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2nd April 2015

Mr Craig Pursey
Planning Officer
Shire of Jerramungup

Lot 103 Point Henry Rd, Planning Application

Dear Craig,
On behalf of Carol and Gordon Pursell, the owners of Lot 103 Point Henry Rd, I submit this planning application for a modified building envelope, a Class 1a residence and a Class 10a shed.

The following documents are included in the appendices of this application:

1. Plans
    a. A1 Site Plan (31st March 2015)
    b. A2 Envelope Plan (“)
    c. A3 House Plans (“)
    d. A4 Shed Plans (“)
2. TEC Kwongkan Flora Survey by Nathan McQuoid
3. Rainwater Consumption Calculation
4. Pages from AS3959:2009
    a. Bushfire Attack Level Assessment Figure 2.3
    b. Bushfire Attack Level Assessment Table 2.4.3

Envelope Location

The existing building envelope for Lot 103 is delineated on the Short Beach Ridge Estate subdivision guide plan for ‘RRES3’ (rural residential zone 3) ‘Portion of Lot

111, Point Henry Rd'. The Shire of Jerramungup Town Planning Scheme provisions for RRES3 states that the primary objective of development in this subdivision is:

> *"The objective is to facilitate the creation of quality rural-residential retreats in a scenic coastal area, with an emphasis on minimising any detrimental impact on landscape quality and existing natural vegetation and preserving the existing visual amenity of foreground views into Portion Kent Location 111 from Point Henry Road and Short Beach Road, along with views across the land from neighbouring Short Beach".*

This existing building envelope is so positioned to meet this primary objective. It does so by its location at the eastern end of the property, where it lies on an 5 degree downslope which drops away from flat topography adjacent Point Henry Road. In this location, buildings (lower than the prescribed maximum height of 5 metres) would be obscured from view from Point Henry Road.

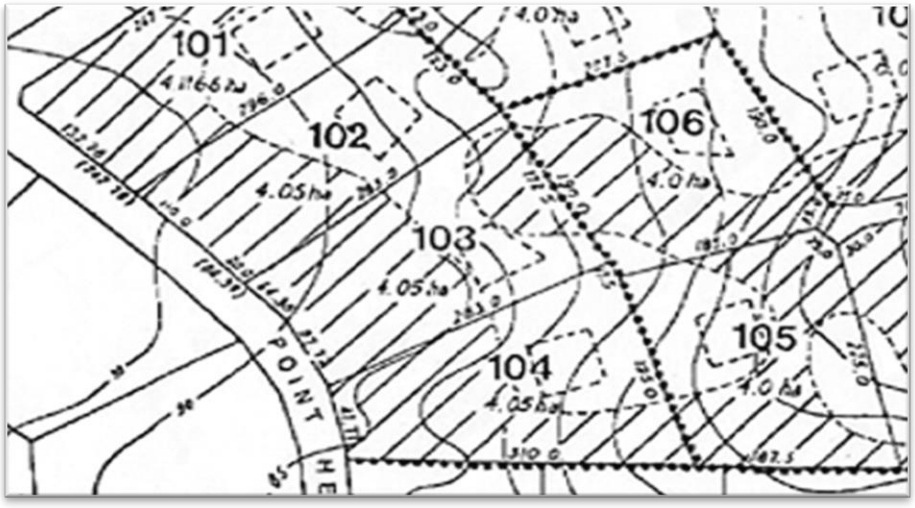


Figure 1. Short Beach Ridge state Subdivision Guide Plan showing Lot 103's designated building Envelope
Author: Land Planning Consultants

Mr and Mrs Pursell purchased Lot 103 in 2003, following their review of the subdivision guide plan, which confirmed their ability to build on their chosen site for their house – which has remained unchanged since the time of purchase.

Modification of the envelope is now sought to accommodate a '3.4' fire appliance turnaround, a shed and 112 kilolitres of rainwater storage – all on flat topography. The shed will be no higher than 3 metres in height and will thus not compromise the primary objective for RRES3.

Vegetation Survey – Kwongkan Shrubland

Following advice from the Shire of Jerramungup's planning officer, a flora survey was conducted by Mr Nathan McQuoid Landscape Ecologist (appendix 2). This survey confirms that 80% of Lot 103 meets the specifications of the nationally listed Threatened Ecological Community (TEC) *Proteaceae Dominated Kwongkan Shrublands of the Southeast Coastal Floristic Province of Western Australia*. 100% of the existing and proposed envelopes are comprised of TEC Kwongkan.

