Street Hydrant Identification

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Fire Rescue Victoria

Guideline No. 29
Author: FSSPR Unit
Sponsor: RFS and BSR Units
Authorised by: Director, Built Environment

1 PURPOSE

The purpose of this document is to provide a reference for Councils, water authorities, contractors, land developers and any other parties responsible for provision and maintenance of the identification components of street hydrants for firefighting purposes within the Fire Rescue Victoria (FRV) fire district. Through the application of this guideline, firefighters will be provided with the ability to rapidly identify and access street hydrants when responding to emergency incidents.

2 ACKNOWLEDGEMENTS

3 SCOPE

This guideline prescribes the identification requirements for street hydrants that are provided within roads throughout the FRV fire district.

4 BACKGROUND

Street hydrants provide the means for drawing water from mains. One of the key reasons for their installation on water mains is for use by fire services during firefighting operations for life and property protection and fire suppression.

In developing these guidelines, FRV have been mindful of the financial considerations associated with the specification of particular identification systems and the ongoing maintenance.

Street hydrant identification to be successful needs to identify the type and location of the hydrant clearly and simply. The identification elements must be fit for purpose which requires maintenance as well as ensuring it is suitable for the area in which it is installed such as bushfire prone and alpine areas.

The standardisation of a colour to indicate hydrants, use of reflective material and raised reflective pavement markers ensures quick and easy location and provides consistency throughout the State.

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5 HYDRANT IDENTIFICATION – OBJECTIVES

For hydrants to be successfully identified, it is FRV's objective that they must be provided with indicators that are clearly visible day or night to responding firefighters and firefighting vehicles from any direction of approach.

Within street settings that serve designated alpine resorts and designated bushfire prone areas, enhanced hydrant identification systems are required to satisfy this objective.

Hydrant identification systems should also be installed in a manner that ensures that they cannot have their effectiveness reduced by vandalism or due to excessive road traffic wear.

6 IDENTIFICATION REQUIREMENTS FOR ABOVE GROUND HYDRANTS

The term above ground hydrant refers to L type hydrants, pillar hydrants, and millcocks, which are referred to in Figures 1 to 8 of this guideline.

All above-ground hydrants installed for the purpose of providing water for firefighting purposes must have the required identification methods.

6.1 L Type Hydrants

The top 'cover' of L Type Hydrants must be painted in a non-reflective Signal Red colour. An additional 70mm strip below the Signal Red portion must be painted Lilac if the hydrant is installed on a non-drinking water main, see Figure 1.

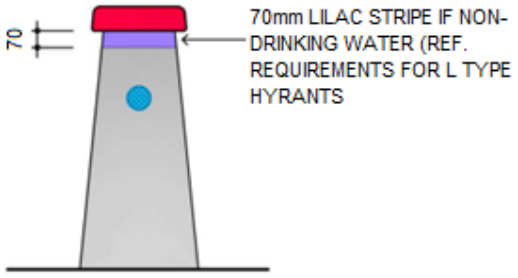

Figure 1 – L Type Hydrant

A street hydrant connected to a main with a diameter larger than DN250 and marked black is not intended for general water usage. These hydrants are often connected to distribution mains, and the black marking indicates that significant pressure is present in the main, and use should be avoided.

Note: L Type covers must not be used to identify below ground hydrants as this will cause unnecessary delays in getting water from the hydrants.

6.2 Pillar Hydrants

The top 'cover' of Pillar Hydrants must be painted in a non-reflective Signal Red colour. An additional 70mm strip below the Signal Red portion must be painted Lilac if the hydrant is installed on a non-drinking water main, see Figure 2.

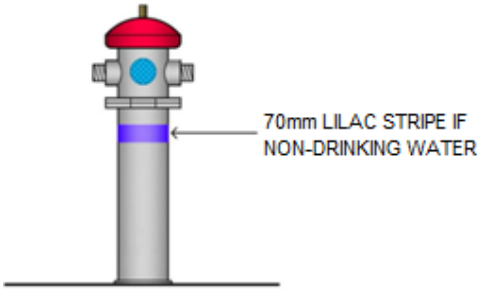

Figure 2 – Pillar Hydrant

6.3 Millcock Hydrants

At least the top 375mm portion of Millcock Hydrants must be painted in a non-reflective Signal Red colour. An additional 70mm strip below the Signal Red portion must be painted Lilac if the hydrant is installed on a non-drinking water main, these requirements are reflected in Figure 3.

