



DOC21/1057302

1 December 2021

Ms Angela Stewart
Senior Planner
Transport Assessments
Department of Planning, Industry and Environment

(via Major Projects Planning Portal)

Dear Ms Stewart

**Sydney Metro West – The Bays to Sydney CBD (SSI 19238057)
Advice on Environmental Impact Statement (EIS)**

I am writing to you in reply to your invitation to the NSW Environment Protection Authority (EPA) to provide comment on the Environmental Impact Statement (EIS) for the above project.

The EPA understands this State Significant Infrastructure project is for Stage 2 of the Sydney Metro West development comprising a 3.5 km length of metro rail line between The Bays and the Sydney CBD involving:

- enabling works such as demolition, utility supply to construction sites, utility adjustments, and modifications to the existing transport network;
- major civil works to build an underground metro railway between The Bays Station and the Hunter Street Station in the Sydney CBD;
- tunnelling for twin tunnels, using tunnel boring machines (TBMs) and road headers between The Bays and stub tunnels beyond the Hunter Street stations; and
- station excavation for new metro stations at Pyrmont and Hunter Street.

Construction of Stage 2 is expected to take approximately three years (2023 to 2025) including 15 months of tunnelling.

The EPA has reviewed relevant EIS documents including:

- *Major civil construction between The Bays and Sydney CBD Environment Impact Statement*, dated 25 October 2021, prepared by Sydney Metro (the EIS)
- *Technical Paper 2 – Noise and Vibration*, Ver 1, dated 18 October 2021, prepared by SLR (the NVIA)
- *Technical Paper 8 – Contamination*, Ver 1, dated October 2021, prepared by Sydney Metro (the PSI)
- *Technical Paper 9 – Hydrology, Flooding and Water Quality*, dated 21 October 2021, prepared by Mott Macdonald (the Water Quality assessment)

Based on the information provided, the proposal will require an environment protection licence (EPL) under the *Protection of the Environment Operations Act 1997* (POEO Act) under clause 33 of Schedule 1 for Railway activities – railway infrastructure Construction. Under clause 33, an activity requires a licence for construction of a new railway track that is in the metropolitan area and is 3 km or more in length, and for the extraction or processing of more than 150,000 tonnes (425,000 cubic metres) of material. The new track is 3.5 km in length, and the amount of spoil to be removed includes

505,000 cubic metres from Hunter Street construction site, 220,000 cubic metres from Pymont station site, and 306,000 cubic metres from The Bays tunnel launch and support site.

The EPA provides comment on noise and vibration impacts, surface water quality and contamination issues at **Appendix A** and requests that additional information is provided as part of the Response to Submissions.

Given the range of concerns that the EPA has identified with the EIS, the EPA is available to meet with the Sydney Metro Authority and the Department of Planning, Industry and Environment if this would assist Sydney Metro Authority in responding to those concerns.

Should you require clarification of any of the above please contact Anna Timbrell on 9274 6345 or email anna.timbrell@epa.nsw.gov.au

Yours sincerely

A handwritten signature in black ink, appearing to read 'Erin Barker', written in a cursive style.

ERIN BARKER
Manager Regional Operations
Regulatory Operations Metro

APPENDIX A

1. Noise and Vibration

The EPA reviewed the NVIA and relevant parts of the EIS and identified key matters which are of concern that should be addressed as part of the response to submissions. In summary these are:

- the assessment and presentation of impacts from construction activities;
- assumptions used in modelling noise levels;
- the justification and applicability of construction work outside of the recommended standard hours; and
- the fulfilment of specific matters identified in the SEARs, such as construction road traffic noise.

The EPA is particularly concerned that impacts labelled as “low” and “moderate” are unlikely to align with community expectations. Noise levels described as “low” and “moderate” in the NVIA will be very noticeable and potentially lead to complaints. Failure to manage community expectations by being upfront about likely impacts of the project can lead to a greater degree of noise complaint and an expectation that the EPA will take regulatory action to address these impacts.

Following are the EPA’s detailed comments regarding noise and vibration:

Assessment methodology for construction noise and vibration

The SEARs reference the *Interim Construction Noise Guideline* (DECC, 2009) (ICNG) and the *Sydney Metro Construction Noise and Vibration Standard* (Metro CNVS) which provide guidance on the assessment and management of construction noise. The ICNG defines noise management levels (NMLs) above which all reasonable and feasible mitigation must be implemented. The Metro CNVS references the principles outlined in the ICNG but provides additional assessment frameworks and specific guidance on the type and nature of mitigation measures that Sydney Metro consider to be applicable to their projects. The NVIA has not clearly distinguished how these interact to assess impacts and identify feasible and reasonable mitigation.

