**SUBMISSIONS TO THE NORTH EAST LINK PROJECT**

**INQUIRY AND ADVISORY COMMITTEE**

**ON BEHALF OF THE YARRA RIVERKEEPER ASSOCIATION**

**Contents**

[A. The Yarra Riverkeeper Association 2](#_Toc18592015)

[The Yarra Riverkeeper’s interest in the North East Link Project 2](#_Toc18592016)

[B. A Contemporary Approach to Large-scale Urban Infrastructure and Urban Design 3](#_Toc18592017)

[Acceptability 5](#_Toc18592018)

[Planning policy matrix 7](#_Toc18592019)

[C. The Environmental Impact – Specific Matters 13](#_Toc18592020)

[Impact on the Yarra River and floodplain, including Bolin Bolin Billabong 13](#_Toc18592021)

[The Yarra River Corridor 13](#_Toc18592022)

[Bolin Bolin Billabong 15](#_Toc18592023)

[Impacts on tributaries, including Koonung Creek reserve and Banyule Creek 18](#_Toc18592024)

[Koonung Creek 18](#_Toc18592025)

[Banyule Creek 20](#_Toc18592026)

[Simpson Army Barracks 20](#_Toc18592027)

[Impacts on the urban ecology, including native vegetation, ‘amenity’ vegetation and threatened species 23](#_Toc18592028)

[Native vegetation, avoidance and offsets 23](#_Toc18592029)

[The ‘urban forest’ 25](#_Toc18592030)

[Biodiversity and urban design 27](#_Toc18592031)

[D. The NELP Reference Design – An Unacceptable Outcome 31](#_Toc18592032)

[E. Appendices 34](#_Toc18592033)

# The Yarra Riverkeeper Association

1. We act for the Yarra Riverkeeper Association Inc. (**‘Yarra Riverkeeper’**).
2. The Yarra Riverkeeper was formed in 2004 to provide a ‘voice’ for the Yarra River and its environs.
3. The Yarra Riverkeeper is an independent non-government organisation made up of citizen-advocates, the focus of whose work includes advocacy for the health, protection and restoration of the Yarra River and its environs, monitoring river health, and community education and engagement.
4. The Yarra Riverkeeper is part of the world-wide network of river- and water-keeper organisations known as the Waterkeeper Alliance.[[1]](#footnote-2) The Riverkeeper model of advocacy, citizen science and education about waterways began in the 1970s in the United States. Today it extends to more than 300 Waterkeeper Organisations and affiliates across the world.
5. In recent years, the Yarra Riverkeeper’s advocacy for the Yarra River has included advocating for strengthened planning controls for the river corridor and for special purpose legislation for the river. That advocacy contributed substantially to the design and passage of the *Yarra River Protection (wilip-gin Birrarung murron) Act 2017*, legislation that somewhat ironically exempts declared major transport projects from key provisions of that law but, as we shall submit, remains of relevance to the deliberations, findings and recommendations of the North East Link Inquiry and Advisory Committee (**‘IAC’**).

## The Yarra Riverkeeper’s interest in the North East Link Project

1. We understand that the role of the IAC is to inquire into, and report on, the environmental effects of the North East Link Project (**‘NELP’**).[[2]](#footnote-3) In exercising its role, the IAC must review and consider all submissions and evidence provided by the proponent, state agencies, local government and the public.[[3]](#footnote-4) The IAC will hear from a vast array of participants in the Environment Effects Statement (**‘EES’**) process, with varying levels of shared and/or conflicting interests and concerns.
2. Within the constellation of participants, the Yarra Riverkeeper is a voice for the Yarra River and its environs. This is to be contrasted with the proponent, who speaks for the road. The Yarra Riverkeeper applauds the local councils, who speak for the interests of their respective communities.
3. As a ‘voice’ for the Yarra River and its environs, the Yarra Riverkeeper is concerned about the impact of the NELP on the Yarra River corridor, its tributaries, and the affected parklands and natural or ‘naturalistic’ ecosystems on the remnant floodplains. The evidence before the IAC demonstrates that the project as proposed will impact these features in significant ways.
4. The Yarra Riverkeeper’s interests are also wider than the direct or indirect impacts on the Yarra River and its immediate environs. The Yarra Riverkeeper recognises the broader public interest in a protected, strengthened and flourishing urban ecosystem.
5. It is recognised that while the Yarra River is the centrepiece of Melbourne’s urban environment in the east and northeast, it is also part of a wider urban ecology. The river corridor is central but not isolated. For instance, the Yarra River corridor is the core of the ‘urban forest’, but it also connects the maturing tree canopy across the region, whether remnant or ‘planted’.
6. These submissions address the following, with reference to the NELP as proposed in the Reference Design and Environmental Management Framework (**‘EMF’**):
	1. the general approach to be taken to large-scale urban infrastructure projects in the contemporary setting;
	2. impacts on the Yarra River and floodplain, including Bolin Bolin Billabong;
	3. impacts on tributaries, including Koonung Creek reserve and Banyule Creek;
	4. impacts on urban ecology, including native vegetation, ‘amenity’ vegetation and threatened species; and
	5. the EMF and Environmental Performance Requirements (**‘EPR’**) and whether and how these contribute to acceptability.

# A Contemporary Approach to Large-scale Urban Infrastructure and Urban Design

1. With respect to urban infrastructure and urban design, the days of viewing ecological values as constraints or encumbrances is coming to an end. It is increasingly recognised that nature should be considered as an opportunity and asset in designing and delivering urban infrastructure, rather than viewed as an impediment. Simply implementing the vision of a road system in 1929 or the 1970s, in which ‘missing links’ need to be resolved, is not appropriate for 2019 or 2045.
2. The IAC has heard evidence that the strategic justification for NELP originates in the network of inter-connected and orbital metropolitan roads going back many decades.[[4]](#footnote-5) This is premised on the idea of continually expanded population centres to Melbourne’s east and south-east, with the consequent need to include freeway-grade road connections between these centres and the north of Melbourne. Freight and logistic connections are viewed as particularly important.
3. We will respond to some of the economic and transport assumptions contained in this approach further below, as they have been contested, effectively in our submission, by experts called by the Councils. However, even if the road *alignment* can be strategically justified by decades’ old expectations (on which we express no view for the moment), it is not sufficient for road *design*, as a critical feature of urban design, to proceed from antiquated approaches.
4. The concern is NELP is preponderantly an engineering solution.
5. The challenge to be met is different. Transport infrastructure must be sustainable,[[5]](#footnote-6) including being ecologically sustainable. In our submission ‘best practice’ in this context means integrating nature into urban design, because ‘liveable’ cities cannot exist without nature.[[6]](#footnote-7)
6. At a general level, the question of whether the environmental effects of the NELP are acceptable will depend to a considerable degree on whether the reference design can demonstrate and achieve biodiversity sensitive urban design (**‘BSUD’**) at a level of detail sufficient to provide confidence in overall beneficial environmental outcomes being realised over the life of the NELP.
7. BSUD represents a contemporary approach to urban design that values biodiversity as a resource to be preserved and maximised at all stages of planning and design.[[7]](#footnote-8) In contrast to the standard offsetting approach, BSUD aims to create urban environments that make positive *onsite* contributions to biodiversity. BSUD seeks to build nature into the urban fabric, by linking urban planning and design to the basic needs and survival of native plants and animals. Its relevance and application to NELP was recognised by all participants at the Conclave Meeting of Ecology Experts, when they agreed:

*Biodiversity sensitive urban design has the potential to further avoid and minimise impacts and should be included in the EPRs.[[8]](#footnote-9)*

1. We note that counsel for the proponent, when cross-examining Dr Graeme Lorimer, made the point that the Melbourne landscape has changed considerably and will continue to do so. In counsel’s comparison of aerial photographs of the project area from 1945 to the present, the changes were stark. It is a valid and important point.
2. If NELP is to provide an overall, acceptable contribution to the urban fabric then it is true the project as a whole needs to be considered, including its shorter- and longer-term impacts and outcomes, including intergenerational outcomes. NELP may well provide a foundation for enhanced urban ecosystem benefits (or it may not). It is fair to say the urban landscape will be different.
3. In our submission, acceptable effects and outcomes will be those that provide real likelihood of an enhanced urban environment, not one further deteriorated. In any case, considerations of equity demand that both current and future generations have the benefit of healthy urban ecosystems, not just a city in which we accept ongoing incremental losses and trajectories of decline.

## Acceptability

1. This brings us to the question of acceptability and its proper construction in the present case.
2. As noted in the Councils joint opening submission, in coming to its conclusions the IAC (and ultimately the Minister) must engage with the policy matrix of the *Planning and Environment Act* *1987*.[[9]](#footnote-10) This necessarily includes planning policy considerations.
3. Accordingly, to achieve an acceptable outcome in planning terms, the NELP must balance conflicting objectives in favour of achieving a ‘net community benefit’ and sustainable development for the benefit of present and future generations. This is the well-understood test of integrated decision-making under planning law, and one under which an acceptable outcome is not necessarily a ‘perfect’ outcome.
4. The need to engage the ‘net community benefit’ test is uncontroversial.[[10]](#footnote-11) The relevant Victorian Planning Provisions (**'VPPs'**) and planning policy considerations must be engaged.
5. The ‘acceptability’ of the NELP also, in our submission, raises the overlapping but broader question of whether the NELP is ‘ecologically sustainable.’ This is supported by the *Ministerial Guidelines for Assessment of Environmental Effects under the* Environment Effects Act 1978 (**‘Ministerial Guidelines’**) which specify that the EES process is guided by the ‘need to assess the consistency of proposed works with principles and objectives of ecologically sustainable development’ (**‘ESD’**).[[11]](#footnote-12)
6. In our submission, the Committee needs to make findings and recommendations on whether the NELP is consistent with ESD as well as whether it will deliver a ‘net community benefit’.
7. The common definition of ESD is ‘development that meets the needs of the present without compromising the ability of future generations to meet their own needs’.[[12]](#footnote-13)
8. The well-known judgment of Preston CJ in *Telstra and Hornsby Shire Council*[[13]](#footnote-14) outlines the constituent principles of ESD as including:
	1. sustainable or ‘prudent’ use of resources;
	2. integrated decision-making which ensures mutual respect and reciprocity between economic and environmental considerations;
	3. the precautionary principle;
	4. equity, both inter-generational and intra-generational;
	5. the conservation of biological diversity and ecological integrity should be a fundamental consideration; and
	6. internalisation of environmental costs into decision-making for economic and other development plans, programmes and projects likely to affect the environment.
9. All of these principles are relevant and applicable to the assessment of whether the environmental effects and outcomes likely to arise from the NELP are acceptable.
10. At the outset, we submit that His Honour’s summarising statement *Telstra v Hornsby Shire Council* is particularly pertinent:

