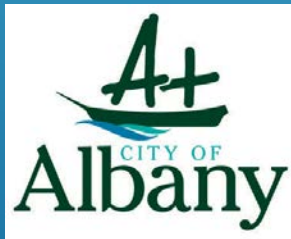




BUILDING BUSHFIRE RESILIENCE IN THE GREAT SOUTHERN



*Shire of Denmark, City of Albany, Shire of
Plantagenet*



Building bushfire resilience in communities – National strategy for disaster resilience

- “State governments and municipal councils to adopt increased or improved protective management, emergency management and advisory roles.”
- Strive to recognize and understand the risks disasters pose to their own and their communities interests.
- Leaders drive development of partnerships and networks to build resilience at government, business, neighborhood and community levels.



What is the “Building Resilience In the Great Southern” [BRIGS] Project?

- The Western Australian and Commonwealth governments have a National Partnership Agreement for Natural Disaster Resilience that delivers the National Disaster Resilience Program (NDRP).
- Application was submitted to the NDRP to fund the three local governments to enhance the evacuation planning and bushfire risk mitigation strategies over 8 precincts.
- Aimed to implement sustained resilience or disaster mitigation strategies that directly benefit the WA community.
- This project reduces identified risks and closes capability gaps, in an effort to reduce future post-disaster funding needs.
- This project aided in the development of a rigorous physical risk mitigation program where possible and develops a greater understanding of bushfire risk in the community.



What is the “Building Resilience In the Great Southern” [BRIGS] Project?

8 precincts in 3 LGA's

- Goode Beach (CoA);
- Little Grove and Big Grove (CoA);
- Bayonet Head (CoA);
- Peaceful Bay (SoD);
- Ocean Beach (SoD);
- Weedon Hill (SoD);
- Kendenup (SoP); and
- Mount Barker Hill (SoP).



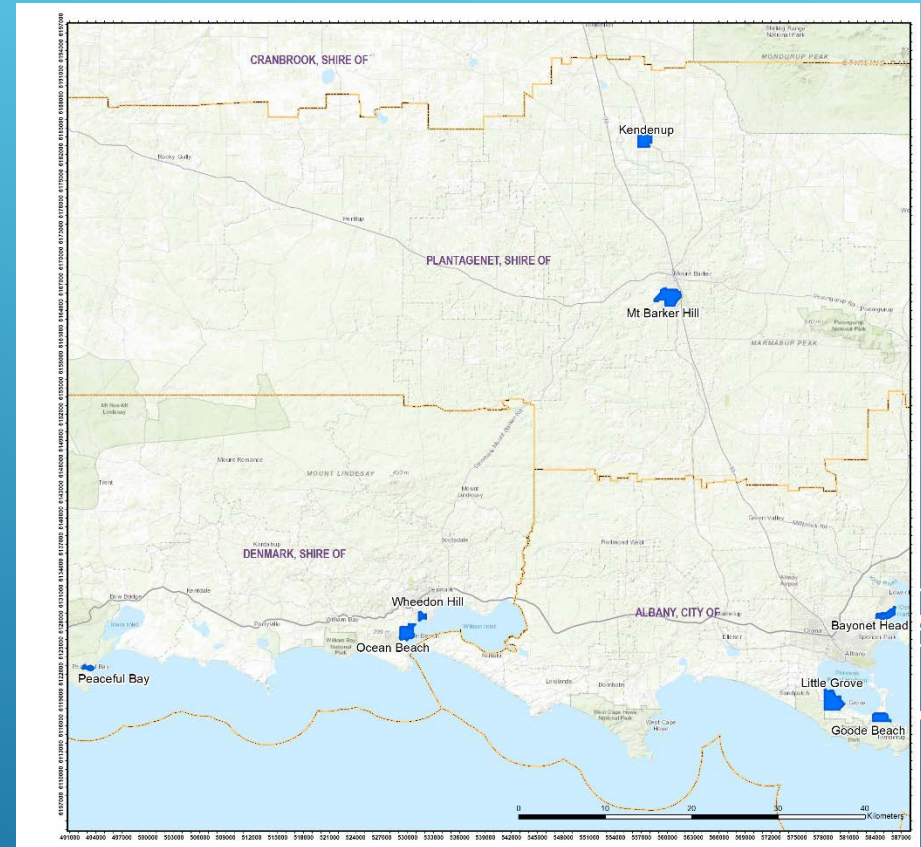
The 8 precincts identified for the project were based on the following parameters:

- High fuel loads and extreme bushfire risks;
- Limited access and egress for the communities to evacuate (one-way access);
- High population density in summer (extreme risk) period
- Legacy planning issues. Communities not consistent with the current SPP 3.7

What is the “Building Resilience In the Great Southern” [BRIGS] Project?

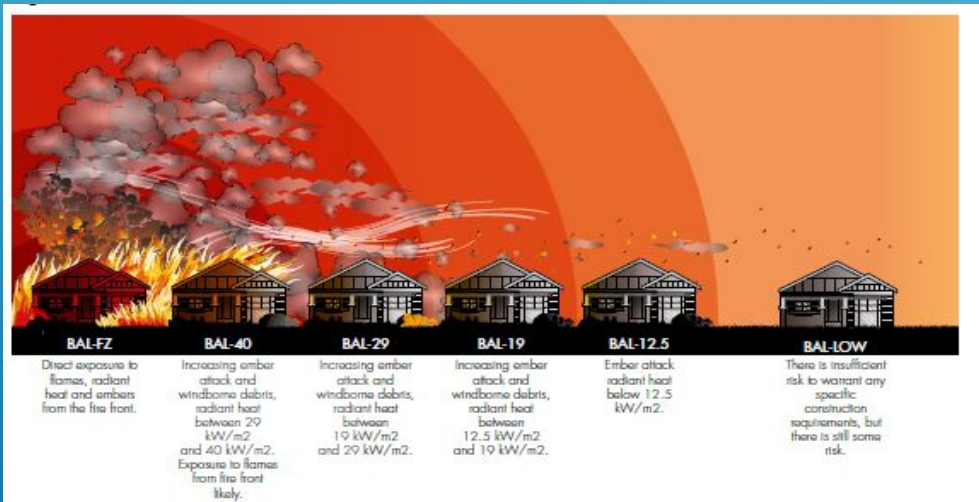
Key processes


- Applying a AS3959 BAL contouring methodological to define and map bushfire risks to our communities.
- CSIRO Spark modelling
- Identification of vulnerable communities where evacuation may be compromised.
- Identifying areas for possible community refuge. Develop Works Programs and treatment schedules with priorities developed.
- Review of gazetted fire notice in each LGA.
- Stakeholder engagement – DBCA, WCWA, DFES, LGA, DoEd,
- Public consultation – during project (in precinct, public sessions and post project through implementation).




AS3959-2018 Measures Bushfire Fuels

- AS3959 provides a measure of radiant heat flux (impact) on a building.
- AS3959 is also used as a planning tool to measure bushfire risk.
- Uses a classification system according to vegetation structure.

