

following:

- Contractor grade alkyd striping paint for existing asphalt and concrete pavements or restriping, Ennis paint or equal with approval by BSD Representative.
- Apply two zone marking coats of alkyd paint at eight dry mils per coat.
- Follow all paint manufacturer recommendation for adherence due to weather conditions.
- If placing over new asphalt/concrete a minimum of fourteen days cure time is required prior to any applications.

Minimum Dimensions:

- Standard parking stalls shall have 4" stripe
- Crosswalks shall be 8' wide (outside dimension) with a 1' thick line
- Mile per hour stencils shall have a minimum of 2'6" height with a 3" thick line
- All letter and number stencils shall be a minimum of 1' high, 2" thick
- Directional arrows shall be a minimum of 5' in length, 3' wide and 1' thick

#### **F. ATHLETIC AND RECREATIONAL SURFACING**

##### **1. Playground Protective Surfacing**

Unitary surfacing systems are preferred. Shop drawings shall include adequate drainage system, and cross section with playground equipment foundations to ensure adequate fall protection.

- a) SMARTE Turf is the basis of design for playground protective surfacing in new elementary school construction. Other products or systems may be reviewed by BSD to verify adequate warranty, maintainability, and shock attenuation.
- b) Poured-in-Place (PIP) fall protection is permitted only with district approval.
- c) Engineered Wood Fiber (EWF) is an acceptable surfacing material for existing playgrounds if unitary surfacing is not a viable option.
  - Ensure 12" minimum EWF coverage after settlement, including atop concrete foundations of playground equipment and concrete-mounted signs.
  - Provide adequate drainage below the EWF.
  - Concrete curbs are preferred but not required along the perimeter of the play area.
  - Non-compliant ramps into EWF shall be removed and replaced with ADA compliant curb ramps. Provide additional ramps as needed to reduce travel distance to areas of activity.

### **III. SITE IMPROVEMENTS**

#### **A. FENCES AND GATES**

##### **1. Chain Link Fences and Gates**

###### **a) Gates**

Gates will comply with ASTM F1043 Group 1-C, ASTM F900, and will have commercial grade hardware.

- Access - Maintenance access shall have a minimum of a 10' opening. Any opening over 10' shall be a double gate. Pedestrian access shall be 24" with offset post to keep motorized vehicles off of school grounds.
- Latches - Commercial grade fork latches are to be installed on gates and must be able to accommodate District and Fire Department padlocks.
- Single gate latches shall be capable of retaining the gate in a closed position and shall have a provision for a padlock.

- Double gate latches shall be a drop rod or plunger bar arranged to engage the gate stop. Center drop rod or plunger bar shall not be used in areas with gravel. The latching devices shall have a provision for a padlock.
- Hinges - The hinges shall be designed to permit the gate to swing a full 180 degrees. For safety considerations, avoid the use of slide gates when possible. When a sliding style gate is necessary, a cantilever style slide gate with the appropriate safety covers will be required.
- Keepers – Provide keepers for each gate over 5' so that they do not swing unintentionally.

b) Fence Fabric

Fabric will have a knuckle/knuckle selvage. The standard diamond size will be 2". In high-stress applications, a 1 ½" diamond size will be used. Fabric ends shall occur only at terminal, corner, or pull posts. Attach fabric to terminal, corner, or pull posts with tension bars and tension bar clips with maximum 12" on center. Fasten fabric to line posts, top, brace, and bottom rails with tension wire with maximum 15" on center. Runs of fence more than 500' in length shall have at least one intermediate 3" outside diameter (O.D.) pull post with braces in two directions. Maximum distance between intermediate posts is 500'. Fabric shall be installed taut, on outside of posts and rails, uniformly 1" above ground level.

