

Chapter 17

Hydrology and flooding

17 Hydrology and flooding

This chapter provides an assessment of the potential impact on hydrology and flooding as a result of this proposal, and identifies mitigation measures to minimise these impacts. This chapter draws on information provided in Technical Paper 9 (Hydrology, flooding and water quality).

17.1 Overview

Flood modelling results indicate that the overall risk of flooding impacts from this proposal is considered low and the magnitude of impacts would be negligible. While the Hunter Street Station (Sydney CBD) construction sites and The Bays tunnel launch and support site, and to a lesser extent Pyrmont Station construction sites, are affected by major overland flow paths, the proposed changes to those sites would not significantly alter flooding impacts on neighbouring sites. Localised changes to overland flows are limited in their scale to the immediate vicinity of the construction sites, and are considered minor due to the temporary nature of the impacts.

Flood mitigation measures would be implemented to manage potential flood impacts. A consistent approach to emergency evacuation would be maintained throughout the construction period at all the construction sites.

17.2 Legislative and policy context

The Secretary's Environmental Assessment Requirements relating to hydrology and flooding, and where these requirements are addressed in this Environmental Impact Statement, are outlined in Appendix A.

The following legislation, policies and guidelines were considered for the assessment of hydrology and flooding:

- *Water Act 1912*
- *Water Management Act 2000*
- *Protection of the Environment Operations Act 1997*
- *Water Management Regulation 2018*
- *National Water Quality Management Strategy* (Commonwealth of Australia 2018)
- *Guidelines for Groundwater Quality Protection in Australia* (Australian Government, 2013)
- *Australian and New Zealand Guidelines for Fresh and Marine Water Quality* (ANZG 2018)
- *Australian and New Zealand Guidelines for Fresh and Marine Water Quality* (ANZECC/ARMCANZ, 2000)
- *NSW Aquifer Interference Policy* (Office of Water, 2012)
- *NSW State Groundwater Dependent Ecosystems Policy* (Department of Land and Water Conservation, 2002)
- *Flood Prone Land Policy*
- *Floodplain Development Manual* (NSW Government, 2005)
- *Managing the Floodplain: A Guide to Best Practice in Flood Risk Management in Australia* (Australian Institute for Disaster Resilience, 2017)
- *National Water Quality Management Strategy*
- *Australian Rainfall and Runoff 2019*
- *Australian Disaster Resilience Handbook Collection*
- *Australian Groundwater Modelling Guidelines* (SKM & NCGRT, 2012)
- *Managing Urban Stormwater - Soils and Construction, Volume 1* (Landcom, 2004)
- *Managing Urban Stormwater - Soils and Construction, Volume 2D* (NSW Department of Environment, Climate Change and Water 2008).

17.3 Assessment methodology

The aims of the hydrology and flooding assessment are to:

- Characterise existing flooding behaviour and identify flood risks during construction
- Assess hydrology, flooding and water quality impacts which could occur during this proposal
- Identify mitigation measures for this proposal.

The assessment approach for hydrology and flooding involved:

- Desktop review of publicly available flood study reports and models from local council(s) and other sources to characterise existing flooding conditions at all construction sites and the surrounding areas. Factors considered include:
 - Topography in the vicinity of the sites and presence of flow paths and watercourses
 - Flood hazard
 - Flood depths and levels
- Development of flood models for:
 - The one per cent annual exceedance probability (AEP) event (1% AEP) – a flood event with a one per cent chance of occurring in any one year
 - The probable maximum flood (PMF) event – the largest flood that could conceivably occur at a particular location
- Identification of potential increases in flood affectation on adjacent properties and assets
- Identification of impacts to emergency management arrangements
- Assessment of land use compatibility in relation to flood hazards, including safe velocities and depths for pedestrians and vehicles
- Development of mitigation measures to address potential hydrology and flooding impacts.

