



Planning &
Environment

***MODIFICATION REQUEST:
Sydney Metro City and Southwest –
Chatswood to Sydenham***

***Sydenham Station and Sydney Metro Train Facility
South (MOD 4)***



Environmental Assessment Report
Section 115ZI of the
Environmental Planning and Assessment Act 1979

December 2017

Cover Photograph: Artist's impression of upgraded Sydenham Station (Source: Sydenham Station and Sydney Metro Trains Facility South Modification Report).

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1. BACKGROUND

Transport for NSW (TfNSW – the Proponent) has submitted a request to modify the Sydney Metro City and Southwest – Chatswood to Sydenham State significant infrastructure approval (SSI 7400 – the approved Project) to include Sydenham Station and the Sydney Metro Trains Facility South (SMTFS).

The approved Project, an underground metro rail line, approximately 16.5 kilometres long, between Chatswood Station and just north of Sydenham Station was approved on 9 January 2017 by the then Minister for Planning under Section 115ZB of the *Environmental Planning and Assessment Act 1979* (EP&A Act). New metro stations will be constructed at Crows Nest, Victoria Cross, Barangaroo, Martin Place, Pitt Street and Waterloo, and new underground platforms at Central Station. It forms part of a future modern high capacity rail network which also includes Sydney Metro Northwest (currently under construction) and the proposed Sydenham to Bankstown upgrade project.

Construction of the approved Project commenced in June 2017 and is due for completion in 2024. Sydney Metro Northwest is expected to be completed and commence operation in 2019. An Environmental Impact Statement (EIS) for the Sydenham to Bankstown upgrade was publicly exhibited from 13 September 2017 to 8 November 2017.

This modification addresses changes in impact of the proposed Sydenham Station and precinct works and the construction and operation of the SMTFS, compared to the approved Project.

1.1. Current Modification Requests

The Proponent has sought three modifications of the approved Project in addition to the modification the subject of this report. Descriptions of these modifications and their status is provided below in **Table 1**.

Table 1: Modifications for Sydney Metro City and Southwest – Chatswood to Sydenham

Modification	Status	Description
Modification 1 – Services relocations	<ul style="list-style-type: none">• Determined 18 October 2017	<ul style="list-style-type: none">• relocation of the Victoria Cross northern services building to 50 McLaren Street, North Sydney; and• relocation of the Artarmon substation to 98-104 Reserve Road in the Artarmon industrial area.
Modification 2 – Central Walk	<ul style="list-style-type: none">• Under assessment	<ul style="list-style-type: none">• East concourse – construction of a new concourse beneath platforms 16 to 23;• Eastern entry – access to Central Station and the new east concourse from Chalmers Street, Surry Hills;• Platform Work – upgrade of suburban platforms 16-23, including lighting, signage, platform levelling and finishes; and• Provision of escalators and lifts to link suburban platforms, new eastern entry and concourse.

Modification	Status	Description
Modification 3 – Martin Place Metro Station	<ul style="list-style-type: none"> Under assessment 	<ul style="list-style-type: none"> reconfigured station layout, including addition of land at 9-19 Elizabeth Street and alterations to the street level layout of the station entries; provision of a new unpaid concourse link between the northern and southern station entries, extending beneath 50 Martin Place; and retention of the existing MLC pedestrian link and works to connect the link to the Sydney Metro Martin Place Station.

2. PROPOSED MODIFICATION

The approved works in the Sydenham area include:

- excavation and construction of the Marrickville dive structure and tunnel portal;
- launch and support of tunnel boring machines to Barangaroo;
- manufacture and storage of the pre-cast concrete tunnel lining segments;
- tunnel rail system fit-out;
- construction of the southern services facility, including a tunnel water treatment plant and traction power supply substation; and
- signalisation of the Edinburgh/Edgeware/Bedwin roads intersection.

As shown in **Figure 1** and **Figure 2**, the approved Project did not extend to Sydenham Station, with the proposed dive structure terminating approximately 400 metres to the north-east of Sydenham Station.

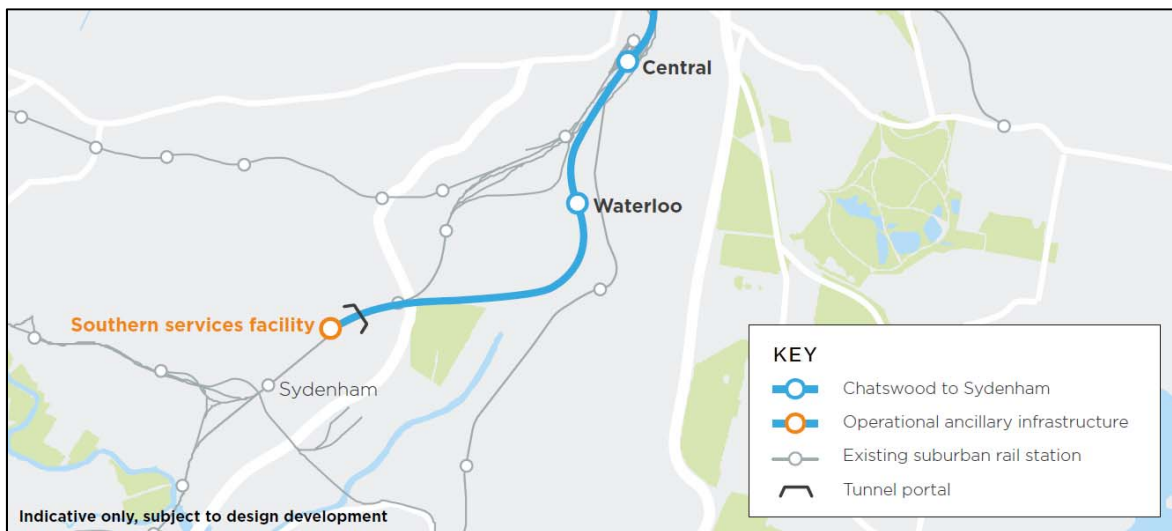


Figure 1: Southern extent of the approved Project (Source: Chatswood to Sydenham Environmental Impact Statement)

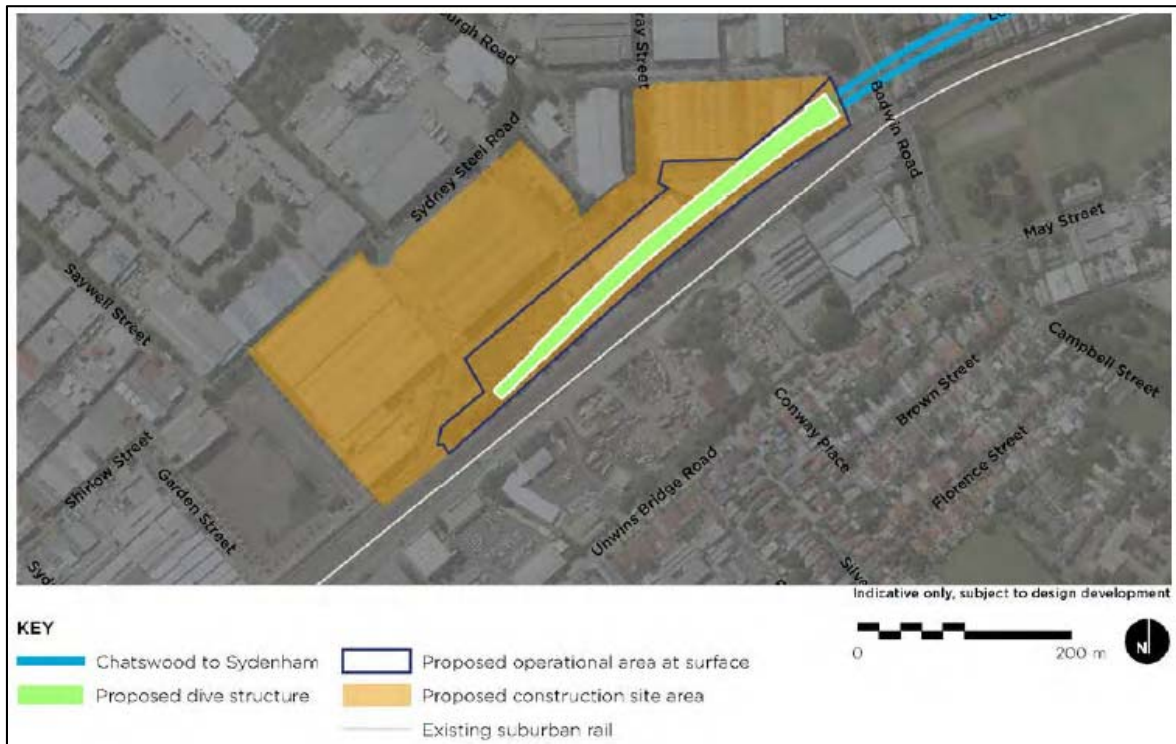


Figure 2: Marrickville dive site (Source: Chatswood to Sydenham Preferred Infrastructure Report)

The approved Project envisaged phased commencement of metro operations between Chatswood and Waterloo stations by way of the inclusion of a track-turnback between the Marrickville dive structure and Sydenham Station before the Sydenham to Bankstown upgrade project, if approved, commenced operation. The proposed modification now seeks the phased commencement of Metro operations between Chatswood and Sydenham stations by way extending metro passenger services through to Sydenham Station. This would also support the proposed Temporary Transport Strategy to be implemented as part of the proposed Sydenham to Bankstown upgrade project during rail shutdown periods.

