



# OUR FUTURE SHOALHAVEN

INC2000820  
PO Box 129  
Huskisson  
NSW 2540

## Our Future Shoalhaven and Keep Jervis Bay Unspoilt Submission: Inquiry into the planning system and the impacts of climate change on the environment and communities

Our Future Shoalhaven and Keep Jervis Bay Unspoilt .....	1
1. Introduction .....	2
2. This submission addresses the following terms of reference .....	2
3. Issues (refer legislation / reports / research) .....	3
Example A. 4 Murdoch St, Huskisson .....	3
Example B Water quality of Moona Moona Creek .....	8
Example C. Council removal of mature trees .....	9
Example D. Edendale St, Woollamia .....	10
Example E. Corner Jervis Bay Road and Princes Highway .....	13
4. Potential solutions / recommendations .....	14
Sources .....	15
Attachments .....	16
Attachment 1: Detailed consideration of the development application for 4 Murdoch St, Huskisson and Shoalhaven LEP 5.21 Flood Planning .....	16
Attachment 2: Policy and guidelines for fish habitat conservation and management 2013, p.1818	
Figure 1: AEP 1 per cent existing – Source SCC .....	4
Figure 2: Source: Davidson – this photo was taken from where the number ‘4’ is located on the above map in August 2020. ....	4
Figure 3: AEP 1 per cent 2100 – Source SCC .....	5
Figure 4: note in this figure the measurement commenced at the hightide mark .....	6
Figure 5: 2017 measurements .....	7
Figure 6: SLEP 2014 Significant vegetation and biodiversity corridor. ....	7
Figure 7: A 2018 street view image of street tree .....	9
Figure 8: Street tree removed in October 2023 .....	10
Figure 9: AEP 1 per cent existing, Source SCC .....	11
Figure 10: SLEP 2014 map of significant vegetation and habitat corridor on Edendale St .....	12
Figure 11: Source: SLEP 2014 .....	13

## 1. Introduction

Our Future Shoalhaven<sup>1</sup> (OFS) is a community group made up of individuals with diverse and overlapping commitments to maintaining as much as possible the pristine qualities of the Shoalhaven natural environment. Sustaining its bush and plains, its rivers and lakes, its beaches and seas, its land and sea wildlife in their natural state through advocacy on their behalf to those who intentionally or unintentionally cause their depreciation.

Members of OFS are responding to the increasing risk of incremental but rapid human pollution damage to the Shoalhaven. This is a desperate problem and was outlined in *The Conversation* by Nelson and Maron yesterday.

The group draws inspiration and encouragement from Michael Glantz (1999) book *Creeping Environmental Problems and Sustainable Development in the Aral Sea Basin*. The book is a loud warning about valuable environmental assets which are destroyed by creeping incremental change. The devil OFS fights against is embedded in the concept that any single limited change will not really affect the big picture. This argument flounders on the reality that our local environment is a system and no single part can be isolated from the whole. This means that change to part of the system no matter how small impacts on every other part of the system and through time, as another impact occurs, and then another, those impacts become amplified causing permanent loss of valuable aspects of the Shoalhaven's natural environment.

This submission outlines several examples of where the current planning system has let down the environment, and approved developments are likely to result in problems for residents. The irony being that harming the environment not only harms the quality of life for the community but inevitably harms the local tourist economy. The examples presented in this submission are within the Jervis Bay catchment, but other Shoalhaven examples of planning concerns will be submitted by Manyana Matters and Callala Matters.

We conclude with potential solutions and recommendations.

## 2. This submission addresses the following terms of reference

### a) Development proposed or approved

- i. In flood and fire prone areas which will be more exposed as a result of climate change
- ii. In areas that are vulnerable to rising sea levels, coastal erosion as a result of climate change
- iii. In areas that are threatened habitat for threatened species

and

### b) the adequacy of planning powers and planning bodies to review, amend or revoke development approvals, and consider the costs, that are identified as placing people or the environment at risk as a consequence of

- i. The cumulative impacts of development
- ii. Climate change and natural disasters
- iii. Biodiversity loss, and
- iv. Rapidly changing social, economic and environmental circumstances

---

<sup>1</sup> [Home | Our Future Shoalhaven](#)

### 3. Issues (refer legislation / reports / research)

#### Example A. 4 Murdoch St, Huskisson

This example was chosen to highlight how zombie DAs along our coastline are leading to problematic development, in this case on flood prone and biodiverse, sensitive land. The need is for stronger planning controls to protect the environment particularly in relation to zombie DAs.

This example particularly relates to development proposed or approved

- iv. In flood and fire prone areas which will be more exposed as a result of climate change
- v. In areas that are vulnerable to rising sea levels, coastal erosion as a result of climate change
- vi. In areas that are threatened habitat for threatened species

and

the adequacy of planning powers and planning bodies to review, amend or revoke development approvals, and consider the costs, that are identified as placing people or the environment at risk.