Flood management objectives were identified for the proposal as follows:

- Excavations for stations would be protected from floodwater inflows. Where feasible the protection level would be above the probable maximum flood or at least 0.5 metres above the 1% AEP flood level, whichever is the greater
- Where it is not feasible or reasonable to meet the criteria, additional controls would be required to manage any potential inflows
- Minimise increases in flood levels due to the proposal during flood events up to and including the 1% AEP
- Dedicated evacuation routes would not be adversely impacted in flood events up to and including the probable maximum flood.

17.3.1 Study area

The hydrology and flooding study area includes all catchment areas in which there could be potential impacts from the proposal. The study area is located within a small area of the Sydney Harbour catchment surrounding the proposal. Relevant waterways and waterbodies are shown in Figure 14-2.

The extent of the hydraulic model used to inform this assessment is shown in Section 3.2 of Technical Paper 9 (Hydrology, flooding and water quality).

17.4 Avoidance and minimisation of impacts

Potential flooding impacts have been minimised through the selection of construction sites to avoid existing flood prone land where possible. Further design refinement would occur during detailed design with the aim of further reducing flooding impacts related to the proposal.

17.5 Existing environment

17.5.1 Surface hydrology and drainage infrastructure

The proposal would be located within the Sydney Harbour catchment. A description of the catchments and waterbodies relevant to the proposal is shown in Figure 14-2 (Chapter 14 (Groundwater and ground movement)). The catchments of the construction sites are highly urbanised and developed with widespread impervious surfaces.

The Sydney Metro West Environmental Impact Statement – Westmead to The Bays and Sydney CBD (Sydney Metro, 2020a) assessed the impacts of The Bays Station construction site to:

- Carry out the excavation of The Bays Station
- Launch and support two tunnel boring machines for the drive west to the Sydney Olympic Park metro station construction site.

The Bays Station construction site is being established under the Sydney Metro West Concept and Stage 1 planning approval. The Bays tunnel launch and support site in this proposal would be located within a part of The Bays Station construction site.

The existing topography and drainage characteristics relevant to the proposal is provided in Table 17-1.

Table 17-1 Existing topography and drainage characteristics

Construction site	Topography	Drainage characteristics
The Bays tunnel launch and support site	<ul style="list-style-type: none"> • Would be situated on a low-lying former dockland site • Section of lower land immediately to the west (the former White Bay Power Station site) which forms part of a major overland flow path that drains an area stretching north-west towards Rozelle • Site is generally flat land with little to no slope around White Bay • Elevation typically around three to four metres AHD with some low-lying sections along White Bay (one metre AHD) and a small section of higher land associated with the Victoria Road embankment in the south-east of the site 	<ul style="list-style-type: none"> • Existing drainage on site is limited to small drainage lines to service the current Port Access Road • Area around the former White Bay Power Station site acts as a trapped low point with little fall or existing drainage to drain the area • Largest drainage infrastructure is a large culvert that runs parallel to Robert Street and discharges to White Bay north of the site • Relevant mitigation measures to manage drainage across the broader The Bays Station construction site (where integrated into construction works carried out under the Stage 1 planning approval) are likely to be completed prior to the start of work for this proposal
Pymont Station construction sites	<ul style="list-style-type: none"> • Would be situated in urban areas occupied by commercial properties • Generally slopes west to east, eventually draining to Pymont Bay • At the Pymont Station western construction site, water flows from Pymont Bridge Road travel west through local roads 	<ul style="list-style-type: none"> • Existing drainage arrangements have been identified with trunk drainage channel/culverts visible to the north of the Pymont Station eastern construction site, which are presumed to run under Edward Street • A local minor drainage pipe runs under the Pymont Station eastern construction site and across the intersection of Union Street and Edward Street to connect into the trunk line
Hunter Street Station (Sydney CBD) construction sites	<ul style="list-style-type: none"> • Would be situated in urban areas, occupied by commercial properties and current construction activity, which fall towards Pitt Street from south to north and runs between the two sites • These disturbed areas are often landscaped and artificially drained • Landform elements present in the area include berms, cut faces, embankments, mounds, pits and trenches 	<ul style="list-style-type: none"> • Existing drainage arrangements have been identified within the sites and surrounds • Both Hunter Street Station (Sydney CBD) construction sites have underground drainage networks in the adjacent road reserve generally following existing kerb lines and eventually connecting into Pitt Street where flows eventually discharge to Sydney Cove • The eastern construction site has local stormwater drainage (0.375 metre diameter) which could pick up additional construction site runoff if required