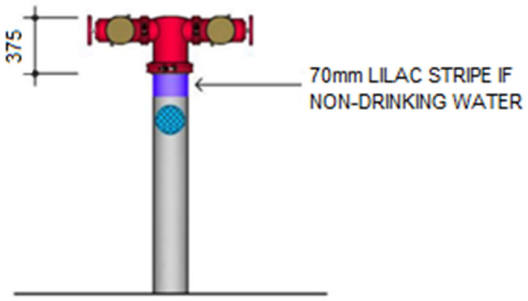

Figure 3 – Millcock Hydrant

6.4 Identifying hydrants within alpine areas

In alpine areas, the requirements for a red body or riser when hydrants are not installed in cabinets and the use of red cabinets is to ensure positive identification when surrounded by snow. Reflective strips are to be used to aid in locating the hydrant at night.

7 ROAD SURFACE MARKING REQUIREMENTS FOR ABOVE GROUND HYDRANTS

7.1 Areas with sealed roads

In areas with sealed roads, a blue raised pavement marker and white reflective triangle marker must be provided as per the following specifications.

7.2 Raised reflective pavement markers situated in a roadway

Blue raised pavement markers that are situated within a road must comply with *AS 1906.3 – 1992 – Retroreflective materials and devices for road traffic control purposes – Raised pavement markers (retroreflective and non-retroreflective)* and are to be installed as shown in Figure 4 and Figure 5 of this guideline.

7.3 White reflective triangle road markers

All hydrants located in or next to paved roadways are to have white triangular reflective road marking meeting the requirements of *AS 4049.2-2005 – Paints and related materials – Pavement*

marking materials – Thermoplastic pavement marking materials – For use with surfaced applied glass beads, approximately 450mm long and 250mm wide pointing to the location of the hydrant.

In Victoria, the placement of the white reflective triangle marker for identifying fire hydrants varies depending on whether the location is **metropolitan** or **regional**:

- **In metropolitan areas**, the triangle is typically placed **25 mm on the hydrant side of the blue raised pavement marker (RPM)** refer to Figure 5 & 6 below. This precise positioning helps emergency services quickly identify the hydrant's location in dense urban environments.
- **In regional areas**, the triangle can be placed **on the curb side of the road**, as shown in Figure 4 below. This placement accounts for the different road layouts and visibility conditions in less densely populated areas.

Figure 4 – Location of white reflective triangle (regional areas)

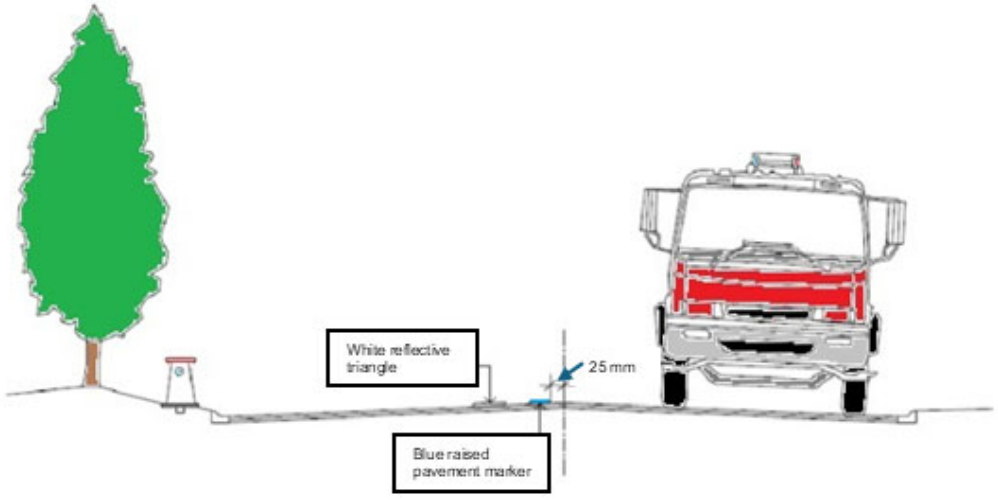

Figure 5 - Location of white reflective triangle (metropolitan areas)

