

DEPARTMENT of INFRASTRUCTURE, ENERGY and RESOURCES, TASMANIA

ROADWORKS SPECIFICATION

R72 - FENCING

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### R72.1 SCOPE

This specification sets out the requirements for the erection of fencing at locations shown on the Drawings, including

- (i) preparation of the site
- (ii) removal of existing fencing
- (iii) supply and installation of all fencing materials, including gates
- (iv) connections to existing fencing.

The installation of fences shall be in accordance with the details stated in the Fencing Agreement, where applicable, and on the Standard Drawings.

### R72.2 REFERENCES

The following Australian Standards apply to this specification:

- AS 1604 Timber, Preservative Treated, Sawn and Round
- AS 2423 Galvanised Wire Fencing Products
- AS 4534 Zinc and zinc/aluminium-alloy coatings on steel wire

### R72.3 MATERIALS

Material for fencing shall conform with the following requirements, as well as those on the standard drawings. Materials used shall be new unless the use of second hand materials is specified.

#### R72.3.1 Treated Timber Posts, Struts and Droppers

These shall comply with the requirements of AS 1604 Part 1.

#### R72.3.2 Untreated Timber Posts, Struts, Droppers, Rails and Palings

These shall be hardwood, cut from sound timber, stripped of all bark and backed off with ends sawn square. Posts and struts shall be straight (no deviation from straight of greater than 40 mm per 1.8 m length of post) and of dimensions not less than those specified.

#### R72.3.3 Steel Posts, Struts and Droppers

Steel posts and struts shall comprise steel pipe or angle section of minimum dimensions shown on the standard drawings, free from distortion, and galvanised with Class W02Z Standard Galvanising in accordance with AS 4534.

Posts and struts shall not deviate by more than 1% of their length from a straight line.

Posts shall be properly bracketed, before galvanising, to provide means for attaching the struts and fencing to the posts, without damage to the galvanising or fencing materials.

Steel pipe posts shall be fitted with watertight galvanised tops.

Star steel posts shall be of commercial grade, either black galvanised or galvanised with Class W02Z Standard Galvanising in accordance with AS 4534.

Steel droppers shall comprise proprietary galvanised high tensile steel "V" sections with turned edges, punched before galvanising with holes to suit fastening clips. The minimum overall dimensions of the "V" section shall be 38 mm x 15 mm and minimum thickness of steel shall be 0.9 mm.

#### R72.3.4 Wire Products

These shall conform to the requirements of AS 2423, Galvanised Wire Fencing Products.

Unless specified otherwise the products shall comply with the following additional requirements:

- (i) Class W02Z Standard Galvanising in accordance with AS 4534. shall be used throughout.
- (ii) The minimum nominal diameter for wires shall be 2.50 mm for plain wires and 1.60 mm for barbed wires.
- (iii) All plain and barbed wires shall be high tensile grade.
- (iv) The maximum spacing of barbs on barbed wire shall be 100 mm.

#### R72.3.5 Gates

Gates shall be of commercial quality with galvanised steel frame, to the dimensions as specified or shown on the Drawings. They shall have galvanised wire or mesh of similar stock holding capacity to the adjoining fence.

#### R72.3.6 Miscellaneous Materials

All ferrous bolts, nuts, ties, staples and fittings for fences and gates shall be galvanised and of commercial quality.

### R72.4 CONSTRUCTION

#### R72.4.1 General

Fencing shall be conducted before the earthworks, on a paddock by paddock basis, that is, between the internal fences to ensure closed perimeters are maintained, unless not required by the landowner.

Fences shall be constructed true to the property boundaries and fence lines shown on the Drawings and / or located by survey pegs. All logs, stumps, saplings, boulders, rubbish and undergrowth within 1 m of the fence line, and all trees which will interfere with proper construction of the fence, shall be removed and disposed of unless stated otherwise on the Drawings. Small irregularities of the ground surface shall be corrected by levelling mounds and filling hollows.

All posts shall be placed in a vertical position except in unusual locations where, if directed by the Superintendent, the posts shall be set perpendicular to the ground surface. All posts shall be set in line so that the tops line up uniformly without sudden dips or irregularities.

Unless indicated otherwise on the Drawings, where a survey peg is in the location of a fence post, the peg shall be removed and the post installed within 50 mm of the survey peg location.

#### R72.4.2 Post and Wire Fences

##### (i) Posts

- Timber posts shall be set in dug or drilled holes, except that posts of treated round timber may be driven into soft ground or into drilled holes of a smaller diameter than the post provided the method of driving does not damage the post. Posts shall be set solidly and any space left around the posts shall be backfilled and the backfilling compacted. Posts to be driven shall be driven small end down. Other posts shall be placed butt end down.
- Steel posts may be driven, provided the method does not damage the posts or their galvanising.
- Holes in rock for timber or steel posts shall be neatly cut to a depth of 450 mm in the case of intermediate posts and 600 mm for strainer posts. The holes shall be backfilled with cement mortar comprising two parts clean sand and one part cement.
- Posts shall be placed at 6m centres unless indicated otherwise on the drawings.

## (ii) Strainer Assemblies

- Strainer assemblies as shown on the Drawings shall be provided at all ends, angles, abrupt changes of grade, and intersections of cross fences. Intermediate strainer assemblies shall be provided on straights at intervals not exceeding 200 m and spaced evenly along the straight.
- Strainer assemblies at ends and gates shall be single strainer except where provision of double strainer assemblies is specified or approved. Intermediate strainer assemblies shall be single strainer assemblies with both diagonals braced. Corner posts shall be braced in two directions and gateposts shall be braced in one direction.
- Strainer Assemblies shall be installed along the line of the fencing unless specifically approved, and accepted, by the landowner.

