

Application for Planning Approval

Land Use Planning and Approvals Act 1993

APPLICATION NO.

SA2021/042

LOCATION OF AFFECTED AREA

BACK TEA TREE ROAD (CT 121954/1), 39 ROSEWOOD LANE, 40 ROSEWOOD LANE & 41 ROSEWOOD LANE, TEA TREE

DESCRIPTION OF DEVELOPMENT PROPOSAL

SUBDIVISION (11 LOTS). CONSTRUCTION OF ROAD. CONSTRUCTION OF ACCESSES OVER 39, 40 & 41 ROSEWOOD LANE. VEGETATION CLEARANCE.

A COPY OF THE DEVELOPMENT APPLICATION MAY BE VIEWED AT www.brighton.tas.gov.au AND AT THE COUNCIL OFFICES, 1 TIVOLI ROAD, OLD BEACH, BETWEEN 8:15 A.M. AND 4:45 P.M, MONDAY TO FRIDAY OR VIA THE QR CODE BELOW. ANY PERSON MAY MAKE WRITTEN REPRESENTATIONS IN ACCORDANCE WITH S.57(5) OF THE LAND USE PLANNING AND APPROVALS ACT 1993 CONCERNING THIS APPLICATION UNTIL 4:45 P.M. ON **07/11/2024**. ADDRESSED TO THE CHIEF EXECUTIVE OFFICER AT 1 TIVOLI ROAD, OLD BEACH, 7017 OR BY EMAIL AT <u>development@brighton.tas.gov.au</u>. REPRESENTATIONS SHOULD INCLUDE A DAYTIME TELEPHONE NUMBER TO ALLOW COUNCIL OFFICERS TO DISCUSS, IF NECESSARY, ANY MATTERS RAISED.

GILLIAN BROWNE Acting Chief Executive Officer



















BACK TEA TREE ROAD, TEA TREE Landscape and Visual Impact Assessment









MAY 2023



For enquiries regarding this report please contact:

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Inspiring Place 23-W, 23-15 Back Tea Tree Road, Tea Tree Version 01 - May 2023 Equilavent terms:

visual impact = scenic landscape impact visual values = scenic landscape values

List of abbreviations used: DEM – Digital Elevation Model DSM – Digital Surfaces Model LCT - Landscape Character Type TFS – Tasmanian Fire Service BHMP - Bushfire Hazard Management Plan

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1 / Introduction

1.1 The need for a visual values impact analysis

Southern Waste Management proposes to build an 11 lot subdivision within the Landscape Conservation zone in the area of Jews Hill off Back Tea Tree Road. Tea Tree (Map 1).

The Tasmanian Planning Scheme -Brighton requires a visual impact statement because of the zoning and the requirement for each lot to protect and conserve landscape values (Map 2)¹.

The site has three codes apply: C7 Natural Assets Code C7.0, Bushfire-prone Areas Code C13.0, and Landslip Hazard C15.

Inspiring Place have been engaged by D.G. Potter to assess the visual impact of the proposal and how the proposal might comply with the performance criteria in Clause 22.5.1 P1 (a) - (e) as well as consider the Bushfire Hazard Management Plan and Natural Values Assessment prepared by North Barker Ecosystem Services (June 2022).

This report assesses the proposal's impact on its landscape setting and recommends mitigation approaches to ensure landscape values are protected and conserved.



Map 1. Study area with Brighton and Pontville townships to west (Source: The LIST)

1.2 Scope and process

This investigation focuses on the proposal to create an eleven lot subdivision at Back Tea Tree Road. (Map 2). The scope of this study is to:

- describe the setting and visual character of the study site;
- assess the sensitivity of the site's landscape character to the impacts of constructing the proposed sub-division²;
- recommend options for mitigating the visual impacts that arise; and
- make comment as to the acceptability of the proposed change.

In Tasmania, the assessment of visual impact is grounded in the work of the Forestry Commission in the 1990s³ and later work by landscape architects in the evaluation of proposed developments in nonforestry settings⁴. The methods used herein follow those precedents to evaluate the visual character and potential visual impacts of the new dwelling and associated works.

Evaluation of the visual impact of the proposed dwelling has included:

- discussions with D.G. Potter about the design and siting of the proposed layout and related infrastructure;
- a desktop review of the proposed sub-division plans and reporting provided by D.G. Potter;
- a review of the Tasmanian Planning Scheme -Brighton Scenic Landscape Overlay;
- a review of reports by others⁵;
- on ground inspection and photography by Inspiring Place and photography; and
- a review of a seen view analysis created by Esk Mapping for the purpose of this investigation.

Note weather patterns can affect visibility but are considered too transient for this assessment.

1. Tasmanian Planning Scheme - Brighton, Tasmanian Planning Commission, www.iplan.tas.gov.au 2. Landscape character is the overall impression created by the unique combination of visual features in the landscape. Factors that combine to create landscape character include, amongst other things, the configuration of the land, the pattern and colours of the vegetation, soil and rock outcrops and the scale of individual elements. 3. Forestry Commission Tasmania (undated, c1990). "A Manual for Forest Landscape Management." Forestry Commission Tasmania, Hobart

4. For instance, Inspiring Place and Bruce Chetwynd 2011. "Wellington Park Landscape and Visual Character Quality Assessment" unpublished report to the Wellington Park Management Trust

-1. Introduction



Map 2. Study area outlined showing both access roads with Tasmanian Planning Scheme - Brighton zones (Source: The List).

2 / Existing situation

2.1 The landscape setting

The property is on the northern hills of the Meehan Range rising from 90m near Back Tea Tree Road to 305 m above sea level on Jews Hill. The land gently rises to moderately sloped and consists of cleared land, native grassland and woodland. The vegetation is a reflection of the relatively low rainfall, with averal annual precipitation of around 500mm at Campania 10 km north.



Photograph 1. Outlook from Back Tea Tree Road near Glen Rose Drive subdivision and to the immediate east of the study site (Source: Google Maps)

Existing residences along Back Tea Tree Road have intimate views of the valley as well as views to distant hills. Substantial parts of the valley and hills have been cleared, rendering the remaining isolated trees and remnant patches of vegetation important to the visual appeal as well as being natural assets in the landscape (Photograph 1).

The proposed sub-division has a predominantly east aspect with some northern aspects. The north facing, drier slopes are predominantly Lowland grassland complex (GCL) and there is some Lowland *Themeda triandra* grassland (GTL) on more protected aspects on the hill⁶. There is *Eucalytpus viminalis* grassy forest and woodland (DVG) as well as *Eucalyptus amygdalina* forest and woodland on sandstone (DAS) and *Bursaria-Acacia* woodland (NBA).

A large percentage of the property's slopes are classified Agricultural land (FAG; Photograph 2) but

significant parts are mapped Priority vegetation area in the planning scheme overlay.

Outside of the property the landscape is a mix of uses with the subdivision of Honeywood (postcode 7017) to the southwest (Photograph 3) and township of Brighton (7030) to the north. There is pivot irrigation and other agricultural land uses, including horse agistment, in the Back Tea Tree Road valley.

The paucity of vegetation on farmland to the north and east mean clear views to and from the site. The slopes and higher points on the Meehan Range have higher landscape values, as evidenced by the Natural Assets Code mapping showing that a significant amount of the site has priority vegetation⁷.

Macro-features, such as the entirety of the ridgeline, the wooded slopes of Jews Hill and the open agricultural valley, influence the visibility of the site and the level of sensitivity to change.

In addition to the macro controls on the setting, the area is influenced by varied ephemeral conditions that add atmosphere to the experience of the landscape including:

- changing lighting through the day and often stunning lighting effects at sunrise or backlighting at sunset; and
- patterns of cloud and occasional fog.

This report is based on fieldwork and GIS seen views that assume clear conditions.

Finally, the micro-scenery of the site strongly influences the scenic quality of the landscape. Isolated mature eucalypts in the cleared valley floor and patches of *Themeda* grassland and pockets of remnant woodland create granularity and interest to the site.

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^{6.} The List, 2023. 'TasVeg 4.0'. Accessed on March 28th 2023. 7. Tasmanian Planning Scheme - Brighton, 2023. 'Natural Assets Code'



Photograph 2. Landscape context of site showing the approximate location of the cadastral parcel. Rosewood Lane is shown in orange. Image looking southeast in the direction of Dulcot and Pittwater. (Source: Google Earth)



Photograph 3 Landscape context looking northeast from the suburb of Honeywell in the direction of Campania (Source: Google Earth)

Existing situation

2.2 Visual character

Landscape character is created by a combination of visual features in the landscape including the configuration of the land, the pattern and colour of the vegetation, soil and rock and the scale of the individual parts of the landscape. The accepted Statewide analysis of Landscape Character Types (LCT)⁸ places the study area in the South-East Coastal Hills LCT (Map 3) and a 'frame of reference' for the LCT establishes guidelines for evaluating scenic quality within such a unit.

In the case of the sub-division at Back Tea Tree Road, scenic quality is rated **moderate** based on its rounded hilltops and ridges, the regular steepness of its slopes, the moderately defined valley, the slight variation in pattern and breadth of vegetation, and the presence of Tea Tree Rivulet (Table 1).



Map 3 Landscape Character Types (LCT) Tasmania (Source: Forestry Commission)

8. Forestry Commission Tasmania c1990 (updated 2006) A manual for forest landscape management, Hobart.

- Existing situation

6 South-east Coastal Hills Landscape Character Type

	HIGH SCENIC QUALITY	MODERATE	LOW			
	 Distinctive isolated hills or small peaks. Very steep hills and ridges (greater than 50% slope). Deep lateral valleys on slopes and deeply incised V-shaped valleys with dramatic spatial definition. Rock outcrops and cliff faces of large to moderate size and strong colour contrast. 	 Rounded hills and ridges. Regular slopes (10% to 50%) Valleys with moderate spatial definition. Rock outcrops and cliff faces of small size, regular shape and low colour contrast. 	 Extensive flat to undulating areas (less than 10% slope) with little dissection or spatial definition. 			
VEGETATION	 Strongly defined patterns and texture due to different vegetation age classes, fire history and species type. In forest areas, combinations of openings of different sizes and shapes with irregular edges. Significant areas of dramatic seasonal colour (e.g. silver wattle). Stands of unusually tall eucalypts. 	 Forest canopy varying slightly in texture and with subdued pattern due to changes in age classes, distribution and species type. Seasonal colour muted. 	• Extensive areas of similar vegetation without discernible pattern.			
WATERFORM	• Major streams and rivers. All lakes.	• Small streams and lagoons, often with slight flow in summer.	No waterforms.			

Table 1. Landscape Character Type (LCT) – Frame of Reference – Scenic Quality Classification Criteria

3 / The proposed subdivision and associated works

- The proposed subdivision and associated works

3.1 The proposal extent and stages

The proposed works consist of the following:

- eleven lot low density subdivision (Drawing 1);
- associated access road and staged turning areas (for domestic and firefighting vehicles);
- associated services including sub-surface trenches; and
- BHMA fuel reduction / vegetation thinning.⁸

Access to lots 1-9 is from an unnamed road 900m off Back Tea Tree Road. Access to lots 10 and 11 is from Rosewood Lane, also off Back Tea Tree Road. The access road is to be a dark bitumen surface with concrete drive thresholds to each lot. Services such as telecommunications and power will be supplied underground.

On the sloped portions of the site the typical building will adhere to the 8m maximum height envelope from natural groundline.



Drawing 1: Site plan with contours (Source: DGJ Potter March 27th, 2023)

8. North Barker Ecosystem Services, Junel 2022. 'Back Tea Tree Road, Tea Tree - Proposed subdivision Bushfire Report and Hazard Manaement Plan', prepared for Southern Waste Management.

The proposed subdivision and associated works

3.2 Bushfire Hazard Management and Vegetation

To meet BHM requirements for the proposed lots for a BAL19 solution, as noted in Bushfire Report and Hazard Management Plan⁹, the Hazard Managment Area (HMA) must be maintained in a low fuel state by:

- keeping ground cover vegetation less than 100mm tall; and
- pruning low-hanging tree branches (<2m from the ground) to provide vertical separation between fuel layers.

It is recommended that the following be applied in the HMA:

- gardens exclude shrubs from within 5 m of the building;
- all aspects to be mineral surface to a minimum of 0.5m from the building;
- no trees or shrubs within 10 m of any building to exceed the height of the gutters unless leaf shedding gauze is fitted;
- minimise the storage of flammable materials such as firewood on site;
- maintain vegetation clearance around driveways and internal roads and water supply points;
- use low-flammability plant species for landscaping purposes where possible; and
- clear out accumulated leaf and other debris from roof gutters and other debris accumulation points.

It is not necessary to remove all vegetation from the nominated Hazard Management Areas (Drawings 2 and 3). Trees and shrubs may provide protection from wind borne embers and radiant heat if the fuel loads noted above are appropriately managed.

Proposed roads are typically required to have 2m

horizontal clearance either side and required to maintain 4m vertical clearance for fire vehicle access. The Bushfire Report report determined that private property access however, due to the provision of targeted fire hydrants, will not require particular vegetation clearance setbacks.⁷

The HMA shows how much vegetation will need to be removed to facilitate the development and the extent to which buildings on lots within the development will be visible from public places; the latter of which is addressed in section 4.2.

Drawing 3 is an indicative zoned tree removal diagram to allow construction of the carrageway clearances, required by the BHMP, and private driveway apron access points provided. Within the lots, each building design will be unique albeit following base design guidelines. It is difficult to predict future building footprints and resultant clearing. Clearing pattern will affect the visibility of building from public places.

This report examines suggested maximum building areas as outlined in the Bushfire Hazard Management areas identified in the North Barker report.

^{9.} North Barker Ecosystem Services, Junel 2022. 'Back Tea Tree Road, Tea Tree - Proposed subdivision Bushfire Report and Hazard Manaement Plan', prepared for Southern Waste Management 10. Ibid.





Drawing 3 Site Plan with building envelopes, boundaries, main vegetation type indicated (Source: North Barker June, 2022)

4 / Understanding the potential visual/ scenic landscape impact

Understanding the potential visual impact

4.1 Factors influencing potential visual impact

4.1.1 Landscape Conservation Zone Criteria

The Landscape Conservation Zone provides a clear priority for the protection of landscape values and for compatible use or development, with residential use being permitted only if for a home-based business or a single dwelling¹². All other use is Discretionary with the objective being that the location, scale and extent of a use listed as Discretionary is compatible with landscape values.

The purpose of the Landscape Conservation Zone is:

22.1.1 To provide for the protection, conservation and management of landscape values.

22.1.2 To provide for compatible use or development that does not adversely impact on the protection, conservation and management of the landscape values.

The development standards for subdivision (22.5) have three objectives for lot design under the Tasmanian Planning Scheme - Brighton¹¹:

That each lot:

(a) has an area and dimensions appropriate for use and development in the zone;

(b) contain areas which are suitable for development, located to protect and conserve landscape values; and

(c) is provided with appropriate access to a road.

Some performance criteria will need to be relied on in the planning application assessment. In the case of wasterwater management, there is no acceptable solution.

4.1.2 Visual Impact Criteria

Various criteria that influence the potential significance of the visual impact of the development are set out in Table 3.

Shading within the table indicates the assessed significance of the potential visual impacts of the proposed subdivision and associated works at Tea Tree [as opposed to an assessment of each individual element]. The evaluation of potential impacts follows the established methods of evaluation described in Section 1.2.

None of the factors for evaluating impacts addresses the degree to which an alteration might improve an existing impacted circumstance. Rather the evaluation asks whether an impact is acceptable or not. The evaluation of the impact of this subdivision and associated works, therefore, is focused on the degree to which they impact on visual quality, not the degree to which they may or may not improve existing impacts or add to existing amenity.

Some of the assessed impacts in Table 3 are obvious, such as the low potential impact arising from local soil colour. Some, however, require further discussion. Of importance are viewing distance, position and the length of time of viewing and mitigating influences such as screening provided by topography and vegetation.

Tasmanian Planning Scheme – Brighton, Tasmanian Planning Commission, www.iplan.tas.gov.au
 . Tasmanian Planning Commission. Guideline No. 1 Local Provisions Schedule. Accessed March 28th, 2023.

- Understanding the potential visual impact

		POTENTIAL SIGNIFICANCE OF IMPACT ¹³			
CATEGORY	CRITERIA	HIGH	MEDIUM	LOW	
VIEWING SITUATION	number of viewers/ views	high	moderate	low	
	sensitivity of viewers	high	moderate	low	
	viewing time	long	moderate	short	
	viewing distance	near (e.g. foreground) (on arrival) foreground (from local roads)		far (from highway / public grounds)	
	viewing angle to aspect	facing perpendicular to view	oblique (from public vantage points)	angled away from view	
	observer position/ target position	proposal seen in a prominent site without a backdrop	proposal seen in a prominent site but set on the hillside within a larger landscape setting of higher ridges behind.	proposal not viewed or seen on the skyline or is subordinate to existing features	
EXISTING CHARACTER	degree of existing modification/ dominance of man- made elements verses naturalness and stability	unmodified (e.g. naturally appearing/ wilderness)	predominantly natural but with some existing modification	modified to highly modified (e.g. developed or previously disturbed land)	
	features of scenic quality	many	moderate	few	
NATURE OF PROPOSED Alteration	scale	major	moderate	minor (relative to scale of landscape)	
	relation to existing uses and/or pattern	introduces new land-use type that contrast to colour or form/pattern of existing land-uses	introduces new land-use type	consistent with existing land-uses/ existing land-uses continue	
	deviation from existing character	introduces contrasting line, form, colour and texture against natural elements	borrows from existing line, form, colour and texture	repeats existing line, form, colour, texture, scale	
	scenic interest ¹³	low scenic interest	moderate scenic interest	high scenic interest	

Table 3. Factors affecting visual impact (cont. next page)

13. This table was first developed in Inspiring Place 2002a. "Musselroe Wind Farm and Associated Transmission Line: Visual Values Inventory and Impact Assessment" unpublished report to Hydro Tasmania and has since been applied to studies elsewhere including by Inspiring Place for the windfarm at Heemskirk (Inspiring Place 2002b. "Heemskirk Wind Farm and Associated Transmission Line: Visual Values Inventory and Impact Assessment" unpublished report to Hydro Tasmania and Inspiring Place and Bruce Chetwynd 2011. Most recently it has been used to assess the visual impact of proposed new facilities at Dove Lake (Inspiring Place 2018. "Dove Lake Visitor Facilities: Visual and Wilderness Impact Analyses" unpublished report to TWS.

- Understanding the potential visual impact

		POTENTIAL SIGNIFICANCE OF IMPACT			
CATEGORY	CRITERIA	HIGH	MEDIUM	LOW	
ENVIROMENTAL	soil colour	bright	medium	dark	
CONDITIONS ¹⁴	soil erosion potential	high	moderate	low	
	existing vegetation pattern	uniformly dense or expansively open against dense backdrop		varied, partially open	
	vegetation screening potential	low vegetation	moderate height	tall vegetation	
	topographic screening potential	none	some	high	
	slope	steep	moderate	flat	
CULTURAL CONDITIONS	interferes with artistic/ cultural associations with past landscapes (Aboriginal or European)	substantially modifies the identified cultural or artistic value so as to make it unrecognizable	modifies the identified cultural or artistic value	maintains artistic or cultural links to past landscapes	
	interferes with the social or recreational enjoyment (e.g. by overpowering presence or effect)	on-going interference or interference at high use times	noticeable presence	minimal interference or interference at low-use times only	
MANAGEMENT Considerations	potential for mitigation of impacts (alternatives)	low	moderate	high	
	cost of mitigation measures	high	moderate	low	

Table 3. Factors affecting visual impact (cont. from previous page)

14. Scenic interest derives from the symbolism or fascination found in the workings or outward expression of those workings of buildings or infrastructure/industrial elements. Thus, a well-designed building might be more interesting than a pre-fabricated shed, a complex industrial site more interesting than scattered buildings or a large-scale industrial element more fascinating than a common one. The degree to which a development is 'scenically interesting' may mitigate the degree to which it is visually unacceptable

Understanding the potential visual impact

4.2 Critical influences on the visual impact

4.2.1 Distance

'Seen view analyses' or 'view sheds' are computer generated diagrams highlighting where a location can be seen from in the absence (DEM) or presence (DSM) of vegetation¹⁵. The impact of views varies with distance. In foreground views (up to 1km), colour and detail are readily visible. In middle ground views (1-5km), some detail will still be perceptible, but features are largely viewed in the context of the larger landscape.

Map 2 shows the points on each of the theoretical 8m high buildings within the building envelope of each of the 11 lots. Eight metres represents the maximum height of typical dwellings. Places that can see those points are limited in Back Tea Tree valley by the series of ridges within 10km of the study site. In particular, views are contained by Meehan Range to the southwest and Hammonds Tier to the east.

Although there is substantial clearing in the valley, many residential lots have tall windbreak trees and tall garden vegetation that substantially break up views. Locations such as public roads or residences that have clear views of the development site generally have low vegetation that affords views to the site.

The 11 proposed build locations are highly variable in their position in the landscape and therefore their visibility from outside the site (Map 2). Build locations that are higher in the landscape and close to the ridgeline while also having desirable views are more visible in the landscape. Places that the development will be seen from are also highly variable in terms of whether the view is screened by other houses, gardens, windrows and other tall structures.

The internal road in the subdivision is relatively low in the landscape, is dark in colour, and can only be seen from some locations on Back Tea Tree Road to the south of the site. Removal of screening vegetation on site will make the road more visible so as with the built locations, vegetation needs to be retained except where required to reduce bushfire hazards and essential operations. This report concentrates on the more visible components of the sub-division - the 11 build locations.



Photograph 4. Foreground view to lots 10 and 11 from Rosewood Lane. Existing house is at the end of the lane (Source: Inspiring Place).



