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SUBMISSION TO THE NATIONAL NATURAL DISASTER ARRANGEMENTS ROYAL COMMISSION

BY

THE NATIONAL ON-SITE PROVIDERS ASSOCIATION*

April 28, 2020

We refer to the Commission's Terms of Reference a), b), d), f) and f)iii).

Specifically, the reference points we have here addressed are as follows:

- "...(R)esilience to, and recovery from, natural disasters"
- "Australia's arrangements for improving resilience and adapting to changing climatic conditions, what actions should be taken to mitigate the impacts of natural disasters, and whether accountability for natural disaster risk management, preparedness, resilience and recovery should be enhanced, including through a nationally consistent accountability and reporting framework and national standards;
- "We direct you to make any recommendations arising out of your inquiry that you consider appropriate, including recommendations about any policy, legislative, administrative or structural reforms"
- "...(W)ays in which Australia could achieve greater national coordination and accountability - through common national standards, rule-making, reporting and data sharing - with respect to key preparedness and resilience responsibilities, including....development approval (including building standards)"

This submission is based on testimonies from our members from their personal involvement as stakeholders in, and as members of, the formal consultation process in

the development of AS1546.3:2017 (*On-Site Domestic Wastewater Treatment Units Secondary Treatment Systems*) with Standards Australia.

The connection to this standard and the broader issue of disaster resilience will be detailed below.

OVERVIEW

Community resilience in a natural disaster scenario requires measures on various levels. Some are quite obvious, such as policy and governance structures, or the deployment of emergency responders. But others may be a little less apparent. One such area is the treatment and disposal of domestic, remote or on-site wastewater (that is, not connected to a centralised sewerage treatment facility).

The common septic tank is a feature of many Australian homes. While most in more urbanised areas now have access to centralised sewerage systems, many of those living in regional and rural areas rely on on-site wastewater management systems, usually installed in a backyard or close to the central property.

It will be noted that it is just these areas where natural disasters like fires, floods and cyclones are more likely to have strong impacts, as infrastructure is limited and distance to services can be significant.

While this system has served Ausralians relatively well, the likely increase of natural disasters - from bushfires to floods and of course, viral outbreaks - requires a progressive approach to best mitigate the damage of such events.

In relation to on-site wastewater treatment facilities, we believe this agenda can be positively impacted by the introduction of proven technologies and approaches such as Secondary or Advanced Secondary passive wastewater treatment systems, which connect to new or existing systems.

This is soon to be not possible in the current standards regime as more resilient wastewater treatment technology is being marginalised and phased out even as it emerges and develops and is used widely overseas.

PASSIVE WASTEWATER SYSTEMS AND RESILIENT HOMES

Clearly, all buildings need a wastewater treatment and dispersal system in place, whether as a connected system, such as via a networked or centrally treated sewerage system, or via remote or on-site placements of facilities commonly known as septic systems.

Currently, approximately 3 million Australians use an on-site domestic wastewater treatment system, disconnected from a central sewerage treatment system. Many such systems need secondary or advanced secondary systems to treat and disperse the effluent. Currently there are two forms of this; a) older style Aerated Wastewater Treatments Systems (AWTS) and b) Advanced Passive systems.

Our concern is with the effective exclusion of Advanced Passive wastewater treatment systems from the Australian standard AS1546.3:2017, which applies to this area.

Older (non-passive) mechanised systems, or AWTS, are highly susceptible to damage and even total destruction in a bushfire scenario, or in the event of another natural disaster, such as a flood or cyclone.

Further, these systems require regular maintenance, generally around every 3 months. In times of crisis, it may be difficult for trained operators to get to each facility to conduct the appropriate checks, and so, these systems may not be operating properly, or at all, during or after a disaster scenario. This has major implications for public health and for the environment.

We have seen, for instance, during the recent COVID-19 isolation period, that maintenance professionals face challenges in physically getting to properties to perform the legally-required maintenance.

Yet, these older systems, despite their faults in relation to resilient construction outcomes, have been given an effective monopoly in the current standard AS1546.3:2017.