#### *i. Zombie development - background*

4 Murdoch St is a parcel of land situated 22 metres from Moona Moona Creek, which is designated as a Type 1 Highly sensitive key fish habitat, and a Class 1 Major Fish Habitat (fish hatchery for Jervis Bay Marine Park), and is one of the major creeks that flows into Jervis Bay Marine Park. 4 Murdoch St was part of the endangered ecological community Bangalay Sand Forest, and the block abuts the Jervis Bay National Park.

A DA to build two apartment blocks on this land was approved 5 July 2011. No substantial work was undertaken to commence construction. The landholder sold the block with the existing DA approval. This situation is now called a 'zombie DA' – a DA approval that was given at a time when much less care was given to the environment or potential sea level rise (especially in the Shoalhaven), or with an understanding of the tourist carrying capacity of the beaches, waterways and community infrastructure.

The new owner sought modification of the DA in February 2022.

Even though the building of apartments on this block is no longer considered appropriate the planning body, Shoalhaven City Council (SCC), was powerless to revoke the DA approval without unaffordable compensation.

#### *ii. Flood prone and vulnerable to rising sea levels*

This example, and **the inability of the Council to rescind the DA**, has and will lead to the building of dwellings where owners (not the developer who will be well away from the problems) will face:

- Apartments that are being built on land which is already flood prone – see Figures 1 and 2 below.



Figure 1: AEP 1 per cent existing – Source SCC



Figure 2: Source: Davidson – this photo was taken from where the number '4' is located on the above map in August 2020.

This is a concern of not just current flooding but also the apartments are being built adjacent to a tidal creek which will be subject to sea level rise, and **will in the future be totally inundated** (see Figure 3 below for 2100 predictions). The biggest shame of this is that the developer will have no responsibility for the harm/damage done to persons, building and goods once the units are sold to

unsuspecting buyers. And it is questionable as to whether owners/residents will be able to get insurance.



Figure 3: AEP 1 per cent 2100 – Source SCC

We'd also like to point out that no disaster management process exists to extract residents if fire or flood eventuate.

*iii. Biodiversity loss and cumulative impacts of development*

The building of the dwellings has already resulted in significant environmental consequences, and cannot fail to have additional negative consequences. These losses appear small, but the issue is that the **planning authorities have no power to stop the small losses – ultimately leading to large cumulative losses:**

- Loss of breeding opportunity for the threatened Gang Gang cockatoo. Whilst a hollow bearing tree where Gang Gangs have previously nested and reared chicks was retained when the block was cleared in readiness for construction, the birds have not returned to this site despite successful rearing of chicks prior to clearing. All adjacent trees on the southern side of the Gang Gang hollow tree have been removed.
- 16 mature hollow bearing trees were removed. Nest boxes have been installed but there is no monitoring of these to prove that they adequately replace the removal of trees.
- Moona Moona Creek is a Type 1 Highly sensitive key fish habitat, and a Class 1 Major Fish Habitat. In addition the SLEP recognises the significant vegetation and biodiversity habitat corridor of the riparian zone.

According to these classifications there should be a 40m vegetated riparian corridor along

Moona Moona Creek which is a 4<sup>th</sup> order water course type<sup>2</sup>. The Water Management Act 2000 requires that any intrusion into that 40m requires specific approval (controlled activity) and offsetting. However, the building of apartments should not be allowed within 40m of a riparian corridor. But as this is a zombie development nothing seems able to stop it.

The fence line of this zombie development is 22m from the hightide mark according to a GPS measurement (Figure 4) and 35 m according to measurements taken manually with a measuring tape in 2017 (Figure 5).