17.5.2 Flooding

Due to the highly urbanised drainage catchments surrounding the construction sites, flooding behaviour is expected to be largely controlled by the capacity of stormwater drainage systems and roadways that form overland flow paths. The existing causes of flooding at the construction sites is provided in Table 17-2, with existing flood levels and hazards mapped in Appendix B of Technical Paper 9 (Hydrology, flooding and water quality).

Table 17-2 Existing flooding conditions within and surrounding the construction sites

Construction site	Existing causes of flooding	Level of inundation	Flood hazard
The Bays tunnel launch and support site	<ul style="list-style-type: none"> Overland flooding¹ Coastal inundation Intense rainfall 	<ul style="list-style-type: none"> Up to 1.4 metres during the 1% AEP event over parts of the site² Up to 1.6 metres during the PMF over majority of the site as a result of significant overland flood flows² There is currently coastal inundation potential across low-lying portions of the construction site during the 1% AEP event 	<ul style="list-style-type: none"> During the 1% AEP event the majority of the site is mapped as being generally low hazard, with some areas hazardous for vehicles and people During the PMF, there are substantial areas within the site which are mapped as being subject to high flood hazard levels Buildings and property which are adjacent to The Bays tunnel launch and support site are mapped as being subject flood hazard in both the 1% AEP and PMF scenarios
Pymont Station construction sites	<ul style="list-style-type: none"> Intense rainfall Overland flooding 	<p>At the eastern construction site:</p> <ul style="list-style-type: none"> Up to 0.3 metres during the 1% AEP event over parts of the site Up to 0.4 metres during the PMF over majority of the site as a result of significant overland flood flows originating from Pymont Bridge Road <p>At the western construction site:</p> <ul style="list-style-type: none"> Generally shallow flood depths Up to 0.1 metres during the 1% AEP over parts of the site Up to 0.12 metres during the PMF over majority of the site as a result of significant overland flood flows originating from Pymont Bridge Road <p>Some buildings and properties adjacent to both construction sites are subject to flooding in both the 1% AEP and PMF scenarios</p>	<ul style="list-style-type: none"> During the 1% AEP event and the PMF, existing flood levels within both construction sites are mapped as being generally low hazard Buildings and property which are adjacent to both construction sites are mapped as being subject to flood hazard in both the 1% AEP and PMF scenarios
Hunter Street Station (Sydney CBD) construction sites	<ul style="list-style-type: none"> Intense rainfall Overland flooding 	<p>Eastern construction site:</p> <ul style="list-style-type: none"> Up to 0.25 metres during the 1% AEP event over parts of the site Up to 0.3 metres during the PMF over majority of the site as a result of significant overland flood flows originating from adjacent urban areas of the Sydney CBD <p>Western construction site:</p> <ul style="list-style-type: none"> Up to 0.6 metres during the 1% AEP event over parts of the site Up to one metre during the PMF over majority of the site as a result of significant overland flood flows originating from adjacent urban areas of the Sydney CBD 	<ul style="list-style-type: none"> During the 1% AEP event and the PMF, no flood hazards are mapped within the construction sites Buildings and property which are adjacent to both construction sites are mapped as being subject to flood hazard in both the 1% AEP and PMF scenarios

Note 1: Overland flooding occurs when local catchment runoff exceeds the capacity of existing drainage systems

Note 2: This was previously described as up to one metre in Sydney Metro West Environmental Impact Statement – Westmead to The Bays and Sydney CBD (Sydney Metro, 2020a), but has been updated in this Environmental Impact Statement as a result of updated modelling

17.6 Potential impacts

17.6.1 Potential impacts on flood behaviour

The proposal has the potential to impact existing flooding behaviour through disruption of existing conditions (such as drainage systems and/or overland flow paths). In addition, flooding events during construction could impact areas within and near the construction sites, including the potential inundation of construction sites.

