Planning Services
Infrastructure Management
Contact: Alice Pryke
Email: alice.pryke@planning.nsw.gov.au

Our Ref: SSI 7400

Fil Cerone
Sydney Metro
Level 43, 680 George Street
Sydney NSW 2000

BY EMAIL ONLY fil.cerone2@transport.nsw.gov.au

Dear Adam

Approval of Station Design and Precinct Plan – Sydenham Station and Pit: E101 Project Name (SSI 7400)

I refer to your submission dated 7 September 2019 requesting approval of the Station Design and Precinct Plan – Sydenham Station and Pit (SDPP) in accordance with condition E101 of SSI 7400. I also acknowledge your response to the Department's review comments and requests for additional information.

I note that the SDPP:

- has been prepared in consultation with the relevant stakeholders;
- has been reviewed by Sydney Metro and there are no outstanding issues;
- has been endorsed by the Environmental Representative; and
- contains the information required by the conditions of approval.

As nominee of the Planning Secretary, I approve the following document pursuant to condition E101.

Plan	Revision and date
Station Design and Precinct Plan – Sydenham Station and Pit	Revision 8, 11 June 2019

You are reminded that if there is inconsistency between the approved SDPP and the conditions of the approval, then the requirements of the conditions of approval will prevail.

Please ensure you make the SDPP publicly available on the project website.

If you have any questions, please contact Alice Pryke on the details listed above.

Yours sincerely

14/6/19

Erica van den Honert
Director – Infrastructure Management
Planning Services
As delegate of the Planning Secretary

Copied to: Adam.Koutsamansis@transport.nsw.gov.au; Simon.Fisher@transport.nsw.gov.au

Station Design and Precinct Plan - Sydenham Station and Pit

City & Southwest Chatswood to Sydenham project

Project:	Sydenham Station and Junction	**Date:**	16 November 2018
Group:	C&SW SEP	**Status:**	Final
Author:	Yvette Buchli	**Revision:**	08
Company:	Sydney Metro	**File number:**	
File name:	SDPP_190110 Rev8.docx		

Revision	Revision date	Status	Brief reason for update	Name/ position/ company	Author/ Reviewer/ Approver	Signature
01	18/09/18	Draft	For consultation	JHLOR		
02	10/10/18	Draft	For consultation	JHLOR		
03	15/10/18	Draft	For consultation	JHLOR		
04	08/11/18	Draft	For consultation	JHLOR		
05	16/11/18	Draft	For consultation	JHLOR		
06	30/3/19	Final	Updated to address comments from the DP&E	JHLOR		
07	28/5/19	Final	Updated to address comments from the DP&E	JHLOR		
08	11/06/19	Final	Updated to address comments from the DP&E	JHLOR		

Table of Contents

Executive summary

This Station Design and Precinct Plan has been prepared to fulfil Condition E101 of the Chatswood to Sydenham project approval SSI 15_7400 for the Sydenham Metro upgrade project.

Condition E101 requires that:

> *Before commencement of permanent built surface works and/or landscaping, the Proponent must prepare **Station Design and Precinct Plans (SDPP)** for each station. The SDPP must be prepared by a suitably qualified and experienced person(s), in collaboration and consultation with relevant stakeholders including but not limited to relevant council(s), the Department and the local community. The SDPP(s) must present an integrated urban and place making outcome for each station or end state element. The SDPP(s) must be approved by the Secretary following review by the DRP and before commencement of permanent aboveground work…*
>
> *… Elements covered by the SDPP(s) must be complete no later than the commencement of operation of the Sydney Metro to paid services, unless otherwise agreed with the Secretary.*

The Condition notes that the SDPP may be submitted in stages to address the building and landscaping elements of the project. This SDPP is for the Sydenham Metro upgrade and has been prepared by the John Holland Laing O'Rourke Joint Venture (JHLOR).

Separate SDPPs have been or are being developed for:

- Crows Nest Station
- Victoria Cross Station
- Barangaroo Station
- Martin Place Station
- Pitt Street Station
- Central Station
- Waterloo Station
- Ancillary infrastructure, comprising the Chatswood Dive, Marrickville Dive, Artarmon Substation, Sydney Metro Trains Facility South and new noise walls along the rail corridor.

This SDPP presents an integrated station and public domain design for Sydenham Station and the Sydenham Pit. Through a three (3) stage detailed design process, followed by a summary stage that culminates in the delivery of Issued for Construction documents and drawings, the project team has consulted and coordinated internally and externally with stakeholders, customers, systems and services. The project team has utilised various software tools to review and coordinate, including Virtual Reality, to test and assess design options, outcomes and assumptions, investigate impacts and issues and finalise the final urban design and place making outcome.

