



DOC20/511367

26 June 2020

Mr Keith Ng
Senior Planning Officer
Transport Assessments
Department of Planning, Industry and Environment
GPO Box 39
Sydney NSW 2001

Dear Mr Ng

**Sydney Metro West (SSI 10038)
Advice on the Environmental Impact Statement (EIS)**

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

The EPA understands that the project involves a new 24 km metro line between Westmead and the city with confirmed stops at Westmead, Parramatta, Sydney Olympic Park, North Strathfield, Burwood North, Five Dock, The Bays and the Sydney CBD; and that the EIS covers the Concept and Stage 1 for civil construction works between Westmead and The Bays including station excavation and tunnelling.

The EPA has reviewed the EIS provided by the Department of Planning, Industry and Environment (DPIE) and has a number of concerns relating to the environmental impacts associated with the construction phase of the proposal. Specifically, the EPA has concerns about the proposed management of noise and water quality impacts. The EPA would like to engage with DPIE throughout the assessment process to ensure that the statutory instruments of both agencies work to minimise any impacts on communities and the receiving environment.

Detailed advice and recommendations regarding noise and vibration, water quality, hydrogeology, contamination and waste have been provided for DPIE's consideration at **Appendix A**.

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 'Claire Miles'.

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Appendix A

1. Noise and Vibration

The EPA reviewed noise and vibration related documents including Chapter 11 of the *Environmental Impact Statement*, dated 15.04.20, prepared by Jacobs/Arcadis (EIS), *Technical Paper 2: Noise and Vibration*, dated 09.04.20, prepared by SLR (noise assessment) and the *Construction Noise and Vibration Standard*, dated 16.03.20, prepared by Sydney Metro (CNVS).

The noise assessment has identified the major construction stages and the anticipated work methods and equipment that will be used for each of these stages. It has quantified construction noise levels at noise-sensitive receivers for the both the noisiest ('peak') and the typical construction scenarios during each construction stage and within each study area. It has then compared the predicted construction noise levels with the Noise Management Levels (NML) derived in accordance with the *Interim Construction Noise Guideline* (DEC, 2009) (ICNG).

Where construction noise is predicted to exceed the NMLs, the ICNG requires that specific management actions are implemented to mitigate construction noise impacts. There are two significant methodological deficiencies in the noise assessment in this regard: noise categorisation; and mitigation and management of noise impacts.

(a) Noise categorisation

Section 5.1 of the noise assessment categorises exceedances of the Noise Management Levels (NMLs) as 'low', 'medium' or 'high' noting that this represents "*The likely response of people affected by the impacts ... noting that the subjective response would vary and depends on the period in which the impacts occur ...*"

Categorisation of noise impacts in this way provides an indication of the extent of project-wide construction noise impacts insofar as it estimates the number of noise sensitive receivers likely to experience construction noise above the NMLs.

However, exceedance of the NMLs indicates the need to identify feasible and reasonable noise mitigation and management measures. The NMLs do not represent a subjective response to noise.

Individuals will perceive and react to noise based on a range of factors and not just the absolute or relative changes in noise level. Other considerations – such as the duration and period when work takes place, how often it will take place, and how feedback from the community will (or will not) be used to inform mitigation strategies – will influence an individual's subjective response to noise.

The EPA cautions against this categorisation of noise impacts based on the NML alone as it may understate construction noise impacts and lead to unrealistic expectations in the community. For example, a 'low' impact implies that construction work will be quiet or inaudible, and/or will not take place during sensitive time periods, which may not be the case.

Furthermore, the categorisation of noise impacts in this way is not consistent with the requirements of the ICNG where any exceedance of NMLs requires specific noise management actions. The EIS does not adequately describe what mitigation and management actions will be implemented, as outlined below.