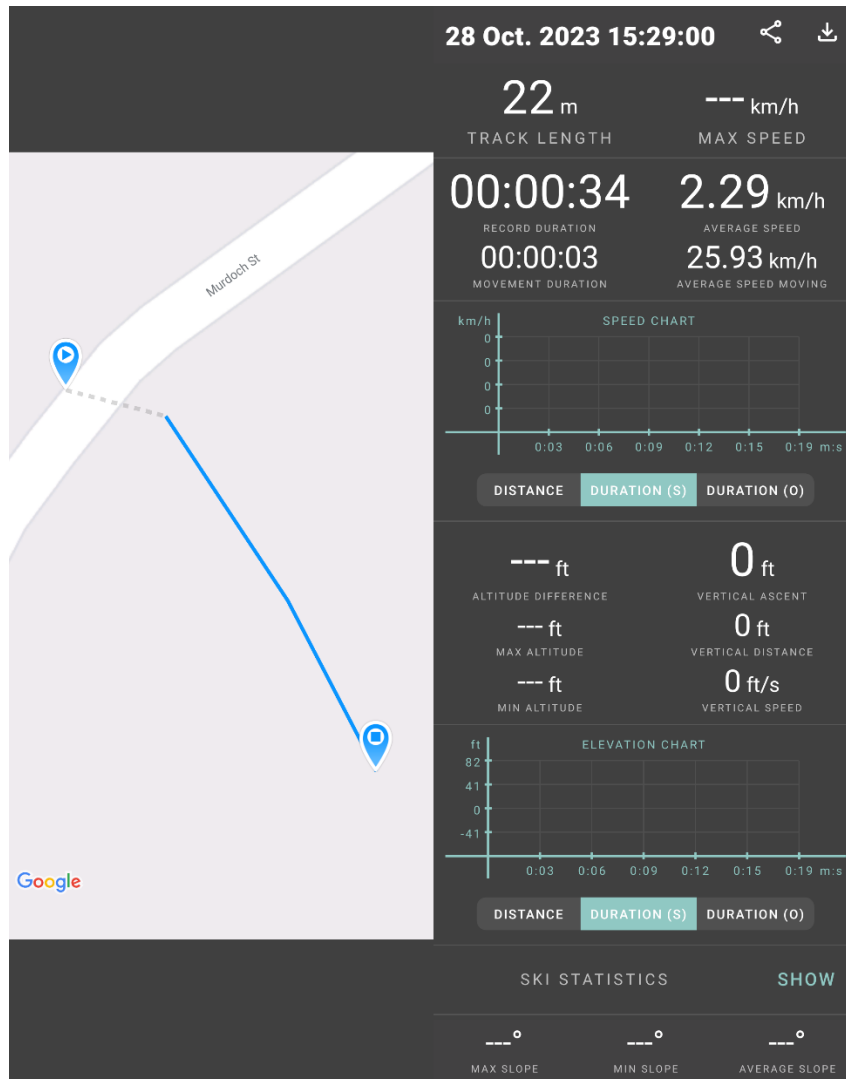


Figure 4: note in this figure the measurement commenced at the hightide mark.

<sup>2</sup> 'Guidelines for riparian corridors on waterfront land'

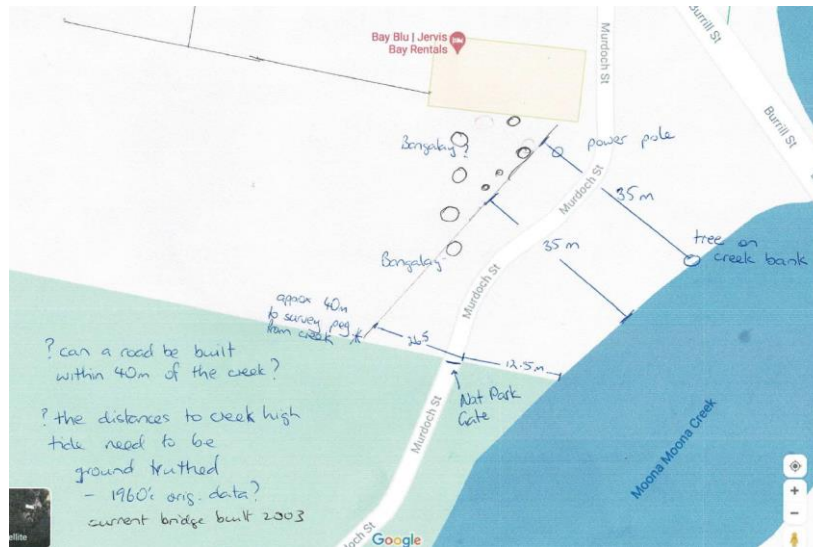


Figure 5: 2017 measurements

The construction of 32 apartments is therefore 20-40m from the high-tide bank of Moona Moona Creek and will likely lead to removal and damage to the mangroves that currently protect the creek (Figure 6). Councils up and down the coast, including SCC, are battling the illegal removal of coastal vegetation for the purpose of improving access and views (the ‘de-treing’ of Collingwood Beach dunes in an adjacent area to Moona Moona Creek is an example). **This is now a foreseeable consequence and no planning authority can hide behind ‘we didn’t know this would happen’.**

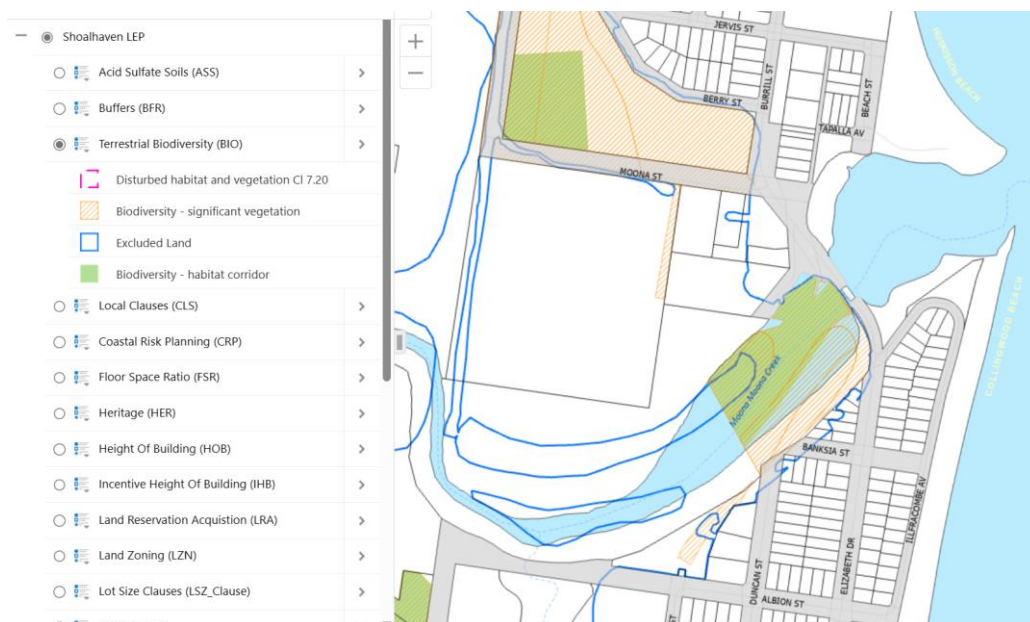


Figure 6: SLEP 2014 Significant vegetation and biodiversity corridor.

