

**TECHNICAL STANDARD**

**FIRE HYDRANT LOCATION MARKING**  
**INSTALLATION OF BLUE REFLECTORS AND**  
**ASSOCIATED PAINTED ROAD MARKINGS**



This specification is to be read in conjunction with  
Water Supply Construction Manual (WSCM) Drawings Page F6 (Drg No. 2006-00467).

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## Referenced Documents

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### AUSTRALIAN STANDARDS

**AS 1742** - Manual of uniform traffic control devices

**AS 2700** - Colour standards for general purposes

**AS 1906.3** - Retroreflective materials and for road traffic control purposes

**AS 3554** - Epoxy - for raised pavement marker installation

### Australian Standard Handbooks

**SAA HB81.1** - Short term urban works, daytime only

**SAA HB81.21** - Short term rural works, daytime only

**SAA HB81.31** - Mobile works

**SAA HB81.41** - Short term urban night works

**SAA HB81.51** - Short term works on unsealed roads

**SAA HB81.61** - Bituminous surfacing works

### TRANSPORT SA (TSA)

Code of Technical Requirements for the Legal Use of Traffic Control Devices - 1999

Field Guide for Speed Limits at Works on Roads - Version 5 - 2003

## Definitions

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### Below Ground Hydrant

Also called “Fireplugs” or “Fireplug – Air Valves” (SA Water Stock Number 4210-0031). These hydrants are designed primarily for below-ground operation and are connected directly to the reticulation water main and located in a Street Box chamber (see WSCM Drawings – Section C).

### Pillar Hydrant

Also called “Fire Hydrants”. Pillar Hydrants have outlets about 1 m above ground level and come in single and double headed configurations with SA Water Stock Number 4210-0034 and 4210-0025 respectively. Use of above ground hydrants is restricted to locations in the major CBD areas where provision of below ground hydrants could create access difficulties.

### Cover Lid

The “Cover Lid” is identified as follows:

- the small inner lid of the standard 2 piece Street Box cover (Stock No. 5680-0060),
- the full cover of a standard 1 piece Street Box cover (Stock No. 5680-0312), or
- the full cover of a standard Topstone and Chamber Assy (Stock No. 5680-0065)

## Section 1: Scope

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This technical specification covers the product and installation requirements for Fire Hydrant location markings. The term Fire Hydrants covers both below-ground and pillar hydrants and the location marking is achieved by the use of Retroreflective Raised Pavement Markers (RRPMs) and specific painted markings as appropriate.

The installation of Fire Hydrant location markers can be divided into two categories as follows:

1. New main installations
2. Retrofitting installation program

The final installation requirements for both categories are the same, but the process will vary and are explained in Sections 2 and 3.

This specification is to be read in conjunction with Water Supply Construction Manual Drawings, Page F6 (Drg No. 2006-00467).

## Section 2: New Mains Installations

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SA Water is in the process of changing from marker posts to RRPMs and associated painted road markings. The official changeover date is 1<sup>st</sup> September 2007 and until that date RRPMs may be placed in the required location, but standard marker posts are still required to be installed.

After the 1<sup>st</sup> September 2007 all SA Water / United Water staff and contractors and land development contractors installing hydrants as part of SA Water's network infrastructure will be required to comply with the hydrant location marking requirements laid out in this specification. After the 1<sup>st</sup> September 2007 it will no longer be necessary to install marker posts.

## Section 3: Retrofitting Installation Program

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As part of the change from marker posts to RRPMs, SA Water / United Water will let a number of contracts to install the RRPMs and associated painted road markings. Existing marker posts shall be left in position, but they will not be replaced if damaged or stolen.

Contractors will be required to identify the specific contract area and locate all below ground and pillar hydrants within the contract area as follows:

- The location of hydrants (also known as Fireplugs) as shown on the AquaMap System.
- Establish that there is a hydrant located below the lid by lifting the cover and ensuring the presence of a water hydrant valve. If there is no hydrant then installation of RRPMs, painting of the "Cover Lid" and "No Parking" Line are not required.

Once all appropriate hydrants have been identified each hydrant shall be marked by the installation of RRPM plus painting of the "Cover Lid" and a "No Parking" Line.

Painted "No Parking" Lines are not required in any area where it is illegal to park eg on road corners or in front of driveways. All "Cover Lids" are to be painted.

## Section 4: Materials

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### Retroreflective Raised Pavement Marker (RRPM)

The RRPMS shall be blue bi-directional road markers complying with AS 1906.3 and be authorised by Infrastructure Standards Unit – a typical brand name and type is "Ray-O-Lite rounded shoulder RRPMS" or similar.

### Paint

The paint shall be TSA approved Waterborne Line Marking Yellow (Golden Yellow, Colour No. Y14 in AS 2700) paint with Quartz Non-slip additive. The paint and quartz Non-Slip additive shall comply with TSA and Australian Standards.

See <http://www.transport.sa.gov.au/caps/division2roadworks/default.htm>  
Part 245 (Pavement Marking Materials including Appendix 1 - Approved Paints)

## Section 5: RRPM Placement

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- One (1) RRPM shall be installed opposite each water hydrant and positioned perpendicular to the water main at a location in accordance with the following requirements:
  - Establish the hydrant is located below the lid by lifting the cover and ensuring the presence of a water hydrant valve. If there is no hydrant then **DO NOT** place a Retroreflective Raised Pavement Marker or paint the "Cover Lid" or "No Parking" Line.
  - The reflective faces of RRPMS are to face direction of traffic flow.
  - Where the road has a median strip, one RRPM shall be placed adjacent to the median strip opposite the location of the hydrant. The RRPM shall be in line with other existing RRPMS installed adjacent to the median strip, but should be kept clear of any painted lines. If no existing RRPMS are installed then the RRPM shall be placed either in a gap for a discontinuous line, or offset into the traffic lane to provide 25 – 50 mm spacing from a continuous line, consistent with AS 1742.2-1994.
  - For all other roads without a median strip, one (1) RRPM shall be placed on the road with a 25 – 50 mm clear offset from the painted centre line to the side of the road containing the hydrant, and should be kept clear of any paint. If no painted centre line exists RRPMS shall be installed, offset from the centre line of the road towards the side of the road containing the hydrant by 25 – 100 mm. Both installations shall be consistent with AS 1742.2-1994.

