Engineering and Works Services Standards and Specifications

Section 5

Protection and Prevention Facilities – Rural and Special Rural Areas

These Standards and Specifications have been adopted by the Council for use in the City of Busselton for strategic fire protection in all non scheme water areas by Consultants, Contractors, Developers and City Staff. These Standards and Specifications will be maintained by the Director, Community Infrastructure.

Revision No	Date	Section Amended	Prepared	Reviewed
A	December 2009	All	Community Infrastructure	Infrastructure Development
B	June 2013	All	Engineering and Works Services	Development Control

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Protection and Prevention Facilities
Rural and Special Rural Areas

1 GENERAL

1.1 BACKGROUND

These standards and specifications have been developed for the design and construction of fire protection and bushfire fighting facilities for all subdivisions and developments in non scheme water areas. They generally reflect the standards of construction the requirements to address the Fire and Emergency Services Authority (FESA) "Planning for Fire" December 2000, Department for Planning and Infrastructure (DPI) and the City. These requirements are imposed during the subdivision process and the conditions are to be met for clearance of the subdivision after a Fire Management Plan (FMP) has been approved in the planning consent/subdivision approval.

These standards and specifications apply to the development and construction of strategic firebreaks which have been approved by the City under a "Fire Break Plan" for rural developments or a "Fire Management Plan" for special residential or rural residential developments as applicable.

It is acknowledged that accepted industry standards will change over time. In order to accommodate such changes, the contents of this document will be reviewed on a regular basis. These standards and specifications will be posted on the City's website at www.busselton.wa.gov.au/services/engineering/tech_stds and are available for downloading.

1.2 FIRE MANAGEMENT PLAN

The City will require a Fire Management Plan to be provided where structure plans are required to guide development. This is part of the Planning approval process and not the subject of these specifications. The FMP typically will demonstrate fire protection for the proposed development and show firebreaks, strategic access firebreaks (private), strategic firebreaks (public), firebreak access points, water supply, stand pipes, tanks, access reservations and easements maintenance requirements, assessment of the fire hazard and risk level and a design to address the hazard.

Appendix A to this standard provides guidelines for planning and reassessment of fire hazards.

2 WATER SUPPLY AND SUPPORT FACILITIES

The installation of bushfire fighting facilities will need to be completed and operational at the time of request for clearance of the subdivision. Bonding of this item is **NOT** considered acceptable as it is an essential service and should be operational at the time of completion of the subdivision. These facilities should be designed by a qualified and practising civil engineer in consultation with the Bush Fires Service Regional Officer.

The bushfire fighting facilities are to be installed to the standards and specifications set out in this document. Refer to attached or typical diagrams for construction details.

2.1 FIRE BRIGADE TANK REQUIREMENTS

The minimum tank size to be provided for bushfire fighting at each location is 50,000 litres (for twenty five lots) with a pressurised publicly accessible standpipe. The City and Bush Fires Service (BFS) will determine/approve the location and area to be covered by the facility.

Tanks serviced by a replenishing water supply and accessible to emergency services should be constructed to a qualified structural engineer's detail of reinforced concrete with a protective steel colourbond roof.

Tanks will not have to be provided where a standpipe with pressure equipment to allow water fill is located adjacent to an impervious dam of a proven minimum replenishable capacity of 140,000 litres at December 15 and not used for irrigation or other purposes which has a drawing of water to the extent that will reduce the volume below 140,000 litres by other than evaporation, for the whole of any summer season. Access to the dam is to be available by fire fighting vehicles by a registered right of access on title or by easement.

A clear PVC pipe with a red float is to be provided at the tank as a water level gauge. This should be protected from damage and vandalism by the use of bollards and a protective steel sheath.

The tank is to be located in a separate lot which will be vested in the City, or located within the road reserve in an approved location. All pipes, bore and pump and power required for the fire fighting facilities should be ideally located within the road reserve.

Alternatively where this is not possible, three (3) metre wide easements are to be provided over private property for access and maintenance. The easement for the bore piping, power and/or dam supply will be required to be of suitable dimension to provide secure access for designated vehicles to the satisfaction of the City and BFS.

