

1 March 2021

Department of Planning, Industry and Environment Major Projects

Attention: Belinda Scott, Contact Planner

Dear Belinda,

RE: OBJECTION LETTER TO BEACHES LINK AND GORE HILL FREEWAY CONNECTION

1. Introduction

This objection letter has been prepared by Paro Consulting in relation to Beaches Link and Gore Hill Freeway Connection which is a State Significant Project which is under assessment by the Department of Planning, Industry and Environment and on public exhibition until 1 March 2021. It is understood the project includes a twin tolled motorway tunnels connecting the Warringah Freeway at Cammeray and the Gore Hill Freeway at Artarmon to the Burnt Bridge Creek Deviation at Balgowlah and the Wakehurst Parkway at Seaforth.

The owners and resident of the property 48 Calbina Road, Northbridge have commissioned Paro Consulting to provide an independent planning review of the proposal, identify any issues and provide recommendations where required which would form a submission to the Department of Planning, Industry and Environment.

The owners strongly opposes the location of the proposed Beaches Link and Gore Hill freeway connection and the dive site at Flat Rock Creek Reserve. Insufficient details of environmental protection measures have been included with the proposal to mitigate significantly adverse impacts upon the health and wellbeing of residents and the natural environment. Further, it is important that the location of the flat rock reserve construction zone is revegetated to contribute to the natural biodiversity and character of the locality.

2. Site Context

The owners property (the subject site) is located at 48 Calbina Road, Northbridge which is zoned E4 Environmental Living and adjoins Flat Rock Creek Reserve. The tunnel is located about 100m to the north and west of the subject site as illustrated in Figure 1 below. The view from the terrace at 48 Calbina Road, Northbridge towards the flat rock reserve is illustrated in Figure 2 below. The flat rock creek reserve construction site and acoustic shed and surrounds is located about 50m from the west of the subject site as illustrated within Figure 3 below.



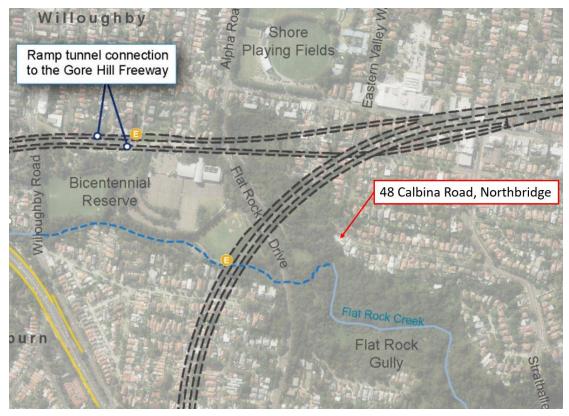


Figure 1. Site context aerial image of future tunnel Source: EIS



Figure 2. Photo from rear terrace at 48 Calbina Road, Northbridge looking onto the proposed construction zone

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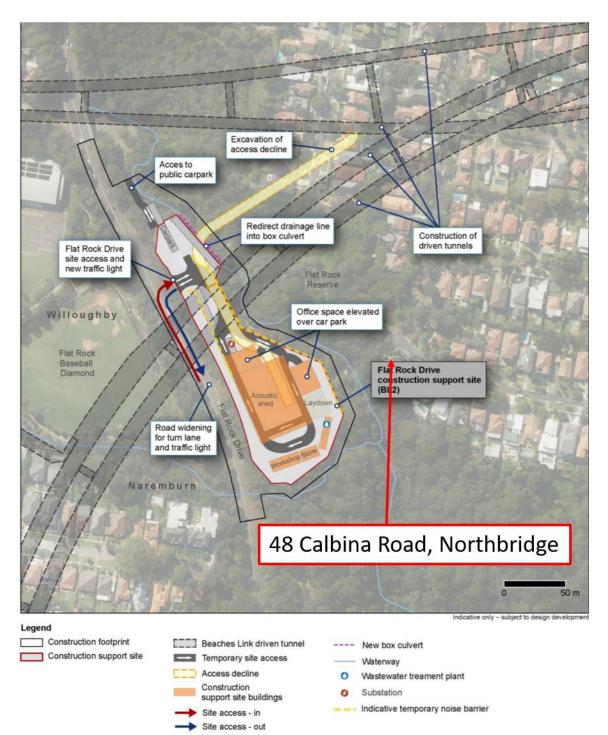