Biodiversity loss and cumulative impacts will accrue due to:

- There will likely be further loss of habitat trees. Council has required that the tree roots of the trees to be retained be protected to the tree canopy line, during clearing and construction. The modified plan now includes paths and ponds over the tree roots – likely

leading to the destruction of the trees themselves. It appears that Councils have no power to protect hollow bearing or habitat trees on private property.

- Access to the apartments will require extensive roadworks that will create a further pressure on the estuarine mangrove fish hatchery in Moon Moona Creek which is an essential adjunct to Jervis Bay Marine Park. The road will be constructed wholly in the riparian zone, and as mentioned above, will be an illegal road by today's standards.
- The building and paved area will greatly add to the area of impervious surfaces, and rainfall and drainage run-off to Moona Moona Creek (rather than being filtered through the sandy soil). It's doubtful that the build can mitigate against a large rainfall event polluting the creek from the car park and grounds (pesticides and herbicides, litter). The conditions being put in place will not be adequate for the predicted increase in severity of our rain events.
- 4 Murdoch St is directly adjacent to the Jervis Bay National Park. The landscape plan includes non native species which have the potential to be invasive:
  - *Agave attenuata* (considered to be invasive in Australia)
  - *Epipremnum aureum* (Devils Ivy)
  - *Trachelospermum asiaticum* (Star Jasmine)
  - *Tradescantia spathacea* (Moses in the Cradle)

These plants might not be an issue in a dense suburban environment but cannot be appropriate when the neighbour is a National Park. Neither Council, nor the Land and Environment Court have objected to this potential harm to our protected areas.

One of the challenges of your committee is to consider housing supply as well as development issues. In the Jervis Bay area there is an extensive number of short term accommodation being built that far exceeds both visitor demand and carrying capacity of area. Ninety per cent of the 32 units approved will predictably be used for seasonal short time holiday accommodation and will not contribute to the huge shortage of rental housing for families in the area.

#### Example B Water quality of Moona Moona Creek

A recent substantial development (Bayswood suburb) located upstream has led to the detriment of water quality in the creek leading to the Bay. Councils have little required resources to monitor imposed development conditions.

This example relates to the adequacy of planning powers and planning bodies to review, amend or revoke development approvals, and consider the costs, that are identified as placing people or the environment at risk as a consequence of the cumulative impacts of development.

Over the past two years a group of committed residents have taken to monitoring the water quality in Moona Moona Creek. They have only just started the process using Water Watch processes but have already found the following problems:

- Fuel / hydro carbons moving into the creek from the Bayswood suburb which sits on the catchment of the Moona Moona Creek, and which had in place Development Conditions of Approval that should have prevented this from happening.



### Example C. Council removal of mature trees

Relates to the adequacy of planning powers and planning bodies to review, amend or revoke development approvals, and consider the costs, that are identified as placing people or the environment at risk as a consequence of

- v. The cumulative impacts of development
- vi. Climate change and natural disasters

To offer one example of Council clearance of trees without replacement: In October 2023 a tree that was well over 50 years old, and displayed a healthy canopy was removed on the footpath of Elizabeth Drive, Vincentia. It is a mature tree, and images from a few years ago show a healthy canopy (Figure 7). The circumference of the tree trunk is more than 4.5m, the tree was clearly there in 1975 images, and likely there prior to any development (Figure 8). When other towns and cities are trying desperately to build a viable street tree canopy Shoalhaven City Council is chopping down street trees.

We include this example of cumulative impact of development, and its loss will contribute to the urban heat island effect as well as an example of strong social pressure to remove trees which people see as high risk in high wind environments. This is problematic for decision makers who know that we are moving toward more severe weather events where isolated trees such as this one become vulnerable.

Currently there is no State obligation for the Council to replace that tree, or to compensate in anyway, or to implement strategies for urban heat.



Figure 7: A 2018 street view image of street tree



Figure 8: Street tree removed in October 2023

#### Example D. Edendale St, Woollamia

This example was also chosen to highlight the need to make DAs comply with current environmental requirements when 5 years have passed since initial DA grant unless substantial work has been carried out.

