

Attachment to item number 5.2 -

Bushfire Hazard Report; and Onsite Wastewater Assessment

BUSHFIRE HAZARD REPORT

Tim Milles Subdivision 43a Imlay Street, Dunalley



April 2023

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1. Introduction

I have been engaged by Tim Milles to prepare a Bushfire hazard report and plan for the subdivision of an allotment of land in the suburb of Dunalley. The author, David Lyne, is an Accredited Person under Part 4A of the *Fire Service Act* 1979 (Accreditation number BFP-144).

The development involves subdividing one parcel of land into three lots which area located in a bushfire-prone area necessitating an assessment against the Bushfire-Prone Areas Code of the *Tasmanian Planning Scheme -Sorell* (the Scheme).

This report considers:

- Whether the site is within a bushfire-prone area;
- The characteristics of the site and surrounding land;
- The proposed use and development that may be threatened by bushfire hazard;
- The applicable Bushfire Attack Level (BAL) rating;
- Appropriate bushfire hazard mitigation measures; and
- Compliance with planning requirements pertaining to bushfire hazard.

In order to demonstrate compliance with the Directors Determination – Bushfire-Hazard Areas v1.1 this report includes a Certificate of Compliance (for planning purposes).

2. Site Description

The address of the property is 43a Imlay Street (C.T. 182841/1). The site is approximately 4590m² in a low density residential area situated on land within the township of Dunalley.

There is an existing dwelling on the allotment, with the remaining area vacant and well managed. The land surrounding the subject property is also residential with some established dwellings and local farming lands in close proximity. The local football oval is also located to the north of the site.

The site has direct access to a pre-approved public road - Imlay Street, which joins onto the Arthur Highway. The property is not provided with a reticulated water supply for firefighting.



Figure 1: Aerial view of site (shaded in blue) and surrounding land (source: LISTmap, accessed April 2023).

2.1 Planning Context

The relevant planning instrument for the assessment of use and development on the site is the *Tasmanian Planning Scheme - Sorell* ("Planning Scheme"). The site is within the Planning Scheme's Low Density Residential Zone. The entire site is subject to the Planning Scheme's Bushfire-Prone Areas overlay.

As the proposed development involves the reorganisation of boundaries of land located in a bushfire prone area, consideration of the bushfire constraints must be considered at the Planning stage. An assessment under the Directors Determination is required.

2.2 Natural Values

The onsite vegetation is modified agricultural land and within 100m to all directions of the site is grassland and low threat vegetation, which is not a category listed as a Threatened Native Vegetation Community.

A Natural Values Assessment (NVA) will not be provided for the proposal.

3. Proposed Use & Development

The proposal is to subdivide the subject property into three separate allotments. Lot 1 will become 1580m² in size, Lot 2 will become 1630m², and Lot 3 will become 1380m² in size.

4. Bushfire Hazard Assessment

The subject site is located within the Planning Scheme's Bushfire-Prone Areas overlay. Therefore, the site is within a 'bushfire prone area' as defined in the Directors Determination. The key factors affecting bushfire behaviour are fuel, weather conditions and topography. This section of the report considers these factors in the context of the Australian Standard *AS3959-2018 - Construction of buildings in bushfire-prone areas*, which is required in order to determine compliance with planning and building requirements for bushfire protection.

4.1 Vegetation & Effective Slope

Under the right conditions, unmanaged vegetation is a fuel source that can sustain uncontrolled bushfire. The Bushfire Attack Level (BAL) determines the likely exposure to uncontrolled bushfire hazard. Determining the applicable BAL rating for the proposed development is necessary to determine defendable space required and to inform the detailed design for building purposes.

'Effective Slope' refers to the slope of land underneath bushfire-prone vegetation relative to the subject site. The effective Slope directly affects a fire's rate of spread and flame length and is accordingly a critical aspect affecting bushfire behaviour. AS3959-2018 refers to five categories of Effective Slope and these have been used for the purpose of this analysis. Figure 2 shows land within 100m of the site.

The process for determining BAL ratings is outlined in AS 3959-2018. This assessment has relied on Method 1, which considers vegetation type, distance from hazardous vegetation and effective slope.

Step 1: Relevant fire danger index (clause 2.2.2): FDI 50

Step 2: Assess the vegetation within 100m in all directions

Vegetation

The land to all directions of the site has been mostly cleared of native vegetation with managed gardens, lawns and the local football oval to the north of the site. Surrounding the oval and to the north-west of the subject site there is some woodland present which can be seen in Figure 2. Within close proximity is mainly developed residential allotments with managed gardens and open paddocks. There is grassland to all directions of the subject property. Therefore, the vegetation to all directions is classified as grassland, and to the north-west is woodland in accordance with Table 2.3 of AS 3959-2018.

Effective Slope

The land to the south and south-west has a gentle slope to it moving to the south, whilst to the north, east and west the land rises away from the site. Therefore, the effective slope to the north, east and west is upslope; and downslope 0-5° to the south.



Figure 2 shows land within 100m of the proposed development as this is the minimum area for consideration under AS 3959-2018.

4.2 Site Analysis

The subject site is currently developed with a dwelling present, there is also a large amount of managed vegetation in the form of managed gardens and lawns. The vegetation on the site has been heavily modified with the majority of vegetation surrounding the existing building removed and managed to a low threat level.

The site is surrounded by a combination of vegetation types, the highest of hazard levels being Grassland to all directions of the building site, and Woodland to the north-west.