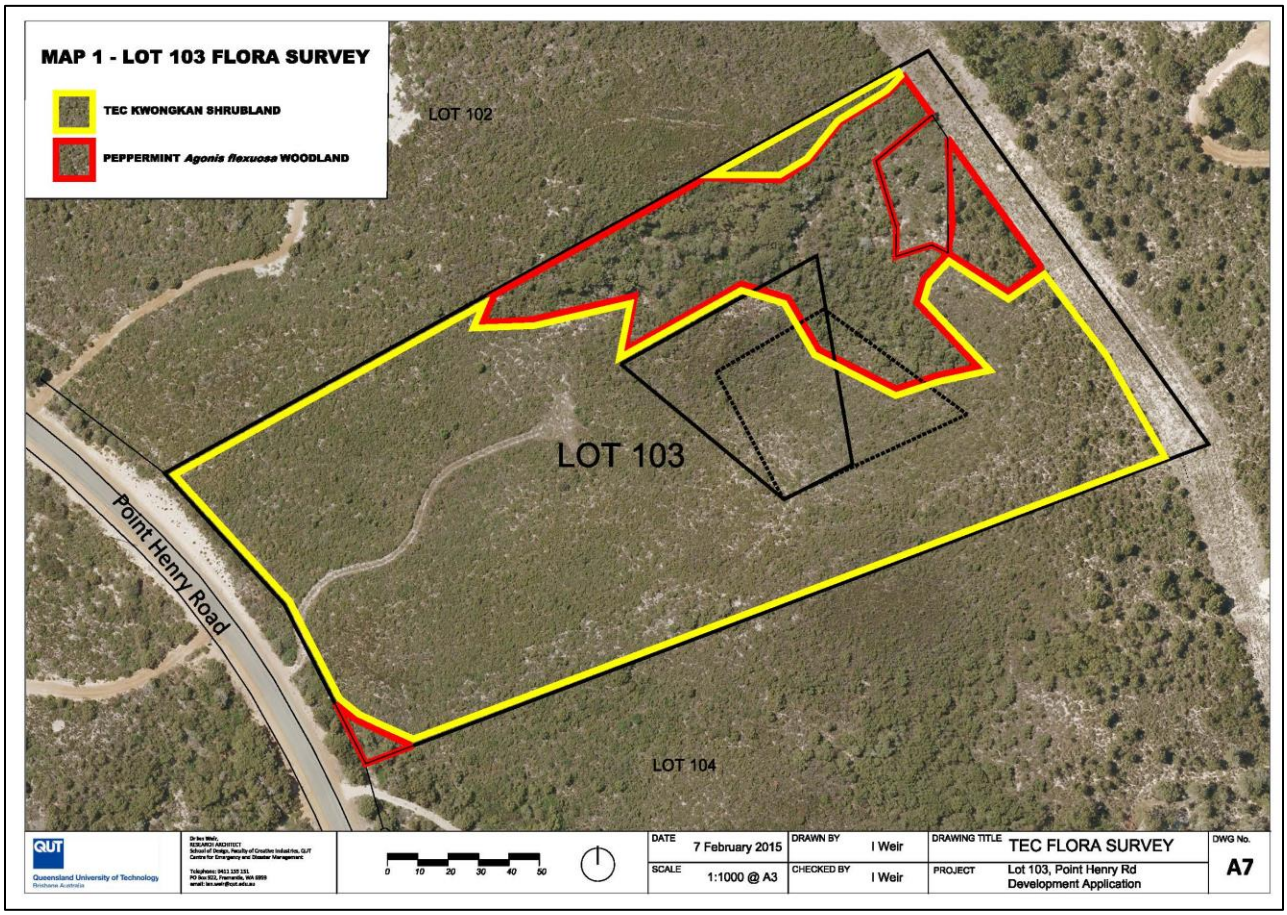


Fig2. Flora Survey by Nathan McQuoid confirming extent of Kwongkan Shrubland on Lot 103.

On Lot 103, there is no alternative to developing within Kwongkan Shrubland. The proposed development minimises impact on the Kwongkan by siting all structures, tanks and the fire unit turnaround within very close proximity – producing a compact, fire-safe development.

Driveway and turnaround

The proposed driveway is 190m long measured from the roadside edge to the house entry. Both the SoJ Policy#18 and State Policy SSP3.7 has been reviewed (page 19, Appendix 4) to ensure the driveway and turnaround complies with, and exceeds all criteria:

- 21m turnaround for 3.4 fire appliances located at 20 metres distance from the house – well within the 50 metre maximum requirement;
- Has a minimum width of 4 metres;
- Has a minimum horizontal clearance to vegetation of 6 metres;
- Has a maximum grade of 8 degrees;
- Has a driveway of no more than 200 metres *without* a passing lane.

Water Consumption and Storage

The development includes:

- 90,000 litres of water tanks for domestic use;
- 20,000 litres dedicated for fire-fighting with 50mm male camlock fitting;
- 2,500 litre gravity feed transfer tank with pump;
- 140 m2 of rainwater catchment – measured horizontally;
- A hard standing access adjacent to the fire-fighting tank.

Water Consumption: 40 kL/yr maximum.
Based on two people full time in the house, with a water wise garden, the annual water consumption is 60 kilolitres per year. (See appendix 3 for water consumption calculation). With a grey water reuse system for recycling the shower water this is calculated downwards to 40 kilolitres per year. The owners will only be residing part time (less than half of the year) so revised downwards again water consumption is 20-30 kL/yr. It is understood that the worst case scenario of 2 people on a full time basis would need to be allowed for.

Water Catchment: 84 kL/yr minimum.
The catchment area of the development, measured horizontally, is 140 m2.

- The annual rainfall is 600-900mm/yr (BOM).
- At 600mm/yr that results in 84 kL of water harvested pa (140 x 600).
- With the water consumption of 40 kL that is a surplus of at least 44 kL/yr.

This is more than sufficient for fire-fighting and for maintaining the 112 kL combined capacity of the water storage tanks. Note: When the house is occupied in dry summer months, or if there is a drought, the water storage of 92,000 is double the consumption – thus providing a 2x ‘safety’ margin.

