**PART 1 - GENERAL**

**1.01 SUMMARY**

A. Provisions of Division 01 apply to this section.

B. Section includes the following types of play equipment and structures:

1. Basketball Backboards.

1. Volleyball Standards.
2. Tennis.
3. Football Goal Posts.
4. Baseball Backstops.
5. Other playfield equipment as indicated on the Drawings.
6. Outdoor Electronic Scoreboards and Controller.

C. Related Sections:

1. Section 31 22 00: Grading.

2. Section 31 23 13: Excavating, Backfilling and Compacting.

1. Section 31 41 00: Storm Drainage Systems.
2. Section 32 12 16: Asphalt Concrete Paving.
3. Section 32 17 23: Pavement Markings.
4. Section 03 30 53: Site Concrete.

**1.02 SUBMITTALS**

A. Submit in accordance with Division 01.

B. Shop Drawings:

1. Submit Shop Drawings for all Work.

2. Coordination Drawings: Layout plans and elevations indicating extent of playfield equipment with playfield surface systems. Indicate playfield equipment locations and installation.

3. Provide Shop Drawings details of attachment of equipment to structure. Shop Drawings for electronic scoreboard connections to the structural frame and pole foundation requirements shall be signed and stamped by a licensed California Civil or Structural engineer.

4. Provide Shop Drawing wiring diagrams and electrical requirements for equipment.

C. Product Data:

1. Manufacturer’s standard printed brochure illustrating standard components and features of each system specified.

2. Manufacturer’s catalog cut and data sheets, complete parts list and installation requirements for each accessory specified.

3. Certificates: Signed by manufacturers of playfield equipment certifying that products furnished comply with DSA and Contract Documents.

D. Material Samples: Provide samples of the specified finishes in the full range of manufacturer’s standard colors.

E. Operating Instructions and Warranty: Provide equipment operating instructions, wiring diagrams and warranty with closeout submittal.

**1.03 QUALITY ASSURANCE**

A. Comply with NAAMM’S “Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating metal finishes.

**PART 2 - PRODUCTS**

**2.01 PLAYFIELD EQUIPMENT, GENERAL**

1. Athletic Equipment:
   1. Basketball Backboards:
      1. Manufacturer/Product:
         1. Porter Athletic Equipment Co. / “Outdoor Backstop”, Broadview, IL, 60155, telephone (800)-947-6783, as a standard of quality
         2. Gametime.
         3. Or equal.
      2. Type:
         1. Model #00164-234 Outdoor 4’ Extended Vertical Post Backstop with #234300 Fan Aluminum Bank, Regular Duty Goal #00235-000 or Heavy Duty #00202-000 double rim.
         2. Porter model #00184-234 Outdoor 4’ Extended Vertical Post Back-to-Back Backstop with Backboards and Goals, with #234300 Fan Aluminum Bank, Regular Duty Goal #00235-000 or Heavy Duty #00202-000 double rim.
      3. Backstop support shall be designed for mounting goal at any height between 6’-0” and 10’-0”.
      4. Upright support shall be 4-½” O.D. heavy wall, galvanized steel pipe, capped at top end. Anchor pin for lower end of upright shall be provided to anchor pipe in concrete footing.
      5. Backboard shall be supported 4’ in front of upright support by dual horizontal support assemblies. Lower support assembly shall be fabricated from 3-½” O.D. heavy wall, galvanized pipe furnished with a heavy, slotted mounting plate which is located directly behind the four goal mounting holes. Upper support assembly shall be fabricated from 1-7/8” O.D. heavy wall, galvanized pipe fabricated with a plated, structural angle for attachment to the top corners of the backboard. Support assemblies shall be clamped to the upright support by means of heavy, galvanized, ductile iron castings with plated hardware.
      6. Cast Aluminum backboard Porter model 00234-300. Official size (54” x 39”) and shape. Bank shall be cast in a permanent mold process from high tensile #319 aluminum. Backboard shall be cast with structural reinforcing ribs on backside with a heavy, 1-½” deep perimeter flange to provide maximum rigidity. Backside of bank shall be furnished with eight (8) tapped holes (3/8” –16) to fit normal mounting attachments without exposed bolt heads on front face of unit. Backboard shall be drilled for a front mount type goal (5” x 5” hole pattern) and compatible with direct mount type support structures.
      7. Goal:

1) Heavy duty Porter model # 00202-000 double rim shall be fabricated from 5/8” diameter cold drawn alloy steel round formed to an 18” inside diameter ring. Inside of rim shall be positioned 6” from face of backboard by heavy, L-shaped, formed steel mounting plate with a 5” x 5” mounting hole centers. Goal shall be rigidly braced by means of a ½” diameter cold drawn alloy steel round formed and welded in position for maximum support. Rim shall be provided with twelve “no-tie” net attachment clips for net attachment. Goal shall be finished in a durable enamel finish. Color of goal shall be official orange. Goal shall be furnished complete with a high quality white nylon net and plated mounting hardware.

* 1. Volleyball Standards:
     1. Manufacturer / Product:
        1. Porter model #851-000 Sleeve type volleyball system with Porter model #02255-000 volleyball net.
        2. Gametime.
        3. Or equal.
     2. Type:

1)Provide Porter #851-000 Sleeve type volleyball system. Standards shall be a 3-1/2” O.D. structural steel tubing finished in a durable grey powder coated finish. Upper portion of upright shall be equipped with spring loaded sliding collar. Net heights are preset for tennis, women’s, men’s and elementary volleyball and tennis. Reel post shall be equipped with tension winch. Winch shall be ratchet type and incorporated 1-3/4” nylon strap. Winch shall be furnished with removable handle to prevent unauthorized use. Standards shall consist of one reel post and one end post.

2) Provide Porter model #02255-000 volleyball net, 32’ x 39” to meet latest requirements of USAV, NCAA, NFSHSA and NAGWS. Netting shall be high quality 4” square, #24 black nylon mesh with a 2” wide, vinyl coated polyester hem double stitched around entire perimeter of net. Top hem shall be furnished with a 1/8” diameter galvanized aircraft cable 44’0” long with a nylon coating. Side hems shall be provided with grommets and tie off cords to provide proper net tension. Provide ¼” braided white nylon rope within hem along bottom of net.

1. Provide Porter model #00403-000 outdoor ground sleeve for 3 ½” diameter uprights for volleyball.
   1. Tennis:
      1. Manufacturer / Product:
         1. Porter Athletic Equipment Co., Broadview, IL. 60155, telephone (800)-947-6783, as a standard of quality.
         2. Gametime.
         3. Or equal.
      2. Type:

1)Provide Porter model #865-200/300 tennis system. Standards shall be a 3-1/2” O.D. structural steel tubing finished in a durable grey powder coated finish. Upper portion of upright shall be equipped with spring loaded sliding collar. Net heights are preset for tennis. Reel post shall be equipped with tension winch. Winch shall be ratchet type and incorporated 1-3/4” nylon strap. Winch shall be furnished with removable handle to prevent unauthorized use. Standards shall consist of one reel post and one end post.

2) Provide Porter model #00403-000 outdoor ground sleeve for 3 ½” diameter uprights and #02239-00 center tie-down anchor.

3) Provide Porter model #02237-000 tennis net and Porter model #02238-000 Tie Down Strap, to meet latest requirements of USTCBA, NCAA, NFSHSA and NAGWS. Galvanized aircraft top cable with heavy-duty Herculite headband. Durable No. 36 nylon net shall be treated for weather resistance. Ends and bottom shall be provided with protective net edging. Side hems shall be provided with grommets and tie off cords to provide proper net tension. Adjustable white nylon strap with bottom snap hook for holding center of net.