To facilitate phased commencement of metro operations between Chatswood and Sydenham Stations, the following works are proposed (as shown in **Figure 3**):

- Sydenham Station and precinct works to support Metro operations, including the installation and fit out of Metro track and rail systems and the reconfiguration of existing track and rail systems (**Figure 4**);
- construction and operation of the Sydney Metro Train Facility South (SMTFS) to provide overnight stabling of Sydney Metro trains and light maintenance activities to minimise the requirement to send trains to the Sydney Metro Trains Facility at Rouse Hill (**Figure 5**);
- adjustments to the Sydenham Pit and Drainage Pumping Station; and
- ancillary infrastructure and works, including fencing and trackside intruder detection systems, maintenance access, noise barriers and drainage.

These works will enable the phased commencement of Metro operations between Chatswood and Sydenham stations.



Figure 3: Modification Area (Source: Response to Submissions)

2.1. Sydenham Station and precinct works

Sydenham Station would be modified to support Metro operations on Platforms 1 and 2, as shown in **Figure 4**. Those elements of Sydenham Station not appropriate for re-use or heritage interpretation would be altered or removed. To accommodate Metro operations, the following work will occur:

- Platform 1 would be removed and Platform 2/3 partially removed and both reconstructed and platform screen doors and canopies fitted;
- a new station building would be constructed to the north of Platform 1;
- a new paid aerial concourse and canopy at the north-east end of the existing platforms, accessed via new station entry plazas on Railway Parade and Burrows Avenue connecting all six platforms with stairs and lifts would be constructed; and
- the heritage listed Parcels Office on Platform 1 and Platform Building on Platform 6 would be demolished to accommodate the new concourse.

The existing station entry on Gleeson Avenue would be retained.

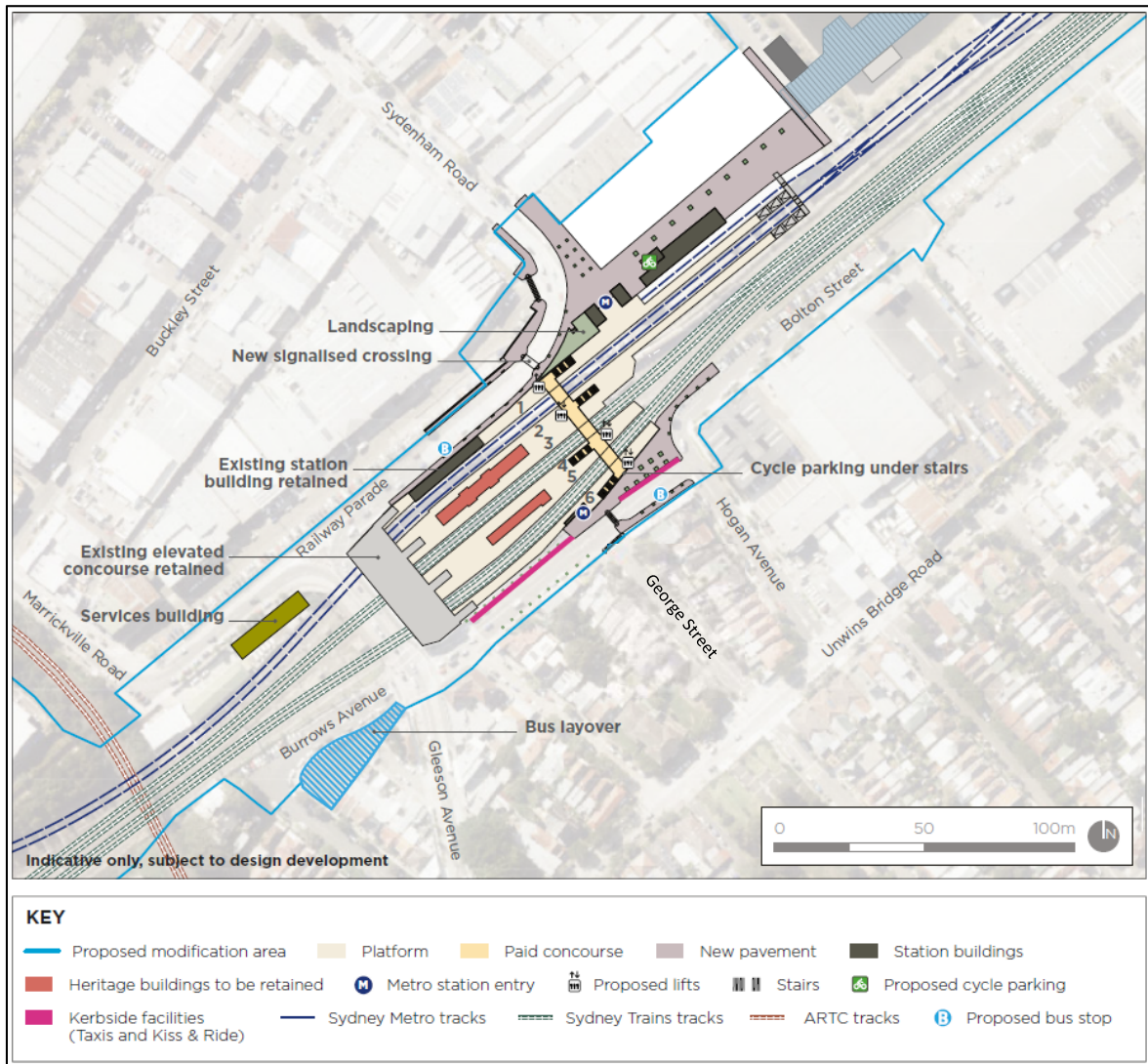


Figure 4: Sydenham Station Plan (Source: Modification Report)

The new entry plazas on Railway Parade and Burrows Avenue would include accessible bus stops and travel paths, footpaths, taxi and kiss-and-ride facilities, bicycle parking facilities, landscaping, street trees, transport interchange shelters and furniture. New pedestrian crossing facilities would be provided on George Street, Burrows Avenue, Railway Parade and Lower Railway Parade to access the new entry plazas.

Changes to track alignment would also be carried out around Sydenham Station to facilitate separation of the metro tracks from the existing rail network. Track works include the installation of rails, sleepers, fastening and ballast, adjustments to the RailCorp XPT Sydenham Maintenance Centre entry tracks, adjustments to freight lines, and connections to the proposed SMTFS. Crossover facilities would be provided to the north and southwest of Sydenham Station and to connect the Metro line to the SMTFS. Rail system facilities would be installed/modified and telecommunication masts (up to six metres tall) would be installed along the rail corridor.

A new services building would be constructed within the railway corridor and a bus layover facility provided at 117 Railway Road. Proposed bridge works include removal of the Sydenham Maintenance Centre access footbridge, and protection and maintenance works to the freight line overpass, Bedwin Road and Gleeson Avenue overbridges.

2.2. Sydney Metro Trains Facility South

The Sydney Metro Trains Facility in Rouse Hill, approved and being constructed as part of Sydney Metro Northwest, would remain the primary stabling facility for the overall Metro network. The proposed SMTFS would provide overnight stabling for Sydney Metro trains and light train maintenance activities, and would be constructed in two phases. As shown in **Figure 5**, the SMTFS would be located to the north-east of Sydenham Station and would be constructed largely on the site of the Marrickville dive site (upon decommissioning). The facility would be raised above existing ground levels with a series of 3.5 metre retaining walls and structures so that the stabling site is level with the rail corridor and there is no grade change.