Bushfire Attack Level Assessment

AS3959:2009

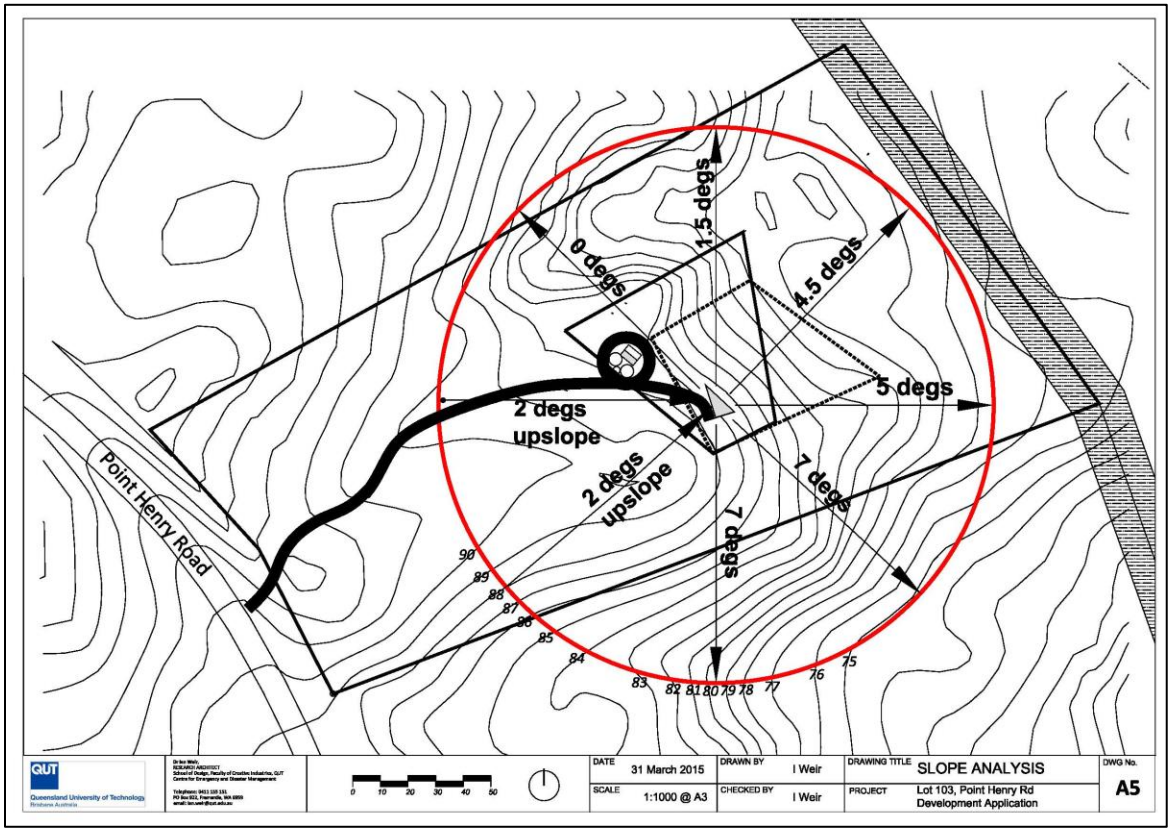
It is noted that the development must comply with AS3959 under the following schemes and policy's:

- Shire of Jerramunup TPS2 for development in *RRES3* subdivision;
- State Planning Policy *SPP3.7* – because development is within 100metres of Bush land and therefore is classified as 'Bushfire Prone';
- Shire of Jerramungup Policy#18 *Point Henry Fire Management Strategy Policy Statement.*

A method 1 (AS3959) Bushfire Attack Level assessment has been undertaken in accordance with these documents. This follows a detailed survey of the site's topography and vegetation.

Slope assessment

The gradients of the topography for a radius of 100 metres have been assessed by undertaking a precise RTKGPS survey of the site. This was extrapolated into 1m contours. In accordance with Policy#18 the gradients have been averaged over the 100 m radius assessment area.

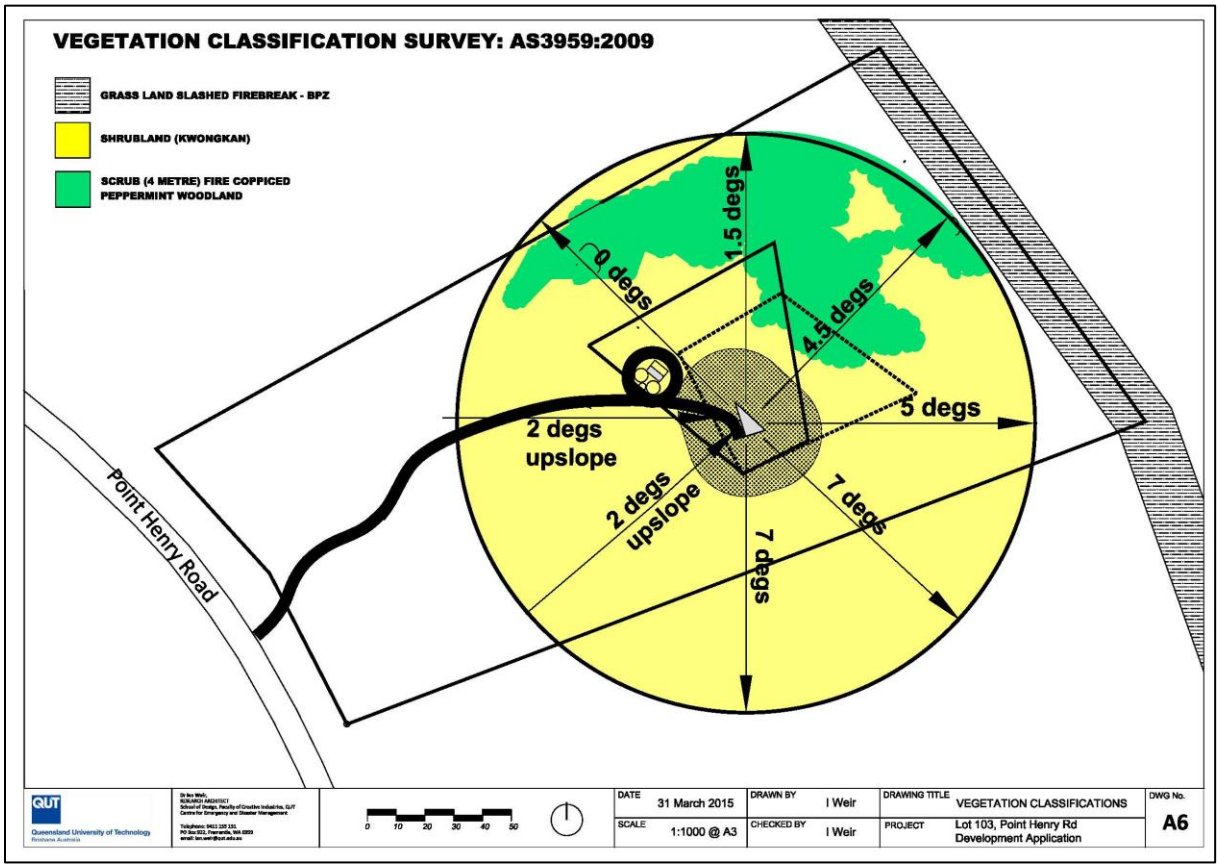


Drawing A5. Slope Analysis: 100m radius from site.

