

15 March 2024

Our ref: 23SUT6785

Western Parkland City Authority  
50 Belmont Street  
Penrith NSW 2750

Attention: Christine Phan

Dear Christine,

**RE: Bushfire Advice - Bradfield City Centre Trunk Stormwater Infrastructure Review of Environmental Factors**

Eco Logical Australia Pty Ltd (ELA) was engaged by Western Parkland City Authority (WPCA) to provide bushfire related advice regarding the Part 5 Review of Environmental Factors (REF) being prepared for the trunk stormwater infrastructure component of Bradfield City Centre.

ELA understands that the scope of works for the REF (WPCA, 2023) include:

- Bulk earthworks;
- Stormwater quantity control (construction of a series of ponds with extended detention to attenuate flows and detain stormwater for reuse and the installation and design of splitter pits to direct flows from the development and external catchments into the appropriate treatment train);
- Stormwater quality/onsite detention (OSD) (construction of a series of sediment basins and wetlands and the installation of gross pollutant traps);
- Associated stormwater pipes and infrastructure;
- Riparian corridor landscaping;
- Realignment of the Moore Gully and its tributary with all appropriate scour protections;
- Maintenance access paths; and
- Pedestrian access paths.

The purpose of this letter is to provide specific advice regarding the APZ requirements for future development, resulting from revegetation and restoration of Moore Gully, with respect to *Planning for Bush Fire Protection 2019* (RFS 2019) and *Addendum to Planning for Bush Fire Protection 2022* (RFS

2022), collectively referred to as PBP, and the Western Sydney Aerotropolis Development Control Plan (WSADCP 2022) Phase 2 performance outcomes (Table 1).

Table 1: Western Sydney Aerotropolis Development Control Plan Phase 2 Performance Outcomes

Numeric Section	Performance outcome	Benchmark solution
PO2	Populations of threatened species are retained, and the condition of suitable habitat improves within areas of the Cumberland subregion most likely to support long-term viability.	7: Locate Asset Protection Zones (APZs) for bushfire protection wholly within certified land. The appropriate APZ distance is determined by PBP and Rural Fire Service Standards for Asset Protection based on vegetation type, slope and development type.
PO6	Bushfire risk is minimised	1: Ensure appropriate fire management regimes and hazard reduction techniques for native vegetation areas, waterways, and riparian zones.

**Bushfire Advice**

Future development is reliant on the provision of stormwater and drainage infrastructure, paths, and landscaping that is compliant with the relevant specifications and requirements of PBP. This includes the provision of appropriate landscaping and APZ can be implemented, and that no new future hazards are created that have not been assessed and accounted for. The purpose of this assessment is to therefore consider the future bushfire hazard, based on existing information in the Bradfield City Centre Master Plan (Hatch Roberts Day 2023), Bradfield City Open Space Strategy (Turf, 2023), Strategic Bushfire Impact Assessment Study (SBIAS) (ELA 2023) and the recently provided Bradfield Moore Gully Riparian Detailed Planting Plan (Taylor Brammer, 2024) (Figure 1).

It is noted that the required Asset Protection Zones (APZ) identified in the SBIAS are applicable and have been refined in this assessment based on the Bradfield Moore Gully Riparian Detailed Planting Plan (Taylor Brammer, 2024). The assessment considers the likelihood of specific areas either being managed (i.e. public open space) or a bushfire hazard consisting of retained / revegetated / rehabilitated vegetation (i.e. riparian corridors). Transect 1 has been assessed as woodland and Transect 2 as ‘forested wetland’. There is opportunity for further refinement of the hazard assessment and hazard interface pending the final composition of vegetation within the wetland area.

It is also noted that while outside the current extent of works, for completeness indicative APZs for the southern developable area are shown, based on the SBIAS. Once the extent of works in this area is finalised, then review of the hazard assessment is recommended.

The APZs determined in this assessment are shown in Figure 2 and are proposed within existing certified land therefore complying with Section PO2 of the WSADCP (2022).

The placement of the swimming area and managed open space, along with the design of the wetland area is consistent with P06. Risk mitigation in these areas can be further enhanced through the avoidance of inappropriate landscaping, and consideration to revegetation of the wetland area.

For the wetland area there is opportunity, subject to species selection, to align with the PBP vegetation classification of ‘freshwater wetland’. This would present a lower fuel load and APZ requirement then that of ‘forested wetland’, as assessed in the SBIAS and considered in this assessment. Should this be

the desired outcome, then future planting specifications should be consistent with that of a 'freshwater wetland'.