Chapter 5.1 of the NVIA includes Table 21 which presents noise impact categories based upon predicted noise levels where levels of up to 10 dB above the noise management level (NML) are described as “low impact”, and noise levels up to 20 dB above the NML are described as a “moderate impact”. **The NVIA does not provide adequate evidence to support the use of these noise impact categories and the EPA considers it inappropriate in its current form**, as explained below. Furthermore, the noise impact categories NVIA Chapter 5.1 are applied to airborne noise, ground borne noise, and sleep disturbance which cannot be assessed using the same generic definition of impact.

The focus of the ICNG is on applying feasible and reasonable mitigation where construction noise exceeds the NMLs (described in Table 2 and 3 of the ICNG). Where NMLs are exceeded, in considering what is feasible and reasonable, the extent (or otherwise) of mitigation selected should not only take account of the noise level, but also factors such as the period in which the noise takes place (e.g. day or night), the duration, the characteristics, and any community feedback. The NVIA does not appear to use the impact categories to determine or inform any specific mitigation to be applied prior to application of the additional mitigation scheme outlined in the Metro CNVS. It appears that the noise impact categorisations are used to describe the impact (inappropriately), and do not take account of other important factors (i.e. time period, duration etc.) that would inform the selection of, and identify feasible and reasonable mitigation. Although the notes to Table 21 of the NIA reference the Metro CNVS with respect to the derivation of these noise impact categories, they have not taken account of the extensive list of factors outlined in the Metro CNVS that must be considered when determining the potential impact for detailed noise and vibration assessments.

The EPA supports the use of plain English definitions so that the community can better understand how they might be affected by construction work, but terms such as “low impact” to describe levels which are up to 20 dB above the rating background noise level (RBL) would likely be very noticeable and in some cases intrusive. It would also be reasonable to consider that the community may expect a “low” or “moderate” impact to be barely or occasionally noticeable, which is unlikely to be the case where noise levels are more than 10 dB above the RBL. This approach to categorising noise impacts is not consistent with the principles outlined in the ICNG and has not taken account of all the considerations in the Metro CNVS to describe noise impact categories. Critically, these noise impact categories do not inform what feasible and reasonable mitigation will be taken to manage noise impacts on the community.

Two examples in the NVIA which highlight the EPA’s concerns are as follows:

- NVIA Figure 19 shows that receivers on Union Street would be highly noise affected as defined by the ICNG (above 75 dBA). However, in NIA Figures 16 to 18 the assessment characterises these receivers would either experience “low” or “moderate” impacts. The EPA does not agree that a receiver which experiences noise levels above the highly noise affected level could be considered “low” or “moderate” impact.
- The Metro CNVS suggests alternative accommodation for receivers which experience ground-borne noise levels more than 10 dB above the NML during the night. However, the NVIA has classified these receivers as experiencing a “moderate” impact. An impact that requires alternative accommodation to be offered could not be reasonably considered as “moderate” impact.

Furthermore, the EPA’s typical licence conditions for major infrastructure projects typically consider low impact as noise levels below RBL + 5 dB and/or works are inaudible at receivers. Therefore, to categorise a noise level that are 20 dB and 15 dB above RBL (during standard hours and out of hours respectively) as “low impact” is not considered appropriate.

The EPA recommends that the categorisation of construction impacts from noise levels currently described in Chapter 5.1 be removed from the NVIA, EIS Chapter 7 and elsewhere in the EIS. An alternative method of categorising noise impacts in plain English could be used but it must have regard to the ICNG and its focus on mitigation, and should consider the factors that affect the potential impact, which include the intensity, character and level of noise, time of day, duration and community attitudes. It is critical that an EIS should provide a realistic description of impacts so that community expectations can be managed.

Study area and NCAs

Table 7 of the Metro CNVS defines the study area for an environmental impact statement: *“The study area must, as a minimum, include receivers subjected to predicted LAeq(15minute) ≥ RBL+5dB for the applicable time period.”* Chapter 2.1 of the NVIA states that the study areas for ground borne noise and vibration were within 150 metres of the works and 600 metres for airborne noise. As a result it is not clear that the Metro CNVS definition of the study area has been implemented in the NVIA, based on the maps of predicted impacts in the NIA.