Screening of the tank from the road and residence positions should be achieved by locating of the tank within existing vegetation. Where this is not practicable, supplementary planting may be required and should be designed to screen the tank and be primarily of native species.

2.2 PUMP REQUIREMENTS

Details of pump types and capacity may differ from subdivision to subdivision and will depend on the site conditions, distance to water source, type of water source and height of the tank above the water source. Pumps, bores and dams supplying water to

the tank will need to be sized to provide an absolute minimum constant refill rate of 50 litres per minute.

Pumps should be electric and housed within a permanent, tamper resistant, locked shed. Locks should be compatible with BFS – Bush Fire Brigade. Sheds should be constructed of a steel frame clad with colourbond and to be of sufficient size to house the pump, associated equipment and storage and with a concrete floor. Alternative proposals of equivalent or better will be considered. Operating instructions should be provided with the equipment.

Mechanical (petrol or diesel) pump should not be used unless there is no electric power at the approved site. Where a petrol pump is provided, a 20 litre container of fuel is to be provided and remain in the shed for ongoing use at that site.

Electric pumps should be able to be switched from the standpipe position. Switches are to be located in a locked cabinet.

Sheds should be colorbond, coloured to be unobtrusive and blend in with the natural surroundings.

2.3 STANDPIPES

The location of the standpipe and details including drainage provision, truck access and turning at the filling point are to be provided as part of the subdivisional engineering plans. The flexible filler hose on the standpipe should be located at a minimum of 2.5 metres from the edge of the road shoulder. The tapers and standing area for refilling of trucks should be sealed to the same standard as the roads. Runoff from this area should be protected from erosion. The standpipe outlet (at the steel flange) shall be 3.5 metres above ground.

A support pipe for the standpipe and two heavy duty bollards are to be provided as indicated in Figure 1.

Note: that consideration may be given to an underground hydrant.

Bores, dams and springs used for water supply will need to be tested to provide, an absolute minimum refill rate of 50 litres per minute for a minimum duration of five (5) hours to refill the tank in an adequate time.

The City will provide a chain and padlock for the standpipe and shed.

All pipes servicing the standpipe are to be 100 mm diameter class 12 PVC pipes buried to a depth 300 mm or greater. All exposed pipe work is to be galvanised steel.

The standpipe should have a minimum tanker refill capacity of 450 litres per minute where delivered by pump, or a minimum head of six (6) metres to the tank at two (2) metres above the ground at the standpipe.

2.4 ACCESS TO PRIVATE WATER TANKS

Where scheme water is not supplied, vehicular access from the constructed road to the watertank is to be to 2WD standard. The turnaround area shall be constructed to allow a 3 tonne 4 wheel drive fire tanker to manoeuvre adequately.

Where access can not be practically provided for a 3 tonne 4 wheel drive fire tank, then a stand pipe can be provided which meets the above requirements.

A 50mm male thread with stop cock, located 50mm from the bottom of the tank, is to be provided on all private water tanks for the purpose of drawing water in the event of a fire.

3 FIREBREAKS

3.1 FIREBREAK STANDARDS

Firebreaks may be set at one or more of 3 levels for a development or subdivision:

a) Strategic Firebreak (SFB) located in public reserves as a Pedestrian Access Way (PAW) serves as a firebreak, escape route, "guaranteed" access for emergency vehicles and pedestrian access and is maintained by the City.

b) Strategic Access Firebreak (SAFB) inter-connected with a number of lots, maintained by each lot owner, regulated by the City, constructed to a standard for all weather 4WD emergency vehicle access, located on private land and kept open for emergency access.

c) Firebreak (FB) on each private lot – summer access by 4WD, fuel free.

d) Other forms of fire protection measures may be required by Department of Planning and Infrastructure (DPI), Department of Environment and Conservation or by the City to address specific risk and special areas. These will be separately specified.

Structure Plans, before subdivision shall provide a FMP, where required by the City on the advice of the Fire Management Officer. The works elements in the FMP will be applied by the City as conditions of subdivision, and shall be constructed / created in accordance with the Citys requirements.