Landscaping in the managed open space and swimming area should be designed and maintained in a manner that is consistent with the below key principles to ensure it does not constitute a future bushfire hazard. This includes landscaping within the swimming area, and managed open space as identified in Figure 2.

Key principles for landscape design include:

- Creation of defendable space (non-combustible pathway) between landscaping and buildings;
- Remove flammable objects from around the buildings;
- Minimise spread of fire break up fuel continuity (large or continuous areas) with paths, non-combustible mulch (i.e. stones) and open spaces;
- Carefully select, locate and maintain trees; and
- Design and species selection should be sensitive to bushfire (low flammability; avoid loose, flaky bark trees, non-combustible mulch etc).

Key principals for landscape maintenance include:

- Trees pruned to ensure they do not overhang buildings;
- Lower limbs of trees removed up to a height of 2 m above the ground;
- Canopies of trees separated by 2-5 m;
- Grass mown/slashed, kept to a height not exceeding 100 mm.

Further specifications and guidelines include (but not limited to):

- Inner Protection Area (IPA) specifications from PBP (Table 2);
- *Standards for Asset Protection Zones* (RFS 2005); and
- Country Fire Association *Landscaping for Bushfire Guidelines* (CFA n.d).

## **Conclusion**

This advice considered the Moore Gully Riparian Detailed Planting Plan (Taylor Brammer, 2024) established as part of the Part 5 Review of Environmental Factors (REF) for the trunk stormwater infrastructure component of Bradfield City Centre. Resulting from these works, the indicative asset protection zone requirements applicable for adjacent future development proposed in the Bradfield City Centre Master Plan (Hatch Roberts Day 2023) are shown in Figure 2.

The residential APZ dimension as required by PBP can generally be achieved within the road corridor as proposed in the broader the Bradfield City Centre Master Plan and is therefore considered consistent with PBP and PO2.

The wetland area proposed in the Moore Gully Riparian Detailed Planting Plan was assessed in the SBIAS (ELA, 2023) as 'forested wetland' and therefore considered as such in this review. There is opportunity, subject to the design and implementation of a vegetation management plan, to achieve an improved bushfire risk outcome should a planting specification consistent with a 'freshwater wetland' be adopted.

Future landscaping within areas not assessed as a hazard (i.e. the swimming area and managed opened space) should achieve consistency with PBP. It is recommended that landscape planting plans for these areas are reviewed by a qualified bushfire consultant i.e. BPAD Accredited once the landscape planning is finalised to ensure consistency with PBP and applicability of the managed land status.

### **Recommendations**

The following recommendation is recommended for areas considered as a hazard to ensure that future development can comply with the specifications and requirements of PBP:

- Consideration to a planting specification consistent with a 'freshwater wetland' for the wetland area identified in the Moore Gully Riparian Detailed Planting Plan.

The following recommendations should be considered for landscape planning within any managed open space to ensure maintenance of the managed land status:

- Landscaping works within the managed open space and future swimming area should be designed and managed with the intent to minimise flame contact, radiant heat, and potential ignition by wind-driven embers by incorporating the identified key principles for landscape design and maintenance (as above) and the specifications in Table 2.
  - Planting does not provide a continuous canopy to future hazards, perimeter roads or buildings (i.e. trees or shrubs are isolated or located in small clusters).
  - Majority of landscape tree planting (>75%) consist of smooth barked/evergreen species. While IPA requirements do not exclude specific species, there is reference to 'preference' towards smooth barked and evergreen trees in contrast to 'stringy bark' species.
  - Landscape species are chosen to ensure tree canopy cover is less than 15% (IPA standard).
  - Avoid species with rough fibrous bark, or which retain/shed bark in long strips or retain dead material in their canopies.
  - Avoid planting of deciduous species that may increase fuel at surface/ ground level (i.e. leaf litter).
  - Low flammability vegetation species are used.
  - Landscaping should not result in an increased bushfire risk for adjacent properties; and

To confirm consistency with PBP, the development of a landscape plan for managed open space, and a vegetation management plan for the wetland area should be designed and reviewed in consultation with a suitably qualified bushfire consultant i.e. BPAD Accredited, to ensure extent of management and final hazards remain unchanged.

If additional advice or assessment is required, please feel free to contact me.