The EPA recommends that the proponent clarifies that the study area used in the NVIA satisfies the study area defined in the Metro CVNS.

Noise Catchment Areas

The noise catchment areas (NCAs) were determined according to NVIA Chapter 2.1 as: *“Noise Catchment Areas (NCAs) that reflect the ambient noise environment of that area, as well as the noise and vibration sensitivity of the surrounding land uses.”* However, it is not clear how receivers in the NCAs used in the NVIA have similar noise environments. For example, NCA04 encompasses the whole of Pymont north of Bridge Road. This includes the north-western area of Pymont in and around Bowman Street which is closer and potentially more affected by works at The Bays Station.

However, no RBL has been defined for this area and it only appears to have been considered as part of the Pymont Station assessment, not The Bays Station.

The EPA recommends that the areas covered by the NCAs and their subsequently assigned RBLs are representative and appropriate for use in the assessment.

Noise monitoring

A number of matters have been identified regarding the noise monitoring that require clarification, as set out below:

- The monitoring at Location B.06 was noted in Appendix B of the NVIA to have its background noise level affected by nearby mechanical plant.

The EPA recommends that the proponent clarifies to what extent this mechanical plant affected the measurements and whether the noise monitoring data at Location B.06 is representative of background levels in the NCA.

- Furthermore, it appears that the monitoring equipment at Location B.06 was located on a balcony and there is potential for it to be affected by façade reflections. Since RBLs are a free-field noise level, any correction made for façade reflection should be stated in the NVIA.

The EPA recommends that the façade reflection status of all background noise measurements is included in the NVIA and any adjustments made to the measured noise levels reported and justified.

- The information supplied for monitoring Location B.06 is not consistent within the NVIA. Page 43 (of 70) of the NVIA Appendix B document gives the address as 1 Hosking Place and dates between 2 May 2019 and 20 May 2019, however the graphs that follow have dates in June 2015 and the address as 1 Harwood Place.

The EPA recommends that the proponent clarifies addresses and dates for all monitoring locations.

- NVIA Chapter 2.3 states the “*Unattended ambient monitoring was completed in the study area in 2021.*” This gives the impression that all monitoring was done in 2021. However, NVIA Appendix B indicates that the monitoring was done in 2021 at only one location and the remainder from up to 6 years ago. Sufficient justification has not been given in the NVIA that it is appropriate to use historical data including data which is up to 6 years old. Whilst the notes to NVIA Table 3 state that monitoring at 1 Hosking Place are “*considered representative of current ambient noise conditions*” no evidence has been provided to substantiate this claim and therefore it is not clear if this can be relied on.

The EPA recommends that the NVIA main body report clearly shows the dates when the monitoring was conducted and where it was not conducted in 2021, an appropriate justification should be provided for each location that it is appropriate and relevant to use historical data for an SSI application.

- Monitoring graphs in Appendix B of the NVIA appear to report the wind speed at 1.5 metres. The meteorological data for all locations appears to have been sourced from the Bureau of Meteorology station at Observatory Hill. It is not clear how wind speeds were converted from the height of station to 1.5 metres and also how the wind speed was calculated at the monitoring location on the balcony at Location B.06.

The EPA recommends that the NVIA includes the method and assumptions used to convert wind speeds to 1.5 metres, and the height of the microphones above 1.5 metres from ground level and a justification it is appropriate.

Noise modelling assumptions

NVIA Section 4.1.2 states that the assessment uses “*realistic worst-case scenarios*” in the construction noise modelling and in NVIA Section 5.1.1 it states “*The assessment is conservative as the calculations assume several items of construction equipment are in use at the same time within individual scenarios.*” However, the sound power levels in Table 1 of NVIA Appendix C appear to include a correction for “*estimated on-time in any 15 minutes.*” The assessment of utility relocation works in NVIA Section 5.4 also uses a time correction that assumes equipment is only operating for half of the 15-minute assessment period.

This means that the noise for one item is only present for a fraction of the 15-minute assessment period, and the rest of the time is assumed to be silent. The EPA does not consider that this approach represents a realistic worst case or conservative approach and has the potential to underestimate or give an unrealistic expectation of how long items of equipment would be used for. The EPA appreciates that it can be challenging to represent a dynamic activity such as construction, however there are other ways available for modelling peak and typical construction activity that do not involve usage factors.

