

**PROJECT MANUAL FOR  
TRACK AND FIELD REPLACEMENT AT  
NORTH BUNCOMBE HIGH SCHOOL**

**RFP# 2-20**



**175 BINGHAM ROAD, ASHEVILLE, NORTH CAROLINA 28806**

**BID DATE: THURSDAY, FEBRUARY 13, 2020 at 2:00 pm EST**

**TABLE OF CONTENTS FOR  
TRACK AND FIELD REPLACEMENT AT  
NORTH BUNCOMBE HIGH SCHOOL  
RFP# 2-20**

**Introduction**

Title Page  
Table of Contents

**Procurement Requirements & Forms**

Notice of Bid Opportunity  
Request for Proposal  
General Conditions  
Supplementary General Conditions  
Subcontractors Form  
MBE Guidelines  
MBE Forms  
Bid Bond  
Performance Bond  
Payment Bond

**Specifications - CHA ~design/  
construction solutions**

94 pages

**Notice of Bid Opportunity**  
**Track and Field Replacement at North Buncombe High School**  
**RFP# 2-20**



Sealed proposals from bidders will be received by the Buncombe County Board of Education, 175 Bingham Road, Asheville, North Carolina 28806 for the furnishing of labor, materials and equipment entering into the construction of **TRACK AND FIELD REPLACEMENT AT NORTH BUNCOMBE HIGH SCHOOL.**

In accordance with NC General Statute 143-128, this project will be bid using the single prime system. All proposals shall be lump sum. All bidders are hereby notified that they must have proper license under the laws of the State of North Carolina, and that the requirements of Chapter 87 of the General Statutes of North Carolina will be observed. Bids shall include all permits, taxes and, in particular, North Carolina and sales and use taxes.

The Project generally consists of completely removing the existing asphalt track including stone subbase and replacing with new stone base, new asphalt and new track surfacing on the oval and both D-zones including a new inside perimeter channel drain, new outer concrete apron, perimeter chain link fence and new concrete pedestrian walks. Construction may occur during the Spring and Summer of 2020.

The anticipated project start date is Monday, April 6, 2020. Substantial completion will be Thursday, August 20, 2020 prior to North Buncombe High School's first home football game on Friday, August 21, 2020. Final completion is scheduled for Friday, September 25, 2020. The Contractor will be responsible for coordinating with the school's staff and will be required to clean up and provide safe access to the exiting synthetic turf fields when events are scheduled during these times.

**A highly recommended Pre-Bid meeting will be held at the front office of North Buncombe High School, 890 Clarks Chapel Road, Weaverville, NC 28787 on Thursday, January 30, 2020 at 10:00 am EST. The meeting will be followed by a site visit to the project location.** Project documents will be available prior to the meeting on the Buncombe County Schools Purchasing Bids & Proposals page via the following link: <https://www.buncombeschools.org/cms/One.aspx?portalId=92531&pageId=316936>. **Final bids will be received and opened in a public bid opening on Thursday, February 13, 2020 at 2:00 pm EST at the Central Office of Buncombe County Schools, 175 Bingham Road, Asheville, NC 28806.**

Payment will be made on the basis of ninety-five (95%) of monthly estimates and final payment made upon completion and acceptance of work. No bid may be withdrawn after the scheduled closing time for the receipt of bids for a period of sixty (60) days.

Questions about this project may be directed to Tim Fierle, Director of Facilities at (828) 255-5916.

***The Owner reserves the right to reject any and all bids and to waive informalities.***

**STATE OF NORTH CAROLINA/BUNCOMBE COUNTY SCHOOLS  
REQUEST FOR PROPOSAL** **RFP# 2-20**

**PROJECT: TRACK AND FIELD REPLACEMENT AT NORTH BUNCOMBE HIGH SCHOOL**

**PROJECT DESIGNER: Tim Fierle, Project Manager**

**ISSUING AGENCY: Buncombe County Schools**

**ISSUE DATE: January 27, 2020**

Sealed proposals subject to the conditions made a part hereof will be received until **4:00 pm EST on Thursday, February 13, 2020** for furnishing all labor, materials, equipment, and services incidental and implied, for completion of the project described herein.

***PRE-BID MEETING: A Pre-Bid meeting will be held on Thursday, January 30, 2020 at 10:00 am EST at North Buncombe High School, 890 Clarks Chapel Road, Weaverville, NC 28787. All visitors must report to the Main Office.***

SEND ALL PROPOSALS DIRECTLY TO THE ADDRESS AS SHOWN BELOW:

**Buncombe County Schools, Purchasing Division**

175 Bingham Road  
Asheville, NC 28806

FAX: (828) 251-1730 (fax is not guaranteed, call to confirm 828-255-5890)

NOTE: Indicate firm name and RFP number on the front of each sealed proposal envelope or package, along with the date for receipt of proposals specified above.

Direct inquiries concerning this RFP to: Tim Fierle, Director of Facilities Phone: (828) 255-5916  
Jason Pollard, Project Designer Phone: (518) 453-4529  
Tiffany McCants, Purchasing Officer Phone: (828) 255-5890

**THE PROCUREMENT PROCESS**

The following is a general description of the process by which a firm will be selected to provide services.

1. Request for Proposals (RFP) is issued to prospective contractors.
2. Proposals in one original will be received from each offeror in a sealed envelope or package. Each original shall be signed and dated by an official authorized to bind the firm. Unsigned proposals will not be considered.
3. All proposals must be received by the issuing agency no later than the date and time specified on the cover sheet of this RFP.
4. At that date and time the proposals from each responding firm will be opened. Interested parties are cautioned that these costs and their components are subject to further evaluation for completeness and correctness and therefore may not be an exact indicator of an offeror's pricing position. Proposals are confidential until such time that award has been made. Thereafter, the Purchasing Department will furnish a bid tab on the district's website.
5. Proposals will be evaluated according to completeness, content, experience with similar projects, ability of the offeror and its staff, and cost. Award of a contract to one offeror does not mean that the other proposals lacked merit, but that, all factors considered, the selected proposal was deemed most advantageous to Buncombe County Board of Education.
6. Offerors are cautioned that this is a request for offers, not a request to contract, and that Buncombe County Board of Education reserves the unqualified right to reject any and all offers when such rejection is deemed to be in its best interest.

(NOTE: THIS PAGE MUST BE FULLY EXECUTED AND RETURNED FOR CONSIDERATION OF PROPOSAL)  
**PROPOSAL FORM**

**TRACK AND FIELD REPLACEMENT AT NORTH BUNCOMBE HIGH SCHOOL  
RFP# 2-20**

**DUE DATE: Thursday, February 13, 2020 at 2:00 pm EST**

By submitting this proposal, the potential contractor certifies the following:

- \*\* This proposal is signed by an authorized representative of the firm.
- \*\* It can obtain and submit to the Owner insurance certificates as required within 5 calendar days after notice of award.
- \*\* The cost and availability of all equipment, materials, and supplies associated with performing the services described herein have been determined and included in the proposed cost.
- \*\* All labor costs, direct and indirect, have been determined and included in the proposed cost.
- \*\* All taxes have been determined and included in the proposed cost.
- \*\* The offeror has attended the conference (*if applicable*) or conducted a site visit and is aware of prevailing conditions associated with performing these services.
- \*\* The potential contractor has read and understands the conditions set forth in this RFP and agrees to them with no exceptions.

Therefore, in compliance with this Request for Proposals, and subject to all conditions herein, the undersigned offers and agrees, if this proposal is accepted within 60 days (normally less) from the date of the opening, to furnish the subject services for a cost not to exceed:

**BASE BID: Perform all work described on attached drawings and specifications "North Buncombe High School Track Replacement".**

\$ \_\_\_\_\_ dollars and \_\_\_\_/100 (\$ \_\_\_\_\_).

**Alternate #1 (DEDUCT): Non-porous basemat structural spray track surfacing (black) in lieu of base bid sandwich system track surfacing (black).**

\$ \_\_\_\_\_ dollars and \_\_\_\_/100 (\$ \_\_\_\_\_).

**Unit Price #1: Provide a unit price per SF for additional concrete pavement per the contract details and specifications.**

\$ \_\_\_\_\_ dollars and \_\_\_\_/100 (\$ \_\_\_\_\_).

**Unit Price #2: Provide a unit price per LF for concrete curb replacement at the existing turf field perimeter.**

\$ \_\_\_\_\_ dollars and \_\_\_\_/100 (\$ \_\_\_\_\_).

Addenda received: \_\_\_\_\_ (Yes/No)

OFFEROR: \_\_\_\_\_

ADDRESS: \_\_\_\_\_

CITY, STATE, ZIP: \_\_\_\_\_

TELEPHONE NUMBER: \_\_\_\_\_ FAX: \_\_\_\_\_

FED ID No: \_\_\_\_\_ Type & License #: \_\_\_\_\_

E-MAIL: \_\_\_\_\_ MBE Status: \_\_\_\_\_  
Principal Place of Business if different from above (See General Information on Submitting Proposals,  
Item 18.):  
\_\_\_\_\_

BY: (Signature) \_\_\_\_\_ TITLE: \_\_\_\_\_

DATE: \_\_\_\_\_ (Typed or printed name) \_\_\_\_\_

***End of Proposal Form***

## GENERAL INFORMATION ON SUBMITTING PROPOSALS

1. **EXCEPTIONS:** All proposals are subject to the terms and conditions outlined herein. All responses shall be controlled by such terms and conditions and the submission of other terms and conditions, price lists, catalogs, and/or other documents as part of an offeror's response will be waived and have no effect either on this Request for Proposals or on any contract that may be awarded resulting from this solicitation. Offeror specifically agrees to the conditions set forth in the above paragraph by signature to the proposal.

78615644. **CERTIFICATION:** By executing the proposal, the signer certifies that this proposal is submitted competitively and without collusion (G.S. 143-54), that none of our officers, directors, or owners of an unincorporated business entity has been convicted of any violations of Chapter 78A of the General Statutes, the Securities Act of 1933, or the Securities Exchange Act of 1934 (G.S. 143-59.2), and that we are not an ineligible vendor as set forth in G.S. 143-59.1. False certification is a Class I felony.

78615645. **ORAL EXPLANATIONS:** The State/Buncombe County Schools shall not be bound by oral explanations or instructions given at any time during the competitive process or after award.

78615646. **REFERENCE TO OTHER DATA:** Only information which is received in response to this RFP will be evaluated; reference to information previously submitted shall not be evaluated.

78615647. **ELABORATE PROPOSALS:** Elaborate proposals in the form of brochures or other presentations beyond that necessary to present a complete and effective proposal are not desired.

In an effort to support the sustainability efforts of the State of North Carolina we solicit your cooperation in this effort.

It is desirable that all responses meet the following requirements:

- All copies are printed double sided.
- All submittals and copies are printed on recycled paper with a minimum post-consumer content of 30% and indicate this information accordingly on the response.
- Unless absolutely necessary, all proposals and copies should minimize or eliminate use of non-recyclable or non re-usable materials such as plastic report covers, plastic dividers, vinyl sleeves, and GBC binding. Three-ringed binders, glued materials, paper clips, and staples are acceptable.
- Materials should be submitted in a format which allows for easy removal and recycling of paper materials.

78615648. **COST FOR PROPOSAL PREPARATION:** Any costs incurred by offerors in preparing or submitting offers are the offerors' sole responsibility; the State of North Carolina/Buncombe County Schools will not reimburse any offeror for any costs incurred.

78615649. **TIME FOR ACCEPTANCE:** Each proposal shall state that it is a firm offer which may be accepted within a period of 45 days. Although the contract is expected to be awarded prior to that time, the 45-day period is requested to allow for unforeseen delays.

78615650. **TITLES:** Titles and headings in this RFP and any subsequent contract are for convenience only and shall have no binding force or effect.

78615651. **CONFIDENTIALITY OF PROPOSALS:** In submitting its proposal the offeror agrees not to discuss or otherwise reveal the contents of the proposal to any source outside of the using or issuing agency, government or private, until after the award of the contract. Offerors not in compliance with this provision may be disqualified, at the option of the State/Buncombe County Schools, from contract award. Only discussions authorized by the issuing agency are exempt from this provision.

78615652. **RIGHT TO SUBMITTED MATERIAL:** All responses, inquiries, or correspondence relating to or in reference to the RFP, and all other reports, charts, displays, schedules, exhibits, and other documentation submitted by the offerors shall become the property of the State/Buncombe County Schools when received.

78615653. **OFFEROR'S REPRESENTATIVE:** Each offeror shall submit with its proposal the name, address, and telephone number of the person(s) with authority to bind the firm and answer questions or provide clarification concerning the firm's proposal.

78615654. **SUBCONTRACTING:** Offerors may propose to subcontract portions of the work provided that their proposals clearly indicate what work they plan to subcontract and to whom and that all information required about the prime contractor is also included for each proposed subcontractor.



78615655. **PROPRIETARY INFORMATION:** Trade secrets or similar proprietary data which the offeror does not wish disclosed to other than personnel involved in the evaluation or contract administration will be kept confidential to the extent permitted by NCAC T01:05B.1501 and G.S. 132-1.3 if identified as follows: Each page shall be identified in boldface at the top and bottom as "CONFIDENTIAL". Any section of the proposal which is to remain confidential shall also be so marked in boldface on the title page of that section. Cost information may not be deemed confidential. In spite of what is labeled as confidential, the determination as to whether or not it is shall be determined by North Carolina law.

78615656. **HISTORICALLY UNDERUTILIZED BUSINESSES:** Pursuant to General Statute 143-48 and Executive Order #150, Buncombe County Schools invites and encourages participation in this procurement process by businesses owned by minorities, women, disabled, disabled business enterprises and non-profit work centers for the blind and severely disabled.

The Contractor agrees in particular to maintain open hiring and employment practices and to receive applications for employment in compliance with all requirements of applicable federal, state and local laws and regulations issued pursuant thereto relating to nondiscriminatory hiring and employment practices. Each Prime Contractor shall undertake an affirmative action program to ensure that no person shall be excluded from participation in any employment activities because of age, sex, race, religion, color, national origin or handicap.

78615657. **PROTEST PROCEDURES:** If an offeror wants to protest a contract awarded pursuant to this solicitation, they must submit a written request to the Purchasing Officer, Buncombe County Schools, 175 Bingham Road, or PO Box 16771, Asheville, NC 28806. This request must be received by the Purchasing Division within thirty (30) consecutive calendar days from the date of the contract award and must contain specific sound reasons and any supporting documentation for the protest. NOTE: Contract award notices are sent only to those actually awarded contracts, and not to every person or firm responding to this solicitation. Contract status and award notices are available through the purchasing division or the project designer with contact information as shown on the first page of this solicitation. Offerors may call to obtain a verbal status of contract award. All protests will be handled pursuant to the North Carolina Administrative Code, Title 1, Department of Administration, Chapter 5, Purchase and Contract, Section 5B.1519.

16. **TABULATIONS:** Offerors may visit the Buncombe County Schools website for bid tab details at [www.buncombeschools.org/purchasing](http://www.buncombeschools.org/purchasing).

17. **VENDOR REGISTRATION AND SOLICITATION NOTIFICATION SYSTEM:** Vendor Link NC allows vendors to electronically register free with the State to receive electronic notification of current procurement opportunities for goods and services available on the Interactive Purchasing System. Online registration and other purchasing information are available on the Internet web site: <http://www.state.nc.us/pandc/>.

18. **RECIPROCAL PREFERENCE:** G.S. 143-59 establishes a reciprocal preference law to discourage other states from applying in-state preferences against North Carolina's resident offerors. The "Principal Place of Business" is defined as the principal place from which the trade or business of the offeror is directed or managed.



**NORTH CAROLINA GENERAL CONTRACT TERMS AND CONDITIONS  
(Contractual and Consultant Services)**

1. **GOVERNING LAW:** This contract is made under and shall be governed and construed in accordance with the laws of the State of North Carolina.
  
78615732. **SITUS:** The place of this contract, its situs and forum, shall be North Carolina, where all matters, whether sounding in contract or tort, relating to its validity, construction, interpretation and enforcement shall be determined
  
78615733. **INDEPENDENT CONTRACTOR:** The Contractor shall be considered to be an independent contractor and as such shall be wholly responsible for the work to be performed and for the supervision of its employees. The Contractor represents that it has, or will secure at its own expense, all personnel required in performing the services under this agreement. Such employees shall not be employees of or have any individual contractual relationship with the Agency.
  
78615734. **KEY PERSONNEL:** The Contractor shall not substitute key personnel assigned to the performance of this contract without prior written approval by the Agency's Contract Administrator. The individuals designated as key personnel for purposes of this contract are those specified in the Contractor's proposal.
  
78615735. **SUBCONTRACTING:** Work proposed to be performed under this contract by the Contractor or its employees shall not be subcontracted without prior written approval of the Agency's Contract Administrator/Project Designer. Acceptance of an offeror's proposal shall include any subcontractor(s) specified therein.
  
78615736. **PERFORMANCE AND DEFAULT:** If, through any cause, the Contractor shall fail to fulfill in timely and proper manner the obligations under this agreement, the Agency shall thereupon have the right to terminate this contract by giving written notice to the Contractor and specifying the effective date thereof. In that event, all finished or unfinished deliverable items under this contract prepared by the Contractor shall, at the option of the Agency, become its property, and the Contractor shall be entitled to receive just and equitable compensation for any satisfactory work completed on such materials. Notwithstanding, the Contractor shall not be relieved of liability to the Agency for damages sustained by the Agency by virtue of any breach of this agreement, and the Agency may withhold any payment due the Contractor for the purpose of setoff until such time as the exact amount of damages due the Agency from such breach can be determined. In case of default by the Contractor, the State may procure the services from other sources and hold the Contractor responsible for any excess cost occasioned thereby. The State reserves the right to require performance bond or other acceptable alternative guarantees from successful offeror without expense to the State.  
  
Upon the entering of a judgment of bankruptcy of insolvency by or against the Contractor, the Agency may terminate this contract for cause.  
  
Neither party shall be deemed to be in default of its obligations hereunder if and so long as it is prevented from performing such obligations by any act of war, hostile foreign action, nuclear explosion, riot, strikes, civil insurrection, earthquake, hurricane, tornado, or other catastrophic natural event or act of God.
  
78615737. **TERMINATION:** The Agency may terminate this agreement at any time by 15 days' notice in writing from the Agency to the Contractor. In that event, all finished or unfinished deliverable items prepared by the Contractor under this contract shall, at the option of the Agency, become its property. If the contract is terminated by the Agency as provided herein, the Contractor shall be paid for services satisfactorily completed, less payment or compensation previously made.
  
78615738. **AVAILABILITY OF FUNDS:** Any and all payments to the Contractor are dependent upon and subject to the availability of funds to the Agency for the purpose set forth in this agreement.
  
78615739. **CONFIDENTIALITY:** Any information, data, instruments, documents, studies or reports given to or prepared or assembled by the Contractor under this agreement shall be kept as confidential and not divulged or made available to any individual or organization without the prior written approval of the Agency.

78615740. **CARE OF PROPERTY:** The Contractor agrees that it shall be responsible for the proper custody and care of any property furnished it for use in connection with the performance of this contract or purchased by it for this contract and will reimburse the State for loss of damage of such property.

78615741. **COPYRIGHT:** No deliverable items produced in whole or in part under this agreement shall be the subject of an application for copyright by or on behalf of the Contractor.

78615742. **ACCESS TO PERSONS AND RECORDS:** The State Auditor shall have access to persons and records as a result of all contracts or grants entered into by State agencies or political subdivisions in accordance with General Statute 147-64.7.  
The Contractor shall retain all records for a period of three years following completion of the contract.

78615743. **ASSIGNMENT:** No assignment of the Contractor's obligations nor the Contractor's right to receive payment hereunder shall be permitted. However, upon written request approved by the issuing purchasing authority, the State may:

- a. Forward the contractor's payment check(s) directly to any person or entity designated by the Contractor, or
- b. Include any person or entity designated by Contractor as a joint payee on the Contractor's payment check(s).

In no event shall such approval and action obligate the State to anyone other than the Contractor and the Contractor shall remain responsible for fulfillment of all contract obligations.

78615744. **COMPLIANCE WITH LAWS:** The Contractor shall comply with all laws, ordinances, codes, rules, regulations, and licensing requirements (permits) that are applicable to the conduct of its business, including those of federal, state, and local agencies having jurisdiction and/or authority.

78615745. **AFFIRMATIVE ACTION:** The Contractor shall take affirmative action in complying with all Federal and State requirements concerning fair employment and employment of people with disabilities and concerning the treatment of all employees without regard to discrimination by reason of race, color, religion, sex, national origin, or disability.

78615746. **INSURANCE:** During the term of the contract, the contractor at its sole cost and expense shall provide commercial insurance of such type and with such terms and limits as may be reasonably associated with the contract. As a minimum, the contractor shall provide and maintain the following coverage and limits:

- a. **Workers Compensation -** The contractor shall provide and maintain Worker's Compensation Insurance, as required by the laws of North Carolina, as well as employer's liability coverage with minimum limits of \$150,000.00, covering all of Contractor's employees who are engaged in any work under the contract. If any work is subcontracted, the contractor shall require the subcontractor to provide the same coverage for any of its employees engaged in any work under the contract.
- b. **Commercial General Liability - General Liability Coverage on a Comprehensive Broad Form on an occurrence basis in the minimum amount of \$2,000,000.00 Combined Single Limit. (Defense cost shall be in excess of the limit of liability.**
- c. **Automobile - Automobile Liability Insurance, to include liability coverage, covering all owned, hired and non-owned vehicles, used in connection with the contract. The minimum combined single limit shall be \$500,000.00 bodily injury and property damage; \$500,000.00 uninsured/underinsured motorist; and \$100,000.00 medical payment.**

Providing and maintaining adequate insurance coverage is a material obligation of the contractor and is of the essence of this contract. All such insurance shall meet all laws of the State of North Carolina. Such insurance coverage shall be obtained from companies that are authorized to provide such coverage and that are authorized by the Commissioner of Insurance to do business in North Carolina. The contractor shall at all times comply with the terms of such insurance policies, and all requirements of the insurer under any such insurance policies, except as they may conflict with existing North Carolina laws or this contract. The limits of coverage under each insurance policy maintained by the contractor shall not be interpreted as limiting the contractor's liability and obligations under the contract.

The Contractor shall furnish a Certificate of Insurance as proof of the above coverages. Certificate will contain provision that the insurance coverages cannot be canceled, reduced in amount or coverage eliminated without 30 days written notice to the Buncombe County Board of Education. Owner's Protective insurance must list the Buncombe County Board of Education as the Certificate Holder and as "additional insured" as it's interest may appear. Owner's approval of Certificate of Insurance does not decrease or relieve the contractor's responsibility for maintaining insurance coverage as required in this Request for Proposal.

78615747. **ADVERTISING:** Contractor agrees not to use the existence of this contract, the name of the agency, or the name of the State of North Carolina as part of any commercial advertising.

78615748. **ENTIRE AGREEMENT:** This contract and any documents incorporated specifically by reference represent the entire agreement between the parties and supersede all prior oral or written statements or agreements. This Request for Proposals, any addenda thereto, and the offeror's proposal are incorporated herein by reference as though set forth verbatim.

All promises, requirements, terms, conditions, provisions, representations, guarantees, and warranties contained herein shall survive the contract expiration or termination date unless specifically provided otherwise herein, or unless superseded by applicable Federal or State statutes of limitation.

78615749. **AMENDMENTS:** This contract may be amended only by written amendments duly executed by the Agency and the Contractor.

78615750. **TAXES:** G.S. 143-59.1 bars the Secretary of Administration from entering into contracts with vendors if the vendor or its affiliates meet one of the conditions of G. S. 105-164.8(b) and refuse to collect use tax on sales of tangible personal property to purchasers in North Carolina. Conditions under G. S. 105-164.8(b) include: (1) Maintenance of a retail establishment or office, (2) Presence of representatives in the State that solicit sales or transact business on behalf of the vendor and (3) Systematic exploitation of the market by media-assisted, media-facilitated, or media-solicited means. By execution of the bid document the vendor certifies that it and all of its affiliates, (if it has affiliates), collect(s) the appropriate taxes.

78615751. **GENERAL INDEMNITY:** The contractor shall hold and save the State/Buncombe County Schools, its officers, agents, and employees, harmless from liability of any kind, including all claims and losses, with the exception of consequential damages, accruing or resulting to any other person, firm, or corporation furnishing or supplying work, services, materials, or supplies in connection with the performance of this contract, and from any and all claims and losses accruing or resulting to any person, firm, or corporation that may be injured or damaged by the contractor in the performance of this contract and that are attributable to the negligence or intentionally tortious acts of the contractor provided that the contractor is notified in writing within 30 days that the State/Buncombe County Schools has knowledge of such claims. The contractor represents and warrants that it shall make no claim of any kind or nature against the State's agents who are involved in the delivery or processing of contractor goods to the State. The representation and warranty in the preceding sentence shall survive the termination or expiration of this contract.

# CONTRACTOR'S SALES TAX REPORT Buncombe County Schools

## NC State and Local Sales Taxes Paid

**CONTRACTOR:** \_\_\_\_\_ **PO#/RFP# 2-20**\_\_\_\_\_

**Address:**\_\_\_\_\_ **For Period:** \_\_\_\_\_

| Invoice Date | Invoice # | Type of Property | NC Tax<br>4.75% | County Tax<br>2.25% | Name of County |
|--------------|-----------|------------------|-----------------|---------------------|----------------|
|              |           |                  |                 |                     |                |
|              |           |                  |                 |                     |                |
|              |           |                  |                 |                     |                |
|              |           |                  |                 |                     |                |
|              |           |                  |                 |                     |                |
|              |           |                  |                 |                     |                |
|              |           |                  |                 |                     |                |
|              |           |                  |                 |                     |                |
|              |           |                  |                 |                     |                |
|              |           |                  |                 |                     |                |
|              |           |                  |                 |                     |                |
|              |           |                  |                 |                     |                |
|              |           |                  |                 |                     |                |
|              |           | <b>TOTAL</b>     | <b>\$</b>       | <b>\$</b>           |                |

I certify that the above figures do not include any tax paid on supplies, tools and equipment which were used to perform this contract and only includes those building materials, supplies, fixtures and equipment which actually became a part of or annexed to the building or structure, and all of the required sales and use tax have been paid. I certify that, to the best of my knowledge, the information provided here is true, correct, and complete.

Sworn to and subscribed before me,

This the \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_

\_\_\_\_\_ Signed

\_\_\_\_\_  
Notary Public

My Commission Expires: \_\_\_\_\_

\_\_\_\_\_  
Print or Type Name of Above & Title

Seal

**NOTE:**  
This certified statement may be subject to audit.

The North Carolina General Assembly has amended the Statute to provide refunds of sales and use tax to local school units in accordance with the provisions of G.S. 105-164. 14(c) effective with tax paid on or after July 1, 1998.

These refunds are to include the "sales and use taxes paid by contractors on building materials, supplies, fixtures and equipment that become a part of or annexed to a building or structure that is owned or leased by the governmental entity and is being erected, altered or repaired for use by the governmental entity (G.S. 105-164.14)."

Sales and Use Tax Technical Bulletin Section 18-2F specifies: "To substantiate a refund claim for sales or use taxes paid on purchases of building materials, supplies, fixtures and equipment by its contractor, the claimant must secure from such contractor certified statements setting forth all of the following information:

- a. the date the property was purchased;
- b. the type of property purchased;
- c. the project for which the property was used;
- d. if the property was purchased in this State, the county in which it was purchased;
- e. if the property was not purchased in this State, the county in which the property was used; and
- f. the amount of sales and use taxes paid.

In the event the contractor makes several purchases from the same vendor, such certified statement must indicate the invoice numbers, the inclusive dates of the invoices, the total amount of the invoices and the State and local sales and use taxes paid thereon. Such statement must also include the cost of any tangible personal property withdrawn from the contractor's warehouse stock and the amount of sales and use tax paid thereon by the contractor. Similar certified statements by his subcontractors must be obtained by the general contractor and furnished to the claimant. Any local sales or use taxes must be shown separately from the State sales or use taxes. The contractor's statements must not contain sales or use taxes paid on purchases of tangible personal property purchased by such contractors for use in performing the contract which does not annex to, affix to or in some manner become a part of the building or structure that is owned or leased by a governmental agency and is being erected, altered or repaired for use by a governmental entity as defined by G.S. 105-164.14(c). Examples of property on which sales or use tax has been paid by the contractor and which shall not be included in the contractor's statement are scaffolding, forms for concrete, fuel for the operation of machinery and equipment, tools, repair parts and equipment rentals.

All information requested in these specifications and actual bids shall be entered on enclosed "Request for Proposal" All areas of this document must be completed in full, especially: (1) Name of Company, (2) By (signature), (3) Official Title, and (4) Quotation Date.

**TRACK AND FIELD REPLACEMENT AT NORTH BUNCOMBE HIGH SCHOOL**  
**RFP# 2-20**

**Project:** Furnish all labor, materials, equipment and services, incidental and implied, for the track replacement project at North Buncombe High School.

**Scope:** Work shall consist of furnishing all labor, taxes, materials, equipment, services, permits, incidental and implied, to install a complete work system as designed per the attached specifications.

**Contractor's Responsibility:** The Contractor shall be responsible for the construction site during the performance of the work. The Contractor shall be responsible for all damages to persons and property during the performance of work and shall further provide all necessary safety measures and shall fully comply with all federal state and local laws, building rules, and regulations to prevent accidents or injury to persons or property on or about the location of the work site. This is to include OSHA 1910, General Construction, or those regulations mandated by these specifications. Special attention shall be made to proper barricading of the work area.

**Safety Regulations:** The Contractor shall adhere to the rules, regulations and interpretations of the North Carolina Department of Labor relating to Occupational Safety and Health Standards for the Construction Industry (Title 29, Code of Federal Regulations, Part 1926, published in Volume 39, Number 122, Part II, June 24, 1974 Federal Register) which is hereby incorporated in these specifications.

**Codes:** All work shall be performed in accordance with the specifications and shall comply with North Carolina Building Code, National Electrical Code Underwriters' Rules and Regulations and Federal, State and Local Regulations covering work of this nature. Whenever specifications are more than such laws, codes and regulations, the specifications shall hold. All equipment shall have U. L. labels attached.

**Permits:** The Contractor shall hold the appropriate license for work to be performed and shall secure all permits required for the job completion, obtain and deliver to Owner, all certification of inspection issued by the authorities having jurisdiction and roofing material manufacturer. Contractor is responsible for paying all costs associated with Buncombe County building permits. All final certificates must be delivered to owner prior to request for final payment.

**Scheduling:** The Contractor must submit a precise time schedule as to when specific work will occur in specific areas within the building. This will be used to coordinate the work with the occupants of the building. The maintenance supervisor, Project manager or Principal may alter the schedule at any time to maintain the work process within the facility. Work must be scheduled during hours that are acceptable to each school and the Buncombe County Board of Education shall not incur any additional cost due to scheduling.



**All work must be scheduled to avoid conflict with classroom instruction time and Cafeteria operation times.** All permits and inspections will be the responsibility of the contractor, and copies of permits and final inspection will be submitted to Buncombe County Schools prior to final payment.

**Project Timeline:** Anticipated project start date is Monday, 4/6/2020. Substantial completion is Thursday, 8/20/2020. Final completion is Friday, 9/25/2020.

**Workers on Job:** All employees of the Contractor shall, while on Buncombe County Board of Education property, act in a professional and courteous manner. All workers shall be expected to wear long pants and shirts while on Board property. Also, all employees of the Contractor must "sign in" in the main office upon entering the facility and must "sign out" upon leaving the property. Any employee of the Contractor may be told to leave the property by either the Principal or the Electrical Supervisor, if they do not follow the above procedure. The employee shall be replaced with another at no additional cost to the Buncombe County Board of Education. Smoking or use of Tobacco products is prohibited on Buncombe County School's property.

In accordance with G.S. 14-208.18, all persons who (1) are required to register under the Sex Offender and Public Protection Program AND (2) have been convicted of certain sexually violent offenses or any offense where the victim was under the age of 16 years at the time of the offense are expressly forbidden to knowingly be present on any property owned or operated by the school system, including school buildings, athletic fields, playgrounds, parking lots, school buses, activity buses or other property of any kind for any reason, including attendance at sporting events or other school related functions, whether before, during or after school hours. It is the responsibility of the Contractor or vendor that their employees and sub-contractors are in accordance with G.S. 14-208.18.

**E-Verify:** Contractor shall comply with E-Verify, the federal E-Verify program operated by the United States Department of Homeland Security and other federal agencies, or any successor or equivalent program used to verify the work authorization of newly hired employees pursuant to federal law and as in accordance with N.C.G.S. §64-25 et seq. In addition, to the best of Contractor's knowledge, any subcontractor employed by Contractor as a part of this contract shall be in compliance with the requirements of E-Verify and N.C.G.S. §64-25 et seq.

**Iran Divestment Act:** North Carolina Local Government Units may not enter into contracts with any entity or individual found on the State Treasurer's Iran Final Divestment List N.C.G.S. 143C-6A. By bidding on this project, the bidder certifies it is not listed on the Final Divestment List created by the State Treasurer.

**Equipment and Tools:** The Contractor shall not use equipment or tools that are owned by the Buncombe County Board of Education. Also, employees of the Buncombe County Board of Education shall not be utilized by the Contractor except for opening locked doors and giving directions.

**Materials:** All materials stored on site must be stored in a safe and secure manner that does not interfere with the school's daily operation. Buncombe County Board of Education is not responsible for any materials, equipment or tools lost or stolen from the site.

**Clean Up:** The area of work shall be cleaned daily so that the Buncombe County Board of Education shall not incur any additional costs to make the area suitable for the work process. Also, the Contractor shall utilize no trash receptacles or dumpsters owned by the Buncombe County Board of Education. All trash and removed materials shall be properly disposed of off the property. Onsite dumpsters shall not be used.

**Changes during project:** Changes during the project shall only be made by written direction signed by the owner. No additional cost to the contract shall be allowed unless accepted in writing by the owner before work has begun.

**Submittal:** Within one week of acceptance of contract and time schedule must be submitted to the owner for approval. Send to Buncombe County Schools Facilities, 175 Bingham Road, Asheville, NC 28806, ATTN: Tim Fierle.

**Price Adjustments:(Term Contracts Only)** Any price changes, downwards or upward, which might be permitted during the contract period must be general, either by reason of market change or on the part of the contractor to the other customers.

a. **Notification:** Must be given to Buncombe County Schools, in writing, concerning any proposed price adjustments. Such notification shall be accompanied by copy of manufacturer's official notice or other acceptable evidence that the change is general in nature.

b. **Decreases:** Buncombe County Schools shall receive full proportionate benefit immediately at any time during the contract.

c. **Increases: Consumer Price Index (CPI):** Contract prices for equipment and/or service will remain firm through June 30, 2020. Contractors must request price adjustments, in writing, 30 days prior to the renewal date. If a Contractor fails to request CPI price adjustment 30 days prior to the adjustment date, the adjustment will be effective 30 days after Buncombe County Schools receives their written request. Price adjustments will be made in accordance with the percentage change in the U.S. Department of Labor Consumer Price Index (CPI-U) for all urban consumers, all items, southern region.

The price adjustment rate will be determined by comparing the percentage difference between the CPI in effect for the base yearly average (January through December beginning the year 2020); and each (January through December) thereafter. The percentage difference between those two CPI issues will be the price adjustment rate. No retroactive contract price adjustments will be allowed. All bidders will be capped with a 3% maximum price increase.

d. **Invoices:** It is understood and agreed that orders will be shipped at the established contract prices in effect on dates orders are placed. Invoicing at variance with this provision will subject the contract to cancellation. Applicable North Carolina sales tax shall be invoiced as a separate item.

**Payment:** Progress payments will be issued for this project.

Final documents required:

1. Letter to the project manager from contractor which states all work is completed and payment is desired.
2. Delivery to owner, copies of all permits, certifications of inspection issued by the authorities having jurisdiction

**Performance of Work:** All work shall be performed at the highest level of quality. The Owner shall be responsible for determining the quality of work and may notify the Contractor of same. ANY WORK COMPLETED THAT IS NOT SUITABLE TO THE OWNER SHALL BE REPEATED BY THE CONTRACTOR AT NO COST TO THE OWNER. Any damage to existing area or utilities will be the responsibility of the Contractor. NO EXCEPTIONS.

**Warranty:** All labor, material and equipment shall be warranted for one (1) year from issuance of inspection.

**Contractor must adhere to the guidelines within these specifications; failure to do so will result in default of payment by the BCBOE and/or cancelation of this contract.**

***The Buncombe County Board of Education reserves the right to reject any or all bids or any or no reason.***

***End of RFP# 2-20***

## **GENERAL CONDITIONS**

The General Conditions for the project shall be AIA Document A201-2007, entitled; "General Conditions of the Contract for Construction". A copy of the General Conditions is available from the owner upon request.

**END OF GENERAL CONDITIONS**

## SUPPLEMENTARY GENERAL CONDITIONS - 2019

---

### **AMENDMENT (MODIFICATIONS) TO GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION AIA DOCUMENT A201-2017**

NOTE: All references to "Article", "§", and "Section" refer to the matching Article number and Section number in AIA Document A201-2017 General Conditions of the Contract for Construction

1. The General Conditions of the Contract for Construction, AIA Document A201-2017, are altered by the modifications, deletions, additions, and substitutions contained in these Supplementary General Conditions.
2. § 1.1.1 is amended by deleting the words "Agreement between the Owner and Contractor" in the first line of the first sentence and adding "AIA Document A101-2017 Standard Form of Agreement Between Owner and Contractor" in their place.
3. § 1.1.2 is amended by adding "(the Contract)" after the last word of the first sentence.

Delete the fourth sentence of the paragraph.

Delete ", however," from the fifth sentence of the paragraph.

4. § 1.1.5 is deleted and replaced with the following:

#### **§ 1.1.5 The Drawings**

The Drawings are the technical, graphic and pictorial portions of the Contract Documents showing the design, location, and dimensions of the Work, including, but not limited to, plans, elevations, sections, details, schedules, diagrams, and other information which defines the requirements for the Work.