Figure 3. Site context aerial image of future construction area Source: EIS



3. Issues

An independent assessment has been prepared of the state Beaches Link and Gore Hill Freeway Connection Proposal based on the information publicly available from the DPIE website and site inspection of 48 Calbina Road, Northbridge. The relevant provisions of these documents and other relevant controls have been considered as part of this assessment.

The key issues identified with the proposal are discussed below.

3.1. Construction Noise and Vibration

Construction noise and vibration (including airborne noise, ground-borne noise and blasting) should be effectively managed to minimise adverse impacts upon acoustic amenity. Increases in noise emissions and vibration affecting nearby properties including 48 Calbina Road, Northbridge during operation of the project should be effectively managed to protect the amenity of the residents and well-being of the broader community.

It is understood that the flat rock reserve will be set up as a construction site and the majority of the tunnelling work will take place up to 20 storeys underground, with the access ramp designed to minimise disturbance of former landfill. Once tunnelling commences, it is understood the main activity at the flat rock reserve construction site will be the removal of spoil. It is expected the spoil will be brought to the surface inside an acoustic shed, where it is loaded into covered trucks which minimises the dust and noise. It is understood the trucks will transport the spoil from the site via Flat Rock Drive and Brook Street to the Warringah Freeway which will occur during standard construction hours.

Renzo Tonin and Associates have prepared a noise and vibration assessment including predicted noise level LAeq (15min), dB(A) modelling of the impacts of the tunnel construction upon the surrounding area within the Flat Rock Drive Area. The project is likely to have a 5 year period with various stages.

Figure 4 below illustrates the location of where the dwelling is relation to predicted noise levels during the establishment of the flat rock drive construction zone. The subject site at 48 Calbina Road, Northbridge is predicted as being subject to a noise level LAeq (15min) of greater than 75 DB(A), being the most severe acoustic impact on the noise level scale.

Figure 5 below illustrates the location of where the dwelling is relation to predicted noise levels during the standard hours road widening of the flat rock drive construction zone. The subject site at 48 Calbina Road, Northbridge is predicted as being subject to a noise level LAeq (15min) of greater than 65 DB(A), being a severe acoustic impact.

Figure 6 below illustrates the location of where the dwelling is relation to predicted noise levels during the out of hours work road widening of the flat rock drive construction zone. The subject site at 48 Calbina Road, Northbridge is predicted as being subject to a noise level LAeq (15min) of greater than 65 DB(A), being a severe acoustic impact.

Figure 7 below illustrates the location of where the dwelling is relation to predicted noise levels during the standard hours tunnelling near the flat rock drive area. The subject site at 48 Calbina Road, Northbridge is predicted as being subject to a noise level LAeq (15min) of greater than 70 DB(A), being a severe acoustic impact.

Hearing damage can occur from extended exposure to noise or exposure to very loud impact or explosive sounds. Prolonged noise as a result of construction work can lead to temporary or permanent hearing loss or tinnitus (ringing in the ears). The Australian Environmental Protection Agency (EPA) and the World Health Organization (WHO) recommend maintaining environmental noises below 70 dBA over 24-hours (75 dBA over 8-hours) to prevent noise-induced hearing loss. The EPA also specified limits for speech interference and annoyance at 55 dBA for outdoors activities and 45 dBA for indoor activities. The EPA also recognise that long term exposure to loud noise is the most common preventable cause of hearing loss.



Overall, the property 48 Calbina Road, Northbridge will experience severe acoustic impacts over a prolonged period of time (over a five year period) ranging from LAeq (15min) 65 DB(A) to 75 DB(A), well above the Australian Environmental Protection Agency (EPA) and the World Health Organization (WHO) recommended noise guidelines. These noise impacts will likely result in noise-induced hearing loss to residents at 48 Calbina Road, Northbridge and make the dwelling house untenable for a period of 5 years if adequate acoustic treatment is not provided to ensure suitable noise levels. Further, the acoustic impacts within flat rock reserve are likely underestimated given the valley further amplifies noise for residents.

