

This section covers the requirements for the supply and installation of wildlife wire fences, posts and gates.

## PART 1 REFERENCES

This specification refers to the following standards, specifications, or publications:

ASTM International

A53/A53M Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless

A121 Standard Specification for Metallic-Coated Carbon Steel Barbed Wire

CSA Group

O80 Series Wood Preservation

CSA A23.1/A23.2 Concrete Materials and Methods of Concrete Construction / Test Methods and Standard Practices for Concrete

~~Canadian General Standard Board (CGSB)~~

~~CAN/CGSB-1.69-98~~ Aluminum Paint

~~CAN/CGSB-1.212-95~~ Chromate and Lead Free Marine Primer, for Steel and Light Alloy Surfaces

The Master Painters Institute (MPI)

Architectural Painting Specifications Manual

## PART 2 GENERAL

### 2.1 SUBMITTALS

.1 Submit in accordance with Section 01340 – Shop Drawings, Samples and Submissions.

.2 Product Data:

.1 Submit manufacturer's instructions, printed product literature and data sheets for fences, gates, posts, and paint and include product characteristics, performance criteria, physical size, finish and limitations.

.3 Certificates: Submit certificates signed by manufacturer certifying that materials comply with specified performance characteristics and physical properties.

.4 Test Reports: Submit certified test reports showing compliance with specified performance characteristics and physical properties.

## 2.2 DELIVERY, STORAGE, AND HANDLING

.1 Deliver, store and handle materials in accordance with Section 01600 – Material and Equipment.

.2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.

.3 Storage and Handling Requirements:

2.1.1 Store and protect fence and gates from damage.

## PART 3 PRODUCTS

### 3.1 MATERIALS

.1 Wire fence:

.1 Farm-field type: Bel-Air Ltd style 948, class III or approved equal.

.2 Barbed wire: to ASTM A121.

.1 Galvanized steel.

.3.2 Wire size: 2 mm diameter.

.4.3 Barbs: 4 point at 125 mm spacing.

.2 Gates:

.1 Frame: to ASTM A53/A53M, galvanized steel pipe, standard weight, 25 mm O.D.

.2 Size: as indicated.

.3 Joints: electrically welded.

.3 Wood components: pressure-treated wood unless indicated otherwise.

.4 Wood posts:

.1 Sound, ~~straight~~, round or square, sawn square at bottom and at 45 degree at top as indicated.

.2 Intermediate posts: 2.5 m long and 100 mm x 100 mm.

.3 Corner, end, gate and anchor posts to be 2.7 m long and minimum 150 mm x 150 mm.

.4 Straight, free from splits, shakes, and excessive knots.

.5 Existing knots trimmed flush with surface.

- .4.6 Cleats for anchoring corner, gate, end and anchor posts: 38 x 140 x 910 mm.
- .5.7 Braces for end, corner and gate posts: 89 x 89 mm x 3 m long.
- .8 Posts to be treated in accordance with CSA O80 Series.
- .6.9 Paint: To MPI EXT 6.2, type, gloss, primer, and colour as specified in the Contract Documents.

.5 Steel posts:

- .1 Corner, end, gate and intermediate posts, projection arm with clips, corner and gate post braces, gate posts as indicated.
- .2 Galvanizing: zinc coating not less than 92 g/m<sup>2</sup> of surface area.
- .3 Paint: to MPI EXT 5.3, type, gloss and primer and colour as specified in the Contract Documents. CAN/CGSB-1.69-98, CAN/CGSB-1.212-95
- .4 Concrete: to Section 03300 – Cast-in-Place Concrete and CSA A23.1/A23.2.
  - .5.1 Concrete mix design to produce 30 MPa a minimum compressive strength at 28 calendar days and containing 20 mm maximum size coarse aggregate with water/cement ratio and Air Category to CSA A23.1/A23.2, Table 8 for Class "C2" exposure and 80 mm slump at time and point of deposit. Air Entrainment to CSA A23.1/A23.2, Table 10.
- .5 Ground rod: 16 mm diameter copperweld rod 3 m in length.
- .6 Organic zinc rich coating: To MPI EXT 5.5.

## PART 4 EXECUTION

### 4.1 EXAMINATION

- .1 Verification of Conditions: Verify conditions of substrate previously installed under other Sections or Contracts are acceptable for fence and gate installation in accordance with manufacturer's written instructions.
  - .1 Inform the Owner of unacceptable conditions immediately upon discovery.
  - .2 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from the Owner.

