Couch Family Trust T/A
Newcastle Bushfire Consulting

[redacted]

20th May, 2020

Professor Mary O'Kane AC and Mr Dave Owens ACM,
NSW Independent Bushfire Inquiry

RE: Newcastle Bushfire Consulting Submission to the NSW Independent Bushfire Inquiry

Dear Sir and Madam,

This submission is prepared by Phillip Couch, director of Newcastle Bushfire Consulting. I am a Bushfire Planning and Design (BPAD) accredited Bushfire Planning Consultant who has been practicing in the field of bushfire design for 15 years throughout New South Wales. I am familiar with the bushfire planning legislation and construction standards since their inception and have been a member of technical advisory committee TAC-20 Bushfire and assisted with NSW RFS - BPAD Working committee since they commenced.

Newcastle Bushfire Consulting supports the establishment of the NSW Independent Bushfire Inquiry and hopes that government and the community of NSW can learn from the tragic bushfires of 2019 and 2020, resulting in a more resilient community through better planning and preparation.

This submission is intended to provide comments on areas for improvement for the current bushfire planning system and suggest ways to improve that system.

This submission examines the below points:

- The Assessment of Bushfire Risk within the Planning System
- Bushfire Planning and Design (BPAD) Accreditation Scheme
- Bushfire Design Briefs
- Fire Weather Research and the NCC Bushfire Verification Method

Assessment of Bushfire Risk within the Planning System

Under the current planning system in NSW, anyone can submit a bushfire assessment. NSW RFS identified during a presentation to the Canada Bay Club in 2019 that not only will the NSW RFS single dwelling kit be retained to allow anyone to submit a bushfire assessment, but a web based decision support system will be provided, to make it even easier.

An uninsured person with no requirement to demonstrate skills, no knowledge in bushfire behaviour, bushfire fighting, or emergency management is able to prepare a

bushfire assessment to accompany a development application. My understanding of the intent of the NSW RFS single dwelling kit for bushfire and the NSW RFS web based decision support system is to support homeowners submitting bushfire assessments however often builders, building designers and other parties prepare the assessments with no bushfire specific training.

Often these bushfire assessments are incorrect, and they do not consider essential safety measures like safe operating space for fire fighters or property access requirements. Moreover, higher bushfire risk sites including BAL-40 and BAL-FZ (Flame Zone) which Planning for Bush Fire Protection identifies as performance based solutions, can be submitted by anyone.

Even the highest risk sites, where buildings are less than 10 metres from bushland, can have anyone assess the bushfire risk and submitting a bushfire assessment. This results in developments that are incorrectly assessed and may need to be redesigned once approved, as they cannot be built to comply with current bushfire standards and in some situations should not be built.

Recent experiences have identified NSW RFS receiving incorrect NSW RFS Single Dwelling Kits for bushfire and NSW RFS providing unjustified performance based solutions. This exposes NSW RFS to risk, and it is completed subjectively and sporadically, encouraging people to submit incorrect NSW RFS Single Dwelling Kit bushfire assessments and have them corrected free of risk or charge. This issue was raised with an NSW RFS Planning and Environment Services (PES) officer with him citing that he can do that, and he indicated a significant workload, thinking that he dealt with the problem quicker by not requesting a performance based bushfire assessment justifying the bushfire design.

This is not a criticism of the PES officer but a reflection of how the BPAD system is undermined. By shortcutting, the current approval system NSW RFS is encouraging incorrect bushfire assessments to be submitted by people with no bushfire specific training and exposing NSW RFS to potential litigation.

By allowing developments to be approved where there is a BAL-FZ bushfire attack level without appropriate design considerations due to anyone being able to submit a bushfire assessment, it can lead to buildings being built inappropriately, or significant delays as the development is redesigned in a manner that it should have been done so in the first place.

At present the only scenario requiring an accredited bushfire consultant to prepare a bushfire assessment is State Environmental Planning Policy (Exempt and Complying Development Codes) 2008 (Codes SEPP). This allows development that is BAL-29 or

lower and complies with other relevant bushfire planning constraints, to be reviewed by a certifying authority and not referred to NSW RFS. This leads to far quicker development approval.

Environmental Planning and Assessment Act 1979 Section 4.14 Consultation and development consent—certain bush fire prone land, clause 1 (b) redacted is repeated below:

"(1) Development consent cannot be granted for the carrying out of development for any purpose (other than a subdivision of land that could lawfully be used for residential or rural residential purposes or development for a special fire protection purpose) on bush fire prone land (being land for the time being recorded as bush fire prone land on a relevant map certified under section 10.3(2)) unless the consent authority:

> (b) has been provided with a certificate by a person who is recognised by the NSW Rural Fire Service as a qualified consultant in bush fire risk assessment stating that the development conforms to the relevant specifications and requirements."