(b) Mitigation and management of noise impacts

The noise assessment does not describe the mitigation and management measures that will be applied to each key study area and construction stage where the NMLs will be exceeded; or what mitigation (if any) will be implemented where noise impacts are predicted to exceed the 'low', 'medium' and 'high' noise impact categories. Furthermore, it is unclear if residual impacts will occur following implementation of all feasible and reasonable mitigation.

Instead, the EIS states (11.16.1) that “*Noise and vibration would be managed in accordance with Sydney Metro’s Construction Environmental Management Framework ...*” (CEMF) which includes the CNVS (Appendix E).

The CNVS sets out the strategy for guiding noise mitigation decision-making but not to the extent of describing what specific mitigation measure will be applied where the EIS predicts construction noise impacts for each key study area and construction stage. It explains that a Construction Noise and Vibration Impact Statement (CNVIS) will be prepared by the principle contractor to quantify noise impacts and identify mitigation for each specific work site and activity following project approval.

Because the noise assessment relies upon the development of site and activity specific noise mitigation measures in a CNVIS after any approval is granted, it does not offer sufficient detail or certainty on what practical measures will be taken to prevent or mitigate construction noise and vibration impacts within each key study area and during each construction stage, including any action to address residual noise impacts.

(c) Other comments

In addition to the methodological deficiencies outlined above. The EPA advises of the following matters that should be addressed as part of a Response to Submissions (RtS):

Inconsistencies between the Noise Assessment and the CNVS

- i. Noise impacts in the noise assessment are categorised as ‘low’, ‘medium’ and ‘high’ based on the extent that noise will exceed the NMLs. However, the CNVS states that CNVIS documents will categorise noise impacts as ‘low’, ‘medium’ and ‘high’ not only based on the extent that noise exceeds the NMLs, but also by considering other subjective factors such as the likelihood for sleep disturbance (see point ii below) and the period when work will take place. It is not clear what relative weight will be given to each of these subjective factors in CNVIS documents to determine the impact category or how this will be used to inform the selection of feasible and reasonable mitigation to minimise noise impacts on the community.
- ii. The noise assessment has considered the potential for sleep disturbance using the sleep disturbance screening criteria set out in the *Noise Policy for Industry* (EPA, 2017). However, the CNVS references the *Environmental Criteria for Road Traffic Noise* (DECC, 1999) and the *Environmental Noise Management Manual* (RTA, 2001) both of which have been superseded.
- iii. The CNVS describes minimum noise and vibration mitigation measures which ‘may be considered’ to reduce noise to achieve the relevant NML. It also sets out additional noise and vibration mitigation measures which include options such as alternative accommodation and project specific respite offers. There is no indication in the noise assessment or the CNVS if the minimum mitigation measures (Section 4 of the CNVS) will be adopted in all instances; and what (if any) additional mitigation measures (Section 5 of the CNVS) will be applied to each key study area and construction stage where NML exceedances are predicted.
- iv. The CNVS states that the “...[CNVIS] and works subject to these assessments will not proceed until they have been approved by an Acoustic Advisor appointed under an SSI approval, or where there is no SSI approval, approved by Sydney Metro”. Neither the noise assessment nor CNVS explain if noise mitigation approved by the Acoustics Advisor (if appointed) will ensure construction noise impacts are reduced to below the relevant NMLs or result in other appropriate outcomes, for example a negotiated community agreement.

Out of standard hours works

The EIS identifies construction activities and associated periods of work including out of standard hours work (OSHW). The EIS states that OSHW will be necessary for:

- excavation within an acoustic shed;
- mined caverns within a shed;
- tunnelling with a tunnel boring machine (TBM); and
- concrete batch works and segment production.

It is anticipated that a significant amount of OSHW is also likely to be needed for local area and utility works adjustments (LAUW) to support the project. These works can have a significant impact on adjoining communities and should be assessed so that appropriate mitigation can be identified and formalised through conditions of approval.