These principles do not exhaustively describe the full ambit of the concept of ecologically sustainable development, but they do afford guidance in most situations. These principles, if adequately implemented, may ultimately realise a paradigm shift from a world in which the development of the environment takes place without regard to environmental consequences, to one where a culture of sustainability extends to institutions, private development interests, communities and individuals.[[14]](#footnote-15)

1. His Honour’s articulation of ESD principles provides guidance in assessing the acceptability of NELP. The ‘paradigm shift’ is arguably a work in progress and, in our submissions, the emergence of models of ‘green infrastructure’ and principles of BSUD applied to infrastructure projects support this ‘paradigm shift’.
2. The approach to integrated decision-making, as conceived in *Telstra v Hornsby Shire Council,* requires mutual respect and reciprocity between economic and environmental considerations. This approach moves beyond treating environmental matters as constraints on infrastructure development or matters to which merely ‘regard’ is to be had in order to enable development to proceed.
3. This approach is reinforced by incoming amendments to the *Flora and Fauna Guarantee Act 1988,* which we will return to.
4. We submit that the starting point for integrated decision-making is one of parity and equality between environmental considerations and development/economic considerations. This means giving the environment and ecology a ‘seat at the table’ alongside the engineers and the economists.
5. Such an approach resonates with the BSUD Protocol,[[15]](#footnote-16) as well as the proposal by Dr Lorimer for closer multi-disciplinary collaboration and dialogue in project design for the NELP. We will make submissions on a new EPR which seeks to give effect to this manner of integrated decision-making going forward in the detailed design stage, should it eventuate.
6. A more comprehensive approach to integrated decision-making, properly integrating environmental considerations, will result in a more accurate assessment of the costs (and benefits) of the NELP. As Dr Lorimer, Professor Bekessy and Mr Rawnsley[[16]](#footnote-17) each opined, the biodiversity and non-biodiversity values of urban nature and ecosystems adversely impacted by the NELP need to be incorporated into the accounting of costs and benefits of the NELP. This approach will also allow for greater internalisation of the environmental costs of the NELP, which will provide for greater consistency of the project with ESD principles. We propose a new EPR to give effect to this approach.

## Planning policy matrix

1. Before addressing specific matters arising from the NELP Reference Design, there are important submissions to make with respect to the planning policy matrix with which the IAC and Minister must engage in assessing the acceptability of the project.
2. There is an extensive list of VPPs of relevance to determining ‘net community benefit’. These include policy provisions relating to:
3. the road system
4. the transport system
5. freight links
6. urban design
7. economic development
8. biodiversity
9. integrated water management
10. High-level policy documents of relevance to the NELP include *Plan Melbourne 2017-2050,[[17]](#footnote-18) Protecting Victoria’s Environment - Biodiversity 2037* (‘**Biodiversity 2037**’),[[18]](#footnote-19)and the *Victorian Infrastructure Plan*.[[19]](#footnote-20)
11. *Plan Melbourne* has little to say about the NELP, other than it is a potential transport infrastructure project.[[20]](#footnote-21) The project is consistent in principle with ‘Outcome 3’ of the ‘vision’ to provide an integrated transport system that connects people to jobs and services and goods to market.[[21]](#footnote-22) However, the overall ‘vision’ under *Plan Melbourne* is one focused on delivering public transport, a diversity of transport arrangements, and what we might call a more ‘human-scale’ and ‘human-friendly’ transport system. Even in respect of freight movements the focus in on freight hubs, increasing rail freight capacity and avoiding adverse amenity impacts.[[22]](#footnote-23)
12. In other relevant respects, *Plan Melbourne* emphasises ‘liveability’ with ‘quality design and amenity’, healthy neighbourhoods and distinctive places, and in environmental terms a sustainable and resilient city.[[23]](#footnote-24)
13. In general, we submit the NELP is not conducive to this overall vision. More specifically, in relation to the Reference Design, the extent and nature of environmental and amenity impacts likely to occur, and the shortcomings in mitigation measures, must lead to the conclusion that the Reference Design does not accord with the long-term vision of the city as set out in *Plan Melbourne*.
14. Without going to the detail of all relevant VPPs, the Yarra Riverkeeper generally agrees with the submissions made by the Combined Councils to this Inquiry,[[24]](#footnote-25) in their outline and summary of the Planning Policy Framework relating to biodiversity, the transport system, the principal public transport network, the road system, and the freight network.[[25]](#footnote-26)
15. We make that submission with certain qualifications and additions, which are addressed below.

*Waterway protection in planning policy*

1. There are now strong protections for the Yarra River corridor, both in planning and in special purpose legislation. Clause 12.03-1S provides for strong planning policy outcomes for *all* waterways, wetlands and river corridors,[[26]](#footnote-27) including affected tributaries and wetlands of the Yarra, including Koonung Creek, Banyule Creek, Bolin Bolin Billabong and the Plenty River. The objective of the clause is:

To protect and enhance river corridors, waterways, lakes and wetlands

1. The language of ‘protect and enhance’ in the objective is crucial, as well as the provisions to:

Protect the environmental, cultural and landscape values of *all* water bodies and wetlands.

Ensure development *responds to and respects* the significant environmental, conservation, cultural, aesthetic, open space, recreation and tourism assets of water bodies and wetlands.

Ensure development is sensitively designed and sited to *maintain and enhance* environmental assets, significant views and landscapes along river corridors and waterways and adjacent to lakes and wetlands (emphasis added).

1. This sub-clause calls up the *Healthy Waterways Strategy* *2018-2028* (‘**HSW’**). The HWS is an important document, which was the product of extensive technical input, and extraordinary degrees of investment and collaboration across agencies, communities and experts. None of that should be underestimated. Included in the goals for the Yarra catchment are the following:

The environmental values and significant ecological processes of all of the Yarra catchment waterways are protected and improved.

Riparian and in-stream habitats provide landscape connectivity, allowing the movement of native species and promoting resilient native flora and fauna populations.[[27]](#footnote-28)

1. The HWS will be a companion document to the (eventual) Yarra Strategic Plan. The HWS takes into account not only the main channel of the Yarra River and ‘Yarra River land’ but its catchment and tributaries. It recognises and promotes the connectivity of these entities. The performance objectives the HWS sets are intended, in our submission, to enable trajectories of improvement, not gradual decline.
2. The ecological and surface water evidence before the IAC is that affected waterways and wetlands either will suffer further decline and deterioration as a result of the NELP, or, at best, there is insufficient knowledge to find that the health of waterways will be maintained or not deteriorate further as a consequence of the NELP.
3. We submit that the EMF is unlikely do the work of achieving the standards set under planning policy and the HWS for contemporary and future management of waterways. We make further submissions on these points below.

*Biodiversity protection in planning policy*

1. Biodiversity protections under the VPPs, and specifically clause 12.01-01S,[[28]](#footnote-29) provide the relevant planning strategies including:

Strategically plan for the protection and conservation of Victoria’s important areas of biodiversity…

Avoid impacts of land use and development on important areas of biodiversity.

Assist in the identification, protection and management of important areas of biodiversity.

Assist in the establishment, protection and re-establishment of links between important areas of biodiversity, including through a network of green spaces and large-scale native vegetation corridor projects.

1. The planning objective for biodiversity management is:

To assist the protection and conservation of Victoria’s biodiversity.

1. Accounting for cumulative impacts and habitat fragmentation in decision-making is also relevant. The ecological evidence is that the proposed Reference Design will contribute to habitat fragmentation and ongoing cumulative losses of urban biodiversity. We address this issue below.
2. In relation to the above strategies, these are strong biodiversity protections, including inter alia ‘avoidance’ of impacts on important areas of biodiversity. In our submission three connected areas within the project area are particularly ‘important areas of biodiversity’: the Yarra River corridor and floodplains, the Koonung Creek corridor, and the Simpson Army Barracks.
3. The Yarra River corridor is well-recognised under the VPPs and by way of its own legislation.[[29]](#footnote-30)
4. Koonung Creek is a regional significant biosite.[[30]](#footnote-31) It was accepted by Mr Brett Lane is his cross-examination that this creek corridor is an important area of biodiversity.[[31]](#footnote-32)
5. The Simpson Army Barracks contains high value rare and threatened species and ecological communities. Its connection to the Yarra River includes the Banyule Creek corridor.
6. *Biodiversity 2037* is the current biodiversity strategy prepared under the *Flora and Fauna Guarantee Act 1988*. It is a key reference document for biodiversity protection. A central focus of that policy and of clause 12.01-1S itself is the outcome of trajectories of improvement for biodiversity in Victoria. This is referred to in *Biodiversity 2037* as ‘overall habitat improvement’ and ‘net gain’ in native habitat.[[32]](#footnote-33)
7. A healthy natural environment will also be achieved through stopping the overall decline of threatened species, or in other words arresting trajectories of decline.

*Amendments to the Flora and Fauna Guarantee Act 1988*

1. Significant amendments to the *Flora and Fauna Guarantee Act 1988* have recently passed the Victorian Parliament.[[33]](#footnote-34) These will have a direct bearing on the NELP. Once proclaimed, the amended Act will include enhanced obligations on Ministers and on public authorities including infrastructure authorities.
2. These are obligations, in our submission, directed to government action delivering on trajectories of biodiversity improvement and recovery, and arresting and reversing trajectories of decline.
3. As the Minister for Energy, Environment and Climate Change stated in her Second Reading Speech,[[34]](#footnote-35) the objectives of the Act at section 4:

… have been updated to place greater emphasis on prevention and restoration…

New objectives include:

To prevent indigenous taxa and communities of flora and fauna from becoming threatened and to recover threatened taxa and communities so their conservation status improves.