The above legislation is sometimes ignored by local government, with some council officers still referring bushfire certificates to NSW RFS, due to risk aversion, or a lack of bushfire specific training. This is leading to unnecessary time delays on developments and unnecessary, increased workload for NSW RFS. The vast majority of the applications referred to NSW RFS that do comply with the acceptable solutions of Planning for Bush Fire Protection will not have a physical site inspection completed by NSW RFS. Often a desktop study is completed from hundreds of kilometres away from the site, without the advantage of the latest aerial photography, the most accurate topographical data, and a physical site visit. The value adding of a parallel desktop review by NSW RFS to the development approval process, particularly for acceptable solutions that are BAL-29 or less is questionable.

NSW RFS have discussed for many years the intention of ceasing the referral of acceptable solutions for infill development. By reducing the high workloads that this creates for NSW RFS it will allow focus on higher risk development or provide an audit role to ensure that BPAD accredited consultants are accurately assessing bushfire attack. FPAA presently provide an audit role for the same purpose.

Recommended Outcomes Assessment of Bushfire Risk within the Planning System

1. The NSW RFS Single Dwelling Kit for Bushfire Assessment and web based decision support system should be removed from public access.
2. All bushfire assessments for performance based solutions including BAL-40 and BAL-FZ should be completed by an accredited bushfire consultant.

3. NSW RFS should cease providing advice on bushfire assessment acceptable solutions for infill development where a BPAD consultant has issued a bushfire certificate.

Bushfire Planning and Design (BPAD) Accreditation Scheme

BPAD Consultants provide professional bushfire assessment of new developments and design advice for compliance with current legislation and construction standards. Other activities that I personally engage in as a BPAD consultant includes emergency management planning, certification of compliant design, bushfire management plans, review of asset protection zones and landscaping, advice on retrofit of existing development to withstand bushfire and bushfire prone land mapping review. When I meet a property owner, I often spend considerable time providing holistic bushfire protection advice in those areas.

BPAD consultants have varying professional skillsets and often have an undergraduate degree in planning, ecology, or qualifications in building surveying. Some BPAD consultants have postgraduate qualifications other than the Graduate Diploma in Bushfire Planning and Design and are seen as design professionals.

In NSW at present, the minimum level of qualification is a graduate certificate for Bushfire Planning and Design Level 2 accreditation and Graduate Diploma for Bushfire Planning and Design Level 3. At present the Graduate Diploma is a Level 8 qualification in the Australian Qualification Framework (AQF) with Fire Protection Association of Australia (FPAA) proposing a Diploma - Level 5 AQF. This is significantly reducing the qualification level and FPAA have identified alternate accreditation pathways to avoid gaining a graduate diploma which is currently being implemented in Western Australia.

The present Graduate Certificate, Graduate Diploma and Masters courses in Bushfire Design, offered by Western Sydney University is designed to develop professionals who have the skills to research, develop, describe, and most importantly justify safe bushfire design. FPAA have said on multiple occasions that the current university post graduate course is not creating people who can measure a slope or write a report. This is contrary to my experience from Western Sydney University and contrary to the attitudes of my peers.

The approach proposed by FPAA of introducing a lower level of qualification for bushfire will reduce the skill level of accredited consultants who can develop innovative design and have the skills to think laterally, providing bushfire safety design that is safer, more accurate and has less impact on the environment.

I believe FPAA are pursuing a commercial interest in pursuing a lower level of accreditation due to significant the income generated from training. FPAA have run

many short courses in Western Australia. I am presently a level 3 BPAD consultant in Western Australia and in the past employed a staff member who attended the 5 day BPAD Level 1 short course. The course content is far inferior to the current 2 year Graduate Diploma offered at Western Sydney University and a diploma course would be inferior. In Western Australia the introduction of many newly accredited bushfire consultants who have a very basic understanding of bushfire design has flooded the industry in Western Australia with consultants who get it wrong and provide unsafe bushfire design. There are many more complaints being lodged in Western Australia than New South Wales and by reducing the level of qualification, the professionalism, knowledge, and quality of bushfire assessment will suffer.

