

**ADDENDUM NO.1**

BID NO. 3, 2010-11, February 18, 2011

**SYNTHETIC TURF FIELD  
CLEM LEMIRE RECREATIONAL COMPLEX**

**NEWINGTON, CONNECTICUT**

February 18, 2011

BID NO. 3, 2010-11

MMI #:1819-11

This Addendum No. 1 includes responses to questions received at the February 15, 2011 pre-bid meeting, additional written questions submitted to the Town Manager's Office, clarifications and revisions to the Project Manual. Modifications are hereby made to the Project Manual dated February 2, 2011 for the above referenced project.

**RESPONSES TO PRE-BID MEETING QUESTIONS**

Q1: Is there liquidated damages for this project?

**R1: Yes. \$500.00 per day as stated on page SC-3 within the Supplemental Conditions of the Project Manual.**

Q2: If the synthetic turf subcontractor is responsible for delaying the project beyond the substantial completion date who is responsible to paying the Town the liquidated damages?

**R2: The Contractor is responsible for any liquidated damages. Please refer to the Instruction to Bidders section of the Project Manual.**

**RESPONSES TO WRITTEN QUESTIONS**

C1: There is no specification for the handrails at the concrete stairs shown on sheet SD-5.

**R1: The "Typical Concrete Stair/Handrail Section" detail on sheet SD-5 provides information for the design and construction of the handrail. Contractor shall submit shop drawings for approval.**

C2: There is no specification for the bleachers in Alternate #3.

**R2: Add Alternate #3 on sheet SP-3 of the Special Provisions provides a make and model for the proposed bleacher system. Please note also the Special Provision has been modified to include "or approved equal".**

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### CLARIFICATIONS

#### A. SYNTHETIC IN-FILLED ATHLETIC TURF SURFACE

The Town of Newington, Connecticut has pre-selected through RFP No.2, 2010-11 the following manufacturer/installer for the project:

FieldTurf  
8088 Montview Road  
Montreal, QC H4P 2L7  
Tel: (800) 724-2969  
Product Name: FieldTurf Prestige XM-60

The Town/FieldTurf negotiated price of, including alternates, is \$319,062.50. This price is reflected in the Bid Schedule and shall not be altered.

#### B. SUBCONTRACTORS

All contracts made with Subcontractors, including FieldTurf, shall be covered by the terms and conditions of the prime contract. The Contractor shall see to it that their Subcontractors are fully informed in regard to these terms and conditions.

### PROJECT MANUAL

- A. Remove the Bid Schedule in the Project Manual, sheets BPF-2 through BPF-5, and replace with the attached Revised Bid Schedule, sheets BPF-2 through BPF-5, provided in the Addendum.
- B. Remove the Special Provisions in the Project Manual, sheets SP-1 through SP-3, and replace with the attached Revised Special Provisions, sheets SP-1 through SP-3, provided in the Addendum.
- C. Remove the following Technical Specifications, in their entirety, in the Project Manual and replace with the attached Technical Specifications provided in this Addendum:

ITEM 2-027: FURNISHING AND PLACING TOPSOIL (Sheets TS-24 through TS-25)

ITEM 2-028: FERTILIZING, LIMING, SEEDING, AND MULCHING  
(Sheets TS-26 through TS-29)

ITEM 2-033: CHAIN LINK FENCING AND GATES (Sheets TS-30 through TS-32)

ITEM 2-056: GOAL POSTS (Sheets TS-33 through TS-34)

ITEM 2-169: CAST-IN-PLACE CONCRETE (Sheets TS-64 through TS-73)

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**BID SCHEDULE**

**BIDDER'S NAME:**

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**PROPOSAL NUMBER:**

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**LUMP SUM BASE BID PRICES:**

Refer to Special Provision sheets (SP-1 through SP-3) for descriptions of lump sum bid items.

A. Site Preparation

Lump Sum Price of:

\_\_\_\_\_  
Written Figures and No/100 Cents

\_\_\_\_\_  
Dollars

B. Site Removals and Sedimentation and Erosion Control

Lump Sum Price of:

\_\_\_\_\_  
Written Figures and No/100 Cents

\_\_\_\_\_  
Dollars

C. Earthwork and Grading

Lump Sum Price of:

\_\_\_\_\_  
Written Figures and No/100 Cents

\_\_\_\_\_  
Dollars

D. Storm Drainage

Lump Sum Price of:

\_\_\_\_\_  
Written Figures and No/100 Cents

\_\_\_\_\_  
Dollars

E. Synthetic Athletic Field Turf and Markings

Lump Sum Price of:

**Three Hundred Thousand Sixty Two Dollars and 50/100 Cents \$319,062.50**

\_\_\_\_\_  
Written Figures and No/100 Cents

\_\_\_\_\_  
Dollars

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F. Bituminous Concrete Sidewalk

Lump Sum Price of:

\_\_\_\_\_  
Written Figures and No/100 Cents

\_\_\_\_\_  
Dollars

G. Concrete Curb

Lump Sum Price of:

\_\_\_\_\_  
Written Figures and No/100 Cents

\_\_\_\_\_  
Dollars

H. Concrete Stairs and Handrails

Lump Sum Price of:

\_\_\_\_\_  
Written Figures and No/100 Cents

\_\_\_\_\_  
Dollars

I. Fencing

Lump Sum Price of:

\_\_\_\_\_  
Written Figures and No/100 Cents

\_\_\_\_\_  
Dollars

J. Landscaping

Lump Sum Price of:

\_\_\_\_\_  
Written Figures and No/100 Cents

\_\_\_\_\_  
Dollars

K. Site Amenities

Lump Sum Price of:

\_\_\_\_\_  
Written Figures and No/100 Cents

\_\_\_\_\_  
Dollars

L. Electrical Work (Field light pole foundations and conduit with pull cords)

Lump Sum Price of:

\_\_\_\_\_  
Written Figures and No/100 Cents

\_\_\_\_\_  
Dollars



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By submission of this Bid, each bidder certifies that this Bid has been arrived at independently, without consultation, communication, or agreement as to any matter related to this Bid with any other Bidder or with any competitor.

