



Bush Fire Hazard Assessment Report

**For Proposed; Construction of a Swimming Pool and Associated Decking
82 Bynya Rd, Palm Beach. NSW 2108**



17th August 2019

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Abbreviations Used

TFC – The Fire Consultants

PBP 2006 – Planning for Bushfire Protection (NSW Rural Fire Service)

RFS - Rural Fire Service

BCA - Building Code of Australia

EP&A Act- Environmental Planning and Assessment Act 1979

BAL - Bushfire Attack Level

APZ - Asset Protection Zone

FRNSW - Fire Rescue NSW

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Document Control

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82 Bynya Rd	1	18/08/2019	S Brooks	Complete
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Executive Summary

This report has been prepared as a bushfire assessment for the proposed construction of a swimming pool and associated decking located at 82 Bynya Rd, Palm Beach. NSW 2108 in the Municipality of Northern Beaches Council NSW.

The proposal is “infill” development and has been identified as being bushfire prone and is subject to consideration under Section 4.14 of the *Environmental Planning and Assessment Act 1979* (EP&A Act) (NSW RFS 2006).

The proposal has been found to be 14 metres from the nearest bushfire hazard (Forest).

The proposal is found to be in the BAL – FZ range as per Table 2.4.2 of AS3959-2009 Construction of Buildings in Bushfire Prone Areas and will need referral to the NSW Rural Fire Service to meet the aims and objectives of the Building Code of Australia (ASCB 2009). It will also need to meet the requirements of Planning for Bush Fire Protection (NSW RFS 2006).

In NSW BAL-FZ is deemed to be outside the scope of AS3959-2009 as Section 9 BALFZ of AS3959-2009 has not been accepted or adopted by the NSW Rural Fire Service as a set of deem to satisfy provisions. Therefore, the proposed swimming pool and associated decking must be constructed to a varied BAL-FZ under AS3959-2009 with additional measures considered appropriate i.e. Alternate Solutions are required.

This report makes recommendations to assist the proposal being accepted by the NSW Rural Fire Service and Northern Beaches Council.

For the infill of the existing house

Building Elevation	Construction Standard (Bush Fire)
North	BAL -FZ AS3959
South	BAL -FZ
East	BAL -FZ
West	BAL -FZ

1. Introduction

This report forms a Bush Fire Assessment Report to Northern Beaches Council for the purposes of Section 4.14 of the *Environmental Planning and Assessment Act 1979* (EP&A Act). The report identifies that the proposal can meet the requirements of Planning for Bush Fire Protection (2006). This report has been prepared in accordance with the submission requirements of Appendix 4 of Planning for Bush Fire Protection (NSW RFS 2006). The site is identified as being within a Category 1 Bushfire Hazard Vegetation Buffer Zone as per Northern Beaches Council LGA Bushfire Prone Land Map and therefore compliance with Bushfire legislation is required.

The proposed development is to construct a swimming pool and associated decking at the subject Lot.

2. Purpose of this Report

The purpose of a Bush Fire Hazard Assessment report is to provide the consent authority, owners and RFS with a bushfire hazard determination consistent with the aim and objectives of Planning for Bush Fire Protection 2006 (RFS) and Section 4.14 of the EP&A Act 1979. Such report provides the necessary recommendations for new building construction standards and any further bushfire mitigation measures appropriate having regard the hazard and particular circumstances of the development.

The recommendations provided in this report will assist Council and the Owner in proving a construction standard consummate with bushfire safety standards so that a safer level is provided should a bushfire occur on or near the property.

Property Details

Applicant Name: Peter Ristevski

Council: Northern Beaches

Council Reference N/A

Address: 82 Bynya Rd, Palm Beach NSW
2108
Lots 41 DP 14630

Site Area: 719sqm approx.

Zoning E2 – Environmental Living

3. Proposal

The proponent seeks to construct a swimming pool and associated decking at 82 Bynya Rd, Palm Beach. NSW 2108. The site is also known as Lot 41 DP 14630. It is bounded by residential development to the North, South and East.

