

TEXAS PARKS AND WILDLIFE

TECHNICAL SPECIFICATIONS

FOR

PROJECT NUMBER MR111203
LYNDON B. JOHNSON STATE PARK
GILLESPIE COUNTY, TEXAS

CHAIN LINK FENCING



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03/31/22

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Chain Link Fencing
Lyndon B. Johnson State Park

Technical Specifications

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SECTION 323113 - CHAIN LINK FENCES AND GATES

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Chain-link fences.
 - 2. Swing gates.
 - 3. Sliding gate.
 - 4. Sliding gate operator, keypad, and key switch

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.
 - 1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for the following:
 - a. Fence and gate posts, rails, and fittings.
 - b. Chain-link fabric, reinforcements, and attachments.
 - c. Swing and slide gates and hardware.
 - d. Gate operator.
 - e. Liftmaster monitored resistive edges.
 - f. Vehicle motion detector system and probe.
 - g. Wireless keypad and keypad post.
 - h. Key switch.
 - i. Electrical conduit.

1.4 FIELD CONDITIONS

- A. Field Measurements: Verify layout information for chain-link fences and gates shown on drawings by field measurements on site before bidding.

1.5 CHAIN-LINK FENCE FABRIC

- A. General: Provide fabric in one-piece heights measured between top and bottom of outer edge of selvage knuckle or twist according to "CLFMI Product Manual" and requirements indicated below:
 - 1. Fabric Height: As indicated on Drawings.
 - 2. Steel Wire for Fabric: 9 gauge.

- a. Mesh Size: 2 inches.
- b. Zinc-Coated Fabric: ASTM A392, Type II, Class 2, 2.0 oz. /sq. ft.

1.6 FENCE FRAMEWORK

- A. Posts and Rails: ASTM F1043 for framework, including rails, braces, and line; terminal; and corner posts. Provide members with minimum dimensions and wall thickness according to ASTM F1043 based on the following:
 1. Fence Height: As indicated on Drawings.
 2. Heavy-Industrial-Strength Material: Group IA, round steel pipe, Schedule 40.
 - a. Line Post: 2" nominal, 2.375" O.D. (outside diameter) inches.
 - b. End, Corner, and Pull Posts: 3" nominal, 3.500" O.D. (outside diameter) inches.
 3. Horizontal Framework Members: ASTM F1043 rails.
 - a. Top Rail: 1 ¼" nominal, 1.660" O.D. (outside diameter) inches.
 4. Metallic Coating for Steel Framework:
 - a. Type A: Not less than minimum 2.0-oz. /sq. ft. average zinc coating according to ASTM A123/A123M.

1.7 TENSION WIRE

- A. Metallic-Coated Steel Wire: Number 7 gauge with the following metallic coating:
 1. Type II: Zinc coated (galvanized) by hot-dip process, with the following minimum coating weight:
 - a. Matching chain-link fabric coating weight.

1.8 SWING GATES

- A. General: ASTM F900 for gate posts and swing gate types
 1. Gate Leaf Width: As indicated.
 2. Framework Member Sizes and Strength: Based on gate fabric height of 72 inches.
- B. Pipe and Tubing:
 1. Heavy-Industrial-Strength Material: Group IA, round steel pipe, Schedule 40.
 - a. Gate Post: 4" nominal, 4.500" O.D. (outside diameter) inches.
 - b. Gate Frame: 1 ½" nominal, 1.900" O.D. (outside diameter) inches.
 2. Metallic Coating: Match chain-link fence post zinc coating.

- C. Frame Corner Construction: Welded or assembled with corner fittings.
- D. Hardware:
 - 1. Hinges: 180-degree inward swing.
 - 2. Latch: Permitting operation from both sides of gate with provision for padlocking accessible from both sides of gate.

1.9 SLIDE GATE

- A. General: Furnish and install SPS OnGuard 24' aluminum slide gate or approved equal.

