Bushfire Hazard Report

4101 Channel Highway
Flowerpot

Performance Solution

Kingborough Interim Planning Scheme

Property ID 7120179 Title Reference 20339/1
Visitor Accommodation

Jandakaya P/L

March 2026

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Executive summary

I am an Accredited person permitted to assess bushfire hazards and to define Hazard Management Areas and to prepare appropriate plans for their ongoing management. A summary of my *curriculum vitae* is Annexure A.

This report concerns proposed construction of an extension to visitor accommodation in a bushfire-prone area within the Kingborough Interim Planning Scheme area, assessed under the provisions of the Director's Determination – Requirements for Building in Bushfire-Prone Areas (transitional) v2.3 (DDRBBPA). Visitor accommodation assessed under Deemed to Satisfy provisions is generally required to meet BAL-12.5 siting and construction standards.

The original part of the already approved dwelling was the subject of much discussion between all parties and TFS, who undertook a Method 2 based analysis of the setting. It is not entirely clear that the analysis was intended for use with respect to the building that became the Visitor Accommodation dwelling. The correspondence and plans appear to reflect some confusion about which building, with what nomenclature, was the subject of a request and the subject of the reply.

The first M2 analysis in Aug 2018 was revised in Jan 2022, possibly as the result of an application to slightly extend a deck, and an increased setback width was recommended.

The 2022 evaluation seems to have been used to inform a BHA Report dated March 2022, as the amended setbacks were applied to what was identified as, and built, and became Visitor Accommodation. The owner applied for and was subsequently given approval (Mar 2023) for a BEP for the Visitor Accommodation building

The 2022 BHA report provided site information which showed that all exposures were to vegetation at distances recommended by the revised M2 letter, and (incorrectly) that all vegetation was on level or upslope exposures. The slope data do not appear to have mattered, as the resulting approval relied on the already provided M2 results which were not based on incorrect input data. What was significant was that a siting and construction standard of BAL-29 was accepted. At the time the criteria in the applicable Director's Determination (v2.2) required either a BAL-12.5 HMA or certification from an accredited person that what was provided was appropriate. Obviously the combined work of the practitioner and the TFS was taken to be acceptable.

The presence of unmanageable (off-site) vegetation within the Deemed to Satisfy distances of the proposed building site creates a BAL exposure exceeding 12.5 and so a Performance Solution, necessitating a Performance-Based Design Brief, is now required for new work.

The objective will be to show that access and water supply continue to meet DtS specifications, and that siting and construction satisfy the Performance Requirements of DDRBBRA. In particular, safe Emergency Plan components including evacuation of residents and exposure of emergency service personnel must be demonstrated. It is intended to be shown that maintaining the previously approved BAL-29 setting continues to provide an acceptably safe exposure.

Roger Fenwick BFP 162 Scope 1, 2, 3A, 3B

Purpose

I have been engaged to undertake a Bushfire Hazard Report for proposed extension of Visitor Accommodation (BCA Class 1b structure) located at 4101 Channel Highway, Flowerpot known as Property ID 7120179, Title Reference 20339/1.
This report provides an assessment of the bushfire risk as required by the provisions of the *Director's Determination – Requirements for Building in Bushfire-prone Areas (transitional)* v2.3. (DDRBBPA). A Hazard Management Area (HMA) must …"provide appropriate separation of the building from the bushfire hazard" in order to be approved. The dimensions of an HMA are related to the construction standard of the building, and are also relevant to consideration of the movement of people – both fire-fighters attending and occupants departing.

Methodology

The assessment protocol relies on definitions and specifications in the Australian Standard *Construction of buildings in bushfire-prone area 2018* (AS 3959), *Nash Standard – Steel Framed Construction in Bushfire Areas*, vegetation classification by Specht 1970, and in particular, State variations defined in the DDRBBPA. Those variations specify additional requirements for access, water supply, a Hazard Management Area (HMA) plan, and for other than single (BCA Class 1a) dwellings, an Emergency Plan.
For defined vegetation classes, litter and other flammable vegetation component standard values have been determined. These, slope values and standard weather conditions are used to calculate bushfire behaviour, including rate of forward spread, radiant heat output and flame height. When considered in conjunction with the distance between the edge of the fire and the point of measurement (eg the wall of a house), they show the intensity of the fire exposure.
Those combined values are expressed as a Bushfire Attack Level (BAL) plus a number which expresses the radiant heat output in kilowatts per square metre (kWm^{-2}). The BAL rating determines the required construction standard. As the setback distance increases, the BAL rating decreases.
Vegetation on adjoining land beside the proposed building site is closer than the permitted range of the Deemed to Satisfy table for BAL-12.5 exposure in AS 3959. This requires a Method 2 assessment as outlined in the Standard. That in turn requires a preliminary Performance-Based Design Brief, defining how compliance with specified fire safety outcomes will be achieved.
In addition, fuel loads in the specific Forest vegetation type present have been determined in a paper by Marsden-Smedley *et al* [1] and I propose to use these values in lieu of standard Forest figures in the Method 2 calculations.

Proposal

Plans showing the site and proposed development are attached at Annexure E. The proposal is to extend the living area of a Class 1b visitor accommodation module on the site.

[1] Fuel in Tasmanian Dry Eucalypt Forests, Marsden-Smedley, Anderson & Pyrke 2022, mdpi.com/journal/fire, Fire, 5, 103. Table 4

General site description

This 26630m^2 site is located between the Highway and D'Entrecasteaux Channel
Land in the immediate area is gently sloping and largely cleared coastal flat, beside a vegetated coastal reserve strip and heavily forested and moderately steep land commencing half a km to the west.
A visitor accommodation building sited and built to BAL-29 was approved following a Performance Solution assessment by TFS in 2018, revised in 2022. There is another (Class 1a) building on the property.

From existing structure to East.

