

DIVISION 2 - SITE WORK

I. GENERAL

A. This division contains the following elements:

1. Civil.

- a. Site Access.
- b. Flood Criteria.
- c. Safety.
- d. Earthwork.
- e. Pavement Area and Road Improvements.
- f. Concrete Sidewalks, Curbs, Gutters, and Wheel Stops.
- g. WASD Procedures.
- h. Water Distribution System.
- i. Hydrants and Siamese Connections.
- j. Storm Drainage.
- k. Sanitary Sewer System.
- l. Waste Disposal System.
- m. Dumpster Pads.

2. Physical Education Playfields, Hardcourts, and Playground Equipment.

- a. General Requirements.
- b. Playground Equipment Area and Primary Play Area.
- c. Sports and Play Components.

3. Landscape.

- a. General Requirements.
- b. Protection and Transplantation of Existing Trees.
- c. Earthwork for Landscape Areas.
- d. Irrigation.
- e. Planting and Related Work.
- f. Signage.
- g. Site Furnishings.
- h. Fences and Gates.

B. New facilities or additions to an existing facility require a comprehensive site analysis of the proposed project to identify opportunities, constraints, and any other design issues requiring resolution.

C. Site analysis shall address:

1. Existing topography, soil conditions, and drainage.
2. Sun exposure of proposed facility and spaces.
3. Natural areas and existing landscaping within the site to be preserved.
4. Prevailing breezes.
5. Passive solar energy considerations.
6. Existing and proposed accesses to site.
7. Noise control to and from site.
8. Views to and from site.
9. Compatibility to adjacent and proposed land uses and buildings.
10. Pedestrian and vehicular on-site circulation.
11. Site features of historical or sociological significance.
12. Existing roads and utilities.
13. Provisions for relocatable buildings and future expansion, when program required.

D. The following energy conservation and environmental concerns shall be addressed:

1. Use of xeriscaping.
2. Water efficient irrigation systems.
3. Limited use of hard surface areas.
4. Use of landscaping for shading facility. Do not provide access to roofed areas and compromise building security.
5. Additional suggestions to help M-DCPS continue to be a leader in energy conservation and environmental concerns.

E. Site design shall incorporate the latest design requirements of:

1. Florida Department of Education, Office of Educational Facilities - State Requirements for Educational Facilities - 1999 (SREF).
2. Florida Building Code (FBC).
3. Americans with Disabilities Act and Accessibility Guidelines (ADA).
4. American Association of State Highway Transportation Officials (AASHTO).
5. American National Standards Institute (ANSI).
6. American Society for Testing and Materials (ASTM).
7. American Water Works Association (AWWA).
8. Board of Fire Underwriters (BFU).
9. Miami-Dade County Public Works Department (M-DCPW).
10. Florida Department of Transportation (DOT).
11. Florida Department of Education (DOE).
12. Florida Department of Health (DOH).
13. Florida Department of Agriculture and Consumer Services (DOA).
14. Florida Department of Environmental Resources (DER).
15. Florida Department of Environmental Resources Management (DERM).
16. National Arborist Association (NAA).
17. U.S. Consumer Products Safety Commission (CPSC).

- F. Comply with applicable federal, state, and local codes.
- G. Termiticide soil treatment is required for slabs under enclosed spaces and shall not be detrimental to the water supply. Verify additional requirements with the appropriate regulatory agencies and M-DCPS Safety, Environment, and Hazards Management.

II. CIVIL

A. Site Access.

- 1. Provide safe access by pedestrian and vehicular traffic.
- 2. Site design shall minimize traffic impact upon the surrounding community by proper coordination with existing off-site traffic systems.
- 3. Site access design and improvements shall comply with the requirements of:
 - a. Accessibility codes.
 - b. SREF.
 - c. Applicable Miami-Dade County agencies.
 - d. M-DCPS Safety, Environment, and Hazards Management.
 - e. M-DCPS Transportation.

B. Flood Criteria.

- 1. Minimum elevations of finish on-site grading and building lowest finish floor elevations shall comply with the highest elevation requirements of:
 - a. Federal Emergency Management Agency (FEMA).
 - b. Federal Standard 44 CFR (National Flood Insurance Program).
 - c. DERM Water Control Division.
- 2. Variance from flood plain management criteria is not allowed.

C. Stormwater Management.

- 1. Water management shall follow the requirements of the Department of Transportation (DOT) Drainage Manual, Volume 2A, and the requirements of the local comprehensive plan.
- 2. Permits for stormwater management plans will be issued, and plans shall be reviewed, by the appropriate Florida Water Management District, or Florida DEP, as required for the particular location.
- 3. Design for site drainage as follows:
 - a. Pipe capacity = Manning Formula.
 - b. Pipes flowing partially full = Minimum flow velocity shall not be less than 2 feet

per second.

4. Design for parking lot drainage as follows:

- a. Storm recurrence frequency = 5 years.
- b. Paving shall have positive drainage.
- c. Storm drainage system water level shall not exceed the elevation of the pavement surface.

D. Safety.

1. A/E design shall provide for public safety, the safety of adjacent structures, and protection of existing conditions to remain during construction.

E. Earthwork.

1. Comply with the requirements of the Trench Safety Act, sections 553.60 through 553.64 Florida Statutes.
2. Construction documents shall note "TRENCH WORK SHALL COMPLY WITH THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION EXCAVATION SAFETY STANDARDS, 29 C.F.R.S. 1926.650 SUBPART P".
3. Construction documents shall identify and locate play fields and landscape areas with earthwork requirements different from building, paved areas, and utility earthwork requirements.
4. Proposed paving and grading contours and tie back to existing grades at the perimeter of the project shall be shown on construction drawings.
5. See Landscape in this division for tree protection.
6. Coordinate on-site and off-site earthwork next to school perimeter. Provide plans, sections, and details required for a timely completion.
7. Prevent impermeable zones from forming between dissimilar layers of fill and topsoil by properly incorporating into one another.