- Galvanized chain link fabric to be galvanized before weave and meet ASTM A 392 Class 1 (1.2 oz.) as manufactured by Pacific Fence & Wire Company or approved equal. The wire will have a minimum 9-gauge finish. In high-stress applications such as backstops 10' and below, track perimeters, trash enclosures, soccer practice areas, etc., the mesh will have a 6-gauge finish.
- Vinyl coated chain link fabric shall meet ASTM F 668 Class 2B, Fused-Bonded, as manufactured by Pacific Fence & Wire Company or approved equal. Color will be black or as required by Authority Having Jurisdiction (AHJ). Wire will have a minimum of a 9-gauge core/8-gauge finish. Where applicable the mesh will have a 6-gauge core/5-gauge finish.

c) Posts and Rail

- Top rails shall be installed through line post caps and spliced with 6" sleeves. Bottom rail or tension wire shall be installed uniformly 1" above finish grade.
- Posts and rail 4" and under will meet ASTM F 1043 Group 1-C
- Posts 6 5/8" and 8 5/8" O.D. will meet ASTM F 1043 Group 1-A
- Black or Green posts will have a powder-coated finish over the galvanized pipe
- Bollard posts will be 4" x 7' or 6 5/8" x 7' as specified and comply with the ASTM specifications as listed above.

d) Post Footings

Posts shall be set in concrete with fence post extending through bottom of concrete. Fences 6' and under will have:

- 36" x 10" Terminal/Gate post footings
- 24" x 8" Line post footings

e) Tension Wire

- Galvanized tension wire will have a 7-gauge finish and meet ASTM A 824 Type II and will be marcelled
- Vinyl coated tension wire will have a 6-gauge finish/9-gauge core and will be Marcelled
- Vinyl coated tension wire will meet ASTM F 1664 Class 2a
- Galvanized hog rings will be 9-gauge Class III
- Vinyl Coated hog rings will have a 9-gauge finish
- Hog rings will be spaced at a minimum of 24"

f) Fence Fittings

- Standard Fence Fittings will meet ASTM F 626 (Domestic)
- Heavy Brace and Tension Bands 1/8" x 1" are required
- Fence ties are to be 11-gauge steel with frequency outlined in ASTM standard
- Vinyl coated fence ties will have a 9-gauge finish with an 11-gauge core wire
- Black and Green Fence fittings will be powder-coated

g) Chain Link Backstops

All baseball and softball back stops shall have the bottom 10' from the ground in 6-gauge steel. All end posts for back stops shall be set to a minimum 4' depth or greater so that backstops can tolerate strong winds and weight of ice.

2. Decorative Metal Fences and Gates

If ornamental fencing is used, it shall be powder coated tubular steel. No powder coated aluminum or aluminum chain link shall be used.

**B. RETAINING WALLS**

All retaining walls shall be treated at the time of installation to waterproof and aid in graffiti cleanup. Use Degussa Protectosil or equal as stated in the Division 9: Paint and Finishes.

For top cap installation, use Super Wet Type 3 (foaming) adhesive or equal.

Retaining wall plantings may include low maintenance dwarf plants. No deciduous trees shall be used. Provide a 12" wide concrete mow strip on low side of retaining walls, and at top of walls if turf is present.

**C. SITE FURNISHINGS**

1. Bicycle Racks

Bike racks shall be freestanding, heavy gauge steel with galvanized or rust proof powder coated finish. Bike racks shall be anchored for security and stability. Specify anchor kits when used.

2. Trash and Litter Receptacles

Trash receptacles shall be provided by the District, with the exception of large site (concrete) containers. Receptacles shall not be placed in mowing or landscaped areas.

3. Seating and Tables

Picnic tables and benches shall be placed on a concrete pad and secured with a locking mechanism. Concrete pads must be flush with turf. Extend concrete pads per ADA code past the outer portion of the table or bench. The total weight of the picnic table is not to exceed 350 pounds. Distribute required Accessible seating. Tables shall be one piece design made of perforated or expanded metal, preferably with a thick plastisol coating, or equivalent, on top. Frames for picnic tables shall be heavy duty steel with a rust resistant powder coated finish.

**D. SITE SPECIALTIES**

1. Metal Bollards

Provide bollards to protect utilities. Where bollards block access by service vehicles, the center bollard shall be sleeved to allow removal.