1. Introduction

1.1. Purpose of the Station Design and Precinct Plan

This report has been prepared to document the Station Design and Precinct Plan (SDPP) for the Sydenham Metro upgrade component of the Sydney Metro City & Southwest Chatswood to Sydenham project. This includes the upgrade of Sydenham Station and the installation of an aqueduct at the Sydenham Pit and Pumping Station. The plan has been prepared to guide the design of the permanent built surface works and landscaping associated with the project.

The design has taken into consideration existing and planned public domain and private developments adjacent to the project and effective consultation and collaboration with relevant stakeholders. Through a three (3) stage detailed design process, followed by a summary stage that culminates in the delivery of Issued for Construction documents and drawings, the project team has consulted and coordinated internally and externally with stakeholders, customers, systems and services. The project team has utilised various software tools to review and coordinate, including Virtual Reality, to test and assess design options, outcomes and assumptions, investigate impacts and issues and finalise the final urban design and place making outcome.

The preparation of the SDPP is a requirement of Condition E101 of the Chatswood to Sydenham project approval SSI 15_7400. Condition E101 allows the SDPP to be submitted in stages and, as identified in the Staging Report, staging of the project is represented on a precinct basis. Consistent with the requirements of Condition E101, this SDPP:

- details specific design objectives, principles and standards
- identifies design opportunities including incorporation of public art and salvaged elements
- describes the key design features
- outlines implementation of the plan, including maintenance and monitoring
- provides evidence of consultation.

As required by Condition E101, the SDPP has been prepared by suitably qualified and experienced person(s). The details of the qualifications and experience of the author(s) who prepared this plan is contained in Appendix C.

1.2. Project overview

Sydney Metro is Australia's biggest public transport initiative. A new standalone railway, this 21st century network will deliver 31 metro stations and 66 kilometres of new metro rail for Australia's biggest city – revolutionising the way Sydney travels. Customers won't need a timetable when Sydney Metro opens – they'll just turn up and go.

Sydney Metro has two core stages in the delivery phase, with planning currently underway for the next stage – Sydney Metro West:

Stage 1: Sydney Metro Northwest – extending from the new Cudgegong Road Station to Chatswood, this 36 kilometre metro project will provide eight new train stations and connect

to the existing Epping to Chatswood rail line. The project will be open to the public in the first half of 2019.

Stage 2: Sydney Metro City & Southwest – a new 30 kilometre metro line extending Sydney Metro Northwest from Chatswood in the north, under Sydney Harbour and through the CBD and southwest to Bankstown. The project is due to open in 2024.

From a planning approvals perspective, Sydney Metro City & Southwest has been split into two components – Chatswood to Sydenham and Sydenham to Bankstown.

The Chatswood to Sydenham component of Sydney Metro City & Southwest involves the delivery of approximately 16.5 kilometres of metro rail line between Chatswood and Sydenham, including connections to the existing rail network, ancillary infrastructure, metro platforms at Central and Sydenham stations and the following new metro stations:

- Crows Nest Station
- Victoria Cross Station
- Barangaroo Station
- Martin Place Station
- Pitt Street Station
- Waterloo Station.

1.3. Scope of this Station Design and Precinct Plan

This SDPP presents an integrated urban and place making outcome for the following project scope elements:

- The new work includes the modification of platforms 1 and 2 of Sydenham Station to straight platforms to allow for an accessible Sydney Metro service, two new station entrances, a new aerial concourse with lift and stair access to all platforms, remedial works to the existing Sydney Trains platforms (3, 4, 5 and 6) and the creation of two new public plazas with intermodal interchange (Sydney Trains, bus, cycle, taxi and private vehicle) provisions
- The project also includes civil and hydraulic works to Sydenham Pit and Pumping Station, track and signalling works at Sydenham junction and upgrades to the rail corridor along parts of the T3 Bankstown Line to accommodate the new metro tracks.

Sydney Metro has considered the design and visual impacts of the permanent above ground infrastructure elements within the Sydenham Station precinct that have not been identified in the dot points above, such as overhead wiring, signalling, drainage infrastructure, electrical works etc. However, the SDPP and associated design objectives and principles do not override the detailed design of these elements as their design requirements are governed by engineering and / or safety standards.