5. § 1.1.6 is deleted and replaced with the following:

#### **§ 1.1.6 The Specifications**

The Specifications are that portion of the Contract Documents consisting of explicit and detailed written requirements for materials, equipment, systems, standards, and workmanship requirements for the Work, performance standards, specific warranties, and performance of related services.

6. § 1.1.8 is amended by adding the words "and certify termination of the Contract under Section 14.2.2" before the period in the first sentence of the paragraph.

7. A new § 1.1.9 is added as follows:

#### **§ 1.1.9 Project Manual**

The Project Manual is a printed volume or volumes assembled for the Work of the Project which includes the bidding or proposal requirements, sample forms, Conditions of the Contract, Specifications and other Contract Documents. The Project Manual is part of the Contract Documents.

8. A new § 1.1.10 is added as follows:

**§ 1.1.10 Project Manual Addenda**

Project Manual Addenda are written or graphic instruments issued prior to the execution of the Contract, which modify or interpret the bidding or proposal documents, including Drawings and Specifications, by additions, deletions, clarifications, or corrections. Addenda are part of the Contract Documents.

9. A new § 1.1.11 is added as follows:

**§ 1.1.11 Abbreviations**

The following abbreviations and their meanings are:

|         |                                                                                        |
|---------|----------------------------------------------------------------------------------------|
| AIA:    | American Institute of Architects                                                       |
| ACI:    | American Concrete Institute                                                            |
| AHERA:  | Asbestos Hazardous Emergency Response Act                                              |
| AISI:   | American Iron and Steel Institute                                                      |
| AISC:   | American Institute of Steel Construction                                               |
| ASA:    | American Standards Association                                                         |
| ASTM:   | American Society of Testing Materials                                                  |
| AWSC:   | American Welding Society Code                                                          |
| CERCLA: | Comprehensive Environmental Response, Compensation, and Liability Act                  |
| EPA:    | Environmental Protection Agency                                                        |
| NC DEQ  | North Carolina Department of Environmental Quality                                     |
| NC DOI  | North Carolina Department of Insurance                                                 |
| FS:     | Federal Specification                                                                  |
| NEC:    | National Electrical Code                                                               |
| NIC:    | Not in Contract. Indicates work not to be done by this Contractor under this contract. |
| OSHA:   | Occupational Safety and Health Administration                                          |
| SPR:    | Simplified Practice Recommendation                                                     |
| UL:     | Underwriters Laboratories, Inc.                                                        |

10. A new § 1.2.4 is added as follows:

**§ 1.2.4 Current Editions**

When the Contract Documents refer to standards, building codes, manufacturers' instructions, or other documents, unless otherwise specified, then the current edition as of the date of execution of the Agreement by the last party to execute said Agreement shall apply. It shall be the responsibility of the Architect to address revisions or amendments to applicable codes or standards which arise after the date of execution of the Agreement and until Final Completion,



pursuant to the terms of the Agreement between Owner and Architect. Requirements of public authorities apply as minimum requirements only and do not supersede more stringent specified requirements.

11. § 1.3 is amended by capitalizing the letter "A" in the word "Articles" and by adding the words "and Sections" after the word "Articles".
12. § 1.5, § 1.5.1, and § 1.5.2 are deleted and replaced with the following § 1.5:

**§ 1.5 Ownership and Use of the Contract Documents**

The Contract Documents are the property of the Owner which may be used by the Contractor, Subcontractors, materials and equipment suppliers, and service providers for the Project only, and not for other projects or work.

13. § 2.1.1 is deleted and replaced with the following:

**§ 2.1.1** The Owner is the body corporate board of education described in the Agreement. The Owner acts through vote of a majority of its board members (hereinafter "the Board") at official meetings of the Board. The Board, by majority vote, is the only representative of the Owner having the power to enter into or amend the Contract, to approve changes in the scope of the Work, to approve and execute a Change Order or Construction Change Directive modifying the Contract Sum or Guaranteed Maximum Price, or to agree to an extension to the dates of Substantial or Final Completion. The Board will act when requested in writing to do so as soon as reasonably possible to avoid undue delays. The Board will designate an authorized representative to act on its behalf for day-to-day operations under the Contract. Unless otherwise designated in the Contract Documents, the Owner's authorized representative shall be the Superintendent of Schools. The Owner's authorized representative, or their delegate, has the authority to approve changes to the Work in accordance with Board Policy 9030. Any such change shall be confirmed in writing between the Contractor and the Owner's Superintendent or designee and notice of such approved changes shall be given to the Board at its next regular meeting. The Architect does not have such authority except as otherwise provided in the Contract Documents. Neither the Architect nor the Contract Documents may rely upon direction of any employee of the Owner who has not been designated in writing by the Superintendent or the Board; the Owner shall not be financially responsible for actions taken by the Architect or the Contractor in reliance upon direction from unauthorized persons.

14. § 2.1.2 is deleted and replaced with the following:

**§ 2.1.2** It shall be distinctly understood that no mechanic, Contractor, Subcontractor, material or equipment supplier, supplier of labor services, and suppliers of surveying, engineering, and other professional services shall ever in any manner have, claim, or acquire any lien upon the buildings, equipment, or furnishings or any of the improvements of whatsoever nature or kind so erected or to be erected by virtue of this Contract or upon any of the land on which said buildings or any of its improvements are to be erected, built or situated, such property belonging to a political subdivision of the State of North Carolina.

15. A new § 2.1.3 is added as follows:

**§ 2.1.3** The Owner shall require the Contractor, the Subcontractors, the Architect and the Architect's consultants to meet periodically at mutually-agreed-upon intervals, for the purpose of establishing procedures to facilitate cooperation, communication, and timely responses among the participants in the performance of the Work.

16. A new § 2.1.4 is added as follows:

**§ 2.1.4** The Owner may require that the Contractor use and/or respond to certain Owner furnished forms or inquiries regarding the status of the Work during the course of the Project. From time to time, there may be future revisions, changes, additions, or deletions to these forms. The fact that the Owner modifies and increases reasonable reporting requirements shall not serve as the basis for a claim for additional time or compensation by the Contractor.

17. A new § 2.1.5 is added as follows:

**§ 2.1.5** The Contractor stipulates and agrees that the Owner has no duty to discover any design defects, errors, or omissions whether in the Drawings, Plans, Specifications and other Construction Documents. The Owner will, however, notify the Contractor and the Architect of design defects, errors or omissions of which the Superintendent of the Board or the Board have actual knowledge. By entering into the Contract Documents or any Agreement with any Architect, the Owner does not warrant the adequacy and accuracy of any Drawings, Plans, Specifications or other Construction Documents.

18. §§ 2.2, 2.2.1, 2.2.2, 2.2.3, and 2.2.4 are deleted in their entirety.

19. § 2.3.6 is amended by deleting the words "pursuant to Section 1.5.2" from the sentence.

20. §§ 3.1.1, 3.1.2, and 3.1.3 are amended by deleting the word "Documents" in all three sections.

21. A new § 3.1.4 is added as follows:

**§ 3.1.4** The Contractor represents and warrants the following to the Owner (in addition to the other representations and warranties contained in the Contract Documents), as an inducement to the Owner to execute this Contract, which representations and warranties shall survive the execution and delivery of the Contract and the Final Completion of the Work:

- .1 that it is financially solvent, able to pay its debts as they mature, and possessed of sufficient working capital to complete the Work and perform its obligations under the Contract;
- .2 that it is able to furnish the tools, materials, supplies, machinery, equipment and labor required to timely complete the Work and perform its obligations hereunder and has sufficient experience and competence to do so;

- .3 that it is authorized to do business in the State where the Project is located and properly licensed by all necessary governmental, public, and quasi-public authorities having jurisdiction over it, the Work, or the site of the Project; and
- .4 that the execution of the Contract and its performance thereof are within its duly authorized powers.

22. § 3.2.1 shall be amended by adding the following at the end of the existing paragraph:

The Contractor represents and warrants by submission of a Proposal that he has carefully examined the Project Manual and Addenda, the Contract Documents, any soil test reports, drainage studies, geotechnical or other reports and the site of the Work, and that, from his own investigations, he has satisfied himself as to the nature and location of the Work, the condition of the site, the scope of the Work, weather conditions at the site of the Work, the character, quality and quantity of surface and subsurface materials likely to be encountered, the character of machinery and equipment and other facilities needed for the performance of the Work, the character, quality, quantity, and availability of labor and Subcontractors required for the Work, the character, quality and quantity of labor required for the Work, the character, quality and quantity of professional services required for the Work, the character, quality, quantity and availability of materials, machinery, equipment and furnishings required for the Work, and all other matters and things which may in any way affect the Work or its performance. Should the Contractor find discrepancies, omissions or conflicts within the Contract Documents, or be in doubt as to their meaning, the Contractor shall at once notify in writing the Architect and the Owner, and the Architect will issue a written addendum to all parties that is consistent with the Owner's Scope of the Work. The Contractor shall not be entitled to any additional time or compensation for the Contractor's failure to visit the site, or any additional Work caused by the Contractor's fault, by improper construction, or by the Contractor's failure to visit the site or to carefully study and compare Contract Documents prior to execution of the Work.

23. § 3.2.2 is amended by deleting "not" and deleting "; however," in the second sentence of the paragraph; adding a period after the word "Documents"; capitalizing the letter "t" in the second sentence following the deleted word "however"; and adding the words "and Owner" after the word "Architect" in the second sentence.

Sec. 3.2.2 is further amended by adding the following at the end of the existing paragraph:  
"The Contractor shall not perform any work involving an error, inconsistency, or omission without further instructions from the Architect or revised Contract Documents from the Architect."

24. § 3.2.3 is amended by inserting "Neither the Owner nor" at the beginning of the paragraph; changing the upper case "T" to a lower case "t" for the word "The"; delete "not" in the first line of the paragraph; add "and Owner" following the words "report to the Architect".

25. § 3.2.4 is amended by adding the following at the beginning of the existing paragraph:

If the Contractor has knowledge that any of the products or systems specified will perform in a manner that will limit the Contractor's ability to satisfactorily perform the Work or to honor its warranties, or will result in a limitation of or interference with the Owner's intended use, then the Contractor shall promptly notify the Architect and the Owner in writing, providing substantiation for its position. Any necessary changes in the Work, including substitutions, shall be accomplished by appropriate Modification.

Add the words "changes in the Work," after the words "because of" and a comma after the word "clarifications" in the original first sentence;

Add the words "or this section" after the number 3.2.3 in both the original first sentence and the original second sentence;

Add the words "and the Contractor shall not be entitled to additional compensation or time for performance of the Work." at the end of the original second sentence.

26. Add a new § 3.2.5 as follows:

**§ 3.2.5** Prior to performing any Work, the Contractor shall locate all utility lines as shown and located on the plans and specifications, including telephone company lines and cables, sewer lines, water pipes, gas lines, electrical lines, including, but not limited to, all buried pipelines and buried telephone cables, and shall perform any Work in such a manner so as to avoid damaging any such lines, cables, pipes and pipelines during its Work, and shall be responsible for any loss, damage or extra expense resulting from such damage. Repairs shall be made immediately to restore all service. Any delay for such break shall be attributable to the Contractor. In addition, the Contractor shall review appropriate AHERA and hazardous material surveys for the Project, and shall notify all Subcontractors and Sub-Subcontractors of the necessity to review said surveys. The Contractor shall perform any Work in such a manner as to avoid damaging, exposing, or dislodging any asbestos-containing materials or other hazardous materials that are clearly identified and located in AHERA and other hazardous material surveys. Before performing any portion of the Work, the Contractor shall fully investigate all physical aspects of the Project Site and verify all dimensions, measurements, property lines, grades, and elevations, existing improvements, and general suitability of existing conditions at the Project site.

27. Add a new § 3.2.6 as follows:

**§ 3.2.6** The Contractor shall arrange meetings prior to commencement of the Work of all major Subcontractors to allow the Subcontractors to demonstrate an understanding of the Work and Contract Documents to the Architect and to allow the Subcontractors to ask for interpretations, when necessary. Each major Subcontractor shall review the Project Manual and the Construction Documents and shall evaluate and satisfy themselves as to the conditions and limitations under which the Work is to be performed.

28. Add a new § 3.3.4 as follows:

**§ 3.3.4** The Contractor shall properly and efficiently coordinate the timing, scheduling and routing of all Work performed by all trades and Subcontractors. The Contractor shall develop and maintain a schedule of critical path construction activities for the Work. This critical path schedule shall be updated at least bi-monthly and presented to the Architect upon request.

29. Add a new § 3.3.5 as follows:

**§ 3.3.5** The Contractor shall review Subcontractor safety programs, procedures, and precautions in connection with performance of the Work. However, the Contractor's duties shall not relieve any Subcontractor(s) or any other person or entity, including any person or entity with whom the Contractor does not have a contractual relationship, of their responsibility or liability relative to compliance with all applicable federal, state, and local laws, rules, regulations, and ordinances and manufacturers' instructions which shall include the obligation to provide for the safety of their employees, other persons, and property and the requirements to maintain a work environment free of recognized hazards.

30. Add a new § 3.3.6 as follows:

**§ 3.3.6** It is understood and agreed that the relationship of the Contractor to the Owner shall be that of an independent Contractor. Nothing contained in this Agreement or inferable from this Agreement shall be deemed or construed to: 1) make the Contractor the agent, servant or employee of the Owner; or 2) create any partnership, joint venture, or other association between the Owner and the Contractor. Any direction or instruction by the Owner or any of its authorized representatives in respect of the Work shall relate to the results the Owner desires to obtain from the Work, and shall in no way affect the Contractor's independent Contractor status.

31. **§ 3.4.1** is amended by adding "qualified, careful, and efficient workers and" in the first sentence before "labor", and after "labor" add "eligible to work in accordance with state and federal law".

At the end of the original paragraph of § 3.4.1 add the following:

Before ordering any material or doing any Work, the Contractor shall verify that all dimensions specified in the Drawings, Specifications and other Construction Documents are consistent with all actual dimensions in the field. Any inconsistency shall be brought to the attention of the Architect. In the event that discrepancies exist and the Architect was not notified beforehand, then costs to correct and/or replace ordered materials shall be borne by the Contractor. This subsection does not relieve the Architect of any contractual duties owed to the Owner.

32. **§ 3.4.2** is amended by adding "prior written" before "consent of the Owner".

33. A new § 3.4.4 is added as follows:

**§ 3.4.4** Including, but not limited to, the specific requirements of § 3.3.5 and Article 10, the Contractor, its Subcontractors and vendors shall bear responsibility for compliance with all federal, state and local laws, regulations, guidelines, and ordinances pertaining to safety of persons and property applicable to the Work. The Contractor further recognizes that the Owner

and the Architect do not owe the Contractor any duty to supervise or direct its work so as to protect the Contractor from the consequences of its own conduct.

34. § 3.5 is amended as follows:

§ 3.5 shall be amended by changing the section title "WARRANTY" to "WARRANTIES AND GUARANTEES".

35. § 3.5.1 is amended by adding the following language after the original second sentence in subsection 3.5.1:

The Contractor further warrants and guarantees that Contractor shall perform the Work in a good and workmanlike manner, continuously and diligently in accordance with generally accepted standards of construction practice for construction projects similar to the Project, except to the extent the Contract Documents expressly specify a higher standard, in which case the standard shall be the higher standard. All material shall be installed in a true and straight alignment, level and plumb, patterns shall be uniform, and joining of materials shall be flush and level, unless otherwise directed in writing by the Architect.

Delete the words "or equipment" and replace with "systems, machinery, equipment or components" in the original third sentence of § 3.5.1.

Change the word "may" to "will" in the original third sentence of § 3.5.1.

36. § 3.5.2 is amended as follows:

Delete the words "in accordance with § 9.8.4" and substitute the words "on the date of Final Completion as provided in § 9.10".

Add the following paragraph following the first sentence of the section:

All specified express warranties required by the Contract Documents on workmanship, equipment, machinery, materials, systems, or components shall be submitted in writing to the Architect for delivery to the Owner no later than the date of Final Completion. Unless specified otherwise, all warranties shall run from the date of Final Completion for a period of three (3) years. Warranties under Section 3.5.1 are not exclusive of any other warranties or guarantees set out in other places in the Contract Documents or expressed or implied under applicable law.

37. Add a new § 3.5.3 as follows:

**§ 3.5.3** Upon written notice from the Owner or the Architect, the Contractor shall promptly remedy defects in the Work as covered by applicable warranties. If the Contractor does not respond to the written notice within ten (10) days of Contractor's receipt of a written notice, either by beginning corrective work or notifying the Owner in writing regarding when corrective work will begin, the Owner may take measures to correct the Work and the Contractor will be obligated to reimburse the Owner's costs including reasonable consultant, engineering and legal fees. The



provisions of this subparagraph shall be in addition to, and not in lieu of, any other rights and remedies available to the Owner.

38. Add a new § 3.5.4 as follows:

**§ 3.5.4** The Contractor agrees to perform the Work in such manner so as to preserve any and all manufacturers, suppliers, installers', material, and performance warranties.

39. Add a new § 3.5.5 as follows:

**§ 3.5.5** The warranties of the Contractor provided in Section 3.5 shall in no way limit or abridge the warranties of the manufacturers, suppliers, and installers of materials, machinery, equipment, systems or components, performance warranties, and process warranties which are to comprise a portion of the Work and all such warranties shall be in form and substance as required by Contract Documents. The Contractor shall take no action or fail to act in any way which results in the denial, termination, or expiration of such third-party warranties or which otherwise results in prejudice to the rights of the Owner under such warranties. The Contractor agrees to provide all notices required for the effectiveness of such warranties and shall include provisions in the contracts with the suppliers, manufacturers, and installers of such materials, machinery, systems, and equipment whereby the Owner shall have a direct right, but not a duty, of enforcement of such warranty obligations.

40. Add a new § 3.5.6 s as follows:

**§ 3.5.6** Prior to Final Completion of the Work, and as a requirement for achieving Final Completion the Contractor shall:

- .1 Obtain duplicate originals of all warranties, executed by the Contractor and all Subcontractors, manufacturers, suppliers, and installers, making the dates of beginning of the warranties the Date of Final Completion unless otherwise required by the Contract Documents;
- .2 Verify that the documents are in proper form, contain full information, and have been signed by the proper parties with full authority to sign the same;
- .3 Co-sign or sign warranties when required;
- .4 Bind all warranties in an 8-1/2 x 11 inch three-ring binder, with hardback, cleanable, plastic covers;
- .5 Label the cover of each binder with a typed or printed label entitled "WARRANTIES", along with the title of the Project, name, address and telephone number of the Contractor, and name of its responsible principal;
- .6 Include a Table of Contents, with each item identified, and with the name, address, and telephone numbers of each party executing the warranty;

- .7 Separate each warranty with index tab sheets keyed to the Table of Contents listing;
- .8 Deliver warranties in the form described above, to the Architect who will review same prior to submission to the Owner and who will then submit the same to the Owner.

41. § 3.11 is amended by adding "field test records, inspection certificates or records, manufacturers' certificates," after "Shop Drawings," in the first sentence and by adding "at all times" in the second sentence after "Architect and Owner".

42. § 3.12.2 is deleted and replaced with the following:

**§ 3.12.2 Product Data consists of written, printed, drawn, sound recording, video recording, computer generated, electronic or any other form of communication created by manufacturers, suppliers, testing organizations, standards organizations, manufacturer and supplier associations and trade groups, and similar creators of such communications, regarding materials, equipment, machinery, systems, processes and the components thereof, and regarding the installation, use, testing, operation, service, and maintenance thereof. By way of illustration, but not excluding other forms of such communication, Product Data is found in:**

- |                                  |                                   |
|----------------------------------|-----------------------------------|
| Manufacturer's Recommendations   | Installer Experience Requirements |
| Manufacturer's Instructions      | Test Data                         |
| Installation Manuals             | Performance Data                  |
| Construction Manuals             | Product Diagrams                  |
| Product Manuals                  | Product Drawings                  |
| Operation Manuals                | Performance Charts                |
| Product Specifications           | Instructions                      |
| Product Descriptions             | Brochures                         |
| Manufacturer's Requirements      | Illustrations                     |
| Production Information           | Assembly Instructions             |
| Installer Licensing Requirements | Charts                            |
| Installer Training Requirements  |                                   |

43. § 3.12.4 is amended by deleting the last sentence of the paragraph and substituting the following: "Informational submittals upon which the Architect is not expected to take responsive action shall be retained by the Architect and preserved for a period of ten (10) years following Final Completion."

44. § 3.12.5 is amended by deleting the word "approved" in the two places it appears in the third line of the paragraph and substituting the word "required" in each place.

45. § 3.12.8 is amended by adding the words "and in accordance with the informational submittals upon which the Architect is not expected to take responsive action" following the words "approved submittals" in the first sentence.

46. § 3.12.10 is amended by deleting the last sentence of the paragraph.

47. § 3.15.1 is amended by adding ", on a daily basis," after "Contractor" in the first line of the first sentence.

Add the following after the first sentence of the section:

The Contractor shall provide on-site containers for the collection of waste materials, debris, of all such materials at legal disposal areas away from the Project site. All cleaning operations shall be scheduled so as to ensure that contaminants resulting from the cleaning process will not fall on newly-coated or newly-painted surfaces.

Add the following at the end of the existing paragraph of the section:

Immediately after unpacking materials, equipment and machinery, all packing case lumber or other packing materials, wrapping or other like flammable waste shall be collected and removed from the building. Care shall be taken not to mark, soil, or otherwise deface any finish. In the event that any finish becomes defaced in any way the Contractor or any of its Subcontractors shall clean and restore such surfaces to their original condition.

48. Add a new § 3.15.3 as follows:

**§ 3.15.3** The Contractor shall be responsible for the protection of the Work. Prior to the Architect's inspection for Substantial Completion, the Contractor shall clean the exterior and interior surfaces exposed to view, remove temporary labels, stains, putty, soil, paint and foreign substances from all surfaces, including glass and painted surfaces, polish transparent and glossy surfaces, clean equipment and fixtures to a sanitary condition, replace air filters in mechanical equipment, clean roofs, gutters, and downspouts, remove obstructions and flush debris from drainage systems, clean site, sweep paved areas and rake clean other surfaces, remove trash and surplus materials from the site, clean and polish all floors, clean and polish all hardware, and repair all Work damaged during cleaning.

49. Add a new § 3.15.4 as follows:

**§ 3.15.4** After Substantial Completion and prior to Final Completion, the Contractor shall; (1) employ skilled workers for final cleaning, (2) remove grease, mastic adhesive, dust, dirt, stains, fingerprints, labels and other foreign materials from all sight-exposed interior and exterior surfaces, (3) wash and shine glazing and mirrors, (4) polish glossy surfaces to a clear shine, (5) vacuum clean carpeted and similar soft surfaces, (6) clean (damp mop with clean mop and water) resilient and hard surface floors repeating as necessary until no visible residue remains on floors, (7) clean plumbing fixtures to a sanitary condition, (8) clean surfaces of all equipment and remove excess lubrication, (9) clean permanent filters and replace disposable filters in ventilating systems if units were operated during construction and clean ducts, blowers, and coils, (10) clean light fixtures, (11) remove waste, foreign matter and debris from roofs, gutters, downspouts, yard drains, and drainage ways, (12) remove waste, debris and surplus materials from the site, (13) remove the stains, spills and foreign substances from paved areas, and (14) broom clean exterior concrete and paved surfaces and rake clean the grounds.

50. § 4.2.1 is amended by deleting the words "date the Architect issues the final Certificate for Payment" and substituting the words "end of the one-year period for correction pursuant to Section 12.2.2".

51. § 4.2.6 is amended by replacing "has authority to" with "shall" in the first sentence.

At the end of the existing paragraph add the following:

The Architect and the Contractor shall promptly notify, orally and in writing, the other party and the Owner of any fault or defect in the Work or nonconformance of the Work with the Contract Documents they may respectively discover and each, upon discovery of the defect or nonconformance, shall be responsible for notifying the other party and the Owner of those corrective actions they respectively take; provided, however, the Contractor shall have no duty to notify the Owner of discoveries made or actions taken by the Architect.

52. § 4.2.9 is amended as follows:

Capitalize the letters "f" and "c" in the words "final completion" in the first phrase.  
Add the words "and Final Completion" before the word "pursuant" in the second phrase.  
Add the words "and Section 9.10" after the words "Section 9.8" in the second phrase.

53. § 4.2.11 is amended in the first line by deleting "decide matters" and replacing it with "make recommendations".

54. § 4.2.12 is amended in the first line by deleting "and decision" and replacing it with "or recommendations" and placing a period after "Contractor" in the second sentence and deleting all of the remaining language to the end of the paragraph.

55. § 5.1.2 is amended by deleting the first sentence and replacing it with the following: "A Sub-Subcontractor is a person or entity of a lower tier than a Subcontractor who has a direct or indirect contract with a Subcontractor or with another Sub-Subcontractor."

56. A new § 5.2.5 is added as follows:

**§ 5.2.5** Each Contractor, Subcontractor and Sub-Subcontractor shall be required to completely familiarize themselves with the plans and specifications, to visit the Work site to completely familiarize themselves with existing conditions, and to conduct any other appropriate investigations, inspections or inquiries prior to submission of a bid or proposal. No increases in Contract Sums shall be allowed for failure to so inspect and investigate.

57. § 5.3 is amended by adding "§ 5.3.1" at the beginning of the original paragraph. The following new sentence is added after the first sentence of § 5.3.1: "The terms and conditions of the Contract Documents shall be incorporated by reference into each subcontract agreement, except as provided below."

58. Add a new § 5.3.2 as follows:

**§ 5.3.2** All agreements between the Contractor and Subcontractors shall state that the Owner "is an intended third-party beneficiary of this Contract." Consistent with third-party beneficiary status, neither the Owner nor the Architect shall be obligated to pay or to insure the payment of any monies to Subcontractors and Sub-Subcontractors.

59. Add a new § 5.3.3 as follows:

**§ 5.3.3** The Contractor shall require any potential Subcontractor to disclose to the Contractor any ownership interest or familial relationship between or among the Contractor, the Architect, the Owner and the potential Subcontractor prior to entering into a subcontract. The Contractor shall report to the Owner all such disclosures and the Owner shall have the right, in its sole discretion, to reject any such affiliated Subcontractor.

60. § 6.1.1 is amended by placing a period after the word "forces" in the second sentence and deleting the remainder of the second sentence after the period.

61. § 6.1.2 is deleted in its entirety.

62. § 6.1.4 is deleted in its entirety.

63. Add a new § 7.1.4 as follows:

**§ 7.1.4** Allowance balances may be used to fund changes in the Work. The Contractor will not be allowed an overhead, profit or fee mark-up when changes to the Work are funded by one of the Allowances.

64. Add a new § 7.2.2 as follows:

**§ 7.2.2** The Contractor expressly agrees that the acceptance of a Change Order by the Contractor constitutes full accord and satisfaction and release of any and all Claims, whether direct or indirect, arising from the subject matter of the Change Order.

65. Add a new § 7.3.11 as follows:

**§ 7.3.11** The Owner and the Contractor mutually agree that the fixed or percentage fee calculations shall not exceed the following:

- .1 for any Work performed by the Contractor's own forces, 15% of the costs of the change in the Work exclusive of overhead and profit;
- .2 for any Work performed by a Subcontractor or Sub-subcontractor, an amount not to exceed 22.5% of the costs of the change exclusive of overhead and profit, with 15% of that amount assigned to the Contractor and 7.5% assigned to the Subcontractor or Sub-subcontractor.

66. Add a new § 7.5 as follows:

## **§ 7.5 Items Excluded from Adjustments in the Contract Sum**

**§ 7.5.1** Costs for all changes in the Work shall not include the Contractor's capital expenses, including interest on the Contractor's capital employed for the Work.

**§ 7.5.2** Costs due to the fault or negligence of the Contractor, Subcontractors, and Sub-subcontractors, anyone directly or indirectly employed by any of them, or for whose acts and omissions any of them may be liable, including but not limited to costs for the correction of damaged, defective, or nonconforming Work, disposal and replacement of materials and equipment incorrectly ordered or supplied, and making good any damage to property which is not part of the Work or the Project shall not be included in any increase in the Contract Sum

67. Add a new § 7.6 as follows:

### **§ 7.6 Records and Accounts of Changes**

The Contractor shall check all materials, equipment, and labor entering into the Work as a result of changes in the Work and shall keep full and detailed accounts and records of quantities, prices, and costs thereof satisfactory to the Architect and the Owner. The Architect and the Owner shall have full access to all of the Contractor's accounts and records relating to changes in the Work, including but not limited to receipts, vouchers, cancelled checks, requests for quotations, quotations, requests for information, information, invoices, correspondence, memoranda, drawings, purchase orders, reports, inspections, instructions, change orders with Subcontractors and Sub-subcontractors and similar data.

68. § 8.1.2 is amended by deleting "established in the Agreement" and replacing it with the following language:

established in the written Notice to Proceed issued by the Architect. The Notice to Proceed shall not be issued by the Architect until the Agreement has been signed by the Contractor, representative, and the Owner and the Architect have received, and approved as to form, all required payment and performance bonds and insurance, in compliance with Article 11. Issuance of the Notice to Proceed shall not relieve the Contractor of its responsibility to comply with Article 11.

69. § 8.1.3 is amended by adding the following new sentence after the first sentence:

The date of Final Completion is the date certified by the Architect in accordance with Paragraph 9.10. Unless otherwise agreed in writing by the Owner, the Contractor agrees that Final Completion shall occur not more than thirty (30) days after the date of Substantial Completion.

70. § 8.2.3 is amended by adding the words "and Final Completion" after the words "Substantial Completion".

71. Add a new § 8.2.4 as follows:



**§ 8.2.4** The Contractor is subject to damages, as specified in Article 4 of AIA Document A101-2017 Standard Form of Agreement Between Owner and Architect if the Work is not completed by the dates of Substantial Completion and Final Completion.

72. § 8.3.1 is deleted and replaced with the following

**§ 8.3.1** If the Contractor is delayed at any time in the commencement or progress of the Work by (1) an act or neglect of the Owner or Architect, of an employee of either, or of a Separate Contractor; (2) by changes ordered in the work; (3) by governmental actions, fire, adverse weather conditions documented in accordance with Section 15.1.6.2; (4) by delay authorized in writing by the Owner; or (5) by other causes that the Contractor asserts, and the Architect determines, justify delay, then the Contract Time may be extended for such reasonable time as the Architect and the Owner may determine.

73. § 8.3.3 is deleted and replaced with the following:

**§ 8.3.3** This Agreement does not permit the recovery by the Contractor of monetary damages, including, without limitation, extended home office overhead expenses, general conditions, consequential damages, or other compensable damages for delay or disruption or for extensions of time due to bad weather or acts of God, unless caused solely by the Owner or its Agent. In the event that a delay, disruption or extension of time beyond the contract dates for Substantial Completion or Final Completion is caused solely by the Owner or its Agent, then the Contractor may claim actual direct expenses that have only been incurred as a direct result thereof.

74. § 9.3.1 is amended by deleting the words ", if required," in both the first and second sentences.

75. § 9.3.2 is deleted and replaced with the following:

**§ 9.3.2** Payments will be made on the basis of invoices for specific materials or equipment incorporated in the Work and specified materials or equipment (1) suitably stored at the site or (2) suitably stored at some off-site location, provided the following conditions are met for off-site storage:

- .1 The location must be agreed to, in writing, by the Owner and Surety.
- .2 The location must be a bonded warehouse.
- .3 The Contractor's Surety must agree, in writing, to the amounts included in each Application for Payment.
- .4 The Contractor must bear the cost of the Owner's and the Architect's expenses related to visiting the off-site storage area and reviewing the stored contents. The Contractor acknowledges that the Architect's time is an additional service and shall compensate the Architect directly for same.
- .5 Payment shall not include any charges for overhead or profit on stored materials.

.6 Payments for materials or equipment stored on or off the site shall be conditioned upon submission by the Contractor of bills of sale or such other procedures satisfactory to the Owner to establish the Owner's title to such materials or equipment or otherwise protect the Owner's interest, including applicable insurance (naming the Owner as insured and naming the specific materials or equipment stored and their location) and transportation to the site for those materials and equipment are delivered to the Owner's site. Failure to follow these procedures shall result in nonpayment for storage of or insurance on stored materials and equipment. Failure to follow these procedures shall also result in nonpayment of materials and equipment until said materials and equipment are incorporated into the Work.

76. § 9.3.3 is amended by adding the following at the end of the existing paragraph:

**CONTRACTOR SHALL INDEMNIFY AND HOLD OWNER HARMLESS FROM ANY LIENS, CLAIMS, CLAIMS OF TITLE, SECURITY INTERESTS, OR ENCUMBRANCES OF THE CONTRACTOR, SUBCONTRACTORS, SUB-SUBCONTRACTORS, MATERIAL SUPPLIERS, MANUFACTURERS, INSTALLERS, CREDITORS, OR ANYONE CLAIMING BY, THROUGH OR UNDER THEM FOR ITEMS COVERED BY PAYMENTS MADE BY THE OWNER TO CONTRACTOR.**

77. § 9.4.2 is amended by adding the word "and" before "(2)" and placing a period after the word "procedures" in phrase (2) and deleting the remainder of the paragraph.

78. § 9.5.1.7 is amended by replacing the period with a semi-colon and adding "or" after it.

79. Add a new § 9.5.1.8 as follows:

**.8 failure to submit a written plan indicating action by the Contractor to restore, keep or maintain the Work on schedule for completion of Work within the Contract time.**

80. Add a new § 9.5.5 as follows:

**§ 9.5.5 Notwithstanding any provision contained within this Article, if the Work has not attained Substantial Completion or Final Completion by the required dates, subject to extensions of time allowed under these Conditions, then the Architect may withhold any further Certificate for Payment to the Contractor to the extent necessary to preserve sufficient funds to complete construction of the Project and to cover any damages as set forth in the Agreement. The Owner shall not be deemed in default by reason of withholding payment as provided for in § 9.3.2, § 9.5.1, or this § 9.5.5.**

81. § 9.6.1 is amended by adding "for undisputed amounts" after "shall make payment" in the first sentence and adding the following at the end of the sentence:

**The Owner shall notify the Contractor within twenty-one (21) days if the Owner disputes the Architect's Certificate for Payment or the Contractor's Payment Application, listing the specific**

reasons for nonpayment. Payments to the Contractor shall not be construed as releasing the Contractor or the Surety from any obligations under the Contract Documents or the Performance and Payment Bonds.

82. § 9.7 is amended by adding the words "the undisputed amount" after the word "Contractor" in the second line of the first sentence, by adding the word "undisputed" before the word "amount" in the third line of the first sentence, and by deleting the words "or awarded by binding dispute resolution" in the first sentence.
83. § 9.8.1 is amended by deleting the words "or designated portion thereof".
84. § 9.8.2 is amended by adding "in writing" after the word "Owner".
85. § 9.8.3 is amended by deleting the words "so that the Owner can occupy or utilize the Work or designated portion thereof for its intended use" from the second sentence.
86. § 9.8.4 is amended by deleting the words "or designated portion thereof" from the first sentence, placing a period after the second usage of the words "Substantial Completion", and deleting the remainder of the paragraph.
87. § 9.8.5 is deleted and replaced with the following:
- § 9.8.5** The Contractor shall achieve Final Completion of the Work within thirty (30) days after the date the Contractor achieves actual Substantial Completion as determined by the Architect.
88. § 9.9.1 is amended by deleting the remainder of the section after the first sentence.
89. § 9.10.2 is deleted and replaced with the following:

**§ 9.10.2** Neither final payment nor any remaining retainage percentage shall become due until the Contractor submits to the Architect and the Architect delivers to the Owner:

- (1) using AIA Document G706-1994, an affidavit that payrolls, bills for materials and equipment, and other indebtedness connected with the Work for which the Owner or the Owner's property might be responsible or encumbered (less amounts withheld by Owner) have been paid or otherwise satisfied;
- (2) evidence satisfactory to the Owner that insurance required by the Contract Documents to remain in force after final payment is currently in effect and will not be canceled or allowed to expire until at least 30 days' prior written notice has been given to the Owner;
- (3) a written statement that the Contractor knows of no substantial reason that the insurance will not be renewable to cover the period required by the Contract Documents;
- (4) using AIA Documents G707-1994, consent of sureties to final payment;
- (5) AIA Document G706A-1994 Contractor's Affidavit of Release of Liens liens;
- (6) receipts, releases, waivers and cancellation of liens, claims, security interests, claims of title, or encumbrances arising out of the Contractor's performance of the Work;
- (7) unconditional certificate of occupancy from governmental entities having jurisdiction over the Project and the Work; and

- (8) certifications and inspection reports for installations and systems such as elevators and boilers.

In addition, the following items must be completed by the Contractor and received by the Owner before Final Payment will be due:

- (9) written certifications required by Section 10.5, 10.6, and 10.7;
- (10) final list of Subcontractors (AIA Document G705-2001);
- (11) warranties, organized as required elsewhere in the Contract Documents;
- (12) maintenance, operation, use, repair and instruction manuals;
- (13) the Owner's Final Certificate and Release form; and
- (14) record drawings and "as built" drawings. At the completion of the Project, the Contractor shall submit one complete set of "as built" drawings, with all changes made during construction, including concealed mechanical, electrical and plumbing items. The Contractor shall submit these as electronic, sepi, or other acceptable medium, in the discretion of the Owner.

Documents identified as affidavits must be notarized. All manuals will contain an index listing the information submitted. The index section will be divided and identified by tabbing each section as listed in the index. Upon request, the Architect will furnish the Contractor with blank copies of the forms listed above. Final payment shall be paid by the Owner to the Contractor within thirty (30) days after the Owner's Board has voted to approve Final Payment.

90. § 9.10.4 is amended by deleting the entire section and adding a new § 9.10.4 as follows:

**§ 9.10.4** Acceptance of the Work and the making of final payment does not constitute a waiver of any claims by the Owner.

91. Add a new § 10.1.1 as follows:

**§ 10.1.1** The Contractor's employees, agents, Subcontractors, anyone directly or indirectly employed by any of them, or anyone for whose acts any of them may be liable, shall not perform any service for the Owner while under the influence of any amount of alcohol or any controlled substance, or use, possess, distribute, or sell alcoholic beverages or any controlled substance while on the Owner's premises. No person shall use, possess, distribute or sell illicit or unperceived controlled drugs or drug paraphernalia; misuse legitimate prescription drugs; or act in contravention of warnings on medications while performing the Work or on the Owner's premises.