It is understood from reviewing the Renzo Tonin and Associates report that the following relevant acoustic treatment are provided to minimise noise impacts to surrounding residents:

- A 4m high noise barrier would be constructed along a section of the eastern boundary of the construction support site;
- Night time delivery vehicle movements would be directly adjacent to the noise barrier when travelling to and from the acoustic shed to maximise the acoustic shielding provided by the noise barrier;
- Heavy vehicle movements would be limited to one heavy vehicle movement (either travelling to or exiting the acoustic shed) per 15 minute period;
- Work would only occur outside standard hours where it: meets the relevant NMLs occurs in an acoustic enclosure is required for safety reasons;
- An acoustic shed would be built to reduce noise from tunnelling, support, spoil handling and fitout work outside standard hours;
- Outside standard hours, noise generating activities associated with laydown and deliveries would occur within the acoustic shed;
- Wastewater treatment plant and Substation included acoustic treatment; and
- Temporary noise screens/mobile noise screens would be used for high noise generating road works activities such as concrete sawing or rock hammering.

Whilst the proposed acoustic measures will mitigate some of the severe acoustic impacts, they will likely be insufficient to protect the acoustic amenity of the residents of 48 Calbina Road, Northbridge for the following reasons:

- The construction workshop is not located in the acoustic shed. Noises associated with a construction
 workshop such as hammering and drilling will result in significant noise. The open construction
 workshop is located to a valley with dwelling houses sitting along the ridge line of the flat rock reserve
 including the property 48 Calbina Road. These dwelling houses are highly susceptible to noise as the
 valley further amplifies noise. It is recommended that a condition of the consent (if recommended for
 approval) require intrusive noise (such as hammering and drilling) to be prohibited outside of the
 acoustic shed;
- The 4m high acoustic wall will provide little or no acoustic protection for the property at 48 Calbina Road as the property is located along an elevated ridgeline and the wall will not directly shield noise from the flat rock drive construction site. The acoustic wall should not be relied upon when determining the likely acoustic impact upon the residents at 48 Calbina Road or detailed acoustic modelled from the subject site to verify the effectiveness of the acoustic wall height and location;
- From a health perspective at-property treatment is required to minimise noise exposures as the noise levels will exceed the Protection of the Environment Operations Act. Without at-property treatments being provided, there is the potential for the severe construction and road traffic noise to result in



adverse health effects including increased levels of severe noise annoyance, sleep disturbance and potential hearing loss. Given the unique situation of the elevated nature of the dwelling, the likely superfluous acoustic wall and proximity to the construction site, it is recommended that the NSW Government fund double glazing to all the windows within the dwelling at 48 Calbina Road as an atproperty treatment. The dwelling house will be untenable without proper acoustic attenuation given the severe prolonged noise impacts, which will occur at all periods of the day for a period of 5 year and potentially longer; and

• The 4m high acoustic wall is the primary source of acoustic attention from the trucks moving material from the acoustic shed to the road. The trucks will be in operation at all hours of the night and theoretically there will be up to 70 truck movements an hour and additional concrete trucks particularly in the construction phase. The proposed significant volume of truck movement is likely to adversely impact upon the acoustic amenity of residents surrounding the site. It is recommendation that potentially in addition to double glazing to the dwelling at 48 Calbina Road that an acoustic roof is provided to the driveway from the acoustic shed. Further, compression braking must be prohibited to trucks when accessing flat rock drive given the inadequate acoustic attenuation.



