



Muswellbrook Shire Council

# CONSTRUCTION SPECIFICATION

AUS-SPEC (Cot 09)

1192 Signposting

**Version 01**

### **Amendment Record for this Specification Part**

This Specification is Council's edition of the AUS-SPEC generic specification part and includes Council's primary amendments.

Details are provided below outlining the clauses amended from the Council edition of this AUS-SPEC Specification Part. The clause numbering and context of each clause are preserved. New clauses are added towards the rear of the specification part as special requirements clauses. Project specific additional script is shown in the specification as italic font.

The amendment code indicated below is 'A' for additional script 'M' for modification to script and 'O' for omission of script. An additional code 'P' is included when the amendment is project specific.

Amendment Sequence No.	Key Topic addressed in amendment	Clause No.	Amendment Code	Author Initials	Amendment Date
0	No amendment has been made	all	Nil		13 June 2012

## **Contents**

<b>1192 Signposting</b>	<b>1</b>
<b>1 General</b>	<b>1</b>
1.1 Responsibilities	1
1.2 Cross references	1
1.3 Referenced documents	1
1.4 Standards	2
1.5 Submissions	2
1.6 Inspection	2
<b>2 Pre-construction planning</b>	<b>3</b>
2.1 Scheduling	3
<b>3 Materials</b>	<b>3</b>
3.1 Street and community facility name signs	3
3.2 Regulatory, warning and guide signs	4
3.3 Sign support structures	6
3.4 Footing reinforcement	7
3.5 Off-site requirements	7
<b>4 Execution</b>	<b>8</b>
4.1 Provision for traffic	8
4.2 Establishment	8
4.3 Clearing	8
4.4 Sign structure footings	8
4.5 Erection	9
4.6 Adjustment of existing signs and support structures	9
4.7 Sign structure warranty	9
4.8 Limits and tolerances	10
<b>5 Measurement and payment</b>	<b>11</b>
5.1 Measurement	11
5.2 Pay items	11

## 1192 SIGNPOSTING

**1 GENERAL****1.1 RESPONSIBILITIES****Objectives**

General: Provide signs and support structures for Regulatory, Warning and Guide signs, proprietary Street Name and Community Facility Name Signs and adjust existing signs, as documented.

**Performance**

Requirements: Supply, erect and adjust the signs and support structures to conform with this worksection and as shown on the drawings.

Selections: As documented.

**1.2 CROSS REFERENCES****General**

Requirement: Conform to the following:

- 0152 *Schedule of rates – supply projects.*
- 0161 *Quality (Construction) or 0167 Integrated management.*
- 0179 *General requirements (Construction).*
- 0319 *Minor concrete works.*
- 1101 *Control of traffic.*

**1.3 REFERENCED DOCUMENTS**

The following documents are incorporated into this worksection by reference:

**Standards**

AS 1163-1991	Structural steel hollow sections.
AS 1214-1983	Hot-dip galvanized coatings on threaded fasteners (ISO metric coarse thread series).
AS 1379-2007	Specification and supply of concrete.
AS/NZS 1554	Structural steel welding.
AS/NZS 1554.1: 2004	Welding of steel structures.
AS 1580	Paints and related materials—Methods of test.
AS 1580.108.2: 2004	Dry film thickness—Paint inspection gauge.
AS/NZS 1580.602.2: 1995	Measurement of specular gloss of non-metallic paint films at 20°, 60° and 85°.
AS 1627	Metal finishing – Preparation and pre-treatment of surface
AS 1627.1: 2003	Removal of oil, grease and related contamination
AS 1627.4: 2005	Abrasive blast cleaning of steel
AS 1627.9: 2002	Pictorial surface preparation standards for painting steel surfaces
AS/NZS 1734: 1997	Aluminium and aluminium alloys—flat sheet, coiled sheet and plate.
AS 1742	Manual of uniform traffic control devices.
AS 1742.5-1997	Street name and community facility name signs
AS 1743-2001	Road signs—Specifications.
AS 1744-1975	Forms of letters and numerals for road signs.
AS/NZS 1866: 1997	Aluminium and aluminium alloys—Extruded rod, bar, solid and hollow shapes.
AS/NZS 2311: 2009	Guide to painting of buildings.
AS 2700-1996	Colour standards for general purposes.
AS/NZS 3678: 1996	Structural steel—Hot-rolled plates, floorplates and slabs.
AS/NZS 3679	Structural steel.
AS/NZS 3679.1: 1996	Hot-rolled bars and sections.
AS 4100-1998	Steel in structures.
AS/NZS 4671: 2001	Steel reinforcing materials.
AS/NZS 4680: 2006	Hot-dip galvanized (zinc) coatings on fabricated ferrous articles.