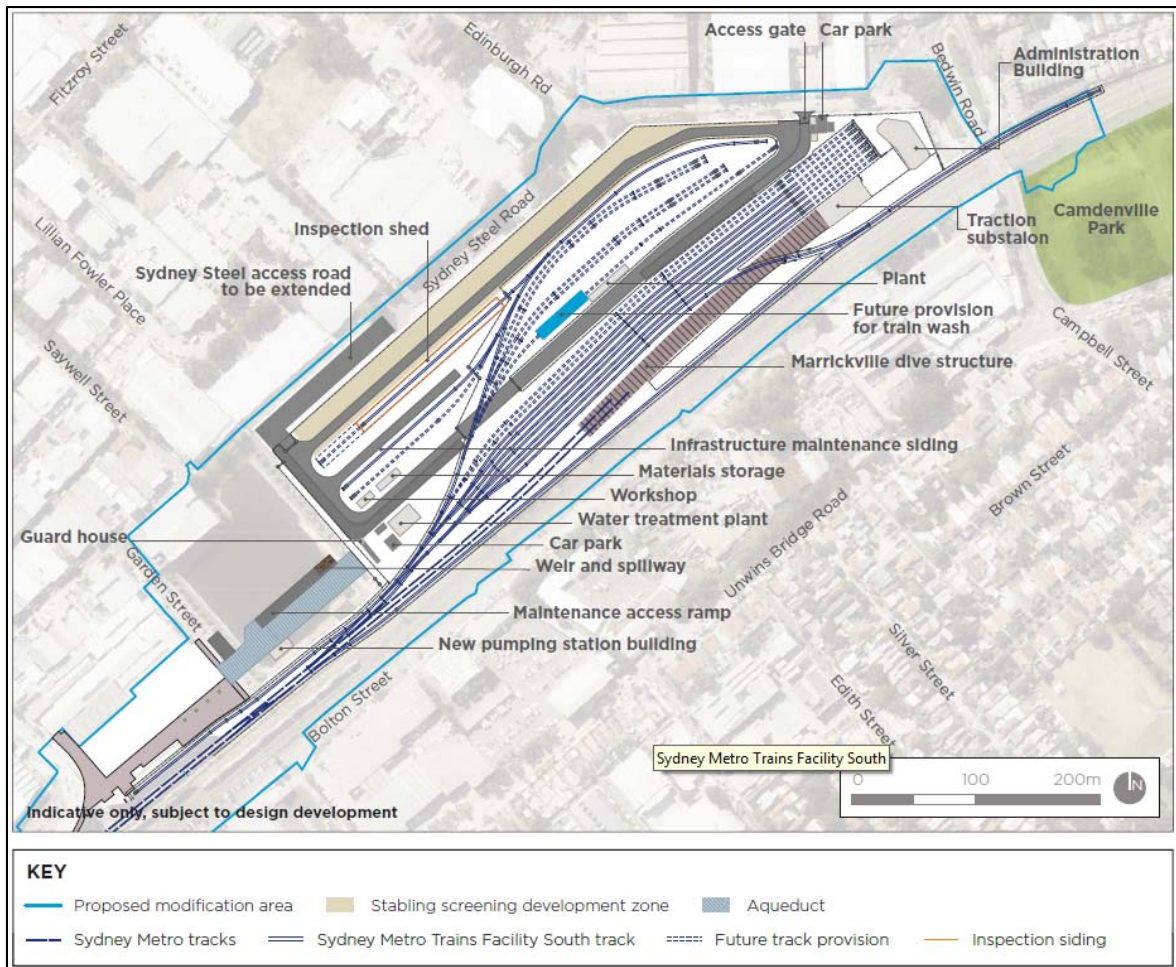


Figure 5: Sydney Metro Trains Facility South (Source: Response to Submissions)

The SMTFS would include:

- a train stabling area with final capacity to accommodate up to 20 eight-car trains;
- a covered train maintenance siding with train inspection pit;
- a covered infrastructure maintenance siding for the storage of maintenance equipment and plant;
- a train wash facility;
- administration, workshop and guard buildings;
- approximately 50 car parking spaces;
- enabling works for future rail corridor development adjacent to Sydney Steel and Edinburgh Roads and above the SMTFS; and
- planted landscaping along Sydney Steel and Edinburgh Roads.

The SMTFS would operate 24 hours per day, seven days a week and be staffed by approximately 150 full time equivalent staff. Metro trains would be stabled at the facility outside of peak periods and between the cessation and commencement of daily services. Train maintenance would include rolling stock inspections, minor repairs, the inspection of wheels, bogie and the underbody, and train washing. Routine and major maintenance of infrastructure would also be co-ordinated from the SMTFS.

2.3. Adjustments to the Sydenham Pit and Drainage Pumping Station

A drainage channel runs adjacent to the existing Sydney Trains tracks (outside the rail corridor) and through the site of the proposed SMTFS (as shown in **Figure 6**).

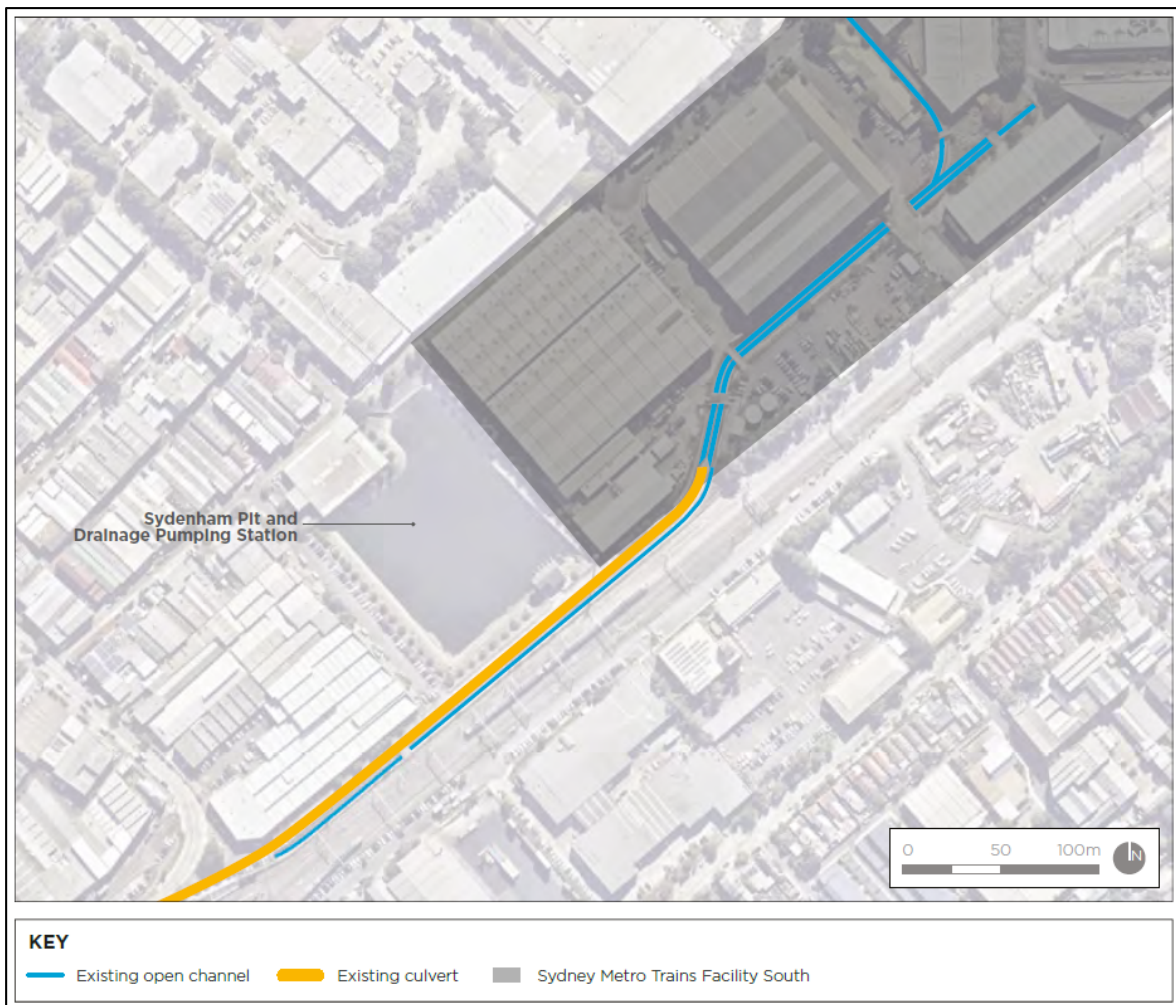


Figure 6: Existing Sydenham Pit and Drainage Pumping Station layout (Source: Modification Report)

The current alignment of the drainage channel would conflict with the proposed metro tracks and the stabling sidings of the SMTFS. Accordingly, it is proposed to:

- realign and enclose the existing open channels located within the proposed the SMTFS;
- divert the drainage channel by way of an aqueduct across the Sydenham Pit (as shown in **Figure 5**); and

- install a buried cross-drainage structure with large capacity inlet pits to carry water from the southern side of the rail corridor within Bolton Street to the existing Sydenham Pit and Drainage Pumping Station; and
- provide a new pumping station and new maintenance access ramp to the Sydenham Pit.