The design response for the Sydenham Metro upgrade are based on TfNSW's five overarching Metro design objectives, which are:

- Customer - Ensure an easy customer experience
- Integrated - Be part of a fully integrated transport system
- Catalyst - Be a catalyst for positive change
- Legacy - Deliver an enduring and sustainable legacy for Sydney
- Context - Be responsive to distinct contexts and communities.

Quality architecture, good urban design and a user friendly and well connected transport system are critical to ensuring that the project meets customer needs and expectations and maximises its city shaping potential and broader urban benefits.

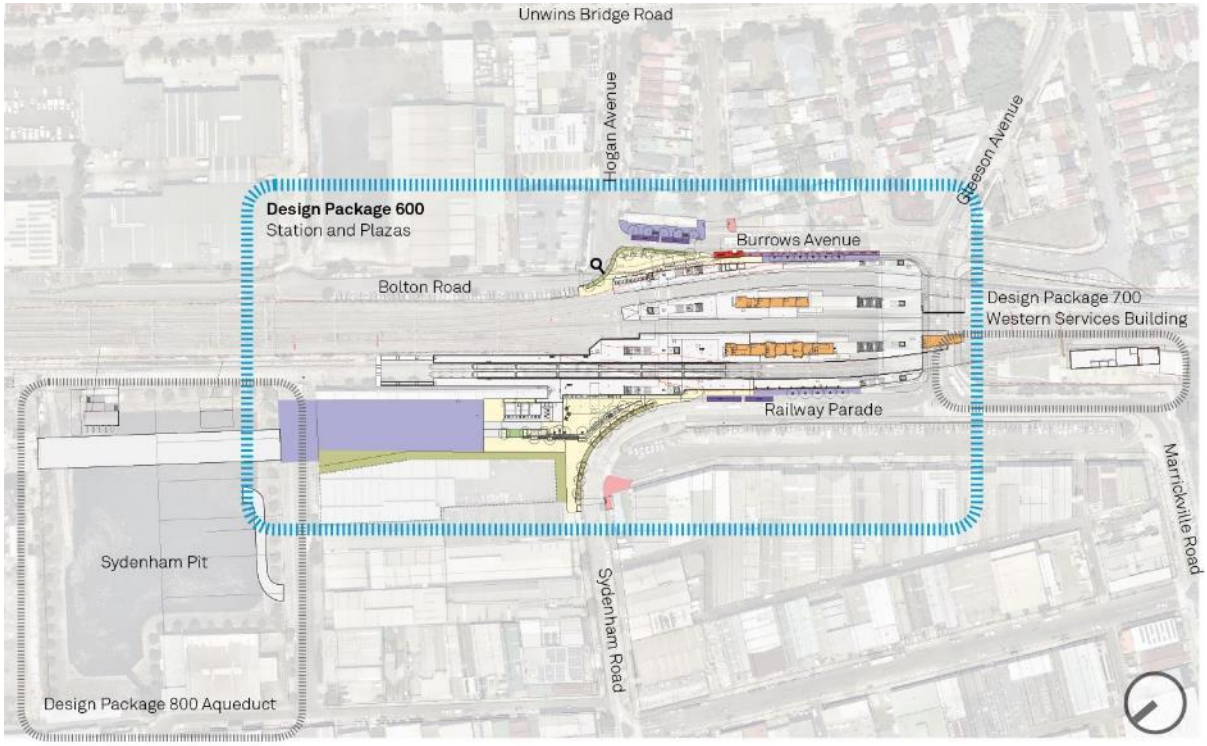


Figure 1.3.1: Plan showing extent of SDPP study area.

The study area and SDPP boundary considered in this SDPP is shown in Figure 1.3.1.

Sydenham Station is located within the Inner West Council Local Government Area approximately 5.3km south of Sydney CBD and 1.5km north west of Sydney Airport. The station precinct (defined within the 400m and 800m radius equivalent to a 5 to 10-minute walking distance) includes the south-eastern suburbs of Marrickville, St Peters to the east and Tempe to the south.

The existing Sydney Trains and station entrance is located on Gleeson Avenue. The station is bounded by a busy road network, including Railway Parade to the north, Gleeson Avenue overbridge to the west, and Marrickville Road further to the west. Burrows Avenue to the south is a local road with a light traffic flow. It is occasionally used by heavy goods vehicles to access the industrial warehouses and open storage yard on Bolton Street.

Figure 1.3.2: Aerial view showing overall site context.