**Other publications**

Austroads

Glossary of Austroads Terms 2008

**1.4 STANDARDS****General**

Standard: To AS 1742.

Road signs: To AS 1743.

Letters and numerals for road signs: AS 1744.

**1.5 SUBMISSIONS****Acceptance criteria**

General: All submissions will be subject to the approval of the Superintendent.

**Documents**

- Proposed supplier.
- Materials and components: Submit alternatives for non-reflective materials where relevant.
- Execution details: Submit details of set-out.

**1.6 INSPECTION****Notice**

General: Give notice so that the inspection may be made of the following:

**Summary of HOLD POINTS**

Clause/subclause	Requirement	Notice for inspection	Release by
<b>Street and community facility name signs</b>			
<b>Approval</b>	Details of manufacturer materials and attachment systems	1 week prior to commencement of manufacture	Superintendent
<b>Regulatory, warning and guide signs</b>			
<b>General</b>	Evidence that materials and parts proposed comply with worksection requirements	1 week prior to engaging supplier	Superintendent
<b>Retro-reflective material for background and legend</b>	Details of material and compatibility in application and durability	1 week prior to ordering	Superintendent
<b>Sign support structures</b>			
<b>General</b>	Details of suppliers and evidence of structural conformity	1 week prior to engaging supplier	Superintendent
<b>Attachment of signs</b>	Details of proposed attachment systems	2 weeks prior to fabricating attachment systems	Superintendent
<b>Footing reinforcement</b>			
<b>Steel reinforcement cages</b>	Evidence of material conformity	1 week prior to fabrication	Superintendent
<b>Off-site requirements</b>			
<b>Inspection</b>	Notice of availability of sign structures for inspection	2 working days	Superintendent
<b>Establishment</b>			

Clause/subclause	Requirement	Notice for inspection	Release by
<b>Existing underground services</b>	Locate services and protect against damage	1 week prior to erection	Superintendent
<b>Location</b>	Details of set-out	1 week prior to erection	Superintendent

#### Summary of WITNESS POINTS – On site activities

Clause/subclause	Requirement	Notice for inspection
<b>Footing reinforcement</b>		
<b>Steel reinforcement cages</b>	Splicing location and method	3 working days before splicing bars
<b>Clearing</b>		
<b>General</b>	Clear vegetation after set-out on advice from Council's Tree Preservation Officer	3 working days before clearing
<b>Sign structure footings</b>		
<b>Excavation</b>	Excavation as shown on drawings and as directed, including disposal of material	1 working day before next activity
<b>Erection</b>		
<b>Sign damage</b>	Repair or replace damaged signs	1 week before installing signs
<b>Adjustment of existing signs and support structures</b>		
<b>General</b>	Conform to Drawings and Superintendent direction	1 week before adjusting signs

## 2 PRE-CONSTRUCTION PLANNING

### 2.1 SCHEDULING

#### Program for works

Schedule: Signposts materials and on site locations.

Planning: Program the works to ensure adequate resources such as for control of traffic and locating existing underground services.

## 3 MATERIALS

### 3.1 STREET AND COMMUNITY FACILITY NAME SIGNS

#### Drawings

Information: Show the following information on drawings:

- Sign and legend selection and details.
- Support structures.
- Locations and mounting heights.

#### Standards

General: To AS 1742.5.