The Bushfire-Prone vegetation affecting the site is predominantly the Grassland - Group G and Woodland - Group B in accordance with AS3959-2018. The vegetation surrounding the existing buildings is well managed and is therefore considered low threat in accordance with clause 2.2.3.2 (f). Non-vegetated areas and buildings onsite are excluded from classification in accordance with clause 2.2.3.2 (e)

In this case, in accordance with Clause 2.2.2 of AS 3959-2018, the relevant Fire Danger Index for Tasmania of 50 (FDI 50). When considering the definition of Bushfire Prone Area under the Building Regulations, it is evident the proposed development is located within a Bushfire-Prone Area as defined by the Directors Determination.

Vegetation - North

This vegetation to the north of the site is predominantly managed vegetation until it meets the local football oval which has some woodland surrounding the western side of the oval.



Figure 3 - View of site to the North

Vegetation - South

This vegetation to the south of the site is low threat vegetation in the form of managed gardens and allotments.



Figure 4 - View South

Vegetation - East

This vegetation to the east of the site is predominantly grassland within the allotments, with some residential dwellings present.



Figure 5 - View East

Vegetation - West

This vegetation to west of the site is also a combination of grassland and low threat vegetation in the form of managed gardens and hardstands around existing buildings and structures.



Figure 8 - View to the West.

4.3 Required Separation

Step 3: Distance from classified vegetation (clause 2.2.4)

Table 1 - Lot 1

Direction	North	East	South	West
from site:				
Vegetation	Class B Woodland	Class C Grassland	Low threat you	Low threat yea
Type:			Low threat veg.	Low threat veg.
Relationship	Unstano	Unsiono	Downslopo 0 <5°	Unclone
to site:	opsiope	opsiope	Downsiope 0-<5	upsiope
Effective	0°	٥°	0.5°	0°
Slope	0	0	0-5	0
Required				
separation	32-100m	14-50m	N/A	N/A
Distance:				
Observed				
separation:	60m	<25m	N/A	N/A
Assessed	BAL-12.5	BAL-12.5	BAL-LOW	BAL-LOW
BAL:				
Proposed	BAL-12 5			
BAL:	DAL-12.3			

Table 2 - Lot 2

Direction from site:	North	East	South	West
Vegetation Type:	Class B Woodland	Class G Grassland	Low threat veg.	Low threat veg.
Relationship to site:	Upslope	Upslope	Downslope 0-<5°	Upslope
Effective Slope	0°	0°	0-5°	0°
Required separation Distance:	32-100m	14-50m	N/A	N/A
Observed separation:	<85m	<25m	N/A	N/A
Assessed BAL:	BAL-12.5	BAL-12.5	BAL-LOW	BAL-LOW
Proposed BAL:	BAL-12.5			

Direction from site:	North	East	South	West
Vegetation Type:	Class B Woodland	Class G Grassland	Low threat veg.	Low threat veg.
Relationship to site:	Upslope	Upslope	Downslope 0-<5°	Upslope
Effective Slope	0°	0°	0-5°	0°
Required separation Distance:	32-100m	14-50m	N/A	N/A
Observed separation:	>100m	<25m	N/A	N/A
Assessed BAL:	BAL-LOW	BAL-12.5	BAL-LOW	BAL-LOW
Proposed BAL:	BAL-12.5			

Table 3 - Lot 3

Any proposed dwelling is required to be able to achieve BAL-29, with the current conditions onsite this proposal and the existing buildings are able to achieve BAL-12.5. At BAL-12.5 exposure, the proposed development may be subject to increasing levels of ember attack, windborne burning debris and radiant heat flux between 0-12 kW/sqm. The following table demonstrates the minimum separation distances required to achieve BAL-12.5. The available area onsite will provide separation for BAL-12.5.

<u>BAL Rating Lot Schedule</u> - The BAL rating is based upon the condition of vegetation encountered at the time of inspection. The vegetation within the hazard management area for each allotment shall be maintained to a Low Threat Level (in accordance with AS3959-2018); and vegetation external to the site may be subject to change over time - this BAL rating does not account for any future change to the state of/hazard levels of vegetation within or external to the site.

The BAL rating applies to each of the allotments shown on the BHMP - it is NOT a site generic BAL rating.

Lot Number	Achievable BAL Rating
1,2&3	BAL-12.5

QUADRANT	FDI	VEG CLASS	EFFECTIVE SLOPE	MIN. SEPARATION FOR BAL-12.5
North	50	В	Upslope - 0°	32m
East	50	G	Upslope - 0°	14m
South	50	N/A	Downslope 0°-5°	N/A
West	50	N/A	Upslope - 0°	N/A

Table 4 - Minimum required separations from vegetation

5. Bushfire Protection Measures

During a bushfire event, a number of bushfire attack mechanisms may threaten buildings and occupants, including:

- Radiant heat;
- Direct flame contact;
- Ember attack; and
- Wind.

The key bushfire attack mechanism is considered to be wind-borne embers and debris.

A range of bushfire protection measures are recommended to improve the resilience of the proposed development and achieve a tolerable level of residual risk for occupants.

The minimum required protection measures outlined in this report have been consolidated into a Bushfire Hazard Management Plan ('BHMP') enclosed as Appendix B.

5.1 Construction Standards

The Hazard Management Areas provides any existing buildings with sufficient separation for BAL-12.5 development. The BHMP specifies that the building must be designed and constructed to BAL-12.5 standard under AS 3959-2018 on all facades, refer to sections 3 and 5 of the standard for specific construction requirements.

5.2 Access

The primary access to the existing lots is from an unsealed public road - Imlay Street. The proposed upgraded driveways for the lots will be from the same road on the eastern side of the properties, these have been included on the plan of subdivision (Appendix A).

Within the property boundaries, the access to the perimeter of the buildings will be adequately provided to facilitate fire- fighting to attempt to defend the building and to allow reasonable egress for occupants.

