

Molonglo Stage 2 Draft Planning and Design Framework

Bushfire Boundary

ACT Planning and Land Authority December 2010

**STATUS OF DOCUMENT -
INTERIM WORKING DOCUMENT
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ACT Planning & Land Authority

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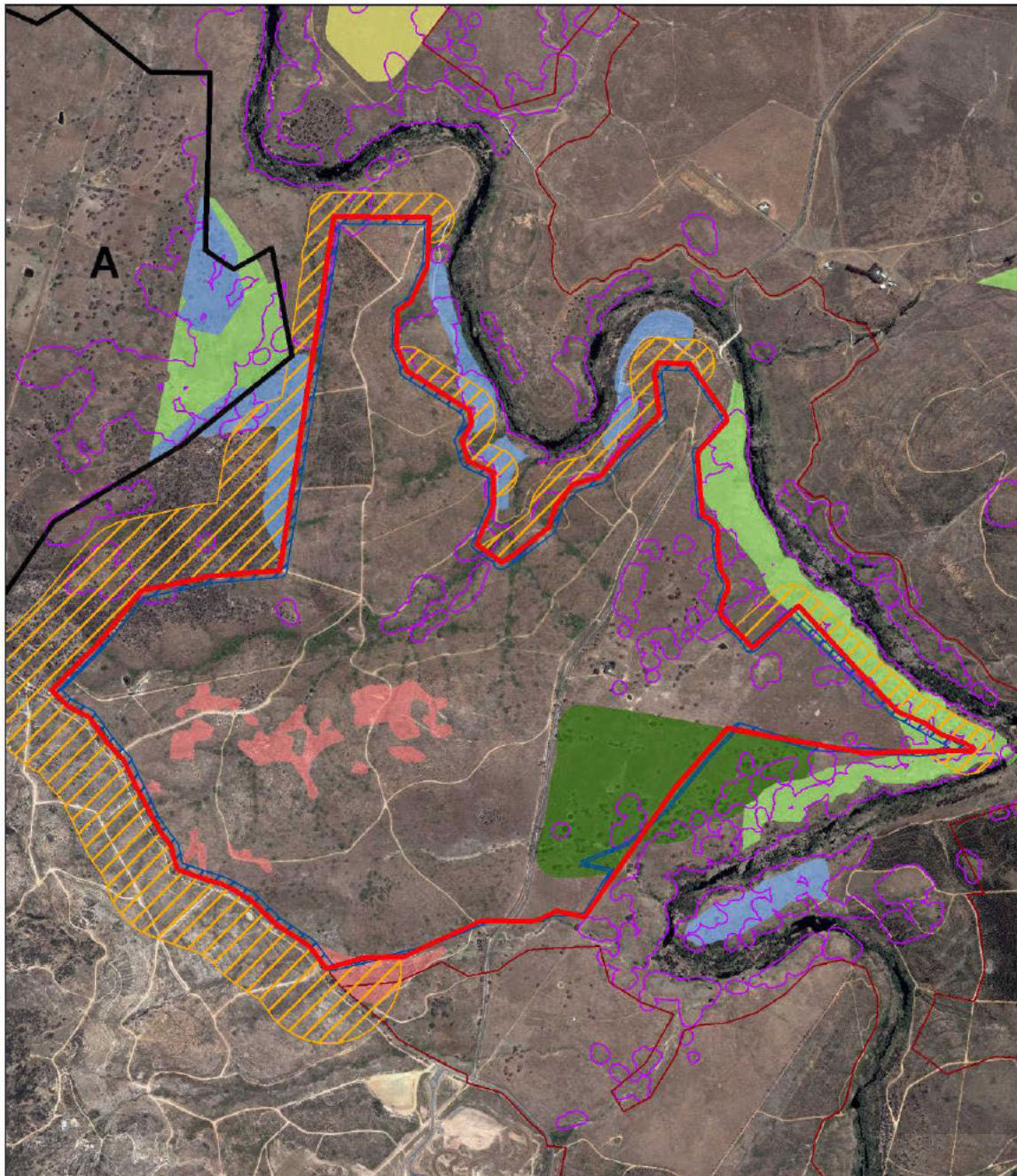


1 Western Boundary Options Assessment

| Issue | Option 1 - maximum yield within specified boundary | Option 2 - balance yield, bushfire & environmental outcomes | Option 3 - favour environment & bushfire protection |
|---|--|--|---|
| <i>Description of option</i> | Inner and outer APZs on the western side are fully outside the Stage 2 development boundary | Outer APZ on the western side is partly inside the Stage 2 development boundary (Fig. discussed at mtg on 10/12) | Outer APZ is fully inside the development boundary (Fig.12 of Eco & Bushfire report) |
| <i>Approx. land take (ha)</i> | nil | 45 ha | 65 ha (note: 'peninsula' area may be unviable for development because narrow corridor could be difficult to defend from fire) |
| <i>Proportion of Stage 2 development area</i> | 0% | 9% | 13% |
| <i>Housing potential (at density of 5 dw/ha for steep land)</i> | 225 lots (gained) | 225 lots (lost) | 525 lots (lost mimimum) |
| <i>Construction issues</i> | | Similar construction to elsewhere in Stage 2 | Similar construction to elsewhere in Stage 2 |
| <i>Cost of development</i> | Higher - at least \$50K per dwelling to cost base for earthworks, benching and retaining walls on the steep slopes | Similar construction to elsewhere in Stage 2 | Similar construction to elsewhere in Stage 2 |

| Issue | Option 1 - maximum yield within specified boundary | Option 2 - balance yield, bushfire & environmental outcomes | Option 3 - favour environment & bushfire protection |
|---|--|---|---|
| <i>Roads and drainage</i> | Steep terrain, so increase in impervious surface would significantly increase stormwater peak flows off subcatchments and may affect requirements for downstream controls (e.g. basin sizes)? Would they be able to develop right to top of bank anyway or will it be piped? | Similar to elsewhere in Stage 2; may be opportunity for drainage line to contribute to stormwater detention/water quality improvements which could benefit amenity as well as provide additional water source for fire-fighting | Similar to elsewhere in Stage 2; may be opportunity for drainage line to contribute to stormwater detention/water quality improvements which could benefit amenity as well as provide additional water source for fire-fighting |
| <i>\$ cost of loss of developable land (assumes \$100K per block accounting for higher development costs)</i> | \$ 22.5M gained | \$ 22.5M lost | \$32.5M lost (minimum) |
| <i>Impact of value on remaining development (assumes loss of \$10K per block of 500 surrounding lots)</i> | Loss of \$5M | Increase of \$5M | Increase of \$5M |
| <i>Visual amenity</i> | houses on steep slopes would have outlook over Stage 2 development | Vegetated landscape adds value through improved amenity, especially if integrated with recreation features - can be used as a marketing point of difference. Provides forested backdrop in ACT landscape. | forested hillslope provides backdrop to housing, consistent with earlier planning in ACT and landscape character. |
| <i>Bushfire guidelines (compliance to be confirmed through ESA approval)</i> | complies | complies | complies |

| Issue | Option 1 - maximum yield within specified boundary | Option 2 - balance yield, bushfire & environmental outcomes | Option 3 - favour environment & bushfire protection |
|--|---|---|---|
| <i>Maintenance requirements</i> | Burn frequency for forest vegetation; strong regeneration may require more active management (e.g. thinning saplings) to reduce bushfire risk | burning and/or slashing grass | combination of management for grass and forest vegetation types |
| <i>Maintenance costs</i> | Higher costs associated with mosaic burn pattern and monitoring | Minimal ecological restriction so could be done relatively cost-effectively | Higher costs associated with mosaic burn pattern and monitoring |
| <i>Recreation</i> | Recreation activity concentrated outside urban area | APZs along drainage line provides opportunity for recreational corridor to Stromlo Forest Park; grass foothills will be opportunity for picnic area and links to bushland on upper slopes | Opportunities to incorporate recreational features inside urban area in APZs |
| <i>Territory EIA process</i> | Maintenance of an outer APZ is likely to significantly change the ecology - detailed assessment and approval process will be needed with risk of refusal or conditions of consent | Minimise the risk of potential difficulties (delays/costs) with EIA process | Maintenance of an outer APZ in steep, forested slopes is likely to significantly change the ecology - detailed assessment and approval process will be needed with risk of refusal or conditions of consent |
| <i>NES plan (compliance to be confirmed in consultation with the Commonwealth)</i> | inconsistent | consistent | consistent |
| <i>Strategic context</i> | Fulfills the objective to achieve maximum yield on the site | Consistent with vision in Propositions Paper i.e. balances economic vitality, community well being and environmental quality | Considers environment and bushfire considerations |



Bushfire and Ecological Constraints **Stage 2 Development Area**

Legend Aerial Imagery source: ACT Planning (obtained October 2006)

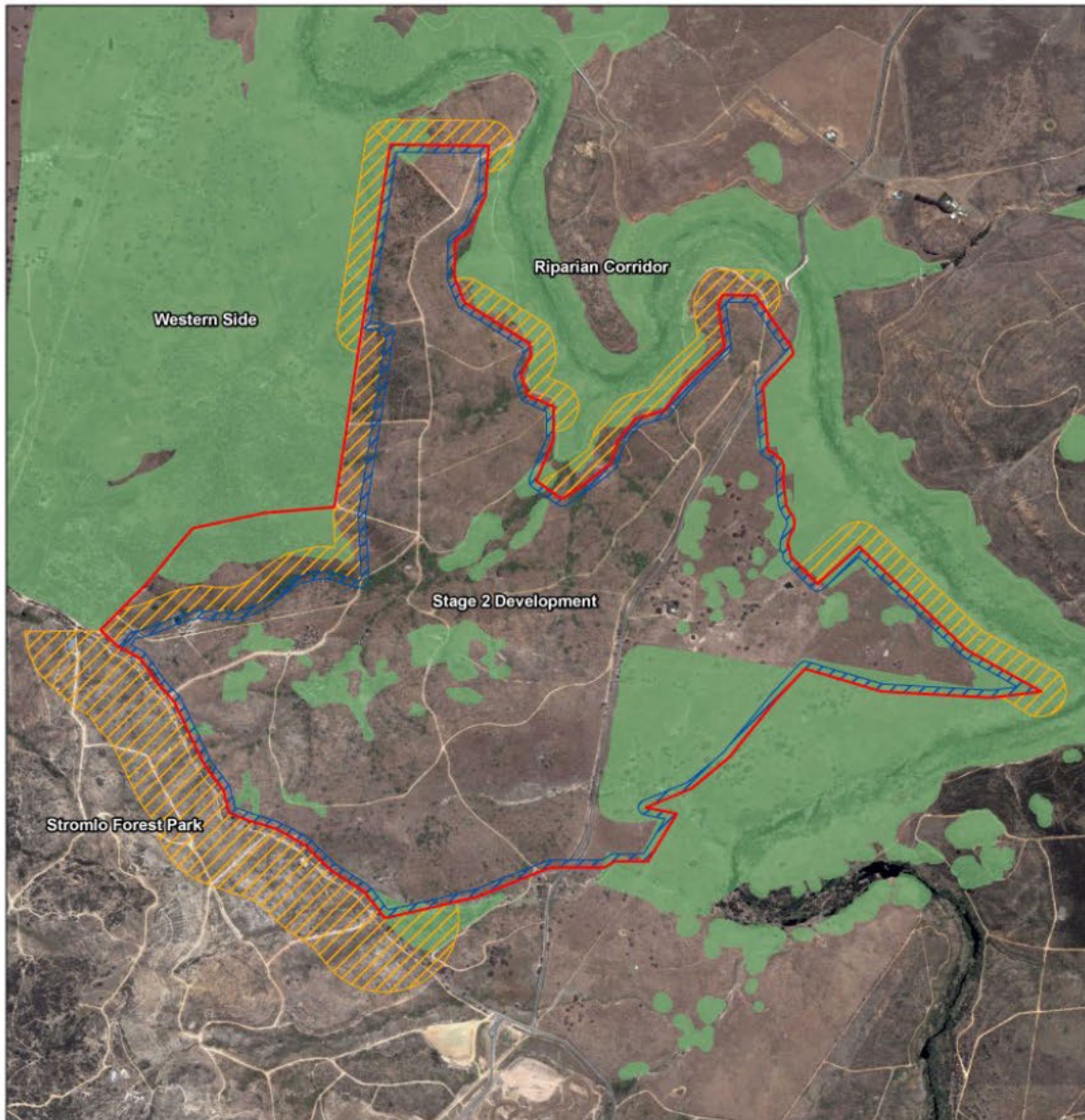
| | |
|---|----------------------------------|
| Molonglo Stage 2 Development Area | Vegetation |
| Molonglo Offsets | EPBC Box-Gum Woodland (High) |
| Inner APZ Stage 2 | EPBC Box-Gum Woodland (Medium) |
| Outer APZ Stage 2 | EPBC Box-Gum Woodland (Low) |
| Molonglo Urban Edge | EPBC Box-Gum Woodland (Very Low) |
| PTWV High and Moderate Habitat (20m Buffer) | Natural Temperate Grassland |

0 0.25 0.5 1
Kilometers
Projection: AGD 1966 ACT Grid, AGC Zone

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Bushfire and ecological constraints (external outer APZs)



Bushfire and Ecological Strategy **Stage 2 Development Area**

Stage 2 Development

Primary objective is urban development
 Stockpile suitable rocks from areas of PTWL habitat to be cleared for urban development
 Where possible, retain native trees as part of urban landscaping
 Minimum 30 m wide inner APZ

Riparian Corridor

Primary objectives are ecological protection/enhancement and recreation
 Reuse stockpiled rocks to improve PTWL habitat condition and connectivity
 Ecologically appropriate burning regime* for corridor
 Position river crossings & recreation areas to avoid high quality habitat

Stromlo Forest Park

Primary objective is recreation
 Maintain 300 m wide outer APZ in Stromlo Forest Park (fuel reduction regime suitable for forest vegetation type)

Western Side

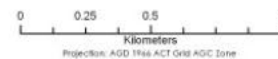
Primary objective is ecological protection and enhancement
 100 m grass outer APZ to be managed by slashing and/or burning
 Ecologically appropriate burning regime* in adjacent native vegetation to the west

* management regime to reflect species' composition, burning history, patch size etc

Legend

- Molonglo Stage 2 Development Area
- Inner APZ
- Outer APZ
- Ecological Constraints

Aerial Imagery source: ACT Planning (obtained October 2006)

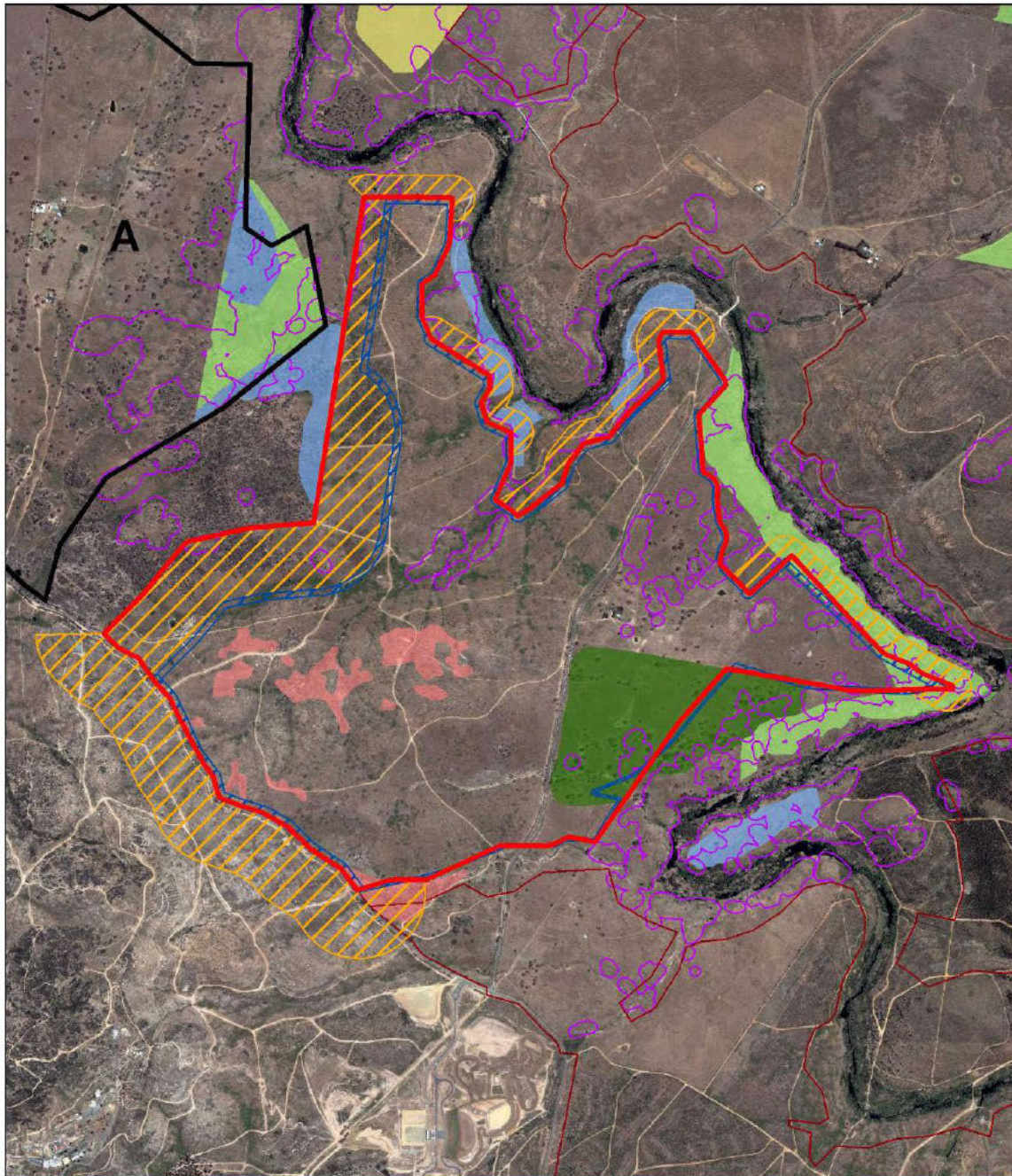


Projection: AGD 1984 ACT Grid AGC Zone



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OPTION 3



Bushfire and Ecological Constraints **Stage 2 Development Area**

Aerial Imagery source: ACT Planning (obtained October 2006)

| | | |
|---|---|--|
| Legend | | |
| <ul style="list-style-type: none"> Molonglo Stage 2 Development Area Molonglo Offsets Inner APZ Outer APZ Molonglo Urban Edge PTWL High and Moderate Habitat (20m Buffer) | Vegetation <ul style="list-style-type: none"> EPBC Box-Gum Woodland (High) EPBC Box-Gum Woodland (Medium) EPBC Box-Gum Woodland (Low) EPBC Box-Gum Woodland (Very Low) Natural Temperate Grassland | |

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Constraints with western boundary APZs inside development area

DRAFT

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Base Analysis

ACT Planning and Land Authority January 2011



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5 Environment

This Chapter presents information to help define ecological and bushfire constraints and integrate management requirements within the Molonglo 2 study area and surrounds. The assessment will assist in determining the quantum of land available for development and help to demonstrate if the commitments in the Matters of National Environmental Significance (NES) Plan³⁰ are being satisfied.

This Chapter outlines:

- base analysis of ecological issues;
- base analysis of bushfire issues;
- key NES Plan requirements regarding bushfire management;
- ecologically appropriate fire regimes and considerations; and
- options and recommendations for integrated bushfire and ecological management.

Information in this analysis provides a framework for seeking support/approval from ACT agencies, the Commonwealth and the community prior to development of the:

- Molonglo River Park Concept Plan;
- urban edge design features;
- environmental management plans for construction activities;
- plans of management; and
- operational plans.

The Chapter is divided into two parts: Ecology and Bushfire. Each part includes a discussion of the key questions for resolution and recommended strategies.

5.1 Ecology

5.1.1 What is the Current Situation?

EcoLogical Australia (ELA) has undertaken ecological surveys of the Molonglo Valley and has been closely involved in the Commonwealth *Environment Planning and Biodiversity Conservation Act 1999* (Cth) (EPBC Act) referral process. The following information summarises the key considerations regarding Ecology in the Stage 2 study area.

Ecological Values

The Molonglo Stage 2 study area has been highly modified by past land uses and wildfire. Exotic pasture and regenerating pine plantations dominate the area. Despite this modification, the Molonglo Valley has significant habitat values for a large range of threatened, rare and uncommon species.

From a landscape perspective, the Molonglo Valley is important for ecological connectivity for wildlife movement both along the river corridor and from south to north. In particular, the significant patches of

³⁰ NES refers to Matters of National Environmental Significance in the EPBC Act.

woodland within the Kama Nature Reserve (across the river from Stage 2) and riparian vegetation along the river corridor are considered to be important for sustaining populations of woodland birds. The river corridor also contains habitat for a regionally and nationally significant population of Pink-tailed Worm Lizards.

Ecological values of Commonwealth, ACT and Regional Significance are listed below. The distributions of vegetation communities and Pink-tailed Worm Lizard habitat are illustrated in Figure 23 to Figure 26.

The Molonglo Valley contains important habitat and ecological values for a number of Matters of National Environmental Significance (NES) identified under the EPBC Act, including:

- White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland (Box-Gum Woodland);
- Natural Temperate Grassland of the Southern Tablelands of NSW and the ACT (Natural Temperate Grassland);
- *Aprasia parapulchella* (Pink-tailed Worm Lizard), particularly along the river corridor;
- *Polytelis swainsonii* (Superb Parrot);
- *Lathamus discolor* (Swift Parrot); and
- *Merops ornatus* (Rainbow Bee-eater).

The Molonglo Valley contains important habitat and ecological values identified under the *Nature Conservation Act 1980* (ACT) (NCA), including:

- Yellow Box-Red Gum Grassy Woodland;
- The Brown Treecreeper which is listed as vulnerable under the NCA. It is not listed under the EPBC Act, however the Commonwealth's Action Plan for Australian Birds indicates the species is near threatened;
- The White-Winged Triller which is listed under the NCA as vulnerable. This species has been recorded from the Pinnacle Nature Reserve, just north of the Molonglo Valley proposed development area;
- The Varied Sittella which is listed as vulnerable under the NCA. This species has been recorded from the Pinnacle Nature Reserve;
- The Little Eagle which is listed as vulnerable under the NCA. This species is known to breed in the ACT including in the Central Molonglo area.

Regionally uncommon fauna species include the Stone Gecko, Marbled Gecko, Eastern Copper-tailed Striped Skink, Boulenger's Skink, the Nobbi Dragon, Eastern Long Necked Turtle, Black Headed Snake, the Platypus and the Eastern Wallaroo. These species have been recorded inside the proposed Molonglo Valley development area or its immediate vicinity. Uncommon raptor species include the Whistling Kite, Collared Sparrowhawk, and Australian Hobby.

Matters of NES Plan & Strategic Assessment

Part 10 of the EPBC Act provides the mechanism to examine proposed development in the Molonglo Valley at a landscape scale rather than on a site-by-site impact assessment basis. In September 2008, the ACT and Commonwealth Governments commenced a strategic assessment under Section 146 of the EPBC Act. The strategic assessment comprises three key documents as follows:

- The draft Strategic Assessment Report (ELA 2010) provides a detailed assessment of the implications of the draft Molonglo Valley Plan for the Protection of Matters of National Environmental Significance (the NES Plan).

- The Supplementary Assessment Report addresses the issues raised in the public exhibition process and analyses the outcomes of the final Matters of NES Plan.
- The final Matters of NES Plan (ACTPLA 2010 – latest revision November 2010) identifies the commitments and undertakings of the ACT Government for the protection and management of matters of national environmental significance protected under the EPBC Act.

The Matters of NES Plan defines the development activities proposed for the Molonglo Valley as set out in the Molonglo and North Weston Structure Plan. The Matters of NES Plan sets out the protection and conservation strategies to avoid unacceptable impacts on matters protected by the EPBC Act as a result of development in the Molonglo Valley.

The Commonwealth Minister for Sustainability, Environment, Water, Population and Communities can make further modifications to the NES Plan. Following endorsement of the Matters of NES Plan under the EPBC Act, the Commonwealth Minister will approve the actions that will occur to implement the endorsed Matters of NES Plan.

ACT Assessment

The strategic assessment does not address the requirements of ACT planning or environment legislation. Those requirements need to be addressed through separate processes at the Territory level.

The *Planning and Development (Environmental Impact Statements) Amendment Act 2010* was recently passed by the ACT Legislative Assembly and is expected to be in operation by January 2011³¹. This Act amends the *Planning and Development Act 2007* and refines the triggers for an EIS. Key sections of relevance to planning and development at Molonglo include:

- Section 23, Schedule 4, Part 4.2 – Meaning of significant adverse environmental impact (e.g. an adverse environmental impact is significant if the cumulative or incremental effect of a proposed development might contribute to a substantial adverse impact on an environmental function, system, value or entity).
- Section 25, Schedule 4, Part 4.3 - Development proposals requiring EIS – areas and processes (e.g. proposal involving the clearing of more than 5.0ha of native vegetation on land that is designated as a future urban area under the Territory Plan unless the conservator of flora and fauna produces an opinion that the clearing is not likely to have a significant adverse environmental impact).

Other ACT legislation relevant to ecological management includes:

- *Nature Conservation Act 1980* – provides for the protection and conservation of native animals and plants, and for the reservation of areas for those purposes;
- *Tree Protection Act 2005* – aims to promote the incorporation of the value of trees and their protection into the design and planning of development;
- *Pest Plants and Animals Act 2005* – designed to protect the ACT's land and aquatic resources from threats from pest plants and animals, and to manage such pests; and
- *Water Resources Act 2007* – seeks to protect aquatic ecosystems from damage and, where practicable, to reverse damage that has already happened.

³¹ pers. comm. Dr Paul Rutherford, ACTPLA 21/12/10

Maps

Maps are provided on the following pages to illustrate the following ecological issues:

- Native vegetation (excluding native under-storey areas in regenerating pine forest) (**Figure 23**);
- EPBC Act listed vegetation (Box Gum Woodland and Natural Temperate Grassland areas) - used to calculate the proposed offset (**Figure 24**);
- Proposed vegetation offset areas under EPBC Act (assumes that all native vegetation within the development footprint will be cleared) (**Figure 25**);
- Pink-tailed Worm Lizard habitat (**Figure 26**).

Environmental legislation, policies and strategies relevant to the Molonglo Valley have been developed to address the trend of biodiversity decline (as well as loss of amenity, ecological functions etc).

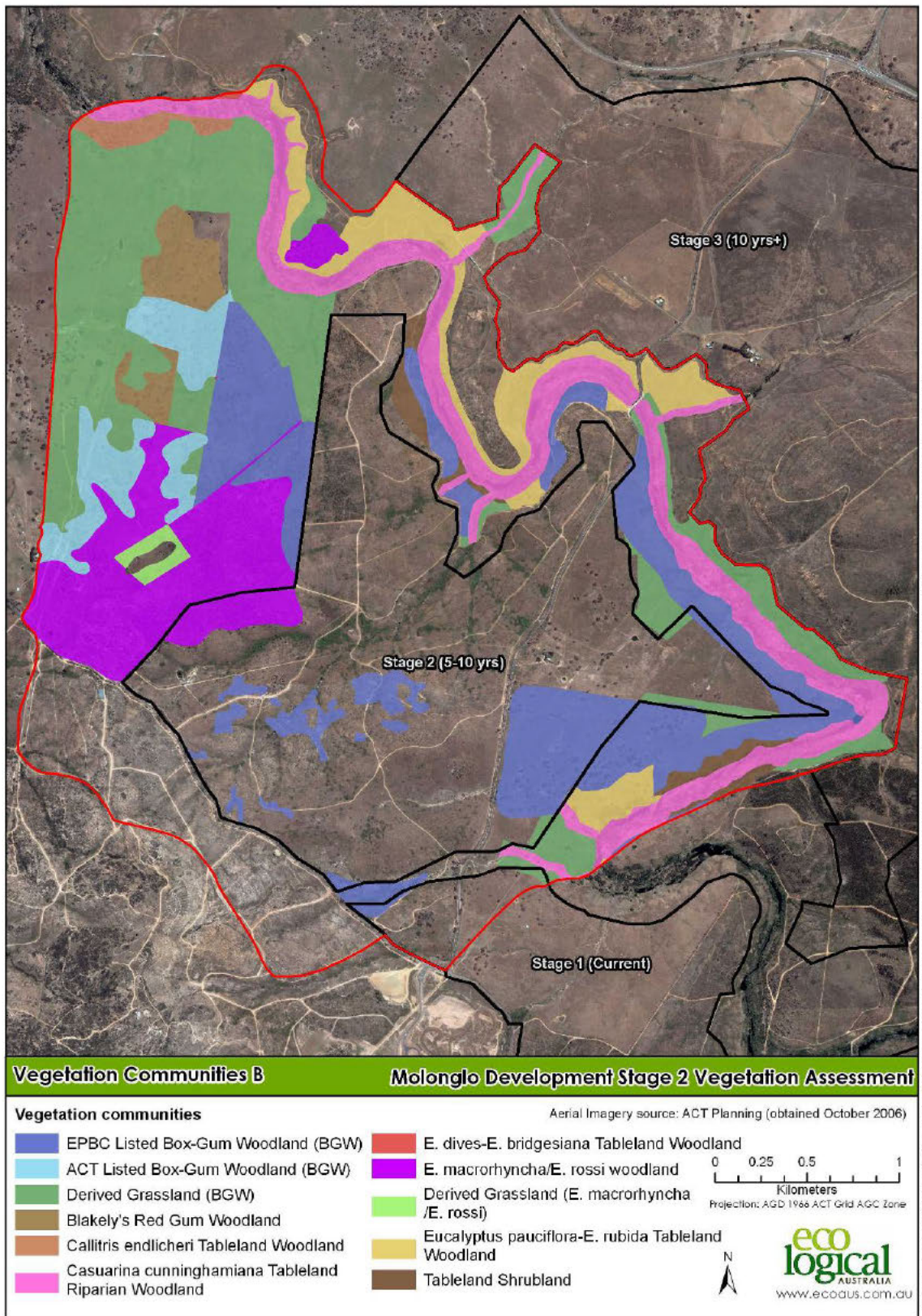


Figure 23 Native Vegetation Communities

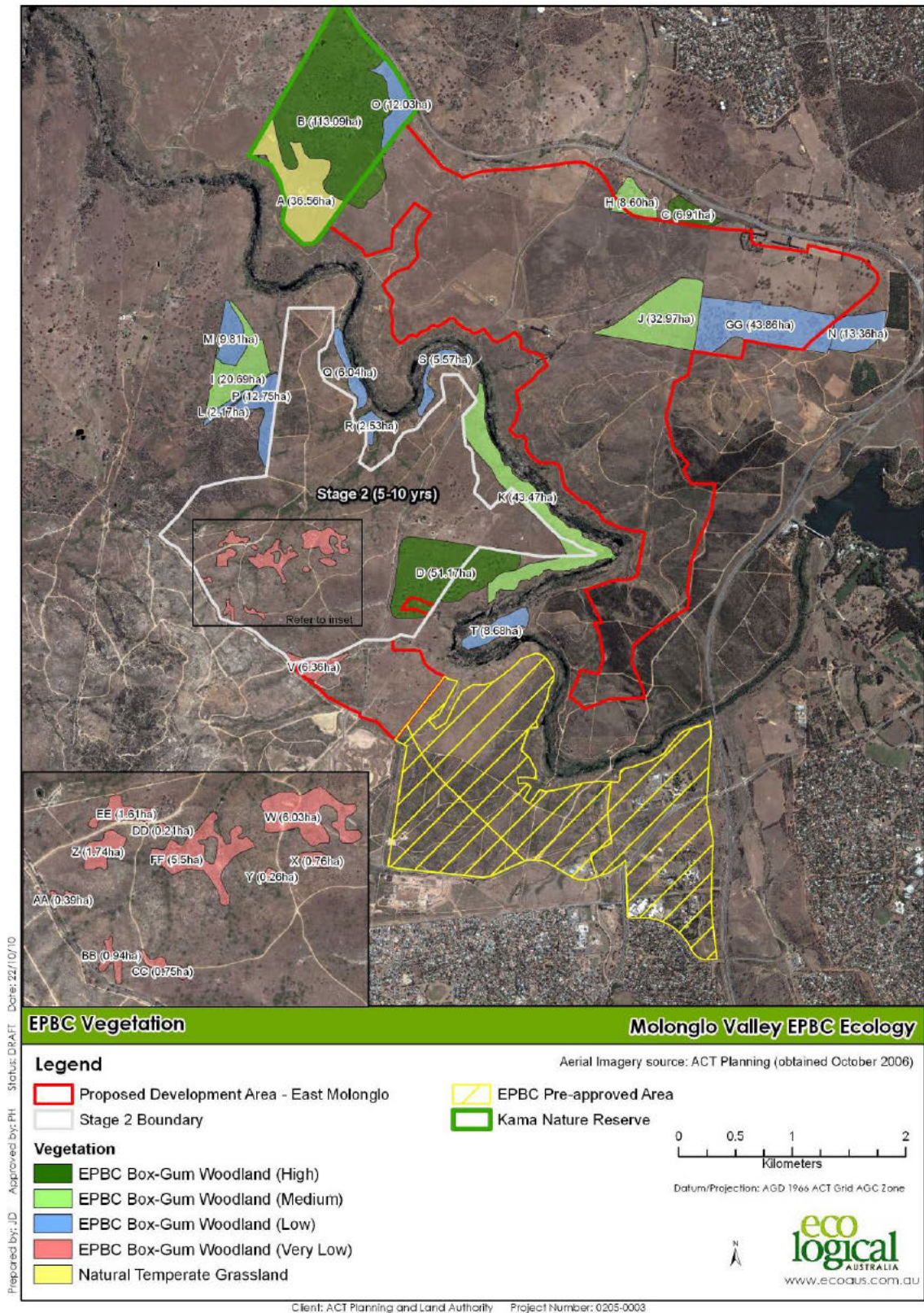


Figure 24 Vegetation Communities recognised under the EPBC Act

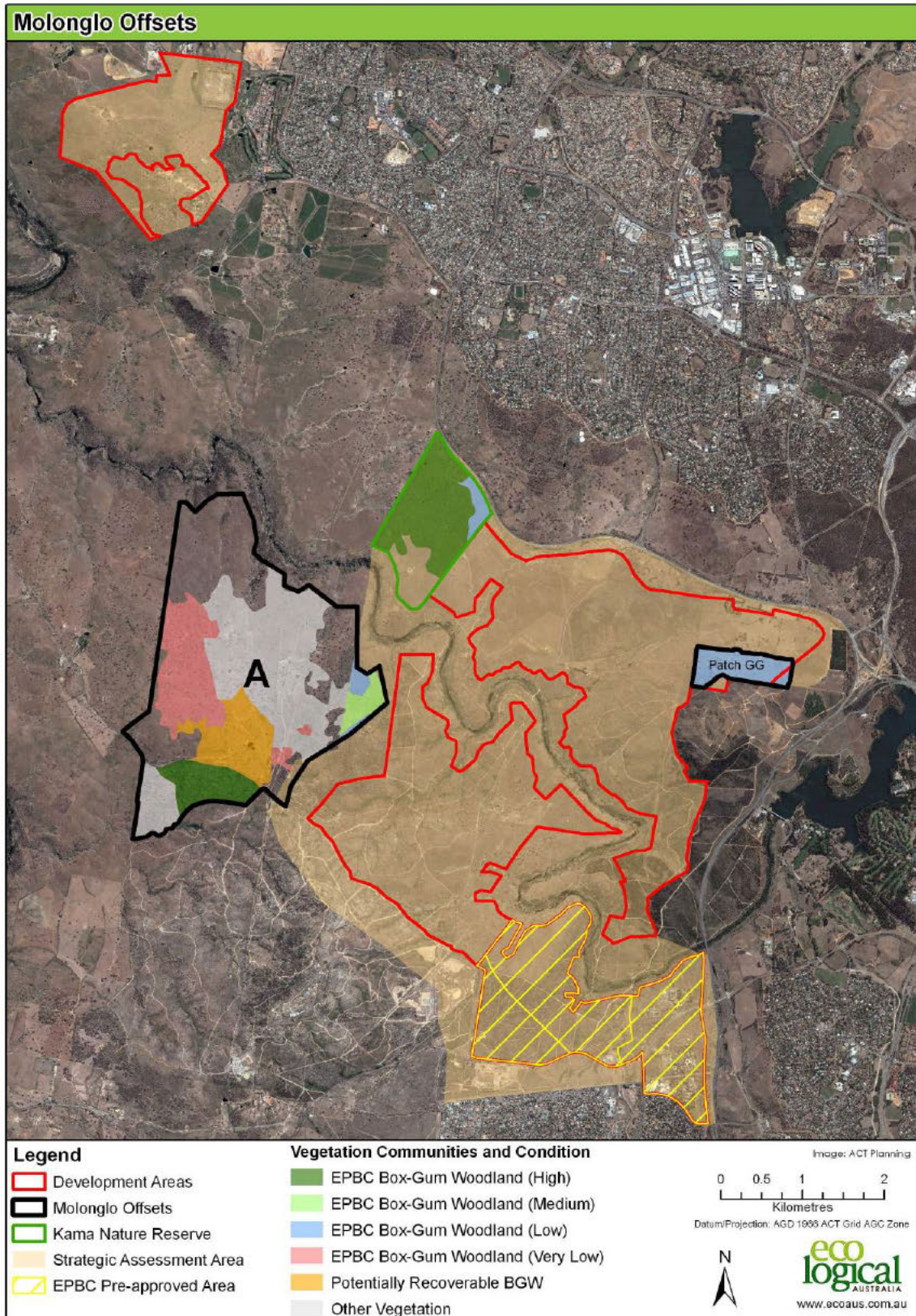


Figure 25 Proposed Vegetation Offset Areas (A and GG)