Photograph 5. View from nearby residence on Glen Rose Drive to lots 5, 7 and 8 showing filtering by foreground structures including utilities, fences and vegetation (Source: Inspiring Place)

15. Note: Viewshed or visible area analyses were performed by Esk Mapping & GIS. GIS layers were projected in GDA 94 and a Digital Elevation Model (DEM) and Digital Surface Model (DSM) were produced based on 10m grid. A relative height of viewpoints of 2m above the ground surface of the DEM and DSM were used for visible area analyses, assuming no local vegetation or viewing obstructions at viewpoints. Note the analysis does not account for variations in topography of less than 5m.



Site Overview	Build Locations - 50x50m Build Envelope -	Proposed Boundaries Proposed Road	Map ID: Map Date:	1.1 19/04/2023	Datum/Projection: Vertical Datum:	GDA94 MGA Zone 55 AHD		esk mapping &GIS
	Cadstral Parcels Contours 10m	Contours 10m	Scale:	1:8500				
			Prepared By.	0.1.		0	300	600 m
Map 2. Points u	sed for the GIS analysis. Eac	ch lot has a point set at 8	3m in the dwelli	ng envelo	pe (esk mappir	ng & GIS)		



Map 3. Seen view analysis (10km radius) showing the calculated visiblity of the proposed subdivision without vegetation factored in (Digital Elevation Model)



Map 4. Seen view analysis (10km radius) showing the calculated visibility of the proposed subdivision with vegetation factored in (Digital Surface Model).

The importance of the screening capacity of the vegetation is strongly underlined by the GIS seen view mapping. To see this, the bare earth model (Digital Elevation Model, DEM) is compared with the model draped with the existing vegetation (Digital Surface Model, DSM). Map 3 shows the DEM results of all 11 potential buildings and the resulting locations that can see those points out to a distance of 10km. There are some hot spots that can see most of the 11 points, including the higher locations on the Coal River Tier, Hammonds Tier and other locations on the Meehan Range itself.

When this same modelling is done using the existing vegetation screening (DSM), the number of locations that can see the buildings is drastically reduced and the number of lots that can be seen is reduced to fewer than five (Map 4).

In terms of the individual building envelopes and their seen view, this is highly variable but the effect of vegetation screening is still consistently valuable. There are four types of views to the tops of the proposed buildings. Those are: well protected by the topography (such as lot 7), visible to the north (lot 1), visible to the south (lot 6) and visible both north and south (lot 4). It should be noted that much of the views to the proposed development from the south are from uninhabited areas. The seen view for the bare earth model is shown in the four lots in Map 5.

In all four cases, vegetation reduces the number of locations that can see the 8m point on the building envelope. This is particularly evident for the buildings that are in more exposed topographic positions. The vegetation screen makes a substantial difference to the number and distance from which the building point can be seen.

The building envelope for lot 7 is already well concealed in the landscape on a watercourse and the vegetation screening makes the least amount of difference to the DEM-DSM view comparison.

Photographs from east and west of the proposed locations help illustrate what the sub-division might look like if the build locations are constructed. Photograph 5 shows the view from a location on Back Tea Tree Road that has a clear view west across to Jews Hill and the existing treed slopes. Similarly Photograph 6 shows the view east rom the suburb of Honeywood looking at the other side of Jews Hill. Both views show the vegetated ridgeline and the landscape values of the treed slopes.

In terms of views from a vehicle rather than views

from residences, the site is mostly viewed obliquley visible from a vehicle with first views to the southeast on Back Tea Tree Road from approximately 2.5km away. Views to the proposed development from the road are regularly interrupted by existing houses, gardens and windbreaks.

The view is directly in focus only once turning down streets that come off Back Tea Tree Road or in the suburb of Honeywood. The through roads also tend to have oblique rather than focused views, including Back Tea Tree and Tea Tree Road on one side of the range and Briggs Road, Baskerville Road and the Midland Highway on the other.

The number of vehicles on Back Tea Tree Road is unknown, however around 2651 daily vehicle movements were recorded for Tea Tree Road in 2018. Back Tea Tree Road has significantly less traffic. This is the road that will have the clearest and nearest views to the proposed sub-division.

Vegetation loss on site for BHMP may change the results of the modelling quite significantly. If larger canopy trees are retained, particularly around the perimeter of each lot, then the foreground visual impact will be greatly reduced.

Another factor to consider in seen view analysis is that the local residents occupy a physical setting similar to what is being proposed for the proposed subdivision. This could be expected to lower their sensitivity to development because the proposal is not substantially changing the valley patterning. There will remain a variegated landscape with pockets of infrastructure, vegetation, gardens, agriculture and residences.

The site is more clearly visible from the two access roads, particularly the existing residences and vineyard on Rosewood Lane, off Back Tea Tree Road. From these positions, lots 1 and 2 are in the foreground and higher up the slope. This would likely mean that there would be sustained views that would be quite different to the current relatively natural state of this land. The visual focus of these vantages is drawn to the vegetated skyline with its moderate-high scenic value and careful consideration of vegetation retention and dwelling location is desirable.

Maps 7 and 8 show some of the other more exposed build locations. These are lots 3 and 5 that can be seen north and south along with lot 4 that is already in Maps 5 and 6. Two sites that are visible from the Brighton side of the Range are lots 9 and 10.





Map 5. Four DEM (bare earth) seen views (lots 1, 4, 6, 7) out to 10km showing the variation between the sites resulting from their differing positions in the landscape (Source: Esk Mappng & GIS).



Map 6. Four seen views (lots 1, 4, 6, 7) out to 10km but this time with screening of the existing vegetation draped over the model (Source: Esk Mapping & GIS).



Photograph 5. Unobstructured view from Back Tea Tree Road looking west to the approxiamte area of the southern end of the subdivision (lots 7, 8, 10 and 11) (Source: Inspiring Place)



Photograph 6. View from Honeywood Drive east to lots 6, 9 and 10 (Source: Inspiring Place)



Map 7. Four seen views in pairs of DEM and DSM for direction comparision of the bare eeath (DEM) and vegetated view (DSM) for two sites at high points with the landscape that can be seen from both the south and north (Lot 3 and Lot 5) (Source: Esk Mapping & GIS).





Map 8. Four seen views in pairs of DEM and DSM for direction comparision of the bare eeath (DEM) and vegetated view (DSM) for two sites with westerly aspects facing Brighton and Honeywood (Lot 9 and Lot 10) (Source: Esk Mapping & GIS).
4.2.2 Observer position and duration of view

Observer position is critical to an understanding of the viewing sensitivity. As introduced above, parts of the subdivision will be visible from lower positions in the landscape in the near view, such as the development at lots 10 and 11. However, the majority of the views will be filtered by vegetation. These views are also likely to be short duration rather than sustained. Nearby residences are likely to be the most affected because views will be sustained and at a distance where several of the lots will be within view. Retaining vegetation that filters views from building locations as well as to the locations is recommended.

Special attention needs to be paid to the lots that are higher in the landscape, including 3, 4 and 5 that can be seen both north and south, and 6, 9 and 10

that can be seen to the south.

Length of time influences visual impact as the longer an element is observed, the greater the awareness of its presence and detailing. The majority of views will be from traffic on Back Tea Tree Road and local roads in Honeywood. These views are mostly oblique, but there might be some focused views of the proposed changes from Honeywood.

The longer time of viewing will be from private residences to both the east of the site in Tea Tree Valley and the west of the site in Honeywood and the Baskerville Road area. The residences with a focal view and outdoor vantage space will more clearly note the effects of the outcome of BHMP vegetation management. However their sensitivity to sighting residences in a patterned landscape is lowered by this being consistent with some of the main land uses in these valleys. The Tea Tree valley is slowly changing from largely agricultural land use with large titles to more of a mixed use that includes residential properties.

4.2.3 Screening potential

Vegetation and topography both play a role in how visible the subdivision and associated works will be in the landscape.

Vegetation around the build locations are important for reducing site visibility from foreground positions. Views are mostly to the north and south given the screening of the Meehan Range itself and the other nearby ranges such as Hammonds Tier. Sites with the most views of the 11 build locaitons are high on those ridgelines and they do not currently have residences in those locations. The topography combined with vegetation are valuable in screening the site from much of the views from both roads and residences.

Screening from individual residence in the valley is highly variable with some, such as the established Glen Quoin, having a mature garden and screening windbreaks, and others having clear views to the site. Photograph 7 shows a house with a less well developed garden that will have some views to the northern end of the sub-division (lots 1, 2).

Views from the Midland Highway, Brighton, Cove Hill, Bridgewater and the Brighton Transport Hub will be ameliorated by the distance from the site and also the busyness of the landscape (Photograph 8). There is a high diversity of land uses in these views that include residences of different densities, open space, agriculture, natural assets, both European and Aboriginal heritage, heavy industry, and the full suite of road hierarchies.

The degree to which vegetation will be retained during construction will mitigate the visibility of the subdivision. The proposal notes to maintain existing vegetation and remnant pockets of vegetation communities within the site boundaries in adherence with BHMP guidelines.



Photograph 7. View from the north approximately 2km from the site at the north end of Back Tea Tree Road near Rutherford Drive (Source: Inspiring Place)



Photograph 8. View from Brighton Transport Hub to the general area of lots 6, 9 and 10. Note the presence of high voltage power lines and telecommunications towers in the broader landscape (Source: Inspiring Place)

5 / Evaluation and mitigation of the impacts arising from the development

-Evaluation and mitigation of the impacts arising from the development

5.1 Visual / Scenic Landscape Values

5.1.1 Impacts

Table 3 evaluated the significance of the potential impacts arising from the development against the range of factors that influence the relativity of a visual impact and found the potential impacts to be **low** to **moderate** across the majority of factors. In vantages from the foreground to far distance, the proposed forms are low in profile compared to the more expansive landscape they sit in.

Importantly, the proposal is consistent with an existing land use. Visitors will be expecting to see dwellings within the area and along the hillside; as is currently the case. Any negative response to the view (i.e. to the placement, scale or number of the dwellings), will be offset, to some extent, by their advance knowledge that such dwellings exist within the modified landscape.

Photograph 9 shows the aerial view of the landscape around the Jews Hill part of the Meehan Range. The settlements of Tea Tree and Honeywood are clearly visible and there are indications of the dotted residences in the Tea Tree valley. The mix of land uses is evidence, including native vegetation, agriculture, roads, commercial and residential uses.

Build locations that are higher in the landscape may have ome impact on visual landscape values. There is potential for houses at these locations to have good views, but equally they will be seen. The purpose of this zone is to provide for development that does not adversely impact on the protection, conservation and management of the landscape values. Retaining as much vegetation as possible is important in an area with a priority vegetation overlay as well as for filtering views to the development.



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Photograph 9: View to northeast showing the growing residential areas around Honeywood and the more rural landsacpe of Tea Tree valley (Source: Google Earth)
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-Evaluation and mitigation of the impacts arising from the development

5.1.2 Mitigation Measures

Under the Tasmanian Planning Scheme – Brighton Landscape Conservation Zone requirements of 22.5.1. P1 (a) – (e) and in particular that 'each lot must have sufficent useable area and dimensions suitable for its intended use, having regard to'...'(c) the ability to retain vegetation and protect landscape values on each lot'.

This visual impact assessment has been completed by suitably qualified persons to address the requirements in the table below.

In addition to these general recommendations about retaining vegetation screening, avoiding reflective

cladding and keeping building heights as low as practical, the role of topography needs to be emphasised. Topography can help protect natural landscape views, including in the event of a bushfire in this bushfire-prone area. All lots except lot 7 can be seen out to distances of 10 km in the absence of vegetation. In particular, lots 3, 4, 5, 6, 9 and 10 are in more exposed locations.

Lots 3, 4 and 5 are the most exposed and can be seen both north and south from their position on the Meehan Range itself. Consideration needs to be give as to whether any of these lots and particularly 3, 4 and 5 could be more concealed with a change in built location.

CLAUSE	PERFORMACE CRITERIA P1	ANALYSIS OF PROPOSAL AND MITIGATION RECOMMENDATIONS
22.5.1 LOT DESIGN OBJECTIVE "That each lot (a) has an area	Each lot, or a proposed lot in a plan of subdivision, must have sufficient useable area and dimensions suitable for its intended use, having regard to:	
appropriate to the zone; (b) contain areas which are	(a) the relevant Acceptable Solutions for development of buildings on the lots;	Clause 22.4.2 A1 requires that building height must be not more than 6m. Modelling of building heights has been done to a maximum of 8m however any effort to keep intended buildings out of seen views through keeping building heights as low as possible will assist in protecting landscape values.
suitable for development, located to protect and	(b) existing buildings and the location of intended buildings on the lot;	Buildings need to be sited to protect skylines as much as possible and ideally light reflectance of cladding materials to be less than 40% to further reduce their prominance in the landscape. Concrete aprons to use dark oxide to reduce their visibility.
conserve landscape values; and (c) is provided with appropriate	(c) the ability to retain vegetation and protect landscape values on each lot;	The difference between the bare earth modelling (DEM) and vegetation modelling (DSM) show the effectiveness of retaining the <i>Eucalyptus amygalina</i> and <i>E.viminalis</i> forest and woodland. Within the constraints of the BHMP requirements, retention of existing established trees and pockets of vegetation on each lot and surrounding the subdivision will assist in mitigating the level of visiblity.
access to a road:"	(d) the topography of the site;	Topography plays a vital primary role in concealing intended residences from being widely seen in the landscape. Should vegetation be removed through means such as bushfire, the topography can be relied on to conceal some of the build sites from views. Siting of build locations lower in the landscape reduces their visibility. Residence rooflines should be kept as low as achievable within site constraints.
	(c) be located below skylines;	Part of the increased visibility of build locations on some of the lots is their presence on higher points of the site. Care needs to be taken to retain treed skylines, particularly from locations such as the residences in Honeywood and on Rosewood Lane that are relatively close to the site.
	and must not have an area not less than 20ha.	

6 / Conclusion

6.0 Conclusion

6.1 Protecting and conserving landscape values

This report is part of statutory planning process for a subdivision wherein the lot locations have been chosen to conserve landscape values. The site has overlays of low and medium Landslip Hazard (Code 15), Bushfire-prone Areas (13), and priority vegetation under the Natural Assets code (7).

The build locations on the site sit on the hillface of the Meehan Range, but below the local ridgeline and the skyline. Removal of vegetation to suit BHMP requirements reduce some of the vegetation screening capacity seen in the digital surface modelling but there is still significant capacity for dwellings to be sensitively located to protect landscape values.

Vegetation screening is important for all lots with the exception of lot 7 on the creek line. Lots 3, 4, and 5 are particularly visible both north and south because of their placement at higher points on the site. We recommend that for lots 4 and 5 in particular to be closer to the internal road and away from those higher points in the landscape. We recommend that Lot 3 is located further downslope, closer to the northern boundary. This will reduce its visibility to the south in particular.

Care needs to be taken with materials to reduce their visibility. Low contrast roof, wall cladding and driveway surfaces (i.e. dark, matte and textured finishes) is recommended to reduce surface reflectivity and reduce the starkness of uniform planes against the varied grain of vegetation.

Scenic landscape values can be maintained, as per the requirements of TPS – Brighton Clause 22.5.1 P1. Care will need to be taken to retain large trees and screen views from the residences to in turn protect the views of people looking towards the site. All vegetation should be retained outside of the areas where the BHMP requires it to be removed.

6.2 Visual Impact Assessment Conclusion

The evaluation of potential impacts at Table 3 suggests the potential for visual impacts in this Landscape Conservation Zone setting (Table 1) is **Low** to **moderate** with some variation depending on the location of the lot in the landscape and the ability of retained vegetation to screen the views.

In conclusion, none of the potential visual impacts arising from the proposed subdivision and its associated works, in its proposed form and location, should preclude the development from progressing.





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Back Tea Tree Road, Tea Tree - Proposed Subdivision Bushfire Report and Hazard Management Plan

01/02/2024

For Southern Waste Management (SWS002)



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ACKNOWLEDGMENTS

Client: Southern Waste Solutions

Survey and bushfire report: Cameron Geeves and Philip Barker

HMP: Philip Barker

Mapping: Linda Drummond and Craig Stobbs



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1. INTRODUCTION

The following proposal is for the development of an 11 Lot subdivision at Back Tea Tree Road, Tea Tree. The development site is on a title of approx. 230 ha (Title Ref: 121954/1).

Brighton Council requires a Bush Fire Hazard Management Plan (HMP) demonstrating the required BAL for the proposal and the proposed mitigation in compliance with the AS3959 (2018).

The BHMP is required to be developed for the purposes of Tasmanian Planning Scheme (TPS) – Bushfire-Prone Areas Code C13.0. This bushfire hazard management plan addresses the requirements for all lots in the subdivision.

This HMP is relevant to this subdivision application and specific location of building areas illustrated below. Any application to build a dwelling in an alternative location will require a new HMP specific to the new location.

2. SITE DESCRIPTION

The land is within the municipality of Brighton Council and the relevant parcels are within the bushfire overlay of the *Tasmanian Planning Scheme – Brighton*.

The site is spread over Jews Hills, which is part of the northern end of the Meehan Range. The site consists of gentle to moderately sloped farmland, native grassland, and woodland. Lots one to nine are accessed from Back Tea Tree Road while lots 10 and 11 are accessed from Rosewood Lane off Back Tea Tree Road.

The site is a mosaic of pasture, native grassland, and woodlands occurring across a predominantly eastern aspect. To the north and east of the property is agricultural land. To the south and west is woodland.

See Figures 1 and 2 for the context and locality of the proposal.

Limitations:

This HMP is relevant to this subdivision application and specific location of building areas illustrated below and referred to as "notional". Any application to build a dwelling in an alternative location will require a new HMP specific to the new location.

This report on based on site measurements at the time of inspection and from information provided by the proponent. The report is limited in scope to bushfire hazard assessment only. The assessment is based on this building proposal and its findings are for this site only. Future changes to the building proposal or changes in the vegetation that affect bushfire hazard have not been considered.

3. PROPOSED USE

The proposal is for a low-density residential subdivision to create eleven low density residential lots.

All lots will rely on static water for firefighting purposes. All lots will have a dedicated static water supply and have independent access.



Figure 1: Plan of subdivision (1 of 2)

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4. BUSHFIRE SITE ASSESSMENT

4.1 VEGETATION

Low lying areas and north facing aspects consist of grassland or sparse woodland (generally lots on the eastern side of the property) while south or west facing aspects (generally lots to the west and south) consist of woodland. Detail on the vegetation on and within 100 m of the building area on each lot is as follows:

Lot 1: Woodland to the south and southwest, Grassland to the north and northeast.

Lot 2: Predominantly grassland. Woodland, downslope to the southwest.

Lot 3: Entirely grassland.

Lot 4: Predominantly grassland. Woodland to the north.

Lot 5: Entirely woodland.

Lot 6: Grassland to the north and east, woodland to the south and west.

Lot 7: Grassland.

Lot 8: Predominantly grassland with woodland to the west.

Lot 9: Entirely grassland.

Lot 10: Entirely grassland.

Lot 11: Predominantly grassland with a small patch of woodland to the north.

The existing vegetation is depicted in Figure 2 and tabulated in Table 1.

4.2 SLOPE AND FIRE PATHS

On all lots the slopes are low to moderate (Table 1). Given the slope and predominant fire weather the most likely fire path is from the north. Only the slopes that affect the BAL rating at the proposed house sites are reported in Table 1, although there are changes in slope within the 100m zone but beyond the distance that affects the BAL rating on the building areas.

4.3 DISTANCE

Table 1 and Figure 2 indicate the site characteristics for a 100 m radius that have been assessed to determine the bushfire attack level for each building area and provide the dimensions for the BHMA for a BAL 19 solution as per Section 2 of AS 3959. All aspects have been resolved to BAL 19 by the bushfire hazard management plan (Appendix 1).

NOTE: All distances are based on the existing and notional building areas illustrated in Figure 2.

Each notional building area shown in figure 2 is $25*25 \text{ m}^2$ totalling a 500 m² area. Table 1 below shows the size and distance to title boundaries of each notional building area within the proposed subdivision. All distances are measured from the north-eastern corner of each notional building area.

Notional Building Area (BA)	BA (m²)	Distance to Northern title boundary (m)	Distance to Eastern title boundary (m)
Lot 1	500 m ²	17 m	40 m
Lot 2	500 m ²	31 m	300 m
Lot 3	500 m ²	110 m	25 m
Lot 4	500 m ²	225 m	185 m
Lot 5	500 m ²	38 m	35 m
Lot 6	500 m ²	25 m	60 m
Lot 7	500 m ²	115 m	130 m
Lot 8	500 m ²	160 m	30 m
Lot 9	500 m ²	155 m	110 m
Lot 10	500 m ²	37 m	45 m
Lot 11	500 m ²	43 m	151 m

Table 1: Notional building area size and location for each lot. All distances are measured from the north-eastern corner of each notional building area.



Figure 2: Locality



Plate 1: Typical grassland vegetation found across the site.



Plate 2: Looking towards Jew Hill from the southeast near lot 4.



Plate 3: Grassy woodland near the summit of Jew Hill.



Plate 4: Looking to the north from lot 1.



Plate 5: Typical woodland vegetation on lot 5.



Plate 6: Grassland surrounding lot 11.