The proposed access arrangements for the subdivision must comply with the Director's Determination. The proposal complies with the acceptable solution for this standard because the layout of accesses is included in the attached plan of subdivision and BHMP. The proposal includes a new property access, so Table 4.2 is addressed in the attached subdivision plan.

The implementation of the access will need to occur prior to receiving a certificate of occupancy or final certificate for any buildings on the relevant allotment.

5.3 Water supply for firefighting

Arrangements for fire-fighting water supply for the proposed lots must comply with Table 4.3B (for a static water supply) of the Directors Determination. A static water supply of a minimum 10,000 L must be provided solely for firefighting. The water supply must include a water connection point within 3.0m of a vehicle hardstand that is at least 6.0 m from the building. The hardstand must be connected to the property access.

The water supply must comply with Table 4.3B of the Director's Determination, and in accordance with Elements A, B and C Table C13.4: Reticulated Water supply for Firefighting:

Table 4.3B Static Water Supply for Fire fighting			
A. Distance between building area to be protected and water supply			
The following requirements apply:			
1. The building area to be protected must be located within 90 meters of the water connection point of a stat water supply; and	С		
2. The distance must be measured as a hose lay, between the water connection point and the furthest part of the building area.			
B. Static Water Supplies			
A static water supply:			
1. May have a remotely located offtake connected to the static water supply;			
2. 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;			
3. Must be a minimum of 10,000 litres per building area to be protected. This volume of water must not be use for any other purpose including fire fighting sprinkler or spray systems;)d		
4. Must be metal, concrete or lagged by non-combustible materials if above ground; and			
5. If a tank can be located so it is shielded in all directions in compliance with Section 3.5 of AS 3959-2018, th tank may be constructed of any material provided that the lowest 400 mm of the tank exterior is protected by:	9		
(a) metal;			
(b) non-combustible material; or			
(c) fibre-cement a minimum of 6 mm thickness.			

C. Fittings, pipework and accessories (including stands and tank supports)

Fittings and pipework associated with a water connection point for a static water supply must:

- 1. Have a minimum nominal internal diameter of 50mm;
- 2. Be fitted with a valve with a minimum nominal internal diameter of 50mm;
- 3. Be metal or lagged by non-combustible materials if above ground;
- 4. Where buried, have a minimum depth of 300mm (compliant with AS/NZS 3500.1-2003 Clause 5.23);
- 5. Provide a DIN or NEN standard forged Storz 65 mm coupling fitted with a suction washer for connection to fire fighting equipment;
- 6. Ensure the coupling is accessible and available for connection at all times;

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- 7. Ensure the coupling is fitted with a blank cap and securing chain (minimum 220 mm length);
- 8. Ensure underground tanks have either an opening at the top of not less than 250 mm diameter or a coupling compliant with this Table; and
- 9. Where a remote offtake is installed, ensure the offtake is in a position that is:(a) Visible;
 - (b) Accessible to allow connection by fire fighting equipment;
 - (c) At a working height of 450 600mm above ground level; and
 - (d) Protected from possible damage, including damage by vehicles.

D. Signage for static water connections

- 1. The water connection 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 comply with: Water tank signage requirements within AS 2304-2011 *Water storage tanks for fire protection systems; or*
- 2. The following requirements:
 - (a) Be marked with the letter "W" contained within a circle with the letter in upper case of not less than 100 mm in height;
 - (b) Be in fade-resistant material with white reflective lettering and circle on a red background;
 - (c) Be located within one metre of the water connection point in a situation that will not impede access or operation; and
 - (d) Be no less than 400 mm above the ground.

E. Hardstand

A hardstand area for fire appliances must be provided:

- 1. No more than three metres from the water connection point, measured as a hose lay (including the minimum water level in dams, swimming pools and the like);
- 2. No closer than six metres from the building area to be protected;
- 3. With a minimum width of three metres constructed to the same standard as the carriageway; and
- 4. Connected to the property access by a carriageway equivalent to the standard of the property access.

5.4 Hazard Management Areas

The Hazard Management Area ('HMA') refers to land that is managed in a minimum fuel condition so as to reduce the potential exposure of habitable buildings and occupants to radiant heat and flames and to provide defendable space. The effectiveness of the hazard management areas is reliant on ongoing maintenance by landowners.

HMA's need to be implemented prior to sealing titles and it is recommended that a suitable instrument, such as a restrictive covenant that requires landowners to not allow for fuel to accumulate and create a fire hazard be placed on all lot titles. The main purpose of this covenant being each lot will be relying on the maintenance of the adjoining lot to achieve required separation distances in order to achieve the specified BAL rating.

The developer will be responsible for the management of vegetation on each lot within the prescribed HMA's and interim HMA's until such time as the lots are sold. The developer is also responsible for maintaining unsold lots and the undeveloped balance of each stage and that management involves maintain the vegetation as low threat as described in AS3959 part 2.2.3.2.

The minimum extents of the Hazard Management Area (HMA) are demonstrated on the BHMP. Management prescriptions for the proposed HMA are provided in Table 5.

 Table 5 - Hazard Management Area Prescriptions

Within 10m of habitable buildings	 No storage of flammable materials (e.g. firewood); Avoid locating flammable garden materials near vulnerable building elements such as glazed windows/doors, decks and eaves (e.g. non-fire-retardant plants and combustible mulches); Non flammable features such as paths, driveways and payed areas are
	encouraged around habitable buildings.
Trees within HMA	Maintain canopy separation of approximately 2.0m;
	Ensure no branches overhang habitable buildings;
	Remove tree branches within 2.0m of ground level below;
	• Locate any new tree plantings 1.5 x their mature height from buildings;
	Avoid planting trees with loose, stringy or ribbon bark.
Understory	Maintain grass cover at <100mm;
vegetation within	Maintain shrubs to <2.0m height;
HMA	• Shrubs to be maintained in clumps so as to not form contiguous vegetation (i.e. clumps up to 10sqm in area, separated from each other by at least 10m);
	Avoid locating shrubs directly underneath trees;
	• Periodically remove dead leaves, bark and branches from underneath trees and around habitable buildings.