#### Signage system

Local authority requirements:

- Conform to Council's adopted signage system.
- Incorporate the Council's logo, as supplied by the Superintendent.

#### Proprietary sign requirements

Manufacture and installation: To the requirements of AS 1742.5 Street Name and Community Facility Name Signs, to the following details:

**Approval**

Submission: Submit details of the manufacturer for all sign materials and sign attachment systems prior to commencement of sign manufacture. This is a **HOLD POINT**.

**3.2 REGULATORY, WARNING AND GUIDE SIGNS****Drawings**

Information: Show the following information on drawings:

- Sign and legend selection.
- Support structures of the following types:
  - . Standard round galvanised steel posts of size 50, 65 or 80 mm nominal bore, fitted with a cap for waterproofing.
  - . Purpose-designed steel structures as shown on the Drawings and manufactured to AS 4100.
- Anchor bolt assemblies.
- Locations and mounting heights.

**Standards**

Sign and legend dimensions and details: To AS 1743.

**General**

Supplier: Advise the names of the proposed suppliers of signs for the Superintendent's approval. Use suppliers who have previously established, or can now establish, their competence to carry out the work to conform with this worksection.

Proof of quality: Supply documentary evidence that all materials and parts proposed for use comply with the requirements of this worksection. This action is a **HOLD POINT**.

Temporary signs: Install temporary signs for the control of traffic nominated in *1101 Control of traffic*.

**Sign blanks**

Aluminium quality: Free of cracks, tears and other surface blemishes and the edges true and smooth.

Aluminium sheet alloy thickness of Sign blanks: 1.6 mm.

Type and temper: Type 5251 or Type 5052 and Temper H38 or Temper H36 to AS 1743.

The dimensions of the sign blank:  $\pm 1.5$  mm of the dimensions specified.

The finished sign: Flat within a maximum allowable bow of 0.5% of the maximum dimension of the sign blank in any direction.

One piece blanks: Provide one piece sign blanks if size permits otherwise, construct a multipiece sign.

Multipiece sign: Construct as follows:

- Minimise the number of sheets butted with 1 mm maximum gap at any point along the joint.
- Cover all joints by a backing strip of the same material and colour as used for the sign blank and with a minimum width of 50 mm over the full length of the joint.
- Fix the backing strip to each sheet with rivets, colour matched and at 200 mm maximum spacings.

Aluminium extrusion as backing strip: The aluminium extrusion used for mounting may be used as the backing strip for horizontal joints where it complies with the spacing requirements.

Face treatment: Chemically clean and etch or mechanically abrade the face of each sign blank. If the sign blank is to receive a paint background, spray paint the face with a compatible primer.

Back treatment: Uncoat the back of each sign blank and render the surface finish dull and non-reflective either by mechanical or chemical means and free of scratches and blemishes.

Mounting: Supply the signs with square holes or aluminium extrusion backing for mounting purposes, at the centre spacings as shown on the drawings.

**Aluminium extrusion backing**

Design section: Include the special aluminium extruded sections, as shown on the drawings, for mounting purposes.

Aluminium Type: 6063-T5 to AS/NZS 1866.

Fixing: Fix the aluminium extrusion at the centre spacings as shown on the drawings and fix to the sign blank with colour matched rivets at 200 mm maximum spacings.

**Rivets**

Type: Domed head and shank of aluminium alloy with a steel mandrel.

Colour matching: Paint head and shank with alkyd enamel over an etch primer prior to insertion.

**Retro-reflective material for background and legend**

Approval: Required for the material and compatibility, both in application and durability. This is a **HOLD POINT**.

Standard: To AS 1743 for Class 1, Class 2 and Class 2A materials. Unless shown otherwise on the Drawings, provide Class 2 material.

Application: Apply retroreflective material to the sign blank to conform with the manufacturers recommended methods so that it is completely adhered without bubbles, cracks or blemishes.

**Non-reflective background material—Background paint**

Paint system:

- Primer: One coat 2-pack epoxy.
- Finishing coats: Two coats 2-pack polyurethane (B20) or acrylic polyurethane (B44).
- Standard: To AS/NZS 2311 clause 5.2.

