

**Table of Contents**

F1.	BARBED WIRE FENCING.....	1
F1.1	Description .....	1
F1.2	Materials .....	1
F1.3	Workmanship.....	1
F2.	UNIFORM WOOD FENCING AND GATES.....	1
F2.1	Description .....	1
F2.2	Materials .....	2
F3.	CHAIN LINK FENCING.....	3
F3.1	Description .....	3
F3.2	Materials .....	3
F3.3	Workmanship.....	6
F4.	SUBDIVISION FENCING.....	8
F5.	SOUND BARRIERS/LANDSCAPE BERMS .....	8

---

## **F1. BARBED WIRE FENCING**

### **F1.1 Description**

1. The following is to be taken as a minimum standard. All other designs are to be approved by the County prior to construction.
2. The posts shall be installed at a typical spacing of 3.65m (12 feet).

### **F1.2 Materials**

All materials used are subject to inspection and approval by the County. Materials are to be protected from weather at all times.

1. All wooden fence material shall be pressure treated round 100 – 125mm diameter posts in 1.848 meter (6 feet), 2.134m (7 feet), or 2.43m (8 feet) lengths.
2. There will be 3 – 4 strands of barbed wire.
3. The barbed wire shall be 12.5 GA wire with 14 GA barbs.

### **F1.3 Workmanship**

1. Posts shall be installed plumb and true to line. Spaces between line posts shall be uniform and shall not exceed 3.65m (12 feet).
2. Barbed wire shall be suitably tensioned and attached to posts with appropriate fasteners.
3. Gates shall be installed at locations shown on the drawings or as approved by the County.

## **F2. UNIFORM WOOD FENCING AND GATES**

### **F2.1 Description**

1. The following is to be taken as a minimum standard. All designs or alternate designs are to be approved by the County prior to construction.
2. All wooden fence material shall be pressure treated cedar or approved alternative and stained or painted with two (2) coats.
3. The Developer shall be responsible for and at his own expense, correcting any defect, deficiency or fault in the completed work prior to the end of the specified two (2) year maintenance period.

4. The work is to comply with the applicable requirements of the Alberta Building Code, latest revision thereof.

## **F2.2 Materials**

All materials used are subject to inspection and approval by the County. Materials are to be protected from weather at all times.

1. **Lumber** – all lumber is to be graded to the Canadian Lumber Standards and marked with a recognized, visible grade stamp.
2. **Dimension Board Lumber** – graded to National Lumber Grades Authority (NLGA) Standard Grading Rules for Canadian Lumber and to CSA 0141-1970 and meet the following:
  - a) Maximum 19% moisture content at time of installation
  - b) Lumber to be rough sawn to sizes noted on the approved drawings.
3. **Hardware and Fastening Devices** – all hardware and fastening devices shall be non-corrosive, preferably galvanized and in accordance with the Alberta Building Code.
4. **Surface Applied Wood Preservative** – adhere to the following for preservatives:
  - a) Surface applied Cuprinol-Clear stain or approved equal wood preservative to all wood components.
  - b) Treat surface of components with wood preservative before installation.
  - c) Wherever possible apply preservative after components have been cut and fitted to size.
  - d) Apply preservative by dipping, or by brush or spray to completely saturate and maintain wet film on surface for a minimum three (3) minute soak on lumber.
  - e) Re-treat surfaces exposed by cutting, trimming or boring with liberal brush application of surface applied wood preservative before installation.
5. **Installation** – see standard drawings.
6. **Wood Fence and Gate Components**
  - a) All work to be fabricated and finished as shown on drawings.
  - b) Members shall fit close and accurately together.
  - c) Verify all dimensions on site prior to proceeding with fabrication.

- d) Whenever possible, members shall be precut prior to treatment. Site cuts are to be treated with two (2) coats preservative brushed in.
  - e) Allow preservative to cure prior to erecting members.
  - f) Ensure all Ardox nails are installed flush to fence slats.
  - g) Fence post brackets to be cast in concrete footing as detailed so that final post alignment is plumb.
  - h) Supply all components required for anchoring fence posts to concrete footings.
  - i) The wood fence shall provide a firm continuous structure. Finished unit should not utilize any cracked or damaged timber panels or posts.
  - j) Height of fence panels to remain constant above grade.
  - k) Difference in height of fence panel in relation to next panel due to grade change to be taken up at fence post between panels.
7. **Concrete** – use Type 50 Sulfate Resistant with compressive strength of 25 MPa at twenty-eight (28) days.