Within the lots the hazard management is required to be undertaken regularly and is to ensure that Hazard Management Areas within the development can be considered *low threat* in accordance with AS3959-2018. The Bushfire Hazard Management Plan (BHMP) indicates the areas of the lots being managed to a low threat state and provides for suitable separation distances from the development building to hazard to achieve the BAL-12.5 separation distances. The Hazard Management Plan. Maintenance of the Hazards within the lot are to include (but are not limited to):

HAZARD MANAGEMENT AREAS - (HMA) -

Hazard Management Area includes the area to protect the buildings as well as the access and water supplies. Vegetation in the Hazard Management Area (the entire site) is to be managed and maintained in a minimum fuel condition, *Low Threat* vegetation in accordance with AS3959-2018.

Maintenance Schedule

- Removal of fallen limbs, leaf & bark litter
- Cut lawns short (less than 100mm) and maintain
- Remove pine bark and other flammable garden mulch
- Complete under-brushing and thin out the understorey
- Prune low hanging trees to ensure separation from ground litter
- Prune larger trees to establish and maintain horizontal and vertical canopy separation
- Minimise storage of petroleum fuels
- Maintain road access to the buildings to be defended and water storage area
- Remove fallen limbs, leaf & bark litter from roofs, gutters and around the building

5.5 Optional Protection Measures

The following recommendations are not specifically regulated under any planning or building standards at present hence do not form part of the bushfire hazard management plan. If implemented however, they will improve bushfire protection for future occupants.

In addition to maintaining the requirements of the HMA, the choice of vegetation and landscaping can reduce the potential exposure to bushfire. Fire retardant species can be incorporated into landscaping to further limit flammable material around the building.

Use of non-combustible gutter guards are generally preferable in that they can prevent accumulation of leaves and debris on the building's roof if gutters are to be installed.

6. Conclusion & Recommendations

The proposed sites of the boundary adjustment are located in a bushfire-prone area. The attached Bushfire Hazard Management Plan prepared for the subdivision outlines the required protection measures for the proposed lots including hazard management areas, building siting and construction, access, and water supply standards. Protection measures will reduce bushfire risk to future residents, developments and to firefighters, as outlined in this report and the associated bushfire hazard management plan.

The Bushfire Hazard Management Plan is certified as being compliant with the Bushfire-Prone Areas Code C13.0 of the applicable planning scheme.

7. References

Department of Primary Industries and Water, The LIST, viewed 9 April 2023, www.thelist.tas.gov.au

Director of Building Control, 2021, Director's Determination Bushfire Hazard Areas, V1.1, Department of Justice (Tasmania).

Standards Australia, 2018, *AS 3959-2018 – Construction of buildings in bushfireprone areas*, Standards Australia, Sydney. APPENDIX A

Subdivision Plan



APPENDIX B

Bushfire Hazard Management Plan



APPENDIX C Site Photos



Photo 1 - Looking north towards existing dwelling on Lot 1.



Photo 2 - Looking north towards existing dwelling on Lot 1.



Photo 3 - View to the east looking back towards Imlay Street.



Photo 4 - View to the north from northern boundary of Lot 1.



Photo 5 - View to the west.



Photos 6 - View of the south.

Appendix E

Certificate of Compliance

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:

43A Imlay Street, Dunalley

Certificate of Title / PID:

182841/1, 9533045

2. Proposed Use or Development

Description of proposed Use and Development:

Subdivision – 3 lots

Applicable Planning Scheme:

Tasmanian Planning Scheme - Sorell

3. Documents relied upon

This certificate relates to the following documents:

Title	Author	Date	Version
Bushfire Hazard Management plan report	David Lyne	April 2023	1.0
Bushfire Hazard Management Plan	David Lyne	April 2023	1.0

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	

\boxtimes	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					

\boxtimes	E1.6.2 / C13.6.2 Subdivision: Public and fire fighting access					
	Acceptable Solution	Compliance Requirement				
	E1.6.2 P1 / C13.6.2 P1	Planning authority discretion required. A proposal cannot be certified as compliant with P1.				
	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				

\boxtimes	E1.6.3 / C13.1.6.3 Subdivision: Pr purposes	rovision of water supply for fire fighting
	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
\boxtimes	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. Bu	shfire H	lazard Practitioner		
Name:	David L	yne	Phone No:	0421 852 987
Postal Address:	11 Grar	nville Avenue, Geilston Bay	Email Address:	Dave_lyne@hotmail.com
Accreditati	on No:	BFP – 144	Scope:	1, 2, 3a, 3b

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	De		
Name:	David Lyne	Date:	12.04.2023
		Certificate Number:	1385/23
		(for Practitior	ner Use only)

ONSITE WASTEWATER ASSESSMENT SUBDIVISION 41 IMLAY STREET DUNALLY



Sorell Council Development Application: Response to Request for Information - 41 Imlay Street, Dunalley.pdf Date Received: 28/04/2023 Plans Referenced: P2

41 Imlay Steet Dunalley Proposed 4 Lot Subdivision TL and RM Milles

1- INTRODUCTION

Background

T L and R M Milles has proposed to subdivide an area of 4600sqm into 3 Lots

1.