Potential flood-related impacts during construction of the proposal may include:

- Interruption of overland flowpaths by installation of temporary construction site infrastructure (i.e. noise barriers, acoustic sheds, retaining walls) and/or modifications to landforms (i.e. placement of fill materials, stockpiles)
- Potential temporary changes to flooding behaviour around the construction sites due to alteration of the built form or the provision of temporary structures surrounding the construction sites
- The interruption or diversion of existing flood routes away from the location of bunding or spoil within construction sites, resulting in a reduction of flood storage and an increased flood risk to adjacent areas
- Blocking of drainage networks through increased sedimentation of surface water
- Flow of water into station excavations, services facility shafts and tunnel portals.

A summary of the potential flooding impacts is provided in the sections that follow, with detailed information provided in Technical Paper 9 (Hydrology, flooding and water quality). As the proposal would largely involve tunnel excavation, the predicted changes to flood behaviour during construction are likely to be minimal. Localised changes to overland flows are limited in their scale to the immediate vicinity of the construction sites, and due to the temporary nature of the impacts are considered minor. The overall risk of flooding impacts from the proposal is considered low and the magnitude of impacts negligible.

Proposal-wide impacts

The tunnel alignment would be underground and, therefore, would not impact on flooding. Flooding may impact tunnels at the tunnel boring locations. These impacts are discussed below as part of the construction sites assessment.

The proposed underground power supply route to provide power to the Pyrmont Station construction sites from a substation on Harris Street, Pyrmont would likely be located within the road reserve. Installation of power is expected to be via open trench, except where crossing major infrastructure or constraints which would necessitate the use of trenchless boring methods.

The scale of the power supply work is such that it would not have an adverse impact on rare or extreme flooding. Local impacts associated with frequent flood events would be addressed through mitigation measures.

Impacts within construction sites

The potential impacts of flooding on the proposal construction sites are summarised in Table 17-3. With the implementation of the mitigation and management measures described in Section 17.8, there would be negligible differences in flood storage volumes within any construction sites. Flood levels, duration of inundation and flood hazard are not anticipated to increase as a result of the proposal within any construction sites.

Table 17-3 Potential impacts on flood behaviour within construction sites

Construction site	Proposed construction work with potential to cause impacts	Potential flooding impacts
The Bays tunnel launch and support site¹	<ul style="list-style-type: none"> • Solid site hoardings and acoustic sheds (or other acoustic measures) • Temporary material stockpile 	<ul style="list-style-type: none"> • Direct intense rainfall onto the site may cause nuisance flooding and drainage issues • Overland flows during the 1% AEP and above may damage the construction site and facilities • Floodwater ingress into excavated areas could occur as a result of overland flooding or coastal inundation
Pymont Station construction sites	<ul style="list-style-type: none"> • Potential modifications to current site grading and filling of the construction sites • Site and/or noise hoardings around the boundary of the construction sites • Acoustic sheds covering the excavated void (or other acoustic measures) • Shaft excavation and associated flood protection measures • Temporary material stockpiles • Power supply arrangements 	<ul style="list-style-type: none"> • Floodwater ingress into excavated areas could occur as a result of overland flooding • Direct intense rainfall onto the site may exacerbate nuisance flooding and drainage issues
Hunter Street Station (Sydney CBD) construction sites	<ul style="list-style-type: none"> • Shaft excavation and associated flood protection measures • Potential modifications to current site grading and filling of the construction sites • Acoustic shed partially covering the excavated void at Hunter Street Station (Sydney CBD) eastern construction site (or other acoustic measures) • Temporary material stockpiles • Site and/or noise hoardings around the boundary of the construction sites 	<ul style="list-style-type: none"> • Direct intense rainfall onto the site may cause nuisance flooding and drainage issues • Floodwater ingress into excavated areas could occur as a result of overland flooding or direct rainfall into the excavation area