* 1. Football Goal Posts:
     1. Manufacturer/Product:
        1. Porter Athletic Equipment Co., Broadview, IL, 60155, telephone (800)-947-6783, as a standard of quality
        2. Gametime.
        3. Or equal.

b. Type: Provide Porter model #296-233 Gooseneck football goal posts. Crossbar shall be of a 5” (12.7cm) diameter steel tube with the upper edge suspended 10’0” (3.05m) above the playing field by means of a heavy-wall 5-9/16” (14.1cm) formed steel pipe support which extends 6’-1” (1.85m) outside of the end zone for added player safety. Upright support shall be formed to a 2’-0” (61cm) radius and drilled at the upper horizontal end for the adjustment crossbar attachment. Uprights shall be made of 2-1/2” (6.35cm) diameter lightweight steel tubing. Uprights shall be secured into each end of the crossbar assembly by means of special adjustable sleeve attachments, which are an integral part of the upright assemblies. The entire goal post assembly shall be finished in a durable, cold galvanized primer for painting the official white or yellow colors after final inspection. (Final painting shall be by others).

1) Uprights to be spaced 23’-4” apart to comply with high school competition requirements.

2) Uprights to extend 30’ above the crossbar.

3) Installation:

a) Permanent Installation: Bottom of main upright shall extend 3’-6” below the playing surface and be permanently set in 3’-0” diameter by 4’-0” deep concrete footing.

b) Sleeve type installation: Sleeve shall extend 5’-0” below playing surface in 3’-0” diameter by 6’-6” deep concrete support footing.

NOTE TO PROJECT ARCHITECT: SELECT TYPE OF INSTALLATION FROM ABOVE. SLEEVE TYPE INSTALLATION SHOULD ONLY BE USED FOR MULTI-USE FIELDS WHERE GAMES OTHER THAN FOOTBALL AND SOCCER ARE ANTICIPATED. IF SLEEVE TYPE INSTALLATION IS USED, SECONDARY SLEEVES MUST BE PROVIDED FOR STORING THE GOAL POSTS IN AN AREA WHERE THEY WON’T INTERFERE WITH PLAY. MOVING OF GOAL POSTS REQUIRES VEHICULAR ACCESS (CAN BE MOVED ACROSS FIELD AREAS) TO THE STORAGE LOCATION.

* 1. Portable Soccer Goals:
     1. Manufacturer/Product:
        1. Porter Athletic Equipment Co., Broadview, IL, 60155, telephone (800)-947-6783, as a standard of quality
        2. Gametime.
        3. Or equal.

b. Type: Provide Porter model #477-000 Portable soccer goals. Soccer goals shall meet all NFHS and NCAA requirements for championship soccer tournaments. The bottom edge of the horizontal crossbar shall be located 8’-0” (2.43m) above the playing field, with the sideframes positioned with a 24’-0” (7.31m) inside dimension. Goals shall be furnished in three sections (crossbar and two sideframes) for ease of assembly or dismantling for seasonal use. Crossbar and sideframes are constructed of a 4” (10.16cm) square lightweight high-tensile (6063-T6) aluminum extrusion finished in a durable white powder coated finish. Backstay shall be fabricated from 1-7/8” (4.76cm) O.D. lightweight, high-tensile (6063-T6) aluminum extrusion. All aluminum extrusion sections (crossbar, sideframes and backstays) shall be designed with an internal continuous channel configuration and furnished with special molded, high-tensile nylon no-tie net attachment clips for each of installing or removing the nets. All aluminum extrusions shall be designed with internal reinforcing ribbing for maximum rigidity. Sideframes shall be of a unitized design (upright and backstay). Goals shall be furnished complete with an auger-type anchor system (set of four), to attach to the backstays and secure the soccer goals in position. Each anchor shall consist of an auger-type ground anchor, backstay clamp fitting, 12” long chain and padlock. Auger ground anchor shall screw into grass-type playing fields to a 14” depth to provide excellent grip capabilities.

1) Provide Porter model #293-000 Transport system. Transport system shall consist of two wheel and support bracket assemblies for transporting one portable type soccer goal. Bracket support assemblies shall be designed to attach to the bottom end of the two front goal uprights, and secure in position by means of ½” diameter threaded pin and wing nut arrangement to hold unit in position during transport. Brackets shall position 12-1/2” diameter pneumatic tires (2) in a location to facilitate tipping the soccer goal forward for ease of transport.