Where LAUW cannot be scheduled to take place during the recommended standard hours of work, for example due to restriction on road access, then appropriate limits on the number of nights per week that LAUW works may be undertaken should be formalised to minimise noise impacts. If approval is granted, it is recommended that any pathway that would allow the applicant to 'self-approve' work outside of the recommended standard hours (for example through an out-of-hours protocol or similar), exclude work that will require an environment protection licence (EPL).

Cumulative Impacts

Transport for NSW (TfNSW) is the proponent of various infrastructure projects that may have cumulative consecutive and / or concurrent impacts on communities who may be impacted by the Sydney Metro West project. This places TfNSW and the applicant in a unique position to identify and manage cumulative impacts.

Sydney Metro and TfNSW are encouraged to coordinate OSHW (where practical) so that cumulative impacts can be identified and effectively mitigated.

Blast Impacts

The noise assessment proposes air-blast over-pressure and ground vibration objectives that are significantly higher than levels recommended in the *Technical Basis for Guidelines to Minimise Annoyance Due to Blasting Overpressure and Ground Vibration* (ANZECC, 1990) for human comfort and amenity for blasting activities (EIS, chapter 11.3.9).

The EPA recognises that controlled blasting can have significant benefits by reducing the need and duration of other forms of intensive excavation techniques such as rock breaking and rock sawing. Any relaxation of human comfort and amenity limits for blasting activities should be contingent on identifying methods to reduce community reaction to blasting such as through negotiated agreements. Note that the EPA's regulatory role does not include determinations of structural or cosmetic damage to structures caused by blasting or vibration.

Tunnelling surface support activities

The EPA acknowledges that tunnel boring machine (TBM) activities need to be undertaken 24 hours per day, seven days per week. The noise assessment proposes that ancillary surface support works, for example spoil haulage also be given approval for 24/7 operation. It is noted that the project will generate over 3 million cubic metres of spoil that will require removal from the construction sites. This will cause traffic noise impacts, including over 1 million cubic metres of spoil to be removed from The Bays Station construction site by heavy vehicle that will have cumulative / concurrent impacts associated with other major road projects.

The EPA does not recommend that tunnelling 'ancillary' activities be granted approval for 24/7 operation without a process to determine if these ancillary works are essential and necessary to support TBM activities. The EPA notes that 24/7 spoil haulage on the Metro City and South West project was not required.

Cross passage construction

The environment protection licence for the Sydney Metro City and South West project (EPL 20971) did not permit rock hammering between 10 pm and 7 am 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.

Noise monitoring

Monitoring location B.08 does not appear to be representative of residential receivers in NCA08. The monitoring location appears to be located adjacent to commercial land uses and away from the nearest residential receivers to the Olympic Park construction site. The noise monitoring graphs and information in Appendix B of Technical Paper 2 noise assessment indicate that measured noise levels are likely to have been influenced by existing industrial noise from nearby commercial buildings, particularly during the night.

The nearest residential receivers in NCA08 are distant to the potential sources of industrial noise near to the monitor. The proponent should provide justification that B.08 is representative of residential receivers in NCA08 or provide monitoring data that can be considered representative.

Community engagement

The assessment has considered the key noise and vibration risks associated with this project. It is important to underline that the community will hear, and likely be affected by noise and vibration at different times during the construction of the project. The acoustic environment is likely to change and will be audible, particularly as construction of the project progresses. This may include construction noise and vibration during the evening and at night. Therefore, it will be important to keep the community informed about construction activities as the project progress and seek the community's preference on mitigation options, including work scheduling, and respite periods.

If approved, detailed information will need to be provided to the community so they can understand what construction activities will take place, where it will take place, when it will take place, and for how long. Where construction activities are proposed outside of the recommended standard hours, the community should, as far as practicable, be engaged to identify feasible and reasonable mitigation, including periods of respite.

2. Water Quality

The EPA reviewed surface water quality related documents including Chapters 18 and 19 of the *Environmental Impact Statement*, dated 15.04.20, prepared by Jacobs/Arcadis (EIS), and Section 4.7.2 of the *Technical Paper 7: Hydrogeology*, dated April 2020, prepared by Jacobs (Technical Paper 7).