##### *i. Zombie development – subject to old standards - background*

**On 25 January 1996, a 13-lot subdivision SF7946 was approved in Edendale St (see Figure 9)**

SF7946 is related to SF7945. SF7945 was the subject of a hearing in the Land and Environment Court on 7 November 2001 before Justice Talbot. Documents submitted (including sworn affidavits) to the Court referenced both SF7945 and SF7946

His Honour ruled that he was satisfied that the work undertaken to date (land surveying) was sufficient to secure the consent. As this land was also the subject of survey work associated with SF7946 and adopting the same principle, it follows that both consents were ‘secured’.

The development consent was issued under the NSW Environmental Planning and Assessment Act 1979 where the land owner is not obliged to conduct further assessments of NSW Biodiversity Conservation Act 2016 listed species. This is a self-assessment process and Council has no authority to force the land owner to consider threatened species.

##### *Cumulative impact of development and biodiversity loss*

The site used to host the endangered ecological community of Bangalay sand forest.

ii. *Flooding and increased risk due to sea level rise*

A modification application for the removal of building pads and landscape plan was first proposed in 2000. It was notified in 2007 to some 49 parties following a protracted period of assessment, deliberations concerning flooding issues including reports, flood investigations (Flood Study for Moona Moona and Currambene Creeks) and legal advice. The modification was approved on 17 September 2007.

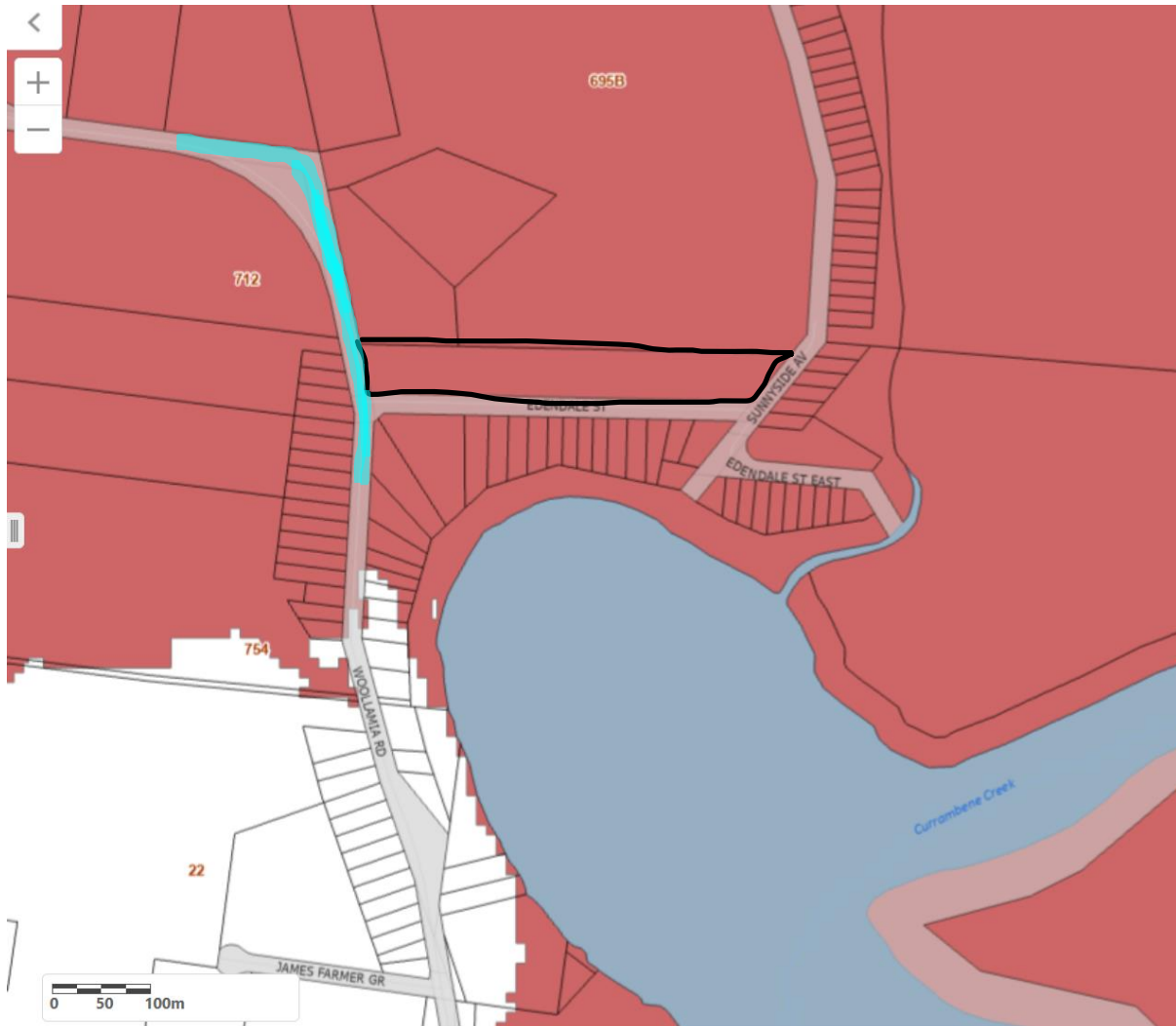


Figure 9: AEP 1 per cent existing, Source SCC

The site currently experiences flooding. In March 2022 the land on the south side of Edendale Street was flooded (but no houses damaged as far as we know), and Woollamia Road was closed in a few places as a result of the flooding (for example blue marking on above Figure 9). Even if the houses themselves are above the waterline, people are trapped in their homes until the water recedes – a stressful, and for those people who might need medical attention (which has occurred), a dangerous situation.