Vegetation Classifications

All vegetation within 100m of the house site was then classified in accordance with table 2.4.3 in AS3959:2009. There are two vegetation classifications:

1. Group C "Shrubland": which is comprised of "Closed Heath" and "Open Heath" This is the banksia-dominated "kwongkan" heath and is the predominant vegetation classification on Lot 103.
2. Group D "Scrub": which is "Closed Scrub" 2-4 m in height. This is dominated by *Agonis flexuosa* (Peppermint Trees).



Drawing A6. Vegetation Classifications to AS3959:2009 within 100m radius from the site.

Bushfire Attack level of Site: BAL-19

Appendix 4 includes the workings of Table 2.4.3 "Determination of Bushfire Attack Level" from AS3959:2009. Under Method 1, the worst case BAL scenario – after applying the 20m building protection zone is BAL-19.

Building Construction Standard: BAL-40

The proposed class 1a dwelling and class 10a shed will be constructed to the higher engineering requirements of BAL-40. This includes the following features:

- Toughened glass windows
- Bushfire shutters
- Non-combustible walls cladding (reinforced concrete and/or metal cladding)
- BAL-40 rated decking
- Non-combustible sheeting to protect to underside of floors.
- No gaps in building exterior (roof walls and floor) greater than 2 mm
- 24 volt solar stand-alone power system – powering water supply.
- Petrol powered fire-fighting pump as required by Policy#18

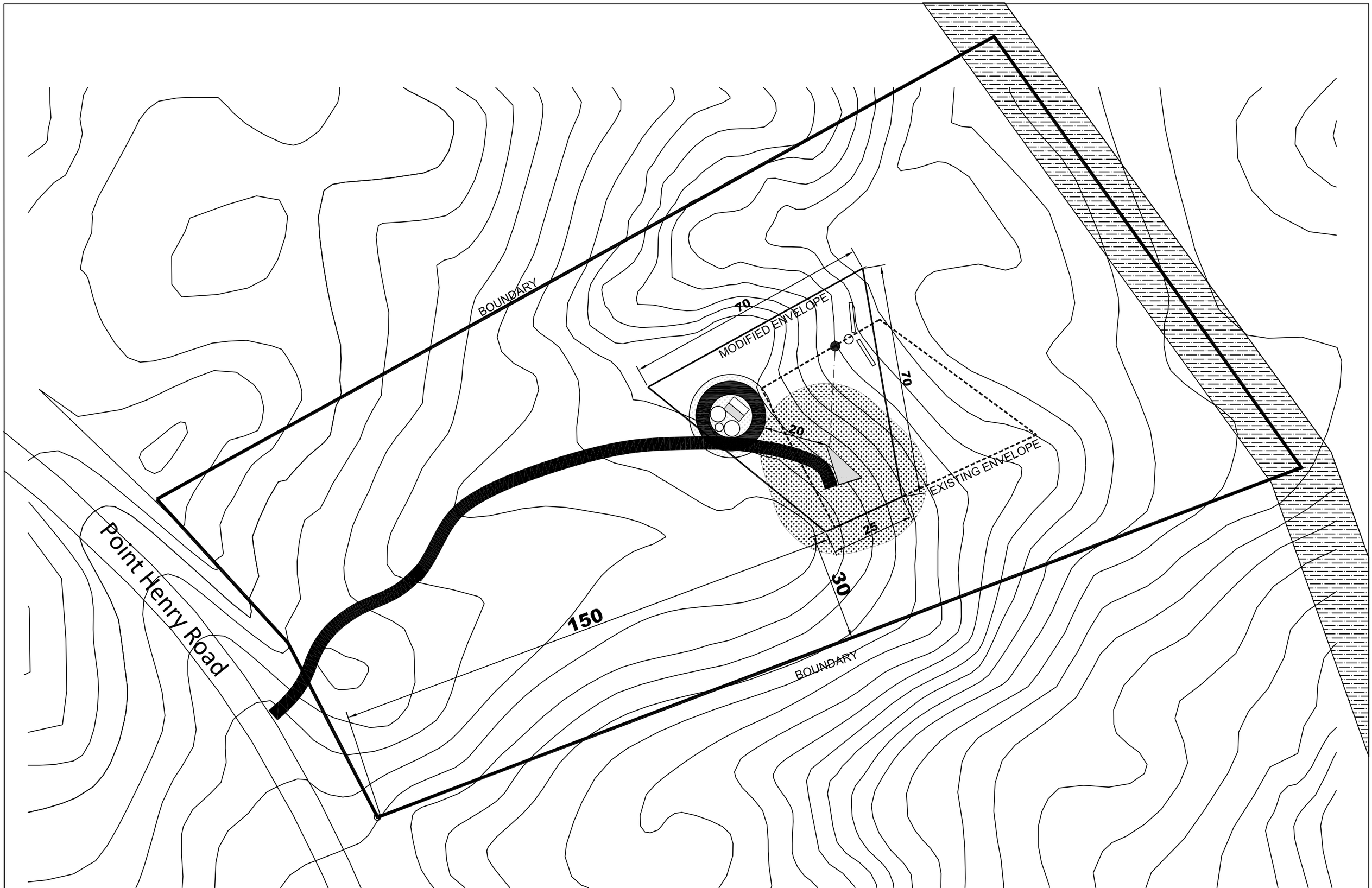
Effluent Disposal System

A conventional septic tank and 2 x 9 metre leach drain system is proposed on level topography in deep sandy soils – on the location shown in the site plan A1 and Envelope Plan A2.