Vegetation

The site itself is mostly cleared and partly levelled bordered by remnant coastal eucalypt forest. Native eucalypt forest to the east is dominated by *E obliqua* (Messmate stringybark) plus scattered *Allocasuarina* (She-oak) and *Exocarpus* (Native cherry) with a moderate (long undisturbed) understorey.
The association has been assessed by Marsden-Smedley *et al (ibid)* as having an average surface and near-surface fuel load of about 12.5tha^{-1}, to which must be added 1tha^{-1} for bark and 10tha^{-1} for canopy. This provides w and W values of 13.5 & 23.5 for use in M2 calculations.
The land to the north, west and south is managed, on the same and adjacent properties.

Topography

The building site is on an already created flat area, adjoining the existing visitor accommodation building. To the east of the building site the land falls initially at 4^o for 15m and then at 13-14^o for another 20m to a short steep cliff to the water. To the west the gradient is marginally upslope. The land to the north is more or less level and to the south is marginally downslope

Side & rear of existing structure to right, site of extension ahead

Fire history

The LIST records no fire on the property.

Bushfire Context

A bushfire prone area is defined as land so mapped, or land within 100m of bushfire prone vegetation equal to or exceeding 1 hectare in area. Bushfire prone vegetation includes areas of grasses and shrubs other than defined exceptions such as maintained lawns, gardens, some horticultural land and the like.

The slope used in bushfire assessments is the gradient beneath unmanaged adjoining vegetation able to support fire movement towards structures. It varies from Upslope and Level (both defined as 0°) to groups of Downslope in 5° increments. Downslope means that fire is travelling uphill when moving towards the structure.

Setbacks are defined as the plan view (horizontal) distance between the edge of unmanaged vegetation and the nearest part of a structure subject to the assessment. This means to the nearest wall, or if there is no wall, to the nearest supporting post or column of a carport, deck, veranda, landing, stairs or ramps. Eaves and overhangs, tanks, chimneys, unroofed pergolas and sun blinds are excluded.

For planning purposes, it is assumed that the McArthur Forest Fire Danger Index (FDI) is 50. This defined FDI may not cover the worst case exposure at a site, and even strict adherence to the mandatory and other recommended specifications will not guarantee that structures will not be ignited by bushfire.

It is normal practice to require Visitor Accommodation to meet a low BAL exposure, and a (now outdated) provision allowed for extensions that did not strictly meet current codes if

there was no increase in risk as a result. The complexities and resulting time delays associated with this development have resulted in regulatory changes overtaking what was always intended at this site. A significant concession was made in approving the work to date, and approval of this new application will necessitate continuing that freeway.
It is submitted that in this setting there is only a minor exposure to what would be a very narrow fire approaching from a largely inaccessible shore with minimal potential for fire ignition. It would necessitate a 45kph easterly wind which could not conceivably be accompanied by the temperature (35°C) & humidity (20%) factors needed for an FDI 50 fire exposure.
Adding two more people to the 4 presently allowable on the site would not complicate emergency evacuation etc procedures, and the additions would not impede evacuation from the existing building.

Site slopes & vegetation

The distances to the nearest vegetation on the slopes shown to the immediate east are as shown below, all relative to the nearest wall or deck component.
Existing dwelling: managed for 16m on -4° becoming unmanaged beyond 18.5m on -14°
Proposed extension: managed for 11.5m on -4° becoming unmanaged beyond 14m on -13°

Not all of the required HMA has been properly created with respect to the existing dwelling; there is a minor partly cross-slope proximity compliance issue at the NE corner which would be rectified during the new works if approved.

From Table 4 of Marsden-Smedley *et al,* the associations dominated by *E obliqua* in NE Tas carry average surface-near surface plus bark fuel loads of 12.7tha^{-1}. Insufficient data were gathered to give a type rating in the SE. The SE average is 12.5, including a high-load species not present on the subject site. This suggests that application of the SE average values will provide a suitable base for determining fuel load values for the nearby native forested land. I am comfortable that this properly reflects the local conditions, a dry sclerophyll forest in what might be expected to be a more moist setting.
Including 1tha^{-1} for bark, as per the same paper, and the standard 10tha^{-1} for canopy fuels, I have used the values w = 13.5 & W = 23.5, and the slopes as measured by me on-site, in the Method 2 assessment for all exposures to native Forest-type fuels.

Performance-Based Design Brief (PBDB)

Objective

The intention is to ensure that adequate setback distances from fire in nearby unmanaged vegetation are provided for the construction of class 1b buildings.
Table 2.6 in AS 3959 provides specifications for recognised vegetation types and slope classes in 5° increments up to a value of 20° only, showing the combinations of setback distance and construction level generally regarded as providing acceptable levels of fire resistance. AS 3959 specifies (in Appendix B, Method 2) the methodology by which fire behaviour and resultant radiant heat output are calculated, and permits both extension of the table beyond its 20° maximum slope value and more refined calculations for precise slope values. I have written an Excel spreadsheet which performs the calculations specified in the Standard.
The approved PBDB protocol requires that the relevant stakeholders agree on the required outcome and the means by which proposed solutions will be assessed.

Relevant stakeholders

The relevant stakeholders in this case include Tasmania Fire Service, the property owner, the building designer (Biotope), the Building Surveyor (BS Tas), and the bushfire hazard practitioner.

When applying a Method 2 analysis, the entire mathematical procedure is as specified in the Standard. Only if an acceptable outcome (a sufficiently low BAL rating) cannot be achieved is there any need or scope for subjective inputs.

The Building Surveyor has no role in carrying out the Method 2 analysis, but has responsibility for ensuring that the design and its processes properly reflect building regulations.

The building designer has no role in carrying out the Method 2 analysis, but is content to be given the design parameters (design to BAL-xx specifications in the Standard) resulting from the process. The property owner has no particular input in this case, being content to be guided on how to build to the acceptable standard.

Councils generally prefer to limit the amount of tree removal for the creation of Hazard Management Areas, but accept whatever is necessary to achieve the stipulated BAL setting. In this case no significant trees are proposed to be removed. The existing setbacks to trees present within the nominal (Dry) Forest vegetation are almost sufficient to create an acceptable (Performance evaluation) setback provided that adequate understory vegetation removal is maintained over an additional width of 2-3m along a total length of about 20m (to also bring the existing dwelling up to specs).