The character of the area surrounding the station is strongly influenced by its industrial history and the transport network, including rail, busy main roads and Sydney Airport.

The study area, shown in an aerial view in Figure 1.3.2, has been identified to determine the key design drivers and influences of the broader urban context on the project. The SDPP boundary, in Figure 1.3.1, is the area within which works identified in this SDPP will be delivered as part of the project.

Station Precinct

There are two contrasting precincts on the north and south side of the railway corridor. The south is a residential neighbourhood and the north is a gritty post-industrial precinct. Figure 1.3.4 to Figure 1.3.8 show the defining features of the area around Sydenham Station.

The southern precinct is a residential area consisting of fine grain single or double storey residential terrace houses on compact lots dating from around the early 20th century. Historically the community has evolved around the industrial zone in the north. There is a modest retail area at the Unwins Bridge Road and Railway Road intersection, offering a small selection of shops.

The northern precinct by contrast has a distinctly industrial character. Low-rise large scale utilitarian warehouses and commercial buildings featuring a rich mix of graffiti wall murals dominate the urban landscape. There are relatively few trees or open green spaces. The

treeless streetscape combined with the fast flowing vehicle traffic on Sydenham Road, Railway Parade and Marrickville Road create a harsh environment for pedestrians and cyclists.

Due to the proximity to Sydney Airport, Sydenham is regularly subjected to high levels of aircraft noise.

Figure 1.3.3: Aerial plan showing station catchment. Source: Nearmap

Figure 1.3.4: Directly beneath the flight path of Sydney Airport

Figure 1.3.5: Shirlow Street looking towards Sydney Steel Road

Figure 1.3.6: Railway Parade looking towards the proposed Metro northern entrance

Figure 1.3.7: View of the Platform 6 heritage building on Burrows Avenue looking towards Gleeson Avenue

Figure 1.3.8: Hogan Avenue towards Unwins Bridge Road

1.4. Status of this Station Design and Precinct Plan

The information contained in this report is the latest available at the time of issue. The nature of the design process on a project of this scale is one that requires continuous development and refinement until the project is constructed. Notwithstanding this, the material herein provides a clear appreciation of the scale, nature and treatment of the facilities proposed and their interactions with the environment.

Where substantial changes to the design are made following the endorsement of this SDPP, an updated SDPP would be prepared for the approval by the Secretary. This updated SDPP would be prepared at the conclusion of the Stage 3 design (refer to Section 2 for the overview of the design development process).

1.5. Structure of the Station Design and Precinct Plan

The SDPP has been structured as follows:

- Section 2: provides an overview of the design development process for the project
- Section 3: outlines the consultation that has been undertaken during the preparation and review of this plan and how the feedback received has been addressed
- Section 4: identifies the design objectives, principles and standards specific to the relevant scope element of the plan
- Section 5: identifies design opportunities, including public art, heritage interpretation and use of salvaged elements
- Section 6: details the key features of the station and the precinct/public realm plan
- Section 7: outlines the implementation phase including timing for delivery of access, landscaping and public realm initiatives and the monitoring and maintenance procedures for landscaping
- Section 8: provides an assessment of the visual impact for the relevant design elements and identifies if a 'minor benefit' rating (or at a minimum a 'negligible' rating) has been achieved.

1.6. Compliance with the Conditions of Approval

The following table identifies the requirements of the relevant conditions of approval of SSI 15_7400 and where these have been addressed in the SDPP.