Two things are going to exacerbate flooding in this area: continued development in the catchment (for example on Edendale Street and the Huskisson Industrial Estate), and global warming with subsequent sea level rise and increased severity of weather events (high intensity rainfall or weather bombs). **This is therefore a situation where an approved development will expose more people to flood hazards, and possibly make the situation worse for existing residents.**

iii. Cumulative loss

“A report dated 1 July 2000 by Council’s Threatened Species Officer assessed the subdivision impacts on flora and fauna. The report concluded that the site contains an area of intact forest in good condition and acknowledged the development would result in some loss of forest which would provide suitable habitats for Threatened Species. However, the small area of habitat to be removed and the small size of the hollows observed suggest that the site is unlikely to support populations of these species and that the loss of this vegetation would be very unlikely to place local populations under excessive pressure. The report also foreshadows that future assessments *may* be required when the lots are developed.” (response to community questions).

The above quote exemplifies a process where bit by bit land can be cleared of ‘intact forest in good condition ... suitable habitats for threatened species’. Because each parcel of land is relatively small the conclusion is reached that ‘the loss of this vegetation would be very unlikely to place local populations under excessive pressure’. But then 500m down the road another block is cleared, and another, and then another. The Council nor the State have any way of preventing this cumulative loss.

As a consequence the majority of trees on the northern side of Edendale St have been removed, including a number of pre-European-settlement habitat trees, even though a portion of this was mapped significant vegetation and a habitat corridor (Figure 10). Endangered Gang Gang Cockatoos were known to feed in this area, and the site provided nesting sites to many other species including kookaburras, rosellas, magpies, and small forest birds. It is also known that endangered Greater Gliders once inhabited, and it is a feeding site of the vulnerable Powerful Owl.



Figure 10: SLEP 2014 map of significant vegetation and habitat corridor on Edendale St

The zombie development on Edendale is an example of cumulative loss of habitat and ecological communities which the local or state governments are unable to stop with the current policies. In addition, there is a lack of information regarding the extent of clearing and loss of habitat that has occurred. For example, Figure 10, the Council map above shows ‘significant vegetation’ which is no

longer there. We therefore endorse Henry et.al Recommendation 2: require an independent body to undertake regular reviews.

#### Example E. Corner Jarvis Bay Road and Princes Highway

In 2020 the landowners of the northern corner of Jarvis Bay Road and the Princes Highway began clearing the land (ostensibly for cattle grazing – note the cattle have been hand fed ever since). As can be seen by Figure 11 below this has been identified as a biodiversity habitat corridor and biodiversity – significant vegetation. However, given changes to state and local government powers neither had any power to protect the corridor and significant vegetation as it was considered agricultural land: Council had no power to protect land it considered ecologically important and Department of Local Land Services didn't have the will.

The forest being cleared was a known feeding location for the endangered Glossy Cockatoo.

As such this example of the failure of planning laws to protect significant vegetation and habitat corridors exemplifies:

the inadequacy of planning powers and planning bodies to review, amend or revoke development approvals, and consider the costs, that are identified as placing people or the environment at risk as a consequence of

- vii. The cumulative impacts of development / clearing
- viii. Climate change and natural disasters
- ix. Biodiversity loss, and
- x. Rapidly changing social, economic and environmental circumstances