F. Pavement Area and Road Improvements.

1. Life cycle cost analysis shall determine use of:
 - a. Asphalt concrete paving.
 - b. Portland cement concrete paving.
2. Locate utility poles and signage clear of traffic lanes.
3. Required public right-of-way improvements shall comply with M-DCPW and DOT where applicable for permits, approvals, and reviews.
4. Milling:

- a. Milling shall be according to Florida Department of Transportation Standard Specification for Road and Bridge Construction-1991, Section 327 and supplements.
- b. Only lanes affected by actual construction or damaged by construction equipment shall be milled and resurfaced. Milling shall be of sufficient depth for the entire lane width to accept required surface or friction courses.
- c. Milling may occur at the following locations:
 - 1) At signalized intersections.
 - 2) At areas with existing curbs and gutters, valley gutters, median curbs, traffic separators, etc.
 - 3) At lanes to achieve required cross slope.
 - 4) According to M-DCPW due to existing or unforeseen conditions.
- d. Milled areas deeper than 1 inch shall have an asphalt wedge where the milled surface meets the existing asphalt grade to minimize vehicular impact.
- e. Resurfacing of milled areas shall be completed within 3 calendar days of the milling operation to minimize pothole development and inconveniences to the motoring public.

G. Sidewalks, Curbs and Gutters, and Wheelstops.

- 1. Sidewalks, slopes, and curb cuts shall comply with M-DCPW.
- 2. Provide sidewalks subject to maintenance trucks and other vehicular traffic with a 6 inch minimum thickness, welded wire fabric, and reinforced edges.
- 3. Provide expansion and control joints as needed to prevent and control cracking.
- 4. Expansion joints shall not exceed intervals of 20 feet and be at changes of direction.
- 5. Slope paved areas as needed to provide positive drainage, but not exceeding a cross slope of 1:50 at accessible routes for the disabled.
- 6. Parking areas shall be fully curbed, except behind wheel stops. Use poured-in-place concrete or reinforced extruded curbing.
- 7. Provide precast wheelstops to comply with applicable Miami-Dade County requirements.

H. WASD Procedures.

- 1. A/E Coordination with Miami-Dade Water and Sewer Department (WASD):
 - a. Consult with WASD to decide if renovation, addition, or new construction project complies with Miami-Dade County codes and if improvements are required for service or fire flows.
 - b. If main extension improvements are required, M-DCPS will request an agreement outlining service requirements from WASD Utilities Development New Business Section.

- c. Submit required engineering documents for "Dry Run" comments to WASD Plans Review Section, before M-DCPS agreement signing.
 - d. Submit final plans and applications to WASD after M-DCPS agreement signing.
 - e. WASD approved final submitted plans require additional approvals from DERM, DOH, and other applicable agencies, before obtaining permit from M-DCPW, DOT, or other municipality having jurisdiction.
2. Contractor shall request preconstruction meeting with WASD Utilities Development Inspection Section to review procedures before issuance of notice to proceed.
 3. After completion, testing, and approvals by applicable agencies, WASD will prepare a "Bill of Sale" for M-DCPS signing providing WASD ownership of the improvements for maintenance and operation. Meters will then be set and service rendered.

I. Water Distribution System.

1. Public right-of-way improvements shall comply with DOH, WASD, and other utilities with site jurisdiction, for approvals, permits, and other specific requirements:
2. On-site Improvements:
 - a. Extend water lines on site to provide domestic water, emergency water, and fire service complying with DOH and fire department requirements.
 - b. Design connections to existing lines and provide locations for required meters according to governing agency or utility requirements.
 - c. Provide supply line with reduced pressure backflow preventor and separate water meter for irrigation tie-in to the domestic water supply.
 - d. On-site water lines to be dedicated to the county shall comply with WASD requirements.
3. Provide alternate or temporary water and sewer lines as required to existing facilities to avoid service interruption.
4. Underground exterior domestic water lines shall be:
 - a. PVC with push-on joints for 3 inch diameter lines and larger.
 - b. PVC with socket welded joints for 2-1/2" diameter lines or less.
 - c. Determine proper PVC type for intended use from Florida Building Code - Plumbing, Chapter 6 with their respective governing ASTM or other standards.
 - d. Plumbing lines shall be buried a minimum of 24 inches for lines 2-1/2" or less and a minimum of 36" for lines 3 inches and larger.
 - e. Install lines with 6 inches of clean sand below and at sides of pipe and with a minimum of 12 inches of clean sand backfill over pipe.
 - f. PVC supply line velocities shall not exceed 5 fps.
 - g. PVC lines shall have 2 inch wide metallic detection tape buried between 4" - 6" below finish grade.

5. Post indicator valves shall be required at emergency lines, including building fire lines. Locate valves near property lines. Additional valving shall not be provided except as allowed by NFPA 13,14, 24 and 26.

J. Hydrants and Siamese Connections.

1. Locate a drafting hydrant or fire hydrant within 8 feet of a fire lane and next to the main entrance of the school.
2. A siamese connection shall be within 50 feet of a hydrant, either mounted on a wall without adjacent window exposure or freestanding on a concrete pad or slab.
3. A siamese connection shall be visible from fire lanes and readily accessible to fire fighting crews by being clear of obstructions or landscaping.
4. If siamese connections are within fenced areas, provide lockable access gates.
5. Concrete filled 3 foot high bollards, if required, shall be 4 feet clear of hydrants or siamese connections.

K. Storm Drainage.

1. Public right-of-way improvements shall comply with M-DCPW for approvals, permits, and other specific requirements.
2. On-site improvements shall comply with:
 - a. DERM.
 - b. South Florida Water Management District.
 - c. M-DCPW.
3. Comply with DOT Drainage Manual, Volume 2A, and the requirements of the applicable comprehensive plan for site drainage.
 - a. Pipe capacity shall be determined by the Manning Formula and partially full flowing pipes shall have a flow velocity of at least 2 feet per second.
 - b. Parking lot drainage shall have a storm recurrence frequency of 5 years, with positive drainage at paving, and with the storm drainage system water level not exceeding the pavement surface elevation.
4. Decide location and number of percolation tests to be performed after stabilization, by a geotechnical engineer contracted by M-DCPS or design builder. Site drainage design shall be based on test results combined with finish grades, paved areas, and building footprints.
5. Request criteria regarding soil corrosion effects from geotechnical engineer to decide piping life cycle cost analysis.
6. Landscaped areas not directly drained by a system of pipes, trenches, or catch basins shall be sloped to a properly drained area to prevent ponding water.
7. Coordinate runoff from parking lots and other paved areas to adjacent site drainage

- provisions or provide for self-contained drainage.
8. Courtyards, partially or completely surrounded by construction, shall have drainage provisions.
 9. Centerline of exfiltration trenches shall be at least 15 feet from building foundations.
 10. Storm drainage runoff shall be directed away from buildings and not cross sidewalks or covered walkways.
 11. Catch basins shall not be located within 10 feet of or within designated single or multi-use field play areas.
 12. Provide hinged catch basin covers and grates.