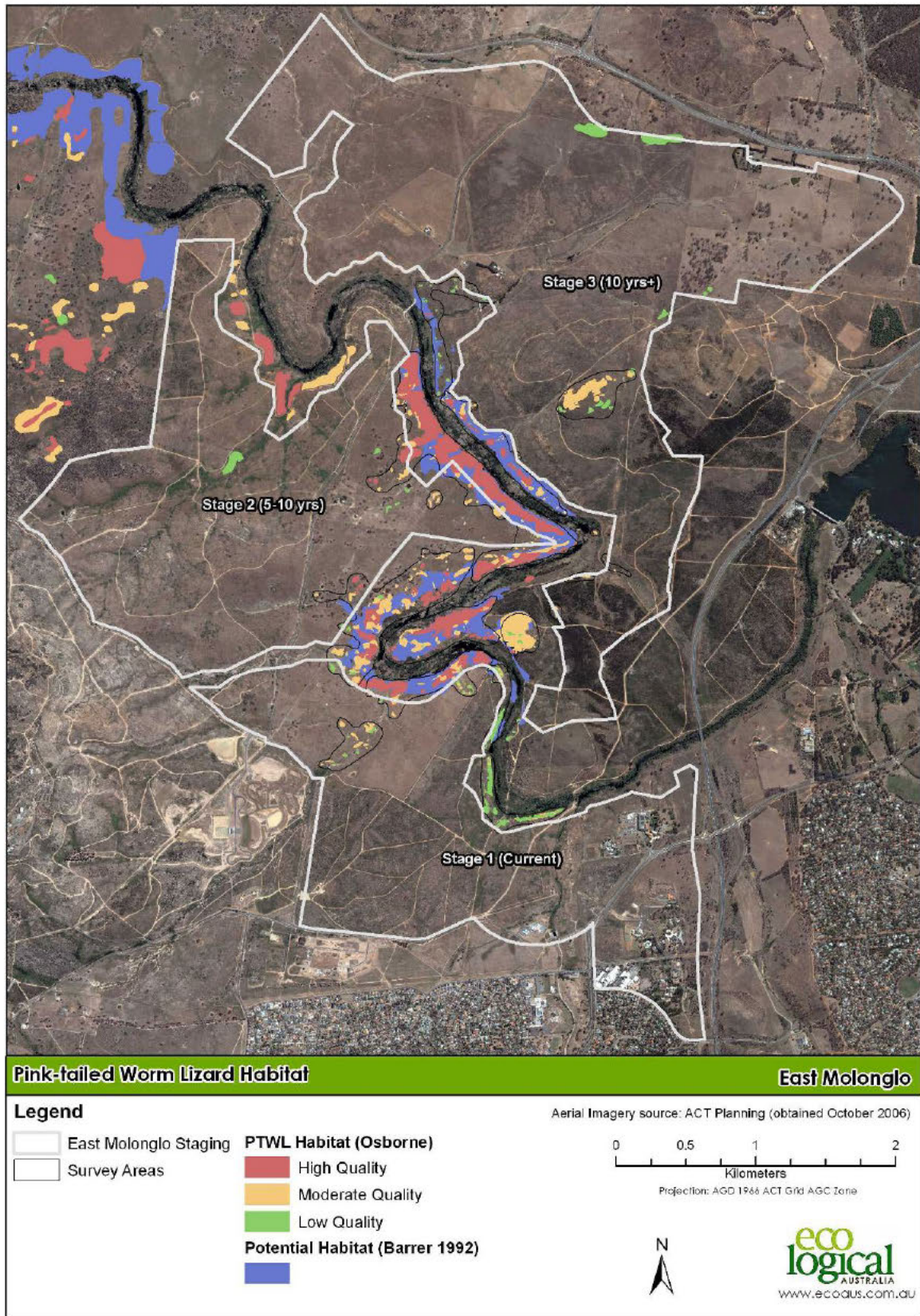


Figure 26 Pink-tailed Worm Lizard Habitat

5.1.2 Key Issues

Key issues in relation to Ecology therefore include:

- Ensuring that ACT statutory obligations are addressed, including possible EIS requirements, and pest plant and animal control.
- Ensuring that Commonwealth statutory obligations are addressed. This process is being managed through the Strategic Assessment process.
- Improve ecological connectivity and health, particularly along the Molonglo riparian corridor.
- Incorporate remnant native vegetation within the urban area and use local native species in landscaping and actively discourage the use of exotic species on private land.
- Integrate biodiversity and fire management to help define the urban edge.

5.1.3 How should Molonglo Stage 2 address the Issues?

Some suggestions for how the planning and design of Molonglo Stage 2 can address each of the issues raised above, are discussed below.

| | |
|---|--|
| <p>Outcome 1. Ensure that ACT statutory obligations are addressed, including pest plant and animal control.</p> | <p>Review the <i>Planning and Development (Environmental Impact Statements) Amendment Act</i> and ascertain relevant statutory obligations and what is needed to satisfy them.</p> |
| <p>Outcome 2. Ensure that Commonwealth statutory obligations are addressed.</p> | <p>Maintain consultation with the Commonwealth regarding the NES Plan and strategic assessment. Implement the NES Plan through the development and implementation of plans of management and operational plans.</p> |
| <p>Outcome 3. Improve ecological connectivity and health, particularly along the Molonglo riparian corridor.</p> | <p>Prepare and implement a River Park Concept Plan, plans of management and operational plans for the areas adjacent Molonglo Stage 2, consistent with the principles in the Molonglo River Riparian Management Strategy for Coombs and North Weston (Draft ELA 2010).</p> |
| <p>Outcome 4. Where possible, incorporate remnant native vegetation within the urban area and use local native species in landscaping.</p> | <p>Landscaping design to consider.</p> |
| <p>Outcome 5. Integration with bushfire management to help define the urban edge and ongoing management requirements.</p> | <p>To be achieved through negotiations with relevant agencies (e.g. ESA, TAMS)</p> |

5.1.4 Opportunities for Innovation or Change

Opportunities for innovative ecological and bushfire management are being explored in close consultation with representatives from ESA, TAMS and ACTPLA. Management strategies being considered include proposals to:

- Identify asset protection zones (APZs) that do not degrade ecological values, and contribute to broader aesthetic and recreational values for the development.
- Increase the quality and connectivity of Pink-tailed Worm Lizard habitat (e.g. through reuse of suitable rocks from the development area), which would also contribute to reducing bushfire fuel loads.
- Implement ecologically sensitive bushfire regimes in some APZs (e.g. along the river corridor) and in other areas of ecological value (e.g. in and adjacent to the offset area).
- Weed control and habitat rehabilitation in the river corridor.

5.1.5 What barriers need to be addressed?

Protection and enhancement of ecological values within the landscape can benefit property values and the marketability of new urban areas, as well as the environment. Ecology should not just be viewed as a barrier to development. Development can also provide an important opportunity to direct significant funds and management resources into rehabilitation and establishment of offset areas.

5.2 Bushfire

5.2.1 What is the Current Situation?

The Molonglo Valley is situated on the western side of the ACT. Catastrophic wildfires were experienced in this area in 2003. In September 2004, all parts of the ACT outside the defined urban area were designated as bushfire prone through the *Building Regulations*. The Molonglo Stage 2 study area is therefore recognised as bushfire prone, and development in this area is required to meet the provisions of the *Building Code of Australia* and *Australian Standard 3959 (construction of buildings in bushfire-prone areas)*.

The section presents a preliminary bushfire risk assessment prepared in accordance with:

- *Planning for Bushfire Risk Mitigation General Code (ACTPLA 2008)*; and
- *Strategic Bushfire Management Plan for the ACT (ESA 2009) (SBMP)*.

The methodology used to prepare the assessment is summarised as follows:

- The urban interface was classified and mapped as primary, secondary or lee in accordance with the SBMP;
- Expected future vegetation types (forest/shrubland or woodland/grassland) were determined for areas on the perimeter of Molonglo Stage 2; and
- Requirements for inner and outer asset protection zones (APZs) were determined.

5.2.2 Asset interface classification

Figure 27 shows how the urban edge of Molonglo Stage 2 has been classified by TAMS/ESA as primary, secondary or lee according to the aspect of potential fire run and length of potential fire run to the asset interface (refer to **Table 15** below **Figure 27**). In some locations, the classification has been increased where the nature of the river corridor, and wind terrain interactions may result in the lateral spread of head fire and embers.

Figure 27 Urban Edge Classification as Primary, Secondary or Lee (Source: TAMS/ESA)



Table 35 Length of Fire Run to Asset Interface (m)

| Aspect of Fire Run | Length of Fire Run to Asset Interface (m) | | |
|--------------------|---|-----------|-----------|
| | <100 | 100 - 350 | >350 |
| N | secondary | primary | primary |
| NW | secondary | primary | primary |
| W | secondary | primary | primary |
| SW | lee | secondary | primary |
| S | lee | secondary | secondary |
| SE | lee | lee | lee |
| E | lee | lee | secondary |
| NE | lee | lee | secondary |

5.2.3 Fuel Management Standards

Schedule C of the SBMP identifies fuel management standards for two vegetation types. The characteristics of these two types are as follows:³²

- Forest and shrubland – shrubby understorey with or without tree canopy; tussock grass understorey with shrubs and/or tree canopy.
- Grass and woodland – widely spaced or no trees with a grass understorey.

Vegetation types are expected to change from current conditions in areas where offsets are proposed (western boundary) or where regeneration/revegetation is expected (e.g. Stromlo Forest Park, riparian corridor).

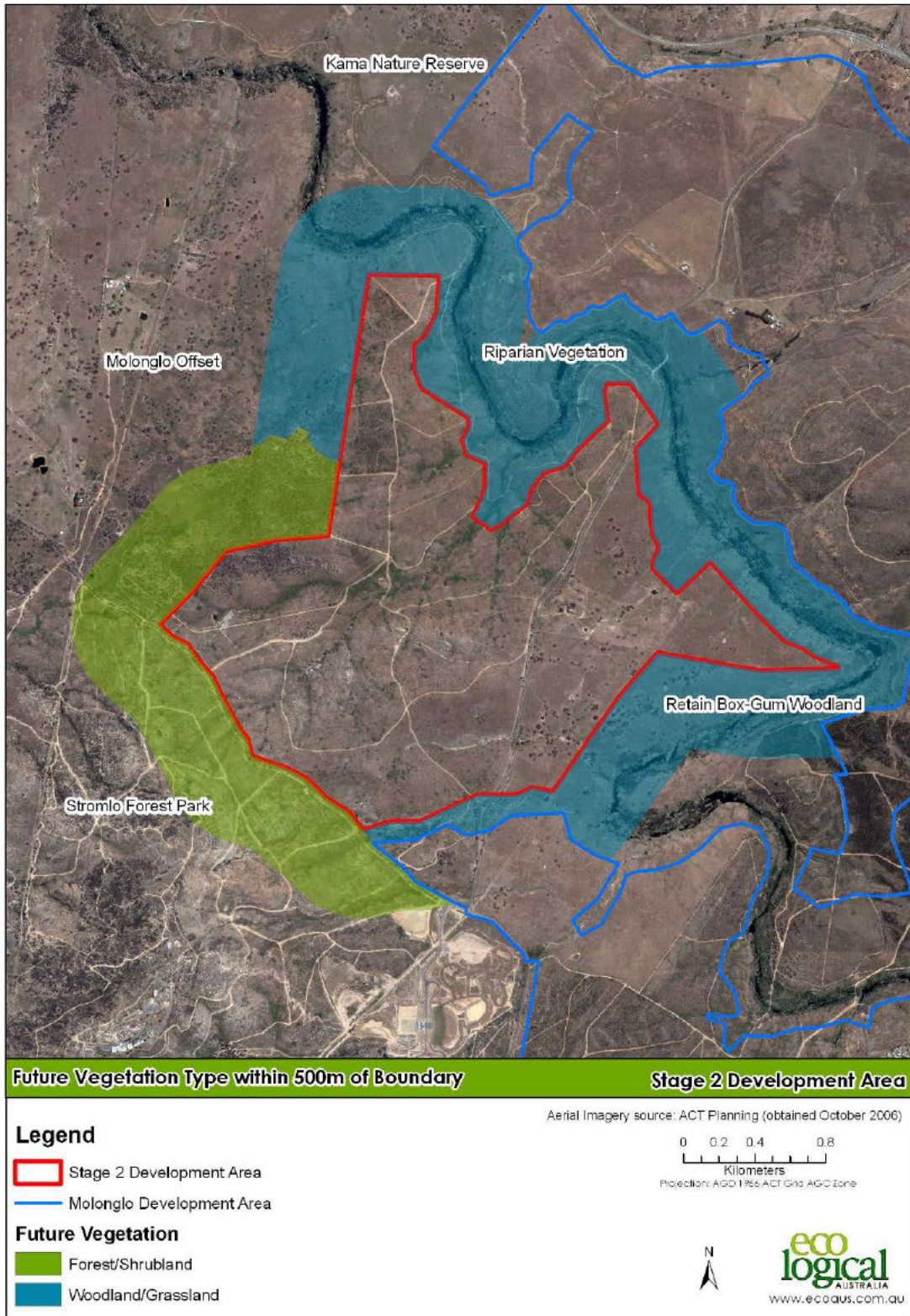
Initially, the project team and agencies considered a ‘worst case’ scenario of the entire Stage 2 area being surrounded by forest or shrubland vegetation types. However, this scenario is not considered realistic because it does not reflect observed conditions or expected management regimes. A more likely scenario is shown in

³² pers. com Dylan Kendall 15/11/10

Figure 28 and is described as follows:

- Molonglo offset – Box Gum Woodland i.e. grass with scattered trees, no understorey;
- Riparian corridor – rocky grassland (Pink-tailed Worm Lizard habitat) on the slopes, narrow band of Casuarina trees adjacent to the river, shrubs and scattered trees on alluvial flats, pockets of cleared grass for picnic areas; and
- Stromlo Forest Park – planted/regenerated forest.

Figure 28 Future Vegetation Types for Surrounding Areas



5.2.4 Asset protection zones

Table 36 indicates acceptable widths for the inner and outer APZs for different vegetation types. This indicates that the outer APZ on the western boundary of Molonglo Stage 2, for example, would need to be 200-300 m wide. **Figure 29** shows APZ widths in accordance with these guidelines.

Table 36 Vegetation Type - Widths for the Inner and Outer APZs

| Vegetation type | Asset Interface Classification | Inner APZ width (m) | Outer APZ width (m) |
|----------------------|--------------------------------|---------------------|----------------------|
| Forest and shrubland | primary | 30 | target 300, min. 200 |
| | secondary | 20 | 100 |
| | lee | 10 | 0 |
| Grass and woodland | primary | 30 | 100 |
| | secondary | 20 | 0 |
| | lee | 10 | 0 |

Table 37 indicates the fuel management requirements for vegetation types within the inner APZ, outer APZ and strategic fire fighting advantage zone.

Table 37 Fuel Management Requirements for Vegetation Types

| Zone | Vegetation Type | Fuel management standard |
|---------------------------------------|------------------------------|---|
| Inner APZ | Forest and shrubland | Maintained at an overall fuel hazard* \leq low 3-5 m canopy separation or fuel gap to crown > 3 m maintained |
| | Grass and open woodland | Grassland maintained at < 0.2 m height when grassland curing \geq 70% |
| Outer APZ | Forest and shrubland | Overall fuel hazard* \leq moderate |
| | Grass and open woodland | Grassland fire hazard \leq 35 when grassland curing \geq 70% (i.e. grassland < 0.5 m height – refer to <i>Grassland Fuel Hazard table</i>) |
| Strategic firefighting advantage zone | Forest and shrubland | Overall fuel hazard* \leq high |
| | Grass and open woodland | Grassland fire hazard \leq 50 when grassland curing \geq 70% |
| | Arterial roads and easements | Grassland fire hazard \leq 35 when grassland curing \geq 70% |

* Overall Fuel Hazard = (the sum of the influences of) Bark Hazard + Elevated Fuel Hazard + Surface Fine Fuel Hazard (*Overall Fuel Hazard Guide* 3rd ed. Victorian Department of Sustainability and Environment 1999)

Typical features of the inner and outer APZ are illustrated in **Figures 30** and **31**.

Figure 29 Required Inner and Outer Asset Protection Zones

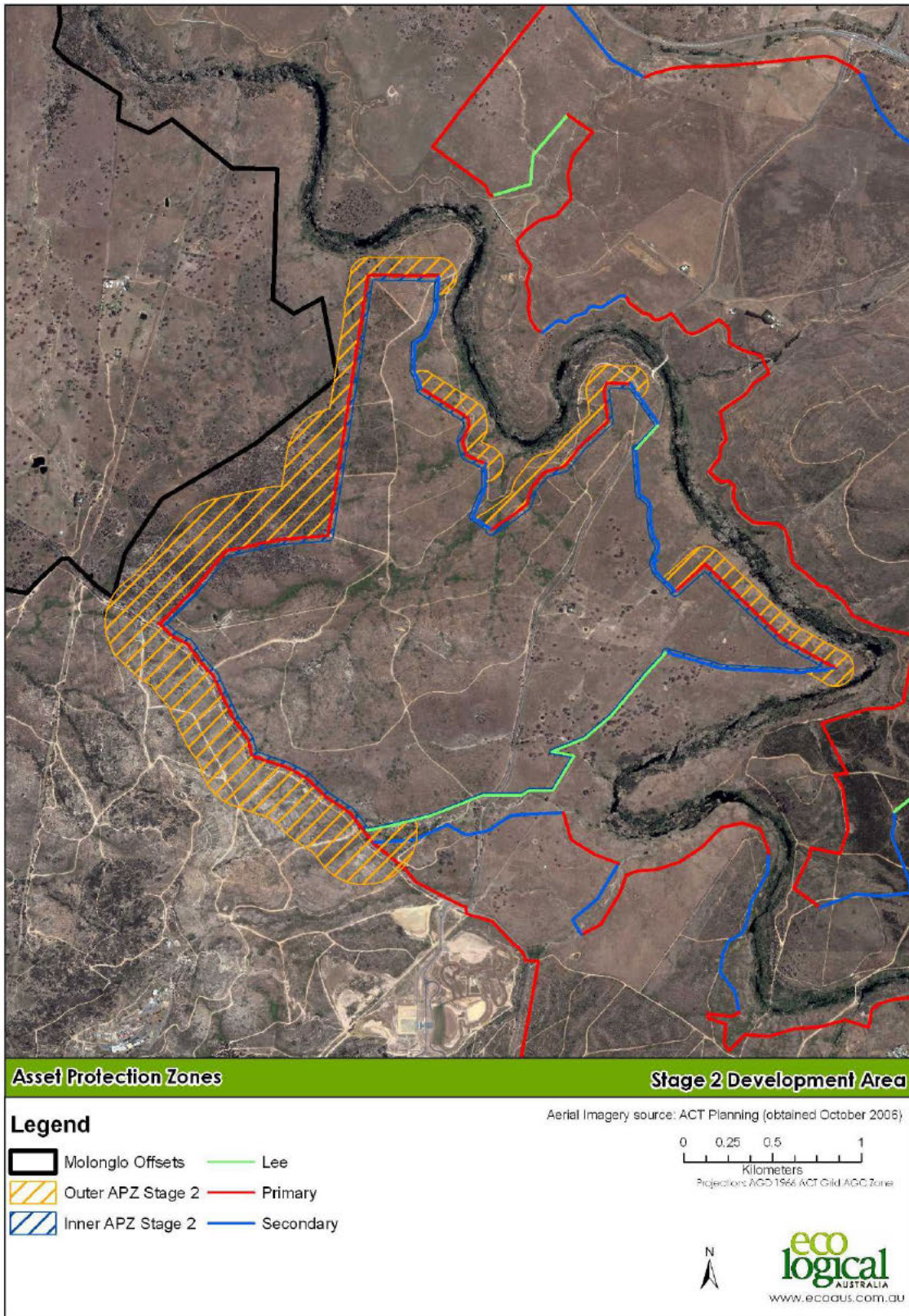


Figure 30 Asset Protection Zones (ACTPLA 2008)

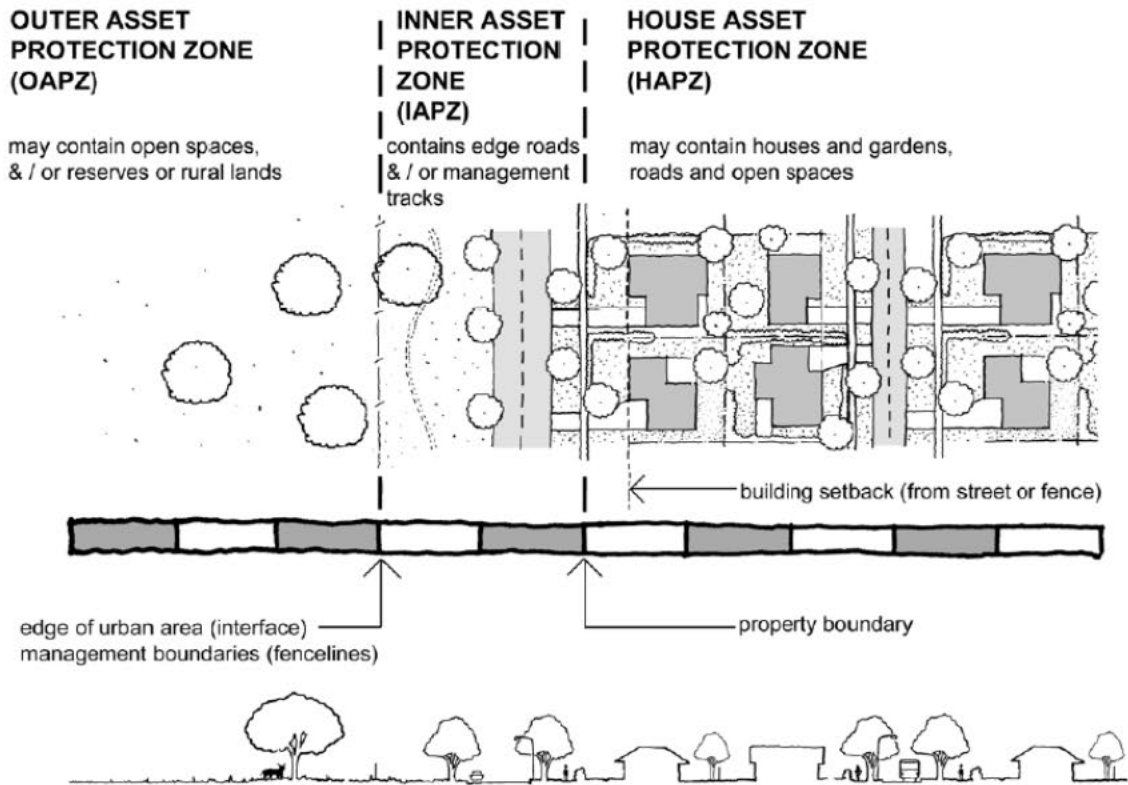
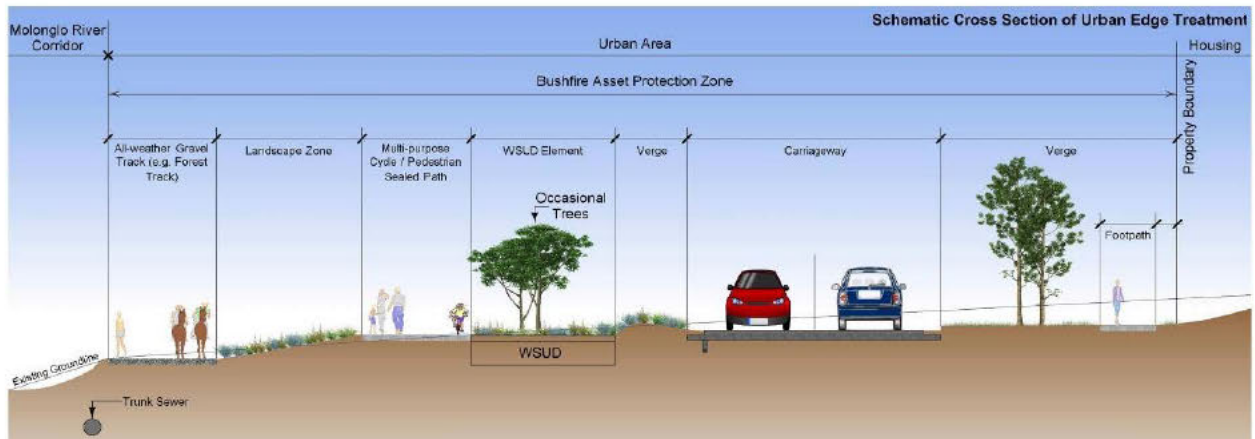


FIGURE 2 : ASSET PROTECTION ZONES

Distance of each zone varies depending upon specific risk assessment.

Figure 31 Schematic of Typical Inner APZ features



5.2.5 Key Issues

Key Issues for Bushfire mitigation include:

- Satisfying the aims and objectives of the SBMP – the goal of the SBMP is: ‘through Government and the community working together, suppress bushfires and reduce their consequences on human life, property and the environment’.
- Integrating ecological protection and management – the SBMP states that ‘bushfire management recognises the dynamic nature of natural ecosystems, and requires clear objectives and an adaptive approach to environmental management. Fire managers will use the best available knowledge to identify appropriate fire management practices, including the desirable fire regimes necessary to maintain the ecological integrity of these systems’.
- Minimising maintenance costs and effort – ongoing maintenance needs to be realistic, practical and achieved at minimum cost.

5.2.6 How should Molonglo Stage 2 address the Issues?

The development footprint and design features need to allow for bushfire risk mitigation measures such as APZs, and water supply and access for fire-fighting. A process for addressing bushfire issues will require close consultation with key stakeholders (e.g. ESA and TAMS) to ensure that the following performance measures are achieved:

- Meet statutory obligations;
- Integration of biodiversity and fire management objectives, with minimum land-take;
- Define the urban edge and allowed activities within bushfire management zones, including maintenance requirements; and
- Identify construction standards for bushfire protection.

Any variation to the bushfire management zone map will need to be approved by the ESA Commissioner.

5.2.7 Matters of NES Plan requirements

Integrated ecological and bushfire management needs to comply with obligations made to the Commonwealth Government under the Matters of NES Plan. The Matters of NES Plan requires ecologically appropriate fire regimes to be applied to protect matters of NES (i.e. Box Gum Woodland, Natural Temperate Grassland, Pink-tailed Worm Lizard, Superb Parrot and Swift Parrot). The following section outlines ecologically appropriate fire regimes.

Key phrases from the Matters of NES Plan of relevance to bushfire/ecological management are as follows.

- Undertake all fire management activities consistent with the protected high and moderate quality Pink-tailed Worm Lizard habitat and its associated 20 m buffer.
- Appropriate fire management. The application of fire and other fuel mitigation measures within the river corridor will take into account ecological fire thresholds for Box-Gum Woodland and Pink-tailed Worm Lizard.
- Appropriate fire management. The application of fire and fire management activities within and adjacent to the offsets will need to take into account ecological fire thresholds for Box-Gum Woodland

and Natural Temperate Grassland. It will be necessary to ensure that fire management does not degrade the values of the offset areas.

- Appropriate grazing management to avoid overgrazing of the offset areas.
- Bush regeneration activities to improve the condition of Box-Gum Woodland, including:
 - retaining all standing trees and timber (dead and alive);
 - retaining all fallen timber, branches and leaf litter;
 - eliminating high threat woody weeds and control of pest animals; and
 - undertaking supplementary planting of indigenous species to improve the condition of Box-Gum Woodland

5.2.8 Ecologically Appropriate Fire Regimes

This section draws on scientific knowledge and bushfire guidelines to determine ecological management requirements for the study area relevant to bushfire issues.

Pink-tailed Worm Lizard

Pink-tailed Worm Lizard (PTWL) habitat in the ACT is characterised by hillsides that contain numerous scattered surface rocks which are well-weathered and partially embedded in the soil and grass. The habitat has a cover of predominantly native grasses (particularly kangaroo grass *Themeda australis*, red-leg grass *Bothriochloa macra* and *Lomandra filiformis*), with few or no trees. Healthy *T. australis*, for example, grows up to 1.2 m high.

To protect the PTWL, fire management should:

- not disturb the scattered rocks;
- favour growth of native grasses;
- not be too frequent/infrequent or intense; and
- be done in patches to allow recolonisation of burnt areas.

Native Grassland

The following information is taken from the Commonwealth Department of Sustainability, Environment, Water, Population and Communities (DSEWPC) website.³³

- Prior to European settlement, natural temperate grassland would have been adapted to a mosaic pattern of burning by Aborigines with patchy, low intensity fires in spring or autumn.
- Fire can threaten grassland if areas are burnt too frequently or infrequently, too hot and/or at a sensitive stage of plant life cycles, or if entire remnants are burnt leaving no escape for native animals.
- Small animals (e.g. lizards) that are relatively immobile and live in small grassland remnants are considered particularly at risk from frequent burning.
- Species decline is likely to occur in response to frequent fires if those fires cause loss of topsoil or facilitate invasion by perennial weeds.

³³ Department of Sustainability, Environment, Water, Population and Communities (2010). *Natural Temperate Grassland of the Southern Tablelands of NSW and the Australian Capital Territory in Community and Species Profile and Threats Database*, Canberra. Available from: <http://www.environment.gov.au/sprat>. Accessed 24 November 2010.

- Fires may threaten endangered fauna associated with the grassland through heat stress or increased vulnerability to predators arising from loss of vegetative cover.
- There is still considerable uncertainty about the use of fire as a management tool in native grasslands, including the extent to which the results of burning in one area can be extrapolated and applied to other areas.
- Fire regimes need to allow grassland species to flower and set seed. Some species may require fire to enhance germination and establishment.
- Best practice is not to adhere to a prescriptive fire frequency regime, but be guided by the level of grass biomass present and species' requirements.
- The risk of post-fire weed invasion needs to be assessed.

Box Gum Woodland

The following information is taken from the Commonwealth DSEWPC website³⁴ and the National Recovery Plan for White Box – Yellow Box – Blakely's Red Gum Grassy Woodland and Derived Native Grassland³⁵.

Too frequent or extensive burning may limit recruitment of some species, cause local extinctions of fire sensitive species, facilitate the spread of some exotic species, reduce fauna habitat features (fallen logs, hollow trees, litter) and threaten fauna populations.

The general exclusion of fire from small fragments increases the likelihood that species which existed under a more frequent fire regime may be lost. Whereas fires most likely burnt in a mosaic in the past, as a result of fragmentation, unmanaged fires now tend to burn an entire patch at once, leaving no refuge for fire sensitive plants and animals to survive and subsequently recolonise.

According to NSW DECCW³⁶, measures needed to maintain or recover this vegetation community include the following (amongst others).

- Do not harvest firewood from remnants (this includes living or standing dead trees and fallen material).
- Leave fallen timber on the ground.

Current best practice management for Box-Gum Woodland is as follows.