Figure 6 – Location of white reflective triangle (Metropolitan Areas)

8 REQUIREMENTS FOR ABOVE GROUND HYDRANTS – GREATER THAN 6M FROM ROAD OR CONCEALED

8.1 General requirements

If a hydrant is more than 6m from the edge of the trafficable portion road, positioned 3m below or above the level of the road or concealed from the road, then a marker post(s) and/or vertical surface marker (refer to section 12 for further details) must be installed as shown in Figures 6,7 & 21.

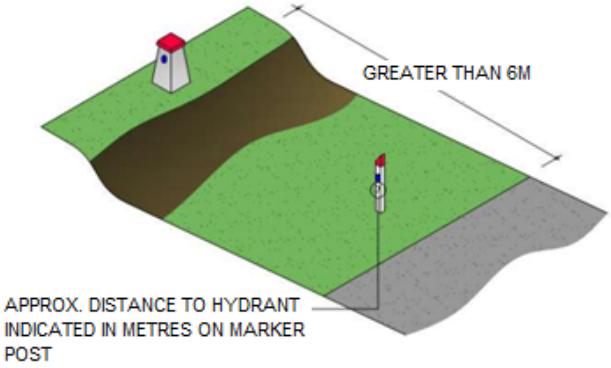

Figure 6 – Hydrant greater than 6m from edge of road

Figure 7 – Hydrant greater than 3m above or below road level

8.2 Marker posts

In addition to the general requirements for marker posts in section 11 of this guideline, any additional marker posts required by this section shall have a distance measurement on it, which indicates the approximate distance of the hydrant from the additional marker post, as shown in Figure 8.

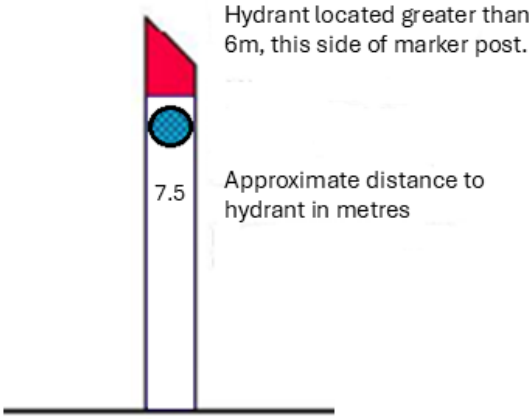

Figure 8 – Distance measurement indicator on marker post

9 IDENTIFICATION REQUIREMENTS FOR BELOW GROUND HYDRANTS

Below-ground fire hydrants may be located within the roadway or in adjacent areas. A marker post must be installed in accordance with the specifications outlined in Section 11 of this guideline. In high pedestrian or vehicular traffic zones—such as central business districts (CBDs), central activity districts (CADs), and shopping precincts—vertical surface markers may be used as an alternative, following the requirements detailed in Section 12.

Note: In some locations within the state, the practice of installing L type hydrant covers above below ground hydrants has occurred. This practice is not supported by FRV, as the operating procedures for below ground and above ground hydrants differ.

Figure 9 – Example of marker post, white triangle and raised reflective marker hydrant indicators

In any designated bushfire prone area, below ground hydrant covers must be constructed from non-combustible materials.

10 ROAD SURFACE MARKING REQUIREMENTS FOR BELOW GROUND HYDRANTS

10.1 Hydrant installed in a roadway

Sealed roads with below-ground hydrants must display a blue raised pavement marker and a white reflective triangle, shown in Figures 9 to 11.