L. Sanitary Sewer System.

1. Public right-of-way and on-site improvements require WASD and DERM approval before M-DCPS acceptance.
2. Continue building sewer system to a public sanitary sewer system or a DERM approved disposal system.
3. Underground exterior sanitary lines shall be as follows:
 - a. PVC with push-on joints for 3 inch diameter lines and larger.
 - b. PVC with socket welded joints for 2-1/2" diameter lines or less.
 - c. Determine proper PVC type for intended use from Florida Building Code - Plumbing, Chapter 7 with their respective governing ASTM or other standards.
 - d. Plumbing lines shall be buried a minimum of 24 inches for lines 2-1/2" or less and a minimum of 36 inches for lines 3 inches and larger.
 - e. Install lines with 6 inches of clean sand below and at sides of pipe and with a minimum of 12 inches of clean sand backfill over pipe.
 - f. PVC lines shall have 2 inch wide metallic detection tape buried between 4" - 6" below finish grade.
4. Provide exterior sanitary sewer lines with manholes at every change of line or grade and at intervals not exceeding 300 feet.
 - a. Piping connecting manholes shall be 8 inch diameter or greater, have at least a 0.4 percent slope, and a sewage velocity of at least 2 feet per second.
 - b. Provide traffic type cast iron rings and hinged covers at manholes.
 - c. Manholes shall be according to M-DCPW.
 - d. Manholes shall have inlet and outlet inverts noted and with a 0.1" change of elevation.
5. Calculations and design of lift stations require M-DCPS acceptance.
6. See Division 15, for acid resistant piping requirements.

M. Waste Disposal System.

1. See Division 15 - Kitchens for grease interceptor locations, sizes, and other requirements.
2. Comply with and size grease interceptors according to DOH requirements.

N. Dumpster Pads.

1. See General Considerations and Division 15 for dumpster pads and related requirements.
2. French drains or collection tanks shall not be used for dumpster pad drainage.

III. PHYSICAL EDUCATION PLAYFIELDS, HARDCOURTS, AND PLAYGROUND EQUIPMENT

A. General Requirements.

1. Separate high noise generating exterior activity areas from administration, teacher lounges, music, and other educational program areas requiring normal or specialized sound control.
2. Maximize visual control by each individual instructor involved and maintain strict separation of age groups according to program requirements.
3. Design playfield areas to provide multiple uses. Locate for easy access from outdoor and indoor physical education areas, covered playgrounds (P.E. shelter), and the cafeteria.
4. A 10 foot separation, with no drainage structures, vertical obstructions, or changes of finish grade elevations, is required from designated play fields or components.
5. P.E. Shelters:
 - a. Locate next to the physical education area and close to the hardcourts and playground equipment areas.
 - b. Connect shelter with paved walking surfaces to adjacent paved areas and walkways. Walking surfaces shall not exceed a slope of 1:20 or cross slopes of 1:50.
 - c. Finish floor elevation shall not exceed 6 inches above finish grade. From shelter perimeter, slope of finish grade shall not exceed 1:50.
 - d. Shelter shall have steel columns, glu-lam beams, an exposed wood deck, and accepted roofing.
 - e. Eliminate ledges and any other potential bird roosting areas under the roof.
 - f. Minimum clear height at shelter, except for perimeter beams, shall be 10 feet above finish floor. Perimeter beams shall be at least 8 feet above finish floor.
 - g. When located next to other buildings, connect to the storm drainage system. If remote from other buildings and not connected to a storm drainage system, include provisions to prevent soil erosion and direct water away from foundations and towards existing drainage structures.

6. Hardcourts and Tracks (02545)

- a. Equipment areas and hardcourts for tennis and basketball/volleyball shall be asphalt.
- b. Track, runways, and high jump area shall be a granular rubber surface, with colored UV protection, over asphalt. Provide a light brushed concrete surface at throwing event areas.
- c. A solid concrete curb, 6 inches wide x 12 inches deep, shall mark the edges of the track.
 - 1) The top of the curb at the inner edge shall equal the top of the asphalt.
 - 2) The top of the curb at the outer edge shall equal the top of safety surface.
 - 3) Provide drainage from asphalt surfaces.
- d. Provide asphalt walkways from appropriate building exits and PE storage rooms to the hardcourts, the track, and between hardcourts.
- e. Hardcourts shall receive M-DCPS accepted precast concrete basketball standards.
- f. Hardcourts shall be marked for basketball and volleyball. See Appendix for Hardcourts.
 - 1) Provide court sleeves and posts with an exposed height of 9 feet, with eyehooks at 8'6" above the court surface for net games.
 - 2) Provide a mandatory north-south court orientation and a slope of 1 inch in 10 feet in one plane from side to side, end to end, or corner to corner.
 - 3) Yellow basketball markings shall be applied over white volleyball markings.
- g. Provide leveling coatings at hardcourts and tracks.
- h. Track provisions shall be according to program requirements, the National Federation of State High School Associations (NFSHSA), and the following:
 - 1) Tracks shall have a mandatory north-south orientation.
 - 2) Outside of the track:
 - a) Provide 2 runways between 2 long jump pits parallel to one of the track straight-aways. Pits shall have a 2 foot depth of designated play sand.
 - b) At the other track straight-away, between 2 runways, locate an area for a not-in-contract portable pole vault landing pad and provide 2 embedded pole pits.
 - 3) Clear length of runways shall be according to NFSHSA.
- i. Apply color coatings according to program requirements.

B. Playground Equipment Area and Primary Play Area.

1. Provide a playground equipment area and a fenced primary play area with equipment.
2. See Appendix for M-DCPS Guidelines for Playground Selection and Installation, program requirements, and this division.
3. Wood or aluminum components are not allowed.
4. Provide program required components, configuration plan, elevations, and inventory parts list for school operation records.
5. Provide white designated "play sand", at least 12 inches deep, for safe use fall zones at playground equipment and primary play areas, except the triple balance beam where sod is acceptable. Perimeter concrete curbing flush to existing finish grade is required. Accessible concrete sidewalks shall be outside of safe fall zones.
6. Fall Zones:
 - a. The fall zones for equipment approved for installation shall extend 6 feet in all directions from the perimeter of the equipment, except for the triple balance beam.
 - b. Equipment may be installed in various configurations best suited to the available space, however the fall zones of adjacent pieces of equipment shall not overlap. This requires a minimum distance of 12 feet between pieces of equipment.
 - c. A 10 foot separation, with no change of finish grade or sand elevation is required between equipment and adjacent building walls or fences. Walls or fences shall have smooth non-abrasive finishes.
 - d. Arrange equipment to have a single compact footprint of sand.
7. Playground Equipment Area Equipment:
 - a. Horizontal ladder.
 - b. Pull-up bars.
 - c. Parallel bars.
 - d. Triple balance beam.
8. Primary Play Area Equipment.
 - a. Equipment shall comply with:
 - 1) CPSC guidelines, "A Handbook For Public Playground Safety".
 - 2) M-DCPS Guidelines for Playground Selection and Installation. See Appendix.
 - 3) Program requirements.
 - 4) ADA Accessibility Guidelines for Play Areas (ADAAG), Section 15.6.
 - 5) ASTM F1487-98 Standard Consumer Safety Performance Specification for Playground Equipment for Public Use.
 - a) Heights of horizontal ladders, chinning bars, and other upper body equipment shall be according to ASTM F1487 equipment requirements