- Burning regimes will depend on the floristic composition of a remnant and research is continuing to determine appropriate fire regimes for Box-Gum Grassy Woodland in all its various condition states. For remnants dominated by Snow Grass and Kangaroo Grass autumn burning cycles approximately every 4-8 years are considered adequate for maintaining floristic diversity.
- Any burning should be applied to remnants in mosaics (i.e. burning small areas at staggered intervals) to allow survival of soil and ground fauna (including invertebrates, amphibians and reptiles) and promote diversity in the states of the ecological community.

³⁴ Advice to the Minister for the Environment and Heritage from the Threatened Species Scientific Committee (TSSC) on Amendments to the List of Ecological Communities under the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act). Viewed 24 November 2010. <http://www.environment.gov.au/biodiversity/threatened/communities/pubs/box-gum.pdf>

³⁵ Department of Environment, Climate Change and Water NSW. 2010. *Draft National Recovery Plan for White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland*. Sydney. Viewed 24 November 2010. http://www.google.com.au/search?hl=en&source=hp&q=White+Box+-+Yellow+Box+-+Blakely%27s+Red+Gum+Grassy+Woodlands+and+Derived+Native+Grasslands+bushfire&aq=f&aql=&oq=&gs_rfai=

³⁶ Department of Environment, Climate Change and Water NSW – Threatened Species – Box-Gum Woodland Profile. Viewed 24 November 2010. <http://www.threatenedspecies.environment.nsw.gov.au/tsprofile/profile.aspx?id=10837>

- Sites where burning is practiced should retain unburnt areas, to provide refuges for species of fauna and flora that may be intolerant of fire.
- Timing of burns must be considered in relation to the flowering and seeding of native and exotic species. Where possible burns should be carried out after natives have seeded but before weeds flower and seed.
- Be aware that some weed species increase with burning.

Key Threatening Process

The threat posed by inappropriate fire regimes to Box Gum Woodland is recognised in Victoria with the listing of “High frequency fire resulting in the disruption of life cycle processes in plants and animals and loss of vegetation structure and composition” and “Inappropriate fire regimes causing disruption to sustainable ecosystem processes and resultant loss of biodiversity”, as Potentially Threatening Processes under the Victorian *Flora and Fauna Guarantee Act 1988*. Similarly in NSW, “High frequency fire resulting in the disruption of life cycle processes in plants and animals and loss of vegetation structure and composition” is listed as a Key Threatening Process under the NSW *Threatened Species Conservation Act 1995*.

The DSEWPC has nominated³⁷ ‘fire regimes that cause biodiversity decline’ as a key threatening process under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). The nomination includes reference to the White Box – Yellow Box – Blakely’s Red Gum Grassy Woodland and Derived Native Grassland ecological community, which is present within Molonglo Stage 2 and is listed as Endangered under the EPBC Act.

The listing of a key threatening process has no regulatory implications under the EPBC Act other than requiring the Minister to decide whether or not to have a threat abatement plan. If a threat abatement plan is considered appropriate, the plan would provide national guidelines to governments about possible ways to improve fire management to reduce potential negative impacts on biodiversity. The Threatened Species Scientific Committee is due to complete its assessment and provide the Minister with a recommendation by 31 March 2011.

5.3 Ecological and Bushfire Constraints

Figure 32 shows the main ecological constraints and APZs. The map highlights significant areas of overlap of the outer APZ (which is shown outside the urban boundary) and areas of ecological sensitivity. Overlap is a problem because of the different management requirements for ecology and bushfire (discussed previously).

ELA’s approach to resolving management conflict is to have informed and constructive negotiations with relevant agencies. As outlined in the next section, we have developed strategies for managing the outer APZ within the riparian corridor and in Stromlo Forest Park. However, management conflict on the western boundary is still unresolved and will be investigated further in consultation with representatives from ESA, TAMS and ACTPLA. Issues and processes to resolve conflict on the western boundary are represented diagrammatically in **Figure 33**. To allow for ecological and bushfire constraints on the western side of Molonglo

³⁷ Department of Sustainability, Environment, Water, Population and Communities (2010). EPBC Nomination to list Fire regimes that cause biodiversity decline as a key threatening process. Viewed 24 November 2010. <http://www.environment.gov.au/biodiversity/threatened/ktp/pubs/fire-regimes-nomination.pdf>

Stage 2, there is a possibility that there could be a reduction in the area of available land for development. If the outer and inner APZs are positioned inside the development area (as illustrated in **Figure 34**), the 'peninsula' and steep vegetated slopes would not be available for urban development.

To include both outer and inner APZs (potentially edge roads) outside the development area boundary previously agreed by the Commonwealth, could maximise the area potentially available for development but risks Commonwealth intervention under the EPBC Act.

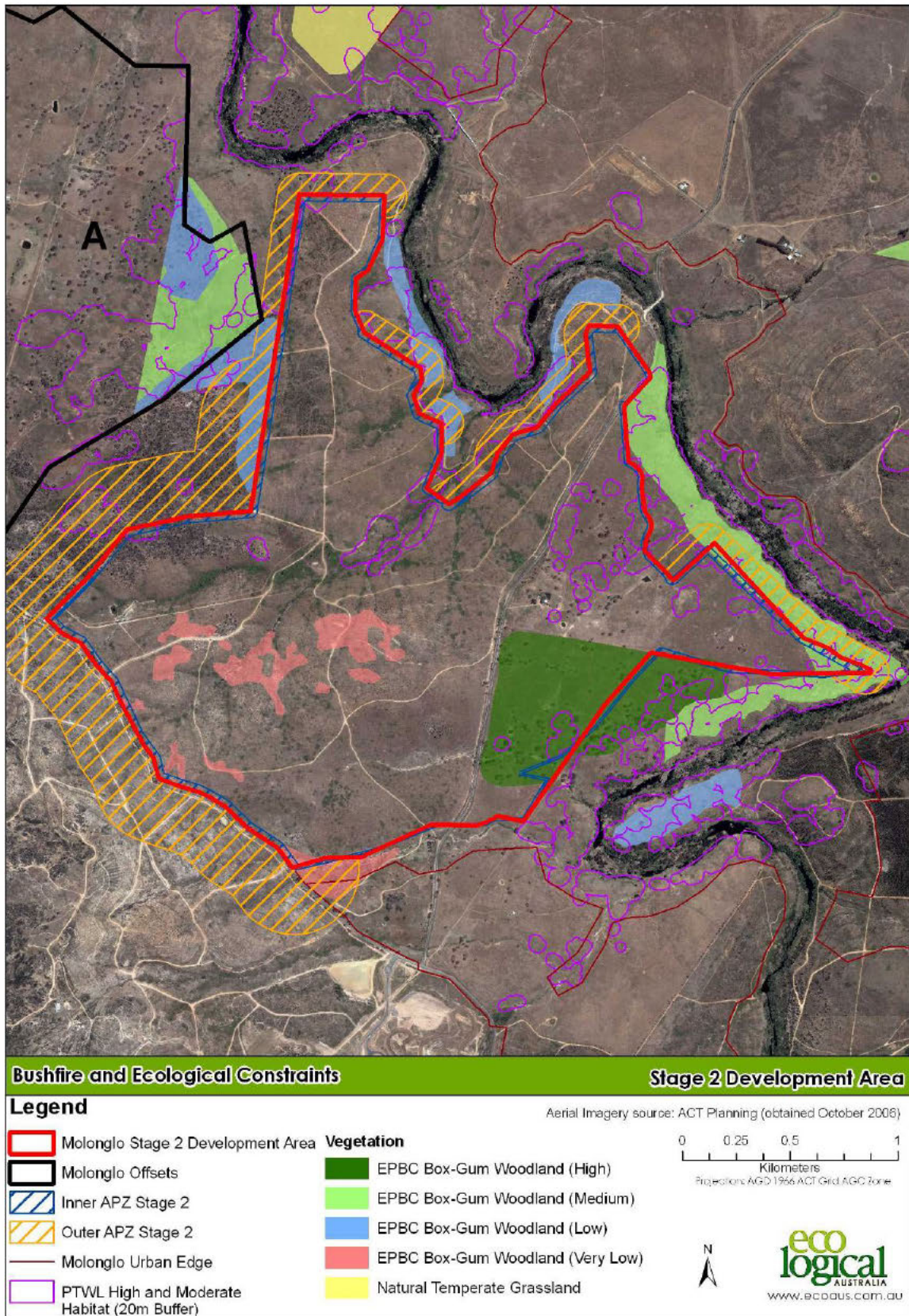


Figure 32 Bushfire and Ecological Constraints (External Outer APZs)

Figure 33 Process to Resolve Western Edge Issues

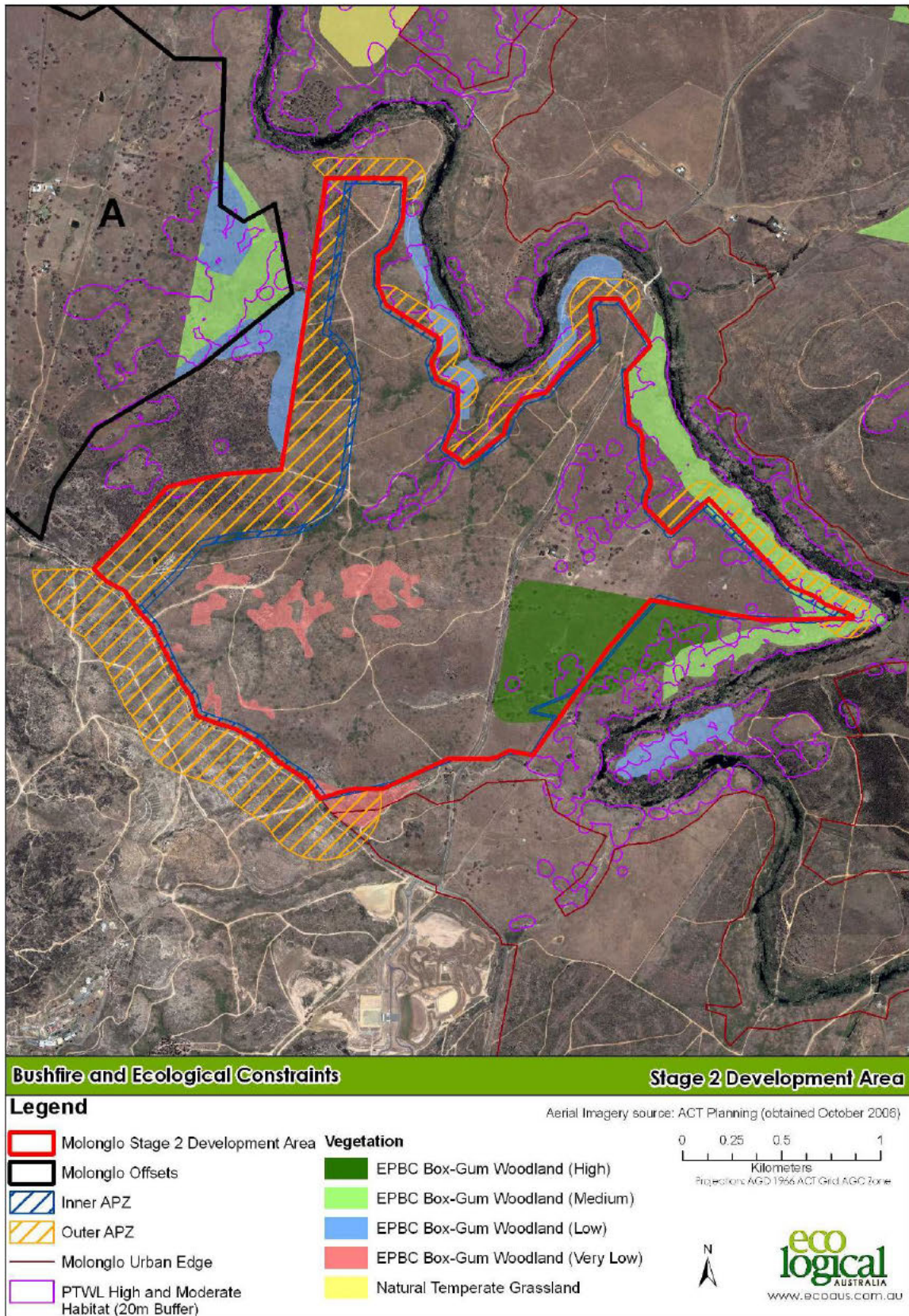


Figure 34 Constraints with Western Boundary APZs Inside Development Area

5.3.1 Recommended Strategy

Features of the recommended management strategy are tabulated below. In-principle support for the recommended approach, as well as commitment to ongoing monitoring and maintenance, will be needed from relevant agencies (e.g. ESA, TAMS and DSEWPC).

| Strategy | Description |
|---|---|
| Defining the urban edge | <p>The urban edge can be broadly described in three parts (riparian corridor, western boundary and Stromlo Forest Park) according to the required ecological and bushfire management regime on the outer side of the boundary. The following recommendations are made regarding the urban edge boundary:</p> <ul style="list-style-type: none"> • Riparian corridor boundary to be slightly modified to protect high & moderate quality PTWL habitat plus 20 m buffer in the riparian corridor; • Current boundary with Stromlo Forest Park is considered acceptable; and • Further investigation of the western boundary is needed (refer to last item in this table). <p>Further minor refinements to the urban boundary will be needed in response to detailed on-ground survey and assessment as part of the future development process.</p> |
| Adaptive management of the outer APZ in areas of ecological sensitivity | <p>Consistent with best practice ecological and bushfire management, it is recommended that site-specific conditions in the outer APZ area be assessed in detail regarding floristics, fauna habitat value, fuel hazards, bushfire history and requirements for ecologically appropriate fire regimes. An adaptive management approach is recommended that will require monitoring, ongoing bush regeneration (or similar) and a mosaic pattern to fire management. This will allow site managers to be specific and responsive to changing site conditions, and differs from a more prescriptive approach (e.g. burn every three years).</p> |
| Stromlo Forest Park outer APZ | <p>There are two options for management of the outer APZ on the Stromlo Forest Park boundary.</p> <ul style="list-style-type: none"> • 100 m outer APZ to be established and maintained within Stromlo Forest Park. Planting types, densities etc within and adjacent the outer APZ to be consistent with grassland/woodland vegetation type. • Alternatively, maintain a 300 m outer APZ where the vegetation is consistent with a forest/shrubland vegetation type. <p>These should be discussed with representatives from Stromlo Forest Park and the ESA to determine the preferred approach.</p> |
| Increase proportion of high quality habitat in the riparian corridor | <p>Management of the riparian corridor should be consistent with the principles stated in the draft <i>Riparian Strategy for Coombs and North Weston</i> (ELA 2010).</p> <p>Areas of high quality habitat in the riparian corridor are characterised by having low fuel conditions maintained over long periods. Management of the outer APZ in these areas can</p> |

| Strategy | Description |
|---|---|
| | <p>therefore be consistent with ecologically sensitive fire regimes.</p> <p>It is recommended that the riparian corridor be managed so that the proportion of high quality areas increases. Management is expected to include weed control, creation of more rocky areas³⁸ to improve connectivity between existing patches, and removal of most shrubs and trees regrowing in areas of Pink-tailed Worm Lizard habitat.</p> |
| Establish a strategic firefighting zone to the west | Implementation of a strategic firefighting zone to the west of the offset area (e.g. land currently leased by the Australian National University) will provide additional protection against wildfires from the west. |
| Minimum inner APZ width of 30 m | A minimum inner APZ width of 30 m for the entire Stage 2 area will provide a consistent defensible space for home-owners and emergency services, and minimise the risk of ignition and combustion of homes and other structures during a bushfire. It will also allow adequate space for features shown in Figure 17 (e.g. ring road) and described in the box below. |
| Incorporate fire risk mitigation measures in the lot layout and building design ³⁹ | <p>Urban design needs to incorporate:</p> <ul style="list-style-type: none"> • Appropriate residential design and construction standards; • Water supply infrastructure to agreed capacity levels in the form of a ring main with greater provision of fire hydrants within the inner APZ and adjacent urban area, and provision of emergency tanker hardstand at hydrants; • Emergency access provided as an outer ring road or fire trail, and access points; • Verge width to residential blocks a minimum of approx. 7 m with grassland; • Use of flora species in landscaping to be consistent with the adjacent vegetation community and retain remnant native vegetation as much as possible, while minimising fire risk through consideration of planting density, location, species mix, extent and maintenance requirements; (Stringybarks are not recommended because of their propensity to burn); • Multi-use of tracks, paths and roads e.g. for recreational activities, utilities and maintenance of the urban edge; and • Water sensitive urban design features to prevent impacts to adjacent ecological values and river water quality. |
| Optional additional measures | <p>Additional measures that could be used to reduce fuel loads and improve management in certain areas include:</p> <ul style="list-style-type: none"> • Crash grazing to reduce fuel loads – although problems can include adverse impacts to ecology, water & soils; odour; stock movement; and public safety; • Slashing - only possible in non-rocky areas; high cost if done over large areas; may not be compatible with ecological requirements; and • Construct low rock walls - to define management zones, guide public access and |

³⁸ Rocks need to be sourced from outside protected areas then placed in areas of suitable geology/topography/aspect etc.

³⁹ Page 7 of the *Planning for Bushfire Risk Mitigation General Code*.

| Strategy | Description |
|------------------|--|
| | <p>improve PTWL habitat; high construction cost.</p> <p>These options would require further site-specific consideration and discussion with relevant agencies.</p> |
| Western boundary | <p>The preferred approach for management of the western boundary will be developed in consultation with representatives from TAMS, ESA and ACTPLA during fieldwork on 2 December 2010. Some of the options being considered include:</p> <ul style="list-style-type: none"> • Where the outer APZ is on the outside of the development boundary - Ecologically sensitive fire regime in the offset area and in areas of ecological value; 300 m outer APZ burning regime for forest/shrubland vegetation and 100 m outer APZ burning regimes for grassland/woodland vegetation in the remaining areas; and • Shift outer APZ to the inside (or part inside) the development boundary - This would probably mean that the 'peninsula' area would be unviable for urban development. |

Molonglo Stage 2 Draft Planning and Design Framework

Propositions Paper

ACT Planning and Land Authority January 2011



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8.3.2 Proposition

All waste will be managed or converted or processed on-site except that to be utilized in recycling based value added

Though ambitious the No Waste Strategy sets zero waste this as the effective target for development. This implies a combination of incineration, composting for nutrient recovery, recycling (on or off-site) for use in other products and use in energy production.

A total waste management strategy will be required which prioritises precinct based solutions (remembering that the ACT's garbage truck fleet is not equipped for very steep roads).

8.3.3 Implementation challenges

Lack of precedents, capacity, industry and technology - a one size fits all approach to waste management applies to the ACT

The challenges to a total site waste management strategy are many in the ACT. As a relatively small settlement opportunities to develop city-wide approaches to large scale waste reduction based on economies of scale may not yet have arisen. Waste management convention is based on a 'one size' fits all approach.

Relying on site by site approaches to eliminating waste puts a strong onus on particular approaches (e.g. composting and recycling) where scale economies aren't available (for example a bio-digester would be more cost effective if deployed across the ACT). Capacity for strategy development of this kind within the government or the consulting team is limited so only a framework for future approaches can be suggested.

There is also an obvious time constraint for innovation in this area. It will not be possible to do anything other than conventional approaches for the early release stages.

8.4 Ecology and Bushfire

8.4.1 Relevant aspirations

Open space systems, buffer zones and road and infrastructure planning needs to align with protection of significant ecological and habitat values. Urban layout, design of the urban edge and management of adjoining open space areas must meet bushfire risk management requirements.

There is potential for integrated solutions to ecology and bushfire management imperatives, notwithstanding tensions in the particular regimes each adopts.

8.4.2 Proposition 1

Increase quality and connectivity of PTWL habitat through interventions such as reusing suitable rocks from the development process which would also contribute to reducing bushfire fuel loads.

The development process will involve earthworks that generate fill, often as rocks. It makes sense to utilise these rocks on-site where possible and the suggestion here is to increase the Pink-tailed Worm Lizard (PTWL) habitat by using the rocks in the habitat protected areas. This will have the synergistic benefit of reducing bushfire loads in these areas.

Other opportunities to pursue integrated approaches will be identified where possible.

8.4.3 Implementation challenges

Ensuring effective integration between development and protection processes

This proposition implies a coordinated approach to site development which will require codification and monitoring. It may also require appropriate approvals to provide for the intervention in the PTWL habitat area.

8.4.4 Proposition 2

Locate Asset Protection Zone on western edge to manage bushfire risk and protect habitat and ecological values, while minimising loss of developable land

On the north western edge of the site the location of the Asset Protection Zone (APZ), and the balance between ecological protection and appropriate bushfire management regime, is a key issue. Locating the APZ outside the development boundary for bushfire management reasons obviously maximises the developable area but it also intrudes into some ecologically sensitive habitat (and may require Commonwealth Government consent from the perspective of its EPBC Act).

Three options are being developed for testing to best achieve the intent of the proposition. These are:

- **Option 1 - Inner and outer APZs on the western side are fully outside the Stage 2 development boundary** - maximum yield within specified boundary (see 0)
- **Option 2 - Outer APZ on the western side is partly inside the Stage 2 development boundary** - balance yield, bushfire & environmental outcomes (see 0)
- **Option 3 - Outer APZ is fully inside the development boundary** - favour environment & bushfire protection (see 0).

8.4.5 Implementation challenges

Ensuring that a high level and binding resolution is adopted

A firm position needs to be adopted on this issue. The aim should in the first instance be to get cross agency sign off on an ACTPLA agreed position. However, if cross agency 'sign-off' is not possible then a binding decision may need to be taken at a high level in the ACT Government.

Figure 28 Option 1 Inner and outer APZs on the western side are fully outside the Stage 2 development boundary

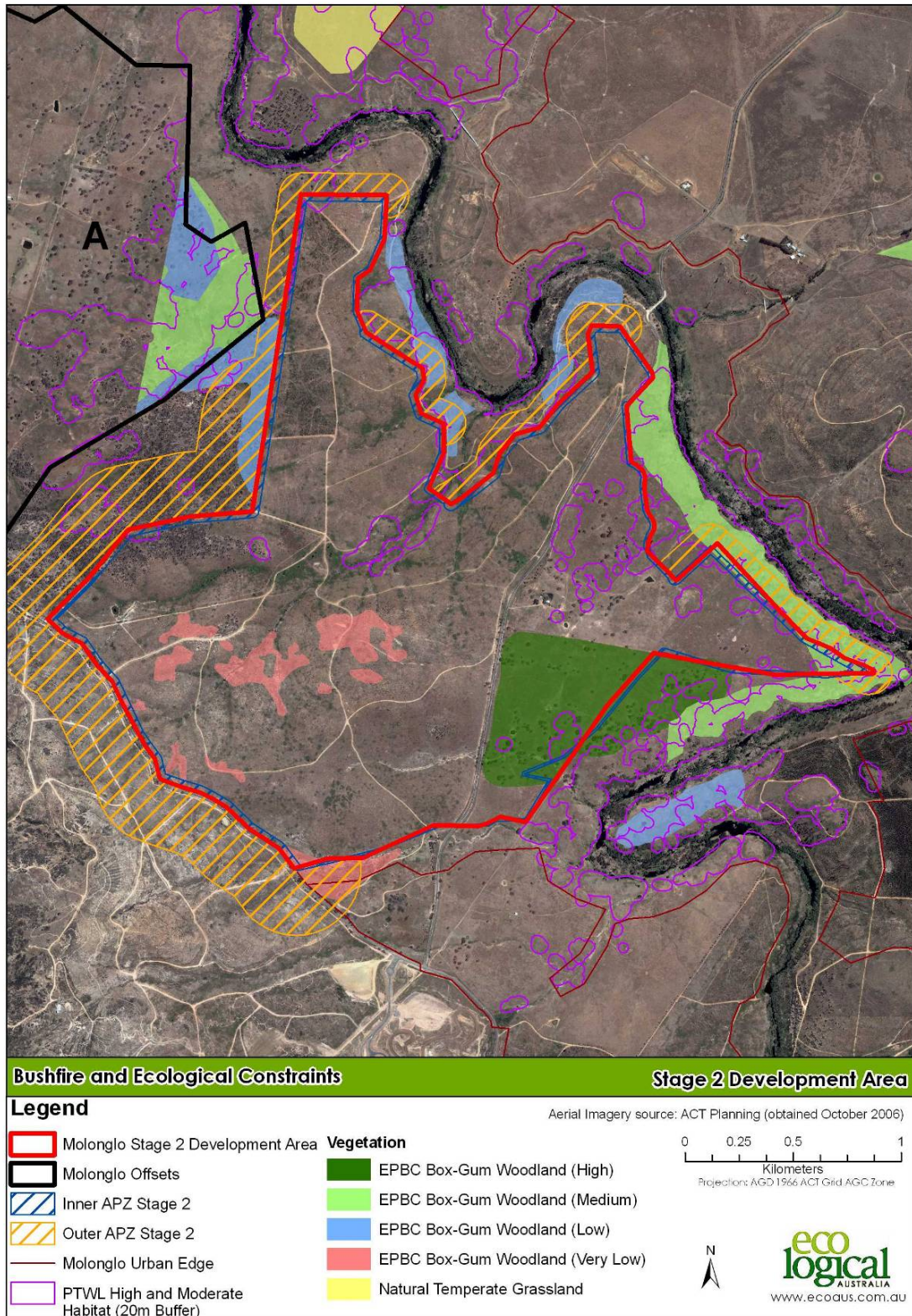
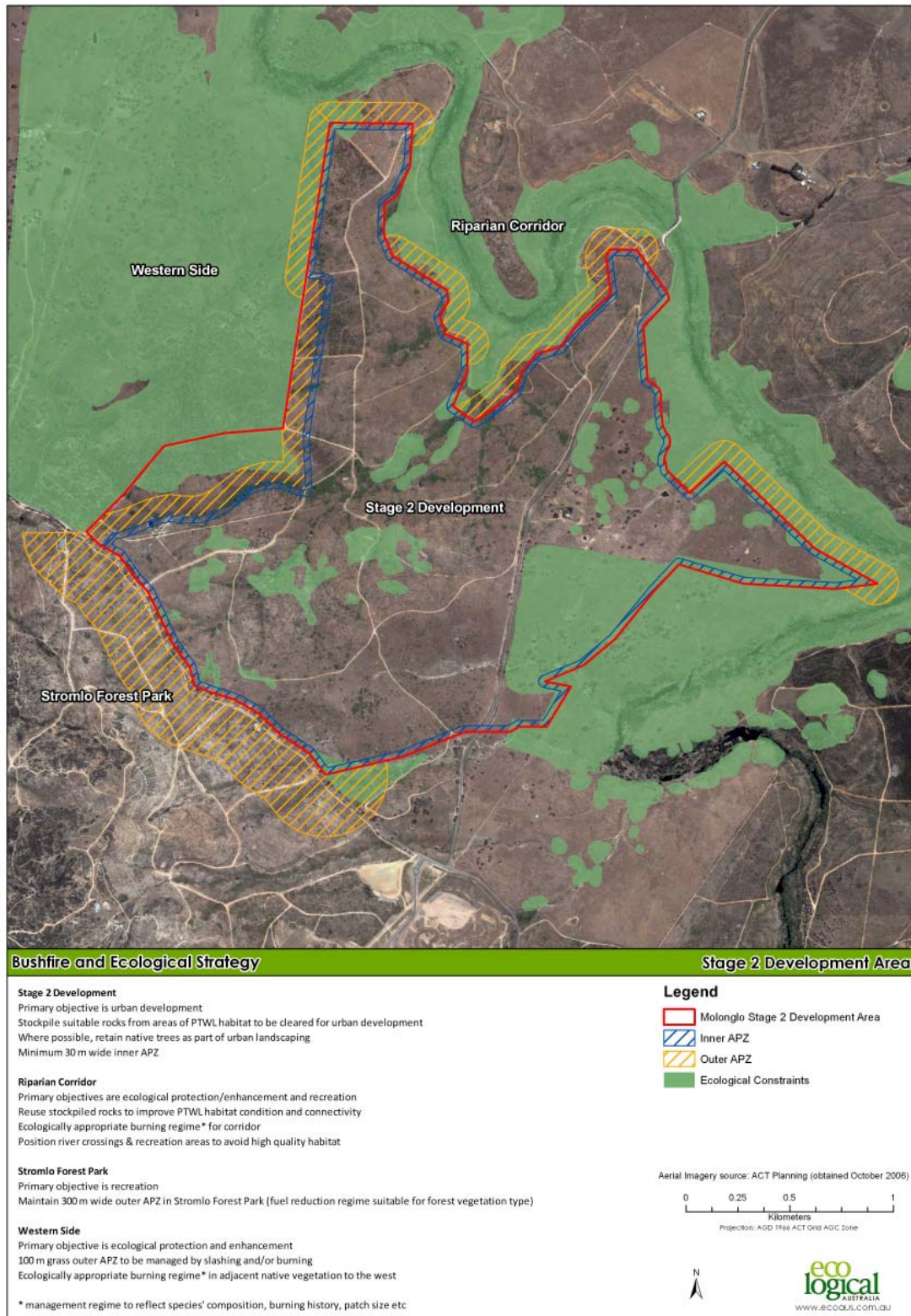


Figure 29 Option 2 - Outer APZ on the western side is partly inside the Stage 2 development boundary



Molonglo Stage 2 Draft Planning and Design Framework

Options for Western Boundary

ACT Planning and Land Authority January 2011



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1 Context

As part of the Molonglo Stage 2 Draft Planning and Design Framework, resolution of the boundary for developable land is necessary. Developable land is generally considered to be land that does not have physical or environmental constraints that would render it unsuitable for development. In jurisdictions around Australia areas of land with slopes greater than 15–20 percent are generally considered to be unsuitable for development, and are excluded from urban capability assessments.

In Molonglo Stage 2, because of the high yield requirements (18,000 people) and imperatives for optimising the financial return to government there is a need to minimise ‘wastage’ of areas suitable for residential and other urban development on the one hand and to ensure adequate efficiency and intensity of development in developable area on the other.

This report considers options for the alignment of the western “development boundary” including detailed assessments of the trade-offs between bushfire management, ecological protection, landscape character, urban amenity and identity and the maximisation of developable area.

The treatment of the “development boundary” needs to take into account statutory requirements for biodiversity and fire management, service vehicle access and other access requirements, whilst within the boundary requirements for storm water management, open space, schools, commercial and community facilities.

The methodology and approach of this paper assigns an imputed value to the land on the western boundary, but it should be borne in mind that the same approach is not applied to all of the other non-residential or commercial land uses that “consume” approximately 50% of the area.

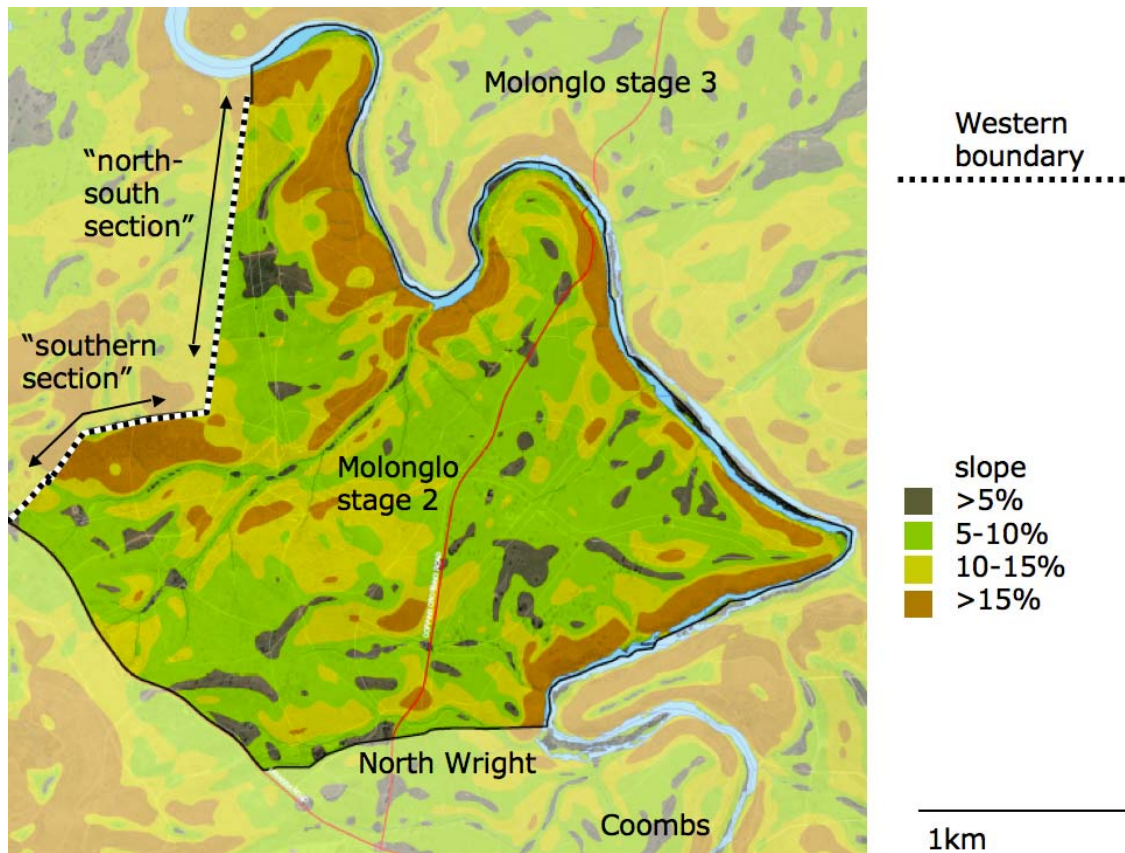
For this reason, the options discussed later in this report that “alienate” some of the area within the site should not be considered as a simple outright “loss” of land, but as something that can be compensated for by more efficient land uses elsewhere on the site. The high density anticipated on the site will already require different approaches to development than in the rest of Canberra, so the critical question is to what degree this might be possible.

The issue is that the exclusion of the land from development would not necessarily be an outright loss, but that it might otherwise provide a greater revenue than the same number of dwellings on another part of the site in a different form (apartments in the group centre for example).

This paper sets out the issues for four options for the western boundary, assesses the options against criteria and recommends a preferred option.

The subject area of this paper is shown in **Figure 1**, below.

Figure 1. Subject area



1.1 Environmental Considerations

Commonwealth requirements

As a prerequisite to the development of Molonglo for urban development, the ACT Government signed an agreement with the Commonwealth to undertake a strategic assessment of the impacts of proposed development on matters of national environmental significance (Matters of NES). The Matters of NES Plan is based on a specified urban boundary and covers all development and related activities such as urban infrastructure, commercial activities, storm water management and the management of open space. It defines the development activities proposed for the Molonglo Valley as set out in the Molonglo and North Weston Structure Plan, and sets out the protection and conservation strategies to avoid unacceptable impacts on habitats and species protected by the *Environment Protection and Biodiversity Conservation Act 1999 (Cth)* (EPBC Act).