Agreed input data

Nearby vegetation types are assessed by the application of the standard tables and methodology specified in AS 3959. In this case the rating is modified Forest, using the w and W values of 13.5 & 23.5 from Marsden-Smedley. Slopes and setback distances between adjacent vegetation and the proposed dwelling were assessed by direct measurement on site.

The proposed extension is located to the north of the existing house, angled slightly away from the line of the house but still getting closer to retained vegetation.

DTS departures and relevant Performance Requirements

The applicable requirements are provided in the *Director's Determination – Requirements for Building in Bushfire-prone Areas (transitional)* v2.3. (DDRBBPA).

DtS provision	DtS compliance	Relevant performance requirement
3(3) Design & Construction	4.1(1)(b) Design will comply with DtS	3(3) – construction, as this is relevant to separation 3(4)(c) – appropriate separation from the hazard
3(4)(a) Property Access	4.2 Will comply with DtS	-
3(4)(b) Water Supply	4.3 Will comply with DtS	-
3(4)(c) Hazard Management Area	HMA will not be DtS Table 4.4 D compliant.	3(4)(c) – appropriate separation from the hazard. 3(3) – construction, as this is relevant to separation.
4.5 Emergency Plan	Will comply with DtS	-

By way of expanded explanation, if approval to build to BAL-29 specifications is approved, the construction standard and exposure (HMA dimensions) would match. This all hinges on continued acceptance that BAL-29 construction in a BAL-29 exposure provides "appropriate

Separation of the building from the bushfire hazard", notwithstanding the DtS provision in Table 4.4D. That acceptance was implied by approval of the PBDB.

Assessment Methods

The Performance Solution will demonstrate equivalence to the already approved standards of siting and construction for the existing dwelling.
The proposed NCC Assessment Methods under A2G2(2) are:

- (b)(ii) - Other Verification Method, being an AS3959 Method 2 calculation to determine the minimum separation required for BAL-29, which has already been accepted (determined) by the appropriate authority as sufficient in this setting.

When assessing Forest vegetation, calculations as per Method 2 in AS 3959 have been made. Results from calculations show that setbacks corresponding to a BAL not greater than 29 at the building site have been applied.

Acceptance Criteria

The proposed Acceptance Criteria are

- Construction to the BAL that has been applied to the attached parent structure,
- Separation sufficient to mitigate radiant heat flux to <29kWm^2;
- The provisions for both early and last-minute evacuation or shelter are adequate.

Documentation and evidence to be provided

The following documentation will be provided to the building surveyor:

- Bushfire hazard management plan
- Bushfire hazard report that complies with Bushfire Hazard Advisory Note 4 and A2G2(4)(d) and includes:
    - Method 1 assessment;
    - Method 2 assessment calculations.
- Detailed design documentation demonstrating compliance with the design BAL (to be provided by designer).
- Bushfire Emergency Plan

BAL ratings

The exposure will be to BAL-29. Extending hazard management to a total depth of 33m would achieve a BAL-12.5 (on a M2 basis) setting; that is 7m past the property boundary, and into DNRE land. On a DtS basis, part of the necessary clearing would be into the water.

Access

There is direct access from the Channel Highway to a complying water outlet within 30m. This complies with Table 4.2

Water

As no reticulated water supply to a hydrant exists, DDRBBPA Table 4.3B applies. A total of 20kl of water reserved for fire fighting has been provided, to serve the two residential structures on the site, to the stored water specifications in Annexure C.

Environmental & other constraints

Landslide hazard, Coastal inundation, Biodiversity and Water & coastal protection overlays cover parts of the site.

Assessment

Hazard Management Area

The HMA corresponding to a BAL-29 (performance, M2) determination to the east, and to the extent meeting BAL-29 to all other directions, is shown on the plan at Annexure B. Relative to the combined footprint of both structures, the overall HMA is required to (continue to) extend to the north for 16m, to the west to the property boundary, and to the south for 16m. The newly required M2-based setback to the east is 16m, as also specified for the originally approved part of the dwelling.

In order to fully meet the presently required and proposed ongoing HMA, some additional (mainly understory) clearing will be required along the eastern side, over an additional width of 2-3m for a distance of about 20m. This will necessitate removal of some small trees, as can be seen on the ground following the building and HMA markout. Annotated photos in Annexure E illustrate the additional clearing required.

Starting from the northern end of the HMA, four *Exocarpus* trees (1 small, one large and two medium sized) in a row beside the (internal) fence) need to be removed.

Two adjacent, healthy, large diameter *E obliqua* trees are located 1-2m within the HMA, beside a group of same species saplings all just outside the HMA. I propose that the two large specimens be retained, each having a significant large almost ramicorn branch removed, and that an equivalent degree of protection be provided by removal of 1 small dead and four small live stems in lieu. My rationale is that a sufficiently wide break within the understory and potential ladder fuel sub-canopy vegetation will minimise the likelihood of the large trees becoming involved in a crown fire. The bark would be expected to 'roman candle' even under a low-intensity fire, but the setting should not generate or support full and immediate crown involvement. HMA specifications permit a minor extent of tree retention; it is my opinion that this proposal meets the desire to retain good specimens without creating a hazardous setting for firefighters, the occupants and the house.

Material recommended for removal has been marked with blue & red flagging tape.

Construction specification

The proposal includes an HMA that complies with the specifications applicable to a nominal BAL-29 exposure. All new works must be sited and constructed in accordance with sections 3 and 7 of AS 3959.
In addition to the specifications within AS 3959, I recommend that non-combustible leaf guard be fitted to every roof gutter capable of collecting leaves.

Property access

The existing access meets the requirements of DDRBBPA Table 4.2 A.

Water supply

Water reserved for fire fighting is provided in a shared, above-ground, 20kl metal tank located with an outlet between 6m and 90m from the furthest part of the building, with the outlet within 3m of a tanker parked on hardstanding. Standard signage is fitted in a location clearly visible to approaching vehicles. Water supply meets the requirements of DBRBBPA Table 4.3B.