Application: Apply the paint using conventional air spray application to give a uniform cover free of blemishes. A minimum dry film thickness of 38 microns is required when tested to conform with AS 1580.108.2.

Colours: To AS 1743 from one of the following AS 2700 colours:

- Red: R13 Signal Red.
- Yellow: Y14 Golden Yellow.
- Brown: X65 Dark Brown.
- Blue: B11 Rich Blue.
- Standard Green: G12 Holly Green.
- Freeway Green: Emerald.

Background colours: From one of the following AS 2700 colours:

- White—Gloss.
- 'Dark' Green—Matt Colour No G61.
- 'Tourist' Brown—Matt Colour No X65.
- 'Dark Grey'—Matt Colour No N64.

Exact colorimetric values: To AS 2700.

Gloss levels:

- Matt coatings: Between 12 % - 15 % of gloss as determined by AS/NZS 1580.602.2, using an 85° head
- Gloss coatings: Between 85% - 95% of gloss as determined by AS/NZS 1580.602.2 using a 20° head.

**Non-reflective background material—Background sheet material**

Quality: Adhesive cast vinyl sheet material or other equivalent approved material can be provided in place of background paint. Provide material of uniform density compatible with the material provided for the legend, both in application and durability.

Colours and gloss: Provide uniform colours and gloss levels and conform to the requirements as above.

Application: Apply sheet material to the sign blank in accordance with the manufacturers recommended methods so that it is completely adhered without bubbles, cracks or blemishes.

**Non-reflective material for legend—Legend screening ink**

Quality: Provide high quality screening ink, full gloss, non-fade, non-bleed and scratch resistant type of ink compatible with the material to which it is applied. Provide screening ink with durability at least equal to the material to which the screening ink is applied.

Application: Apply screening ink legends to the background material in conformance with the manufacturers recommended methods.

**Non-reflective material for legend—Legend sheet material**

Quality: Adhesive cast vinyl sheet material or other equivalent approved material can be provided in place of screening ink. Provide material of uniform density and compatible with the material provided for the background both in application and durability.

Application: Apply sheet material legends to the background material in conformance with the manufacturers recommended methods so that it is completely adhered without bubbles, cracks or blemishes.



**Non-reflective material for legend—Colours and finish**

General: The requirements of **Regulatory, warning and guide signs** also apply to non-reflective materials for legends but additional colours complying with AS 2700 may be specified.

**Reference markings**

Identification code:

- Clearly and permanently stamp or engrave all warning, regulatory and guide signs with an identification coding. Do not damage the front face.
- Code cipher height: Between 6 and 10 mm.

Code location: At the rear face to the bottom left hand corner of rectangular signs and on or below the horizontal centre line to the left hand rear edge of other shaped signs.

Information required:

- Sign reference number.
- Manufacturer's Name.
- Month and Year of Manufacture.
- Manufacturer and Class of Retro-Reflective Material.

Proprietary signs: The requirements for reference markings do not apply to proprietary street name or community facility name signs.

**Protection of signs**

Protection: Protect the signs from damage during storage and transportation to site.

**3.3 SIGN SUPPORT STRUCTURES****General**

Scope: Provide materials, fabrication of components and protective treatment of the sign support structures and anchor bolt assemblies, and the supply and fabrication of footing reinforcement cages.

Approved supplier: Provide the following for approval:

- Names of the proposed suppliers of sign support structures.
- Proof of competence: Suppliers who have previously established, or can now establish, their competence to carry out the work to conform with this worksection.
- Proof of quality: Supply documentary evidence that all materials and parts proposed for use conform with the requirements of this worksection.
- Fabrication details proposed. This is a **HOLD POINT**.

Structure details: Provide details of the sign support structures under the Contract on the drawings.

**Fabrication**

Standards: Fabricate purpose-designed steel structures from steel sections to AS 1163, AS 3678 and AS/NZS 3679.1.

Splices: Conform to the following:

- Restrict splices in members to a maximum of one splice per member.
- Provide splices of full penetration butt welds.

