

Moorebank Precinct West - Concept Modification

Response to Submissions - SSD 5066 MOD1

Stormwater and Flooding Technical Note



SIMTA

SYDNEY INTERMODAL TERMINAL ALLIANCE

Part 4, Division 4.1, State Significant
Development

Date 22/11/2016
To NSW Department of Planning and Environment, NSW OEH
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Subject MPW Concept Modification Response to Submissions Addendum: Stormwater and Flooding

Introduction

The MPW Concept Modification Proposal was publicly exhibited between 7 July 2016 and 22 August 2016. Appendix D of the Modification Report included an assessment of the stormwater and flooding impacts associated with the placement and stockpiling of clean general fill during the construction of the Early Works activities. It was concluded that this activity would result in a minor intensification of erosion and sedimentation impacts previously identified for Early Works, which would be managed through mitigation measures previously identified for the Concept Approval.

A flood risk assessment associated with the Concept modification component within the Modification Proposal (for the adjustment of the building formation level) was not undertaken, as it was considered the additional risks to flooding created by the changes proposed would be negligible. During the MPW Concept Modification exhibition period, two agencies highlighted issues that relate to potential stormwater and flooding impacts associated with the adjustment of the building formation level.

Department of Planning and Environment (DP&E) noted the following:

The Department notes that '*...the original EIS design attempted to minimise elevation of the Project site from its current natural surface level as much as practicable, in order to ... avoid flooding of surrounding areas.*' The modification report does not address impacts external to the site which would result from raising the ground level by approximately 1.6m-1.7m. An assessment is required on potential impacts/changes affecting properties surrounding the site in relation to:

- the existing drainage system;
- natural drainage lines;
- overland flow paths; and
- the nature and extent of local flooding, including an analysis of any changes between the original EIS and the proposed modification.

Additionally, the NSW Office of Environment and Heritage (OEH) made the following submission:

The subject modification proposal outlines a significant variation in the scope of work in relation to the filling of the site with 1,600,000m³ of imported material and proposed cut and fill operations.

OEH's review of the relevant reports has revealed that from a floodplain risk management perspective the documents do not provide sufficient information to clearly demonstrate:

- The impacts, if any, of the modified project on the full range of flooding from the Georges River, Anzac Creek or overland flooding
- Proposed floodplain risk management measures to mitigate or eliminate the risk from flooding
- A revision of the cumulative impacts upstream and downstream of the proposed works

- A revision of the climate change impacts as a result of the modified works

It is therefore recommended that a revised flood assessment is undertaken to assess the modified proposal.

Purpose

The purpose of this memorandum is to address the agency issues above in the context of comparing impacts associated with the existing Concept Approval to the Amended Modification Proposal (the scope of which was been defined in Section 1 and Section 6 of this RtS Report).

A detailed Stormwater and Flooding Impact Assessment was undertaken as part of the MPW Stage 2 EIS (Appendix R) (SSD 16-7709), which is representative of conditions proposed under the Amended Modification Proposal for adjustment of the building formation level. Flood modelling results from this report have been used within this memorandum, to identify differences in stormwater and flooding impacts generated by the Amended Modification Proposal compared to the Concept Approval. It is noted that the level of assessment for the purposes of this document is to a standard appropriate of a Concept Proposal.

Comparison of flooding and stormwater impacts between MPW Concept Approval and Amended Modification Proposal

This section seeks to compare the flooding and stormwater impacts assessed in the MPW Concept EIS, with those associated with the adjusted building formation included in the Amended Modification Proposal.

Table 1 outlines key aspects raised within the submissions, alongside a comparison of how these aspects have changed from the MPW Concept Approval to those proposed in the Amended Modification Proposal.

Table 1: Comparison of flooding and stormwater impacts associated with original Concept Approval and Amended Modification Proposal

Item raised by agencies	Original Concept Approval	Amended Modification Proposal
Drainage systems (including natural drainage lines and overland flow paths)	Drainage design for the Concept would seek to mimic pre-development flow regimes where possible. Detention basins would be sized to detain stormwater runoff and reduce peak discharge flow rates to pre-development conditions (as required by LCC).	No change in assessment
Local Flooding	The Project would involve a considerable increase in impervious surfaces on the Project site. A Stormwater Management Plan and drainage strategy would be developed to meet all relevant LCC, Sydney Trains and Australian Rail Track Corporation Limited (ARTC) design specifications. This includes the requirement to control the rate of stormwater runoff from the developed Project site so that it does not exceed the predevelopment rate of runoff.	No change in assessment
Regional flood risk – Georges River	The proposed system would be designed to minimise disturbance to the MPW Project site operations as a result of a rainfall event or from a flood event within the Georges River. All	A HEC-RAS model was developed to determine 'base case' flood levels along the Georges River (representing no importation of fill as presented in the

Item raised by agencies	Original Concept Approval	Amended Modification Proposal
	outlets from the Project's stormwater system would be set above the 1% AEP design flood level in the Georges River.	<p>Concept Approval). The Base-case (HEC-RAS) model was then adjusted to represent the building formation of the 'Amended (Modification) Proposal' site along the Georges River eastern overbank to measure the difference.</p> <p>The 100 year and PMF flood estimates from the HEC-RAS 'Base-case' and 'Amended Proposal' modelling indicate that potential flood impacts of the Amended Modification Proposal would, up to a 100 year ARI event, be negligible and very limited (of the order of 0.01 metres (m)) for a PMF event, when compared to the Concept.</p>
Regional flood risk – Anzac Creek	The Anzac Creek Floodplain Risk Management Study and Plan (2008) identifies that flooding is generally confined within the main channel of Anzac Creek, upstream of the M5 Motorway. Effective conveyance of flood discharges in the main channel means that there is very little floodplain inundation risk on the Project site, even up to the 1% AEP flood event.	No change in assessment
Cumulative flood impacts	Due to insufficient information available regarding the impacts, design and management of surface water flows and infrastructure on surrounding development, cumulative hydrological impacts cannot be understood in detail at this stage. However, any design for the site would be required to provide flood attenuation that would ensure no net increase in flood flows on the Project site.	No change in assessment
Climate change flood impacts	The NSW Government's Floodplain Risk Management Guideline: Practical Consideration of Climate Change (DECC 2007a) recommends assessment of 10%, 20% and 30% increases in rainfall depths when making allowance for climate change.	As part of the MPW Stage 2 EIS Stormwater and Flooding Assessment (Appendix R), A sensitivity assessment was carried out, with 100-year rainfall intensities increased by 10% and the results were accounted for in the stormwater design carried forward into the final EIS. This sensitivity assessment was considered representative of potential climate change impacts, consistent with the NSW Government's Floodplain Risk Management Guideline: Practical Consideration of Climate Change (DECC 2007a). As the adjusted building formation level is considered in the MPW Stage 2 EIS, the results of this sensitivity assessment are considered suitable to address the climate change flood impacts associated with the Amended Modification Proposal.

In summary, the flooding and stormwater impacts relevant to the Amended Modification Proposal have been assessed and result in the following additional impacts from those identified in the MPW Concept Plan Approval:

- Regional Flooding Risk: The Amended Modification Proposal would result in a negligible flood risk increase to the site in rainfall events up to the 100 year ARI event, and very limited (in the order of 0.01 metres) for a PMF event.

Mitigation measures prescribed previously in the MPW Concept EIS, and those listed in the Modification Report remain relevant for the Amended Modification Proposal with respect to Stormwater and Flooding.