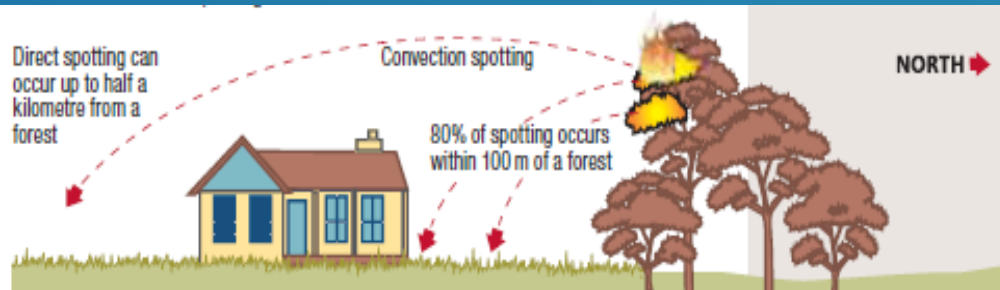
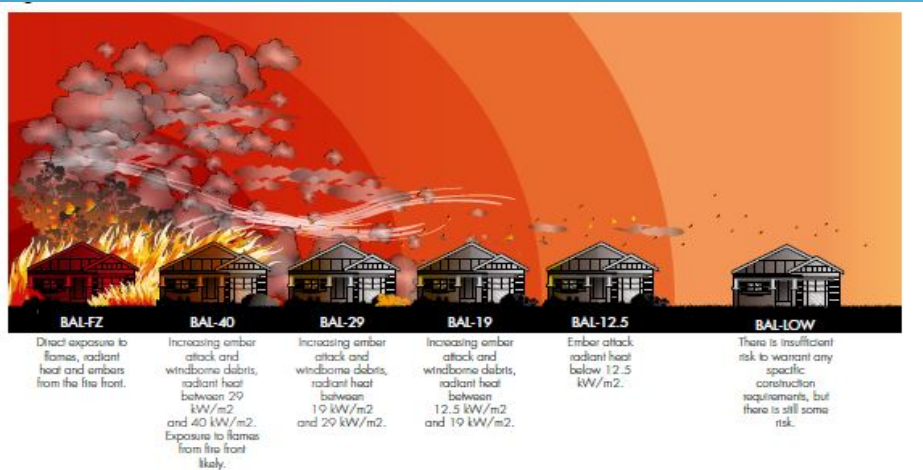


Plot	3, 5, 6, 7 & 13	Classification or Exclusion Clause	Forest Type A
			<p>Location: Located throughout the subject site.</p> <p>Dominant species & description: Karri Forest, Jarrah and Marri Forest, Peppermint Forest, and <i>Taxandria juniperina</i> Forest (wet areas). Overstorey of eucalyptus with mid storey species of <i>Callistachys lanceolatum</i> (Native Willow) juvenile trees, Banksia, Acacia, Kunzea, Hibbertia, Melaleuca and <i>Leopoldium</i>. Understorey of Kangaroo paws, native sedges and herbs.</p> <p>Average vegetation height: 12-10m (Peppermint and J/M) 15-25m (Karri).</p> <p>Vegetation Coverage: >30-70% foliage cover.</p> <p>Available fuel loading: 25-35 t/ha.</p> <p>Effective slopes: Plot 3: Flat/upslope. Plot 5: D/S > 5 to 10 degrees. Plot 6: D/S > 10 to 15 degrees. Plot 7: D/S > 0 to 5 degrees.</p>
Photo 11: View of Plot 3 Karri Forest Located to the south west of Harrington Break Estate.			

Plot	4, 8 & 9	Classification or Exclusion Clause	Grassland Type G
			<p>Location: To the north, south, north east and small areas central to the subject site.</p> <p>Description: Grazed paddocks of bracken, mixed pasture and unmanaged lots with introduced species such as Kikuyu, Hibbertia, Conyza etc.</p> <p>Average vegetation height: 200-300mm.</p> <p>Vegetation Coverage: <10% trees.</p> <p>Available fuel loading: <4.5t/ha.</p> <p>Effective slope: Plot 4: Flat/upslope Plot 8: Downslope >5 to 10 degrees Plot 9: Downslope >0 to 5 degrees</p>
Photo 20: View to the south of grazed paddocks in Plot 4 located south west of the precinct.			

AS3959-2018 Measures Bushfire Fuels

- Once vegetation structure and slope is classified uses a matrix to determine the impact of bushfire onto a building or subject site.
- Fire Danger Index (FDI) of 80.



31

AS 3959:2018

TABLE 2.5
DETERMINATION OF BUSHFIRE ATTACK LEVEL (BAL)—FDI 80 (1090 K)

Vegetation classification	BALs				
	BAL—FZ	BAL—40	BAL—29	BAL—19	BAL—12.5
	Distance (m) of the site from the predominant vegetation class				
	All upslopes and flat land (0 degrees)				
A. Forest	<16	16–<21	21–<31	31–<42	42–<100
B. Woodland	<10	10–<14	14–<20	20–<29	29–<100
C. Shrubland	<7	7–<9	9–<13	13–<19	19–<100
D. Scrub	<10	10–<13	13–<19	19–<27	27–<100
E. Mallee/Mulga	<6	6–<8	8–<12	12–<17	17–<100
F. Rainforest	<6	6–<9	9–<13	13–<19	19–<100
G. Grassland	<6	6–<8	8–<12	12–<17	17–<50
	Downslope >0 to 5 degrees				
A. Forest	<20	20–<27	27–<37	37–<50	50–<100
B. Woodland	<13	13–<17	17–<25	25–<35	35–<100
C. Shrubland	<7	7–<10	10–<15	15–<22	22–<100
D. Scrub	<11	11–<15	15–<22	22–<31	31–<100
E. Mallee/Mulga	<7	7–<9	9–<13	13–<20	20–<100
F. Rainforest	<8	8–<11	11–<17	17–<24	24–<100
G. Grassland	<7	7–<9	9–<14	14–<20	20–<50
	Downslope >5 to 10 degrees				
A. Forest	<26	26–<33	33–<46	46–<61	61–<100
B. Woodland	<16	16–<22	22–<31	31–<43	43–<100
C. Shrubland	<8	8–<11	11–<17	17–<25	25–<100
D. Scrub	<12	12–<17	17–<24	24–<35	35–<100
E. Mallee/Mulga	<7	7–<10	10–<15	15–<23	23–<100
F. Rainforest	<11	11–<15	15–<22	22–<31	31–<100
G. Grassland	<8	8–<10	10–<16	16–<23	23–<50
	Downslope >10 to 15 degrees				
A. Forest	<33	33–<42	42–<56	56–<73	73–<100
B. Woodland	<21	21–<28	28–<39	39–<53	53–<100
C. Shrubland	<9	9–<13	13–<19	19–<28	28–<100
D. Scrub	<14	14–<19	19–<28	28–<39	39–<100
E. Mallee/Mulga	<8	8–<11	11–<18	18–<26	26–<100
F. Rainforest	<14	14–<19	19–<28	28–<39	39–<100
G. Grassland	<9	9–<12	12–<18	18–<26	26–<50
	Downslope >15 to 20 degrees				
A. Forest	<42	42–<52	52–<68	68–<87	87–<100
B. Woodland	<27	27–<35	35–<48	48–<64	64–<100
C. Shrubland	<10	10–<15	15–<22	22–<31	31–<100
D. Scrub	<15	15–<21	21–<31	31–<43	43–<100
E. Mallee/Mulga	<9	9–<13	13–<20	20–<29	29–<100
F. Rainforest	<18	18–<25	25–<36	36–<48	48–<100
G. Grassland	<10	10–<14	14–<21	21–<30	30–<50

How do we get people out

“Bushfire fatality data from 260 fire events from 1901 to 2011 analysed by CSIRO, shows that whilst late evacuation represents the primary activity taken at the time of death, there is a rising trend of fatalities occurring within structures (sheltering in place)”

Need to:

- Examine evacuation travel times and routes.
Bring together studies already done and build on what we don't know.
- If route justified do we have community refuge?
- Is our community prepared?
- Summer visitors prepared? Absentee land owners?