The site is situated at 41 Imlay Street Dunalley

The proposed Lot 1 has an existing building with a current proposed wastewater design for a 2 bedroom cottage with a Lot size of 1560M²

The remaining two Lots are 1500M² and 1540M² respectively

The attached Site & Soil Assessment / Evaluation and Wastewater Capability Report gives details of the sites typical soil profile of all lots and describes any environmental and site wastewater capability constraints with recommended preferred wastewater treatment and land wastewater disposal application systems for the Lots

Each lot is capable of managing onsite wastewater in accordance with AS/NZS 1547:2012

2- SUMMARY

The Wastewater Land Site and Soil Assessments for all Lots and the Balance have been conducted with all Lots capable of disposing Domestic wastewater in accordance with AS/NZS 1547:2012

Lots 2 and 3 will have secondary treated wastewater with land application proposed disposed to raised beds designed for a max of 3 bedrooms

Lot 1 has an existing building currently proposed for 2 bedrooms with secondary treated effluent and disposed as described above for Lots 2 & 3

There are signs of a filled area on Lot 3 in the area indicated on the proposed site plan and expected to be minor fill only

3- TOPOGRAPHY VEGETATION AND DRAINAGE

The proposed 3 Lot subdivision has a flat to slightly sloping surface that falls generally to the south east at approx. 5deg the topography is generally flat & straight

Drainage is moderately good with grass pasture throughout with some mature native trees around the boundary.

4- GEOLOGY

Land Systems of Tas Dept Ag describes the geology for the area as -Jurassic Dolerite

The general soil profile was investigated onsite with a hand auger and excavator to a depth of 1.5M

Typical soil profile are Duplex soils consisting of 0.2M silty sandy loams overlying 0.8M of moderate clay light yellow moderate structured with some friability & gravel mix & fractures to weathered dolerite gravelly clay

Some Test holes were hand augured on Lots 2 & 3 with an excavation to 1.5M on Lot 1 with consistent soil profiles encountered in all soil horizon layers

There was no indication of any water table or erosion risks.

Description of Lots 1-3

Lot 1- The existing building is positioned on this site with a building of 2 bedrooms proposed. A wastewater application has been submitted for secondary treated effluent thru an AWTS with a raised bed for the LAA

Lot 2- The site is mainly grass/pasture with a 5deg slope to the south east across the site

Lot 3 – Is similar with a 5-6deg slope to the SE with native vegetation around side boundaries.

There is a minor filled area onsite as indicated on site plan with no consequences or risks envisaged for wastewater disposal with the LAA sited away from this area

Groundwater

There is no indication of the water table onsite or is there any known bores within the vicinity.

3

STORMWATER

Stormwater disposal for Lot 1 will be the overflow from the water storage tank into a 10M x 1.0M x 0.6M absorption trench

The stormwater from future houses on Lots 2 & 3 may have a similar method of disposal with the area calculated on a specified catchment runoff or be drained to the roadside drainage system subject to Council approval.

Storage Tanks will be installed on both lots with the overflow and any other surface & subsurface water to be disposed as described by the above options.

Stormwater disposal to be designed for each site at the building application stage.

CONCLUSIONS

Horizon A Sandy Loams average 0.2M occur over the property with the underlying soils consisting of sandy clays friable with moderate density to auger depth of 1.0M

Due to the shallow topsoils the method of wastewater disposal on Lots 1-3 the soils have been classified as Cat 5 based on the dominant clay based subsoils The method of secondary quality wastewater disposal will have an additional soil depth of 0.6M within the proposed raised beds with additional treatment and filtration to further improve the effluent quality for final disposal.

The LAA's are calculated for max 3 bedrooms for lots 2 & 3

Lot 1 has an existing 2 bed building with a recent Plumbing Application approved by Council.

Stormwater will be disposed of either onsite or discharged to the roadside drainage system subject to Council approval

Final position and dimensions of all land application areas will be subject to position and size of future house sites and will be assessed at the building application stage.

4

RECOMMENDATIONS

It is recommended that all Lots be suitable for a specific wastewater secondary treatment system with raised beds or other suitable site-specific systems that treat wastewater to a standard that will not be detrimental to current environment values and treat wastewater to an advanced level

Final site locations and design dimensions for the Wastewater Land Application Areas will be assessed at the Building Application stage and subject to separate approval for each lot. With stormwater disposal subject to Council approval

John M Parkinson ON -Site Wastewater Solutions

4/2023.

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CERTIFICATE OF THE RESPONSIBLE DESIGNER

3 LOT SUBDIVISION ASSESSMENT 41 IMLAY ST DUNALLEY

Section 94 Section 106 Section 129 Section 155

Т	0.	TIM MILLES					wner nam	e		
	0.	2C Sholmoro	Dr			A	ddress			
		2C Sheimore		7047	Suburb/n	ostcode	5			
	0	d Beach		/01/	Gubainp	0310001				
Designer de	tail	S:								
Name:	JI	VI Parkinson			Cate	egory:	Building Design CC163	g Ser er 10	vices	
Business name: Onsite Waste			water Solu	itions		Ph	one No:	04093	336306	
Business address: 880 Cambrid		880 Cambridg	e Rd					•		
		Cambridge			7170		Fax No:			
Licence No:		1017524	Email addr	ess: joh	nparkins	son@	oswws	s.cor	n	
Details of th	e p	roposed worl	k:							
Owner/Applica	int	Tim Milles				Desig proje No.	gner's ct referenc	e		
	1	41 Imlay Street					Lot No:			
Address:					7177]
Address:		Dunalley								
Address:		Dunalley	1							_
Address: Type of work:		Dunalley	Building w	ork		Plu	umbing v	vork	X	
Address: Type of work: (X all applicable) Description of	WO	Dunalley	Building w	ork		Plu	umbing v	vork	X	