### **F3. CHAIN LINK FENCING**

#### **F3.1 Description**

The following is to be taken as a minimum standard. All designs or alternate designs are to be approved by the County prior to construction.

#### **F3.2 Materials**

1. **Pipe material** – pipe material used for fencing shall be hot-dipped, zinc-coated, butt-welded, Schedule 40 seamless steel pipe fabricated in conformance with ASTM A120. Zinc coating shall be not less than 0.61 kg/m<sup>2</sup> of total surface area.
  - a) The use of tubing, conduit, or open seam material will not be permitted.
  - b) Pipe material shall have the following minimum dimension:

Type of Post	Outside Diameter (mm)	Minimum Weight per Meter	Minimum Wall Thickness (mm)
Line Post	60	5.43	3.91
Terminal Post	90	11.3	5.49
Top Rail	42	3.4	3.56
Brace	42	3.4	3.56
Gate Post	100	13.6	5.74

2. **Line Posts** – line posts support fencing at points where fabric is continuous. In wet areas they are to be a minimum 3600mm length (see standard drawing). All posts are to be capped.
3. **Terminal Posts** – terminal posts are end posts, corner posts, straining posts, and gate posts, positioned where fencing or fabric is discontinuous and attached to posts by means of tension bars. Posts for barb wire overhang are to be 1050mm longer than fabric height.
4. **Top Rails** – top rails are horizontal pipes supporting the top selvage of fabric. Top rails shall be continuous at line posts and pass through holes in line post tops.
5. **Braces, Fittings** – Braces are horizontal galvanized 45mm CD pipes positioned at mid-height of fabric and shall extend from terminal posts to the nearest line post along each fabric attached to the terminal post. All fittings shall be galvanized steel or aluminum.
6. **Tension Bars** – Tension bars shall be 5 x 19mm and shall have a length equal to the height of the fabric.
7. **Tension Bands** – tension bands shall be not less than 9mm in width and shall be not less than 3.5mm in thickness.
8. **Couplings** – Couplings shall be an outside type, not less than 175mm in length, and shall have a material thickness of not less than 3.5mm.
9. **Extension Arms** – extension arms shall be malleable iron or cast iron and shall have provision to accommodate three (3) strands of barbed wire at 45° angle overhand.  
The top strand of barbed wire shall be approximately 300mm above the fabric. Extension arms shall have holes for top rails.
10. **Post Tops** – post tops shall be of galvanized steel or aluminum. Line post tops shall have holes for top rails.
11. **Zinc Coating** – zinc coating shall be applied to tension bars, tension bands, fittings, and post tops which are not fabricated from corrosion-resistant material. Zinc coating shall be not less than 0.61 kg/m<sup>2</sup> of surface area and shall be applied by hot-dip in conformance with ASTM A123.

12. **Wire** – tension wire shall be not less than 4.8mm diameter, single strand, electro-galvanized wire that will withstand at least six (6) dips in conformance with ASTM A239. Fabric shall be double galvanized 150 x 150mm, 3.7 – 180mm high (see standard drawing).

Tension wire shall have ultimate tensile strength at least equal to that specified for wire for chain link fabric, and shall have a corrosion protection system equal to that specified for fabric.

Barbed wire galvanized 2mm thickness with 4 point barbs at 150mm centers in conformance with ASTM A121-77. Fastening clips galvanized to wire.

13. **Gates**

- a) Gates to be framed with steel pipe ASTM A120-77 standard galvanized. Use 45mm outside diameter pipe for outside frame and 40mm outside diameter pipe for bracing. Galvanize after welding.

- b) Gate posts to conform to the following:

Opening	Gate Post Outside Diameter
Single to 3.0 meters Double to 6.0 meters	90 mm 2 hinges per leaf
Single from 3.0 to 4.3 meters Double to 6.0 meters	114 mm 3 hinges per leaf Provide brace
Single from 4.3 to 7.6 meters Double from 8.5 to 12.2 meters	170 mm 3 hinges per leaf Provide brace

- c) Gate fabric to be 3.7mm galvanized chain Link with 50 x 50mm mesh.
- d) Gates shall be fabricated with electrically-welded joints, complete with galvanized, malleable iron hinges, lockable latch and latch catch.
- e) Gate latches shall be suitable for padlock which can be attached and operated from either side of the gate.
- f) Gate hinges shall permit a minimum 90° swing both in and out.
- g) Double gates to have center rest with drop bolt for closed position and chain hold open for open position.