1. An important way in which the Amended Act is ‘updated’ is by way of an enhanced duty on Ministers and public authorities to give ‘proper consideration’ to the legislated objectives and any instrument made under the Act.
2. Instruments made under the Act include the biodiversity strategy, which currently is *Biodiversity 2037.* As we have set out, *Biodiversity 2037* intends that ‘overall improvement’ in biodiversity is achieved.
3. The modified duty is intended to ‘strengthen’ government leadership and accountability in relation to biodiversity conservation.[[35]](#footnote-36)
4. The ‘proper consideration’ standard is analogous to the manner in which public authorities are to take the Charter of Human Rights and Responsibilities into account in decision-making.[[36]](#footnote-37)
5. The case law in that context establishes that:
* ‘proper consideration’ sets a higher standard of consideration than the common law test to take into account relevant considerations; and
* it is an ‘obligation of some stringency… intended to have a normative effect on the conduct of public authorities’.[[37]](#footnote-38)
1. Applying this authority to biodiversity conservation in relation to the NELP Reference Design means, in our submission, a departure from ‘business as usual’ is required, where business as usual assumes, and perhaps laments, progressive environmental decline, with certain more egregious harms ameliorated or removed.
2. Normative changes are required and those changes are a shift in thinking and practice toward trajectories of ecological repair and restoration, involving all of government.

*Integrated water management in planning policy*

1. Planning policy expressly provides for integrated water management under clause 19.03-3S.[[38]](#footnote-39)
2. Integrated water management is intended to achieve more effective management of the water cycle, especially in urban areas. The purpose is to meet multiple objectives, including augmenting water supplies, protecting and improving waterway health, reducing drainage impacts and costs, and adding to amenity and resilience in urban landscapes.[[39]](#footnote-40)
3. There remains considerable uncertainty in the NELP, as confirmed in the evidence of expert witnesses, that any satisfactory form of integrated water management arrangement can be achieved for the NELP, including at the detailed design stage.
4. In general, we submit shortcomings include:
5. the absence of broad spatial and volumetric assessments as to whether or how runoff from the increased area of impervious surfaces can be accommodated within the project area or even within the wider municipal areas;
6. the failure to provide for an integrated water precinct, which would provide a scheme and designated responsibilities for management of drainage and stormwater across the project area as well as on a local catchment basis;
7. the failure to establish reliable water quality baseline information to inform integrated water management;
8. failure to account for amenity and ‘liveability’ outcomes and co-benefits in Water Sensitive Urban Design (**‘WSUD’**) measures proposed;
9. failure to identify or account for the full scope or complement of WSUD features that may be relevant, applicable or required to achieve IWM objectives (i.e. underground storage, bio-retention and wetlands are the proposed assets);
10. how WSUD assets will be maintained and a general accounting for deterioration in performance of constructed assets;
11. inadequate consideration and assessment of water quality parameters in stormwater runoff from roads (freeways in particular), inconsistent with environmental quality indicators under the *SEPP (Waters)* and unduly relying on limited parameters in the Best Practice Environmental Management (**‘BPEM’**) Guidelines. Specifically, the EES fails to consider heavy metals and other toxicants typical of road runoff and how these are to be managed. As Mr Dunn’s evidence also showed, the Reference Design relies substantially on underground storage which will not, without further treatment, manage these toxicants.[[40]](#footnote-41)
12. We submit that, taken together, the relevant planning policies do recognise potential benefits to road infrastructure and freight movement as the NELP proposes, but those benefits and uses clearly and emphatically sit within a framework of strong and protective environmental measures, directed to trajectories of improvement to urban ecology and improvement to resilience and ‘liveability’ of the urban fabric.
13. Interpreted this way, it is fair to say that planning policies call for an equal, respectful and reciprocal dialogue between infrastructure development and the urban environment.
14. In our submission, the Reference Design appears at best to have *regard* to environmental and ‘liveability’ imperatives, but does treat them equally. To put it another way, the urban environment is in the room but it is not at the table.

# The Environmental Impact – Specific Matters

1. The following submissions address the impact of the NELP, as currently proposed, on specific public environmental assets.

## Impact on the Yarra River and floodplain, including Bolin Bolin Billabong

### The Yarra River Corridor

1. Impacts on the Yarra River corridor and their avoidance are a key consideration in the acceptability of the NELP.
2. We note that the bored tunnel under the Yarra River from just north of the Bulleen Rd/Eastern Freeway intersection to just south of Lower Plenty Rd will avoid significant adverse impacts on the Yarra River and its environs. However, the bored tunnel accounted for, it is still necessary to determine whether the impacts of the NELP as proposed are acceptable in relation to the Yarra River corridor.
3. We submit that it may not be and, more likely, there is insufficient information presently available for the IAC to make findings that it is acceptable.
4. We take the ‘Yarra River corridor’ to include the river channel and adjacent public lands in the riparian zone and on the floodplains. This accords with the concept of ‘Yarra River land’ under the *Yarra River Protection (wilip-gin Birrarung murron) Act 2017* including declarations made in relation to that land.[[41]](#footnote-42) ‘Yarra River land’ includes the area of Bolin Bolin Billabong and Banyule Flats. Their fate however is connected to management of the Yarra River corridor.
5. Clause 12.03-1R of the VPPs concerns Yarra River protection. The objective of the clause is ‘to maintain and enhance the natural landscape character of the Yarra River corridor’.[[42]](#footnote-43)
6. Eleven strategies are set out thereunder in pursuit of that objective. Whilst bored tunnelling under the river accommodates many of these strategic priorities, problems remain in relation to the first four of those strategies:

Strengthen the Yarra River’s natural environment, heritage and overall health by:

* Protecting the river’s riparian vegetation, natural riverbank topography and flood management capacity.
* Ensuring development does not increase the rate or quantity of stormwater, sediment or other pollutants entering the river.
* Protecting and enhancing both terrestrial and aquatic habitats and their linkages along the river corridor.

Promote a sense of place and landscape identity by:

* Retaining a dominant and consistent tree canopy along the river corridor and in its broader landscape setting.
1. The strategic approach generally accords with the *Yarra River Protection (wilip-gin Birrarung murron) Act 2017* and the intention to achieve a trajectory of improvement in river health.
2. In any case, in our submission it remains a relevant consideration, to which considerable weight should be given, that Parliament has recognised the Yarra River as ‘one living and integrated natural entity’.[[43]](#footnote-44) This is an important framing concept for management of the Yarra River.
3. The *State Environment Protection Policy (Waters)* (**‘SEPP (Waters)’**) treats the lower reaches of the Yarra River as within the Central Foothills and Coastal Plains Segment of surface water environments, rather than the urban environment, precisely in order to protect the water quality of this environment,[[44]](#footnote-45) applying higher environmental quality indicators than for the Urban Segment.[[45]](#footnote-46) In any case, classification of waters under the Urban Segment under the SEPP (Waters), which includes tributaries of the Yarra, is intended to ‘drive urban waterway management plans and waterway strategies to improve water quality’.[[46]](#footnote-47)
4. In respect of the main channel of the Yarra River, the water experts and ecological experts provided the following evidence:
	1. there will be increased stormwater impacts and flows into the Yarra River, via Koonung Creek, Banyule Creek (drain), and the Plenty River, attributable to increased impervious surfaces associated with the NELP, absent sufficient mitigation measures;
	2. it is not known with any reasonable degree of precision whether these flows can be managed via Integrated Water Management (**‘IWM’**) treatments; and
	3. flows attributable to the NELP would likely increase contaminant loads in the Yarra River, including road-based toxicants.
5. These outcomes are inconsistent with planning policy and statutory protections for the Yarra River corridor.
6. The Yarra River corridor is a high value environmental asset. Potential water quality impacts from NELP present a serious risk with a high degree of uncertainty. A precautionary approach is warranted.
7. What precaution requires is, in our submission, a far greater degree of certainty that adverse water quality and in-stream ecological impacts on the Yarra River from NELP can be managed, including by way of IWM techniques.
8. One response to this unacceptable degree of uncertainty is a finding that, based on more fulsome and robust investigations, a Supplementary Statement is to be prepared.[[47]](#footnote-48)