A further issue, recently highlighted in scientific reports and in news media, is the possible danger in the above-ground dispersal of effluent (as is common in the standard aerated system) in a pandemic situation. We estimate that 80% of these AWTS or aerated systems use above ground dispersal methods. While standard wastewater systems produce an effluent that is treated with various chemicals, such as chlorine or

other chemical disinfectants - all of which may be an effective killer of viruses and bacteria - new, unknown strains of virus, for instance, may not be affected by such treatments.

Further, faulty or unmaintained systems may not disinfect the wastewater properly, thus increasing the potential health risks as that effluent is dispersed above ground, a scenario with particular relevance in a natural disaster event.

As this submission is being prepared, for instance, there is no apparent or consistent protocol or advice on whether above ground dispersal of treated effluent is a danger or any indication that the process has been risk-assessed at all in relation to the spread of the COVID-19 virus.

Our argument to the Royal Commission is that secondary/advanced secondary passive systems offer a more resilient option for bushfire and natural disaster contexts for many householders, communities and the insurance industry.

Soon, as the new standard is passed into regulation, consumers (especially those in natural disaster-prone areas or situations) will be denied the option of installing such systems for more resilient outcomes.

We argue the current standard is not fit for the purpose of resilient buildings.

Currently, AS1546.3:2017 makes no reference to secondary/advanced secondary passive systems and skews towards old style mechanised and aerated systems by default.

Our argument to the Royal Commissioners is that this standard is not operationally fit or functionally appropriate in its current form in that it fails to factor in the highest possible resilient wastewater benchmarks that are available. In a major bushfire or other natural disaster event the standard does not allow for technologies and innovations that can greatly improve the resilience of Australian buildings, both domestic and commercial.

In our view, this standard does not meet the key preparedness and resilience responsibilities the Terms of Reference mention.

The standard needs to be adapted to conform to a wider reform of building practices to better equip the nation for natural disasters.

We do not seek to remove older AWTS systems from the standard or from the market.

There are two core issues with this standard which need to be addressed in relation to resilience and preparedness.

Firstly, we will indicate the deficiencies with the standard itself and how these short-comings undermine the needs of Australian households in a natural disaster context.

Secondly we will outline the flawed governance model that produced the standard, which, we will argue, is not properly equipped to factor in key factors such as natural disaster mitigation.

Finally, we will offer suggestions as to how these short-comings can be addressed.

AS1546.3:2017 AND RESILIENT HOMES

In our view, the current standard does not meet the baseline requirements for resilient construction due to the following points:

a) **Minimum Size Requirement**

The current standard stipulates that ALL new installations of domestic wastewater treatment systems must be of a minimum of 1,200 Litres/Day capacity to a maximum of 5,000 Litres/Day. There is no apparent logic for this figure. Secondary/Advanced Secondary passive systems can scale down to any size, and still operate effectively. Older mechanised and aerated or AWTS systems cannot do so as efficiently.

Facilities of the designated size - actually designed to treat wastewater outputs for between 8 and 33 people daily - will not generally operate properly with smaller flow through amounts than their designed capacity, over time. Given the average Australian home has 2.6 residents and that half of all residences have no more than 2 people living there, this would likely be the case for many such systems.

The most obvious problem with this in a natural disaster situation is that, if a home, or a whole community, is isolated for any reason in a natural disaster event, there is an increased risk of having inoperable wastewater treatment systems. This is clearly

undesirable and is not commensurate with the aims of a sustainable and resilient built environment.

b) **Ignores Resilient Technologies**

There are a number of significant differences between passive and non-passive systems. The current standard, in eschewing new, passive technologies, actively undermines the construction of disaster resilient homes in Australia.

The major differences are as follows.

Electricity Use

Unlike older mechanised AWTS systems, passive wastewater treatment systems do not require electricity to operate. The systems use gravitational flows and natural bio processes to break down the wastewater and to disperse it.

As such, in a natural disaster context, where power cuts are often one of the first significant impacts, passive wastewater systems will continue to operate.