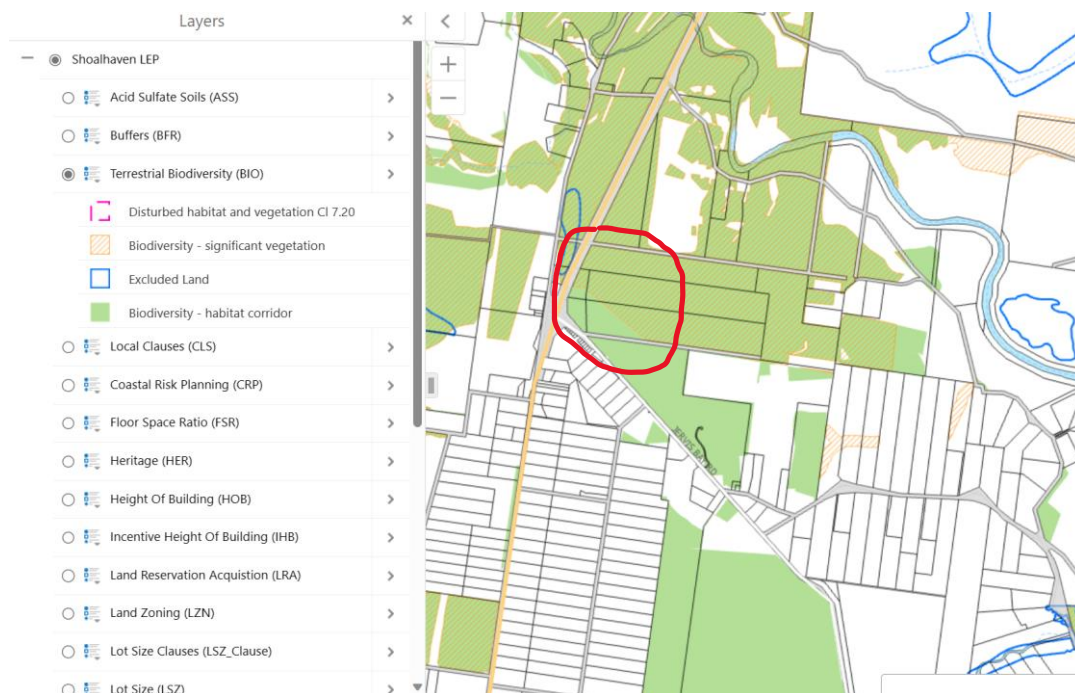


Figure 11: Source: SLEP 2014

#### 4. Potential solutions / recommendations

- Put an amnesty on the development of existing zombie DAs. These should not be allowed to be developed until a thorough environmental and climate change assessment has been completed. DA's of themselves should not be allowed to be sold with land. That is, the current owner only can submit and hold a DA and that DA cannot be passed on. This is a frequently occurring trend aimed at increasing the value of the land/property being sold.
- Further, no clearing should be allowed on sites until a DA for construction has been approved. Currently, sites can be cleared, although a DA may never be approved for them (example of Edendale St). In this sense, we believe Henry et al.'s Recommendation 17 doesn't go far enough.
- When all land is sold the owner should be obliged to tell a prospective buyer as to whether the land is flood prone, what the BAL rating is, and what the energy efficiency rating of any existing home is.
- Provide a funding source for local governments and state government to buy back land that is no longer deemed appropriate for development. Funded through an additional fee charged to developers.
- Prevent developers from being able to discontinue / close their company after the completion of a build, and thereby absolve themselves of any responsibility in the weaknesses / problems of that build.
- Urgently assess the protection of ecosystems and ecological communities, and connectivity corridors to ensure the resilience of species and communities; then put in place a plan to create adequate protected areas and corridors to be immediately enacted. This would likely involve purchasing private land. It is highly unlikely that government will ever be able to ensure that private landholders do not act destructively with regard to ecological communities and species.
- Development planning (generally) should consider (as a first step) whether the location is appropriate, and development should not be permitted on land that is adjacent to or on:
  - fire prone land
  - flood prone land
  - sensitive ecosystems or where it is habitat for vulnerable /endangered species.

Consideration should also be given to whether or not infrastructure is available? If not already in existence, the environmental impacts of providing this should also be a factor before land is approved for development.

- Some of the examples mentioned here reflect concerns about the impact on the waters and ecology of Jervis Bay. What occurs on the land will have a significant impact on Jervis Bay ecosystems. What is needed is a strong and well resourced Marine Parks agency, which sits in the Environment Department and not in the Department of Primary Industries.
- Whilst much is made of the precautionary principle (it is referred to in policies and legislation) we have seen little evidence that it has been used in decision making. The opportunity exists to strengthen decision maker's right to take a 'precautionary' approach.
- Time is running out and what is lost now will never be replaced. Emphasis should be on stopping the damage – not on band-aid solutions such as offsets and nest boxes.

We feel we should also make it clear that, in contrast to the Urban Development Institute of Australia NSW, we believe that biodiversity loss, flood and fire risk SHOULD be an impediment to

development. The building of houses should not occur in locations that will likely lead to loss of life, or resources to resident or community. Nor should the building of houses contribute to a decline in Australia's ecosystems.

Ideally, the State should map 30% of the land which meets the requirement of the CAR principles, and set that land aside in perpetuity to be protected from development.

We endorse the Insurance Council of Australia recommendations:

[Building Australia's Resilience: Policy Recommendations \(insurancecouncil.com.au\)](https://insurancecouncil.com.au)

- Use planning powers to limit new development in areas prone to high risk from extreme weather events, such as flooding, bushfires, cyclones, and coastal hazards. Consider mandatory climate change risk assessments to identify these vulnerable areas. In some cases, it will be necessary to back zone high-risk land, while in other cases, implementing stronger construction standards and resilience investments will suffice to reduce risk. When developing regional plans, prioritize areas with zero to low extreme weather risk for new development, taking into account the probability of hazards occurring and their potential impact on property and life.
- Review land-use planning arrangements to establish a catchment-based approach for flood hazard management, based on recognised water catchment boundaries and considering current and projected extreme weather events and input from relevant councils.
- Identify and resource areas that require further flood, cyclone, bushfire and coastal hazard studies to better understand and manage these risks.

## Sources

Able Ecology, 2021, Hollow Management Guidelines for 4 Murdoch St, Huskisson. Lot 80 DP 755928.