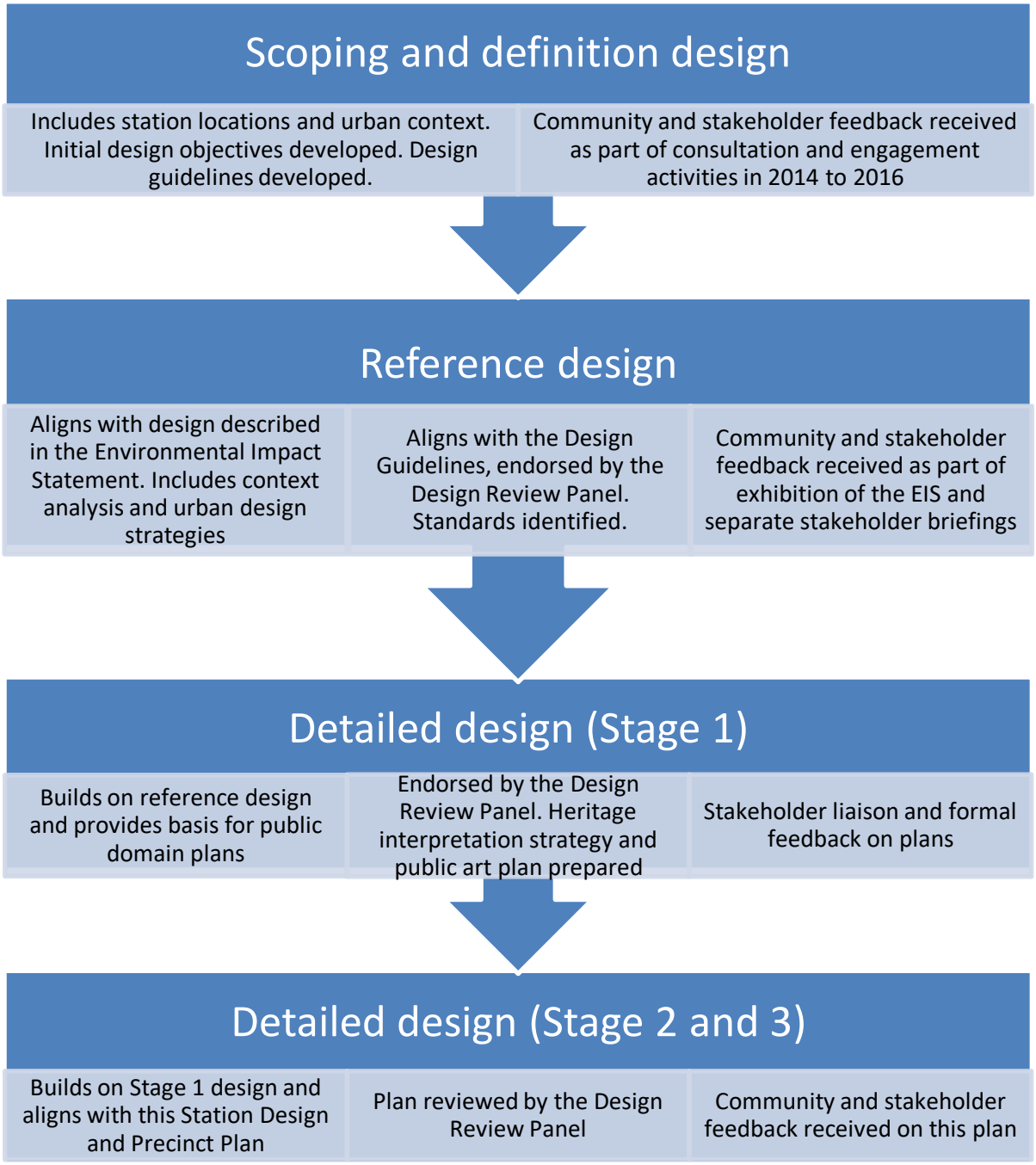
Requirement of the conditions of approval	Where addressed in the plan
Condition E93	
In developing the Interchange Access Plan(s), the Proponent must consider: a) traffic and accessibility requirements; and b) the Station Design and Precinct Plan(s) required by Condition E101.	Section 4 identifies design objectives, principles and standards. Where these objectives principles and standards are relevant to the Interchange Access Plan(s), (IAP) they have been considered in these plans. In addition, the Interchange Access Plan(s) would consider the relevant SDPP, including the station design and precinct plan details provided in Section 6 of this plan.
Condition E21:	
… The Heritage Interpretation Plan must inform the Station Design and Precinct Plan referred to in Condition E101…	Opportunities identified in the Heritage Interpretation Plan considered in the SDPP have been identified in Section 5.3.
Condition E100:	