### Bolin Bolin Billabong

1. Bolin Bolin Billabong is a high value groundwater-dependent wetland on the Yarra River floodplain. The evidence of groundwater and ecological experts before the IAC was consistent on these facts.
2. Water-dependent ecosystems and species are a beneficial use protected under SEPP (Waters).[[48]](#footnote-49) The SEPP (Waters) protects that beneficial use.[[49]](#footnote-50) The evidence showed that Bolin Bolin Billabong is groundwater-dependent in respect of the so-called ‘deep pool’ at the eastern end of the Billabong and subject to surface flows in the two ‘arms’ of the Billabong.
3. The deep pool is an ecological hydrological refuge. This is particularly significant in the context of the historic lack of natural flooding regimes for the Billabong as a consequence of water diversions in the Yarra River.
4. The Billabong is an important example of Yarra floodplain wetlands in a relatively natural state.
5. The Billabong is also of high cultural significance to the Wurundjeri Traditional Owners.[[50]](#footnote-51)
6. Wetland performance objectives of the *Healthy Waters Strategy* for the Yarra catchment include investigating opportunities to re-engage natural floodplain wetlands and delivering environmental water to key billabongs on the Yarra floodplain.[[51]](#footnote-52)
7. An environmental watering project has occurred for the Billabong. The evidence was that there may be an environmental watering program for the Billabong but this is not yet agreed or approved.
8. An environmental watering program for the Billabong will require statutory approvals under the *Water Act 1989* if, for example, a ‘take and use’ licence is required to divert water from the Yarra River for this purpose.
9. Any decision to establish an environmental watering program through such diversion is subject to the considerations under subsection 40(1) of the *Water Act 1989*[[52]](#footnote-53) and ultimately that such management of water resources in sustainable.[[53]](#footnote-54)
10. A considerable amount of evidence was led on the question of groundwater drawdown impacts of tunnelling under the Yarra floodplain and effects on the hydrology and ecology of Bolin Bolin Billabong, including from Mr Middlemas, Mr Smitt, Mr Lane and Dr Lorimer. Their evidence can fairly be summarised as follows:
11. groundwater observations data has been collected for the NELP, with a focus of data points along the proposed alignment of the tunnel;
12. groundwater modelling has been undertaken and refined;
13. the groundwater model is fit for purpose to inform geotechnical considerations of this large infrastructure project;
14. the groundwater model is not designed for or suitable for the purpose of assessing impacts of the NELP on ‘sensitive environmental receptors’, including the Billabong;[[54]](#footnote-55)
15. the degree of uncertainty in the groundwater models is likely significant and, given the particular sensitivity of wetlands and groundwater dependent ecosystems (**‘GDEs’**) to groundwater drawdown, the risks to those assets is more acute than stated in the EES;[[55]](#footnote-56)
16. there will be groundwater drawdown affecting the permanent deep pool at the Billabong, but the precise extent, nature and degree of impact on the hydrology and ecology of the Billabong is not known;
17. drawdown impacts on the Billabong will occur at the construction stage and over the life of operation of the NELP. For all intents and purposes, that means an indefinite impact;
18. there is at least an equal chance that climate change will lead to long-term wetting or drying scenarios affecting the Billabong;[[56]](#footnote-57)
19. interactions between groundwater drawdown, GDEs and climate change are understated or inadequately dealt with in the EES.[[57]](#footnote-58) The more prudent approach would be for a risk assessment for climate change and groundwater drawn impacts, under wetting and drying cycles, on GDEs for ‘best case’, ‘worst case’ and ‘most likely’ scenarios.[[58]](#footnote-59)
20. In our submission, the problem of the NELP in relation to Bolin Bolin Billabong is two-fold:
	1. there is not sufficient or appropriately targeted information on hydrogeological impacts to make a properly informed assessment, assuming a precautionary approach; and
	2. if the response is an environmental watering regime for the Billabong, the eco-hydrological and governance parameters for that regime are not known. For example, who will undertake it? Who will be the relevant ‘water-holder’? Will there be the long-term water resources to deliver environmental water needs? Will this or can this regime be secured for the life of the NELP?
21. It is open to the IAC to make these findings. We submit that they are appropriate findings. We also submit that they are matters on which further investigations need to be undertaken and should be the subject of a Supplementary Statement. Alternatively, they should contribute to a finding that the NELP will have unacceptable environmental effects on the Bolin Bolin Billabong.

## Impacts on tributaries, including Koonung Creek reserve and Banyule Creek

### Koonung Creek

1. Koonung Creek is a modified urban stream that is a tributary of the Yarra River. It has been heavily impacted by the earlier construction of the Eastern Freeway along the Koonung Creek valley. Nevertheless, both the EES and evidence before the IAC confirms that Koonung Creek contains important ecological, social and amenity values and it is a landscape that has proved remarkably resilient.
2. For example, as a result of combined retention of native vegetation and revegetation works, the Koonung Creek reserve contains extensive stands of native vegetation representative of Endangered and Vulnerable Ecological Vegetation Classes (EVCs), such as Swampy Riparian Woodland. These are generally in a moderate condition, as confirmed by Mr Lane in cross-examination.
3. The Koonung Creek valley is habitat for rare or threatened species such as the Powerful Owl. Evidence before the IAC confirms that this species uses this corridor as habitat.[[59]](#footnote-60)
4. The important biodiversity values of the Koonung Creek corridor are recognised in its status as a regionally important biosite and in the current application of Environmental Significance Overlays (**‘ESO’**) and Significant Landscape Overlays (**‘SLO’**) along the Creek corridor, both on the Whitehorse City Council and Manningham City Council sides of the creek valley.
5. Given the above, we submit that the Koonung Creek is an ‘important area of biodiversity’ for the purposes of VPP, cl 12.01-1S.
6. The Koonung Creek reserve is an example of the broad suite of ‘ecosystem services’ provided by ‘naturalistic’ waterway corridors in the urban setting. Those ‘services’ include biodiversity, amenity, health, social and climate change resilience values. The importance of these values is referred to in the evidence of Professor Bekessy and Dr Lorimer.
7. Adverse impact of the NELP on Koonung Creek will be substantial and irreversible. According to the EES and the expert ecological evidence, impacts include:
	1. covering or undergrounding of an approximately 1.5 kilometres of the creek; and
	2. removal or disturbance of significant areas of native vegetation.
8. These impacts will result from the widening of the Eastern Freeway to accommodate purportedly greater traffic volumes and the establishment of construction areas.
9. The Surface Water evidence also confirms that Koonung Creek will receive waters with increased pollutant loads from an expanded Eastern Freeway.
10. There is no clear evidence that IWM assets could adequately manage increased runoff and pollutant loads into Koonung Creek or, moreover, contribute to the improved health of that waterway.

1. Almost all participants at the Conclave Meeting of Ecology Experts agreed that impacts cannot be compensated for by native vegetation offsets, primarily because hydrological modifications (such as undergrounding) do not require such compensation.[[60]](#footnote-61)
2. Losses of native vegetation associated with Endangered EVCs along Koonung Creek will only be compensated for by offsets well away from the project area.[[61]](#footnote-62) To this extent, native vegetation losses of Endangered EVCs along Koonung Creek will likely exacerbate depletion of those vegetation types and contribute to the risk of their regional extinction.
3. Loss of habitat along the Koonung Creek valley as a result of the NELP may exacerbate faunal habitat fragmentation and will diminish opportunities to enhance connectivity or rehabilitate the urban environment.[[62]](#footnote-63) It is not known whether the loss of habitat will trigger threshold or ‘tipping points’ for localised extinctions of Endangered EVCs or other threatened species (i.e. the Powerful Owl).
4. This is inconsistent with the strategic direction of the VPPs, cl 12.01-1S, with the intent of *Biodiversity 2037*, and with the *Flora and Fauna Guarantee Amendment Act 2019*, each of which contribute to a legal and policy framework directed to arresting and reversing trajectories of decline and enabling trajectories of ecological improvement and recovery.
5. It is not acceptable that the widening of the Eastern Freeway between Bulleen Rd and Springvale Rd will extensively degrade the environmental values of the Koonung Reserve and provide no robust pathways for local or regional urban environmental repair and restoration.
6. In respect of Koonung Creek the NELP will likely lead to a ‘net loss’ in environmental outcomes and certainly not a ‘net gain’.
7. The only acceptable outcome for the NELP would be to avoid the widening of the Eastern Freeway along the Koonung Creek valley.

### Banyule Creek

1. Banyule Creek is a small tributary of the Yarra River, rising in the Simpson Army Barracks. It is a modified but ‘naturalistic’ waterway, to the extent it is set within public reserves and remnant riparian vegetation, retaining an open channel of variable habitat value, between Simpson Barracks, River Red Gum Walk and Banyule Flats.
2. In recognition of the ecological and amenity values of native vegetation along the Banyule Creek, Environmental Significance Overlay Schedule 4 (**‘ESO4’**) applies to the creek corridor between Plenty Road and Banyule Flats for which the objective is to ‘protect and enhance trees and areas of vegetation that are significant’.
3. As a consequence of cut and cover tunnelling techniques north of Banyule Flats, the Reference Design will underground a large portion of Banyule Creek (1.4 km), including the existing channel, and remnant vegetation in the creek corridor will be removed. In effect, this feature will largely be lost.
4. We have addressed the issue of potential surface water and water quality issues pertaining to Banyule Creek and other waterways. As Mr Dunn established in his evidence there is no effective baseline data for water quality for Banyule Creek, the most recent data being seven years old. The Creek is ephemeral and there is no flow data for it.
5. The evidence of Mr Dunn also confirmed that the NELP will result in unacceptable environmental impacts on Banyule Creek because of a lack of consideration of water quality mitigation measures or treatment assets within the Banyule catchment.[[63]](#footnote-64)
6. As a consequence of urban impacts, the in-stream habitat values for Banyule Creek are poor. However, the NELP as proposed effectively forecloses opportunities for rehabilitation of this waterway as an improved ‘naturalistic’ feature, including as a habitat and environmental corridor within the urban Yarra catchment.
7. The substantial loss of the Banyule Creek corridor, considered cumulatively with the impacts on Koonung Creek, limits and confines the naturalistic urban landscape in Melbourne’s east to the Yarra River corridor solely. This is inconsistent with planning policy and environmental policy.
8. Combined with the potential to exacerbate stormwater and water quality problems, including for the Yarra itself, the NELP’s proposed treatment of Banyule Creek is not an acceptable outcome.