2.4. Need and Justification

The proposed modification would allow for the phased commencement of metro operations, which would:

- allow Metro services to operate to Sydenham Station during the final shutdown of the T3 Bankstown Line during construction of the Sydenham to Bankstown upgrade project;
- eliminate the need for empty Metro trains running from Waterloo to a track-turnback to the north of Sydenham Station; and
- allow customers on the T2 Airport Line and the T4 Illawarra Line to interchange at Sydenham to access Metro services to the city and beyond to the north west.

The delivery of the SMTFS would allow for more efficient operations of metro services during the phased opening of the Sydney Metro City and Southwest as it would reduce the need to run empty metro trains to the Sydney Metro Trains Facility in Rouse Hill.

3. STATUTORY CONTEXT

3.1. Modification of the Minister's Approval

In accordance with Section 115ZI of the EP&A Act, a proponent may request the Minister to modify the Minister's approval for State significant infrastructure. The Minister's approval for a modification is not required if the infrastructure as modified will be consistent with the existing approval. The proposed Sydenham Station upgrade and construction of the Sydney Metro Trains Facility South are not consistent with the existing approval. Consequently, modification of the Minister's approval under Section 115ZI of the EP&A Act is required.

3.2. Delegated Authority

Under the Minister for Planning's Instrument of Delegation dated 11 October 2017, the functions and powers of the Minister for Planning to determine a modification of the Minister's approval may be delegated to Executive Directors reporting to the Deputy Secretary Planning Services where:

- the relevant local council has not made an objection;
- a political disclosure statement has not been made; and
- there are less than ten public submissions in the nature of objections.

A political disclosure statement has not been made, the relevant local council has not made an objection, but two public submissions in the nature of objections have been received. Accordingly, the Executive Director, Priority Project Assessments, is delegated the authority to determine the modification request.

4. CONSULTATION AND SUBMISSIONS

4.1. Public Notification

Under Section 115ZL(1)(g) of the EP&A Act, the Secretary is required to make requests for modification of approvals given by the Minister publicly available. Accordingly, the Department made the modification request publicly available from Wednesday, 28 June 2017 to Wednesday, 9 August 2017 on its website and at:

- NSW Service Centres;
- Inner West Council Administrative Centre (Petersham);
- Marrickville Library; and
- the Nature Conservation Council.

The Department received 15 submissions: two objections; three submissions in support; and ten providing comments. Eight submissions were received from public authorities, three from businesses and four members of the public.

4.2. Submissions from the Public

Public submissions raised concerns regarding strategic justification for implementation of new and existing rail systems, pedestrian access, parking and kiss-and-ride facilities, place making, design, flooding and hydrology, accessibility and non-aboriginal heritage. Reasons for the two objections included:

- errors and inconsistencies in documentation;
- need to interchange and detailed design;
- flooding and failure to consider impacts of climate change;
- failure to consider XPT maintenance facility future and future extension to the T4 Illawarra line;
- strategic justification;
- haste of implementing untried system; and
- heritage impacts.

4.3. Submissions from Government Agencies and Local Government

The modification request was referred to relevant authorities, including the Inner West Council (Council), City of Sydney, Office of Environment and Heritage (including the Heritage Office as delegate of the Heritage Council), Environment Protection Authority, Department of Primary Industries, Sydney Water, AusGrid, and Fire and Rescue NSW.

AusGrid noted the requirement for ongoing consultation regarding asset relocations.

Environment Protection Authority (EPA) commented on construction and operational rail noise and recommended additional conditions relating to the use of trains to minimise heavy vehicle movements and utilities management.

Office of Environment and Heritage (OEH) noted that the existing conditions of approval would be sufficient to manage any Aboriginal cultural heritage impacts and provided comments on floodplain risk management.

Office of Environment and Heritage as delegate of the Heritage Council of NSW (Heritage Council) noted that retained heritage buildings are not celebrated; local character should be addressed by a focus on placemaking and identity; new design should not replicate or mimic heritage; and platform canopies and other structure should be reduced.

Detailed comments were provided in relation to impacts on the Sydenham Station Railway Group and the Sydenham Pit and Pumping Station including a request that direct impacts be mitigated as much as possible and design solutions be further considered to minimise impacts on fabric, setting and views.

Department of Primary Industries commented that the proposal would have minimal impacts on groundwater or Crown Lands.

Sydney Water identified that: potential increased stormwater flows into the Sydenham Pit as a consequence of the SMTFS may reduce capacity in the stormwater network; the increased pump out rate from Sydenham Pit would require upgrading of the pump station; there may be potential impacts on the structural stability of the pit; changes to cleaning and maintenance that would be required if the aqueduct was made accessible to the public; consideration of future-proofing inflow culverts would be required; that staging should not increase flood risk during construction; and the need to maintain operation of the stormwater network at all times.

Inner West Council commented on land use, transport and traffic, landscape and visual amenity, flooding strategic alternatives, design and urban realm, heritage and accessibility.

NSW Fire and Rescue commented on fire safety at Sydenham Station and the SMTFS. The issues raised were related to meeting relevant fire safety standards and emergency response which are more appropriately addressed at detailed design.

4.4. Proponent's Response to Submissions

Following completion of the formal exhibition period, the Department directed the Proponent to prepare a response to submissions received. The response to submissions (RtS) was received on 19 October 2017 and details minor changes to the proposed modification area and the proposed layout of the SMTFS, adjustments to the Marrickville (Meeks Road) Railway Substation, and additional noise, heritage and flooding assessment information. Agency responses to the RtS, received from Council, the EPA, Sydney Water and the Heritage Council, are addressed in Section 5 below.

4.5. Department consultation

During exhibition and assessment of the proposed modification, the Department attended community information sessions and Council briefings held by the Proponent. The Department also created a dedicated Metro modifications web page, which linked to the major project register.

5. ASSESSMENT

The proposed modification, as amended in the response to submissions, would result in changes to: access, traffic and transport; noise and vibration; land use; flooding and hydrology; non-Aboriginal heritage; accessibility; and business impacts. The changes compared to the approved project are assessed below.

Other impacts such as Aboriginal heritage, biodiversity and contamination have been considered and existing conditions of approval are sufficient to manage residual impacts.

5.1. Access, Traffic and Transport

Traffic Circulation and Pedestrian/Cyclist Safety

The proposed modification includes a signalised pedestrian crossing on Railway Parade and a zebra crossing on lower Railway Parade to provide access to the new Railway Parade entry plaza and a relocated bus stop on Railway Parade (as shown in **Figure 4**). The existing one-way flow of traffic on Railway Parade would be retained.

Inner West Council raised concerns regarding existing traffic arrangements including reconfiguration of the existing one-way traffic system via Railway Parade, Marrickville Road, Buckley Street and Sydenham Road in the interests of improving road and pedestrian safety and enhancing local amenity. The Department sought clarification on this issue. Council advised that this loop should be converted from one-way to two-way circulation.

Council's request that the loop be converted from one-way to two-way circulation is noted. However, it is considered that the request is beyond the scope of the proposed modification. Nonetheless, the Department supports the Proponent's commitment to investigating reconfiguration of this loop to a two-way traffic system in consultation with Council.

In addition, Condition E75 requires that the Project must be designed and constructed with the objective of minimising adverse changes to safety, efficiency and accessibility of the road and transport networks. Condition E92, requiring preparation of Interchange Access Plans (IAP), includes a requirement to consider safety audits to ensure compliance with relevant Austroads design criteria. The Department is satisfied that these conditions will ensure that the project meets safety requirements as established in the identified standards.

Members of the public requested an additional pedestrian access across the rail corridor to the north of Sydenham Station adjacent to Mary Street and an additional kiss-and-ride facility near the new Railway Parade entry plaza.

The Proponent's RtS noted that the provision of a pedestrian access across the rail corridor adjacent to Mary Street is beyond the scope of the proposed modification, and that whilst a kiss-and-ride facility near the new Railway Parade entry plaza has not been proposed due to space constraints, opportunities for provision of the requested facility would be further considered in the IAP required by condition E92. The Station Design and Precinct Plan (SDPP) required by Condition E101 would further facilitate improved pedestrian and cyclist access to Sydenham Station.

Further, the indicative pedestrian crossings on Railway Parade and Lower Railway Parade would improve pedestrian/cyclist access to the new Railway Parade entry plaza and the final design of pedestrian/cyclist access to Sydenham Station would be informed by the IAP, which must take into account '*safe, convenient, efficient and sufficient access to stations*'. As identified by the Proponent, any changes to the safety of pedestrians and cyclists accessing employment opportunities on the western side of the station can be addressed in the IAP and SDPP. The Department is satisfied that the RtS, in conjunction with the existing conditions of approval, adequately addresses this concern.