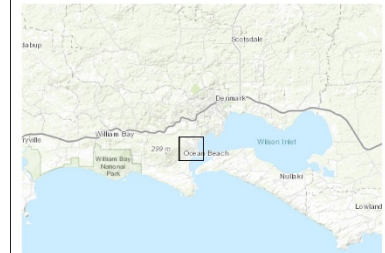
Ocean Beach Precinct



This BAL Plan was prepared by:
Kathryn Kinner, Bio Diverse Solutions
Accreditation No: BPAD30794
Jurisdiction: Level 2 - WA



29 Hercules Crescent
Albany, WA 6330
Australia
Tel: 08 9842 1575
Fax: 08 9842 1575



Overview Map Scale 1:100,000

Legend



Scale
1:4,000 @ A1
GDA MGA 94 Zone 50

Data Sources
Aerial Imagery: SLIP Virtual Mosaic WMS Service, Landgate 2017
Cadastre, Relief Contours and Roads: Landgate 2017
IRIS Road Network: Main Roads Western Australia 2017
Overview Map: World Topographic map service, ESRI 2012

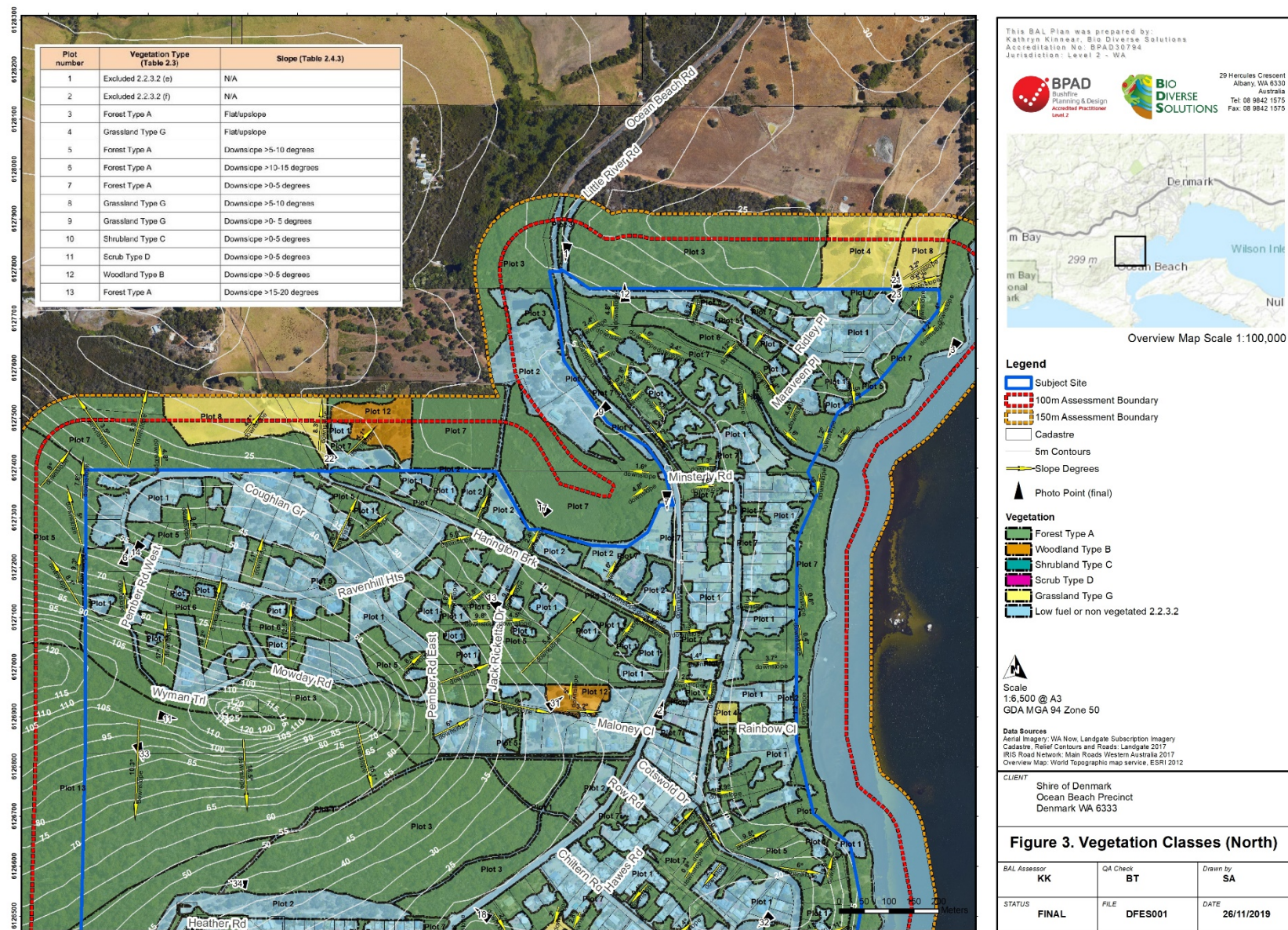
CLIENT

Shire of Denmark
Ocean Beach Precinct
Denmark WA 6333

Figure 1. Location Plan

BAL Assessor KK	QA Check KK	Drawn by BT
STATUS FINAL	FILE DFES001	DATE 28/08/2019

Vegetation Mapping Ocean Beach Precinct to AS3959



Vegetation Mapping Ocean Beach Precinct to AS3959



This BAL Plan was prepared by:
Kathryn Kinnear, Bio Diverse Solutions
Accreditation No: BPAD30794
Jurisdiction: Level 2 - WA



29 Hercules Crescent
Albany, WA 6330
Australia
Tel: 08 9842 1575
Fax: 08 9842 1575



Overview Map Scale 1:100,000

Legend

- Subject Site
- 100m Assessment Boundary
- 150m Assessment Boundary
- Cadastral
- 5m Contours
- Slope Degrees
- Photo Point

Vegetation

- Forest Type A
- Woodland Type B
- Shrubland Type C
- Scrub Type D
- Grassland Type G
- Low fuel or non vegetated 2.2.3.2



Scale
1:6,500 @ A3
GDA MGA 94 Zone 50

Data Sources
Aerial Imagery: VIA Now, Landgate Subscription Imagery
Cadastral, Relief Contours and Roads: Landgate 2017
IRIS Road Network: Main Roads Western Australia 2017
Overview Map: World Topographic map service, ESRI 2012

CLIENT

Shire of Denmark
Ocean Beach Precinct
Denmark WA 6333

Figure 4. Vegetation Classes (South)

BAL Assessor KK	QA Check BT	Drawn by SA
STATUS FINAL	FILE DFES001	DATE 26/11/2019

BAL Contour Plan – Ocean Beach Precinct



This BAL Plan was prepared by:
Kathryn Kinnear, Bio Diverse Solutions
Accreditation No: BPAD30784
Jurisdiction: Level 2 - WA



26 Hercules Crescent
Albany, WA 6330
Australia
Tel: 08 9842 1575
Fax: 08 9842 1575



Overview Map Scale 1:100,000

Legend

- Subject Site
- Cadastre
- 100m Assessment Boundary
- 150m Assessment Boundary

BAL Contours

- BAL-FZ
- BAL-40
- BAL-29
- BAL-19
- BAL-12.5
- BAL-LOW



Scale
1:7,500 @ A3
GDA MGA 94 Zone 50

Data Sources
Aerial Imagery: WA Now, Landgate Subscription Imagery
Cadastral, Relief Contours and Roads: Landgate 2017
GIS Road Network: Main Roads Western Australia 2017
Overview Map: World Topographic map service, ESRI 2012

CLIENT

Shire of Denmark
Ocean Beach Precinct
Denmark WA 6333

Figure 5. BAL Contour

BAL Assessor KK	QA Check CC	Drawn by SA
STATUS FINAL	FILE DFES001	DATE 27/11/2019

Works Program Mapping



This BAL Plan was prepared by:
Kathryn Kinkead, Bio Diverse Solutions
Accreditation No: BPAD30794
Jurisdiction: Level 2 - WA



29 Hercules Crescent
Albany, WA 6330
Australia
Tel: 08 9842 1575
Fax: 08 9842 1675



Overview Map Scale 1:100,000

Legend

- Subject Site
- 100m Assessment Boundary
- 150m Assessment Boundary
- Cadastre
- T Trim Tree
- Freehold greater than 5000m² (2A & 2B)
- Freehold between 2500 & 5000m² (2A)
- Freehold less than 2500m² (1)
- Commercial Zone
- Existing Dwelling
- APZ 20m
- Prescribed Burn
- Fuel Reduce