Figure 4. Predicted noise levels during the establishment of the flat rock drive construction zone Source: Renzo Tonin and Associates





Figure 5. Predicted noise levels during the standard hours road widening of the flat rock drive construction zone Source: Renzo Tonin and Associates

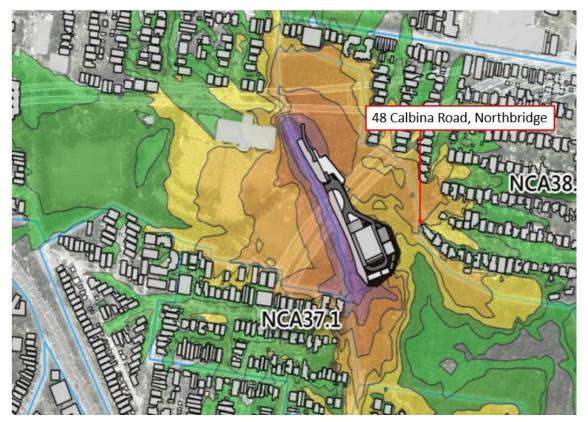


Figure 6. Predicted noise levels during the out of hours work road widening of the flat rock drive construction zone Source: Renzo Tonin and Associates





Figure 7. Predicted noise levels during the standard hours tunnelling near the flat rock drive area Source: Renzo Tonin and Associates



3.2. Future use of the temporary flat rock reserve construction site

The future temporary flat rock reserve construction site sits only approximately 50m from the subject site. The removal of the significant amount of vegetation and temporary flat rock reserve construction site included covered structure will result in a significantly adverse visual impact upon the residents of 48 Calbina Road, Northbridge. Further, the location of the temporary flat rock reserve construction site within a valley will amply noise and result in adverse noise impacts upon the residents of the dwelling house at 48 Calbina Road, Northbridge and broader community.

Concerns are raised of the future intended use of the temporary flat rock reserve construction site following completion of the project. It is suggested the future intended use should be subject to a thorough community consultation process.

The site is considered suitable for bush regeneration and a future public walking/cycle tracks. However, the site is not considered suitable for more intensive uses such as outdoor recreation or education given the significant noise these uses create and sensitivity of homes surrounding the reserve given their located to a valley. Any replacement planting should be located within the area where vegetation has been removed and not else within the LGA.

The final landscape design of the bush regeneration area should be designed to meet intrusive noise criteria derived in accordance with the Noise Guide for Local Government (NSW EPA, 2013). The final landscape design must be subject to further noise assessment to confirm the need for and details of any additional noise attenuation required.

3.3. Hours of Blasting and Intrusive Noise

The EIS stipulates general site activities and spoil haulage would be carried out during standard construction hours (7am to 6pm Monday to Friday, 8am to 1pm Saturday). No spoil haulage or surface civil works would occur on Sundays or public holidays.

Construction noise is one of the major environmental noise issues in NSW – not only from building works but also from demolition, remediation, can generate high noise levels that can adversely affect sleep, concentration (and thus learning performance renewal and maintenance) and mental and physical health.

The Interim Construction Noise Guideline (the Guideline) has been developed by a number of agencies including the Department of Environment and Climate Change NSW (DECC), NSW Department of Planning, Roads and Traffic Authority, NSW (RTA), WorkCover NSW and NSW Health together with the Local Government and Shires Associations of NSW. The document identifies suitable normal construction hours and blasting hours (see below).

Table 1. The Guideline recommended standard hours for construction work

Details	Description
Normal Construction	Monday to Friday 7am to 6pm
	Saturday 8am to 1pm
	No work on Sundays or public holidays
Blasting	Monday to Friday 9am to 5pm
	Saturday 9am to 1pm
	No blasting on Sundays or public holidays.

The Technical Working Paper on Noise and Vibration included within the application provides recommended CNVG construction hours. Table 3-2 within the report recommends the below construction hours.

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Table 2. Technical Working Paper on Noise and Vibration construction work

Details	Description
Normal Construction	Monday to Friday 7am to 6pm
	Saturday 8am to 1pm
	No work on Sundays or public holidays
Construction activities with impulsive or tonal	Monday to Friday 8am to 5pm
noise emissions (intrusive noise)	Saturday 9am to 1pm
	No blasting on Sundays or public
	holidays.
Blasting	Monday to Friday 9am to 5pm
	Saturday 9am to 1pm
	No blasting on Sundays or public
	holidays.