Certificate Type:	Certificate		Responsible Practitioner Architect or Building Designer			
	Building design					
	Structural design		Engineer or Civil Designer			
	Fire Safety design		Fire Engineer			
	Civil design		Civil Engineer or Civil Designer			
	X Hydraulic design		Building Services Designer			
	Fire service design		Building Services Designer			
	Electrical design		Building Services Designer Building Service Designer Plumber-Certifier; Architect, Building Designer or Engineer			
	Mechanical design					
	Plumbing design					
	Other (specify) Site & Soil Assessment and evaluation					
Deemed-to-Satisfy:	X	Performance	Solution: (X the appropriate box)			
Other details:						

The following documents are provided with this Certificate –

Drawing numbers:	Prepared by:	Date:
Subdivision Site Plan Onsite Wastewater System & Test Hole locations	oswws	4/2023
Schedules:	Prepared by:	Date:
Specifications:	Prepared by:	Date:
Computations:	Prepared by:	Date:
	OSWWS	4/2023
Performance solution proposals:	Prepared by:	Date:

Test reports:	Prepared by:	Date:
Provide the second seco	OSWWS	4/2023
Standards, codes o process:	or guidelines relied on in design	naust foa in earonn unless excluded l
AS/NZS 1547:2012 On-3 AS/NZS 3500	Site Domestic Wastewater Management	
National Construction Co	ode	
Directors Guidelines for	Onsite Wastewater Management Systems	
Site Plans		othyon
	A to a freedor of a too	INCLUTED DEL

Et to bloke muse certilions

The documentation relating to the work includes sufficient information for the assessment of the work in accordance with the *Building Act 2016* and sufficient detail for the builder or plumber to carry out the work in accordance with the documents and the Act;

This certificate confirms compliance and is evidence of suitability of this design with the requirements of the National Construction Code.

	Name: (print)	Signed	Date
Designer:	J M Parkinson	A	5/4/2023
		/ 10	
Licence No:	CC16310		

building height no more than 2.4 mu or

 (ii) procrusions (such as earles, scens, and awriaits) that extend no more than 0.6 m borcontally from the multiple dwelling.

Disgram 11.4.4A. Orientation of a window of a hobitable room as specified in 11.4.4 A1, A2 and P2

Assessment Report Onsite Wastewater Management 3 Lot Subdiv Proposal

Assessment for Tim Milles 2C Shellmore Dr Old Beach Assessed site(s) 41 Imlay St Dunalley Local authority Sorell Council Assess. Date Ref. No. Site(s) inspected Assessed by

29th March 2023 J Parkinson

This report summarises wastewater volumes, climatic inputs for the site, soil characteristics and sustem sizing and design issues. Site Capability and Environmental sensitivity issues are reported separately, where 'Alert' columns flag factors with high (A) or very high (AA) limitations which probably require special consideration for system design(s). Blank spaces on this page indicate data have not been entered into TRENCH.

Wastewater Characteristics Wastewater volume (L/day) use Septic tank waste	d for thi water v	s assess olume (l	sment = _/day) = _/day) =	600 200 400		(using th	ne 'No. o	f bedroo	ms in a c	dwelling'	method)	5
Total nitrogen (kg/year) gen Total phosphorus (kg/year) gen	erated I erated I	by waste	water =	3.3 2.3								
Climatic assumptions for site	for site (Evapotranspiration es				timated using mean max. daily temperatures)							
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Mean rainfall (mm) Adopted rainfall (R, mm) Retained rain (Rr, mm) Max. daily temp. (deg. C) Evapotrans (ET, mm) Evapotr. less rain (mm)	40 36 25 93 57	45 41 25 80 39	40 36 22 69 33	30 27 17 49 22	55 50 15 43 -6	50 45 12 43 -2	45 41 10 37 -3	55 50 15 56 6	40 36 16 58 22	55 50 17 63 14	45 41 20 72 32	40 36 22 82 46
O all a base of a lately					Annu	al evapotra	anspiratio	on less ret	ained rair	n (mm) =	2	60
Soli characterisitics	Light C	lov					Cat		5	Thie	k (m) -	0.8
Adopted permeability (m/day) =	0.12	lay	Ado	nted I T	AR (I /so r	= (veb/m	12	legory -	0 Min dent	h (m) to	water =	6
Adopted permeability (m/day) =	0.12		Auo	picari	Art (Logi	maay) -	16		un depe	in (in) to	water	
The preferred method of The preferred method of The preferred type of in The preferred type of above Site mo Suggested dimensions for on-s Total di comprise Comments	isposal sing a F	e second d second d second cons or sp ondary t Tota area (sq Primary A	dary trea dary trea dary trea decific de treatmen al length Width Depth m) requ Area (sq	titment: titment: titment: titment: essigns: nt syste (m) = (m) = (m) = (m) = titmed = m) of:	In a pack A combin Evapotra None Are need M 14 3 0.6 100 52	kage trea nation of inspiratio	tment pl in- and a in bed(s)	ant above-gr	ound me	ethods		
A RAISED BED OPTION TO FOR ALL WASTEWATER V FOR TYPICAL 3 BED DWEI) BE C /IA AW LLING	ONSTR /TS	UCTED) 14m(L	.) X 3M(V	V) X0.6M	M (D)					e

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

Assessment Report

Onsite Wastewater Management 3 Lot Subdiv Proposal

Assessment for	Tim Milles	Assess. Date	
	2C Shellmore Dr Old Beach	Ref. No.	
Assessed site(s)	41 Imlay St Dunalley	Site(s) inspected	29th March 2023
Local authority	Sorell Council	Assessed by	J Parkinson

This report summarises wastewater volumes, climatic inputs for the site, soil characteristics and sustem sizing and design issues. Site Capability and Environmental sensitivity issues are reported separately, where 'Alert' columns flag factors with high (A) or very high (AA) limitations which probably require special consideration for system design(s). Blank spaces on this page indicate data have not been entered into TRENCH.