To the West at 14m, of the proposed swimming pool and associated decking, is vegetation which is deemed as being Category 1 Bushfire Hazard Vegetation within McKay Reserve. The vegetation is classified as Forest Bushfire Hazard Vegetation.

The land is zoned E4 - Environmental Living for residential purposes and the proposal is understood to comply with the requirements of the Northern Beaches Council LEP and DCP. This report only addresses the planning and construction issues relevant to the proposal. The proposal constitutes “infill” development as defined and as such must meet the specifications and requirements in Chapter 4 (section 4.3.5) of Planning for Bush Fire Protection (NSW RFS 2006).

Type of Proposal PBP 2006

<input type="checkbox"/>	New Building	<input checked="" type="checkbox"/>	Urban	<input type="checkbox"/>	Dual Occupancy
<input type="checkbox"/>	Rural Residential	<input checked="" type="checkbox"/>	Alterations/Additions	<input type="checkbox"/>	Isolated

4. Scope of Report and Referenced Documents

The scope of this report is limited to the actual property concerned. A representative of TFC has visited the site and surrounding area but did not enter neighbouring private lands. This report is based on requirements of the EP&A Act, Planning for Bush Fire Protection (2006) NSW RFS (PBP), the Building Code of Australia (BCA) and AS3959 2009-Construction of buildings in Bush Fire Prone Areas. The methodology for this report is based PBP (specifically Appendix 3) and AS3959-2009. Vegetation and site information was gathered from site inspection, Council Vegetation data and Aerial Photos. The report used base drawings as provided by the applicant to TFC.

5. Statement that the site is Bush Fire Prone Land

The land has been identified on the Northern Beaches Council LGA Bushfire Prone Land Map which covers the entire site.

A copy of the bush fire prone land status is shown below (Figure 1).