Note 1: An existing internal road within the construction site is currently being constructed under a separate planning approval. Final road levels may influence flooding at the site if they are considerably different to what has been modelled to date.

Impacts surrounding construction sites

A comparison of the existing flooding conditions in the vicinity of the proposal construction sites and the potential flood impacts of the proposal is shown in Appendix B and Appendix C of Technical Paper 9 (Hydrology, flooding and water quality).

The proposal would not impact on flooding in areas surrounding the construction sites. With the implementation of the mitigation and management measures described in Section 17.8, there would be negligible differences in flood storage volumes surrounding any construction sites. Work at the construction sites is not expected to increase flood levels, duration of inundation or flood hazard associated with neighbouring buildings and properties.

As described in Section 17.8, detailed construction flood risk management planning would be further undertaken to not worsen flood impacts on the community and on other property and infrastructure.

Given that flooding is not anticipated to impact areas outside of the construction sites, and given that consultation would be undertaken with NSW State Emergency Service and relevant local councils, no impacts to emergency management arrangements are anticipated.

17.6.2 Compatibility of construction sites with flood conditions

All construction sites were assessed as compatible with flood conditions due to construction sites having a low risk or existing low hazard exposure and as mitigation measures can readily manage the flood risks. The compatibility of construction sites to the existing flood conditions was determined based on the exposure of the site to existing high hazard or high risk flooding, potential impacts on flooding behaviour on surrounding properties, potential impact of flooding on the construction sites and the ability to provide effective mitigation measures to any existing conditions or potential impacts.

17.6.3 Potential downstream velocity and scour impacts

Physical features associated with the proposal may temporarily impact on flow velocities during construction due to obstruction and redirection of overland flood flows. There would be a low potential to impact downstream velocity and scour.

Mitigation measures would be developed during detailed construction planning to manage potential increases in flow velocity and scour potential that may occur where the proposal could alter flood flow patterns and significantly divert or concentrate flood flows.

17.6.4 Floodplain risk management

A review of publicly available floodplain risk management plans did not identify any conflicts or inconsistencies with proposed floodplain risk management measures. Recommendations within relevant Floodplain Management Plans include:

- Inner West Council Floodplain Management Plan (relevant to The Bays tunnel launch and support site) recommends an option for upgrade work proposing a new pipe network or duplication of existing pipe network parallel to Robert Street and eventually draining into White Bay. Should this work proceed at the same time there is the potential for conflict
- City of Sydney Floodplain Management Plan (relevant to Pyrmont Station and Hunter Street Station (Sydney CBD) construction sites) has no high or medium priority options recommended in the council's Floodplain Management Plan which would result in work near the sites.

17.6.5 Potential social and economic costs from flooding impacts

Given that localised flows would be limited in their scale to the immediate vicinity of the construction sites, and that they would be temporary, the potential social and economic costs from flooding impacts are considered low. Potential flooding impacts at The Bays Station tunnel launch and support site, Pyrmont Station construction sites and Hunter Street Station (Sydney CBD) construction sites would be managed through the mitigation measures outlined in Section 17.8.

17.6.6 Potential hydrological impacts

Stormwater and wastewater drainage into Sydney Harbour is not anticipated to result in any significant hydrological impacts due to the existing high capacity of Sydney Harbour. As the catchments of the construction sites are highly developed with widespread impervious surfaces, the amount of impervious area would not be significantly increased by construction of the proposal. Wastewater would be treated and reused where practicable as discussed in Chapter 15 (Soils and surface water quality). As a result, changes to the conveyance capacity of existing stormwater systems would be minimised.