Above Ground Components

Older aerated systems generally have pumps, blowers and other mechanised components above ground. Even if power remains connected therefore, in a natural disaster context, aerated, non-passive systems will most likely be rendered inoperable by virtue of having their above ground mechanisms, including the central control board, damaged.

Passive systems have no operational above-ground components.

Wastewater Dispersal

Passive systems are designed to disperse the treated wastewater or effluent entirely underground. There are no above ground pumps or mechanism - as noted. It is virtually impossible, therefore, to come into contact with the wastewater effluent produced by a passive system.

Aerated and mechanised above ground systems have been criticised in light of concerns around airborne contaminants, including COVID-19, potentially being released into the air through faulty or incapcitated aerated systems. Research on the risks of above ground waste water dispersal suggests that various coronaviruses can survive in sewerage effluent. Other harmful infections, like Legionnaires disease can also be

carried in airborne sewerage effluent, especially if treated inefficiently (see above points).

Unnecessary Cost

Extra costs to householders and commissioning construction agents are built into the existing standard.

We have noted above, the standard requires domestic installations which are too big for most households, a stipulation which clearly creates additional costs in each case. In fact, many house lots would be too small to fit an oversized system on the block, thus requiring expensive and regular pump-outs.

Further, non-passive systems require on-going maintenance, which is not required for passive systems. This is therefore, a further imposte on the property owner or over the lifetime of the facility.

The increased resilience profile of passive systems, therefore, is less likely to be considered as the cost factor works against them, due to the artificial outlays the existing standard demands.

As the current pandemic situation continues, and as economic hardship spreads across the country in numbers perhaps unseen in our lifetimes, this short-coming will be sharply emphasised.

SOLUTION: STANDARDISE RESILIENT OPTIONS

To develop a regulatory culture in which resilient domestic wastewater treatment systems can be incorporated into the Australian built landscape, there are two options in relation to the current standard AS1546.3:2017.

Option 1.

The first option is to alter the existing standard. By simply removing the minimum daily flow requirement - currently at between 1200L/Day and 5000L/Day - the standard will provide a space for passive and other viable technologies to be part of the nation's resilience agenda, whilst still allowing older AWTS technologies to remain in the standard.

The standard needs to address excessively high effluent strength benchmarks and to allow scalability for passive systems to better fit Australian household parameters.

Other small changes in the standard text would have a similar effect.

According to Standards Australia's guidelines, an existing standard can be altered without rewriting the document if the alteration is less than 10% of the original document.

Option 2.

State governments can refuse to adopt the changes in standards as proposed by Standards Australia.

Doing so would allow the regulations to remain in a holding pattern until a new standard is established (see below).

It is unclear whether the Commonwealth is in a position to recommend this course in the context of this Royal Commission as it may cross Federal/State jurisdictional boundaries.

Option 3.

A third option is to introduce a separate standard for passive wastewater treatment systems.

This would require greater effort and would likely take longer to implement as the usual process of designing a standard would have to be started more or less from scratch.

However, the benefit of this approach would be to allow the standard to adapt more readily to new technologies in passive wastewater management as they emerge. In the Option 1 scenario, this may be more difficult.

Option 4.

A fourth option is to combine Option 1 and Option 2./Option 3.

Given Option 3 may take some time to be finalised, and given Option 1 or Option 2 could be done almost immediately, it may be prudent to either advise states against accepting

the current standard (if possible) or to devise an amendment in the standard to factor-in passive systems, which can then be used as a workable, interim standard until a new separate and distinct standard for passive systems can be established.

- *While either of the above options would be of value, we ask the Royal Commissioners to recommend our Option 4 as it allows a longer term vision and carries greater sustainability.*

THE GOVERNANCE OF AUSTRALIAN STANDARDS

Prohibitive Regulatory Expenses

For some time, Standards Australia (SA) has been the sole creator and custodian of national standards across the country, in connection to many industries.

In terms of bushfire resilience in dwellings and in the built environment, the role of SA is central in setting building standards to be incorporated by state and local authorities and into national codes and regulations.

