



**Office of
Environment
& Heritage**

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SSI 7400

Ms Karen Jones
Director, Transport Assessments
Department of Planning and Environment
PO Box 39
SYDNEY NSW 2001

Attention: Mick Fallon

Dear Ms Jones

Sydney Metro - Chatswood to Sydenham (SSI 7400)

I refer to your letter received 11 May 2016 by the Office of Environment and Heritage (OEH) seeking comments on the Sydney Metro - Chatswood to Sydenham (SSI 7400).

OEH has reviewed the Environmental Impact Statement (EIS) and supporting Technical Papers and provides comments on floodplain risk management, biodiversity and Aboriginal cultural heritage at Attachment 1.

If you have any further questions about this issue, please contact Marnie Stewart, Senior Operations Officer on 9995 6868 or at marnie.stewart@environment.nsw.gov.au

Yours sincerely

DAVID TREWIN
Regional Manager Greater Sydney
Regional Operations

27/6/2016

Contact officer: MARNIE STEWART
9995 6868

Enclosure

Attachment 1: OEH comments on Sydney Metro – Chatswood to Sydenham (SSI 7400)

1. Background

OEH understands that the proposal involves construction of a rail line comprising twin rail tunnels between Mowbray Road, Chatswood and Bedwin Road, Marrickville. The proposal also includes a number of metro rail stations, new underground platforms at Central, works to support operation of the line and temporary ancillary construction facilities and works to facilitate construction.

OEH previously undertook a consistency review of the draft EIS and provided comments on 8 March 2016 in relation to floodplain risk management.

2. Floodplain risk management

OEH previously raised concerns about the following in relation to the draft EIS (February 2016):

- inadequate information/detail to assess the impact of the project on flooding on surrounding and downstream properties;
- need to mitigate or compensate for adverse flooding impacts from the proposal;
- tunnel dive structure design; and
- need for flood warning systems and signage.

OEH has reviewed Chapter 21 of the EIS and provides the following comments.

Tunnel dive structure design

Section 21.5.2 Flooding of the EIS states that *"To avoid inundation, the tunnel dive structures would be designed at or above the Probable Maximum Flood level for mainstream flooding"*. Marrickville Council's Eastern Channel East Flood Study 2010, shows that the Marrickville tunnel portal is located in an area with greater than 1m depth in a 100yr ARI flood (PMF levels are not presented in the report). In the EIS's Figure 6-34 tunnel portal – indicative long section, the proposed design does not indicate that flood levels have been considered, therefore OEH's previous comments are still relevant.

Flooding impacts from the proposal

The EIS's Table 21-6 shows that within private property (corner Hogan Avenue and Bolton Streets, Sydenham) there is an increase in flood depth by the proposed development of 70mm for the 100year ARI event and 380mm for the PMF event. There are no figures showing the flood level, extent and velocity differences from the existing terrain compared to that which incorporates the proposed infrastructure or proposed mitigation works and the floor levels of impacted properties.

There is inadequate information provided to assess the impact of the project on flooding on surrounding and downstream areas and to allow OEH to comment on the EIS page 836 conclusion that: *"Given that the increase in flood levels would only occur at areas already subject to flooding, the project would not require changes to existing community emergency management arrangements for flooding and there would not be increased social and / or economic costs to the community as consequence of flooding"*.

In regard to identified flood mitigation options, the draft EIS identified flood mitigation options as: 13 grated inlets (3m x 1.2m) at ten metre spacing on the eastern side of the proposed metro rail tracks, each connected to Eastern Channel via two underground reinforced concrete box culverts (1.2m x 0.9m). Table 21-4 of the draft EIS showed increases in flood depth with mitigation in five locations as (+70mm, +95mm, +110mm, +150mm and +300mm). OEH highlighted in its previous comments that 'Any adverse impacts on flood levels up to the PMF may need to be mitigated or compensated for', which should include residual impacts after implementing mitigation measures.

The EIS (May 2016) indicates that the number of identified flood mitigation options (grated inlets) will reduce from 13 to 10, but the dimensions of the inlets will remain the same. Table 21-6 shows increases in flood depth with mitigation in five locations as (+70mm, +70mm, +130mm, +160mm and

+470mm). It is not clear on what basis these amendments have been decided and what strategy will be undertaken to deal with the increase in residual impacts, particularly the increase in flood depth within the rail corridor from 0.57m to 1.04m which would affect the Sydney train network.

Flood warning systems and signage

In regard to OEH's previous comments regarding 'Flood Warning', OEH considers that the report contains no new information to address these concerns. Consequently, consideration should be given to our previous comments, which should be addressed appropriately.

3. Biodiversity

OEH has reviewed Technical Paper 9 – Biodiversity Assessment and this report has correctly determined that there is little to no likelihood of impacts to threatened species and no likelihood of impacts to listed ecological communities. OEH notes that the field assessment confirmed that most vegetation is planted or exotic regrowth and none of the vegetation falls within the description for any Plant Community Types listed in the NSW Vegetation Information System database.

As a result, the Framework for Biodiversity Assessment (FBA) could not be applied to ecosystem credits and additionally, no species credit species were identified within the study area. The SEARs for the proposal didn't provide any requirements for assessment of non-FBA biodiversity issues but the assessment that has been undertaken was commensurate with the ecological integrity of the sites assessed.

OEH notes that Mitigation Measure B2 in Table 13 to Section 7 of the Biodiversity Assessment states that *"Potential bat roosting locations at Central Station, Waterloo Station and Marrickville dive site would be checked by a qualified ecologist or wildlife carer for presence of bats prior to demolition. Any bats found would be relocated"*. OEH recommends that Mitigation Measure B2 be amended to state: *"Any bats found would be relocated, unless in torpor, in which case the relocation will be delayed until the end of the torpor period"*.

4. Aboriginal cultural heritage

OEH has reviewed Technical Paper 5 – Aboriginal Heritage Archaeological Assessment dated May 2016, prepared by Artefact Heritage, and agrees with the findings of this report. Any intact Aboriginal archaeological deposits that survive within the proposed footprint have a very high scientific significance based on their rarity and research value.

OEH's preference is that harm to Aboriginal objects is avoided, however if this is not possible and Aboriginal objects will be harmed as a result of the proposed works OEH supports the recommended mitigation measures, in particular:

- An Aboriginal cultural heritage assessment report should be prepared.
- An archaeological excavation methodology should be developed for the project and should contain a component to test soil profiles to identify the nature and extent of natural intact deposits and any deposits of Aboriginal objects. Once natural intact soil profiles containing Aboriginal objects are discovered, archaeological salvage excavation should be conducted to the full extent of the footprint of the impacts where they coincide with the archaeological resource.
- The methodology should include guiding principles for interpretation and assessment of possible contact and post-contact period sites.
- Archaeological excavation should be carried out where intact natural profiles with the potential to contain significant archaeological deposits are encountered at the Blues Point temporary site, Barangaroo Station, Martin Place Station, Pitt Street Station, Central Station, Waterloo Station and the Marrickville dive site.
- OEH would also like to see a methodology developed to sample and analyse the portion of buried Pleistocene valley floor beneath Sydney Harbour that will be impacted by the proposed works if a feasible option can be devised.

- The Aboriginal cultural heritage assessment report should address areas of archaeological potential associated with the power supply routes and identify appropriate mitigation measures.
- Further consultation should be undertaken with Aboriginal stakeholders.
- Appropriate Aboriginal heritage interpretation should be incorporated into the design for the project in consultation with Aboriginal stakeholders.

(END OF SUBMISSION)