2) Provide Porter model #412-240 Rear spreader tube kit. Heavy-wall steel tubular spreaders to be secured to soccer goal backstays with special ductile iron tee castings for maximum strength and stability

3) Provide Porter model #413-000 internal weight bar kit. Solid steel weight bars to provide additional ballast in rear spreader tube.

### Soccer Nets:

* + 1. Manufacturer/Product:
       1. Porter Athletic Equipment Co., Broadview, IL, 60155, telephone (800)-947-6783 as a standard of quality
       2. Gametime.
       3. Or equal.

b. Type: Provide Porter model #291-000 Standard backstays and Porter model #491-824 Soccer net. Standard type brackets shall be fabricated from 1-7/8” (4.83cm) O.D. heavy-wall steel tubing, Upper end of backstays shall be furnished with a horizontal section, which extends 3’-0” (91.4cm) behind the goal uprights for proper net support to meet all requirements for competition. Lower end of backstays shall slope downward to a base section on playing field, and attach by means of a special hinge and attachment plate assembly. Hinge plate assembly shall be secured into the playing field by means of special ground anchor pins provided approximately 8’-1” (2.46m) behind the goal uprights. Backstays shall be furnished in a durable white powder coated finish and all attachment hardware shall be plated. All nets shall be an integral, full-perimeter, ¾” (1.9cm) wide white tape hem for securing to backside of soccer goal, using either net hooks or cable ties (provided with soccer goals). All nets shall be furnished in pairs.

* 1. Field Hockey Goals:
     1. Manufacturer/Product:
        1. Porter Athletic Equipment Co., Broadview, IL, 60155, telephone (800)-947-6783 as a standard of quality
        2. Gametime.
        3. Or equal

b. Type: Provide Porter model #260-000 Field Hockey Goals. Field hockey goals shall meet all requirements for competition. Goals shall be 12’-0” (3.65m) in width, 7’-0” (2.13m) in height, and 4’-0” (1.22m) in depth. Goal sideframes shall be of a unitized design to maximum stability and facilitate ease of assembly. Front of sideframes and crossbar shall be of a heavy-wall 3” x 2” (7.62cm x 5.08cm) rectangular steel tubing. The side facing the field of play shall be 2” (5.08cm) to meet competition requirements. Sideframes and crossbar shall be finished in a durable white powder coated finish. Goal boards shall be provided to meet competition specifications. Boards shall be ¾” (1.90cm) x 18” (45.72cm) in height, and finished in a durable black painted finish. Boards shall be mounted flush with the inside of the goal uprights to meeting official rule requirements. Goal nets shall be of 1-1/2” (3.81cm) square mesh made of #21 thread black nylon cord, with a 2” (5.08cm) wide binding and weather-treated for long life. Vertical upright and horizontal crossbar tubes shall be furnished with a continuous 3/8” diameter steel bar on the backside to facilitate net attachment with lacing cord provided. Unit shall be furnished with plated hardware.