We are concerned that the existing mechanism for industries to access current standards is dysfunctional.

We share the concerns of many that the cost of SA documents and standards is prohibitive to say the least. It seems counter-productive in the extreme to have a situation where those in a given industry must individually purchase standards so they can be sure they are keeping within the regulations of their trade.

While we are aware new arrangements have been made between SA and its corporate owners to make standards more accessible, we argue that the distribution model needs to be reconsidered in light of those seeking to build in, for instance, disaster prone areas.

Indeed, the very standard for the Construction of Buildings in Bushfire Prone Areas - AS 3959:2018 - remains available only at a cost of $256.45, despite an apparent agreement between the federal government and SA to make this standard free for a given period, to aid those re-building after last summer's fires. Given this would be an important reference document for many making submissions to this Commission, this seems ironic to say the least. It is, in our opinion, symbolic of a flawed system.

- *We ask that the Royal Commissioners consider drastically reducing the cost of appropriate standards, or even making relevant standards free, to ensure greater access to standards pertaining to bushfire resilience in our buildings.*

Governance

The experiences of our stakeholders in the AS1546.3:2017 standard has been marked by poor communications, shoddy governance and a sense of disrespect for passive providers. Our members have reported feeling that SA is weighted towards bigger and more established industry players, at the expense of those who are attempting to introduce newer, more resilient technologies.

Attempts by our associates, as members of the stakeholder consultation groups, to argue for space for passive operators within the standard were ignored and subject to extraordinary inefficiencies and blockages within the governance structure.

This structure, in our opinion, in relation to the establishment of AS1546.3:2017, contravenes the Memorandum of Understanding between the Commonwealth Government and Standards Australia on numerous counts. Further, at least one state government, to our knowledge, has failed to conduct a full impact statement for this standard which all jurisdictions are obligated to do before the standard is accepted into regulation.

- *We ask the Royal Commissioners to consider opening the governance structure surrounding the establishment of standards that impinge upon the development of building codes for a more resilient built environment to greater scrutiny.*

  This is to ensure the process more strictly aligns with the existing MoU between SA and the Commonwealth and that this document is more closely monitored.

- *We ask that the introduction of SA standards into state and local jurisdictions be subject to open and objective impact assessment processes before any inclusion into the regulatory standards regime.*

SUMMARY OF REQUESTED ACTIONS

We ask that the Commissioners consider recommending the following in their final report to Government -

1. **Amend the current Standards Australia standard AS1546.3:2017 and/or introduce a new standard to directly and clearly incorporate passive domestic wastewater treatment systems to help develop market mechanisms for greater resilience in the domestic and commercial built environments.**

2. **Review the cost structure for accessing Standards Australia documents, particularly relevant industry standards, so that those building resilient homes and other structures can more easily understand the regulations and can be better educated on the available techniques and approaches.**

3. **Review the current governance model for Standards Australia to ensure a wider, more open, and acknowledged input from stakeholders in relation to the formation of standards around resilience in built infrastructure**

4. **Require Commonwealth, state and local authorities to complete and make available full impact assessment reports on all regulations impinging on the resilience of our built environment in natural disaster contexts.**

NATIONAL ON-SITE PROVIDERS ASSOCIATION
President: Chris Taylor
Passive Treatment Providers Coordinator: Ian Christesen
secretary@nopa.org.au
www.nopa.org.au

***** *NOPA is a not for profit association established to provide the passive domestic wastewater industry with a voice and forum for the provision of high quality, cost effective on-site design, effluent treatment installation and safe discharge to the environment.*

The Australian on-site wastewater industry represents expenditure by Australian families of more than $1 billion dollars annually. As an industry, we are charged with directly protecting over 5 million Australians from the health risks associated with the discharge of more than 255.5 billion litres of sewage every year on their properties and indirectly for every Australian.

Our industry is highly regulated and subjected to frequent changes made by Federal, State and Local governments, which can present additional challenges to our industry and the delivery of fit-for-purpose solutions.