Welding to AS 1554.1: Category SP for sign structure welds and Category GP for anchor bolt assemblies.

Anchor bolts: Fabricate anchor bolt assemblies for purpose-designed structures.

Finish: Finish all steelwork free from pitting, sharp corners and projections and clean of mill scale, loose rust and foreign particles.

Preparation for galvanising: Provide the following:

- Chemical clean to AS 1627.1.
- Abrasive blast cleaning to AS 1627.4.
- Grade: Sa 2 ½ to AS 1627.9.

**Protective treatment**

Galvanizing:

- Prefinished: Standard galvanised steel posts.
- Hot dip galvanizing after fabrication: All steel components including brackets and anchor bolt assemblies as follows:

- . Average minimum coating thickness of 85 microns and a bright finished surface free from white rust and stains, to AS/NZS 4680.
- Bolts and nuts: To AS 1214.

Splices in galvanized posts: Paint splices in standard galvanized steel posts by using an organic zinc-rich primer, or inorganic zinc silicate paint, in accordance with the repair requirements in Clause 8 of AS/NZS 4680.

#### **Attachment of signs**

Typical systems: Provide posts and other components with the required sign attachment holes or fittings to suit the typical attachment systems as shown on the drawings. Attach sign panels to each supporting member at each extrusion section or bolt hole in the sign panel.

Contractor's responsibility: Submit details of the proposed attachment systems for approval. This is a **HOLD POINT**.

### **3.4 FOOTING REINFORCEMENT**

#### **Steel reinforcement cages**

Standards: To AS/NZS 4671.

Evidence of quality: Supply evidence that all materials conform with the requirements of this worksection. This is a **HOLD POINT**.

Cleanliness: Provide steel reinforcement free from loose or thick rust, grease, tar, paint, oil, mud, millscale, mortar or any other coating, but not to a smooth polished condition.

Accuracy: Bend reinforcement to the dimensions and shapes shown on the drawings. Do not permit heating of reinforcement for purposes of bending unless Grade 400 deformed bar reinforcement is specified.

Full bars: Furnish all reinforcement in the lengths indicated on the drawings. Splicing of bars will only be permitted with the approval of the Superintendent as to the location and method of splicing. This is a **WITNESS POINT**.

Splicing: Measure splicing in reinforcing fabric as the overlap between the outermost wire in each sheet of fabric transverse to the direction of splice, but not less than the pitch of the transverse wires plus 25 mm.

Welded splices and tack welding of bars: To AS 1554.

### **3.5 OFF-SITE REQUIREMENTS**

#### **Identification**

Purpose-designed structure: Provide information as follows:

- Locations: The post column one metre above base plate, the outreach arm, and the sign support vertical fixing.
- Information shown:
  - . Sign reference number.
  - . Manufacturer's name.
  - . Month and year of manufacture.
  - . Drawing Number.

Marking: Legible, durable and applied by etching, stamping, engraving or welding.

Warranty: This marking is additional to date stamping required under **Sign structure warranty**.

#### **Inspection**

Pre-delivery Inspection: All purpose-designed structures covered by this worksection are subject to an inspection at the Contractor's Works prior to acceptance.

Notice: Notify the Superintendent of the availability of the sign structures for pre-storage or pre-delivery inspection. This is a **HOLD POINT**.

#### **Inspection certificate**

General: The Superintendent will issue the Contractor with a Certificate listing particulars of the items inspected.

The Certificate will indicate either:

- The sign structures satisfy the requirements of the worksection and are to be accepted; or
- The grounds for rejection of the goods.

**Storage**

Storage: Store the sign support structures and reinforcement cages until required to be incorporated into the Works or required by the Superintendent.

Store completed reinforcement cages under a waterproof shelter and supported above the surface of the ground, and protected from damage and from deterioration due to exposure.

**4 EXECUTION****4.1 PROVISION FOR TRAFFIC****Minimise inconvenience**

Minimise delay: Provide for traffic to conform with *1101 Control of traffic* while undertaking the work and organise the work to avoid or minimise delays and inconvenience to traffic, both vehicular and pedestrian.