Scale
1:7,500 @ A3
GDA MGA 94 Zone 50

Data Sources
Aerial Imagery: Via Now, Landgate Subscription Imagery
Cadastre: Relief Contours and Roads: Landgate 2017
IRIS Road Network: Main Roads Western Australia 2017
Overview Map: World Topographic map service, ESR 2012

CLIENT

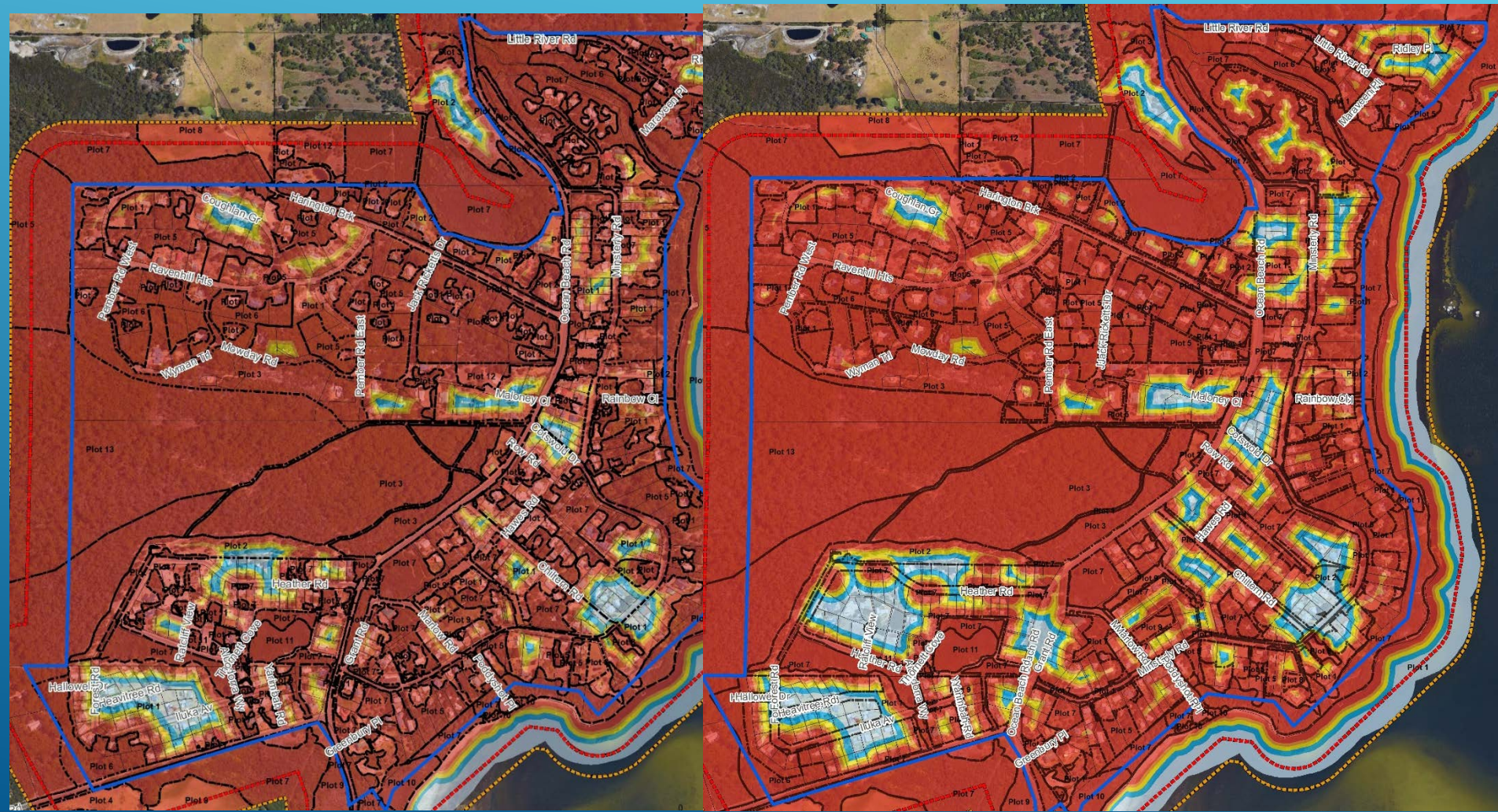
Shire of Denmark
Ocean Beach Precinct
Denmark WA 6333

Figure 6. Program of Works

BAL Assessor KK	QA Check CC	Drawn by SA
STATUS FINAL	FILE DFES001	DATE 3/12/2019

BAL Contour Plan Pre & Post Program of Works

- Applying the SoD Fire Management Notice to the precinct on private property does provide for safer areas in the precinct
- Road reserves contribute to the bushfire risk, however the model is conservative and overestimates the impact. Caution!
- Impacts are seen throughout the precinct, biggest change is in the Heath Road and Minsterly Drive areas.
- Applying the FMN does not get BAL 29 on all lots due to slope, most evident in Harrington Break Estate.



Access and Water



This BAL Plan was prepared by:
Rathyn Kinnear, Bio Diverse Solutions
Accreditation No: BPAD30784
Jurisdiction: Level 2 - WA



29 Hercules Crescent
Albany, WA 6330
Australia
Tel: 08 9842 1575
Fax: 08 9842 1575



Overview Map Scale 1:100,000

Legend

- Subject Site
- Cadastre
- Hydrant
- ▲ Water Pump Station
- Water Point
- Public Drinking Water Supply (PDWS)
- Emergency Access Routes (Public Gazetted)
- Future Public Road
- - - Fire Services Access (Gated & locked)
- - - FSA/EAW (Not locked)
- ▤ Fuel Reduce Road Reserves



Scale
1:7,500 @ A3
GDMA MGA 94 Zone 50

Data Sources
Aerial Imagery: WA Now, Landgate Subscription Imagery
Cadastre, Relief Contours and Roads: Landgate 2017
IRIS Road Network: Main Roads Western Australia 2017
Overview Map: World Topographic map service, ESRI 2012

CLIENT

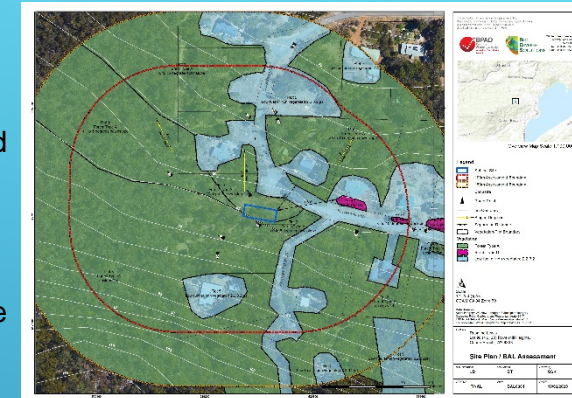
Shire of Denmark
Ocean Beach Precinct
Denmark WA 6333

Figure 8. Access and Water

BAL Assessor	QA Check	Drawn by
KK	CC	SA
STATUS	FILE	DATE
FINAL	DFES001	22/07/2020

Program of Works

- Applying the SoD Fire Management Notice to the precinct on private property
- Retrofitting buildings within the precinct to BAL and AS3959.
- Undertake individual BAL assessments on dwellings to install a compliant APZ associated with BAL-29 or less and AS3959 setbacks/APZ area..
- Undertake systematic review of the FMN
- Mechanical fuel reduction in road reserves in Emergency Access Routes to assist in safe evacuation and egress into and exiting the precinct.
- Government agencies and private land owners (larger special residential lots) to consider small, cool burns to assist reduction of fuel loads on private property/reserves and managing of fuels adjacent to other residents
- A regular maintenance regime on all internal public roads, mowing verges, trimming overhead branches and all powerlines.
- Linking future public roads, assigning Emergency Access Routes, Emergency Access Ways and Fire Service Access Routes for assisting in rapid flow of traffic in a bushfire emergency.
- Upgrading and/or maintaining access to a minimum of trafficable standards and ensuring turnaround areas are provided to WAPC guidelines technical standards.
- Investigate through Mitigation Activities Funding arrangements (MAF) opportunities to link the public road network.
- Linking public roads and FSA's - Maloney Road and Jack Ricketts Drive; Ocean Beach Road in Reserve 45552, Hawes Road through SoD managed reserve (R24175) to Minsterly Road; South Coast Highway to the north from Harrington Break; public road to the north from Ridley Place, Ravenhill Road and Coughlan Road, and FSA around reserve 45552.