Emergency Plans

The approved Emergency and Evacuation Plan will need to be upgraded to reflect the altered dwelling, which is already operating as an approved Class 1b (short-term rental)

property. Of particular importance will be the ability to ensure timely evacuation of the site in the event of a significant bushfire threat. The BAL-29 setting is higher than is preferred and now usually specified for occupancy by people unfamiliar with the location, but the site has previously been recognised as not significantly exposed to major wildfires.
Construction specifications in Tasmania assume a Fire Danger Index of 50, just at the start of the Extreme classification. On mainland Australia the design Fire Index, the design fail point, is at the top of the Extreme range, 100. Here construction is expected to fail much sooner, so that what might be almost a familiar Extreme setting to Mainland visitors will have much more severe effects and consequences. Emergency Plans need to specify when and how to leave the area well in advance of it becoming too late to depart in (relative) safety, and to define 'safe' refuge areas in the immediate vicinity in the event that departure from the area (not just the site itself) becomes impossible or ill-advised. In the absence of a resident site manager, good communications able to convey timely warnings or instructions are important.
There are potential refuge sites nearby to the south along the coast in Middleton or Gordon, or to the north in Woodbridge or Kettering. For more comfortable or longer-term sheltering, Kingston would be the preferred location.
Provision of a BAL-12.5 setting is sufficient to gain DtS approval for construction of Class 1b accommodation. The difference between BAL-12.5 and BAL-29 in the extent of the setback from adjacent vegetation to the east of the house is significant (40 vs 20m). Although the very narrow headfire that could develop and directly threaten occupants departing this facility would generate a far lower radiant heat flux than the planning guidelines envisage, occupants should be able to depart the facility from the western façade and proceed to the carpark area. A door at the middle of the corridor linking the old and new sections will provide that far safer egress.

Conclusion

The performance provisions of the relevant regulatory documents and instruments will be met by adherence to the points in this report. The hazard separation distances to be achieved **and maintained** in accordance with the plan for the Hazard Management Area, combined with construction to the recommended BAL-29 specifications, will retain what has already been regarded as an acceptably protected structure against the anticipated exposure to bushfire attack. Under bushfire weather conditions that exceed the design criteria, the probable survival of structures is less likely.
The addition of two more people to the total occupancy is not seen as significant.

Summary of requirements

Initial checklist

1. Install and fill the fire-fighting water tank.
2. Complete construction to the specifications in sections 3 and 7 of AS 3959-2018.
3. Fit all opening windows with metal mesh ember screens, max 2mm apertures.
4. Verify that all external apertures, including floor/wall junctions are less than 2mm.
5. Fit non-combustible gutter guard to all roof gutters.
6. Create the Hazard Management Area as prescribed in Annexure C, to the dimensions shown in Annexure B. In particular, keep nearby lawn mown to less than 50mm, and to the extent possible, keep it green by regular watering.

Annual checklist

1. Maintain the Hazard Management Area as prescribed in Annexure C, to the dimensions shown in Annexure B. In particular, keep the nearby lawn mown to less than 50mm, and to the extent possible, keep it green by regular watering.
2. Check that the fire fighting water tank is full and all fittings are in proper working order prior to each fire season.
3. Update the Bushfire Emergency and Evacuation Plan, and lodge a copy with TFS.

Annexure A Curriculum vitae

Qualifications

Graduate Certificate in Bushfire Protection, UWS, 2013

Bachelor of Science (Forestry), ANU, 1969

Work Experience

Self-employed consultant – 1988 to present

ACT Bush Fire Council

Chief Fire Control Officer – 1986 to 1987

Secretary – 1985

Chief Fire Control Officer -1976 to 1978

Deputy Chief Fire Control Officer – 1972 to 1975

Assistant to Chief Fire Control Officer - 1970 to 1971

CSIRO

Senior Research Scientist, Project Aquarius 1982 to 1984

Chemonics Industries USA 1979 to 1981

Field Service Representative, chemical fire retardants

Project Experience

- Responsible for all aspects of staff administration, finance, bush fire safety planning, fire management, training, and fire control operations in the ACT.
- Attended approximately 2000 wildfires, experimental fires and controlled burns.
- Attended to an additional approximately 1000 wildfires.
- Personally prepared approximately 3000 compliance reports to accompany Development Applications for subdivisions, Special Purpose structures, houses, industrial buildings and Defence complexes.
- Prepared assessments for 31 schools in the Nation-Building Program for the Dept of Education, Employment & Workplace Relations.
- Gave evidence in the Land & Environment Court on contested DA matters.
- Prepared Vegetation Management Plans for large (primarily Defence) estates throughout Australia.
- Prepared training plans and the Bushfire Response Action Plan for Puckapunyal Base, Dept of Defence.
- Provided studies of bush fire behaviour to assist planning and risk management by plantation insurance companies, Councils and other land management agencies.
- As an Expert Witness, investigated, reported on and gave evidence in 47 matters involving fire causation and fire management activities, mainly in connection with civil litigation.
- As Senior Research Officer, assisted in the experiment design and data analysis and responsible for all field operations for Project Aquarius, the major study of large aircraft assisted bush fire control by CSIRO Division of Forestry Research.
- As a field representative for Chemonics Industries in the USA, maintained and oversaw the operation of all of the US Forest Service air tanker bases in Washington & Oregon, and introduced the use of fire retardants by ground application for fire management in the western states.
- Lectured in bush fire behaviour and control principles at the ANU and the Canberra College of Advanced Education (now University of Canberra).
- Wrote the bush fire training module for the ACT Fire Brigade.
- Prepared the first urban-rural interface bush fire protection planning guidelines in the ACT for the National Capital Development Commission.

Annexure B Bushfire Hazard Management Plan

Lawn or equivalent and isolated shrubs and trees within 16m in all directions to the specifications indicated in Annexure C.
Note that two large trees are retained immediately within the coastal side of the HMA, but that a slightly wider area clear of undergrowth and sub-canopy sapling growth has been provided to offset that minor discrepancy.