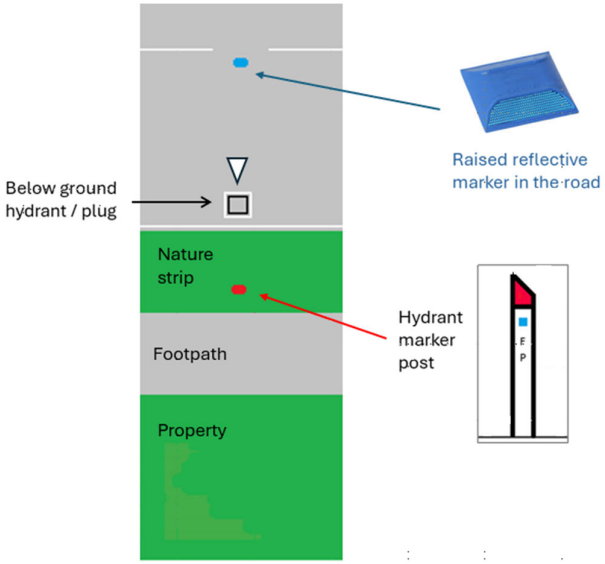

Figure 10 – White reflective triangle marker in front of below ground hydrant

When a below ground hydrant is installed in the roadway itself, the hydrant cover should also be painted white. Please refer to the diagram and examples provided in 13 of this guideline.

A cleared area of at least 2m should be provided around the hydrant (1m on either side of hydrant), refer to Figure 13.

The cleared area should be appropriately delineated with yellow diagonal lines, no standing/parking signs or by the installation of physical parking barriers (whichever is most appropriate).

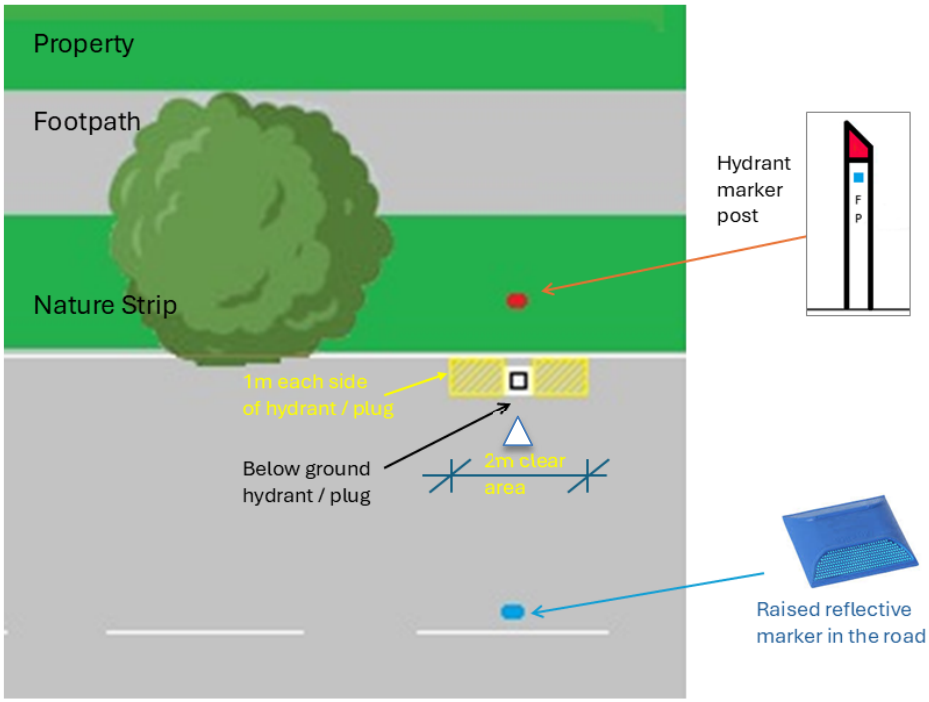

Figure 13 – Below ground hydrant clear area requirement

10.2 Hydrant installed in hard surface or pedestrian areas

For hydrants installed in hard surface or pedestrian areas, where marker posts are not used or readily installed, or the vertical surface marker system has not been adopted, the hydrant cover, and surround should be painted white with a thermoplastic road marking product. The surrounding surface is to be painted for a minimum of 100mm width. This will ensure that the fire fighters identify the location of the hydrant.