Quadrant	Vegetation class Table 2.3 AS3959	Effective Slope (degrees)	Distance under effective slope (m)	Minimum Defendable Space Required for BAL-19 (m)	Exclusions of low threat vegetation under 2.2.3.2 AS3959
			Lot 1		
North	Grassland	0 – 5 °	0 – 100 m	10 m	n/a
East	Woodland	0 - 5 °	0 – 100 m	18 m	n/a
South	Woodland	flat / upslope	0 – 100 m	15 m	n/a
West	Woodland	0 - 5 °	0 – 100 m	18 m	n/a
			Lot 2		
North	Woodland	0 – 5 °	0 – 100 m	18 m	n/a
East	Grassland	flat / upslope	0 – 100 m	10 m	n/a
South	Woodland	flat / upslope	0 – 100 m	15 m	n/a
West	Grassland	5 – 10 °	0 – 25 m	13 m	n/a
West	Woodland	5 – 10 °	25 – 100 m	23 m	n/a
			Lot 3		
North	Grassland	flat / upslope	0 – 100 m	10 m	n/a
East	Grassland	flat / upslope	0 – 100 m	10 m	n/a
South	Grassland	0 – 5 °	0 – 100 m	11 m	n/a
West	Grassland	0 – 5 °	0 – 100 m	11 m	n/a
			Lot 4		
North	Grassland	flat / upslope	0 – 100 m	10 m	n/a
East	Grassland	0 – 5 °	0 – 100 m	11 m	n/a
South	Grassland	5 – 10 °	0 – 100 m	13 m	n/a
West	Grassland	flat / upslope	0 – 100 m	10 m	n/a
			Lot 5		
North	Woodland	flat / upslope	0 – 100 m	15 m	n/a
East	Woodland	flat / upslope	0 – 100 m	15 m	n/a
South	Woodland	10 – 15 °	0 – 100 m	28 m	n/a
West	Woodland	10 – 15 °	0 – 100 m	28 m	n/a
Lot 6					
North	Grassland	flat / upslope	0 – 32 m	10 m	n/a
East	Grassland	0 – 5 °	0 – 100 m	11 m	n/a
South	Grassland	5 – 10 °	0 – 42 m	13 m	n/a
West	Grassland	5 – 10 °	0 – 100 m	13 m	n/a
Lot 7					

Quadrant	Vegetation class Table 2.3 AS3959	Effective Slope (degrees)	Distance under effective slope (m)	Minimum Defendable Space Required for BAL-19 (m)	Exclusions of low threat vegetation under 2.2.3.2 AS3959
North	Grassland	flat / upslope	0 – 60 m	10 m	n/a
East	Grassland	10 – 15 °	0 – 100 m	15 m	n/a
South	Grassland	15 – 20 °	0 – 100 m	17 m	n/a
West	Grassland	10 – 15 °	0 – 90 m	15 m	n/a
			Lot 8		
North	Grassland	5 – 10 °	0 – 100 m	13 m	n/a
East	Grassland	flat / upslope	0 – 100 m	10 m	n/a
South	Grassland	flat / upslope	0 – 100 m	10 m	n/a
West	Grassland	flat / upslope	0 – 32 m	10 m	n/a
West	Woodland	flat / upslope	32 – 100 m	15 m	n/a
			Lot 9		
North	Grassland	10 – 15 °	0 – 100 m	15 m	n/a
East	Grassland	0 – 5 °	0 – 100 m	11 m	n/a
Southeast	Shrubland	0 – 5 °	0 – 100 m	15 m	n/a
Southwest	Grassland	flat / upslope	0 – 100 m	10 m	n/a
West	Grassland	flat / upslope	0 – 100 m	10 m	n/a
			Lot 10		
North	Grassland	5 – 10 °	0 – 100 m	13 m	n/a
East	Grassland	flat / upslope	0 – 100 m	10 m	n/a
South	Grassland	flat / upslope	0 – 100 m	10 m	n/a
West	Grassland	flat / upslope	0 – 100 m	10 m	n/a
Lot 11					
North	Grassland	0 – 5 °	0 – 60 m	11 m	n/a
North	Woodland	0 – 5 °	60 – 100 m	15 m	n/a
East	Grassland	0 – 5 °	0 – 100 m	11 m	n/a
South	Grassland	flat / upslope	0 – 100 m	10 m	n/a
West	Grassland	flat / upslope	0 – 100 m	10 m	n/a



North Barker Ecosystem Services SWS002

5. BUSHFIRE PRONE AREAS MANAGEMENT OBJECTIVES

The Bushfire-Prone Areas Code of the Tasmanian Planning Scheme C13.0 applies to the subdivision of land that is located within, or partially within, a bushfire prone area. This code has been developed to ensure that use and development is designed, located, serviced and constructed to reduce the risk to human life and property, and the cost to the community, caused by bushfires.

Appendix 2 of this report tabulates the specifications for standards set out in C13.6 for subdivisions. This proposal must comply with this directive as set out in Table 2 below.

Public access to lot 1-9 is from Back Tea Tree Road. Public access to lots 10 and 11 is from Rosewood Lane, which is accessed from Back Tea Tree Road. Rosewood Lane is a dead-end road greater than 200 m long and 8 m wide. Back Tea Tree Road is 7 m wide.

	Deemed to satisfy	Requirement	Compliance
	(Elements)	(Appendix 2)	
C13.0	Construction requirements	AS 3959 - 2018	Yes All construction specifications will be compliant and verified by a building surveyor.
C13.6.1	Hazard management area	C 13.6.1 (A1)	Yes, all lots will have a compliant hazard management area. A hazard management area must have ground cover vegetation managed to less than 100 mm height, lower tree limbs pruned to above 2 m height and if necessary, remove sufficient trees to achieve a 3 m canopy separation within the HMA. The hazard management areas on lots should be implemented and verified by a building surveyor before occupancy.
C13.6.2	Firefighting access	C13.1 Public A Private C13.2(a, b and c)	 Yes, as per table C13.1 (A) Standards for roads. Yes, as per table C13.2 Standards for property access. Property access to lots 1, 3 and 4 will be 30 - 200 m in length and therefore must comply with table C13.2 (b). Property access to lots 2 and lots 5 – 11 will have access greater than 200 m in length. Access must comply with Table C13.2 (b) as well as the following: Minimum carriageway width must be 6 m or greater or if less than 6 m must include passing

Table 3. Compliance of the subdivision proposal with the TPS 13.0 Bushfire Prone Areas Code.

			bays of 2 m additional carriageway width and 20 m length provided every 200 m. Access to building areas on all lots must be implemented before occupancy and verified by a building surveyor.
C13.6.3	Provision of water supply for firefighting purposes	C13.5 (a-e)	Yes. All parts of the building areas will be within 90 m of a static water point as measured by hose lay. All lots will be compliant subject to a dedicated water supply and remote water offtake as per the requirements of table C13.5 (a-e). The water supply should be implemented on all lots prior to occupancy of each lot and should be verified by a building surveyor.

6. MANAGEMENT OF THE HMA AND LANDSCAPING

The bushfire hazard management plan (Appendix 1) has resolved all aspects to BAL 19 as per Table 1. All vegetation within the HMA of the site will be managed in a low fuel state and the following recommendations are made:

- Required Maintain HMA in a low fuel state. Ground cover vegetation less than 100 mm tall, trees pruned of low hanging foliage to > 2m.
- Recommended Gardens exclude shrubs from within 5 m of the building.
- Recommended All aspects to be mineral surface to a minimum of 0.5 m from the building.
- Recommended No trees or shrubs within 10 m to exceed the height of the gutters unless leaf shedding gauze is fitted.

REFERENCES

Australian Standard AS 3959 (2018) Construction of Buildings in Bushfire Prone Areas.

Tasmanian Planning Scheme – Bushfire-Prone Areas Code (C13).

APPENDIX 1. BUSHFIRE HAZARD MANAGEMENT PLAN

Assessment date: 24th of June 2022

Assessor: Philip Barker BFP- 147 1,2,3A,3B,3C

Bushfire Attack Level (BAL) Assessment Report

Bushfire Attack Level (BAL) assessment conducted in accordance with Clause 2.2 Simplified Procedure (Method 1) of AS 3959 – 2018.

This BAL Assessment Report has been provided to determine the BAL (in accordance with AS3959-2018) for the site and where necessary provide recommendations for BAL reduction methods to comply with the Tasmanian planning Schemes Bushfire-Prone Areas Code C13.0. Requirements for water supply for fire fighting and vehicle access and egress for fire fighting have been included; and should part of the Building Surveyors Certificate of Likely Compliance assessment.

Limitations

This HMP is relevant to this subdivision application and specific location of building areas illustrated below and referred to as "notional". Any application to build a dwelling in an alternative location will require a new HMP specific to the new location.

All measurements have been made using standard practices and may contain small errors of precision.

Compliance with the AS3959 building standards referred to in this assessment does not mean that there is no risk to life or property as a result of bushfire.

A primary limitation is that the BAL value is determined under an FDI of 50. The FDI can be higher under certain weather and fuel conditions and consequently the BAL may also be higher than determined here.

Property Details

Applicants Name: Southern Waste Solutions

Municipality: Brighton

PID: 1698711

Certificate of title / number: CT 121954/1

Address: Back Tea Tree Road, Tea Tree

Proposal: 11 lot subdivision

Bush Fire Attack Level (BAL) 19

Relevant fire danger index: (see clause 2.2.2) FDI 50

Determination of Bushfire Attack Level (BAL 19)

Summary of Compliance Requirements and Recommendations (see Figure 1):

- Building materials and design must comply with BCA for BAL 19.
- Public access is compliant at the private access point. Access from Back Tea Tree Road for lots 1 – 9 is greater than 200 m long. Access from Rosewood Lane to lots 10 and 11 is greater

than 200 m long. Access to building areas on all lots must be implemented before occupancy and verified by a building surveyor.

- The hazard management areas must be implemented and maintained by the respective owner/s before occupancy.
- All lots must install a dedicated water supply and remote water offtake as per the requirements of table C13.5. The water supply should be implemented on each lot prior to occupancy of each lot and should be verified by a building surveyor.

Quadrant	Vegetation class Table 2.3 AS3959	Effective Slope (degrees)	Distance under effective slope (m)	Minimum Defendable Space Required for BAL-19 (m)	Exclusions of low threat vegetation under 2.2.3.2 AS3959
			Lot 1		
North	Grassland	0 – 5 °	0 – 100 m	10 m	n/a
East	Woodland	0 - 5 °	0 – 100 m	18 m	n/a
South	Woodland	flat / upslope	0 – 100 m	15 m	n/a
West	Woodland	0 - 5 °	0 – 100 m	18 m	n/a
			Lot 2		
North	Woodland	0 – 5 °	0 – 100 m	18 m	n/a
East	Grassland	flat / upslope	0 – 100 m	10 m	n/a
South	Woodland	flat / upslope	0 – 100 m	15 m	n/a
West	Grassland	5 – 10 °	0 – 25 m	13 m	n/a
West	Woodland	5 – 10 °	25 – 100 m	23 m	n/a
Lot 3					
North	Grassland	flat / upslope	0 – 100 m	10 m	n/a
East	Grassland	flat / upslope	0 – 100 m	10 m	n/a
South	Grassland	0 – 5 °	0 – 100 m	11 m	n/a
West	Grassland	0 – 5 °	0 – 100 m	11 m	n/a
			Lot 4		
North	Grassland	flat / upslope	0 – 100 m	10 m	n/a
East	Grassland	0 – 5 °	0 – 100 m	11 m	n/a
South	Grassland	5 – 10 °	0 – 100 m	13 m	n/a
West	Grassland	flat / upslope	0 – 100 m	10 m	n/a
Lot 5					
North	Woodland	flat / upslope	0 – 100 m	15 m	n/a
East	Woodland	flat / upslope	0 – 100 m	15 m	n/a
South	Woodland	10 – 15 °	0 – 100 m	28 m	n/a
West	Woodland	10 – 15 °	0 – 100 m	28 m	n/a

Table 4: Determination of vegetation and slope within 100m in all directions.

Quadrant	Vegetation class Table 2.3 AS3959	Effective Slope (degrees)	Distance under effective slope (m)	Minimum Defendable Space Required for BAL-19 (m)	Exclusions of low threat vegetation under 2.2.3.2 AS3959
			Lot 6		
North	Grassland	flat / upslope	0 – 32 m	10 m	n/a
East	Grassland	0 – 5 °	0 – 100 m	11 m	n/a
South	Grassland	5 – 10 °	0 – 42 m	13 m	n/a
West	Grassland	5 – 10 °	0 – 100 m	13 m	n/a
			Lot 7		
North	Grassland	flat / upslope	0 – 60 m	10 m	n/a
East	Grassland	10 – 15 °	0 – 100 m	15 m	n/a
South	Grassland	15 – 20 °	0 – 100 m	17 m	n/a
West	Grassland	10 – 15 °	0 – 90 m	15 m	n/a
			Lot 8		
North	Grassland	5 – 10 °	0 – 100 m	13 m	n/a
East	Grassland	flat / upslope	0 – 100 m	10 m	n/a
South	Grassland	flat / upslope	0 – 100 m	10 m	n/a
West	Grassland	flat / upslope	0 – 32 m	10 m	n/a
West	Woodland	flat / upslope	32 – 100 m	15 m	n/a
			Lot 9		
North	Grassland	10 – 15 °	0 – 100 m	15 m	n/a
East	Grassland	0 – 5 °	0 – 100 m	11 m	n/a
Southeast	Shrubland	0 – 5 °	0 – 100 m	15 m	n/a
Southwest	Grassland	flat / upslope	0 – 100 m	10 m	n/a
West	Grassland	flat / upslope	0 – 100 m	10 m	n/a
	1		Lot 10		
North	Grassland	5 – 10 °	0 – 100 m	13 m	n/a
East	Grassland	flat / upslope	0 – 100 m	10 m	n/a
South	Grassland	flat / upslope	0 – 100 m	10 m	n/a
West	Grassland	flat / upslope	0 – 100 m	10 m	n/a
			Lot 11		
North	Grassland	0 – 5 °	0 – 60 m	11 m	n/a
North	Woodland	0 – 5 °	60 – 100 m	15 m	n/a
East	Grassland	0 – 5 °	0 – 100 m	11 m	n/a
South	Grassland	flat / upslope	0 – 100 m	10 m	n/a
West	Grassland	flat / upslope	0 – 100 m	10 m	n/a

Notional Building Area (BA)	BA (m²)	Distance to Northern title boundary (m)	Distance to Eastern title boundary (m)
Lot 1	500 m ²	17 m	40 m
Lot 2	500 m ²	31 m	300 m
Lot 3	500 m ²	110 m	25 m
Lot 4	500 m ²	225 m	185 m
Lot 5	500 m ²	38 m	35 m
Lot 6	500 m ²	25 m	60 m
Lot 7	500 m ²	115 m	130 m
Lot 8	500 m ²	160 m	30 m
Lot 9	500 m ²	155 m	110 m
Lot 10	500 m ²	37 m	45 m
Lot 11	500 m ²	43 m	151 m

Table 5: Notional building area size and location for each lot. All distances are measured from the northeastern corner of each notional building area.

Proposed subdivision Back Tea Tree Road Bushfire Report and Hazard Management Plan



North Barker Ecosystem Services SWS002

APPENDIX **2. S**PECIFICATIONS FOR ACCESS, WATER SUPPLY AND HAZARD MANAGEMENT AREAS.

C13.6.1 Subdivision: Provision of Hazard management areas

Objective: Subdivision provides for hazard management areas that:

(a) facilitate an integrated approach between subdivision and subsequent building on a lot;

(b) provide for sufficient separation of building areas from bushfire-prone vegetation to reduce the radiant heat levels, direct flame attack and ember attack at the building area; and

(c) provide protection for lots at any stage of a staged subdivision.

Acceptable Solution	Performance Criteria
A1	P1
(a) TFS or an accredited person certifies that there is an insufficient increase in risk from bushfire to warrant the provision of hazard management areas as part of a subdivision; or	A proposed plan of subdivision shows adequate hazard management areas in relation to the building areas shown on lots within a bushfire-prone area, having regard to:
(b) The proposed plan of subdivision:	(a) the dimensions of hazard management areas;
(i) shows all lots that are within or partly within a bushfire-prone area, including those developed at each stage of a staged subdivision;	(b) a bushfire risk assessment of each lot at any stage of staged subdivision;
(ii) shows the building area for each lot;	(c) the nature of the bushfire-prone vegetation including the type, fuel load, structure and flammability;
 (iii) shows hazard management areas between bushfire-prone vegetation and each building area that have dimensions equal to, or greater than, the separation distances required for BAL 19 in Table 2.4.4 of <i>Australian Standard AS 3959 – 2009 Construction of buildings in bushfire-prone areas</i>, and (iv) is accompanied by a bushfire hazard management plan that addresses all the individual lots and that is certified by the TFS or accredited person, showing hazard management areas equal to, or greater than, the separation distances required for BAL 19 in Table 2.4.4 of <i>Australian Standard AS 3959 – 2009 Construction of buildings in bushfire-prone areas</i>, and 	 (d) the topography, including site slope; (e) any other potential forms of fuel and ignition sources; (f) separation distances from the bushfire-prone vegetation not unreasonably restricting subsequent development; (g) an instrument that will facilitate management of fuels located on land external to the subdivision; and (h) any advice from the TFS.
(c) If hazard management areas are to be located on land external to the proposed subdivision the application is accompanied by the written consent of the owner of that land to enter into an agreement under section 71 of the Act that will be registered on the title of the neighbouring property providing for the affected land to be managed in accordance with the bushfire hazard management plan.	

age

Element		Requirement
A	Roads	Unless the development standards in the zone require a higher standard, the following apply:
		(a) two-wheel drive, all-weather construction;
		(b) load capacity of at least 20t, including for bridges and culverts;
		(c) minimum carriageway width is 7m for a through road, or 5.5m for a dead-end or cul-de-sac road;
		(d) minimum vertical clearance of 4m;
		(e) minimum horizontal clearance of 2m from the edge of the carriageway;
		(f) cross falls of less than 3 degrees (1:20 or 5%);
		(g) maximum gradient of 15 degrees (1:3.5 or 28%) for sealed roads, and 10 degrees (1:5.5 or 18%) for unsealed roads;
		(h) curves have a minimum inner radius of 10m;
		(i) dead-end or cul-de-sac roads are not more than 200m in length unless the carriageway is 7 metres in width;
		(j) dead-end or cul-de-sac roads have a turning circle with a minimum 12m outer radius; and
		(k) carriageways less than 7m wide have 'No Parking' zones on one side, indicated by a road sign that complies with Australian Standard AS1743-2001 Road Signs-Specifications.

Table C13.1: Standards for Roads

Table C13.2 Standards for property access

Element		Requirement
A	Property access length is less than 30m; or access is not required for a fire appliance to access a fire fighting water point.	There are no specified design and construction requirements.
В	Property access length is 30m or greater; or access is required for a fire appliance to a fire fighting water point.	The following design and construction requirements apply to property access: (a) all-weather construction; (b) load capacity of at least 20t, including for bridges and culverts; (c) minimum carriageway width of 4m; (d) minimum vertical clearance of 4m; (e) minimum horizontal clearance of 0.5m from the edge of the carriageway;

		(f) cross falls of less than 3 degrees (1:20 or 5%);	
		(g) dips less than 7 degrees (1:8 or 12.5%) entry and exit angle;	
		(h) curves with a minimum inner radius of 10m;	
		(i) maximum gradient of 15 degrees (1:3.5 or 28%) for sealed roads, and 10 degrees (1:5.5 or 18%) for unsealed roads; and	
		(j) terminate with a turning area for fire appliances provided by one of the following:	
		(i) a turning circle with a minimum outer radius of 10m; or	
		(ii) a property access encircling the building; or	
		(iii) a hammerhead "T" or "Y" turning head 4m wide and 8m long.	
С	Property access length is 200m or greater.	The following design and construction requirements apply to property access:	
		(a) the requirements for B above; and	
		(b) passing bays of 2m additional carriageway width and 20m length provided every 200m.	
D	Property access length is greater than 30m, and	The following design and construction requirements apply to property access:	
	more properties.	(a) complies with requirements for B above; and	
		(b) passing bays of 2m additional carriageway width and 20m length must be provided every 100m.	

Table C13.4	Standards	for fire	trails
-------------	-----------	----------	--------

Element		Requirement	
A.	All fire trails	The following design and construction requirements apply:	
		(a) all-weather, 4-wheel drive construction;	
		(b) load capacity of at least 20t, including for bridges and culverts;	
		(c) minimum carriageway width of 4m;	
		(d) minimum vertical clearance of 4m;	
		(e) minimum horizontal clearance of 2m from the edge of the carriageway;	
		(f) cross falls of less than 3 degrees (1:20 or 5%);	
		(g) dips less than 7 degrees (1:8 or 12.5%) entry and exit angle;	
		(h) curves with a minimum inner radius of 10m;	
		(i) maximum gradient of 15 degrees (1:3.5 or 28%) for sealed fire trails, and 10 degrees (1:5.5 or 18%) for unsealed fire trails;	

		(j) gates if installed at fire trail entry, have a minimum width of 3.6m, and if locked, keys are provided to TFS; and
		(k) terminate with a turning area for fire appliances provided by one of the following:
		(i) a turning circle with a minimum outer radius of 10m; or
		(ii) a hammerhead "T" or "Y" turning head 4m wide and 8m long.
В	Fire trail length is	The following design and construction requirements apply:
200m or greater.	(a) the requirements for A above; and	
		(b) passing bays of 2m additional carriageway width and 20m length provided every 200m.