92. Add a new § 10.1.2 as follows:

**§ 10.1.2** The Contractor has adopted or will adopt its own policy to assure a drug-free and alcohol-free workplace while on the Owner's premises or performing the Work. The Contractor will remove any of its employees, agents, Subcontractors, anyone directly or indirectly employed by any of them, or anyone for whose acts any of them may be liable, from performing the Work any time there is suspicion of alcohol and/or drug use, possession, or impairment involving such person, and at any time an incident occurs where drug or alcohol use could have been a contributing factor. The Owner has the right to require the Contractor to remove any person from performing the Work any time cause exists to suspect alcohol or drug use. In such cases, the person so removed may only be considered for return to work after the Contractor certifies as a result of a for-cause-test, conducted immediately following removal that said person was in compliance with this Contract. The Contractor will not use any person to perform the Work who fails or refuses to take, or tests positive on, any for-cause alcohol or drug test.

93. Add a new § 10.1.3 as follows:

**§ 10.1.3** The Contractor will comply with all applicable federal, state and local drug and alcohol-related laws and regulations (e.g. Department of Transportation regulations, Drug-Free Workplace Act). The Owner has also banned the presence of all weapons on the Project site, whether or not the Owner thereof has a permit for a concealed weapon, and the Contractor agrees that the Contractor's representatives, employees, agents, Subcontractors and Sub-Subcontractors will abide by same.

94. § 10.2.1.1 is amended by adding, after "Work", the following ", school personnel, students, parents and other persons on the Owner's premises", and after "thereby", adding ", including the installation of fencing between the Work site and the occupied portion of a connecting or adjacent educational facility".

95. § 10.2.1.3 is amended by adding "other buildings, and their contents, fencing" after "such as"; and adding "athletic fields, facilities and tracks" after "walks".

96. § 10.2.4 shall be amended by deleting "explosives or other", and adding the following before the final period:

, and shall only conduct such activities after giving reasonable advance written notice of the presence or use of such materials, equipment or methods to the Owner and the Architect. The storage of explosives other than small explosive charges for nail or rivet guns on the Owner's property is prohibited. The use of explosive materials on the Owner's property other than small explosive charges for nail or rivet guns is prohibited unless expressly approved in advance in writing by the Owner and the Architect.

97. § 10.2.5 is amended by deleting the words "(other than damage or loss insured under property insurance required by the Contract Documents)".

98. Add a new § 10.2.9 as follows:

**§ 10.2.9** The Contractor shall do all things necessary to protect the Owner's premises and all persons from damage and injury, when all or a portion of the Work is suspended for any reason.

99. Add a new § 10.2.10 as follows:

**§ 10.2.10** The Contractor shall promptly report in writing to the Owner and the Architect all accidents arising out of or in connection with the Work which cause death, bodily injury or property damage, giving full details and statements of any witnesses. In addition, if death, serious bodily injuries, or serious property damages are caused, the accident shall be reported immediately by telephone or messenger to the Owner and the Architect.

100. § 10.3.3 is deleted in its entirety.

101. § 10.3.4 is amended by placing a period after the word "site" in the first sentence and by deleting the remainder of the paragraph.

102. § 10.3.6 is deleted in its entirety.

103. § 10.4 is amended by adding the words "or the environment" following the word "property" and by deleting the words ", at the Contractor's discretion," in the first sentence.

104. Add a new § 10.5 as follows:

**§ 10.5 Asbestos or Asbestos-Containing Materials**

Prior to payment of retainage and final payment, the Contractor shall submit to the Architect a written certification addressed to the Owner that all materials used in the construction of this Work contain less than 0.10% by weight of asbestos and for which it can be demonstrated that, under reasonably foreseeable job site conditions, will not release asbestos fibers in excess of 0.1 fibers per cubic centimeter. The written certification shall further state that, should asbestos fibers be found at this Work in concentrations greater than 0.1 fibers per cubic centimeter, then the Contractor shall be responsible for determining which materials contain asbestos fibers and shall take all necessary corrective action to remove those materials from the Work, at no additional cost to the Owner. The written certification shall be dated, shall reference this specific Work and shall be signed by an officer of the Contractor.

105. Add a new § 10.6, § 10.6.1, and § 10.6.2 as follows:

**§ 10.6 Lead-Free Material in Potable Water System**

**§ 10.6.1** Prior to payment of retainage and final payment, the Contractor and each Subcontractor involved with the potable water system shall furnish a written certification that the potable water system installed as a part of the Work is "lead-free".

**§ 10.6.2** The written certification shall further state that should lead be found in the potable water system built under this Work, then the Contractor shall be responsible for determining which materials contain lead and shall take all necessary corrective action to remove lead from the

Work, at no additional cost to the Owner. The written certification shall be dated, shall reference this specific Work and shall be signed by an officer of the Contractor.

106. Add a new § 10.7 as follows:

**§ 10.7 Hazardous Materials Certification**

The Contractor shall provide written certification that no materials used in the Work contain lead, asbestos, volatile organic compounds, formaldehyde, or other hazardous materials in them in excess of amounts allowed by federal, state or local standards, laws, codes, rules and regulations; the Federal Environmental Protection Agency (EPA) standards; and/or the Federal Occupational Safety and Health Administration (OSHA) standards, whichever is most restrictive. The Contractor shall provide this written certification as part of submittals under the Section in the Project Manual related to Contract Closeout.

107. Add a new § 11.1.5 as follows:

**§ 11.1.5** The Contractor shall not commence work under the Contract until it has obtained all insurance required under this Article and as required by law, and evidence thereof has been received by the Owner. The Owner and the Contractor may alter the insurance requirements herein by separate written amendment. The Contractor shall not allow any grading and site work, roofing, mechanical, plumbing or electrical subcontractor(s) to commence work until all similar insurance as specified in this Article has been so obtained and the Contractor has presented the Owner with a Certificate of Insurance evidencing such coverage. Prior to the commencement of any work, the Contractor shall require all other Subcontractors and any Sub-Subcontractors to provide insurance coverage as required by law and as reasonably necessary given the scope of the Subcontractor or Sub-Subcontractor's work. The Contractor shall present the Owner with a Certificate of Insurance evidencing such coverage. All Certificates of Insurance must be on Acord Form 25 or later version as approved by the North Carolina Department of Insurance.

108. Add a new § 11.1.6 as follows:

**§ 11.1.6** The Contractor's Liability Insurance shall include all major divisions of the Work and be on a comprehensive basis including:

- a) Premises/operations (including explosion, collapse and underground, as applicable).
- b) Independent Contractor's and Owner's and Contractor's Protective.
- c) Products and completed operations.
- d) Bodily and personal injury liability with employment exclusion deleted.
- e) Owned, non-owned and hired motor vehicles.
- f) Broad form property damage including completed operations.
- g) Any and all liability by way of indemnification, contribution and contractual liability.

109. Add a new § 11.1.7 as follows:

**§ 11.1.7** The insurance required by Section 11.1.1 shall be written for not less than the limits of liability specified in the Contract Documents or required by law, whichever coverage is greater. Coverages, which shall be written on an occurrence basis, shall be maintained without interruption from the date of the commencement of the Work until the date of expiration of the

§ 12.2.2.1 one-year period of correction of the Work following the date of final Completion or for such other longer period for maintenance for completed Work as specified in the Contract Documents.

110. Add a new § 11.1.8 as follows:

**§ 11.1.8** The insurance required by subparagraph 11.1.1 shall be written for not less than the following limits, or greater if required by law:

1. Worker's Compensation:

- a. State Statutory
- b. Applicable Federal Statutory
- c. Employer's Liability
  - i. \$100,000 Each Accident
  - ii. \$1,000,000 Disease, Policy Limit
  - iii. \$100,000 Disease, Each Employee

2. Commercial General Liability (including premises/operations, independent contractors, products and completed operations, and broad form property damage):

a. Bodily Injury & Property Damage (combined single limit):

- \$1,000,000 Each Occurrence
- \$2,000,000 Aggregate

b. Products and completed operations to be maintained for one (1) year after Final Payment.

3. Contractual Liability (Hold Harmless Coverage):

a. Bodily Injury & Property Damage (combined single limit):

- \$1,000,000 Each Occurrence
- \$2,000,000 Aggregate

4. Personal Injury, with employment exclusion deleted:

- a. \$1,000,000 Aggregate

5. Comprehensive Automotive Liability (owned, non-owned and hired):

a. Bodily Injury & Property Damage (combined single limit):

- \$1,000,000 Each Accident

6. Excess Liability (umbrella): Minimum Limits

- a. \$2,000,000 Over Primary Insurance  
Policies must follow the form of the base policies



7. **Owner's Protective Liability Insurance:** The Contractor shall purchase and maintain owner's protective liability covering the Owner's contingent liability for claims which may arise from operations under the Contract Documents. Limits of coverage required for this insurance shall be not less than \$1,000,000 combined single limit.

8. **Builders Risk Insurance:**

The Contractor shall effect and maintain all ISO Special Causes of Loss perils, including peril of transit upon the entire Project on which the Work is to be done, to one hundred percent (100%) of the insurable value thereof, including but not limited to items of labor and materials connected therewith, whether in or adjacent to the structure insured; materials in place or to be used as part of or in the construction of the permanent construction, including but not limited to surplus materials, shanties, protective fences, bridges, and temporary structures; miscellaneous materials and supplies incidental to the Work; and such scaffolding, staging, towers, forms, and equipment as are not owned or rented by the Contractor, the cost of which is included in the cost of the Work. Said insurance must be maintained in full until final completion of the Project and, prior to canceling said insurance, Contractor shall notify Owner in writing.

Exclusions: This insurance need not cover: any tools owned by the mechanics; and tools, equipment, scaffolding, staging, towers, and forms rented or owned by the Contractor, the capital value of which is not included in the Work; or any structures erected for housing of or service to workmen.

A loss, if any, is to be adjusted with the Owner, and is to be payable to the Owner and to the Contractor jointly, as their interests may appear. The Owner shall be named on the policy, by rider or other applicable endorsement as an additional insured.

111. Add a new § 11.1.9 as follows:

**§ 11.1.9 Certificates of Insurance:** No later than the date of the execution of the Contract, the Contractor will submit to the Owner four (4) copies of Certificates of Insurance on the latest approved North Carolina Department of Insurance Acord Form 25 by an insurer authorized to do business in North Carolina by the North Carolina Department of Insurance and rated A- (minus) or better by A.M. Best Company. The certificates shall certify that the insurance policies carried by Contractor were in force before the Work commenced and certifying that these policies will not be canceled during the Contract other than by an endorsement added to the policies and certificates reading substantially as follows: 'The policies herein referred to are not cancelable or subject to reduction of coverage by the Insurer unless the Owner has received thirty (30) days written notice via registered or certified letter.' Additional Certificates of Insurances will be provided, from time to time, as listed policies expire in order to evidence continuance insurance coverage from the date of the Contract through the end of the one (1) year correction period following the date of final completion. Certificates of Insurance containing disclaimers holding the insurer harmless for failure to notify the Owner of Contractor policy cancellations will not be acceptable and should be modified to delete such disclaimers from the Insurance Certificate

forms. Evidence of insurance requirements of these Supplementary General Conditions may be provided by modification to Acor Form 25 by endorsement, rider or separate certification by the insurer. No surplus lines insurance shall be acceptable.

In preparation of these forms, the following items should read:

1. The description of the Project / the Work / operations / locations / vehicles / special items.
2. The certificate holder is:

THE \_\_\_\_\_ COUNTY BOARD OF EDUCATION

3. The cancellation statement is:

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELED BEFORE THE EXPIRATION DATE THEREOF, THE ISSUING COMPANY WILL MAIL THIRTY (30) DAYS PRIOR WRITTEN NOTICE TO THE CERTIFICATE HOLDER NAMED TO THE LEFT.

All blanks and questions on certificates must be filled out completely. Incomplete or inadequate certificates will be returned to Contractor as unsatisfactory and commencement of its Work will be delayed until satisfactory certificates are submitted. Such delay will not warrant extension of Contract Time. In the event of a reduction in any aggregate limit, the Contractor shall take immediate steps to have it reinstated. All insurance coverages of the Contractor shall be primary to any insurance or self-insurance program carried by the Owner. Renewal Certificates of Insurance on the Owner's form must be provided to the Owner thirty (30) days prior to expiration of current coverages so that there shall be no interruption in the Work due to lack of proof of insurance coverages required of the Contractor in the Contract Documents.

112. Add a new § 11.1.10 as follows:

**§ 11.1.10** The acceptance of delivery to the Owner of any Certificate of Insurance evidencing the insurance coverages and limits required in the Contract does not constitute approval or agreement by the Owner that the insurance requirements in the Contract have been met or that the insurance policies shown in the Certificates of Insurance are in compliance with the Contract requirements.

113. Add a new § 11.1.11 as follows:

**§ 11.1.11** Should at any time the Contractor not maintain the insurance coverages required of it in the Contract Documents, the Owner may either cancel or suspend the Contract or, at its sole discretion, shall be authorized to purchase such coverage and charge the Contractor for such coverages purchased. The Owner shall be under no obligation to 1) purchase such insurance 2) be responsible for the coverages purchased or 3) be responsible for the insurance companies used. The decision of the Owner to purchase such insurance coverages shall in no way be construed to be a waiver of its rights under the Contract Documents.

114. Add a new § 11.1.12 as follows:

**§ 11.1.12** If any General Liability Insurance required herein is to be issued or renewed on a "claims made" form as opposed to the "occurrence" form, the retroactive date for coverages shall be no later than the commencement date of the Project, the extended reporting period date for claims shall be seven (7) years following the date of Final Completion, and shall provide that in the event of cancellation or non-renewal the discovery and extended reporting period of claims shall be unlimited.

115. Add a new § 11.1.13 as follows:

**§ 11.1.13** All policies described in paragraph 11.1 shall be made available to the Owner or its legal representatives by means of exact copies of the original policies and placed in the hands of the Owner or its representatives.

116. Add a new § 11.1.14 as follows:

**§ 11.1.14** If requested in writing by any party in interest, the Contractor shall, upon occurrence of loss, furnish bond for the proper performance of its duties. The Contractor shall deposit any money received from insurance in an account separate from all its other funds; and it shall distribute it in accordance with such agreement as the parties of interest may reach, or in the absence of such an agreement, as the interest of the parties may appear. Replacement of injured work shall be performed by the Contractor.

117. Add a new § 11.1.15 as follows:

**§ 11.1.15** The cost of the Bonds required by § 11.1.2 and the Contract Documents and required by law shall be included in the Contract Sum. The Bonds shall guarantee the Contractor's faithful performance of the Contract and the payment of all obligations arising thereunder. The Bonds shall remain in force until the later of the following has occurred:

- a. the Contract has been fully performed by the Contractor;
- b. the Project has been completed and accepted by the Owner;
- c. the provisions of all warranties and guarantees required by the Contract Documents have been fulfilled;
- d. the time for the filing of all mechanics liens has expired; and
- e. the applicable statute of repose, in the North Carolina General Statutes has expired.

Bonds which seek to limit the time for bringing a suit on the bonds to less than the foregoing are unacceptable.

118. § 11.2 is amended by deleting the word "**Insurance**" and substituting the words "**Risk Management**" in its place.

119. § 11.2.1 is amended by deleting the paragraph in its entirety and substituting the following paragraph:

The Owner shall purchase and maintain its usual and customary general liability and property insurance, or, in the alternative, the Owner may obtain and maintain all or part of its risk management services by participating in a risk management trust, risk management pool, or other alternative to purchase of insurance from commercial insurance companies.

120. §§ 11.2.2 and 11.2.3 are deleted in their entirety.
121. §§ 11.3, 11.3.1, and 11.3.2 are deleted in their entirety.
122. § 11.4 is deleted in its entirety.
123. §§ 11.5, 11.5.1, and 11.5.2 are deleted in their entirety.
124. § 12.1.1 is amended by adding "or the Owner's" after the first and second use of the word "Architect's", and by adding "or the Owner" after "by the Architect".
125. § 12.1.2 is amended by adding "or the Owner" after "covered, the Architect" in the second line of the first sentence.
126. § 12.2.1 is amended by deleting the word "**Substantial**" in the title to the section and substituting the word "**Final**" in its place, by adding the word "Work" after the words "Architect or" in the first line of the first sentence of the section, and by deleting the words "Substantial Completion" and substituting the words "Final Completion" in their place in the second line of the first sentence of the section.
127. § 12.2.2 is amended by deleting the word "**Substantial**" in the title to the section and substituting the word "**Final**" in its place.
128. § 12.2.2.1 is deleted and replaced with the following:

**§ 12.2.2.1** In addition to the Contractor's obligation to perform the Work in accordance with the Contract and in addition to all express and implied warranties, including without limitation the Contractor's obligations under § 3.5, if, within one year after Final Completion of the Work, any of the Work is found to be not in accordance with the requirements of the Contract Documents, the Contractor shall correct it promptly after receipt of written notice from the Owner to do so. The cost of correcting the Work, including additional testing and inspections and compensation for the Architect's services and expenses made necessary by such correcting shall be at the Contractor's expense.

129. Sec. 12.2.2.2 is deleted and replaced with the following:

**§ 12.2.2.2** If the Contractor fails to perform the corrective Work, then the Owner may perform corrective Work, at the Contractor's expense. If the Owner performs corrective Work, then the

Owner may also remove nonconforming Work and store the salvageable materials or equipment at the Contractor's expense. If the Contractor does not pay all costs incurred by the Owner within ten (10) days after written notice, then the Owner may, upon ten (10) additional days' written notice, sell the removed materials and equipment in accordance with the Owner's policies, and shall account for the proceeds thereof, after deducting costs and damages that should have been borne by the Contractor, including compensation for the Architect's services and expenses made necessary thereby. If such proceeds of sale do not cover costs which the Contractor should have borne, including the costs of additional testing and inspection and compensation for the Architect's services and expenses made necessary thereby, then the Contractor shall pay the difference to the Owner within 30 days after written demand made by the Owner to the Contractor for payment of such costs.

- 130. § 12.2.2.3 is deleted in its entirety.
- 131. Sec. 12.2.5 is amended by deleting the words "as described in Section 12.2.2" in the second sentence of the section, placing a period after the words "Contractor's obligations" in the last line of the second sentence of the section, and deleting the remainder of the second sentence following the period.
- 132. Add a new § 12.4 as follows:

**§ 12.4 Repairs by Owner**

The Owner may make emergency repairs to the Work. In addition, the Owner may perform or cause to be performed corrective Work and take such other measures necessary under the circumstances if the Contractor does not promptly respond to a notice of defective or nonconforming Work. The Contractor shall pay the costs of the emergency repairs or the corrective Work, including the costs of additional testing and inspection and compensation for the Architect's services and expenses made necessary thereby within 30 days after written demand made by the Owner to the Contractor for payment of such costs.

- 133. § 13.1 is deleted and replaced with the following:  
  
**Sec. 13.1** The Contract is governed by the laws of the State of North Carolina and any litigation shall be conducted in the appropriate division of the General Court of Justice. Mandatory and exclusive venue for any disputes shall be in the county in which the Owner's main administrative office is located. The invalidity of any part or provision of the Contract shall not impair or affect in any manner whatsoever the validity, enforceability or effect of the remainder of the Contract.
- 134. § 13.2.2 is amended by placing a period after the word "Project" and deleting the remainder of the paragraph.
- 135. § 13.4.4 is amended by inserting "with a copy to the Owner" before the period.
- 136. Add a new section 13.6 as follows:

**§ 13.6 Records**

§ 13.6.1 The Contractor shall at all times through the date of Final Completion, maintain Job Records, including, but not limited to, invoices, payment records, payroll records, daily reports, diaries, logs, instructions, drawings, receipts, subcontracts, purchase orders, vouchers, memoranda, or other financial data and job meeting minutes applicable to the Project, in a manner which maintains the integrity of the documents. Job Records must be retained by the Contractor for at least twelve (12) years after the date of Final Completion of the Project. Within ten (10) days of the Owner's request, the Contractor shall make such Job Records available for inspection, copying and auditing by the Owner, the Architect or their respective representatives, at the Owner's central office.

137. § 14.1.1 is amended by deleting subsection 14.1.1.4.
138. § 14.2.4 is amended by deleting the last sentence.
139. Article 15 shall be amended in the title by adding "OF CONTRACTOR" at the end of the existing title.
140. § 15.1.1 shall be amended by deleting "one of the parties" and replacing it with "the Contractor"; inserting "interpretation of Contract terms, extension of time," after "money,"; before the period at the end of the first sentence add ", the Project or the Work"; deleting the second sentence in its entirety; deleting at the end of the paragraph "party making the Claim" and replacing it with "Contractor"; and deleting the last sentence.
141. § 15.1.2 is deleted in its entirety.
142. § 15.1.3.1 is amended by deleting in the first sentence "either the Owner or" and replacing it with "the"; deleting "other party" and replacing it with "Owner"; deleting "Initial Decision Maker with a copy sent to the"; deleting ", if the Architect is not serving as the Initial Decision Maker.". The second sentence is amended by deleting "either party" and replacing it with "the Contractor"; inserting "calendar" after "21" in both places; replacing "claimant" with "Contractor"; inserting "knew or should have known of", in the place of the word "recognizes".

Add the following at the end of the amended § 15.1.3.1 paragraph:

Claims must be initiated by written notice titled "Notice of Claim" ("Notice") and sent to the Architect and the Owner's designated representative. The Notice shall clearly set out the specific matter of complaint, and the impact or damages which may occur or have occurred as a result thereof. To the extent that the damages cannot be assessed at the time of the Notice, the Notice shall be amended at the earliest date reasonably possible. It is imperative that the Owner receive timely specific Notice of any potential problem identified by the Contractor in order that the problem can be mitigated or resolved promptly. Any alleged damages suffered by the Contractor that have not been included in a Notice within ninety (90) days after the Contractor first knew or should have known of the damages shall be deemed waived by the Contractor.

143. § 15.1.3.2 is deleted in its entirety.

- 144. § 15.1.4.2 is deleted in its entirety.
- 145. § 15.1.5 is amended by adding "**or Increase in the Contract Sum**" at the end of the existing title.
- 146. § 15.1.5 is amended in the first sentence by inserting "additional cost or" after "claim for" and deleting "before proceeding to execute the Work that is the subject of the claim" and replacing those words with "to the Owner and the Architect".

Add the following to § 15.1.5 at the end of the existing paragraph:

The Architect will promptly investigate such claim and report findings and a recommended resolution in writing to the Owner and the Contractor. If the Claim is approved by the Owner's Board, or the Owner's representative, if provided for herein, then the Contractor shall proceed with the execution of the Work that is the subject matter of the Claim. If the Claim is rejected by the Owner, then the Contractor may pursue alternative dispute resolutions provided for in the Contract Documents.

- 147. § 15.1.6.1 is amended by deleting "of cost and"; and by adding "critical path of the" before the word "Work" in the second sentence.
- 148. § 15.1.6.2 is amended by deleting "had an adverse effect on the scheduled construction" and replacing those words with "prevented the execution of critical path elements of the Work on normal working days."

Add the following to § 15.1.6.2 at the end of the existing paragraph:

Adverse weather conditions means unusually severe weather which is beyond the normal weather recorded and expected for the locality and/or the season or seasons of the year.

- 149. Add a new § 15.1.6.3 as follows:

**§ 15.1.6.3** The Contractor shall anticipate and include in a critical path construction schedule rain days due to adverse weather conditions in accordance with the rainfall table below. A rain day is defined as a day when rainfall exceeds one-half (.5) inch during a 24-hour period. The number of rain days expected for each month is as follows:

|          |                 |           |                 |
|----------|-----------------|-----------|-----------------|
| January  | 0 calendar days | July      | 4 calendar days |
| February | 0 calendar days | August    | 4 calendar days |
| March    | 0 calendar days | September | 4 calendar days |
| April    | 4 calendar days | October   | 0 calendar days |
| May      | 4 calendar days | November  | 0 calendar days |
| June     | 4 calendar days | December  | 0 calendar days |

- 150. Add a new § 15.1.6.4 shall be added as follows:

**§ 15.1.6.4** Time extensions may be granted for rain days in any month when the cumulative number of rain days during that month exceeds the number scheduled, provided that the rainfall

prevented the execution of the critical path of the Work on normal working days as shown on the Contractor's schedule. No day will be counted as a rain day when substantial forces are able to perform Work on the Project for more than fifty percent (50%) of the usual workday or when the critical path of the Work on the Project is not adversely impacted. The number of rain days shown in the above schedule for the first and last months of Contract will be prorated in determining the total number of rain days expected during the period of the Contract.

151. Add a new § 15.1.6.5 as follows:

**§ 15.1.6.5** No extension of time shall be made to the Contractor because of hindrances or delays from any cause which is the fault of the Contractor or the Contractor's Subcontractors or Sub-Subcontractors or under the Contractor's control. Claims for extension of time may only be considered because of adverse weather conditions, rain delays, or hindrances or delays which are the fault of the Owner and/or under the Owner's control, but only to the extent that the critical path of the Work is delayed. Other claims for extension of time shall be considered because of hindrances or delays not the fault of either the Contractor or the Owner, but only to the extent that the critical path of the Work is delayed. Board approval shall be required for any extension of time. No damages shall be paid for delays. The Contractor shall only be entitled to time extensions per the terms of the Contract Documents.

152. Add a new § 15.1.6.6 shall be as follows:

**§ 15.1.6.6** Requests for time extension shall be submitted on a monthly basis and shall specify the time delay, the cause of the delay, and the responsible party for the delay, whether the Contractor, the Owner, adverse weather, rain day, or other. No claims for damages for delay shall be made by the Contractor. Any claim not submitted under the terms of this Section shall be waived.

153. § 15.1.7 is amended by deleting the existing paragraph in its entirety and substituting the following in its place:

The Contractor waives all claims against the Owner for consequential damages arising out of or relating to the Contract, the Project, and the Work.

154. § 15.2 is amended by replacing the title with "**Resolution of Claims and Disputes**".

155. § 15.2.1 is deleted and replaced with the following:

**§ 15.2.1** Claims by the Contractor against the Owner, including those alleging an error or omission by the Architect shall be referred initially to the Architect for written recommendation. An initial recommendation by the Architect shall be required as a condition precedent to litigation of all Claims by the Contractor arising prior to the date final payment is due, unless 30 days have passed after the Claim has been referred to the Architect with no recommendation having been rendered by the Architect.

156. § 15.2.2 is deleted and replaced with the following:



**§ 15.2.2** The Architect will review Claims and within ten (10) days of the receipt of the Claim take one of the following actions: (1) request additional supporting data from the Contractor, or (2) make a written recommendation to the Owner, with a copy to the Contractor.

157. § 15.2.3 is deleted and replaced with the following:

**§ 15.2.3** In evaluating Claims, the Architect may, but shall not be obligated to, consult with or seek information from either party or from persons with special knowledge or expertise who may assist the Architect in making a written recommendation.

158. § 15.2.4 is deleted and replaced with the following:

**§ 15.2.4** If the Architect requests a party to provide a response to a Claim or to furnish additional supporting data, such party shall respond, within ten (10) days after receipt of such a request, and shall provide a response on the requested supporting data, advise the Architect when the response or supporting data will be furnished or advise the Architect that no supporting data will be furnished.

159. § 15.2.5 is deleted and replaced with the following:

**§ 15.2.5** As required by North Carolina General Statutes § 143-128(f1) the Owner, the Contractor, the Architect and all first tier and lower-tier Subcontractors and Sub-Subcontractors are required to participate in mediation as a precondition to initiating litigation. The dispute resolution process adopted by the State Building Commission pursuant to North Carolina General Statutes § 143-135.26(11) is hereby adopted and incorporated by reference for use in conducting the mediation. Statutory, contract, bond, insurance, warranty and all other time periods (including but not limited to applicable statutes of limitation and statutes of repose) shall be tolled (suspended from running) during the mediation process. The costs of the mediation shall be paid one-third by the Owner and two-thirds by the other party or parties to the mediation, divided equally among the other parties if there is more than one other party.

160. § 15.2.6 is deleted and replaced with the following:

**§ 15.2.6** Upon receipt of a Claim against the Contractor or at any time thereafter, the Architect or the Owner may, but is not obligated to, notify the surety, if any, of the nature and amount of the Claim. If the Claim relates to a possibility of a Contractor's default, the Architect or the Owner may, but is not obligated to, notify the surety and request the surety's assistance in resolving the controversy.

161. § 15.2.6.1 is deleted in its entirety.

162. § 15.2.7 is deleted in its entirety.

163. § 15.2.8 is deleted in its entirety.

164. §§ 15.3, 15.3.1, 15.3.2, 15.3.3. and 15.3.4 are deleted in their entirety.

165. § § 15.4, 15.4.1, 15.4.1.1, 15.4.2, 15.4.3, 15.4.4, 15.4.4.1, 15.4.4.2, and 15.4.4.3 are deleted in their entirety.

166. Add a new § 15.3 and § 15.3.1 as follows:

**§ 15.3 LITIGATION**

**§ 15.3.1** Any Claim arising out of or related to the Contract, except Claims waived under the terms of the Contract Documents, shall, subject to the provisions of § 15.2.5, be subject to resolution by litigation.

167. Add a new **ARTICLE 16** and § 16.1 as follows:

**ARTICLE 16 GENERAL**

**§ 16.1 Relation to AIA Documents** These Supplementary General Conditions and the General Requirements, the Supplementary Instructions to Bidders, the forms of various required documents, and any Special Conditions, all of which are bound in and incorporated in the Project Manual, modify and amend AIA Document A201-2017 General Conditions of the Contract for Construction, AIA Document A101-2017 Standard Form of Agreement Between Owner and Contractor, AIA Document A701-1997, Instructions to Bidders, and any other AIA documents published, copyrighted, or trademarked by the American Institute of Architects to which reference is or may be made in the Project Manual.

**BUNCOMBE COUNTY BOARD OF EDUCATION  
SUBCONTRACTORS FORM**

**SUBCONTRACTORS:**

Pursuant to General Statute 143-128(d) if a construction or repair project is \$200,000 or higher, and subcontractors are to be utilized, bidders must identify prime subcontractors by listing them below. The bidder shall identify work by the subcontractor or state not applicable. Failure to do so may result in bid being declared non-responsive. All blanks must be filled in, or if no subcontractors are to be utilized, indicate by signing at the appropriate place at the bottom of this page. Do not list suppliers.

**\*\*Roofing applicator must have a GC-R license and declared on this Subcontractors Form\*\***

Heating & A/C Name: \_\_\_\_\_ Lic#: \_\_\_\_\_

Plumbing Name: \_\_\_\_\_ Lic#: \_\_\_\_\_

Electrical Name: \_\_\_\_\_ Lic#: \_\_\_\_\_

General Name: \_\_\_\_\_ Lic#: \_\_\_\_\_

Roofing Name: \_\_\_\_\_ Lic#: \_\_\_\_\_

We do not plan to use subcontract forces: \_\_\_\_\_  
Bidder's Signature (sign if applicable)

**BUNCOMBE COUNTY BOARD OF EDUCATION  
GUIDELINES FOR RECRUITMENT AND SELECTION OF  
MINORITY BUSINESS FOR PARTICIPATION IN SCHOOL CONSTRUCTION  
CONTRACTS**

In accordance with G.S. 143-128, these guidelines establish goals for minority participation in single-prime and separate-prime school construction contracts. The legislation provides that public bodies shall have a verifiable percentage goal for participation by minority businesses in the total value of work for each project for which a contract or contracts are awarded. These guidelines are published to accomplish that end.

**SECTION 1: INTENT AND APPLICATION OF GUIDELINES.**

It is the intent of these guidelines that The Buncombe County Board of Education as awarding authority for school construction projects, and the contractors and subcontractors performing the construction contracts awarded, shall cooperate and in - good faith do all things legal, proper and reasonable to achieve the verifiable goal of 10% for participation by minority businesses in each construction project. Nothing contained in these guidelines shall be construed to require awarding authorities to award contracts to or to make purchase of materials or equipment from minority-business contractors who do not submit the lowest responsible bid or bids.

These guidelines shall apply to all contractors for the erection, construction, alteration, or repair of any buildings or other construction projects when the entire cost of such work shall exceed \$100,000.

**SECTION 2: DEFINITIONS.**

1. **Minority** - a person who is a citizen or lawful permanent resident of the United States and who is:
  - a. **Black**, that is, a person having origins in any of the black racial groups in Africa;
  - b. **Hispanic**, that is, a person of Spanish or Portuguese culture with origins in Mexico, South or Central America, or the Caribbean Islands, regardless of race;
  - c. **Asian American**, that is, a person having origins in any of the original peoples of the Far East, Southeast Asia and Asia, the Indian subcontinent, the Pacific Islands;
  - d. **American Indian or Alaskan Native**, that is, a person having origins in any of the original peoples of North America; or
  - e. **Female**.
  
2. **Minority Business** - means a business:
  - a. In which at least fifty-one percent (51%) is owned by one or more minority persons, or in the case of a corporation, in which at least fifty-one percent (51 %) of the stock is owned by one or more minority persons; and

- b. Of which the management and daily business operations are controlled by one or more of the minority persons who owns it.
- 3. Owner - The Buncombe County Board of Education.
- 4. Bidder - Any person, firm, partnership, corporation, association, or joint venture seeking to be awarded a public contract or subcontract.
- 5. Contract - A mutually binding legal relationship, or any modification thereof obligating the Contractor to furnish labor, equipment, materials, or services for the erection, construction, alteration, or repair of any buildings or other construction projects and obligating the Owner to pay for them.
- 6. Contractor - Any person, firm, partnership, corporation, association, or joint venture which has contracted with the Owner to perform a Contract to which these guidelines apply.
- 7. Subcontractor - Any person, firm, partnership, corporation, association, or joint venture under contract with a Contractor for supplying materials or labor, equipment, materials, or services. The subcontractor may or may not provide materials in his subcontract. Work subcontracted in an emergency and which could not have been anticipated is excluded as part of this program.
- 8. Verifiable goal means:
  - a. For purpose of separate-prime contract system, that the Owner has adopted written guidelines specifying the actions that will be taken to ensure a good faith effort in the recruitment and selection of minority businesses for participation in contracts awarded; and
  - b. For purposes of single-prime contract system, that the Owner has adopted written guidelines specifying the actions that the prime contractor must take to ensure good faith effort in the recruitment and selection of minority businesses for participation in contracts awarded; the required actions must be documented in writing by the contractor to the Owner.

### **SECTION 3: RESPONSIBILITIES.**

- 1. Minority Business Development Agency of the Small Business Development Division, North Carolina Department of Economic & Community Development (hereafter referred to as Minority Business Development Agency). The Minority Business Development Agency will establish a program in which it will certify to interested persons businesses which qualify as Minority Business Enterprises (MBE). The Minority Business Development Agency will be responsible for the following:

- a. Determine MBE certification, ie. that those certified are MBEs under GS 143-128 as a contractor and/or subcontractor.
- b. Identify those areas of work for which there are certified MBEs, as requested.
- c. Provide interested parties with a list of prospective certified MBE contractors and subcontractors.
- d. Assist in the determination of technical assistance in the certification program that needs to be provided.

In addition to being responsible for the participation of those small and emerging business that want to participate in the construction program, the Minority Business Development Agency will:

- 1) Maintain a current list of certified MBEs. The list shall include the areas of work in which each MBE is interested.
- 2) From information furnished by the Owner publicize the contracting and subcontracting opportunities available for each construction project being advertised.
- 3) Work with the North Carolina Association of Minority Businesses and the Carolinas Branch of the Association of General Contractors in developing and implementing a certification program intended to improve the ability of MBEs to compete in this program.

2. Owner/Buncombe County Board of Education: Under the single-prime contract system and the separate-prime contract system, the Owner will be responsible for, the following:

- a. For contracts in excess of \$500,000 in estimated costs, furnish to the Minority Business Development Agency, the Asheville-Buncombe Community Relations Council, and YMI, Inc., of Asheville a minimum of twenty-one (21) days prior to the bid opening the following:
  1. Project description and location;
  2. Locations where bidding documents may be reviewed;
  3. Name of representative of the Owner who can be contracted during the advertising period to advertise who the prospective bidders are;
  4. Date, time, and location of the bid opening; and
  5. Date, time, and location of pre-bid conference, if scheduled.

The twenty-one (21) day advance time period may be reduced to ten (10) days for contracts in the range of \$100,000 to \$500,000 in estimated cost.

- b. The Owner Will request that the Minority Business Development Agency, the Asheville-Buncombe Community Relations Council, and YMI, Inc. notify MBEs of construction projects.

- c. The pre-bid conference, if scheduled, conducted by the representative of the Owner, will be open to all known and anticipated prime contracts, subcontractors, material suppliers, and other bidders. During the conference, this program, including the bidders' responsibilities, will be fully explained.
- d. The Owner will be responsible for reviewing the spent low bidders compliance with the items listed in the proposal that must be complied with if the bid is to be considered responsive and responsible. The Owner reserves the right to reject any and all bids and to waive informalities.
- e. Attend the scheduled prebid conference.
- f. Identify or determine the work areas of a contract where MBEs may have an interest in performing contract work.
- g. At least ten (10) days prior to the scheduled day of bid opening, the Owner will notified certified MBEs in the area of the project of potential contracting opportunities listed in the proposal. The notification will include the following:
  - 1. A description of the work for which the bid is being solicited.
  - 2. The date, time, and location where bids are to be submitted.
  - 3. The name of a representative of the Owner who will be available to answer questions about the Project.
  - 4. Where bid documents may be received.
  - 5. Any special requirements that may exist, such as insurance, licenses, bonds and financial arrangements.

If there are more than three certified MBEs in the area of the Project, the Owner shall notify three, but may contact more, if the Owner so desires.

- h. Maintain documentation of any contacts, correspondence, or conversations with MBE firms made in an attempt to meet the goals.

3. **Prime Contractor(s)**

Under the single prime contract system the prime contractor will:

- a. Attend the scheduled pre-bid conference.
- b. Identify or determine those work areas of a subcontract where MBEs may have an interest in performing subcontract work.

c. At least ten (10) days prior to the schedule day of bid opening, notify certified MBEs of potential subcontracting opportunities listed in the proposal. The notification will include the following:

- 1) A description of the work for which the subbid is being solicited.
- 2) The date, time, and location where subbids are to be submitted.
- 3) The name of the individual within the company who will be available to answer questions about the project.
- 4) Where bid documents may be reviewed.
- 5) Any special requirements that may exist, such as insurance, licenses, bonds, and financial arrangements.