The proposed normal construction hours and tunnel construction and fit out hours are reasonable and complaint with the Interim Construction Noise Guideline. Notwithstanding this, the hours suggested within the EIS for blasting and intrusive noise appear to be inconsistent with the hours of construction as recommended within the Guidelines and Technical Working Paper on Noise and Vibration. Limited hours for blasting and intrusive noise in accordance with the Technical Working Paper on Noise and Vibration should be mandated within the Consent to protect the amenity of residents at flat rock reserve which are positioned within an open valley where noise impacts are amplified.

Therefore, blasting should be limited to 9am to 5pm Monday to Friday and between 9am to 1pm on Saturdays and intrusive noise (impulsive or tonal noise emissions) limited to 8am to 5pm Monday to Friday and between 9am to 1pm on Saturdays.

This requirement for blasting and intrusive noise will provide much respite for residents as early in the morning and late in the afternoon are considered to have a much greater impact given people are more likely to be at school or work during this time during the day.

3.4. Local air quality impacts due to dust generation

The adoption of dust suppression management measures is necessary, including the use of water tanks and/ or carts, sprinklers, site exit controls and stabilisation of exposed areas and stockpiles. Surface treatments as part of the construction methodology for the project should be designed to minimise potential impacts. Details of the local air quality measures to minimise dust generation should be detailed in final construction management plan.

3.5. Disturbance of contaminated soil during construction activities

The temporary construction support site is located on a revegetated former landfill site. Potentially contaminated materials disturbed during site establishment and access decline construction would need to be subject to further investigation, remediation and management. All identified contaminated materials should be managed during construction with the implementation of environmental management measures recommended within the consultant reports provided with the application. All wastes generated during the construction and operation of the project must be effectively stored, handled, treated, reused, recycled and/or disposed of lawfully and in a manner that protects environmental values.



The Contamination Report by Jacobs advises it is possible that the waste mass beneath Flat Rock Drive construction support site contains landfill gas, with the potential for it to migrate towards the proposed Flat Rock Drive construction support site as a result of formation pressure due to ground disturbance from construction activities associated with the project. The report advises that targeted gas testing would be required as part of Stage 2 contamination investigations. Landfill gas is considered to potentially impact upon the health of nearby residents if not managed appropriately. Further, the Contamination Report by Jacobs advises the potential for interaction with contaminated groundwater beneath Flat Rock Drive construction support site during construction of the access decline tunnel and associated works presents a moderate contamination risk.

The following environmental management measures are recommended to mitigate health impacts associated with contamination to nearby residents as follows:

- A detailed landfill gas risk assessment must be provided within the stage 2 investigations to address all
 potential sources, pathways and receptors for landfill gas migration. The source assessment should
 consider the types of wastes, the size of the landfill, the gas generating potential, monitoring results,
 gas volumes and flow rates, and odour modelling and surveys etc. This document must be provided as
 public information and placed on public exhibition;
- A landfill gas monitoring program must be established to demonstrate the achievement of the outcomes
 recommended within the stage 2 study. Appropriate response action must be taken if the trigger or limit
 values specified in these guidelines are exceeded. It is considered necessary to set up a landfill gas
 monitoring receptor nearby to the property 48 Calbina Road given it is located less than 50m from the
 land being remediated and located in an elevated position in relation to the remediation zone;
- There appears to be no details regarding the management of contaminated waste including estimated location and the volume of stockpiles and how contamination waste will be stored. Concern is raised that the contaminated waste will be temporarily stored within the layout area which is located nearby the property 48 Calbina Road which is located along the ridge line where vapour from contamination may impact upon the environmental health of the residents. The remediation action plan and stage 2 investigations must be provided as public information and these documents should be placed on public exhibition for consideration of the public prior to final determination of the application;
- A water quality monitoring program must be implemented. It must characterise the quality and quantity
 of wastewater (leachate and stormwater) generated at the site, detect any pollution of off-site surface
 water and groundwater, ensure that appropriate notification, investigation and remedial procedures
 are followed when monitoring indicates that pollution may have occurred and ensure that appropriate
 sampling and analysis methods are used in accordance with Approved Methods for the Sampling and
 Analysis of Water Pollutants in NSW (NSW DEC, 2004) and other recognised guidelines for matters not
 covered by the Approved Methods; and
- The contamination report provided with the application stipulates that 500 cubic metres of spoil from the site at Flat Rock Gully can be stockpiled outside and that all spoil from the tunnelling overnight will be stored outside until trucks pick them up in the morning. This is contrary to other sections of the report which stipulate that contamination will be stored and restricted to the Acoustic Shed. It is not considered appropriate to suggest stock piling contaminated soil outside without the stage 2 investigation findings. The soil could include harmful land gas that could adversely impact upon surrounding residents if not properly contained.