By \_\_\_\_\_  
(Signature and Title of Authorized Representative)

\_\_\_\_\_  
(Business Name)

\_\_\_\_\_  
(Street)

\_\_\_\_\_  
(City, State, and Zip Code)

Date \_\_\_\_\_

The Bidder is:

1. Corporation, licensed in the State of \_\_\_\_\_
2. Partnership
3. Individual

*Note:* If the Bidder is a corporation, affix corporate seal and give below the names of its president, treasurer, and general manager, if any; if a partnership, give full names and residential addresses of all partners; and if an individual, give residential address if different from business address:

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**SPECIAL PROVISIONS**

1. LUMP SUM BID PRICES

All work for this project shall be performed under the Lump Sum Bid Items. It is the intent of this provision that the value of the following elements of the work within the project when added together shall equal the Total Lump Sum bid. Should the Contractor have any questions regarding the specific elements of work to be included within each schedule of value item, said question shall be directed to the Town, in writing, sufficiently in advance of the bid date in order to allow for a proper response (see Instructions to Bidders).

2. LUMP SUM BID ITEMS

A. Site Preparation

The work under this item shall include all personnel and equipment necessary for mobilization including the movement of all the contractor's field offices, buildings, facilities, and equipment to and from the project site, construction staking, clearing and grubbing as shown on the drawings and necessary to the performance of the work.

B. Site Removals and Sedimentation and Erosion Control

The work under this item shall include all materials, equipment, and labor to perform the removal of all items shown on the plans including but not limited to existing bituminous walkways, existing fencing, and timber stairs. Also included under this item is an installation and maintenance of a construction entrance pad and sedimentation and erosion controls required either by the plans or by the Town's Wetlands Officer all in accordance with the plans and specifications. If test pits are needed, it will be considered work under this item.

C. Earthwork and Grading

The work under this item shall include all materials, equipment, and labor to perform necessary grading operations as shown on the Contract Drawings and described in the Technical Specifications under General Excavation, Disposal of Surplus Material and Subgrade/Fine grade. All striping and stockpiling and grading brought to the subgrade elevation required prior to the application of base material, processed stone, or topsoil.

D. Storm Drainage

The work under this item shall include all materials, equipment and labor to supply and install the storm drainage system within the project site as shown on the Contract Drawings and described in the Specifications, including but not limited to excavation and backfill, installation of appropriate bedding, and installation of the level spreader, drainage pipes, manholes, and the Athletic Field Subsurface

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Drainage System including perimeter drains, flat drains, channel edge drain with catch basins, dynamic stone base, and geotextile material and all other associated work shown on the plans and details for the storm drainage system.

E. Synthetic Athletic Field Turf and Markings

The work under this item shall include all materials, equipment and labor to furnish and install the synthetic turf field, complete, including but not limited to installation of synthetic turf and infill material, field markings and provide a field groomer.

F. Bituminous Concrete Sidewalks

The work under this item shall include all materials, equipment, and labor to furnish and construct bituminous concrete sidewalks. This item shall include all excavation, base courses, and bituminous placement necessary to complete the work as shown on the Contract Drawings.

G. Concrete Curb

The work under this item shall include all materials, equipment, and labor to furnish and construct cast-in-place concrete curbs. This item shall include all excavation, base courses, forming, and concrete placement necessary to complete the work as shown on the Contract Drawings.

H. Concrete Stairs and Handrails

The work under this item shall include all materials, equipment, and labor to furnish and construct concrete stairs with galvanized steel handrails. This item shall include all excavation, base courses, forming, and concrete placement necessary to complete the work as shown on the Contract Drawings.

I. Fencing

The work under this item shall include all materials, equipment, and labor to supply and install chain link fencing and gates as shown on the Contract Drawings and Specifications.

J. Landscaping

The work under this item shall include all materials, equipment, and labor to install all plantings including placement of topsoil, turf establishment for disturbed areas from construction, contractor equipment, and removal of material from site. This work is shown on the Contract Drawings and described in the Technical Specifications under furnishing and placing topsoil, and fertilizing, liming, seeding, and mulching.

K. Site Amenities

The work under this item shall include all materials, equipment, and labor to furnish and install football goal posts with access frames as specifically referenced on the Contract Drawings and described in the Technical Specifications.

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- L. Electrical Work (Field Light Pole Foundations and Conduit With Pull Cords)  
The work under this item shall include all materials, equipment, and labor to furnish and install all pads, manholes, grounding, concrete light pole bases, all conduit, trenching, and backfilling including conduit to service with pull cords, disconnect switch and ground.

3. ADD ALTERNATE ITEMS:

1. Sports Field Lighting (Foundations included in Base Bid)  
The work under this item shall include all materials, equipment, and labor to furnish and install four Musco Field Lights or approved equal, complete, as specifically referenced on the Contract Drawings and described in the Technical Specifications. The work under this item shall include all materials, equipment, and labor to furnish and install the following:

- New pad stainless steel enclosure and primary cable connection to existing transformer pad.
- Electrical service enclosure and all distribution equipment including 480V feed conductors, panels, 208V transformer, and controls
- Field lighting and wiring to service enclosure

This work including description of Base Bid and Add Alternate #1 is as shown on the Contract Drawings and described in the Technical Specifications.