**Premature sign exposure**

Secure sign: Where a sign is erected before it is intended for use by traffic and is visible to traffic, completely and securely wrap the face of the sign in porous cloth sheeting or other approved opaque covering material until the Superintendent directs that the sign is to be uncovered.

**4.2 ESTABLISHMENT****Existing underground services**

Services laid in proximity to the signs: Locate prior to placement of footings and erection of signs and protect services from damage. This is a **HOLD POINT**.

Location: DIAL 1100 BEFORE YOU DIG is a free service, from anywhere in Australia, for locating underground pipe and cables (possible within two working days). See [www.dialbeforeyoudig.com.au](http://www.dialbeforeyoudig.com.au).

**Alignment**

General: Comply with the following:

- Align signs approximately 5 degrees away from a right angle to the direction of traffic they are intended to serve.
- On curved alignments, determine the angle of placement by the course of approaching traffic rather than the orientation of the road at the point where the sign is located.

**Location**

General: Locate the signs as shown on the drawings or as directed by the Superintendent.

On site: Set out the work to ensure that all signs and support structures are placed as shown on the drawings or as directed by the Superintendent.

Submissions: Submit details of the set out and the proposed disposition and alignment of each sign support structure. This is a **HOLD POINT**.

**4.3 CLEARING****General**

Clearing vegetation: Following set out approval and advice from Council's Tree Preservation Officer clear and remove any trees and undergrowth within 3 m of the sign support structure and along a driver's line of sight to the front of the sign. This is a **WITNESS POINT**.

**4.4 SIGN STRUCTURE FOOTINGS****Details**

Construction: Construct the footings for a simple pipe support, or the footings for each post of a purpose-designed sign support structure, as shown on the drawings or as directed.

**Excavation**

Excavation and disposal: Neatly excavate footings to the depth and width shown on the drawings. Do not excavate by machine within 1 m of existing underground services. Dispose of the material from the excavation in an approved manner. This is a **WITNESS POINT**.

**Anchor bolt assemblies**

General:

- Accurately place and provide firm support.

- Provide anchor bolt assemblies with levelling nuts under the sign structure baseplates to allow adjustment of the structure after installation.
- Protect all exposed bolt threads from damage or adhesion of concrete during footing construction.

#### **Steel reinforcement**

General: Place steel reinforcement as shown on the drawings.

#### **Concrete quality**

Concrete in the footings of sign support structures: To *0319 Minor concrete works* and having a minimum compressive strength:

- 20 MPa at 28 days for pipe support footings.
- 32 MPa at 28 days for purpose-designed support footings.

#### **Ready mixed concrete**

Standard: If ready mixed concrete is used, mix and deliver to AS 1379.

### **4.5 ERECTION**

#### **Position and support**

General: Accurately position and support all components during erection.

#### **Top of post**

Requirements: To conform with the following:

- Extend the top of each pipe support post beyond the upper extrusion section or bolt holes on the sign panels to enable attachment of the signs.
- Finish the top of each post below the top edge of the sign panel.
- Multi-post installations: Finish the tops of the posts at the same level except where sign shape or the arrangement of sign panels dictates otherwise.

#### **Sign damage**

Protection: During erection, support and brace sign panels and protect the sign face from damage.

Repair: Repair signs damaged during erection to a standard equivalent to the original sign or replaced by the Contractor at the Contractor's cost. This is a **WITNESS POINT**.

#### **Treatment of damaged areas**

Protective treatment: To conform with the following:

- Scratched and slightly damaged areas not exceeding 2500 mm<sup>2</sup> on any one structure: Repair with an organic zinc-rich primer, or inorganic zinc silicate paint, to the repair requirements of AS/NZS 4680.
- Totally-damaged coating areas exceeding 2500 mm<sup>2</sup>: Regalvanize.

Costs: Borne by the Contractor.

### **4.6 ADJUSTMENT OF EXISTING SIGNS AND SUPPORT STRUCTURES**

#### **General**

Adjustment of existing signs: Where shown on the drawings and where directed by the Superintendent, adjust existing sign panels and sign support structures. This is a **WITNESS POINT**.