1.10 FITTINGS

- A. Provide fittings according to ASTM F626.
- B. Post Caps: Provide for each post.
 - 1. Provide line post caps with loop to receive tension wire or top rail.
- C. Rail and Brace Ends: For each gate, corner, pull, and end post.
- D. Rail Fittings: Provide the following:
 - 1. Top Rail Sleeves: Pressed-steel or round-steel tubing not less than 6 inches long.
 - 2. Rail Clamps: Line and corner boulevard clamps for connecting rails to posts.
- E. Tension and Brace Bands: Pressed steel.
- F. Tension Bars: Steel, length not less than 2 inches shorter than full height of chain-link fabric. Provide one bar for each gate and end post, and two for each corner and pull post, unless fabric is integrally woven into post.
- G. Truss Rod Assemblies: Steel, hot-dip galvanized after threading rod and turnbuckle or other means of adjustment.
- H. Tie Wires, Clips, and Fasteners: According to ASTM F626.
 - 1. Standard Round Wire Ties: For attaching chain-link fabric to posts, rails, and frames, according to the following:
 - a. Hot-Dip Galvanized Steel: 0.148-inch diameter wire; galvanized coating thickness matching coating thickness of chain-link fence fabric.
- I. Finish:
 - 1. Metallic Coating for Pressed Steel or Cast Iron: Not less than 1.2 oz. /sq. ft. of zinc.

- 1.11 GATE OPERATOR, VEHICLE MOTION DETECTOR, KEYPAD, KEYPAD POST, & KEY SWITCH
- A. Gate Operator: Liftmaster #HDSL24UL 24VDC heavy-duty variable speed slide gate operator or approved equal.
 - B. Safety Edges: Liftmaster Monitored Resistive Edges meeting UL 325 requirements or approved equal.
 - C. Vehicle Motion Detector: EMX CarSense 101 vehicle motion detector and CarSense Probe or approved equal.
 - D. Keypad: Linear #MDKP wireless keypad or approved equal.
 - E. Keypad Post: Linear #GNB-1 burial mount, gooseneck post or approved equal.
 - F. Keypad Switch: RCI #960-MA keypad switch with #9SURBOX surface mount box or approved equal.

PART 2 - EXECUTION

2.1 EXAMINATION

- A. Examine areas and conditions, with Installer present, for compliance with requirements for site clearing, earthwork, pavement work, and other conditions affecting performance of the Work.
 - 1. Do not begin installation before final grading is completed unless otherwise permitted by Architect.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

2.2 PREPARATION

- A. Demo and properly dispose existing fence materials off park property according to disposal regulatory requirements.
- B. Stake locations of fence lines, gates, and terminal posts. Do not exceed intervals of 500 feet or line of sight between stakes. Indicate locations of utilities, lawn sprinkler system, underground structures, benchmarks, and property monuments.

2.3 CHAIN-LINK FENCE INSTALLATION

- A. Install chain-link fencing according to ASTM F567 and more stringent requirements specified.
 - 1. Install fencing on established boundary lines inside property line.
- B. Post Excavation: Drill or hand-excavate holes for posts to diameters and spacings indicated, in firm, undisturbed soil.