3.6. Landscape character and visual impacts from construction activities and construction support sites

The removal of significant vegetation and erection of the acoustic shed and other structures at the flat rock reserve construction site will result in a significant visual impact upon the residents of 48 Calbina Road, Northbridge and other adjoining residential properties along the ridge line which directly face the reserve.

There appears no arborist report / landscaping plan provided with the application detailing which surveys which trees are to be removed to accommodate the future acoustic shed and ancillary structures. It is important to retain and protect existing trees adjacent to the works, trimming rather than removing trees and early planting works for operation phase screening buffers is recommended to reduce the consequence of potential impacts to landscape character due to the project. The existing trees should be surveyed and this level of detail should be included within a landscaped plan as part of public exhibition and the application re-exhibited.

It is recommended to minimise the visual impact and to blend into the natural environment to adjacent receivers by using neutral colours and designs for the acoustic shed and ancillary structure to reduce the consequence of potential impacts to landscape character due to construction.

4. Recommendations

The following recommendations are made which are considered to address the above-mentioned Issues:

4.1. Acoustic measures for open construction workshop at flat rock reserve

- It must be a requirement that the intrusive noise (such as hammering and drilling) within the open construction workshop is prohibited, unless conducted within the acoustic shed;
- The acoustic wall should not be relied upon when determining the likely acoustic impact upon the residents at 48 Calbina Road. The 4m high acoustic wall will provide little or no acoustic protection for the property at 48 Calbina Road as the property is located along an elevated ridgeline. The wall will not directly shield noise from the flat rock drive construction site. An acoustic assessment and monitoring system must be arranged for the property 48 Calbina Road should the acoustic wall be sought to be relied upon to achieve suitable noise attenuation;
- The NSW Government should fund double glazing to all the windows within the dwelling at 48 Calbina Road as an at-property treatment. The dwelling house will be untenable without proper acoustic attenuation given the severe prolonged noise impacts, which will occur at all periods of the day for a period of 5 year and potentially longer and the acoustic wall be superfluous;
- An acoustic roof or lip should be provided to the driveway from the acoustic shed to the road, as the property 48 Calbina Road is located at the top of the ridgeline and will not be protected by the proposed 4m high acoustic wall; and
- Compression braking must be prohibited to trucks when accessing flat rock drive given the inadequate acoustic attenuation.

4.2. Future use of the temporary flat rock reserve construction site

- The flat rock reserve construction zone should be regenerated with bushland and public walking/cycle tracks following completion of its use, more intensive uses such as outdoor recreation or education would result in severe acoustic impacts upon residents along the ridgeline adjoining the reserve;
- Any revegetation should be located within the area where vegetation has been removed and not elsewhere within the LGA; and
- The final landscape design of the bush regeneration area should be designed to meet intrusive noise criteria derived in accordance with the Noise Guide for Local Government (NSW EPA, 2013). The final



landscape design must be subject to further noise assessment to confirm the need for and details of any additional noise attenuation required.

4.3. Limited hours for blasting and obtrusive noise

Blasting should be limited to 9am to 5pm Monday to Friday and between 9am to 1pm on Saturdays and intrusive noise (impulsive or tonal noise emissions) should be limited to 8am to 5pm Monday to Friday and between 9am to 1pm on Saturdays. The proposed recommendation to limit the hours of blasting and intrusive noise within the early morning and late afternoon will provide much needed respite for residents as early mornings and late afternoons are considered to have a much greater impact given people are more likely to be at school or work during this time. Further, this would ensure compliance with the hours of construction as recommended within the Guidelines and Technical Working Paper on Noise and Vibration.