If there are more than three (3) certified MBEs in the area of the project, the contractors shall notify three (3), but may contact more, if the contractors so desires.

- d. During the bidding process, comply with the Owner's requirements listed in the contract documents for minority participation.
- e. Submit with the bid a description of that portion of the work to be executed by MBEs expressed as a percentage of the total contract price.
- f. Upon being named the apparent low bidder, provide the necessary documentation as listed in the contract documents provided by the Owner. Failure to comply with procedural requirements as defined in contract documents may render the bid as nonresponsive and may result in rejection of the bid and award to the next lowest responsible and responsive bidder.
- g. During the construction of a project, if it becomes necessary to replace an MBE subcontractor, advise the Owner.
- h. If during the construction of a project additional subcontracting opportunities become available, make a good faith effort to solicit bids from MBES.

4. MBE Responsibilities:

While MBE's are not required to become certified in order to participate in this program, it is recommended that they become certified and should take advantage of the appropriate technical assistance that is made available. In addition, MBE's who are contacted by the Owner or bidders should respond promptly whether or not they wish to submit a bid.



#### **SECTION 4: DISPUTE PROCEDURES.**

It is the policy of the Buncombe County Board of Education that disputes with another person that involve a person's rights, duties, or privileges, should be settled through informal procedures. To that end, MBE disputes arising under these guidelines should be resolved, if possible, by informal proceedings arranged by the Superintendent or his designee.

#### **SECTION 5: EFFECTIVE DATE**

These guidelines are effective on December 15, 1989.

Copies of these guidelines may be obtained from the Office of the Superintendent at 175 Bingham Road, Asheville, North Carolina, NC 28806; telephone number 828-255-5916.

#### **SECTION 6: GUIDELINES AND COMPLIANCE DOCUMENTATION TO BE PART OF CONTRACT DOCUMENTS.**

These guidelines will be included in the contract to each construction bid package and provisions for documenting contractual compliance in providing for MBE participation in the construction program %, Will be included in each construction bid package

**ADDITION TO SUPPLEMENTARY  
GENERAL CONDITIONS**

**APPLICATION:**

The requirements of the Buncombe County Board of Education Guidelines for Recruitment and Selection of Minority Businesses for Participation in School Construction Contracts are hereby made a part of these contract documents. These requirements shall apply to all contractors regardless of ownership. A copy of the Buncombe County Board of Education Guidelines for Recruitment and Selection of Minority Businesses for Participation in School Construction Contracts is attached.

**MBE SUBCONTRACT GOALS:**

**The goals for participation by Minority firms as subcontractors on this project have been set by the Buncombe County Board of Education (hereinafter Board) at 10%.**

The bidder must identify on MBE Form I, the businesses that will be utilized on the project with corresponding total dollar value of the bid and affidavit (Affidavit A) listing good faith efforts or affidavit (Affidavit B) of self-performance of work, if bidder will perform work under contract by its own workforce, as required by G.S. 143-128.2(c) and G.S. 143-128.2(f).

The lowest responsible, responsive bidder must provide Affidavit C, that includes a description of the portion of work to be executed by minority businesses, expressed as a percentage of the total contract price, which is equal to or more than the applicable goal.

**OR**

Provide Affidavit C, that includes a description of the portion of work to be executed by minority businesses, expressed as a percentage of the total contract price, **with documentation of Good Faith Effort, if the percentage is not equal to the applicable goal.**

**OR**

Provide Affidavit B, which includes sufficient information for the State to determine that the bidder does not customarily subcontract work on this type project.

**The above information must be provided as required. Failure to provide this evidence may result in rejection of the bid and award to the next low bidder.**

**MINIMUM COMPLIANCE REQUIREMENTS:**

If the MBE subcontract goals are not achieved, the Bidder shall provide the following documentation to the Board.

1. MBE Utilization Commitment (MBE Form I) with the bid.

2. Documentation of the Bidder's good faith efforts to meet the goals set forth in these provisions (upon request prior to award). This documentation shall include the following evidence:
  - A. Copies of solicitations for quotes to at least three (3) MBE firms from the source list provided by the Minority -Business Development Agency of the Small Business Development Division, North Carolina Department of Economic & Community Development (hereinafter Minority Business Development Agency) for each subcontract to be let under this contract (if 3 or More firms are shown on the source list). Each solicitation shall contain a specific description of the work to be subcontracted, location where bid documents can be reviewed, representative of the Prime Bidder to contact, and location, date and time when quotes must be received.
  - B. Copies of quotes or responses received from each firm responding to the solicitation.
  - C. A telephone log of follow-up calls to each firm sent a solicitation.
  - D. For subcontracts where an MBE firm is not considered to be the lowest responsible sub-bidder, copies of quotes received from all firms submitting quotes for that particular subcontract.
  - E. Documentation of any contacts, correspondence or conversation with MBE firms made in an attempt to meet the goals.

**Note:** If the Bidder provides sufficient evidence (listed in #1) that the goals stated in the contract documents have been met, or awards all subcontracts to MBE'S, the documentation listed in #2 will not be required.

Upon being named apparent low bidder, the Bidder shall provide a Letter of Intent (MBE) Form 3), complete with a description of the scope of services and dollar value from each MBE firm proposed for use in this contract. Failure to provide the documentation as listed in these provisions may result in rejection of the bid and award to the next lowest responsible and responsive bidder. The Board reserves the right to waive any irregularities in MBE documentation if they can be resolved prior to award of the contract, and the Board finds it to be in its best interest to do so and award the contract.

#### **SUBCONTRACTOR PAYMENT REQUIREMENTS:**

North Carolina General Statute 143-134. 1, states that the percentage of retainage on payment made by the prime contractor to the subcontractor shall not exceed the percentage of retainage on payments made by the Board to the prime contractor. Failure to comply with this provision shall be considered a breach of the contract, and the contract may be terminated in accordance with the termination provisions of the contract.

The Contractor shall provide an itemized statement of payments to each MBE subcontractor with each request for payment or before final payment is processed.

**PROGRAM COMPLIANCE REQUIREMENTS:**

All written statements, certification or intentions made by the Bidder shall be come a part of the agreement between the Contractor and the Board for performance of this contract. Failure to comply with any of the these states, certifications, or intentions, or with the MBE Guidelines shall constitute a breach of the contract. A finding by the Board that any information submitted either prior to award of the contract or during the performance of the contract is inaccurate, false or incomplete, shall also constitute a breach of the contract. Any such breach may result in termination of the contract in accordance with the termination provisions contained in the contract. It shall be solely at the option of the Board whether to terminate the contract for breach.

In determining whether a contractor has made good faith efforts, the Board will evaluate all efforts made by the Contractor and will determine compliance in regard to quantity, intensity, and results of there efforts. The Board may take into account any or all of the following:

1. Whether the Bidder attended any prebid meetings that were scheduled by the Board;
2. Whether the Bidder advertised in general circulation, trade association, and minority-focus media concerning the subcontracting opportunities;
3. Whether the Bidder provided written notice to a minimum of three MBE's for each portion of the work subcontract, that their interest in the contract was being solicited in sufficient time to allow the MBE's to participate effectively;
4. Whether the Bidder followed up initial solicitations of interest by contacting MBE's to determine with certainty whether the MBE's were interested;
5. Whether the Bidder selected portions of the work to be performed by MBE's in order to increase the likelihood of meeting MBE goals (including, where appropriate, breaking down contracts into economically feasible units to facilitate MBE participation);
6. Whether the Bidder provided interested MBE's with adequate information about the plans, specifications and requirements of the contract;
7. Whether the Bidder negotiated in good faith with interested MBE's not rejecting MBE's as unqualified without sound reasons based on a thorough investigation of their capabilities.

**FORM 1**

Attach to Bid Attach to Bid Attach to Bid Attach to Bid Attach to Bid Attach to Bid Attach to Bid Attach to Bid

**Identification of Minority Business Participation**

I, \_\_\_\_\_  
(Name of Bidder)

do hereby certify that on this project, we will use the following minority business enterprises as construction subcontractors, vendors, suppliers or providers of professional services.

**Firm Name, Address and Phone #**

**Work type**

**\*Minority Category**

| Firm Name, Address and Phone # | Work type | *Minority Category |
|--------------------------------|-----------|--------------------|
|                                |           |                    |
|                                |           |                    |
|                                |           |                    |
|                                |           |                    |
|                                |           |                    |
|                                |           |                    |
|                                |           |                    |
|                                |           |                    |
|                                |           |                    |
|                                |           |                    |
|                                |           |                    |
|                                |           |                    |
|                                |           |                    |
|                                |           |                    |
|                                |           |                    |
|                                |           |                    |
|                                |           |                    |
|                                |           |                    |
|                                |           |                    |
|                                |           |                    |
|                                |           |                    |
|                                |           |                    |
|                                |           |                    |
|                                |           |                    |

\*Minority categories: Black, African American (B), Hispanic (H), Asian American (A) American Indian (I), Female (F) Socially and Economically Disadvantaged (D)

The total value of minority business contracting will be (\$)\_\_\_\_\_.

Section 000003

Attach to Bid Attach to Bid Attach to Bid Attach to Bid Attach to Bid Attach to Bid Attach to Bid Attach to Bid

State of North Carolina AFFIDAVIT A – Listing of the Good Faith Effort

County of \_\_\_\_\_

(Name of Bidder)

Affidavit of \_\_\_\_\_

I have made a good faith effort to comply under the following areas checked:
Bidders must earn at least 50 points from the good faith efforts listed for their bid to be considered responsive. (1 NC Administrative code 30 1.0101)

- 1 - (10 pts) Contacted minority businesses that reasonably could have been expected to submit a quote...
2 - (10 pts) Made the construction plans, specifications and requirements available for review...
3 - (15 pts) Broken down or combined elements of work into economically feasible units...
4 - (10 pts) Worked with minority trade, community, or contractor organizations...
5 - (10 pts) Attended prebid meetings scheduled by the public owner.
6 - (20 pts) Provided assistance in getting required bonding or insurance...
7 - (15 pts) Negotiated in good faith with interested minority businesses...
8 - (25 pts) Provided assistance to an otherwise qualified minority business...
9 - (20 pts) Negotiated joint venture and partnership arrangements...
10 - (20 pts) Provided quick pay agreements and policies to enable minority contractors...

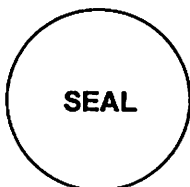
The undersigned, if apparent low bidder, will enter into a formal agreement with the firms listed in the Identification of Minority Business Participation schedule conditional upon scope of contract to be executed with the Owner. Substitution of contractors must be in accordance with GS143-128.2(d).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

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

Date: \_\_\_\_\_ Name of Authorized Officer: \_\_\_\_\_

Signature: \_\_\_\_\_

Title: \_\_\_\_\_



State of \_\_\_\_\_, County of \_\_\_\_\_
Subscribed and sworn to before me this \_\_\_\_\_ day of \_\_\_\_\_ 20 \_\_\_\_
Notary Public \_\_\_\_\_
My commission expires \_\_\_\_\_

Section 000003

Attach to Bid Attach to Bid Attach to Bid Attach to Bid Attach to Bid Attach to Bid Attach to Bid Attach to Bid

**State of North Carolina --AFFIDAVIT B - Intent to Perform Contract  
with Own Workforce.**

County of \_\_\_\_\_

Affidavit of \_\_\_\_\_  
(Name of Bidder)

I hereby certify that it is our intent to perform 100% of the work required for the \_\_\_\_\_  
\_\_\_\_\_ contract.  
(Name of Project)

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

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

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

Date: \_\_\_\_\_ Name of Authorized Officer: \_\_\_\_\_

Signature: \_\_\_\_\_

Title: \_\_\_\_\_



State of \_\_\_\_\_, County of \_\_\_\_\_  
Subscribed and sworn to before me this \_\_\_\_\_ day of \_\_\_\_\_ 20 \_\_\_\_  
Notary Public \_\_\_\_\_  
My commission expires \_\_\_\_\_

Section 000003

**State of North Carolina - AFFIDAVIT C - Portion of the Work to be Performed by Minority Firms**

County of \_\_\_\_\_

(Note: this form is to be submitted only by the apparent lowest responsible, responsive bidder.)

If the portion of the work to be executed by minority businesses as defined in GS143-128.2(g) is equal to or greater than 10% of the bidders total contract price then the bidder must complete this affidavit. This affidavit shall be provided by the apparent lowest responsible, responsive bidder within 72 hours after notification of being low bidder.

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

\_\_\_\_\_  
(Project Name)

Project ID# \_\_\_\_\_ Amount of Bid \$ \_\_\_\_\_

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

Attach additional sheets if required

| Name and Phone Number | *Minority Category | Work description | Dollar Value |
|-----------------------|--------------------|------------------|--------------|
|                       |                    |                  |              |
|                       |                    |                  |              |
|                       |                    |                  |              |
|                       |                    |                  |              |
|                       |                    |                  |              |
|                       |                    |                  |              |
|                       |                    |                  |              |
|                       |                    |                  |              |
|                       |                    |                  |              |

\*Minority categories: Black, African American (B), Hispanic (H), Asian American (A), American Indian (I), Female (F), Socially and Economically Disadvantaged (D)

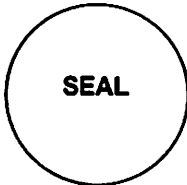
Pursuant to GS143-128.2(d), the undersigned will enter into a formal agreement with Minority Firms for work listed in this schedule conditional upon execution of a contract with the Owner. Failure to fulfill this commitment may constitute a breach of the contract.

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

Date: \_\_\_\_\_ Name of Authorized Officer: \_\_\_\_\_

Signature: \_\_\_\_\_

Title: \_\_\_\_\_



State of \_\_\_\_\_, County of \_\_\_\_\_  
Subscribed and sworn to before me this \_\_\_\_\_ day of \_\_\_\_\_ 20 \_\_\_\_  
Notary Public \_\_\_\_\_  
My commission expires \_\_\_\_\_



**State of North Carolina AFFIDAVIT D – Good Faith Efforts**

County of \_\_\_\_\_

(Note: this form is to be submitted only by the apparent lowest responsible, responsive bidder.)

If the goal of 10% participation by minority business is not achieved, the Bidder shall provide the following documentation to the Owner of his good faith efforts:

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

\_\_\_\_\_  
 (Project Name)

Project ID# \_\_\_\_\_ Amount of Bid \$ \_\_\_\_\_

I will expend a minimum of \_\_\_\_\_% of the total dollar amount of the contract with minority business enterprises. Minority businesses will be employed as construction subcontractors, vendors, suppliers or providers of professional services. Such work will be subcontracted to the following firms listed below. (Attach additional sheets if required.)

| Name and Phone Number | *Minority Category | Work description | Dollar Value |
|-----------------------|--------------------|------------------|--------------|
|                       |                    |                  |              |
|                       |                    |                  |              |
|                       |                    |                  |              |
|                       |                    |                  |              |

\*Minority categories: Black, African American (B), Hispanic (H), Asian American (A), American Indian (I), Female (F), Socially and Economically Disadvantaged (D)

Examples of documentation include, but are not limited to, the following evidence:

- A. Copies of solicitations for quotes to at least three (3) minority business firms from the source list provided by the State for each subcontract to be let under this contract (if 3 or more firms are shown on the source list). Each solicitation shall contain a specific description of the work to be subcontracted, location where bid documents can be reviewed, representative of the Prime Bidder to contact, and location, date and time when quotes must be received.
- B. Copies of quotes or responses received from each firm responding to the solicitation.
- C. A telephone log of follow-up calls to each firm sent a solicitation.
- D. For subcontracts where a minority business firm is not considered the lowest responsible sub-bidder, copies of quotes received from all firms submitting quotes for that particular subcontract.
- E. Documentation of any contacts or correspondence to minority business, community, or contractor organizations in an attempt to meet the goal.
- F. Copy of pre-bid roster.
- G. Letter documenting efforts to provide assistance in obtaining required bonding or insurance for minority business.
- H. Letter detailing reasons for rejection of minority business due to lack of qualification.
- I. Letter documenting proposed assistance offered to minority business in need of equipment, loan capital, lines of credit, or joint pay agreements to secure loans, supplies, or letter of credit, including waiving credit that is ordinarily required.

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

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

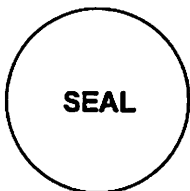
Section 000003

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

Date: \_\_\_\_\_ Name of Authorized Officer: \_\_\_\_\_

Signature: \_\_\_\_\_

Title: \_\_\_\_\_



State of \_\_\_\_\_, County of \_\_\_\_\_  
Subscribed and sworn to before me this \_\_\_\_ day of \_\_\_\_\_ 20 \_\_\_\_  
Notary Public \_\_\_\_\_  
My commission expires \_\_\_\_\_

Section 000003

**APPENDIX E  
MBE DOCUMENTATION FOR CONTRACT PAYMENTS**

Prime Contractor/Architect: \_\_\_\_\_

Address & Phone: \_\_\_\_\_  
\_\_\_\_\_

Project Name: \_\_\_\_\_

SCO Project ID: \_\_\_\_\_

Pay Application #: \_\_\_\_\_ Period: \_\_\_\_\_

The following is a list of payments made to Minority Business Enterprises on this project for the above-mentioned period.

| MBE FIRM NAME | * TYPE OF MBE | AMOUNT PAID THIS MONTH (With This Pay App) | TOTAL PAYMENTS TO DATE | TOTAL AMOUNT COMMITTED |
|---------------|---------------|--------------------------------------------|------------------------|------------------------|
|               |               |                                            |                        |                        |
|               |               |                                            |                        |                        |
|               |               |                                            |                        |                        |
|               |               |                                            |                        |                        |
|               |               |                                            |                        |                        |
|               |               |                                            |                        |                        |

\*Minority categories: Black (B), Hispanic (H), Asian American (AA), American Indian (AI), White Female (WF), Socially and Economically Disadvantaged (SED), Disabled (D)

Approved/Certified By: \_\_\_\_\_

\_\_\_\_\_  
Name

\_\_\_\_\_  
Title

\_\_\_\_\_  
Date

\_\_\_\_\_  
Signature

**SUBMIT WITH EACH PAY REQUEST - FINAL PAYMENT - FINAL REPORT**

**BID BOND**

**(ALL BIDDERS ARE STRONGLY ENCOURAGED TO USE THIS FORM)**

Date of Execution  
of this Bond: \_\_\_\_\_

Name and Address of  
Principal (Bidder): \_\_\_\_\_

Name and Address  
of Surety: \_\_\_\_\_

Name and Address  
of Obligee: THE BUNCOMBE COUNTY BOARD OF EDUCATION, a body  
corporate of the State of North Carolina, 175 Bingham Road,  
Asheville, NC 28806.

Amount of Bond: 5% of the maximum potential contract award for all bids submitted.

Bid and Proposal  
dated: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

KNOW ALL MEN BY THESE PRESENTS, That we, the PRINCIPAL above named and SURETY above named who is duly licensed to act as SURETY in the State of North Carolina, are held and firmly bound unto THE BUNCOMBE COUNTY BOARD OF EDUCATION, a body corporate of the State of North Carolina, as Obligee, in the penal sum of FIVE PERCENT (5%) of the amount bid in the bid and proposal described in lawful money of the United States of America, for the Payment of which, well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION is such, that if the Principal shall be awarded the contract for which the bid and proposal above described is submitted and shall execute the contract, give bond for the faithful performance of the contract, and give bond for the payment to all persons supplying labor and material in the prosecution of the work provided for in said contract, within then (10) days after the award of the same to the Principal above named, then this obligation shall be null and void; but the Principal above named fails to so execute such contract and give performance bond and payment bond as required by Section 129 of Chapter 143 of the General Statutes of North Carolina, as amended, and Article 3 of Chapter 44A of the General Statutes of North Carolina, as amended the Surety shall, upon demand, forthwith pay to the Obligee the amount of this bond set forth above.

IN WITNESS WHEREOF, the Principal above named and the Surety above named have executed this instrument under their several seals on the date set forth above.

\_\_\_\_\_  
*Principal (Name of individual, individual and trade name, partnership, corporation or joint venture)*

WITNESS:

\_\_\_\_\_  
*(Proprietorship or Partnership)*

BY: \_\_\_\_\_ (Seal)

TITLE: \_\_\_\_\_  
*(Owner, partner, office held in corporation, joint venture)*

(Corporate Seal)

ATTEST: (Corporation)

BY: \_\_\_\_\_

TITLE: \_\_\_\_\_  
*(Corporate Secretary or Assistant Secretary only)*

\_\_\_\_\_  
*SURETY (Name of Surety Company)*

WITNESS:

\_\_\_\_\_

BY: \_\_\_\_\_  
TITLE: Attorney-in-Fact

(Corporate Seal of Surety)

\_\_\_\_\_  
*(Address of Attorney-in-Fact)*

COUNTERSIGNED:

\_\_\_\_\_  
\_\_\_\_\_  
*N.C. Licensed Resident Agent*

**PERFORMANCE BOND**

Date of Execution  
of this Bond:

\_\_\_\_\_

Name and Address of  
Principal (Contractor):

\_\_\_\_\_

\_\_\_\_\_

Name and Address  
of Surety:

\_\_\_\_\_

\_\_\_\_\_

Name and Address of  
Contracting Body:

THE BUNCOMBE COUNTY BOARD OF EDUCATION, a  
body corporate of the State of North Carolina, 175 Bingham Road,  
Asheville, NC 28806.

Amount of Bond:

\_\_\_\_\_

Contract:

That certain contract by and between the Principal and the  
Contracting Body above named, dated \_\_\_\_\_  
for \_\_\_\_\_  
\_\_\_\_\_

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

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

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

THIS PERFORMANCE BOND is made and given pursuant to the requirements and provisions of Section 129 of Chapter 143 of the General Statutes of North Carolina and pursuant to Article 3 of Chapter 44-A of the General Statutes of North Carolina, and each and every provision set forth and contained in Article 3 of Chapter 44-A of the General Statutes of North Carolina is incorporated herein, made a part hereof, and deemed to be conclusively written into this Bond.

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

\_\_\_\_\_  
Principal (Name of individual, individual and trade name, partnership, corporation or joint venture)

WITNESS:

\_\_\_\_\_  
(Proprietorship of Partnership)

BY: \_\_\_\_\_(SEAL)

TITLE: \_\_\_\_\_  
(Owner, partner, office held in corporation, joint venture)

(Corporate Seal)

ATTEST: (Corporation)

BY: \_\_\_\_\_

TITLE: \_\_\_\_\_  
(Corporate Secretary of Assistant Secretary only)

WITNESS:

\_\_\_\_\_  
Surety (Name of Surety Company)

\_\_\_\_\_

BY: \_\_\_\_\_

TITLE: Attorney-in-Fact  
(Corporate Seal of Surety)

\_\_\_\_\_  
(Address of Attorney-in-Fact)

COUNTERSIGNED:

\_\_\_\_\_

\_\_\_\_\_  
N.C. Licensed Resident Agent

**PAYMENT BOND:**

Date of Execution  
of this Bond:

\_\_\_\_\_

Name and Address of  
Principal (Contractor):

\_\_\_\_\_  
\_\_\_\_\_

Name and Address  
of Surety:

\_\_\_\_\_  
\_\_\_\_\_

Name and Address of  
Contracting Body:

THE BUNCOMBE COUNTY BOARD OF EDUCATION, a  
body corporate of the State of North Carolina, 175 Bingham Road,  
Asheville, NC 28806.

Amount of Bond:

\_\_\_\_\_

Contract:

That certain contract by and between the Principal and the  
Contracting Body above named, dated \_\_\_\_\_  
for \_\_\_\_\_  
\_\_\_\_\_

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

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

NOW THEREFORE, if the Principal shall promptly make payment to all persons supplying labor and material in the prosecution of the work provided for in said contract, and any and all duly authorized modifications and extensions of time of said contract that may hereafter be made, notice of which modifications and extensions of time to the Surety being hereby waived, then this obligation to be void; otherwise to remain in full force and virtue.

THIS PAYMENT BOND is made and given pursuant to the requirements and provisions of Section 129 of Chapter 143 of the General Statutes of North Carolina and pursuant to Article 3 of Chapter 44-A of the General Statutes of North Carolina, and each and every provision set forth and contained in Article 3 of Chapter 44-A of the General Statutes of North Carolina is incorporated herein, made a part hereof, and deemed to be conclusively written into this Bond.

PYB 1



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

\_\_\_\_\_  
Principal (Name of individual, individual and trade name, partnership, corporation or joint venture)

WITNESS:

\_\_\_\_\_  
(Proprietorship of Partnership) BY: \_\_\_\_\_ (SEAL)

TITLE: \_\_\_\_\_  
(Owner, partner, office held in corporation, joint venture)

(Corporate Seal)

ATTEST: (Corporation)

BY: \_\_\_\_\_

TITLE: \_\_\_\_\_  
(Corporate Secretary of Assistant Secretary only)

\_\_\_\_\_  
Surety (Name of Surety Company)

WITNESS:

\_\_\_\_\_  
BY: \_\_\_\_\_

TITLE: Attorney-in-Fact

(Corporate Seal of Surety)

\_\_\_\_\_  
(Address of Attorney-in-Fact)

COUNTERSIGNED:

\_\_\_\_\_

\_\_\_\_\_  
N.C. Licensed Resident Agent

PYB 2

# TABLE OF CONTENTS

## **Division 11 – Equipment**

116833.43 Track and Field Equipment

## **Division 31 – Earthwork**

310519.13 Geotextiles  
312319 Dewatering  
312333 Trenching and Backfilling  
312500 Erosion and Sedimentation Controls

## **Division 32 - Exterior Improvements**

321116 Subbase Courses  
321216.36 Athletic Track Asphalt Paving  
321313 Concrete Paving  
321630 Concrete Sidewalks  
321815 Athletic Channel Drain System  
321823.38 Synthetic Running Track Surveying  
321823.39 Synthetic Running Track Surfacing  
321823.40 Synthetic Running Track Line Markings  
321823.41 Synthetic Running Track Certification Survey  
323113 Chain Link Fence and Gates  
329113 Soil Preparation  
329200 Turf and Grasses

## **Division 33 – Utilities**

330513 Manholes and Structures  
334100.20 High Density Polyethylene Storm Utility Drainage Piping



## SECTION 116833.43 – TRACK AND FIELD EQUIPMENT

### PART 1 – GENERAL

#### 1.1 SUMMARY

- A. This section covers all labor and materials required to install the following:
  - 1. In-ground track and field equipment.
  - 2. Field event materials.
    - a. Sand.
    - b. Rock dust.
- B. The Contractor is responsible for the purchase and installation of all sports equipment. The Track & Field Synthetic Surfacing Contractor is responsible for installation of synthetic surface in, around and on top of the specified sports equipment.

#### 1.2 CODES AND STANDARDS

- A. Codes and standards follow the current guidelines set forth by the National Federation of State High School Associations (NFSHSA).

#### 1.3 SUBMITTALS

- A. The following information shall be submitted prior to installation of specified work.
  - 1. Standard printed specifications and diagrams or drawings depicting installation directions and dimensions for all in-ground sports equipment.
  - 2. Installation process and requirements for subbase (stone and asphalt) and any conditions that may limit the installation or affect quality of installation.
  - 3. Material safety data sheets on all products, as necessary.
  - 4. Contractor to supply Owner with a 1-gallon sample of field event material product(s) for visual inspection and testing.

#### 1.4 QUALITY ASSURANCE

- A. The Contractor shall only accept bids from those vendors or manufacturers that have been pre-approved or identified as approved equivalent.
- B. The Contractor shall only accept bids from those vendors or manufacturers that have been pre-approved, identified as approved equivalent or that meet the requirements as an equivalent product.

### PART 2 – PRODUCTS

#### 2.1 IN-GROUND TRACK & FIELD EQUIPMENT

- A. The Contractor is responsible to provide and install all permanent, in-ground track & field event equipment as specified by these specifications and shown on the project drawings. The products must meet NFSHSA regulations.
- B. The physical make-up of these products vary across the country; therefore the Contractor shall use his best efforts to supply the Owner with a product that best meets the performance specifications listed below.

- C. The in-ground track & field equipment is available from the following:
  - 1. Sportsfield Specialties: Contact: Brian Jaeger (Southeast) Tel.: (607) 267-3621.
  - 2. UCS Spirit: Contact: Mike Chappell; Telephone: (800) 526-4856.
  - 3. Gill Athletics: Contact: Mike Cunningham; Telephone: (800) 637-3090.
  
- D. In-ground Equipment (Based on Sportsfield Specialties Model # or Approved Equivalent):
  - 1. One (1) cast aluminum pole vault box without the cover. Model #TFPV001CA.
  - 2. Two (2) mesh covers for sand pits. Model #SPMESHCOVERDB.
  - 3. Two (2) track crossing mats with weighted perimeter chain (7'-6" x 30'). 16oz. non-woven polypropylene geotextile. Model #TM7530
  - 4. Four (4) long jump take off boards. Model #TFLT008SS-SYN-BL
  - 5. One (1) web style shot put circle. Model # TFSWRING
  - 6. One (1) toe board for depressed circle. Model # TFSPT001AL

2.2 FIELD EVENT MATERIALS

- A. Sand:
  - 1. All sand for the long/triple jumps sand pits shall follow the specifications outlined by the United States Golf Association (USGA) guidelines for Bunker Sand. The website for this information is: <http://turf.lib.msu.edu/1990s/1998/980109.pdf>
  - 2. The sand shall be washed and sized as follows:
    - a. For the safety of the athletes, the sand must (to avoid hardening as a result of moisture) consist of pure quartz sand or tan mason sand, without organic components, maximum 2mm granules, of which not more than 5% in weight is less than 0.2mm.
  - 3. Sand shall be free of trash, organic matter, clay, silt, and rocks.
    - a. Sand color to be white or light tan.
  - 4. Sand shall have the following technical data:
    - a. Water permeability or filtration rate with a minimum of 20 inches/hour.
    - b. Bulk density of 1.55 grams per cubic centimeter.
    - c. Penetrometer Reading of 1.8 to 2.2 kg/cm<sup>2</sup>.
    - d. Sand shape of high sphericity and rounded.
  
- B. Rock Dust:
  - 1. The shot-put landing area shall consist of a material that is firmly compacted, yet porous to allow vertical drainage. The Contractor shall provide a one-gallon sample of the proposed material for approval by the Owner prior to installation. The material shall be compacted to at least 90 percent of Standard AASHTO Density with discing, sprinkling, and rolling as necessary. All material aggregate larger than 1/4-inch in diameter that comes to the surface during discing shall be removed prior to compacting operations.
  - 2. Rock dust shall meet the below sieve analysis:

| Screen No. | % Passing |
|------------|-----------|
| 3/8        | 100       |
| 4          | 100       |
| 8          | 86        |
| 16         | 65        |
| 30         | 45        |
| 50         | 35        |
| 100        | 25        |
| 200        | 15        |

## PART 3 – EXECUTION

### 3.1 INSTALLATION OF SPORTS EQUIPMENT

- A. The installation of the track and field equipment stated herein shall follow the directions of the manufacturer and/or vendor. Shop drawings must be submitted and approved prior to installation of equipment.
- B. Sand:
  - 1. The sand should be one of the last items installed on the facility to maintain the physical properties.
  - 2. Do not install the sand until drain pipe is installed and connected to drainage system.

### 3.2 ADJUSTING AND CLEANING

- A. Upon completion of installation, test operation to demonstrate satisfactory operation acceptable to Owner.
- B. Clean or replace unsuitable materials.

END OF SECTION



## SECTION 310519.13 – GEOTEXTILES

### PART 1 – GENERAL

#### 1.1 SUMMARY

- A. This Section includes the installation of separation/stabilization fabric as shown on the Drawings and as specified herein.

#### 1.2 QUALITY ASSURANCE

- A. The latest edition of the following standards, as referenced herein, shall be applicable.
  - 1. American Society for Testing and Materials (ASTM).

#### 1.3 SUBMITTALS

- A. Product Data:
  - 1. Submit Manufacturer's material specifications, product literature and installation instructions.

#### 1.4 DELIVERY, STORAGE, AND HANDLING

- A. Delivery:
  - 1. Deliver sufficient materials to the site to prevent interruption of the work.
  - 2. All materials shall be inspected by Contractor upon delivery. Contractor shall notify Engineer of any damage. Products received at the site torn, with holes, deteriorated, or otherwise damaged will not be approved and shall be returned and replaced at no expense to the Owner.
- B. Storage:
  - 1. All material shall be stored in strict accordance with the manufacturer's recommendations and as approved by the Engineer.
  - 2. Do not store products directly on ground. Ship and store geotextile with suitable wrapping for protection against moisture and ultraviolet exposure. Store geotextile in way that protects it from elements, if stored outdoors, elevate, and protect geotextile with waterproof cover.
- C. Handling:
  - 1. All material shall be handled in strict accordance with the manufacturer's recommendations and as approved by the Engineer.

### PART 2 – PRODUCTS

#### 2.1 WOVEN GEOTEXTILE

- A. Stabilization Fabric: To be used beneath roadways and walks.
- B. Composed of polymeric yarn interlaced to form a planar structure with uniform weave pattern.
- C. Calendared or finished so yarns will retain their relative position with respect to each other.
- D. Polymeric Yarn: Long-chain synthetic polymers (polyester or polypropylene) with stabilizer or inhibitors added to make filament resistant to deterioration due to heat and ultraviolet light exposure.



- E. Sheet Edges: Selvaged or finished to prevent outer material from separating from sheet.
- F. Unseamed Sheet Width: Minimum 12 feet.
- G. Physical Properties: Conform to requirements noted below:

| <b>PROPERTY</b>       | <b>DESIGN VALUE</b>   | <b>TEST METHOD</b> |
|-----------------------|-----------------------|--------------------|
| Tensile Strength      | 315 lbs               | ASTM D4632         |
| Elongation            | 12%                   | ASTM D4632         |
| Trapezoidal Tear      | 113 lbs               | ASTM D4533         |
| CBR Puncture Strength | 900 lbs               | ASTM D6241         |
| A.O.S.                | 40 (US Sieve)         | ASTM D4751         |
| Permittivity          | .05 sec <sup>-1</sup> | ASTM D4491         |

## 2.2 NONWOVEN GEOTEXTILE

- A. Separation/Filtration Fabric: To be used in drainage ditches, haybale installation, culvert outfall installations, rip-rap outfall installations, and cover material separation
- B. Pervious sheet of polyester, polypropylene, or polyethylene fabricated into stable network of fibers that retain their relative position with respect to each other. Nonwoven geotextile shall be composed of continuous or discontinuous (staple) fibers held together through needle-punching, spun-bonding, thermal-bonding, or resin-bonding.
- C. Geotextile Edges; selvaged or otherwise finished to prevent outer material from pulling away from geotextile.
- D. Unseamed Sheet Width: Minimum 12 feet.
- E. Physical Properties: Conform to the requirements noted below:

| <b>PROPERTY</b>       | <b>DESIGN VALUE</b>   | <b>TEST METHOD</b> |
|-----------------------|-----------------------|--------------------|
| Tensile Strength      | 160 lbs               | ASTM D4632         |
| Elongation            | 50%                   | ASTM D4632         |
| Trapezoidal Tear      | 60 lbs                | ASTM D4533         |
| CBR Puncture Strength | 400 lbs               | ASTM D6241         |
| A.O.S.                | 70 (US Sieve)         | ASTM D4751         |
| Permittivity          | 1.4 sec <sup>-1</sup> | ASTM D4491         |

## PART 3 – EXECUTION

### 3.1 GENERAL

- A. The Contractor shall be responsible for the installation, and seaming of geotextile fabric in accordance with the specifications and the manufacturer's recommendations, as approved by the Engineer.

### 3.2 SUBGRADE PREPARATION

- A. Surfaces to be covered with geotextile fabric shall be smooth and free of rocks, sticks, roots, sharp objects, and all debris that may damage the fabric. The surface to be covered shall be firm and unyielding, with no sudden changes or breaks in grade. There shall be no standing water or excessive moisture on the surface when the fabric is placed.
- B. The compacted subgrade shall be maintained in a smooth, uniform, and compacted condition during installation of the fabric.

### 3.3 GEOTEXTILE INSTALLATION

- A. The fabric shall be cleaned of all debris or other materials that may negatively affect the fabric's performance.
- B. Mechanical equipment shall not be permitted to operate directly on the fabric unless authorized to do so by the manufacturer and approved by the Engineer.
- C. Geotextile Placement:
  - 1. Fabric shall be placed as recommended by the manufacturer and approved by the Engineer on surfaces which have been prepared to conform with these Specifications and found acceptable for fabric installation.
  - 2. The fabric shall be placed as smooth and wrinkle-free as possible.
  - 3. When installing geotextile in trenches, swales, ditches, etc., overlap geotextile in the direction of flow.
  - 4. All areas of fabric damaged during installation as determined by the Engineer shall be repaired or replaced by the Contractor as specified at no additional cost to the Owner. Should the fabric be damaged during any step of the installation, the damaged section shall be repaired by covering it with a piece of fabric which extends at least 24 inches in all directions beyond the damaged area. The fabric shall be secured by sewing or bonding as approved by the Engineer.
  - 5. At time of installation, fabric will be rejected if it has defects, ribs, holes, flaws, deterioration, or damage incurred during manufacture, transportation, handling, or storage. Damaged materials shall be removed and replaced at no additional cost to the Owner.
  - 6. Fabric shall be placed with long dimension down slope.
  - 7. Fabric shall be protected at all times during construction from contamination by surface run-off and any fabric so contaminated shall be removed and replaced with uncontaminated fabric.
- D. Seams and Overlaps of Geotextile:
  - 1. All overlaps shall be a minimum of 18 inches (450 mm).

### 3.4 COVER MATERIALS OVER GEOTEXTILES

- A. Granular materials shall be placed on geotextiles as shown on the Drawings. During backdumping and spreading, a minimum depth of 6 inches of granular material shall be maintained at all times between the fabric and wheels of trucks or spreading equipment. All equipment used in spreading or traveling on the cover layer for any reason shall exert low ground pressures and shall be approved by the manufacturer and Engineer. Dozer blades, etc., shall not make direct contact with the fabric; however, if tears occur in the fabric during the spreading operation, the granular material shall be cleared from the fabric and the damaged area repaired as previously described.