**14. Concrete**

- a) Use type 50 Sulfate Resistant Cement compressive strength 25 MPa at twenty-eight (28) days.
- b) Shop drawings of gates and related components shall be approved by the County prior to construction.

**F3.3 Workmanship**

**1. Grading**

Remove debris and grade between posts to provide ground clearance between 40mm and 70mm.

**2. Concrete Footing**

- a) All posts shall be set in concrete and the concrete extended above ground (approximately 25mm) for drainage.
- b) Footings shall be of such size and shape as required to withstand any strain or shocks ordinarily brought to bear on the fence, but not less than indicated in the following table:

<b>Post Type</b>	<b>Diameter of Concrete (mm)</b>	<b>Depth of Concrete (mm)</b>
Line Post	300	1,100
Terminal Post	300	1,100
Gate Post	400	1,100
100 mm O.D.	300	1,100

- c) Concrete for footings shall be compacted by interval vibrator or by rodding, and shall be allowed to set sufficiently before cutting fence, a minimum of five (5) days.
  - d) If forms are used, compact backfill to density of adjacent in-situ soil.
- 3. Post Installation** (see standard drawing):
- a) Posts shall be set in concrete footings plumb and true to line.
  - b) Spaces between line posts shall be uniform and shall not exceed 3.0m.
  - c) Install straining posts where require.

4. **Fencing** (see standard drawing):
  - a) Top rails shall be secured to terminal posts using receptacle fittings and shall be run through holes in the post tops and joined with couplings.
  - b) Chain link fabric shall be suitably tensioned.
  - c) Fabric shall be attached to terminal posts using tension bars and bands.
  - d) Tension bars shall be threaded through fabric mesh and shall be connected to terminal posts by means of tension bands spaced not more than 375mm apart.
  - e) Fabric shall be fastened with tie wire to line posts at approximately 300mm o/c, and to top rails, braces, and tension wire at approximately 450mm o/c.
  - f) The bottom selvage of fabric shall be between 40mm and 70mm above finished grade.
  - g) Bottom tension wire shall be strung along the bottom of the fabric, pulled taut and firmly attached to terminal posts with suitable fittings.
  
5. **Gate Installation**
  - a) Gates shall be installed at locations shown on the drawings or as directed by the Engineer and approved by the County.
  - b) Gates shall be hung to be level and 50mm above finished grade.
  - c) Gates shall swing into the site 90°.
  - d) A gate “spot post” or other means shall be provided to hold the gate open.
  - e) Gates shall be so constructed that they can be opened and closed smoothly with minimum effort.
  
6. **Clean up**

Touch up damaged galvanizing by cleaning with wire brush and applying two (2) coats of galvanizing.



---

**F4. SUBDIVISION FENCING**

1. Wherever possible, fencing shall be designed to match or complement existing fencing on adjacent properties.
2. Fencing shall be designed to be maintenance free for a minimum of 15 years.
3. Fencing shall be located entirely within private property, including foundations.
4. A landscape plan shall be prepared by the Developer and submitted to the County showing the fence design including alignment, elevations, materials, foundations, coatings and dimensions. The plans shall include installation details.
5. Fencing shall comply with all setback and height requirements specified in the Lacombe County Land Use Bylaw.

**Please note that further requirements and specification may be outlined in applicable Site Development Guidelines and Lacombe County's *Land Use Bylaw*.**

**F5. SOUND BARRIERS/LANDSCAPE BERMS**

1. A landscape plan shall be prepared by the Developer showing the proposed berm design including alignment, elevation, dimensions and slopes. The plan must be approved by the County prior to construction.
2. Berms required for noise attenuation purposes shall be designed by a Professional Engineer or Landscape Architect. The Developer may be required to provide design information including projected traffic volumes and noise exposure.
3. Berm side slopes shall not be steeper than 4H:1V to facilitate maintenance.
4. Berms shall have a flat top not less than 1m wide.
5. Berms shall be top soiled and seeded according to specifications found in Section E.

Alternative sound barrier methods/materials will be considered provided detailed engineering drawings are prepared by the Developer and submitted to the County showing the design including alignment, elevations, materials, foundations, coatings and dimensions. The plans shall include installation details.