2. Concrete Bleacher Pads and Fence Removal and Replacement  
The work under this item shall include all materials, equipment, and labor to furnish and install two cast-in-place concrete bleacher pads, in locations shown on plans and as detailed on drawings and described in the technical specifications.
3. Bleachers  
The work under this item shall include all materials, equipment, and labor to furnish and install two elevated portable bleacher systems on concrete bleacher pads (see Add Alternate No. 2 for concrete bleacher pads). Contractor to supply two 10 row x 33 feet (172 person seating capacity), GT Grandstand Bleachers, as provided by New England Recreation Group, P.O. Box 1503, Westborough, MA 01581; [www.nerecgroup.com](http://www.nerecgroup.com), PH. 1-508-393-1963, or approved equal.
4. Bituminous Concrete Spectator Area  
The work under this item shall include all materials, equipment, and labor to furnish and install a bituminous concrete spectator area at the north side of the field as shown on the plans and details, and as specified in the project manual.

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**ITEM 2-027: FURNISHING AND PLACING TOPSOIL**

1. **Description:** This work shall consist of furnishing topsoil, placing, and shaping topsoil in areas shown on the plans or where directed by the Engineer. The topsoil shall be placed to the depth stated on the plans.
2. **Materials:** The material shall conform to the requirements of Section M.13.01-1 of the Standard Specifications Form 814.

All topsoil being used, whether from on-site stockpiles or off-site sources, is to be tested after stockpiling. Representative samples of topsoil shall be tested for acidity, fertility and general texture by a recognized and approved government testing agency and three (3) copies of findings and recommendations shall be furnished to the Engineer by the Contractor. The testing agency shall, after testing, determine the amount of limestone and fertilizer to be added to the topsoil. All test costs shall be borne by the Contractor.

3. **Construction Methods:** Use all topsoil stripped and stockpiled on the site. All stockpiled topsoil shall be screened. During the bidding period, the Contractor shall determine whether sufficient topsoil is available to meet the requirements as herein specified and as called for on the drawings. If he determines that additional topsoil shall be required, he shall include such additional topsoil in his base bid price.

Topsoil shall be natural, friable loam, free of subsoil, roots, sticks, clay, stones larger than 3/4 inch in any dimension, or any other objectionable extraneous matter or debris. It shall contain no toxic materials. Topsoil shall contain at least six percent organic matter (humus) but not to exceed more than 20 percent organic matter and shall have a pH not less than 5.5 nor more than 7.0.

The areas on which topsoil is to be placed shall be graded to a reasonably true surface and cleaned of all stones, brickbats, and other kinds of rubbish. After areas have been brought to proper subgrade and approved by the Engineer, topsoil shall be spread to the depth specified, with due allowance made for settlement. All stones, roots, debris, sod, weeds, and other undesirable material shall be removed from the topsoil. After shaping and grading, all trucks and other equipment shall be excluded from the topsoiled area to prevent excessive compaction. The Contractor shall perform such work as required to provide a friable surface for seed germination and plant growth prior to seeding.

During hauling and spreading operations, the Contractor shall immediately remove any material dumped or spilled on roadways.

It shall be the Contractor's responsibility to restore to line, grade, and surface all eroded areas with approved material and to keep topsoiled area in acceptable condition until the completion of the construction work.

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Wherever subgrade material is sand, gravel or other very pervious material, and elsewhere as required by the Engineer, the Contractor shall consult the Engineer to decide on treatment of subgrade before placing the topsoil.

There shall be no application of topsoil made without the prior approval of the finished subgrade by the Engineer or his representative.

Placement of topsoil shall be performed only when it can be followed within a reasonable time by the seeding and sodding operation.

Resupplying of topsoil to eroded or settled areas to finish grade shall be the responsibility of the Contractor. Care shall be taken not to damage lawn area in the replacement of topsoil.

All excess topsoil shall remain the property of the Owner. If the topsoil remains after spreading required amounts, it shall be stockpiled on site where directed by the Engineer.

4. Measurement and Payment: All work associated with this Item shall be part of the "Lump Sum" Contract. See the Special Provisions for more information.

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**ITEM 2-028: FERTILIZING, LIMING, SEEDING, AND MULCHING**

1. **Description:** The work under this Item includes the furnishing and placing of fertilizer, lime, seed, and mulch on all areas to be seeded as shown on the plans or where directed by the Engineer.
  
2. **Submittals**
  - a. **Samples:** Submit sample and product literature and guarantees in accordance with requirements of the General Conditions for the following:
  
  - b. **Seed:** Submit all empty seed bags and un-ripped tags after application of seed to the Engineer and one sample for approval prior to application of the seed.
  
  - c. **Fertilizer and Limestone:** Submit for approval manufacturer's label or literature of product being used.
  
  - d. **Mulch:** Submit one bale of salt hay.
  
3. **Materials:** The materials for this work shall conform to the requirements of Section M.13 of the Standard Specifications Form 816, or per Table attached.
  
4. **Construction Methods:** Construction methods shall be those established as agronomically acceptable and feasible and which are approved by the Engineer.
  
5. **Preparation - Soil Preparation Procedures:** Ground limestone shall be applied to the lawn and sod areas at a rate as recommended by the testing agency and thoroughly incorporated into the top three (3) inches of the soil at least five (5) days before seeding or sodding. Application of limestone shall be at least enough to bring the topsoil to a final pH reading of 6.5 - 7.0 prior to seeding or sodding procedures.