- B. The granular material shall be spread in the direction of fabric overlap. Large fabric wrinkles which may develop during the spreading operations shall be folded and flattened in the direction of the spreading. Occasionally, large folds may reduce the fabric overlap width. Special care shall be given to maintain proper overlap and fabric continuity.
- C. All equipment spreading cover material or traveling on the cover layer shall avoid making sharp turns, quick stops, or quick starts.
- D. Fabric shall be covered as soon as possible after placement to minimize exposure to sunlight. Fabric shall not be exposed for more than 5 days.

### 3.5 DISPOSAL OF SCRAP MATERIALS

- A. On completion of installation, the Contractor shall legally dispose of all trash and scrap material off-site or in a location approved by the Owner and Engineer, remove equipment used in connection with the work herein, and shall leave the premises in a neat acceptable manner.

END OF SECTION

## SECTION 312319 – DEWATERING

### PART 1 – GENERAL

#### 1.1 SUMMARY

- A. This section includes provisions for a dewatering system to continuously lower and control groundwater levels and hydrostatic pressures in order to maintain near-dry conditions for construction of the work as shown on the plans and specified herein.

#### 1.2 SUBMITTALS

- A. Submit the following:
  - 1. Description: of proposed dewatering system.
  - 2. Layout: of dewatering system, including location of sumps, deep wells, well points, header pipes, pumps, discharge lines, and observation wells.
  - 3. Details: of dewatering system, including installation methods for deep wells, well points and observation wells, depths of wells, material descriptions, pipe sizes, intake screen sizes, and pump capacities.
  - 4. Estimate: of time required to lower groundwater levels after start of pumping.

#### 1.3 JOB CONDITIONS

- A. Site soil boring data and samples, soil laboratory testing, and any soil reports shall be made available to prospective bidders for study and review. Bidders must make their own interpretation of subsurface conditions that may affect methods or the cost of construction of the Work.

### PART 2 – PRODUCTS

#### 2.1 DEWATERING SYSTEM

- A. Provide a dewatering system of adequate size and capacity to lower and maintain the groundwater at the specified level. The system shall include standby pumps and power source for continuous operation.
  - 1. Dewatering system shall consist of wellpoints, deep wells, cut-off walls, riser pipes, swing joints, header lines, valves, pumps, discharge lines, and all other necessary fittings, accessories and equipment for a complete operating system. Provide hole punches, sand backfill, and clay plugs as required by soil conditions.
- B. Observation Wellpoints: Provide groundwater reading wells or piezometers to monitor the groundwater level, as indicated on the approved Shop Drawings or as directed by the Engineer.
- C. Sand: Clean concrete sand conforming to ASTM C33.

## PART 3 – EXECUTION

### 3.1 PREPARATION

- A. Install the observation well points at locations indicated on approved Shop Drawings or where directed by the Engineer. Install observation wellpoints in accordance with manufacturer's printed instructions and in accordance with approved Shop Drawings. Provide sand backfill around wellpoint. Test each observation wellpoint to verify that the installation is performing properly.
- B. Protect observation well standpipes from damage by construction operations and maintain accessibility to them. Maintain reading wells until groundwater is allowed to return to its normal level.

### 3.2 INSTALLATION

- A. Install the dewatering system in accordance with approved Shop Drawings and as required by site conditions. Locate elements of the system to allow a continuous dewatering operation without interfering with the installation of any permanent project Work.

### 3.3 OPERATION

- A. Keep the system in continuous operation from the time excavation is started in the dewatering area (or before if required by site conditions to lower the groundwater to the elevations specified) until the time backfilling is completed at least 2 feet above the normal groundwater level.
  - 1. Do not discontinue dewatering operations without specific approval from the Engineer.
  - 2. Rates of groundwater withdrawal during dewatering operations, shall at all times be below the rate at which soil particles are removed from the existing soils.
- B. In the event excavation proceeds subsequent to dewatering as specified above, and the groundwater level is found to be within two feet of the excavation, the dewatering Contractor shall immediately continue to dewater as specified herein, including, but not limited to, additional dewatering and monitoring facilities, at no additional cost to the Owner. The excavation shall not be allowed to proceed below groundwater.

### 3.4 FIELD CONTROL

- A. Maintain a careful check to detect any settlement in existing adjacent Work. Notify the Engineer of any signs of settlement. Establish settlement point bench marks and take periodic readings as directed. The Contractor shall take all such precautions and do any and all Work necessary to protect the stability and integrity of adjacent lands. Pavements, buildings, and utilities from settlement or other movement that may be caused by his dewatering operations. The Contractor shall be solely responsible for any damage or injury to adjacent lands, pavements, buildings, or utilities caused by his dewatering or other operations or his failure to use corrective or preventive procedures or methods.
- B. Take and record measurements of the groundwater in each reading and pumping well periodically and when directed by the Engineer.

### 3.5 DISCHARGE

- A. Dispose of all water removed from the excavation in such a manner as not to endanger public health, property, or any portion of the Work under construction or completed.
- B. Dispose of water in such a manner as to cause no inconvenience to others on or adjacent to the site.
- C. Convey water from the excavation in a closed conduit. Do not use trench excavations as temporary drainage ditches.
- D. Disposal of water shall be approved by the Engineer and shall not cause erosion or sedimentation to occur in existing drainage systems. All sedimentation or blocking of existing systems shall be thoroughly cleaned and returned to original condition by the Contractor at his own expense.
- E. Provide approved sediment traps when water is conveyed into water courses.

### 3.6 REMOVAL

- A. When system is no longer required, gradually decrease the pumping rate until the water table resumes its natural position so that the velocity of the returning groundwater will be low enough as not to carry fines with it.
- B. When the dewatering system is no longer required and when directed by the Engineer, dismantle and remove the system and all appurtenances from the site.

END OF SECTION



## SECTION 312333 – TRENCHING AND BACKFILLING

### PART 1 – GENERAL

#### 1.1 SUMMARY

- A. This Section includes the excavation of trenching, backfilling, compacting, dewatering, excavation support and disposal, as shown on the Contract Drawings, and as herein specified.
- B. The Engineer will determine the suitability of materials that are to be used in the work and should any materials encountered be unsatisfactory for the purpose intended, they shall be removed from the site at the Contractor's expense.

#### 1.2 QUALITY ASSURANCE

- A. Reference Standards:
  - 1. The latest edition of the following standards, as referenced herein, shall be applicable.
    - a. State Specific Department of Transportation Construction Standards.
    - b. "Standard Specifications for Highway Materials and Methods of Sampling and Testing, American Association of State Highway and Transportation Officials (AASHTO)."
    - c. American Society for Testing and Materials (ASTM).
    - d. National Electric Code (NEC).
- B. The Contractor shall comply with the requirements for soil erosion and sedimentation control and other requirements of governmental authorities having jurisdiction, including the State.
- C. The Contractor shall provide and pay for all costs in connection with an approved independent testing facility to determine conformance of soils and aggregate with the specifications in accordance with Section "Quality Requirements."

#### 1.3 SUBMITTALS

- A. Samples:
  - 1. The Contractor shall furnish representative earth materials to the testing laboratory for analysis and report, as directed by the Engineer, or as outlined in the specifications.
- B. Test Results:
  - 1. The testing laboratory shall submit written reports of all tests, investigations, findings, and recommendations to the Contractor and the Engineer.

#### 1.4 PROJECT REQUIREMENTS

- A. Notify the Engineer of any unexpected subsurface condition.
- B. Protect excavations by shoring, bracing, sheet piling, or by other methods, as required to ensure the stability of the excavation. Comply with OSHA requirements.
- C. Underpin or otherwise support structures adjacent to the excavation, which may be damaged by the excavation. This includes service lines.



- D. Protection of Existing Utilities:
1. Locate existing underground utilities in areas of work. If utilities are to remain in place, provide adequate means of support and protection during earthwork operations. Comply with OSHA requirements.
  2. Coordinate interruption and/or termination of utilities with the utility companies and the Owner.
  3. Provide a minimum of 48 hours' notice to the Owner and receive written notice to proceed before interrupting any utility.
- E. Demolish and completely remove from the site any existing underground utilities designated to be removed, as shown on the Drawings or as specified.
- F. Repair any damaged utilities as acceptable to the Owner, Engineer, and utility company at no additional cost to the Owner.
- G. Contractor shall comply with maintenance and protection requirements as approved by the authority having jurisdiction.
- H. Protection of Persons and Property:
1. Barricade open excavations occurring as part of this work and post with warning lights, if required.
  2. Operate warning lights as recommended by authorities having jurisdiction.
  3. Protect structures, utilities, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earthwork operations.
  4. Perform excavation within drip-line of trees to remain by hand, and protect the root system from damage or dryout to the greatest extent possible. Maintain moist conditions for root system and cover exposed roots with burlap. Paint cut roots of 1-inch diameter and larger with emulsified asphalt tree paint.

## PART 2 – PRODUCTS

### 2.1 MATERIALS

- A. Pipe Zone Bedding: Select mixture of graded crushed stone, free from organic, frozen or other deleterious materials, conforming to the requirements of State Specific DOT Standards and meeting the following gradation requirements:

| SIEVE  | PERCENT PASSING |
|--------|-----------------|
| 1-1/2" | 100             |
| 1"     | 90 – 100        |
| 1/2"   | 0 – 15          |

- B. Pipe Zone Backfill: Sound, durable sand, gravel, stone or blends of these materials, free from organic, frozen or other deleterious materials, conforming to the requirements of State Specific DOT Standards and meeting the following gradation requirements:

| SIEVE  | PERCENT PASSING |
|--------|-----------------|
| 2"     | 100             |
| 1/4"   | 30 – 65         |
| No. 40 | 5 – 40          |

| SIEVE   | PERCENT PASSING |
|---------|-----------------|
| No. 200 | 0 – 10          |

- C. Suitable Material: Sound, durable sand, gravel, stone or blends of these materials, free from organic, frozen or other deleterious materials, conforming to the requirements of State Specific DOT Standards and meeting the following gradation requirements:

| SIEVE   | PERCENT PASSING |
|---------|-----------------|
| 4"      | 100             |
| No. 40  | 0 – 70          |
| No. 200 | 0 – 15          |

1. Run-of-trench material, meeting the above criteria, shall be considered suitable material and shall be used for trench backfill only after tested in accordance with Section "Quality Requirements" and approved by the Engineer. The Contractor shall pay for all additional testing required to determine the conformance of run-of-trench material, if at any time during the Work this material appears to be in non-conformance in the opinion of the Engineer.

### PART 3 – EXECUTION

#### 3.1 PRECONSTRUCTION MATERIAL QUALIFICATION TESTING

##### A. General:

1. Sufficient size samples shall be obtained from the potential borrow source to allow completion of tests listed in paragraph B below. Samples may be obtained from test borings, test pits, or from borrow pit faces provided that surficial dry or wet soil is removed to expose undisturbed earth. Tests listed below shall be performed on each sample obtained. A minimum of 3 representative samples from each potential borrow source shall be furnished to the testing laboratory for prequalification testing. Test data shall be provided to the Engineer a minimum of 2 weeks prior to construction for approval of borrow source. Three test reports completed within three months prior to construction may be submitted for commercial earth borrow sources or suppliers of stone products (crushed stone or graded stone products) in lieu of prequalification tests as approved by the Engineer.

##### B. Material Tests:

1. Particle Size Analysis:
  - a. Method: ASTM D422.
  - b. Number of Tests: One (1) per sample; three (3) per potential source.
  - c. Acceptance Criteria: Gradation within specified limits.
2. Maximum Density Determination:
  - a. Method: ASTM D1557 - Modified Proctor.
  - b. Number of Tests: One (1) per sample; three (3) per potential source.
3. Re-establish gradation and maximum density of fill material if source is changed during construction.

### 3.2 PREPARATION

- A. Establish required lines, levels, contours, and datum.
- B. Maintain benchmarks and other elevation control points; re-establish if disturbed or destroyed at no additional cost to the Owner.
- C. Establish location and extent of existing utilities prior to commencement of excavation.

### 3.3 EXCAVATION

- A. All excavation shall be made to such depth as required and of the width shown on the Drawings to provide suitable room for building the structures and laying the pipe(s) they are to contain and for sheeting, shoring, pumping and draining as necessary, and for removing peat, silt, or any other materials which the Engineer may deem unsuitable. Hand trench excavation may be required to protect existing utilities and structures.
- B. Trench excavation for pipes shall be made by open cut to accommodate the pipe or structure at the depths indicated on the Drawings. Excavation shall be made to such a depth and to the width indicated on the Drawings so as to allow a minimum of 8 inches of pipe zone bedding to be placed beneath the bottom of all structures and barrels, bells or couplings of all pipes installed unless otherwise specified on the Drawings.
- C. The bottom of the trench shall be accurately graded to provide a uniform layer of bedding material as required for each section of pipe. Trim and shape trench bottoms and leave free of irregularities, lumps, and projections.
- D. Stockpile excavated subsoil for reuse where directed or approved.
- E. Over excavation/undercut: If, in the opinion of the Engineer, existing material below the trench grade is unsuitable for properly placing bedding material and laying pipe, the Contractor shall excavate and remove the unsuitable material and replace the same with an approved pipe zone bedding material properly compacted.
- F. Stability of Excavation: Slope sides of excavations shall comply with local codes and ordinances having jurisdiction. Shore and brace where sloping is not possible because of space restrictions or stability of material excavated. Maintain sides and slopes of excavation in safe condition until completion of backfilling.
- G. Removal of materials beyond the indicated subgrade elevations, without authorization by the Engineer, shall be classified as unauthorized excavation and shall be performed at no additional cost to the Owner.

### 3.4 DEWATERING

- A. The Contractor shall remove all water from the excavation promptly and continuously throughout the progress of the work and shall keep the excavation dry at all times until the work is completed and excavation is backfilled or have sufficient weight to resist uplift pressures. Groundwater levels shall be depressed to a minimum of 2 feet below excavation subgrade. No pipe or structure is to be laid in water and water shall not be allowed to rise on or flow over any pipe or structure until such time as approved by the Engineer.

- B. Provide a suitable point of discharge from dewatering operations shall be conveyed in a non-erosive manner satisfactory to the Engineer.
- C. Precautions shall be taken to protect uncompleted work from flooding during storms or from other causes. All pipe lines or structures not stable against uplift during construction or prior to completion shall be thoroughly braced or otherwise protected.

### 3.5 BEDDING AND BACKFILLING

- A. All pipe trenches backfill (pipe zone bedding, pipe zone backfill and trench backfill) shall be compacted by tamping or rolling to achieve a minimum dry density of 90 percent of the modified Proctor maximum dry density of the material used (ASTM D1557). Backfill in pipe trenches to be covered with pavement shall be compacted to a minimum of 95 percent of modified Proctor maximum dry density. Backfill materials shall be placed with water content within plus or minus 4 percent of optimum moisture content per the modified Proctor method (ASTM D1557). Any water used for compaction shall be provided by the Contractor at his own expense. The Contractor is responsible for the repair of any trench settlement at no expense to the owner.
- B. Bedding and backfilling shall be accomplished in three stages unless otherwise specified on the Contract Drawings. The first stage shall involve placement of "pipe zone bedding" as a layer(s) of selected material required to support, or to stabilize unsound or unsatisfactory foundation conditions. The second stage shall involve placement of "pipe zone backfill" from the top of the bedding material up to 1 foot above the pipe. The third stage involves the placement of "trench backfill" in the remainder of the trench up to the surface of the ground or the bottom of any special surface treatment subgrade elevation.
- C. The bedding material shall be placed in the trench after the trench has been excavated a minimum of 8 inches below the bell of the pipe to permit the placing of not less than 8 inches of bedding material unless otherwise specified on the Drawings. Where, in the opinion of the Engineer, more than 8 inches of bedding material shall be required, the excavation shall be performed and bedding placed to the depth ordered by the Engineer.
- D. Provide uniform bearing and support for each section of pipe at every point along the entire length except where necessary to excavate for bell holes, pipe joints, or other required connections. Dig bell holes and depressions for joints after trench bottom has been graded. Dig no deeper, longer, or wider than needed to make the joint connection properly.
- E. The bedding material shall be placed to the full width of trench. The bedding material shall be placed in loose lifts not exceeding 6 inches to the elevation shown on the Drawings or directed by the Engineer. The bedding material shall be tamped and compacted to form a firm and even bearing surface.
- F. Pipe zone backfill shall be placed to the elevation shown on the Drawings in loose lifts not-to-exceed 6 inches in thickness, before compaction. The backfill shall be placed on both sides of the pipe at the same time and to approximately the same elevation. Any pipe that is damaged or moved out of alignment, regardless of cause, shall be replaced or realigned at the Contractor's expense. Each layer shall be thoroughly compacted by hand-tamping or mechanical means being careful not to damage the pipe. When the pipe zone backfill reaches 1 foot over the top of the pipe, the entire surface shall be compacted by mechanical means.
- G. The remainder, if any, of the trench above the pipe zone backfill shall be backfilled with suitable material in loose lifts not exceeding 6 inches in thickness before compaction. Each layer shall be thoroughly compacted by mechanical means.

### 3.6 BACKFILLING AROUND STRUCTURES

- A. The Contractor shall not place backfill against any structure without obtaining the approval of the Engineer. No dumping shall be allowed where materials would flow against or around such structures. Backfill material shall be deposited in horizontal layers not exceeding 6 inches in loose thickness or as shown on the Drawings and thoroughly compacted by hand or by mechanical means to the satisfaction of the Engineer.

### 3.7 SUSPENSION OF WORK

- A. Whenever the work is suspended, excavations shall be protected and the roadways, if any, left unobstructed. Within or adjacent to private property, material shall be stored at such locations as will not unduly interfere with traffic of any nature and in no case shall materials be stored in locations which will cause damage to existing improvements.

### 3.8 DISPOSAL OF MATERIAL

- A. Excess and unsuitable materials shall be disposed of by the Contractor on the site in an area approved by the Engineer or legally disposed of off- site at the Contractor's expense.

### 3.9 FIELD QUALITY CONTROL

- A. Notify the Engineer at least 3 working days in advance of all phases of filling and backfilling operations.
- B. In-place density testing shall be performed to ascertain the compacted density of the fill and backfill materials in accordance with the following methods:
  - 1. In-place relative density:
    - a. Method: AASHTO T238, Nuclear Method.
- C. Perform initial density testing to verify that contractors proposed compaction effort will obtain the minimum required densities.
- D. In-place density tests on trench backfills shall be provided for every 500 cubic yards of fill and in vertical lifts not exceeding 2 feet and at least once daily.
- E. One particle size analysis (ASTM D422) and one modified Proctor compaction test (ASTM D1557) shall be completed for every 5,000 cubic yards of material placed.
- F. The Engineer may direct additional tests to establish gradation, maximum density, and in-place density as required by working conditions, at the Contractor's expense.
- G. Acceptance Criteria: The criteria for acceptability of in-place fill shall be in-situ dry density and moisture content. If a test fails to qualify, the fill shall be further compacted and re-tested. Subsequent test failures shall be followed by removal and replacement of the material.

END OF SECTION

## SECTION 312500 – EROSION AND SEDIMENT CONTROL

### PART 1 – GENERAL

#### 1.1 SUMMARY

- A. This Section covers work necessary for stabilization of soil to prevent erosion and sedimentation during and after construction and land disturbing activities. The work shall include the furnishing of all labor, materials, tools, and equipment to perform the work and services necessary as herein specified and as indicated on the Drawings. This shall include installation, maintenance, and final removal of all temporary soil erosion and sediment control measures. All erosion and sediment control methods and devices used shall conform to the latest requirements imposed by federal, state, and local authorities.
- B. Comply with the latest version of the State Specific Erosion and Sediment Control Manual.
- C. The minimum areas requiring soil erosion and sediment control measures are indicated on the Drawings. The right is reserved to modify the use, location, and quantities of soil erosion and sediment control measures based on activities of the Contractor and as the Engineer considers to be the best interest of the Owner.
- D. The Contractor shall be responsible for repair of any damage caused and shall be financially responsible for any penalties imposed.

#### 1.2 QUALITY ASSURANCE

- A. Soil erosion and sediment control measures shall be implemented in accordance with the requirements and procedures outlined in this Specification, Contract Drawings and documents, state standards or guidelines for soil erosion and sediment control, and all regulatory authorities having jurisdiction. Where conflicts between requirements exist, the more restrictive rules shall govern.
- B. The Contractor shall provide all temporary control measures shown on the Drawings, or as directed by the Owner, Owner's representative, or soil conservation district for the duration of the contract. Erosion and sediment control Drawings are intended to be a guide to address the stages of work shown. Additional measures not specified on the Drawings may be necessary and shall be implemented to address intermediary stages of work and any conditions that may develop during construction at no cost to the Owner.
- C. Temporary control provisions shall be coordinated with permanent erosion control features to the extent practical to assure economical, effective, and continuous erosion and sediment control throughout the construction and post-construction period.
- D. Soil erosion and sediment control measures shall at all times be satisfactory to the Owner's Representative. Owner's Representative will inform the Contractor of unsatisfactory construction procedures and operations if observed. If the unsatisfactory construction procedures and operations are not responded to and corrected within 48 hours, the Owner's Representative may suspend the performance of any or all other construction until the unsatisfactory condition has been corrected. Such suspension shall not be the basis of any claim by the Contractor for additional compensation nor for an extension of time to complete the work. Any complaints, fines, etc. relating to ineffective erosion control, shall be the sole responsibility of the Contractor.

- E. The Contractor shall inspect all soil erosion and sediment control measures at least at the beginning and end of each day to ascertain that all devices are functioning properly during construction. Maintenance of all soil erosion and sediment control measures on the project site shall be the responsibility of the Contractor until final stabilization is complete, and until the permanent soil erosion controls are established and in proper working condition.
- F. The Contractor shall protect adjacent properties and watercourses from soil erosion and sediment damage throughout construction.

### 1.3 GENERAL

- A. Soil erosion stabilization and sediment control measures consist of the following elements:
  - 1. Maintenance of existing permanent or temporary storm drainage piping and channel systems, as necessary.
  - 2. Installation and maintenance of stabilized construction entrance(s).
  - 3. Construction of new permanent and temporary storm drainage piping and channel systems, as necessary.
  - 4. Construction of temporary erosion control facilities such as silt fences, check dams, etc.
  - 5. Topsoil and Seeding: Placement and maintenance of Temporary Seeding on all areas disturbed by construction. Placement of permanent topsoil, fertilizer, and seed, etc., in all areas not occupied by structures or pavement unless shown otherwise.
  - 6. Soil Stabilization Seeding: Placement of fertilizer and seed, etc., in areas as Specified hereinafter.
- B. The Contractor shall be responsible for phasing Work in areas allocated for his exclusive use during this Project, including any proposed stockpile areas, to restrict sediment transport. This will include installation of any temporary erosion control devices, ditches, or other facilities.
- C. The areas set aside for the Contractor's use during the Project may be temporarily developed to provide satisfactory working, staging, and administrative areas for his exclusive use. Preparation of these areas shall be in accordance with other requirements contained within these Specifications and shall be done in a manner to both control all sediment transport away from the area.
- D. Stockpiles remaining in place longer than 14 calendar days shall be considered permanent stockpiles for purposes of erosion and sediment control.
- E. All permanent stockpiles shall be seeded with soil stabilization seed and protected by construction of silt fences completely surrounding stockpiles and located within 10 feet of the toes of the stockpile slopes.
- F. Sediment transport and erosion from working stockpiles shall be controlled and restricted from moving beyond the immediate stockpile area by construction of temporary toe-of-slope ditches and accompanying silt fences as necessary. The Contractor shall keep these temporary facilities in operational condition by regular cleaning, regrading, and maintenance.
- G. The Contractor shall maintain all elements of the Soil Erosion Stabilization and Sedimentation Control systems and facilities to be constructed during this Project for the duration of his activities on this Project.
- H. Formal inspections made jointly by the Contractor and the Engineer shall be conducted every 2 weeks to evaluate the Contractor's conformance to the requirements of these Specifications.

- I. Replacement or repair of failed or overloaded silt fences, check dams, or other temporary erosion control devices shall be accomplished by the Contractor within 24 hours after receiving written notice from the Engineer.
- J. If the Contractor has not complied with any of the above maintenance efforts to the satisfaction of the Engineer within 2 working days after receiving written notification from the Engineer, the Owner shall have the prerogative of engaging others to perform any needed maintenance or cleanup, including removal of accumulated sediment at constructed erosion control facilities, and deduct from the Contractor's monthly partial payment the costs for such efforts in accordance with the General Conditions of the Contract.

#### 1.4 SUBMITTALS

- A. Submittals shall be made in accordance with Section "Submittal Procedures."
- B. Material Certificates signed by material producer and Contractor, certifying that each material item complies with or exceeds specified requirements.
- C. Results of all tests and investigations, including recommendations.
- D. Submit product data, samples, specifications and manufacturer's installation procedures for approval as directed by Engineer prior to use.

### PART 2 – PRODUCTS

#### 2.1 GENERAL

- A. Contractor shall provide all materials necessary to perform the work in accordance with the SWPPP or as shown on the Drawings or specified herein.

#### 2.2 PERMANENT SEED

- A. Refer to Section "Turf and Grasses."

#### 2.3 SOIL STABILIZATION AND TEMPORARY SEED

- A. Temporary Seed: Rye grass, cereal grasses, or other quick growing species suitable to the area as a temporary cover, which will not compete with the grasses specified for permanent cover.

#### 2.4 TOPSOIL

- A. Topsoil shall be as specified under Section "Soil Preparation."

#### 2.5 FERTILIZER

- A. Refer to Section "Turf and Grasses."



## 2.6 LIME

- A. Ground dolomite limestone not less than 85 percent total carbonates and magnesium, ground so that 50 percent passes through a No. 100 mesh sieve and 90 percent passes a No. 20-mesh sieve. Coarser material will be acceptable provided the specified rates of application are increased proportionately on the basis of quantities passing the No. 100-mesh sieve.

## 2.7 STRAW MULCH

- A. Threshed straw of oats, wheat, barley, or rye, free from seed of noxious weeds or clean salt hay.

## 2.8 HAY BALE

- A. Bales shall be tightly bound, staked with 1 inch by 1 inch hardwood stakes. Hay shall be from mowings of acceptable herbaceous growth free from noxious weeds.

## 2.9 SILT FENCE

- A. Silt Fence (SF) shall consist of woven geotextile fabric, posts, wire mesh backing, and fasteners meeting the requirements shown on the Drawings.

## PART 3 – EXECUTION

### 3.1 GENERAL

- A. The Contractor shall comply with and implement the Stormwater Pollution Plan provided in the contract documents.
- B. Review the soil erosion and sediment control Drawings as they apply to current conditions. Any deviation from the Drawings must be submitted for approval to the site Engineer in writing at least 72 hours prior to commencing that work.
- C. Initial soil sediment and erosion control devices shall be in place prior to any land disturbing activity in their proper sequence and maintained until permanent protection is established.
- D. The limit of the area of any earthwork operations in progress shall be commensurate with the Contractor's capability and progress in keeping the finished grading, mulching, seeding, and other such permanent control measures current and in accordance with the accepted schedule for construction phasing. Should seasonal limitations make such coordination unrealistic, as determined by the Owner's Representative, temporary erosion control measures shall be provided immediately by the Contractor at no expense of the Owner.
- E. Temporary erosion control measures shall be used to correct conditions which develop during construction that are needed prior to installation of permanent control features, or that are temporarily needed to control erosion that develops during normal construction practices, but are not associated with permanent control features on the project.
- F. The Contractor shall incorporate all permanent erosion control features (stabilization) into the project at the earliest practical time to minimize the need for temporary controls.
- G. A stabilized construction entrance (SCE) shall be installed and maintained at any point where construction vehicles enter a public right-to-way, street, or parking area. The SCE shall be used to

eliminate mud from the construction area onto public right-of-way. The SCE shall be constructed as shown on the Drawings. Any mud or debris tracked on streets shall be cleaned up immediately.

- H. Dust Control: The Contractor shall provide a commercial grade; enclosed broom mechanical street sweeper to control sediment and/or dust that is tracked on to the adjacent streets. The street sweeper shall be equipped with a water storage tank to wet the area prior to sweeping. Where on site controls do not prevent material from being tracked on to adjacent streets, the street sweeper shall be used to clean the adjacent streets immediately. In addition, at a minimum, the adjacent streets shall be swept at the end of each week or as directed by the Engineer.
- I. Any disturbed or stockpiled areas that will be left exposed more than 14 days or less according to State General Stormwater Permits shall immediately receive temporary or permanent seeding. Mulch/straw shall be used if the season prevents the establishment of a temporary cover. Disturbed areas shall be limed and fertilized prior to temporary seeding.
- J. Permanent vegetation shall be established as specified on all exposed areas within 7 days or less according to State General Stormwater Permits after final grading. Mulch as necessary for seed protection and establishment. Lime and fertilize seedbed prior to permanent seeding.
- K. Slopes shall be permanently seeded and mulched. Any slopes that erode easily shall be temporarily seeded and mulched. Any slopes deeper than 3:1 or steeper or as indicated on Drawings shall be protected with Erosion Control Blanket per specifications.
- L. All storm drainage outlets must be stabilized, as specified, before the discharge points become operational. Equip all inlets with inlet protection immediately upon construction.
- M. Discharge from dewatering operations for the excavated areas shall not be directed to surface waters without first properly removing the suspended sediment through filtration and/or settlement. The Contractor shall obtain any required permits associated with dewatering activities.
- N. Silt fence shall be installed at locations on the Drawings and any additional locations necessary for proper sediment control. The Contractor shall maintain the silt fence until the project is stabilized and shall remove and dispose of the silt fence and silt accumulation when 1/3 the height of the fence is reached.
- O. Soil erosion and sediment control shall include but not be limited to the approved measures. The Contractor shall be responsible for providing all additional measures that may be necessary to accomplish the intent of the Drawings.
- P. Comply with all other requirements of authorities having jurisdiction.
- Q. Soil Stabilization and Temporary Seeding:
  - 1. Soil stabilization seeding shall consist of the application of the following materials in quantities as further described herein for stockpiles and disturbed areas left inactive for more than 14 days.
    - a. Lime.
    - b. Fertilizer.
    - c. Seed.
    - d. Mulch.
    - e. Maintenance.
  - 2. Hydroseeding will be permitted as an alternative method of applying seed and associated soil conditioning agents described above. Should the Contractor elect to apply soil stabilization

seeding by hydroseeding methods, he shall submit his operational plan and methods to the Engineer.

3. Temporary Seeding is to be placed and maintained over all disturbed areas prior to Permanent Seeding. Maintain Temporary Seeding until such time as areas are approved for Permanent Seeding. As a minimum, maintenance shall include the following:
  - a. Fix-up and reseeding of bare areas or re-disturbed areas.
  - b. Mowing for stands of grass or weeds exceeding 6 inches in height.

- R. Topsoil and Permanent Seeding: conform to the requirements of Section "Soil Preparation" and Section "Turf and Grasses."

END OF SECTION

## SECTION 321116 – SUBBASE COURSES

### PART 1 – GENERAL

#### 1.1 SUMMARY

- A. This Section includes provisions for prepared subbase courses for under walks and pavements.
- B. Proof rolling of subgrade for walks and pavements is included in this Section.
- C. Replacement of unsuitable subgrade materials is included in another Section.
- D. Final grading of pavement subbase is specified in this Section.
- E. Stabilization fabric is included in another Section.

#### 1.2 REFERENCES

- A. State Specific DOT Standards.
- B. Standard Specifications for Highway Materials and Methods of Sampling and Testing, American Association of State Highway and Transportation Officials (AASHTO).
- C. American Society for Testing and Materials (ASTM).

#### 1.3 SUBMITTALS

- A. Source Quality Control Test Reports: Submit test reports directly to Engineer from the testing agency with copy to Contractor.
- B. Field Testing Reports: Submit results of field testing directly to Engineer with copy to Contractor. Reference testing location to plan, and cross-reference to all retesting required to accept installed subbase material.
  - 1. Note action taken next to all sub-standard test results.

#### 1.4 QUALITY ASSURANCE

- A. Testing Laboratory Qualifications: To qualify for acceptance, the soil testing laboratory must demonstrate to Engineer's satisfaction, based on evaluation of laboratory-submitted criteria conforming to ASTM E 699, that it has the experience and capability to conduct the required testing without delaying the progress of the Work.
- B. Field Testing and Inspection Service: Contractor shall retain the services of the same independent soil testing laboratory used for source qualification testing to provide soil testing during pavement subbase installation.

### PART 2 – PRODUCTS

#### 2.1 SOURCE QUALIFICATION TESTING

- A. Contractor shall employ and pay for a qualified independent soil testing laboratory to perform soil testing services for source qualification.

1. Obtain a 100-pound minimum representative sample from each potential aggregate source. Obtain samples for each different material gradation known to exist in the pit. Mix each sample thoroughly in accordance with AASHTO T87, and submit to the testing laboratory for reduction to specimen size. The laboratory shall perform the following tests in the order shown. Each material shall pass all tests in order to qualify.
  - a. Particle Size Analysis:
    - 1) Method: ASTM D422.
    - 2) Number of Tests: 2 per potential source.
    - 3) Acceptance Criteria: Gradation within specified limits.
  - b. Plasticity Index Determination:
    - 1) Method: ASTM D424.
    - 2) Number of Tests: 1 particle size analysis on material passing no 40 mesh.
    - 3) Acceptance Criteria: Plasticity Index within specified limits.
  - c. Maximum Density Determination:
    - 1) Method: ASTM D1557 Modified Proctor.
    - 2) Number of Tests: 2 per potential source.
  - d. Magnesium Sulfate Soundness Loss Test:
    - 1) Method: State DOT Standard Test Method.
    - 2) Number of Tests: 2 per potential source.
    - 3) Acceptance Criteria: 4 cycle loss within specified limits.
2. Re-establish subbase material properties if source is changed during construction.

## 2.2 MATERIALS

- A. Processed Gravel Subbase Course: Materials shall consist of sound, durable blast furnace slag, stone, sand, gravel or blends of these materials.
- B. Crushed Rock Subbase Course: Materials shall consist solely of approved blast furnace slag or stone which is the product of crushing ledge rock.
- C. All Dense Graded Aggregate materials shall be well graded from course to fine and free from organic or other deleterious materials, conforming to the requirements of State Specific DOT Standards, and meeting the following gradation requirements:

| SIEVE   | PERCENT PASSING |
|---------|-----------------|
| 1 1/2"  | 100             |
| 3/4"    | 55-90           |
| No. 4   | 25-50           |
| No. 50  | 5-20            |
| No. 200 | 3-10            |

- D. All AASHTO #57 materials shall be free from organic or other deleterious materials, conforming to the requirements of State Specific DOT Standards, and meeting the following gradation requirements:

| SIEVE  | PERCENT PASSING |
|--------|-----------------|
| 1 1/2" | 100             |
| 1"     | 95-100          |
| 1/2"   | 25-60           |
| No. 4  | 0-10            |
| No. 8  | 0-5             |

- E. All Topping Stone material shall be free from organic or other deleterious materials, conforming to the requirements of State Specific DOT Standards, and meeting the following gradation requirements:

| SIEVE   | PERCENT PASSING |
|---------|-----------------|
| 1/2"    | 100             |
| 3/8"    | 90-100          |
| 1/4"    | 75-100          |
| No. 8   | 35-75           |
| No. 16  | 10-55           |
| No. 60  | 0-15            |
| No. 200 | 0-4             |

1. Magnesium Sulfate soundness loss after 4 cycles shall be less than 20 percent.
2. Plasticity Index of material passing No. 40 sieve shall not exceed 5.0.
3. Not more than 30 percent, by weight, of the particles retained on a 1/2 inch sieve shall consist of flat or elongated particles. A flat or elongated particle is defined as one which has its greatest dimension more than 3 times its least dimension.
4. All material shall meet the specified gradation prior to placement. All processing shall be completed at the source.
5. Stabilization Fabric: Conform to Section "Geotextiles"

### 2.3 PREPARATION

- A. Establish required lines, levels, contours, and datum.
- B. Maintain benchmarks and other elevation control points. Re-establish, if disturbed or destroyed, at no additional cost to Owner.
- C. Proof-roll existing subgrade to the satisfaction of the Engineer. Should the subbase course become unstable at any time prior to the placement of the overlying course(s), correct the unstable condition to the satisfaction of the Engineer. Replace unstable or weak subgrade materials with suitable material as provided in the Specifications.
- D. Place stabilization fabric in locations as directed on the plans and in accordance with Section "Geotextiles" after subgrade has been proof-rolled and accepted by the Engineer.

## 2.4 INSTALLATION

- A. Place subbase material in uniform horizontal layers, with a maximum compacted thickness of 12 inches.
- B. Place subbase in a manner to avoid segregation. Uncontrolled spreading shall not be permitted.

## 2.5 COMPACTION

- A. Where subbase courses must be moisture-conditioned before compaction, uniformly apply water to the surface. Prevent free water from appearing on the surface during or subsequent to compaction operations.
- B. Compact all portions of each layer to a density not less than 95 percent of the maximum density.
- C. Final tolerances for the top surface of the subbase course requires that the surface does not extend more than 1/4 inch above nor more than 1/4 inch below the specified grade at any location.

## 2.6 TRAFFIC ON SUBBASE

- A. The movement of vehicular traffic over the final surface of the subbase may be permitted at locations designated by, and under such restrictions as ordered by the Engineer, provided such movements take place prior to the final finishing of this course to the specified tolerance. The movement of construction equipment on this course may be permitted, at locations designated by and under such restrictions as ordered by the Engineer at locations where permission is granted for such movement, the temporary surface of the course upon which the construction traffic is running, shall be placed and maintained for at least 2 inches above the final surface of this course. Just prior to paving, and after all construction traffic not required for the removal has ceased, remove the 2 inch protective layer, prepare the exposed surface of the course, and compact to the specified tolerance.
- B. Should the subbase become mixed with the subgrade or any other material, through any cause whatsoever, remove such mixture and replace it with the specified subbase material.