Sydney Metro West Stage 1 (except for The Bays Station) is located within the upper estuary of the Parramatta River catchment, one of the main tributaries of Sydney Harbour. The Bays Station drains to White Bay in the lower estuary of Sydney Harbour. Stage 1 drains to a number of water courses in the catchments and six of those are identified as sensitive receiving environments due to their proximity to SEPP Coastal Wetlands and/or being mapped as Key Fish Habitat. These waterways are: Parramatta River / Sydney Harbour, Duck River, Duck Creek, Haslams Creek and Dobroyd Canal / Iron Cove.

The EPA has identified issues including incomplete implementation of the relevant water quality management framework, and insufficient assessment of water quality impacts particularly related to the wastewater treatment plant discharges.

(a) Water quality management framework

The framework for water quality management is provided by the NSW Water Quality Objectives (WQOs) and the *Australian and New Zealand Guidelines for Fresh and Marine Water Quality* (ANZG, 2018). The water quality management framework is only partially implemented in the EIS.

The WQOs and environmental values are identified for each waterway that may be affected by the proposal, but protection levels are not stated. It is implied in Table 19-12 in the EIS that the level of protection that is being applied to all waterways is for 'slightly to moderately disturbed' ecosystems as wastewater from the treatment plants will be treated to a level that is consistent with ANZG default guideline values for 95 percent species protection. It should be noted in the EIS that the equivalent protection level for toxicants that bioaccumulate is 99 percent.

The EIS does not characterise existing water quality for each affected waterway adequately. In Table 19-6 only two pollutants are specifically identified to characterise existing water quality – Dissolved Oxygen and turbidity. Other physical and chemical stressors and toxicants present in the waterways are identified by category only, for example nutrients and heavy metals. Table 19-6 assesses each waterway against ANZG but it is not clear if guideline values are being met.

Table 19-11 in the EIS assesses the impact of Stage 1 on water quality objectives. The assessment is not completed for each waterway affected by the proposal but is generalised for the project. Some of the trigger values listed in the table are not consistent with those in the ANZG, notably chlorophyll-a and Dissolved Oxygen. While a set of physical and chemical stressors has been listed, toxicants are defined by category only as 'chemical contaminants'.

Conclusions have been made about the impacts of Stage 1 in Table 19-11 without adequate wastewater discharge impact assessments.

Recommendations

The EPA recommended that the RtS include:

- a clear statement(s) on the adopted protection levels for each affected waterway;
- information on existing water quality characterising each waterway, including not using categories for pollutants; and
- assessment of whether water quality objectives are currently being met in each waterway.

(b) Construction stage wastewater management

The desktop review of contamination (included in Chapter 20 and detailed in Technical Paper 8) indicates there is a risk of groundwater contamination at five of the seven station sites and at both the Silverwater services facility and the Clyde stabling and maintenance facility. Wastewater treatment plants (WTPs) are proposed at all seven station sites and the Silverwater services facility and the Clyde stabling and maintenance facility (nine in total).

Stage 1 of the project will generate an estimated 2850 ML of wastewater. During construction, the nine proposed wastewater treatment plants will discharge between 10 and 35 L/sec into local waterways (600-2100 L/minute). The EIS does not contain sufficient details regarding these WTPs including their location, and therefore the location of the intake and discharge locations, the expected discharge volumes. The discharge of high volumes of treated wastewater from these WTPs has the potential to scour stream banks and add significant loads of pollutants to receiving waters if not managed appropriately. The expected duration that these WTPs would be operating and which, if any, will continue to operate during the operational phase has not been provided.

In addition, the EIS does not:

- identify and estimate the quality of each wastewater discharge including consideration of all pollutants that pose a risk of non-trivial harm to human health and the environment;
- demonstrate how each proposed wastewater discharge will be managed to ensure the NSW WQOs will be met at the discharge point or by the edge of the near-field mixing zone (where a mixing zone is required); or
- adequately detail practical measures to prevent, control or mitigate pollution.