The EPA recommends that usage factors are either not used in calculations, or evidence is provided to support the usage factors in the assessment are appropriate for the modelled scenarios and that it represents a conservative assessment. Alternatively, the DPIE may wish to consider conditions to limit activities to the ‘on-time’ specified in the NVIA.

Sound power level data for construction activities

NVIA Appendix C provides references to where the sound power level data used to calculate construction noise was obtained. However, it is not clear which sources have been used for item of plant and if they are appropriate.

Furthermore, Sydney Metro have undertaken similar projects, some of which have required noise monitoring and verification of noise modelling inputs. Therefore, it could be expected that accurate sound power level data for activities is available from measurements of previous Sydney Metro activities rather than relying on data from reference sources. In addition, it is not clear if the sound power levels represent noise from the equipment only (e.g. engine, drive chain, exhaust), or if the total noise from an activity is included in the sound power level (e.g. noise of aggregate sliding on a truck tray and hitting the ground). The assessment should address noise from all activities, not just from the equipment itself.

The EPA recommends that the source of the sound power level data is provided for each source and it is indicated if the sound power level is of the equipment only or the activity. If equipment only sound power levels are used, the potential for additional noise created by the equipment carrying out an activity should be accounted for in the assessment.

Consideration of construction equipment and activities in modelling

NVIA Appendix C lists the equipment used in the noise modelling. However there appear to be inconsistencies with the descriptions of construction activities in NVIA Table 14. For example, NVIA Appendix C lists the only ventilation equipment as a “ventilation scrubber,” however Table 14 includes references to ventilation systems and tunnel ventilation fans and Table 15 includes references to barges.

The EPA recommends that the proponent clarifies that the activities and equipment described in NVIA Tables 14 and 15 have been adequately accounted for in the noise sources used for modelling as set out in NVIA Appendix C.

Noise predictions

It is not clear why NCA04 does not appear to have been considered in the airborne noise predictions for activities at The Bays Station.

The EPA recommends that clarification is to be provided on the predicted impacts and mitigation measures for construction work at The Bays for receivers closest to the works in NCA04.

Hours of work

NVIA Section 4.4 proposes that the extension of standard working hours from 1 pm until 6 pm on Saturdays “*would bring considerable benefit to the community.*” It is not clear how this conclusion has been reached and upon what information it is based.

The difference in project duration has not been quantified, nor does it appear that community preference has been considered when balancing an unknown shortening of total project duration against providing regular respite periods on Saturday afternoons for the community during the works in exchange for a longer total project duration.

The EPA notes that under typical approval conditions, work is allowed on Saturday afternoons provided they meet a number of requirements, such as low impact works (as defined in an Environment Protection Licence) among others.

The EPA recommends that the proponent further justifies what is considered to be the considerable benefit proposed for working extended hours on Saturdays and what information was used to determine this position.

In terms of licensing this project, where road possession requirements are used to justify out of hours works, the EPA will require the licensee to demonstrate that it was not permitted to work during standard hours. Out of hours works will only be permitted where the licensee can demonstrate that they are essential.

Cross Passage Excavation

The environment protection licence for the Sydney Metro City and South West project (EPL 20971) did not permit rock hammering between 10pm and 7am in noise sensitive areas where the night time ground-borne noise exceeded the objectives in the ICNG.

The EPA recommends that a similar restriction is considered for the Sydney Metro West project if approved.

Construction traffic noise

Section 5.5 provides limited discussion about potential noise impacts and annoyance from construction vehicles travelling public roads (see items in SEARS 3(i)). However, impacts are not quantitatively assessed and provide no indication of the extent of impact or annoyance that might be experienced, particularly by residents in Pyrmont. When this is read alongside the change in noise level maps in Figure 34, it could be interpreted to mean there is likely to be very minor change (typically less than 1 dB) in the noise environment. It is not clear what conclusion the community can draw from this assessment.

Chapter 5.5 also states that because construction vehicles will generally not access the construction site in Pyrmont during the night, it would “*minimise the potential for annoyance.*” This claim does not appear to be currently substantiated in the NVIA, as impacts and annoyance can occur at other times other than the night period.