Fertilizer shall be applied at a rate of twenty (20) pounds per one thousand (1,000) square feet or as specifically recommended by the testing agency. The fertilizer shall be thoroughly incorporated into the top two inches of the topsoil.

Areas shall be made friable and receptive to seeding by methods approved by the Engineer. In all cases, the final prepared area shall meet the lines and grades for such surface as shown on the plans, or as directed by the Engineer. In no event will seeding be allowed on hard or crusted soil surface.

All areas shall be reasonably free from weeds taller than three inches. Removal of the weed growth from the slope areas shall be by approved methods, including hand mowing, which do not rut or scar the slope surface, or cause disruption of the slope

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lines and grades. Seeding on level areas shall not be permitted until substantially all weed growth is removed.

6. Seeding Season: The normal seeding dates for seeding shall be as follows:

Spring:           March 15th to June 15th.  
Fall:               August 15th to October 15th.

These periods may be extended or reduced according to prevailing weather conditions at the time, upon approval by the Engineer.

If the Contractor seeds outside the seasonal periods, any additional material furnished and placed to establish growth shall be done at the Contractor's expense. The Contractor must also reseed, mulch and repair any areas seeded, whether out of season or not, that are damaged by fire, erosion, or any other cause, as directed by the Engineer, at no expense to the City.

7. Seeding Methods: Seed shall be uniformly applied by mechanical seeder and approved by the Engineer.

Before any seed is sown, the ground shall be raked until the surface is smooth, friable and of uniformly fine texture. No seed shall be sown on any area, which has not been so prepared. Lawn areas shall be seeded at the rate of five pounds of seed mixture to 1,000 square feet or 260 pounds per acre of lawn area. The seed shall be sown evenly by an approved mechanical seeder. After sowing, the seed shall be raked lightly in the ground, and the surface then rolled with a water-ballast, 150-pound roller and watered thoroughly with a fine spray. No seeding shall be permitted after a rain unless the surface of the ground is loosened or when the velocity of the wind exceeds a gentle breeze or about five miles per hour. Extreme care shall be taken during seeding and raking so that no change in grading is made and so that the seed is not raked from one spot to another.

Broadcast Seeding: Half the seed shall be sown with the sower moving in one direction, and the remainder shall be sown with the sower moving at right angles to the first sowing.

The Contractor shall not use rye seed as a starter crop for the grass mixes called for above. The use of such seed in the seed mixes will be cause for turning under and complete reseeded of the areas so affected.

8. Mulching: Areas seeded shall be mulched with salt hay unless otherwise ordered by the Engineer. Woodchip mulch shall not be used on seeded areas. Unless otherwise directed, mulch will be applied at a rate of one bale per 2,000 square feet. The mulch will be anchored according to the direction of the Engineer.

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9. **Compaction:** The Contractor shall keep all equipment, vehicular and pedestrian traffic off areas that have been seeded to prevent excessive compaction and damage to young plants. Where such compaction has occurred, the Contractor shall rework the soil to make a suitable seedbed; then re-seed and mulch such areas with the full amount of the specified materials, at no extra charge to the City.
  
10. **Cleanup:** This work will not be considered complete until all cleanup operations are complete. This shall include the removal of all debris resulting from the seeding operation. The Contractor shall be required to shape, grade, and establish vegetative cover in accordance with the specifications on all areas disturbed outside the normal limits of the construction.
  
11. **Warranties and Certificates:** The Contractor shall supply the Engineer with all warranties or certificates, or both, furnished with the seed mixture or fertilizer prior to use of the material, if so requested.
  
12. **Maintenance:** The Contractor shall be held responsible for the maintenance of all work and parts thereof prior to final acceptance.

Maintenance shall include watering of seeded areas, mowing, weeding, cleaning up, edging, repairs of washouts and gullies, repairs to protecting fences and all other necessary work of maintenance.

The Contractor shall provide an adequate and acceptable turf. Adequately protect all lawn areas and mow until the lawn areas are acceptable to the Engineer. Once the turf areas are acceptable to the Engineer, the Contractor shall turn lawn maintenance over to the Owner. All clippings during cutting by the Contractor must be removed off-site. Mowing by the Contractor shall be as directed by the Engineer and shall not begin until grass attains an initial height of four (4) inches.

After final acceptance by the Owner, the Contractor will not thereafter be required to do any of the above work, except that nothing contained herein shall release the Contractor from his obligations under the Contract.

13. **Measurement and Payment:** All work associated with these items shall be part of the "Lump Sum" Contract. See the Special Provisions for more information.

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**SEED SCHEDULE**

Lawn Seed: Seed shall be fresh, recleaned new seed of the latest crop, delivered in standard sized original packages, unopened, bearing guaranteed analysis, name of vendor and mixed in the following proportions:

	<u>by weight</u>	<u>Percent</u> <u>min. purity</u>	<u>min. germination</u>
American Kentucky bluegrass	10	98	98
Victory II chewing fescue	20	98	85
Jasper II creeping red fescue	20	98	85
Spartan hard fescue	20	96	85
Cutter perennial ryegrass	30	97	90

Seeding rate - 260 pounds per acre

**Fertilizer Schedule:**

Commercial Fertilizer (10-8-4): Commercial fertilizer with the following composition by weight: Nitrogen, 10 percent; Phosphoric Acid (P2O5), eight percent; Potash, four percent. These elements may be organic, inorganic or a combination and shall be available according to the methods adopted by the Association of Agricultural Chemists. Commercial fertilizer (10-8-4) shall be delivered in sealed, standard sized bags of the manufacturer, accompanied by the manufacturer's guarantee. Store in such a manner that its effectiveness shall not be impaired.