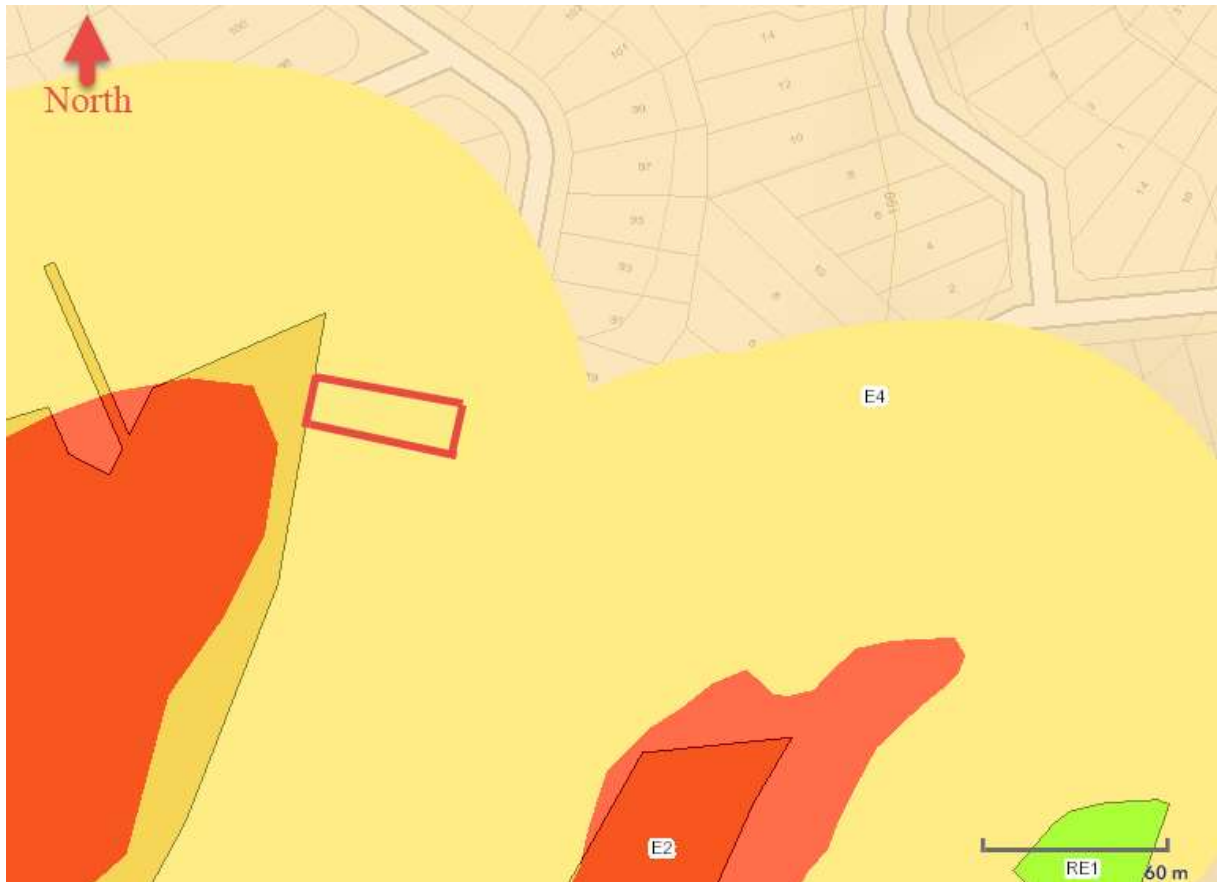


Figure 1: - 82 Bynya Rd, Palm Beach. NSW 2108 Bushfire Prone Land Map (NSW Government 2019). It should be noted that the Bush Fire Prone Land Map above indicates that the site is within a Category 1 Bushfire Hazard Vegetation Buffer Zone

Hazard

Bushfire Prone Land

- Vegetation Category 1
- Vegetation Category 2
- Vegetation Category 3
- Vegetation Buffer



Image 1: Aerial View of the allotment. (NSW Government 2019)

6. Bush Fire Hazard Assessment

6.1 Preface.

This bushfire hazard assessment has been done according to the guidelines of Planning for Bushfire Protection 2006 (NSWRFS) and AS3959-2009, Construction of Buildings in Bushfire Prone Areas. Properties that are located within a designated Bushfire Prone Area as identified by a Council Area Bush Fire Prone Map and Registered with the NSWRFS, must have either a Bush Fire Hazard Assessment or a Bush Fire Hazard Certificate (in certain Complying Development instances) completed and submitted prior to Council or a Private Certifier being able to approve the development.

The proposed development of the construction of a swimming pool and associated decking on this site is infill development and as such must comply with Section 4.14 of the EP&A Act 1979 and PBP 2006.

The property is known as 82 Bynya Rd, Palm Beach. NSW 2108 (Lot 41 DP 14630) and is in a residential area within the Northern Beaches Council Local Government Area. The property has direct access to Bynya Rd which runs to the East of the subject allotment. The vegetation that is a potential bushfire hazard (Forest) is to the West at 14m.

6.2 Location



Figure 2: -Street Location of Property (NSW Government 2019)



Image 2: - Site Aerial. (NSW Government 2019)

6.3 Vegetation.

The vegetation that effects the development and is deemed the "Hazard" is mapped by NSW Government on the applicable Bushfire Prone Land Map as Category 1 Bushfire Hazard Vegetation.

The Lot is predominately clear and the predominant Bushfire Hazard Vegetation formation using "Keith 2004" identification is Forest to the West at 14m of the proposal in McKay Reserve.

There is a small area of vegetation cleared between the subject Lot boundary and the hazardous vegetation but for the purpose of this assessment, this area is deemed a bushfire hazard as the maintenance cannot be guaranteed in perpetuity. Furthermore, there is vegetation to the South-East (Forest – Category 1 Bushfire Hazard Vegetation) but is >100m from the proposal and is therefore not applicable for this bushfire hazard assessment.

The separation distance to the hazard is assessed as follows;

Direction	Distance to Hazard
East	100+m
South	100+m
North	100+m
West	14m



Image 3 – Identifies the area of Forest Classified Vegetation affecting the proposal (NSW Government 2019)



Image 4 – Indicates the distances to Forest Classified Bushfire Hazard Vegetation (NSW Government 2019)



Photo 1 – Indicates the Forest Classified Vegetation to the West of the proposal (Steve Brooks 2019)



Photo 2 – Indicates the understory of the Forest Classified Vegetation to the West of the proposal (Steve Brooks 2019).