The EPA recommends that the assessment required under SEARs 3(i) and set out in NVIA Section 5.5 is revised to include an appropriate assessment that gives a transparent and cohesive assessment of the potential impacts at receivers in Pymont from construction traffic noise.

Noise mitigation

NVIA Chapter 6 provides a limited discussion of mitigation and simply references the Metro CNVS in addition to Table 46 which provides commitments to some mitigation measures. However, the effectiveness of mitigation is not generally described and therefore is difficult to understand what mitigation will be applied at each work site / activity, or whether the mitigation will effectively reduce noise impacts. Although the NVIA Chapter 6 states that residual impact will likely occur and that they would be dealt with using the CNVS, it is unknown if the CNVS would be able to address residual impacts.

The EPA understands that there are uncertainties with regard to mitigation and management for this project, but there is no reason why conceptual feasible and reasonable mitigation cannot be identified within the NVIA based on the conceptual design outlined in the EIS. **It is recommended that if approved, DPIE include relevant safeguards to ensure that feasible and reasonable mitigation is applied (including consideration of community views where appropriate) and not simply referring to the generic mitigation measures outlined in the Metro CNVS.**

2. Surface Water

The EPA reviewed Technical Papers 8 (Contamination) and 9 (Water Quality) as part of its surface water quality assessment review. Stage 2 of the Sydney Metro West project is located within the Sydney Harbour catchment and the proposed water management facilities include sediment basins and three wastewater treatment plants. Wastewater from tunnelling activities will be directed to the treatment plants and all discharges will be to the stormwater system with Sydney Harbour as the ultimate receiving waterway.

However, **details of the extent of contamination and management measures to mitigate contamination risks to waters have not been provided.** The EIS identified areas of moderate to high contamination risk along the project footprint. Further information is required to appropriately characterise the risks. Details of mitigations measures are also required to demonstrate that potential water pollution risks will be appropriately managed.

The EIS did not assess the potential impacts of construction stormwater discharges to receiving waterways. In the first instance, practical measures to avoid and minimise discharges should be considered, including, for example, capture and discharge to the water treatment plants, reuse for dust suppression and construction activities where safe and practical to do so. If discharges are still required, a water pollution impact assessment commensurate with the residual risks and consistent with the national Water Quality Guidelines will be required to inform licensing considerations consistent with Section 45 of the *Protection of Environment Operations Act 1997* (POEO Act).

While the EIS commits to construction stage wastewater discharge criteria which indicate that pollutants are unlikely to cause harm to receiving waters, a condition of approval is recommended to set out the discharge criteria consistent with the EIS.

Following are considerations and recommendations which aim to ensure that the applicant appropriately assesses contamination risks to waters and identifies practical and reasonable mitigation measures to address these risks:

Contaminated areas

There is a potential risk of contamination from construction stormwater. Technical Paper 8 (Contamination) identifies moderate to high risk contamination areas within the project footprint at:

- The Bays Station: moderate to high contamination of soils and groundwater from historical commercial/industrial use and acid sulfate soils

Pyrmont Station: moderate contamination for acid sulfate and saline soils for the eastern construction site during shallow excavations for the installation of power supply lines.

The contaminants of concern at The Bays construction site include hydrocarbons, heavy metals, volatile organic compounds, PFAS, polychlorinated biphenyls, acidic runoff and historic use of contaminated fill. **The EIS did not provide detailed investigations required to appropriately characterise the environmental risks prior to construction. Given that site establishment and excavation of The Bays metro station was approved under Stage 1 *Sydney Metro West – The Bays to Westmead* (SSI 10038), the EPA requests that information sourced from the Detailed Site Investigation at that site be provided as part of the Response to Submissions, to ensure there is no data gap between Stages 1 and 2, and to verify the contamination risk assessment and proposed remediation action.**

Technical Paper 8 states that excavation and establishment of The Bays construction site will occur under the Stage 1 approval (The Bays to Westmead) which, as part of conditions of approval, requires a Detailed Site Investigation and subsequent remediation prior to the commencement of Stage 1 construction. **The EPA recommends this information should be provided as part of the Stage 2 Response to Submissions.**

Mitigation measures

Technical paper 8 indicates that mitigation measures would be implemented to manage potential contamination and acid sulfate soils risks for the project, and further data review or detailed site investigations may be required to inform the management plan. However, details of the proposed mitigation measures were not provided.