17.6.7 Climate change adaptation

The assessment of this proposal has highlighted the major civil construction work impacts between The Bays and Sydney CBD. The climate change impacts of the proposal, however, would potentially be realised at a time when the Sydney Metro West project is operational. Climate change is anticipated to have potential direct and indirect impacts on the Sydney Metro West project. It is anticipated that impacts due to sea level rise at the Pyrmont Station and Hunter Street Station (Sydney CBD) construction sites would be very limited due to their distance from nearby bays. At The Bays tunnel launch and support site, the majority of potential impacts due to sea level rise would be addressed as part of the approved *Sydney Metro West Environmental Impact Statement – Westmead to The Bays and Sydney CBD* (Sydney Metro, 2020a). The adoption of additional climate change allowances would be considered during detailed design, including alternative or additional flood control measures.

The Construction Environmental Management Framework (Appendix C) includes a requirement for the development and implementation of Stormwater and Flooding Management Plans for the proposal's construction sites. These plans would identify the appropriate design standard for flood mitigation based on the duration of construction, proposed activities and flood risks. Flood risks would be further identified and mitigated as part of the Construction Environmental Management Framework (Appendix C) and Stormwater and Flooding Management Plans would be prepared to incorporate the impact of climate change in line with relevant best practice guidelines.

17.7 Cumulative construction impacts

Potential cumulative impacts were considered for assessment based on the likely interactions of the proposal with other projects and plans that met the adopted screening criteria. The approach to assessment and the other projects considered are described further in Appendix G (Cumulative impacts assessment methodology).

There is potential for cumulative impacts to occur at both The Bays tunnel launch and support site and the Hunter Street Station (Sydney CBD) construction sites. Cumulative hydrology and flooding impacts are not anticipated at the Pyrmont Station construction sites, as the other projects considered would either be not hydraulically connected to or would not drain through the construction sites.

Potential cumulative impacts at The Bays tunnel launch and support site would be associated with the approved major civil construction work for Sydney Metro West between Westmead and The Bays (Stage 1 of the planning approval process). Concurrent tunnelling between the proposal and this project does not have the potential to have cumulative impacts on flooding and hydrology, as The Bays station box and any relevant flood protection measures would be constructed prior to the start of work associated with this proposal. These mitigation measures to protect The Bays Station construction site (under the Stage 1 planning approval) from potential flooding impacts, would be integrated into construction works carried out under the Stage 1 planning approval and are likely to be completed prior to the start of work for this proposal. Cumulative impacts would also potentially be associated with the WestConnex Rozelle Interchange (part of the WestConnex M4-M5 Link project). Flooding impacts associated with this project would be very localised, and are not anticipated to impact on the proposal at The Bays tunnel launch and support site.

Potential cumulative impacts may be associated with the Sydney Metro City & Southwest Martin Place metro station at the Hunter Street Station (Sydney CBD) construction sites. While the mitigation measures for both this proposal and City & Southwest would minimise cumulative flooding impacts, there is potential for cumulative flooding impacts during the 1% AEP event.

17.8 Mitigation and management measures

The Construction Environmental Management Framework (Appendix C) describes the approach to environmental management, monitoring and reporting during construction. Specifically, it lists the requirements to be addressed by the construction contractor in developing the Construction Environmental Management Plans, sub-plans, and other supporting documentation for each specific environmental aspect. This includes standard mitigation measures, including the preparation of a Soil and Water Management Plan, progressive Erosion and Sediment Control Plans, and Stormwater and Flooding Management Plans.

The environmental management approach for the project is detailed in Chapter 23 (Synthesis of the Environmental Impact Statement). Under these broad frameworks, a series of performance outcomes have been developed to define the minimum environmental standards that would be achieved during construction of the proposal (see Section 17.8.1), and mitigation measures that would be implemented during construction to manage potential identified impacts (see Section 17.8.1).