Conditions E75 and E92 require consultation with the Traffic and Transport Liaison Group (TTLG) which includes Council representation and E101 specifies collaboration and consultation with Council as a stakeholder. This process provides opportunity for Council's concerns regarding existing traffic arrangements and pedestrian/cyclist access to Sydenham Station to be considered and addressed in further detail. Accordingly, the

Department is satisfied that the final design of traffic arrangements and pedestrian/cyclist access to Sydenham Station would be appropriately managed by way of the existing conditions of approval without further amendment.

Pedestrian and Cycling Connectivity

The proposed modification includes provision of cycling infrastructure to support the operation of the Active Transport Corridor (ATC) proposed as part of the Sydney Metro Sydenham to Bankstown upgrade project, which is currently under assessment, as well as a new on-road cycle connection from Sydenham Station, via Railway Parade and Marrickville Road, to an existing on-road cycle route on Gerald Street, Sydney Lane and Meeks Road (as shown in **Figure 7**).

The indicative route of the ATC (as exhibited in the EIS for the Sydney Metro Sydenham to Bankstown upgrade project) commences at the junction of the on-road cycle route on Meeks Road and an off-road cycle path on Victoria Road.

Council raised concerns regarding the proposed on-road cycle connection (the dotted green line in **Figure 7**) and proposed an alternative connection from Sydenham Station to the ATC via a dedicated pedestrian/cyclist path within and to the south of Fraser Park to provide the desired level of connectivity outlined in the *Revised Draft Sydenham to Bankstown Urban Corridor Strategy* (the Strategy).

The Proponent noted that the Strategy depicts the Greenway South West connecting Sydenham and Marrickville stations via a cycle route consistent with that identified by council and committed to further explore opportunities to integrate with other planned infrastructure with Council to facilitate the staged completion of the ATC. Council maintains that the proposed on-road cycle connection is not acceptable and advised that the stated commitments do not adequately address its concerns.

The Department notes that the Strategy identifies an off-road cycle route around Fraser Park as part of the Greenway South West but that design and funding of this requires finalisation. Therefore, the proposed on-road route from Sydenham Station provides a suitable interim connection to existing cycle routes.

Although the Department supports the Proponent's proposed on-road cycle connection and commitment to work with Council to facilitate the completion of the ATC, an additional condition is recommended requiring the Proponent to investigate opportunities for a dedicated cycle connection between Sydenham and Marrickville stations and not preclude future delivery of any identified connection in developing the relevant IAP (condition E92) and SDPP (condition E101). The investigation must be undertaken in consultation with the TTLG, which includes Council representation.

The Department is satisfied the recommended condition, in conjunction with the existing conditions of approval, would provide for appropriate consideration and integration of the ATC, Greenway South West and Council's concerns in informing the final design of cycling infrastructure to be provided as part of the proposed modification.

Parking

Thirty-six car parking spaces will be lost adjacent to Sydenham Station to allow for the new station entry plazas on Burrows Avenue and Railway Parade and active transport facilities. Three accessible spaces will be replaced, resulting in a net loss of 33 spaces.

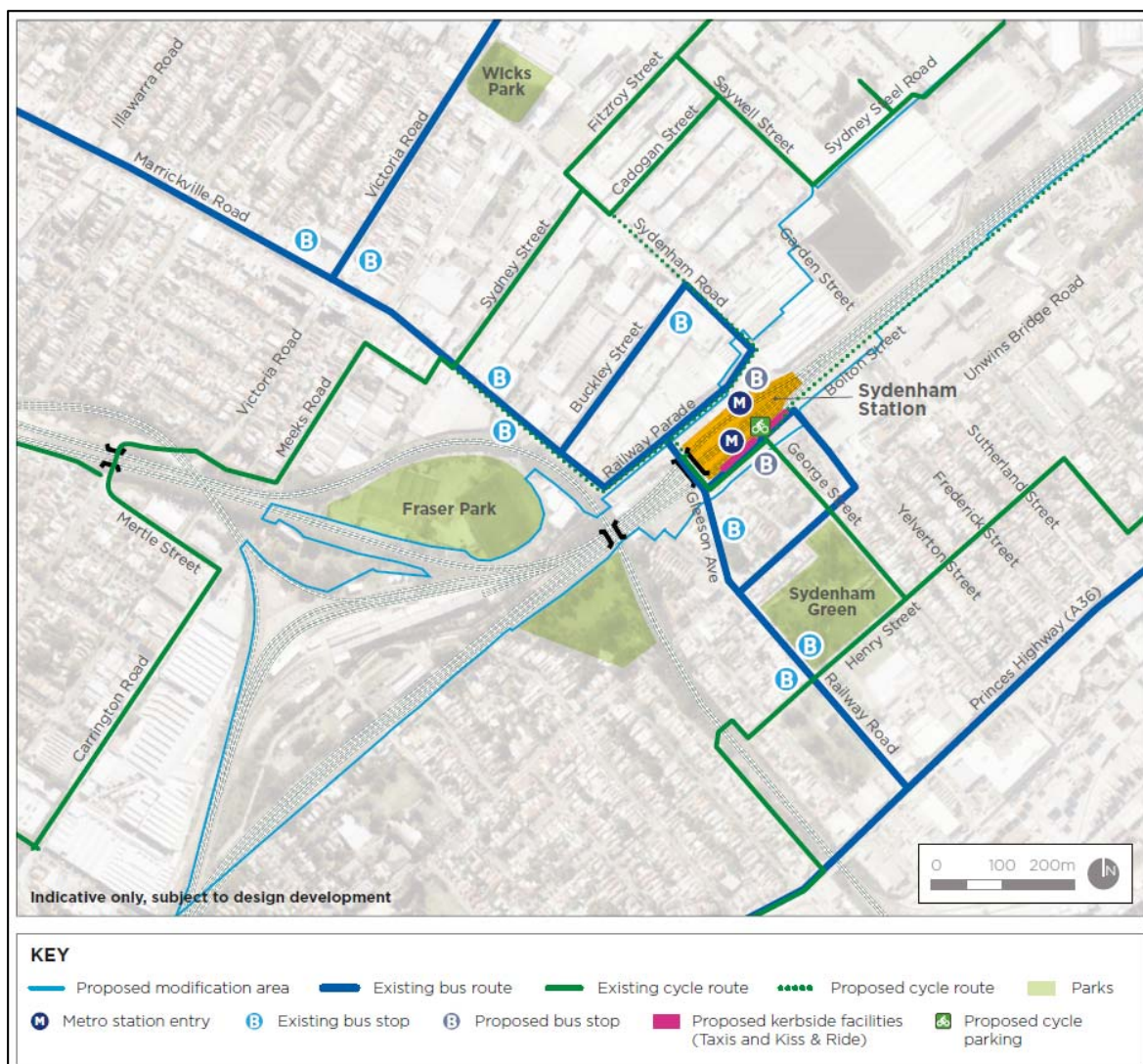


Figure 7: Proposed bus and cycling routes (Source: Modification Report)

Council and public submissions requested that parking spaces be replaced. The Proponent does not propose replacing these spaces as Sydenham station is located within ten kilometres of the Sydney CBD, noting that this is consistent with the principles adopted for the approved Project. However, the Proponent has committed to collaborating with Council on a parking study to manage the long-term impact of operation of the metro on parking and other kerbside use in local streets.

The Department considers that the introduction of Metro Services partially offsets this loss by making the station easier to access by alternative transport modes and is satisfied that the existing conditions of approval (including the detailed design requirements of condition E75, the TTLG established by condition E77 and the Interchange Access Plan required by E92), in conjunction with the Proponent's commitment, is appropriate to manage loss of parking.

5.2. Noise & Vibration

Construction Noise and Vibration

Construction would largely occur during standard hours, (from 7 am to 6 pm Monday to Friday and 8 am to 1 pm Saturday). However, to protect rail assets, minimise disruptions to the transport network, and maintain public and worker safety, some construction activities would occur outside of standard hours.

Noise Management Levels (NMLs) would be exceeded by more than 20 dB during various activities where noise intrusive plant such as rock breakers, diamond saws and ballast tampers are used, but most would be affected by ground and track corridor works. These activities would occur during rail possessions and during standard construction hours. However, each of those activities would occur intermittently over a period of up to ten weeks or less as follows:

- general worksites (earthworks with breaker) – six weeks;
- ground and track corridor works (earthworks with breaker) – ten weeks;
- ground and track corridor works (trackform with ballast tamper) – one week;
- station worksites (demolition with breaker saw) – six weeks; and
- bridge worksites (demolition with breaker saw) – two weeks.

Several receivers would be highly noise affected (75 dB(A) or greater) along the length of the corridor. Of the affected receivers, one would be affected by station upgrade works and a maximum of nine would be affected by SMTFS construction.