Technical Paper 9 (Water Quality) indicates that construction stage erosion and sediment controls would be consistent with *Managing Urban Stormwater, Soils and Construction Vol. 1* (Landcom, 2004) and *Vol. 2D Main Road Construction* (DECC, 2008) to avoid potential contamination to surface waters. However, the measures recommended by Landcom (2004) and DECC (2008) are designed to manage uncontaminated sediment and groundwater and are unlikely to be appropriate for managing water pollution risks associated with contamination, acid sulfate soils and saline soils.

Details of alternative or additional mitigation measures will likely be required to demonstrate that water pollution risks associated with contamination, acid sulfate soils and saline soils would be appropriately managed. However, this needs to be determined through further detailed investigations.

The EPA recommends that the following issues are addressed as part of the Response to Submissions and that the proponent be required to:

1. **provide details of the detailed site investigation and subsequent remediation action plan for The Bays construction site**
2. **consider additional and alternative measures for managing water pollution risks associated with construction in contaminated, acid sulfate soil and saline soil areas. Mitigation measures considered should include but not be limited to:**
 - **at-source controls to prevent pollutants from contaminating stormwater runoff (e.g. bunding, clean water diversions, removal of materials that may pollute stormwater)**
 - **enhanced erosion and sediment controls**

- **options to avoid contaminated stormwater discharges (e.g. reuse where it is safe and practical to do so, diverting contaminated stormwater to wastewater treatment plants or tanker for offsite disposal at a licensed facility,)**
- **increased sizing of sediment basins where practicable to avoid and minimise discharges.**

Stormwater Discharges

The EIS states that sediment basins would be used during the construction stage. Technical Paper 9 indicates that the sediment basins would be sized consistent with DECC (2008) for an 80 percentile, 5-day rainfall event for a standard receiving environment. The proposed sediment basin sizing is consistent with DECC (2008) for construction with a duration of disturbance of one to three years.

Practical and reasonable measures to avoid and minimise discharges should be considered, including, but not limited to, discharge to the water treatment plants and reuse for dust suppression and construction activities where safe and practical to do so.

If construction-related discharges to surface waters are still required, a **water pollution impact assessment** commensurate with the potential risks and consistent with the National Water Quality Guidelines would be required to inform licensing considerations consistent with section 45 of the POEO Act. The assessment must at a minimum:

- predict the expected frequency and volume of discharges;
- characterise the quality of any discharges in terms of the concentrations of all pollutants present at non-trivial levels;
- assess the potential impacts of the proposed discharges on the environmental values of the receiving waterways consistent with the *Australian and New Zealand Guidelines for Fresh and Marine Water Quality* (ANZG, 2018) for slightly to moderately disturbed ecosystems;
- demonstrate that all practical and reasonable measures to avoid or minimise water pollution are considered and implemented; and
- propose appropriate discharge criteria based on the potential water quality impacts and the practical measures available to minimise pollution (e.g. treatment performance).

Wastewater discharges

The EIS indicates that wastewater from tunnelling activities and groundwater ingress will be directed to one of three wastewater treatment plants that will discharge to Sydney Harbour via the stormwater system. Technical Paper 9 states that discharges from the wastewater treatment plants should be close to the following criteria:

- the relevant physical and chemical stressors set out in the Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZECC, 2000); and
- the ANZG (2018) 95 per cent species protection levels for toxicants generally, with the exception of those toxicants known to bioaccumulate, which would be treated to meet the ANZG (2018) 99 per cent species protection levels.

These discharges are unlikely to pose a risk to receiving waterways and no further assessment of potential water pollution impacts is therefore considered necessary at this stage.

The EPA recommends the following condition of approval to set out the discharge quality requirements consistent with the EIS:

Unless an EPL is in force in respect to the CSSI and that licence specifies alternative criteria, discharges from construction water treatment plants to surface waters must not exceed:

- (a) the relevant physical and chemical stressors guideline values set out in Tables 3.3.2 and 3.3.3 of the Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZECC, 2000)
- (b) the Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZG, 2018) default guideline values for toxicants at the 95 per cent species protection level
- (c) for bioaccumulative and persistent toxicants, the ANZG (2018) guidelines values at a minimum of 99 per cent species protection level
- (d) the draft ANZG default guideline values for iron (marine)

Where the ANZG (2018) does not provide a default guideline value for a particular pollutant, the approaches set out in the ANZG (2018) for deriving guideline values, using interim guideline values and/or using other lines of evidence such as scientific literature or international water quality guidelines, must be used to derive a guideline value.