Bollards shall be 6" diameter concrete-filled galvanized steel pipe and set to a minimum depth of 3'-0". Removable bollards are to be 4" diameter maximum. Bollards shall be powder coated safety yellow. For safety reasons, bollards shall have no protrusions or handles, unless required by Fire

**SECTION 32 31 13**  
**CHAIN LINK FENCES AND GATES****PART 1 GENERAL****1.1 SECTION INCLUDES**

- A. Fence framework, fabric, and accessories.
- B. Excavation for post bases; concrete foundation for posts.
- C. Manual gates and related hardware.

**1.2 RELATED REQUIREMENTS**

- A. Section 03 30 00 - Cast-in-Place Concrete: Concrete anchorage for posts.

**1.3 REFERENCE STANDARDS**

- A. ASTM A392 - Standard Specification for Zinc-Coated Steel Chain-Link Fence Fabric; 2011a.
- B. ASTM F567 - Standard Practice for Installation of Chain-Link Fence; 2011.
- C. ASTM F668 - Standard Specification for Polyvinyl Chloride (PVC) and Other Organic Polymer-Coated Steel Chain-Link Fence Fabric; 2011.
- D. ASTM F1083 - Standard Specification for Pipe, Steel, Hot-Dipped Zinc-Coated (Galvanized) Welded, for Fence Structures; 2013.

**1.4 SUBMITTALS**

- A. Product Data: Provide data on fabric, posts, accessories, fittings and hardware.
- B. Shop Drawings: Indicate plan layout, spacing of components, post foundation dimensions, hardware anchorage, and schedule of components.
- C. Samples: Submit two samples of fence fabric and slat infill.

**1.5 QUALITY ASSURANCE**

- A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with not less than three years of documented experience.

**PART 2 PRODUCTS****2.1 MATERIALS**

- A. General: Provide all fabric, posts, rails, rods, bars, fittings, and hardware as required to make a complete installation.
- B. Posts, Rails, and Frames: ASTM F1083 Schedule 40 hot-dipped galvanized steel pipe, welded construction, minimum yield strength of 30 ksi.
  - 1. Posts and rails 4 inches and under to meet ASTM F 1043 Group 1-C.
  - 2. Posts and rails over 4 inches to meet ASTM F 1043 Group 1-A.
- C. Wire Fabric: ASTM A 392 zinc coated class 1 steel chain link fabric manufactured by Pacific Fence and Wire Company or approved equal.
- D. Vinyl Coated Fabric: Meet ASTM F 668 Class 2B, Fused-Bonded, as manufactured by Pacific Fence & Wire Company or approved equal.
- E. Fence Fittings: Meet ASTM F 626 (Domestic).
- F. Concrete: Type specified in Section 03 30 00.

**2.2 COMPONENTS FOR FENCES 8 FEET TALL OR LESS**

- A. Line Posts:
  - 1. 6 foot fence or less: 2.38 inch outside diameter.
  - 2. 8 foot fence: 2.88 inch outside diameter.
- B. Corner and Terminal Posts for 6 foot fence and taller: 3.5 inch outside diameter.
- C. Corner and Terminal Posts for 4 foot fence and shorter: 2.88 inch outside diameter.
- D. Gate Posts for 6 foot fence and taller: 3.5 inch outside diameter.
- E. Gate Posts for 4 foot fence and shorter: 2.88 inch outside diameter.
- F. Top, Bottom, and Brace Rail: 1.66 inch outside diameter, plain end, sleeve coupled.
- G. Gate Frame: 1.66 inch diameter for welded fabrication.
- H. Fabric: 2 inch diamond mesh interwoven wire, 9 gage, 0.1144 inch thick, top selvage knuckle end closed, bottom selvage knuckle end closed.
- I. Tension Bars: 3/16 inch x 3/4 inch x fabric height less 2 inches.
- J. Heavy Brace and Tension Bands: 1/8 inch x 1 inch.
- K. Vinyl coated fence ties: 9-gauge finish with an 11-gauge core wire.
- L. Tension Wire:
  - 1. Vinyl coated tension wire to be 6-gauge finish/9-gauge core and will be Marcellled and meet ASTM F 1664 Class 2a
- M. Galvanized Hog Rings: 9-gauge Class III.
- N. Vinyl Coated Hog Rings: 9-gauge finish.
- O. Truss Rods: 5/16 inch outside diameter minimum.