- Where the road has a traffic slip lane (e.g. for a right-hand turn), the RRPM shall be placed on the right hand side of the straight ahead lane, in line with existing RRPMs if installed, and should be kept clear of any paint. If no existing RRPMs are installed then the RRPM shall be placed either in a gap for a discontinuous line or between 25 – 50 mm spacing from a continuous line and should be kept clear of any paint, consistent with AS 1742.2-1994. The RRPM shall not be placed within the traffic slip lane.
- For multi lane applications RRPMs shall be placed on the road with a 25 – 50 mm clear offset from the painted centre line to the side of the road containing the hydrant, and should be kept clear of any paint.
- RRPMs shall not be placed within any road intersection.
- RRPMs shall not be installed on unsealed roads.
- RRPMs shall not be installed in the leaning path of motorcyclists.
- RRPMs shall not be placed in bicycle lanes.
- RRPMs shall not be placed where no line marking exists **and** the leaning of motorcycles is necessary, eg. Winding section of road.

**Installation of RRPMs shall be in accordance with the Transport SA Pavement Marking Manual**

RRPMs shall be placed to a transverse tolerance of  $\pm 25$  mm and a longitudinal tolerance of  $\pm 100$  mm.

**Adhesives used**

- Adhesion shall be achieved by use of two part epoxy adhesives or hot melt bitumen in accordance with the manufacturer's instructions and applied evenly over the whole contact surface area of the marker so that a bead of adhesive forms around the perimeter when the marker is pressed onto the road surface during installation. Differing adhesives may be used dependant upon traffic volume and need to be approved by the Infrastructure Standards Unit.
- Adhesives used for fixing of raised pavement markers shall comply with AS 3554 "Epoxy - For Raised Pavement Marker Installation". Subject to approval, an alternative product may be used if recommended by the Raised Pavement Marker manufacturer, and approved by the Infrastructure Standards Unit.

**Painting of Hydrant Cover Lids**

Painting of the Hydrant “Cover Lids” shall be in accordance with the following requirements

- Establish the hydrant is located below the lid by lifting the cover and ensuring the presence of a water hydrant valve. If there is no hydrant then DO NOT paint the “Cover Lid” and “No Parking” Line or place a Retroreflective Raised Pavement Marker.
- Painting is only required on the inner (small) lid.
- Clean off any dirt, road grime or rust with a steel wire brush before applying the specified TSA approved Waterborne Line Marking Golden Yellow paint with Quartz Non-slip additive. The quartz Non-Slip additive shall comply with TSA and Australian Standards.
- Ensure satisfactory adhesion of the paint by not painting when:

- Wet or relative humidity is greater than 85%.
- Air temperature is less than 10°C.
- Comply with all requirements specified by paint manufacturer.
- Protect the wet paint with cones or signs until it dries sufficiently to avoid “walking” of paint down the road by car tyres.

See <http://www.transport.sa.gov.au/caps/division2roadworks/default.htm> Part 246 (Pavement Marking)

### Painting of “No Parking” Line

- The installation of “No Parking” Lines is only necessary where access to the Fire Hydrant is likely to be impeded by parked vehicles. ie painted “No Parking” Lines are not required in any area where it is illegal to park eg on corners or in front of driveways.
- Paint the 2 metre "No Parking" Line using the specified TSA approved Waterborne Line Marking Golden Yellow paint with Quartz Non-slip additive shall be in accordance with AS 1742.11 – Manual of Uniform Traffic Control Devices.

See <http://www.transport.sa.gov.au/caps/division2roadworks/default.htm> Part 246 (Pavement Marking)

## Section 6: If removal of RRPMS is required

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The marker and adhesive shall be removed in such a way that minimum damage is caused to the road surface. Any damage to a wearing surface shall be repaired by an approved method.

## Section 7: Codes and Specifications

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- All Works shall be executed in accordance with AS 1742 “Manual of Uniform Traffic Control Devices” and the South Australian Road Traffic Act, 1961 as modified by Transport SA’s “Code of Technical Requirements for the Legal Use of Traffic Control Devices (December 1999)” and ‘Field Guide for Speed Limits at Works on Roads Version 5 2003’.
- The “Field Guide for Speed Limits at Works on Roads” provides information on the amendments to the South Australian Road Traffic Act, 1961 regarding speed limits to be applied at road works in South Australia and should be used in conjunction with AS 1742.3 and the Code of Technical Requirements for the Legal Use of Traffic Control Devices (December 1999). The Code must be read together with, but takes precedence over the Australian Standards.
- The following field reference guides shall also be used as appropriate:

SAA HB81.1	Short term urban works, daytime only
SAA HB81.2	Short term rural works, daytime only
SAA HB81.3	Mobile works

SAA HB81.4	Short term urban night works
SAA HB81.5	Short term works on unsealed roads
SAA HB81.6	Bituminous surfacing works

- These field reference guides cover a specific area of roadworks signage and reproduce in summary form the relevant provisions of AS 1742.3 which are considered to apply in the particular case. It is not intended that they supersede AS 1742.3 and in any cases where there may appear to be differences in specified requirements or recommendations, or where matters could be interpreted differently from that in the Standard, the Standard shall prevail.
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