3. Contamination

Further to the discussion above regarding surface water impacts, it is noted that Technical Paper 8 (Contamination) is a preliminary site investigation (PSI). The contamination assessment was based on a desktop study and site inspections, which identified that the area of proposed construction previously comprised heavy industrial land uses associated with the former White Bay Power Station including stockpiling, rail, and wharf infrastructure. As such, the PSI lists a number of known and potential contamination sources, including:

- leaks and spills from fuel storage infrastructure (hydrocarbons and heavy metals);
- processing of heavy end hydrocarbons, heavy metals and metalloids;
- land reclamation and other uncontrolled fill material (metals, hydrocarbons, pesticides, polychlorinated biphenyls and asbestos);
- demolition of buildings that may contain hazardous materials such as asbestos;
- former and current industrial land uses that may contain contaminants such as hydrocarbons, heavy metals and metalloids, solvents, phenolics, pesticides, heavy metals and metalloids and asbestos in soil; and
- existing railways and associated activities that may contain contaminants such as metals, hydrocarbons, pesticides, nutrients, phenols, carbamates, pesticides, herbicides and asbestos in soils.

The PSI has included an assessment of the potential for the proposal to interact with these contaminated areas, and states that “... *the majority of these AELs [areas of environmental interest] would represent a very low or low potential for contamination to impact on receptors as a result of the proposal*”.

The PSI identified potential groundwater contamination in the vicinity of the Pymont Station construction sites as a result of ‘general industrial use’ in the area and considers this to have a “moderate risk” of resulting in potential impacts to receptors during construction. The groundwater contamination does not correspond to a specific geographic location, but rather relates to evidence of a long history of industrial land use in Pymont including historic railyards, factories, bulk fuel storage and warehousing.

No intrusive contamination investigations have been undertaken. The PSI states that additional information will need to be obtained and reviewed (such as site-specific data) to determine the most appropriate site-specific responses or controls to the contamination, “which may include remediation”. It also outlines that mitigation measures will need to be implemented to manage potential contamination, acid sulfate risks, unexpected finds and spill prevention for the proposal. However, as noted in the previous section, there are no details of what these mitigation measures will comprise.

The PSI also states that, where required, “*additional data review will be undertaken to inform these measures. Where there is insufficient data available, detailed site investigations may be required*”. Where contamination is found to present a moderate or higher risk to receptors, the PSI states that a Remediation Action Plan or other management plan will be implemented as required.

The EPA considers that the EIS and the supporting contamination reports have not satisfactorily addressed the SEARs for the project for the following reasons:

- **No intrusive investigations have been undertaken** hence ecological and human health risks posed by contamination haven’t been properly determined.
- **Measures to manage potential contamination issues have not been identified.** Investigations are required to determine what remedial and management measures will be required as part of the proposed development.

The EPA recommends that appropriate contaminated site investigations are carried out by certified contaminated land consultants as detailed below. The investigations should be completed covering the areas likely to be disturbed as part of the development. The investigations should assess all relevant media and potential contaminants known or potentially present and measures to manage potential contamination identified.

As part of the Response to Submissions, the EPA recommends the proponent be required to provide the following:

1. a **Sampling and Analysis Quality Plan (SAQP)**, prepared in accordance with the relevant guidelines made or approved by the EPA under s105 of the *Contaminated Land Management Act 1997* (CLM Act), to ensure that field investigations and analyses will be undertaken in a way that enables the collection and reporting of reliable data to meet project objectives, including (where applicable) the relevant site characterisation requirements of the detailed or targeted site investigations;
2. a **Detailed Site Investigation (DSI)**, that investigates the nature and extent of contamination in the soil and groundwater, to adequately inform what management measures or remediation would be required to safeguard environmental, ecological and human health receptors during construction and operation of the proposed SSI; and
3. **engagement of a NSW EPA-accredited site auditor.**
4. the appointed auditor to provide **interim audit advice** commenting on:
 - (a) the adequacy of the SAQP;
 - (b) the nature and extent of the contamination, as detailed in the DSI; and
 - (c) the appropriateness of any Remediation Action Plan (RAP) or plan proposed by the Proponent to manage contamination identified within the project footprint.