FBs on individual lots are required in all cases where an SFB or SAFB is not required. SFB's shall be created as pedestrian access ways (PAWs) of not less than 8 metres in width. SFBs are the prime firebreak system to link identified fire risk areas. Such SFB's may also be used by pedestrians, cyclists and horses in addition to emergency vehicles and will be appropriately signed and have barriers to limit access by the general public.

The width and standard to which FB's are to be constructed has been set by Notice issued under the Bush Fires Act 1954. Firebreak Inspectors, Fire Control Officers and City Rangers are authorised under that Act to enter private property for the purpose of inspecting firebreaks.

SFB's and SAFB's shall provide continuous access or egress through or around lots and connect to publicly accessible roads or other reserves that can be used for the same purpose.

SFB's and SAFB's should be a minimum of four (4) metres paved and with a drained, trafficable surface width for all weather access by two-wheel drive vehicle and loaded four wheel drive tanker, and provide adequate clearance for turning and passing manoeuvres for these vehicles at strategic points, corners and intersections.

Vertical and horizontal vegetation clearance on SAFB's and SFB's should be not less than five (5) metres. Exemptions for horizontal clearance may be individual trees, considered important to retain, where clearance shall not be less than four (4) metres including 500 mm clear of the trafficable surface.

There should be 20 metre long, 6 metre wide, additional width heavy vehicle accessible, paved and drained passing bays at not more than 200 metres interval in SFB's and SAFB's on straights or otherwise wherever the vehicle sight line is discontinuous.

All SFB's and SAFB's are to be constructed with a cross fall following natural contours and at natural ground level with no drainage requirements, except at natural water courses, where culverts and / or trafficable rock - lined floodway crossings shall be provided to City approval.

Subdivision clearance shall not be given unless all firebreak conditions have been satisfied.

SAFB's shall be maintained and kept free of inflammable vegetation by the landowner. This requirement shall be secured by memorial on Title.

Where detail is not provided in these Standards and Specifications, referral shall be to the FESA "Planning for Bush Fire Protection".

Lots subdivided under the Biodiversity Incentive Strategy or the Leeuwin Naturaliste Ridge SPP will have a fire management plan specific to these lots specifying the use of Strategic Access Firebreaks rather than lot boundary firebreaks.

The construction / design of strategic firebreaks or strategic access firebreaks should minimise environmental impact i.e. be designed so as to avoid sensitive areas of bushland while still providing safe access / egress in an emergency situation.

3.2 GATES AND SIGNAGE

Where a SAFB is constructed on interconnected lots and where a fence is to be constructed, gates shall be erected between any two properties where there is a continuous firebreak and emergency access is required, and the **gates are not to be locked**.

Height of text on gate signage to be 40 millimetres.

The ends of all SFB's connecting to public roads shall be sign posted on the gate with "Pedestrian Access Way" and "Emergency Vehicles" plus the additional words "Please Close Gate" as shown in Figure 3. These gates should allow open pedestrian bypass while preventing vehicle bypass by bollards or similar, for the width of the PAW.

3.3 MAINTENANCE

SAFBs on interconnected lots should be maintained by individual lot owners annually to the standards required by the City in its annual Bush Fires Notice. The developer shall provide “advice to purchasers” regarding the maintenance and upkeep of the firebreaks within their property. A copy of this specification shall also be provided to purchasers.

SFB’s will be maintained by the City following the handover to the City of the completed works and following the defects and maintenance period.

3.4 LOT FIREBREAKS

Individual lot firebreaks, as required by the City and in accordance with standard firebreak specifications, shall be installed prior to subdivision clearance.

Reference: FESA Handbook “Planning for Bush Fire Protection” (December 2001).

Fire Hazard Assessment Plan – Appendix A.

Note: There are variations between these Council Specifications and the FESA “Planning for Bush Fire Protection” document, Section 3.4.
These are:

1. Signage.
2. Emergency Access Treatment and Standards.
3. Radius of cul-de-sac.
4. Driveways / Battleaxes Standards.
5. Fire Service Access Width.