and be not more than 60 inches above safety surface to the center of the grasping device.

- b. Vertical Drops.
 - 1) Any vertical drop, not on circulation paths, between joining or abutting surfaces of more than 6 inches but less than 18 inches in height shall be protected by railings or other physical barriers least 12 inches in height.
 - 2) Any vertical drop of 18 inches or more shall be protected by railings or other physical barriers at least 42 inches high with pickets able to reject a 4-inch diameter sphere.
 - 3) Physical barriers are not required at entrance and exit openings necessary for each event.

- c. Layout and construction of equipment shall provide for programmed required components and flexibility for future interchangeability, addition, or subtraction of components, and possible relocation of entire installation.
 - 1) Arrange components in a practical and compact footprint.
 - 2) Ramp slopes shall not exceed 1:12.

- d. Site selection and equipment will be reviewed by M-DCPS Safety, Environment, and Hazards Management and will address travel distance from instructional spaces to primary play area, available shade, separation of play areas by age and activity, supervision, drainage, and safe use fall zones.
 - 1) Provide handicapped access to equipment with a concrete walk and a ramp not longer than 12 feet, with handrails, complying with accessibility codes. Configure components to have walks out of safe use fall zones. Guardrails and handrails shall comply with FBC and ASTM F1487.
 - 2) Safe use fall zones shall extend 6 feet beyond equipment perimeter and not overlap other safe use fall zones of equipment higher than 2 feet above finish grade.
 - 3) Provide white designated "play sand", at least 12 inches deep, for safe use fall zones at primary play area playground equipment areas. Provide perimeter concrete curbs flush to finish grade.
 - 4) Slides require a 6 foot surrounding fall zone. Slide exit requires a fall zone equal to 4 feet plus slide height if the total is greater than 6 feet.
 - 5) Landscaped shaded areas shall not encourage access to tree limbs from equipment and not impede supervision.

- e. Restricted Equipment:
 - 1) Seesaws, merry-go-rounds, carousels, spring action riding equipment,

geodesic climbers, single width open slides, clatter bridges, and metal slides are not accepted for use by M-DCPS.

- 2) Swings, for use by only exceptional students, shall be away from other equipment or activities and may be accepted by M-DCPS on a per condition basis. Swing structures shall not exceed 8'0" high and shall require front and rear safe use fall zones of 14'0" each.

f. Lead-based paints or primers are not allowed.

C. Sports and Play Components.

1. Design of the following fields and courts for physical education and recreation shall comply with the National Federation of State High School Associations at 11724 Plaza Circle, Kansas City, Missouri 64195 and to modifications accepted by M-DCPS Athletics and Activities, project athletic department representative.

a. Baseball, Softball, Football, and Soccer Fields:

- 1) Baseball fields shall have foul lines of at least 300 feet and have at least 350 feet of clear field from home plate to center field. Bases shall be 90 feet apart. Between the foul lines, the clay infield shall extend 95 feet from the center of the pitcher's mound.
- 2) Softball fields shall have at least 275 feet of clear field from home plate. Bases shall be 60 feet apart. Between the foul lines, the clay infield shall extend 60 feet from the center of the pitcher's mound.
- 3) Locate top of football goal crossbar at 10 feet above finish grade (AFG). Provide single goal post design with safety padding up to at least 6 feet AFG. Locate top of uprights at least 20 feet AFG and 23'4" apart.
- 4) Locate bottom of soccer goal crossbar at 8 feet AFG between verticals 24 feet apart and with a depth of 24 inches.
- 5) Movable soccer goals shall have stake or auger anchor provisions to prevent tip-overs.

b. Basketball and other court activities.

c. Track design.

2. At elementary schools, provide an open area with an unobstructed view of an informal running path of at least 1/4 mile long.
3. Program required lighting poles shall be at least 10 feet from basketball painted end lines and 6 feet from basketball painted sidelines. No other vertical obstructions or changes in elevation are allowed within 10 feet of the painted basketball court perimeter. Lighting poles, between 3 to 6 feet of the basketball painted sidelines and with sports safety padding to at least 6'8" high may be accepted by M-DCPS on a per condition basis.

4. Provide a 15 foot wide clay warning track at outfield fencing.
5. Walls of handball/racquetball courts shall be poured concrete construction.
6. Sports and play components for the appropriate school type shall be as follows:

<u>COMPONENTS</u>	<u>ELEMENTARY</u>	<u>MIDDLE</u>	<u>HIGH</u>
a. Primary play area with perimeter fence.	1	0	0
b. P.E. shelter.	1	1	0
c. Playground equipment area.	1	1	1
(1) Parallel bar.	1	1	1
(2) Horizontal ladder.	1	1	1
(3) Balance beam.	1	0	0
(4) Pull-up bars.	1	1	1
d. Hardcourts.			
(1) Number of basketball courts.	3	4	4
(2) Size of basketball courts.	74'x42'	84'x46'	84'x46'
(3) Height of basketball rims.	9'0"	10'0"	10'0"
e. Multi-use open fields.			
(1) Number of portable baseball backstops.	2	4	2
(2) Minimum field size.	150'x300'	-	-
f. Number of 3 wall handball/racquetball	0	4	4

courts.

g.	Number of fenced tennis courts each with N/S orientation.	0	4	6
h.	Football field with 2 goal posts and 2 player benches.	0	0	1
I.	Track surrounding football field and field events.	0	0	1
j.	Soccer area with 2 goals.	0	1	1
k.	Baseball field with fixed backstop, fencing, dugouts, benches, and clay infield.	0	0	1
l.	Softball field with fixed backstop, fencing, covered dugouts, benches, and clay infield.	0	0	1
m.	Electric water coolers	1	2	2

IV. LANDSCAPE

A. General Requirements.

1. An A/E team for new schools or other projects with large or specialized site components shall include a Florida registered landscape architect secured for full services through construction administration and completion of project.
2. Develop a comprehensive landscape design providing students protection from the sun and promoting energy conservation. Emphasize the main administration entrance and front facades and coordinate with architectural, civil, mechanical, and electrical work, and the construction process.
3. The landscape design shall provide design grades, coordinated lighting layouts, plazas, walks, drives, service areas, fencing, playfields, site furnishings, planting plans, irrigation plans, relocatable classrooms, and expansion provisions.
4. Landscaping shall not impede means of egress at egress windows and other paths of egress.
5. Site design shall comply with SREF, applicable agencies and ordinances, M-DCPS

Design Standards, and program requirements.