6.4 Slope

The slope that would most significantly affect a bushfire is assessed for 100 metres from the building. The slope that is measured is under the hazard. The slope that has been assessed under the Forest Classified Vegetation to the West is 2°Downslope and to the South-West the slope has been determined as 9°Downslope.

The slope which would the most effect on a bushfire, effective slope, is the slope in the South-Western aspect, 9°Downslope.

Direction	Effective Slope
South	N/A
North	N/A
East	N/A
West	2°Downslope
South-West	9°Downslope



Figure 3 - Indicates the degree of slope to the Western and South-Western aspects under Forest Classified Bushfire Hazard Vegetation (NSW Government 2019).

6.5 Asset Protection Zones (APZ)

The current APZ from the proposed swimming pool and associated decking is 14m to the West comprising of minimal distance on actual property and the APZ made up of developed land. All other aspects are more than 100m.

Direction/Aspect	Effective Slope	Distance to Hazard	Required by PBP Table 2.4	Land-use	Vegetation type/Formation	Complies
North	N/A	100+m	N/A	Developed Land/Residential	Managed Land	Yes
South	N/A	100+m	N/A	Developed Land/Residential	Managed Land	Yes
East	N/A	100+m	N/A	Developed Land/Residential	Managed Land	Yes
West	2°Downslope	14m	25m	Forest	Forest	No
South-West	9°Downslope	14m	35m	Forest	Forest	No

Table 1: - APZ distances

The proposal cannot meet the requirements of Table 2.4 Minimal Specifications for APZ as the Western (14m) and South-Western (14m) aspects APZ's do not meet the required 25m & 35m respectively by PBP 2006. Therefore, Section 3.3 Exceptional Circumstances for APZs in PBP 2006 is referenced. The proposal meets the merit-based assessment of exceptional circumstances in Section 3.3 of PBP regarding meeting current APZ requirements via:

-In NSW BAL-FZ is deemed to be outside the scope of AS3959-2009 as Section 9 BAL-FZ of AS3959-2009 has not been accepted or adopted by the NSW Rural Fire Service as a set of deem to satisfy provisions. Therefore, the proposed swimming pool and associated decking must be constructed to a varied BAL-FZ under AS3959-2009 with additional measures considered appropriate i.e. Alternate Solutions are required

-The proposal will not be closer to the Category 1 Bushfire Vegetation - Forest than neighbouring properties.

-The proposal is an infill development and the site constraints do not allow APZ requirements to be met

-The proposal allows for the minimum defendable space on all sides of the building envelope.



Image 5 – Indicates the APZs for the proposed swimming pool and associated decking (NSW Government 2019)

6.6 Access for Fire Services and Escape

The subject property has direct access to Bynya Rd which allows an egress route to safety. The road is surfaced and suitable for fire appliances. Should occupants be required to escape the area in emergency then they should be able to do so.

Access is therefore considered suitable.

6.7 Water Supply

The site is connected to mains pressure reticulated water supply and there are fire hydrants located in Bynya Rd. The nearest Reticulated Mains Pressure Hydrants are located outside No's 78 & 90 Bynya Rd. Furthermore, the proposed swimming pool will also be available for a firefighting water supply (Static Water Supply).

6.8 Environmental Impact

It is not proposed that any further environmental impact will occur due from the proposed swimming pool and associated decking.

6.9 Electricity Services

The site is provided with electricity direct from underground transmission lines.

6.10 Gas Services

Any gas connection is installed and maintained in accordance with AS1596, metal piping should be used.

6.11 Hazard Assessment Determination

PBP refers to the appropriate construction standard for a development as determined by Tables contained within AS3959- 2009 "Construction of buildings in Bushfire Prone Areas." This provides a recommendation for the Bush Fire Attack (BAL) Level required for a development. The following Bush Fire Attack Levels have been determined for 82 Bynya Rd, Palm Beach. NSW 2108.