The proponent must establish a Design Revie Panel (DRP) to refine design objectives for place making, public realm and urban and heritage integration applicable to the length of the project and provide advice on the application of the objectives to key design elements in relation to place making, architecture, heritage, urban and landscape design and artistic aspects of the CSII …	Section 3.2 and Appendix B details the DRP process and provides the evidence of the reviews of the project by the Design Review Panel (DRP). Section 4.1 contains the project design objectives established for the project.
Condition E101:	
Before commencement of permanent built surface works and/or landscaping, the Proponent must prepare Station Design and Precinct Plans (SDPP) for each station.	This plan.
The SDPP must be prepared by a suitably qualified and experienced person(s), in collaboration and consultation with relevant stakeholders including but not limited to relevant council(s), the Department and the local community.	Appendix C details the qualifications and experience of the authors of the plan. Section 3.1 details the consultation that has occurred during preparation of the plan. This is supported by the consultation evidence provided in Appendix A.
The SDPP(s) must present an integrated urban and place making outcome for each station or end state element.	Section 6 details how the station has been designed with an integrated urban and place making outcome.
The SDPP(s) must be approved by the Secretary following review by the Design Review Panel (DRP) and before commencement of permanent aboveground work.	The plan will be submitted to the Secretary for approval. Section 3.2 and Appendix B details the reviews undertaken by the DRP.
Each SDPP must include, but not be limited to:	
a) identification of specific design objectives, principles and standards based on - i. the project design objectives as refined by the DRP; ii. maximising the amenity of public spaces and permeability around entrances to stations; iii. local environmental, heritage and place making values; iv. urban design context; v. sustainable design and maintenance; vi. community safety, amenity and privacy, including 'safer by design' principles where relevant; vii. relevant urban design and infrastructure standards and guidelines (including relevant council standards, policies and guidelines); viii. minimising the footprint of the project (including at operational facilities)	Section 4.1 identifies the design objectives, principles and standards. The DRP did not refine the design objectives during the preparation of the SDPP Section 4.6 and 4.8 Section 4.7
b) opportunities for public art; c) landscaping and building design opportunities to mitigate the visual impacts of rail infrastructure and operational fixed facilities (including the Chatswood Dive, Marrickville Dive, Sydney Metro Trains Facility South, Artarmon Substation, station structures and services, noise walls etc.); d) the incorporation of salvaged historic and artistic elements into the project design, including but not limited to the Tom Bass P&O fountain, the Douglas Annand glass screen (if present), the Douglas Annand wall frieze and heritage fabric from Martin Place Station, unless otherwise agreed by the Secretary;	Section 5.2 Section 5.1 Noise walls are not part of the scope of this SDPP Section 5.4

e) details on the location of existing vegetation and proposed landscaping (including use of endemic and advanced tree species where practicable). Details of species to be replanted/revegetated must be provided, including their appropriateness to the area and habitat for threatened species; f) a description of the CSSI design features, including graphics such as sections, perspective views and sketches for key elements of the CSSI; g) the location, design and impacts of operational lighting associated with the CSSI and measures proposed to minimise lighting impacts;	Section 6 details the station design and precinct plans. The station / element design in Section 6.1 details the key design features, including station operational lighting. The precinct plan in Section 6.2 details the location of existing and proposed landscaping within the precinct/public realm plans and operational lighting within the precinct. Section 6.2 details lighting
h) details of where and how recommendations from the DRP have been considered in the plan;	Section 3.2 and Appendix B details the feedback from the DRP and where and how the recommendations have been considered.
i) the timing for implementation of access, landscaping and public realm initiatives; j) monitoring and maintenance procedures for vegetation and landscaping (including weed control), performance indicators, responsibilities, timing and duration and contingencies where rehabilitation of vegetation and landscaping measures fail; and	Section 7.1 outlines the implementation of the plan, including timing Section 7.2 details monitoring and maintenance.
k) evidence of consultation with the community, local Councils and agencies in the preparation of on the SDPP(s) and how feedback has been addressed before seeking endorsement by the DRP.	Section 3.1 and 3.2 details the consultation that has occurred during preparation of the plan and how this feedback has been addressed. This is supported by the consultation evidence provided in Appendix A and B.
Elements covered by SDPP(s) must be complete no later than the commencement of operation of the Sydney Metro to paid services, unless otherwise agreed with the Secretary.	Refer to Section 7.1 which details implementation of the plan.
Note: The SDPP may be submitted in stages to address the built elements of the CSSI and landscaping aspects of the CSSI.	Refer to Section 1.3 for the scope elements considered as part of this SDPP. The SDPPs for other scope elements have been / would be considered as part of other SDPPs.
Condition 102:	
The SDPP must achieve a minimum visual impact rating of at least “Minor Benefit” as defined in the EIS, as amended by the documents listed in A1, for all design elements of the project, where feasible and reasonable. Where it can be demonstrated, to the DRP’s satisfaction, that a “Minor Benefit” is not achievable, then a “Negligible” visual impact rating must be achieved as a minimum.	Section 8 provides the visual impact assessment and identifies the rating achieved. Section 3.2 discusses the relevant input from the DRP on this rating

2. Design development process

The design for the Sydney Metro City & Southwest Chatswood to Sydenham project has developed from an initial scoping design through to the detailed design (refer to flow chart below). At each stage a range of consultation and stakeholder engagement activities have occurred. This has also been supported by the development of design objectives, the Chatswood to Sydenham Design Guidelines and now this Station Design and Precinct Plan, all of which has been refined in consultation with the Sydney Metro Design Review Panel.