Table C13.5 Static water supply for firefighting

Element		Requirement	
А.	Distance between	The following requirements apply:	
	protected and water supply.	the building area to be protected must be located within 90 m of fire fighting water point of a static water supply; and	
		the distance must be measured as a hose lay, between the fire fighting water point and the furthest part of the building area.	
В.	Static Water Supplies	A static water supply:	
		(a) may have a remotely located offtake connected to the static water supply;	
		(b) may be a supply for combined use	
		(fire fighting	
		and other uses) but the specified minimum quantity of fire fighting water must be available at all times;	
		(c) must be a minimum of 10,000l per building area to be protected. This volume of water must not be used for any other purpose including fire fighting sprinkler or spray systems;	
		(d) must be metal, concrete or lagged by non-combustible materials if above ground; and	
		(e) if a tank can be located so it is shielded in all directions in compliance with section 3.5 of <i>Australian Standard AS 3959-2009</i>	
		<i>Construction of buildings in bushfire-prone areas,</i> the tank may be constructed of any material provided that the lowest 400mm of the tank exterior is protected by:	
		(i) metal;	
		(ii) non-combustible material; or	
		(iii) fibre cement a minimum of 6mm thickness.	

С.	Fittings, pipework and accessories (including	Fittings and pipework associated with a fire fighting water point for a static water supply must:
	supports)	(a) have a minimum nominal internal diameter of 50mm;
		(b) be fitted with a valve with a minimum nominal internal diameter of 50mm;
		(c) be metal or lagged by non-combustible materials if above ground;
		(d) if buried, have a minimum depth of 300mm2 <i>;</i>
		(e) provide a DIN or NEN standard forged Storz 65mm coupling fitted with a suction washer for connection to firefighting equipment;
		(f) ensure the coupling is accessible and available for connection at all times;
		(g) ensure the coupling is fitted with a blank cap and securing chain (minimum 220mm length);
		(h) ensure underground tanks have either an opening at the top of not less than 250mm diameter or a coupling compliant with this Table; and
		(i) if a remote offtake is installed, ensure the offtake is in a position that is:
		(i) visible;
		(ii) accessible to allow connection by firefighting equipment;
		(iii) at a working height of 450 – 600mm above ground level; and
		(iv) protected from possible damage, including damage by vehicles.
D.		
	Signage for static water connections	The fire fighting water point for a static water supply must be identified by a sign permanently fixed to the exterior of the assembly in a visible location. The sign must:
	Signage for static water connections	The fire fighting water point for a static water supply must be identified by a sign permanently fixed to the exterior of the assembly in a visible location. The sign must: (a) comply with water tank signage requirements within <i>Australian</i> <i>Standard AS 2304-2011 Water storage tanks for fire protection</i> <i>systems;</i> or
	Signage for static water connections	 The fire fighting water point for a static water supply must be identified by a sign permanently fixed to the exterior of the assembly in a visible location. The sign must: (a) comply with water tank signage requirements within <i>Australian Standard AS 2304-2011 Water storage tanks for fire protection systems;</i> or (b) comply with the Tasmania Fire Service Water Supply Guideline published by the Tasmania Fire Service.
E.	Signage for static water connections Hardstand	 The fire fighting water point for a static water supply must be identified by a sign permanently fixed to the exterior of the assembly in a visible location. The sign must: (a) comply with water tank signage requirements within <i>Australian Standard AS 2304-2011 Water storage tanks for fire protection systems;</i> or (b) comply with the Tasmania Fire Service Water Supply Guideline published by the Tasmania Fire Service. A hardstand area for fire appliances must be:
E.	Signage for static water connections Hardstand	 The fire fighting water point for a static water supply must be identified by a sign permanently fixed to the exterior of the assembly in a visible location. The sign must: (a) comply with water tank signage requirements within <i>Australian Standard AS 2304-2011 Water storage tanks for fire protection systems;</i> or (b) comply with the Tasmania Fire Service Water Supply Guideline published by the Tasmania Fire Service. A hardstand area for fire appliances must be: no more than 3m from the hydrant, measured as a hose lay;
E.	Signage for static water connections Hardstand	 The fire fighting water point for a static water supply must be identified by a sign permanently fixed to the exterior of the assembly in a visible location. The sign must: (a) comply with water tank signage requirements within Australian Standard AS 2304-2011 Water storage tanks for fire protection systems; or (b) comply with the Tasmania Fire Service Water Supply Guideline published by the Tasmania Fire Service. A hardstand area for fire appliances must be: no more than 3m from the hydrant, measured as a hose lay; no closer than 6m from the building area to be protected;
E.	Signage for static water connections Hardstand	The fire fighting water point for a static water supply must be identified by a sign permanently fixed to the exterior of the assembly in a visible location. The sign must: (a) comply with water tank signage requirements within <i>Australian</i> <i>Standard AS 2304-2011 Water storage tanks for fire protection</i> <i>systems;</i> or (b) comply with the Tasmania Fire Service Water Supply Guideline published by the Tasmania Fire Service. A hardstand area for fire appliances must be: no more than 3m from the hydrant, measured as a hose lay; no closer than 6m from the building area to be protected; a minimum width of 3m constructed to the same standard as the carriageway; and

APPENDIX 3. PLANNING CERTIFICATE

BUSHFIRE-PRONE AREAS CODE

CERTIFICATE¹ UNDER S51(2)(d) LAND USE PLANNING AND APPROVALS ACT 1993

1. Land to which certificate applies

The subject site includes property that is proposed for use and development and includes all properties upon which works are proposed for bushfire protection purposes.

Street address:

Back Tea Tree Road, Tea Tree

Certificate of Title / PID:

Certificate of title / number: CT 121954/1

PID: 1698711

11 lot subdivision

2. Proposed Use or Development

Description of proposed Use

and Development:

Applicable Planning Scheme:

Tasmanian Planning Scheme - Brighton

3. Documents relied upon

This certificate relates to the following documents:

Title	Author	Date	Version
Plan of subdivision - 210768	DG Potter	16/9/21	1

¹ This document is the approved form of certification for this purpose and must not be altered from its original form.

4. Nature of Certificate

The following requirements are applicable to the proposed use and development:

E1.4 / C13.4 – Use or development exempt from this Code	
Compliance test Compliance Requirement	
E1.4(a) / C13.4.1(a)	Insufficient increase in risk

E1.5.1 / C13.5.1 – Vulnerable Uses	
Acceptable Solution	Compliance Requirement
E1.5.1 P1 / C13.5.1 P1	Planning authority discretion required. A proposal cannot be certified as compliant with P1.
E1.5.1 A2 / C13.5.1 A2	Emergency management strategy
E1.5.1 A3 / C13.5.1 A2	Bushfire hazard management plan

E1.5.2 / C13.5.2 – Hazardous Uses	
Acceptable Solution	Compliance Requirement
E1.5.2 P1 / C13.5.2 P1	Planning authority discretion required. A proposal cannot be certified as compliant with P1.
E1.5.2 A2 / C13.5.2 A2	Emergency management strategy
E1.5.2 A3 / C13.5.2 A3	Bushfire hazard management plan

E1.6.1 / C13.6.1 Subdivision: Provision of hazard management areas		
Acceptable Solution	Compliance Requirement	
E1.6.1 P1 / C13.6.1 P1	Planning authority discretion required. A proposal cannot be certified as compliant with P1.	

	E1.6.1 A1 (a) / C13.6.1 A1(a)	Insufficient increase in risk
\boxtimes	E1.6.1 A1 (b) / C13.6.1 A1(b)	Provides BAL-19 for all lots (including any lot designated as 'balance')
	E1.6.1 A1(c) / C13.6.1 A1(c)	Consent for Part 5 Agreement

	E1.6.2 / C13.6.2 Subdivision: Public and fire fighting access			
	Acceptable Solution	ceptable Solution Compliance Requirement		
	E1.6.2 P1 / C13.6.2 P1	<i>Planning authority discretion required. A proposal cannot be certified as compliant with P1.</i>		
	E1.6.2 A1 (a) / C13.6.2 A1 (a)	Insufficient increase in risk		
\boxtimes	E1.6.2 A1 (b) / C13.6.2 A1 (b)	Access complies with relevant Tables		

	E1.6.3 / C13.1.6.3 Subdivision: Provision of water supply for fire fighting purposes		
	Acceptable Solution	Compliance Requirement	
	E1.6.3 A1 (a) / C13.6.3 A1 (a)	Insufficient increase in risk	
	E1.6.3 A1 (b) / C13.6.3 A1 (b)	Reticulated water supply complies with relevant Table	
	E1.6.3 A1 (c) / C13.6.3 A1 (c)	Water supply consistent with the objective	
	E1.6.3 A2 (a) / C13.6.3 A2 (a)	Insufficient increase in risk	
X	E1.6.3 A2 (b) / C13.6.3 A2 (b)	Static water supply complies with relevant Table	
	E1.6.3 A2 (c) / C13.6.3 A2 (c)	Static water supply consistent with the objective	

5. Bushfire Hazard Practitioner

Name:	Philip Ba	arker	Phone No:	0438250713
Postal Address:	163 Campbell Street Hobart 7000		Email Address:	pbarker@northbarker.com.au
Accreditati	on No:	BFP – 147	Scope:	1,2,3A,3B,3C

6. Certification

I certify that in accordance with the authority given under Part 4A of the *Fire Service Act 1979* that the proposed use and development:

Is exempt from the requirement Bushfire-Prone Areas Code because, having regard to the objective of all applicable standards in the Code, there is considered to be an insufficient increase in risk to the use or development from bushfire to warrant any specific bushfire protection measures, or

The Bushfire Hazard Management Plan/s identified in Section 3 of this certificate is/are in accordance with the Chief Officer's requirements and compliant with the relevant **Acceptable Solutions** identified in Section 4 of this Certificate.

Signed: certifier	Ch 3e		
Name:	Philip Barker	Date:	01/02/2024
		Certificate Number:	SWS002
		(for Practition	ner Use only)


11 lot Low-Density Residential Subdivision Back Tea Tree Road, Tea Tree

Natural Values Assessment

February 2024 For Southern Waste Solutions (SWS002)



Tasmanian Planning Scheme 2021 - Brighton	
Zones	Landscape Conservation (22)
Overlays	 Natural assets code (C7) Waterway and Coastal Protection Area (C7.7.1) Priority Vegetation Area (C7.7.2) Bushfire Prone Areas (C13) – addressed in a separate report
Threatened flora	<i>Asperula scoparia</i> (TSPA rare) <i>Vittadinia gracilis</i> (TSPA rare) <i>Vittadinia muelleri</i> (TSPA rare) <i>Scleranthus diander</i> (TSPA rare) <i>Scleranthus fasciculatus</i> (TSPA rare)
Impacts	No direct impact
Threatened fauna and habitat	 Tasmanian wedge-tailed eagle (TSPA endangered, EPBCA Endangered); eastern barred bandicoot (EPBCA Vulnerable); spotted-tail quoll (TSPA rare, EPBCA Vulnerable); eastern quoll (EPBCA Endangered); Tasmanian devil (TSPA endangered, EPBCA Endangered); and grey goshawk (TSPA endangered) limited to potential foraging habitat in primarily modified land for these wide- ranging species
Impacts	Impact to the foraging habitat primarily in modified land for the wide-ranging species not significant.
Threatened vegetation	DAS (NCA listed) – small impact GTL (EPBC listed) – no direct impact
Impacts	1.8 ha of DAS
EPBC Act	No significant impact to MNES
TSP Act	A permit to take may be required for <i>Scleranthus fasciculatus</i>
NCA Act	Nil
Weed Management Act	Five declared weeds present, all classified as Zone B - requires containment

Summary

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1 Project Details

Background

The proponent is seeking approval for a subdivision at Back Tea Tree Road (PID 1698711, title reference 121954/1) (Figure 1), including accessways from Back Tea Tree Road and Rosewood Lane to 11 residential blocks (Figure 2) – the study area. To support a development application to the Brighton Council, the proponent has engaged North Barker Ecosystem Services (NBES) to undertake a natural values assessment consistent with NRE's *Guidelines for Natural Values Surveys – Terrestrial Development Proposals*.

Date of Field Survey: 7th & 8th April 2022

Field Survey, Report and Photos: Cameron Geeves

Methods

Plant species composition of the study area was surveyed using an area search based on the Timed Meander Search Procedure¹, stratified within representative areas of each vegetation type present in accordance with TASVEG 4.0 units; vegetation boundaries were assessed in the field and on desktop with the aid of GPS points and aerial imagery. Fauna habitat was assessed concurrently with the vegetation assessment according to industry guidelines on search requirements and habitat quality.

The Tasmanian Natural Values Atlas database was searched for records of threatened species and vegetation types within a 5 km radius². The possibility of threatened values known from within this radius occurring within the impact area has been considered in the interpretation of results.

Limitations

The field survey was undertaken in autumn. Values that are seasonal may have been overlooked or absent; the potential for this is considered where relevant in the discussion. The quality of fauna habitat, including the presence of tree hollows, was assessed from ground level.

2 Site Values

2.1 Site Characteristics and Study Area

The study area covers ~232 ha of the property (Figure 2). The entire study area is within the Landscape Conservation zone under the *Tasmanian Planning Scheme - Brighton* (the Scheme). Parts of the study area are subject to the Natural Assets Code overlay, including areas subject to Waterway and Coastal Protection area code and Priority Vegetation area code under the Scheme (Figure 2). The study is for 11 lots, and the lot layout, building envelopes and bushfire hazard management areas (BHMAs) in this report are as per the Bushfire Hazard Management Plan included in the application (Figure 2).

The study area is located in a rural landscape comprised of a mosaic of low-density residential use, quality agricultural land, grazed rough pasture, and remnant native vegetation. The study area is

¹ Goff *et al.* 1982

² Natural Values Atlas Report, (report nvr_3_06-Apr-2022)

comprised mostly of cleared land with a history of grazing but does also includes remnant native vegetation in the southern portion of the site.

The site is spread over Jews Hills, which is part of the northern end of the Meehan Range. The site consists of gentle to moderately sloped land between 110 m asl and 300 m asl at Jews Hill. Average annual rainfall for the area is under 500 mm. The site substrate is derived primarily from Jurassic dolerite in the north and east, but also includes a deposition of Permian-Triassic sandstone in the south.



Figure 1: Location of the subdivision.



3 Results and Discussion

Vegetation

The majority of the lots are situated on modified land; as per TASVEG 4.0 this is classed as FAG (Agricultural land). Five native vegetation communities are present within the study area (Figure 3, Plates 1-4). The two forest communities are in relatively poor to moderate condition, compromised by location (edge effects), exotic species, and in some areas tree dieback. A high level of native grazing is evident in the south-western area of extensive bushland (DAS), which is limiting the regeneration of native woody understorey species.

A patch of native grassland TASVEG 4.0 mapped as Lowland Themeda Grassland occurs in the far southwestern corner of the study area. This was not verified during the survey given the current subdivision plan will not impact the area.

- *Eucalyptus viminalis* grassy forest and woodland (DVG) 48.53 ha in study area.
- *Eucalyptus amygdalina* forest and woodland on sandstone (DAS) 44.82 ha in study area.
- *Bursaria-Acacia* woodland (NBA)– 9 ha in study area.
- Lowland Grassland Complex (GCL) 1.90 ha in the study area
- Lowland Themeda Grassland (GTL) approx. 7 ha

DAS is listed as a threatened community under the Tasmanian Nature Conservation Act 2002 (NCA).

Although not listed as threatened under the NCA, if certain condition thresholds are met, Both GCL and GTL can qualify for listing as the critically endangered *Lowland Native Grasslands of Tasmania* community, in this case perennial non-native species make up more than 20 % total ground cover in GCL and thus the community does not qualify³.

GTL is a critically endangered ecological community listed under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999.* The GTL patch was not verified during the survey due to seasonal constraints.

Eucalyptus viminalis grassy forest and woodland (DVG, Plate 1)

Occurs on lots 4, 7, 8 and 10. The canopy is dominated by *Eucalyptus viminalis*. *Bursaria spinosa* is the dominant understorey species with *Acacia dealbata* and *A. mearnsii* also present. The shrub layer is sparse and is comprised of widespread dry woodland species such as *Lissanthe strigosa* and *Pimelea humilis*. The ground cover is grass dominated, with a number of native herbs present; species include: *Poa labillardierei, P. rodwayi, Lagenophora stipitata and Scleranthus spp.*

This community is in a poor condition: old growth characteristics are absent and crown dieback is common. Much of the area surveyed is subject to edge effects that include a diversity of introduced weed species from the surrounding pasture.

This is community is not listed under the NCA.

3.1.1 *Eucalyptus amygdalina* forest and woodland on sandstone (DAS, Plate 2)

Occurs on lots 1, 2, 5 and 6 in southern parts of the survey area. This community is dominated by *Eucalyptus amygdalina*, with *E. viminalis* as a subdominant and *Bursaria spinosa* dominant in places.

³ Lowland native grasslands of Tasmania EPBCA policy statement (2010)

Old-growth characteristics are absent, potentially a result of historic firewood collection. Acacia mearnsii, Allocasurina littoralis and Dodonaea viscosa occur in the understorey. The shrub and ground cover layers include widespread species such as Astroloma humifusum, Lissanthe strigosa, Leucopogon virgatus subsp. virgatus, Boronia anemonifolia, Acaena novae-zelandiae, Lomandra longifolia and Microlaena stipoides. Similarly, edge effects were evident in this community, with weedy grasses from nearby pasture also being common throughout the understory.

Eucalyptus amygdalina forest and woodland on sandstone is listed as threatened under the Tasmanian NCA.

3.1.2 Bursaria-Acacia woodland (NBA, Plate 3)

This disturbance-induced community occupies large areas on the fringes between native vegetation and pasture in the study area. The community dominated by *Bursaria spinosa* and *Acacia mearnsii*. The shrub and ground cover layers are relatively species poor and comprised of a few common and widespread species such as *Lissanthe strigosa*, *Dichondra repens*, *Lomandra longifolia*, *Themeda triandra and Poa rodwayi*. Weedy pasture species such as *Phalaris sp., Cynosurus echinatus* and *Dactylis glomerata* are also common throughout this community.

Bursaria – Acacia woodland (NBA) is not listed under the Tasmanian NCA.

3.1.3 Lowland Grassland Complex (GCL, Plate 4)

This community is typically derived from the degradation of grassy native vegetation, which is most likely the case within the study area. Here it occurs in patches on lots 2, 3 and 7. These areas are subject to grazing and whilst native grasses such as *Rytidosperma spp.* and *Austrostipa spp.* form between 25% - 50% of the species composition, perennial non-native grasses from adjacent pasture such as *Dactylis glomerata, Cynosurus echinatus* and *Phalaris spp.* are very common throughout these areas, which has degraded the quality of this grassland. Given the time of survey (Autumn), herb species were sparse in the understory, although the herbaceous weed *Acetosella vulgaris,* and native herbs *Dichondra repens* and *Plantago varia* were common.

This community is not listed under the NCA.



Plate 1: DVG on lot 8. Grassy understory with a high component of non-native species.



Plate 2: DAS in the study area.



Plate 3: NBA in the study area.



Plate 4: GCL in the study area.



3.2 Plant Species of Conservation Significance

Ninety-two vascular plant taxa were recorded in the study area (Appendix A); of these, twenty-nine are introduced species. Five species listed as threatened under the Tasmanian *Threatened Species Protection Act 1995* (TSPA) were recorded during the survey (Figure 4):

- Asperula scoparia subsp. scoparia (TSPA rare) found in one location on lot 8.
- *Vittadinia gracilis* (TSPA rare) a small population of plants occur in the FAG in the north of the study area.
- *Vittadinia cuneata* var *cuneata* (TSPA rare) incidentally recorded in FAG between lot 10 and lot 11.
- Scleranthus diander (TSPA vulnerable) incidentally recorded in FAG on lot 7
- Scleranthus fasciculatus (TSPA vulnerable) incidentally recorded in FAG on lot 4

The Tasmanian *Natural Values Atlas* lists two species of threatened flora within 500 m of the study area:

- *Asperula scoparia* subsp. *scoparia* This is a small herb species, which was found to also be present on lot 8;
- Isoetopsis graminifolia This cryptic annual herb grows in native grasslands. Seed is known to persist in the soil for many decades, allowing the species to emerge in response to seasonally favourable conditions. Peak flowering is September to November. Chances of detecting the species outside of its flowering time are very low, and thus the species may very well be present within the study area.

A number of additional threatened plant taxa have been recorded within 5 km⁴ of the area. The habitat in most of the study area is heavily grazed pasture largely comprised primarily of competitive introduced grass species. These areas are unsuitable for most of the threatened flora recorded within 5 km.

Similarly, the chances of threatened flora species occurring in the native communities and having been overlooked during the survey are low to very low. These areas are in moderate to poor condition, and are prone to edge effects, especially the presence of introduced species.

Those species that have some chance of occurring, albeit low, are discussed in Appendix B.

3.3 Threatened Fauna Habitat

No sign or presence of threatened fauna were recorded during the survey.

Further, our fauna habitat assessment established that the proposed clearance footprint does not contain any observable habitat elements that could be considered critical to the persistence of threatened fauna species at a local level or higher.

The Tasmanian *Natural Values Atlas* lists one threatened fauna species within 500 m of the study area: the eastern barred bandicoot. A range of additional threatened fauna species have been recorded within 5 km of the site and the likelihood of their occurrence is discussed in Appendix C. Most of these species are not likely to occur because the habitat is entirely unsuitable (e.g., swift

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⁴ Natural Values Atlas Report, (report nvr_3_06-Apr-2022)

parrot). Some species have a low chance of occurring occasionally at the site or traversing the site (e.g., wedge-tailed eagle) but no impact is expected to those species.

3.4 Weeds

Five species of declared weeds under the Tasmanian *Weed Management Act 1999* and a single environmental weed occur in the study area (Figure 4). Two environmental weeds are also widespread throughout the study area. Note that our records are not intended to represent the distribution of weeds on the entire area.