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**ITEM 2-033: CHAIN LINK FENCING AND GATES**

This work shall conform to the requirements of Section 9.13 of the Standard Specifications amended as follows:

1. **Description:** This work shall consist of furnishing and installing chain link fence and gates of the type and height, supported by metal posts, constructed and erected in conformance with these specifications and as indicated on the drawings or as ordered by the Engineer.
2. **Material:** The following paragraphs are added to Section 9.13.02 of the Standard Specifications:

The fencing material for this project shall consist of aluminum coated steel chain link fabric and shall be the various gauges shown on the plans, woven of good commercial quality steel wire having a minimum tensile strength of 80,000 pounds per square inch. Fabric shall be uniform square mash of 2"±1/8" between its parallel sides. Aluminum alloy coating shall be applied at the rate of not less than 0.40 ounce per square foot of uncoated wire surface.

Framework shall be Schedule 40 pipes as specified by fence manufacturer and shall be hot dipped galvanized with zinc coating weighing not less than 2.0 ounces per square foot in accordance with ASTM Standards. Sizes of frame components shall be as shown on drawing.

All hardware shall be hot dipped galvanized as per ASTM A-153.

Concrete shall be Type IV Portland Cement, Class "C" and conform to Section 6.01 of the Standard Specifications.

Swing Gates shall be a welded frame of the following type of materials:

- a) Gate Posts: Shall be 2-7/8 inches O.D. (min.) Schedule 40 steel pipes (or larger, depending upon the size of the gate opening).
- b) Gate Frames: Shall be 1-7/8 inch O.D. steel pipe with joints notched and welded to form a rigid frame. Welds shall be coated with cold galvanized coating. Frames shall be filled with same fabric as fence and fastened in the frame by means of tension bars and tension bands at 1 foot O.C.
- c) Diagonal Bracing: Shall be 3/8-inch O.D. adjustable truss rod to ensure frame rigidity without sag or twist.
- d) Hinges: Shall be pressed steel to suit gate size, non-lift-off type, offset to permit 180-degree gate opening. Provide 2 hinges for each leaf. Drill, tap, and set screw

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or weld to frame and post to prevent rotation. Hinges shall be Bulldog Industrial hinge, or approved equal.

- e) Single Gate Latch: Provide heavy-duty gate fork latch of correct size malleable iron to permit operation from either side of gate, with padlock eye as integral part of latch.

Contractor shall submit shop drawings of fencing system and all gates for approval prior to ordering.

3. **Construction Methods:**

Posts shall be spaced in line of fence not further than 10 feet on center. All posts shall be set in Class "C" concrete conforming to the Standard Specifications.

In earth, the hole for the concrete footing shall extend at least four inches (4") below the bottom of the post. Diameter for all line posts shall not be less than nine inches (9") in diameter for all line posts and 12 inches in diameter for terminal, pull or corner posts. The tops of the concrete footings shall be crowned to shed water.

When ledge rock is encountered, the posts shall be set in holes drilled into rock at least 12 inches in depth and grouted or otherwise firmly held in correct position.

For fence five (5) feet in height or less where runs of fence are 100 feet or over, end posts shall be braced. All corner posts where runs are over 100 feet in either direction shall have two braces. For fence more than five (5) feet in height, end posts shall be braced and corner posts shall have two braces. For fence 10 feet or more in height, mid rail is required for the entire length of fence. Pull posts with two braces shall be provided for all heights where changes in horizontal or vertical alignment of ten (10) degrees or more occur.

Where braces are required, they shall be spaced as indicated on the plans.

Braces shall be securely fastened to posts by suitable connections and trussed from line post back to post requiring bracing with 3/8" round rod having a turnbuckle adjustment.

Where a top rail is used, it shall pass through the base of the line post cap and form a continuous brace from end to end of fence. The rail shall be provided with couplings approximately every 20 feet. The coupling shall be of the outside-sleeve type and at least 7 inches long; one coupling in every five to have a heavy spring to take up expansion and contraction in the top rail.

Fabric shall be fastened to line posts with bands or wire clamps of No. 6 gauge aluminized or galvanized wire. These bands shall be space approximately 14 inches

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apart. The fabric shall be fastened to the top rail with wires. These tie wires shall be spaced approximately 14 inches apart or as shown on the plans. Ties shall be 9 gauge wire.

Where it is not practicable for the fence to conform to the general contour of the ground as at ditches, channels, etc., the opening beneath the fence shall be enclosed with chain link fabric and sufficiently braced to preclude access, but not to restrict the flow of water.

Where an opening with a gate is shown on drawing, the Contractor shall install a gate in width and with swing in direction as shown on drawings. Bracing or tension wires shall be installed as necessary or as directed by the Engineer.

All fencing installed for the purpose of delineating sport or athletic facilities shall have fabric installed on the side of the sport activity.

Gates that are to be installed into existing fencing systems shall be connected to the existing fence with new fence material for 10' each side of the gate at no additional cost.