BUSHFIRE HAZARD MANAGEMENT PLAN
4101 Channel Highway, Flowerpot

Property ID 7120179 Title 20339/1

Report 2505ROS.FLO.CHA1.0
Roger Fenwick BFP 162 Scope 1, 2, 3A, 3B

14 March 2026

Property Boundary

The fire tank and the northern part of the access driveway are not to scale on the enlargement. There is an existing hardstand and turnaround at the water access point, which is within 90m by hose-lay of all sides of all habitable structures on the property.

20kl fire water tank about 30m N of corner

The Hazard Management Area covers the area outlined in green

Within the HMA beside buildings maintain sparse, low height ground cover & leaf litter or paths with only isolated trees and scattered shrubs at least 2m from walls & 5m from windows.
Do not store exposed combustible rubbish or firewood within the HMA.
All construction must meet BAL-29 specifications.
Refer to the Report for full construction and HMA management specifications.

16m
16m
16m
16m
16m
16m
16m
16m

New (shielded) entry point for both parts of the expanded dwelling

Addition

Existing House

Fence

Property Boundary

0 10 20 30 40 50

The scale bar is inexact. Rely on architectural plans and indicated dimensions only

Annexure C Management specifications

Hazard Management Areas

The intent is to maintain the Hazard Management Area in a condition that will not allow the development or passage of fire able to ignite structures through radiant heat or flame contact. In addition, providing protection against ember attack is highly desirable. Much of the aim is to limit the intensity of the approaching fire to a level which can be absorbed without damage by the passive protection measures included in the house construction. The materials used have been chosen to (probably) not be ignited (eg walls) or be sufficiently heat-affected to break (eg windows) during the passage of the fire. It is assumed that nobody will necessarily be present during the passage of the fire, so that the structure will hopefully survive by itself. Heat from the head of the approaching fire will probably be at its peak for around 5 minutes, but embers, smoke and uncomfortably high heat will continue for around an hour or so. Attendance by suitably clothed, trained, fit and able-bodied people with appropriate equipment immediately after passage of the fire increases the likelihood of the structure surviving, particularly if small local patches have ignited.

Fire must be kept far enough away to limit the radiant heat which will threaten both structures and anyone (homeowners, fire-fighters) in the path of the fire. Basically, fire spreads rapidly in surface litter and low grassy growth, and develops tall flames in the shrub layer. That makes things difficult for fire-fighters trying to work the fire edge. With enough heat generated by vigorous fire in the shrub and sapling (understorey) layers, the fire flame height will increase, and involve the crowns of the overstorey trees. Flames also run up the bark of many fibrous-barked eucalypt species, adding to the overall heat output but primarily creating showers of embers.

Limiting fire behaviour is achieved by separating the various vegetation components both vertically and horizontally. Less surface litter will result in a slightly slower-moving fire, putting out less heat and therefore slower to ignite the shrub layer. Partial removal of the shrub layer significantly reduces the low-level flame height, making it easier for fire-fighters to work near the fire edge, and becoming less likely to ignite the sapling layer. Keeping the shrub and sapling layer fire intensity low means that fire is unlikely to move into the canopy of the overstorey. That is a crown fire, and is completely uncontrollable by any means.

Limiting ember production is best achieved by not having rough-barked species nearby, or by removing the loose outer bark layer before fire gets near.

Protecting against ember attack relies largely on proper construction material selection, and good design that will not trap embers or the litter on which they may land and ignite. Properly screened openings are essential, but good plant selection and layout can create an ember shield, to deflect or trap embers approaching the house. Remember that embers will also accumulate in the sheltered side, in the eddy zone behind the house. Anywhere leaves accumulate, so will embers.

It is essential to keep even low creeping flames from contacting walls of the house. Maintain a path at least 30cm wide completely clear of all flammable material immediately between the garden/ lawn area – a concrete or gravel path, bare soil, whatever – and the house.

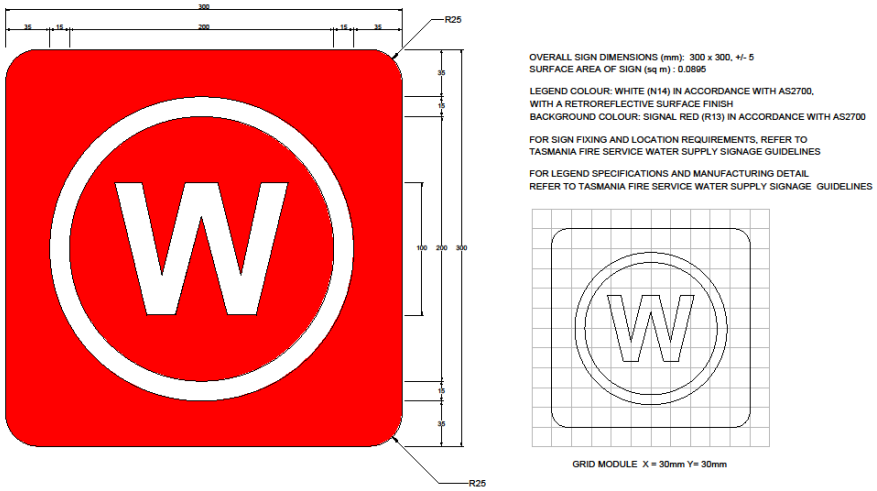
The HMA is to be kept in a substantially cleared condition, with a minimum of flammable material and plants.

Within the inner HMA, mown lawn and only occasional scattered low-flammability ornamental shrubs, garden plants and the like should be allowed.

- Immediately beside the house there must be a strip not less than 30cm wide which is kept bare of any combustible material.
- Grass must be kept mown to not more than 50mm in height, and should be kept watered and green within 5m of a wall.
- Shrubs should not be located within 2m of a wall, or within 5m of a window.
- Avoid using combustible mulch within 2m of a window and within 1m of a wall – use pebbles instead in these settings.
- Trees are to be kept well-spaced, with one crown diameter between canopy crowns,
- Shrubs to 1.5m height (or shrub clusters, to 2m diameter) should have 5m between them. (If trees have a 10m diameter canopy, there should be 10m between their canopies, ie 20m between trunks. Similarly, a 2m diameter cluster of shrubs should not be within 5m of other shrubs.
- Favour smooth-barked over rough-barked trees, and low-flammability species.