The wastewater treatment plants will primarily treat groundwater seepage. Technical Paper 7 provides a brief comparison of laboratory results from 50 groundwater monitoring bores along the project alignment to ANZG. This brief assessment does not consider all pollutants that pose a risk of non-trivial harm to human health and the environment that are present in the groundwater, does not provide the locations where the guidelines are exceeded or the extent to which they are exceeded.

The groundwater is noted to exceed the ANZG trigger levels for 95 percent species protection at numerous locations for ammonia, cobalt, manganese, arsenic, copper, lead, nickel and zinc. Iron concentrations were also noted to be relatively high with a mean concentration of approximately 19 milligrams per litre (also reported as a mean of 8 grams per litre in a September 2018 investigation). PFAS and nickel were noted as exceeding the guidelines for 99 percent species protection at selected locations.

Technical Paper 7 notes that in the September 2018 groundwater investigation the Limit of Reporting was above the guidelines for the 99 per cent protection of aquatic ecosystems for a number of contaminants such as mercury, phenols, VOC, pesticides, PFAS. Technical Paper 7 acknowledges that the risk to receiving aquatic ecosystems from bio-accumulative contaminants is not fully understood as sampling and analysis has not been undertaken from the receiving surface waters to establish background conditions.

It is noted that the Clyde stabling and maintenance facility, Sydney Olympic Park metro station and The Bays station will be subject to a detailed contaminated site investigation, development of Remediation Action Plans, remediation of the site and Site Audit Statements and reports prior to construction. Silverwater services facility requires a detailed site investigation, development of a Remediation Action Plan and remediation of the site. It is likely that the range of pollutants and their concentrations will change as a result of remediation.

The remaining wastewater treatment plant sites (Westmead, Parramatta, North Strathfield, Burwood North and Five Dock stations) will have no further investigations into groundwater contamination. It is recommended that a wastewater pollution impact assessment is included in the EIS for these sites.

Recommendations

The EPA recommended that a Wastewater Pollution Impact Assessment is provided in the RtS for wastewater treatment plants at Westmead, Parramatta, North Strathfield, Burwood North and Five Dock station sites. This assessment must, at a minimum:

- characterise the groundwater / water quality at each site to inform the selection of appropriate water treatment processes;
- detail proposed wastewater treatment processes including the treatment technology/units and the pollutants being treated;
- detail expected plant discharge water quality under typical and worst-case conditions;
- identify and estimate the quality and quantity of all pollutants that may be introduced into the water cycle at each discharge point;
- assess the potential impact of discharges on the environmental values of the receiving waterway, including typical through to worst-case scenarios, with reference to the relevant guideline values consistent with the National Water Quality Guideline;
- where a mixing zone is required, demonstrate how the National Water Quality Guideline criteria for relevant chemical and non-chemical parameters are met at the edge of the initial mixing zone of the discharge
- demonstrate how the proposal will be designed and operated to:
 - i protect the Water Quality Objectives for receiving waters where they are currently being achieved;
 - ii contribute towards achievement of the Water Quality Objectives over time where they are not currently being achieved; and

- demonstrate that all practical and reasonable measures to avoid or minimise water pollution and protect human health and the environment from harm are investigated and implemented.

(c) Other water quality protection measures – sediment and erosion control

The EIS identifies that erosion and sediment control measures would be implemented at all construction sites in accordance with the principles and requirements in *Managing Urban Stormwater – Soils and Construction, Volume 1* (Landcom, 2004) and *Volume 2D: Main Road Construction* (DECCW, 2008). However, it does not nominate the rainfall event that the measures will be designed to cope with, as required by the SEARs.

Temporary sediment basins are proposed as a mitigation measure to address sedimentation and erosion but it is not clear in the EIS where they will be required and if they will be discharging to waterways. The basins are noted to be designed in accordance Volume 2D (DECCW, 2008).