The sleep disturbance NML (55 dB(A) internal) would also be exceeded when night time works occur adjacent to residential receivers. Significant numbers of receivers across the corridor would experience exceedances (up to and greater than 20 dB) of the sleep disturbance criterion during corridor, station and bridge works.

The proposed modification may result in exceedances of the cosmetic screening vibration criteria of 7.5 mm/s (the screening criterion adopted for heritage structures) within or near the modification area and additional buildings would be located within the minimum working distances for human comfort vibration. The Proponent has committed to undertake further detailed assessment, attended vibration monitoring and adaptive management techniques, including alternative construction methodologies and equipment, to respond to monitoring results with the objective of reducing vibration impacts.

Operational Noise

Exceedances of the operational NML are anticipated at nine residential receivers and Fraser Park shown in **Figure 8**. The Proponent proposed to address this impact using noise barriers in the locations shown in **Figure 9**. The requirement, extent and design of these barriers would be further considered during detailed design.

Changes to current rail track configuration and train operation near Sydenham Station may increase rail noise levels by 1-3 dB at nearby receivers and a potential decrease of up to 5 dB in association with track turnouts. The Proponent has identified noise barriers to mitigate these noise impacts.

Operation of the SMTFS may also result in an exceedance of the night-time NML by up to 8 dB and up to 1-3 dB exceedance of sleep disturbance criteria for receivers to the north and south-east of the SMTFS. The Department notes that this is a worst case operational scenario that can be addressed through operational procedures. In addition, further detailed investigation to finalise appropriate mitigation measures is proposed once detailed design and train timetabling is finalised.

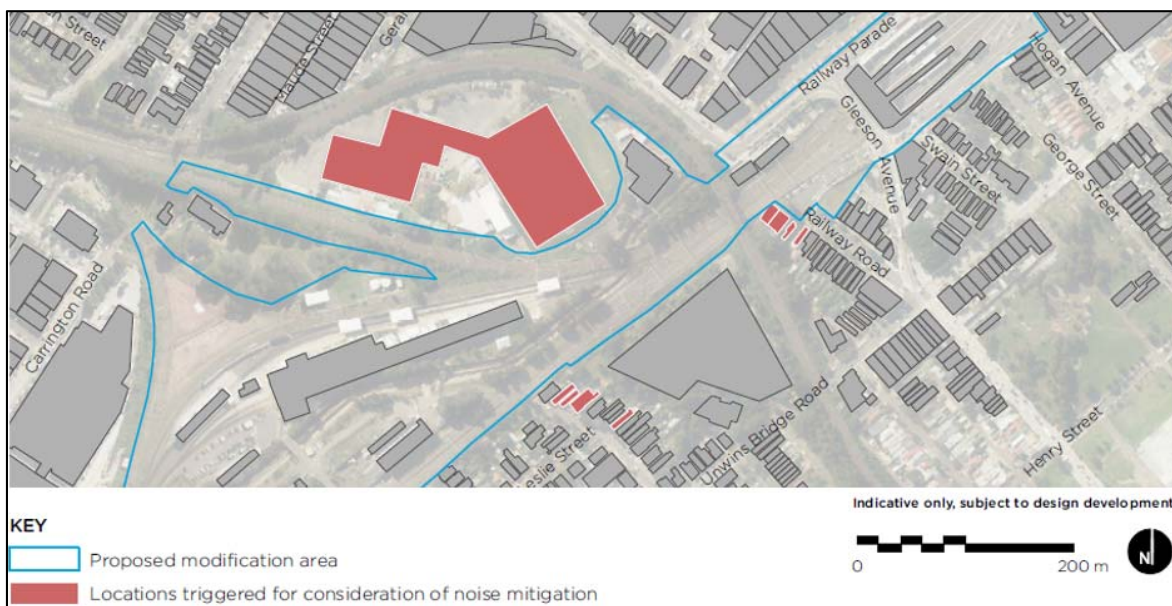


Figure 8: RING noise exceedance receivers (Source: Modification Report)

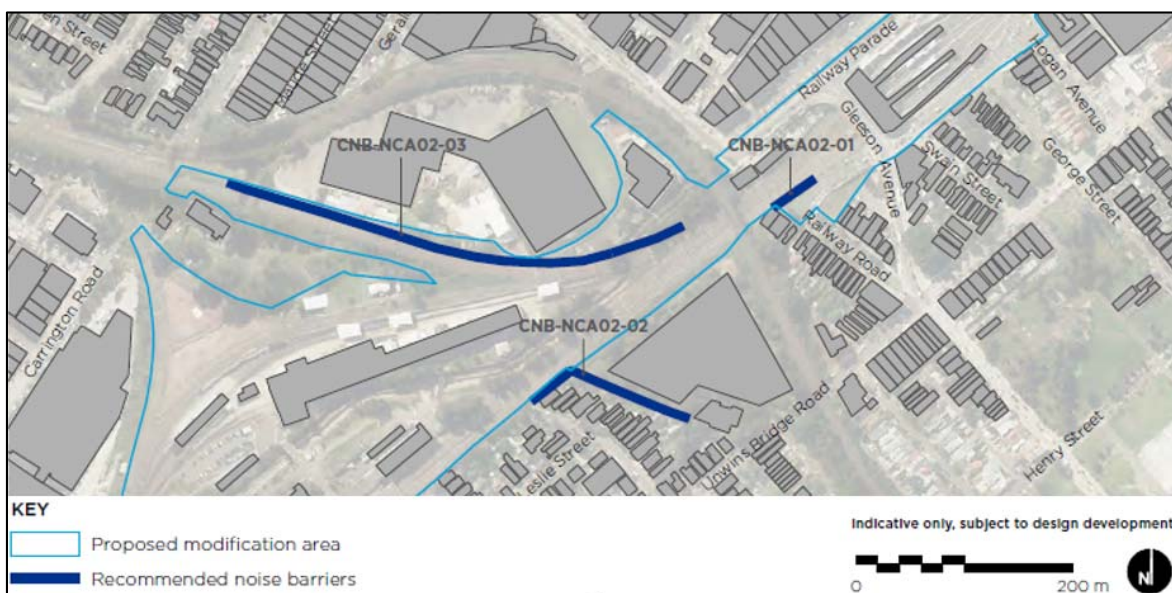


Figure 9: Proposed noise barriers (Source: Modification Report)

The EPA has acknowledged that the assessment represents impacts likely to result from the proposed modification and that the existing conditions of approval are appropriate to address those impacts, but recommended additional conditions requiring:

- use of work trains as much as practicable to minimise heavy vehicle movements during construction; and
- formation of a Utility Management Coordination Agency to co-ordinate utilities upgrade activities and development of a Utilities Management Strategy to efficiently implement those activities.

In response, the Proponent highlighted its commitment to investigate potential non-road transport methods in accordance with condition E84 and that a Sydney Metro Utility Working Group has been established to identify, manage and coordinate proposed utility works. The Department is satisfied that the issues raised by the EPA will be appropriately addressed by the existing conditions.

The Department acknowledges that construction and operation of the proposed modification would generate noise impacts and that these impacts would be greater and for a longer duration than those identified for the approved Project. However, the Department is satisfied that the comprehensive suite of noise management measures included in the existing approval would provide an appropriate approach to noise and vibration management. These include:

- independent oversight by an acoustic advisor (condition A25) to provide independent oversight of noise management on the project;
- consultation, complaints management and an independent Complaints Commissioner (conditions B1, B6 and B11 respectively);
- preparation of noise and vibration management and monitoring plans for construction and operation (conditions C3, C9, D3 and D13) and performance measures for management of respite from construction (E37 and E38);
- construction noise and vibration impact statements for each construction site, including specific mitigation measures (condition E33);
- consideration of less noisy excavation methods to rock hammering (condition E35); and
- development of an Out of Hours Work Protocol for works outside of standard construction hours (condition E47).

5.3. Flooding and Hydrology

The proposed modification would result in changes to the existing stormwater drainage network (as detailed in Section 2.3) generally resulting in reduced flood impacts compared to the approved Project, as shown in **Figure 10** and **Figure 11**. However, the aqueduct piers and access ramp would decrease the available storage capacity of the Sydenham Pit; however, the pump out rate would be increased to address this.

Flood levels would increase in the Eastern Channel and near the junction of Sydenham Road and Railway Parade in one percent AEP events and additional flooding would affect commercial and industrial facilities on the northern side of Unwins Bridge Road and residential properties on Sutherland and Fredrick streets and Unwins Bridge Road in the PMF. Peak flood velocities will also increase.

The western channel bank near Tempe Station will be raised to accommodate for increased flood levels within the Eastern Channel.