**2.3 COMPONENTS FOR BACKSTOP FENCING**

- A. Refer to Structural Drawings for components and sizing.
- B. Fabric: 2 inch diamond mesh interwoven wire, 6 gage thick, top selvage knuckle end closed, bottom selvage knuckle end closed.

**2.4 COMPONENTS FOR 10 FOOT TALL TENNIS/PLAY AREA FENCING**

- A. Refer to Structural Drawings for components and sizing.
- B. Fabric: 1-3/4 inch diamond mesh interwoven wire, 6 gage, top selvage knuckle end closed, bottom selvage knuckle end closed.

**2.5 ACCESSORIES**

- A. Caps: Cast steel galvanized; sized to post diameter, set screw retainer.
- B. Fittings: Sleeves, bands, clips, rail ends, tension bars, fasteners and fittings; galvanised steel.
- C. Privacy Slats: Vinyl strips, sized to fit fabric weave. Black in color.

**2.6 GATES**

- A. Gates to comply with ASTM F 1043 Group 1-C, ASTM F 900, and have commercial grade hardware.
- B. Hardware for Single Swinging Gates: 180 degree hinges, 2 for gates up to 60 inches high, 3 for taller gates; fork latch with gravity drop and padlock hasp; keeper to hold gate in fully open position.
- C. Hardware for Double Swinging Gates: 180 degree hinges, 2 for gates up to 60 inches high, 3 for taller gates; drop bolt on inactive leaf engaging socket stop set in concrete,

active leaf latched to inactive leaf preventing raising of drop bolt, padlock hasp; keepers to hold gate in fully open position.

- D. Hardware for Rolling Gates: Cantilever style gate with fork latch and padlock hasp.

## 2.7 FINISHES FOR ALL FENCE MATERIALS

- A. Components and accessories: Powder coat all posts, rails, frames, components, and accessories.
- B. Fabric: Vinyl coated over coating of 2.0 oz/sq ft galvanizing.
- C. Color(s): Black.

## PART 3 EXECUTION

### 3.1 INSTALLATION

- A. Install framework, fabric, accessories and gates in accordance with ASTM F 567.
- B. Place fabric on outside of posts and rails, unless indicated otherwise.
- C. Set intermediate posts plumb . Slope top of concrete for water runoff.
- D. Brace each gate and corner post to adjacent line post with horizontal center brace rail and diagonal truss rods. Install brace rail one bay from end and gate posts.
- E. Provide top rail through line post tops and splice with 6 inch long rail sleeves.
- F. Install center brace rail on corner gate leaves.
- G. Fabric ends shall occur only at terminal, corner, or pull posts.
- H. Do not stretch fabric until concrete foundation has cured 28 days.
- I. Runs of fence more than 500 feet in length shall have at least one intermediate 3 inch outside diameter pull post with braces in two directions. Maximum distance between intermediate posts is 500 feet.
- J. Position bottom of fabric 1 inch above finish grade.
- K. Space hog rings at a maximum spacing of 24 inches.
- L. Install fence ties as outlined in ASTM standard.
- M. Attach fabric to end, corner, and gate posts with tension bars and tension bar clips with maximum 12 inches on center.
- N. Install gate with fabric to match fence. Install hardware.
- O. Provide concrete center drop to footing depth and drop rod retainers at center of double gate openings.
- P. Fence ties and fabric edges shall be appropriately knuckled and tied back so that there are no protruding sharp edges.

### 3.2 PRIVACY SLATS

- A. Install privacy slats at fences along the southern parking lot edge as shown on the Plans.
- B. Install slats to cover the full height and length of the fence.

### 3.3 TOLERANCES

- A. Maximum Variation From Plumb: 1/4 inch.
- B. Maximum Offset From True Position: 1 inch.

**END OF SECTION 32 31 13**

**SECTION 32 31 19**  
**DECORATIVE METAL FENCES AND GATES****PART 1 GENERAL****1.1 SECTION INCLUDES**

- A. Decorative metal fences.