FDI Appropriate to Development – Northern Beaches Council LGA 100
AS3959 Table 2.4.2

Direction/ Aspect	Distance to Vegetation	Vegetation Formation	Slope in degrees	Construction Requirements AS3959-2009
North	100+ metres	Developed	N/A	BAL- LOW
South	100+metres	Developed	N/A	BAL-LOW
East	100+metres	Developed	N/A	BAL-LOW
West	14 metres	Forest	2°Downslope	BAL-FZ
South- West	14 metres	Forest	9°Downslope	BAL-FZ

Table 2: - Summary of Building Compliance Requirements AS3959-2009.

The site has been found to be in the BAL-FZ range. In NSW BAL-FZ is deemed to be outside the scope of AS3959-2009 as Section 9 BAL-FZ of AS3959-2009 has not been accepted or adopted by the NSW Rural Fire Service as a set of deem to satisfy provisions. Therefore, the proposed swimming pool and associated decking must be constructed to a varied BAL-FZ under AS3959-2009 with additional measures considered appropriate i.e. Alternate Solutions are required.

PBP allows where more than one facade is exposed to a hazard, then the facade with the highest requirement is used to determine the appropriate level of construction. Other facades may be reduced by one level of construction unless that facade is also subject to the same level of bush fire attack. Should the highest level be BAL-12.5 then the entire site shall be deemed as BAL-12.5.

The proposed dwelling must also comply with the specification and requirements of Section 4.3.5 of *Planning for Bush Fire Protection, Infill development*. This assessment is provided below in detail.

Performance requirement Chapter 4 PBP 2006	Acceptable Solution	Compliance
in relation to siting and design: • The existing building is sited and designed to minimise the risk of bush fire attack.	Buildings are designed and sited in accordance with the siting and design principles in this section (see also figure 4.7).	Yes – the proposed swimming pool and associated decking is in a cleared area allowing for firefighting on all sides and evacuation
in relation to Asset Protection Zones: • A defensible space is provided onsite. • An asset protection zone is provided and maintained for the life of the development.	APZ determined in accordance with Appendix 2 and Section 3.3 Exceptional Circumstances for APZs.	No – See comments above (page 17 APZ) for comments regarding Section 3.3 Exceptional Circumstances for APZ
in relation to construction standards: • It is demonstrated that the proposed building can withstand bush fire attack in the form of wind, smoke, embers, radiant heat and flame contact.	Construction determined in accordance with Appendix 3	Yes – The BAL for the proposed swimming pool and associated decking is determined as being BAL-FZ for all facades
in relation to access requirements: • safe, operational access is provided (and maintained) for emergency services personnel in suppressing a bush fire while residents are seeking to relocate, in advance of a bush fire.	Compliance with section 4.1.3 for property access roads. Compliance with section 4.2.7 for access standards for internal roads.	Yes - Existing Road system. driveway meets width requirements and does not place Firefighters at risk Access available away from hazard.
in relation to water and utility services: • adequate water and electricity services are provided for fire- fighting operations • gas and electricity services are located so as not to contribute to the risk of fire to a building.	Compliance with section 4.1.3 for services - water, electricity and gas.	Yes- The site is connected to mains pressure reticulated water supply Electrical supply as per existing. Gas not exposed to radiant heat or flame nor landscaping elements for embers.
in relation to landscaping: • it is designed and managed to minimise flame contact and radiant heat to	Compliance with Appendix 5 of <i>Planning for Bush Fire Protection</i> (2006)	Yes No significant planting under windows or other exposed

buildings, and the potential for wind driven embers to cause ignitions.		elements of house – considered acceptable.
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Table 3: Compliance with Specifications and Requirements of *Planning for Bush Fire Protection*. Chapter 4