I thank the Councilors and particularly yourself for the detailed advice I have received on this application. Please do not hesitate to contact me if you have any queries whatsoever.

Kind regards,

Dr Ian Weir, QUT



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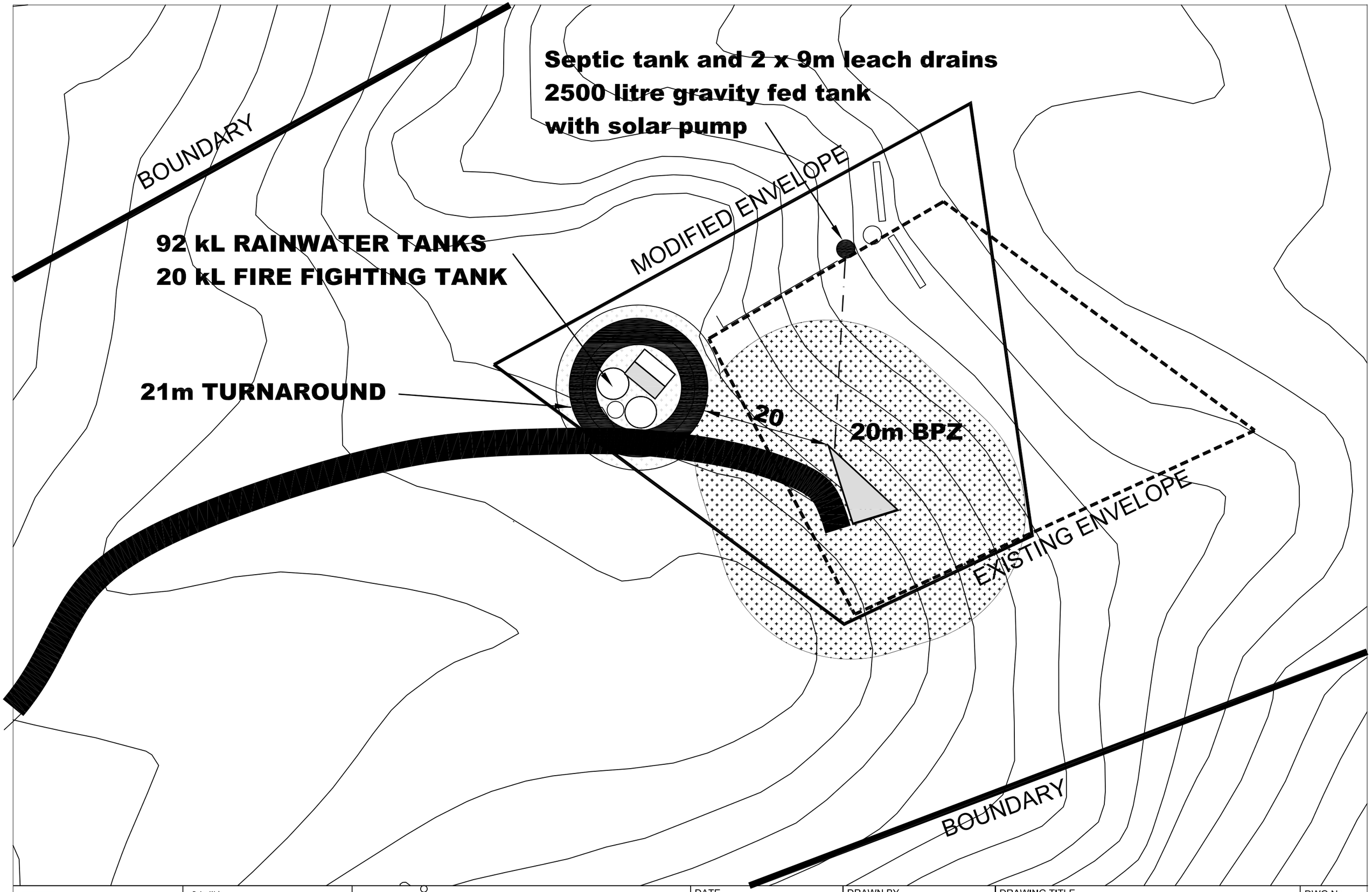
0 10 20 30 40 50

DATE	31 March 2015	DRAWN BY	I Weir	DRAWING TITLE	SITE PLAN
SCALE	1:1000 @ A3	CHECKED BY	I Weir	PROJECT	Lot 103, Point Henry Rd Development Application