While the Matters of NES commitments include matters outside the boundary specified for Molonglo Stage 2, many of these commitments will nevertheless have implications for the Molonglo Stage 2 Draft Planning and Design Framework, including protection and management of Box-Gum Woodland "offset" areas, location and design of river crossings and fire management activities consistent with protection of Pink-tailed worm lizard (PTWL) habitat and its associated 20m buffer.

Territory requirements

ACT environment protection requirements also need to be met in determining the western boundary and further advice will be required from the ACT Government on legislative requirements. Clearance of around five hectares of native vegetation on the steep slopes could trigger the need for an EIS under ACT legislation, which may result in refusal, delay and/or extra costs.

1.2 Bushfire Considerations

The Molonglo Stage 2 study area is recognised as bushfire prone. The urban edge of Molonglo Stage 2 has been classified by TAMS/ESA as primary, secondary or lee, according to the aspect of potential fire run to the asset interface. In some locations the classification has also been increased to take into account the nature of the river corridor, and the wind terrain interactions.

The extent of the urban development footprint needs to allow for measures to reduce bushfire risk including vegetation management within Asset Protection Zones (APZ) and the urban design and planning needs to include adequate access for fire fighting and escape. To protect against bushfires, residential development needs to be buffered by Outer and Inner Asset Protection Zones. In general, Outer APZs can include open spaces, reserves or rural lands. Inner APZs can include edge roads and management tracks. Both inner and outer APZ's may require a management regime (periodic fuel reduction through burning or clearing) that could adversely impact on the PTWL and Box-gum habitat and be inconsistent with the requirements of the NES. The frequency of fuel reduction is the aspect in conflict, where management for reducing bushfire risk may be more frequent than acceptable for the maintenance and protection of habitat and protected and endangered species.

1.3 Development and Planning Considerations

The ACT Government requires the draft Planning and Design Framework to accommodate 18 000 people to meet ACT land supply targets while also reflecting the vision set out in the Territory Plan of Canberra for *"a beautiful, healthy city that is managed carefully to retain valued natural and cultural features...a setting that profoundly influences the achievement of human well-being"*.

The approach to planning is articulated in more detail in these two key documents:

- *The Structure Plan for Molonglo and North Weston ACTPLA 2008*
- *Place-making guide for Molonglo ACTPLA 2010*

Given that the density of development will be twice the Canberra average (irrespective of which definition of density is used), and the range of topographical and environmental and bushfire constraints on the site, developable land is at a premium.

Figures 2 and 3 below provide a slope analysis. The areas bordering the "southern section" of the western boundary are the steepest on the site (typically 15 percent but in some areas up to 30 percent slope).

Figure 2. Slope analysis for Stage 2

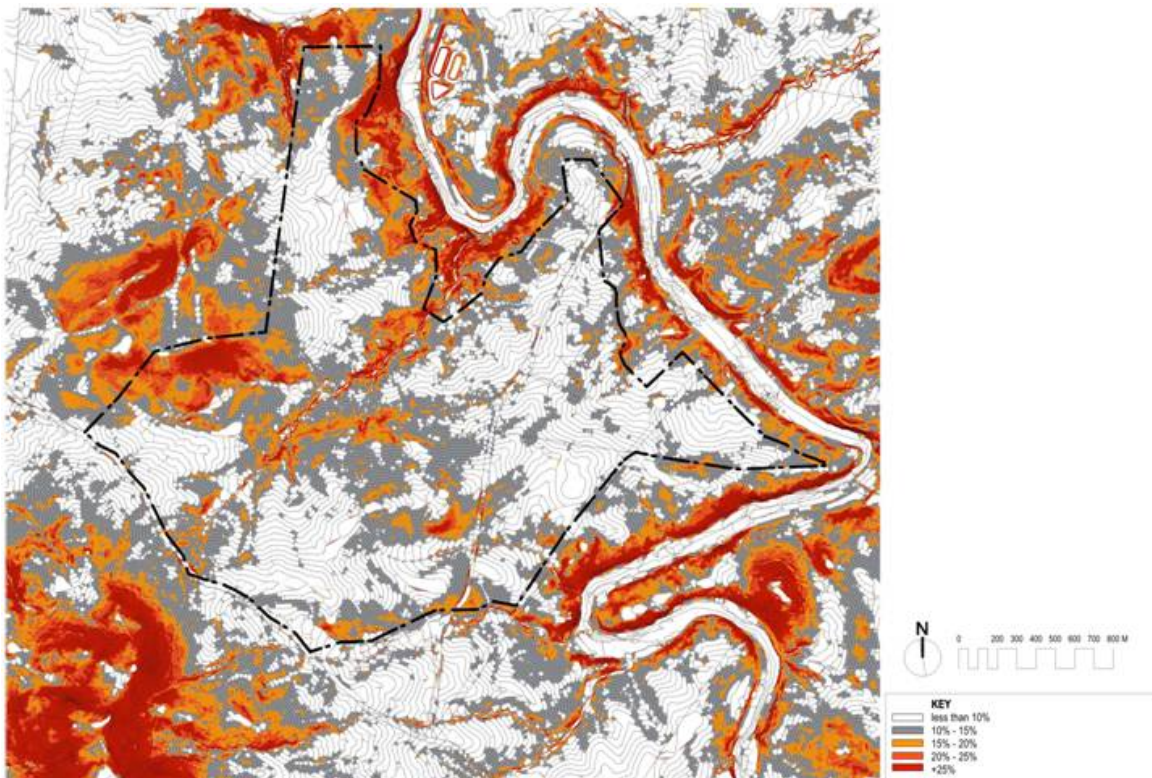
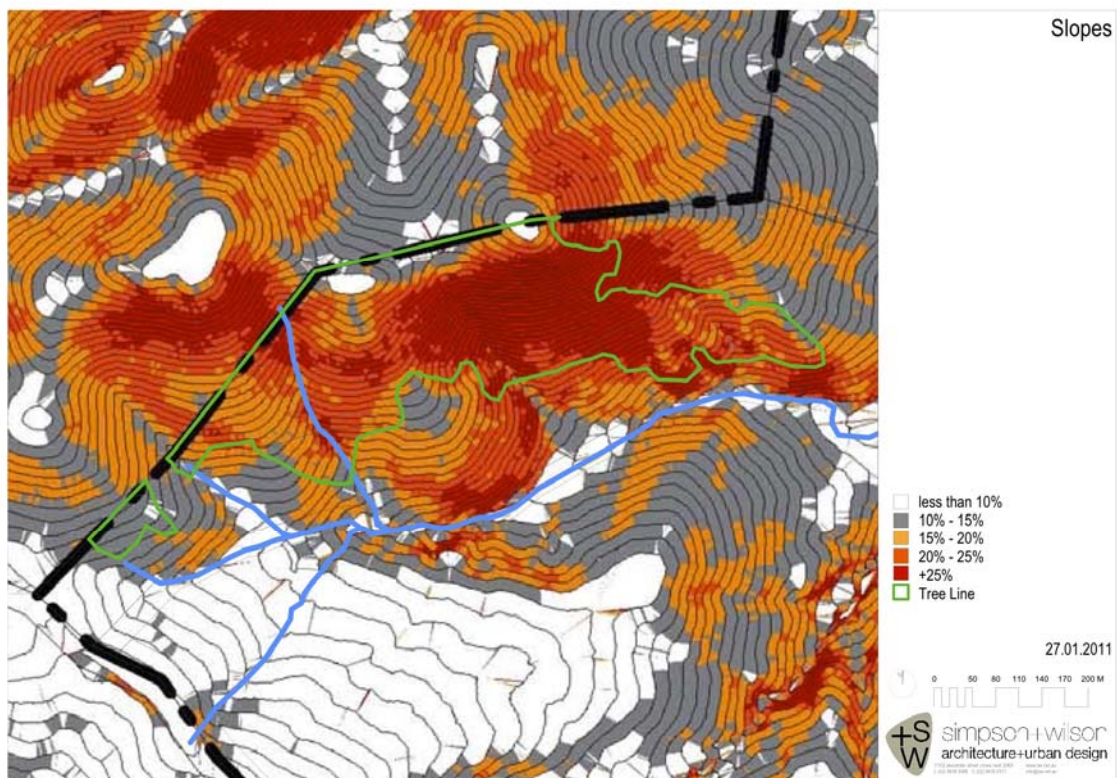


Figure 3. Detail of area in southern section of western boundary



Areas along the “north-south” section of the western boundary are in the 10 to 15 percent range or less than 10 percent range.

General comments

There are significant additional costs associated with providing access to, and building housing on, steep slopes and the yield per hectare would be lower than elsewhere in Stage 2. However this land also provides opportunities for large sized blocks with community titling or similar as a possible option to overcome infrastructure servicing constraints.

- *This land is very steep by contemporary development standards.*
- *There are certainly older parts of our major cities particularly in coastal suburban locations and old LGA's that have urban development at these slopes.*
- *There are also several old suburbs in the hills areas adjacent to some of our major cities.*
- *However, for the past 40 or 50 years the engineers setting the minimum design standards approving the construction of subdivisions, roads and drainage have been much more conservative.*
- *The cost of maintenance and provision of services by public authorities such as garbage collection have driven these new standards.*
- *Any analysis also needs to consider the alternative or “value” of the visual amenity, of retaining land in an undeveloped state to neighbouring properties.*
- *While this is difficult to measure it is well know that blocks opposite open space command a premium price of around 10% because of the outlook.*
- *Given the extreme slope by today's development standards and the proximity of open space with natural vegetation some assumptions would need to be confirmed by detailed design and costings that are not possible at this stage and beyond the scope of work.*

Housing innovation will be difficult in the steep areas adjacent to the southern section of the boundary as bushfire requirements are likely to require masonry construction and the use of metal and other fire resistant materials externally.

Similarly, the application of normal road standards (22m wide in Wright and Coombs) would result in a large amount of cut and fill and very steep driveway access if the roads were run along the contour.

If the roads were run up the slope the gradient exceeds that acceptable to TaMS for garbage collection necessitating the use of private contractors or community titled roads, or both.

Planning context

There is a strong policy context for planning decisions affecting environmental amenity and features including slopes and areas with significant trees and vegetation. From a strategic context the western part of the site which is steep and heavily vegetated can contribute to the place making elements by providing a natural backdrop for Stage 2. **Figures 4 and 5** below indicate the significant vegetation on the site.

Figure 4. Significant vegetation and visual analysis

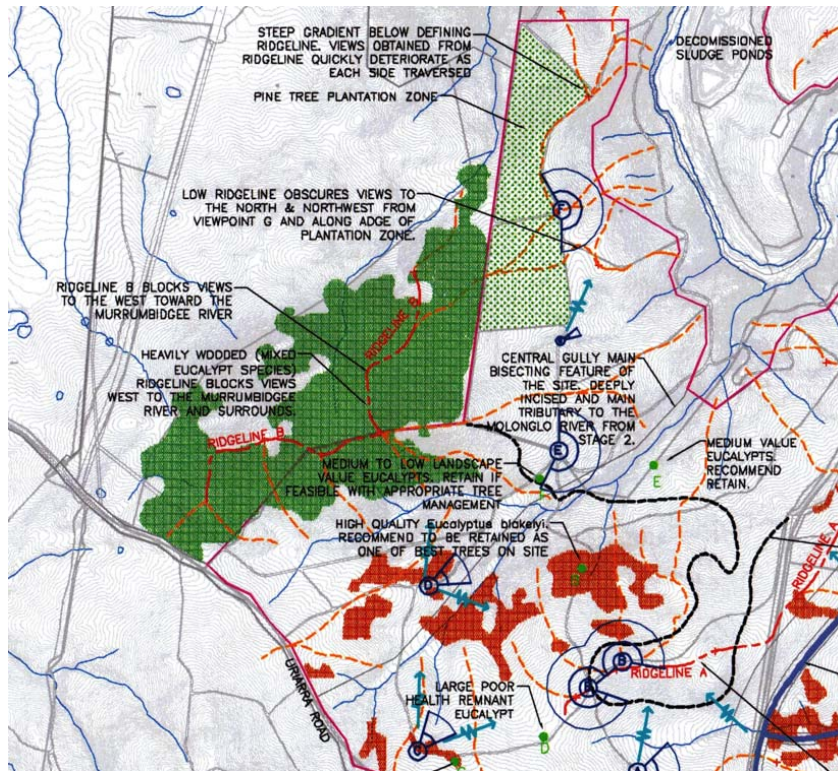


Figure 5. Aerial photo and view of subject area from the south



Area of woodland



Spatial Plan

The *Canberra Spatial Plan* excludes steeply sloping land (20% or more) from being ‘capable of urban development’ (p.10). The Spatial Plan also has a Goal to ‘maintain a unique sense of place’ including an objective to ‘retain and strengthen the open space network, including the hills, ridges, natural watercourses and gullies’. The associated policy response is identified as follows: ‘there will be no additional development on hilltops and steeply sloping ridges’ (p.64).

While the reference to “hills and ridges” can be interpreted as referring only to the main ridgelines and hills around Canberra, it has been common and general practice for smaller hillocks and steeper slopes in the centres of suburbs to be excluded from development, due to both the difficulty of development but also the amenity (including a vegetated skyline) and identity they contribute to these suburbs. For this reason it is reasonable to interpret the reference “hills and ridges” to also apply to smaller hills and minor ridges.

Structure plan

The *Structure Plan for Molonglo and North Weston* includes two Environmental principles of relevance:

15. The landscape setting and values of Molonglo and North Weston will be recognised and incorporated in to the urban design of the area. Boundary hills and significant internal rides within the urban fabric will be excluded from inappropriate development.

16. Exceptional trees, significant trees and tree stands will be retained and integrated into the urban fabric through the design of parks, streets and other areas wherever possible.

Place making guide

The Molonglo Valley stage two and three Place making guide sets out a number of principles and strategies for the design and development of the Molonglo Valley.

A place making vision for the Molonglo Valley:

- *A living place that grows over time in response to the special qualities of the Molonglo Valley – its waterways, hills, histories and people.*

Of most relevance to the discussion of the definition of the western boundary are:

- *Respond to site and*
- *Reinforce identity*
- *Respond to the environment by protecting its unique and precious biodiversity:*
 - *the natural history of the site—its biological processes, flora and fauna—are important to the story of the place. Inherently valuable features of the site include remnant woodlands, grasslands, and riparian zones*
 - *conserve plant communities as key visual features*

The area bordering the southern section of the boundary includes the most extensive area of remnant woodland on the site.

The valley has its own identity, which can be read and understood by:

- *relating to the existing significant landmarks and features for orientation...*

Reinforcing identity throughout the valley means:

- *protecting existing landmark features, and incorporating these as focal points in developments*

Reinforce the identity of the valley as a sustainable place by:

- *having a continued presence of fauna and flora that tells the story of human settlement—learn to live with nature in a sustainable way*

The area bordering the southern section of the boundary could make a significant contribution to the creation and reinforcement of identity for a significant proportion of the site that will look northward towards it.

2 Evaluation of Western Boundary Options

2.1 Description of Options

Resolving the boundaries for development in Molonglo Stage 2 has been identified as a high priority in the list of critical issues in SGS's Draft Synthesis Report (January 2011).

At a meeting between the SGS Team and ACT Government agencies on Friday 10 December 2010, there was agreement that it would be useful to compare the implications for options for bushfire protection and retention of the area of remnant bushland for amenity and identity on the western boundary of Molonglo Stage 2. The four Options are as follows:

Option 1 – Maximise yield within specified boundary (Base Case or no constraints option)

Outer APZs on the western side are outside the Stage 2 development boundary, 30m Inner APZ is within the boundary, all remnant woodland inside the boundary removed.

Option 2 – Minimize impact outside boundary for environment & bushfire protection

Inner and Outer APZ's are fully inside the development boundary, remnant woodland retained.

Option 3 – Balance yield, bushfire, environmental and visual outcomes

Outer APZ on the western side is partly inside the Stage 2 development boundary, most of remnant woodland on site retained.

Option 4 – Maximise yield with APZs inside boundary

Outer APZ on the western side is partly inside the Stage 2 development boundary, all remnant woodland removed.

More detail on each option follows.

Option 1 – Maximise yield within specified boundary (Base Case or no constraints option)

Option 1 (**Figure 6**) is the Base Case and assumes that it would be possible to manage areas outside the boundary as the Outer Asset Protection Zone, with only the 30m wide Inner Asset Protection Zone within the development boundaries.

If development is constructed to the western edge of the Stage 2 boundary, an inner APZ of 30 m would still need to be maintained inside the development boundary.

The inner APZ has been positioned inside the boundary to:

- *Avoid extending the combined (inner and outer) APZ width an extra 30 m into the offset area and adjacent vegetation;*
- *Avoid clearing native vegetation outside the development area to create urban edge features (e.g. perimeter road);*
- *Avoid associated risk of Commonwealth refusal;*
- *Avoid possible triggering of the ACT EIS legislation.*

Note that the final location and width of the inner APZ would be determined following detailed site survey of topographic and ecological features. It will also need to consider requirements for design and construction of urban edge features.

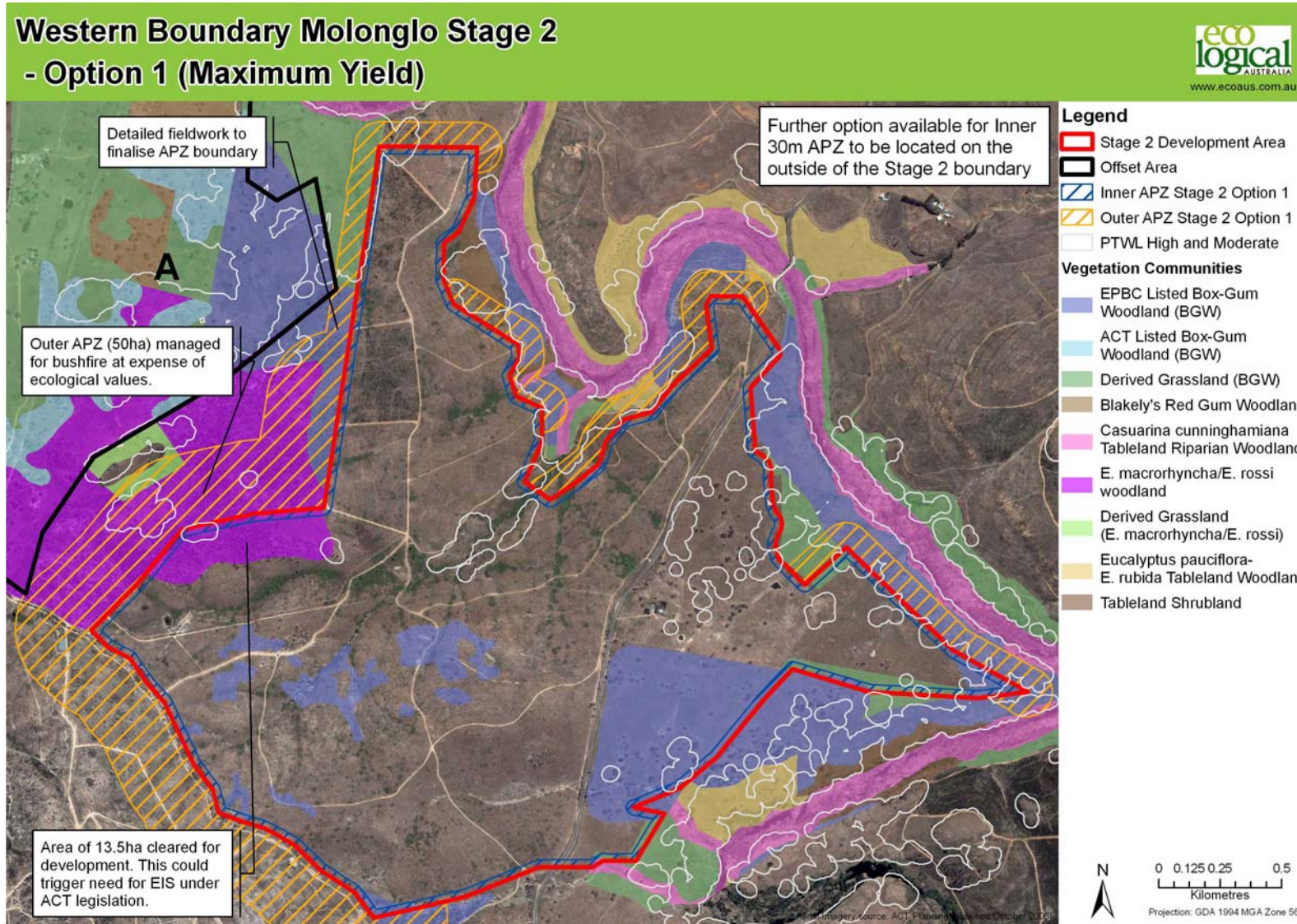
The map shows the minimum widths recommended for the outer APZs based on discussions with ESA and with reference to the bushfire guidelines.

In areas of forest/shrubland vegetation, the outer APZ on the western side would need to be at least 300 m wide. The fuel management standard¹ for this area would need to be \leq moderate. In the area of grass/woodland to the north, the outer APZ would need to be at least 100 m wide and maintained at < 0.2 m height when grassland curing $\geq 70\%$.

Under this option, management for bushfire protection purposes would be the primary objective immediately to the west of the development area. This would require a more frequent burning regime than suitable to maintain ecological health, so ecological decline/change would probably result.

¹ Overall Fuel Hazard = (the sum of the influences of) Bark Hazard + Elevated Fuel Hazard + Surface Fine Fuel Hazard (*Overall Fuel Hazard Guide 3rd ed. Victorian Department of Sustainability and Environment 1999*)

Figure 6. Option 1



Option 2 – Minimize impact outside boundary for environment & bushfire protection

Option 2 (**Figure 7**) reduces the land available for residential development on the “peninsula” area at the N-W of Molonglo Stage 2, by including all of the inner and outer APZs on the western edge of the peninsula **within** the identified development area.

This is consistent with elevating biodiversity protection and enhancement as the primary objectives for land to the west of Stage 2. A 100m wide grass outer APZ would need to be cleared and maintained on the north-south boundary. A 300 m wide outer APZ would be needed in the “southern section” in the steep-sloped area due to the presence of forest vegetation.

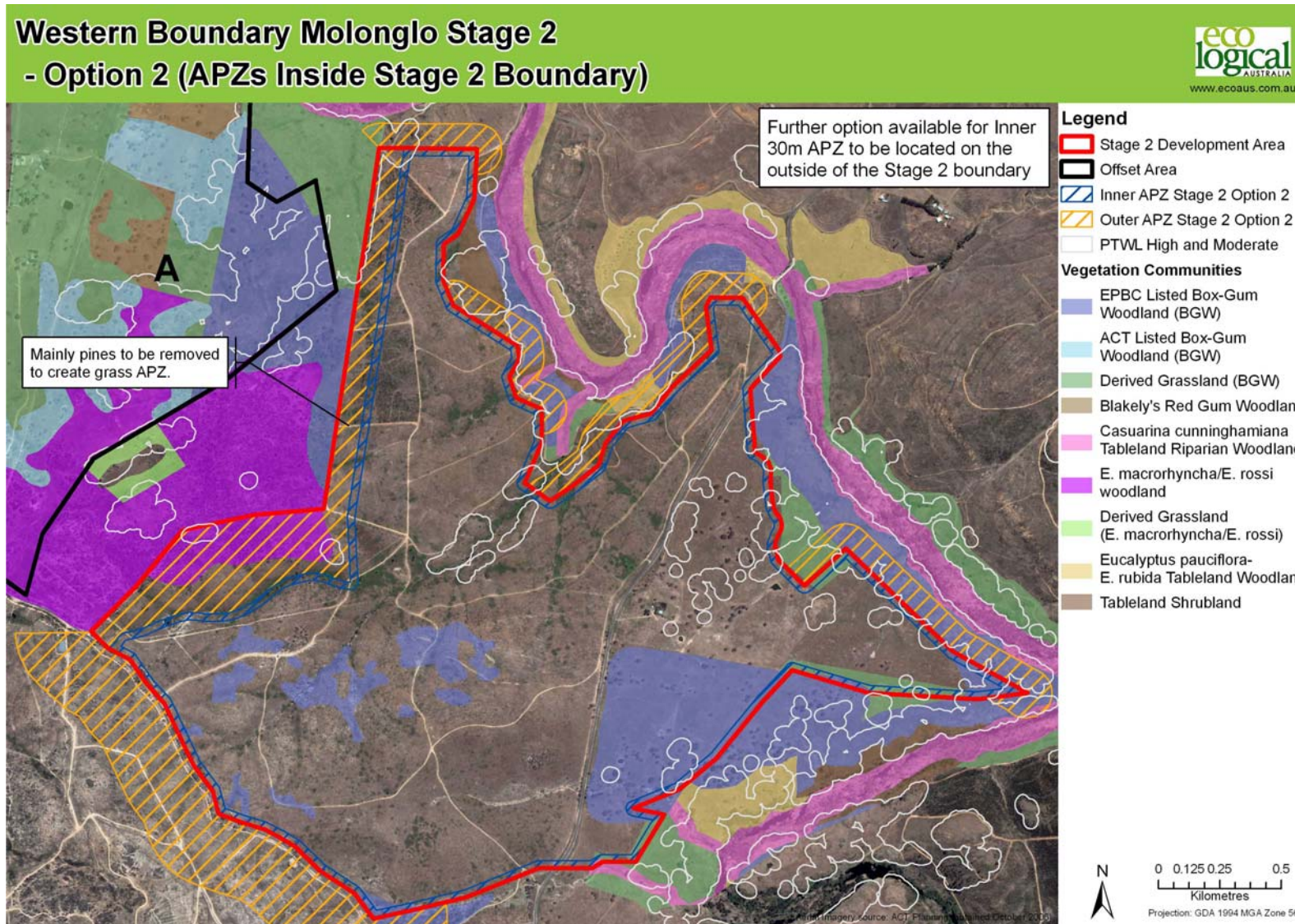
This would minimise constraints on bushfire protection measures to be carried out within the outer APZ, but would also further reduce land available for residential development and therefore potential sales revenue.

Coincidentally, the 300 m wide APZ in the steep-sloped forest area (on the southern section of the boundary) aligns approximately with the drainage line to the south.

This option would further reduce land available for residential development and therefore potential sales revenue.

Reducing the amount of land for residential development in this way would also increase the cost per block of developing the remaining “peninsula” land, possibly making it unviable at the northernmost end.

Figure 7. Option 2



Option 3 – Balance yield, bushfire, environmental and visual outcomes

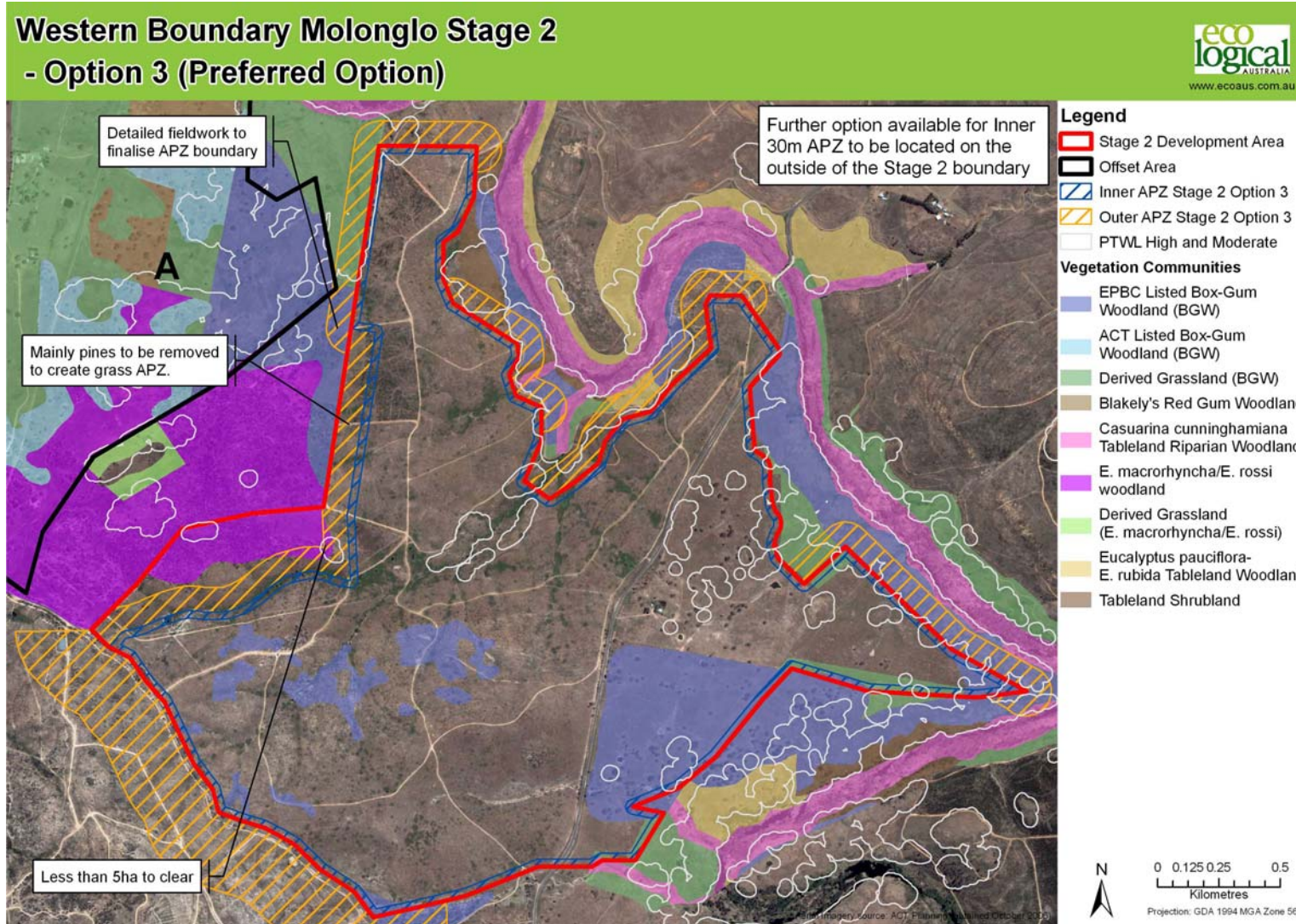
Option 3 (**Figure 8**) represents a compromise between the extremes of Options 1 and 2 in terms of loss of developable land by balancing biodiversity conservation with protection against bushfire. It also aims to provide APZs that are clearly delineated and relatively easy to manage. In this option, the outer APZ would be a 100 m wide, well-maintained grassy strip (at < 0.2 m height when grassland curing \geq 70%). Maintenance could be by mowing and/or burning.

The position of the APZ would allow areas of high conservation value to the west to be managed under a regime more suited for ecological health. It would avoid the steepest slopes which may be difficult to manage as an APZ. It buffers the drainage line, so could also have benefits for open space and riparian health.

In this option the northern part of the outer APZ would be positioned outside the development boundary. This decision was based on field observations and would ensure the viability of development in the 'peninsula' area. It reduces the land available for residential development compared with Option 1 but increases it compared to Option 2. This option also reduces the risk that bushfire protection measures associated with the outer APZ would adversely impact on PTWL and Box-gum habitats, and be non-compliant with the Commonwealth's NES requirements.

Option 3 retains most of the remnant woodland on the steep slopes which would be separated by a 100m grassland strip, retaining its current appearance almost intact.

Figure 8. Option 3



Option 4 – Maximise yield with APZs inside boundary

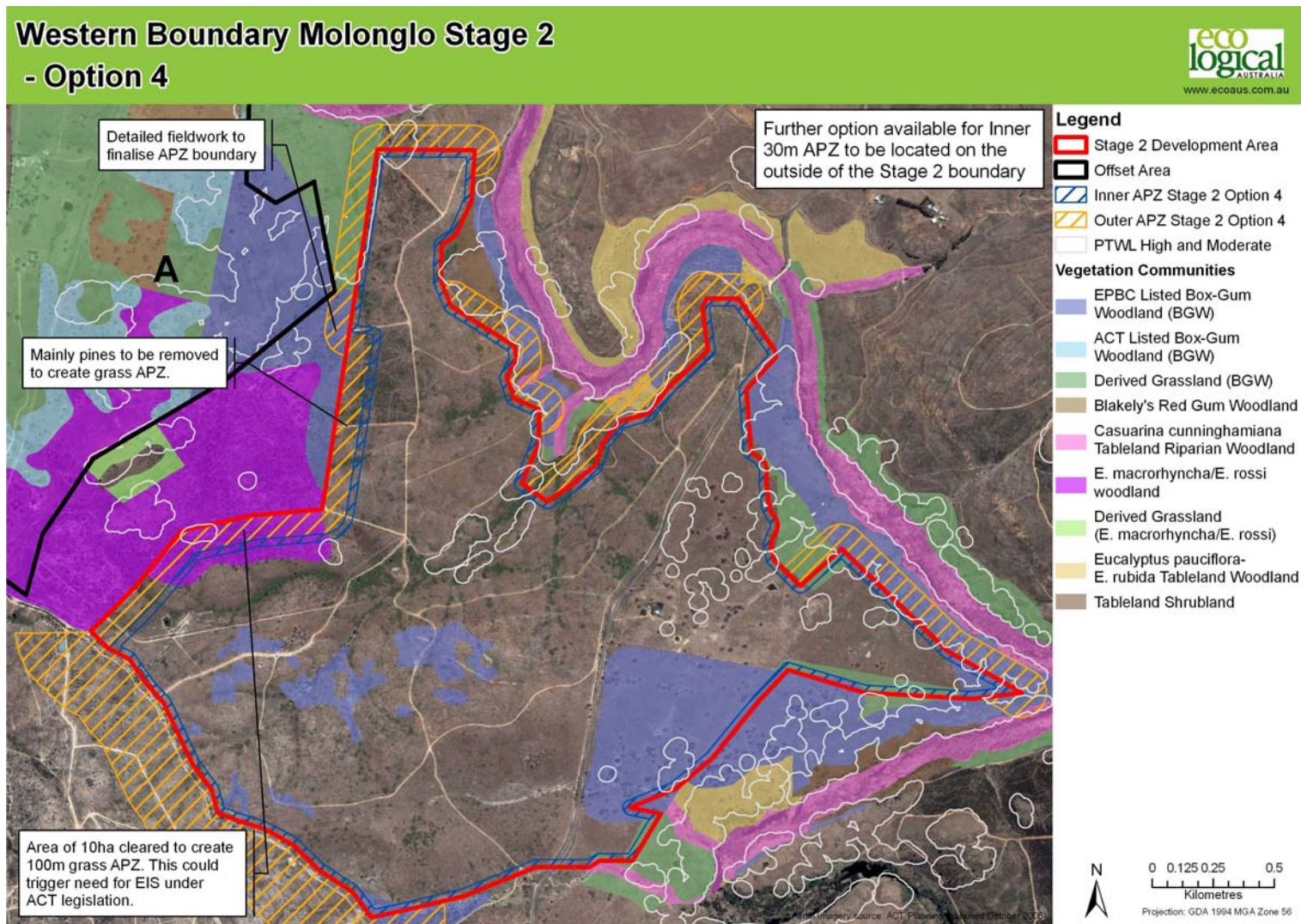
Option 4 (**Figure 9**) represents a “fall back” or variant position from Option 1 if the location of all APZ’s outside the boundary cannot be achieved – to minimise the loss of developable land.