Scope:

- Minor adjustments of sign panels and/or sign support structures.
- Dismantling of signs and sign support structures
- Relocation or replacement of sign support structures including footings and re-erection of signs.

### **4.7 SIGN STRUCTURE WARRANTY**

#### **General**

Scope: Supply of any structure under this worksection.

Warranty period: 12 months following the date of dispatch from the Contractor's Works to the Site.

Failed or defective structures: Obligations:

- Remove any sign structure which has failed in service or found defective within 12 months of the date of dispatch.
- Make good the defect or arrange to have the defect made good, and subsequently return and re-erect the good unit at the original location at no charge to the Principal.

- Unless otherwise agreed, process and return defective structures within 30 calendar days from the date the Contractor is notified by the Principal of the defect.

Warranty exclusion: Any structure which has failed as a result of a traffic accident, abuse or act of vandalism caused by a third party after delivery to the site is not covered by warranty provisions.

Date of dispatch mark: In order to facilitate checking of warranty claims, legibly stamp, etch or engrave the date of dispatch from the Contractor's Works to the Site on all separate items of the sign structure.

Application: This warranty to apply notwithstanding any defects liability period provided for in the General Conditions of Contract.

#### 4.8 LIMITS AND TOLERANCES

##### Application

Summary: The limits and tolerances applicable to this worksection are summarised in **Summary of limits and tolerances table**.

##### Summary of limits and tolerances table

Activity	Limits/Tolerances	Worksection Clause Reference
<b>Sign blank</b>		
-Dimensions	$\pm 1.50$ mm of specified dimensions	<b>Regulatory, warning and guide signs</b>
-Bow	< 0.5% of maximum dimension	<b>Regulatory, warning and guide signs</b>
-Butt gap in multipiece sign	< 1 mm	<b>Regulatory, warning and guide signs</b>
-Rivet spacing in backing strip	< 200 mm	<b>Regulatory, warning and guide signs</b>
-Backing strip width	> 50 mm	<b>Regulatory, warning and guide signs</b>
<b>Extrusion Backing</b>		
-Rivet Spacing	< 200 mm	<b>Regulatory, warning and guide signs</b>
<b>Background Paint</b>		
-For matt coatings, gloss level	Between 12% - 15%	<b>Regulatory, warning and guide signs</b>
-For gloss coatings, gloss level	Between 85% - 95%	<b>Regulatory, warning and guide signs</b>
<b>Reference marking</b>		
-Height of Coding	Between 6 mm - 10 mm	<b>Reference markings</b>
<b>Sign Support Structures</b>		
-Protective Treatment thickness	> 85 microns	<b>Sign structures and anchor bolt assemblies</b>
-Paint coating over Splices in standard galvanised posts	> 100 microns	<b>Sign structures and anchor bolt assemblies</b>
-Damaged surface of galvanised surfaces:		
. Coating with zinc rich paint	Area < 2500 mm <sup>2</sup>	<b>Erection</b>
. Regalvanise	Area > 2500 mm <sup>2</sup>	<b>Erection</b>
<b>Clearing</b>		
-Trees and Undergrowth to be cleared	< 3 m from sign support structure	<b>Clearing</b>
<b>Concrete in footings of sign support structures</b>		
-Strength		<b>Sign structure footings</b>

Activity	Limits/Tolerances	Worksection Clause Reference
. Pipe support footings	20 MPa at 28 days	<b>Sign structure footings</b>
. Purpose-designed support footings	32 MPa at 28 days	

## 5 MEASUREMENT AND PAYMENT

### 5.1 MEASUREMENT

#### General

Payments made to the Schedule of Rates: To *0152 Schedule of rates – projects*, this worksection, as shown on the drawings and Pay items **1192.1 to 1192.12** inclusive.

Lump Sum prices: Not acceptable.

Unpriced items: If any item, for which a quantity of work is listed in the Schedule of Rates, has not been priced by the Contractor, it is to be understood that due allowance has been made in the prices of other items for the cost of the activity which has not been priced.