DWG No. **A1**



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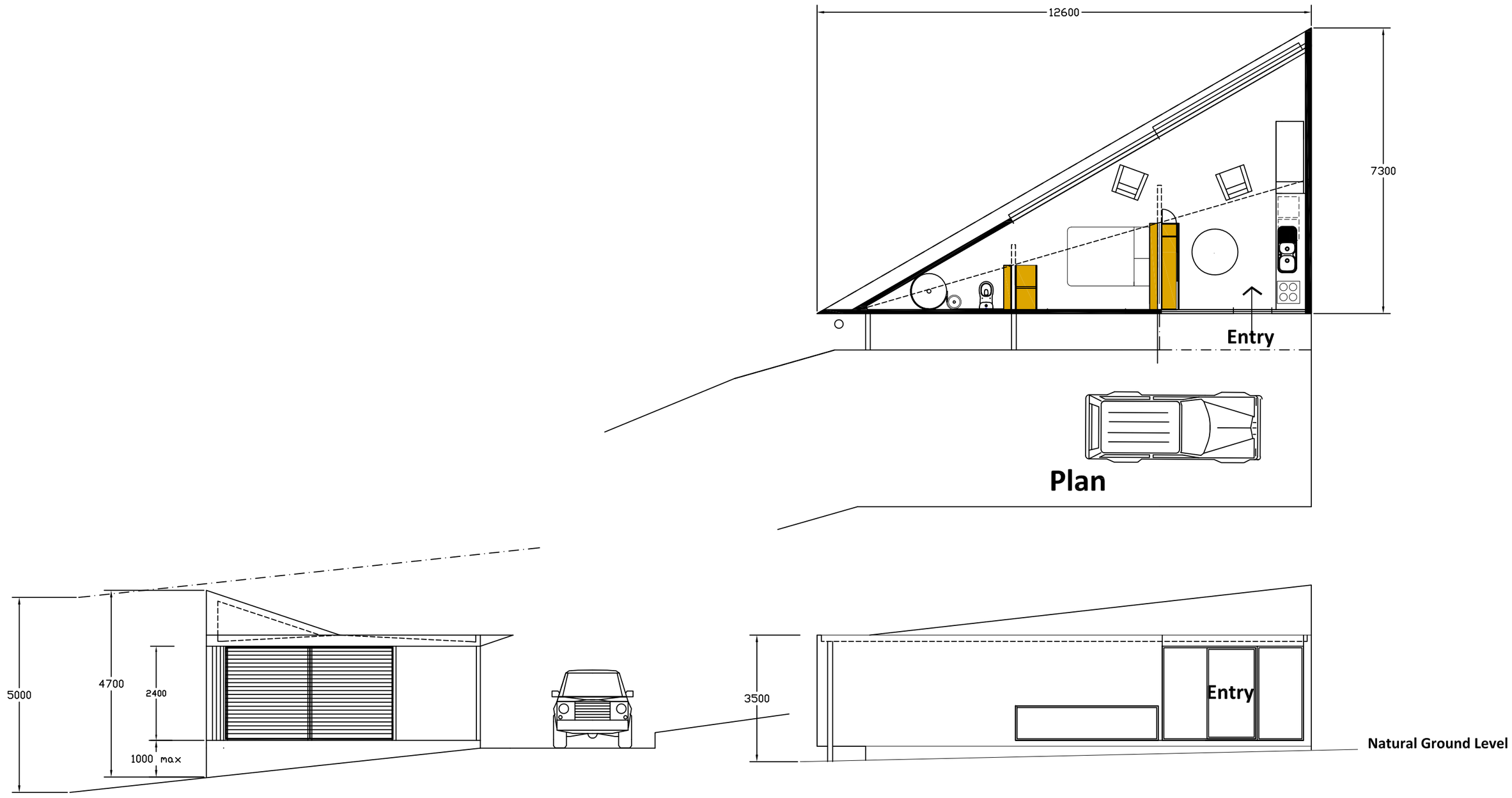
DATE 31 March 2015	DRAWN BY I Weir	DRAWING TITLE ENVELOPE PLAN	DWG No. A2
SCALE 1:500 @ A3	CHECKED BY I Weir	PROJECT Lot 103, Point Henry Rd Development Application	



North Elevation

West Elevation

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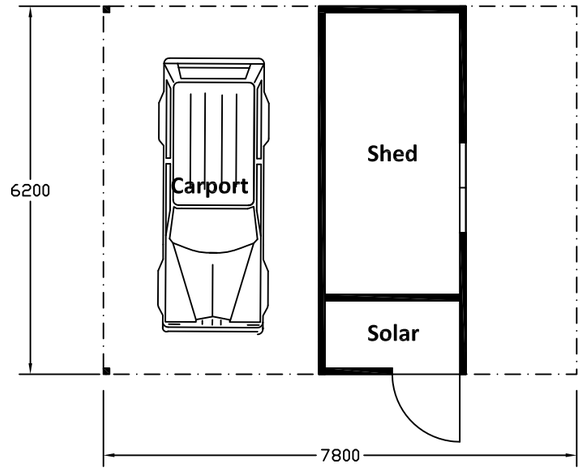
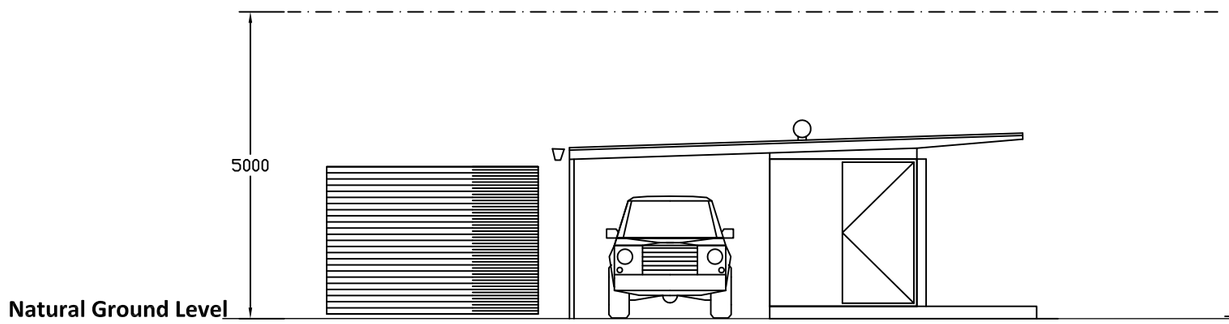
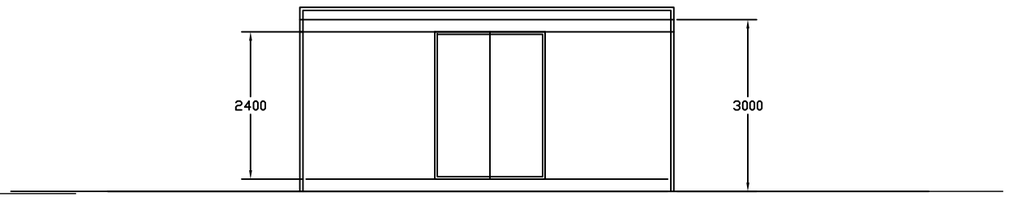
DATE 31 March 2015	DRAWN BY I Weir	DRAWING TITLE DWELLING - CLASS 1A	DWG No. A3
SCALE 1:100 @ A3	CHECKED BY I Weir	PROJECT Lot 103, Point Henry Rd Development Application	