B. Protection and Transplantation of Existing Trees.

1. Preserve, if feasible, existing trees on acquired sites or sites considered for purchase.
 - a. The intent of this policy shall be followed from preliminary design through construction administration.
 - b. See Appendix for Tree Canopy Replacement.
 - c. Existing trees shall be evaluated to decide feasibility and desirability of retainage or relocation during Phase 1.
 - 1) Before completing construction documents, participate in a preliminary walk-through for tree relocations and removals to comply with the appropriate agencies.
2. Provide appropriate plans and specifications for tree protection or transplantation.
3. Provide tree surveys to include:
 - a. Scientific and common tree names.
 - b. Tree height.
 - c. Canopy spread.
 - d. Grade elevation at base.
 - e. Trunk diameter at diameter breast height (DBH) or 4'6" above existing grade.
 - f. Condition of tree.
 - g. Recommendation for retainage, relocation, or removals.
4. Tree Protection.
 - a. In construction documents, provide methods and scheduling for effective tree and plant protection during construction.
 - b. Provide appropriate protective fencing, boxing, root pruning, construction pruning, mulching, irrigation, fertilization, and aeration to comply with:
 - 1) ANSI Z133.1 "Safety Requirements for Pruning, Trimming, Repairing, Maintaining and Removing Trees and for Cutting Brush".
 - 2) NAA - REF.1 "Pruning Standards for Shade Trees".
 - 3) NAA - REF.2 "Standard for Fertilizing Shade and Ornamental Trees".
 - c. Provide 6 inch mulch layer over root zones of existing trees to remain during construction. Remove after construction activities are completed and before cleanup.
 - d. Thoroughly aerate the soil, according to accepted horticultural practice, around the base and within the dripline of protected trees before cleanup at project

completion.

- e. Construction debris shall not be buried or left on site during or after construction to affect soil conditions next to proposed construction, or new or preserved plantings.
- f. Existing oaks or pines shall not have adjacent cuts or fill greater than 6 inches without special accepted, artificial drainage structures to provide oxygen exchange for root systems.
- g. Provide tree protection during construction through substantial completion.
- h. Necessary corrective or aesthetic pruning shall be included in scope of work and directed by the landscape architect.

5. Tree Transplantation.

- a. Include tree relocation instructions on plans and in specifications. Hand digging, tree spade, boxing, or other relocation methods shall comply with:
 - 1) ANSI Z60.1 "American Standards for Nursery Stock".
 - 2) NAA REF.1. "Transplanting of Trees and Shrubs in the Southeastern U.S."
 - 3) DOA "Codes and Standards for Nursery Plants Parts I & II."
- b. Specify the contractor to provide maintenance of transplanted materials until final completion.

C. Earthwork for Landscape Areas.

- 1. The A/E shall decide the number and locations of percolation and soil tests performed by a M-DCPS contracted geotechnical engineer. Site design shall be based on available test results.
- 2. Monitor surface and subsurface soils before and after fill operations to confirm percolation and compaction levels satisfy playfield and proposed planting requirements.
- 3. Slopes:
 - a. At sites with extensive fill, establish finish grade at building perimeter 6 inches below the adjacent lowest interior finish floor. From the building perimeter, slope down 1:50 for a minimum of 12 feet and then if needed, not more than 1:12 down to the remaining finish grade of the site unless otherwise directed by M-DCPS.
 - b. Sidewalks shall not exceed a slope of 1:20 or cross slopes of 1:50, according to ADA.
 - 1) From sidewalk edges, maintain a 1:50 slope for at least 5 feet and then a slope not to exceed 1:12 to finish grade unless otherwise directed by M-DCPS.
 - 2) Adjacent grade to receive sod, shall be 2 inches below finish elevation of

sidewalk surface.

- c. Finish grade slopes at berms shall not exceed 1:3 (1 foot rise to 3 foot run).

4. Materials:

- a. Baseball and softball field skinned areas shall receive a 2-inch base of fine satisfactory fill material with rocks not larger than 1 inch. Topping shall be a 4-inch minimum topping of 4 parts rock free Florida red clay, or accepted equivalent, thoroughly mixed with 1 part of colloidal phosphate.
- b. Baseball and softball turf areas shall receive a 4-inch base of fine compacted satisfactory fill material with rocks not larger than 2 inches and a 4-inch minimum topping of 80/20 topsoil mix.
 - 1) Infield gradient: 1 to 1.25 percent.
 - 2) Baseball outfield gradient: 1.25 to 1.5 percent.
 - 3) Softball outfield gradient: 1.5 percent.
 - 4) Compaction: 85 percent \pm 2 percent.
- c. Football and playing field turf areas shall receive a 4-inch base of fine compacted satisfactory fill material with rocks not larger than 2 inches and a 4-inch minimum topping of 80/20 top soil mix.
 - 1) Provide 85 percent compaction \pm 2 percent.
 - 2) At football fields, provide a 1.25 percent gradient to sidelines from a longitudinal and level 12 inch center crown between and including the end zones.
- d. Other landscaped areas in turf shall receive a 6-inch minimum topping of an 80/20 top soil mix according to grading plan and compaction of 85 percent.

D. Irrigation Systems (02810).

- 1. Provide an electric automatically controlled irrigation system for head to head coverage of planted areas to comply with the best engineering and landscaping practices and equipment manufacturers' recommendations.
- 2. Size the pump for the number of circuits/zones to achieve proper irrigation during a maximum 5 hour per day irrigation cycle to achieve 1.5 inches per week.
- 3. Irrigation water sources shall be:
 - a. Domestic water for locations next to walls, plazas, walkways, and other building construction to prevent normal and windblown spray stains. Provide supply line with reduced pressure backflow preventor and separate water meter from other facility domestic water lines.