Compliance with Specific Objectives PBP as per 4.3.2

Objective	Details
Ensure that the bushfire risk to adjoining land is not increased	The development does not add to the bushfire risk
Provide Minimum Defendable Space	A defendable space is provided
Provide better bushfire protection, on a redevelopment site, than the existing situation. This should not result in any new works being exposed to a greater risk than the existing building.	The proposal will be built to BAL-FZ construction standards and will provide a greater level of protection than that of the existing dwelling that was built before requirements.
Ensure the footprint of the proposed building does not extend towards the hazard beyond existing building lines on neighbouring land.	The development is for the construction of a swimming pool and associated decking and does not extend the building envelope.
Not result in an increased bushfire management and maintenance responsibility on adjoining landowners unless they have agreed to the development	The development does not increase hazard or bushfire management on adjoining lands
Ensure Building design and construction enhance the chances of occupant and building survival	The recommendations enhance the existing structure and survival

7 Recommendations

- The proposed swimming pool and associated decking must be constructed to a varied Section 9 BAL-FZ of AS 3959-2009 for all facades.
- However, any material, building element or system when tested to the method described in AS1530.8.2 Tests on elements of construction for buildings exposed to simulated bushfire attack – Large flaming sources shall comply with Clause 13.8 of that Standard except that flaming of the specimen is not permitted.
- Decking shall be either spaces or continuous and there is no requirement to enclose the subfloor spaces of decks.

Enclosed subfloors of decks.

Materials to enclose a subfloor of a deck:

- The material used to enclose the subfloor space must comply with Clause 9.4 (External Walls).
- All gaps greater than 3mm are to be screened with a mesh or perforated sheet with a maximum aperture of 2mm and be made from corrosion resistant steel or bronze.

Supports

- This Standard does not provide construction requirements for support posts, columns, stumps, stringers, piers and poles.

Framing

This Standard does not provide construction requirements for framing.

Decking

Decking shall have no gaps and be:

- a) Of non-combustible material or,
- b) A fibre-cement sheet or,
- c) A system complying with AS 1530.8.2 or,
- d) A combination of a, b, c above.

The entire site is deemed an Inner Protection Area and be maintained in accordance with an Asset Protection Zone as described by the NSW RFS document “Standards for Asset Protection Zones”. Furthermore, any landscaping gardens and the like should comply with Appendix 5 PBP 2006

Any future gas connection is installed and maintained in accordance with AS1596, metal piping should be used.

Any fencing must comply with NSW Rural Fire Service Practice Note 2/06 'Fences or Gates in Bush Fire Prone Areas' and be non-combustible

It is recommended that Northern Beaches Council and the NSW Rural Fire Service approve the proposed swimming pool and associated decking at 82 Bynya Rd, Palm Beach NSW 2108 in respect to Bush Fire Requirements.

7.1 Environmental Impact of any proposed bushfire measures

Measure	Environmental Impact	Comment
APZ	No Impact	APZ already in existence and no change planned
Construction	No Impact	Constructed on existing envelope
Water Supply	No Impact	Existing supply
Utilities	No Impact	Existing supplies
Vehicle Access (Boat)	No Impact	Direct access to water way

8. Conclusion

The proposed swimming pool and associated decking for 82 Bynya Rd, Palm Beach NSW 2108 can meet the planning requirements of Planning for Bush Fire Protection (NSW RFS 2006) and the Building Code of Australia in relation to construction (ABCB 2015).

The Bushfire Attack Level for the proposed swimming pool and associated decking has been determined to be BAL FZ. In NSW the NSW Rural Fire Service doesn't recognise Section 9 – Construction for BAL-FZ in AS3959-2009 as a deem to satisfy solution and therefore this proposal must satisfy the performance requirements of Section 9- BAL-FZ Construction. We have recommended that the proposed swimming pool and associated decking be constructed to meet the performance requirements of Section 9 - BAL FZ with varied conditions under AS3959 – 2009.

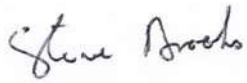
The required Asset Protection Zones determined from Table 2.4 of PBP 2006 meet the intent of Section 3.3 of PBP 2006.

In accordance with the bushfire measures contained with this report and the site-specific assessment as per PBP and AS3959, it is our opinion that combined will provide a satisfactory level of bush fire safety to the property and satisfies the requirements of the RFS and Councils obligations for this area.