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**ITEM 2-056: GOAL POSTS**

1. **Description:** Provide all materials, equipment, and services necessary to furnish and deliver work of this Section as shown on the Drawings, as specified, and as required by job conditions including, but not limited to the following:

1. Football Goal Posts

2. **Submittals:** In accordance with the General Requirements, submit shop drawings and manufacturer's product data for:

1. Football Goal Posts

3. **Materials:**

**High School 8ft Offset Football Goal Post(s):**

BASE: GP4380 AdjustRight® High School Football Goal Post as manufactured by:

Sportsfield Specialties, Inc.  
P. O. Box 231  
41155 State Highway 10  
Delhi, NY 13753  
p. 888-975-3343  
f. 607-746-8481  
[www.sportsfieldspecialties.com](http://www.sportsfieldspecialties.com)  
(or approved equal)

**COMPONENTS:**

1. Gooseneck support: #4285 fabricated of 6" Schedule 40 aluminum pipe (6.625in OD), 5.0ft radius, 8.0ft offset.
2. Crossbar: #4211 fabricated of 6" Schedule 40 aluminum pipe (6.625in OD).
  - a. Length: 23ft 4in
  - b. With internal rotating sleeve for upright adjustment that utilizes precision fit textured mating surfaces, for locking into the vertical position.
3. Uprights: #4226 fabricated of extruded 6061 T6 aluminum tube (4.0in OD) with rigid wire loop at upper end.
  - a. Length: 20.0ft
4. Powder Coat Finish: Yellow
5. Installation package consisting of the following components:
  - a. Ground sleeve: #4212 8.0in Schedule 40 steel pipe, 5.0ft long.

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- b. Access frame: #4516 fabricated of .125in aluminum, 22.25in square, 6.0in high, with eight anchor bolts, filler plugs fabricated of 0.5in pressure treated plywood and .1875in (3/16") aluminum.
- 6. Accessories:
  - a. Directional wind flags.
  - b. Touch-up paint (Powder Coat Specific).
  - c. #4412 Assembly bolts, and nuts – Stainless Steel.
- 5. Construction Methods: All work shall be installed in accordance with the manufacturer's recommendation and as indicated on the plans.

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**ITEM 2-169: CAST-IN-PLACE CONCRETE**

**PART 1 – GENERAL**

**1.1 WORK INCLUDED**

1. Concrete stairs
2. Concrete curbs
3. Concrete cheek walls

**1.2 SUMMARY**

- A. This Section specifies cast-in place concrete, including formwork, reinforcement, concrete materials, mixture design, placement procedures, and finishes.
- B. See Item 2-003, General Excavation, Formation of Embankment and Disposal of Surplus Material.

**1.3 SUBMITTALS**

- A. Product Data: For each type of product indicated.
- B. Design Mixtures: For each concrete mixture.
- C. Shop Drawings: For steel reinforcement and formwork.
- D. Material test reports and certificates.

**1.4 QUALITY ASSURANCE**

- A. Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C 94/C 94M requirements for production facilities and equipment.
  1. Manufacturer certified according to NRMCA's "Certification of Ready Mixed Concrete Production Facilities."
- B. ACI Publications: Comply with the following unless modified by requirements in the Contract Documents:
  1. ACI 301, "Specification for Structural Concrete,"

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2. ACI 117, "Specifications for Tolerances for Concrete Construction and Materials."
- C. Pre-installation Conference: Conduct conference at Project site.
- D. A qualified testing agency for testing and inspection approved by the Architect and paid for by the Owner.
- E. Concrete shall be in accordance with Section 6.01 and Section 8.11 of the Standard Specifications.

### PART 2 - PRODUCTS

#### 2.1 FORM-FACING MATERIALS

- A. Smooth-Formed Finished Concrete: Form-facing panels that will provide continuous, true, and smooth concrete surfaces. Furnish in largest practicable sizes to minimize number of joints.
- B. Rough-Formed Finished Concrete: Plywood, lumber, metal, or another approved material. Provide lumber dressed on at least two edges and one side for tight fit.

#### 2.2 STEEL REINFORCEMENT

- A. Reinforcing Bars: ASTM A 615/A 615M, **Grade 60** deformed.
  1. Galvanized Reinforcing Bars: ASTM A 767/A 767M, Class I or II zinc coated after fabrication and bending.
  2. Epoxy-Coated Reinforcing Bars: ASTM A 775/A 775M, epoxy coated, with less than 2 percent damaged coating in each **12-inch (300-mm)** bar length.
- B. Plain-Steel Welded Wire Reinforcement: ASTM A 185, plain, fabricated from as-drawn steel wire into flat sheets.
- C. Deformed-Steel Welded Wire Reinforcement: ASTM A 497, flat sheet.
- D. Galvanized-Steel Welded Wire Reinforcement: ASTM A 185, plain, fabricated from galvanized steel wire into flat sheets.
- E. Epoxy-Coated Welded Wire Reinforcement: ASTM A 884/A 884M, Class A coated, Type 1, deformed steel.
- F. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded wire reinforcement in place. Manufacture bar

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supports from steel wire, plastic, or precast concrete according to CRSI's "Manual of Standard Practice."

### 2.3 CONCRETE MATERIALS

- A. Cementitious Material: Use the following cementitious materials, of the same type, brand, and source, throughout Project:
  - 1. Portland Cement: ASTM C 150, Type II.
- B. Normal-Weight Aggregates: ASTM C 33, graded, **3/4-inch (19-mm)** nominal maximum coarse-aggregate size.
  - 1. Fine Aggregate: Free of materials with deleterious reactivity to alkali in cement.
- C. Water: ASTM C 94/C 94M and potable.
- D. Air-Entraining Admixture: ASTM C 260.
- E. Chemical Admixtures: Provide admixtures certified by manufacturer to be compatible with other admixtures and that will not contribute water-soluble chloride ions exceeding those permitted in hardened concrete. Do not use calcium chloride or admixtures containing calcium chloride.
  - 1. Water-Reducing Admixture: ASTM C 494/C 494M, Type A.
  - 2. Retarding Admixture: ASTM C 494/C 494M, Type B.
  - 3. Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type D.
  - 4. High-Range, Water-Reducing Admixture: ASTM C 494/C 494M, Type F.
  - 5. High-Range, Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type G.
  - 6. Plasticizing and Retarding Admixture: ASTM C 1017/C 1017M, Type II.