Council, Sydney Water, OEH and public submissions raised concerns regarding flooding and hydrology. In particular, Council identified that the proposed works:

- do not enable future works identified in Council's strategic flood planning documents, such as the Eastern Channel East Floodplain Risk Management Study and Plan and Marrickville Valley Draft Floodplain Risk Management Study and Plan;
- there is no scope for future development to augment the capacity of the Sydenham pit or the Eastern Channel thereby precluding future development in flood prone areas around Marrickville and Sydenham (including in areas nominated for rezoning and uplift in the Sydenham to Bankstown Urban Renewal Corridor Strategy);
- the Proponent is ignoring WestConnex flooding and hydrology works in the area; and
- the proposed modification does not 'reduce the impact of flooding' in accordance with NSW Government Policy.

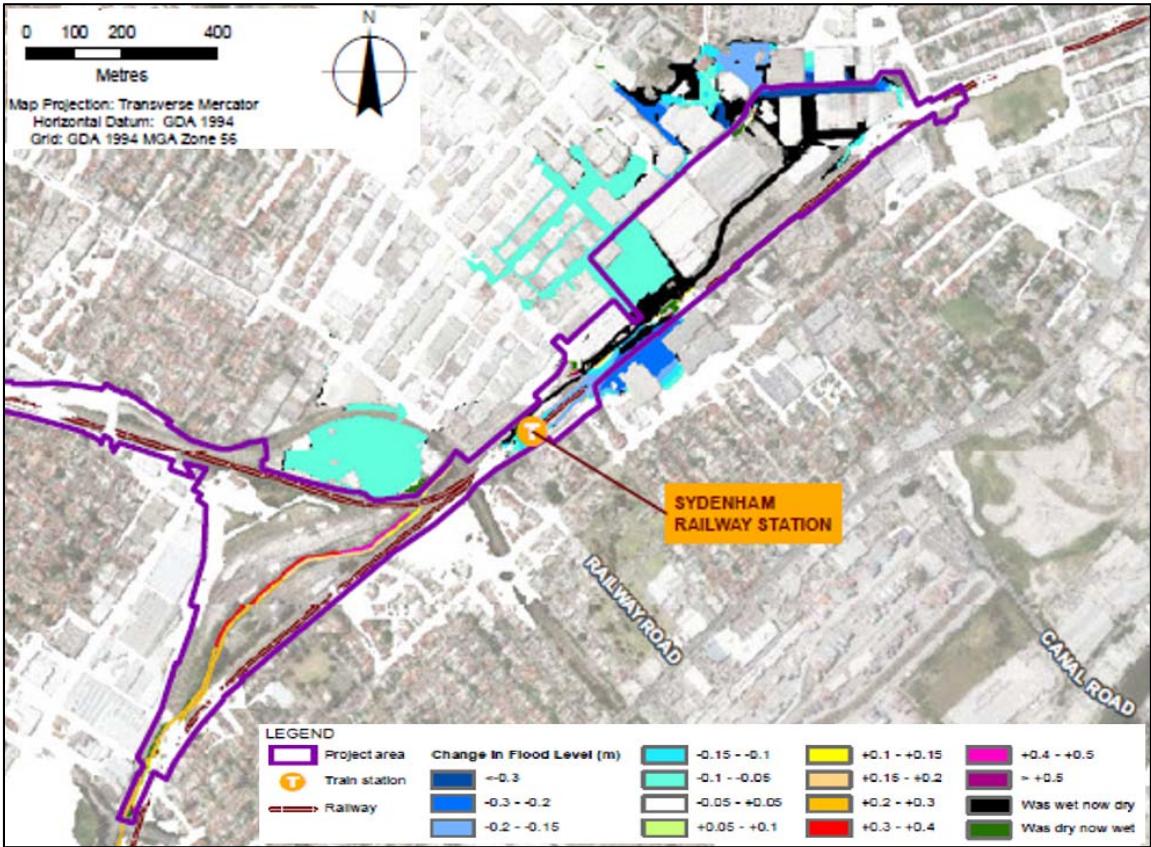


Figure 10: Proposed flood levels change (one per cent AEP plus ten per cent for climate change) (Source: RtS)

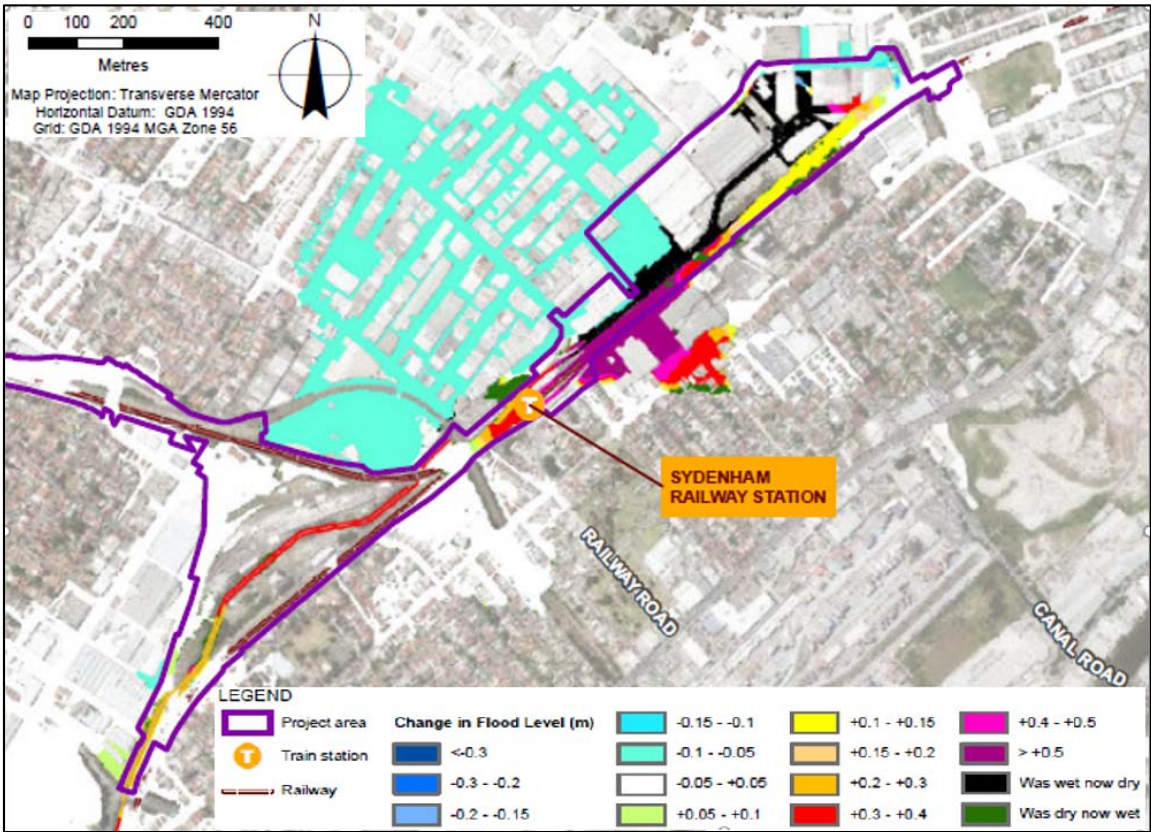


Figure 11: Proposed flood levels change (PMF) (Source:RtS)

Condition E8 requires mitigation measures to maintain or improve flood characteristics identified in the Preferred Infrastructure Report for the approved Project to be incorporated into the delivered project. This condition will be amended to ensure that these measures are also applied to the proposed modification. The incorporation of these measures must be reviewed and endorsed in consultation with affected landowners, businesses and Council.

These measures include:

- not worsening existing flood characteristics up to and including the 100-year annual recurrence interval event in the vicinity of the project where reasonable and feasible in consultation with Council and OEH;
- consultation with Council to ensure future drainage improvement works around the Marrickville dive site, Sydenham Station and the surface tracks are not precluded and that flood related outcomes are consistent with existing and any future floodplain risk management study and/or plan development for the Marrickville Valley catchment.

The proponent has also committed to continued consultation with WestConnex in relation to the coordination of flooding and hydrology works in the vicinity of the proposed modification.

The Department is satisfied that the modification would have negligible impact relative to the existing flood hazard in the one per cent AEP and PMF scenarios, and that the revised mitigations measures, in conjunction with existing conditions, will adequately address potential flood impacts.

5.4. Built Heritage

The proposed modification would directly and indirectly impact ten heritage listed items and three heritage conservation areas. Direct impacts include demolition and modification of built elements, vibration and inadvertent damage. Indirect impacts would include changes to the view, vistas and settings.

The OEH (as delegate of the Heritage Council) recommended that the design celebrate heritage buildings to be retained and that local character should be addressed by a focus on placemaking and identity. These recommendations will be addressed in Station Design and Precinct Plans required by condition E101.