Declared weed species

- California thistle (*Cirsium arvense,* Plate 6): is widespread thoughout the modified land on the site.
- African boxthorn (*Lycium ferocissimum,* Plate 7): scattered throughout the study area; mostly single plants but two patches of 10 and 17 plants occur.
- Fennel (*Foeniculum vulgare*): one patch concentrated around the entrance to the study area near Rosewood Lane.
- Gorse (*Ulex europaeus,* Plate 9): one isolated patch on lot 2 in the southern part of the study area.
- White horehound (*Marrubium vulgare,* Plate 10): large patch on lot 9 and one individual on lot 8. This species is likely to be more widespread within the study area and vicinity.

Environmental weed species

- Sweet briar (*Rosa rubiginosa*): this is an environmental weed that is scattered throughout modified land predominantly in the northern parts of the study area.
- Spear thistle (*Cirsium vulgare*): widespread throughout disturbed areas.



Plate 5: Californian thistle in the study area.



Plate 6: African boxthorn in the study area.



Plate 7: Gorse occurs within the study area on lot 2.



Plate 8: White horehound from lot 9.



4 Impact Assessment and Scope for Mitigation

4.1 Vegetation Communities

The two access roads included in this application will impact a total of 4.4 ha. All of which is agricultural land (FAG).

The notional layout of the building areas, and bushfire hazard management areas is also situated largely in FAG, and impact to native communities is largely avoided with this design.

Due to the minor impact to native vegetation communities, no mitigation measures are warranted. However, indirect impacts to vegetation outside the construction area should be avoided by clearly defining the extent of clearance and excluding the parking and use of vehicles and the storing of materials from native habitats.

An area of grassland TASVEG mapped as GTL occurs in the far southwestern part of the study area on lots 5, 6, and 7. No impacts under the subdivision plan are anticipated and the mapped area is remote from notional building areas. A spring survey would be required to verify the patch as the EPBC listed ecological community. If the community is present then it should be protected from development by a legal instrument such as a Conservation Covenant under the NCA 2002.

4.2 Threatened Flora Species

Five threatened flora species have been recorded within the project area:

- Asperula scoparia subsp. scoparia (TSPA rare) found in one location within lot 8.
- *Vittadinia gracilis* (TSPA rare) a small population of ~ 50 plants occur in the FAG in the north of the study area and a single plant was recorded close to the current notional building area on lot 8.
- *Vittadinia cuneata* var *cuneata* (TSPA rare) incidentally recorded in FAG between lot 10 and lot 11.
- *Scleranthus diander* (TSPA vulnerable) found on lot 7 and incidentally recorded in the understory of DVG and within FAG on lot 4.
- *Scleranthus fasciculatus* (TSPA vulnerable) 20 plants recorded on the boundary of the access road and lot 4 in FAG vegetation.

The following spring flowering species have a low to moderate chance of occurring, especially within the more native grassland and grassy woodland vegetation in the project area:

- Isoetopsis graminifolia (grass cushion) TSP vulnerable This cryptic annual herb grows in native grasslands. Seed is known to persist in the soil for many decades, allowing the species to emerge in response to seasonally favourable conditions. Peak flowering is September to November. Chances of detecting the species outside of its flowering time are very low, and thus the species may very well be present within the study area.
- *Pterostylis wapstrarum* (fleshy greenhood) TSP endangered, EPBC critically endangered spring flowering orchid, the chances of detecting the species outside of its flowering time is very low.
- *Pterostylis squamata* (ruddy greenhood) TSP vulnerable spring/summer flowering orchid, the chances of detecting the species outside of its flowering time is very low.

It is recommended that targeted Spring survey be undertaken to rule out the presence of these species within the areas proposed to be impacted.

No other threatened flora are expected to occur in the study area, and no mitigation measures are required at this stage in the proposal.

4.3 Threatened Fauna Habitat and Trees

The proposal may impact foraging habitat for threatened fauna that may occur in modified land and the surrounding native vegetation: Tasmanian wedge-tailed eagle, masked owl, eastern barred bandicoot, quolls, Tasmanian devil, and grey goshawk. These are wide-ranging fauna and the development of the proposal is expected to have a low impact on these species. The study area is unlikely to support a population or be important to the survival of a local population for any of these species. Accordingly, no mitigation measures are recommended for these species.

4.4 Weeds

Without mitigation, the proposal runs the risk and spreading and/or worsening the declared weeds on site. It is recommended that all occurrences of declared weeds are treated prior to works. Best practice construction hygiene⁵ should be practiced to prevent the spread of weed propagules in contaminated soil. This should involve cleaning all machinery before leaving the works area, as well as not bringing dirty machinery into the site. Follow-up weed control will be required 6-12 and 24 months after works to treat any individuals that have colonised the disturbance area.

⁵ DPIPWE 2015

Table 1: Summary of impacts to natural values.

Natural value	Potential impacts	Context and comments on mitigation ⁶
	EPBCA Ecological (communities
None present	No indirect impacts anticipated	
	Native vegetation commu	iities (TASVEG units)
(DAS) <i>Eucalyptus amygdalina</i> forest and woodland on	Lot 5 Bushfire Hazard	Total extent in Tasmania: 40,400 ha
		Total extent in Tasmanian reserve estate: 13,600 ha
	Lot 5 and 6 Access: 0.11 Lot 5 Building area 0 29 ha	Total extent in Brighton Council: 600 ha
	רכר ה המומוות מוכמ כיבה ומ	Total extent in reserves in Brighton Council: 30 ha
(DVG) Eucalyptus viminalis grassy forest and woodland	Bushfire Hazard Management	Total extent in Tasmania: 103,900 ha
	Aleas. Und	Total extent in Tasmanian reserve estate: 17,500 ha
	Access: U na	Total extent in Brighton Council: 1,400 ha
		Total extent in reserves in Brighton Council: 50 ha
(NBA) <i>Bursaria – Acacia</i> woodland	Bushfire Hazard Management	Total extent in Tasmania: 18,600 ha
	Areas: 0.42 na	Total extent in Tasmanian reserve estate: 2,600 ha
	Access: 0.07 ha	Total extent in Brighton Council: 500 ha
 Includes statements from DPIPWE Threatened Species L 	Link summaries and note sheets	

Potential impacts Context and comments on mitigation ⁶	Total extent in reserves in Brighton Council: 40 ha	Nil Total extent in Tasmania: 69,100 ha	Total extent in Tasmanian reserve estate: 3,300 ha	Total extent in Brighton Council: 12,000 ha	Total extent in reserves in Brighton Council: 100 ha	Nil Total extent in Tasmania: 7,600 ha	Total extent in Tasmanian reserve estate: 2,300 ha	Total extent in Brighton Council: 200 ha	Total extent in reserves in Brighton Council: 60 ha	Other Vegetation Communities (TASVEG units)	Survey Area: 10.5 ha	EPBCA listed flora		TSPA listed flora	Three individual plants found near the building area on lot 8.	
Potential impa		Nil				Nil				Other Vegetat	Survey Area: 10.				3 plants	
Natural value		(GCL) Lowland grassland complex				(GTL) Lowland <i>Themeda triandra</i> grassland – Critically	endangered – EPBC Act 1999.				FAG – Agricultural land		None present		<i>Asperula scoparia</i> subsp. <i>scoparia</i> (TSPA rare)	

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Natural value	Potential impacts	Context and comments on mitigation ⁶
<i>Vittadinia gracilis</i> (TSPA rare)	90 plants	Majority of plants found to occur in FAG vegetation in lot 11 outside the impact area.
<i>Vittadinia cuneata</i> var <i>cuneata</i> (TSPA rare)	53 plants	Majority of plants found to occur in FAG vegetation on lot 11 , outside of proposed area to be impacted.
<i>Scleranthus diander</i> (TSPA vulnerable)	67 plants	Approximately 50 plants found within lot 7. Small patches of plants opportunistically recorded between impact areas.
Scleranthus fasciculatus (TSPA vulnerable)	20 plants	Approximately 20 plants recorded on the boundary with lot 4 and the southern access road.
	Threatened Fauna and	d Fauna Habitat
<i>Dasyurus maculatus</i> subsp. <i>maculatus</i> Spotted-tailed quoll		
EPBCA Vulnerable, TSPA Rare		
Dasyurus viverrinus Eastern quoll	Removal of a small area of potential habitat within DVG and	Negligible impacts anticipated.
EPBCA Endangered, TSPA Not listed	DAS forest	
<i>Sarcophilus harrisii</i> Tasmanian devil		
EPBCA Endangered, TSPA Endangered		
<i>Aquila audax</i> subsp. <i>fleayi</i> Tasmanian wedge-tailed eagle	No direct impacts to nesting habitat.	Negligible impacts anticipated.
EPBCA Endangered, TSPA Endangered		

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North Barker Ecosystem Services - SWS002

Natural value	Potential impacts	Context and comments on mitigation $^{\mathfrak{6}}$
T <i>yto novaehollandiae</i> subsp. <i>castanops</i> Tasmanian masked owl	No direct impacts to nesting habitat.	Negligible impacts anticipated.
EPBCA Vulnerable, TSPA Vulnerable		
	Weeds	
Zone B Species		The management objective is to contain the spread of these species. The containment
<i>Foeniculum vulgare</i> fennel		principles of the WiviA should be sumiciently met with best practice construction nyglene that prevents the transport of contaminated material off site, and the completion of a post-works audit.
Cirsium vulgare		
Californian thistle		
Lycium ferocissimum		
African boxthorn		
Marrubium vulgare		
white horehound		
Ulex europaeus		
gorse		

5 Legislative Implications

5.1 Commonwealth Environment Protection and Biodiversity Conservation Act 1999

No impacts proposed in this application. However, GTL is a Matter of National Environmental Significance and could be inadvertently impacted by land sue change engendered by residential subdivision. The area of GTL should be verified and if confirmed should be protected by a conservation covenant.

5.2 Tasmanian Threatened Species Protection Act 1995

Any impact on threatened plant species listed under the TSPA will require a 'permit to take' from the Policy and Conservation Branch (PCAB) at the Department of Natural Resources and Environment. Potential impacts on the following State-listed flora species within the project area may trigger a permit to take requirement:

- Asperula scoparia subsp. scoparia (TSPA rare)
- Vittadinia gracilis (TSPA rare)
- *Vittadinia cuneata* var *cuneata* (TSPA rare)
- Scleranthus diander (TSPA vulnerable)
- *Scleranthus fasciculatus* (TSPA vulnerable)

5.3 Tasmanian *Nature Conservation Act 2002*

One vegetation community (*Eucalyptus amygdalina* forest and woodland on sandstone – DAS), listed as threatened under schedule 3A of the NCA occurs within the project area.

The NCA does not regulate impacts to this community but informs relevant criteria within the Tasmanian Planning Scheme

5.4 Tasmanian *Biosecurity Act 2019*

California thistle, African boxthorn, Fennel, White horehound and Gorse are all zone B species in the Brighton Council, the proponent must prevent spread of these weeds resulting from works. Eradication of the reported plants will be most effective means of achieving this requirement.

5.5 Tasmanian *Planning Scheme 2021 - Brighton*

5.5.1 <u>Zones</u>

The study area is zoned as Landscape Conservation (22).

The purpose of the Landscape Conservation Zone is:

To provide for the protection, conservation, and management of landscape values.

To provide for compatible use or development that does not adversely impact on the protection, conservation, and management of the landscape values.

5.5.2 <u>Codes</u>

Natural Assets Code (C7)

Parts of the study area fall within a Waterway and Coastal Protection Area and Priority Vegetation Area (WWCPA & PVA, Figure 2 above) and any clearing in these areas is subject to the Natural Assets Code. Subdivision proposals are considered under **C7.7.1** and **C7.7.2** of the Code respectively.

5.5.2.1 Subdivision within a Waterway and Coastal Protection Area or a Future Coastal Refugia Area (C7.6.1)

Under C7.6.1 the objective of the Code is stated as follows:

- (a) works associated with subdivision within a waterway and coastal protection area or future coastal refugia area will not have an unnecessary or unacceptable impact on natural assets; and
- (b) future developments likely to be facilitated by subdivision is unlikely to lead to an unnecessary or unacceptable impact on natural assets

Acceptable Solutions A1

Each lot, or a lot proposed in a plan of subdivision, within a waterway and coastal protection area or a future coastal refugia area must:

- *a) be for the creation of separate lots for existing buildings;*
- *b) be required for public use by the Crown, a council, or a State authority;*
- c) be required for the provisions of Utilities;
- d) be for the consolidation of a lot; or
- e) not include any works (excluding boundary fencing), building area, services, bushfire hazard management area or building access within a waterway and coastal protection area or future coastal refugia area.

The proposal cannot meet acceptable solutions A1 and therefore must meet performance criteria P1.1 as follows:

Each lot, or a lot proposed in a plan of subdivision, within a waterway and coastal protection area or a future coastal refugia area, must minimise adverse impacts on natural assets, having regard to:

a) the need to locate building areas and any associated bushfire hazard management area to be outside a waterway and coastal protection area or future coastal refugia area;

The hazard management areas and/or building areas are located outside of the Waterway and Coastal Protection Area (WWCPA) overlay.

The proposal can therefore meet this criterion.

b) Future development likely to be facilitated by the subdivision.

The future development of access to the subdivision will overlap with three watercourses subject to the WWCPA. The watercourses associated with this overlay are all highly modified (comprised primarily of introduced species in FAG) this renders these watercourse of limited ecological value in terms of native natural values. As such there will be no impact on natural values in the WWCPA.

The proposal can therefore meet this criterion.

5.5.2.2 Subdivision within a Priority Vegetation Area (C7.6.2)

Under C7.6.1 the objective of the Code is stated as follows:

- (a) works associated with subdivision will not have an unnecessary or unacceptable impact on priority vegetation; and
- (b) future developments likely to be facilitated by subdivision is unlikely to lead to an unnecessary or unacceptable impact on priority vegetation.

Acceptable Solutions A1

Each lot, or a lot proposed in a plan of subdivision, within a priority vegetation area must:

- a) be for the creation of separate lots for existing buildings;
- b) be required for public use by the Crown, a council, or a State authority;
- c) be required for the provisions of Utilities;
- d) be for the consolidation of a lot; or
- e) not include any works (excluding boundary fencing), building area, bushfire hazard management area, services or vehicular access within a priority vegetation area.

The proposal cannot meet acceptable solutions A1 and therefore must meet performance criteria P1.1 and P1.2 as follows:

P1.1

Each lot, or a lot proposed in a plan of subdivision, within a priority vegetation area must be for:

a) subdivision for an existing use on the site, provided any clearance is contained within the minimum area necessary to be cleared to provide adequate bushfire protection, as recommended by the Tasmanian Fire Service or an accredited person;

N/A subdivision is not for an existing use

b) subdivision for the construction of a single dwelling or an associated outbuilding;

N/A - subdivision is for multiple lots, each with a single dwelling.

c) subdivision in the General Residential zone or Low Density Residential Zone;

N/A – subdivision is zoned Landscape conservation

d) use or development that will result in significant long tern social and economic benefits and there is no feasible alternative location or design;

The proposed design lot layout, and associated building areas has been located as best as possible with regard to priority vegetation, boundary and hazard management setbacks. While alternative building areas do exist, there is no feasible benefit to an alternative location or design.

e) subdivision involving clearance of native vegetation where it is demonstrated that on-going pre-existing management cannot ensure the survival of the priority vegetation and there is little potential for long-term persistence; or

Currently, the land proposed for subdivision, including the areas subject to the natural assets code for priority vegetation is used for agricultural purposes in the form of sheep grazing. This has resulted in the degradation of the native vegetation to the point where bare ground and declared weeds and the introduction of non-native pasture species have become dominant features in parts of the study area. The current land use does not ensure the long term persistence of the little priority vegetation remaining within the study area.

The subdivision of this land is for the purpose of developing 11 low density residential lots and hence the change in land use may in fact provide the opportunity for the current vegetation communities to recover to a more natural state.

f) subdivision involving clearance of native vegetation that is of limited scale relative to the extent of priority vegetation on the site

On lots 5 and 6~1.0 ha of priority vegetation (DAS) will be impacted through the creation of a building area, driveway(s) and associated hazard management area.

This equates to \sim 2 % of the extent of priority vegetation mapped across the study area.

The proposal meets performance criteria P1 (e) and (f).

P1.2

Works associated with subdivision within a priority vegetation area must minimise adverse impacts on priority vegetation, having regard to:

(a) the design and location of any works, future development likely to be facilitated by the subdivision, and any constraints such as topography or land hazards

Impacts to priority vegetation have been minimised by siting building areas and their associated hazard management areas to the extent possible given the constraints of topography.

(b) any particular requirements for the works and future development likely to be facilitated by the subdivision

So long as impacts to priority vegetation is minimised through siting this criteria can be met.

(c) the need to minimise impacts resulting from bushfire hazard management measures through siting and fire-resistant design of any habitable buildings;

Impacts to priority vegetation have been minimised by siting building areas and their associated hazard management areas outside of the priority vegetation overlay area to the extent possible given the constraints of topography.

The proposal can therefore meet this criterion.

(d) any mitigation implemented to minimise the residual impacts on priority vegetation;

Residual impacts to priority vegetation are not anticipated and, in fact, the change in land use may indeed provide scope for recovery of the vegetation on the site.

The proposal can therefore meet this criterion.

(e) any on-site biodiversity offsets; and

Within lots 5 and 6 - 1.0 ha of DAS will be impacted as part of the establishment of the building area and its associated HMA. This equates to 2 % of the extent of priority vegetation mapped across the study area.

Given the relatively small area of impact, no on-site biodiversity offsets are warranted.

The proposal can therefore meet this criterion.

(f) any existing cleared areas on the site.

Much of the site has historically been cleared and converted to pasture or is rough pasture. Building areas have been sited on all lots to make use of cleared areas where possible.

The design of the building footprints and the associated HMA's are such that impact to priority vegetation has been largely avoided with only 1.8 ha impacted by the building area and BMA on lots 5 & 6 (this is less than 4 % of the 45 ha of priority vegetation in the project area).

The proposal can therefore meet this criterion.

(g) Additional mitigation measures are proposed to ensure that the subdivision will satisfactorily reduce all remaining impacts on priority vegetation; and

It is recommended that indirect impacts to vegetation outside the construction area should be avoided by clearly defining the extent of clearance and excluding the parking and use of vehicles and the storing of materials from native habitats.

The proposal can therefore meet this criterion.

6 Conclusion and recommendations

A natural values assessment has been undertaken for a proposal on Tea Tree Road in southern Tasmania. Key findings and recommendations in relation to the identified values within the proposed subdivision are as follows:

6.1 Vegetation Communities

The majority of the project area supports agricultural modified land currently utilised for grazing

The project area also contains one threatened vegetation community (DAS). The current subdivision layout, building areas, and the associated HMA on lot 5 and access on lots 5 and 6 will impact on 1.0 ha of DAS.

An unverified area of native grassland (GTL) on lots 5-7 is outside of the impact footprint. However, this critically endangered vegetation type should be verified and protected if present. This could be done as a condition of approval through either a Part 5 agreement or a covenant under the NCA 2002.

6.2 Flora of Conservation Significance

Five species of threatened flora have been recorded during the natural values assessment in the study area including the TSPA listed species *Asperula scoparia* subsp. *scoparia, Vittadinia gracilis, Vittadinia cuneata* var *cuneata, Scleranthus diander and Scleranthus fasciculatus.*

The locations of these threatened species should be noted and taken into consideration with the aim of avoiding impacts to these species wherever possible. Where impacts are unavoidable, a 'permit to take' will need to be obtained from DNRE.

An area of rocky grassland on lot 2 has a single NVA record for *Isoetopsis graminifolia* (TSPA vulnerable). This cryptic annual herb can only be identified during its flowering time between September and November. Based on habitat and distribution, this area has a moderate likelihood of supporting this species and thus before any works within grassland on this lot is to be conducted, further investigations would be required to determine its presence/absence.

6.3 Introduced Flora

Five species listed as declared under the weed management act were found throughout the project area. All these species are identified as Zone B species within the Brighton municipality.

6.4 Threatened Fauna

No threatened fauna species were located during the survey, and threatened fauna habitat is largely confined to minor amounts of potential foraging habitat for a few widely-occurring threatened species. No significant impacts to any threatened fauna are expected with this development.

The proposal has been shown to be able to meet the requirements of the Natural Assets and the Waterway and Coastal Protection Codes under the Tasmanian Planning Scheme 2021.

Recommendations are as follows:

- Indirect impacts to vegetation outside the construction area should be avoided by clearly defining the extent of clearance and excluding the parking and use of vehicles and the storing of materials from native habitats.
- Native grassland on lots 5-7 should be verified and if present protected using a conservation instrument such as a covenant. A spring survey is necessary to verify the grassland.
- An exclusion zone is erected around any threatened flora where there is no permit to take to ensure impacts are avoided during construction.
- All occurrences of declared weeds are treated prior to works and that best practice construction hygiene should be practiced to prevent the spread of weed propagules in contaminated soil.