- b. A well system for all other areas consisting of either a turbine pump or centrifugal split case pump with a 60-gallon minimum pressure tank, depending on the type of area being irrigated.
 - 1) System design shall include a pressure switch interlocked with the controller and pump starter.
 - 2) Pressure switch shall have high and low settings for emergency shut down.
4. The irrigation system shall include, but not limited to:
- a. A one year warranty for the entire system.
 - b. Pop-up spray, pop-up bubbler, or pop-up gear driven rotary spray.
 - c. Pre-cast polymer concrete valve box, with green locking top and "IRRIGATION VALVE" marked on the top.
 - d. 14 day electromechanical clock timing device, with primary and valve output surge protection.
 - e. Controller with automatic timer and zone expansion capability.
 - f. Zone valves.
 - g. Bronze fitted pump with air and heat release valves.
 - h. Head to head coverage.
 - i. Watertight electrical connections.
 - j. PVC Schedule 40 risers and mains with minimum Schedule 40 galvanized sleeves under pavement, walks, and walls. Main lines at least 18 inches below finish grade.
 - k. PVC Class 160 lateral irrigation lines with Schedule 40 galvanized sleeves under pavement, walks, and walls. Lateral lines at least 12 inches below finish grade.
 - l. PVC Schedule 80 double swing joints and threaded fittings. Poly-pipe swing joints are not allowed.
 - m. Reduced pressure back flow preventors for lines connected to the domestic water supply, with fencing as specified in this division.
 - n. Heads flush or within 1/2" below finish grade or per manufacturer's recommendation.
 - o. Riser heights appropriate with surrounding plantings.
 - p. Wells, if allowed, shall comply with South Florida water management guidelines.
 - 1) Suction pipe shall consist of a Schedule 40 PVC drop pipe inside a steel drive pipe casing.
 - 2) Minimum depth of well shall be 50 feet.
 - 3) Well check valve shall be spring-loaded type and located in a concrete enclosure with locking aluminum top, flush with finish grade.
 - q. Domestic water hose bibb in pump room.
 - r. Hose bibb connection at pump piping suitable for priming connection.
 - s. UV resistant PVC risers painted black.

- t. 2 inch wide metallic detection tape buried between 4 to 6 inches below finish grade at PVC main and lateral lines.
 - u. Well system suction line from well to pump and discharge pipe from pump to 10 feet outside building wall shall be schedule 40 galvanized.
5. Provide a fully automatic electromechanical electric timer system for station control.
 6. Irrigation system for grassed areas shall be operational, inspected, and accepted by M-DCPS before planting of grass in any form.
 7. Specify the contractor to maintain and operate the system until final completion, to assure proper operation and irrigation of grass.
 8. Provide quick couplers or manually controlled zones of pop-up head valves at clay areas of baseball and softball infields.
 9. Provide necessary irrigation system, design data, and calculations regarding volumes and pressures to deliver 100 percent head-to-head coverage of landscaped areas.
 10. Provide quick couplers from pumps and wells along main and feeder mains at intervals not to exceed 200 feet. Provide a loop main system where possible.
 11. Provide quick coupler keys with swivel hose els to allow hand watering of adjacent plants during establishment period.
 12. Provide moisture-sensing equipment to automatic system to ensure on-site water conservation.
 13. Provide separate zones and applicable heads to correspond to irrigation requirements of various landscape areas.
 14. Zone xeriscape areas independently from other areas.
 15. Irrigation design shall include provisions for relocatable buildings (portables classrooms).
 16. Locate pumps and controllers in a pump room, mechanical room, or other custodial controlled space within the facility for security.
 17. Provide an electrical riser diagram showing the electrical components, interlock, etc., for well systems.
 18. Provide a riser diagram showing pump, pressure tank, and piping arrangement of the well pumping system.
 19. Provide an 8" x 10" clear laminated photocopy, inside controller box door, of the irrigation plan with color coded circuits noted in sequence equal to automatic operation.
 20. Pump irrigation well after drilling for 4 hours in the presence of the Board=s building code inspector (BCI).
 - a. Pumping capacity shall be twice the discharge of the largest zone, but never less than 300 gpm.
 - b. Well draw down during pumping shall not exceed 3 feet.
 21. All portions of the underground irrigation piping system shall be pressure tested at 100 psi for 1 hour.

E. Planting & Related Work.

1. Xeriscaping is highly encouraged for water conservation when landscaping new and existing sites and as defined as a landscaping method that maximizes the conservation of water by the use of site-appropriate plants and an efficient watering system and includes planning and design, appropriate choice of plants, soil analysis which may include the use of solid waste compost, efficient irrigation, practical use of turf, appropriate use of mulches, and proper maintenance.
2. Retain existing trees whenever possible.
3. Landscape areas with trees, shrubs, grass, ground cover, and hedges. Sand, gravel, wood chips, cypress mulch, or pavement shall not be used as landscape materials.
4. Include low maintenance and water-conserving native Florida trees and shrubs in new plantings.
5. Provide planted buffers and screening such as hedges, fences, walls, earth berms, or other landscaping between board-owned sites and incompatible adjacent land uses, such as a factory.
6. A minimum of 4 mature existing or new trees per acre shall be provided. Trees may be grouped and need not be located within each acre.
 - a. Mature existing trees are defined as having an approximate trunk diameter of 6 inches, measured 4'6" from the ground, and a minimum drip-line diameter of 15 feet.
 - b. New trees are defined as having an approximate trunk diameter of 1-1/2" to 2", measured at 4'6" from the ground.
 - c. Trees with a drip-line less than 15 feet may be grouped together to equal the required drip-line.
 - d. Trees to be preserved on a site shall be protected from construction or vehicle damage by erecting substantial barriers at the tree drip-line.
 - e. Credit shall be given for existing healthy, disease-free, non-construction-damaged trees and root systems as follows:

<u>DRIP-LINE DIAMETER</u>	<u>TRUNK DIAMETER</u>	<u>NUMBER OF CREDITS</u>
90'+	35"+	7
60' - 89'	30" - 34"	6
50' - 59'	25" - 29"	5
40' - 49'	20" - 24"	4
30' - 39'	15" - 19"	3
20' - 29'	10" - 14"	2
5' - 19'	2" - 9"	1

7. The site shall be cleared of poisonous and toxic plants and none shall be planted.
8. A systematic program for the removal of invasive non-native plants, including Punk tree (Melaleuca Quinquenervia), Brazilian Pepper (Schinus Terebinthifolius),

Australian Pine (*Casuarina-equisetifolia*), and Cat claw Mimosa (*Mimosa Pigra*) shall be implemented and none shall be planted, as required by law.