## 2.7 FIELD QUALITY CONTROL

- A. Notify the Engineer at least 1 working day in advance of all phases of subbase installation.
- B. Comply with the requirements of this Section for in-place relative density testing.
  - 1. In-place relative density:
    - a. Method: AASHTO T238, Nuclear Method.
    - b. Number of Tests: 1 per specified interval.
    - c. Acceptance Criteria: Plus/minus 2 percent of specified percent compactions.
  - 2. Compaction tests shall be provided for every 1000 square yard of subbase placement. A minimum of 3 for each lift is required.
  - 3. The Engineer may direct additional tests to establish gradation, maximum density, and in-place density as required by working conditions.
  - 4. Acceptance Criteria: The sole criterion for acceptability of in-place subbase shall be in situ dry density. Minimum dry density for all subbase shall be 95 percent of the maximum dry density. If a test fails to qualify, the fill shall be further compacted and re-tested. Subsequent test failures shall be followed by removal and replacement of the material.

END OF SECTION

SUBBASE COURSES

PAGE 4 OF 4  
CHA PROJECT NO. 35088  
SECTION 321116

## SECTION 321216.36 – ATHLETIC TRACK ASPHALT PAVING

### PART 1 – GENERAL

#### 1.1 SUMMARY

- A. This section includes provisions for hot-mixed asphalt concrete paving over prepared subbase.
- B. This section includes provisions for replacing pavement removed during the course of the Work or damaged resulting from Contractor's operations.

#### 1.2 REFERENCES

- A. Applicable State or Provincial Department of Transportation Standard Specifications.
- B. "Standard Specifications for Highway Materials and Methods of Sampling and Testing, American Association of State Highway and Transportation Officials (AASHTO)."
- C. "American Society for Testing and Materials (ASTM)."

#### 1.3 SUBMITTALS

- A. Material Certificates signed by material producer and Contractor, certifying that each material item complies with or exceeds specified requirements.
- B. Field Test Reports: Submit results of field testing directly to the Engineer.
- C. Track & Field Paving Experience:
  - 1. On-site Project Manager/Superintendent Qualifications:
    - a. Provide a list of completed facilities, minimum of 5 running tracks, in the past 5 years.
    - b. The project manager/superintendent will be on-site during all track & field paving operations. Substitution of project manager/superintendent shall not be permitted.
  - 2. Track Paving Contractor Qualifications:
    - a. Track Paving Contractor shall provide a list of completed facilities, minimum of 5 running tracks, in the past 5 years.

#### 1.4 SITE CONDITIONS

- A. Weather Limitations: Apply tack coats when ambient temperature is above 50 DegF (10 DegC) and when temperature has not been below 35 DegF (1 DegC) for 12 hours immediately prior to application. Do not apply when base is wet or contains an excess of moisture.
- B. Construct hot-mixed asphalt concrete surface course when atmospheric temperature is above 40 DegF (4 DegC) and when base is dry. Base course may be placed when air temperature is above 30 DegF (minus 1 DegC) and rising.
- C. Grade Control: Establish and maintain required lines and elevations.
- D. In no instance shall the materials and thicknesses of pavement and subbase courses replaced be less than that removed, unless approved by the Engineer.



## 1.5 SEQUENCING AND SCHEDULING

- A. Coordinate the placement of asphalt concrete pavement with the completion of underground work by other trades.
- B. The asphalt top course shall be allowed to cure for 28 days prior to application of resilient track surfacing.

## PART 2 – PRODUCTS

### 2.1 MATERIALS

- A. General: All hot mix asphalt shall be in accordance with applicable provisions of State or Provincial Department of Transportation “Standard Specifications for Road and Bridge Construction”, except as herein modified.
  - 1. The RAP (Reclaimed Asphalt Pavement) content in the asphalt binder course shall be 15 percent or less.
  - 2. There should be no RAP (Reclaimed Asphalt Pavement) content in the asphalt top course.
  - 3. The asphaltic cement (AC-1) content shall be 4.0 to 6.0 percent by weight of the total composite mixture.
  - 4. Coarse aggregate (material retained on the 4.75mm sieve) shall be sound, angular crushed stone or gravel (shale is not recommended).
  - 5. Fine aggregate (material passing the 4.75mm sieve and retained on the #200 (0.075mm) sieve) shall be sand, stone sand and stone screenings Class B quality or better and gradation FA-3.
  - 6. Mineral filler (material passing the #200 sieve) shall be dry limestone or dust.
- B. Asphalt Binder Course:
  - 1. The gradation of the composite aggregate shall conform to the following:

| SIEVE | TOTAL % PASSING |
|-------|-----------------|
| 3/4”  | 100             |
| 1/2”  | 90-100          |
| 3/8”  | 80              |
| #4    | 45-70           |
| #8    | 25-55           |
| #30   | (19)            |
| #50   | 5-20 (12)       |
| #100  | 5-16 (6.5)      |
| #200  | 2-9 (3)         |

- C. Asphalt Top Course:
  - 1. The gradation of the composite aggregate shall conform to the following:

| SIEVE | TOTAL % PASSING |
|-------|-----------------|
| 1/2”  | 100             |
| 3/8”  | 90-100          |
| #4    | 60-90 (70)      |
| #8    | 35-65 (49)      |

| SIEVE                                                                                                                           | TOTAL % PASSING |
|---------------------------------------------------------------------------------------------------------------------------------|-----------------|
| #30                                                                                                                             | (22)            |
| #50                                                                                                                             | 6-25 (14)       |
| #100                                                                                                                            | (8)             |
| #200                                                                                                                            | 2-10 (3)        |
| Note: The aggregate grain size should be as close to the figures in parentheses for the maximum density of the asphalt mixture. |                 |

- D. Asphalt Tack Coat:
1. The primer for application on asphalt surfaces (tack coat) shall be RC-1.

## PART 3 – EXECUTION

### 3.1 SURFACE PREPARATION

- A. General: Remove loose material from compacted subbase surface immediately before commencing paving operations.
- B. Proof-roll prepared subbase surface with a ten-ton static, steel-wheel roller to check for unstable areas and areas requiring additional compaction, witnessed by the Engineer at least 48 hours prior to scheduled paving operations.
- C. Do not begin paving work until deficient subbase areas have been corrected and are ready to receive paving.
- D. Sawcut edges of existing pavement to achieve straight line transitions between old and new pavement. Make a second sawcut through the top course of existing pavement 18 inches from the first cut to provide a staggered joint.
- E. Tack Coat: Apply to contact surfaces of previously constructed asphalt or Portland cement concrete and surfaces abutting or projecting into asphalt concrete pavement. Distribute at rate of 0.03 to 0.07 gallons per square yard of surface.
- F. Allow to dry until at proper condition to receive paving.
- G. Exercise care in applying bituminous materials to avoid smearing of adjoining surfaces. Remove and clean damaged surfaces.
- H. Do not commence pavement replacement operations until all buried work beneath pavement repair has been completed to the satisfaction of the Engineer.
- I. Where trench dimensions preclude the use of proof rolling equipment, demonstrate the stability of the subgrade and subbase through other means, as acceptable to the Engineer.

### 3.2 PLACING AND COMPACTING MIX

- A. General: Place and compact asphalt pavement courses in accordance with applicable state or provincial department of transportation specifications unless otherwise specified.

- B. Place inaccessible and small areas by hand, and compact with hot hand tampers or vibrating plate compactors.
- C. Chamfer edges of walks at 45-degree angle where walks do not abut curb.
- D. Joints: Make joints between old and new pavements, or between successive days' work, to ensure continuous bond between adjoining work. Construct joints to have same texture, density, and smoothness as other sections of asphalt concrete course. Clean contact surfaces and apply tack coat.
- E. Place tack coat between successive courses if more than 48 hours have elapsed after placing the preceding course. Apply tack coat at a rate of 0.03 to 0.07 gallons per square yard of surface.
- F. Compaction: Compact asphalt pavement courses with a static steel wheel roller only, unless otherwise approved by the Engineer, based upon work conditions.
- G. Remove and patch areas of any asphalt concrete course deemed unsatisfactory by the Engineer at the Contractor's expense. Remove hardened or set asphalt by saw cutting.
- H. Adhere to applicable state or provincial department of transportation specifications for compaction requirements. This, however, shall not relieve the Contractor of his responsibility to provide a well densified pavement. It shall be the Contractor's obligation to recognize difficulties in compacting the mix, and to make appropriate corrections.
- I. Roll and compact the asphalt concrete course until the finished surface is free from depressions, waves or other defects that would prevent proper drainage. The finished surface shall be uniform in texture and appearance.
- J. Protection: After final rolling, do not permit vehicular traffic on pavement until it has cooled and hardened.
- K. Erect barricades to protect paving from traffic until mixture has cooled enough not to become marked.

### 3.3 FIELD QUALITY CONTROL

- A. General: Testing in-place asphalt concrete courses for compliance with requirements for thickness and surface smoothness will be done by Owner's testing laboratory. Repair or remove and replace unacceptable paving as directed by Engineer.
- B. Thickness: In-place compacted thickness tested in accordance with ASTM D3549 will not be acceptable if exceeding following allowable variations:
  - 1. Binder and Surface Course: Plus or minus 1/4 inch.
  - 2. Cumulative Thickness Tolerances: Plus or minus 1/4 inch for nominal cumulative thicknesses less than or equal to 4 inches. Plus or minus 1/2 inch for nominal cumulative thicknesses greater than 4 inches.
- C. Surface Smoothness: Test finished surface of each asphalt concrete course for smoothness, using 10-foot straightedge applied parallel with and at right angles to centerline of paved area. Surfaces will not be acceptable if exceeding the following tolerances for smoothness:
  - 1. Binder Course Surfaces: 1/4 inch.
  - 2. Wearing Course Surface: 3/16 inch.
  - 3. Crowned Surfaces: Test with crowned template centered and at right angle to crown. Maximum allowable variance from template is 1/4 inch.

- D. Check surface areas at intervals as directed by Engineer.
- E. Scuff Resistance: If, in the opinion of the Engineer, the pavement does not demonstrate reasonable resistance to deformation by punching loads and scuffing under horizontally applied shearing loads, after the pavement has cooled and hardened, the Engineer may require laboratory testing of cored pavement samples to determine the properties of the pavement; including aggregate gradation, asphalt content, air void ratio, density and any others deemed appropriate. If laboratory testing indicates that any parameters substantially deviate from the design mix tolerances specified by applicable state or provincial department of transportation, replace the affected areas of pavement at no additional cost, and reimburse the Owner for all costs incurred in procurement and testing of cores.

### 3.4 TRACK & FIELD REQUIREMENTS

- A. Flood Testing:
  - 1. The completed asphalt surface that will receive track & field synthetic surfacing must be flood tested in the presence of the track & field synthetic surfacing contractor to determine if any depressions require remediation prior to the installation of the track & field synthetic surfacing.
- B. Track & Field Slope Requirements (NFSHSA (High School)):
  - 1. Track Oval: Direction of running, maximum slope 1:1000 (0.1%); Cross/lateral slope (perpendicular to lane lines), 2:100 (2.0%) maximum.
  - 2. High Jump: Maximum slope of the approach and take-off area shall not exceed 1:100 (1.0%) downward toward the center of the crossbar.
  - 3. Long/Triple Jump and Pole Vault Runways:
    - a. Direction of running/jumping, maximum slope 1:1000 (0.1%).
    - b. Cross / lateral slope (perpendicular to runway lines), 2:100 (2.0%) maximum.

END OF SECTION



## SECTION 321313 – CONCRETE PAVING

### PART 1 – GENERAL

#### 1.1 SUMMARY

- A. This section includes provisions for the placement of Portland cement concrete pavement.
- B. Place Portland cement concrete pavement in conformance with the lines, grades, thicknesses and typical sections shown or detailed on the Drawings.

#### 1.2 REFERENCES

- A. State Specific DOT Standards, NCDOT.
- B. Standard Specifications for Highway Materials and Methods of Sampling and Testing, American Association of State Highway and Transportation Officials (AASHTO).

#### 1.3 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Design Mixtures: For each concrete mixture. Submit alternate design mixtures when characteristics of materials, Project conditions, weather, test results, or other circumstances warrant adjustments.
  - 1. Indicate amounts of mixing water to be withheld for later addition at Project site.
- C. Qualification Data: For Installer and manufacturer.
- D. Testing Agency Qualifications:
- E. Material Test Reports: Indicating compliance with requirements.

#### 1.4 QUALITY ASSURANCE

- A. Reference Standards:
  - 1. The latest edition of the following standards, as referenced herein shall be applicable:
    - a. American Society of Testing and Materials (ASTM).
    - b. American Concrete Institute (ACI).
- B. Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C94/C94M requirements for production facilities and equipment.
  - 1. Manufacturer certified according to NRMCA's "Certification of Ready Mixed Concrete Production Facilities."
- C. Testing Agency Qualifications: An independent agency, qualified according to ASTM C1077 and ASTM E329 for testing indicated.
  - 1. Personnel conducting field tests shall be qualified as ACI Concrete Field Testing Technician, Grade 1, according to ACI CP-1 or an equivalent certification program.
  - 2. Personnel performing laboratory tests shall be ACI-certified Concrete Strength Testing Technician and Concrete Laboratory Testing Technician - Grade I. Testing Agency laboratory supervisor shall be an ACI-certified Concrete Laboratory Testing Technician - Grade II.

- D. ACI Publications: Comply with the following unless modified by requirements in the Contract Documents:
  - 1. ACI 301, "Specifications for Structural Concrete," Sections 1 through 5 and Section 7, "Lightweight Concrete."
  - 2. ACI 117, "Specifications for Tolerances for Concrete Construction and Materials."
- E. Concrete Testing Service: Engage a qualified independent testing agency to perform material evaluation tests.

## 1.5 PROJECT REQUIREMENTS

- A. Coordinate the placement of Portland cement concrete pavement with the completion of underground work by other trades.

## PART 2 – PRODUCTS

### 2.1 MATERIALS

- A. Conform with Section “Subbase Courses” for subbase course.
- B. Concrete:
  - 1. 28-Day Compressive Strength: 4000 psi (minimum).
  - 2. Water to Cement Ratio: 0.45 (maximum).
  - 3. Air Entrainment: 4 to 8 percent.
  - 4. Slump: 1 to 3 inches.
- C. Formwork:
  - 1. Do not use earthcuts for vertical surfaces.
  - 2. All forms shall be built mortar tight and of materials sufficient in strength to hold concrete without bulging between supports. Forms shall be maintained to eliminate the formation of joints due to shrinkage of the forms. Concrete, misshapen by bulges or deformations caused by inadequate forms, shall be removed or corrected as ordered by the Engineer. All replacements or corrections shall be made at the Contractor’s expense.
  - 3. All surfaces of wooden forms that will be in contact with exposed concrete shall be thoroughly treated with an approved lacquer in the procedure recommended by the manufacturer. Forms so treated shall be protected from being damaged or dirtied prior to placing of the concrete.
  - 4. Metal forms shall be treated with an approved form lacquer or may be treated with an approved form oil. The metal used for forms shall be of sufficient thickness to remain true to shape. All bolt and rivet heads shall be designed to hold the forms rigidly together and to allow removal, without injury to the concrete. Metal forms which do not have smooth surfaces, correct alignment and clean surfaces shall not be used.
- D. Steel Reinforcement
  - 1. Reinforcing Bars: ASTM A615, Grade 60.
  - 2. Plain Steel Welded Wire Reinforcement: ASTM A185, plain, fabricated from as-drawn steel wire into flat sheets.
- E. Joint and Curb Ties:
  - 1. Conform to the Details shown on the Drawings.
- F. Curing Compound

1. Uncolored Concrete: Resin-base, white pigmented compound conforming to ASTM C309, Type 2.
- G. Joint Sealant:
1. An elastic, one component, self-leveling, premium grade polyurethane sealant conforming to ASTM C920, Type 5, Grade P, Class 25, Use T<sub>1</sub>.
  2. Manufactured by W.R. Meadows, Sika Corporation, Euclid Chemical Co., or approved equal.
  3. Color: Selected by Engineer. Submit standard manufacturers color chart.
- H. Joint Bond Breaker:
1. 3/8-inch diameter polyethylene foam rod.
- I. Premolded Joint Filler:
1. ASTM D1751 or ASTM D1752.

## PART 3 – EXECUTION

### 3.1 GENERAL

- A. Concrete pavement shall not be applied when the air temperature is below 40 DegF or above 95 DegF unless otherwise directed or when weather conditions would prevent proper construction.
- B. All application equipment, methods, and installation shall conform to NCDOT unless otherwise specified.

### 3.2 PREPARATION

- A. The subbase shall be placed and compacted true to line and grade as shown on the Drawings and conforming to Section “Subbase Courses.”
- B. Proof roll prepared subbase surface with a 10-ton static steel wheel roller to check for unstable or otherwise unsuitable areas as determined by the Engineer. Replace and recompact all unsatisfactory areas, as approved by the Engineer, prior to commencement of paving operations.
- C. Notify the Engineer 48 hours prior to commencing placement of concrete.
- D. Moisten base to minimize absorption of water from fresh concrete.

### 3.3 CONCRETE PLACEMENT

- A. All foreign matter of any kind shall be removed from the interior of forms before placement of the concrete. Temporary struts or braces within the forms shall be removed when concrete has reached an elevation rendering their further service unnecessary.
- B. Concrete shall be rejected which does not reach its final position in the forms within 60 minutes after water is first added to the mix.
- C. Concrete shall be placed so as to avoid segregation of the materials and displacement of the reinforcement. Long troughs, chutes and pipes for placing or conveying concrete may be used only on written authorization of the Engineer, and he may also order their discontinuance, if inferior quality of concrete is produced.



- D. Dropping the concrete a distance of more than 3 feet or depositing a large quantity at any point and running or working it along the forms will not be permitted.
- E. Concrete shall be compacted by continuous working with a suitable tool in a manner acceptable to the Engineer. All thin section work shall be thoroughly worked with a steel slicing rod.
- F. Concrete shall be placed in horizontal layers not more than 12 inches thick except as hereinafter provided. When less than a complete layer is placed in one operation, it shall be terminated in a vertical bulkhead. Each layer shall be placed and compacted before the preceding batch has taken its initial set to prevent injury to the concrete and avoid cold joints between the batches. Each layer shall be compacted so as to avoid the formation of a joint with a preceding layer, which has not taken initial set.
- G. Construction joints shall be placed only where shown on the plans or as permitted by the Engineer.
- H. Concrete shall be thoroughly compacted during and immediately after depositing by vibrating the concrete internally by means of mechanical vibrating equipment.
  - 1. Lateral transport of the concrete by means of vibrating equipment will not be allowed.

### 3.4 FINISH

- A. After placement the concrete shall be smoothed with an approved mechanical or hand screed.
- B. Edge rounding shall not exceed 1/4 inch and surface irregularities shall not exceed 1/8 inch in 10 feet.
- C. Texturing:
  - 1. Immediately after smoothing operations have been completed and prior to application of curing compound, the surface of the concrete shall be textured with a set of spring steel tines in a direction perpendicular to the center line of pavement.
  - 2. The individual tines shall be rectangular in shape, 3/16 inch wide, 1/32 inch thick, and approximately 6 inches long. The center to center spacing of the tines shall be approximately 3/4 inch. They shall be capable of producing striations generally not less than 3/16 inch deep in the plastic concrete in the one pass.
  - 3. More than one pass over the same area will not be permitted unless the surface has first been refinished. The capability of the tines to provide an acceptable texture shall be demonstrated to the Engineer prior to approval for use.
  - 4. The tine head may be operated by hand or mechanically. In either case, concrete texturing shall take place with the longitudinal axis of the tines as nearly at an angle of 45 degrees to the concrete surface as is practicable to eliminate the dragging of mortar by the tines. The tines shall be kept free of hardened concrete particles.

### 3.5 CURING

- A. Cure using an approved method as given in NCDOT except curing compound shall comply with subpart 2.1.F.

### 3.6 REMOVAL OF FORMWORK

- A. Forms will remain in place at least 12 hours after the placing of the concrete. This duration may be lengthened if, in the opinion of the Engineer, conditions warrant.

### 3.7 JOINTS

- A. Longitudinal and transverse joints shall be constructed as indicated on the Plans and in accordance with these requirements. All joints shall be constructed true to line with their faces perpendicular to the surface of the pavement. Joints shall not vary more than 1/4 inch from a true line or from their designated position. The surface across the joints shall be tested with a 10-foot straight edge as the joints are finished and any irregularities in excess of 1/8 inch shall be corrected before the concrete has hardened.
- B. Transverse joints shall be at right angles to the center line of the pavement and shall extend the full width of the panel. The transverse joints in succeeding lanes shall be placed in line with similar joints in the first lane.
- C. All joints shall be so prepared, finished, or cut to provide a groove of sufficient width and depth to receive and effectively retain joint- sealing material.
- D. When joints in concrete pavements are sawed, the joints shall be cut at the time and in the manner approved by the Engineer. The circular cutter shall be capable of cutting in a straight line, and shall produce a slot at least 5/16 inch wide. When shown on the Plans or required by the Specifications, the top portion of the slot or groove shall be widened by means of a second cut or by suitable and approved leveling to provide adequate space for joint sealers. Sawing of the joints shall commence as soon as the concrete has hardened sufficiently to permit cutting without chipping, spalling, or tearing. The joints shall be sawed at the required spacing consecutively in sequence of the concrete placement, unless otherwise approved by the Engineer.

### 3.8 SURFACE SEALANT

- A. Apply surface sealant in accordance with manufacturer's instructions.

### 3.9 FIELD QUALITY CONTROL

- A. Testing and Inspecting: Engage a qualified testing and inspecting agency to perform tests and inspections and to submit reports.
- B. Concrete Tests: Testing of composite samples of fresh concrete obtained according to ASTM C172 shall be performed according to the following requirements:
  - 1. Testing Frequency: Obtain one composite sample for each day's pour of each concrete mixture exceeding 5 cu. yd., but less than 25 cu. yd., plus one set for each additional 50 cu. yd. or fraction thereof.
    - a. When frequency of testing will provide fewer than five compressive-strength tests for each concrete mixture, testing shall be conducted from at least five randomly selected batches or from each batch if fewer than five are used.
  - 2. Slump: ASTM C143/C143M; one test at point of placement for each composite sample, but not less than one test for each day's pour of each concrete mixture. Perform additional tests when concrete consistency appears to change.
  - 3. Air Content: ASTM C231, pressure method, for normal-weight concrete; one test for each composite sample, but not less than one test for each day's pour of each concrete mixture.
  - 4. Concrete Temperature: ASTM C1064/C1064M; one test hourly when air temperature is 40 DegF and below and when 80 DegF and above, and one test for each composite sample.
  - 5. Compression Test Specimens: ASTM C31/C31M.
    - a. Cast and laboratory cure three sets of two standard cylinder specimens for each composite sample.

6. Compressive-Strength Tests: ASTM C39/C39M; test one set of two laboratory-cured specimens at 7 days and one set of two specimens at 28 days. The remaining two cylinder will be held in reserve. If the results of the 28 day tests indicate low strength concrete, the engineer will direct the contractor and laboratory to test the remaining two cylinders at a time directed by the engineer.
7. Strength of each concrete mixture will be satisfactory if every average of any three consecutive compressive-strength tests equals or exceeds specified compressive strength and no compressive-strength test value falls below specified compressive strength by more than 500 psi.
8. 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.

END OF SECTION

## SECTION 321630 – CONCRETE SIDEWALKS

### PART 1 – GENERAL

#### 1.1 SUMMARY

- A. This Section includes the installation of concrete sidewalk as shown on the Drawings, or as specified herein.
- B. The materials and methods specified herein are directly intended for placement of “new” concrete sidewalk. Where existing sidewalk is removed and replaced during construction, modifications to these specifications to match existing conditions shall be made as directed by the Engineer.

#### 1.2 QUALITY ASSURANCE

- A. Reference Standards:
  - 1. The latest edition of the following standards, as referenced herein, shall be applicable.
    - a. State Specific DOT Standards.
    - b. American Society of Testing and Materials (ASTM).
    - c. American Concrete Institute (ACI).
- B. The Contractor shall provide and pay for all costs in connection with an approved independent testing facility to determine conformance of materials with the specifications, if at any time during the Work, materials appear unsuitable in the opinion of the Engineer.

#### 1.3 SUBMITTALS

- A. Concrete:
  - 1. The Contractor shall furnish the name and location of the concrete supplier.
  - 2. Submit the design mix for each class of concrete prior to use in the Work.
- B. Product Data:
  - 1. Submit manufacturer’s catalog cuts, specifications, and installation instructions.
- C. Test Results:
  - 1. The testing laboratory shall submit written reports of all tests, investigations, and recommendations to the Contractor and the Engineer.

### PART 2 – PRODUCTS

#### 2.1 MATERIALS

- A. Concrete:
  - 1. All cast-in-place concrete shall be ready mixed concrete meeting the following criteria:
    - a. 28 day compressive strength-4000 psi.
    - b. Air entrainment-4% to 8%.
    - c. Slump-2" to 4".

- B. Premoulded Expansion Joint Filler:
  - 1. Concrete curbing shall be provided with a 1/2 inch premoulded expansion joint filler conforming to ASTM D1751.
  - 2. The premoulded expansion joint filler shall be “pre-cut” to match the concrete sidewalk cross-sectioned dimensions as detailed on the Drawings.
- C. Fabric Reinforcement:
  - 1. Flat sheets of 6 x 6 - W 2.9 x W 2.9, ASTM A185, welded wire fabric.
- D. Sealants:
  - 1. Joint Sealers: ASTM C920.
- E. Forms:
  - 1. Sidewalk forms shall be of wood or steel, straight of sufficient strength to resist springing during depositing and consolidating concrete, and of a height equal to the full depth of the finished sidewalk.
  - 2. Wood forms shall be surfaced plank, 2-inch nominal thickness, straight and free from warp, twist, loose knots, splits or other defects. Wood forms shall have a nominal length of 10 feet, with a minimum of three stakes per form, at maximum spacing of 4 feet. Corners, deep sections, and radius bends shall have additional stakes and braces, as required. Radius bends may be formed with 3/4-inch boards, laminated to the required thickness.
  - 3. Steel forms shall be channel-formed sections with a flat top surface and with welded braces at each end and at not less than two intermediate points. Form ends shall be interlocked and self-aligning. Forms shall include flexible forms for radius forming, corner forms, form spreaders, and fillers. Forms shall have a nominal length of 10 feet, with a minimum of two welded stake pockets per form. Stake pins shall be solid steel rods with chamfered heads and pointed tips, designed for use with steel forms.

## PART 3 – EXECUTION

### 3.1 INSPECTION

- A. The Contractor shall notify the Engineer 24 hours before placing concrete in order to give the Engineer an opportunity to inspect the formwork, reinforcing and related items prior to placement of the concrete.
- B. Delivery tickets shall show the amount of cement, brand, and amount of all admixtures, in addition to information required by ASTM C94, Section 14. Water added on the job shall be approved and the amount noted on the delivery ticket and initialed by the Contractor.

### 3.2 SUBBASE PREPARATION

- A. Concrete sidewalk shall be constructed on a compacted granular subbase as shown on the Drawings.
- B. The completed subbase shall be tested for grade and cross section with a template extending the full width of the sidewalk and supported between side forms.
- C. The subbase shall be maintained in a smooth, compacted condition in conformity with the required section and established grade, until the concrete is placed.
- D. The subbase shall be in a moist condition when concrete is placed.

- E. The subbase shall be prepared and protected so as to produce a subbase free from frost when the concrete is deposited.

### 3.3 FORMWORK

- A. Earth cuts may not be used as forms for vertical surfaces.
- B. All forms shall be built mortar tight and of materials sufficient in strength to hold concrete without bulging between supports. Forms shall be maintained to eliminate the formation of joints due to shrinkage of the forms. Concrete, misshapen by bulges or deformations caused by inadequate forms, shall be removed or corrected as ordered by the Engineer. All replacements or corrections shall be made at the Contractor's expense.
- C. All surfaces of wooden forms that will be in contact with exposed concrete shall be thoroughly treated with an approved lacquer in the procedure recommended by the manufacturer. Forms so treated shall be protected from being damaged or dirtied prior to placing of the concrete.
- D. Metal forms shall be treated with an approved form lacquer or may be treated with an approved form oil. The metal used for forms shall be of sufficient thickness to remain true to shape. All bolt and rivet heads shall be designed to hold the forms rigidly together and to allow removal, without injury to the concrete. Metal forms which do not have smooth surfaces, correct alignment and clean surfaces shall not be used.
- E. Side forms shall not be removed for less than 12 hours after finishing has been completed.

### 3.4 CONCRETE PLACEMENT AND FINISHING

- A. Preparation:
  - 1. Set forms true to line and grade and anchor rigidly in position.
  - 2. Transverse expansion joints shall be installed at sidewalk returns and opposite expansion joints in adjoining curbs. Longitudinal expansion joints shall be installed between concrete sidewalk and abutting concrete curb, continuously. Transverse expansion joints shall be installed equally at not more than 25 feet on center, unless otherwise directed by the Engineer, or as detailed on the Drawings.
  - 3. Transverse expansion joints shall be filled with 1/2-inch joint filler strips. Joint filler shall be placed with top edge 1/4 inch below the surface and shall be held in place with steel pins or other devices to prevent warping of the filler during floating and finishing. Protect the top edge of the joint filler during concrete placement with a temporary cap and remove after concrete has been placed.
  - 4. Expansion joints shall be formed about structures and features that project through or into the sidewalk pavement, using joint filler of the type, thickness, and width indicated. The filler shall be installed in such manner as to form a complete, uniform separation between the structure and sidewalk pavement.
- B. Placement of Fabric Reinforcement:
  - 1. Prior to placement, clean reinforcement thoroughly of mill and rust scale and of coatings which could destroy or reduce bond. Where there is a delay in depositing concrete after the positioning of reinforcement, reclean reinforcement, if necessary.
  - 2. Place reinforcement midway between top and bottom of the slab and secure against displacement.

3. Lap edges and ends of adjoining sheets of fabric reinforcement at least half the mesh width. Offset end laps in adjacent sheets to prevent continuous joints at ends. Interrupt reinforcement at expansion joints, stopping 2 inches from edges.
- C. Concrete Placement:
1. Concrete shall be placed in the forms in one layer of such thickness that when compacted and finished the sidewalk will be of the thickness indicated. After concrete has been placed in the forms, a strike-off guided by side forms shall be used to bring the surface to proper section to be compacted.
  2. The concrete shall be tamped and consolidated with a suitable wood or metal tamping bar, and the surface shall be finished to grade with a wood float. Finished surface of the walk shall not vary more than 3/16 inch from the testing edge of a 20-foot straightedge. Irregularities exceeding the above shall be satisfactorily corrected. The surface shall be divided into rectangular areas by means of contraction joints spaced at intervals shown on the drawings.
  3. Place concrete in accordance with ACI 301 unless otherwise specified herein.
  4. Cold Weather Concreting: Comply with ACI 306 for placement at temperatures of, or expected to be, below 40°F.
  5. Hot Weather Concreting: Comply with ACI 305 for placement at temperature of, or expected to be, above 90°F.
- D. Concrete Finishing:
1. After straight edging, when most of the water sheen has disappeared, and just before the concrete hardens, the surface shall be finished to a smooth and uniformly fine granular or sandy texture free of waves, irregularities, or tool marks. A scored surface shall be produced by brooming with a fiber-bristle brush in a direction transverse to that of the traffic, or as otherwise shown on the drawings.
  2. All slab edges, including those at formed joints, shall be finished carefully with an edger having a radius of 1/8 inch. Corner and edges which have crumbled and areas which lack sufficient mortar for proper finishing shall be cleaned and filled solidly with a properly proportioned mortar mixture and then finished.
  3. The completed surface shall be uniform in color and free of surface blemishes and tool marks.

### 3.5 CURING

- A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures.
- B. Comply with ACI 306.1 for cold-weather protection.
- C. Evaporation Retarder: Apply evaporation retarder to concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb/sq. ft. x h (1 kg/sq. m x h) before and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete but before float finishing.
- D. Begin curing after finishing concrete but not before free water has disappeared from concrete surface.
- E. Curing Methods: Cure concrete by moisture curing, moisture-retaining-cover curing, curing compound or a combination of these as follows:
1. Moisture Curing: Keep surfaces continuously moist for not less than seven days with the following materials:
    - a. Water.

- b. Continuous water-fog spray.
  - c. Absorptive cover, water saturated and kept continuously wet. Cover concrete surfaces and edges with 12-inch (300-mm) lap over adjacent absorptive covers.
2. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover, placed in widest practicable width, with sides and ends lapped at least 12 inches (300 mm) and sealed by waterproof tape or adhesive. Immediately repair any holes or tears occurring during installation or curing period using cover material and waterproof tape.
  3. Curing Compound: Apply uniformly in continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas that have been subjected to heavy rainfall within three hours after initial application. Maintain continuity of coating, and repair damage during curing period.

### 3.6 SEALING JOINTS

- A. At the end of the curing period, expansion joints shall be carefully cleaned and filled with joint sealer. Concrete at the joint shall be surface dry, and the atmospheric and pavement temperatures shall be above 50°F, at the time of application of joint sealing materials.
- B. Joints shall be filled flush with the concrete surface in such manner as to minimize spilling on the walk surface. Spilled sealing material shall be removed immediately and the surface of the walk cleaned. Dummy groove joints shall not be sealed.

### 3.7 BACKFILLING AND RESTORATION

- A. After curing, debris shall be removed, and the area adjoining the concrete shall be backfilled, graded, and compacted to conform to the surrounding area in accordance with lines and grades indicated.
- B. All lawns, pavements, driveways, shrubs, or other improvements affected by sidewalk placement shall be restored to their original condition.

### 3.8 PROTECTION

- A. The Contractor shall protect the curbing and keep it in alignment and "first class" condition until the completion of the Contract. Any curbing, which is damaged prior to final acceptance of the Work, shall be removed and replaced at the Contractor's expense.

END OF SECTION





## SECTION 321815 – ATHLETIC CHANNEL DRAIN SYSTEM

### PART 1 – GENERAL

#### 1.1 SUMMARY

- A. This Section includes install a precast, interlocking polymer concrete trench drainage system as specified and as shown on the working drawings.
- B. System Description: Modular trench drain system precast from a corrosion resistant polymer including interlocking modular components for on-site installation.

#### 1.2 QUALITY ASSURANCE

- A. Warranty:
  - 1. Channel drain system is included under the Project Warranty.

#### 1.3 SUBMITTALS

- A. Contractor will submit shop drawings showing a plan of the total drainage system listing all parts being provided with exact center-line dimensions suitable for installation. Copies of the manufacturer's recommended method of installation, assembly, and anchorage shall be submitted for review.

### PART 2 – PRODUCTS

#### 2.1 MATERIALS

- A. Physical and Mechanical Characteristics of Polymer Concrete Channel Units
  - 1. Top unit width - Approximately 6.1 inches.
  - 2. Internal width - Approximately 4.0 inches.
  - 3. Unit depth - Approximately 8.75 inches.
  - 4. Compressive strength of specified polymer concrete - 14,000 psi min.
  - 5. Flexural strength of specified polymer concrete - 3,000 psi min.
  - 6. Water absorption rate - not to exceed 0.1%.
- B. Channel Profile shall include positive interlocking tongue and groove connections which can be sealed to provide water tight connections. Each precast polymer channel shall be an approximately 1 meter unit and be available in curved and straight sections.
- C. Catch Basins shall be precast polymer concrete, 19.7" in length and include a plastic grating.
- D. Approved Channel Drainage Systems:
  - 1. Where slot drain is called out on plans:
    - a. SportsEdge – XT-6 Slot Drain System.
    - b. ACO Sport - System 2000.
  - 2. Where trench drain is called out on plans:
    - a. SportsEdge – PRO-S Channel Drain System.
    - b. ACO Sport - System 4020.

- E. Grates:
  - 1. Grates are to be high density Polyethylene – color black.
  - 2. Grate locking devices are to be galvanized steel.

## PART 3 – EXECUTION

### 3.1 SITE PREPARATION

- A. Excavate the area for channel placement wide enough to accommodate the channel size with a minimum of six inch concrete encasement. Channels require a minimum of six inches concrete support, and top of channel must be evenly aligned to the surface of the surrounding surface on both sides, as well as underneath the channel.

### 3.2 INSTALLATION

- A. Install precast channel drain in accordance with the details on the plans and the manufacturer's instructions.
- B. Channel sections are installed from the outlet ends of the system, working from the catch basins. Insert channels from above to allow ends to interlock. Channel sections shall be placed on brick, rebar basket, channel chair, low slump concrete grout slurry, or suspended to obtain correct finished elevation. Cutting will be made, if required, by masonry or concrete saw. Cover top of channel with tape, plastic, or plywood strips to protect the channel surface from concrete during pouring.
- C. Finishing and Cleanup
  - 1. Following final set of concrete, remove protection covering top of channels.
  - 2. Install drain system in strict accordance with manufacturer's recommendations and shop drawings.

END OF SECTION

## SECTION 321823.38 – SYNTHETIC RUNNING TRACK AND FIELD SURVEYING

### PART 1 – GENERAL

#### 1.1 SUMMARY

- A. This section covers all labor and materials required to provide survey of key construction elements and the final track and field facility. The Contractor is responsible for completing all survey work.

#### 1.2 CODES AND STANDARDS

- A. The survey work must be completed by a licensed surveyor or engineer.
- B. Codes and standards follow the current guidelines set forth by the National Federation of State High School Associations (NFSHSA).