- Prune all tree branches to a height of 2m.
- Shrubs should not be located directly under trees.
- Don't have open woodpiles or locate rubbish heaps within the HMA.

Water tank signage meeting the requirements of AS 2304-2011 or as per the design below, is required. The sign must be within 1m of the location of the outlet, at least 400mm above ground level, located to be visible from an approaching vehicle, and not obstruct access to the outlet.



All above-ground components must be metal, or lagged with non-combustible material. Buried components must be not less than 300mm deep.
The (not less than 50mm bore) outlet and ball or gate valve must be

- on the water storage tank, or
- beside an approved remote takeoff point located in a protected position, 450-600mm above ground and supplied by a pipe not less than 50mm internal diameter,

so that all parts of the building are within 90m of the outlet.

Water takeoff points must be fitted with a Storz 65mm coupling and suction washer, plus a blank cap on a chain at least 220mm long. They must not be within a parking area, and must be accessible from a hardstanding area located within 3m of the take-off point and not closer than 6m to the building.
The hardstanding area must be at least 3m in width, and connected to the general access driveway, and be constructed so that when occupied by a tanker, the tanker will not obstruct the passage of other vehicles. A tanker must have direct access from the hardstanding to a turning area.

Annexure D Form 55 Certificate

CERTIFICATE OF QUALIFIED PERSON – ASSESSABLE ITEM

Section 321

To: Jandakaya Pty Ltd *Owner /Agent*

oiwah@interiors.my *Address*

Suburb/postcode

Form **55**

Qualified person details:

Qualified person: Roger Fenwick

Address: PO Box 86B

Kettering 7155

Phone No: 0411 609 906

Fax No:

Licence No: BFP-162

Email address: roger@bushfire-consultant.com.au

Qualifications and Insurance details: Accredited No 162 under the Fire Service Act 1979
Professional Indemnity & Public Liability insurance by Lloyd's

(description from Column 3 of the Director's Determination - Certificates by Qualified Persons for Assessable Items

Speciality area of expertise: Analysis of hazards in bushfire-prone areas

(description from Column 4 of the Director's Determination - Certificates by Qualified Persons for Assessable Items)

Details of work:

Address: 4101 Channel Highway

Flowerpot Tas 7163

Lot No: 1

Certificate of title No: 20339

The assessable item related to this certificate: Assessment of bushfire attack level for construction Class 1b

(description of the assessable item being certified)
Assessable item includes –
- *a material;*
- *a design*
- *a form of construction*
- *a document*
- *testing of a component, building system or plumbing system*
- *an inspection, or assessment, performed*

Certificate details:

Certificate type: Bushfire hazard assessment

(description from Column 1 of Schedule 1 of the Director's Determination - Certificates by Qualified Persons for Assessable Items n)

This certificate is in relation to the above assessable items, at any stage, as part of – *(tick one)*

☒ building work, plumbing work or plumbing installation or demolition work

OR

☐ a building, temporary structure or plumbing installation

In issuing this certificate the following matters are relevant –

Documents:	Bushfire Hazard Assessment Report dated March 2026 including Bushfire Hazard Management Plan dated March 2026 AS 3959-2018 *Construction of buildings in bushfire-prone areas* Plans by Biotope
Relevant calculations:	Method 2 calculations appended.
References:	N/A

Substance of Certificate: *(what it is that is being certified)*

A bushfire assessment and management plan for proposed new construction, in accordance with BAL-29 construction standard of AS 3959-2018.

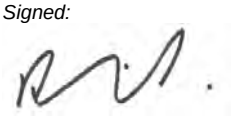
Scope and/or Limitations

A Bushfire Hazard Assessment was commissioned by Rosa Douramanis to identify the potential bushfire risk and BAL rating, and to recommend appropriate compliance and protection measures.

Limitations: The proposed measures comply with the guidelines. Full compliance with the requirements in this report and/or AS 3959-2018 does not guarantee survival of structures or persons.

Performance Solution elements must be certified by TFS via a Form 47.

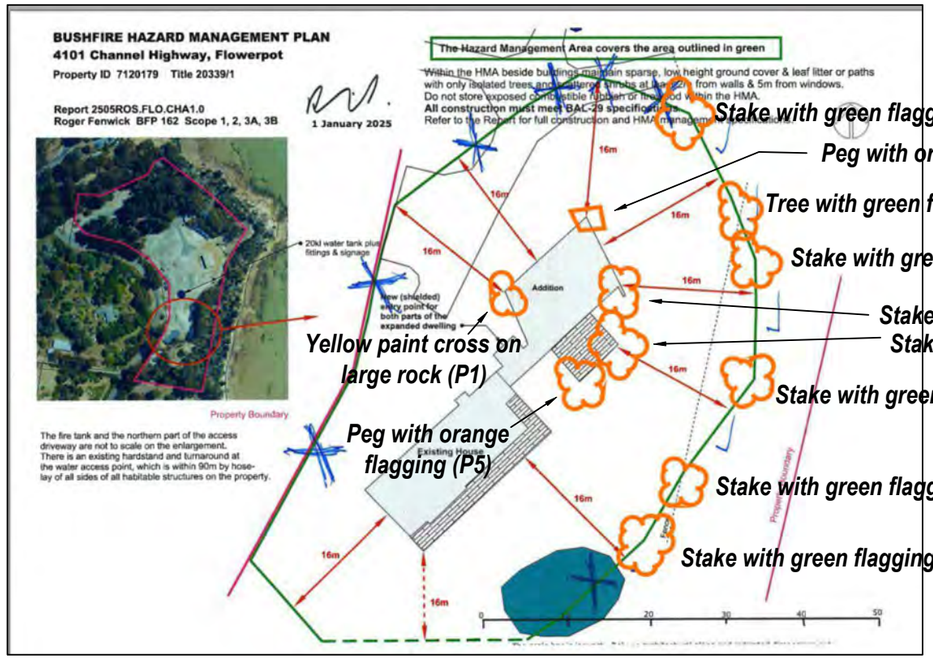
I certify the matters described in this certificate.