In accordance with the bush fire measures contained with this report and the site-specific assessment as per PBP and AS3959, it is our opinion that combined will provide a satisfactory level of bush fire safety to the property and satisfies the requirements of the RFS and Councils obligations for this area.

*The **Council** can determine the matter as complying with the specifications and requirements Planning for Bush Fire Protection and Section 4.14 of the EP&A Act (NSW RFS 2006).*

Prepared by Steve Brooks



BPAD - Certification No. 40765

Graduate Diploma Bushfire Planning and Design (UWS)

Graduate Certificate in Fire Investigation (CSU)



Reviewed by Jim Murphie



Grad Dip Bushfire Planning, FPAA BPAD Level 3 Construction in bushfire prone areas

Grad Cert Fire Engineering

Grad Int Fire Engineers Assoc



FPA Australia Corporate Member

References.

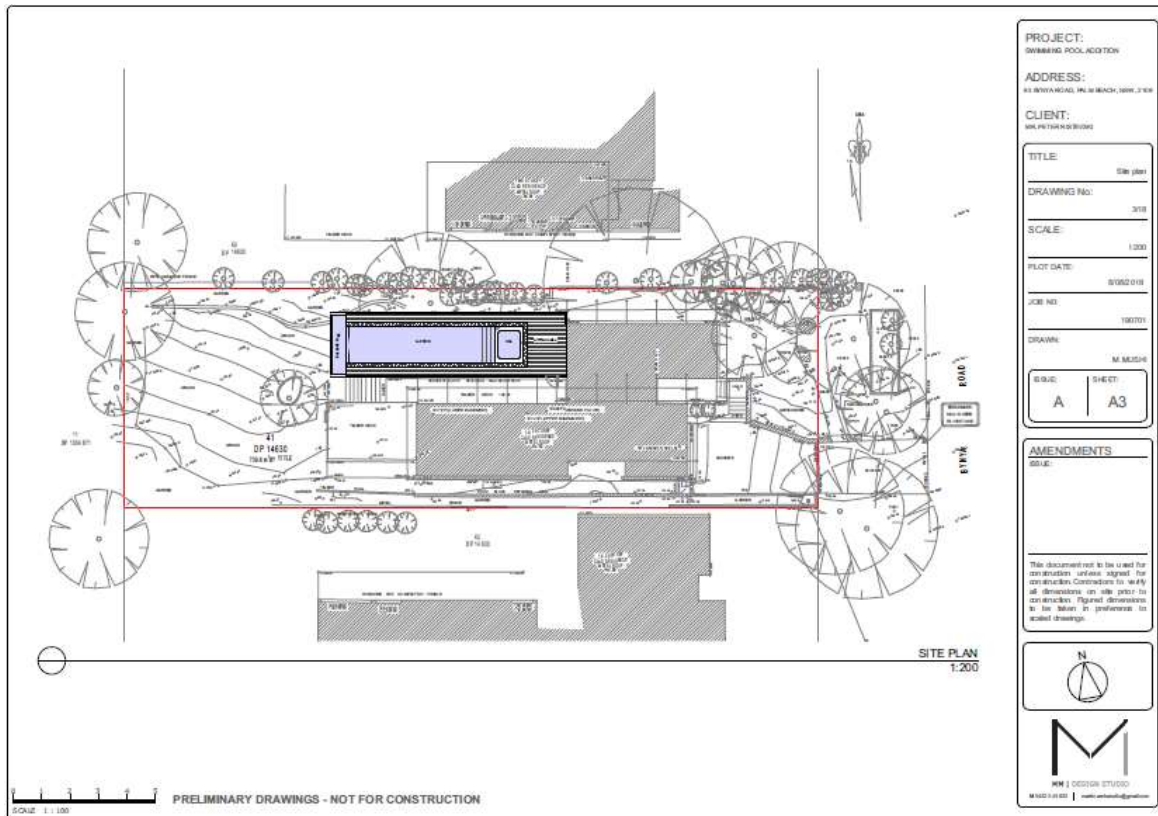
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- NSW Government E-Planning Spatial Viewer 2019