9. Paved parking area landscaping should be as follows:
 - a. A minimum of 5 percent of the required paved vehicular use areas shall be landscaped and shall be devoted to xeriscape landscaping.
 - b. Twenty percent of the landscaping shall be adjacent to the buildings served.
 - c. The remainder of the landscaping should consist of planter islands, traffic divider median strips, and perimeter landscape strips.
 - d. Place landscaped islands at each end of every parking row and, when possible, a maximum of 10 parking spaces apart.
10. Building area landscaping shall be as follows:
 - a. A minimum of ten 10 percent of the building's ground level floor plan gross square footage shall be devoted to plantings of shrubs, flowers, and ground covers, not including grass.
11. Trees and landscaped areas shall be designed and installed so as not to create blind spots around the perimeter of buildings and not provide access to the roof. Trees shall be planted no closer than the mature height of the tree from buildings.
12. Road intersection visibility, on or off site, shall be achieved by providing a clear sight line at intersections. No object, earth berm, or vegetation, other than grass or low ground cover, shall be permitted in the right-of-way area measuring fifty 50 feet from the edge of the two roads.
13. Where trees are included in the landscape design of courtyards, whose narrowest dimension is a minimum of 30 feet and is less than 60 feet, use restricted growth trees whose canopies mature at only 25 to 30 percent of the courtyard width to reduce the potential of fire transfer within the courtyard to the surrounding buildings.
 - a. All trees should be planted no closer to the buildings than the mature height of the tree.
 - b. Courtyards less than 30 feet in width are not required to be landscaped.
14. Refer to the following for trees and landscaping:
 - a. Appendix - Plant List.
 - b. Appendix- Landscaping Details.
15. General.
 - a. Planting categories include trees, shrubs, and ground cover.
 - 1) Provide 3 to 5 different planting types for each category.

- 2) Each plant type shall not be less than 20 percent of each category.
 - 3) Provide low maintenance varieties of plants.
- b. Plant materials with thorns, stickers, projectiles, fruit, berries, nuts, aggressive root systems, or are poisonous are not allowed on the site.
 - c. Select trees for locations based on ultimate size of tree, and ease of maintenance and replacement. Large trees are not appropriate for small interior courtyards.
 - d. Specify single or multiple tree trunks to achieve consistent plantings. Do not mix trunk types and do not leave decision to contractor.
 - e. Intention to match trees for size, multiple trunks, or other visual criteria shall be noted in construction documents.
 - f. Specify landscaped and sodded areas to be completed at least 1 month before final completion.
 - g. Specify contractor to maintain plantings until final completion. See Irrigation, this division, for additional requirements.
 - h. Comply with quarantine requirements of white-fringed beetles and fire ants.
 - i. Topsoil mix, sod, and other landscaping materials shall be certified by suppliers for compliance with specified requirements.
 - 1) Topsoil and planting soil shall be initially tested and tested immediately before application by a M-DCPS contracted testing laboratory and paid by M-DCPS.
 - 2) Retesting by the M-DCPS contracted testing laboratory shall be paid by the contractor.
 - j. Specify that the contractor shall replace at no additional cost to M-DCPS:
 - 1) Grassed areas in unsightly or damaged condition for 90 days after M-DCPS final completion.
 - 2) Trees, shrubs, and ground cover for 1 year after final completion.
 - k. Project landscape architect shall approve landscaping and materials before planting.
 - l. Provide clear sight line zones for vehicular drives, entrances, and at potential areas of pedestrian and vehicular conflict.
 - m. Do not provide access to roofs and compromise security by planting large trees closer than 20 feet from buildings.

16. Specific Requirements.

- a. Provide tree canopy shade to reduce sun exposure or heat gain at:
 - 1) Kindergarten and elementary play areas.

- 2) Bus/parent drop-off, waiting, or congregating areas.
 - 3) Unshaded courtyards.
 - 4) The building perimeter especially the east, west, and south orientations.
 - 5) A/C units to increase unit efficiency.
 - 6) Paved areas of service yards, parking areas, and hardcourts.
 - 7) Areas set aside for outdoor instructional space educational activities.
- b. Parking Lots.
- 1) Locate trees to avoid conflict with parking lot lighting.
 - 2) Avoid planting strips between sidewalk edges and fences to minimize maintenance difficulties.
 - 3) Island ground cover shall be solid sod.
 - 4) Provide xeriscape landscaping areas equal to 5 percent of paved parking lot area.
 - 5) Verify landscaping requirements of the applicable municipality for additional items.
- c. Entry Plaza at Building Front.
- 1) Design an entry plaza with 1,000 square feet minimum of landscaped area to include:
 - a) Shade trees at waiting and congregating areas.
 - b) 35 percent of landscaped area with shrubs.
 - c) 65 percent of landscaped area with ground cover.
 - d) Planters accommodating proposed root balls and future growth.
- d. Remaining building front excluding playfields and playgrounds shall include:
- 1) Canopy trees to provide shade.
 - 2) 15 percent of area with shrubs.
 - 3) 10 percent of area with ground cover.
 - 4) Solid sod at remaining areas.
- e. Courtyards.
- 1) Planters or planted areas shall be at least 25 percent of the total courtyard square footage.
 - a) Locate shade trees at potential gathering areas and to reduce heat island effect.
 - b) Provide surface and subsurface conditions for proper drainage of planted areas and planters.

- c) Verify adequate percolation before planting operations begin.
 - d) Raised planter seat walls shall be between 18 and 20 inches.
 - e) Curbed planter edges shall not be lower than 6 inches.
 - f) Provide 35 percent coverage with shrubs and 65 percent coverage ground cover at planters and planted areas.
- 2) Courtyard areas other than planter or planted areas shall be concrete with 1/4" per feet slope. Provide proper drainage. Ponding is not allowed.
- f. Building rear and sides excluding playfields shall include the following from main building to perimeter sidewalks or to 50 feet away.
 - 1) Trees according to SREF.
 - 2) 10 percent of area with shrubs.
 - 3) 5 percent of area with ground cover.
 - 4) Solid sod at remaining area.
 - g. Playfields.
 - 1) Locate trees at least 20 feet away from perimeter fencing, 60 feet away from baseball field foul lines, and 30 feet away from softball field foul lines and practice field boundaries.
 - h. Grassed Areas.
 - 1) Football, soccer, softball, baseball infields, other designated athletic specialty fields or physical education fields shall be solid rolled sod with certified Bermuda Tifway II or Bermuda Tifway 419.
 - 2) Provide solid sodding of St. Augustine Floratam for right-of-ways and all other areas not occupied by structures, roadways, walkways, other plantings and sod, or parking lots.
 - 3) Seeding and sprigging are not allowed.
 - i. Root barriers, when used, shall extend from the surface to a depth of 30 inches.