17.8.1 Performance outcomes

Construction performance outcomes were developed for the proposal as part of the Concept approval. Performance outcomes for the proposal identify measurable, performance-based standards for environmental management. The identified performance outcome in relation to hydrology and flooding for the proposal is that:

- The proposal minimises adverse impacts on existing flooding characteristics
- Construction of the proposal avoids or minimises the risk of, and adverse impacts from, infrastructure flooding or flooding hazards.

Chapter 23 (Synthesis of the Environmental Impact Statement) describes how the proposal addresses these performance outcomes. The design of the proposal has aimed to avoid or minimise the potential for adverse flooding impacts. Measures would be identified to not worsen increases in flood levels on other property and infrastructure during flood events up to and including the 1% AEP.

17.8.2 Mitigation measures

Specific mitigation measures that would be implemented to address potential hydrology and flooding impacts are described in Table 17-4.

Table 17-4 Mitigation measures – Hydrology and flooding

Reference	Impact	Mitigation measure	Applicable location(s)
HF1	Flooding behaviour impacts	<p>Detailed construction planning would consider flood risk at construction sites. This would include:</p> <ul style="list-style-type: none"> • Identification of measures to not worsen flood impacts on the community and on other property and infrastructure during construction up to and including the 1% AEP flood event • Provide flood-proofing to excavations at risk of flooding or coastal inundation during construction, where reasonable and feasible, such as raised entry into shafts and/or pump-out facilities to minimise ingress of floodwaters into shafts and the dive structure • Review of site layout and staging of construction activities to avoid or minimise obstruction of overland flow paths, address loss of floodplain storage and limit the extent of flow diversion required. This includes design of site hoardings to minimise disruption to flow paths (if possible). <p>Not worsen is defined as:</p> <ul style="list-style-type: none"> • A maximum increase in flood levels of 50 millimetres in a 1% AEP flood event • A maximum increase in time of inundation on one hour in a 1% AEP flood event • No increase in potential soil erosion and scouring from any increase inflow velocity in a 1% AEP flood event. 	All
HF2	Flooding behaviour impacts	Drainage at construction sites would be designed, where feasible and reasonable, to mitigate potential alterations to local runoff conditions due to construction sites.	All
HF3	Flooding behaviour impacts	Detailed construction planning for The Bays tunnel launch and support site construction would aim to minimise changes to existing levels in relation to potential impacts on flood behaviour, along the north-western side of site adjacent to low-lying property, to minimise reduction in floodplain storage and blockage to local overland flow path.	The Bays tunnel launch and support site
HF4	Flooding emergency management	Construction planning regarding flooding matters would be carried out in consultation with the NSW State Emergency Service and the relevant local council.	All
HF5	Impacts to flood mitigation works	Detailed construction planning for The Bays tunnel launch and support site would aim to avoid conflicts with the potential construction of flood mitigation work in Robert Street, in consultation with Inner West Council.	The Bays tunnel launch and support site
HF6	Potential cumulative impacts	To ensure flood protection on the bottom of the adit between Hunter Street station construction site and the Sydney Metro – City & Southwest Martin Place metro station site, appropriate flood protection would be implemented.	Hunter Street Station (Sydney CBD) construction sites

17.8.3 Interactions between mitigation measures

Mitigation measures in other chapters that are relevant to the management of potential hydrology and flooding impacts include:

- Chapter 15 (Soils and surface water quality) – Specifically measures relevant to stormwater capacity
- Chapter 22 (Sustainability, climate change and greenhouse gas) – Specifically measures which address climate change risk, adaptation and mitigation.

Together, these measures would minimise the potential hydrology and flooding impacts of this proposal. A full list of mitigation measures is presented in Chapter 23 (Synthesis of the Environmental Impact Statement).