### Simpson Army Barracks

1. The impacts of the NELP on remnant grassy woodlands and rare and threatened flora species at Simpson Army Barracks have been a particular focus of ecological evidence before the IAC.
2. The participants at the Conclave Meeting of Ecology Experts agreed that further avoidance of native vegetation removal and impacts should prioritise the Simpson Barracks.[[64]](#footnote-65)
3. Native vegetation at the Simpson Barracks includes remnant Plains Grassy Woodland (an Endangered EVC), Matted Flax-Lily (listed as Endangered under the *Environment Protection Biodiversity Conservation Act* *1999* (**‘EPBC Act’**)) and Studley Park Gum (listed as Endangered in Victoria). Taken together, Plains Grassy Woodland and Swampy Riparian Woodland associated with the Gippsland Plains Bioregion represent approximately 33.4 ha out of 52 ha (or 64%) of native vegetation potentially to be removed for NELP.[[65]](#footnote-66) In short, the woodlands at Simpson Army Barracks represent one of the most significant remnant areas of urban biodiversity in the region.
4. In our submission Simpson Army Barracks should be considered as an integral component of the connected, remnant, natural (and ‘naturalistic’) landscape in this region, alongside the Yarra catchment.
5. The major impacts to native vegetation and biodiversity at Simpson Army Barracks will come from land clearing[[66]](#footnote-67) and from groundwater drawdown.[[67]](#footnote-68)
6. As noted, the headwaters of Banyule Creek are located within Simpson Army Barracks and this feature will be lost as a consequence of the NELP.
7. Dr Lorimer’s evidence confirmed that there is a real risk of unassessed and flow-on biodiversity losses on the Simpson Army Barracks land resulting from consequential land clearing (eg for a fire break and fencing) through the ‘core of the woodland’[[68]](#footnote-69) and degradation of that ‘core’ via ‘edge effects.’ This is a risk that was not, in any significant way, diminished when Dr Lorimer’s evidence on the point was tested in cross-examination by counsel for NELP.
8. We submit that the IAC should accept Dr Lorimer’s evidence that native vegetation losses, associated with an Endangered EVC and threatened flora habitat, are likely understated in the EES.
9. We also submit that an appropriate finding is that an assessment of the impacts on native vegetation and habitat at Simpson Barracks must have regard to ecological thresholds or ‘tipping points’ for extinction risks for rare or threatened species and communities.
10. The question of impacts on native vegetation and habitat is not only quantitative, such as calculated through habitat hectare assessments and offsets. It is also qualitative or strategic, in terms of contribution to impairment of resilience and ecological processes of threatened species and communities. In essence, how do adverse impacts on endangered species or communities relate to the risk of localised extinction?
11. Dr Lorimer’s evidence on the risk of unstated incursions into ‘core’ woodland habitat (of an Endangered EVC), leading to further losses and degradation, is an example of incremental steps toward such thresholds. The actual threshold for localised extinction of Plains Grassy Woodland is, however, not known.
12. The fate of the Matted Flax-Lily (**‘MFL’**) under the NELP has also been considered at length in evidence before the IAC. It has been confirmed that up to one-third of the population of MFL at the Simpson Army Barracks will be adversely impacted by NELP.
13. NELP’s risk-mitigation response is to require a Translocation Plan for the species, in particular as a response to the likely unavailability of species offsets for the MFL.
14. The feasibility of a Translocation Plan as a compensatory measure for the MFL was the subject of extensive expert evidence and testing in cross-examination. In our submission, the conclusion is that a proportion of the MFL population affected will be translocated and may survive as a population. However, there is no evidence the translocated population can be a self-sustaining (reproducing) population.
15. There is no evidence of a translocated population of MFL retaining the essential ecological process of reproduction and maintenance of genetic diversity. In the long-run, this strategy may contribute to contraction of the species’ gene-pool to a point where its viability and persistence in the wild is fatally compromised.
16. It is not known whether the impact of the NELP as proposed on the Simpson Army Barracks will trigger a ‘tipping point’ in species survival. Given the degree of uncertainty and serious or irreversible impacts that may result on MFL, the onus is on the proponent to demonstrate measures that will protect and conserve the species. It cannot be said with any degree of confidence that such measures are available.
17. Given the possibility of exacerbated risks of extinction for threatened species and endangered vegetation types as a consequence of land clearing at Simpson Army Barracks, it is our submission that the impacts arising from the NELP Reference Design at this site are unacceptable.
18. Consideration should be given to amendment of the NELP design to avoid the ‘cut and cover’ tunnelling technique or to adjust the project footprint further to the west, as noted in Dr Lorimer’s expert report.[[69]](#footnote-70)
19. In effect, Simpson Army Barracks should be considered a no-go zone.
20. Alternatives to cut and cover tunnelling, including bored tunnelling further to the north and under Simpson Army Barracks need to be given greater weight and consideration.

## Impacts on the urban ecology, including native vegetation, ‘amenity’ vegetation and threatened species

### Native vegetation, avoidance and offsets

1. The impacts of the NELP on native vegetation and habitat are patently excessive and unacceptable. There will be significant losses of native vegetation and habitat across the Project Area. Considered alongside other development projects, the NELP is contributing to a reduction in tree cover, vegetation condition and habitat value across Melbourne.[[70]](#footnote-71)
2. The EES understates or misstates the value and nature of native vegetation impacted by failing to appropriately assess the impacts on Endangered EVCs, which comprise most of the native vegetation affected.
3. Indeed, most participants in the Conclave Meeting of Ecology Experts agreed that the assessment of the initial and subsequent severity of the risk with respect to ‘land clearing during construction impacting non-threatened flora and ecological communities’ (ESO2) ‘should not have been recorded as low’ and that ‘the overall consequence should have been recorded as very high’.[[71]](#footnote-72)
4. Application of clause 12.01-2S (Native Vegetation) of the VPPs is clearly applicable and important to an acceptable planning outcome, including consideration of the relevant Guidelines and the Assessors’ Handbook.
5. Planning policy on native vegetation removal applies the avoidance hierarchy. As set out in the *Assessor’s Handbook* *for Applications to remove, destroy or lop native vegetation,*[[72]](#footnote-73) proposals are required to:

demonstrate or provide evidence to show no options exist to further avoid and minimise native vegetation removal without undermining the objectives of the proposal. The avoid and minimise statement should include… what has been done at the site to avoid and minimise impacts and that nothing more can be done without undermining the proposal. The effort to avoid the removal of, and minimise impacts on, native vegetation should be commensurate with the biodiversity and other values of the native vegetation and should focus on areas of native vegetation that have the most value.

1. Application of the avoidance hierarchy requires a balancing of the native vegetation at issue, a proportionate rigour in design options, and the overall objectives of the proposal.
2. The highest value native vegetation impacted by the NELP is associated with Endangered EVCs and rare or threatened species, especially at Simpson Barracks and along the Eastern Freeway. This native vegetation is to be accorded higher value under the *Assessor’s Handbook*.[[73]](#footnote-74)
3. The objective of the NELP remains high level at this Reference Design stage. As the opening text of the Project Description states:

North East Link is a proposed new freeway-standard road connection that would complete the missing link in Melbourne’s Metropolitan Ring Road, giving the city a fully completed orbital connection. North East Link would include a new north-south motorway to connect the M80 Ring Road (otherwise known as the Metropolitan Ring Road) to the Eastern Freeway, and also includes upgrades to the Eastern Freeway.

1. The policy guidance in the *Assessor’s Handbook* is emphatic that avoidance requires that no other options are available and nothing more can be done. The approach is intended to be a precautionary one, now linked via the policy framework of *Biodiversity 2037,* to achievement of an overall ‘net gain’ in habitat and environmental health.
2. We submit that exploration of avoidance efforts to date are not sufficient. A robust and proportionate calculus of avoidance has not been applied. In particular:
	1. the extent and conservation status of native vegetation affected requires far greater consideration of these values in project design;
	2. the scale and resources at the disposal of the NELP demand far more robust, multidisciplinary and transparent exploration of design options in relation to impacts on high value native vegetation;
	3. the evidence of Dr Lorimer poses real questions on the scope for further avoidance in relation to Simpson Army Barracks, loss of the ‘Caltex Tree’ and loss of vegetation along the Eastern Freeway.[[74]](#footnote-75) Concurrently, real questions remain around the need for expansion of the Eastern Freeway along the Koonung Creek corridor, and whether there are alternative tunnel designs with lesser surface impact.
3. The onus is on NELP to show that the Reference Design, within the high level objective, cannot achieve further avoidance. They have not discharged that onus.
4. Further efforts of avoidance of native vegetation loss are also warranted because of the problematic and unsatisfactory compensatory arrangements available under the Guidelines, notably in the form of native vegetation offsets and, if approved, ‘alternative’ compensatory arrangements where species offsets (like for like) are unavailable for threatened species.
5. Cleared native vegetation may be compensated for through ‘general offsets’ under the Guidelines, other than where a relevant threshold is met for impacts of native vegetation that is habitat for rare or threatened species.
6. ‘General offsets’ can be secured at any accredited offset sites within the administrative region of the Catchment Management Authority. This applies to native vegetation associated with Endangered EVCs.
7. The ecological evidence is that it is likely general offsets will be secured outside of the project area and outside of the affected municipalities. In these areas there will be a net loss of native vegetation.[[75]](#footnote-76)
8. It is fair to say, in our submission, that compensatory mechanisms available under native vegetation clearing controls will not, on their own, deliver an acceptable outcome in planning terms. Nor are they in accordance with the principles of ESD.

### The ‘urban forest’

1. A compensatory mechanism that does provide for greater potential than those discussed above is enhancement of the so-called ‘urban forest’, particularly where this is combined with greater efforts at avoidance of vegetation loss.
2. The EES treats ‘planted amenity’ vegetation as distinguishable from ‘native vegetation’. However, if the ‘planted amenity’ vegetation is ‘indigenous to Victoria’ it is, strictly speaking, ‘native vegetation’ under planning laws. The distinction in treatment arises from the operation of the exemption under clause 52.17 of the VPPs. That exemption operates to exempt a proposal to clear native vegetation planted with public funds, other than for biodiversity purposes, from the requirement to obtain a permit to do so.
3. There was some question in cross-examination of NELP’s ecological expert witnesses around what native vegetation precisely such an exemption applies to. That is a fair point and there appears to be no evidence of consideration by the proponent of what are or are not ‘amenity’ plantings across the project area.
4. Even more significant is the scale of potential losses of vegetation across the project area identified as ‘planted amenity’ vegetation.
5. Around 26,000 trees are identified as actually or potentially to be cleared under the NELP. Two-thirds of those are mature or maturing trees.[[76]](#footnote-77)
6. Key areas at which ‘planted amenity trees’ are to be removed or impacted include along the Eastern Freeway as a result of widening the Freeway (Component 3 in Technical Report G), and from the M80 Ring Road to River Red Gum Walk (Component 1 in Technical Report G).
7. In these areas, losses or impacts on trees are identified as between approximately 7000-14,700 and 7,800-10,000 trees respectively (14,800-24,700 in total), depending whether ‘potential’ impacts are realised. Losses in Component 2 are fewer as a result of the proposed bored tunnel and fewer planted trees.
8. The evidence of Dr Lorimer is that this assessment does not include planted understorey, which makes a significant understated contribution to this ‘urban forest’. We submit that evidence should be accepted.
9. The evidence of Ms Caffin is that a ‘significant reduction in tree canopy will occur’ and this will have impacts on the ‘local community and environment… [and] the surrounding region’.[[77]](#footnote-78)
10. Ms Caffin’s expert report notes the ‘wealth of social, environmental and economic benefits’ provided by the urban forest.[[78]](#footnote-79) These statements broadly concur with the evidence of Dr Lorimer and Professor Bekessy on the importance of the ‘urban forest’, or is (in our submission) the ‘naturalistic’ landscape combining remnant and created urban ecosystem features.
11. There is a growing preference and policy intention to protect and extend the ‘urban forest’.[[79]](#footnote-80) This is reflected is various government strategies and policies, including *Biodiversity 2037* which states:

Local governments are now leading the way in urban greening, but a whole-of-government approach is needed to ensure the broad range of benefits are realised.[[80]](#footnote-81)

1. A metropolitan strategy for Melbourne’s ‘urban forest’ was published in early 2019 by Resilient Melbourne and The Nature Conservancy.[[81]](#footnote-82) This strategy has been endorsed by 41 organisations, including the Department of Land, Water and Planning (**‘DELWP’**), most local governments, and planning and water authorities.[[82]](#footnote-83)
2. In our submission, greater efforts directed to avoidance of native vegetation loss are relevant to (and potentially overlap with) greater efforts to avoid losses of ‘planted amenity’ vegetation. This is for various reasons, such as:
* planted vegetation may overlap with remnant Endangered EVCs, such as along the Koonung Creek corridor;
* there is a considerable degree of uncertainty associated with the success of any Tree Canopy Replacement Plan (i.e. as a consequence of the time lag between removal and maturation of new vegetation);
* there is material uncertainty in the capacity of any replacement strategy to deliver a ‘net gain’ in local canopy cover, notwithstanding high level evidence that this can be achieved;
* the Reference Design is a high level model of the NELP for which efforts of avoidance are not exhausted.
1. The evidence of Ms Caffin is that the eastern region of Melbourne is currently facing a loss of tree canopy and vegetation cover as a result of urban in-fill development and infrastructure.[[83]](#footnote-84)
2. Ms Caffin’s also confirmed that only 30-40% of tree canopy removed for NELP can be replaced within the project area.[[84]](#footnote-85) Rather, the balance of replacement trees might be achieved on land within the affected adjacent municipalities, although this opinion is based on ‘rudimentary mapping’.[[85]](#footnote-86)
3. In our submission a Tree Canopy Replacement Plan is a necessary, although not sufficient, mechanism to achieve an acceptable and ecological sustainable outcome for the NELP.
4. Greater efforts directed to avoidance of loss of ‘planted amenity’ vegetation are required, but a Tree Canopy Replacement Plan is an appropriate strategy directed to long-term urban landscape change.
5. The Committee should adopt the amendments to EPR AR3 proposed by Dr Lorimer and proposed new EPR related to an ‘understorey replacement plan’,[[86]](#footnote-87) subject to further proposed amendments we shall come to below on valuation methods.

### Biodiversity and urban design

1. The ecological evidence before the IAC reveals a stark divergence in the treatment of biodiversity for the purposes of environmental assessment.
2. The approach taken to biodiversity assessment by Mr Brett Lane, for example, assumes a relatively narrow set of habitat values and conditions as the relevant scope of biodiversity considerations. This approach broadly accords with the assessment scheme set out in the Guidelines.
3. Biodiversity values emphasised under the Guidelines include native vegetation location and condition, rare or threatened species habitat, Endangered EVCs, and sensitive wetlands or coastal areas. These are important ecological values.
4. Where assessment is based on habitat hectares method, as the Guidelines may require, the reference point (‘benchmark’) for the quality of those biodiversity values is mature, pre-settlement condition.[[87]](#footnote-88) Habitat hectare assessment was required under the Guidelines for the NELP.[[88]](#footnote-89)
5. These are values and reference points that can under-state the full and proper accounting of the ecological values of biodiversity, especially in the urban context. For example, Technical Report Q repeatedly describes environmental features as ‘modified’, ‘degraded’ or ‘urbanised’. That evaluation is undoubtedly true as against a reference point of pre-settlement natural systems.
6. In our submission, the reference point of pre-settlement biodiversity is relevant to the assessment of ecological values but it is limited and arguably constraining in assessing and making findings and decisions relating to development impacts on biodiversity in the contemporary urban context.
7. This submission is supported by the agreed statement in the Conclave Meeting of Ecology Experts that ‘vegetation and habitat in the project area, while in a somewhat degraded state and still supporting biodiversity values, has the potential to be restored and enhanced were it not developed’.[[89]](#footnote-90)
8. Biodiversity impacts and responses to them (such as compensatory measures) need to be assessed in their appropriate ecological context. For the NELP, this is an urban-ecological context.
9. The urban-ecological context includes consideration and accounting for the broad spectrum of ‘ecosystem services’ provided by urban biodiversity, native vegetation and habitat. That wider approach to the treatment of biodiversity was evident in the expert evidence of Ms Caffin, Dr Lorimer and Professor Bekessey. It is also captured in the Ecological Conclave Report.[[90]](#footnote-91)
10. The wider set of values associated with urban biodiversity identified in the expert evidence includes amenity, liveability, human health, childhood development, climate change resilience, urban heat island mitigation, water and nutrient cycling, and maintenance of culture.[[91]](#footnote-92)
11. This broader set of values is Victorian Government policy, as set out in *Biodiversity 2037* and the *Victorian Memorandum on Health and Nature.*[[92]](#footnote-93)
12. *Biodiversity 2037* places emphasis on biodiversity delivering ‘liveability’ outcomes and ‘green infrastructure’ for communities. In this context, the policy includes the strengthening of the profile of biodiversity in strategic planning:

The government is committed to Victoria having a prosperous economy that cares for its liveability and builds its natural capital – and the shared use of information can play an important role in achieving this. The government will bring the latest information about biodiversity and the health of our environmental assets, economic development scenarios (for natural resources, population growth and infrastructure), regionally specific climate change risks, and opportunities for environmental and economic co-benefits together for scenario planning. This approach can help local communities and regions plan for the future, maintain their environmental asset base and make their built environment more liveable.

1. This wider approach to the values of nature is also set within the policy objective of achieving overall improvement, or ‘net gain’, in environmental outcomes.
2. In our submission this type of approach opens a space for greater responsiveness to ‘biodiversity sensitive urban design’ (**BSUD**) (as discussed above).
3. The Ecological Conclave agreed that BSUD ‘has the potential to further avoid and minimise impacts and should be included in the EPRs’.[[93]](#footnote-94)
4. BSUD is a ‘protocol for urban design that aims to create suburbs that are a net benefit to native species and ecosystems through the provision of essential habitat and food resources’.[[94]](#footnote-95) The key elements of BSUD include:
	1. maintaining and introducing habitat;
	2. facilitating dispersal;
	3. minimizing threats and anthropogenic disturbances;
	4. facilitating natural ecological processes; and
	5. improving potential for positive human-nature interactions.
5. Key protocols of BSUD include:
6. identify and map ecological values;
7. define ecological objectives;
8. identify development objectives;
9. identify actions required to achieve objectives considering the five BSUD principles;
10. quantitative assessment of contribution to biodiversity; and
11. identify the BSUD actions that best meet ecological objectives (step b), while accommodating development objectives (step c) for the area.
12. In our submission, BSUD is an approach directed to mutual and evidence-driven *accommodation* of biodiversity and development objectives, rather than solely actions *ameliorative of or mitigating* environmental damage or loss.
13. We submit a new EPR should be incorporated into the EMF, as a new FF1, reflective of the BSUD protocol.
14. A BSUD EPR should also include a governance protocol to ensure multi-disciplinary and transparent arrangements for scoping, designing, monitoring and adapting project components and technical knowledge inputs.
15. The *IWM Framework*[[95]](#footnote-96) adopted by the Victorian Government also contains objectives and collaboration principles conducive to a BSUD approach. We submit that the NELP project area should be considered as both an IWM and BSUD precinct.
16. We further submit, to ensure the broader set of biodiversity values are considered and embedded in the project design, that the FF EPRs should include the following in the list of applicable legislation and policy:
* *Protecting Victoria’s Environment – Biodiversity 2037*
* *Victorian Memorandum for Health and Nature*
* *Integrated Water Management Framework for Victoria*
* *Water for Victoria: Water Plan[[96]](#footnote-97)*
* *Flora and Fauna Guarantee Act 1988* (as amended by *Flora and Fauna Guarantee Amendment Act 2019*)

# The NELP Reference Design – An Unacceptable Outcome

1. If it is consistent with ESD principles and produces a net community benefit, the NELP Reference Design may result in an acceptable environmental outcome.
2. Such an outcome would be a prudent one for the benefit of present and future generations, accounting transparently for all costs and benefits (including environmental costs and benefits), taking biodiversity and ecological integrity as fundamental considerations.
3. However, as currently proposed, the NELP Reference Design is not an acceptable outcome.
4. Even if there is strategic justification for the NELP alignment in general, the Reference Design contains certain critical unknowns including:
* the impact of groundwater drawdown on sensitive environmental assets, including the Yarra River floodplain; and
* whether increased impervious surfaces and runoff to sensitive environmental areas can be managed in a way that achieves a sustainable outcome and contributes to waterway health.
1. The Reference Design contains important uncertainties that may or may not be manageable through EPRs, such as:

* the viability and success of a Tree Canopy Replacement Plan as a device for achieving an overall ‘net gain’ for the environment in Melbourne’s east and metropolitan area more broadly; and
* the provision of an environmental watering program for Bolin Bolin Billabong and for other sensitive GDEs (such as Large Old Trees within Plains Grass Woodland) for the life of the NELP.
1. The Reference Design contains measures that seek to avoid certain detrimental outcomes to sensitive environmental areas, most notably the bored tunnel under the Yarra River.
2. However, the Reference Design contains certain known or likely outcomes that will result in unacceptable ecological outcomes, including:
* loss of significant areas of native vegetation including endangered EVCs and rare or threatened species;
* significant loss of tree canopy and planted understorey across the project area representing several decades of produced urban biodiversity;
* an increase in impervious road surfaces producing stormwater runoff and pollutant loads into the surrounding environment;
* contraction of important areas of biodiversity and waterways in the vicinity of the Yarra River corridor.
1. To exacerbate these unacceptable outcomes, there is no evidence that the approach to project design has attempted a mutual accommodation and accounting for environmental objectives and values.
2. On the basis of the above, we submit the IAC should recommend:
	1. a Supplementary Statement concerning groundwater impacts, management of surface water impacts, and ‘urban forest’ and tree canopy outcomes;
	2. in the absence of a Supplementary Statement concerning groundwater impacts, adoption of changes to EPR FF6 proposed by Dr Lorimer;[[97]](#footnote-98)
	3. design outcomes should avoid the widening of the Eastern Freeway, especially east of Bulleen Road, and avoid land clearing impacting on Simpson Army Barracks (‘enhanced avoidance efforts’);
	4. in the context of enhanced avoidance efforts that nevertheless lead to removal or destruction of native vegetation, amendment of the existing FF2 to require enhanced compensatory outcomes, such as those proposed by Dr Lorimer,[[98]](#footnote-99) but qualified further by
		1. a requirement that a minimum proportion of ‘general units’ be achieved in Endangered EVCs of the same type as those removed;
		2. a requirement that all enhanced compensatory outcomes serve and are consistent with adoption of BSUD principles and protocols.
	5. a new EPR providing for BSUD protocols in project design going forward. i.e.

***EPR (FF1) – Reflective of the BSUD protocol:***

*Adopt the principles of Biodiversity Sensitive Urban Design to achieve a net benefit to native species and ecosystems in the project area.*

*Apply the following protocols at the design stage:*

* + - 1. *identify and map ecological values, including the value of novel ecosystems and amenity vegetation*
			2. *define ecological objectives*
			3. *identify development objectives*
			4. *identify actions required to achieve objectives considering the five BSUD principles*
			5. *quantitative assessment of contribution to biodiversity*
			6. *identify the BSUD actions that best meet ecological objectives (step 2), while accommodating development objectives (step 3) for the area.*

*Adopt a governance framework to ensure multi-disciplinary and transparent arrangements for scoping, designing, monitoring and adapting project components and technical knowledge inputs in accordance with BSUD.*

* 1. subject to the findings of a Supplementary Statement on urban forest impacts and outcomes, amendment of EPR AR3 and drafting of a new EPR concerning understorey replacement (as per the recommendations of Dr Lorimer and Prof. Bekessy). i.e.

*Use an agreed valuation method to account for the loss of amenity and environment services, such as the City of Melbourne’s Tree Valuation Method, which uses the formula:*

*Value (V) = Basic Value ($) x Species (S) x Aesthetics (A) x Locality (L) x Condition (C)*

1. In the absence of such recommendations, we submit that the proponent has not made the case that the NELP is acceptable.