It assumes that the APZ at the northern end of the north south section of the boundary may be outside the site but that the APZ would need to be inside the boundary at the southern end of this north south section (as per Option 3).

In order to maximise yield all remnant woodland would be removed adjacent to the southern section to allow for the creation of a 100m grassland APZ. This could trigger the need for an EIS under the ACT legislation.

It should be noted that the creek line would in all likelihood still need to be maintained as a riparian area so the net increase in developable area (between this and the other Options) may not be as much as indicated in the following analyses (it could be 2-3Ha less).

Figure 9. Option 4



2.2 Evaluation of Options

A key issue in accommodating bushfire, ecological and development amenity and identity issues is the potential loss of developable land and therefore reduced revenues to government.

Table 1 provides details on the financial assumptions in relation to each option compared to Option 1 (remembering that it maximises the possible yield). Detailed drawings of the affected land are attached as an appendix.

Table 1. Financial Analysis of the Options

| Option | 1 | 2 | 3 | 4 |
|----------------------------|-----|---------|---------|---------|
| | Ha | Ha | Ha | Ha |
| OAPZ | 0 | 27.2 | 16.6 | 16.1 |
| IAPZ | 5.3 | 8.4 | 5.5 | 5.3 |
| Other ² | 0 | 13.4 | 13.3 | 0 |
| Total impacted area | 5.3 | 49.0 | 35.4 | 21.4 |
| Difference (compared to 1) | 0 | -43.7 | -30.1 | -16.1 |
| Land lost | | | | |
| Moderate land (10 dw/Ha) | | 20 | 5 | 5 |
| Steep land (6 dw/Ha) | | 23.7 | 25.1 | 11.1 |
| Total dwelling sites lost | | 342 | 201 | 117 |
| Revenue impact | | | | |
| \$1.25M per hectare net | | -\$54.6 | -\$37.6 | -\$20.1 |

Note that these costs do not include the potential additional costs for Option 1 of additional planning assessments, approvals and associated delays and higher bushfire maintenance regime costs.

Given that Paragraph 48 of the Structure Plan for Molonglo and North Weston indicates that in subdivision design, larger lots will generally be situated on steeper/constrained land to appropriately respond to the topography and minimise cut and fill and maximise tree retention, it is considered appropriate to use low yield density of 6 dwellings per hectare on the steeper slopes.

The very broad based estimate of raw land value for this development outline above is based on the following assumptions.

Assumptions: -

² Residual area between "boundary" and OAPZ/IAPZ

- 1) *The developed land will have roads running across the slope to satisfy TAM's 17% standard for public roads (son no community title).*
- 2) *Due to road widths and the size of turning areas etc. the amount of retaining walls and cut and fill will make the construction of road, drainage and services very costly.*
- 3) *The developed land will be free of APZ's and as such the housing will not be built on fire prone land (timber construction acceptable).*
- 4) *There will be an edge road running along the riparian corridor.*
- 5) *Stormwater drainage will be treated in off line WSUD pond/ swale adjacent to the edge of the development that will discharge into the riparian corridor (these WSUD will be on land dedicated to TAMS and not community property).*
- 6) *The blocks will be between 1000 m² – 1500 m² producing a gross yield of 5 – 7 dwellings per hectare.*
- 7) *The highest prices lots sold by LDA in stage 1 are around \$430,000 and are approximately 750 m² so therefore assume a lot selling price of high \$400,000 as \$500,000 may well be the price ceiling given the high cost of construction on steep lots with houses easily costing \$500,000 (so say selling price for land \$480,000 per block to keep package under \$1 million).*
- 8) *GST - \$30,000.*
- 9) *Selling Costs 2.5% - \$12,000.*
- 10) *Developers Margin - \$80,000.*
- 11) *Finance/ Holding say - \$25,000.*
- 12) *Stamp Duty Fees etc. - \$15,000.*
- 13) *Consultants, construction, roads, drainage, WSUD, landscaping and services etc. (onsite and offsite works assumed) - \$100,000.*
- 14) *Total above - \$265,000.*
- 15) *Raw land value say - \$210,000 per block.*
- 16) *Land value approximately - \$1.05 - \$1.47 million per hectare based on 5- 7 dwellings per hectare so say \$1.25 million per hectare.*
- 17) *Note 15 dwellings per hectare on flatter land in this area would probably have a raw land value of around \$3.0 million.*

If the land is of high visual amenity it may be possible to retain the land and increase the yield and subsequent value of land elsewhere to achieve the same result.

As long as the increase or uplift in density or yield on the other land still represents highest and best use, then the value increase from the additional density could create a similar value on a per hectare basis to the raw steep land.

For example:

DENSITY OPTION A – Multi Units (1 unit per 100 m² of block area)

The 7,456 m² multi unit or apartment site sold for \$4.38 million or about \$600 per m².

Developed net land value of \$6.0 million.

Developed gross land value of \$3.6 million.

This type of development yields approximately 60 dwellings per hectare gross.

DENSITY OPTION B – Compact Blocks (200 m2 lots)

No comparable sales but this would produce about 30 dwellings per gross hectare.

Blocks are likely to be valued at about \$200,000 each.

This equals \$1,000.00 per m².

Developed (subdivided not raw) net land value of \$10.0 million.

Developed gross land value of \$6.0 million.

DENSITY OPTION C – Lower density (500 m2 blocks)

In Wright the single blocks have been selling for around \$700.00 per m² or \$350,000 per 500 m² block.

Developed (subdivided not raw) net land value of \$7.0 million.

Developed gross land value of \$4.2 million.

This type of development yields approximately 12 dwellings per hectare gross.

Therefore if the density increased from Option C to Option B it would increase the developed gross land value by \$1.8 million per hectare.

Allowing some additional servicing costs and also roads and drainage for smaller lots the raw land value increase would be about \$1.3 million per hectare.

This would therefore increase the raw value by the same amount per hectare as the steep land being developed at 5 – 7 dwellings per hectare.

Table 2 below, describes how the four options perform against a number of issues, some of which were discussed at the 10th December 2010 meeting including development, bushfire and environmental impacts.

Table 2. Assessment of Options

| Issue | Option 1 - Maximise yield within specified boundary | Option 2 – Minimise impact outside boundary | Option 3 - Balance yield, bushfire, environmental and visual outcomes | Option 4 – Maximise yield with APZ's within boundary |
|--|---|--|--|--|
| <i>Description of option</i> | Outer APZs on the western side are outside the Stage 2 development boundary, Inner APZ is within the development boundary | Outer and Inner APZ are fully inside the development boundary | Outer APZ is inside boundary on steep slopes to south west (300m APZ) and partly in and partly out (100m) to the north | Outer APZ is inside boundary on steep slopes to south west (100m APZ) and partly in and partly out (100m) to the north |
| <i>Approx. Reduction in land take (ha) compared with Option 1.</i> | nil | 44ha (note: in addition to this, remaining 'peninsula' area may be unviable for development because of infrastructure costs per block) | 30 ha of mostly steeply sloping land (10-15+ percent slope) | 16 ha of mostly steeply sloping land (10-15+ percent slope) |
| <i>Proportion of Stage 2 development area lost compared to Option 1</i> | 0% | 9% | 6% | 3% |
| <i>Housing potential lost compared with Option 1 (at density of between 6-10 dw/ha for steep land³)</i> | nil | 340 lots (lost) | 200 lots (lost) | 120 lots (lost) |
| <i>Cost of development</i> | Earthworks, benching and retaining walls on the steep slopes required. | May increase cost of infrastructure per block for remaining "peninsula" land due to inefficient layout. | At least \$50K per 'lost' dwelling saved compared to option 1; i.e., less expensive to build on other land if | Earthworks, benching and retaining walls on the steep slopes required. |

³ An increase in density up to 10 dw/ha will depend on the solar provision review as well as infrastructure costs and market consideration

| Issue | Option 1 - Maximise yield within specified boundary | Option 2 – Minimise impact outside boundary | Option 3 - Balance yield, bushfire, environmental and visual outcomes | Option 4 – Maximise yield with APZ's within boundary |
|---|---|--|---|---|
| | | | densities can be achieved | |
| <i>Inferred “loss” if sales cannot be achieved elsewhere</i> | | -\$54.5M | -\$37.6M | -\$20.1 |
| <i>Inferred “loss” if sales offset by units sales assuming \$60K per unit</i> | | -\$34.1M | -\$25.6M | -\$13.1 |
| Roads and drainage | Steep terrain, so need for impervious surface area which could significantly increase stormwater peak flows off sub catchments and may affect requirements for downstream controls (e.g. basin sizes) | <p>Reduced need for downstream water control measures (in terms of additional flows, basin sizes etc) compared to Option 1 if no development in steep areas.</p> <p>Otherwise similar to elsewhere in Stage 2, but may be other implications for remaining peninsula development.</p> <p>May be opportunity for drainage line to contribute to stormwater detention/water quality improvements which could benefit amenity as well as provide additional water</p> | <p>Reduced need for downstream water control measures (in terms of additional flows, basin sizes etc) compared to Option 1 if no development in steep areas.</p> <p>Otherwise similar to elsewhere in Stage 2.</p> <p>May be opportunity for drainage line on western side to contribute to stormwater detention/water quality improvements which could benefit amenity as well as provide additional water source for fire-fighting.</p> | Steep terrain, so need for impervious surface area which could significantly increase stormwater peak flows off sub catchments and may affect requirements for downstream controls (e.g. basin sizes) |

| Issue | Option 1 - Maximise yield within specified boundary | Option 2 – Minimise impact outside boundary | Option 3 - Balance yield, bushfire, environmental and visual outcomes | Option 4 – Maximise yield with APZ's within boundary |
|--|--|--|--|---|
| | | source for fire-fighting. | | |
| Visual amenity | Houses on steep slopes would have outlook over rest of Stage 2 development. While the predominant outlook would be suburbia, there would also be distant views to Civic, Lake Burley Griffin Fountain, Parliament house, and hills and ridges. | Forested hill slope provides backdrop to housing elsewhere in Molonglo Stage 2, consistent with earlier planning in ACT and landscape character. Vegetated backdrops remain along ridges plus Mt Stromlo and other surrounding hills and buffer zones. | Vegetated landscape in areas not developed adds value through improved amenity, especially if integrated with recreation features - can be used as a marketing point of difference. Vegetated backdrops remain along ridges plus Mt Stromlo and other surrounding hills and buffer zones. ⁴ | Houses on steep slopes would have outlook over rest of Stage 2 development. The predominant outlook would be suburbia, there would be some limited distant views to Civic, Lake Burley Griffin Fountain, Parliament house, and hills and ridges. ⁵ |
| Bushfire guidelines (compliance to be confirmed through ESA approval) | Complies but requires other agency agreement | Complies | Complies | Complies |
| Maintenance requirements and costs. | Burn frequency for forest vegetation; strong regeneration may require more active management (e.g. thinning saplings) to | Reduced requirements compared with Option 1. There would need to be a maintenance regime for grass and forest vegetation types. | Reduced requirements compared with Option 1. Would require burning and/or slashing grass. Minimal ecological restriction | Reduced requirements compared with Option 1. Would require burning and/or slashing grass. Minimal ecological restriction so could be done relatively cost- |

⁴ Note the ACT Spatial Plan states that there will be no additional development on hilltops and steeply sloping ridges (Open Space Goal).

⁵ Note the ACT Spatial Plan states that there will be no additional development on hilltops and steeply sloping ridges (Open Space Goal).

| Issue | Option 1 - Maximise yield within specified boundary | Option 2 – Minimise impact outside boundary | Option 3 - Balance yield, bushfire, environmental and visual outcomes | Option 4 – Maximise yield with APZ's within boundary |
|-------------------|---|--|--|---|
| | reduce bushfire risk. Higher costs associated with mosaic burn pattern and monitoring. | Would need to take into account River corridor maintenance activities. | so could be done relatively cost-effectively. | effectively. |
| Recreation | Recreation activity may occur or 'bleed' outside urban area in woodland areas, hills, ridges and buffers. | <p>Reduced pressure on vegetated areas outside urban areas compared to Option 1 because natural open space areas within the boundary are maximised. Opportunities to incorporate additional recreational features inside urban area in APZs.</p> <p>APZs along drainage line provide opportunity for recreational corridor to Stromlo Forest Park; grass foothills will be opportunity for picnic area and links to bush land on upper slopes.</p> | <p>Reduced pressure on vegetated areas outside urban areas compared to Option 1 because natural open space areas within the boundary are increased (chance to use the cleared grassland area for active recreation needs).</p> <p>APZs along drainage line provide opportunity for recreational corridor to Stromlo Forest Park; grass foothills will be opportunity for picnic area and links to bush land on upper slopes.</p> | Reduced pressure on vegetated areas outside urban areas compared to Option 1 because natural open space areas within the boundary are increased (chance to use the cleared grassland area for active recreation needs). |

| Issue | Option 1 - Maximise yield within specified boundary | Option 2 – Minimise impact outside boundary | Option 3 - Balance yield, bushfire, environmental and visual outcomes | Option 4 – Maximise yield with APZ's within boundary |
|--|--|--|--|--|
| <i>Territory EIA process⁶</i> | Maintenance of an outer APZ is likely to significantly change the ecology - detailed assessment and approval process will be needed with risk of refusal or conditions of consent ⁷ | Reduces the risk of potential difficulties (delays/costs) with EIA process. | Reduces the risk of potential difficulties (delays/costs) with EIA process. | Reduces the risk of potential difficulties (delays/costs) with EIA process. Clearing of remnant woodland >5Ha could trigger Territory EIS |
| <i>Matters of NES plan (compliance to be confirmed in consultation with the Commonwealth)</i> | Potentially Inconsistent ⁸ | Consistent | Consistent | Consistent |
| <i>Strategic context</i> | Fulfils the objective to achieve maximum yield on the site, but is inconsistent with other qualitative strategic directions. | Gives highest priority to environment and bushfire considerations, but lowest priority to housing yield. | Reduced developable area compared to Option 1, but attempts to balance economic vitality, community well being and environmental quality | Fulfils the objective to achieve maximum yield on the site, but is inconsistent with other qualitative strategic directions, but lower risk than option 1. |

⁶ The possible need for an EIA was flagged by AECOM in S8 of the Molonglo Stage 2 Background Investigations Paper and also by Ecological Australia. The Conservator of Flora and Fauna would have a role in determining if the proposed development is likely to result in significant adverse environmental impact. Development applications that are assessable in the impact track must include an EIS unless the Minister decides otherwise.

⁷ Ecological's Base Analysis Paper (included in Molonglo Stage 2 Base Analysis Paper provided to ACTPLA) outlines requirements for ecologically appropriate fire regimes for PTWL, native grassland and box gum woodland. Some of these management techniques where they are compatible with APZ guidelines for relevant vegetation types could be incorporated into an APZ management plan.

⁸ One of the key points from the NES Plan relevant to bushfire and ecological management is that 'The application of fire and fire management activities within and adjacent to the offsets will need to take into account ecological fire thresholds for Box-Gum Woodland and Natural Temperate Grassland. It will be necessary to ensure that fire management does not degrade the values of the offset areas.'

3 Recommendation

Table 3 below provides a summary of the main issues and a qualitative comparative assessment of how Option 2, 3 and 4 perform against Option 1 (no constraints).

Table 3. Comparative summary of the three options compared to Option 1 (No Constraints)

| | Option 2 | Option 3 | Option 4 |
|--|----------|----------|----------|
| <i>Maximum theoretical \$ financial (loss of developable land, loss of revenues etc, not taking account of \$ value of amenity or alternative form of provision)</i> | xxxx | xxx | xx |
| <i>Roads and drainage</i> | + | + | ++ |
| <i>Visual amenity</i> | +++ | +++ | + |
| <i>Maintenance requirements and costs.</i> | + | + | + |
| <i>Recreation</i> | +++ | +++ | ++ |
| <i>Compliance process- (risk)</i> | +++ | +++ | ++ |

Legend:

X – Negative Response (compared to Option 1)

+ – Positive Response (compared to Option 1)

The table shows a broadly similar positive performance by Options 2 and 3 compared to Option 1 for the non-financial items. On this basis the additional financial cost of Option 2 would be sufficient to favour Option 3, though a better financial performance from Option 4 is balanced by a generally poorer performance against the non-financial items.

Ultimately then the choice is between Option 1 (or its pragmatic variant, Option 4) – which maximises the amount of developable land – and Option 3, which reduces the developable land somewhat – with a financial impact of around \$54 .6 M in terms of ‘foregone’ revenue (compared to Option 1 and \$16.6 M compared to Option 4) if it is assumed that there is an absolute reduction in development yield, which as noted previously is unlikely.

It should therefore be noted that the financial “impacts” of \$54.6 M in terms of ‘foregone’ revenue (and \$16.6 M compared to Option 4) should be considered as a maximum and do not take into account the reduction in value that might be related to reduced amenity for dwellings that look to the hillside, or the land value of dwelling provided in another form.

The marginal losses would be less and in the order of \$34.1 M (Option 3 compared to High risk Option1) and \$10.5 M (Option 3 compared to fall back Option 4) assuming a land value of \$60K per apartment site.

The total number of dwellings is relatively small in the context of the whole development and the impact on mix would be relatively small: Option 3 would require 200 dwellings (2.8% of the total anticipated 7,200) to be provided in another manner. The impact therefore needs to also be considered in relation to marketability and risk in term of take-up; the loss is not absolute but rather the marginal cost of the different forms of development.

Option 3 provides an improved performance across other dimensions including visual amenity, roads and drainage implications, maintenance requirements and costs, recreation opportunities and compliance processes.

On balance across these factors, and remembering the strategic and statutory planning context and Canberra's strong planning tradition that avoids development on slopes and hill tops, Option 3 is favoured.

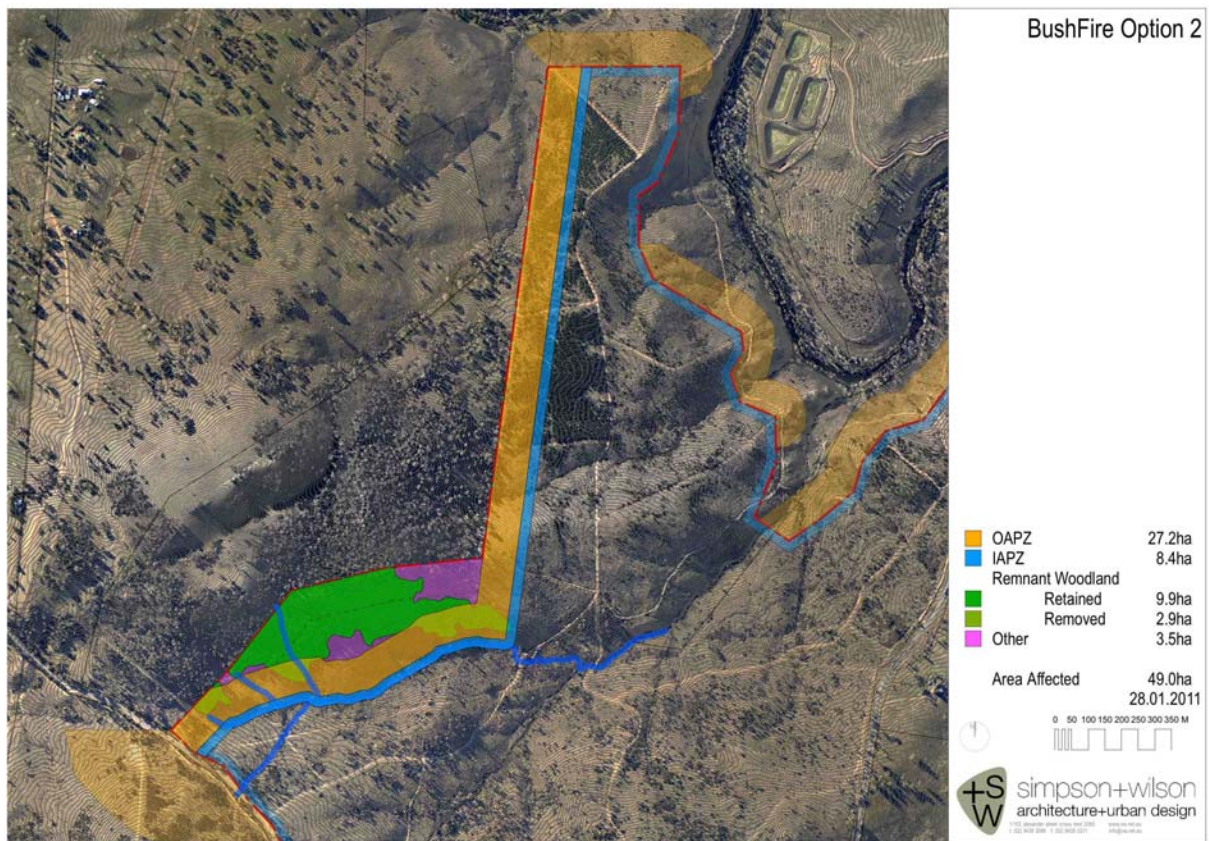
While the land available for residential development under this Option is less than for Option 1, much of the land "given up" is steeply sloping land that would be costly to develop. Other land "given up" adjacent to the north south section of the boundary is immediately adjacent to Box-Gum Woodland that would, under Option 1, become part of the outer APZ that would be subject to bushfire protection regimes.

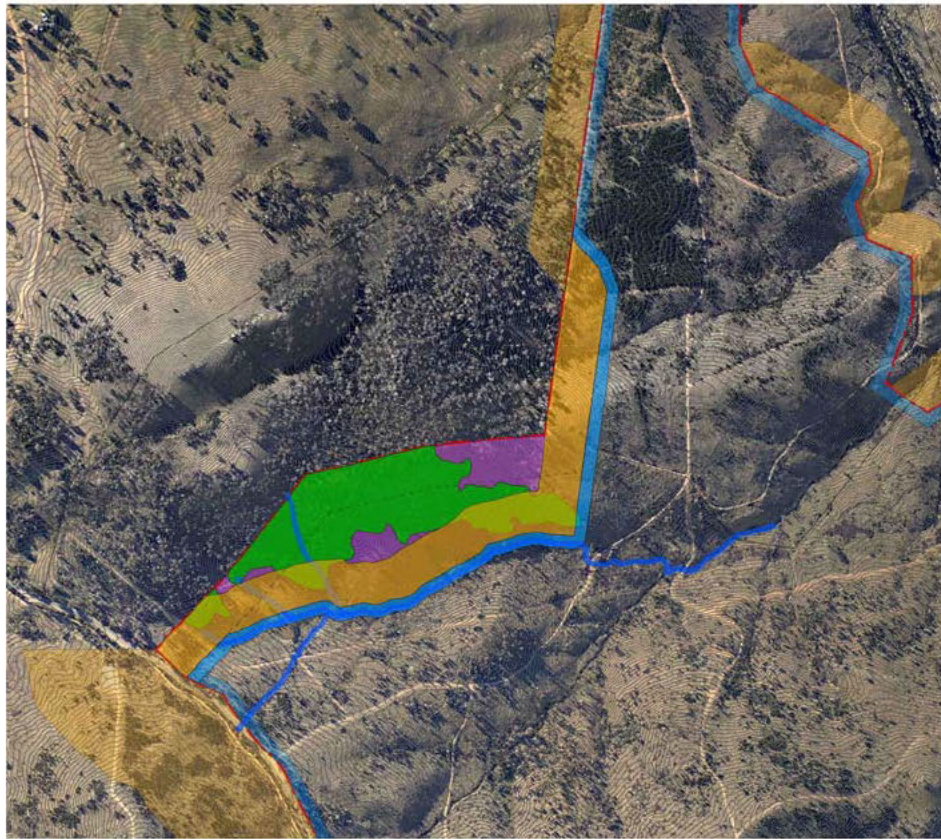
A significant advantage of Option 3, compared to Option 1, is that it reduces the risk that bushfire protection measures associated with the outer APZ would adversely impact on PTWL and Box-gum habitats, and lead to non-compliance with the Commonwealth's NES requirements. It would also reduce the risk that an EIS under the ACT legislation would be required, and the potential refusal, delays and costs associated with this.

It should be noted that pursuing Option 1 (or Option 4) to maximise the developable land and revenues to government could be perceived as an "anti-conservation" position which runs the risk of considerable criticism from environmental interests in Canberra. This may 'taint' the planning work in general and thereby endanger the achievement of other innovations and objectives which will provide a greater financial and policy return. In our opinion Option 3 therefore also represents a risk minimisation strategy.

Note that Options 1, 2, 3 and 4 are indicative only at this stage. Further fine tuning of the preferred option would be needed, including more detailed site assessment and design consideration, and consultation with relevant agencies.

Appendix: Detailed drawings of areas





BushFire Option 3A

| | |
|----------------------|---------------|
| OAPZ | 16.6ha |
| IAPZ | 5.5ha |
| Remnant Woodland | |
| Retained | 9.9ha |
| Removed | 2.9ha |
| Other | 3.4ha |
| Area Affected | 35.4ha |
| | 28.01.2011 |

0 50 100 150 200 250 300M

+S simpson+wilson
W architecture+urban design



BushFire Option 4

| | |
|----------------------|---------------|
| OAPZ | 16.1ha |
| IAPZ | 5.3ha |
| Area Affected | 21.4ha |
| | 28.01.2011 |

0 50 100 150 200 250 300M

+S simpson+wilson
W architecture+urban design

Aloisi, Angelina

From: Mackenzie, Stuart
Sent: Wednesday, 2 February 2011 4:29 PM
To: McFarlane, Trina [REDACTED]; Murray, Chris
Subject: FW: River Park Steering Committee - Paper on Molonglo Stage 2 Western Boundary Options

All

Nick Lhuede's comments below, FYI, for the steering committee discussion. Nick has also briefed the commissioner Mark Crosswell who is on the committee.

Talking to Nick by phone, he believes any of the options as proposed are workable from a fire management perspective, and could be adopted for the PDF – notwithstanding the other feasibility challenges.

He says that once the development boundary is set (for any of the options 1-4), the forest would be control burned but otherwise remain intact – ie major clearing is unlikely to be required. The upshot of this is that the open space would retain its valued forested character, however, over a long period of time the species diversity would reduce, potentially to the point where it is a closed canopy forest with a relatively clear understorey.

S

From: Lhuede, Nick
Sent: Wednesday, 2 February 2011 3:58 PM
To: Mackenzie, Stuart
Cc: Kendall, Dylan
Subject: RE: River Park Steering Committee - Paper on Molonglo Stage 2 Western Boundary Options

Hi Stuart

I would generally support Dylan's comments and the options considered, with the addition / clarification of the following:

1. All options provide appear to meet the requirements under the SBMP for bushfire management, noting the Plan requires target 300 OAPZ , with a minimum 200 m. (needless to say ESA would aim for the target requirements , not the minimum given the location)
2. For all options, the ESA would expect forested areas outside the APZ's to be treated as Strategic Firefighting Advantage Zone (SFAZ), which you alluded to below. While this does impose fuel management treatment in these areas as Dylan described below, this would generally be compatible with ecological requirements.
3. Understanding the scope of this was to consider the Western boundary, it appears for the River Corridor (eastern boundary) the *option one* approach was applied – i.e. inner APZ inside the boundary, outer APZ outside. In addition, there appears to be no consideration of constraints in these locations - for example there appears to be a bit of >20 slope in the north east. Can I assume this is work yet to be completed as I would be concerned if the maps provided constituted the available areas for development.

Happy to discuss / clarify any of this

Regards, nick

From: Kendall, Dylan
Sent: Wednesday, 2 February 2011 2:15 PM
To: Mackenzie, Stuart; Lhuede, Nick
Subject: FW: River Park Steering Committee - Paper on Molonglo Stage 2 Western Boundary Options

Stuart,

- In general I believe the options paper does a good job of identifying the pros and cons of the four options.
- I believe all the options provide an appropriate level of bushfire protection but obviously have significant differences in environmental impact and potential development yield (as well as initial set up costs and on going maintenance costs which have not explicitly explored in the paper).
- In general, implementing the fuel management strategies required to protect Molonglo will impose significant additional costs. The responsibility for seeking the funding to cover these costs remains to be resolved (eg: Developer could be asked to cover initial set up costs with TAMS seeking the additional recurrent costs).
- Generally the identified widths of IAPZ and OAPZ under the 4 options appear appropriate.
- The requirement for an EIS is used as a criteria for differentiating between the various options and this appears to be based on the assumption that the current proposed amendments to the Planning and Development Act pass through the legislative assembly. Under the existing criteria under the Planning and Development Act all options will require the preparation and approval of an EIS (because all will require clearing > 0.5ha of native vegetation) and hence the requirement for an EIS should not be considered during the evaluation of the options.
- The financial analysis of the options in Table 1, pg 16, do not explicitly consider differences in the one off set up costs and ongoing maintenance costs for the 4 options. However, this is probably appropriate as it is likely that the differences in one off set up costs and ongoing maintenance costs under the 4 options are insignificant compared to the differences in revenue impact between the 4 options and therefore would not make a material difference to the overall ranking of each option by financial impact.
- Dot point 3 on pg 17 suggests that no specific building regulations would be required because of the existence of Asset Protection Zones. This is incorrect and ESA will provide further advice on this.
- A range of treatments would be used to manage fuels according to the following general principals:
 - IAPZ
 - Slashing by tractor if slope < 1 in 4, hand brushcutting if slope > 1:4 (note this usually requires extensive works and one off capital costs to convert areas to a condition such that they can be maintained as an IAPZ which should be undertaken as part of the development).
 - OAPZ
 - If grass and high quality lizard habitat no treatment may be required or quite infrequent prescribed burning (eg: once every 7+ yrs).
 - If grass and moderate quality lizard habitat will need to be treated every 1 – 2 yrs by tractor slashing where slopes < 1 in 4 and hand brushcutting elsewhere with the occasional burn for habitat maintenance purposes.
 - If grass and low or no quality lizard habitat if converted to a slashable condition (requires slope < 1 in 4) then slashing by tractor (this will usually require extensive works and one off capital development to convert to a slashable condition which should be undertaken as part of the development). If not converted to a slashable condition then by prescribed burning every 1-2 yrs.
 - If forest then by prescribed burning every 5 – 7 years.
 - Strategic Fire Fighting Advantage Zone
 - These are mostly forest and would be by prescribed burning every 10 – 14 yrs.
 - In grassland or grassy woodland areas would be by grazing (fencing and water would be required).

Thanks,

Dylan Kendall
Snr Fire Management Officer
Parks, Conservation and Lands
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ph: 02 62072414
mob: [REDACTED]
fax: 02 62072544

From: Mackenzie, Stuart
Sent: Wednesday, 2 February 2011 10:57 AM
To: Lhuede, Nick; Kendall, Dylan
Cc: Corrigan, Jim; Reid, Rachel; McFarlane, Trina; Murray, Chris
Subject: FW: River Park Steering Committee - Paper on Molonglo Stage 2 Western Boundary Options

Nick, Dylan

For your comments - these are the recommendations by the consultant for Asset Protection Zones on the Molonglo Stage 2 Western Boundary.

Further to our previous discussions with Jim Corrigan and others on the fire boundary issues, it would be timely to get your advice re OAPZ's (by COB Thurs, if possible) prior to the meeting of the steering committee this Friday, which will be discussing the recommendations in the paper.

The paper includes 4 options, and covers other issues in addition to bushfire risk, including:

Ecological impact
Housing yield
Visual quality
Slope constraints

In particular, it would be good to confirm that the OAPZ dimensions proposed are sound and for you to indicate how fuel reduction would be managed in practice in the woodlands and grasslands of the OAPZ's, and in the strategic advantage zones in the landscape beyond.

Happy to discuss by phone

Many thanks
Stuart

Stuart Mackenzie

Land Policy

p 6205 4270 | e stuart.mackenzie@act.gov.au | web www.actpla.act.gov.au



-----Original

Message-----

From: Reid, Rachel
Sent: Wednesday, 2 February 2011 10:19 AM
To: Ahmed, Khalid; Tomlins, George; Savery, Neil; Crosweller, Mark; Hughes, Stephen; Corrigan, Jim; Papps, David; Murray, Chris; Mackenzie, Stuart; McFarlane, Trina
Subject: River Park Steering Committee - Paper on Molonglo Stage 2 Western Boundary Options

Good Morning,

Attached is a paper on the Molonglo Stage 2 Western Boundary issue that is on the agenda for discussion at the River Park Steering Committee meeting this Friday 4 Feb.

The agenda and other attachments can be found in the calendar booking description.

Rachel Reid
EA to Fay Steward (Executive Director)
Land Management and Planning Division
Territory & Municipal Services
(P) 62077624 (F) 62076034
Level 5, Macarthur House

MOLONGO STAGE 2 DRAFT PLANNING AND DESIGN FRAMEWORK – OPTIONS FOR WESTERN BOUNDARY
Summary of discussion paper prepared by SGS/Eco Logical Australia for ACTPLA (v9, January 2011)

RIVER PARK CONCEPT PLAN STEERING COMMITTEE MEETING, 4 February 2011

Context

The options for the Molonglo Stage 2 western boundary alignment and treatment paper prepared by SGS/Eco Logical Australia and circulated to the committee examines the environmental, bushfire, and planning considerations around the issue, and presents 4 options.

It is important that the River Park Concept Plan Steering Committee familiarises itself with the findings of the paper and the analysis that leads to it. (Note that ACTPLA does not necessarily agree with the preferred option in the paper).