Project BAL Build



Building a 3 1/2, steel house, like the 3 1/2, 10 years, is not as expensive as often thought. Credit: Lee Griffiths

How much does it really cost to build homes that will survive bushfires?

A new (and Australian) study by Kathryn Kinnear (Bio Diverse Solutions) and Julie de Jong (JE + H) is to address the misinformation and confusion about the



Water.. Do we have it when we need it?

Precinct	Water infrastructure	Capacity	Location	Comments
Ocean Beach	1 service Tank	90m3	Top of Harrington Break. Off Mowday Rd	Mains Supply Maintains Hydrant pressure Residential Supply
Ocean Beach	1 service Tank	225m3	North of Heather Rd	Mains Supply Maintains Hydrant pressure Residential Supply

- Water sources into the precinct are via a pipe and gravitated tank network into the reticulated scheme pipe and hydrant network.
- As power outages are anticipated it can be assumed these primary sources may be unavailable during a large fire event.
- A model for water supply for bushfire preparedness is outlined in the proposed PACE model below:

PACE

Primary: Ocean Beach Stand pipe, Roadside Hydrants.

Alternative: Ocean beach Fire Shed, 50,000L via roof top capture. Shire depot 150,000L via roof top capture.

Contingency: Residents rainwater tanks, recommend an isolated supply on larger special residential lots as per FMN.

Emergency: Wilson Inlet, access at Poddy Shot Place.

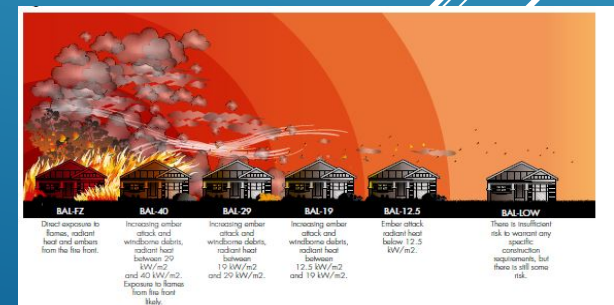
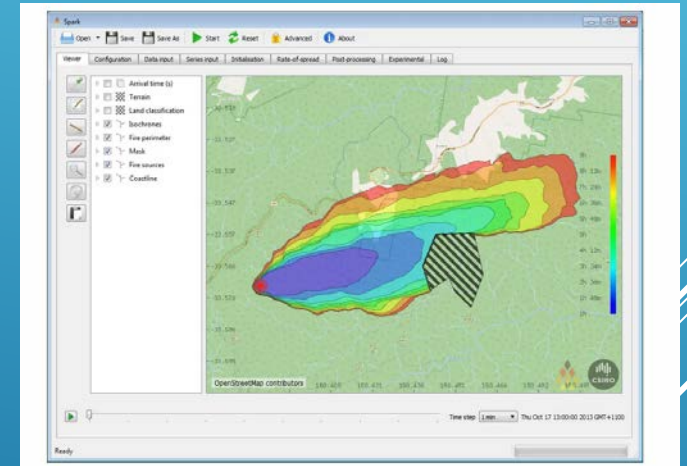
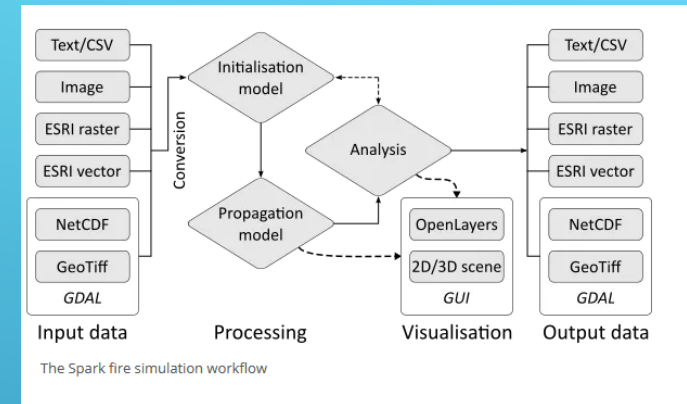


CSIRO SPARK Modelling



SPARK is a system developed by CSIRO that enables the simulation of hours of fire spread at a landscape scale.

- System based on a level set propagation model allowing simulation of any number of distinct fire fronts.
- BRIGS used SPARK to assess the likelihood and consequence of bushfire attack on life and property.
- The inputs associated with FFDI 80 for each wind direction (Relative Humidity of 11%, Temperature of 41.8°C, Wind speed of 40.1 km/h and Drought factor of 9).
- 5km Broadscale Vegetation mapping undertaken by BDS.
- Undertaken on each precinct for
 - Landscape risk – how large is the bushfire catchment of the precinct;
 - Locality risk – quantity and degree of the bushfire hazard;
 - Building risk – AS3959 to assess amount of buildings at risk; and
 - Analysis of evacuation and refuge options – safer place options within the precinct based on a radiant heat flux of $\leq 10 \text{ kW/m}^2$.



CSIRO – SPARK burn perimeter analysis

- The precinct is most at risk from fires spreading under an NW or SW wind;
- Fires in the landscape have the potential to be very fast moving, when associated with grass and shrub/scrub fires; and
- The modelled fast-moving grass fires have the potential to cut off Ocean Beach Road very quickly, thereby highlighting that offsite evacuation may not be appropriate for the precinct under all conditions.

Figure 4: Burn perimeter analysis (ESE)

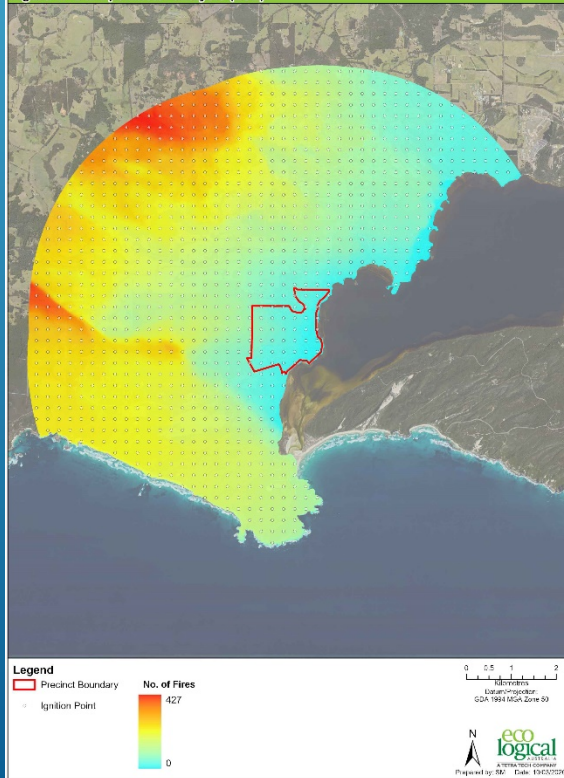


Figure 5: Burn perimeter analysis (SW)