Wastewater volume (L/day) use	d for thi	s assess	ment =	600		(using the	e 'No. o	f bedroo	ms in a d	dwelling'	method)	
Septic tank waste	ewater v	olume (L	/day) =	200								
T. I. I. I. I. S	ullage v	olume (L	./day) =	400								
Total phosphorus (kg/year) gen	erated l	by waste	water = water =	3.3 2.3								
Climatic assumptions for site		(Evapor	ranspira	tion esti	mated us	ing mean	max. da	aily temp	eratures))		
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Mean rainfall (mm)	10							CICHIN C	10		15	
Adopted rainfall (R, mm)	40	45	40	30	55	50	45	55	40	55	45	40
Max daily temp (deg C)	25	25	22	17	15	12	10	15	16	17	20	22
Evapotrans (ET, mm)	93	80	69	49	43	43	37	56	58	63	72	82
Evapotr. less rain (mm)	57	39	33	22	-6	-2	-3	6	22	14	32	46
					Annu	al evapotra	inspiratio	on less ret	ained rain	n (mm) =	2	60
Soil characterisitics		and a			1,1000	Decelo a	CE MIQU			and the second		40
Texture =	Light C	lay				KOGEL OI	Cat	egory =	5	Thic	k. (m) =	0.8
Adopted permeability (m/day) =	0.12		Ado	pted LT/	AR (L/sq I	m/day) =	3	auto 1	Min dept	h (m) to	water =	6
Proposed disposal and treatme	nt meth	ode										
The preferred type of in The preferred type of above Site mo iuggested dimensions for on-s Total di compri Comments	n-groun e-groun odificatio ite seco isposal sing a F	d second d second ons or sp ondary t Tota area (sq Primary A	lary trea lary trea ecific de reatmer al length Width Depth m) requ trea (sq	tment: tment: esigns: nt syster (m) = (m) = (m) = ired = m) of:	Evapotra None Are need 19 10 0.4 200 200	anspiratior ded	n bed(s)					
Comments												
A SUBSURFACE DRIP IRR	IGATIC	N OPT	ION TO	BECO	ONSTRU	ICTED 14	4m(L))	(3M(W) X0.6M	1 (D)		
FOR TYPICAL 3 BED DWE	LLING							net?				
FOR TYPICAL 3 BED DWE	LLING							inets inets inets	na su			

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

Site Capability Report Onsite Wastewater Management 3 Lot Subdiv Proposal

Assessment for	Tim Milles	Assess. Date	
	2C Shellmore Dr Old Beach	Ref. No.	
Assessed site(s)	41 Imlay St Dunalley	Site(s) inspected	29th March 2023
Local authority	Sorell Council	Assessed by	J Parkinson

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.

Alert	Factor	Units	Value	Confid level	Lim Trench	itation Amended	Remarks
AA	Expected design area	sq m	200		Very high	Loui a de	
	Density of disposal systems	/sq km	20		Moderate		
	Slope angle	degrees	5	a particip	Very low		10)
	Slope form	Straight si	imple	and all	Low		Tech
	Surface drainage	Mod.	good		Low	the as you would	(0)
	Flood potential Si	ite floods <1:10	0 yrs	and the second second	Very low	name is a set	
	Heavy rain events	Infred	quent		Moderate	t In triviad	
Α	Aspect (Southern hemi.)	Faces SE o	rSW	Line In a	High	and machine	
	Frequency of strong winds	Infred	quent	ALL UTIN	Moderate		
	Wastewater volume	L/day	600		Moderate	(addoined)	
	SAR of septic tank effluent		1.2		Low		
	SAR of sullage		2.5		Moderate		
	Soil thickness	m	0.8	iolisv	Low	HPY boost	8,4,51
	Depth to bedrock	m	6.0		Very low	mulder	110
	Surface rock outcrop	%	0		Very low	10110.00	100
	Cobbles in soil	%	0	BR(CEOCORD	Very low		all
	Soil pH		6.5	- brist	Very low	1002 20224	Dogi
	Soil bulk density	gm/cub. cm	1.6		Moderate		
	Soil dispersion	merson No.	4		Moderate	sptahle So	Acce
	Adopted permeability	m/day	0.12		Low		2.0
	Long Term Accept. Rate	L/day/sq m	12		Low	_	40

to the planta term multiplace bits ())

a methodeland m

Comments

- (a) neight of fill and depth of excavation is normore than 1 m from natural ground level, except for building support purpose
 - [b] extent is timited to the area required for the construction of buildings and vehicing access.
- (b) there not emired union the sites
- For edicinent (memory)
- Training of extents that the bar work of the second second

12,4.9 Outballdings Objective:

all of the fullowing:

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

Environmental Sensitivity Report

Onsite Wastewater Management 3 Lot Subdiv Proposal

Assessment for	Tim Milles	Assess. Date	
	2C Shellmore Dr Old Beach	Ref. No.	
Assessed site(s)	41 Imlay St Dunalley	Site(s) inspected	29th March 2023
Local authority	Sorell Council	Assessed by	J Parkinson

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 (Å) or very high (ÅA) limitations which probably require special consideration in site acceptability or for system design(s). Blank spaces indicate data have not been entered into TRENCH.