The Sydenham Railway Station Group and Sydenham Pit and Pumping Station, both listed on the State Heritage Register, s170 Heritage Conservation Registers (Ralph and Sydney Water respectively) and the Marrickville Local Environmental Plan, would be subject to moderate or greater heritage impacts because of the proposed modification.

The Sydenham Railway Station Group (inclusive of four platforms, three platform buildings, parcels office, waiting sheds, overhead booking office, platform canopies and footbridge canopy, footbridge and stairs, Gleeson Avenue overbridge, and brick perimeter walls) is a heritage item of State significance for its historical, aesthetic and social values, rarity and representativeness. Sydenham Pit and Pumping Station is a heritage item of State significance for its historical and aesthetic values, research potential, rarity and representativeness.

Whilst the proposed modification would have a major direct impact and moderate visual impact upon Sydenham Railway Station Group and a moderate direct impact and major visual impact upon Sydenham Pit and Pumping Station, the Proponent has assessed that both items would continue to meet the threshold for State significance.

The Heritage Council, Council and public submissions raised heritage matters including the need for:

- further mitigation of physical and visual impacts to Sydenham Railway Station Group and Sydenham Pit and Pumping Station; and
- consideration of additional design solutions to limit the impact of the proposed works on significant fabric, settings and views within the curtilage of Sydenham Pit and Pumping Station.

Notwithstanding these concerns, it is noted that:

- the Approvals Committee (of the Heritage Council) design comments would be incorporated into the Station Design and Precinct Plan required for Sydenham Station;
- comments would be addressed through existing conditions of approval (including preparation of a Heritage Interpretation Plan) and specific mitigation measures (including archival recording and reporting for the Sydenham Railway Station Group and Sydenham Pit and Pumping Station); and
- detailed design would be subject to review by the Design Review Panel of which the Heritage Council is a member.

The Department acknowledges that the Proponent has attempted to minimise heritage impacts during the design of the modification, but that the constraints at Sydenham Station and the SMTFS site, in conjunction with the engineering requirements of the metro system, result in the loss of some heritage elements that comprise the Sydenham Railway Station Group and Sydenham Pit and Pumping Station.

The Department is also satisfied that the existing conditions of approval, with the above additional commitments, would assist in minimising impacts to heritage items. The Department therefore considers, on balance, impacts to heritage items are outweighed by the benefits of the project in delivering a world class metro system and the consequential improvements to the wider rail network which it will bring, whilst maintaining higher value elements and overall State significant values.

5.5. Landuse

Indicative property acquisitions required for the proposed modification are shown in **Figure 12** and includes land zoned general industrial, light industrial and medium density residential (which is currently vacant land).

Council raised concerns regarding the loss of land currently used for employment, industrial and creative purposes because of the proposed land acquisitions and potential future expansion of the SMTFS. To partially offset any such loss, Council requested that the Proponent be required to provide a space above the SMTFS for creative industries.

The Department acknowledges Council's concerns regarding the loss of employment and industrial land, which are increasingly under threat and requested that the Proponent be required to provide replacement employment land and creative space above the SMTFS. The SMTFS would be constructed to enable future development above it. The use of that space will be subject to local planning regulations and any such development would be subject to a separate approval process.

5.6. Other Issues

Accessibility

A key element of the proposed Sydenham Station design is the delivery of better access through the provision of a new concourse, level platforms and additional lifts as well as

improvement to the immediate precinct surrounding Sydenham Station to deliver accessible interchange with other forms of transport.

Council and public submissions raised concerns regarding accessibility including an ongoing concern that platform 1 at Sydenham provides access to the only platforms at Redfern with lift access.

The Proponent advises that T2 line services from Sydenham would continue to service Redfern platforms with lift access. The Department acknowledges that this a matter for Sydney Trains and that access to lifts from the T2 line can be retained.

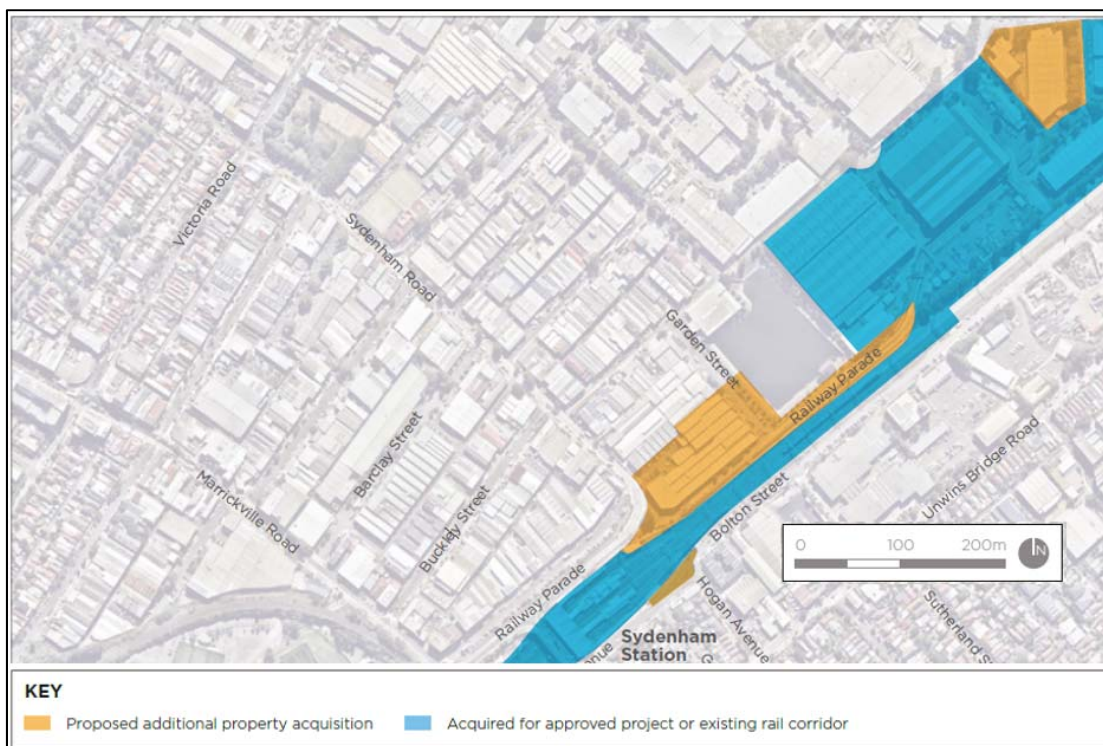


Figure 12: Proposed property acquisition (Source: Modification Report)

Business Impacts

Submissions from the public have identified that the proposed loss of 36 car parking spaces would negatively impact local businesses. The Proponent submits that whilst construction of the proposed modification would likely have broader economic benefits by way of job generation and construction multipliers, local and precinct level businesses may experience a degree of disruption and other temporary negative impacts.

The Department notes that the Proponent has committed to work with Council to complete a parking study to manage the long-term impact of parking loss resulting from construction and operation of the project. The existing conditions of approval, including condition E64 which requires the preparation and implementation of Business Management Plan to minimise impacts on businesses adjacent to major construction sites and Condition E81 which requires the preparation and implementation of Construction Traffic Management Framework, is appropriate to manage business impacts.

6. CONCLUSION AND RECOMMENDATION

The Department concludes that the proposed modification to upgrade Platforms 1 and 2 of Sydenham Station, construct a new concourse and trains facility will have significant benefits to the phased opening of the Sydney Metro Chatswood to Sydenham project (subject to determination of the Sydenham to Bankstown upgrade project) by:

- enabling Metro services to operate to Sydenham Station in conjunction with the Temporary Transport Strategy during construction of the Sydenham to Bankstown upgrade project (subject to approval);
- providing stabling to avoid the need to return empty trains to the train maintenance facility at Tallawong Road, Rouse Hill;
- eliminating the need for empty Metro trains running from Waterloo to a track-turnback; and
- allowing customers on the T2 Airport Line and the T4 Illawarra Line to interchange at Sydenham to access Metro services to the city and beyond to the north west.

It is recommended that the Executive Director, Priority Projects Assessments, as delegate of the Secretary:

- note the information provided; and
- approve the modification request by signing the attached modifying instrument (Tab A).

Lisa Mitchell
Team Leader, Rail

Recommended by:



Glenn Snow
Director
Transport Assessments

DECISION

This recommendation is approved by:



David Gainsford 13/12/17
Executive Director
Priority Projects Assessments
As delegate of the Minister for Planning

APPENDIX A MODIFICATION REQUEST

See the Department's website at:

http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=8576

APPENDIX B SUBMISSIONS

See the Department's website at:

http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=8576

APPENDIX C RESPONSE TO SUBMISSIONS

See the Department's website at:

http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=8576

APPENDIX D RECOMMENDED MODIFYING INSTRUMENT

See the Department's website at:

http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=8576