Henry, K. Keniry, J., Leishman, M. and Mrkak, M. 2023, Independent review of the Biodiversity Conservation Act 2016. [Independent Review of the Biodiversity Conservation Act 2016-Final.pdf \(nsw.gov.au\)](https://www.nsw.gov.au)

Insurance Council of Australia, 2023, Building Australia's Resilience: Policy recommendations for federal and state governments. [Building Australia's Resilience: Policy Recommendations \(insurancecouncil.com.au\)](https://insurancecouncil.com.au)

Michael Glantz, 1999, book *Creeping Environmental Problems and Sustainable Development in the Aral Sea Basin*.

Nelson, R.L., Maron, M. 2023 We must assess 'cumulative impacts'. To protect nature from death by a thousand cuts. The Conversation.

[We must assess 'cumulative impacts' to protect nature from death by a thousand cuts \(theconversation.com\)](https://theconversation.com)

Urban Development Institute of Australia NSW, 2023, UDIA response to the Final Report of the review of the Biodiversity Conservation Act 2016. [23.09-UDIA-to-Sharpe-response-to-BC-Act-review-final-report \(1\).pdf](https://www.udia.com.au)

## Attachments

Attachment 1: Detailed consideration of the development application for 4 Murdoch St, Huskisson and Shoalhaven LEP 5.21 Flood Planning

5.21 (2) States: Development consent must not be granted to development on land the consent authority considers to be within the flood planning area unless the consent authority is satisfied the development—

*(a) is compatible with the flood function and behaviour on the land,*

The updated Landscape Plan is not clear regarding proposed garden bed plantings and how they are formed – these would presumably be mounded. The updated Plans show that these beds are located on the southern and western boundaries. The location of these beds would prevent the normal flow of floodwater across this landscape, potentially leading to unnatural flood function of the area, faster peak flows, soil erosion and silting of mangroves and Moona Moona Creek. The updated Landscape Plan therefore does NOT appear to meet this Development Consent requirement.

*(b) will not adversely affect flood behaviour in a way that results in detrimental increases in the potential flood affectation of other development or properties,*

Surface runoff will be greater as hard, non-permeable surfaces have increased - particularly along the northern boundary and adjacent to the property known as Aquamist, during extreme rainfall events (frequency of weather bombs are expected to increase with Climate Change), Infiltration Basin 1 and the pool will most likely overtop, adding to the impacts felt by the adjacent property. The updated Landscape Plan therefore does NOT appear to meet this Development Consent requirement.

*(c) will not adversely affect the safe occupation and efficient evacuation of people or exceed the capacity of existing evacuation routes for the surrounding area in the event of a flood.*

Higher peak flows result from raised garden beds along the western and southern boundaries as well as an increase in climate induced ‘weather bombs’ make evacuation and safety issues problematic. The South Eastern corner access ramp to the property is likely to be impacted by higher peak flow rates and evacuation could be impeded. Safe evacuation has NOT been demonstrated as no flood evacuation plan has been developed. The updated Landscape Plan and Architecture Plans therefore do NOT appear to meet this Development Consent requirement.

*(d) will not adversely affect the environment or cause avoidable erosion, siltation, destruction of riparian vegetation or a reduction in the stability of river banks or watercourses.*

The location of the garden beds along the southern and western property boundaries would prevent the normal flow of floodwater across this landscape, potentially leading to unnatural flood function of the area, faster peak flows, soil erosion and silting of mangroves and Moona Moona Creek. The updated Landscape Plan therefore does NOT appear to meet this Development Consent requirement.

5.21 (3) States: In deciding whether to grant development consent on land to which this clause applies, the consent authority must consider the following matters—

*(a) the impact of the development on projected changes to flood behaviour as a result of climate change,*



Global warming will result in a greater frequency of 'weather bombs', which in terms of flood behaviour will likely be exacerbated by the increase in hard surfaces and the location of landscaping features (garden beds).

*(b) the potential to modify, relocate or remove buildings resulting from development if the surrounding area is impacted by flooding or coastal erosion.*

Not possible given the size and scale of this building. The most appropriate measure to avoid flood impact or coastal erosion (including 'concrete cancer' from rising salt levels on the structure walls) is to not build it on the flood plain or within 40m of an estuary.

**TYPE 1 - Highly sensitive key fish habitat:**

- *Posidonia australis* (strapweed)
- *Zostera*, *Heterozostera*, *Halophila* and *Ruppia* species of seagrass beds >5m<sup>2</sup> in area
- Coastal saltmarsh >5m<sup>2</sup> in area
- Coral communities
- Coastal lakes and lagoons that have a natural opening and closing regime (i.e. are not permanently open or artificially opened or are subject to one off unauthorised openings)
- Marine park, an aquatic reserve or intertidal protected area
- SEPP 14 coastal wetlands, wetlands recognised under international agreements (e.g. Ramsar, JAMBA, CAMBA, ROKAMBA wetlands), wetlands listed in the Directory of Important Wetlands of Australia<sup>2</sup>
- Freshwater habitats that contain in-stream gravel beds, rocks greater than 500 mm in two dimensions, snags greater than 300 mm in diameter or 3 metres in length, or native aquatic plants
- Any known or expected protected or threatened species habitat or area of declared 'critical habitat' under the FM Act
- Mound springs