Recommendations

It is recommended that the EIS detail the rainfall event that the sediment and erosion control measures will be designed to cope with.

If sediment basin discharges are proposed that will not be treated by the wastewater treatment plants, a Water Pollution Impact Assessment commensurate with the potential risk and consistent with the National Water Quality Guidelines will be required to inform licensing consistent with Section 45 of the *Protection of Environment Operations Act 1997*.

3. Hydrogeology

The EPA reviewed hydrogeology-related documents including Chapter 18 of the *Environmental Impact Statement*, dated 15.04.20, prepared by Jacobs/Arcadis (EIS), and *Technical Paper 7: Hydrogeology*, dated April 2020, prepared by Jacobs (assessment report) and provides the following comments:

(a) Baseline monitoring

The assessment report has not addressed the requirement to obtain an adequate baseline monitoring of hydrogeological attributes, as stipulated in the SEARs.

The baseline data used to characterise the quality and quantity of available groundwater throughout the project area was determined by using undefined sampling results from 50 monitoring bores adjacent to the proposed alignment of the project. In addition to the project's network of bores, the applicant collected groundwater data from 40 monitoring installations drilled during previous and ongoing major traffic infrastructure projects, namely the M4 East extension as part of West Connex, and the Western Sydney Harbour Tunnel.

Crucially, spatial details and mapping of the extensive monitoring network, including the 40 monitoring bores from nearby projects have not been provided. The absence of this dataset limits an assessment of groundwater parameters, their distribution across the project footprint, and their spatial trends, eg. areas of high salinity, low pH, areas of elevated iron concentrations, shallow water tables etc.

As there were not enough sampling details to establish a baseline prior to the lodgement of the EIS, it is proposed that further sampling of the network will be undertaken prior to construction in order to obtain a baseline. However, justification for the spatial details of the monitoring network is critical to determine if the anticipated baseline will be fit for purpose.

Additionally, details of the proposed baseline sampling are not discussed in detail. Specifically, the suite of water quality analytes to be sampled and tested, as well as the frequency of monitoring groundwater quality, could not be identified in the EIS.

In response to addressing the corresponding SEAR relating to the 'requirements for baseline monitoring', the proponent states: *"Monitoring of groundwater levels and quality at the site area would occur before, during and after construction. This would also include monitoring of potential contaminants of concern. Groundwater level data would be regularly reviewed during and after construction by a qualified hydrogeologist"* (Table 7-1 in Technical Paper 7). The EPA notes this commitment but would prefer that baseline monitoring to be submitted as part of the RtS. If time constraints prevent this, the proponent must prepare a Water Management Plan (WMP) with up to date baseline prior to commencement of construction to be reviewed by the relevant state authority.

(b) Discharge

Regarding the SEAR to estimate the discharge water quality and degree of impact that any discharges may have on the receiving environment including consideration of all pollutants, the information presented in the EIS (18.6.5) and Chapter 5 of Technical Paper 7 does not allow for an adequate assessment to be made on the impacts of encountered water quality to a receiving environment.

It is expected that over the size in area covered by project, there will be contrasting differences in groundwater quality across the alignment. The difference in geological facies encountered will change in a variety of ways, influencing the quality and quantity of the groundwater encountered. As a result of these variables, there are concerns regarding how the treatment of groundwater will occur given the expected differences for treatment options at proposed discharge locations along the project alignment. It is also expected that excavations and tunnelling will induce contaminated groundwater into the project voids and will require specialised and additional treatment processing prior to discharge. Details regarding the treatment of contaminated groundwater are not provided.

Based on information provided in the EIS and supporting documents, it is expected that groundwater will be treated to a level where the discharge quality will be better or equal to the ambient water quality of the receiving waters. However, the variability in treatment options is absent from documentation and the methods in which the ambient water quality of receiving waters will be matched or bettered, has not been factored into the submission.