Plan



South Elevation



East Elevation

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0 1 2 3 4 5

DATE 31 March 2015	DRAWN BY I Weir	DRAWING TITLE SHED - CLASS 10A	DWG No. A4
SCALE 1:100 @ A3	CHECKED BY I Weir	PROJECT Lot 103, Point Henry Rd Development Application	

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NATHAN MCQUOID

Kwongkan Vegetation Community

Purcell: Lot 103 Point Henry Rd, Bremer Bay WA 6338

Objective

Describe the extent and character of the kwongkan vegetation community of Lot 103 Point Henry Rd Bremer Bay WA 6338.

Method

Traverse Lot 103 to ascertain the extent and composition of the kwongkan vegetation community. Investigate the presence and extent of the nationally listed Threatened Ecological Community (TEC) *Proteaceae dominated kwongkan shrublands of the southeast coastal floristic province of Western Australia.*

Verify the extent and shape of vegetation communities using aerial images supplied by Architect Dr Ian Weir.

Results

The majority of the vegetation community is that recognised as the nationally listed Threatened Ecological Community (TEC) *Proteaceae dominated kwongkan shrublands of the southeast coastal floristic province of Western Australia*. In short: Proteaceae dominated kwongkan shrubland (Department of Environment 2014).

The kwongkan community sits on and along the side slopes of a limestone ridge running largely east west across Point Henry Peninsula.

The Proteaceae dominated kwongkan shrubland covers close to 75% of Lot 103 (Map 1). A few small areas of kwongkan vegetation are not dominated by Proteaceous plants and therefore do not comprise the TEC, comprising around 5% of the overall, Kwongkan vegetation community (Map 1). The remainder of the vegetation on Lot 103 comprises peppermint (*Agonis flexuosa*) and mallee (*Eucalyptus angulosa*)

dominated woodland and shrubland, and a small area of altered (slashed) vegetation of a firebreak (Map 1).

The Proteaceous taxa that comprise the Proteaceae dominated Kwongkan vegetation is, in order of dominance:

- Parrot Bush (*Banksia sessilis*)
- Nodding banksia (*Banksia nutans*)
- Variable-leaved hakea (*Hakea varia*)
- Candle spike hakea (*Hakea ruscifolia*)
- Harsh hakea (*Hakea prostrata*)
- Couch honeypot (*Banksia nivea*)
- Cauliflower hakea (*Hakea corymbosa*)
- Rose coneflower (*Isopogon formosus*)

One plant of Cauliflower hakea x olive leaved hakea (*Hakea corymbosa x oleifolia*) was recorded. This hybrid has not been observed before and is of botanical interest

Plant taxa from other families co-dominating include: *Anarthria prolifera, Desmocladus flexuosus, Muehlenbeckia adpressa, Platysace compressa, Bossiaea praetermissa, Acrotriche cordata, Clematis pubescens, Hibbertia amplexicaulis, Acacia cochlearis, A. cyclops, Melaleuca thymoides, Leucopogon gibbosus, Allocasuarina humilis, Olax phyllanthi, Spyridium globulosum, Xanthorrhoea platyphylla, Pomaderris myrtilloides, Templetonia retusa, Pultenaea heterochila, Pimelea rosea, Lysinema ciliatum.*

Discussion

The Kwongkan vegetation of lot 103, like the surrounding lots is now around twelve years old since fire. The development of vegetation biomass as fuel for fire appears to have reached a relative climax with the some parts of the understorey as shorter-lived disturbance (fire) responsive legumes (*Acacia litorea, Kennedia spp*.) having recently dropped out. The kwongkan vegetation community will likely continue to reduce in biomass over time from now on.

The slashed area of the end of the driveway and associated turnaround on the flat topography on a limestone plateau is (now) altered kwongkan vegetation comprising the TEC. It is in the process of returning to its structure pre slashing, with proteaceous taxa being present as seedlings (*Banksia sessilis, B. nutans)* and re-sprouters (*Hakea prostrata*). With no more intervention, this altered community will likely return to its previous structure. However, if it were to be slashed again within the next three to five years, the obligate seeding proteaceous plants, particularly the

dominant *Banksia sessilis,* would be removed prior to effective seed set, diminishing and compromising its status as the TEC.

The slashed area (on flat topography) will likely return to maturity, i.e. with sufficient seed for effective recruitment following disturbance and a maximum biomass potential, after around 10 -15 years. Some of the dominant Banksia sessilis will likely continue to grow larger and produce and hold more seed following that time period, although individuals will face attrition along with other taxa in the community. The likely long term result is reduced biomass and increased seed production, the ideal situation to reduce flammability hazard and develop certainty for community replacement.

The Proteaceae dominated kwongkan (TEC) can cope with infrequent disturbance by fire, the order of ten to fifteen year intervals minimum. However, it cannot cope with frequent or infrequent slashing or heavy vehicle traffic as this pressure will remove key components leading to altered composition and structure. Vegetation management of this type on the sloped Building Protection Zone (BPZ) would likely have significant impacts on the TEC leading to its loss on impact sites.

References

Commonwealth of Australia (2014) *Proteaceae Dominated Kwongkan Shrubland: A nationally-protected ecological community* Factsheet. Department of the Environment, Canberra ACT

Young J. (2000). *Hakeas of Western Australia Botanical Districts of Roe and Eyre, the Mallee and Esperance Plains*. Jennifer Young, Perth WA

Nathan McQuoid

February 8 2015

Water Usage Calculator

Want to save water and money!