11 REQUIREMENTS FOR BELOW GROUND HYDRANTS – GREATER THAN 6M FROM ROAD OR CONCEALED

11.1 General Requirements

If a below ground hydrant is more than 6m from the edge of the road (the trafficable portion) or is greater than 3m below the road level, less than 3m above the road level or where otherwise concealed from view, marker posts or vertical surface markers must be installed to ensure that fire fighters are directed easily to the location of the hydrant, as referenced by Figures 14 and 15.

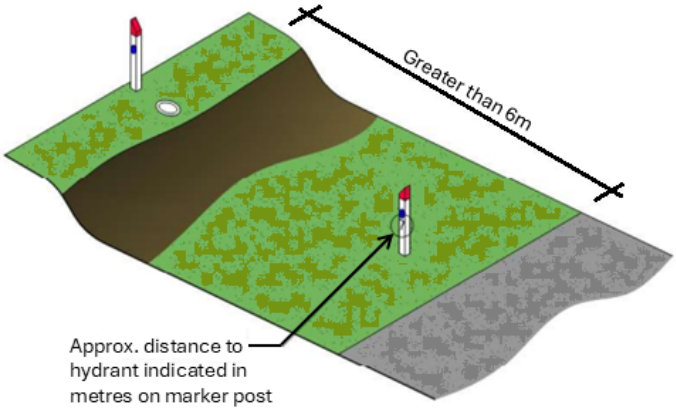

Figure 14 – Below ground hydrants situated more than 6m from the road

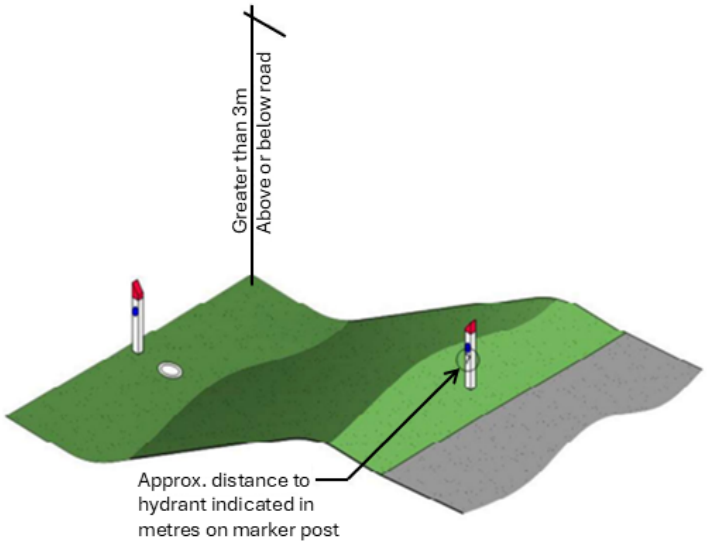

Figure 15 – Below ground hydrants situated more than 3m above or below the level of the road

11.2 Marker posts

Any additional marker posts required by this section shall have a distance measurement on it which indicates the approximate distance of the hydrant from the additional marker post, as shown in Figure 8.

12 SPECIFICATIONS FOR POST MARKERS

Marker posts used to identify the presence of street hydrants must comply with the following requirements and Figures 17 and 18.

12.1 Installed to a minimum height of 1m above the finished ground level**.**

a. Installed no less than 500mm and not more than 750mm from the hydrant that they are identifying (excluding additional marker posts).

b. Have a non-reflective Signal Red top of at least 200mm with the remainder of the post being coloured—

I. White if identifying a hydrant on a potable water main; or

II. Lilac if identifying a hydrant on a main for non-drinking water; and

12.2 Include a method of indicating the direction of the hydrant (such as a tapering top which points downwards towards the hydrant location).

