SURFACE MATERIAL: 6 Inches of Asphalt Pavement and 3 Inches of GAB.	0 to 1-1/2'	7	
2	POSSIBLE FILL: Firm Brownish-red Sandy elastic SILT. (MH)			
3		1-1/2' to 3'	6	
4	PIEDMONT: Stiff Brownish-red Sandy elastic SILT. (MH)	3' to 4-1/2'	15	
5	Boring Terminated at 4-1/2 feet.			
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Depth of Boring (ft): <u>4-1/2 Feet</u>	Location of Boring: <u>See Coring and Boring Location Plan</u>
Depth of Groundwater T.O.B. (feet): <u>Not Encountered</u>	Method of Drilling: <u>Hollow Stem Auger</u>
Depth of Groundwater 24 hrs. (feet): <u>Not Available</u>	Performed By: <u>GS2 Engineering</u>

* The Blow Counts given above are recorded for a 140 pound hammer (falling 30 inches/blow) to drive a 2 inch O.D., 1.375 inch I.D. split-barrel sampler 12 inches, after an initial 6 inch seating increment.

SOIL TEST BORING LOG



Project Name: Newberry High School - Existing Pavements

Project Number: 11-3509-G

Date of Test: February 12, 2011

Boring Number: B-10

Depth (feet)	Soil Description	Sample Interval	Blow Counts*	Remarks
1	SURFACE MATERIAL: 3 Inches of Asphalt Pavement.	0 to 1-1/2'	9	
2	PIEDMONT: Stiff Light Brown and Red Fine Sandy SILT with mica. (ML)			
3				
4				
5		3' to 4-1/2'	10	
5	Boring Terminated at 4-1/2 feet.			
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Depth of Boring (ft): <u>4-1/2 Feet</u>	Location of Boring: <u>See Coring and Boring Location Plan</u>
Depth of Groundwater T.O.B. (feet): <u>Not Encountered</u>	Method of Drilling: <u>Hollow Stem Auger</u>
Depth of Groundwater 24 hrs. (feet): <u>Not Available</u>	Performed By: <u>GS2 Engineering</u>

* The Blow Counts given above are recorded for a 140 pound hammer (falling 30 inches/blow) to drive a 2 inch O.D., 1.375 inch I.D. split-barrel sampler 12 inches, after an initial 6 inch seating increment.

SOIL TEST BORING LOG



Project Name: Newberry High School - Existing Pavements

Project Number: 11-3509-G

Date of Test: February 12, 2011

Boring Number: B-11

Depth (feet)	Soil Description	Sample Interval	Blow Counts*	Remarks
1	SURFACE MATERIAL: 3 Inches of Asphalt Pavement and 3 Inches of GAB.			
2	POSSIBLE FILL: Firm Brownish-red Sandy elastic SILT. (MH)	0 to 1-1/2'	10	
3		1-1/2' to 3'	10	
4	PIEDMONT: Stiff Brownish-red Sandy elastic SILT. (MH)			
5	Boring Terminated at 4-1/2 feet.	3' to 4-1/2'	19	
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25				

Depth of Boring (ft): 4-1/2 Feet

Location of Boring: See Coring and Boring Location Plan

Depth of Groundwater T.O.B. (feet): Not Encountered

Method of Drilling: Hollow Stem Auger

Depth of Groundwater 24 hrs. (feet): Not Available

Performed By: GS2 Engineering

* The Blow Counts given above are recorded for a 140 pound hammer (falling 30 inches/blow) to drive a 2 inch O.D., 1.375 inch I.D. split-barrel sampler 12 inches, after an initial 6 inch seating increment.

SOIL TEST BORING LOG



Project Name: Newberry High School - Existing Pavements

Project Number: 11-3509-G

Date of Test: February 12, 2011

Boring Number: B-12

Depth (feet)	Soil Description	Sample Interval	Blow Counts*	Remarks
1	SURFACE MATERIAL: 3 Inches of Asphalt Pavement and 5 Inches of GAB. POSSIBLE FILL: Stiff Light Brown and Red Fine Sandy SILT with mica. (ML)	0 to 1-1/2'	14	
2	PIEDMONT: Very Stiff Brown and Red Fine Sandy SILT with mica. (ML)			
3		1-1/2' to 3'	21	
4	Hard Red Fine Sandy SILT with mica. (ML)	3' to 4-1/2'	48	
5	Boring Terminated at 4-1/2 feet.			
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Depth of Boring (ft): <u>4-1/2 Feet</u>	Location of Boring: <u>See Coring and Boring Location Plan</u>
Depth of Groundwater T.O.B. (feet): <u>Not Encountered</u>	Method of Drilling: <u>Hollow Stem Auger</u>
Depth of Groundwater 24 hrs. (feet): <u>Not Available</u>	Performed By: <u>GS2 Engineering</u>