Regards,



Deanne Hickey  
**Principal Bushfire Consultant**

Bruce Horkings  
**Principal Bushfire Consultant and Technical Lead**  
**FPAA BPAD Certified Practitioner No. BPAD29962-L3**



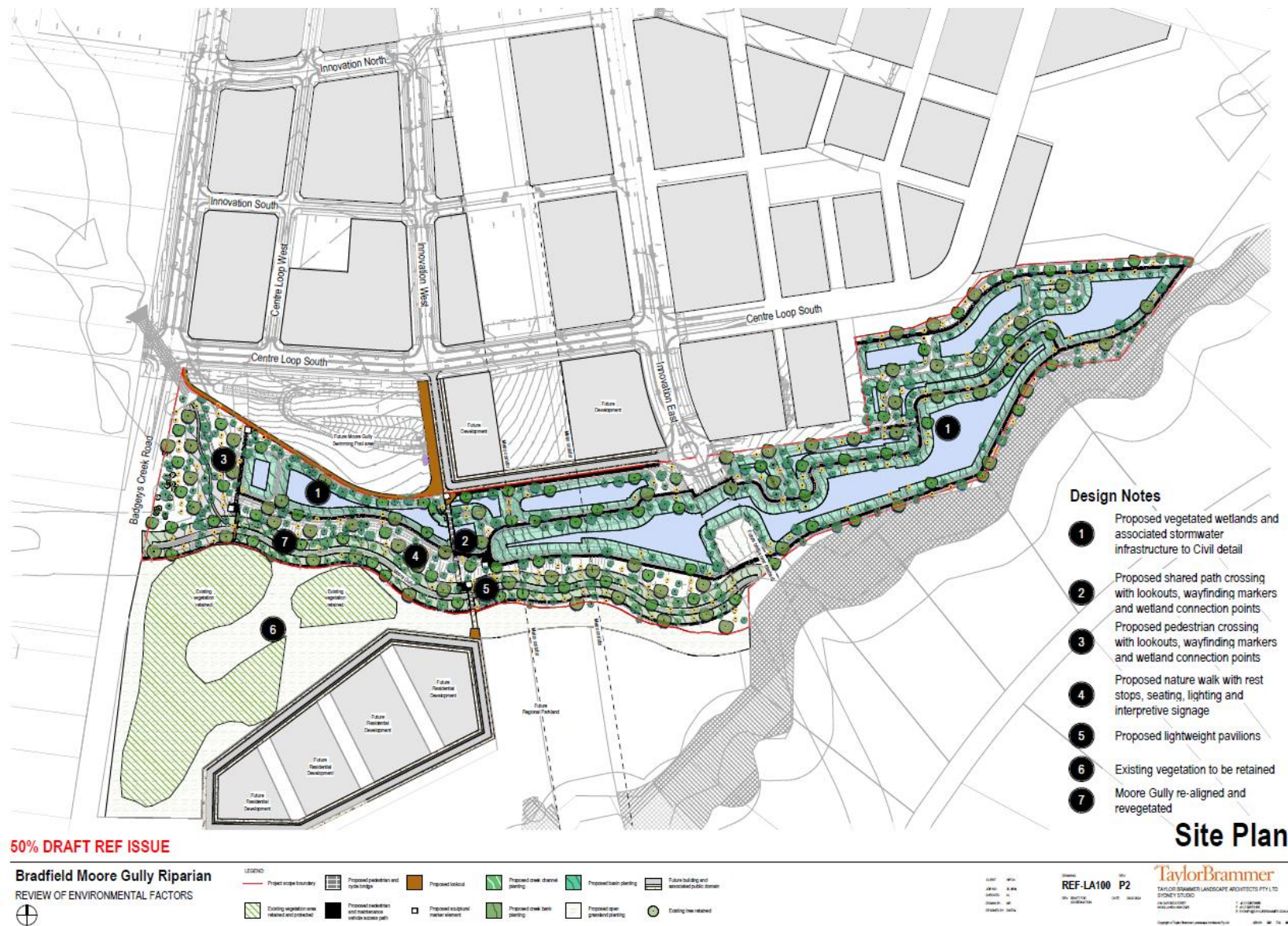


Figure 1: Bradfield Moore Gully Riparian Detailed Planting Plan (Taylor Brammer, 2024)