Our water usage calculator estimates your annual water consumption based on your answers to questions regarding water use in and around the home.

As you move through each section of the house, we will ask you questions about how you use water.

We will calculate your annual water usage and provide you with a plan to help reduce your water consumption, save money and the environment.

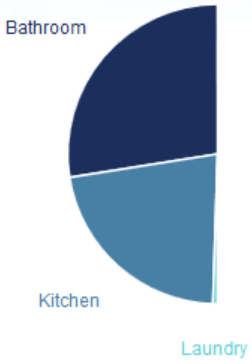
Remember Water Wise Rules are actions to help save water outdoors. Water Wise Rules will take effect from 1 July 2014.

Bathroom | Kitchen | Laundry | Lawn / Garden | Pool | Car / Boat | Results

Results

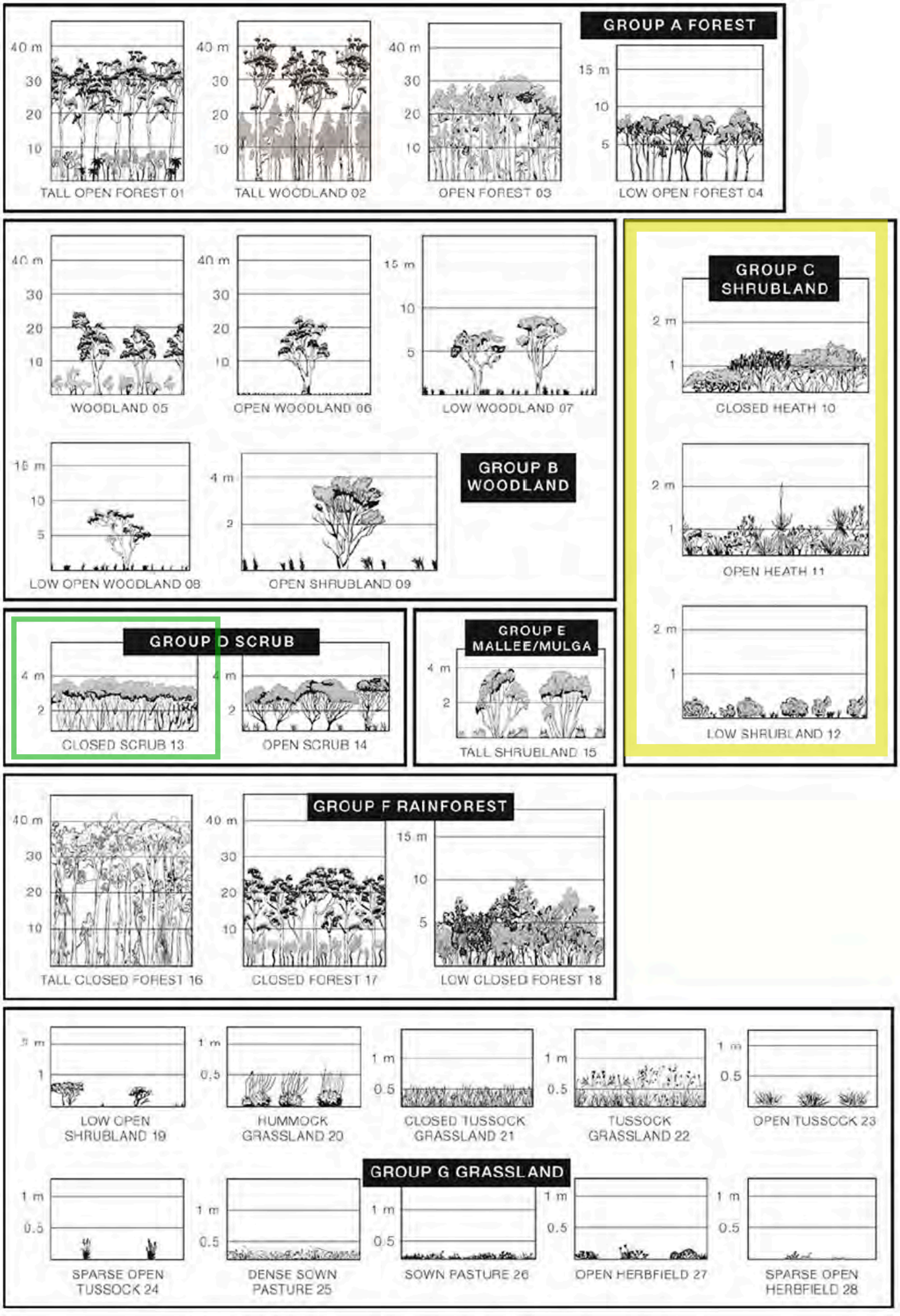
Your Water Usage

Your water usage over a 12 month period is calculated below.



	Your Usage (%)	Your Usage (kL)	Typical Customer Usage (kL)
Bathroom	55%	32	88
Kitchen	44%	26	12
Laundry	1%	1	30
Lawn / Garden	0%	0	32
Pool	0%	0	0
Car / Boat	0%	0	12
Total	100%	59	174

Appendix 4



NOTE: Refer to Figures 2.4(A) to 2.4(G) for greater vegetation detail.

BAL Assessment for Vegetation Classification 1: 'Scrub' (Peppermint Trees)

TABLE 2.4.3

A1
A2

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

Vegetation classification	Bushfire Attack Levels (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
NORTH 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
NE 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

BAL Assessment for Vegetation Classification 2: 'Shrubland' (Kwongkan)

TABLE 2.4.3

A1
A2

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

Vegetation classification	Bushfire Attack Levels (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

NORTH, Nth WEST WEST and Sth West

East and Nth EAST

South and Sth EAST