* The Blow Counts given above are recorded for a 140 pound hammer (falling 30 inches/blow) to drive a 2 inch O.D., 1.375 inch I.D. split-barrel sampler 12 inches, after an initial 6 inch seating increment.



Amount of Material Finer than No. 200 (75-m) Sieve

Project Name : Newberry High School - Existing Pavement
 Job Number: 11-3509G

Client: Cumming/SMG
 Date: February 15, 2011

1	2	3	4	5	6	7	8	9	10	11
Laboratory Number	Boring Location	Soil Classification	Sample Depth (ft.)	Pan Number	Weight of Pan (grams)	Initial Weight Soil (grams)	Final Weight Pan + Soil (grams)	Weight Retained (grams)	Weight Passing (grams)	Percent Passing (%)
GS-5034	B-9	MH	1.5 to 4.5	X-3	337.9	200.0	422.6	84.7	115.3	57.7
GS-5035	B-6	ML	1.5 to 3.0	B-5	274.3	200.0	356.1	81.8	118.2	59.1
GS-5036	B-1	MH	1.5 to 4.5	B-1	271.6	200.0	322.2	50.6	149.4	74.7

Test Method: ASTM D1140

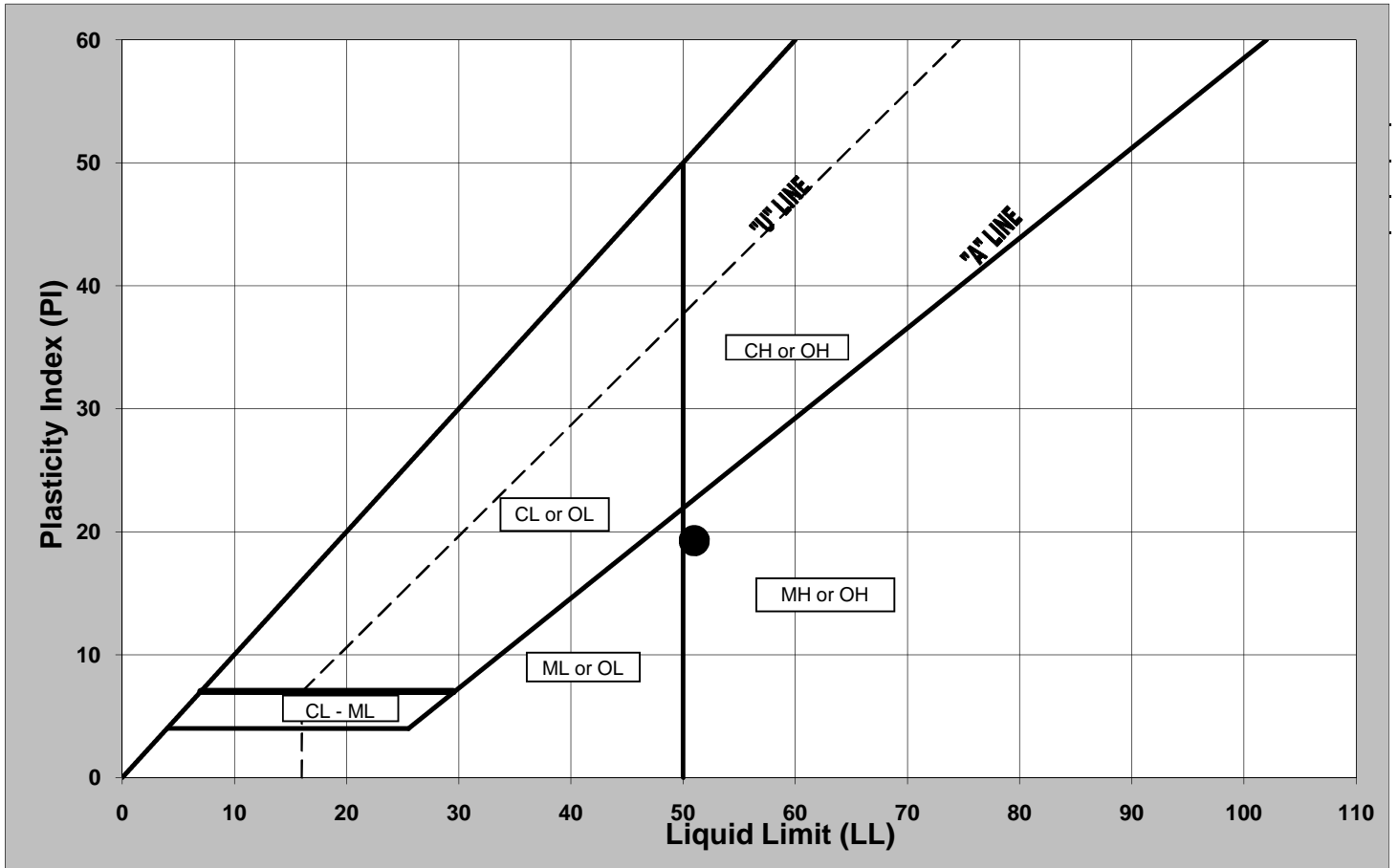
Performed By: Sandra Witherspoon

Checked By: Jeffrey G. Kremlick

Liquid Limit, Plastic Limit and Plasticity Index of Soils
ASTM D4318

Project Name: Newberry High School - Existing Pavements
 Project Number: 11-3509G
 Date of Test: 16-Feb-2011
 Laboratory Id: GS-5034

Soil Description: Brownish-red, Sandy elastic SILT. (MH)
 Sample No.: B-9
 Location of Sample: 1.5' to 4.5' Deep
 Performed By: S. Witherspoon



Estimated percentage of material retained on # 40 Sieve: 16

* Properties of Soil	
Liquid Limit:	<u>51</u>
Plastic Limit:	<u>32</u>
Plastic Index:	<u>19</u>
Fines Classification:	<u>MH</u>

Respectfully Submitted,



Jeffrey G. Kremlick
Laboratory Manager

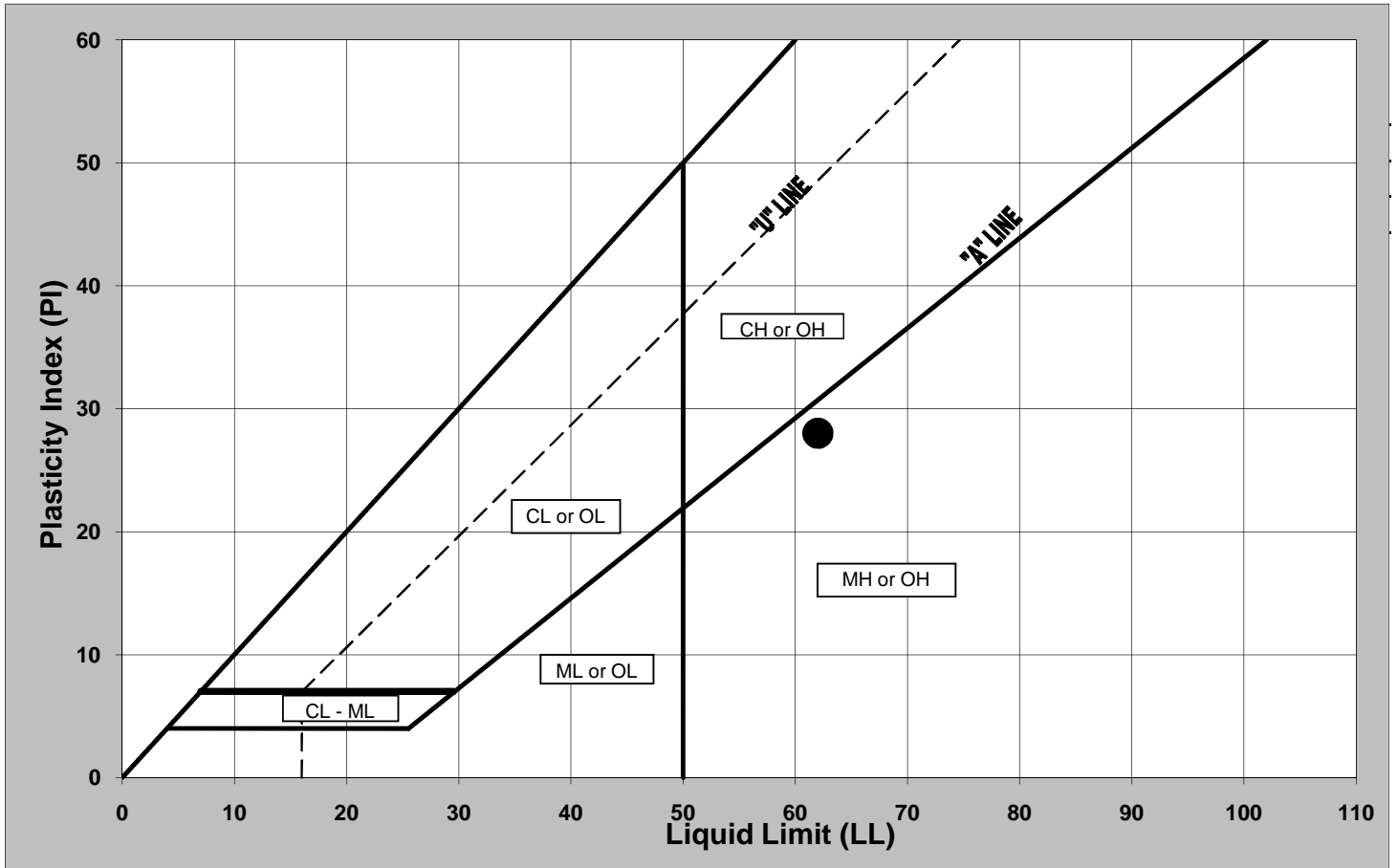
* Unless otherwise noted, soils were air-dried and the index was determined using the multipoint test method.