4.4. Adopt and detail dust suppression management measures within the future construction management plan for the flat rock reserve construction site

The adoption of dust suppression management measures is necessary, including the use of water tanks and/ or carts, sprinklers, site exit controls and stabilisation of exposed areas and stockpiles. Surface treatments as part of the construction methodology for the project should be designed to minimise potential impacts. Details of the local air quality measures to minimise dust generation should be detailed in final construction management plan for the flat rock reserve construction site.

4.5. Appropriate remediation monitoring and storage measures

- A detailed landfill gas risk assessment must be provided within the stage 2 investigations to address all
 potential sources, pathways and receptors for landfill gas migration. The source assessment should
 consider the types of wastes, the size of the landfill, the gas generating potential, monitoring results,
 gas volumes and flow rates, and odour modelling and surveys etc. This document must be provided as
 public information and placed on public exhibition;
- A landfill gas monitoring program must be established to demonstrate the achievement of the outcomes
 recommended within the stage 2 study. Appropriate response action must be taken if the trigger or limit
 values specified in these guidelines are exceeded. It is considered necessary to set up a landfill gas
 monitoring receptor nearby to the property 48 Calbina Road given it is located less than 50m from the
 land being remediated and located in an elevated position in relation to the remediation zone;
- There appears to be no details regarding the management of contaminated waste including estimated location and the volume of stockpiles and how contamination waste will be stored. Concern is raised that the contaminated waste will be temporarily stored within the layout area which is located nearby the property 48 Calbina Road which is located along the ridge line where vapour from contamination may impact upon the environmental health of the residents. The remediation action plan must be provided as public information following the finalisation of the stage 2 investigations; and
- A water quality monitoring program must be implemented. It must characterise the quality and quantity
 of wastewater (leachate and stormwater) generated at the site, detect any pollution of off-site surface
 water and groundwater, ensure that appropriate notification, investigation and remedial procedures
 are followed when monitoring indicates that pollution may have occurred and ensure that appropriate
 sampling and analysis methods are used in accordance with Approved Methods for the Sampling and
 Analysis of Water Pollutants in NSW (NSW DEC, 2004) and other recognised guidelines for matters not
 covered by the Approved Methods.
- All outside contamination soil stock piling should be prohibited within the application. The stock piling of 500 cubic metres of spoil could lead to adverse health impacts upon nearby residents, particularly



when stage 1 investigation have identified landfill gas risk and the detailed stage 2 investigations has yet to be produced.

4.6. Landscape character and visual impacts from construction activities and construction support sites.

- To minimise the visual impact and to blend into the natural environment to adjacent receivers by using neutral colours and designs for the acoustic shed and ancillary structure to reduce the consequence of potential impacts to landscape character due to construction;
- Retaining and protecting existing trees adjacent to the works, trimming rather than removing trees and early planting works for operation phase screening buffers is recommended to reduce the consequence of potential impacts to landscape character due to the project; and
- The application should include an arborist report / landscaping plan detailing a survey of trees which are to be removed to accommodate the structure at the flat rock reserve.

5. Conclusion

From the preliminary findings of this independent planning review of the Beaches Link and Gore Hill Freeway Connection State Significant Project the proposal should not be supported as it will likely result in several significantly adverse environmental impacts upon the amenity and health of the residents of the property at 48 Calbina Road, Northbridge and broader community. This report provides several recommendations with the aim of trying to mitigate some of these significantly adverse environmental impacts.

We look forward to working with the Department of Planning, Industry and Environment to ensure an acceptable outcome can be achieved for the residents of 48 Calbina Road, Northbridge and broader community.

Feel free to contact me on 0422983710 or at <u>daniel@paroconsulting.com.au</u> should you wish to discuss the contexts of this letter or to arrange an inspection.

Kind regards,

Daniel Barber Director B.Plan (Hons) M.ProDev CPP MPIA Paro Consulting