Resolution of the western boundary is critical to the Molonglo Stage 2 Draft Planning and Design Framework project to define the urban edge and the land available for development, and to meet the accelerated land release program.

The issues considered in defining the western boundary alignment and treatment are:

1. Bushfire risk management
2. Optimising land development opportunities (housing supply and returns to government)
3. Retention of vegetation and natural resource management
4. Ongoing maintenance, servicing and other public costs
5. Recreation, visual quality and amenity for future Molonglo residents, and others
6. Time/cost and risk management of regulatory processes.

There are many interrelationships among the above. Ideally, a response would seek out opportunities for practical integrated solutions to the issue that delivers multiple benefits for the land and minimise costs/losses to government.

Financial analysis of the options

Given the range of constraints on Molonglo Stage 2 – topographical (steep slopes typically 15% but up to 30%), bushfire and environmental – developable land is at a premium.

With the high population target (18,000 people) and dwelling yield requirements for Stage 2, and imperatives to optimise financial return to government, there is a need to maximise areas of land available for urban development. This may require different approaches to development than in the rest of Canberra.

The table below provides details on the financial assumptions in relation to each option compared to Option 1 (which maximises the possible yield):

| Option | 1 | 2 | 3 | 4 |
|-----------------------------------|-----------|----------------|----------------|----------------|
| | Ha | Ha | Ha | Ha |
| OAPZ | 0 | 27.2 | 16.6 | 16.1 |
| IAPZ | 5.3 | 8.4 | 5.5 | 5.3 |
| Other ¹ | 0 | 13.4 | 13.3 | 0 |
| Total impacted area | 5.3 | 49.0 | 35.4 | 21.4 |
| Difference (compared to Option 1) | 0 | -43.7 | -30.1 | -16.1 |
| Land lost | | | | |
| Moderate land (10 dw/Ha) | - | 20 | 5 | 5 |
| Steep land (6 dw/Ha) | - | 23.7 | 25.1 | 11.1 |
| Total dwelling sites lost | - | 342 | 201 | 117 |
| Revenue impact | | | | |
| \$1.25M/Ha net | - | -\$54.6 | -\$37.6 | -\$20.1 |

¹ Residual area between "boundary" and OAPZ/IAPZ

ACTPLA's interim position on the options

ACTPLA would give high weighting to *bushfire risk management, optimising land development opportunities, and minimising maintenance costs*. While the other defining issues remain significant, they are not seen as the driving principles.

The table below summarises the reasons for this position:

| Principle | Comment |
|--|---|
| Retention of vegetation and natural resource management | The south-western area includes non-listed native vegetation (xha) and pine forest (xha). In times of plentiful land, these areas would be retained. However, this site is identified for urban development purposes, and is surrounded by large reserves of public land (Stromlo, Molonglo River Park, Arboretum, remaining treed areas to the west of the site). It is reasonable to question the opportunity costs of retention of all of this treed area in an area identified for urban development. |
| Recreation, views and amenity for residents | The ACT Spatial Plan and Territory Plan seek to retain vegetated ridgelines and steep slopes. There may be opportunities to retain a vegetated skyline without losing all of the land to reservation. A planning decision that resulted in a skyline cleared of trees would not be supported, but detailed opportunities may be available that achieve both objectives of land supply/revenue and amenity. |
| Time/cost and risk management of regulatory processes | This issue should be acknowledged and treated sensitively. However this risk should not itself misdirect the best planning decision. Release of the land need not be on the critical path. Assumptions will be needed for land planning purposes. |

Critical points in regard to the two driving principles in ACTPLA's view are:

| Principle | Comment |
|--|--|
| Bushfire risk management | Highest weighting to hazard risk and risk to human life and property. |
| Optimising land development opportunities | The ACT is approaching the end of available greenfield land for development purposes, despite growing demand. Government returns on property sales are a significant element in the ACT budget and there is the question of opportunity costs, including to discretionary program areas. |
| Ongoing maintenance and management | Design solutions will require sensitive consideration of the detailed OAPZ and IAPZ arrangements. |

Next steps

It is important that the River Park Concept Plan Steering Committee familiarises itself with the findings of the SGS/Eco Logical Australia paper, and the analysis which leads to it, to arrive at a decision on the preferred option.

The context of this decision might be summarised as:

- High levels of importance to the optimisation of land development opportunities given the need to supply housing at a time of diminishing availability, and the significance of revenues from land sales to the ACT budget.
- Already committed to program of natural resource management associated with the NES Plan (strategic assessment process), and other commitments
- General high levels of natural environmental assets in the area.

In this context, ACTPLA would be supportive of maximising the development opportunities along the western boundary, provided:

- Bushfire risk management issues are appropriately addressed.
- Listed natural resources are appropriately conserved.

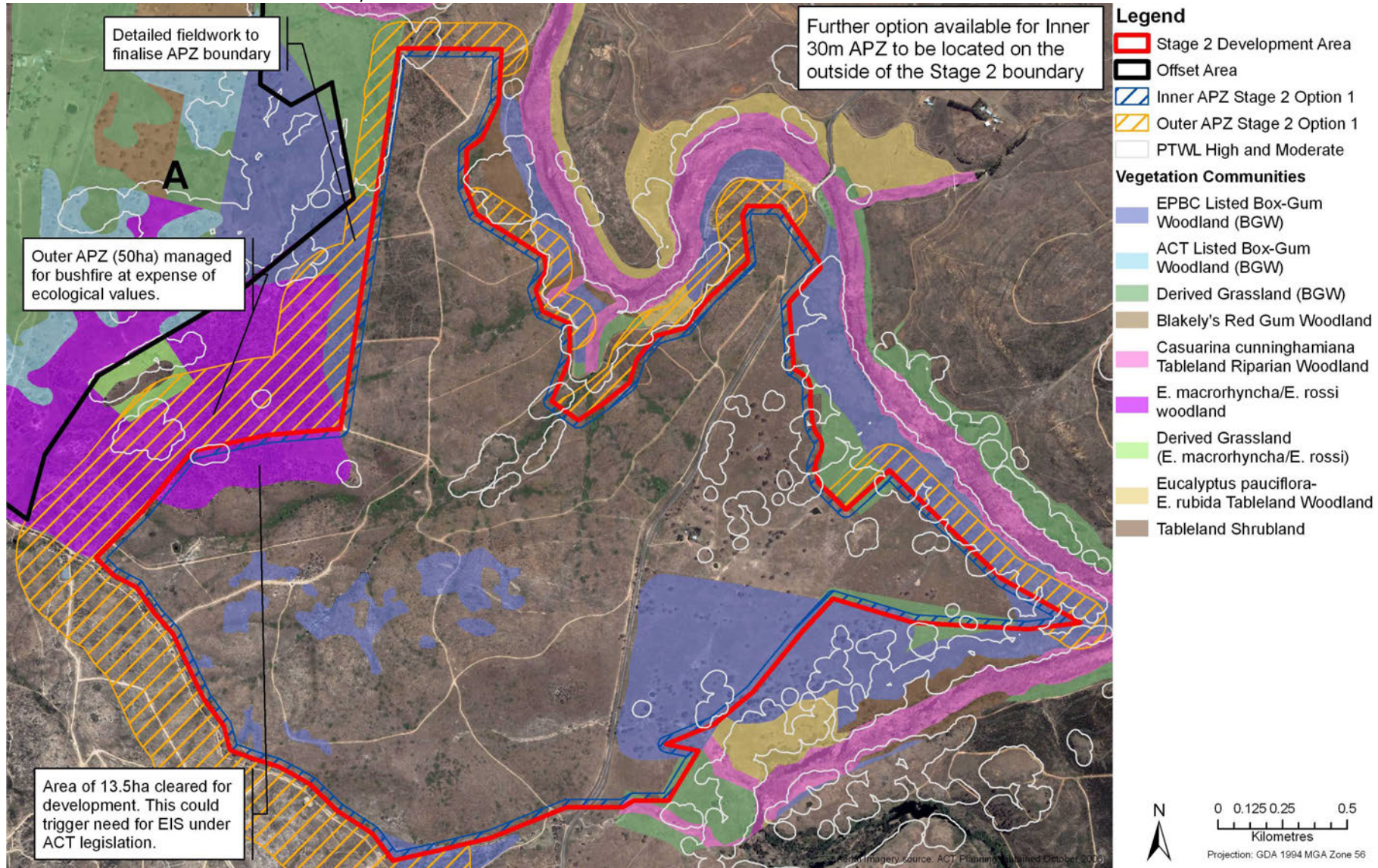
ACTPLA would also seek the establishment of a vegetation precinct along the ridgeline, as a component of the design process. Is there a need for some criteria for this, or is it impossible?

The questions that require further examination are:

- Detailed fieldwork to finalise APZ along the northern component of the boundary (see Figure 6 SGS paper). TAMS to lead.
- More detailed design and costing work on the southern component of the western boundary (e.g. LDA to treat the land as a development project, with design criteria to be determined by the group). This work would include both management and APZ definitional work, consideration of servicing and other constraints on this steep land, means to provide a landscape zone along the ridge. TAMS to lead environmental, servicing and maintenance items, ACTPLA to advise on landscape treatment.

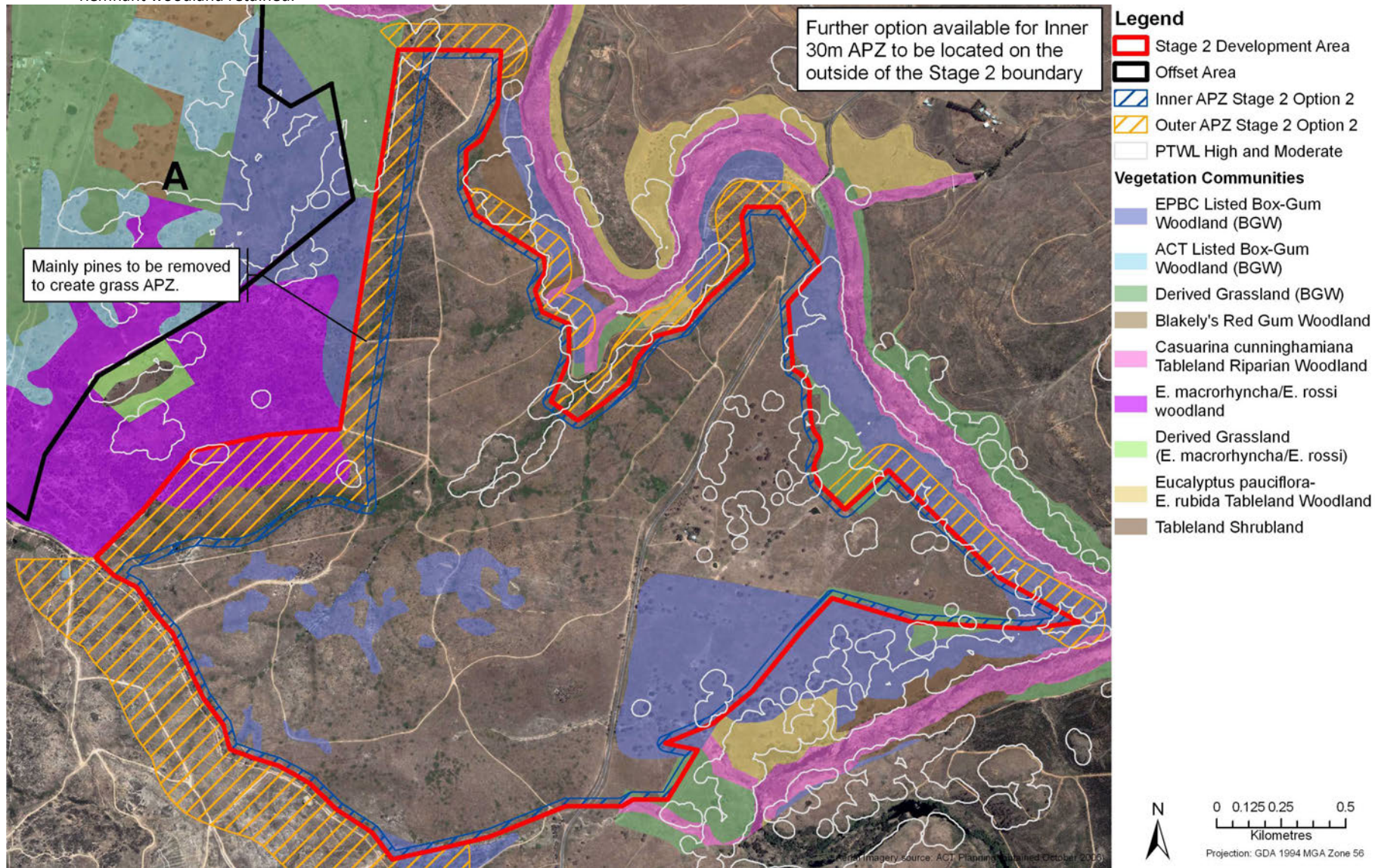
Option 1 – Maximise yield within specified boundary (no constraints option)

- Outer APZs on western side are outside Stage 2 development boundary
- 30m Inner APZ is within boundary
- All remnant woodland inside boundary removed.



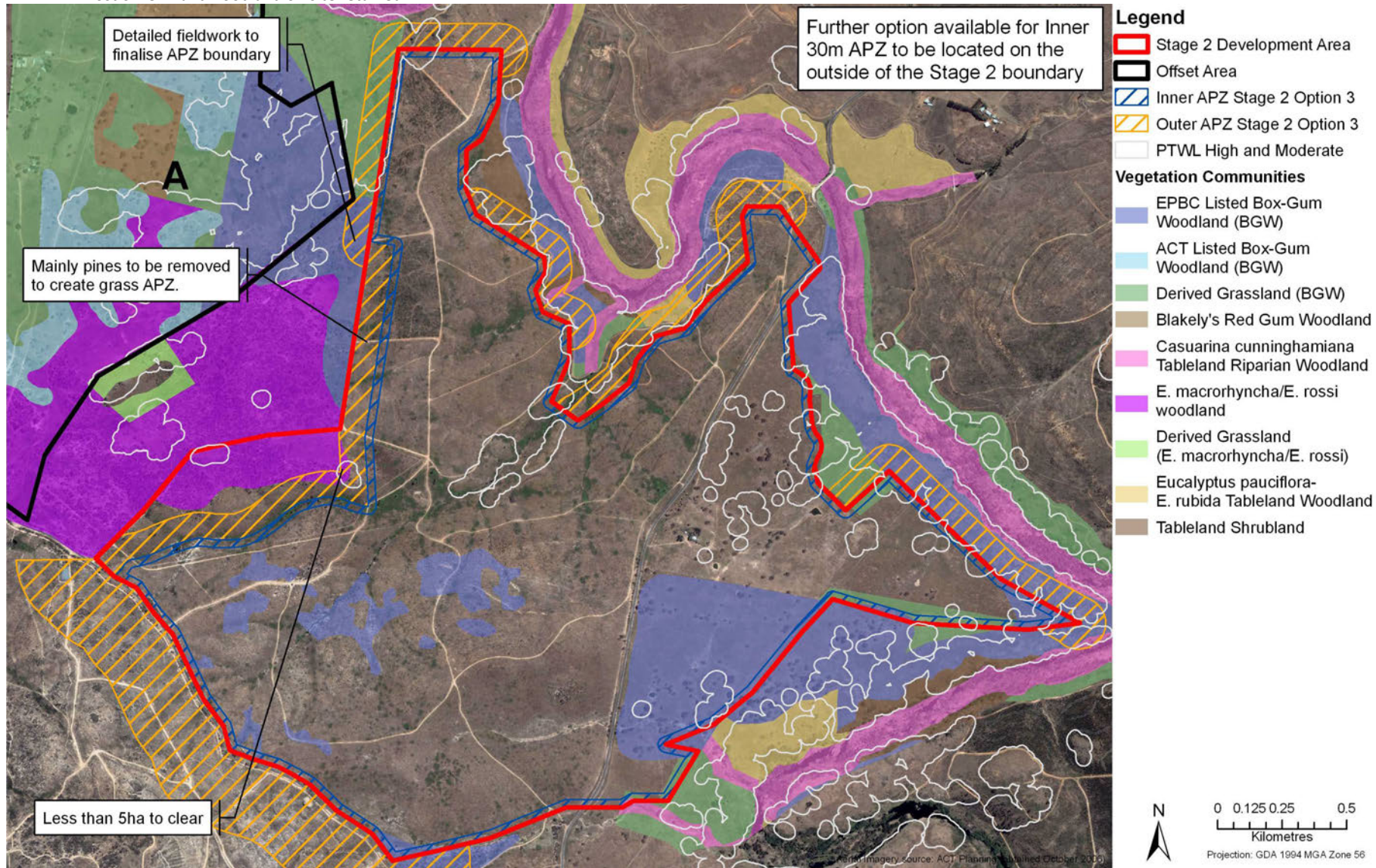
Option 2 – Minimize impact outside boundary for environment and bushfire protection

- Inner and Outer APZs are fully inside the development boundary
- Remnant woodland retained.



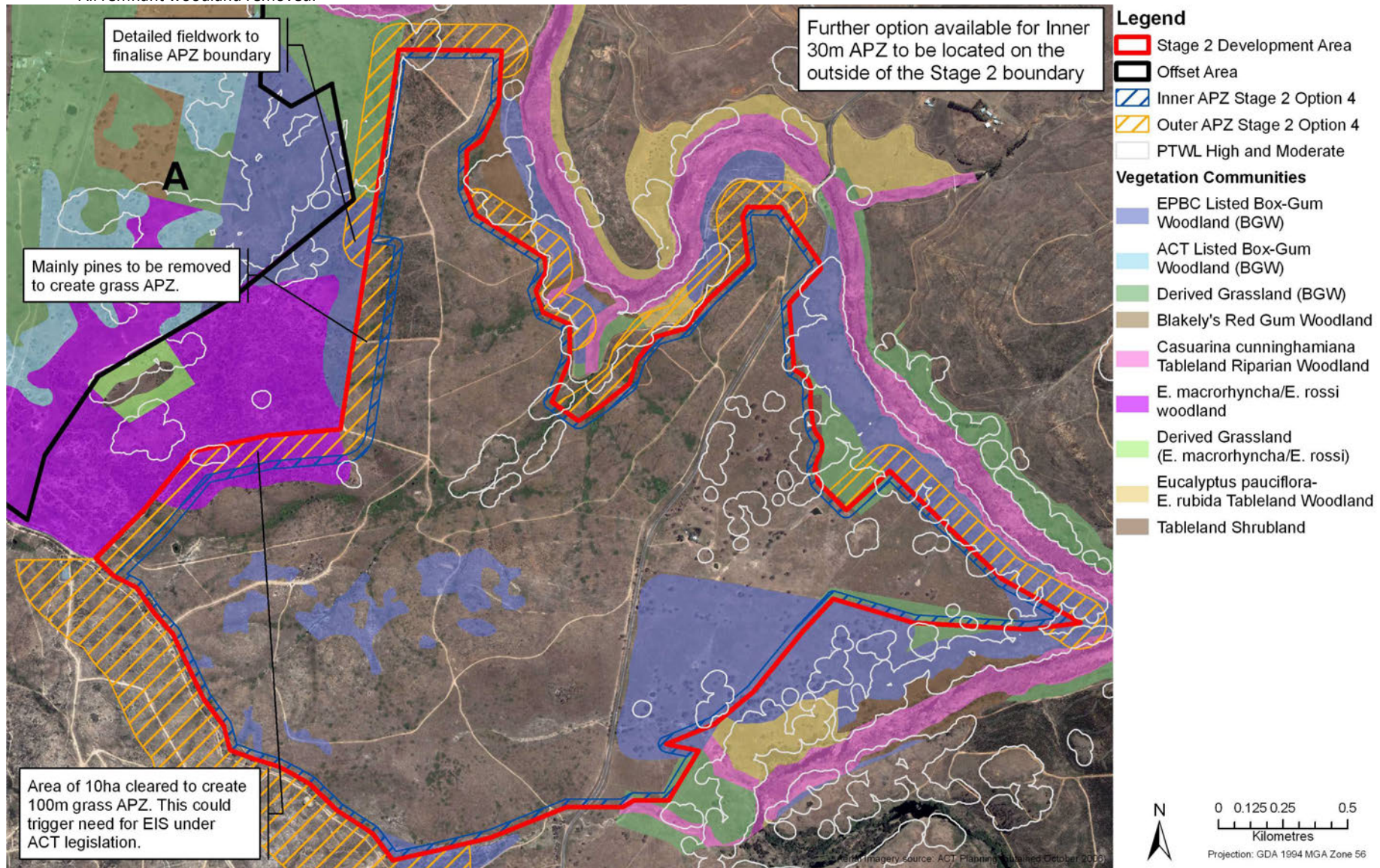
Option 3 – Balance yield, bushfire, environmental and visual outcomes

- Outer APZ on the western side is partly inside the Stage 2 development boundary
- Most of remnant woodland on site retained.



Option 4 – Maximise yield with APZs inside boundary

- Outer APZ on the western side is partly inside the Stage 2 development boundary
- All remnant woodland removed.



Molonglo Valley Stage 2 – Western Boundary – Integrated Ecological and Bushfire Management

The *Molonglo Stage 2 Draft Planning and Design Framework – Integrated Ecological and Bushfire Methodology* (January 2011) report prepared by Eco Logical Australia for ACTPLA outlines the key issues regarding ecology and bushfire management.

This report presents information to help define ecological and bushfire constraints and integrate management requirements in Molonglo Valley Stage 2 and surrounds. The assessment will help to determine the urban boundary and land available for development. It will also help to demonstrate if the commitments in the Molonglo Valley Plan for the protection of Matters of National Environmental Significance (NES Plan) are being satisfied as part of the strategic assessment process.

The report:

- Outlines NES Plan requirements regarding bushfire management (Section 2);
- Classifies and maps urban interface as primary, secondary or lee in accordance with the *Strategic Bushfire Management Plan for the ACT* (SBMP) (Section 3 and Figure 1);
- Determines the expected future vegetation types (forest/shrubland or woodland/grassland) for areas on the perimeter of Molonglo Stage 2 (Figure 2);
- Determines requirements for inner and outer asset protection zones (APZs) and show on map (Figure 3);
- Identifies ecologically appropriate fire regimes and management requirements (Section 4);
- Maps APZs with key ecological features and consider options for integrated management (Figure 4 and Section 5); and
- Outlines the preferred option and next steps (Section 6).

The final section of the report outlines Eco Logical Australia's preferred strategy, which can be summarised as follows:

- Adaptive management of the outer APZ informed by a detailed understanding of site-specific conditions regarding fuel hazards, bushfire history and requirements for ecologically appropriate fire regimes. This will require ongoing monitoring and a mosaic pattern to on-ground management;
- Increase the inner APZ width; and
- Higher construction standards in the lot layout.

Additional measures could include:

- Increase areas of rocky Pink-tailed Worm Lizard (PTWL) habitat; and
- Implementation of a strategic firefighting zone to the west of the offset area.

Molonglo Stage 2 Draft Planning and Design Framework

Propositions Paper

ACT Planning and Land Authority February 2011



This Report has been prepared for:
ACT Planning & Land Authority

This report has been prepared by:
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|----------------|--------------------------------|------------------------------|----------------------|
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| 4 | 24 January 2011 | ACTPLA comments incorporated | |
| 5 | 7 February 2011 | Submitted to ACTPLA | |

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8.3.2 Proposition

All waste will be managed or converted or processed on-site except that to be utilized in recycling based value added

Though ambitious the No Waste Strategy sets zero waste this as the effective target for development. This implies a combination of incineration, composting for nutrient recovery, recycling (on or off-site) for use in other products and use in energy production.

A total waste management strategy will be required which prioritises precinct based solutions (remembering that the ACT's garbage truck fleet is not equipped for very steep roads).

8.3.3 Implementation challenges

Lack of precedents, capacity, industry and technology - a one size fits all approach to waste management applies to the ACT

The challenges to a total site waste management strategy are many in the ACT. As a relatively small settlement opportunities to develop city-wide approaches to large scale waste reduction based on economies of scale may not yet have arisen. Waste management convention is based on a 'one size' fits all approach.

Relying on site by site approaches to eliminating waste puts a strong onus on particular approaches (e.g. composting and recycling) where scale economies aren't available (for example a bio-digester would be more cost effective if deployed across the ACT). Capacity for strategy development of this kind within the government or the consulting team is limited so only a framework for future approaches can be suggested.

There is also an obvious time constraint for innovation in this area. It will not be possible to do anything other than conventional approaches for the early release stages.

8.4 Ecology and Bushfire

8.4.1 Relevant aspirations

Open space systems, buffer zones and road and infrastructure planning needs to align with protection of significant ecological and habitat values. Urban layout, design of the urban edge and management of adjoining open space areas must meet bushfire risk management requirements.

There is potential for integrated solutions to ecology and bushfire management imperatives, notwithstanding tensions in the particular regimes each adopts.

8.4.2 Proposition 1

Increase quality and connectivity of PTWL habitat through interventions such as reusing suitable rocks from the development process which would also contribute to reducing bushfire fuel loads.

The development process will involve earthworks that generate fill, often as rocks. It makes sense to utilise these rocks on-site where possible and the suggestion here is to increase the Pink-tailed Worm Lizard (PTWL) habitat by using the rocks in the habitat protected areas. This will have the synergistic benefit of reducing bushfire loads in these areas.

Other opportunities to pursue integrated approaches will be identified where possible.

8.4.3 Implementation challenges

Ensuring effective integration between development and protection processes

This proposition implies a coordinated approach to site development which will require codification and monitoring. It may also require appropriate approvals to provide for the intervention in the PTWL habitat area.

8.4.4 Proposition 2

Locate Asset Protection Zone on western edge to manage bushfire risk and protect habitat and ecological values, while minimising loss of developable land

On the north western edge of the site the location of the Asset Protection Zone (APZ), and the balance between ecological protection and appropriate bushfire management regime, is a key issue. Locating the APZ outside the development boundary for bushfire management reasons obviously maximises the developable area but it also intrudes into some ecologically sensitive habitat (and may require Commonwealth Government consent from the perspective of its EPBC Act).

Three options are being developed for testing to best achieve the intent of the proposition. These are:

- **Option 1 - Inner and outer APZs on the western side are fully outside the Stage 2 development boundary** - maximum yield within specified boundary (see Figure 29)
- **Option 2 - Outer APZ is fully inside the development boundary** - favour environment & bushfire protection (see Figure 30).
- **Option 3 - Outer APZ on the western side is partly inside the Stage 2 development boundary** - balance yield, bushfire & environmental outcomes (see Figure 31)

8.4.5 Implementation challenges

Ensuring that a high level and binding resolution is adopted

A firm position needs to be adopted on this issue. The aim should in the first instance be to get cross agency sign off on an ACTPLA agreed position. However, if cross agency 'sign-off' is not possible then a binding decision may need to be taken at a high level in the ACT Government.

Figure 29 Option 1 Inner and outer APZs on the western side are fully outside the Stage 2 development boundary

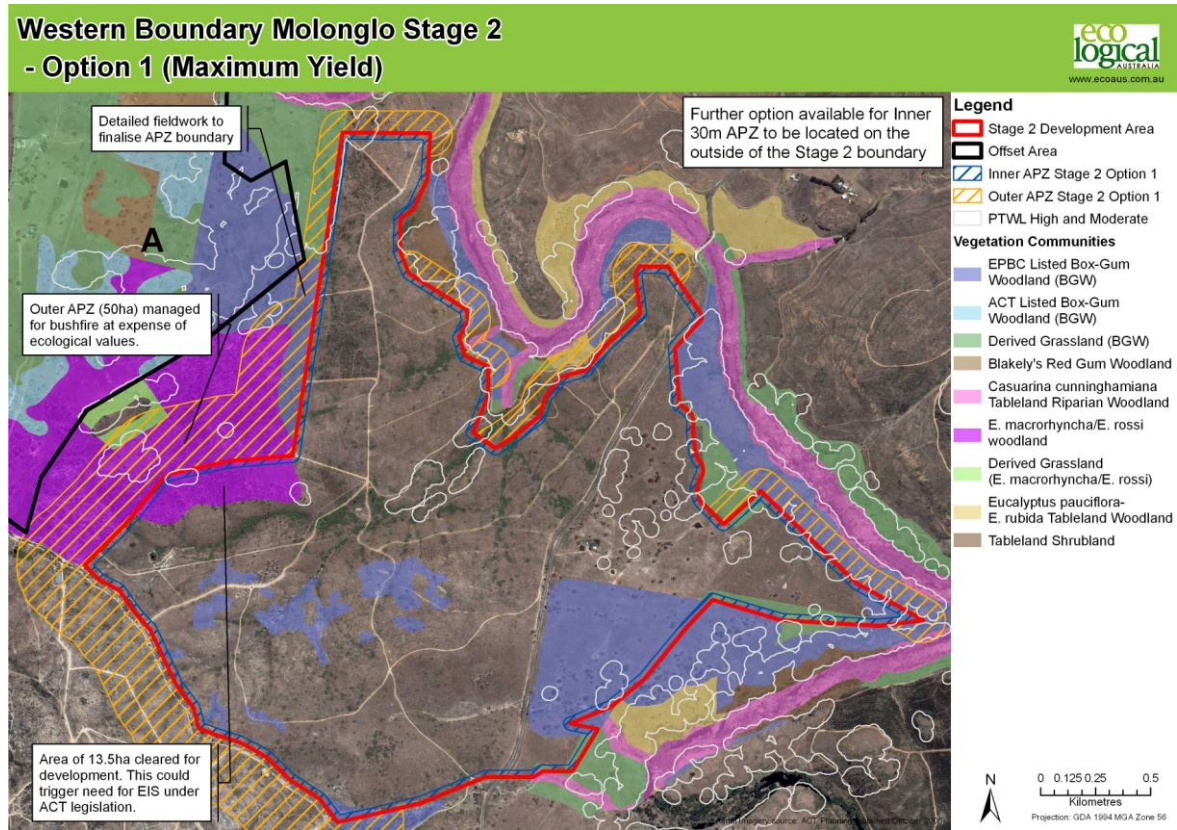


Figure 30 Option 2 - Outer APZ is fully inside the development boundary

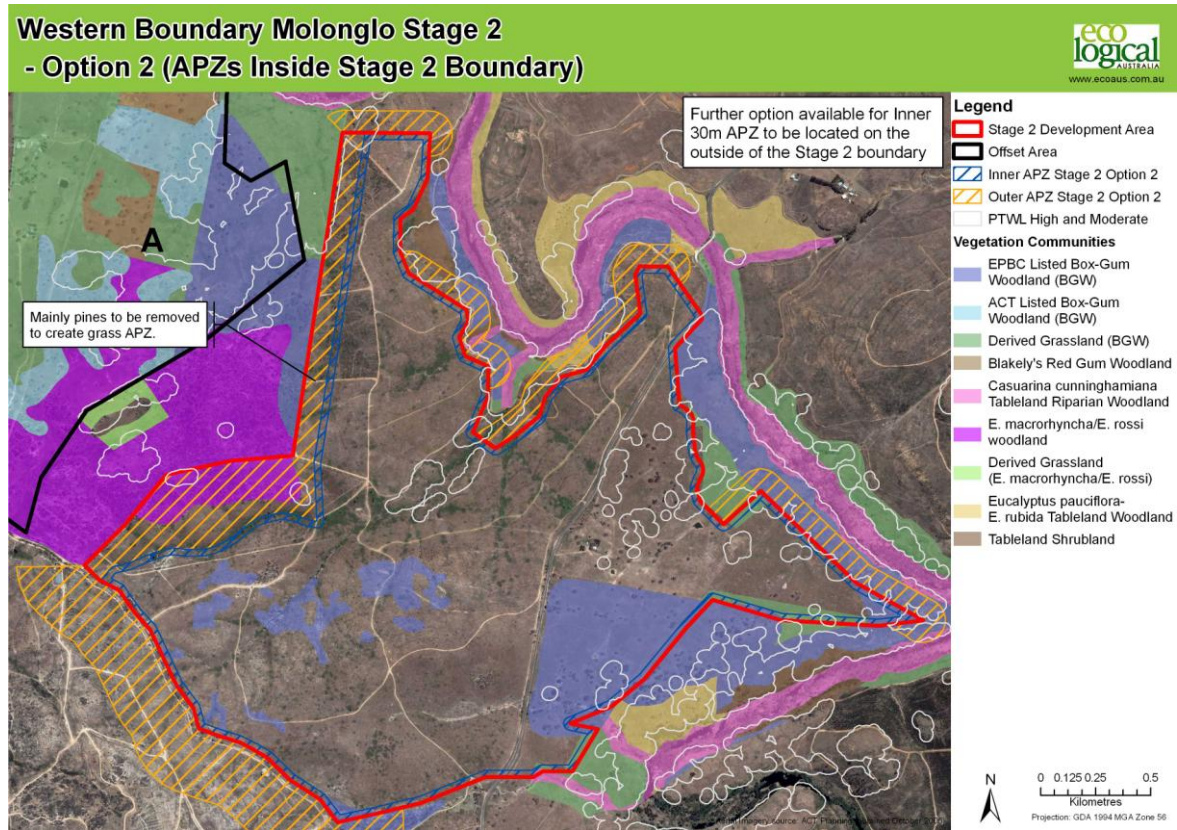
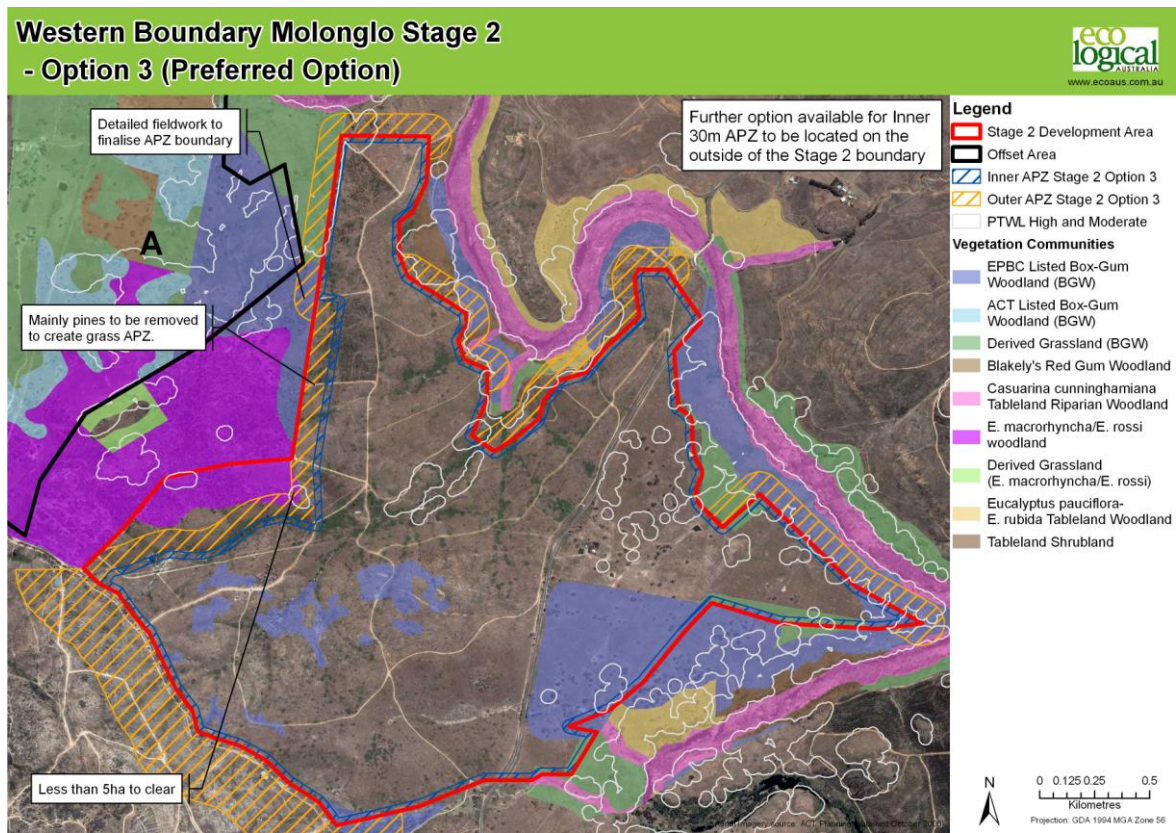


Figure 31 Option 3 - Outer APZ on the western side is partly inside the Stage 2 development boundary



9 Accountability

9.1 Assessment and compliance framework

9.1.1 Relevant aspirations

The brief identifies that implementation strategies may include ‘objectives and performance criteria for measuring or accrediting desired outcomes’. The brief also notes that the Important Planning Requirement (IPR) Plans are to:

‘outline the obligations of the developer preparing an estate development plan (EDP) for submission to ACTPLA as a development application. The IPR plan will therefore define mandatory and non-mandatory elements, and performance based outcomes, as well as infrastructure to be completed by the developer, and infrastructure to be completed by government as capital works’.