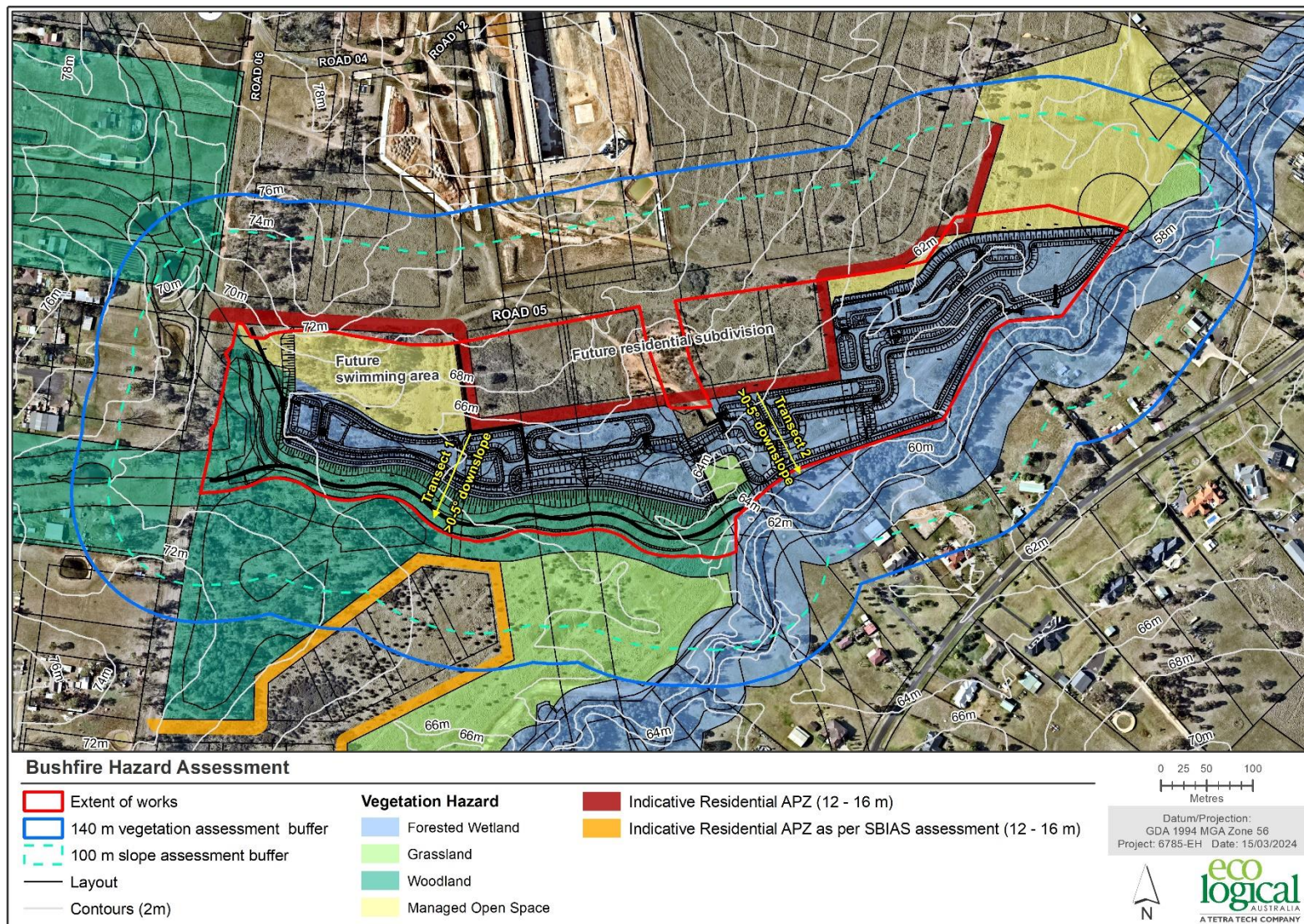


Figure 2: Indicative Asset Protection Zones based on the previous SBIAS (ELA 2023)

**Table 2: Inner Protection Area Specifications (A4.1.1 of PBP)**

Vegetation	Requirement
Trees	<ul style="list-style-type: none"><li>• Tree canopy cover should be less than 15% at maturity;</li><li>• trees at maturity should not touch or overhang the building;</li><li>• lower limbs should be removed up to a height of 2m above the ground;</li><li>• tree canopies should be separated by 2 to 5m; and</li><li>• preference should be given to smooth barked and evergreen trees</li></ul>
Shrubs	<ul style="list-style-type: none"><li>• Create large discontinuities or gaps in the vegetation to slow down or break the progress of fire towards buildings should be provided;</li><li>• shrubs should not be located under trees;</li><li>• shrubs should not form more than 10% ground cover; and</li><li>• clumps of shrubs should be separated from exposed windows and doors by a distance of at least twice the height of the vegetation.</li></ul>
Grass	<ul style="list-style-type: none"><li>• should be kept mown (as a guide grass should be kept to no more than 100mm in height); and</li><li>• leaves and vegetation debris should be removed</li></ul>



## REFERENCES

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