12.3 Installed in such a manner so that they are not easily removed (e.g.in concrete, a pinned or anchor base, as per manufacturers' specifications)

12.4 Include a blue reflective marker, which faces toward any direction of likely emergency vehicle approach. Reflective markers must:

I. Have a minimum surface area of 50 cm^2.

II. Be in accordance with Australian Standard AS 1906.2-2007 – *Retroreflective materials for road traffic control purposes – Retroreflective devices (non-pavement application)*.

12.5 Marker posts to be constructed of non-combustible materials if installed in any designated Bushfire Prone Area for the purposes of the Building Regulations 2018.

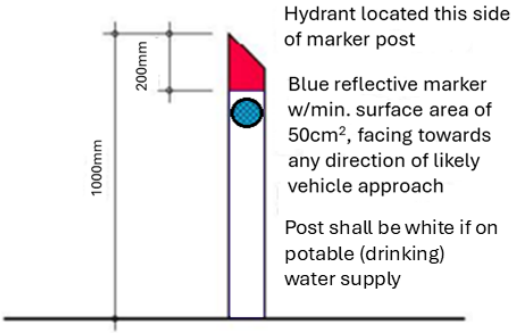

Figure 17 – White (Potable Water)

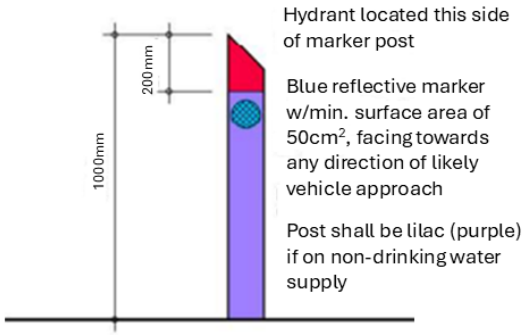

Figure 18 – Lilac (Non-drinking Water)

The Water Services Association of Australia (WSAA) specifications identify the types of marker posts that are permitted to be used to indicate the presence of a hydrant. Typically, triangle posts made from either timber, metal or PVC, and driveable anchors made from metal or HDPE are considered suitable.

13 SPECIFICATIONS FOR VERTICAL SURFACE MARKERS

Vertical surface hydrant markers provide an effective means of identification in areas where the use of marker posts is impractical.

The advantage of the vertical surface markers is the variety of surfaces upon which they can be affixed to. For example, these indicators can be affixed to glass shopfronts, power poles or light poles, within appropriate areas that provide adequate identification of the hydrant.

Where a vertical surface marker is required by this guideline, the vertical surface marker must comply with the following requirements.

a. Two vertical surface markers shall be provided with one being the primary and one being the secondary.

b. The primary marker must be at least 150mm by 225mm in size and include a blue reflective section of 100mm by 100mm, as shown in Figure 19.

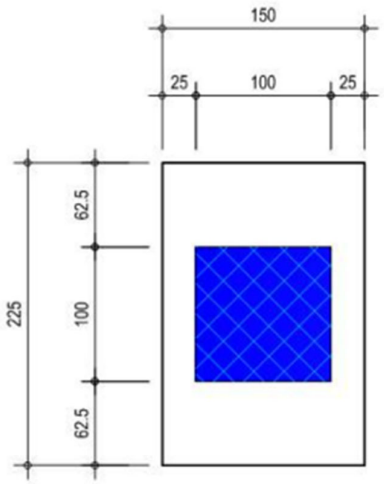

Figure 19 – Primary Vertical Surface Marker

c. The secondary marker must be at least 150mm by 112.5mm in size and include a blue rectangular reflective section of 100mm by 50mm, as shown in Figure 20.

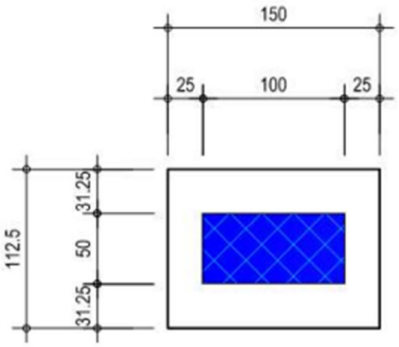

Figure 20 – Secondary Vertical Surface Marker

14 SPECIFICATIONS FOR VERTICAL SURFACE MARKERS

The blue reflective section must be of a material which complies with Australian Standard *AS1906.1-2007 Retroreflective materials and devices for road traffic purposes – class 1 retroreflective materials* and be fixed in the centre of the marker.

a. The primary marker is to be installed on a vertical surface pointing towards the location of the hydrant. The secondary marker is to be installed on the opposite side to indicate the location of the primary marker (where possible) as shown in Figure 21.