#### Methodology

The following methodology will be applied for measurement and payment:

- The cost of any provision for traffic and covering of signs is deemed to be included in the various Pay items in this worksection and not *1101 Control of traffic*.
- Sign structure support concrete footings: In conformance with this worksection and not *0319 Minor concrete works*.
- Miscellaneous minor concrete work not included in the Pay items in this worksection: In conformance with Pay items described in *0319 Minor concrete works*.

### 5.2 PAY ITEMS

Pay items	Unit of measurement	Schedule rate scope
<b>1192.1 Supply and delivery of signs (area less than 1 m<sup>2</sup>)</b>	Each	All costs of mounting extrusions, fittings, labelling, packaging and delivery to site.
<b>1192.2 Supply and delivery of signs (area between 1 m<sup>2</sup> and 3 m<sup>2</sup>)</b>	Each	All costs of mounting extrusions, fittings, labelling, packaging and delivery to site.
<b>1192.3 Supply and delivery of signs (area greater than 3 m<sup>2</sup>)</b>	m <sup>2</sup> of signs supplied	The total face surface area of each sign supplied. All costs of mounting extrusions, fittings, labelling, packaging and delivery to site.
<b>1192.4 Supply and delivery of sign support structures (standard round galvanised posts)</b>	Each post	All costs of fabrication, fittings, caps, packaging, storage for up to 2 months and delivery free on truck
<b>1192.5 Supply and delivery of sign support structures (purpose-designed)</b>	Each sign support structure. Note: Where a purpose-designed sign support structure consists of more than one post, the unit of measurement (each) to include all posts required for that particular sign.	All costs of fabrication, hot-dip galvanising, fittings, packaging, storage for up to 2 months and delivery free on truck.
<b>1192.6 Supply and delivery of anchor bolt assemblies</b> <b>1192.6(1) Mk 1</b> <b>1192.6(2) Mk 2</b>	Each for the anchor bolt assemblies for each individual footing	All costs of fabrication, hot-dip galvanising, fittings, packaging, storage for up to 2 months and delivery free on truck.

Pay items	Unit of measurement	Schedule rate scope
1192.6(3) Mk 3 1192.6(etc) etc		
<b>C0602.7 Supply and delivery of reinforcement cages</b> 1192.7(1) (Size) 1192.7(2) (Size) 1192.7(3) (Size) 1192.7(etc) etc	Each for the complete reinforcement cage for each individual footing	All costs of fabrication, packaging, storage for up to 2 months and delivery free on truck.
<b>1192.8 Erection of sign structures (standard round galvanized posts)</b>	Each post erected	All costs of clearing, excavation, casting of concrete footings, erection and bracing.
<b>1192.9 Erection of sign structures (purpose-designed)</b>	Each sign support structure erected. Note: Where a purpose-designed sign support structure consists of more than one post and footing, the unit of measurement (each) to include all posts and footings required for that particular sign.	All costs of clearing, excavation, placement of reinforcement cages and anchor bolt assemblies, casting of concrete footings, erection and bracing.
<b>1192.10 Erection of signs (to standard round galvanized posts)</b>	Each sign erected	All costs of erection and attachment costs and any necessary temporary covering of signs with plastic or other approved opaque covering.
<b>1192.11 Erection of signs (to purpose-designed structures)</b>	m <sup>2</sup> of signs erected	The total face surface area of the signs. All costs of erection and attachment costs and any necessary temporary covering of signs with plastic or other approved opaque covering.
<b>1192.12 Adjustment of existing signs and support structures</b>	m <sup>2</sup> of signs adjusted. Note: Separate pay items to be included for each adjustment required to re-erect existing signs and sign support structures and to cover all work required that is not covered by the other pay items under signposting.	The total face surface area of the signs adjusted. All costs of dismantling of signs and sign structure, relocation or replacement of sign structures including excavation, concrete footings, (including placement of reinforcement cages and anchor bolt assemblies where specified) and re-erection of signs including all fittings.