Signed:	*Certificate No:*	*Date:*
	2505ROS.FLO.CHA1.0	14 March 2026

Qualified person:

Annexure E Site plans

4101 Channel Highway Flowerpot



Yellow paint cross on large rock (P1)

Stake with green flagging (P6)

Peg with orange flagging (P2)

Tree with green flagging (P7)

Stake with green flagging (P8)

Stake with orange flagging (P3)

Stake with orange flagging (P4)

Stake with green flagging (P9)

Peg with orange flagging (P5)

Stake with green flagging (P10)

Stake with green flagging (P11)

Yellow paint cross on large rock (P1)

Peg with orange flagging (P2)

Stake with orange flagging (P3)

Stake with orange flagging (P4)

Peg with orange flagging (P5)

Stake with green flagging (P6)

Tree with green flagging (P7)

Stake with green flagging (P8)

Stake with green flagging (P9)

Stake with green flagging (P10)

Stake with green flagging (P11)

REV	AMENDMENTS	DRAWN	DATE	APPR.
E				
D				
C				
B				
A				

Brooks, Lark and Carrick SURVEYORS

UNIT 1, 2 KENNEDY DRIVE CAMBRIDGE 7170
PHONE: (03)6248 5898
EMAIL: admin@blcsurveyors.com.au
WEB: www.rbsurveyors.com

Setout Plan

FOR: THILO & OIWAH WESTERHAUSEN

LOCATION: 4101 CHANNEL HIGHWAY FLOWERPOT

Date: 27/02/2026	**Reference:** WESTT01
Drawn: DM	**Height Datum:** NA
Approved: DM	**Scale:** No Scale

PROPOSED SITE PLAN
1:500

LEGEND

1 REGENERATED DAM INTO A POND - COMPLETED (DA-2022-64)
2 EXISITNG VISITOR ACCOMMODATION - COMPLETED (DA-2022-64)
3 PROPOSED EXTENSION TO THE VISITOR ACCOMMODATION - COMPLETED (DA-2022-64)
4 EXISTING VISITOR CARPARKING - COMPLETED (DA-2022-64)
5 HARDSTAND AREA WITH WATEROFF TAKE - COMPLETED (DA-2022-64)
6 MAIN HOUSE - PROPOSED TO REDUCE BY 100M² - NOT COMPLETED (DA-2022-64)
7 ANCILLARY DWELLING - NOT COMPLETED (DA-2022-64)
8 SAUNA STRUCTURE - NOT COMPLETED (DA-2022-64)
9 EXISTING SHED TO REMAIN

0M 10M 20M 30M 40M 50M 60M 70M 80M

01
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biotope.net.au

03
PROJECT
Elandra - The Pond Retreat ©
4101 Channel Hwy, Flowerpot,
TAS 7163, Australia

Visitor Accommodation - Extension

04
PHASE
Concept Design

05
SCALE
1:500 @ A1

10M

06
DATE
18-12-2025

DRAWING
01

07
REVISIONS

10M

08

PROPOSED SITE PLAN
1:200

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04
PHASE
Concept Design

05
SCALE
1:200 @ A1

4M

06
DATE
18-12-2025

DRAWING
01

07
REVISIONS

08

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04
PHASE
Concept Design

05
SCALE
1:100 @ A1

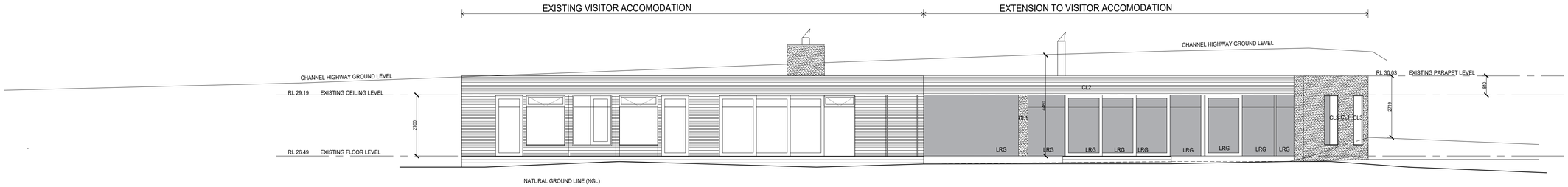
2M

06
DATE
18-12-2025

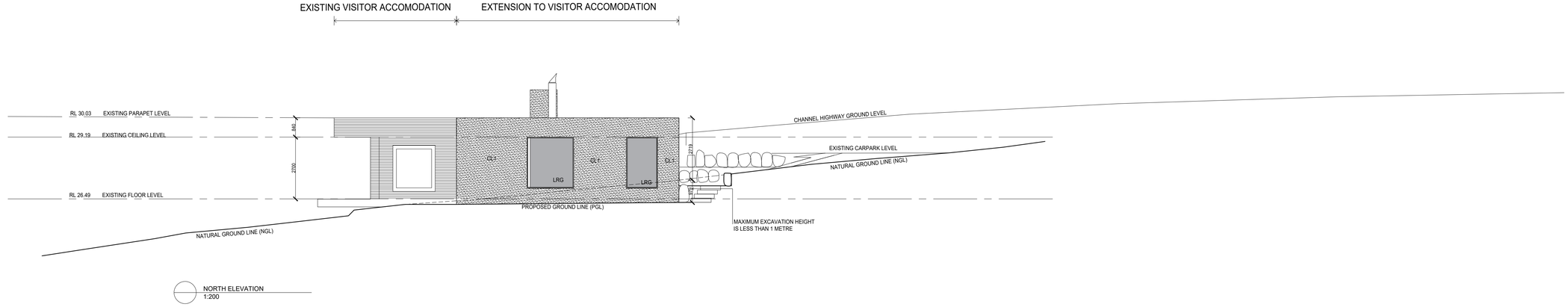
DRAWING
02

07
REVISIONS

08



EAST ELEVATION
1:200



NORTH ELEVATION
1:200

LEGEND

CL1	RAMMED EARTH TO MATCH EXISTING
CL2	CHARRED TIMBER TO MATCH EXISTING
CL3	6MM THICK CORTEN WINDOW REVEAL
CL4	CORTEN LINED DOOR, PANEL AND SOFFIT.
LRG	LOW REFLECTANCE GLAZING