### 4.14.2 GRADING

- .1 Level contours of ground along fence line in order that bottom wire of fence between posts can be maintained at not more than 150 mm above ground.

**4.24.3 ERECTION OF FENCE**

- .1 Erect fence along lines indicated or as directed by the Owner.
- .2 Excavate post holes to dimensions indicated.
- .3 Installation of posts:
  - .1 Space intermediate posts at 2.5 m unless otherwise directed.
  - .2 Space corner, end and gate posts 2.5 m from adjacent post.
  - .3 Locate and erect gate posts as indicated.
  - .4 Install posts true to line and plumb with 1.5 m of post projecting above ground.
- .4 Fencing with wood posts:
  - .1 Slant of post tops to be perpendicular to fence line and facing outward.
  - .2 Install cleats for anchoring at corner, gate, end and anchor posts as indicated.
  - .2.3 Embed in concrete as indicated.
  - .3.4 Backfill around posts and compact to same density as surrounding ground. Dispose of surplus excavated material as directed by the Owner.
  - .4.5 Install braces at end, corner and gate posts as indicated. Join braces into posts and spike securely.
  - .5.6 Erect wires and stretch to have uniform tension. Splice wires with standard wire splices.
  - .6.7 Attach top wires to posts with minimum two (2) staples. Fasten other wires to posts and cross braces with at least one staple. Staple wires securely at end, anchor and gate posts.
  - .8 Stretch two (2) stands of barbed wire along tops of posts and double staple on posts.
  - .9 Painting of posts:
    - .1 Apply two (2) coats of paint in accordance with manufacturer's written instructions.
      - .1 Allow initial coat to dry before applying second coat.
      - .7.2 Apply paint only when relative humidity is below 85% and ambient temperature is greater than 5 °C.
- .5 Fencing with steel posts:
  - .1 "Bulb" bottom part of holes when excavating holes for corner, end and gates posts. "Bulb" holes also for intermediate posts every 60 m along fence line.
  - .2 Space intermediate posts at 3 m and corner, end and gate posts at 3 m from adjacent post.

.3 **Install steel posts to depths as indicated.**

.3.4 Install posts true to line and plumb with a minimum of 1.5 m of post projecting above ground.

.4.5 Set following posts in concrete in accordance with Section 03300 – Cast-in-Place Concrete:

- .1 End, corner and gate posts.
- .2 Intermediate posts adjacent to end, corner and gate posts.
- .3 Intermediate posts every 60 m along fence line.
- .4 Ends of braces for corner, end and gate posts.

.5.6 Drive line posts into ground.

.6 ~~Concrete: in accordance with Section 03300 – Cast-in-Place Concrete.~~

- .7 Brace corner, end and gate posts as specified.
- .8 Clamp a studded steel projection arm to each post as specified.
- .9 Erect woven and barbed wire as specified.
- .10 Stretch wires to have uniform tension. Splice wires with standard wire splices.
- .11 Attach wires to posts and projection arms with approved metal clips.
- .12 Paint post, braces and projection arms with coating adequate to protect against rust.

4.34.4 **INSTALLATION OF GATES**

- .1 Install gates in locations indicated or where directed.
- .2 Install gates on previously erected posts, in a manner to prevent over-stress on gate posts when gates are open. Install with ground clearance of 100 mm.
- .3 Determine location of anchor pipe for drop bolt and drive pipe flush with road surface.

4.44.5 **GROUNDING**

- .1 Install grounding rods as indicated or as directed by the Owner.

4.54.6 **TOUCH UP**

- .1 Repair damaged painted wood and galvanized surfaces.

.1 -Clean damaged surfaces with wire brush removing loose and cracked coatings.

.4.2 -Apply two coats of approved pigmented paint to damaged areas.

**4.64.7 CLEANING**

- .1 Clean and trim areas disturbed by operations. Dispose of surplus excavated material and replace damaged sod as directed.

**PART 5 PAYMENT**

**5.1 MEASUREMENT FOR PAYMENT**

- .1 Supply and erection of wire fence will be measured in metres installed.
- .2 Supply and erection of wire gates will be measured in units of each regardless of variance in size of gates.

**5.2 BASIS OF PAYMENT**

- .1 All costs associated with the work outlined in this specification shall be deemed to be included in the appropriate unit and lump sum prices quoted as outlined in the Measurement for Payment subsection of this section and as included in the MERX Schedule of Quantities and Prices.