## (iii) Erection and Fixing of Wire

- Wires shall be fixed to the posts, on the landowner's side, at heights and spacings as shown on the drawings. They shall be fixed to timber posts with galvanised staples, of minimum lengths 40 mm for soft wood posts and 30 mm for hardwood posts. Galvanised tie wire at least 2 mm diameter, or proprietary galvanised clips shall be used to fix wires to steel posts.
- Fixtures to intermediate posts shall be such that the wire is able to slide longitudinally. Wires shall be fixed to wooden droppers with 25 mm galvanised steel staples, or to steel droppers with proprietary fastening clips.
- Wires shall be tensioned to 1.4 kN between strainer assemblies, and tied off with a suitable knot. All joints in wires shall be figure of eight knots.

## R72.4.3 Post and Prefabricated Fencing

Posts and wires shall be erected as for post and wire fences. The prefabricated fencing shall be attached to posts and droppers by fixing the top and bottom line wires, and at least every alternative intermediate wire, by staples or other means as described for post and wire fences.

## R72.4.4 Post and Wire Netting Fences

Posts and wires shall be erected as for post and wire fences. The netting shall be tightened between posts, and shall be fastened to timber posts and droppers with 25 mm staples at 150 mm intervals, and to steel posts and droppers with proprietary clips or 2 mm galvanised tie wire, at 150 mm intervals.

The netting shall also be fastened to each wire between posts and droppers at intervals not exceeding 1 metre with 2 mm galvanised tie wire or proprietary clips.

## R72.4.5 Chain Wire Fences

Posts shall be set in concrete footings of the dimensions shown on the detailed drawings, with the top of the concrete crowned to shed water. End, corner and gateposts shall be braced as shown on the Drawings. Line posts shall be braced as shown on the Drawings at not more than 120 m intervals.

Line wires shall be strained before chain wire is attached.

Chain wire shall be tightened and securely fastened to posts and line wires. Fastening to end, corner and gateposts shall be by stretcher bar assemblies or by lacing through each outer mesh with 2 mm diameter galvanised tie wire. Chain wire shall be fastened to line posts and line wires with 2 mm diameter galvanised tie wire or approved clips. The fastenings shall be spaced at not more than 400 mm intervals on line posts and at not more than 500 mm intervals on line wires.

**R72.4.6 Steel Post and Welded Mesh Fences**

Posts shall be set in concrete footings of the dimensions shown in the detailed drawings, with the top of the concrete crowned to shed water.

Welded mesh panels shall be attached to posts with commercial quality galvanised fittings.

**R72.4.7 Gullies or Depressions**

Wire or Prefabricated wire fencing constructed across gullies or depressions shall be tied down and made stock proof at these locations.

Tie down posts comprising 600 mm galvanised star steel posts shall be driven into the ground at an angle of 45 degrees, and the bottom 4 wires preferably adjacent to a post or dropper shall be tied to it by galvanised tie wire at least 2 mm diameter.

Additional posts, wires, netting and droppers as necessary shall be provided to make any spaces under the fence stock proof.

**R72.4.8 Paling Fences**

Paling fences shall be constructed to the dimensions and locations described in the Fencing Agreement and / or as shown on the Drawings.

**R72.4.9 Gates**

Gates of the types and sizes specified shall be installed at locations shown on the Drawings.

The gates shall be hung on galvanised hinges of commercial grade designed for the task, so that the gate swings freely. Gates shall open into the landowner's property, unless otherwise shown or directed.

Gates shall be fitted with a catch for holding them securely closed, of a type to suit the gate and adjoining fence. Gates shall be fitted so that they are stockproof to the intent of the type of adjoining fencing.

**R72.4.10 Junctions with Existing Fences**

New fences shall be connected to existing cross fences, and existing fences which continue the line of new fences. Wire products in existing fences shall be strained and securely fastened to the corner posts.

**R72.5 REMOVAL OF EXISTING FENCES**

Where shown on the Drawings or otherwise directed, existing fences, including all wires, mesh, posts, strainers and concrete footings, shall be removed. All materials comprising the removed fences shall become the property of the contractor, and shall be removed from the site.

All post holes shall be backfilled with topsoil and compacted.

**R72.6 PAYMENT****R72.6.1 New Fencing**

Payment for the construction of new fences shall be based on the rate per linear metre, quoted in the Schedule of Rates. Lengths constructed shall be measured parallel with ground slopes.

Payment shall be on a paddock by paddock basis, including gates and side fences.

The rate shall include all works necessary for construction of the fencing, including clearing and levelling the fence line, excavation and disposal of materials, the supply and installation of all materials comprising the fencing, including additional materials for crossing gullies or depressions, and making connections to existing fences.

**R72.6.2 Gates**

Payment for erection or relocation of gates shall be based on the rate for each type of gate quoted in the schedule.

The rate shall include the supply of all components necessary for erection of the gate, the hanging and fixing of the gate and its catch including adjustments to ensure that it is stockproof, and any minor removal of earth to permit it to swing open fully.

**R72.6.3 Removal of Existing Fencing**

Payments for the removal of existing fencing shall be based on the tendered rate per linear metre, measured parallel with the ground slopes.

The rate shall include the removal and disposal of all materials including gates, the backfill and compaction of postholes, and any clearing of vegetation necessary to achieve this work.