# Appendices

1. <<https://waterkeeper.org/>>. [↑](#footnote-ref-2)
2. Terms of Reference, North East Link Project Inquiry and Advisory Committee (11 April 2019). [↑](#footnote-ref-3)
3. Terms of Reference, North East Link Project Inquiry and Advisory Committee (11 April 2019), Cl 22. [↑](#footnote-ref-4)
4. Michael Barlow, *Strategic Planning Presentation* (29 July 2019), Slides 16-21 (Tabled Document No. 97). [↑](#footnote-ref-5)
5. *Transport Integration Act 2010*, s 6. [↑](#footnote-ref-6)
6. Bekessy et al ‘The critical role of “everyday nature” for the future of cities’ (*Bioscience*, forthcoming). [↑](#footnote-ref-7)
7. Gerrard et al, ‘Biodiversity Sensitive Urban Design’ (*Conservation Letters,* March/April 2018) <<https://conbio.onlinelibrary.wiley.com/doi/epdf/10.1111/conl.12411>>. See **Appendix 1.**  [↑](#footnote-ref-8)
8. Statement of Outcomes of the North East Link Project Expert Meeting (Ecology) (Tabled Document No. 128), [1] dot point 3 (**‘Conclave Meeting of Ecology Experts’**). [↑](#footnote-ref-9)
9. Opening Submissions of Banyule, Boroondara and Whitehorse City Councils (25 July 2019) (Tabled Document No. 84) [5]. [↑](#footnote-ref-10)
10. Clause 71.02-3. [↑](#footnote-ref-11)
11. *Ministerial Guidelines for Assessment of Environmental Effects under the* Environment Effects Act 1978 (Seventh edition, 2006) 3. [↑](#footnote-ref-12)
12. World Commission on Environment and Development, *Our Common Future* (1987) 44. [↑](#footnote-ref-13)
13. *Telstra v Hornsby Shire Council* [2006] NSWLEC 133, [108]-[120]. See **Appendix 2.** [↑](#footnote-ref-14)
14. *Telstra v Hornsby Shire Council* [2006] NSWLEC 133 [121]. [↑](#footnote-ref-15)
15. Gerrard et al, ‘Biodiversity Sensitive Urban Design’ (*Conservation Letters,* March/April 2018). [↑](#footnote-ref-16)
16. Expert Witness Report (Ecology) of Graeme Lorimer (15 July 2019) (Tabled Document No. 28f) [86]; Expert Witness Report (Ecology) of Prof. Sarah Bekessy (15 July 2019) (Tabled Document No. 32) 6-7; Expert Witness Report (Net Community Benefit) of Terry Rawnsley (15 July 2019) (Tabled Document No. 28k) [90]. [↑](#footnote-ref-17)
17. Victorian Government, *Plan Melbourne 2017-2050* <<https://www.planmelbourne.vic.gov.au/__data/assets/pdf_file/0007/377206/Plan_Melbourne_2017-2050_Strategy_.pdf>>. [↑](#footnote-ref-18)
18. Victorian Government, *Protecting Victoria’s Environment – Biodiversity 2037* <<https://www.environment.vic.gov.au/__data/assets/pdf_file/0022/51259/Protecting-Victorias-Environment-Biodiversity-2037.pdf>>. [↑](#footnote-ref-19)
19. Victorian Government, *Victorian Infrastructure Plan* <<https://www.vic.gov.au/victorian-infrastructure-plan>>. [↑](#footnote-ref-20)
20. *Plan Melbourne 2017-2050,* Map 2, 16. See **Appendix 3.** [↑](#footnote-ref-21)
21. *Plan Melbourne 2017-2050,* 13. [↑](#footnote-ref-22)
22. *Plan Melbourne 2017-2050,* 75. [↑](#footnote-ref-23)
23. *Plan Melbourne 2017-2050*, 13. [↑](#footnote-ref-24)
24. Submission of Banyule, Boroondara and Whitehorse City Council (Submission No. 716). [↑](#footnote-ref-25)
25. Submission of Banyule, Boroondara and Whitehorse City Council (Submission No. 716) [5.7]-[5.11]. [↑](#footnote-ref-26)
26. See **Appendix 4.** [↑](#footnote-ref-27)
27. Melbourne Water, *Healthy Waterways Strategy 2018-2028* <<https://www.melbournewater.com.au/about-us/strategies-achievements-and-policies/healthy-waterways-strategy>> 113. See **Appendix 5.**  [↑](#footnote-ref-28)
28. See **Appendix 6**. [↑](#footnote-ref-29)
29. *Yarra River Protection (wilip-gin Birrarung murron) Act 2017*;Amendment GC48. [↑](#footnote-ref-30)
30. Technical Report Q (Ecology) 74. See also City of Boroondara, *Urban Biodiversity Strategy 2013-2023* <<https://www.boroondara.vic.gov.au/sites/default/files/2017-05/Urban-Biodiversity-Strategy-2013-2023.pdf>> 14-17.See **Appendix 7.** [↑](#footnote-ref-31)
31. IAC Hearing (Day 9, 6 August 2019) <<https://www.youtube.com/watch?v=i-roG8BKObk&feature=youtu.be>>. [↑](#footnote-ref-32)
32. Victorian Government, *Protecting Victoria’s Environment – Biodiversity 2037,* 14. See **Appendix 8.** [↑](#footnote-ref-33)
33. See **Appendix 9**. [↑](#footnote-ref-34)
34. Hon Lily D’Ambrosio (Minister for Energy, Environment and Climate Change), Second Reading Speech of the Flora and Fauna Guarantee Amendment Bill 2018, Hansard (19 June 2019) 2273 (‘Second Reading Speech’). See **Appendix 9**. [↑](#footnote-ref-35)
35. Second Reading Speech, Hansard (19 June 2019) 2274. [↑](#footnote-ref-36)
36. See Second Reading Speech, Hansard (19 June 2019) 2273-4. [↑](#footnote-ref-37)
37. *Bare v Independent Broad-based Anti-corruption Commission & Ors* [2015] VSCA 197, [235]. See **Appendix 9.**  [↑](#footnote-ref-38)
38. See **Appendix 10**. [↑](#footnote-ref-39)
39. Department of Environment, Land, Water and Planning, *Integrated Water Management Framework* *for Victoria* (September 2017) <<https://www.water.vic.gov.au/__data/assets/pdf_file/0022/81544/DELWP-IWM-Framework-FINAL-FOR-WEB.pdf>> 8, Tabled Document 260. [↑](#footnote-ref-40)
40. IAC Hearing (Day 21, 26 August 2019) <<https://www.youtube.com/watch?v=Zbmwv926JZE&feature=youtu.be>>. [↑](#footnote-ref-41)
41. *Yarra River Protection (wilip-gin Birrarung murron) Act 2017*. See Appendix 11 for relevant declared land. [↑](#footnote-ref-42)
42. See **Appendix 12.** [↑](#footnote-ref-43)
43. *Yarra River Protection (wilip-gin Birrarung murron) Act 2017,* s 1. [↑](#footnote-ref-44)
44. *State Environment Protection Policy (Waters)*, Schedule 1, cl 2(d)(ii), 2(e), Explanatory Note, 48 <<http://www.gazette.vic.gov.au/gazette/Gazettes2018/GG2018S499.pdf>>. **Appendix 13.** [↑](#footnote-ref-45)
45. SEPP (Waters), Schedule 3, Table 1, 62-63. [↑](#footnote-ref-46)
46. SEPP (Waters), Explanatory Note, 48. [↑](#footnote-ref-47)
47. *Environment Effects Act 1978,* s 5. [↑](#footnote-ref-48)
48. SEPP (Waters), Sch 2, Table 1, 49. See **Appendix 14.** [↑](#footnote-ref-49)
49. SEPP (Waters), cl 14. [↑](#footnote-ref-50)
50. Melbourne Water, *Healthy Waterways Strategy 2018-2028*, 111 and 114. [↑](#footnote-ref-51)
51. Melbourne Water, *Healthy Waterways Strategy 2018-2028*, 119. [↑](#footnote-ref-52)
52. These considerations apply to a section 51 ‘take and use’ licence by way of section 53 of the *Water Act 1989*. [↑](#footnote-ref-53)
53. *Alanvale Pty Ltd & Anor v Southern Rural Waters & Ors (Red Dot)* [2010] VCAT 480. See **Appendix 15.**  [↑](#footnote-ref-54)
54. This is the distinction between what elements of Class 1 or Class 2 or higher models should be used to inform an appropriate groundwater model for the NELP as it applies to and affects sensitive environmental receptors. See: Expert Witness Report (Groundwater) of Chris Smitt (15 July 2019) (Tabled Document No. 30a) 16-18. [↑](#footnote-ref-55)
55. Expert Witness Report (Ecology) of Graeme Lorimer (15 July 2019) (Tabled Document No. 28f) [8]-[10]; Expert Witness Presentation (Ecology) of Graeme Lorimer (27 August 2019) (Tabled Document N. 256b) 14-16. [↑](#footnote-ref-56)
56. Evidence of Mr Hugh Middlemas: IAC Hearing (Day 8, 5 August 2019) <<https://www.youtube.com/watch?v=zmnWZlQM7_Q&feature=youtu.be>>. [↑](#footnote-ref-57)
57. Expert Witness Report (Groundwater) of Chris Smitt (15 July 2019) (Tabled Document No. 30a), 17-18; Expert Witness Report (Ecology) of Graeme Lorimer (15 July 2019) (Tabled Document No. 28f) [9]-[10]; Expert Witness Presentation (Ecology) of Graeme Lorimer (27 August 2019) (Tabled Document N. 256b), Slides 16-18. [↑](#footnote-ref-58)
58. Expert Witness Report (Ecology) of Graeme Lorimer (15 July 2019) (Tabled Document No. 28f) [10]. [↑](#footnote-ref-59)
59. Technical Report Q (Ecology) 161. [↑](#footnote-ref-60)
60. Conclave Meeting of Ecology Experts (Tabled Document No. 128) [12] dot point 5 (CM not participating). [↑](#footnote-ref-61)
61. See evidence of Mr Cameron Miller, under cross-examination of Dr Bruce Lindsay: IAC Hearing (Day 9, 6 August 2019) <<https://www.youtube.com/watch?v=i-roG8BKObk&feature=youtu.be>>. [↑](#footnote-ref-62)
62. Conclave Meeting of Ecology Experts (Tabled Document No. 128), [11] dot points 1-3. [↑](#footnote-ref-63)
63. Expert Witness Report (Surface Water) of Scott Dunn (15 July 2019) (Tabled Document No. 30c), 39. [↑](#footnote-ref-64)
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65. See Technical Report Q (Ecology), 118-119, Table 27. [↑](#footnote-ref-66)
66. Technical Report Q (Ecology) 209-210, 217-218, 239-240; Expert Witness Report (Ecology) of Graeme Lorimer (15 July 2019) (Tabled Document No. 28f) [46]-[55]. [↑](#footnote-ref-67)
67. Technical Report Q (Ecology) 246-247. [↑](#footnote-ref-68)
68. Expert Witness Report (Ecology) of Graeme Lorimer (15 July 2019) (Tabled Document No. 28f) [49]. [↑](#footnote-ref-69)
69. Expert Witness Report (Ecology) of Graeme Lorimer (15 July 2019) (Tabled Document No. 28f) [12]. [↑](#footnote-ref-70)
70. Conclave Meeting of Ecology Experts (Tabled Document No. 128) [1] dot point 7. [↑](#footnote-ref-71)
71. Conclave Meeting of Ecology Experts (Tabled Document No. 128) [14] dot point 4. [↑](#footnote-ref-72)
72. Department of Environment, Land, Water and Planning, *Assessor’s Handbook*: *Applications to remove, destroy or lop native vegetation* (October 2018) <[https://www.environment.vic.gov.au/\_\_data/assets/pdf\_file/0022/91255/Assessors-handbook-Applications-to-remove,-lop-or-destroy-native-vegetation-V1.1-October-2018.pdf](https://www.environment.vic.gov.au/__data/assets/pdf_file/0022/91255/Assessors-handbook-Applications-to-remove%2C-lop-or-destroy-native-vegetation-V1.1-October-2018.pdf)> 20. **See Appendix 16**. [↑](#footnote-ref-73)
73. Department of Environment, Land, Water and Planning, *Assessor’s Handbook*: *Applications to remove, destroy or lop native vegetation* (October 2018), 43. [↑](#footnote-ref-74)
74. Expert Witness Presentation (Ecology) of Graeme Lorimer (27 August 2019) (Tabled Document N. 256b), Slides 24-26. [↑](#footnote-ref-75)
75. See evidence of Mr Cameron Miller: IAC Hearing (Day 9, 6 August 2019) <<https://www.youtube.com/watch?v=i-roG8BKObk&feature=youtu.be>>; Evidence of Mr Stephen Mueck: IAC Hearing (Day 22, 27 August 2019) <<https://www.youtube.com/watch?v=TJXqUnDrvgM&feature=youtu.be>>. [↑](#footnote-ref-76)
76. Technical Report G (Arboriculture), 51-55. [↑](#footnote-ref-77)
77. Expert Witness Report (Tree Canopy) of Meg Caffin (15 July 2019) (Tabled Document No. 24u) 11. [↑](#footnote-ref-78)
78. Expert Witness Report (Tree Canopy) of Meg Caffin (15 July 2019) (Tabled Document No. 24u) 7. [↑](#footnote-ref-79)
79. Expert Witness Report (Ecology) of Prof. Sarah Bekessy (15 July 2019) (Tabled Document No. 32) 7. [↑](#footnote-ref-80)
80. Victorian Government, *Protecting Victoria’s Environment – Biodiversity 2037* <<https://www.environment.vic.gov.au/__data/assets/pdf_file/0022/51259/Protecting-Victorias-Environment-Biodiversity-2037.pdf>> 32. [↑](#footnote-ref-81)
81. Resilient Melbourne and The Nature Conservancy, *Living Melbourne: Our Metropolitan Urban Forest* (2019) <<https://resilientmelbourne.com.au/living-melbourne/>>. See **Appendix 17.**  [↑](#footnote-ref-82)
82. See <<https://resilientmelbourne.com.au/living-melbourne/#endorsers>>. [↑](#footnote-ref-83)
83. Expert Witness Presentation (Tree Canopy) of Meg Caffin (6 August 2019) (Tabled Document N. 156), Slides 4-5. [↑](#footnote-ref-84)
84. Expert Witness Report (Tree Canopy) of Meg Caffin (15 July 2019) (Tabled Document No. 24u) 5. [↑](#footnote-ref-85)
85. Expert Witness Report (Tree Canopy) of Meg Caffin (15 July 2019) (Tabled Document No. 24u) 17. [↑](#footnote-ref-86)
86. Expert Witness Presentation (Ecology) of Graeme Lorimer (27 August 2019) (Tabled Document N. 256b), Slides 29-30. [↑](#footnote-ref-87)
87. Department of Environment, Land, Water and Planning, *Habitat Hectare Assessment: Fact Sheet* (2016) <<https://www.environment.vic.gov.au/__data/assets/pdf_file/0023/48542/Habitat-Hectare-Assessment-fact-sheet_Feb-2016.pdf>>. See **Appendix 18.**  [↑](#footnote-ref-88)
88. This is because the designated assessment ‘pathway’ for native vegetation removal for the NELP is the ‘detailed’ pathway. [↑](#footnote-ref-89)
89. Conclave Meeting of Ecology Experts (Tabled Document No. 128) [1] dot point 8. [↑](#footnote-ref-90)
90. Conclave Meeting of Ecology Experts (Tabled Document No. 128) [4] dot point 1, [10] dot point 1. [↑](#footnote-ref-91)
91. Expert Witness Report (Ecology) of Graeme Lorimer (15 July 2019) (Tabled Document No. 28f) [145]-[161]; Expert Witness Report (Tree Canopy) of Meg Caffin (15 July 2019) (Tabled Document No. 24u) 6-10; Expert Witness Report (Ecology) of Prof. Sarah Bekessy (15 July 2019) (Tabled Document No. 32) [4.1]-[4.2], [4.5]. [↑](#footnote-ref-92)
92. Victorian Memorandum for Health and Nature (April 2017) (Tabled Document No. 155). [↑](#footnote-ref-93)
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94. Gerrard et al, ‘Biodiversity Sensitive Urban Design’ (*Conservation Letters,* March/April 2018) <<https://conbio.onlinelibrary.wiley.com/doi/epdf/10.1111/conl.12411>>. See **Appendix 1.** [↑](#footnote-ref-95)
95. Department of Environment, Land, Water and Planning, *Integrated Water Management Framework* *for Victoria* (September 2017) <<https://www.water.vic.gov.au/__data/assets/pdf_file/0022/81544/DELWP-IWM-Framework-FINAL-FOR-WEB.pdf>>. [↑](#footnote-ref-96)
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