Alert	Factor	Units	Value	Confid level	Limitation Trench Amended	Remarks
	Cation exchange capacity	mmol/100g	100		Low	
	Phos. adsorp. capacity	kg/cub m	0.7		Moderate	the state
	Annual rainfall excess	mm	-260		Very low	
	Min. depth to water table	m	6		Very low	
	Annual nutrient load	kg	5.5		Low	
	G'water environ. value	Agric non-s	ensit		Low	dame.
	Min. separation dist. required	m	3		Very low	A1.
	Risk to adjacent bores	Agric non-sensit				Factor not assessed
	Surf. water env. value				Low	13.9070
	Dist. to nearest surface water	m	500	IN DU	Low	12/161/2018
AA	Dist. to nearest other feature	m	10	o, a(Very high	q nature
	Risk of slope instability	Mod	lerate		Moderate	Post Million (1991)
	Distance to landslip	m	200		Low	

Comments

THE WASTEWATER SYSTEM DESIGN LESSENS THE HIGHLIGHTED FACTORS



Site & Soil Assessment/Evaluation Report Proposed 3 Lot Subdivision- Typical for All Lots

Company	Onsite Wastewater Solutions	Name(s)	John Darkinson
Address	880 Cambridge Rd		
PH	0409336306	Fax	
Date of Assessment	11/7/2022	Signature of Evaluator	

Site Information

Address/locality of site	41 Imlay St	Dunalley	
Owner/developer	Tim Milles		
Postal Address	41 Imlay St	Dunalley	.1.
Size/shape/layout	4600M ²		0.000
Site plans attached	1		YES
Photographs attached			YES
Intended water supply	Rainwater Tanks		
Expected wastewater qualit Secondary treated	ty (litres/day) for Typical 3 be	ed Dwelling 600Itrs/day Primary &	
Local experience (informati installed in the locality)	on attached regarding on-site	e sewage management systems	NO

If any site or soil features have not been assessed, note why.

Site Assessment

r balance attached tion area calculation attached storage area calculation attached	YES YES NO
r balance attached tion area calculation attached storage area calculation attached	YES YES NO
r balance attached tion area calculation attached storage area calculation attached	YES YES NO
tion area calculation attached storage area calculation attached	YES
storage area calculation attached	NO
tion area above 1/20 year flood level	
tion area above 1/100 year flood level	YES
nponents above 1/100 year flood level	YES
	ion area above 1/20 year flood level ion area above 1/100 year flood level nponents above 1/100 year flood level

Slope - LAA approx. 5 deg

Landform- Slightly Sloping -

Run-on and seepage - No Potential for surface water runoff from other buildings

Erosion potential- There is no potential for soil erosion

Site drainage- Moderately Well Drained

Fill - some visible filled areas with no adverse effects on this development

	supply (m) -	
	Relevant groundwater vulnerability map referred to?	N/A
	Level of protection (I – VI)	N/A
	Bores in the area and their purpose	N/A
Buffer distan	ces from wastewater	
Managemen	t systems to	
	Permanent waters (m)	N/A
	Other waters (m)	500M
	Other sensitive environments (m)	N/A
	Boundary premises (m)	Typical 8M to d/slope Boundary
	Swimming pools (m)	N/A
	Buildings (m)	Complies 1547 setback for secondary effluent
s there suffic	cient land area available for	
	Application system (including buffer distances)	YES
	Reserve application system (including buffer distances)	YES

• Soil Assessment -Typical for all Lots

Depth to be	drock or hardpan (m)	Not identified
Depth to hig	gh soil watertable (m)	Water table N/A
Hydraulic lo	ading rate (where applicable)	
	Soil structure	Moderate Structure
	Soil texture	Silty Sandy Loam to Light Clay some Gravel
	Permeability category	0.06 m/day- 0.5m/day
	Other measures of soil permeability	NII
Hydraulic l	oading recommended for soil absorption system (mm/day)	DLR 12 mm/day for raised bed DIR 3mm /day subsurface Irrigation
Due to ui	r the hydraulic loading recommendation- nderlying soil Permeability -Texture & Structure	and LAA Design
Coarse fi	ragments (1%)	
Bulk den	sity (and texture) (g/cm3) 1.6 guess	
PH 7.0		

Electricity	conductivity	2	(dS/m)	estimate
-------------	--------------	---	--------	----------

Exchangeable sodium percentage SAR 2.5

Cation exchange capacity (cmol*/kg) 100mmol/100g

Geology & soil landscape survey - Jurassic Dolerite

Presence of discontinuities	Duplex Silty sandy loam to mod clay light yellow mod structure some friability and gravel mix
Presence of fractures subsoil	Some fractures
Soil and Landscape map reference	Land Systems of Tas Dept Ag

Typical Soil Profile for All Lots

0.2M Silty Sandy Loam overlying 0.8M yellow brown light clay friable, moist, gravel fragments to weathered gravel clay

System Selection

	Print de
Approximate distance to the nearest feasible connection point	N/A
Potential for future connection to centralised sewarage	LOW
 Potential for future connection to reticulated water	LOW

Type of land application system considered best suited to the site

Raised Bed System or Subsurface Drip irrigation

Why?

The soils and site are considered better suited to dispose of Secondary Wastewater Treated Effluent to a raised bed from an AWTS or subsurface drip irrigation in particular due to the minimal depth of suitable topsoils and mod clay structure of subsoils. Consideration was also given to the hydraulic load and soil permeability

For subsurface drip irr option additional soil to be imported to build up a suitable depth of topsoils

Type of treatment system considered best suited to site and application system

An AWTS is better suited to this site

Why?

The quality of treated effluent provides for increased sustainability of the LAA and for final soil disposal

General Comments

Are there any specific environmental constraints?

The environmental constraints listed are minor and lessened with the method of wastewater treatment and LAA design

Site Capability constraints have been considered in the method of wastewater treatment and LAA Design

Are there any specific health constraints? NIL

Any other comments?

The Sand Fill for the raised bed may be recycled glass and or specified sand Additional soil to be imported for subsurface irrigation Each Lot to have an individual site assessment at the Building application Stage