#### 1.3 SUBMITTALS

- A. The following information must be submitted by the Contractor:
    - 1. After installation of new precast channel drain:
      - a. Survey the new precast channel drain location with elevations at:
        - 1) 10-meter intervals starting at the common finish line.
        - 2) Elevations to show top of drain.
    - 2. Outside and infield border curbs:
      - a. Survey the outside border curbs location with elevations at:
        - 1) 10-meter intervals starting at the common finish line.
        - 2) All sprint chute corners.
        - 3) Elevations to show top of curb.
      - b. Survey the infield border curbs location with elevations at:
        - 1) 10-meter intervals.
        - 2) Elevations to show top of curb.
    - 3. After installation of all field events:
      - a. Survey all field events with elevations as follows:
        - 1) 4 corners of all long/triple jump sand pits.
        - 2) Center of all long/triple jump take-off boards.
        - 3) Top flange of all pole vault boxes (center front and center back).
        - 4) 4 corners of all throw circle pads.
    - 4. After installation of the asphalt/concrete base:
      - a. Survey field event areas as follows:
        - 1) Both edges of all runways at 10-foot intervals.
        - 2) High jump area on a 20-foot grid.
        - 3) All paved D-zone surfaces on a 20-foot grid.
        - 4) All paved oval surfaces at lane 1, lane 4 and lane 8 at 20-foot centers.
- After installation of the track and field synthetic surface and line markings:
- a. The Contractor shall submit the separately included Track & Field Certification Survey Form, stating the completed facility meets requirements outlined in the NFHSA Rulebook. The Engineer or Surveyor, selected by the Contractor, must survey the facility's as-built line markings.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

## SECTION 321823.39 – SYNTHETIC RUNNING TRACK SURFACING

### PART 1 – GENERAL

#### 1.1 SUMMARY

- A. This section covers all labor and materials required to install a first-class track & field surface. The Track & Field Synthetic Surfacing Contractor is responsible for installing all track & field synthetic surfacing materials and line markings as designated in these specifications.

#### 1.2 CODES AND STANDARDS

- A. Codes and standards follow the current guidelines set forth by the National Federation of State High School Associations (NFSHSA).

#### 1.3 SUBMITTALS

- A. The following information must be submitted by the Track & Field Synthetic Surfacing Contractor prior to installation.
  1. Test results, from an IAAF certified laboratory, verifying manufacturer's Track & Field Synthetic Surfacing product meets the IAAF Performance Specifications for Synthetic Surfaces.
    - a. The same components from the test sample must be used in the installed surface. No substitutions will be allowed.
    - b. TRRL Pendulum test results for slip resistance must be greater than 47.
  2. Surfacing Contractor On-site Project Manager/Superintendent Qualifications:
    - a. The project manager/superintendent for the surfacing contractor will be on-site during all surfacing operations. Substitution of project manager/superintendent shall not be permitted.
    - b. A list of completed facilities, minimum of 5, which are certified to meet NFSHSA rules & regulations in the past 5 years utilizing the product specified in these specifications. The Track & Field Synthetic Surfacing Contractor's project manager/supervisor responsible for the completed facilities must supervise this project.
  3. Standard printed specifications of the track & field synthetic surfacing system that is being installed.
  4. Installation process and requirements for subbase (stone, asphalt, and concrete) and any conditions that may limit the track & field synthetic surface installation or affect quality of installation.
  5. Temperature/climatic conditions limiting quality of installation.
  6. Standard specification and application for recommended subbase primers, crack filler, patching and leveling material.
  7. Three product samples, a minimum of 6" x 6" in size, the same color, texture, thickness, etc. of the same type of surfacing to be installed for this project. This must be a representative sample of the product. This sample must be submitted and approved by the Owner prior to installation. At completion of the project this sample may be used as a comparison to judge the quality of the installed product.

8. Material safety data sheets on all individual components of the product being installed. Provide a letter stating the Track & Field Synthetic Surfacing Contractor reviewed the asphalt specification and are accepting the specification as correct. Upon completion of the Asphalt paving and prior to installation of the track & field synthetic surface, the Track & Field Synthetic Surfacing Contractor will provide a letter accepting the installed asphalt and stating it is suitable to receive the track & field synthetic surface.
  9. Letter from synthetic surfacing manufacturer approving the installer/applicator of the synthetic surface listed in these specifications.
  10. Written notice and acceptance that all in-ground field event equipment is installed as per the Contract Documents and the rules of the sport.
- B. The following information shall be submitted after completion of the specified work:
1. Provide a copy of the Track & Field Synthetic Surface vendor's standard Warranty noting any exceptions to the Warranty information included in this Specification Section.
  2. Provide a Care and Maintenance manual for the Owner's use in maintaining the synthetic surfacing.

#### 1.4 QUALITY ASSURANCE

- A. Prior to installation, or during installation or at completion of installation of the synthetic surfacing, if the Owner has any question or doubt about the quality or formulation of the material, the Track & Field Synthetic Surfacing Contractor shall have the product tested. If the product meets these specifications, then the Owner shall pay for the cost of the testing; if the product does not meet these specifications, then the Track & Field Synthetic Surfacing Contractor shall pay for the testing. Any material failing to meet specifications will be replaced with new material at the Track & Field Synthetic Surfacing Contractor's expense.
- B. Slopes and Tolerances (NFSHSA):
1. The maximum lateral inclination permitted for the track across the full width of the track, and across all runways, shall not exceed 2:100, 2.0 percent.
  2. The maximum overall downward inclination permitted in the running direction for the track, the running direction for all runways and the throwing direction for all landing sectors shall not exceed 1:1,000, 0.1 percent. Inclination shall be measured by comparing the start and end points of the races that use the straightaway portion of the oval, the last 20 meters of the javelin runway, the start and end points of other runways, not to exceed 40 meters, and the full graded length of each landing sector.
  3. In the high jump approach and takeoff area, the maximum overall downward inclination shall not exceed 1:100, 1.0 percent, in the running direction toward the center of the crossbar.
  4. The surface of a throwing circle shall be level.

#### 1.5 SPECIAL PROJECT CONDITIONS

- A. The Track & Field Synthetic Surfacing Contractor will provide a project manager/superintendent on-site daily through the completion of the Track & Field Synthetic Surfacing Contractor's portion of the contract.
1. The on-site project manager/superintendent shall remain on site through the completion of the project. Substitution of project manager/superintendent shall not be permitted.

- B. The Track & Field Synthetic Surfacing Contractor will provide a technician that will serve as a consultant to the Owner and Contractor during the Asphalt Paving, first reviewing the asphalt specification, accepting the specification as correct, and then, providing daily review and guidance of the construction of the Asphalt Paving which will directly affect the tolerances and longevity of the eventual synthetic surfacing installation.
- C. Prior to installing any concrete the Contractor must verify with the Track & Field Synthetic Surface manufacturer if any curing compounds or agents are allowed or acceptable.

#### 1.6 SPECIFIC SCOPE OF WORK

- A. The Track & Field Synthetic Surfacing Contractor shall verify the entire track & field subbase and all events to determine that:
  - 1. The synthetic surface for the 400 meter track oval will accurately fit onto the Asphalt Paving base.
  - 2. That slopes and elevations meet required tolerances.
  - 3. No bird baths exceed the allowable limits as specified.
  - 4. The track & field areas will meet or exceed the rules of the sport.
- B. The Track & Field Synthetic Surfacing Contractor shall provide all labor, materials and equipment to perform the following work:
  - 1. The Track & Field Synthetic Surfacing Contractor is responsible for installing all track & field synthetic surfacing materials and line markings as designated in these specifications.
  - 2. Review Bidding documents and specifications, provide technical assistance, and approve Asphalt Paving base work as required in the specifications.
  - 3. Review and approve installation of all field event in-ground equipment before any track & field synthetic surfacing is installed as specified and shown on the Drawings.
  - 4. Brush and wash down all areas to be surfaced, as often as necessary during the installation of the track and field synthetic surface.
  - 5. Repair all birdbaths as required in these specifications.
  - 6. Install removable track & field synthetic surfacing (full pour polyurethane) plugs in all pole vault boxes and long/triple jump take-off boards (1-inch by 1-inch corner notches in one short side).
  - 7. Install special material (i.e., foam, board, etc.) in slot drain opening to prevent polyurethane from entering the opening. The drainage slot opening shall be neatly trimmed out (vertical cuts), after polyurethane installation, to allow proper drainage to occur. No polyurethane is allowed on the inside of the drainage slot opening. This shall apply only if the precast slot drain is installed.
  - 8. Repair all damaged areas, clean-up all glue, and remove excess polyurethane, primers and similar products. All trim cuts shall be neat and clean; on all curves the trim-out shall follow a radius line for accuracy and neatness.

#### 1.7 WARRANTY/GUARANTEES

- A. General: Warranties / Guarantees specified in this Article shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and are in addition to and run concurrent with other warranties/guarantees made by the Contractor under requirements of the Contract Documents.



- B. The following are inclusive of the term “Track & Field Synthetic Surface” for provisions of the guarantee:
1. All slopes & tolerances as required in this specification.
  2. Synthetic track & field surface product as specified and represented by the Track & Field Synthetic Surface Manufacturer.
  3. All materials and products specified.
  4. All line markings installed in accordance with the Contract Documents.
- C. Track & Field Synthetic Surface Installer Guarantee: Provide in writing a “Full System Guarantee” agreement. The President/Principal(s) of both the Track & Field Synthetic Surface Installer and the Track & Field Synthetic Surface Manufacturer (if different) shall sign this document and it shall include the following:
1. All work executed under this section will be free from defects of material and workmanship for the specified period from date of Substantial Completion/Acceptance of the Owner.
  2. Any defects will be remedied on written notice at no additional cost to the Owner.
  3. The warranty shall not be prorated.
  4. All material shall be guaranteed to the extent that the surfacing:
    - a. Has been manufactured, applied and will perform in accordance with these and the manufacturer's specifications.
    - b. Will hold fast and/or adhere to the primer, asphalt, concrete, edging, filler, patches, or overlay materials.
    - c. Is Ultra-Violet resistant, will not bubble, blister, fade, crack, or wear excessively during the warranty period.
- D. The Track & Field Synthetic Surfacing Contractor shall, in the presence of the Owner, inspect the track and field synthetic surfacing each year until the end of the warranty period, or at any time requested by the Owner. Any defects in workmanship or materials (at no fault of the Owner) shall be repaired at the expense of the Track & Field Synthetic Surfacing Contractor to the satisfaction of the Owner.
- E. Contractor shall not be held liable for incidental or consequential damages. The Track & Field Synthetic Surface Warranties described shall be conditioned upon:
1. Owner shall maintain track as described in the Owner’s Manual submitted by the Contractor to the Owner.
- F. The Warranty does not cover any defect, failure, damage caused by or connected with abuse, neglect, deliberate acts, acts of God, casualty or loads exceeding the Contractor’s recommendations.
- G. Warranty period to be five (5) years minimum.

## PART 2 – PRODUCTS

### 2.1 TRACK & FIELD SYNTHETIC SURFACE

- A. The track and field synthetic surface shall be as per the manufacturer's specifications, plus the following requirements and where discrepancies exist, they shall be brought to the attention of the Owner or Owner's representative prior to Bidding or Installation.

- B. Colors:
  - 1. Manufacturer's standard Black.
- C. The following Products are approved for bidding:
  - 1. Beynon Sports Surfaces:
    - a. Contact: John Beynon @ (410) 771-9473.
    - b. Base Bid Product: Sandwich System: BSS 300.
    - c. Deduct Alternate Product: Base Mat Structural Spray (Non-Porous): BSS 200.
  - 2. Advanced Polymer Technologies (APT):
    - a. Contact: (724) 452-1330.
    - b. Base Bid Product: Sandwich System: Spurtan BV.
    - c. Deduct Alternate Product: Base Mat Structural Spray (Non-Porous): Spurtan BSS.
  - 3. Stockmeier Urethanes:
    - a. Contact: (304) 624-7002.
    - b. Base Bid Product: Sandwich System: Stobitan SW.
    - c. Deduct Alternate Product: Base Mat Structural Spray (Non-Porous): Stobitan SSC.
- D. Synthetic Track Surfacing shall be the IAAF approved thickness unless otherwise specified.
- E. Patching Material: All materials must be approved materials and compatible with the synthetic surface.

## PART 3 – EXECUTION

### 3.1 INSPECTION AND ACCEPTANCE

- A. Examine all surfaces and contiguous elements to receive work of this section and correct, as part of the Work of this Contract, any defects affecting installation.
- B. Commencement of work will be construed as complete acceptability of surfaces and contiguous elements.

### 3.2 INSTALLATION REQUIREMENTS

- A. The following installation requirements must be met by the Track & Field Synthetic Surfacing Contractor:
  - 1. Installation by synthetic surface manufacturer approved project manager/superintendent applicators and technicians. Local laborers may be hired for non-technical work, only.
  - 2. Priming - The primer shall be spray-applied in accordance with the manufacturer's specifications. Only those areas which can be installed the same day should be primed. All concrete areas to be surfaced shall receive manufacturer's approved primer.

### 3.3 INSTALLATION OF SYNTHETIC TRACK SURFACING

- A. Thickness to match sample submitted to IAAF certified testing laboratory.

### 3.4 INSTALLATION OF TRACK & FIELD SYNTHETIC SURFACE

- A. Base Bid - Sandwich System:
  - 1. Thickness to match sample submitted to IAAF certified testing laboratory.
  - 2. Base Course:
    - a. The SBR granules and two component polyurethane shall be mixed together on site to regulate the ratio/quantity of SBR, not to exceed 82% in the base mat portion of the system. The two component polyurethane shall be mixed with the SBR rubber so that a minimum of 20%, by weight, exists in the final mixture. This mixture is then mechanically installed using the paver.
  - 3. Seal Coat
    - a. The two polyurethane components are mixed at the prescribed ratio homogeneously with a suitable mixing device. The coating is squeegee applied to the base mat, making it impermeable.
  - 4. Wearing Course
    - a. The 1 to 3mm EPDM granules shall be integrated into the two component polyurethane to achieve the full depth of the 5 mm wearing course. The resilient embedded textured finish shall be a dense matrix of exposed EPDM granules. The homogeneous wearing course shall be applied in situ with the base course.
- B. Deduct Alternate - Basemat Structural Spray (Non-Porous):
  - 1. Thickness to match sample submitted to IAAF certified testing laboratory.
  - 2. Base Layer:
    - a. The SBR granules and single component polyurethane shall be mixed together on site to regulate the ratio/quantity of SBR, not to exceed 82% by weight in the base mat portion of the system. The polyurethane shall be mixed with the SBR rubber so that a minimum of 20%, by weight, exists in the final mixture. This mixture is then mechanically installed using the paver.
  - 3. Seal Coat:
    - a. The two component polyurethane is mixed at the prescribed ratio homogeneously with a suitable mixing device. The coating is squeegee applied to the base mat, making it impermeable.
  - 4. Wearing Course:
    - a. The 0.5 to 1.5mm EPDM granules shall be mixed with polyurethane, the single-component structural spray coating. The structural spray shall be made in two uniform applications.

### 3.5 TIMING, LIMITATIONS, AND CONDITIONS AFFECTING INSTALLATION

- A. The track surfacing material shall be applied no sooner than 28 days after placement of the asphalt top course.
- B. Weather and Climate: If in the opinion of the synthetic track surfacing manufacturer or the Owner, weather and climatic conditions are having or will have an adverse effect on installation; work shall be delayed until the adverse condition has passed.

- C. Adjacent and Concurrent Construction: Installation shall not take place until the completion of the adjacent or concurrent construction operations which generate dust, airborne abrasives, or any other by-product that, in the opinion of the Owner or synthetic track surfacing manufacturer, would be harmful to the track material. Under specific direction of the Owner, the Track & Field Synthetic Surfacing Contractor may be allowed to cover the track material with an approved covering if such harmful construction operations must occur after the track material has been installed.

END OF SECTION



## SECTION 321823.40 – SYNTHETIC RUNNING TRACK LINE MARKINGS

### PART 1 – GENERAL

#### 1.1 SUMMARY

- A. This section covers all labor and materials required to install the track & field line markings.
- B. The Synthetic Surface Contractor is responsible for the purchase and installation of all paints and line markings.

#### 1.2 CODES AND STANDARDS

- A. Codes and standards follow the current guidelines set forth by the National Federation of State High School Associations (NFSHSA).

#### 1.3 SUBMITTALS

- A. The following information shall be submitted prior to installation of specified work:
  - 1. A list, similar to the one in Part 3.2 below, depicting the colors of all line markings and labels of the events to be included for approval prior to installation. Also, all symbols and markings clearly identified, illustrated, and their colors stated. The recommended NFSHSA colors shall be used.
  - 2. Installation process and requirements for line markings and any conditions that may limit the installation or affect quality of installation.
  - 3. Material safety data sheets on all products, as necessary.
- B. The following information shall be submitted at the completion of the specified work:
  - 1. Upon completion of all line markings, the Track & Field Synthetic Surfacing Contractor shall submit to the Owner a five (5) diagram/drawing depicting and identifying all line markings:
    - 1) a key to the color codes, 2) a chart for all symbols, and 3) labels for all events.

### PART 2 – PRODUCTS

#### 2.1 PAINT

- A. The paint shall be a metalatex paint acceptable for use on Track & Field Synthetic Surface.

#### 2.2 TEMPORARY REFERENCE MARKINGS

- A. These markings shall be removed at the completion of the project.

### PART 3 – EXECUTION

#### 3.1 SUMMARY

- A. General line markings of the 400-meter track and field events, shall be spray applied, using only paint, primers and finishes supplied and guaranteed by the approved manufacturer and/or supplier.

- B. All markings shall be in accordance with the rules of the NFSHSA and shall be certified for accuracy. The color code of the NFSHSA shall be followed.
- C. No line markings shall be installed if the weather conditions are not proper (i.e., too windy).

### 3.2 LINE MARKINGS

- A. Paint:
  - 1. All line markings to receive adequate paint to completely cover the track & field synthetic surface.
- B. Measure Line (Theoretical – not painted):
  - 1. Track oval will not utilize a regulation curb.
  - 2. Distance to right hand edge of the inside lane line of Lane 1 to be 20 centimeters from the measure line.
- C. Line Precedence:
  - 1. Lane lines to take precedence over other markings.
    - a. Numbers and letters to be broken at all lane line intersections.
  - 2. Waterfall starting lines take precedence over straight starting lines.
    - a. Straight starting lines to taper at waterfall starting lines – maintain a 1/2-inch gap.
- D. Chute Extensions:
  - 1. Chute extension lines to be solid not dashed.
  - 2. Break chute extension lies 2 inches either side of track oval lines.
- E. 100 Meters:
  - 1. One Direction – main straight away and alternate straight away.
  - 2. Event label:
    - a. 100.
    - b. 4 inches high.
    - c. The color of the label to be white.
    - d. Located in the outside lane and is above the starting line.
  - 3. Color of starting line is white.
- F. 100 Meter Hurdles:
  - 1. One Direction – main straight away and alternate straight away.
  - 2. Event label:
    - a. 100.
    - b. 4 inches high.
    - c. The color of the label to be white.
    - d. Located in the outside lane and is above the starting line.
  - 3. Color of the starting line is white.
  - 4. The hurdle tic marks are yellow.
    - a. Hurdle tic marks are a 2.5 inches wide by 3 inches high triangle, the triangle is pointing in the direction of running – Each lane shall have 2 tic marks with each tic mark adjacent to the lane line, but not touching the lane line.

- G. 110 Meter Hurdles:
1. One Direction – main straight away and alternate straight away.
  2. Event label:
    - a. 110.
    - b. 4 inches high.
    - c. The color of the label to be white.
    - d. Located in the outside lane and is above the starting line.
  3. Color of the starting line is white.
  4. The hurdle tic marks are blue.
    - a. Hurdle tic marks are a 2.5 inches wide by 3 inches high triangle, the triangle is pointing in the direction of running – Each lane shall have 2 tic marks with each tic mark adjacent to the lane line, but not touching the lane line.
- H. 200 Meters (and 200 meter reverse):
1. All in lanes – both curves.
  2. Event label:
    - a. 200.
    - b. 4 inches high.
    - c. The color of the label to be white.
    - d. Located in Lane 2 and is above the starting line.
  3. Color of the starting line is white.
  4. Color of reverse starting line is black.
- I. 300 Meters:
1. All in lanes.
  2. Event label:
    - a. 300.
    - b. 4 inches high.
    - c. The color of the label to be white.
    - d. Located in Lane 2 and is above the starting line.
  3. Color of the starting line is white.
- J. 300 Meter Hurdles:
1. All in lanes.
  2. Event label:
    - a. 300.
    - b. 4 inches high.
    - c. The color of the label to be white.
    - d. Located in lane 2, and is above the starting line.
  3. Color of the starting line is white.
  4. The hurdle tic marks are red.
    - a. Hurdle tic marks are a 2.5 inches wide by 3 inches high triangle, the triangle is pointing in the direction of running – Each lane shall have 2 tic marks with each tic mark adjacent to the lane line, but not touching the lane line.
- K. 400 Meters:
1. All in lanes.
  2. Event label:



- a. 400.
  - b. 4 inches high.
  - c. The color of the label to be white.
  - d. Located in Lane 2 and is above the starting line.
3. Color of the starting line is white.
- L. 800 Meters:
- 1. Waterfall start and 1 turn stagger.
  - 2. Event label:
    - a. 800.
    - b. 4 inches high.
    - c. The color of the label to be white.
    - d. The 1 turn stagger starting line is located in Lane 2, the waterfall starting line is located in the outside lane, and the labels are above the starting line.
  - 3. Color of the 1 turn stagger starting line is white with a green insert.
  - 4. The color of the waterfall starting line is white.
- M. 1600 Meters:
- 1. Waterfall start.
  - 2. Event label:
    - a. 1600.
    - b. 4 inches high.
    - c. The color of the label to be white.
    - d. Located in the outside lane and is above the starting line.
  - 3. Color of the starting line is white.
- N. 3200 Meters:
- 1. Waterfall start.
  - 2. Event label:
    - a. 3200.
    - b. 4 inches high.
    - c. The color of the label to be white.
    - d. Located in the outside lane and is above the starting line.
  - 3. Color of the starting line is white.
- O. 400 Meter Relay:
- 1. All in lanes.
  - 2. Event label:
    - a. 400.
    - b. 4 inches high.
    - c. The color of the label to be white.
    - d. Located in lane 2, and is above the starting line.
  - 3. Color of the starting line is white, same starting line as the staggered starting line for the 400 meters.
  - 4. The relay exchange zone markers are yellow and the acceleration zone marker is yellow.
    - a. Exchange zone markers are 36-inch wide by 18-inch high triangles, the two triangles point into the relay exchange zone, and the triangles are included in the 20-meter zone

- b. Acceleration zone mark is 6-inch wide by 6-inch high triangle; one triangle per lane, 10 meters before the exchange zone marker, and the triangle is included in the 10-meter acceleration zone.
  
- P. 800 Meter Relay:
  - 1. Four turn stagger.
  - 2. Event label:
    - a. 800R.
    - b. 4 inches high.
    - c. The color of the label to be white.
    - d. Located in lane 2, and is above the starting line.
  - 3. Color of the starting line is white with a red insert.
  - 4. The relay exchange zone markers are red.
    - a. Exchange zone markers are 36-inch wide by 18-inch high triangles, the two triangles point into the relay exchange zone, and the triangles are included in the 20-meter zone.
  
- Q. 1600 Meter Relay:
  - 1. Three turn stagger.
  - 2. Event label:
    - a. 1600R.
    - b. 4 inches high.
    - c. The color of the label to be white.
    - d. Located in lane 2, and is above the starting line.
  - 3. Color of the starting line is white with a blue insert.
  - 4. The relay exchange zone markers are blue.
    - a. Exchange zone markers are 36-inch wide by 18-inch high triangles, the two triangles point into the relay exchange zone, and the triangles are included in the 20-meter zone.
  
- R. 3200 Meter Relay:
  - 1. One turn stagger.
  - 2. Event label:
    - a. 3200R.
    - b. 4 inches high.
    - c. The color of the label to be white.
    - d. Located in lane 2, and is above the starting line.
  - 3. Color of the starting line is white with a green insert.
  - 4. The relay exchange zone markers are green.
    - a. Exchange zone markers are 36-inch wide by 18-inch high triangles, the two triangles point into the relay exchange zone, and the triangles are included in the 20-meter zone.
  
- S. Break Lines:
  - 1. Color of the 1 turn break line is white when it is also a finish line; otherwise, it is a solid green line.
  - 2. Provide green dashes on the inside lane line of Lane 5 from box alley start to break line.
  
- T. Finish Line:
  - 1. Location:
    - a. Common: Located at the Northwest point of curvature (PC).

- b. Alternate located at the southeast point of curvature (PC.)
2. 2 inches wide and white in color.
3. The intersection of the finish line with the lane lines shall be painted to conform with the current NCAA recommendation.
4. No lean line is to be provided.

U. Box Alleys:

1. Provide 1-turn box alley starts for the following events:
  - a. 800.
  - b. 1600.
  - c. 3200.
2. Box 1 to be lanes 1 through 3.
3. Box 2 to be lanes 4 through 6.

V. Long/Triple Jump:

1. Runway lines:
  - a. 2-inch wide lines.
  - b. White in color.
  - c. 48-inch wide runways (inside edge to inside edge of line).
2. Distance marks:
  - a. Provide 1.5-inch long by 1-inch wide white lines outside the runway on the right hand (direction of running) side every foot beginning at 20 feet from the long jump foul line and extending the length of the runway or 150 feet, whichever is shorter.
  - b. Every 5- and 10-foot line to be 3 inches long by 1 inch wide.
  - c. Every 10-foot line to be labeled below the line facing the athlete.

W. Pole Vault:

1. Runway lines:
  - a. 2-inch wide lines.
  - b. White in color.
  - c. 48-inch wide runways (inside edge to inside edge of line).
  - d. Terminate runway lines at zero line.
2. Zero line:
  - a. 1/2-inch wide line.
  - b. White in color.
  - c. 24-foot long centered on back edge of box (not flange).
3. Pole Vault Marks:
  - a. Provide 36-inch long by 2-inch wide white line with label beside the line in the center of the runway at 12 feet from the back of the plant box.
  - b. Provide 12-inch long by 2-inch wide white lines in the center of the runway at 9, 10, 11, 13, 14, and 15 feet from the back of the plant box. Dimension labels to be placed outside the runway line.
4. Distance marks:
  - a. Provide 1.5-inch long by 1-inch wide white lines outside the runway on the right hand side (direction of running) every foot beginning at 15 feet from the plant box and extending the length of the runway or 150 feet whichever is shorter.
  - b. Every 5- and 10-foot line to be 3 inches long by 1 inch wide.
  - c. Every 10-foot line to be labeled below the line facing the athlete.

- X. Lane numbers:
1. The numbers are a block style, 24 inches high, and the numbers will not have a color shadow.
  2. The color of the numbers will be white.
  3. There are 5 sets of numbers:
    - a. There is 1 set of numbers 5 feet before the 100M starting line.
    - b. There is 1 set of numbers 1 foot after the common finish line, facing to the outside of the track oval.
    - c. There is 1 set of numbers staggered in the first turn, above the 400M staggers.
    - d. There is 1 set of numbers staggered in the second turn, above the 300M staggers.
    - e. There is 1 set of numbers staggered in the third turn, above the 200M staggers.
- Y. Interval Marks:
1. Provide a 2-inch wide white line on the inside of the track oval extending from the inside edge of the inside Lane 1 line approximately 4 inches long.
  2. These lines are to be at 50-meter intervals starting at the common finish line and running the entire length of the track oval.
- Z. All color markings listed above must be reviewed and verified as correct, as per the rules and regulations of the governing body.

*Note: All line markings must be reviewed and verified with the Owner's representative prior to installation.*

END OF SECTION



SECTION 321823.41 – SYNTHETIC RUNNING TRACK CERTIFICATION SURVEY

PART 1 – GENERAL

1.1 SUMMARY

- A. This section covers all labor and materials required to provide certification of the final track & field facility. The Contractor is responsible for completing all survey work.

1.2 CODES AND STANDARDS

- A. The survey work must be completed by a licensed surveyor or engineer.
- B. Codes and standards follow the current guidelines set forth by the National Federation of State High School Associations (NFSHSA).
- C. Construction standards shall follow the American Sports Builders Association (ASBA) guidelines.

1.3 SUBMITTALS

- A. The following information must be submitted by the Contractor:
  - 1. After installation of the track & field synthetic surface and line markings:
    - a. The Contractor shall submit the below Track & Field Certification Survey, stating the completed facility meets requirements outlined in the NFSHSA Rulebook. The Engineer or Surveyor, selected by the Contractor, must survey the facility's as-built line markings.

B. Certification Survey:

1. Facility Information:

Owner \_\_\_\_\_  
Facility Name \_\_\_\_\_  
Location \_\_\_\_\_

2. Surveyor/Engineer Information:

Firm Name \_\_\_\_\_  
Contact \_\_\_\_\_  
Phone # \_\_\_\_\_  
Registration # \_\_\_\_\_

3. Survey Information:

Date of Survey \_\_\_\_\_  
Weather Conditions \_\_\_\_\_

#### 1.4 TRACK OVAL MEASUREMENTS

- A. Contractor shall provide for Engineer's review a completed Class 4 Markings Certification for Running Tracks per the latest edition of the ASBA (American Sports Builders Association) Construction and Maintenance Manual.
- B. The track survey and certification form shall be completed, stamped and signed by a licensed surveyor and the surveyor shall have provided similar work for at least 5 running tracks in the last 5 years.

END OF SECTION

## SECTION 323113 – CHAIN LINK FENCE AND GATES

### PART 1 – GENERAL

#### 1.1 DESCRIPTION

- A. The Contractor shall provide all labor, materials, equipment, and services necessary for, and incidental to, the installation of chain link fence and gates, as shown on the Drawings and as specified herein.
- B. All chain link fence shall be thermally-bonded polyvinyl chloride (PVC), plastic resin finish over galvanized steel wire.
- C. All gates and gate hardware shall be powder coated.

#### 1.2 QUALITY ASSURANCE

- A. Comply with standards of the Chain Link Fence Manufacturer's Institute.
- B. Provide steel fence and related gates as a complete system produced by a single manufacturer, including necessary erection accessories, fittings and fastenings.
- C. Comply with ASTM A-53 for requirements of Schedule 40 piping.
- D. Height of fence shall be measured from the top of concrete footing to the top of post.

#### 1.3 SUBMITTALS

- A. Product Data: Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for chain-link fences and gates.
  - 1. Fence and gate posts, rails and fittings.
  - 2. Chain link fabric, reinforcements, and attachments.
  - 3. Gates and hardware.
- B. Shop Drawings: Show locations of fences, gates, posts, rails, tension wires, details of extended posts, extension arms, gate swing, or other operation, hardware, and accessories. Indicate materials, dimensions, sizes, weights, and finishes of components. Include plans, gate elevations, sections details of post anchorages, attachment, bracing, and other required installation and operational clearances.
- C. Samples for Verification: For each type of chain-link fence and gate indicated:
  - 1. PVC coated steel wire (for fabric) in 6-inch (150-mm) lengths on shapes for posts, rails, wires and gate framing.
  - 2. Two-stage powder coat finish, in 6-inch (150-mm) lengths on shapes for gate framing.
- D. Product Certificates: For each type of chain-link fence and gate, signed by product manufacturer:
  - 1. Strength test results for framing according to ASTM F 1043.
- E. Qualification Data: For installer.
- F. Field quality-control test reports.



G. Maintenance Data: For the following to include in maintenance manuals:

1. Polymer Finishes.
2. Powder Coat Finishes.

#### 1.4 QUALITY ASSURANCE

A. Installer Qualifications: An experienced installer who has completed chain-link fences and gates similar in material, design and extent to those indicated for this Project and whose work has resulted in construction with a record of successful in-service performance.

#### 1.5 PROJECT CONDITIONS

A. Field Measurements: Verify layout information for chain-link fences and gates shown on Drawings in relation to property survey and existing structures. Verify dimensions by field measurements.

### PART 2 – PRODUCTS

#### 2.1 STEEL FRAME WORK

A. Unless noted otherwise on drawings, minimum Nominal Framework Sizes shall be the following:

| FENCE HEIGHT | LINE POSTS | END, CORNER & PULL POSTS | RAILS & BRACES | GATE FRAMES | *GATE POSTS | CONCRETE FOUNDATION DIA. |                   | DEPTH |
|--------------|------------|--------------------------|----------------|-------------|-------------|--------------------------|-------------------|-------|
|              |            |                          |                |             |             | Diameters                | Corner/End        |       |
|              |            |                          |                |             |             | LINE POSTS               | PULL & GATE POSTS |       |
| 3'-6"        | 2"         | 3"                       | 1-1/4"         | 1-1/2"      | 4"          | 12"                      | 12"               | 4'    |

| SCHEDULE 40 S/L PIPE TABLE |                               |                 |
|----------------------------|-------------------------------|-----------------|
| NOMINAL SIZE (IN.)         | ACTUAL OUTSIDE DIAMETER (IN.) | WEIGHT *(LB/FT) |
| 1                          | 1.315                         | 1.67            |
| 1-1/4                      | 1.660                         | 2.27            |
| 1-1/2                      | 1.900                         | 2.71            |
| 2                          | 2.375                         | 3.65            |
| 2-1/2                      | 2.875                         | 5.79            |
| 3                          | 3.500                         | 7.58            |
| 3-1/2                      | 4.000                         | 9.11            |

| 50,000 PSI HOT DIPPED ALUMINIZED STEEL TUBING |                               |                 |
|-----------------------------------------------|-------------------------------|-----------------|
| NOMINAL SIZE (IN.)                            | ACTUAL OUTSIDE DIAMETER (IN.) | WEIGHT *(LB/FT) |
| 1                                             | 1.315                         |                 |
| 1-1/4                                         | 1.660                         | 1.83            |
| 1-1/2                                         | 1.900                         | 2.28            |
| 2                                             | 2.375                         | 3.12            |
| 2-1/2                                         | 2.875                         | 4.64            |
| 3                                             | 3.500                         | 5.71            |
| 3-1/2                                         | 4.000                         | 6.56            |

#### 2.2 CHAIN LINK FABRIC

A. General: Height indicated on Drawings. Provide fabric in one-piece heights for fence heights up to 10 feet measured between top and bottom of outer edge of selvage knuckle or twist. Comply with ASTM A 392, CLFMI CLF 2445, and requirements indicated below:

1. Steel Wire Fabric: Polymer-coated wire:

- a. 0.148 inch (9 gauge) diameter for fences and gates.
- B. Mesh Size:
  - 1. 2 inches for fences.
- C. Selvages: Knuckled top and bottom.

## 2.3 SWING GATE FRAMES

- A. Assemble gate frames with fully coped welds as shown on the Drawings or on Shop Drawings approved by the Engineer.
  - 1. All ferrous metal components shall be blast cleaned to and SSPC-6 commercial blast clean.

## 2.4 GATE HARDWARE

- A. Hinges: Non-lift-off type, offset to permit 180-degree swing, and of suitable size and weight to support gate. Provide 1-1/2 pair of hinges for each leaf over 6 feet high.
- B. Latch: Provide plunger bar type complete with flush plate set in concrete for all double gates and single gates over 10 feet. Padlock eye shall be an integral part of latch construction.
  - 1. Provide plunger bar complete with flush plate set in concrete on each gate leaf.
  - 2. Provide flush plate set in concrete for both the full open position and full closed position.
- C. Keeper for Vehicle Gates: Provide keeper which automatically engages the gate leaf and holds it in open position until manually released.

## 2.5 MISCELLANEOUS MATERIALS AND ACCESSORIES

- A. Post Tops: Steel, wrought iron, or malleable iron.
- B. Stretcher Bars: One piece equal to full height of fabric, minimum cross-section 3/16 inch by 3/4 inch.
- C. Metal Bands (for stretcher bars): Steel, wrought iron, or malleable iron, to secure stretcher bars to end, corner, pull and gate posts.
- D. Wire Ties:
  - 1. For tying fabric to line posts, rails and braces: 9 gauge steel wire.
- E. Truss Rods: 3/8-inch diameter.
- F. Angle Beams, I Beams and Steel Shapes: ASTM A-36.
- G. Bolts and Nuts: ASTM A-307, Grade A.

## 2.6 FINISHES

- A. Steel Framework:
  - 1. PVC Coated Pipe:
    - a. Metallic coating: Weight of Zn-5-Al-MM Aluminum-Mischmetal Alloy Coating, ASTM F 1345, Type III, Class 2, 1.0 OZ./SQ. ft. (305 g/sq. m).

- b. Thermally-bonded polyvinyl chloride (PVC), plastic resin finish, ASTM F 668, Class 2, not less than 10 mils (.010") thick over metallic-coated steel wire.
  - c. Color: Black, complying with ASTM F 934.
- B. Chain Link Fabric:
- 1. PVC Coated Chain Link Fabric:
    - a. Metallic coating: Weight of Zn-5-Al-MM Aluminum-Mischmetal Alloy Coating, ASTM F 1345, Type III, Class 2, 1.0 OZ./SQ. ft. (305 g/sq. m).
    - b. Thermally-bonded polyvinyl chloride (PVC), plastic resin finish, ASTM F 668, Class 2, not less than 10 mils (.010") thick over metallic-coated steel wire.
    - c. Color: Black, complying with ASTM F 934.
    - d. Coat selvage ends of fabric that is metallic coated before the weaving process with manufacturer's standard clear protective coating.
- C. Gates:
- 1. Colored Powder Coated Framework:
    - a. Powder for coating shall be a polyester-based thermal setting resin.
    - b. Powder coat system shall meet or exceed the following test requirements:
      - 1) Direct Impact Resistance: ASTM D 2794-93, up to 160 in.-lbs.
      - 2) Flexibility: ASTM D 522-93, Method B, equal to or less than a ¼ inch mandrel.
      - 3) Pencil Hardness: ASTM D 3363-93a, HB-2H.
      - 4) Crosshatch Adhesion: ASTM D 3359-97, Method B, 5B.
      - 5) Salt Spray Resistance: ASTM B 117, plus 1,000 hours.
      - 6) Humidity Resistance: ASTM D 2247, plus 1,000 hours.
  - 2. Chain Link Fabric on gate same as finish same for fencing.
- D. Fence and Gate Hardware, Miscellaneous Materials, Accessories:
- 1. Fence Hardware, Materials and Accessories:
    - a. Per fence finish requirements.
  - 2. Gate Hardware, Materials and Accessories:
    - a. Per gate finish requirements.

## PART 3 – EXECUTION

### 3.1 EXAMINATION

- A. Examine areas and conditions, with Installer present, for compliance with requirements for a verified survey of property lines and legal boundaries, site clearing, earthwork, pavement work and other conditions affecting performance.
- 1. Begin installation in general site areas or those not directly adjacent to the playing field only after final grading including topsoiling and paving is completed in that area or as otherwise permitted by Engineer.
  - 2. For installation directly adjacent to the playing field, coordinate footing installation timing with final installation of playing field materials so as not to contaminate, destroy or displace these playing field materials.
  - 3. If unsatisfactory conditions are present, proceed with installation only after they have been corrected.