9.1.2 Proposition

Establish a performance based approach that allows for the achievement of the propositions, given the particular characteristics of the site

As discussed earlier some codes and planning settings appear to be obstacles to the achievement of the yield (diversity and quantity of housing) and sustainability performance (greenhouse gas reductions, water reductions) on this site with its varied topography, environmental constraints and sometimes difficult development conditions.

9.1.3 Implementation challenges

Aligning the proposed performance optimisation approach with the suggested implementation framework from the brief

The brief outlines a potential implementation framework – via the mechanism of IPR plans – that could support a performance based approach. Further work will be required to develop this approach and understand how it will work in practice so that rapid approvals are provided for the first stage of development, and then for subsequent stages which will need to meet the performance criteria.

9.2 Delivering 3,000 Lots by 2011/12

9.2.1 Relevant aspirations

The Indicative Land Release Programs for 2010-11 to 2013-14 (June 2010) show a significant acceleration of land release in Molonglo Stage 2, with 1500 dwellings in 2011-12 englobo, 500 dwellings in 2012-13 LDA Estate, and 900 dwellings in 2013-14 LDA Estate.

9.2.2 Proposition

Provide for the development of up to 3000 dwellings in the most cost effective manner

The key apparent obstacle to the early release and development of land for housing is the need to gain approval for a river crossing for the sewer, which would trigger a drawn out Environmental Impact Statement process. The base analysis however has shown that it is possible to service an early development stage (land for say 1500 dwellings) to the south of the site using the capacity in the existing Molonglo Trunk Sewer (MTS), without a river crossing. A second stage (from 2012-14) could be serviced by a permanent sewer bridge crossing to the Molonglo Valley Interceptor Sewer (MVIS) (allowing time for approvals) or in the shorter term by the MTS, provided storm attenuation tanks are constructed to limit Peak Wet Weather sewerage flows to the capacity of the MTS (with a more permanent solution involving the river crossing).

A sewerage infrastructure solution is therefore available to meet the aim. However, some of the areas served by this solution may be higher density areas, and the actual yield which can be achieved in these areas has not yet been firmed up. There may be a tension in the cost effective servicing of early land release and actually achieving the target figures in the accelerated land release program (particularly as some of the areas to be serviced are south and east facing slopes). Notwithstanding the land release directive it does not seem sensible to build in expensive redundancy in infrastructure to meet the target early release figure, if a more cost effective solution may deliver close to that figure.

Hence, the proposition is that sites for **up to** 3000 dwellings be available for development in the most cost effective manner.

9.2.3 Implementation Challenges

Extent of flexibility in delivering against accelerated land release program while minimizing costs

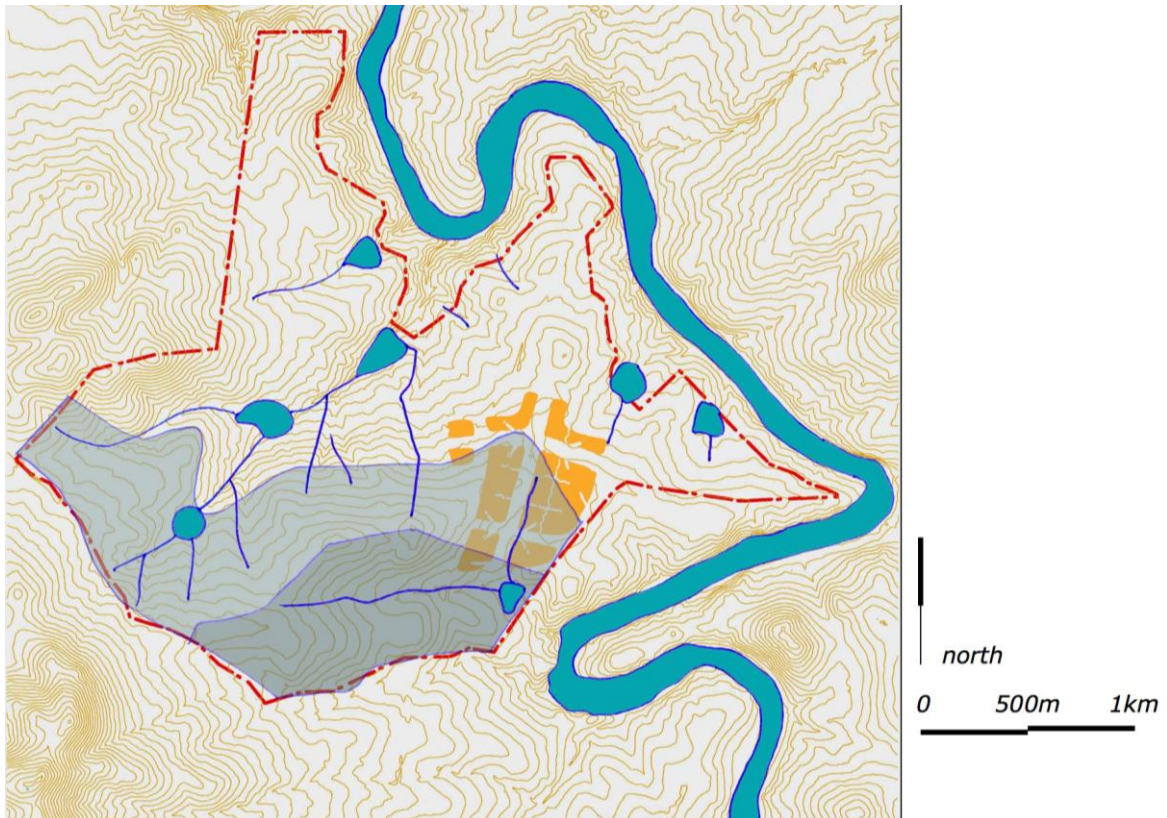
The extent to which there is flexibility in the delivery of the land release program not only relates to the achievement of the target figures but also the form of development that may be provided for (e.g. low versus higher density product).

Cost effective development is also critical, and a decision to effectively develop 'out of sequence' or construct infrastructure which may not in future be used, should not be taken lightly.

Both issues will need further discussion amongst senior officers once they are able to be clarified.

The figure below shows the areas that can be served by capacity in Coombs (dark grey area) and by a gravity fed system (light grey area). The capacity of the sewerage is for 1500 dwellings each however the first stage that relies on Coombs system has poor aspect and steep slopes.

Figure 32 Extent of the first stage release area



9.3 Financial Returns to ACT Government

9.3.1 Relevant aspirations

Financial benchmarks have not been provided though there is a clear expectation that land sales will provide an effective return to government. As land owner the ACT Government would expect to make a return after development costs, like any developer, of perhaps 15-25 percent, before wider obligations to the ACT community (e.g. affordable housing, provision of 'green infrastructure') are met.

Molonglo Stage 2 Draft Planning and Design Framework

Step 1 Synthesis Paper

ACT Planning and Land Authority February 2011



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ACT Planning & Land Authority

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| 3 | 4 January 2011 | Draft Report | |
| 4 | 24 January 2011 | ACTPLA comments incorporated | |
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| 6 | 7 February 2011 | Submitted to ACTPLA | |

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5. Environmental Responsibility: Protecting and sustaining the natural environment

| Relevant aim / policy | Proposition | Implementation Challenge | Priority |
|---|---|--|----------------------|
| <p>5.1 Reduced Greenhouse Gas Emissions</p> <p>40% GHG reduction by 2020, 80% by 2050 and 100% by 2060 (ACT Government Targets)</p> | <p>Provide tri-gen and other low emission energy generation technologies in group centre where densities and mix will support.</p> <p>Aim for 30% additional reduction compared to recent development and 70% reduction for all land uses compared to Canberra average.</p> | <p>Ownership and management of new infrastructure.</p> <p>Institutional (existing policies, practices) impediments for early release stages.</p> <p>May need to ensure flexibility so implementation can occur in later stages</p> | Medium term priority |
| <p>5.2 Total water cycle management</p> <p>12% less water per person to 2013, 25% less to 2023 and increase use of treated water to 20%; Nutrients and sediments as from a well managed rural landscape Intensity / volume of stormwater flows same or less than pre-development flows (Think Water, Act Water)</p> <p>Regional and development site water quality targets (Waterways Code)</p> | <p>Adopt total water cycle management within the development – responding to site (steep grades, competition for flat land) while meeting required regional and site water quality targets.</p> | <p>Institutional and regulatory barriers to innovation - especially 3rd water pipe. Minimal incentives.</p> <p>Institutional impediments for early release stages.</p> <p>Meeting regional targets a challenge on the constrained site (costs and land take).</p> | Short term priority |
| <p>5.3 Waste Reduction</p> <p>0% waste by 2010 (No Waste by 2010 Strategy)</p> | <p>All waste will be managed or converted or processed on-site except that to be utilized in recycling based value added.</p> | <p>Lack of precedents, capacity, industry and technology - a one size fits all approach to waste management applies to the ACT</p> | Medium term priority |
| <p>5.4 Habitat, ecology, bushfire</p> <p>Consistent with ACT and Commonwealth statutory obligations (NES Plan) Bushfire management (Planning for Bushfire Risk Mitigation General Code)</p> | <p>Increase quality and connectivity of PTWL habitat through interventions such as reusing suitable rocks from the development process which would also contribute to reducing bushfire fuel loads.</p> <p>Locate APZ on western edge to manage bushfire risk and protect habitat and ecological values, while minimising loss of developable land.</p> | <p>Ensuring effective integration between development and protection processes</p> <p>Timeliness of decisions on APZ boundary.</p> <p>NES Plan decision.</p> <p>Ensuring that a high level and binding resolution is adopted</p> | Short term priority |

Immediate and short term priorities for attention

The immediate and short term priorities identified in the table are:

- **Confirming a housing mix** to satisfy the incoming population and ensuring market acceptance – including increasing the share of detached and small lot housing given code constraints (and meeting benchmark financial returns to government);
- **Designing an open space system** – that recognises natural and physical site constraints and incorporates CRIP approaches and integrates with schools provision, River Park and the road network as part of the ‘public domain’;
- **Providing for sufficient education and community facilities** and integrating their provision – to meet community needs while using land efficiently;
- **Confirming the role, location and structure of the group centre** – to create a lively, accessible focus for the community with a range of employment opportunities, and education, community and residential uses;
- **Designing a road and street network (related to the group centre)** – that distinguishes different roles including the ‘external linkage’ arterial roads (taking people to and away from the rest of Canberra), resident access streets, a network of pedestrian and cycle connections (to public transport employment, group centre, schools) as a viable, safe and attractive alternative to the vehicular network and streets for public transport;
- **Developing an identity through solid design principles and procurement approaches** – to meet sustainability, design and development objectives on a unique site in the Canberra context; this may mean a different approach to delivery.
- **Adopting a total water cycle management approach** - responding to site (steep grades, competition for flat land) while meeting required regional and site water quality targets, and also minimising life cycle costs.
- **Appropriately balancing bushfire and ecological protection imperatives** – particularly in defining the western boundary but also in the interface with the River Corridor and the in the management of areas protected for their conservation values.
- **Ensuring benchmark short and long term financial returns to government are met** – by optimising the distribution and mix of dwellings and development on site while achieving other aims.
- **Meeting the land release program (delivering 3,000 lots by 2014)** - in the most cost effective manner, consistent with statutory planning procedures.

These items will be an early focus in the Step 2 work – through the ‘next steps’ identified in the detailed table in the paper but also through processes to be agreed with ACTPLA. It is expected that there will be a key role for internal briefings and sessions with ACTPLA where the Chief Planning Executive may need to be involved to assist in resolving issues. For issues requiring cross government decisions it may be necessary to establish a small ‘task force’ or working group of senior government officers, working across government but driven by ACTPLA. This group would be presented with the unresolved items from the above list for consideration and resolution. This would occur with consultant assistance where consistent with the program and scope of work.

| Relevant aim / policy | Molonglo Specific Aspirations | Base Case | Proposition | Implementation Challenges | Resolution / Next Steps | Dependencies |
|---|--|---|--|---|--|--|
| 5.3 Waste Reduction 0% waste by 2010 (No Waste by 2010 Strategy) | Development to contribute to ACT targets for waste reduction. | Conventional ACT practice (including road design to accommodate standard garbage vehicle loadings and turning movements). | All waste will be managed or converted or processed on-site except that to be utilized in recycling based value added. | Lack of precedents, capacity, industry and technology - a one size fits all approach to waste management applies to the ACT. | As for energy: Modeling of various technology and management options to determine optimum combination. Consider potential for linking early stages to more sustainable systems in longer term when issues are resolved. Medium term priority | Optimal combination waste management technologies for urban development. Affordability: Capital and recurrent cost to individual households and ACT Government from the introduction of new systems. |
| 5.4 Habitat, ecology, bushfire Habitat protection and ecological management consistent with ACT and Commonwealth statutory obligations (NES Plan) Bushfire management (Planning for Bushfire Risk Mitigation General Code) associated environmental studies | Open space systems, buffer zones and road and infrastructure planning needs to align with protection of significant ecological and habitat values. Urban layout, design of the urban edge and management of adjoining open space areas must meet bushfire risk management requirements. | Assume all bushfire management outside the development boundary. Assume NES Plan is approved. | Increase quality and connectivity of PTWL habitat through interventions such as reusing suitable rocks from the development process which would also contribute to reducing bushfire fuel loads. Locate APZ on western edge to manage bushfire risk and protect habitat and ecological values, while minimising loss of developable land. | Ensuring effective integration between development and protection processes. Timeliness of decisions on APZ boundary. NES Plan decision. Ensuring that a high level and binding resolution is adopted. | Consultant options for Western Boundary to be considered by River Corridor Concept Plan Committee. Short term priority | River Corridor Concept Plan which will be dealing with the interface to the development. NES Plan – changes to the boundary and proposed uses at the boundary will need to be consistent with agreements with the Commonwealth. |

WESTERN BOUNDARY OPTIONS – MOLONGLO STAGE 2

River Park Concept Plan Technical Working Group Meeting

**12:00am-1:30pm, Wednesday 16 February 2011
ACTPLA Boardroom, Level 3 South Building**

(Lunch will be provided ***)***

ATTENDEES

| | |
|--------------------------------------|---------------------------------------|
| Neil Savery, ACTPLA | Fay Steward, TAMS |
| Chris Murray, ACTPLA | Jim Corrigan, TAMS |
| Trina McFarlane, ACTPLA | Stephen Hughes, TAMS |
| April McCabe, ACTPLA | Sharon Lane, TAMS |
| Stuart Mackenzie, ACTPLA | Helen McKeown, TAMS (for David Papps) |
| Ros Ransome, ACTPLA | Ivo Matesic, LDA |
| [REDACTED], SGS (consultant) | Khalid Ahmed, Treasury |
| [REDACTED], Eco Logical (consultant) | Nick Lhuede, ESA |

APOLGOGIES

| | |
|-----------------------|---------------------|
| George Tomlins, LAPS | David Papps, DECCEW |
| Mark Crossweller, ESA | |

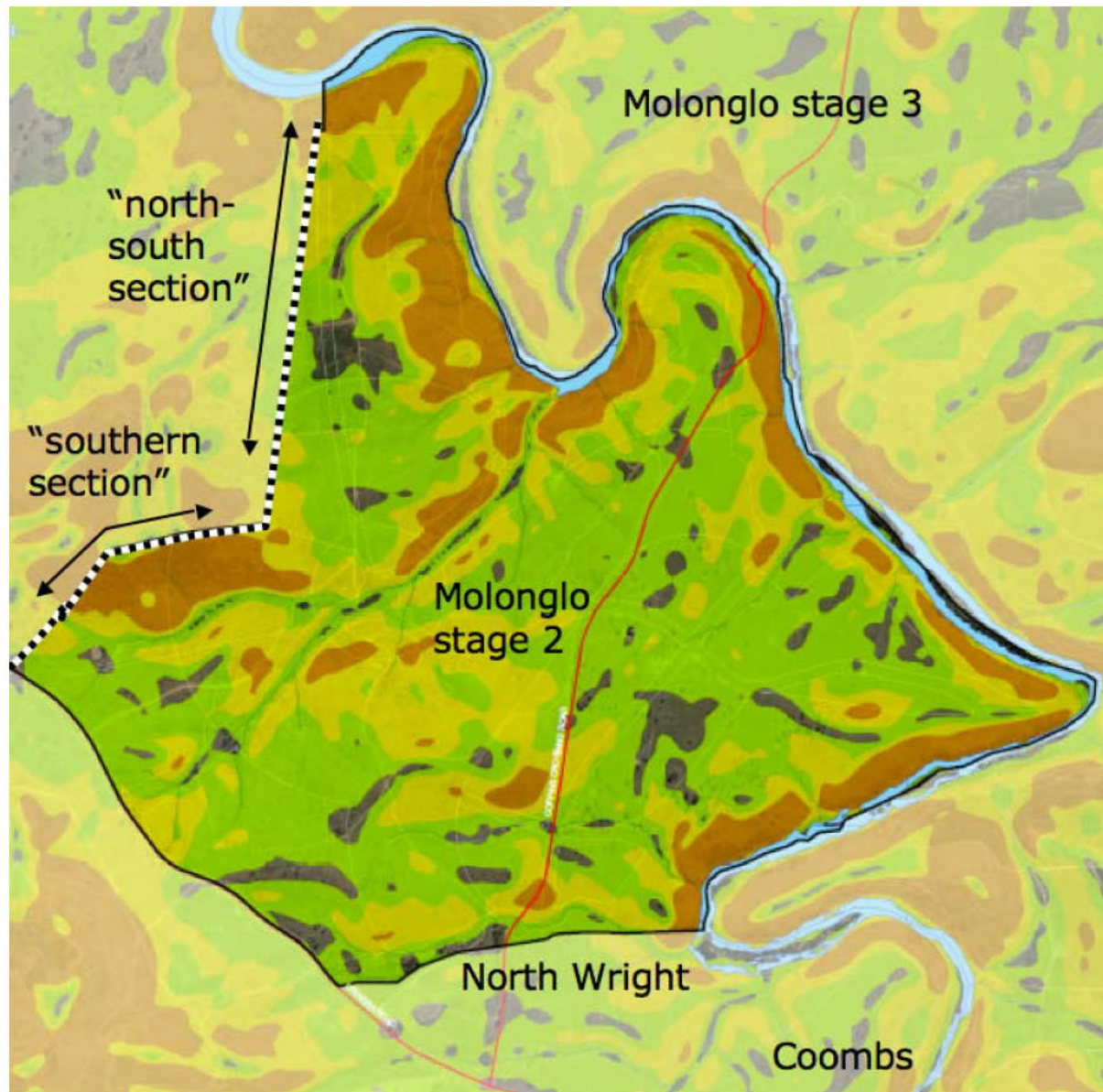
AGENDA

- 1. Welcome and introductions (Chris – 5 mins)**
- 2. Context and purpose (Trina – 5 mins)**
- 3. Overview of the 4 options ([REDACTED] – 20 mins)**
- 4. Discussion on the options (All – 10 mins)**
- 5. Selecting a preferred option (Fay – 45 mins)**
- 6. Next steps (Fay - 5 mins)**

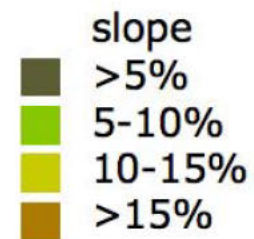


Molonglo 2

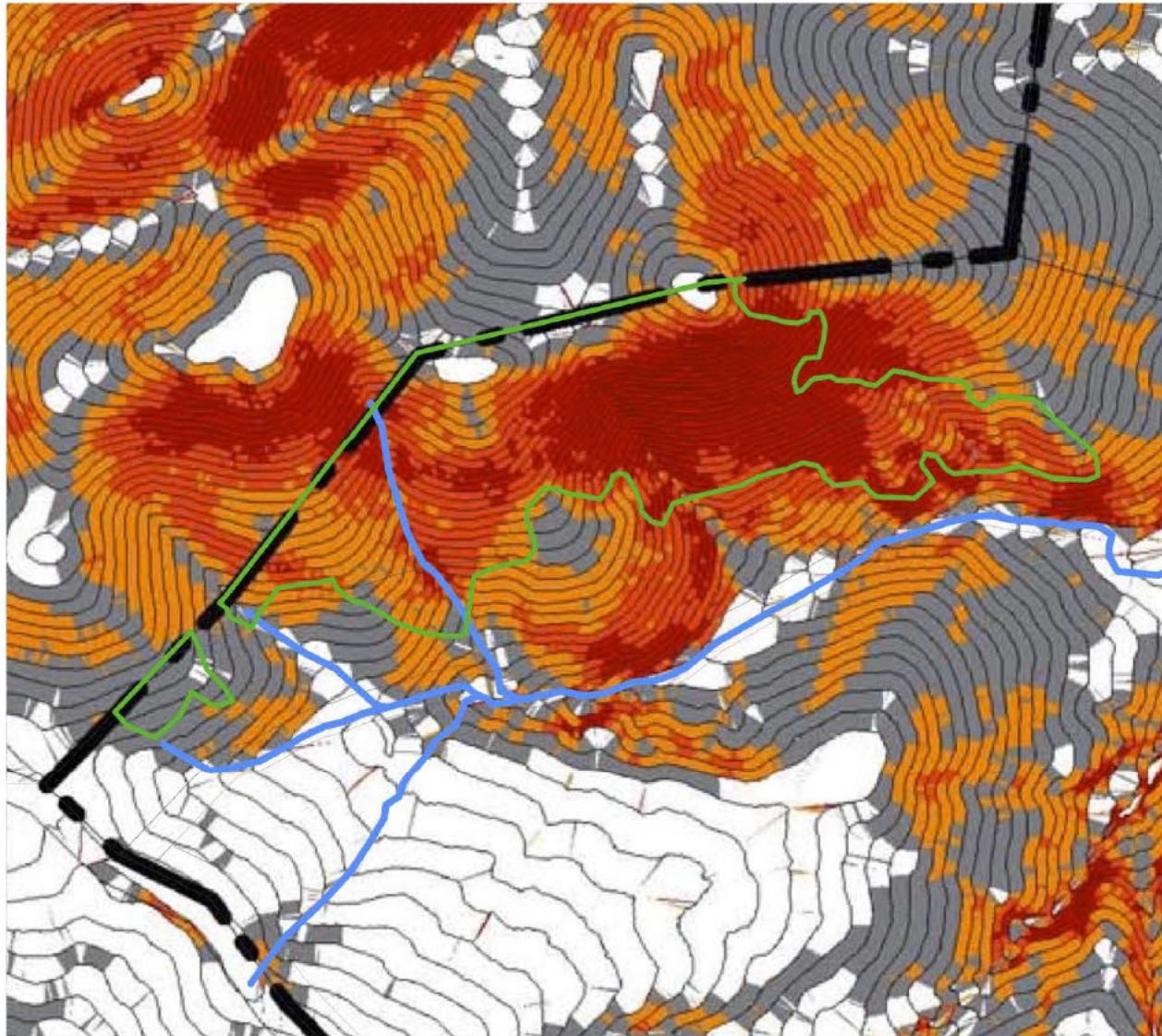
Western Boundary



Western boundary



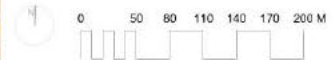
1km



Slopes

- less than 10%
- 10% - 15%
- 15% - 20%
- 20% - 25%
- +25%
- Tree Line

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W simpson + wilson
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Area of woodland



Planning Considerations

Spatial Plan

Excludes steeply sloping land from being developed
Goal is to retain a unique sense of place

Structure Plan for Molonglo and North Weston

The landscape setting and values of Molonglo and North Weston will be recognised and incorporated into the urban design of the area

Place Making Guide

Reinforce identity
Respond to Site Respond to the Environment

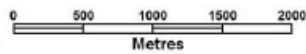
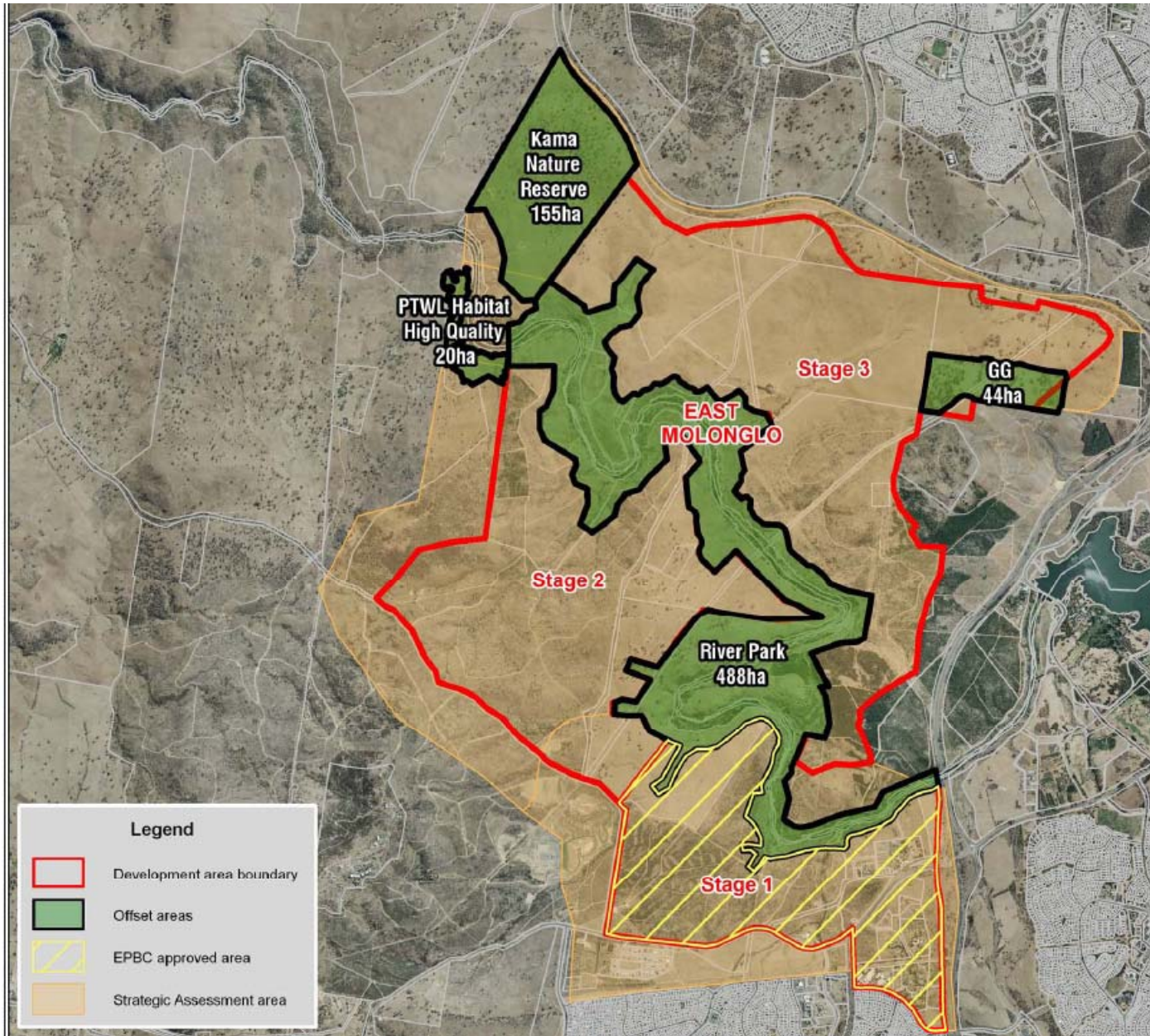
Development Considerations

Development Potential is lower because of steep slopes (6-10 dwellings/ha)

Additional Costs included in building on steep slopes and ongoing maintenance (garbage trucks etc)

However large sized blocks with community titling is possible

Visual Amenity for adjoining



Offset areas

From Digital Orthophoto Map based on March 2009 photography
<http://www.actpla.act.gov.au/actlc> DPMH - 16 Challis Street Dickson ACT 2601

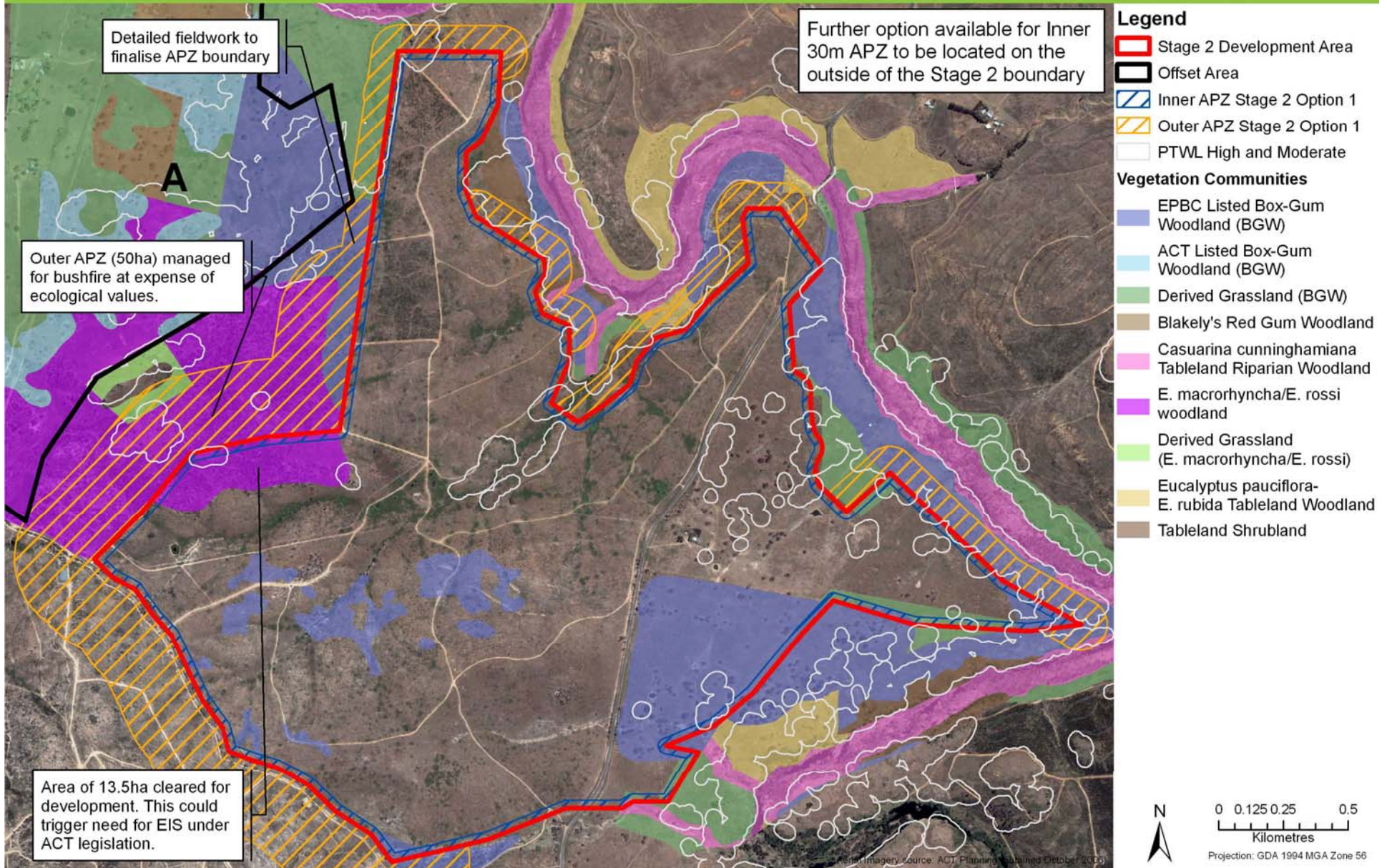
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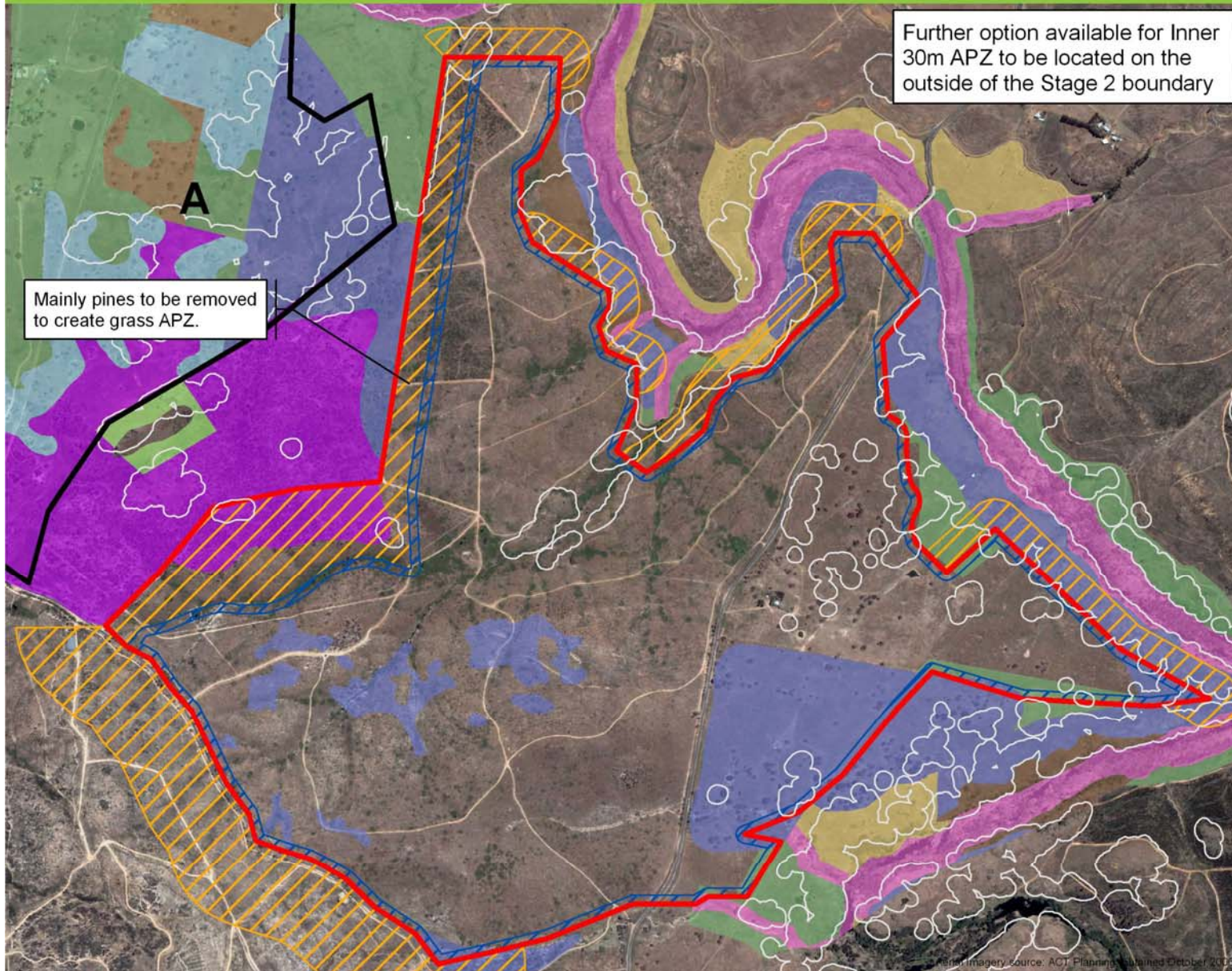
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Western Boundary Molonglo Stage 2 - Option 1 (Maximum Yield)