### 2.4 VAPOR RETARDERS

- A. Plastic Vapor Retarder: ASTM E 1745, Class A. Include manufacturer's recommended adhesive or pressure-sensitive tape.
- B. Plastic Vapor Retarder: ASTM E 1745, Class B. Include manufacturer's recommended adhesive or pressure-sensitive tape.
- C. Plastic Vapor Retarder: ASTM E 1745, Class C, or polyethylene sheet, ASTM D 4397, not less than **10 mils (0.25 mm)** thick. Include manufacturer's recommended adhesive or pressure-sensitive joint tape.

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### 2.5 CURING MATERIALS

- A. Evaporation Retarder: Waterborne, monomolecular film forming, manufactured for application to fresh concrete.
- B. Absorptive Cover: AASHTO M 182, Class 2, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. (305 g/sq. m) when dry.
- C. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.
- D. Water: Potable.
- E. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B, dissipating.
- F. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B, nondissipating, certified by curing compound manufacturer to not interfere with bonding of floor covering.
- G. Clear, Solvent-Borne, Membrane-Forming Curing and Sealing Compound: ASTM C 1315, Type 1, Class A.
- H. Clear, Waterborne, Membrane-Forming Curing and Sealing Compound: ASTM C 1315, Type 1, Class A.

### 2.6 RELATED MATERIALS

- A. Expansion- and Isolation-Joint-Filler Strips: [ASTM D 1751, asphalt-saturated cellulosic fiber or ASTM D 1752, cork or self-expanding cork.

### 2.7 CONCRETE MIXTURES

- A. Prepare design mixtures for each type and strength of concrete, proportioned on the basis of laboratory trial mixture or field test data, or both, according to ACI 301, prepared in accordance with section 6.01 and Section 8.11 of the Standard Specification.
- B. Proportion normal-weight concrete mixture as follows:
  - 1. Minimum Compressive Strength: Class "C" 4000 psi (27.6 MPa) or Class "A" 3000 psi (20.7 MPa) at 28 days.
  - 2. Maximum Water-Cementitious Materials Ratio: 0.50, watertight concrete 0.45.

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3. Slump Limit: 4 inches (100 mm) for concrete with verified slump of 2 to 4 inches (50 to 100 mm) before adding high-range water-reducing admixture or plasticizing admixture , plus or minus 1 inch (25 mm).
4. Air Content: 5 percent, plus or minus 1.5 percent at point of delivery for 1-1/2-inch (38-mm) nominal maximum aggregate size.
5. Air Content: 6 percent, plus or minus 1.5 percent at point of delivery for 1-inch (25-mm) or 3/4-inch (19-mm)] nominal maximum aggregate size.
6. Air Content: Do not allow air content of troweled finished floors to exceed 3 percent.

### 2.8 FABRICATING REINFORCEMENT

- A. Fabricate steel reinforcement according to CRSI's "Manual of Standard Practice."

### 2.9 CONCRETE MIXING

- A. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete according to ASTM C 94/C 94M and ASTM C 1116, and furnish batch ticket information.
- B. Prepared in accordance with section 6.01 and Section 8.11 of the Standard Specification.

## PART 3 - EXECUTION

### 3.1 FORMWORK

- A. Design, erect, shore, brace, and maintain formwork according to ACI 301 to support vertical, lateral, static, and dynamic loads, and construction loads that might be applied, until structure can support such loads.
- B. Construct formwork so concrete members and structures are of size, shape, alignment, levation, and position indicated, within tolerance limits of ACI 117.
- C. Chamfer exterior corners and edges of permanently exposed concrete.

### 3.2 EMBEDDED ITEMS

- A. Place and secure anchorage devices and other embedded items required for adjoining work that is attached to or supported by cast-in-place concrete. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.

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### 3.3 VAPOR RETARDERS

- A. Plastic Vapor Retarders: Place, protect, and repair vapor retarders according to ASTM E 1643 and manufacturer's written instructions.
  - 1. Lap joints **6 inches (150 mm)** and seal with manufacturer's recommended tape.

### 3.4 STEEL REINFORCEMENT

- A. General: Comply with CRSI's "Manual of Standard Practice" for placing reinforcement.
  - 1. Do not cut or puncture vapor retarder. Repair damage and reseal vapor retarder before placing concrete.

### 3.5 JOINTS

- A. General: Construct joints true to line with faces perpendicular to surface plane of concrete.
- B. Construction Joints: Install so strength and appearance of concrete are not impaired, at locations indicated or as approved by Architect.
- C. Contraction Joints in Slabs-on-Grade: Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints for a depth equal to at least one-fourth of concrete thickness as follows:
  - 1. Grooved Joints: Form contraction joints after initial floating by grooving and finishing each edge of joint to a radius of **1/8 inch (3.2 mm)**. Repeat grooving of contraction joints after applying surface finishes. Eliminate groover tool marks on concrete surfaces.
  - 2. Sawed Joints: Form contraction joints with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut **1/8-inch- (3.2-mm-)** wide joints into concrete when cutting action will not tear, abrade, or otherwise damage surface and before concrete develops random contraction cracks.
- D. Isolation Joints in Slabs-on-Grade: After removing formwork, install joint-filler strips at slab junctions with vertical surfaces, such as column pedestals, foundation walls, grade beams, and other locations, as indicated.