### LaCrosse Goals:

* + 1. Manufacturer/Product:
       1. Porter Athletic Equipment Co.
       2. Gametime.
       3. Or equal.
    2. Type: Provide Porter model #261-000 Portable Lacrosse Goals. Goals shall be designed to meet both collegiate (NCAA) and high school (NFHS) requirements for competition. Inside measurements of goal opening shall be 6’-0” (1.83m) wide x 6’-0” (1.83m) high. Goal crossbar and uprights shall be of a lightweight high-tensile (6063-T6) aluminum extruded tubing, 1-7/8” (4.76cm) in diameter. Crossbar shall have mitered corners and internal connections for securing to uprights, for ease of assembly or compact disassembly for seasonal storage. All aluminum extrusion sections (crossbar and uprights) shall be designed with an internal continuous channel configuration, and furnished with special molded, high-tensile nylon no-tie net attachment clips for ease of installing or removing the nets. Crossbar and uprights shall be provided in a durable, official orange powder coated finish. Portable base assembly shall be of ½” x 2” (1.27cm x 5.08cm) flat steel bars designed in a “V” configuration, meeting at a point 6’-11” (2.11m) back from the face of the goal. Base assembly shall be finished in a durable black powder coated finish. Tie-down stakes shall be provided for securing base on grass fields. Each goal shall be fitted with a pyramidal-shaped cord netting of 1-1/2” (3.8cm) mesh, #36 black nylon cord, bound around entire perimeter with a 2” (5cm) wide poly webbing. Net shall be secured to the goal crossbar, uprights and ground (with special tie-down stakes furnished with unit) to prevent the passage of the ball.
  1. Chin-Up Bars:
     1. Manufacturer/Product:
        1. Porter Athletic Equipment Co.
        2. Gametime.
        3. Or equal.
     2. Type: Provide LA Steelcraft wall mounted Chin-Up Bars: Install four module section with 2’ minimum chin-up bar length per module. Frame shall be minimum 1 ½” x 1 ½” x 3/16” galvanized angle iron welded to wall attachment plates and to 1” diameter chinning bar. All horizontal bars shall be cold rolled steel, hot dip galvanized and hand smoothed after galvanizing for a safe, durable finish.
  2. Other Playfield Equipment as indicated on the Drawings.
  3. Outdoor Electronic Scoreboards and Controller:

a. Manufacturer/Product:

1) Football Scoreboard: Wireless remotely operated scoreboard, UL listed FCC certified (at field with bleachers).

a) Outdoor Football wireless (LED) Scoreboard, Model # FB-8120TK-2 with Personalized Name Signs Model # PDO-2024 and one wireless remote controller and case, Fair-Play Co. (800) 247-0265, as a standard of quality.

b) Nevco Scoreboard Co., Greenville, SD, (800) 843-5843.

c) Daktronics, Inc., Brookings, SD, (800) 843-5843.

d) Or equal.

2) Construction: 100% solid state microprocessor-controls systems, aluminum frame, LED lighting, horn, game clock, 5-year warranty, colors and accessories as selected.

a) Scoreboards to display the following:

(1) Time in minutes, seconds and 1/10 seconds.

(2) Team scores.

(3) Quarter.

(4) Time outs left.

(5) Down.

(6) To Go.

(7) Ball On.

b) Additional Features:

(1) Built-in horn, sounding automatically for a minimum of 2 seconds when timer reaches 0.00 or by manual operation.

(2) Timer shall be bi-directional, up or down in count.

(3) Junction boxes: 2 – 4 inch x 2 1/8 inch by 2 1/8 inch boxes with covers.

c) Size: 20 feet long x 7 or 6 feet tall by 10 ¼ inch deep, or as indicated on drawings.

d) Color: As selected from the full range of manufacturer’s standard colors.

b. Controller: Controller shall be manufactured by scoreboard and shot clock manufacturer.

1) Wireless controller and case.

a) Model MP-70, Fair-Play Co., as a standard of quality.

b) Nevco Scoreboard Co., Greenville, IL.

c) Daktronics, Inc., Brookings, SD.

2) Control Features:

a) Aluminum enclosure with rubber feet.

b) 12 ¾ inch wide by 2 ½ inch high by 8 inch deep-sloping face.

c) Membrane switches for direct entry of information.

d) Two line 32-character LCD display of information.

e) Two hour memory retention circuit in case of power loss.

f) Carrying/Storage case.

g) Multiple sport control for baseball, football, basketball, hockey and many other sports.

h) Mode to program control for changes as needed.

i) Changeable sport-specific underlays to eliminate keypad captions.

j) +1, +2, +3, -1 switches for fast entry of scores, etc.

k) Color coded HOME and GUEST keys.

(l) Player Foul Memory for 16 players on each team (in control only).

(m) Metric Clock for tenth of second display during last minute.

(n) 0-99 second Time Out Timer can be displayed on scoreboard clock.

(o) Time of Day can be displayed on scoreboard clock.

c. Power Requirements:

1) Scoreboards: 475 watts max., 120 volts, 60 Hz. Single phase.