FPAA have cited concerns raised by NSW RFS that there will not be enough BPAD accredited consultants in NSW, if bushfire consultants are required to be accredited to submit bushfire assessments. There are 66 current NSW BPAD accredited consultants, but nearly 200 people have completed the UWS Graduate Diploma or Graduate Certificate course but choose not to be BPAD accredited. If motivation was provided through legislation changes, those graduates could significantly increase BPAD numbers if needed. Rather than downgrading current qualifications and accreditation levels and undermining an existing high quality of training there should be a study completed reviewing the below factors:

1. What is the current percentage of bushfire assessments being lodged by accredited bushfire planning and design consultants?
2. Can the existing accredited bushfire planning and design consultants increase the volume of bushfire assessments they produce?
3. What is the number of accredited bushfire planning and design consultants required to fill the shortfall, if any?
4. Will the 130 graduates of Western Sydney University Bushfire Design who are not BPAD accredited decide to become accredited if legislation did change to require bushfire professionals to assess bushfire risk.

To further improve the credibility of BPAD accredited consultants it is recommended the building professionals board (or its replacement) should be included in the accreditation of bushfire consultants.

NSW RFS PES officers have claimed that some BPAD consultants are getting the bushfire assessments wrong, sometimes intentionally. This should be clearly communicated to the BPAD consultant and communicated to the accrediting body, with the BPAD consultant disciplined or deregistered if found to be in error repeatedly or having intentionally breached code of practice. By not acting on known issues it is undermining the current accreditation system and providing unsafe outcomes for the community. The building professionals board (or its replacement) could assist in providing greater credibility to the accreditation scheme and enhance confidence in safe bushfire design.

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Recommended Outcomes Bushfire Planning and Design (BPAD) Accredited Consultants

1. The building professionals board (or its replacement) should be consulted on the inclusion of bushfire consultants in its scheme.
2. BPAD consultants should be disciplined and have accreditation removed if they make repeated mistakes or are found to have acted against their code of ethics.
3. The Graduate Diploma in Bushfire Protection or Graduate Diploma in Design for Bushfire Prone Areas and equivalent Graduate Certificate should remain the minimum level of accreditation for a bushfire accredited professional.
4. Research should be conducted into the number of accredited bushfire consultants required to support a legislative system that requires an accredited consultant to prepare a bushfire assessment.
5. New South Wales Rural Fire Service should remain the agency for determining who is an “accredited” or “qualified” consultant in bushfire risk assessment.

Bushfire Design Briefs

Planning for Bush Fire Protection 2019 references Bushfire Design Briefs throughout the document as the way to deal with performance based solutions. When a more innovative proposal is submitted for a pre-DA consultation, it often will sit unanswered for months, be referred between NSW RFS departments with several follow ups required to get a response.

The Bushfire Engineering Brief process should be a collaborative approach where the expertise of the BPAD consultant, NSW RFS and other design specialities if required, should combine their skillset to provide innovative solutions. It should be a way of improving bushfire safety and examining the performance of the protection of people and property. The prescriptive measures of Planning for Bush Fire Protection should be able to be examined as a certain radiant heat flux for a building exit, a certain setback for a building or specific occupancy is not necessarily the safest design. A recent experience with David Boverman, Manager of Development Planning and Policy was very positive in reviewing a more innovative approach.

The current pre-DA consultation process, currently could range from a month to multiple months to receive a response and the advice is non-binding with NSW RFS able to disregard their consultative advice. The pre-DA process is inadequate to handle Bushfire Design Briefs at present.

The structural fire engineering community have conducted Fire Engineering Briefs for quite a number of years and have a clear process between NSW Fire and Rescue and Fire Engineers.

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In 2019 NSW RFS provided initial consultation with NSW Fire and Rescue examining the Fire Engineering Brief process, however whilst the planning legislation heavily references Bushfire Design Briefs, no specific pathway has been communicated and time delays provided by poor communication make Bushfire Design Briefs untenable for many developments.

I recommend that a clear Bushfire Design Brief process is defined with a clear timeline defined for pre-DA consultation and Bushfire Design Brief consultation. Bushfire Design Brief templates have been developed and both BPAD and NSW RFS PES would benefit in specific training in the preparation and review of Bushfire Design Briefs.

NSW RFS PES would benefit from the employment of a fire engineer and should seek consultation with specialists located within NSW RFS if required. The inclusion of David Boverman who holds a wealth of experience in fire engineering on any Bushfire Design Brief meeting is essential.

NSW RFS PES have indicated that a pre-DA consultation is a single meeting and actively discourage more than one meeting. The Bushfire Design Brief consultation should allow iterations if required, to identify areas of design methodologies that require clarification or improvement. This should not lead to poor quality submissions from BPAD consultants fishing for options, but should allow refinement and improvement of the Bushfire Engineering Brief. Any iteration to the Bushfire Design Brief should be completed and reviewed in a timely fashion to allow continuity within the process and make Bushfire Design Briefs achievable without several months of delays.