This Station Design and Precinct Plan draws upon the design work that occurred prior to obtaining planning approval (i.e. during the scoping, definition and reference design) for context, and then details the design work and associated consultation activities that have occurred since planning approval was obtained (i.e. during the detailed design stage).

It is noted that this SDPP relates to the Sydenham Station design and surrounding precinct subject to the SSI project approval SSI 15_7400. The approval and design of any residual or over station development component is subject to that relevant planning approval and associated design process.

3. Collaboration and consultation

The stakeholder and community consultation process for Sydney Metro City & Southwest has played an integral role in informing and scoping the design of the project since 2014. The consultation and engagement activities that occurred to inform the reference design was documented in the Chatswood to Sydenham Environmental Impact Statement (EIS) and the Chatswood to Sydenham Submissions and Preferred Infrastructure Report (SPIR).

Key issues raised during consultation on the reference design, as well as more recent consultation on the Stage 1 detailed design, that relate to Sydenham Station include:

- Size, scale and complexity of the proposed canopy design to be reduced
- Major existing utilities constrain new works as relocation is cost ineffective and potentially disruptive
- The aqueduct architectural treatment needed to better respect and integrate the existing pump house and the ramp location and impact required fundamental reconsideration
- Integration of Sydenham Pit and access with the surrounding precinct
- Reduction in size of the services building
- Active reuse of the existing heritage buildings on the platforms was encouraged
- The plaza designs need to respond more to the needs of local communities
- Weather protection to platforms and stairs
- Material selection and maintenance costs.

Consultation, with government agencies, council, business groups and the community has continued throughout the development of the Stage 2 detailed design and preparation of this SDPP. The design process has included Sydney Metro at all stages.

The SDPP has also been reviewed by the Sydney Metro Design Review Panel. The consultation undertaken and how feedback has been addressed in the plan is detailed below.

3.1. Consultation during preparation of the Station Design and Precinct Plan

This SDPP has been prepared in collaboration and consultation with the following relevant stakeholders:

- Inner West Council
- Sydney Trains
- Heritage Working Group
- the local community.

A program of research and testing activities targeted customers familiar with, and customers unfamiliar with Sydenham Station and focussed on accessibility needs, wayfinding, plaza layout and platform components amongst other things. The design elements considered included:

- Help/information points
- Toilets
- Plaza facilities
- Tactiles and shorelines for those with a visual impairment
- Accessibility needs of journey's in and around the station
- Seating clusters
- Waiting room
- Wayfinding journeys.

The following outlines the research methodology that was utilised to capture customer insights:

- Customer accessibility workshop – 15 sessions with people with mobility, visual and hearing impairments to understand their unique perspective on interacting with the station.
- Customer intercept surveys - Informal customer interviews/conversations conducted with five customers related to bike storage and cycle access to the station.
- Customer wayfinding virtual reality (VR) workshop – Insights related to wayfinding requirements collected from 8 participants as they navigated 360-degree images of the station using VR headsets.
- Customer multi-focus workshop – Four sessions testing station services and facilities and two sessions validating wayfinding insights with a total of 17 customers.

The customer insights generated through research were analysed and considered by the project design team.

In conjunction with the customer research activities, the customer centred design (CCD) team engaged with the wider project team on a formal and informal basis. As well as members of the design team taking part in customer engagement activities, formal engagements were used to inform the project team of the insights that had been generated as well as look for opportunities to reflect those insights in the station design.

Over the course of stages 1 and 2, a total of 39 pain points and 64 CCD recommendations were identified. Of these, 22 pain points and 36 CCD recommendations were deemed to be within the scope of the project team to resolve. The remainder have been transferred to Sydney Metro for further consideration.

The identified insights were broadly summed up in the themes described below:

- Function first. Users say that Sydenham Stations already does what they need it to do – it functions well as a train station. The Sydney Metro upgrade needs to do the same. Users see value in the proposed features such as plazas and cafes, but not if they are at the expense of functional elements such as shelter or parking. Aesthetically, they want it to be good simple design that responds to the existing station and the neighbourhood – it can't be sterile or generic.