- C. Post Setting: Set posts in concrete at indicated spacing into firm, undisturbed soil.
 - 1. Verify that posts are set plumb, aligned, and at correct height and spacing, and hold in position during setting with concrete or mechanical devices.
 - 2. Concrete Fill: Place concrete around posts to dimensions indicated and vibrate or tamp for consolidation. Protect aboveground portion of posts from concrete splatter.
 - a. Exposed Concrete: Extend 1 inches above grade; form exposed edges of footing with temporary Sonotube concrete forms so that concrete pour is contained within the specified diameter of the footing. Smooth trowel top of concrete footing to drain away from post. Concrete shall not be allowed to spread outside of specified footing diameter. Remove temporary Sonotube concrete form after concrete has cured and finish grade soil adjacent to post. Dispose footing excavation soil off site or salvage and reuse for finish grading fill areas as directed by owner.
- D. Terminal Posts: Install terminal end, corner, and gate posts according to ASTM F567 and terminal pull posts at changes in horizontal or vertical alignment of 30 degrees or more. For runs exceeding 500 feet, space pull posts an equal distance between corner or end posts.
- E. Line Posts: Space line posts uniformly at 10 feet o.c.
- F. Post Bracing and Intermediate Rails: Install according to ASTM F567, maintaining plumb position and alignment of fence posts. Diagonally brace terminal posts to adjacent line posts with truss rods and turnbuckles. Install braces at end and gate posts and at both sides of corner and pull posts.
 - 1. Locate horizontal braces at mid height of fabric 72 inches or higher, on fences with top rail, and at two-third fabric height on fences without top rail. Install so posts are plumb when diagonal rod is under proper tension.
- G. Tension Wire: Install according to ASTM F567, maintaining plumb position and alignment of fence posts. Pull wire taut, without sags. Fasten fabric to tension wire with 0.120-inch-diameter hog rings of same material and finish as fabric wire, spaced a maximum of 24 inches o.c. Install tension wire in locations indicated before stretching fabric. Provide horizontal tension wire at the following locations:
 - 1. Extended along top and bottom of fence fabric. Install top tension wire through post cap loops. Install bottom tension wire within 6 inches (152 mm) of bottom of fabric and tie to each post with not less than same diameter and type of wire.
- H. Intermediate and Bottom Rails: Secure to posts with fittings.
- I. Chain-Link Fabric: Apply fabric to outside of enclosing framework. Leave 1-inch bottom clearance between finish grade and bottom selvage unless otherwise indicated. Pull fabric taut and tie to posts, rails, and tension wires. Anchor to framework so fabric remains under tension after pulling force is released.
- J. Tension or Stretcher Bars: Thread through fabric and secure to end, corner, pull, and gate posts, with tension bands spaced not more than 15 inches o.c.

- K. Tie Wires: Use wire of proper length to firmly secure fabric to line posts and rails. Attach wire at one end to chain-link fabric, wrap wire around post a minimum of 180 degrees, and attach other end to chain-link fabric according to ASTM F626. Bend ends of wire to minimize hazard to individuals and clothing.
 - 1. Maximum Spacing: Tie fabric to line posts at 18 inches o.c. and to braces at 24 inches o.c.
- L. Fasteners: Install nuts for tension bands and carriage bolts on the side of fence opposite the fabric side.

2.4 GATE INSTALLATION

- A. Install gates according to manufacturer's written instructions, level, plumb, and secure for full opening without interference. Attach fabric as for fencing. Install ground-set items in concrete for anchorage. Adjust hardware for smooth operation.

2.5 SLIDE GATE OPERATOR INSTALLATION

- A. Gate Operator: Install slide gate operator on new concrete pad according to manufacturer's installation instructions.
- B. Monitored Resistive Safety Edges: Install Monitored Resistive Safety Edges and both the leading and trailing edges of gate as required by UL 325 according to manufacturer's installation instructions.
- C. Vehicle Motion Detector: Wire vehicle motion detector to gate operator and install probe under gravel road according to manufacturer's installation instructions.
- D. Key Switch: Install key switch for gate hold open in existing maintenance complex building. Exact location of key switch to be determined by owner. Install communication wires from key switch to fire input of gate operator according to manufacturer's installation instructions.
- E. Power: Connect power to gate operator from the existing maintenance complex building. Electrical work shall be performed by a State of Texas licensed master electrician in accordance with National Electric Code NFPA-70 2020 code requirements. Contractor to inspect and determine power installation requirements before bidding.

2.6 ADJUSTING

- A. Gates: Adjust gates to operate smoothly, easily, and quietly, free of binding, warp, excessive deflection, distortion, nonalignment, misplacement, disruption, or malfunction, throughout entire operational range. Confirm that latches and locks engage accurately and securely without forcing or binding.
- B. Lubricate hardware and other moving parts.

END OF SECTION 323113