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Appendix A: Vascular Plant Species list

Status codes:

ORI	GIN	NATIONAL SCHEDULE	STATE SCHEDULE
i - ir	troduced	EPBC Act 1999	TSP Act 1995
d - c	leclared weed WM Act	CR - critically endangered	e - endangered
en -	endemic to Tasmania	EN - endangered	v - vulnerable
t - w	ithin Australia, occurs only in Tas.	VU - vulnerable	r - rare
Sites:			
1	FAG - E524670, N5271475		7/04/2022 Cameron Geeves
2	DVG - E525120, N5270756		7/04/2022 Cameron Geeves
3	DAS - E525295, N5270009		7/04/2022 Cameron Geeves
4	GCL - E524762, N5270341		8/04/2022 Cameron Geeves
5	NBA - E524802, N5270361		8/04/2022 Cameron Geeves

Site	Name	Common name	Status
	DICOTYLEDONAE		
	APIACEAE		
1	Foeniculum vulgare	fennel	d
	ASTERACEAE		
125	Cirsium arvense var. arvense	Californian thistle	d
125	Cirsium vulgare	spear thistle	i
3	Dimorphotheca fruticosa	trailing daisy	i
4	Euchiton japonicus	common cottonleaf	
1	Helminthotheca echioides	bristly oxtongue	i
1	Lactuca serriola f. serriola	prickly lettuce	i
2 3	Lagenophora stipitata	blue bottledaisy	
4	Leontodon saxatilis	hairy hawkbit	i
2	Olearia ramulosa	twiggy daisybush	
3	Ozothamnus obcordatus	yellow everlastingbush	
12	Senecio quadridentatus	cotton fireweed	

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1	Silybum marianum	variegated thistle	i
1	Sonchus asper	prickly sowthistle	i
1	Taraxacum officinale	common dandelion	i
1	Vittadinia cuneata var. cuneata	fuzzy new holland daisy	r
14	Vittadinia gracilis	woolly new-holland-daisy	r
	BRASSICACEAE		
1	Lepidium campestre	field peppercress	i
2	Lepidium didymum	lesser swinecress	i
1	Sisymbrium officinale	hedge-mustard	i
	CAMPANULACEAE		
3	Wahlenbergia gracilis	sprawling bluebell	
2 4	Wahlenbergia sp.	bluebell	
	CARYOPHYLLACEAE		
3	Scleranthus biflorus	twinflower knawel	
2 3	Scleranthus diander	tufted knawel	v
2	Scleranthus fasciculatus	spreading knawel	v
	CASUARINACEAE		
2345	Allocasuarina littoralis	black sheoak	
5	Allocasuarina monilifera	necklace sheoak	en
	CHENOPODIACEAE		
134	Einadia nutans subsp. nutans	climbing saltbush	
	CONVOLVULACEAE		
245	Dichondra repens	kidneyweed	
	DILLENIACEAE		
3	Hibbertia prostrata	prostrate guineaflower	
	ERICACEAE		
3 4 5	Acrotriche serrulata	ants delight	
3	Epacris impressa	common heath	
34	Leucopogon virgatus var. virgatus	twiggy beardheath	
2345	Styphelia humifusa	native cranberry	

12345	Acacia dealbata subsp. dealbata	silver wattle	
3	Acacia genistifolia	spreading wattle	
1235	Acacia mearnsii	black wattle	
4	Ulex europaeus	gorse	d
	GENTIANACEAE		
1234	Centaurium erythraea	common centaury	i
	GERANIACEAE		
2	Erodium botrys	long heronsbill	i
	HALORAGACEAE		
3	Gonocarpus tetragynus	common raspwort	
	HEMEROCALLIDACEAE		
34	Dianella revoluta	spreading flaxlily	
	LAMIACEAE		
1	Marrubium vulgare	white horehound	d
1	Prunella vulgaris	selfheal	i
	WITRIACEAE		
3	Eucalyptus amygdalina	black peppermint	en
3 3	Eucalyptus amygdalina Eucalyptus pulchella	black peppermint white peppermint	en en
3 3 1 2 3 4	Eucalyptus amygdalina Eucalyptus pulchella Eucalyptus viminalis subsp. viminalis	black peppermint white peppermint white gum	en en
3 3 1234	Eucalyptus amygdalina Eucalyptus pulchella Eucalyptus viminalis subsp. viminalis OXALIDACEAE	black peppermint white peppermint white gum	en en
3 3 1234 1	Eucalyptus amygdalina Eucalyptus pulchella Eucalyptus viminalis subsp. viminalis OXALIDACEAE Oxalis pes-caprae	black peppermint white peppermint white gum soursob	en en i
3 3 1234 1 4	Eucalyptus amygdalina Eucalyptus pulchella Eucalyptus viminalis subsp. viminalis OXALIDACEAE Oxalis pes-caprae Oxalis sp.	black peppermint white peppermint white gum soursob woodsorrel	en en i
3 3 1234 1 4	Eucalyptus amygdalina Eucalyptus pulchella Eucalyptus viminalis subsp. viminalis OXALIDACEAE Oxalis pes-caprae Oxalis sp.	black peppermint white peppermint white gum soursob woodsorrel	en en i
3 3 1234 1 4 1235	Eucalyptus amygdalina Eucalyptus pulchella Eucalyptus viminalis subsp. viminalis OXALIDACEAE Oxalis pes-caprae Oxalis sp. PITTOSPORACEAE Bursaria spinosa subsp. spinosa	black peppermint white peppermint white gum soursob woodsorrel prickly box	en i
3 3 1234 1 4 1235	Eucalyptus amygdalina Eucalyptus pulchella Eucalyptus viminalis subsp. viminalis OXALIDACEAE Oxalis pes-caprae Oxalis sp. PITTOSPORACEAE Bursaria spinosa subsp. spinosa PLANTAGINACEAE	black peppermint white peppermint white gum soursob woodsorrel prickly box	en en
3 3 1234 1 4 1235 134	NURTACEAEEucalyptus amygdalinaEucalyptus pulchellaEucalyptus viminalis subsp. viminalisOXALIDACEAEOxalis pes-capraeOxalis sp.PITTOSPORACEAEBursaria spinosa subsp. spinosaPLANTAGINACEAEPlantago coronopus	black peppermint white peppermint white gum soursob woodsorrel prickly box buckshorn plantain	en i
3 3 1234 1 4 1235 134 4	NURTACEAEEucalyptus amygdalinaEucalyptus pulchellaEucalyptus viminalis subsp. viminalisOXALIDACEAEOxalis pes-capraeOxalis sp.PITTOSPORACEAEBursaria spinosa subsp. spinosaPLANTAGINACEAEPlantago coronopusPlantago varia	black peppermint white peppermint white gum soursob woodsorrel prickly box buckshorn plantain variable plantain	en i
3 1 2 3 4 1 2 3 5 1 3 4 4	NURRIACEAEEucalyptus amygdalinaEucalyptus pulchellaEucalyptus viminalis subsp. viminalisOXALIDACEAEOxalis pes-capraeOxalis sp.PITTOSPORACEAEBursaria spinosa subsp. spinosaPLANTAGINACEAEPlantago coronopusPlantago variaPOLYGONACEAE	black peppermint white peppermint white gum soursob woodsorrel prickly box buckshorn plantain variable plantain	en i
3 1 2 3 4 1 2 3 5 1 3 4 4 1 4 1 4 1 2 3 5	NURTACEAEEucalyptus amygdalinaEucalyptus pulchellaEucalyptus viminalis subsp. viminalisOXALIDACEAEOxalis pes-capraeOxalis sp.PITTOSPORACEAEBursaria spinosa subsp. spinosaPLANTAGINACEAEPlantago coronopusPlantago variaPOLYGONACEAEAcetosella vulgaris	black peppermint white peppermint white gum soursob woodsorrel prickly box buckshorn plantain variable plantain	en i i

FABACEAE

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	PRIMULACEAE		
1	Lysimachia arvensis	scarlet pimpernel	i
	RESEDACEAE		
1	Reseda luteola	weld	i
	ROSACEAE		
124	Acaena novae-zelandiae	common buzzy	
1	Rosa rubiginosa	sweet briar	i
	RUBIACEAE		
2	Asperula conferta	common woodruff	
2	Asperula scoparia subsp. scoparia	prickly woodruff	r
	RUTACEAE		
3	Boronia anemonifolia subsp. variabilis	stinky boronia	
	SANTALACEAE		
2 3	Exocarpos cupressiformis	common native-cherry	
	SAPINDACEAE		
1235	Dodonaea viscosa subsp. spatulata	broadleaf hopbush	
	SOLANACEAE		
1245	Lycium ferocissimum	african boxthorn	d
	THYMELAEACEAE		
235	Pimelea humilis	dwarf riceflower	
	VIOLACEAE		
2	Viola hederacea	ivyleaf violet	
	MONOCOTYLEDONAE		
	ASPARAGACEAE		
1345	Lomandra longifolia	sagg	
	CYPERACEAE		
1	Ficinia nodosa	knobby clubsedge	
3	Lepidosperma filiforme	common rapiersedge	
	JUNCACEAE		
1	Juncus sarophorus	broom rush	
14	Juncus subsecundus	finger rush	

3	Eriochilus cucullatus	autumn orchid	
	POACEAE		
134	Aira caryophyllea	silvery hairgrass	i
1245	Anthoxanthum odoratum	sweet vernalgrass	i
12345	Austrostipa rudis subsp. australis	southern speargrass	
3 4 5	Austrostipa stuposa	corkscrew speargrass	
1 2 3 4 5	Cynosurus echinatus	rough dogstail	i
1234	Dactylis glomerata	cocksfoot	i
3	Deyeuxia quadriseta	reed bentgrass	
4	Deyeuxia sp.	bent grass	
3	Distichlis distichophylla	australian saltgrass	
1	Festuca arundinacea	tall fescue	i
1	Holcus lanatus	yorkshire fog	i
4	Hordeum sp.	barley, barley grass	i
234	Microlaena stipoides	weeping grass	
12	Phalaris aquatica	toowoomba canarygrass	i
145	Phalaris sp.	canarygrass	i
1235	Poa labillardierei	silver tussockgrass	
1235	Poa rodwayi	velvet tussockgrass	
1345	Rytidosperma caespitosum	common wallabygrass	
12345	Themeda triandra	kangaroo grass	
	PTERIDOPHYTA		
	DENNSTAEDTIACEAE		
123	Pteridium esculentum subsp. esculentum	bracken	

ORCHIDACEAE

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of npa Commentary	Very little suitable habitat for this species, unlikely to have been overlooked during survey.	One plant found on the margin of DVG/FAG on lot 8.	<i>Austrostipa stuposa</i> and <i>A. rudis</i> common in areas of the site. Nearby records of this species occur on less disturbed sites.	Very little suitable habitat for this species, unlikely to have been overlooked during survey.
Likelihood (Occurrence/Ir ct	PLOW	PRESENT	NON	VERY LOW
Habitat	Occurs in a range of vegetation types, the common factor being locally impeded drainage. Habitats include near-coastal swamp forest, Melaleuca ericifolia swamp forest, Eucalyptus ovata sedgy forest, "old pasture" regenerating to sedges and rushes, and firebreaks adjacent to clear-felled forest.	Mainly found in native grasslands and grassy forests, often on fertile substrates such as dolerite-derived soils. Forested sites are usually dominated by Eucalyptus globulus and E. viminalis (lower elevations) and E. delegatensis (higher elevations).	Open woodland and grasslands with fertile soils.	Margins of saline lagoons, creek outfalls, and vegetated dunes. Can also occur in grassy woodlands
Records within 5 km	L	4	106	2
Records within 500 m	0	F	0	2
State Status TSPA	Rare	Rare Rare		Rare
National Status EPBCA		-		
Species	<i>Asperula minima</i> mossy woodruff	<i>Asperula scoparia</i> subsp. <i>scoparia</i> prickly woodruff	<i>Austrostipa bigeniculata</i> doublejointed speargrass	<i>Austrostipa blackii</i> crested speargrass

Appendix B: Threatened Flora within 500 m and 5 $\ensuremath{\mathsf{km}^7}$

 7 Natural Values Atlas Report, (report nvr_3_06-Apr-2022)

Commentary	No suitable habitat for this species	Very little suitable habitat for this species, unlikely to have been overlooked during survey	Although small, this species was likely in flower at time of survey and unlikely to have been overlooked	A dense herb unlikely to have been overlooked given the size of the areas surveyed	Some suitable habitat for this species, unlikely to have been overlooked during survey	Very little suitable habitat for this species, unlikely to have been overlooked during survey. One historic record from the NVA within 5 km was made in 1877.
Likelihood of Occurrence/Impa ct	NONE	NON	MOT	NON	POW	NON
Habitat	Widespread in shallow, standing, sometimes brackish water, rooted in heavy black mud.	Found in the Midlands, East Coast and in parts of the eastern Central Highlands of Tasmania, where it occurs in rough pasture, grassland and grassy woodland on dry rocky hills and flats.	Inhabits disturbed dry grasslands and is found from a few locations in the south-east of the State.	Occurs in open, dry sites in lowland areas of eastern and northern Tasmania and on lower altitudes of the Central Plateau. It requires bare ground for recruitment and may benefit from disturbance. It is often found on roadsides and beside tracks.	Wet eucalypt forest, sandy heathlands, margins of streams, littoral sands, shingle with seepage, damp grasslands within dry forest and rough pasture.	Known to occur in lowland grasslands and grassy woodlands but is also prevalent on rocky outcrops and margins of forest on dolerite on the Central Highlands (including disturbed sites such as log landings and snig tracks).
Records within 5 km	22	5	143	2	5	-
Records within 500 m	0	0	0	0	0	0
State Status TSPA	Rare	Vulnerable	Rare	Rare	Rare	Rare
National Status EPBCA						Vulnerable
Species	<i>Bolboschoenus caldwellii</i> sea clubsedge	<i>Brachyscome</i> <i>rigidula</i> cutleaf daisy	Calocephalus citreus lemon beautyheads	<i>Calocephalus lacteus</i> milky beautyheads	<i>Carex gunniana</i> mountain sedge	<i>Colobanthus</i> <i>curtisiae</i> grassland cupflower

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North Barker Ecosystem Services - SWS002
Back Tea Tree Road, Tea Tree - Natural Values Assessment

Species	National Status EPBCA	State Status TSPA	Records within 500 m	Records within 5 km	Habitat	Likelihood of Occurrence/Impa ct	Commentary
<i>Coronidium</i> <i>gunnianum</i> swamp everlasting		Endangered (pending)	0	2	Occurs primarily in the Northern Midlands bioregion. It generally occurs in grasslands on heavy soils, riverine woodlands and on the margins of wetlands, in sites that are often inundated. It mostly occurs at elevations below 100 m ASL but had been recorded at around 600 m ASL at Lake Leake.	POW	Conspicuous and unlikely to have been overlooked. One historic record from the NVA within 5 km was made in 1900.
Cryptandra amara pretty pearlflower		Endangered	0	12	Grows in some of the driest areas of the State and is typically associated with fertile rocky substrates (e.g., basalt). Its habitat ranges from near-riparian rockplates to grasslands or grassy woodlands.	VERY LOW	The survey was conducted within the flowering time for this conspicuous species, given this, it is unlikely to have been overlooked
<i>Desmodium varians</i> slender ticktrefoil		Endangered	0	4	Occurs locally in the east of the State, growing in native grassland, or open grassy shrubland or woodland, with Themeda triandra (kangaroo grass) and Poa labillardierei (silver tussockgrass) being the most prominent grasses.	POW	The survey was conducted within the flowering time for this conspicuous species, given this, it is unlikely to have been overlooked.
<i>Dianella amoena</i> grassland flaxlily	Rare	Endangered	0	622	Mainly in the northern and southern Midlands, where it grows in native grasslands and grassy woodlands. Most frequent on basalt substrates in <i>Themeda triandra</i> grasslands.	POW	Many records of this species within the broader area. Given the level of disturbance and high competition from exotic species likelihood of this species occurring on the site is low.
<i>Eryngium ovinum</i> blue devil		Vulnerable	0	36	Occurs in a range of lowland vegetation types most often on fertile heavy clay soils derived from dolerite. Vegetation types include open grasslands usually dominated by Themeda triandra	VERY LOW	Conspicuous and unlikely to have been overlooked given the size of the areas surveyed.

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Species	National Status EPBCA	State Status TSPA	Records within 500 m	Records within 5 km	Habitat	Likelihood of Occurrence/Impa ct	Commentary
					(kangaroo grass), grassy forests and woodlands on slopes, ridges and broad flats, and roadside verges (representing remnant populations),		
<i>Glycine latrobeana</i> small-leaf glycine	Vulnerable	Vulnerable	0	16	Various soil types and vegetation, mainly occurs in grassy/heathy forests and native grasslands.	NON	The vast majority of NVA records are from GTL grasslands near Pontville \sim 3 km from the study area. Conspicuous and unlikely to have been overlooked given the size of the survey area
<i>Gratiola pubescens</i> hairy brooklime		Rare	0	-	Permanently or seasonally damp, swampy ground, including the margins of farm dams.	NON	There are a number of small dams that occur within the study area, however the margins of these dams have been significantly disturbed by cattle from the site. Plants are susceptible to trampling and grazing and therefore are unlikely to occur given both the little suitable habitat and history of grazing on the site.
<i>Haloragis aspera</i> rough raspwort		Rare	0	-	Presumed to occur in wet areas in the eastern part of the State.	VERY LOW	One historic record pre-1950's from the area. Much of the site is dry leaving little suitable habitat.
<i>Haloragis</i> <i>heterophylla</i> variable raspwort		Rare	o	34	Poorly drained sites (sometimes only marginally so), which are often associated with grasslands and grassy woodlands with a high component of <i>Themeda triandra</i> . Also occurs in grassy/sedgy <i>Eucalyptus ovata</i> forest and woodland, shrubby creek lines, and broad sedgy/grassy flats, wet pasture, and margins of farm dams.	LOW	There are scattered records of this species from the area, the nearest is a record from approx. 4 km to the east from 2013. It is possible this species could occur in damp areas on the site. The chances of this species occurring are low.
Hibbertia basaltica	Endangered	Endangered	0	186	Restricted to areas of basalt between Pontville and Bridgewater in southern Tasmania where it occurs on slopes	VERY LOW	Many nearby records along the Midlands Highway and Tea Tree Road. The study area

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North Barker Ecosystem Services - SWS002

Species	National Status EPBCA	State Status TSPA	Records within 500 m	Records within 5 km	Habitat	Likelihood of Occurrence/Impa ct	Commentary
basalt guineaflower					along the lower reaches of the Jordan River and one of its tributaries, in native grassland dominated by Themeda triandra (kangaroo grass) and Austrostipa (spear grass) species with the occasional Bursaria spinosa (prickly box). Rock cover is high, while soils are shallow clay loams. Slopes vary from 0- 15 degrees, and altitude 15-45 m above sea level. Note that a very similar taxon, possibly undescribed or within the concept of H. basaltica, occurs in similar habitat but on Jurassic dolerite in the same part of the State, currently all such sites shown on databases as H.		consists of either Sandstone or Dolerite derived soils. No suitable habitat for this species.
<i>Isoetopsis</i> <i>graminifolia</i> grass cushion		Vulnerable	m	133	<i>Isoetopsis graminifolia</i> occurs in native grasslands, usually dominated by <i>Themeda triandra</i> , or on rockplates, the underlying substrate being mostly basalt or dolerite. The elevation range of recorded sites is 20-360 m above sea level in areas of low rainfall.	MODERATE	There are numerous records of Isoetopsis from the NVA within the broader area with one record occurring within study area, within 23 m of the lot 2 building area (100 m accuracy), two further records occur on the lot 2 and lot 5 southern boundary. Given the level of disturbance and high competition from exotic species likelihood of this species occurring on the site is moderate.
<i>Lepidium</i> <i>hyssopifolium</i> soft peppercress	Endangered	Endangered	O	7	Primarily under large exotic trees on roadsides and home yards on farms in eastern Tasmania between sea-level to 500 metres above sea level in dry, warm, and fertile areas on flat ground on weakly acid to alkaline soils derived from a range of rock types. Also occurs	NON	Occurs on dry fertile soils of shady sites. Little chance of occurring.

