ACS1320 Timber Pole Retaining Walls

Contents

ACS1320.1 Scope

This specification covers the construction of timber pole retaining walls.

ACS1320.2 Materials

Poles and post railings shall be Radiata Pine treated for land use in accordance with Timber Preservation Authority Commodity Specification H5 and branded accordingly. Poles shall also be in accordance with NZS 3605. Poles for use in marine or estuarine environments shall be H6.

Pole dimensions as shown on the Drawings shall be the minimum end diameter. Variation of pole diameters from that indicated on the Drawings shall not be permitted without the written approval of the Engineer.

All bolts, nuts, washers, and metal connections shall be 316 stainless steel.

Concrete shall be in accordance with Auckland Council Standard Specification *ACS610 Concrete Construction*. The characteristic compressive strength of concrete for encasement of piles shall be f'c = 17.5 MPa.

ACS1320.3 Setting out

The set-out of all pole positions shall be checked by the Engineer before the Contractor installs the poles.

ACS1320.4 Tolerances

Poles shall be installed to the line and level required on the specific Drawings. The position tolerance for poles shall be within ±50 mm from the specified design. Notwithstanding this, the vertical centreline of any pole, defined at the top of that pole, shall remain within a tolerance of ±10 mm from a straight line joining the vertical centrelines of the extreme poles in that row.

Where timber pole retaining walls are required to be constructed on a curve, the vertical centreline of any pole, defined at the top of that pole, shall remain within a tolerance of ±10 mm from radius or curve specified in the Drawings between the poles at either end of the curved section.

ACS1320.5 Construction

ACS1320.5.1 General

Poles shall be set out in straight rows inclined at 1 in 10 raked into the bank, unless otherwise specified.

Any cut surfaces shall be liberally painted with timber preservative (Copper Napthenate) before installation.

The upper surface of poles exposed to rainfall shall be cut to an angle of not less than fifteen degrees from horizontal to shed rainwater away from the wall.

ACS1320.5.2 Drilling for post holes

Drilling shall be undertaking by track or tractor mounted auger machinery suitable for drilling to the depth specified on the Drawings. Holes should be at the diameters shown on the Drawings. Drilling shall be taken to a depth below required pole embedment depth to allow for the base pad.

ACS1320.5.3 Pole placement

Pole placement and concrete embedment shall be carried out within 24 hours of completion of drilling. Prior to placement of the base pad, holes shall be completely dewatered and free of loose soil. No concrete is to be placed under water.

Poles shall be carefully placed into holes with the large end bearing directly onto the concrete base or granular fill with no fines. A concrete pad of 100 mm minimum depth or granular fill of 150 mm depth is required to be poured prior to placing of poles.

Alignment of poles is particularly important to ensure correct alignment of railings. Poles should be correctly aligned prior to embedment and temporary bracing shall be used to maintain positioning of poles until concrete is cured.

Concrete shall be finished at a level and slope to avoid ponding of water against the piles and left to cure for minimum of 7 days before temporary bracing is removed and 28 days before any backfill is placed.

ACS1320.5.4 Fixings and rails

The fixing bolt shafts and internal surfaces of drilled holes within the poles shall be coated with multi-purpose grease before fitting.

Timber rails are to be secured to the timber retaining poles with 8 gauge galvanised staples unless noted otherwise on the Drawings.

If half -round timber is used, alternate large and small end of rails to keep rails horizontal. Maintain staggered joints over the length of the wall. Ensure rail ends fall at poles centres.

ACS1320.5.5 Subsoil drains

A continuous subsoil drain of perforated plastic drain pipe shall be provided at the rear of the wall and wrapped in a filter sock to be approved by the Engineer, unless noted otherwise on the Drawings. The drain is to be connected to a free outfall via a silt trap.

A drainage layer of clean scoria with a minimum width of 150 mm shall be provided at the back of the wall for the full length. The scoria shall surround and protect the perforated drain from being collapsed by soil compaction.