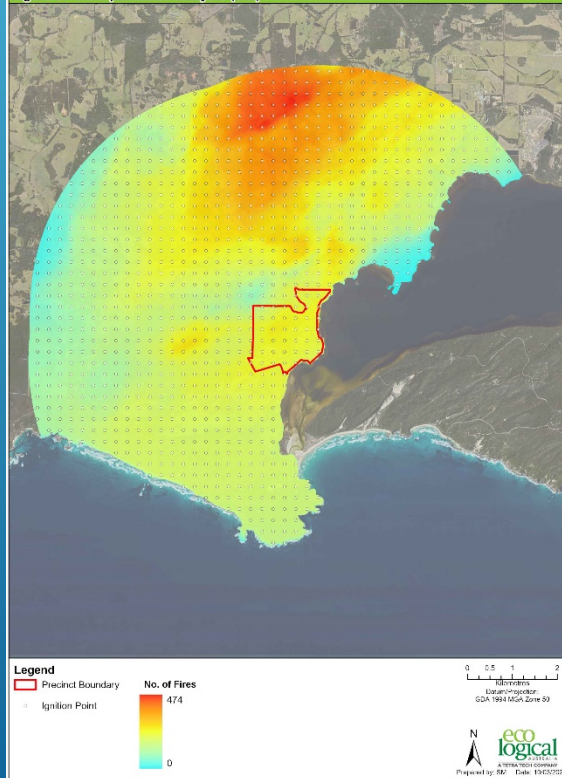
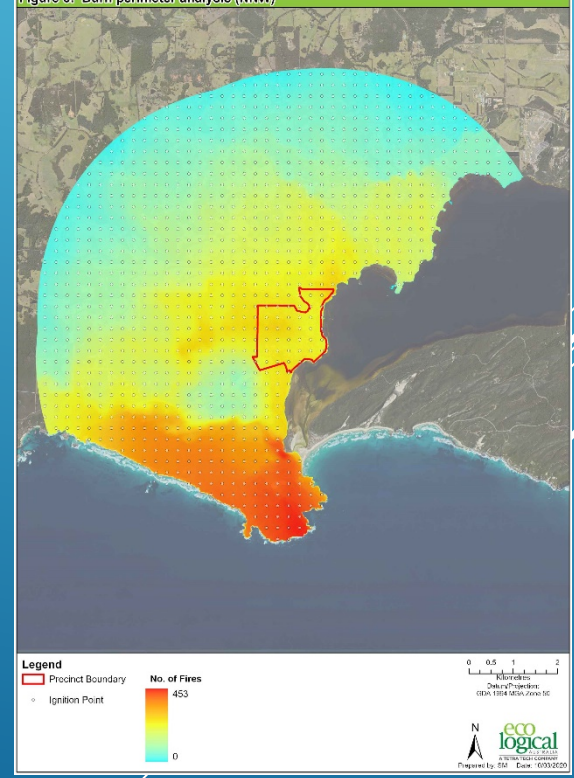


Figure 6: Burn perimeter analysis (NNW)



CSIRO – SPARK bushfire rate of spread analysis

- Assesses the potential bushfire spread and speed from different bushfire attack scenarios.
- Three directions were selected ESE, SW and NNW. These directions were selected after assessing Bureau of Meteorology (BoM) weather data for Albany (Station 9500) and the data available from the National Historical Fire Weather Dataset (Lucas 2010) for the Albany weather station.
- Provides insights into the potential time to impact of assets within the precinct as well as the road network providing access.
- Shows NNW and SW wind directions pose the greatest risk to the precinct.
- Fast 'bands' related to the wind direction, topography of the land and grassland vegetation.
- Fast-moving grass fires (≥ 12 km/h) modelled have the potential to cut off roads very quickly, offsite evacuation may not be appropriate for the precinct under all conditions.

Figure 7: Bushfire rate of spread analysis (ESE)

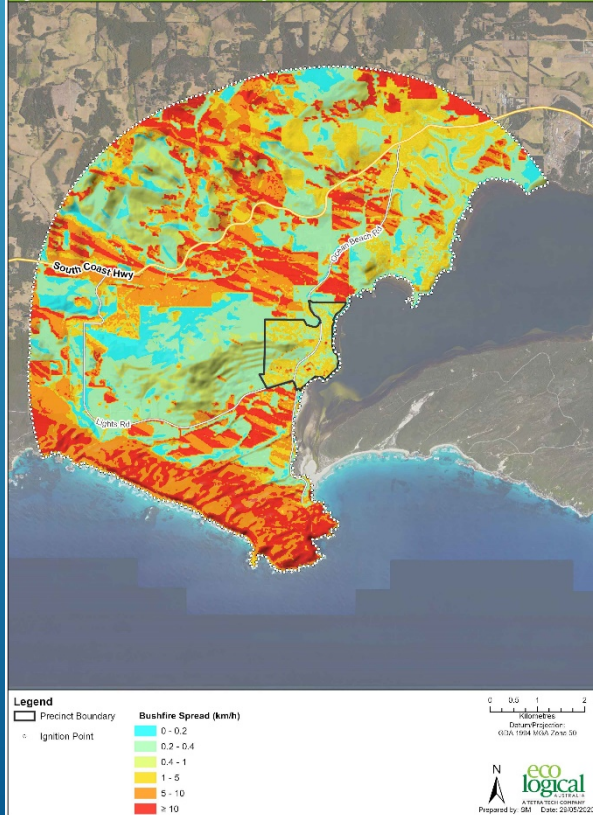


Figure 8: Bushfire rate of spread analysis (SW)