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Species	National Status EPBCA	State Status TSPA	Records within 500 m	Records within 5 km	Habitat	Likelihood of Occurrence/Impa ct	Commentary
					on frequently slashed grassy/weedy roadside verges where shade trees are absent.		
<i>Pellaea calidirupium</i> hotrock fern		Rare	0	E	Found in inland, rocky habitats in areas of low to moderate rainfall predominantly in the eastern half of Tasmania. It grows in crevices and on ledges on exposed or semi-exposed rock outcrops.	PLOW	No rocky outcrops within the areas surveyed. Some rocky ground occurs on lots 1, 2, 5 and 6, although these areas are subject to trampling and grazing pressure. Given this there is a low chance of this species occurring.
<i>Pterostylis</i> <i>wapstrarum</i> fleshy greenhood	Critically endangered	Endangered	0	7	Restricted to the Midlands and south- east of Tasmania where it occurs in native grassland and possibly grassy woodland. It has been reported from basalt soils.	VERY LOW	Given the substrate type, level of disturbance and high competition from exotic species likelihood of this species occurring on the site is very low.
<i>Pterostylis ziegeleri</i> grassland greenhood	Vulnerable	Vulnerable	0	38	East and north of Tasmania. In coastal areas, the species occurs on the slopes of low stabilised sand dunes and in grassy dune swales, while in the Midlands it grows in native grassland or grassy woodland on well-drained clay.	POM	Given the level of disturbance and high competition from exotic species likelihood of this species occurring on the site is low.
<i>Pultenaea prostrata</i> silky bushpea		Vulnerable	0	43	Grassy woodlands or grasslands, mostly on Tertiary basalt or Quaternary alluvium.	NON	Several records north west of the survey area near Pontville. Not observed during the survey.
<i>Rumex bidens</i> mud dock		Vulnerable	o	-	Grows at the margins of lakes, swamps, and slow-moving rivers and streams, and may also occur in drainage channels.	VERY LOW	The little suitable habitat for this species within the study area includes a number of small farm dams, some of which were dry at the time of the survey. These dams are used by cattle and their margins are trampled. There are nearby, historic records species from the Pontville area, which is its southern most record in the state. Distinctive

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Commentary	species, not recorded during the survey and unlikely to have been overlooked.	No suitable habitat within the survey area.	Several observations for this species were made on both lots 4 and 7. There is a reasonable chance this species is more widespread in the area.	Patch of 20 plants on lot 1.	Given the level of disturbance and high competition from exotic species likelihood of this species occurring on the site is low.	Two records 4 km northeast of the study area from grassland. An annual herb not identifiable at the time of survey. Regardless, there is limited habitat for this species and thus a low chance of this species occurring.	Known from a single site in the northern midlands, Low likelihood given the substate
Likelihood of Occurrence/Impa ct		VERY LOW	PRESENT	PRESENT	VERY LOW	POW	NON
Habitat		Inhabits the margins of lagoons on King Island, Flinders Island and on some riverbanks in the Midlands	Grassy woodland and is associated with dolerite and basalt substrates.	<i>Poa</i> grassland/grassy woodland. It appears to need gaps between the tussock spaces for its survival and both fire and stock grazing maintain the openness it requires. Often found in areas protected from grazing such as fallen trees and branches.	Dry grassy forests but can extend into wet forests and other vegetation types.	Occurs in a range of somewhat exposed lowland habitats, including bare soil and rocks amongst dense windswept coastal shrubbery to rock outcrops and bare ground associated with native grassland, grassy woodland and forest.	Native grasslands and grassy woodlands/forests, often associated with fertile soils derived from basalt.
Records within 5 km		1	Ŋ	4	2	5	Q
Records within 500 m		0	o	0	0	0	0
State Status TSPA		Rare	Vulnerable	Vulnerable	Rare	Rare	Endangered
National Status EPBCA							
Species		<i>Schoenoplectus tabernaemontani</i> river clubsedge	<i>Scleranthus diander</i> tufted knawel	<i>Scleranthus fasciculatus</i> spreading knawel	<i>Senecio squarrosus</i> leafy fireweed	<i>Siloxerus multiflorus</i> small wrinklewort	<i>Stackhousia</i> <i>subterranean</i>

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Back Tea Tree Road, Tea Tree - Natural Values Assessment

Species	National Status EPBCA	State Status TSPA	Records within 500 m	Records within 5 km	Habitat	Likelihood of Occurrence/Impa ct	Commentary
grassland candle					Themeda triandra is often one of the more prominent grasses.		type and high level of disturbance within the majority of the survey area.
<i>Stuckenia pectinata</i> fennel pondweed		Rare	0	-	Found in fresh to brackish/saline waters in rivers, estuaries, and inland lakes. It forms dense stands or mats, particularly in slow-flowing or static water. The species grows in water of various depth.	VERY LOW	No suitable habitat within the survey area.
Teucrium corymbosum forest germander		Rare	0	N	Occurs in a wide range of habitats from rocky steep slopes in dry sclerophyll forest and Allocasuarina (sheoak) woodland, riparian flats and forest.	POW	This distinctive, erect perennial herb was not recorded during the survey and is unlikely to have been overlooked.
<i>Triptilodiscus</i> <i>pygmaeus</i> dwarf sunray		Vulnerable	0	49	Grows within grasslands, grassy woodlands or rockplates, with the underlying substrate being mostly Tertiary basalt or Jurassic dolerite. The elevation range of recorded sites in Tasmania is 30-470 m above sea level, with an annual rainfall of about 450-600 mm. The species occurs within native grassland dominated by Themeda triandra (kangaroo grass).	VERY LOW	Rockplate species. No suitable habitat within the survey area.
<i>Vallisneria australis</i> river ribbons		Rare	0	ĸ	Grows rooted and submerged in flowing freshwater habitats such as major rivers of the Midlands.	NONE	No suitable habitat within the survey area.
<i>Velleia paradoxa</i> spur velleia		Vulnerable	o	Q	Grassy woodlands or grasslands on dry sites. It has been recorded up to 550 m above sea level at sites with an annual rainfall range of 450-750 mm.	NON	Occurs in dry grasslands with stony sites. Given its size and the persistence of seed heads the species would be easily identified at the time of survey. Species not observed. Old records from north of the site.

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Commentary	Areas of suitable habitat dominated by exotic species. Unlikely to have been overlooked during the survey.	Large areas of suitable habitat throughout the study area. Species present on lot 11. Likely to be more widespread within the study area.	Large areas of suitable habitat throughout the study area. Species present on lots 11, 8 and 9. Likely to be more widespread within the study area.	Large areas of suitable habitat throughout the study area dominated by exotic species. Moderate chance of the species being present within the study area.
Likelihood of Occurrence/Impa ct	MODERATE	PRESENT	PRESENT	MODERATE
Habitat	Native grassland and grassy woodland.	Native grassland and grassy woodland on fertile soils, typically overlying basalt.	Dry grassy habitats, often in relatively degraded grasslands and grassy woodlands. It has been found to occur in low- rainfall areas, on a range of substrates.	Occurs in dry native grasslands and grassy woodlands particularly in open areas with lighter grass cover and patches of bare ground such as rock plates. It freely colonises disturbed sites such as roadside cuttings. It is widely dispersed through the Midlands and Southeast.
Records within 5 km	7	N	80	F
Records within 500 m				174
State Status TSPA	Rare	Rare	Rare	Pending delisting
National Status EPBCA				
Species	<i>Vittadinia</i> <i>burbidgeae</i> smooth new-holland daisy	<i>Vittadinia cuneata</i> var. <i>cuneata</i> fuzzy new-holland daisy	<i>Vittadinia gracilis</i> woolly new-holland daisy	Vittadinia muelleri narrow leaf new holland daisy

vegetation types including open grassland (including farmland) where This naturally rare forest-dweller most commonly inhabits wet forest but also occurs in dry forest. It forages and hunts on farmland and pasture, travelling There is no denning potential for this species within the survey area, however it may forage at times. The survey area is within the potential range for this Occurs in most parts of Tasmania but is recorded infrequently in the wetter western third of the state. This species' distribution is associated with areas of low rainfall and cold winter minimum temperatures. It is found in a range of protective cover is available nearby, tussock grassland, grassy woodland, dry The habitat is lacking cover for protection of this species from predators and is lacking den opportunities. The survey area is within core range for this species. This proposal is unlikely to impact the persistence of this species in the greater area. Inhabits grassy woodlands, native grasslands, and mosaics of pasture and shrubby ground cover favouring open grassy areas for foraging with thick vegetation cover for shelter and nesting. It has a widely dispersed range with eucalypt forest, coastal scrub, and alpine heathland, but is typically absent up to 20 km at night, and shelters in logs, rocks, or thick vegetation. **Observations and Preferred Habitat** species. There are no anticipated impacts to this species. from large tracts of wet eucalypt forest and rainforest. Potential to Occur Denning: NONE Foraging: LOW Foraging: LOW Denning: LOW MODERATE MAMMALS Appendix C: Threatened Fauna within 500 m and 5000 m^8 Records within 500 m / 5 km 0/1 1 / 20 0/3 ENDANGERED Status TSPA / VULNERABLE VULNERABLE EPBCA Rare / Dasyurus maculatus subsp. Spotted-tailed quoll Dasyurus viverrinus Perameles gunnii Eastern quoll maculatus Species

⁸ Natural Values Report (nvr_3_06_Apr_2022)

Eastern barred bandicoot

concentrations in SE, NE and NW Tasmania and some areas of the State from where it is absent or in very low densities. It extends into the urban fringe

shland reserves. It favours a :k vegetation cover for shelter	for this species to breed and or this species. There is one was recorded in 1977. Works e potential for this species to	for this species to breed and or this species. There is one was recorded in 1977. Works e potential for this species to across Tasmania and exploits with elevated prey densities ntrated scavenging resource. the first observations of the OFTD). DFTD has now spread cion is also likely to be more oadkill, competition with cats unding traditional dens where opportunities is particularly from demographic pressures. this species. This species may proposal is unlikely to impact a.	for this species to breed and or this species. There is one was recorded in 1977. Works e potential for this species to across Tasmania and exploits with elevated prey densities that first observations of the DFTD). DFTD has now spread cion is also likely to be more oadkill, competition with cats unding traditional dens where opportunities is particularly from demographic pressures. this species. This species may proposal is unlikely to impact a.
can survive in large gardens and bushle f open grassy areas for foraging and thick v ng. egetation within the survey is suitable for he survey area is within core range for	record known from this site, however it wa ale and nature are unlikely to impact the p the area.	record known from this site, however it wa ale and nature are unlikely to impact the p the area. ies occupies a wide range of habitats acr es with a mosaic of pasture and forest wi tracted to roadkill hotpots with concentri ons have declined substantially since the scancer Devil Facial Tumour Disease (DFT es cancer Devil Facial Tumour Disease (DFT and loss or disturbance of areas surround e raised. The protection of breeding op tfor the species due to the mortalities froi stare are such in the greater area.	record known from this site, however it wa ale and nature are unlikely to impact the p the area. ies occupies a wide range of habitats acre swith a mosaic of pasture and forest wi tracted to roadkill hotpots with concentri ons have declined substantially since the scancer Devil Facial Tumour Disease (DFT uch of Tasmania. The reduced population to additional threats such as death by rood is and loss or disturbance of areas surround e raised. The protection of breeding op to the species due to the mortalities froi to area is within the potential range for this stence of this species in the greater area.
d nesting. tive vegetation within the age. The survey area is v vious record known from	sist in the area.	sist in the area. sist in the area. s species occupies a wide dscapes with a mosaic of dis attracted to roadkill <i>t</i> is attracted to roadkill <i>t</i> subtions have declined is ections cancer Devil Facial oss much of Tasmania. The strive to additional threat: droxes, and loss or disturb ang are raised. The protu- oortant for the species du e survey area is within the cur in the survey area to ft is persistence of this specie	sist in the area. sist in the area. s species occupies a wide dscapes with a mosaic of dscapes with a mosaic of a is attracted to roadkill <i>t</i> is attracted to roadkill <i>t</i> settious cancer Devil Facial oss much of Tasmania. The settious cancer Devil threat: foxes, and loss or disturb ang are raised. The protu- and are raised. The protu- and are raised. The protu- secure the species du e survey area is within the cur in the survey area to fc persistence of this specie
forage. The su previous recor of this scale ar persist in the a		This species or landscapes with and is attracte Populations h infectious cand across much c sensitive to ad and foxes, and young are raii important for 1 The survey are occur in the su the persistence	This species or landscapes with and is attracte Populations h infectious canue across much c sensitive to ad and foxes, and young are raii important for 1 The survey are occur in the su the persistence
		Denning: VERY LOW Foraging: VERY LOW	Denning: VERY LOW Foraging: VERY LOW
		0 / 15	0 / 15
		dangered / DANGERED	dangered / DANGERED
		Endan; ENDAN	Endanç
		:5	

Records within 500 m / 5 km
0 / 34
0/5
270

Species	Status TSPA / EPBCA	Records within 500 m / 5 km	Potential to Occur	Observations and Preferred Habitat
				Parrot habitat being available for breeding in any one year. Swift Parrots breed in tree hollows in mature eucalypts within foraging range of a flower source.
				The survey area is within core range for this species, however no suitable foraging or breeding habitat occurs within the survey area. Therefore, there are no anticipated impacts to this species.
Tyto novaehollandiae subsp. castanops	Endangered /	0/3	Nesting: LOW	Found in a range of habitats which contain some mature hollow-bearing forest, usually below 600 m altitude. This includes native forests and woodlands as well as agricultural areas with a mosaic of native vegetation and pasture. Significant habitat is limited to large eucalypts within dry eucalypt forest in the core range.
Tasmanian masked owl	VOLIVEXABLE		Foraging: LOW	The project area is within core range for this species. The survey area contains does not contain any trees suitable for nesting. This proposal is unlikely to impact the persistence of this species in the greater area, as such no impacts to this species are anticipated.
<i>Pardalotus quadragintus</i> Forty-spotted pardalote	Endangered/ ENDANGERED	0/0	Nesting: VERY LOW Foraging: VERY LOW	Endemic to Tasmania and occurs in only a few small areas within the State. It is relatively restricted to dry grassy forest and woodland along the east coast containing mature white gum <i>(Eucalyptus viminalis)</i> . The project area is within the potential range for this species, however, the nearest known colony is 23 km south in Taroona. The study site contains some suitable foraging habitat. However, no records exist of this species occurring
				within 5 km of the survey site. Therefore, no impacts to this species are anticipated.
Ceyx azures subsp. <i>diemenensis</i>	Enderod /		Nesting: NONE	This species is found along rivers in the south, west, north and northwest of Tasmania with outlying occurrences in the northeast, east, centre and Bass Strait islands. This species occurs in the forested marcins of maior river
Tasmanian Azure kingfisher	ENDANGERED	0/1	Foraging: NONE	systems where it perches on branches overhanging rivers waiting for prey items such as small fish, insects and freshwater crayfish to come down the river. This species nests in holes along the top of riverbanks and is therefore susceptible to clearing and modification of river-side vegetation. There is

Species	Status TSPA / EPBCA	Records within 500 m / 5 km	Potential to Occur	Observations and Preferred Habitat
				thought to be fewer than 250 mature individuals left in Tasmania with the overall distribution of Tasmania's azure kingfisher reflecting the higher rainfalls in the west and north-west regions of Tasmania. One record exists of this species occurring within 5 km of the survey site. The study site contains no suitable foraging or nesting habitat. Therefore, no impacts to this species are anticipated.
<i>Podiceps cristatus</i> Great crested grebe	Vulnerable /	0/2	Nesting: NONE Foraging: NONE	This species inhabits wetlands, deep lakes, rivers and swamps and prefers a combination of open water and dense reedbeds. This species is relatively rare in Tasmania but can have minor irruptions and periods of regular sightings in some areas. Two records exist of this species occurring within 5 km of the survey site. The study site contains no suitable foraging or nesting habitat. Therefore, no impacts to this species are anticipated.
<i>Hirundapus caudacutus</i> White-throated needletail	- / VULNERABLE	0/2	Nesting: NONE Foraging: LOW	This migratory species breeds in central and north-eastern Asia in Siberia, Mongolia, northern-eastern China and northern Japan. It migrates south through eastern China, Korea and Japan spending its non-breeding season in eastern and south-eastern Australia including Tasmania. This species is almost exclusively aerial, occurring over most types of habitat with a preference to wooded areas, open forests, heathland and rainforests. Two records exist of this species occurring within 5 km of the survey site. The study site contains no suitable nesting habitat. This proposal is unlikely to impact the persistence of this species in the greater area.
<i>Botaurus poiciloptilus</i> Australasian bittern	-/ ENDANGERED	0/1	Nesting: NONE Foraging: NONE	A highly cryptic species, utilising wetlands and lakes with a dense cover of vegetation. Whilst once common on Tasmania's north/east coasts, the numbers of Australasian bitterns in the state during the last two decades have declined significantly in both their range and numbers due to habitat loss and extended periods of dryness.

Species	Status TSPA / EPBCA	Records within 500 m / 5 km	Potential to Occur	Observations and Preferred Habitat
				One record exists of this species occurring within 5 km of the survey site. The study site contains no suitable foraging or nesting habitat. Therefore, no impacts to this species are anticipated.
		RE	PTILES, AMPHIBIANS AND FISH	
Pseudemoia pagenstecheri	Vulnerable /	c		A ground-dwelling lizard, occurring in grassland and grassy woodland habitats at a range of elevations. Records in Tasmania a few disconnected patches of habitat from Midlands, inland Cradle Coast, and eastern Bass Strait islands.
Tussock skink	,			No suitable habitat for this species occurs within the site. The project area is within the potential range for this species. However, no records exist of this species occurring within 5 km of the survey site. Therefore, no impacts to this species are anticipated.
Litoria raniformis	Vulnerable / VULNERABLE	0/0	VERY LOW	In Tasmania, this species is found in lowland areas, primarily coastal. They require permanent or temporary water bodies for survival and tend to inhabit ones containing emergent plants such as <i>Cycnogeton procera</i> or species of <i>Juncus</i> or sedge. They are rarely seen in open water and spend most of their time in vegetation at the water's edges. They depend upon permanent fresh water for breeding, which occurs in Spring and Summer.
Green and gold frog				The project area is within the potential range for this species. However, no records exist of this species occurring within 5 km of the survey site. Given the poor water quality and absence of aquatic vegetation in the small dams in proximity to the site, there is a low likelihood of this species being present.
			INVERTEBRATES	
Antipoda chaostola	Endangered /	070	VERVIOW	This species is restricted to dry forest and woodland supporting sedges of the <i>Gabris</i> genue and orders in isolated non-ultimotic in solute genue and estimated and estimat
Chaostola skipper	ENDANGERED			למו <i>הוו</i> ש קבועה מווע טרנעום ווו וסטמוכט אטאמוטון ווו סטמון במסנכוו מווע במסנכון. Tasmania.

Species	Status TSPA / EPBCA	Records within 500 m / 5 km	Potential to Occur	Observations and Preferred Habitat
				The project area is within the potential range for this species. However, no records exist of this species occurring within 5 km of the survey site and no suitable habitat for this species occurs within the site. Therefore, no impacts to this species are anticipated.
<i>Discocharopa vigens</i> Ammonite Pinwheel Snail	Endangered/ CRITICALLY ENDANGERED	0/0	VERY LOW	This snail has been recorded from the following seven locations in the Hobart metropolitan area: Mount Wellington, Mount Nelson, The Domain, Hillgrove, Grasstree Hill, South Hobart and Austins Ferry. Species is thought to be extinct from Mt Nelson. Habitat of the species includes dry and wet eucalypt forests below 400 m in altitude. To date the species has only been found under dolerite rocks. The project area is within 5km of the potential range for this species. However, no records exist of this species are anticipated.



GEO-ENVIRONMENTAL

S O L U T I O N S

ON-SITE WASTEWATER ASSESSMENT Back Tea Tree Road, Tea Tree



Geo-Environmental Solutions P/L 29 Kirksway Place, Battery Point. T | 6223 1839 E | office @geosolutions.net.au

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1. Introduction

The proposed subdivision site is located on Back Tea Tree Road Tea Tree, Tasmania (C.T 121954/1). The total current land area of the lot is approximately 231.8ha, of which it is proposed to create eleven residential lots (see Figure 2 for proposed lots). The site is not serviced by mains sewer, therefore onsite wastewater disposal would be required on each of the lots (see Figure 1 for study area).

The land area in question is on hilly terrain, with a few gullies and no dominant aspect. Slopes range from gentle to steep hillsides approximately 20°.

It is the scope of this report to consider the capability of the said land to support sustainable residential use including on site wastewater disposal without sustaining environmental harm.



Figure 1 – Site location



Figure 2 – Subdivision location with proposed lots in this application shown

2. Planning Context

The land area proposed for subdivision appears to fall within the Land scape conservation Zone as defined by the Tasmanian Planning Scheme (see Figure 3). Therefore, the subdivision must comply with the requirements for the Zone as set out Brighton Tasmanian Planning Scheme. Each lot must be capable of accommodating onsite wastewater disposal adequate for the future use and development of the land. As there is no instrument within the Scheme this is best demonstrated by examination against the Guidelines for on-site wastewater within the Building Act framework. Provided that the requirements are met regarding the provision of infrastructure, and the land is suitable for residential construction/on-site wastewater management the application to develop the land should proceed.



Figure 3 – Planning Zones – Tasmanian Planning Scheme (subdivision site outline in red)

3. Site Information

Site information pertaining to the capability of the land to sustain residential development without causing environmental harm was collected from desktop and field survey. Field survey was undertaken utilising an AMS Power Probe – Direct Push with soil samples assessed according to AS1547-2012 for suitability for on-site wastewater management.

3.1 Geology

The study area falls within the Mineral Resources Tasmania, 1:250000 sheet which indicates the area is underlain by Jurassic Dolerite as well as Triassic rocks dominantly sandstone, lithic sandstone and mudstone. The soil found on the property shows a close correlation with underlying geological material and is therefore classified according to geological association (i.e., Podsol and podzolic soils on sandstone & Brown Soils on Dolerite).



Figure 4 - MRT 1:250 000 Sheet Geological Survey (subdivision site outlined in red)

3.1 Soil Distribution

The soils examined were characterised by sandy topsoils overlying clay subsoils to depths of generally over 0.6m. The soil distribution across the study area was relatively uniform, with only minor variation in soil depth and horizon development (see Appendix 2 for individual bore logs).

The clay subsoils appeared to be moderately to poorly drained due to the wellstructured nature of the soil. The anticipated subsoil permeability under saturated conditions from samples across the site is expected to be in the order of 0.12 - 0.5m/day. These soils may also be prone to surface erosion when denuded of cover, and or subject to abnormal drainage conditions.

4. Site Suitability for Onsite Wastewater Disposal

The capability of the proposed new lots to support a typical residential dwelling and on-site wastewater disposal must be evaluated to ensure environmental values are maintained. Modelling of wastewater application on the proposed lot was undertaken utilising the Trench program, long term weather average for Tea Tree, and estimated flows from an average three-bedroom home.

The soils are moderately structured, have a moderate permeability and moderate CEC for retention of nutrients. The soils across the site area classified according to AS/NZS1547-2012 as Category 5 – Light Clay. The topsoils are moderately well drained; however, the subsoils have a moderately low permeability in the range of 0.12-0.20m/day. A range of wastewater disposal options are suitable for the proposed lots.

Assuming the construction of a typical three-bedroom dwelling with tank water supply, the expected loading under AS/NZS1547-2012 and the Directors Guidelines for On-site Wastewater 2016 is 600L/day (5 persons @120L/day). Due to the relatively shallow soil steep topography and the clay subsoils it is expected that secondary treatment of effluent would be utilised on the lots. Based upon secondary treatment with irrigation (surface or subsurface) with a slope reduced DIR of 2.4mm/day, an irrigation area of 250m² would be required. Alternatively, if secondary treatment and an absorption bed or mound was employed on the site, then a DLR of 10L/m2/day and an area of 60m2 would be required.