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PROJECT
Tham/Westerhausen House ©
4101 Channel Hwy, Flowerpot,
TAS 7163, Australia

Visitor Accommodation - Extension

04
PHASE
Concept Design

05
SCALE
1:100 @ A1

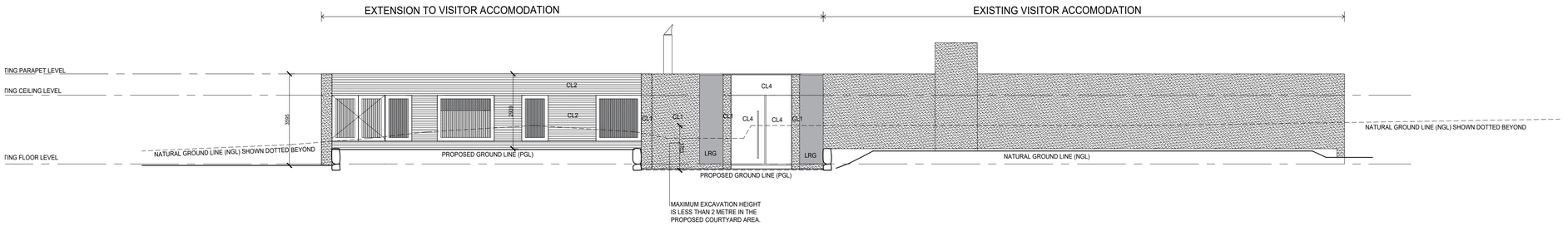
2M

06
DATE
18-12-2025

DRAWING

07
REVISIONS

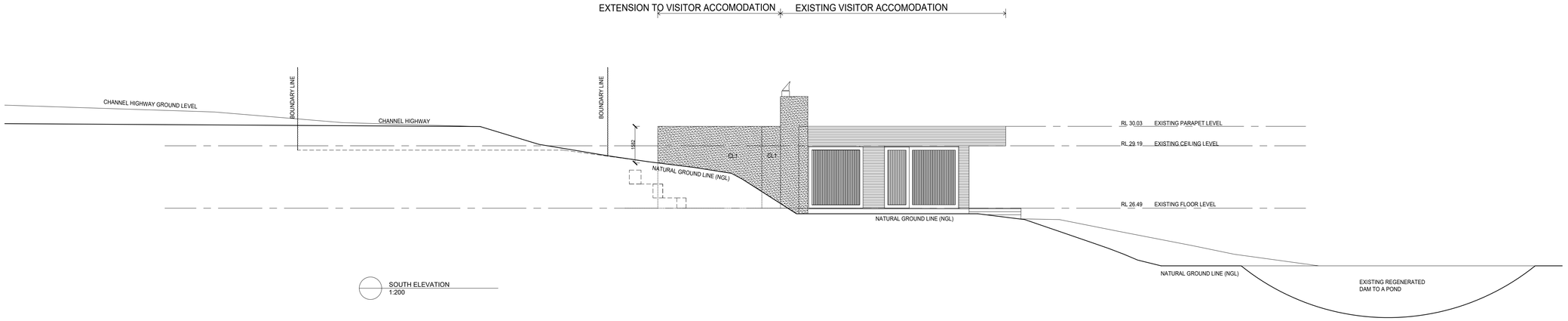
08



WEST ELEVATION
1:200

LEGEND

CL1	RAMMED EARTH TO MATCH EXISTING
CL2	CHARRED TIMBER TO MATCH EXISTING
CL3	6MM THICK CORTEN WINDOW REVEAL
CL4	CORTEN LINED DOOR, PANEL AND SOFFIT.
LRG	LOW REFLECTANCE GLAZING



SOUTH ELEVATION
1:200

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Visitor Accommodation - Extension

04
PHASE
Concept Design

05
SCALE
1:100 @ A1

2M

06
DATE
18-12-2025

DRAWING

07
REVISIONS

08

AS 3959 Method 2 calculations								
Address	**4101 Channel Highway, Flowerpot**							
PID	**7120179**		**Title ref**	**20339/1**				
	Inputs	derived figures	outputs					
FDI	50	w	ros (kph)					
Vegetation	D	13.5	0.8					
Veg Slope		derived figures		degrees	13	Forest	F	
HMA slope	0.087266463	23.5	F length	degrees	5	Dry Tasmanian Forest	D	
HMA width	16	R slope	15.7			Rainforest	R	
		2.0	15.7	Elevation receiver	2	Woodland	W	
Flame width	100	W	0.0			Low heath	L	Shrubland
		23.5	0.0			Heath	H	Scrub
			0.0			Grass	G	
			0.0			forest wetland	fw	
			0.0			tussock moorland	tm	
			0.0					
			0.0					
		R (slope)	F length	Intensity (kWm^{-1})		Radiation	28.43	kWm^{-2}
Forest & Woodland		1.99	15.73	24117				
Shrub, Heath, Scrub		1.99	5.3	9835		temp (1090, 1200)	1090	
Grass		1.99	5.9	24117				
flame angle	60							
The variable inputs to this spreadsheet appear in the yellow-highlighted boxes.								
The derived values w and W are as they appear in AS 3959, apart from individually allocated figures for D vegetation types,								
taken from Marsden-Smedley *et al* , Fuel in Tasmanian Dry Eucalypt Forests, Fire 2022, 5, 103. Table 4							Deck	
The usual output is Radiation in kWm^{-2} but the program can be forced to find input values matching a desired outcome.								
Simulations of the shielding effect of fences are made by manually adjusting the F length value								
If that has been done, the two F length columns will show mis-matching numbers for the vegetation type								