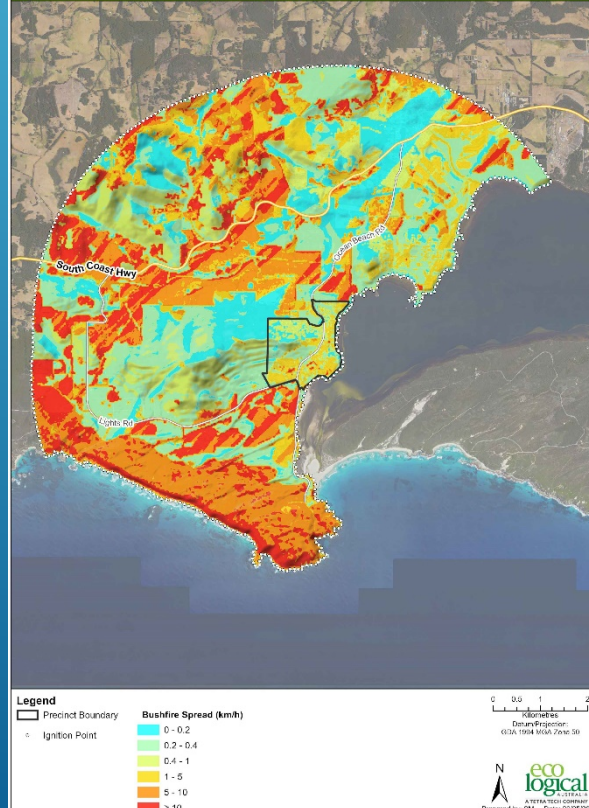
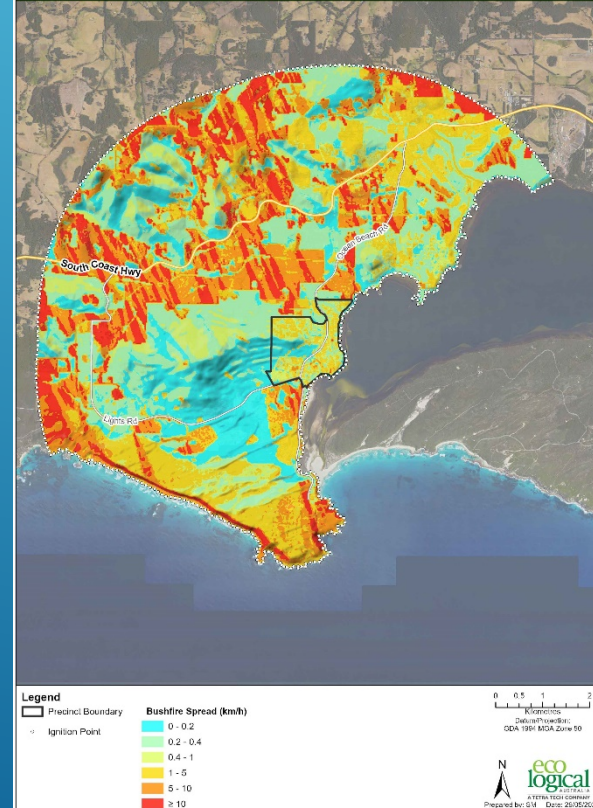
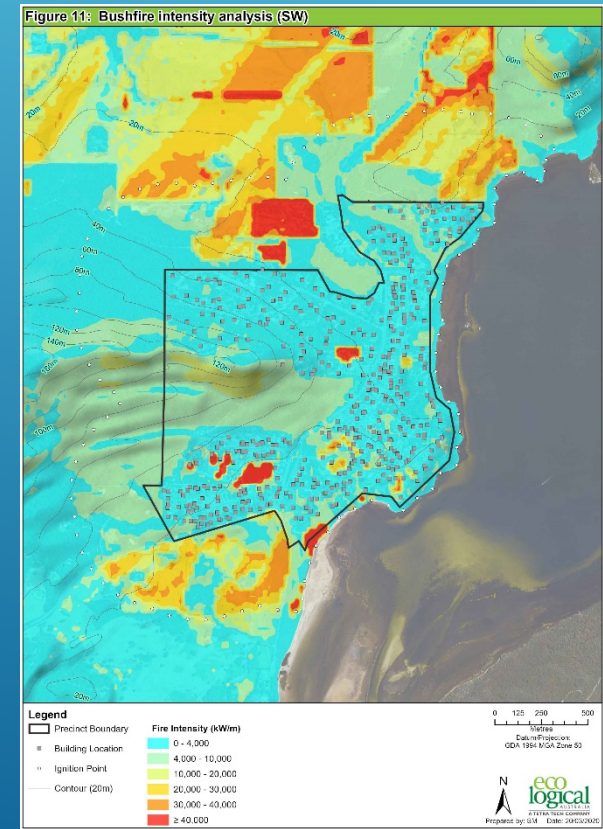
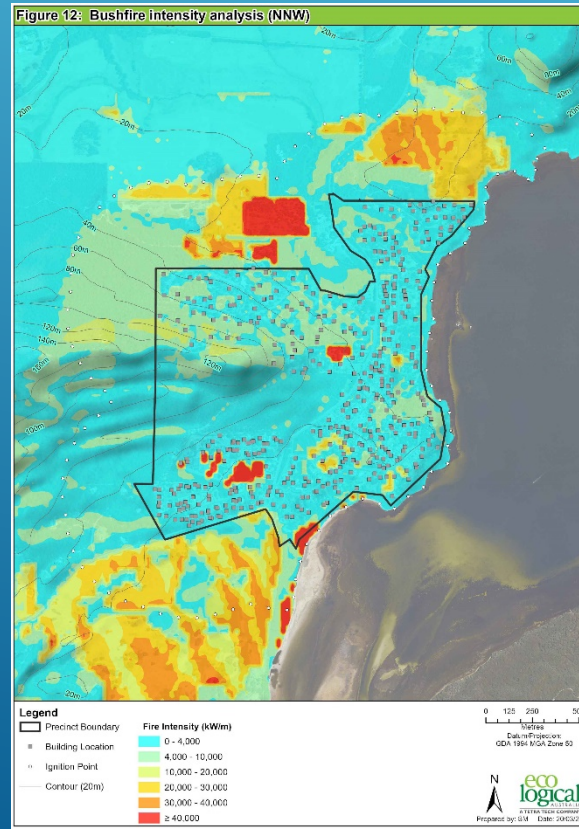
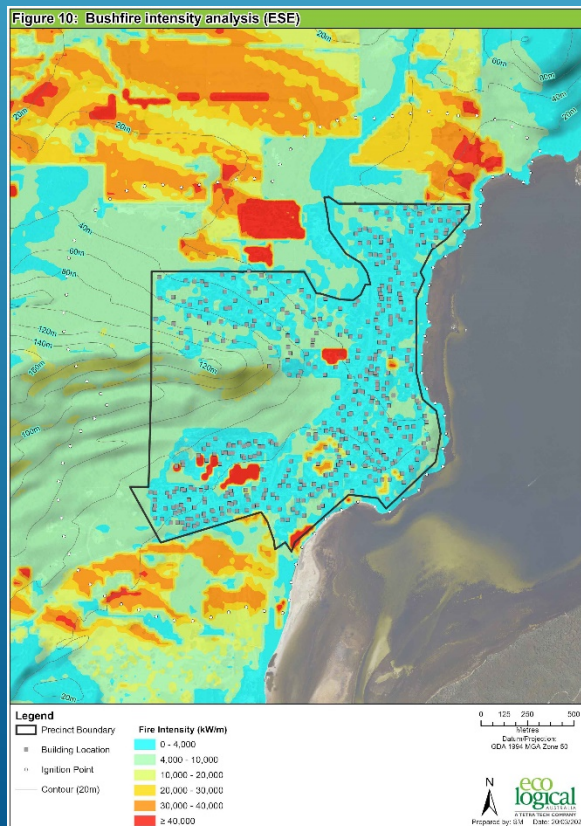


Figure 9: Bushfire rate of spread analysis (NNW)



Locality risk for the Precinct – Bushfire intensity

- To assess the quantity and degree of bushfire hazard in the immediate locality of the buildings associated with the precinct as a measure of the increased potential for more severe bushfire attack.
- Bushfire intensity is a function of the heat yield of fuel, rate of spread and fuel load.
- Fires spreading under a SW wind are modelled to potentially expose buildings within the precinct to the highest bushfire intensity (on average). Potential bushfire intensity from bushfire spreading under NNW wind also has high bushfire intensity.
- Fires spreading under a SW wind are also modelled to potentially expose buildings within the precinct to high bushfire intensity as a result of connectivity of forest vegetation west of the precinct on Weedon Hill, deep into the centre of the precinct itself.
- In general terms, the results indicate that more intense bushfire is possible in the areas immediately north and south of the precinct