Wastewater irrigation areas can generally be replaced relatively quickly and easily within a one to two-day period, such that a reserve area is often not prescribed, or required. However, where a more intensive form of disposal area such as an absorption trench or bed is proposed then a reserve area would be prescribed. Therefore, for standard shallow subsurface irrigation with drippers, or surface irrigation with sprinklers a reserve area would not be required and an area of 250m² would be sufficient for a three bedroom dwelling. If an absorption bed or beds were designed a reserve area would be recommended, such that a total area of 120m² would be required (i.e. 60m² primary and 60m² reserve). This is consistent with AS/NZS1547-2012 which states that a reserve area may be reduced or eliminated for secondary treated effluent.

Based upon the modelling undertaken, a wastewater disposal area in the range of 200-250m2 would be required on each lot for a typical three-bedroom dwelling. If this area is combined with a typical dwelling size of 200-250m², and the setbacks calculated below, then there is more than sufficient room for access, parking, and private open space on a lot with an area of over 20ha.

It is recommended the final decision of wastewater system approval rest with the permit authority at the time of site specific design to ensure the most compatible environmental and economic outcomes. Therefore, it is not warranted to restrict the lot to a single wastewater system type at the subdivision approvals stage, as each dwelling will have individual nuances which may be more suited to any one of a range of designs allowable within AS1547-2012. The assessment a concludes that the proposed lots would be more than sufficient to accommodate wastewater from future residential development.

Nutrient balance and sustainable wastewater application

The soils across the site have developed from Tertiary sediments and have a good estimated Cation Exchange Capacity (CEC). The soils returned negative results to all Emerson dispersion tests. Therefore, the soils have a good capacity to retain nutrients in applied wastewater. Soils derived from Jurassic dolerite and Triassic Sandstone are known to exhibit dispersive behaviour. Under some circumstances the presence of dispersive soils can also lead to significant erosion, and in particular tunnel erosion. Evidence of erosion is present in the southern slopes of the subdivision as well as the Northern slope. Lots 1, 2, 5, 6, 10 and 11 may be affected by dispersion. It is recommended that adequate dispersion testing and soil classification is undertaken in proposed development areas on each lot to ensure the predicted soil behaviour and effluent disposal standards are met. On lots that exhibit soil dispersion an AWTS with irrigation is the recommended disposal method.

Setbacks distances to boundaries and sensitive features

The proposed lots have very gentle slopes and the average slope of approximately 3% or up to 2 degrees has been utilised to represent the indicative required setbacks. The acceptable solutions for setbacks according to the Building Act 2016 for onsite wastewater management are outlined below.

	3% (20 d	egrees)
	Subsurface Irritation	Surface Irrigation
Upslope/Level Boundary	1.5m	1.5m
Downslope Boundary	21.5m	40m
Upslope/Level Building	3m	6m
Downslope Building	6m	6m
Downslope Surface Water	29m	100m
Groundwater	0.6m	0.6m
Limiting Layer	0.5m	0.5m

Table 2.0 – Building Act 2016 setback requirements

Note: See Appendix 4 for Building Act compliance.

A subdivision proposal with lots of a minimum area of approximately 20ha should allow for significant space on each lot for wastewater disposal with adequate setbacks in regards boundaries and sensitive features. Therefore, it is concluded that current subdivision plan results in lots compliant with the onsite wastewater guidelines and the Tasmanian Planning Scheme.

The actual down slope boundary setbacks applied will require fine tuning at the special plumbing permit stage as access, parking, and building footprints are finalised in conjunction with wastewater disposal areas. Modelling at this planning stage does however suggest that sufficient room would be available on each lot to accommodate the required setbacks.

Note – Permanent surface water in the form of dams is located on lot 3 and 6 of the proposed subdivision. Most of the lots are close to minor creeks located in the gullies. Provided required setbacks are met there is deemed to be low risk involved with onsite wastewater and sensitive environmental features.

5. Conclusions

In conclusion, the land area examined is capable of supporting residential development provided that the identified landscape constraints are addressed with appropriate site-specific management strategies.

- The land surveyed is suitable for on site wastewater disposal utilising packaged treatment plants or other secondary treatment units.
- Based upon the modelling undertaken a lot size of 20ha would easily accommodate residential development and on-site wastewater disposal
- A range of minimum down slope setbacks from wastewater application areas have been recommended and should be utilised in the site-specific building and wastewater design phase.
- The variation in soil depth across lots must be considered in system design and secondary treatment of effluent is likely to be required with additional loam added to meet the required setback of 0.5m to bedrock.
- All earthworks on site must comply with AS3798-2007 and consideration should be given to drainage and sediment control on site during and after construction.
- The final approval for construction and wastewater disposal rests with the permit authority at the building approvals stage, and the recommendations in this report should not be viewed as blanket approval for any scale or type of residential development on each lot. Sites must be revisited for individual onsite wastewater assessments.
- The scale and type of residential development on each lot should therefore be appropriate to the environmental constraints of each lot therefore I recommend that geotechnical information be provided to prospective purchasers to allow informed decisions.

It is my professional opinion that the land surveyed is suitable to support residential development and on-site wastewater without sustaining environmental harm.

Dr John Paul Cumming B.Agr.Sc (hons) PhD CPSS GAICD Environmental and Engineering Soil Scientist

Appendix 1 – Trench Summary Reports

GES P/L

Land suitability and system sizing for on-site wastewater management Trench 3.0 (Australian Institute of Environmental Health)

Assessment Report

Site assessment for on-site waste water disposal

Assessment for	D.G. Potter Land Surveys	Assess. Date	28-Sep-23
		Ref. No.	
Assessed site(s)	Back Tea Tree Road, Tea Tree	Site(s) inspected	8-Sep-23
Local authority	Brighton	Assessed by	John Paul Cumming

This report summarises wastewater volumes, climatic inputs for the site, soil characteristics and sustem sizing and design issues. Site

Wastewater Characteristics	for this		mont -	600		(ucing the	ho 'No i	ofbodro	ome in i	a dwallir	na' moth	(hod
Septic tank waste	vater vo	assessi olume (l	/dav) =	200		(using u	le NO.	Ji bedio	omsmä	auweiiii	ig meu	100)
Su	llage vo	olume (L	/day) =	400								
Total nitrogen (kg/year) gene	rated b	y wastèv	vater =	1.8								
Total phosphorus (kg/year) gene	rated b	ywastev	vater =	1.1								
Climatic assumptions for site		(Evapo	transpir	ation ca	alculated u	using the	e crop fa	ctor met	thod)			
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Mean rainfall (mm)	41	36	36	45	36	29	46	47	40	48	44	56
Adopted rainfall (R, mm)	41	36	36	45	36	29	46	47	40	48	44	56
Retained rain (Rr, mm)	33	29	29	36	29	23	37	38	32	38	35	45
Evapotrans (FT mm)	130	110	91	63	42	29	32	42	63	84	105	126
Evapotr. less rain (mm)	97	81	62	27	13	6	-5	4	31	46	70	81
					Annual e	evapotran	spiration	less reta	ined rain	(mm) =	5	14
Soil characterisitics												
Texture =	Light C	lay					Cat	egory =	5	Thick	. (m) =	0.6
Adopted permeability (m/day) =	0.12		Adop	ted LT/	R (L/sq m	n/day) =	2	Mi	in depth	(m) to v	vater =	3
Proposed disposal and treatm	ent me	thods										
Proportion of waste	ewater	to be reta	ained or	n site:	All waste	ewater w	ill be dis	sposed	of on the	esite		
The preferred method	of on-s	ite prima	ary treat	ment:	In a pacl	kage trea	atment p	lant				
The preferred method of	on-site	seconda	ary treat	ment:	In-groun	d						
The preferred method of on-site secondary treatment:					None							
The preferred type of in-ground secondary treatment:					ove-ground secondary treatment: None							
The preferred type of above-	Site modifications or specific designs.					Site modifications or specific designs: Not needed						
The preferred type of above- The preferred type of above- Site modi	fication	s or spe	cific des	signs:	Not need	ded						
The preferred type of in- The preferred type of above- Site modi	fication site se	s or spe condary	treatm	signs: entsys	Not need tem	aea						
The preferred type of in- The preferred type of above- Site modi	fication site se	s or spe condary Total	cific des treatm length	signs: entsys (m) =	Not need stem 25	aed						
The preferred type of in- The preferred type of above- Site modi	fication site se	s or spe condary Total	treatm length Width	signs: ent sys (m) = (m) =	Not need stem 25 10	aea						
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The preferred type of in- The preferred type of above- Site modi Suggested dimensions for on- Total disp comprisi and a Second	fication site sec oosal ar ng a Pr dary (ba	s or spe condary Total rea (sq n imary Ar ackup) A	treatm length Width Depth n) requi ea (sq r rea (sq	signs: ent sys (m) = (m) = (m) = red = m) of: m) of:	Not need 25 10 0.2 250 250	ded		C#	iciont -	roo io -	nilobia	

Comments

The assigned DIR for the application area is $2.4L/m^2/day$ requiring a minimum absorption area of 250sqm. Therefore the system will have the capacity to cope with predicted climatic and loading events.

GES P/L

Land suitability and system sizing for on-site wastewater management Trench 3.0 (Australian Institute of Environmental Health)

Site Capability Report Site assessment for on-site waste water disposal

e 28-Sep-23	Assess. Date	D.G. Potter Land Surveys	Assessment for
	Ref. No.		
l 8-Sep-23	Site(s) inspected	Back Tea Tree Road, Tea Tree	Assessed site(s)
/ John Paul Cumming	Assessed by	Brighton	Local authority

This report summarises data relating to the physical capability of the assessed site(s) to accept wastewater. Environmental sensitivity and system design issues are reported separately. The 'Alert' column flags factors with high (A) or very high (AA) site limitations which probably require special consideration in site acceptability or for system design(s). Blank spaces indicate data have not been entered into TRENCH.

				Confid	Lim	itation	
Alert	Factor	Units	Value	level	Trench	Amended	Remarks
	Expected design area	sq m	10,000	V. high	Verylow		
	Density of disposal systems	/sq km	10	Mod.	Verylow		
	Slope angle	degrees	10	High	Moderate		
	Slope form	Straight si	mple	High	Low		
	Surface drainage	Imp	erfect	High	Moderate		
	Flood potential Site	floods <1:10)0 yrs	High	Verylow		
	Heavy rain events	Infred	quent	High	Moderate		
	Aspect (Southern hemi.)	Fac	ces N	V. high	Verylow	Moderate	
	Frequency of strong winds	Com	nmon	High	Low		
	Wastewater volume	L/day	600	High	Moderate	No change	
	SAR of septic tank effluent		1.2	High	Low		
	SAR of sullage		2.1	High	Moderate		
	Soil thickness	m	0.6	V. high	Moderate		
AA	Depth to bedrock	m	0.6	Mod.	Very high		
	Surface rock outcrop	%	0	V. high	Verylow		
	Cobbles in soil	%	0	V. high	Verylow		
	Soil pH		7.0	High	Verylow		
	Soil bulk density g	m/cub. cm	1.5	High	Low		
	Soil dispersion Em	erson No.	8	V. high	Verylow		
	Adopted permeability	m/day	0.12	Mod.	Verylow		
Α	Long Term Accept. Rate	_/day/sq m	2	High	High		

To enter comments, click on the line below 'Comments' . (This yellow-shaded box and the buttons on this page will not be printed.)

Comments

This site is limited by depth to bedrock therefore secondary treatment of effluent is required.

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Land suitability and system sizing for on-site wastewater management Trench 3.0 (Australian Institute of Environmental Health)

Environmental Sensitivity Report Site assessment for on-site waste water disposal

Assessment for	D.G. Potter Land Surveys	Assess. Date	28-Sep-23
	-	Ref. No.	
Assessed site(s)	Back Tea Tree Road, Tea Tree	Site(s) inspected	8-Sep-23
Local authority	Brighton	Assessed by	John Paul Cumming

This report summarises data relating to the environmental sensitivity of the assessed site(s) in relation to applied wastewater. Physical capability and system design issues are reported separately. The 'Alert' column flags factors with high (A) or very high (AA) limitations which probably require special consideration in site acceptability or for system design(s). Blank spaces indicate data have not been entered into TRENCH.

				Confid	Lim	itation	
Alert	Factor	Units	Value	level	Trench	Amended	Remarks
	Cation exchange capacity n	nmol/100g	100	High	Low		
	Phos.adsorp.capacity	kg/cub m	0.6	High	Moderate		
	Annual rainfall excess	mm	-514	High	Very low		
	Min. depth to water table	m	3	High	Very low		
	Annual nutrient load	kg	2.9	High	Very low		
	G'water environ. value	Agric non-s	ensit	V. high	Low		
	Min. separation dist. require	d m	3	High	Very low		
	Risk to adjacent bores	Ve	rylow	V. high	Very low		
	Surf. water env. value	Agric non-s	ensit	V. high	Low		
Α	Dist. to nearest surface wate	er m	70	V. high	High		
	Dist. to nearest other feature	e m	31	V. high	Moderate	No change	
	Risk of slope instability	Ve	rylow	V. high	Very low		
AA	Distance to landslip	m	20	V. high	Very high		

To enter comments, click on the line below 'Comments'. (This yellow-shaded box and the buttons on this page will not be printed.)

Comments

There is low risk of environmental degredation associated with wastewater disposal at this site provided required setbacks are observed.

Appendix 2 – Bore Logs Borehole 1

Depth (m)	Category	Horizon	Description
0.0 - 0.20	SM	A1	TOPSOIL – Silty SAND: dark brown, slightly
			moist to dry, medium dense
0.20 - 0.60	CI	B2	Sandy CLAY trace gravel: medium plasticity, grey, slightly moist, stiff
0.60 - 0.70	GC	C	Clayey GRAVEL: orange/grey, dry, dense to refusal on rock.

Borehole 2

Depth (m)	Category	Horizon	Description
0.0 - 0.20	SM	A1	TOPSOIL – Silty SAND: dark brown, slightly moist to dry, medium dense
0.20 - 0.80	CI	B2	Sandy CLAY trace gravel: medium plasticity, grey, slightly moist, stiff
0.80 - 0.85	GC	С	Clayey GRAVEL: orange/grey, dry, dense to refusal on rock.

Borehole 3

Depth (m)	Category	Horizon	Description
0.0 - 0.20	SM	A1	TOPSOIL – Silty SAND: dark brown, slightly
			moist to dry, medium dense
0.20 - 0.60	CI	B2	Sandy CLAY trace gravel: medium plasticity, grey, slightly moist, stiff
0.60 - 0.65	GC	С	Clayey GRAVEL: orange/grey, dry, dense to refusal on rock.

Borehole 4

Depth (m)	Category	Horizon	Description
0.0 - 0.20	SM	A2	Gravelly Sandy Silt (ML): yellow-grey, dry, very stiff, refusal on rock

Borehole 5

Depth (m)	Category	Horizon	Description
0.0 - 0.20	ML	A1	Sandy SILT: dark brown, slightly moist, stiff.
0.20 - 0.60	CI	B2	Sandy CLAY trace gravel: medium plasticity, orange, slightly moist, stiff
0.60 - 0.65	GC	С	Clayey GRAVEL: orange/grey, dry, dense to refusal on rock.

Borehole 6

Depth (m)	Category	Horizon	Description
0.0 - 0.10	SC	A2	Clayey SAND: yellow-grey, dry, very stiff, refusal on rock.

Borehole 7

Depth (m)	Category	Horizon	Description
0.0 - 0.20	MH	A1	Clayey SILT: medium plasticity, black, moist, soft.
0.20 - 0.60	СН	B2	Gravelly CLAY: medium plasticity, orange, slightly moist, stiff
0.60 - 0.65	GC	С	Clayey GRAVEL: orange/brown, dry, dense to refusal on extremely weathered dolerite.

Borehole 8

Depth (m)	Category	Horizon	Description
0.0 - 0.05	MH	A1	Clayey SILT: medium plasticity, black, moist, soft.
0.05 - 0.45	СН	B2	Gravelly CLAY: medium plasticity, orange, slightly moist, stiff
0.45 - 0.50	GC	С	Clayey GRAVEL: orange/brown, dry, dense to refusal on extremely weathered dolerite.

Borehole 9

Depth (m)	Category	Horizon	Description
0.0 - 0.20	ML	A1	Clayey SILT: medium plasticity, black, moist, soft
0.20 - 0.60	CI	B2	Gravelly CLAY: medium plasticity, orange, slightly moist, stiff
0.60 - 0.65	GC	С	Clayey GRAVEL: orange/brown, dry, dense to refusal on extremely weathered dolerite.

Borehole 10

Depth (m)	Category	Horizon	Description
0.0 - 0.20	ML	A1	Sandy SILT: dark brown, slightly moist, stiff.
0.20 - 0.60	CI	B2	Sandy CLAY trace gravel: medium plasticity, orange, slightly moist, stiff
0.60 - 0.65	GC	С	Clayey GRAVEL: orange/grey, dry, dense to refusal on rock.

Depth (m)	Category	Horizon	Description
0.0 - 0.20	ML	A1	Sandy SILT: dark brown, slightly moist, stiff.
0.20 - 0.70	CI	B2	Gravelly CLAY: medium plasticity, orange, slightly moist, stiff
0.70-0.80	GC	С	Clayey GRAVEL: orange/grey, dry, dense to refusal on extremely weathered dolerite.

Borehole 11

Borehole 12

Depth (m)	Category	Horizon	Description
0.0 - 0.10	MH	A1	TOPSOIL – Silty SAND: dark brown, slightly moist to dry, medium dense
0.10 - 0.60	СН	B2	Gravelly CLAY: medium plasticity, orange, slightly moist, stiff
0.60 - 0.65	GC	С	Clayey GRAVEL: orange/brown, dry, dense to refusal on extremely weathered dolerite.



Appendix 3 – Test Hole Locations

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Building
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Acceptable Solutions	Performance Criteria	Compliance
AI	PI	
 Horizontal separation distance from a building to a land application area must comply with one of the following: a) be no less than 6m; or b) be no less than: b) be no less than: (i) 3m from an upslope building or level building; (ii) If primary treated effluent to be no less than 4m plus 1m for every degree of average gradient from a downslope building; (iii) If secondary treated effluent and subsurface application, no less than 2m plus 0.25m for every degree of average building. 	 a) The land application area is located so that (i) the risk of wastewater reducing the bearing capacity of a building's foundations is acceptably low.; and (ii) is setback a sufficient distance from a downslope excavation around or under a building to prevent inadequately treated wastewater seeping out of that excavation 	Complies with A1 (a) Land application area can be located with minimum separation distance of 6m from buildings.
A2	P2	
 Horizontal separation distance from downslope surface water to a land application area must comply with (a) or (b) (a) be no less than 100m; or (b) be no less than the following: (b) be no less than the following: (i) if primary treated effluent 15m plus 7m for every degree of average gradient to downslope surface water; or (ii) if secondary treated effluent and subsurface application, 15m plus 2m for every degree of average gradient to down slope surface 	 Horizontal separation distance from downslope surface water to a land application area must comply with all of the following: a) Setbacks must be consistent with AS/NZS 1547 Appendix R; b) A risk assessment in accordance with Appendix A of AS/NZS 1547 has been completed that demonstrates that the risk is acceptable. 	Surface irrigation Complies with A2 (b) Land application area can be located with minimum separation distance 100m from surface water Subsurface irrigation Complies with A2 (b) (ii) Land application area can be located with minimum separation distance 45m from surface water.

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A3	P3	
Horizontal separation distance from a property boundary to a land application area must comply with either of the following:	Horizontal separation distance from a property boundary to a land application area must comply with all of the following:	Complies with A3 (b) (i) Land application area can be located with a minimum separation distance of 1.5m from an upslope or level property boundary
(a) be no less than 40m from a property boundary; or	(a) Setback must be consistent with AS/NZS1547 Appendix R; and	Complies with A3 (b) (iii) T and annication area can be located with a minimum
(b) be no less than:	(b) A risk assessment in accordance with	can appreciation area can be located with a minimum separation distance of 21.5m of downslope property
(i) 1.5m from an upslope or level property boundary; and	Appendix A of AS/NZS 1547 has been completed that demonstrates that the risk is acceptable.	boundary
(ii) If primary treated effluent 2m for every degree of average gradient from a downslope property boundary; or		
(iii) If secondary treated effluent and subsurface application, 1.5m plus 1m for every degree of average gradient from a downslope property boundary.		
A4	P4	
Horizontal separation distance from a downslope bore, well or similar water supply to a land application area must be no less than 50m and not be within the zone of influence of the bore whether up or down	Horizontal separation distance from a downslope bore, well or similar water supply to a land application area must comply with all of the following:	Complies with A4 No bore or well identified within 50m
gradient.	(a) Setback must be consistent with AS/NZS1547 Appendix R; and	
	(b) A risk assessment completed in accordance with Appendix A of AS/NZS 1547 demonstrates that the risk is acceptable	

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A5	P5	
Vertical separation distance between groundwater and a land application area must be no less than: (a) 1.5m if primary treated effluent: or	Vertical separation distance between groundwater and a land application area must comply with the following:	Complies with A5 (b) No groundwater encountered
(b) 0.6m if secondary treated effluent	(a) Setback must be consistent with AS/NZS1547 Appendix R; and	
	(b) A risk assessment completed in accordance with Appendix A of AS/NZS 1547 that demonstrates that the risk is acceptable	
A6 Vertical separation distance between a limiting layer and a land application area must be no less than: (a) 1.5m if primary treated effluent; or (b) 0.5m if secondary treated effluent A7 nil	P6 Vertical setback must be consistent with AS/NZS1547 Appendix R. P7 A wastewater treatment unit must be located a sufficient distance from buildings or neighbouring properties so that emissions (odour, noise or aerosols) from the unit do not create an environmental nuisance to the residents of those properties	Complies with A6 (b) No limiting layer identified Complies

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