Recommended Outcomes Bushfire Design Briefs

1. The process of Bushfire Design Brief meetings should be clearly defined with timelines to review met and iterations allowed.
2. NSW RFS PES should consider employing staff with fire engineering qualifications and more diverse skillsets to assist in dealing with Bushfire Design Briefs.

Fire Weather Research and the NCC Bushfire Verification Method

Common phrases used in describing the 2019-2020 fire season was “the new normal” and “unprecedented fire behaviour” for describing the bushfire affecting communities. Planning for Bush Fire Protection (2019) is focussed around general fire danger index ranges for fire weather that does not consider climate change and is inadequate in some regions at present.

Clear evidence from Grahame Douglas of Western Sydney University in his PhD research on fire weather, indicate Fire Danger Index (FDI) is inaccurate in some regions and is expected to increase due to climate change. Development should be considering the future environment and future risk of bushfire.

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The National Construction Code in 2019 released the Bushfire Verification Method. The complex analysis of the Bushfire Verification Method is presently unworkable to prepare and assess safe design due to undefined parameters, however the simple analysis of the Bushfire Verification Method is able to be applied. The Bushfire Verification Method should represent a best practice foundation to support all performance based solutions considering detailed fire modelling. The simple analysis takes the current acceptable solutions modelling approach and applies an importance level to the development based on building use and risk exposure, with a fire weather analysis applied.

Discussions with an NSW RFS PES officer indicated they would have difficulty assessing the Bushfire Verification method and there is little motivation for BPAD consultants to apply it, if it is not consistently applied as the results are more accurate and more conservative, often leading to more expensive construction and greater clearing.

Recommended Outcomes Fire Weather Research and the NCC Bushfire Verification Method.

1. The Bushfire Verification method should be used for all detailed fire models submitted in NSW as best practice.
2. Future editions of Planning for Bush Fire Protection should consider climate change.
3. NSW RFS PES officers should receive training in fire weather analysis and the Bushfire Verification method.
4. BPAD consultants would benefit from training in fire weather analysis.

Conclusion

Newcastle Bushfire Consulting has provided a number of recommendations to the NSW Independent Bushfire Inquiry and we hope our comments will help improve legislation, resulting in a more streamlined, collaborative bushfire planning system and improved bushfire safety for people and property throughout NSW.

If you have any questions regarding the above submission, I am available for comment on [redacted] or [redacted].

Yours Sincerely

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B Info Science
Grad Dip Design for Bushfire Prone Areas
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Qualifications:
Graduate Fire Engineer (IFE)
Grad. Dip Design for Bushfire Prone Areas
Masters Fire Investigation
Bushfire Planning and Design – Alternate Solutions (BPAD-Level 3) Accredited Practitioner (FPAA)
Bach. of Information Science

Phillip is the Director of Newcastle Bushfire Consulting and has 15 years of experience in providing GIS mapping services, bushfire engineering solutions and sustainable development planning. Phillip is a Fire Protection Association of Australia Bushfire Planning and Design Certified Consultant for Alternate Solutions (BPAD Level 3).

Phillip founded Newcastle Bushfire Consulting after working in both local government and private industry and continues to conduct regular research in fire science. Drawing from his experience in computer programming, Phillip specialises in fire modelling and has provided expert training to the New South Wales Rural Fire Service, the South Australian Country Fire Service and other BPAD Consultants.

Key Experience Areas

- Bushfire Engineering
- Bushfire Planning
- GIS Mapping
- Fire Modelling Expertise

Recent Achievements

Phillip was nominated by peers in 2018 as a finalist for the Ron Coffey Award for Excellence in Bushfire Protection.

Research Publications

Phillip presented research papers at 2010 and 2017 Fire Australia detailing bushfire planning alternate solutions and proposed a methodology for detailed fire modelling including radiant heat shielding. Phillips masters research was in wildfire growth and shape.

Recent Experience

Phillip has conducted over five thousand bushfire assessments with jobs ranging from simple compliance checks to complex alternate solutions, has assisted in the Bushfire Risk Review of over 300 Victorian Schools, and has acted as a legal expert witness in the NSW Land and Environment Court in matters regarding modelling bushfire.

Commitment to Sustainability

In 2010 Phillip won two awards in the NSW Government Apps4NSW competition for his sustainability concepts and software, which included a program for calculating and auditing carbon generation.