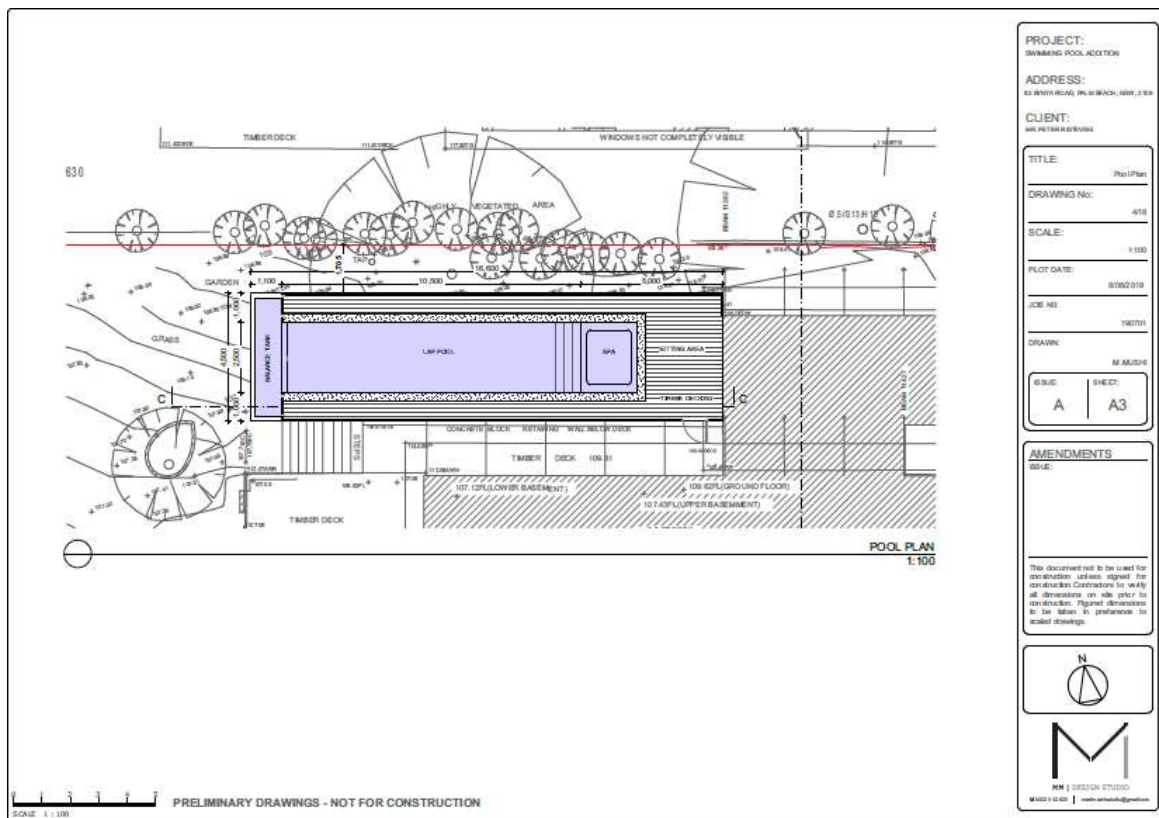
Disclaimer

Disclaimer: Quote from Planning for Bushfire Protection, “notwithstanding the precautions adopted, it should always be remembered that bushfires burn under a wide range of conditions and an element of risk, no matter how small always remains”. Although the standard is designed to improve the performance of the building, there can be no guarantee, because of the variable nature of bushfires that any one building will withstand bushfire attack on every occasion.

The opinions and assessment in regard to bushfire development in a Bushfire Prone Area given by TFC are therefore given in good faith.

Appendix 1 Plans as supplied by the applicant.











Appendix 2

Site Photos.



Photo 3 – Indicates the mains reticulated fire hydrant located outside No.78 Bynya Rd (Steve Brooks 2019).



Photo 4 – Indicates where the proposed swimming pool and associated decking will be located in the rear yard of the subject Lot (Steve Brooks 2019)



Photo 5 – Indicates the access along Bynya Rd looking South (Steve Brooks 2019)