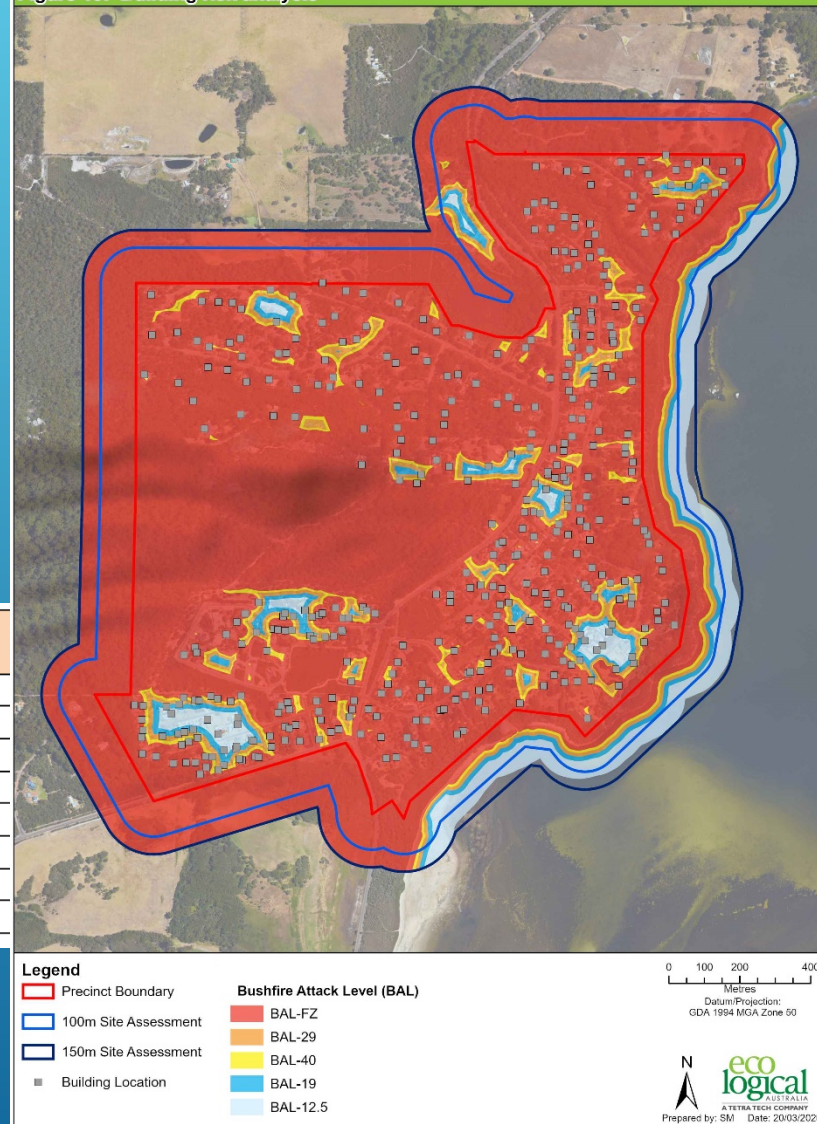


Building risk assessment

- The majority of buildings within the precinct (approx. 84%) occur within areas potentially subject to BAL-FZ (i.e. flame zone) and no buildings were rated as BAL-LOW attributable to the large amount of forest vegetation within and surrounding the precinct
- Regular maintenance of vegetation on private properties as per requirements of all private property owners under the Shire of Denmark 2019/2020 Firebreak and Fuel Management Notice (SoD 2019; and
- Fuel reduction along road reserves would likely result in a major reduction of building risk.

BAL Rating	Number of buildings	% of Buildings
BAL-FZ	371	84.1%
BAL-40	24	5.4%
BAL-29	24	5.4%
BAL-19	12	2.7%
BAL-12.5	10	2.3%
BAL-LOW	0	0
BAL-LOW (100-300 m from hazard)	0	0
Grand Total	441	100%

Figure 13: Building risk analysis



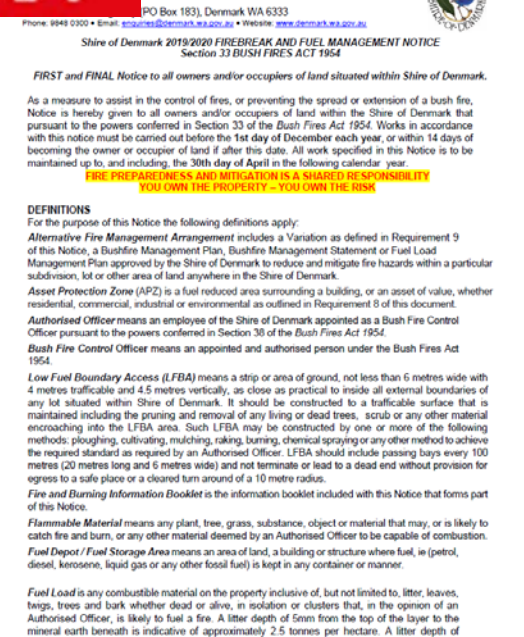
Analysis of evacuation and refuge options

- Early evacuation from the precinct to the Denmark townsite is likely to be the safest option available to residents and visitors. The distance from the precinct to Denmark is approximately 6.2 km travelling north on Ocean Beach Road.
- Travel time by road is expected to take approximately 6 minutes with minimal traffic.
- Single access route to the off-precinct evacuation location, early evacuation, well in advance of a bushfire is recommended.
- Majority of houses within the precinct are old housing stock, and not built to AS3959-2018 (or previous versions). As such, the safety of an on-site sheltering option is not deemed to be high, in most instances. However, sheltering on-site in a well-prepared and defensible property is preferable to being caught out in the open.



On-precinct evacuation

- The analysis of safer place refuge options did not identify any areas of a suitable size within the precinct that could currently be used as a refuge based on the radiant heat flux thresholds.
- The two possible refuge locations reflect: 1. Land in a public reserve that could be developed into a refuge building if appropriate vegetation clearing within the location and surrounds can be undertaken; and 2. Private land that may be able to be acquired to develop a refuge building.
- Early evacuation to Denmark, well in advance of a bushfire is strongly recommended.
- Houses not built to AS3959 are not considered a safe sheltering option.
- Homeowners need awareness of the bushfire risk they are exposed to and comply with the Shire of Denmark 2019/2020 Annual Bush Fire Mitigation Notice (SoD 2019).
- Residents should be encouraged to prepare their own bushfire survival plan.



1

CHOOSE YOUR BUSHFIRE PLAN

Fill out our quick questionnaire to help you decide whether you want to leave early or stay and defend in the event of a bushfire.

Answer yes, no or unsure to each question.

Q1

Who am I putting in danger? Will any children, guests, dependents, elderly or sick household members leave early and be cared for?

☐ NO
 ☐ UNSURE
 ☐ YES

Cost

- Community cost post fire: Trauma, Re-establishment costs and time to rebuild.

"Canberra suffered not just economic loss but significant social devastation. The first person to suffer from the smoke was a 61-year old man in Duffy. He died of asphyxiation fighting the fire in his backyard. Tragically there were also three more to follow, among them an 83-year-old woman and a 37-year-old woman. Many people were affected by depression, particularly those who had lost their homes in the fires. The community began to question the lack of preparation for the fires and the total confusion at the time."

- LGA recovery cost: rebuilding, cost to government.
- Personal cost: trauma and rebuilding.



The red indicates the families and homes destroyed in Duffy



Stakeholder assistance..

Priority and ranking No	Implementation Action	Agency
1	Assist with funding options to private landowners to retrofitting dwellings to BAL and AS3959.	DFES/SEMC & DoHA (fed)
2	Assist with funding options/mechanism through provision of advice to the LGA and private landowners to undertake individual BAL assessments on dwellings to install a compliant APZ associated with BAL-29 or less (where able to achieve) and AS3959 setbacks/APZ area.	DFES/SEMC & DoHA
3	Investigate options for construction of community on precinct refuge area within the precinct and associated vegetation management. Federal assistance may be required.	DFES/SEMC & DoHA (fed)
4	Assist with provision of guiding policy to the LGA on "space open refuge areas" and "community refuge buildings" to assist in development of these areas within the precinct by the LGA/LEMC.	DFES/LEMC
5	Consideration to updating the DFES Homeowner's Bushfire Survival Manual (DFES 2014) or similar public available information to assist with current public available information and dissemination from the LGA.	DFES
6	LEMC to assist with Investigation of options for the construction or designation of an off-precinct community refuge (or safer place) building and associated vegetation management.	LEMC
7	Assist with approvals of bushfire emergency access and egress onto state owned roads for alternative access from cul-de-sac roads/precincts.	MRWA
8	Continue to undertake vegetation management to 20m APZ (low fuel) around all water infrastructure within the precinct as shown on Figure 8. Seek adjacent neighbour compliance to meet 20m protection zone where applicable.	WCWA
9	WCWA assist the LGA by providing baseline mapping of water supply to the precinct/greater town to assist with planning, mitigation and suppression activities.	WCWA
10	DPLH assist through provisions of advice to the LGA with planning strategies and schemes to ensure that SPP3.7 is applied consistently throughout the precinct, especially in regards to access from the north to Harrington Break area and removing cul-de-sacs in any future development proposals which apply.	DPLH

Building bushfire resilience in communities – National strategy for disaster resilience

- “State governments and municipal councils to adopt increased or improved protective management, emergency management and advisory roles.”
- Strive to recognize and understand the risks disasters pose to their own and their communities interests.
- Leaders drive development of partnerships and networks to build resilience at government, business, neighborhood and community levels.
- We have local, state and federal government listening....
- This is your community/precinct and the bushfire risks affect you....



Where to from here..

- How to establish Asset Protection Zones and biological values – talks with the community.
- Stakeholder working groups – from established BRIGS group.
- Bushfire ready group developed.
- Mitigation Activities funding priorities.
- Fire control notice review.
- Continue engaging with community/precinct.



Photo: R.Hedderwick, 2020



Where to from here..lets talk about it its your community..

- Questions
- Suggestions
- Funding options
- Bushfire ready groups
- Stakeholders not considered?
- Next steps from Shire Of Denmark
- Next fire season 2020/21 preparations
- Feedback on the project