2) Controllers: 10 watts, 120 volt, 50/60 Hz. Single phase.

B. Colors: As selected from manufacturer’s full range.

**2.02 CAST-IN-PLACE CONCRETE**

A. Concrete Materials and Properties: Comply with requirements of Section 03 30 53: Site Concrete to provide normal-weight, air-entrained concrete with a minimum 28-day compressive strength of 3,000 psi, 4-inch slump, and one inch maximum size aggregate.

* 1. **GENERAL METAL FINISHES**

A. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are permitted if they are within one-half of the range of reviewed Samples. Noticeable variations in the same piece are not permitted. Variations in appearance of other components are permitted if they are within the range of reviewed Samples and are assembled or installed to minimize contrast.

B. Baked-Enamel Powder-Coat Finish: Manufacturer’s standard, baked, polyester-TGIC, powder-coat finish complying with finish manufacturer’s written recommendations for surface preparation, including pretreatment, application, baking, and minimum dry film thickness of 3 to 5 mils.

C. PVC Finish: Manufacturer’s standard, UV-stabilized, mold-resistant, slip-resistant, matte-textured, dipped or sprayed-on, PVC-plastisol finish, with flame retardant added, complying with coating manufacturer’s written recommendations for pretreatment, application, and minimum dry film thickness of 80 mils.

**PART 3 - EXECUTION**

**3.01 EXAMINATION**

A. Examine areas and conditions for compliance with requirements for Project site clearing, earthwork, surface and sub-grade drainage, and other conditions affecting installation.

B. Do not begin installation before final grading for placing protective surfacing is completed.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

**3.02 PREPARATION**

A. Verify locations of playfield perimeter and pathways. Verify that playfield layout and equipment locations comply with requirements for each type and component of equipment.

**3.03 INSTALLATION, GENERAL**

1. General: Comply with manufacturer’s written recommendations, unless more stringent requirements are indicated.
2. Basketball Standards: Excavation shall be a minimum of 3’-6” deep x 2’-0” in diameter. The backstop column support shall be installed, plumbed, and shored with the column positioned in a manner so that a minimum column embedment of 3’-0” occurs. Fill excavation with concrete. A measured height of 8’-0” from top of finish surface to top of ring shall be provided. Maintain shoring in place until concrete is sufficiently hydrated to support backstop column.
3. Volleyball Standard: Provide 2’-6” deep x 1’-6” diameter excavation at 8’-6” height above playing surface. Embed posts 2’-0” into concrete.
4. Baseball Backstops: Provide 1’-0” diameter x 3’-6” deep concrete footing. Pipe supports shall be embedded in concrete footing to a minimum depth of 36”, provide a minimum of 6” concrete under pipe.

E. Install other playfield equipment as indicated on the Drawings.

F. Post and Footings:

* 1. Excavation: Hand-excavate holes for posts and footings to dimensions, profile, spacing, and in locations indicated on Drawings, in firm, undisturbed or compacted subgrade soil. Level bearing surfaces with drainage fill, to required elevation.

2. Post Setting: Install mainframe equipment posts in concrete footing. Protect portion of posts above footing from concrete splatter. Install concrete around posts and vibrate or tamp for consolidation. Verify that posts are set plumb or at the correct angle and are aligned and at the correct height and spacing. Brace posts in position during placement and finishing operations until concrete is sufficiently hydrated. Smooth tops of concrete footings, and slope top surface for positive shedding of water.

**3.04 ADJUSTING AND PROTECTION**

1. Adjust movable playfield equipment components to operate smoothly, easily and quietly, free from binding, warp, distortion, nonalignment, misplacement, disruption, or malfunction, throughout entire operational range.

B. Protect the Work of this section until Substantial Completion.

**3.05 CLEANING AND CLEANUP**

1. After completing playfield equipment installation, inspect components. Remove spots and dirt. Repair damaged finishes to match original finish or replace component.
2. Remove rubbish, debris, and waste materials and legally dispose of off the Project site.

**END OF SECTION**