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3.6 CONCRETE PLACEMENT

- A. Before placing concrete, verify that installation of formwork, reinforcement, and embedded Items is complete and that required inspections have been performed.
- B. Deposit concrete continuously in one layer or in horizontal layers of such thickness that no new concrete will be placed on concrete that has hardened enough to cause seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as indicated. Deposit concrete to avoid segregation.
  - 1. Consolidate placed concrete with mechanical vibrating equipment according to ACI 301.
- C. Cold-Weather Placement: Comply with ACI 306.1.
- D. Hot-Weather Placement: Comply with ACI 301.

3.7 FINISHING FORMED SURFACES

- A. Rough-Formed Finish: As-cast concrete texture imparted by form-facing material with tie holes and defects repaired and patched. Remove fins and other projections that exceed specified limits on formed-surface irregularities.
  - 1. Apply to concrete surfaces not exposed to public view.
- B. Smooth-Formed Finish: As-cast concrete texture imparted by form-facing material, arranged in an orderly and symmetrical manner with a minimum of seams. Repair and patch tie holes and defects. Remove fins and other projections that exceed specified limits on formed-surface irregularities.
  - 1. Apply to concrete surfaces exposed to public view., Retain rubbed finish in first paragraph below with smooth-formed finish above.
- C. Rubbed Finish: Apply the following to smooth-formed finished as-cast concrete where indicated:
  - 1. Smooth-Rubbed Finish: Not later than one day after form removal, moisten concrete surfaces and rub with carborundum brick or another abrasive until producing a uniform color and texture. Do not apply cement grout other than that created by the rubbing process.
  - 2. Grout-Cleaned Finish: Wet concrete surfaces and apply grout of a consistency of thick paint to coat surfaces and fill small holes. Mix one part portland cement to one and one-half parts fine sand with a 1:1 mixture of bonding admixture and

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water. Add white portland cement in amounts determined by trial patches so color of dry grout will match adjacent surfaces. Scrub grout into voids and remove excess grout. When grout whitens, rub surface with clean burlap and keep surface damp by fog spray for at least 36 hours.

3. Cork-Floated Finish: Wet concrete surfaces and apply a stiff grout. Mix one part portland cement and one part fine sand with a 1:1 mixture of bonding agent and water. Add white portland cement in amounts determined by trial patches so color of dry grout will match adjacent surfaces. Compress grout into voids by grinding surface. In a swirling motion, finish surface with a cork float.

- D. Related Unformed Surfaces: At tops of walls, horizontal offsets, and similar unformed surfaces adjacent to formed surfaces, strike off smooth and finish with a texture matching adjacent formed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces, unless otherwise indicated.

### 3.8 FINISHING FLOORS AND SLABS

- A. General: Comply with ACI 302.1R recommendations for screeding, restraightening, and finishing operations for concrete surfaces. Do not wet concrete surfaces.
- B. Scratch Finish: While still plastic, texture concrete surface that has been screeded and bull-floated or darbied. Use stiff brushes, brooms, or rakes to produce a profile amplitude of **1/4 inch (6 mm)** in 1 direction.
- C. Float Finish: Consolidate surface with power-driven floats or by hand floating if area is small or inaccessible to power driven floats. Restraighten, cut down high spots, and fill low spots. Repeat float passes and restraightening until surface is left with a uniform, smooth, granular texture.
- D. Trowel Finish: After applying float finish, apply first troweling and consolidate concrete by hand or power-driven trowel. Continue troweling passes and restraighten until surface is free of trowel marks and uniform in texture and appearance. Grind smooth any surface defects that would telegraph through applied coatings or floor coverings.
- E. Trowel and Fine-Broom Finish: Apply a first trowel finish to surfaces indicated. While concrete is still plastic, slightly scarify surface with a fine broom.
  1. Comply with flatness and levelness tolerances for trowel finished floor surfaces.
- F. Broom Finish: Apply a broom finish to exterior concrete platforms, steps, and ramps, and elsewhere as indicated.

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### 3.9 CONCRETE PROTECTING AND CURING

- A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 306.1 for cold-weather protection and ACI 301 for hot-weather protection during curing.
- B. Evaporation Retarder: Apply evaporation retarder to unformed 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.
- C. Cure concrete according to ACI 308.1, by one or a combination of the following methods:
  - 1. Moisture Curing: Keep surfaces continuously moist for not less than seven days.
  - 2. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least **12 inches (300 mm)**, and sealed by waterproof tape or adhesive. Cure for not less than seven days. Immediately repair any holes or tears during 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 subjected to heavy rainfall within three hours after initial application. Maintain continuity of coating and repair damage during curing period.
    - a. After curing period has elapsed, remove curing compound without damaging concrete surfaces by method recommended by curing compound manufacturer. Curing and sealing compound in subparagraph below is usually for floors and slabs and may act as a permanent surface finish.
  - 4. Curing and Sealing Compound: Apply uniformly to floors and slabs indicated in a continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Repeat process 24 hours later and apply a second coat. Maintain continuity of coating and repair damage during curing period.

### 3.10 CONCRETE SURFACE REPAIRS

- A. Defective Concrete: Repair and patch defective areas when approved by Engineer. Remove and replace concrete that cannot be repaired and patched to Engineer's approval.

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3.11 FIELD QUALITY CONTROL

- A. Testing and Inspecting: Owner will engage a qualified independent testing and inspecting agency to perform field tests and inspections and prepare test reports.
  - 1. Testing Services: Tests shall be performed according to ACI 301.