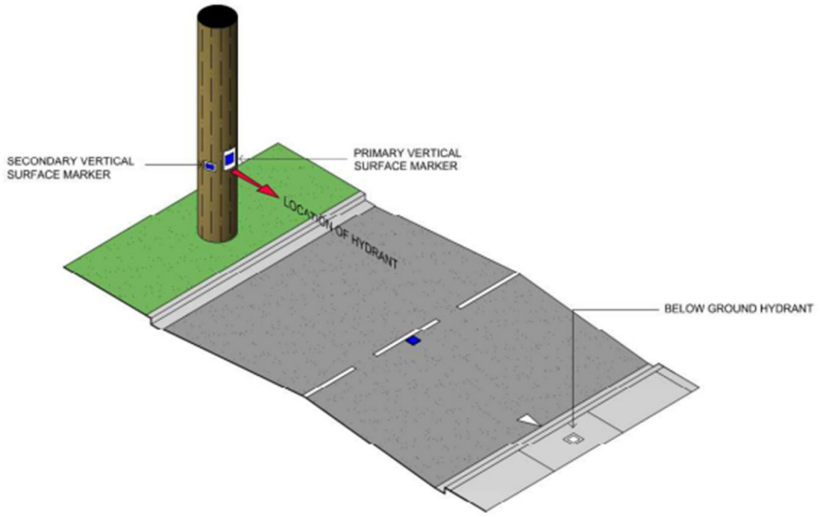

Figure 21 – Primary and Secondary Vertical Surface Marker Placement

b. The preferred height of installations is between 1.8m and 2m, however this height may be varied depending on the availability of vertical surfaces near the hydrant.

c. Both the primary and secondary markers are to be constructed from a zinc coated steel sheet which is pre-painted white, or a white vinyl sheet.

15 MAINTENANCE

Hydrant identification systems are only effective while the performance criterion for identification continues to be met. All identification systems require regular maintenance to ensure their effectiveness.

All authorities responsible for maintenance of hydrants should implement a program that will ensure—

a. All hydrants are inspected on a regular basis;

b. All aspects of the identification system are maintained in accordance with this guideline on an ongoing basis; and

c. Programs involving the community to identify and report any issues to the relevant party are strongly encouraged.

In circumstances where a street hydrant is relied upon to provide coverage to a building to satisfy relevant building legislation, additional verification and ongoing monitoring obligations are prescribed within section 5 of FRV Fire Safety Guideline GL-03.

16 COMPLIANCE

Total compliance with the applicable identification installation criteria of this section is deemed to satisfy the requirements of FRV, and as such no approval of the defined identification system is necessary. This however does not limit in any way other approval requirements which may

be imposed from time to time, by FRV in relation to other matters associated with the identification of street hydrants for firefighting purposes.

In areas where the identification of one or more street hydrants cannot reasonably be complied with for heritage, functional or any other exceptional reason, then the circumstances and proposed identification methods must be referred to FRV's Built Environment Department for endorsement. Referrals can be emailed to bsr.admin@frv.vic.gov.au.

17 REFERENCES

[1] AS 4049.2-2005 – Paints and related materials – Pavement marking materials – Thermoplastic pavement marking materials – For use with surfaced applied glass beads.

[2] AS 1906.1-2007 – Retroreflective materials and devices for road traffic purposes – class 1 retroreflective materials.

[3] AS 1906.2-2007 – Retroreflective materials for road traffic control purposes – Retroreflective devices (non-pavement application)

[4] Building Regulations 2018 (Vic)

[5] FRV Fire Safety Guideline GL-03