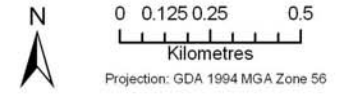
Western Boundary Molonglo Stage 2 - Option 2 (APZs Inside Stage 2 Boundary)



Further option available for Inner 30m APZ to be located on the outside of the Stage 2 boundary

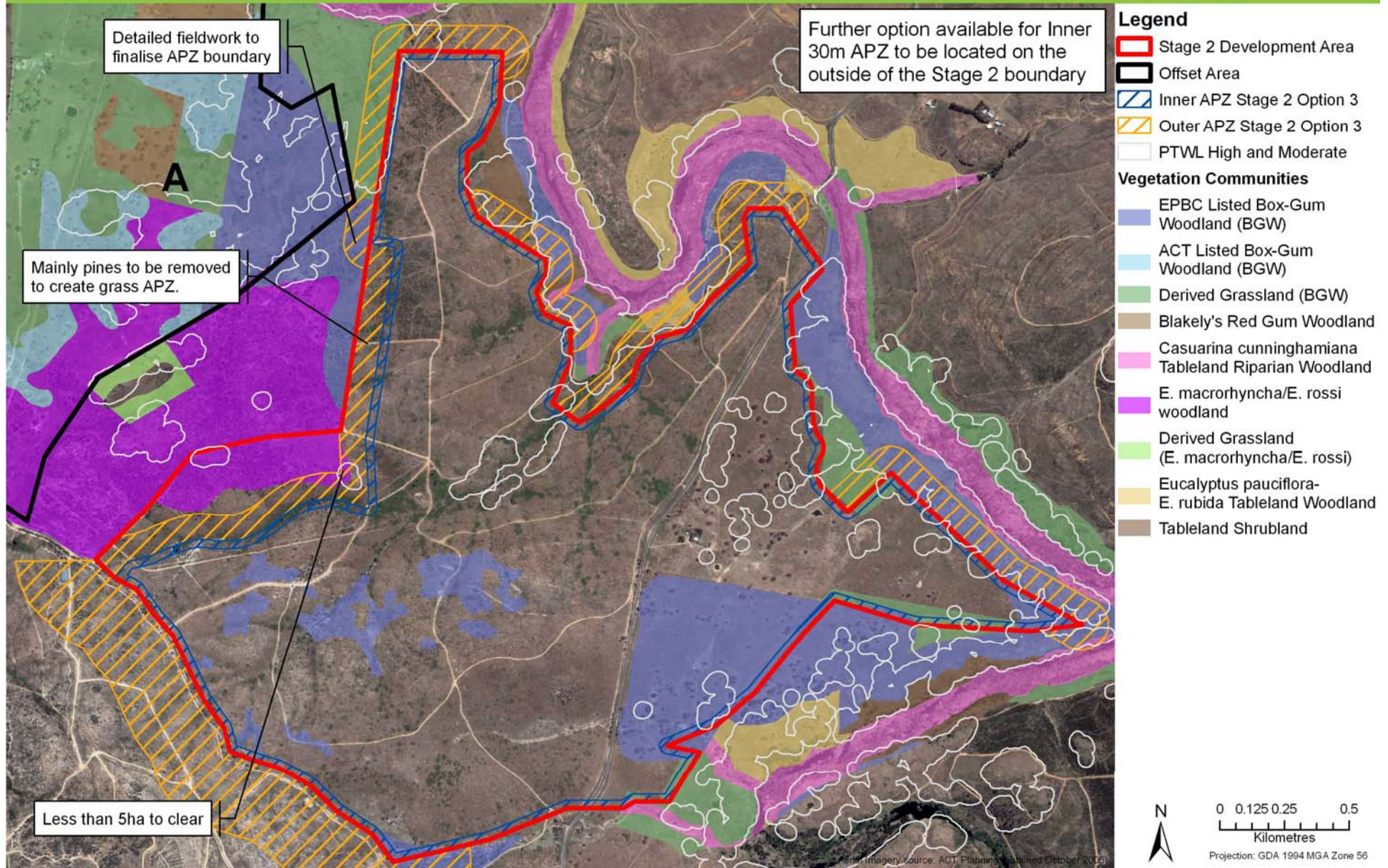
Mainly pines to be removed to create grass APZ.

- Legend**
- Stage 2 Development Area
 - Offset Area
 - Inner APZ Stage 2 Option 2
 - Outer APZ Stage 2 Option 2
 - PTWL High and Moderate
- Vegetation Communities**
- EPBC Listed Box-Gum Woodland (BGW)
 - ACT Listed Box-Gum Woodland (BGW)
 - Derived Grassland (BGW)
 - Blakely's Red Gum Woodland
 - Casuarina cunninghamiana Tableland Riparian Woodland
 - E. macrorhyncha/E. rossi woodland
 - Derived Grassland (E. macrorhyncha/E. rossi)
 - Eucalyptus pauciflora-E. rubida Tableland Woodland
 - Tableland Shrubland

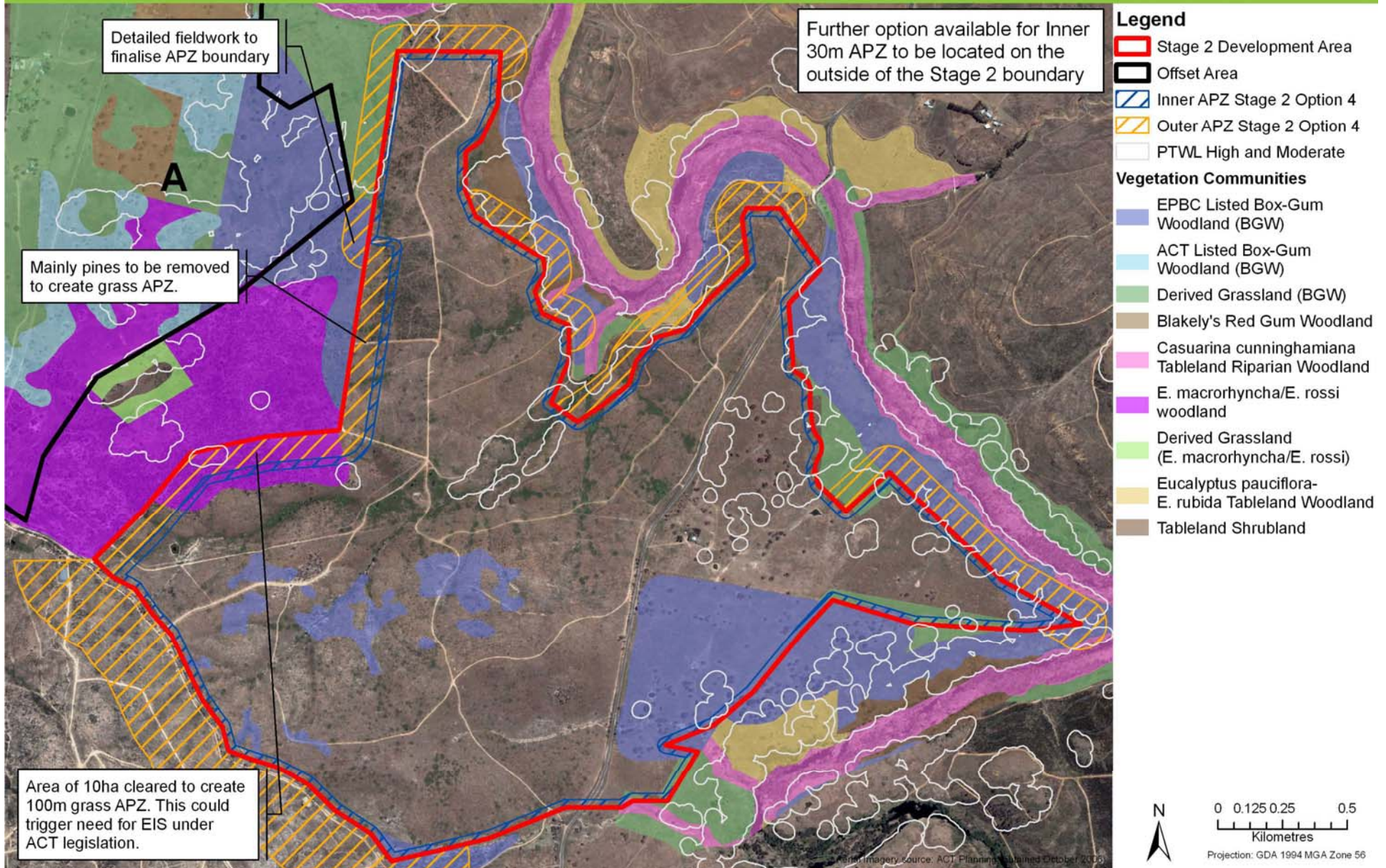


Imagery source: ACT Planning, obtained October 2016

Western Boundary Molonglo Stage 2 - Option 3 (Preferred Option)

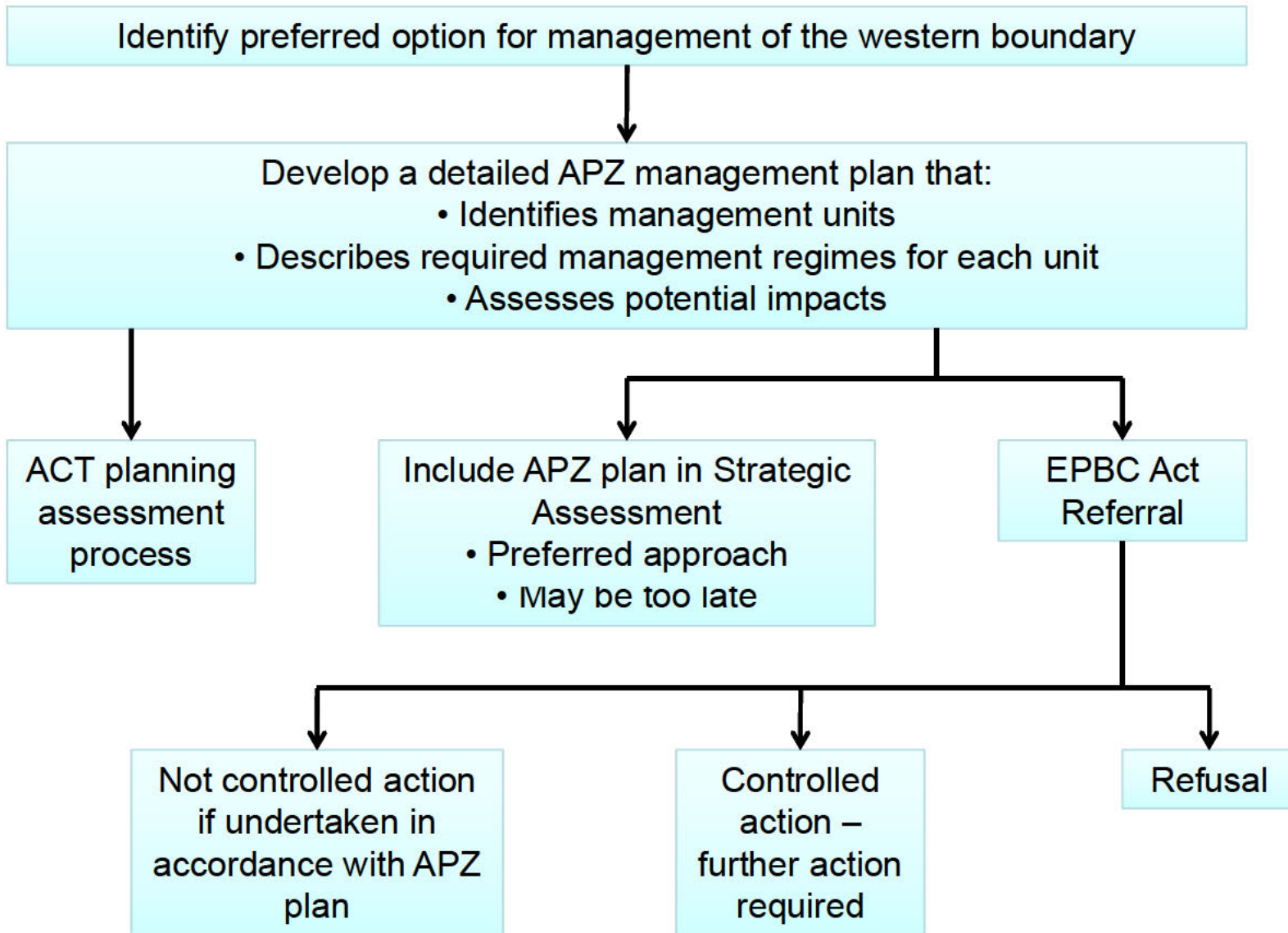


Western Boundary Molonglo Stage 2 - Option 4



| | Option 2 | Option 3 | Option 4 |
|--|----------|----------|----------|
| <i>Maximum theoretical \$ financial (loss of developable land, loss of revenues etc, not taking account of \$ value of amenity or alternative form of provision)</i> | xxxx | xxx | xx |
| <i>Roads and drainage</i> | + | + | ++ |
| <i>Visual amenity</i> | +++ | +++ | + |
| <i>Maintenance requirements and costs.</i> | + | + | + |
| <i>Recreation</i> | +++ | +++ | ++ |
| <i>Compliance process- (risk)</i> | +++ | +++ | ++ |

Planning / impact assessment process



WESTERN BOUNDARY OPTIONS – MOLONGLO STAGE 2

Technical Working Group Meeting
12:00am-1:30pm, Wednesday 16 February 2011

ACTPLA Boardroom, Level 3 South Building

ATTENDEES:

Neil Savery, ACTPLA (*left 12:45pm*)

Chris Murray, ACTPLA

Trina McFarlane, ACTPLA

April McCabe, ACTPLA

Stuart Mackenzie, ACTPLA (*arrived 12.30pm*)

Ivo Matesic, LDA

Adam Carmody, LDA

Nick Lhuede, ESA

Fay Steward, TAMS

Jim Corrigan, TAMS

Sharon Lane, TAMS

Helen McKeown, TAMS

Michael Mulvaney, TAMS

Khalid Ahmed, Treasury (*arrived 12.30pm*)

[REDACTED], SGS (consultant)

[REDACTED], Eco Logical (consultant)

APOLGOGIES:

George Tomlins, LAPS

Paul Lewis, LAPS

David Papps, DECCEW

Mark Crossweller, ESA

MEETING MINUTES

(*Meeting start time: 12.10pm*)

01. CONTEXT AND MEETING PURPOSE

- Chris Murray provided an introduction and overview of the meeting purpose and that the desired outcome for the meeting was for the technical working group to be able to provide a clear recommendation on the western boundary for consideration by the River Park Concept Plan Steering Group.
- Molonglo Stage 2 is part of the accelerated land release program. The preparation of the draft planning and design framework will guide the release of the first 3,000 dwellings and is due for completion by June 2011.
- [REDACTED] (ACTPLA consultant from SGS Economics and Planning) provided background to the site conditions (slope/topography and the areas of woodland) and an overview of the planning and development considerations contained within the options paper ("Options for Western Boundary" - as distributed prior to the meeting). It was noted that feedback from the group on the options paper was welcome and that the consultant team were able to follow up on specific issues that the technical working group members might have regarding the options paper.
- Ivo Matesic asked what the origin of the red line was. Trina McFarlane explained that it was the development boundary identified by the Structure Plan and the Future Urban Area boundary illustrated in the Territory Plan. It was also noted that the NCA also were involved in determining the location of the boundary line.
- The latest version of the NES Plan Offset Map (Feb 2011) was discussed. [REDACTED] explained that since the options paper for the western boundary (Jan 2011) was prepared the offset areas had changed and not been incorporated into the paper and its recommendations. Chris Murray acknowledged that the revised NES Plan Offset map has not been endorsed by the Commonwealth but

that the current investigations of the western boundary would be reconciled with any endorsed offset areas.

- [REDACTED] noted that the revised NES Plan Offset Map focuses on the protection of Pink-tailed Worm Lizard habitat and the previous Offset Area (known as "Area A") was in place for the Box Gum Woodland. Beth also noted that maps within the options paper identified the offset area A is not part of the offset maps (dated Feb 2011).

02. OVERVIEW OF THE OPTIONS

- [REDACTED] provided an overview of the 4 options as outlined in the paper and an understanding of the evolution of the different options. Beth noted that all the options have the inner APZ located 30 metres on the inside of the Future Urban Area boundary.
- **Option 1** - [REDACTED] explained that option 1 allowed for maximum yield. The outer APZ ranges from 100m to 300m along the boundary which is determined in consideration of the adjacent fuel loads and potential risk.
- **Option 2** - [REDACTED] explained that option 2 prioritised an ecological outcome, with both outer and inner APZ contained within the development boundary.
- Chris Murray provided some background in regards to the slope in the south-west of the development area. [REDACTED] explained that this area had been identified by the consultants as being a difficult proposition for development, due to the extent of the slope, the amount of vegetation, the ACT policy position to protect hills, ridges and buffers and the potential cost to develop and service the land.
- A question was asked as to whether the *E. rossi* woodland on the slope in the south-west of the development area was protected. It was discussed that although it is not a threatened species, it is remnant vegetation and the amount of woodland that would need to be cleared would breach the threshold and trigger the need for an EIS.
- **Option 3** - [REDACTED] explained that option 3 was the SGS consultant team's preferred option as it avoids a lot of environmental impacts; APZ's are easier to manage; is a better fit with the topography of the site and the east-west drainage line; provides open space opportunities; and is consistent with ACT policy position relating to the visual amenity of hills, ridges and buffers. It was noted that the new NES Plan offset map may affect the options on the northern side of the peninsula.
- Nick Lhuede noted that it would be difficult to manage the outer APZ on steep land and would be managed via manual work or grazing. Nick also asked how much land could be developed on eastern side of the peninsula considering the land is steep, and how viable would development of this area be?
- Michael Mulvaney asked what the implication of frequent burning on the Pink-Tailed Worm Lizard habitat was. It was noted that this was being considered in the context of the River Park Concept Plan and that at this stage the Steering Committee was comfortable that this can be managed.
- Adam Carmody asked whether there was scope to adjust the outer APZ in the southern most corner of the development area where there appears to be no vegetation. [REDACTED] commented that there was scope for this area to be

altered after more detailed work but the current option follows the drainage line and is the logical base case.

- **Option 4** - [REDACTED] explained that option 4 required clearing of vegetation on the south-west slope and therefore the risk is that it would trigger the requirement for an EIS.

03. DISCUSSION ON THE OPTIONS

- Jim Corrigan suggested a 'hybrid' option which combined the APZ recommendation for the southern section outlined in Option 1 with the APZ recommendation of Option 4. Jim noted that if Option 4 triggered the EIS requirement anyway, why not investigate the possibility of the APZ's being outside the development boundary in the southern section of the western boundary.
- Fay Steward asked whether there was any major issues - 'showstoppers', and that the technical working group needs to concentrate on the major issues relating to the western boundary.

South-west Slope area

- It was noted that current estimates are that the south-west slope area of the Stage 2 development area could accommodate approximately 400-500 people, therefore there is an opportunity that needs to be analysed. However, Beth Medway noted that there should also be consideration for the reflected value of maintaining the vegetation and the visual amenity benefits that offers the surrounding lots.
- Ivo Matesic commented that the red line (Future Urban Area) is an established public policy position and if the south-west slope is excluded from development, there must be a robust justification for that decision.
- Fay Steward asked about the market demand for the product that would be developed on the south-west slope area. Ivo Matesic commented that due to the current proposition of smaller housing types and lots proposed for Molonglo Stage 2, it would be good to have some detached dwellings on larger lots with excellent views which might attract a premium.
- [REDACTED] noted that the draft PDF design of Molonglo Stage 2 could build in flexibility to allow access into the south-west slope area at a later stage. [REDACTED] also provided a brief explanation assumptions/sensitivities used to provide the broad costs in relation to the south-west slope within the options paper.
- Khalid Ahmed commented that Treasury would look at the SGS economic analysis differently. Treasury's focus is on the revenue stream.
- Jim Corrigan suggested that there is a need to do some economic testing first to decide whether Option 1 is worth pursuing. What is the cost/benefit of developing the south-west slope and is it worth it?
- Chris Murray and Fay Steward both commented that the biggest imperative was population/yield and Chris also noted that the counterbalance for this was the environmental concerns in relation to its value and the potential clearing of vegetation to accommodate development. Fay also noted that maximising yield as also important in regards to affordable housing.

- TAMS noted that this area is a possible breeding site for threatened birds based on some research that ANU did on their own land. It was noted that it would be useful to the Steering Committee to understand why specific issues were significant and that more information as to the environmental value of the south-west slope would be needed.
- The Steering Committee's overall preference is for Option 1. It is acknowledged that there are high risks associated with the EIS and EPBS clearance that would be required. This option is subject to the further economic costing for development of the south-west slope area.

04. SUMMARY AND NEXT STEPS

- Fay Steward provided a summary of the meeting discussion, the short term decisions needed and that further investigations needs to be done to enable the Steering Committee to agree on a position in relation to development opportunities for the south-west slope.
- Fay Steward noted that the further investigations are about achieving an affordable, social outcome and that the development of the south-west slope must be a strategic consideration within the context of Canberra and not just the localised context.
- The competing objectives were discussed. Sharon Lane commented that it seemed the economic imperatives of developing this land were driving the decisions and not the environmental imperatives. Fay Steward noted that it was critical that there be multiple objectives to assess the issues and that advice must be based on understanding the opportunity costs of developing this portion of land as well as considering the associated economic, environmental and development costs.
- Need to respect the community views, but at times government needs to make hard decisions to ensure the broader government objectives are being achieved.
- Recognition that there is an established process under legislation and that this process has clear gateways to inform the government along the way. It was acknowledged that there are three rigorous processes - EPBC clearances, EIS and Territory Plan variation – which should be considered along with a need to understand the working environment, assumptions, risks and opportunities that factor into decisions made.
- The evidence base behind the decision on the south-west slope area is important and will need to seek funding for further investigations and scope out the work required.
- Confirmation that the time required to work through the decision regarding development potential of the south-west slope will not affect the release of the first 3,000 dwellings of Molonglo Stage 2. ACTPLA to provide this information to the Steering Committee for its next meeting.

KEY DISCUSSION POINTS:

- Pursue Option 1 and consider what the cost implications are if we don't develop the south-west slope area.
- There are competing objectives in relation to the development of the south-west slope area but the Steering Committee and technical working group need to assess the options with broad multiple objectives in mind.
- The south-west slope area and its significance need to be considered within the context of the ACT and not just in the context of Stage 2. Decisions need to be informed by options that are backed by science, rigour and strong principles.

RECOMMENDATIONS:

- i. Option 1, as outlined in the "Options for Western Boundary" Discussion Paper is the preferred option, noting that this is subject to further investigation, regarding the EPBC clearances, EIS and Territory Plan variation processes.
- ii. ACTPLA to advise SGS Economics and Planning to proceed with the Draft PDF based on Option 1.
- iii. ACTPLA to proceed with the inclusion of the south-west slope area within the Draft PDF, subject to feasibility investigations.

ACTIONS:

- i. Investigate the feasibility of development on the south-west slope area.

**SGS Consultant
Team**

(Meeting close: 1.30pm)

Aloisi, Angelina

From: McCabe, April
Sent: Tuesday, 22 February 2011 9:11 AM
To: Murray, Chris; McFarlane, Trina
Subject: Recommendations to Steering Committee - Technical Working Group Minutes - Western Boundary

Chris and Trina,
Based on our discussion yesterday afternoon, below is the revised recommendations and actions for the Steering Group to consider
Just wanted to run them by you both prior to going out to ensure that you are comfortable with the wording and that is what we want to be recommending to FAy's committee.

Thanks

April

KEY DISCUSSION POINTS:

- Consider a 'hybrid' option which combine Option 1 and Option 4.
- Pursue Option 1 and consider what the cost implications are if we don't develop the south-west slope area.
- There are competing objectives in relation to the development of the south-west slope area but the Steering Committee and technical working group need to assess the options with broad multiple objectives in mind.
- The south-west slope area and its significance need to be considered within the context of the ACT and not just in the context of Stage 2. Decisions need to be informed by options that are backed by science, rigour and strong principles.

RECOMMENDATIONS:

- i. Option 1, as outlined in the "Options for Western Boundary" Discussion Paper is the preferred option, noting that this is subject to further investigation, regarding the EPBC clearances, EIS and Territory Plan variation processes.
- ii. ACTPLA to advise SGS Economics and Planning to proceed with the Draft PDF based on Option 1.
- iii. ACTPLA to proceed with the inclusion of the south-west area within the Draft PDF, subject to feasibility investigation.

ACTIONS:

- i. Investigate the feasibility of development on the south-west slope.
- ii. Provide further broad costing on the 'hybrid' option.

SGS Consultant Team

Aloisi, Angelina

From: McFarlane, Trina
Sent: Wednesday, 23 February 2011 8:49 AM
To: [REDACTED]
Cc: [REDACTED]; McCabe, April
Subject: 20110215 - Technical Working Group Minutes - Western Boundary - DRAFT
Attachments: 20110216 - DRAFT Minutes - Western Boundary Options for Molonglo Stage 2 - Technical Working Group.doc

Hi [REDACTED]

Attached are draft minutes from the technical working group meeting on 16 Feb on the western boundary. These draft minutes are being circulated to attendees to confirm.

Please note the additional work required by SGS.

The next steering committee meeting has now been confirmed for this Friday 25 Feb, so we would need your input for that meeting.

thanks
Trina

From: McCabe, April
Sent: Tuesday, 22 February 2011 1:46 PM
To: Murray, Chris
Cc: McFarlane, Trina
Subject: 20110215 - Technical Working Group Minutes - Western Boundary - DRAFT

Chris,
Attached is the draft minutes and recommendations from the joint meeting of the technical working group and steering committee on the options for the western boundary for circulation to Fay and then to the wider membership.

Also, there was a request for the steering group to consider these recommendations at its next meeting, which as we understand it, was scheduled at their first meeting for Friday, 25 Feb. However, we have not received confirmation of the meeting for Friday as yet. It is important for the Molonglo Stage 2 Draft PDF that the steering committee consider the issues and provide a clear direction soon.

Thanks
April

MOLONGLO STAGE DRAFT PLANNING AND DESIGN FRAMEWORK PROJECT
Establishment of Taskforce
February 2011

BACKGROUND

Need for a taskforce?

There is the need to confront complex cross-agency and diverse, if not competing, aspirations in planning for Molonglo Stage 2 as part of the Draft Planning and Design Framework (draft PDF) project.

There is also the added complexity with compressed decision timeframes and the unusual physical constraints involve significant areas of sloping terrain.

There is a need for a more direct way to successfully deliver the project in its final five months to meet the accelerated land release program; one that confidently secures the required decisions in a timely manner during the planning process.

If the programme is to be met, there is a need to remove barriers to streamline the decision making process so that ACTPLA can progress work knowing that key decisions are 'locked in'.

Role of taskforce?

To provide high level decision-making resolving critical cross-agency issues to keep the project on track for completion to meet the accelerated land release program.

Current situation & timing

The draft PDF project must be finished by June 2011 to meet the land release program and enable the completion of the planning requirements for the first land releases (refer to figure below).

The draft PDF has reached the stage where physical planning decisions (whole-of-government) will need to be made that involve points of difference with existing policy.

Decisions on the key issues are required in the next 1-3 months.

KEY ISSUES AND CRITICAL DECISIONS

A number of key issues/critical decisions are currently foreseen. Others may emerge over the balance of the project. These key planning and policy issues are as follows:

Timing of reporting to Cabinet

The draft PDF will be completed at the end of June 2011, with important planning requirements (IPRs) for the first 3,000 dwellings. A Cabinet process has not been factored into this program.

A decision needs to be made if a Cabinet process is required to endorse the IPRs at the end of the draft PDF project, or if a Cabinet process is only required when the final PDF project is completed.

Confirmation of urban form (yield/housing mix, housing occupancy rates)

The target for Molonglo Valley overall was set at 55,000-60,000 through the structure planning work, of which 18,000 is to be in stage 2 (noting there is already a shortfall in the target for stage 1 – Coombs and Wright).

ACTPLA is working to an 18,000 population target for Molonglo stage 2. This is seen as a firm planning/target population figure and clearly the proposed dwelling mix would need to support it. Maintaining the population target for the whole of Molonglo and for stage 2 is therefore a key priority, and this is particularly important due to the shortage of greenfields land in the ACT. But, at the same time, we are conscious there is also a need to maintain yield and the challenges of ensuring a good mix of housing.

Confirmation of urban structure (arterial roads and group centre)

A decision on the location of the group centre and alignment of the arterial roads is required early as this establishes the overall framework for stage 2 and will enable critical infrastructure projects to be progressed.

There are two viable options available for the location of the group centre - the location indicated in the Structure Plan and a more northerly option. The preference is for the northern site, subject to further analysis of costs.

If there is a large margin in costs for earthworks, the southern option may be investigated further considering revenues and other issues and market advice. Connectivity and extent and costs of bulk earthworks are important considerations.

The arterial road structure being proposed can accommodate either option, and the IPRs are required for the first land release (3,000 dwellings), so there is flexibility if a decision is not made during the draft PDF project.

Resolution of design standards for roads (whole of government position required)

Site characteristics of stage 2, with the steep topography compared to most other parts of Canberra and with land at a premium, make it difficult to meet the design standards for roads.

A more innovative approach to road standards is required to deliver the outcomes required and may require high level resolution.

The issues that require a new approach include:

- Challenging the need for main roads with on-road cycle lanes with an alternative network and experience for cyclists and pedestrians
- Road planning for genuine shared spaces
- Achieving maximum 5% grades for pedestrians and cyclists on steep land

- Narrowing road widths to minimise cut and fill
- Considering one-way streets for shorter distances.

Defining the western boundary (bushfire and ecological management)

Resolution of the western boundary is critical to the Molonglo Stage 2 Draft Planning and Design Framework project to define the urban edge and the land available for development, and to meet the accelerated land release program.

The options for the Molonglo Stage 2 western boundary alignment and treatment paper prepared by SGS/Eco Logical Australia examines the environmental, bushfire, and planning considerations around the issue, and presents 4 options.

The issues considered in defining the western boundary alignment/treatment are:

- Bushfire risk management
- Optimising land development opportunities (housing supply and returns to government)
- Retention of vegetation and natural resource management
- Ongoing maintenance, servicing and other public costs
- Recreation, visual quality and amenity for future Molonglo residents
- Time/cost and risk management of regulatory processes.

A decision may need to be made, based on the recommendations of the River Park Concept Plan Steering Committee. This decision may, in turn, initiate a round of complex referral and environmental assessment processes.

River Park Concept Plan

Cabinet supported the preparation of a RPCP which is currently being prepared by ACTPLA under the auspices of a steering group. Aspects of the plan may require high level resolution particularly in relation to urban interface arrangements.

Stormwater Management

A current study being undertaken by ACTPLA will determine a preferred arrangement for the management of stormwater. The current indication is that there will be off stream management structures (ponds). This issue may require a key decision as part of confirming the planning arrangements for the Stage 2 urban area and the River Park Concept Plan.

Molonglo Stage 2 accelerated land release process and draft PDF project