Liquid Limit, Plastic Limit and Plasticity Index of Soils
ASTM D4318

Project Name: Newberry High School - Existing Pavements
 Project Number: 11-3509G
 Date of Test: 16-Feb-2011
 Laboratory Id: GS-5036

Soil Description: Brownish-red, elastic SILT with sand. (MH)
 Sample No.: B-1
 Location of Sample: 1.5' to 4.5' Deep
 Performed By: S. Witherspoon



Estimated percentage of material retained on # 40 Sieve: 12

* Properties of Soil	
Liquid Limit:	<u>62</u>
Plastic Limit:	<u>34</u>
Plastic Index:	<u>28</u>
Fines Classification:	<u>MH</u>

Respectfully Submitted,

Jeffrey G. Kremlick
 Laboratory Manager

* Unless otherwise noted, soils were air-dried and the index was determined using the multipoint test method.



Client: Cumming/SMG
 Job Name: Newberry High School
 Material: Brownish-red, Sandy elastic SILT. (MH)
 GS2 Lab ID: GS-5034

GS2 Project No. : 11-3509G
 Performed By: S. Witherspoon
 Date of Test: 18-Feb-11
 Sample Location: B-9 (1.5' to 4.5' Deep)

GRADATION SPECIFICATIONS ASTM D422

U.S. STANDARD SIEVE

#4
 #10
 #20
 #30
 #40
 #60
 #100
 #200
 PAN

GRADATION TEST DATA

Sieve Size (inches)	Individual		Cumulative		Permissible Limits % by Weight, Passing
	Wt. Retained (grams)	% Retained	% Retained	% Passing	
#4	0.0	0.0	0.0	100.0	-----
#10	0.6	0.3	0.3	99.7	-----
#20	6.4	3.2	3.5	96.5	-----
#30	11.7	5.9	9.4	90.7	-----
#40	13.3	6.7	16.0	84.0	-----
#60	19.0	9.5	25.5	74.5	-----
#100	16.8	8.4	33.9	66.1	-----
#200	16.9	8.5	42.4	57.7	-----
PAN	115.3	57.7	100.0	0.0	-----

Total: 200.0 % Loss 0.00 < 0.3% O.K.

Total weight of sample in grams: 200.0

RESPECTFULLY SUBMITTED

Jeffrey G. Kremlick
 Laboratory Manager