Recommendations

As part of the RtS, the proponent must:

- provide spatial details of the existing and expanded groundwater monitoring network, including the network of monitoring bores used and sampled;
- provide baseline groundwater monitoring results to date. This information is to be assessed collaboratively to inform the final design and construction assessment; and
- provide additional information regarding groundwater discharge treatment options across the alignment profile in a pre-construction water management plan.

Any project approval should require the proponent to:

- prepare and provide a Water Management Plan (if not submitted as part of the RtS), Groundwater Monitoring Program (including ongoing updates to the baseline data, Trigger Action Response Plans and Mitigation Measures Plan) to the EPA for assessment prior to the commencement of construction and operation of the project in conjunction with a submitted groundwater Monitoring Plan for the project.

4. Contaminated Lands

The EPA reviewed contamination-related documents including Chapter 20 of the *Environmental Impact Statement*, dated 15.04.20, prepared by Jacobs/Arcadis (EIS), and Section 4.7.2 of the

Technical Paper 8: Contamination, dated April 2020, prepared by Jacobs (contamination assessment).

The EIS and contamination assessment provided only a high-level, desk-top identification of areas of environmental interest. The assessment is not supported by intrusive site investigations. Therefore, the risks to ecological and human health posed by contamination have not been determined, and the contamination requirements specified in the SEARs have not been met.

Several areas of environmental interest were identified in the contamination assessment including Rosehill, Clyde, Silverwater, and Sydney Olympic Park. These were identified as areas having a high probability of contamination.

A detailed site assessment is required to investigate the nature and extent of contamination within the project footprint. Remediation is a highly likely requirement. However, investigations are needed to determine the appropriate remediation measures that would be required to make the areas suitable for the proposed use.

Recommendations

In the absence of a detailed site investigation, and given the agenda for delivery of this project, the EPA recommends the following as part of the RtS:

- that the proponent engage a NSW EPA-accredited site auditor for the duration of works for this project to ensure that any work required in relation to soil or groundwater contamination is appropriately managed;
- that the proponent submit a Sampling and Analysis Quality Plan;
- that the proponent submit a Soil and Water Environmental Management Plans; and
- that Interim audit advice from the site auditor is provided, commenting on the appropriateness of reports and management plans prepared to date, and the nature and extent of the contamination.

5. Waste

The EPA reviewed waste-related documents including Chapter 8.18 (Spoil waste and management) and Chapter 24 (Spoil, waste management and resource use – Stage 1) of the *Environmental Impact Statement*, dated 15.04.20, prepared by Jacobs/Arcadis (EIS) and advises the following:

(a) Waste tracking and auditing protocols are not described

The proposal describes large quantities of various types of waste that will be generated by the project. The generated waste includes 3 million cubic metres of tunnel spoil, demolition wastes, aggregates, hazardous wastes, vegetation wastes, general construction wastes, special wastes, wastes from operation and maintenance of construction vehicles and equipment, and general wastes from site offices. The EIS also describes excavation of potentially contaminated soils that would require to be disposed of to appropriate waste facilities.

In Chapter 24 and Chapter 27 (*Synthesis of the Environmental Impact Statement*) a “material tracking system” is briefly described for material being transferred between sites and to licenced waste management facilities without further detail.

Waste that is generated by the project will need to be segregated, uniquely identified, classified using the *Waste Classification Guidelines* (EPA, 2014), and tracked to its destination. Spoil characteristics have been outlined, however, no estimation is provided for the volume of each type of spoil (ie. clean granular fill, versus contaminated soils). This information should be provided in the RtS. The SEARs for spoil require that the EIS provide information on “*spoil generation and reuse including onsite storage (including capacity to minimise amenity impacts) (Stage 1 - 2b)*”. The EIS does not provide any information on this aspect.

The proponent will also be required to perform Audits of the waste tracking process to ensure that waste is being delivered to the appropriate destination. The Waste Tracking and Auditing Protocols will need to occur on a regular basis during all stages of the project.