### 3.2 PREPARATION

- A. Coordinate fence and gate installation with completion of finished grading and installation of adjacent finish field materials.
- B. Stake locations of fence lines, gates and terminal posts. Do not exceed intervals of 500 feet or line of sight between stakes. Indicate locations of utilities, irrigation system, underground structures, benchmarks and property monuments.

### 3.3 INSTALLATION

- A. Space posts equidistant in the fence line with a maximum of 10 feet on center or as shown on drawings.
- B. Footings: Excavate holes as indicated for fence and gate posts. Excavate footings to depths and widths as noted in Specifications or on drawings. Install gravel drainage material in bottom of hole as shown on the drawings.
- C. Setting Posts and Footings at Concrete Areas: Set posts in center of hole. Embed post so that bottom of post is flush with the bottom of concrete footing and in gravel drainage layer. Fill hole with concrete. Plumb and align posts. Vibrate or tamp concrete for consolidation. Finish elevation on top of footing to be coordinated with construction of concrete adjacent to posts or as shown on drawings. Do not attach fabric to posts until concrete has cured a minimum of 7 days.
- D. Setting Posts and Footings in Grass Areas: Set posts in center of hole. Embed post so that bottom of post is flush the bottom of concrete footing and in gravel drainage layer. Fill hole with concrete. Plumb and align posts. Vibrate or tamp concrete for consolidation. Finish concrete in a dome shape above ground to shed water. Do not attach fabric to posts until concrete has cured a minimum of 7 days.
- E. Locate corner posts at corners and at changes in direction. Use pull posts at all abrupt changes in grade and at intervals no greater than 500 feet. On runs over 500 feet, space pull posts evenly between corner or end posts. On long curves, space pull posts so that the strain of the fence will not bend the line posts.
- F. Install top rail continuously through post caps or extension arms, bending to radius for curved runs. Install expansion couplings as recommended by fencing manufacturers.
- G. Install intermediate rails in one piece between posts and flush with post on fabric side using special offset fittings where necessary.
- H. Diagonally brace corner posts, pull posts, and terminal posts to adjacent line posts with truss rods and turnbuckles.
- I. Attach fabric to playing field side of fence for sport areas. Maintain a maximum 1 inch clearance above finished grade except when indicated otherwise. Thread stretcher bars through fabric using one bar for each gate and end post and two for each corner and pull post. Pull fabric tight so that the maximum deflection of fabric is 2 inches when a 30 pound pull is exerted perpendicular to the center of a panel. Maintain tension by securing stretcher bars to posts with metal bands spaced 15 inches oc. Fasten fabric to steel framework with wire ties spaced 12 inches oc for line posts and 24 inches oc for rails and braces. Bend back wire ends to prevent injury. Tighten stretcher bar bands, wire ties, and other fasteners securely.

- J. Position bolts for securing metal bands and hardware so nuts are located opposite the fabric side of fence. Tighten nuts and score excess threads.
  - 1. Secure post tops, extension arms, and caps with one-way cadmium plated steel screws.
- K. Install gates plumb and level and adjust for full opening without interference. Install ground-set items in concrete for anchorage, as recommended by fence manufacturer. Adjust hardware for smooth operation and lubricate where necessary. Attach fabric as for fencing. Install ground-set items in concrete as shown on the drawings.
- L. Touch Up: Small nicks or other blemishes shall be touched up with paint materials suitable for and matching the finish of the damaged material. Severely damaged fencing /gates deemed as unacceptable at the sole discretion of the Owner or its representatives shall be replaced at the contractor's expense.

END OF SECTION

## SECTION 329113 – SOIL PREPARATION

### PART 1 – GENERAL

#### 1.1 SUMMARY

- A. This section includes provisions for the placement of topsoil in conformance with the lines, grades and thicknesses as shown on the Drawings and as herein specified.
- B. Minimum thickness is 6 inches, for all areas disturbed during construction and not receiving other surface treatment.
- C. The Contractor shall furnish all materials and perform all work in accordance with these specifications, drawings, and instructions provided by the Owner.

#### 1.2 SUBMITTALS

- A. Samples: Furnish earth materials to the testing laboratory for analysis and report, as directed by the Engineer or as outlined in the specifications.
- B. Quality Control Submittals:
  - 1. Test Reports: The testing laboratory shall submit written reports of all tests, investigations, and recommendations to the Contractor and the Engineer. Indicate quantities of materials necessary to bring topsoil into compliance with textural/gradation requirements. Indicate quantity of lime and quantity and analysis of fertilizer.

#### 1.3 REFERENCES

- A. Comply with the latest edition of the following standards:
  - 1. “Standard Specifications, Construction and Materials, New York State Department of Transportation, Office of Engineering.”
  - 2. “Standard Specifications for Highway Materials and Methods of Sampling and Testing, American Association of State Highway and Transportation Officials (AASHTO).”
  - 3. ASTM International (ASTM):
    - a. C33, Standard Specification for Concrete Aggregates.
    - b. C602, Standard Specification for Agricultural Liming Materials.
  - 4. U.S. Bureau of Reclamation (USBR):
    - a. 514.4.4, Reclamation Instructions, Series 510—Land Classification Techniques and Standards, Part 514—Laboratory Procedures, Chapter 4—Particle-Size Analyses.
    - b. 14.8.7, Reclamation Instructions, Series 510—Land Classification Techniques and Standards, Part 514—Laboratory Procedures, Chapter 8—Soil Chemical Tests.

#### 1.4 QUALITY ASSURANCE

- A. Provide and pay for all costs in connection with an approved independent testing facility to determine conformance of soils and aggregate with the specifications.

#### 1.5 PROJECT CONDITIONS

- A. Coordinate the placement of topsoil with the completion of all underground work including that of the other trades.

## PART 2 – PRODUCTS

### 2.1 MATERIALS

- A. Topsoil: Natural, friable, fertile, fine loamy soil possessing the characteristics of representative topsoils in the vicinity which produces a heavy growth; free from subsoil, objectionable weeds, litter, sods, stiff clay, stones larger than 1 inch in diameter, stumps, roots, trash, toxic substances, or any other material which may be harmful to plant growth or hinder planting operations. Contractor is to verify amount stockpiled and supply any additional as needed:
1. Topsoil shall contain not less than 6% nor more than 20% organic matter as determined by the wet combustion method (chronic acid reduction); topsoil shall have a pH value of not less than 5.5 nor more than 7.0;
  2. Topsoil shall meet the following mechanical analysis:

| SIZE OF SCREEN | % OF SOIL RETAINED | % OF SOIL PASSING |
|----------------|--------------------|-------------------|
| 1"             | 0                  | 100               |
| 1/4            | 3                  | 97                |
| No. 100        | 40-60              | 40-60             |

3. Imported topsoil in which more than 60% of the material passing a No. 100 sieve shall be rejected. All percentages are to be based on the dry weight of the samples.
4. Laboratory tests of the topsoil shall be performed by a certified testing laboratory, and shall perform tests for the following:
  - a. Sieve particle size analysis and gradient of mineral content.
  - b. Chemical analysis of the following:
    - 1) pH and buffer pH.
    - 2) Percent of organic content.
    - 3) Nutrient levels of phosphorus, potassium magnesium, manganese, iron, zinc and calcium.
    - 4) Soluble salt.
    - 5) Cation exchange capacity (CEC).
  - c. Recommended fertilizer and rate of application for low and medium level nutrient soils.

### 2.2 MATERIAL ACCEPTANCE

- A. Topsoil may be acquired from approved sites that are designated on the Drawings. If no sites are designated, material proposed for use as topsoil must be stockpiled, sampled, and tested prior to use.
- B. Topsoil containing foreign material may be rejected on the basis of visual examination by the Engineer, prior to testing.
- C. Acceptance of topsoil shall be based upon test results. Tested topsoil must be approved in writing by the Engineer before any material is used.

### 2.3 SOIL AMENDMENT

- A. Textural Amendments: Amend as necessary to conform to required composition by incorporating sand, peat, manure, or sawdust.

- B. Fertilizer: Shall be delivered to the site, mixed as specified, in the original unopened standard size bags showing weight, analysis and name of manufacturer. Store fertilizer in a weatherproof place and in such a manner that it shall be kept dry and its effectiveness shall not be impaired.
  - 1. Percentages of nitrogen, phosphorus and potash shall be based on laboratory test recommendations. For the purpose of bidding, assume 10% nitrogen, 6% phosphorus and 4% potash by weight. At least 50% of the total nitrogen shall contain no less than 3% water-insoluble nitrogen. At least 60% of the nitrogen content shall be derived from super-phosphate containing not less than 18% phosphoric acid or bone meal containing 25% to 30% phosphoric acid and 2% to 3% nitrogen. Potash shall be derived from muriate of potash containing 55% to 60% potash.
  - 2. Grass or sodded areas shall have fertilizer applied according to soil text report or as specified on the drawings.
- C. Organic Matter: Leaf matter and yard waste composted sufficiently to break down all woody fibers, seeds, and leaf structures, and free of toxic and non-organic matter. Organic matter shall be commercially prepared compost. Coarse sand shall be clean, sharp, natural sands free of limestone, shale and slate particles, ASTM C33 fine aggregate with a Fines Modulus Index of 2.75 or greater.
- D. Lime: Shall be ground palletized, or pulverized lime manufactured to meet agricultural standards and contain a maximum of 60% oxide.

## PART 3 – EXECUTION

### 3.1 STOCKPILING

- A. Stockpile topsoil from on-site sources or provide from off-site sources and stockpile, if on-site quantities are deficient.
- B. Stockpiles are to contain not less than 200 cubic yards or the minimum required for the project.
- C. Stockpiles are to have a maximum height of 10 feet and be trimmed to uniform surfaces and slopes.
- D. The sites of all stockpiles and adjacent areas, which have been disturbed are to be graded and put into an acceptable condition by seeding, as directed by the Engineer.

### 3.2 PREPARATION

- A. Preparation - Disk, drag, harrow or hand rake subgrade to a depth of 3 inches to provide bond for topsoil. Topsoil, which must be transported across finished walks, shall be delivered in such a manner that no damage will be done to the walks. The Contractor shall be responsible for the repair of such damage.
- B. Before placing topsoil, rake subsoil surface clear of stones larger than 1.5 inches, debris, and roots. Compact topsoil to form a layer with minimum depth of 4 inches in lawn areas and 12 inches in shrub beds. Topsoil shall be placed so that after final settlement there will be good drainage (and conforming to elevations shown on drawings). Contractor is to maintain surfaces and place any additional topsoil necessary to replace that which may have eroded before acceptance.
- C. Locations containing unsuitable subsoil shall be treated in one of the following manners:
  - 1. Where unsuitability within the construction site is deemed by the Owner to be due to excessive compaction caused by heavy equipment or by the presence of boards, mortar, concrete or other construction materials in subgrade, and where the natural subsoil is other than A.A.S.H.T.O.



classification of A6 or 7, the Contractor shall loosen such areas with spikes, discs, or other means to loosen the soil to a condition acceptable by the Owner. The Contractor shall also remove all debris and objectionable material. Soil should be loosened to a minimal depth of 12 inches with additional loosening as required to obtain adequate drainage. Contractor may introduce peat moss, sand, or organic matter into the subsoil to obtain adequate drainage should he so desire. All such remedial measures shall be considered as incidental to the work and no extra payment shall be made for this part of the work; and

2. Where subgrade is deemed by the Owner to be unsuitable because the natural subsoil falls into an AASHTO classification of A6 or 7 and contains moisture in excess of 30%, then such a condition shall be rendered suitable by installation of a subdrainage system or by other means described elsewhere in these specifications. Where such conditions have not been known or revealed prior to planting time and where they have not been recognized in the preparation of drawings and specifications, then the Owner shall issue a change order to install the proper remedial measures, all of which shall be in addition to the contract sum.

### 3.3 TOPSOIL PLACEMENT

- A. Do not place topsoil when subsoil or topsoil is frozen, excessively wet, or otherwise detrimental to the Work.
- B. Mix soil amendments, lime, and fertilizer with topsoil before placement or spread on topsoil surface and mix thoroughly into entire depth of topsoil before planting or seeding. Delay mixing of fertilizer if planting or seeding will not occur within 3 days.
- C. Place 1/2 of total depth of topsoil and work into subgrade soil to create a transition layer. Place remainder of topsoil to depth after compacting to 75% where seeding and planting are scheduled.
- D. Uniformly distribute to within 1/2 inch of final grades. Fine grade topsoil eliminating rough or low areas and maintaining levels, profiles, and contours of subgrade to ensure positive drainage.
- E. Remove stones exceeding 1 inch, roots, sticks, debris, and foreign matter during and after topsoil placement.
- F. Remove surplus subsoil and topsoil from Site. Grade stockpile area as necessary and place in condition acceptable for planting or seeding.

### 3.4 CLEANING

- A. Remove all surplus subsoil and topsoil from project site.
- B. Leave the site in clean, satisfactory condition ready to receive subsequent operations.

END OF SECTION

## SECTION 329200 – TURF AND GRASSES

### PART 1 – GENERAL

#### 1.1 SUMMARY

- A. This Section includes the preparation of ground surfaces, fertilization of applicable areas, seeding, mulching of applicable surface areas, and maintenance of turf areas until such time as project is accepted by Owner. Applicable areas shall include those identified on the Contract Drawings.
- B. Seed shall be sown from April 1 to June 15, or from August 15 to October 15 of given calendar year, unless otherwise approved by Owner.

#### 1.2 SUBMITTALS

- A. Quality Control Submittals:
  - 1. Certification:
    - a. Submit manufacturer's or vendor's certified analysis for soil amendments and fertilizer materials.
    - b. Submit vendor's certified analysis for each grass seed mixture required, stating botanical and common name, percentages by weight, percentages by purity, germination, and weed seed.
  - B. Maintenance Instructions: Submit instructions recommending procedures to be implemented for maintenance of landscaped work for one (1) full year. Submit prior to expiration of Contractor's maintenance period.
  - C. Submit description of planned mulching techniques and corresponding manufacturer's installation recommendations for approval by Owner.

#### 1.3 QUALITY ASSURANCE

- A. All turf and grasses work shall be performed by one Contractor, with proven expertise in this type of construction.
- B. Package standard products with the manufacturer's certified analysis. For other materials, provide analysis by recognized laboratory made in accordance with methods established by the Association of Official Agriculture Chemists, wherever applicable.
- C. The Contractor shall provide and pay for all costs in connection with an approved independent testing facility to determine conformance of materials with the specifications.

#### 1.4 DELIVERY, STORAGE, AND HANDLING

- A. Deliver packaged materials in containers, showing weight, analysis, and name of manufacturer. Protect materials from deterioration during delivery, and while stored on site.

## PART 2 – PRODUCTS

### 2.1 MATERIALS

#### A. Fertilizer:

1. Commercial fertilizer (5-10-5) inorganic, or organic, containing not less than five (5) percent nitrogen, ten (10) percent available phosphoric acid, and five (5) percent water soluble potash.
2. If, as an alternative, the Contractor wishes to substitute for commercial fertilizer 5-10-5, another commercial fertilizer with a 1-2-1 ratio, such as 10-20-10 or 6-12-6, they may do so with the approval of the Engineer and the rate of fertilizer to be used shall be whatever amount is required to furnish the same amount of nitrogen as would be supplied by the 5-10-5.

#### B. Seed:

1. Seed shall be fresh, clean, new-crop seed mixed in the proportions specified for species and variety, conforming to Federal and State Standards.
2. Weed seed content shall not exceed 0.25%.

#### C. Mulch:

1. Provide and install a mulch adequate to protect the seeding during its growing period. It shall be the responsibility of the Contractor to determine the appropriate mulching techniques for the particular site conditions and acquire approval of the same from the Engineer.
2. Clean straw for gentle slopes, consisting of stalks of oats, wheat, rye, or other approved crops which are free of noxious weed seeds. Weight shall be based on a fifteen (15) percent moisture content.
3. Mulching blanket for steep slopes and drainage swales: “Curlex Blanket” by American Excelsior, “Ero-Mat” by Contech Construction Products, Inc, or approved equal.
4. Bonded fiber matrix for mulching in areas where slopes are 1.5H:1V or greater, or cut or fill slopes 20 feet (6m) or more in height. Product shall be EcoAegis as manufactured by Canfor, or approved equal meeting U.S. DOT Standard Specification FP-96, Section 713.05(h):
  - a. Package Weight: 50 pound (18.6kg) bags.
  - b. Moisture Content: 12 +/- 3 percent by weight.
  - c. Minimum Water Holding Capacity: Approximately 10 times dry weight.
  - d. Composition:
    - 1) Refined Softwood Fiber: (90% by weight).
    - 2) Blended Hydrocolloid-based Binder: (9% by weight).
    - 3) Mineral Activator: (1% by weight).
  - e. Color: Natural – No Dye Products.

#### D. Water: Clean and potable.

### 2.2 ACCESSORIES

#### A. Soil Amendments: Soil amendments are not to be made without review and authorization by the Engineer.

1. Lime: Natural limestone containing not less than 85% of total carbonates, ground so that not less than 90% passes a 10-mesh sieve and not less than 50% passes a 100-mesh sieve.
2. Aluminum Sulfate: Commercial grade.

3. Peat Humus: FS Q-P-166 and with texture and pH range suitable for intended use.
4. Bonemeal: Commercial, raw, finely ground; 4% nitrogen and 20% phosphoric acid.
5. Superphosphate: Soluble mixture of treated minerals; 20% available phosphoric acid.
6. Sand: Clean, washed sand, free of toxic materials.
7. Perlite: Conforming to National Bureau of Standards PS 23.
8. Vermiculite: Horticultural grade, free of toxic substances.
9. Sawdust: Rotted sawdust, free of chips, stones, sticks, soil, or toxic substances and with 7.5 pounds (2.8 kg) nitrogen uniformly mixed into each cubic yard of sawdust.
10. Manure: Well rotted, unleached stable or cattle manure containing not more than 25% by volume of straw, sawdust, or other bedding materials and containing no chemicals or ingredients harmful to plants.
11. Commercial Fertilizer: Complete fertilizer of neutral character, with some elements derived from organic sources and containing available plant nutrients.
12. Composted Organic Material: Shall have a minimum organic matter content of 60 percent, as determined by ASTM D-2974, and screened to ¾-inch (1.9 cm).

## PART 3 – EXECUTION

### 3.1 PREPARATION OF TOPSOIL

- A. Clean topsoil of roots, plants, stones, clay lumps and other extraneous materials harmful or toxic to plant growth.
- B. Mix fertilizer into top 2 inches (5 cm) of topsoil at a rate of 10 pounds (3.7 kg) per 1,000 square feet. (92.9 m<sup>2</sup>).
- C. Mix approved soil amendments into top 2 inches (5cm) of topsoil at necessary rates.
- D. Water dry topsoil to depth of 4 inches (10cm) at least 48 hours prior to seeding to obtain a loose friable seed bed.

### 3.2 PREPARATION OF UNCHANGED GRADES

- A. Where lawns are to be planted in areas not altered or disturbed by excavating, grading, or stripping, prepare soil for seeding as follows:
  1. Till to a depth of not less than 6 inches (15cm).
  2. Apply soil amendments and initial fertilizers as specified.
  3. Remove high areas and fill in depressions.
  4. Till soil to a homogeneous mixture of fine texture, free of lumps, clods, stones, roots, and other extraneous matter.
    - a. Prior to preparation of unchanged areas, remove existing grass, vegetation and turf. Dispose of such materials off the site; do not turn over into soil being prepared for lawns.
    - b. Apply specified commercial fertilizer at rates specified and thoroughly mixed into upper 2 inches (5 cm) of topsoil. Delay application of fertilizer, if lawn planting will not follow within one week.

### 3.3 SEEDING

- A. Apply seed only when wind velocities are less than five (5) miles per hour (9km/hr).

- B. Sow half the seed with mechanical seeder.
- C. Sow remaining half of the seed at right angles to the direction of the first seeding pattern, using the same method.
- D. Apply seed at the rate of 4 pounds (1.5 kg) per 1,000 square feet (92.9 sq. meters) of disturbed area.
- E. Cover seed to a depth of 1/8-inch (3mm) by raking, harrowing, or cultipacking.
- F. Roll seeded area with roller weighing no more than 150 pounds per foot of roller width.
- G. Water seeded areas to a depth of four (4) inches (10cm) as required during the maintenance period.

### 3.4 MULCHING

- A. Spread straw uniformly over seeded area with 75% ground coverage and at least 1-1/2 inches loose depth.
  - 1. If, in the opinion of the Owner, wind will disrupt the mulching, apply asphalt emulsion at a rate of 10 gallons (37.81) per 1,000 square feet (92.9 m<sup>2</sup>).
- B. Place mulching blanket in accordance with submitted manufacturer's recommendations.
- C. Place bonded fiber matrix mulch material, EcoAegis, at a rate of 3,500 to 4,100 pounds per acre, based on manufacturer's recommendations.

### 3.5 PROTECTION

- A. Immediately after seeding, erect barricades and warning signs as required to protect newly planted areas from pedestrian and vehicular traffic. Maintain barricades throughout maintenance period until grass and/or turf is established.
- B. Repair or replace damaged landscape work as directed by Owner.

### 3.6 MAINTENANCE

- A. Begin maintenance immediately after seed placement.
- B. Watering:
  - 1. Keep soil moist during seed germination period.
  - 2. Supplement rainfall to produce a total depth penetration of 2 inches per day after germination.
  - 3. Prevent erosion and displacement of seed.
- C. Mowing:
  - 1. When grass reaches 4 inches in height, mow to 2-1/2 inches in height.
  - 2. Maintain grass between 1-1/2 inches and 2-1/2 inches in height.
  - 3. Do not cut off more than 30% of grass leaf in a single mowing.
  - 4. Remove grass clippings.
- D. Reseed and mulch spots larger than 1 square foot not having uniform coverage.

- E. Maintain lawns by watering, fertilizing, weeding, mowing, trimming, and other operations such as rolling, regarding, and replanting as required to establish a smooth, acceptable lawn, free of eroded or bare areas.
  
- F. Maintain and protect all seeded areas until final acceptance of the Contract. Final acceptance of “Turf and Grasses” will not be made until an acceptable uniform stand of grass is obtained in all new lawn areas, except that the Owner at their discretion may accept a portion or portions of the “Turf and Grasses” at various times. Upon acceptance by the Engineer of a seeded area, the Owner will immediately assume responsibility for maintenance and protection of that portion of the Contract Seeding.

END OF SECTION



## SECTION 330513 – MANHOLES AND STRUCTURES

### PART 1 – GENERAL

#### 1.1 SUMMARY

- A. This section includes the following:
  - 1. Installation of manholes, catchbasins, precast concrete structures, frames, grates, covers, steps, and piping connections as shown on the Drawings and as specified herein.
  - 2. Alteration of existing structures as shown on the Drawings and as specified herein.

#### 1.2 QUALITY ASSURANCE

- A. Reference Standards: Comply with applicable provisions and recommendations of the following, except as otherwise shown or specified:
  - 1. American Society of Testing and Materials (ASTM).
  - 2. American National Standards Institute (ANSI).
  - 3. Occupational Health and Safety Administration (OSHA).

#### 1.3 SUBMITTALS

- A. Shop Drawings: Submit the following for approval:
  - 1. Design and construction details of all precast concrete units.
  - 2. Fabrication, assembly, and installation details for all castings and miscellaneous metal works.
  - 3. Precast concrete structure design calculations verifying the structures have been designed to withstand the burial, submergence and anticipated live and dead loads. Design calculations for uplift forces shall incorporate a minimum factor of safety of 1.15.
- B. Product Data:
  - 1. Manufacturer's catalog cuts, specifications, and installation instructions.

#### 1.4 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to the site to prevent interruption of the Work.
- B. All materials shall be inspected by the Contractor upon delivery to the site. The Contractor shall notify the Engineer of any loss or damages. Replace loss or repair damage to new condition at the Contractor's expense.
- C. Store materials to allow easy access for inspection and identification.

### PART 2 – PRODUCTS

#### 2.1 DESIGN REQUIREMENTS

- A. Design: In accordance with ASTM C890 – Minimal Structural Design Loading for Monolithic or Sectional Precast Concrete Water and Wastewater Structures.
- B. Loading: AASHTO HS-20 with 30 percent impact and 130 pound/cubic foot equivalent soil pressure.



## 2.2 PRECAST CONCRETE DRAINAGE STRUCTURES

- A. Drainage manholes shall conform to subpart “Precast Concrete Manholes.”
- B. Catch basins with greater than 6 feet sidewall depth shall conform to subpart “Precast Concrete Manholes.”
- C. Catch basins with less than or equal 6 feet sidewall depth shall be 2-foot 6-inch by 2-foot 6-inch square I.D. precast concrete catch basin units.
- D. Precast catch basin units shall conform to the dimensions shown on the Drawings and as detailed in Shop Drawings approved by the Engineer.
- E. Unless otherwise specified precast concrete units shall conform to ASTM C478.
- F. A precast concrete slab, as necessary for proper frame and grate placement, shall be provided at the top of the catch basin unit. The slab shall be designed for an H-20.

## 2.3 PRECAST CONCRETE MANHOLES

- A. Precast manhole units shall conform to the dimensions shown on the Drawings and as detailed in Shop Drawings approved by the Engineer.
- B. Unless otherwise specified, manhole sections shall conform to ASTM C478.
- C. Precast structure bases shall be of the “base unit” type, with an integral base and barrel section. The barrels shall be constructed in increments of 1 foot to provide the indicated height with the fewest joints. Openings for pipe connections will not be permitted closer than 1 foot to the nearest joint. Mark the date of manufacture and name or trademark of manufacturer in the inside of each section.
- D. Manholes barrels, servicing pipes less than 27-inch diameter, shall be 48-inch diameter. Manholes barrels, servicing pipes 27-inch diameter and larger shall be 60-inch diameter. Larger diameter manholes barrels shall be provided as indicated on the Drawings or as specified herein.
- E. Joints shall be rubber and concrete using O-ring gaskets (ASTM C443) or butyl rubber gaskets (ASTM C443), or tongue and groove buttered with 1:2 cement mortar (ASTM C270, Type M). A precast eccentric cone, or precast slab where shown, shall be provided at the top of the manhole barrel to receive the frame and cover. The slab or cover shall be designed for an H-20 loading.
- F. Precast manhole units shall be coated on the exterior with a two-coat application of polyamide-cured epoxy-coal tar. Application shall meet manufacturer’s recommendations. Do not apply the polyamide-cured epoxy-coal tar within 28 days of concrete manufacture. Epoxy-coal tar to be as manufactured by Coopers Creek Chemical Corporation, Cooper Black #775 Epoxy Tar Coating or approved equal.

## 2.4 MANHOLE STEPS

- A. Manhole sections shall contain manhole steps at 12 inches on center for all structures over 3 feet 6 inches in height. The steps shall be embedded in the concrete and accurately positioned both vertically and horizontally.

- B. Steps shall be capable of withstanding a 300-pound concentrated live load without permanent distortion, conforming to the requirements of ANSI A14.3, OSHA, and the details shown on the Drawings.
- C. Manhole rungs shall be steel reinforced copolymer polypropylene plastic. Rungs shall be 14 in. wide, M.A. Industries type PS2-PF, or equal. Copolymer polypropylene shall be type II, grade 16906 meeting ASTM D4101. Steel reinforcing shall be 3/8-inch diameter, Grade 60 conforming to ASTM A615 and shall be continuous throughout the rung. The portion of the legs to be embedded in the precast section shall have fins and be tapered to insure a secure bond.

## 2.5 FRAMES AND COVERS/GRATES

- A. Frames and covers/grates shall be cast iron, ASTM A48, Class 30, free from flaws or unsightly defects.
- B. Frames and covers shall conform to the details on the Drawings and have “STORM SEWER” cast on every cover.
- C. Frames and covers/grates shall be designed for an H-20 loading and be machined to ensure correct fit and even bearing.
- D. Frames and covers/grates shall be as shown on the on the Drawings. Otherwise, conform to the standard detail of the regulatory authorities having jurisdiction for the project (if applicable).

## 2.6 GRADE ADJUSTMENTS

- A. Grade Rings: Reinforced-concrete rings, 3- to 12-inch (75- to 300-mm) total thickness, to match diameter of manhole frame and cover.

## 2.7 GROUT

- A. Description: ASTM C1107, Grade B nonshrink and nonmetallic, dry hydraulic-cement grout.
  - 1. Characteristics: Post-hardening, volume-adjusting, nonstaining, noncorrosive, nongaseous, and recommended for interior and exterior applications.
  - 2. Design Mix: 5000 psi (34.5 MPa), 28-day compressive strength.
  - 3. Packaging: Premixed and factory packaged.

## 2.8 DROP INLET

- A. Drop inlets for manholes shall be constructed where shown on the Drawings and shall conform with the details shown on the Drawings.
- B. Pipe and fittings shall be the same type and class as the sewer pipe beings installed.
- C. Concrete for pipe encasement shall be 3,000 psi.

## PART 3 – EXECUTION

### 3.1 EARTHWORK

- A. Earthwork shall be in accordance with Section “Trenching and Backfilling” or Section “Earth Moving.”

### 3.2 PRECAST MANHOLE SECTIONS

- A. Base units shall be placed on a minimum 12-inch foundation of pipe zone bedding material, and be set at the proper elevation, carefully leveled, and aligned.
- B. Barrel units shall be set vertical with steps and sections in proper alignment. All joints shall be sealed with cement mortar inside and out, and troweled smooth to the contour of the wall surface. Joints shall be installed in accordance with manufacturer's recommendations.
- C. Lifting holes shall be sealed tight with a tapered solid rubber plug driven into the hole and the remaining void filled with mortar on the outside only.

### 3.3 GRADE RINGS

- A. Grade rings placed upon the eccentric cone or slab shall be used for all manholes to provide the potential for future adjustment.
- B. Grade rings shall be placed in a combined thickness of at least 4 inches but not more than 12 inches in order to bring the manhole frame to proper grade.
- C. Consecutive grade ring layers shall be laid on an even mortar bed.

### 3.4 PIPE CONNECTIONS

- A. Pipe connections to manholes shall be installed true to line and grade as shown on the Drawings. Wall fittings shall be watertight, compatible with the sewer pipe joint. Connections shall conform to the details shown on the Drawings.

### 3.5 INVERT CHANNEL AND BENCH WALLS

- A. An invert channel and bench walls shall be constructed as shown on the Drawings to provide a smooth transition in flow through the manhole. The invert channel and bench wall shall be constructed of 3,000 psi concrete. Benches shall be built-up to the height called for on the Drawings, or as directed by the Engineer, and given a steel trowel finish. Care shall be taken to slope all benches for proper drainage to the invert channel.

### 3.6 FRAMES

- A. Frames shall be firmly set and bonded at the proper grade to conform with the finished grade shown on the Drawings.
- B. Frames for manholes in unpaved areas shall be set at an elevation higher than finished grade as shown on the Drawings or as directed by the Engineer.

### 3.7 WATERTIGHTNESS

- A. All manholes shall be free of visible leakage. Each manhole shall be inspected, and all leaks shall be repaired in a manner approved by the Engineer.
- B. Testing: Manhole Negative Air Pressure (Vacuum) Test shall be performed prior to backfilling and in accordance with ASTM C1244.
  - 1. Preparation of manhole.
  - 2. All lift holes shall be plugged.

3. All pipes entering the manhole shall be temporarily plugged, taking care to securely brace the pipe and plugs to prevent them from being drawn into the manhole during testing.
4. The test apparatus shall be placed at the top of the manhole in accordance with the manufacturer's recommendations.
5. A vacuum of 10 inches (254 mm) of mercury shall be drawn on the manhole. The valve on the vacuum line of the test apparatus shall be closed and the vacuum pump shut off.
6. The time shall be recorded for the vacuum to drop to 9 inches (229 mm).
7. If the time recorded exceeds the values in the following table, based on the manhole's depth and diameter, the manhole is acceptable.

| <b>DIAMETER (IN.)</b> |                    |            |            |
|-----------------------|--------------------|------------|------------|
| <b>DEPTH (FT)</b>     | <b>48"</b>         | <b>60"</b> | <b>72"</b> |
|                       | <b>TIME (SEC.)</b> |            |            |
| 8                     | 20                 | 26         | 33         |
| 10                    | 25                 | 33         | 41         |
| 12                    | 30                 | 39         | 49         |
| 14                    | 35                 | 46         | 57         |
| 16                    | 40                 | 52         | 67         |
| 18                    | 45                 | 59         | 73         |
| 20                    | 50                 | 65         | 81         |
| 22                    | 55                 | 72         | 89         |
| 24                    | 59                 | 78         | 97         |

### 3.8 CONNECTION TO EXISTING STRUCTURES

- A. The Contractor shall make connections to existing manholes as shown on the Drawings or as specified herein.
- B. For connections to precast or cast-in-place concrete manholes, the Contractor shall core drill a hole 1 inch larger than the O.D. of the sewer pipe into the existing manhole at the location and elevation shown on the Drawings.
- C. For connections to masonry manholes, the Contractor shall open the sidewall of the existing manhole by removing masonry units no more than necessary to accommodate the sewer pipe.
- D. Connection methods shall be in accordance with the details shown on the Drawings. Any open spaces around the new pipe entry shall be sealed with non-shrink grout to prevent leakage.
- E. The existing bench and channel shall be removed and reconstructed to permit flow through the manhole as it now exists and also for the new sewer pipe. Bench and channel reconstruction shall conform with the details on the Drawings, or as directed by the Engineer.
- F. The Contractor shall be responsible for diverting flow through the manhole in order to allow bench and channel construction.

### 3.9 CHANGING ELEVATIONS OF EXISTING STRUCTURES

- A. Lower existing frames of manholes by the removal of appropriate masonry courses, to the elevations shown on the Drawings or as directed by the Engineer.

- B. Raise the existing frames of manholes by the addition appropriate grade rings to the elevations shown on the Drawings or as directed by the Engineer.
- C. Where the manhole frames cannot be lowered by removal of masonry courses, such as may be the case with precast concrete manholes, the upper barrel section shall be removed and/or replaced with a section of less depth, to permit the necessary adjustment of the frame.
- D. Frames and covers damaged during the Work shall be replaced at the Contractor's expense.

END OF SECTION

## SECTION 334100.20 – HIGH DENSITY POLYETHYLENE STORM UTILITY DRAINAGE PIPING

### PART 1 – GENERAL

#### 1.1 SUMMARY

- A. This Section includes the installation of polyethylene piping systems as shown on the Drawings and as specified herein.
- B. All piping, fittings, and appurtenances shall be new, clean, and in accordance with material specifications. In no instance shall second- hand or damaged materials be acceptable.

#### 1.2 QUALITY ASSURANCE

- A. Reference Standards:
  - 1. The latest edition of the following standards, as referenced herein, shall be applicable:
    - a. Standard Specifications for Highway Materials and Methods of Sampling and Testing, American Association of State Highway and Transportation Officials (AASHTO).
    - b. American Society of Testing and Materials (ASTM).

#### 1.3 SUBMITTALS

- A. Product Data:
  - 1. Submit manufacturer's catalog cuts, specifications, and installation instructions for both pipe and coupling system.
  - 2. Submit manufacturer's certification that product was manufactured, tested, and supplied in accordance with the standards specified herein.

#### 1.4 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Delivery and Storage:
  - 1. Pipe, fittings, specials, appurtenances, and accessories shall be delivered to and stored within the Contractor's work limits as shown on the Drawings.
  - 2. Special care shall be exercised during delivery and storage to avoid damage to the products.
  - 3. Products shall be stored so as to avoid unnecessary handling and in locations where they will not interfere with the Owner's operations or public travel.
- B. Handling:
  - 1. Pipe, fittings, special appurtenances, and accessories shall be handled carefully with approved handling devices in strict conformance with the manufacturer's recommendations.
  - 2. Products shall not be dropped nor shall products be otherwise dragged, rolled, or skidded.
- C. Products cracked, gouged, chipped, dented, or otherwise damaged will not be approved and shall be removed and replaced at the Contractor's expense, unless the product can be repaired in a manner acceptable to the manufacturer and Engineer. All repairs shall be at the Contractor's expense.

## PART 2 – PRODUCTS

### 2.1 MATERIALS

#### A. HDPE Soil Tight Pipe:

1. Pipe shall be ADS N-12 ST IB (per AASHTO) smooth interior with annular exterior corrugations and a Manning's "n" value of 0.012 high-density polyethylene pipe (HDPE) as manufactured by Advanced Drainage Systems (ADS) or approved equal. Pipe shall have an integral soil tight gasketed bell and spigot.
  - a. 4 inches through 11 inches conforming to AASHTO M252 Type S.
  - b. 12 inches through 60 inches conforming to AASHTO M294 Type S or ASTM F2306.
2. Pipe shall be joined using a bell and spigot joint meeting AASHTO M252 M294 ASTM F2306. The joint shall be soil-tight and gasketed and shall meet the requirements of ASTM F477. Gaskets shall be installed by the pipe manufacturer and covered with a removable wrap to ensure the gasket is free from debris. A joint lubricant supplied by the manufacturer shall be used on the gasket and bell during assembly.
3. Fittings shall conform to ASTM F2306. Bell and spigot connections shall utilize a spun-on or welded bell and valley or saddle gasket meeting the soil-tight joint performance requirements of ASTM F2306.

#### B. Flared End Section:

1. Flared end sections shall be 1210 NP or 1810 NP HDPE end sections as manufactured by ADS or equal.
2. End sections shall be fastened to the last corrugation of the pipe length using a high strength nylon cable tie supplied by the manufacturer through pre-drilled holes at the top of the end section collar.

## PART 3 – EXECUTION

### 3.1 INSPECTION

- A. Inspect all pipe and fittings prior to laying in the trench. Remove defective pipe and fittings from the site.
- B. Do not backfill until inspection by the Engineer, unless otherwise approved by the Engineer.

### 3.2 INSTALLATION AND TESTING

- A. Trenching, backfilling and compaction shall conform to Section "Trenching and Backfilling."
- B. Pipe installation and testing shall conform to Section "Common Work Results for Utilities."

END OF SECTION