**1.2 RELATED REQUIREMENTS**

- A. Section 03 33 00 - Cast-in-Place Concrete.
- B. Section 08 71 00 - Door Hardware.

**1.3 REFERENCE STANDARDS**

- A. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2013.
- B. ASTM F2408 - Ornamental Fences Employing Galvanized Steel Tubular Pickets; 2011.

**1.4 SUBMITTALS**

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. Product Data: Submit manufacturer's data sheets on each product to be used, including:
  - 1. Preparation instructions and recommendations.
  - 2. Storage and handling requirements and recommendations.
  - 3. Installation methods.
- C. Shop Drawings:
  - 1. Indicate plan layout, spacing of components, post foundation dimensions, hardware anchorage, gates, and schedule of components.
- D. Manufacturer's specifications.
- E. Installer's Qualification Statement.
- F. Manufacturer's Warranty.

**1.5 QUALITY ASSURANCE**

- A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with minimum five years documented experience.
- B. Installer Qualifications: Experienced with type of construction involved and materials and techniques specified and approved by fence manufacturer.

**1.6 DELIVERY, STORAGE AND HANDLING**

- A. Store materials in a manner to ensure proper ventilation and drainage. Protect against damage, weather, vandalism and theft.

**1.7 WARRANTY**

- A. All structural fence components (rails, pickets, and posts) shall be warranted for 20 years. Warranty shall cover any defects in material finish, including cracking, peeling, chipping, blistering, or corroding.
- B. Reimbursement for labor necessary to restore or replace components that have been found to be defective under the terms of manufacturer's warranty shall be guaranteed for five (5) years from date of original purchase.

**PART 2 PRODUCTS****2.1 DECORATIVE METAL FENCES**

- A. Fences: Complete factory-fabricated system of posts and panels, accessories, fittings, and fasteners; finished with electrodeposition coating, and having the following performance characteristics:
  - 1. Capable of resisting vertical load, horizontal load and infill performance requirements for fence categories defined in ASTM F2408.
- B. Steel: ASTM A653/A653M; tensile strength 45,000 psi, minimum.
- C. Posts: 2-1/2 inch square; 16 gauge.
- D. Gate posts: 3 inch x 12 gauge.
- E. Hinges: Heavy commercial hinge kit.
- F. Brackets: Line brackets at line posts. Universal brackets at ends.
- G. Panic Hardware: Weatherized exit bar panic hardware suitable for outdoor use. Fence manufacturer to build a metal block out/frame for the exit bar.
  - 1. Approved Manufacturer: Detex, or approved.
- H. Gate Operating Hardware: Refer to building door and hardware schedule. Gate operating hardware is intended to match the handles and locks on the exterior building doors.
- I. Color: Black.

**2.2 APPROVED PRODUCT:**

- A. Montage Plus Majestic 2 Rail by Ameristar Fence @ 1-888-333-3422.

**PART 3 EXECUTION****3.1 EXAMINATION**

- A. Do not begin installation until substrates have been properly prepared.
- B. If substrate preparation is the responsibility of another installer, notify Owner's Representative of unsatisfactory preparation before proceeding.

**3.2 PREPARATION**

- A. Clean surfaces thoroughly prior to installation.

**3.3 INSTALLATION**

- A. Install in accordance with manufacturer's instructions.
- B. Set fence posts as shown on the drawings. Generally fence posts should be equally spaced between end or gate posts as shown on drawings. Cut fence following manufacturer's instructions. Do not exceed the manufacturer's recommended spacing.
- C. When cutting rails immediately seal the exposed surfaces by:
  - 1. Removing all metal shavings from cut area.
  - 2. Apply zinc-rich primer to thoroughly cover cut edge and drilled hole; allow to dry.
  - 3. Apply 2 coats of custom finish spray paint matching fence color.
- D. Space gate posts according to the manufacturers' drawings, dependent on standard out-to-out gate leaf dimensions and gate hardware selected.
  - 1. Base type and quantity of gate hinges of the application; weight, height, and number of gate cycles.