F. Signage.

- 1. Provide signage and other traffic control devices on county roads abutting educational sites according to Miami-Dade County and M-DCPS requirements.
- 2. Traffic control and site signage shall comply with:
 - a. DOT "Standard Specifications for Road and Bridge Construction".
 - b. M-DCPS requirements.

3. Traffic signage and plans, with traffic flows indicated, require approvals from M-DCPW - Traffic Division and M-DCPS Safety.
4. Locate signage clear of traffic lanes.
5. See Division 10 for traffic signage.

G. Site Furnishings.

1. Provide adequate outdoor furnishings located on site to include, but not limited to, bicycle racks, exterior lighting, outdoor signage, and flagpoles.
2. Bicycle parking areas, when required by program requirements, shall be located so they can be viewed from building windows, adjacent streets, or other vantage points.
 - a. Surround bicycle racks with concrete or asphalt surfaces of adequate size to allow maneuvering and parking of bicycles.
 - b. Location of parked bicycles shall not block adjacent sidewalk circulation or cause bicycle traffic on landscaped or grassed areas.
3. Recycled plastic may be used for site furnishings in place of prohibited wood products and conditional uses of aluminum materials. Provide adequate bracing and support to reduce deflection. Comply with coefficients of friction according to Division 9, if used for walking surfaces.

H. Fences and Gates.

1. M-DCPS fencing shall comply with applicable zoning requirements. An ordinance will have precedence over a design criteria item. Coordinate fencing plan review with appropriate agencies and M-DCPS.
2. Fencing will be reviewed for acceptance by M-DCPS School Police.
3. Products made of aluminum, aluminized, or otherwise treated with aluminum to any significant extent are not allowed.
4. Fencing materials and gates, including framing, 9 gage fabric, hardware, and ancillary materials, shall be hot dipped galvanized steel and conform to the appropriate ASTM standards.
 - a. After installation, metal with the protective coating breached shall be treated with an accepted galvanizing anti-corrosive paint.
5. Lead-based paints or primers are not allowed.
6. For permanent and temporary construction chainlink fencing, provide top and bottom rails. Provide a mid-rail for chainlink fencing 8 feet or higher.
7. Fencing shall be as follows:
 - a. 6'0" high chain link at site perimeter or other materials accepted by M-DCPS on a per condition basis.

- b. 6'0" high minimum chainlink adjoining commercial areas or as required by zoning requirements.
- c. 6'0" high chainlink at playfields when adjacent to other designated playfields.
- d. 10'0" high chainlink at baseball outfield if no overlapping of adjacent designated playfields.
- e. 10'0" high chainlink around single tennis courts and court groups according to program requirements.
- f. 6'0" high chainlink around staff and student parking lots and bicycle storage.
- g. 6'0" high chainlink between staff parking adjoining student parking.
- h. 6'0" high chainlink around reduced pressure backflow preventer with 3'0" horizontal clearance.
- i. 8'0" high chainlink at exposed exterior transformers, flammable storage, and other hazardous areas to restrict student access.
- j. 8'0" high minimum chainlink and overhead chainlink protection at least 3'0" above exposed exterior HVAC equipment capable of being rolled back or removed for service access.
 - 1) See Division 15 for required acoustical considerations.
 - 2) Overhead chainlink is not required at cooling towers.
 - 3) Allow at least the following horizontal clearances from chainlink fencing or masonry construction:
 - a) 4'0" to exterior HVAC equipment.
 - b) 3'6" to associated electrical buses.
 - c) 10'0" to cooling tower and tower accessories or more as recommended by equipment manufacturer.
- k. Provide 3'0" wide gate and fencing under cooling tower from grade to underside of tower support perimeter. See Division 15 for additional fencing at cooling towers and other locations.
 - l. 6'0" high masonry or chainlink with landscaping for visual screening at service yards.
- m. Masonry or chainlink at patios according to program requirements.
- n. Chainlink movable or fixed backstops as required by softball or baseball program requirements.
- o. 8'0" high smooth steel picket barrier fencing at areas adjacent to public right-of-ways at high schools. Provide pickets to reject a 4-inch diameter sphere and a top cross bar 8 inch or less from top. Minimize use of horizontal members to discourage climbing.
- p. 6'0" high smooth steel picket barrier fencing, spaced to reject a 3-1/2" diameter sphere, around primary play areas. Minimize use of horizontal members to discourage climbing.
- q. If needed between buildings, 8'0" high steel picket barrier fencing, spaced to reject a 4-inch diameter sphere and top cross bar 8 inch or less from top or other

type of security fencing. Minimize use of horizontal members to discourage climbing.

- r. Fencing used to secure hallway openings shall be not more than 3 inches from walls and ceilings and provided with exit device equipped gates.

8. Fence Openings.

- a. Provide 3'0" wide minimum lockable chainlink gates to fenced areas and as follows:

- 1) At service yards with two separate 3'0" wide minimum by fence height pedestrian gates and a vehicular gate to provide a 20'0" clear opening at appropriate locations.
- 2) Two 3'0" wide by fence height gates at transformer pads.
- 3) At each play field with a minimum of two separate 14'0" wide openings with equal 7'0" wide by fence height gates at appropriate locations for maintenance equipment access.
- 4) To other fenced areas according to program requirements.
- 5) Gates shall swing inward over level ground and without obstructions. Provide a 2 inch maximum ground clearance.

- b. Provide baffle gates at the playfield perimeter next to residential zoning for only pedestrian access and only if the adjacent portion of the facility is secure. Do not provide accessibility clearances. See Appendix for baffle gates.

- 9. Barbed wire use is not allowed at educational facilities. Barbed wire may be used above heights of 6'0" at fences of ancillary sites and agricultural sites not bordering educational facilities.

- 10. Provide top and bottom knuckled selvage for chainlink fencing.

END OF DIVISION