Some examples of Waste Tracking and Auditing Protocols include:

- volumetric surveys;
- reviewing of Waste Classification Reports prepared by environmental contractors for the waste;
- tracking the transport of waste from the area of waste generation to disposal;
- reviewing the receiving waste facility's Environment Protection Licence;
- storing and reviewing waste disposal dockets; and
- NSW EPA *WasteLocate* for asbestos waste (as required by law).

(b) Illegal dumping has not been addressed

The SEARs identified illegal dumping as a requirement to be discussed in spoil generation and reuse. Prevention of illegal dumping is not discussed in Chapter 24. The EPA acknowledges that the proponent intends to minimise waste generation in accordance with Table 24-4 (*Spoil management hierarchy for Stage 1*), and divert waste streams for beneficial reuse as proposed in Table 24-5 (*Spoil characteristics and potential reuse opportunities for Stage 1*), Table 24-6 (*Potential spoil reuse / disposal opportunities*) and Table 24-7 (*Possible large-scale spoil reuse opportunities in the Sydney region and beyond*).

To minimise the risk of operators transporting and/or disposing of waste in an unlawful manner, the EPA recommends that the proponent create and implement a robust routine waste auditing program in which the primary contractor of the project will ensure compliance with relevant environmental legislation at all stages of waste processing, transport and disposal. The EPA will require evidence of lawful disposal of all waste from the project be retained by the proponent and presented on request.

(c) A specific resource recovery exemption / order will be required prior to spoil reuse

Table 24-3 (*Reuse, recycling and disposal criteria*) describes the reuse of suitable material that meets engineering requirements at Sydney Metro West sites and off-site. Table 24-3 and the 'Spoil management' subsection of Chapter 24.5 briefly discusses spoil classification and re-use with a resource recovery exemption / order. Material that is generated by the project and applied to land will require a specific resource recovery exemption / order prior to application, even if being used between different sites of the Sydney Metro West project.

Recommendations

The EPA makes the following recommendations for approval conditions:

1. The proponent will need to identify and track all waste during generation, transfer, storage, processing and re-use or disposal.
2. All waste generated and transported off the premises must be classified in accordance with the EPA's *Waste Classification Guidelines* in force at the time.
3. The proponent must take all reasonable and feasible steps to ensure that differing waste types are segregated on the site.
4. The proponent must record details of all vehicles departing the site loaded with waste relating to site construction, demolition or remediation including their departure date and time, return date and time, driver, vehicle and trailer registration numbers, estimated load weight, and the load's waste classification under the *Waste Classification Guidelines* issued by the NSW EPA that are current at that time.
5. The proponent must not cause, permit or allow any waste generated outside the site to be received at the site for storage, treatment, processing, reprocessing, or disposal, except Virgin Excavated Natural Material or Excavated Natural Material as defined by the *Waste*

Classification Guidelines issued by the EPA that are current at the time, unless expressly permitted by a development consent relevant to the site.

6. All waste generated by the project and requiring disposal or recycling will need to be taken to facility that can lawfully accept that type of waste.
7. The proponent must take all reasonable and feasible steps to ensure that any loads of waste from the premises that are rejected from a Waste facility due to the presence of asbestos must not be reprocessed but transported to a facility that can lawfully receive asbestos waste.
8. Legible copies of all receipts and weighbridge dockets relating to disposal of waste from the site must be collected by the proponent and retained by the proponent for at least 6 years after each record is made.
9. The proponent will need to create and undertake a routine Waste Auditing Program during the project that should ensure compliance with relevant Environmental Legislation, recommended waste conditions presented in this document at all stages of waste processing. A robust waste tracking and audit system should:
 - a. match individual stockpiles to disposal locations;
 - b. collect registrations from every waste truck entering and existing the site and match them to the disposal location; and
 - c. regularly audit disposal dockets for the following:
 - i. contracted disposal location
 - ii. docket number (contact facility and confirm)
 - iii. times, date, registrations (do these match internal tracking)
 - iv. spelling mistakes