- Safe Streets. For Sydenham Station to feel safe, the streets around it need to be safe. While they'd prefer more visible staff than help points (which they either haven't noticed or say they would never use), users generally feel safe inside Sydenham Station. It's outside of it where they are most concerned. During the day, roads are busy and getting across them is dangerous and at night the streets are dark and largely empty.

- Area access. Planning and facilities outside the station need to support the many ways users get there. Service choice and frequency at Sydenham make some users prefer it over stations closer to home. They need safe and easy access to park their bike or car or to be dropped off, no matter which direction they're coming from. The 'official' kiss and ride must be more convenient and accessible than stopping illegally, otherwise they won't use it. Bike lockers are a good idea as long as they're easy to access and not congested at peak. And parking is a contentious issue – they want more not less.

- Local links. The proposed design integrates the station physically into the surrounding areas; users need to feel that it integrates into their community as well. Users want authenticity in how the station interacts with the area. The plazas and cafes should be places that they would choose to use – the café/s local (i.e. not chain or generic), a plaza with real purpose (not just somewhere to cross to get into the station); and aesthetics that respect the heritage, personality and 'colour' of their neighbourhood/s. For them, Sydenham is the name of the station; their community also includes Marrickville, Tempe and Earlwood.

- Safety. There are two components to people's safety that need to be considered. The first is people being in situations where their safety is at risk and the second is when they perceive their safety to be at risk. People will act based on the perception of the safety risk regardless of what the actual risk may be. The station design needs to respond to that. In many cases, people will place their personal safety at risk in the interest of achieving a more efficient or convenient outcome. For example, crossing the road at a dangerous location because it provides them with the most direct route to their destination. Providing a safe means for customers to carry out their tasks in the most convenient and efficient manner should be prioritised over attempting to change people behaviours to adapt to a safer but less convenient solution.

- Autonomous Travel for Everyone. Train stations need to be designed to allow all users to travel independently without reliance on assistance beyond simple and intuitive wayfinding. Customers want to be able to locate facilities and services easily and quickly. This principle applies to all customers but is particularly relevant to customers who have specific accessibility needs. The current experience for a number of people involves lengthy prior on-site familiarisation of each individual station or location, often with assistance from others. It is not a simple matter of 'turn up and go'. This group of people is particularly vulnerable to impacts of changed conditions such as will be experienced at Sydenham.

- Simplification = better usability. All aspects of the station, where possible, should be simplified to create an improved user experience. This doesn't mean providing minimal information but rather providing the right amount of information in the right format. Generally, if something is not simple and intuitive it will either cause confusion for customers or will not be used.
- Consistency is key. Strive for consistency where possible as this adds to the simplification and intuitiveness that customers require. In particular for users with accessibility requirements, such as visual impairments, there is a need to be consistent with the functionality, positioning, and usability at the station and ideally across the wider network.

These themes effectively represent the overall principles that should be reflected in the design outcomes as they have been identified as the most important considerations for customers interacting with Sydenham Station.

Evidence of the collaboration and consultation undertaken is provided in Appendix A. It identifies how the feedback received during this consultation has been addressed in the SDPP.

3.2. Review by the Design Review Panel

This SDPP was presented to the Sydney Metro Design Review Panel (DRP) at various hold points for their review. The DRP provided feedback on a range of aspects of the plan and provided their endorsement (See Appendix B). The key issues raised are summarised in the key issue list contained in the beginning of Section 3.

The following table details the recommendations received during the DRP review of the SDPP and where and how these recommendations have been considered in the SDPP.

DRP recommendations	How considered in the plan	Where addressed in the plan
The Panel provides the following feedback on the draft Plan: 1. The visual representations require updating to more accurately represent the existing conditions and elements beyond the scope /not affected by the works. All photomontages should be accurate and not create false impressions. 2. Each view assessment should be accompanied by a plan locating view point. 3. The text needs to clearly explain the rationale to support improved visual ratings.	Visual representations in the SDPP report updated to address comments, plans added to locate viewpoints and text added to explain the rationale to support the visual ratings.	Section 8 – Visual impact assessment

DRP recommendations	How considered in the plan	Where addressed in the plan
The Panel recommends that Sydney Metro review the SDPP template to simplify the document, and remove repetition while ensuring it satisfies the requirements of the planning approval condition and expectations of DPE.	N/A. Applies to future SDPP plans prepared by Sydney Metro.	N/A

In accordance with Condition E102, all design elements must achieve a minimum visual impact rating of at least 'minor beneficial' where feasible and reasonable. Where it can be demonstrated to the DRP's satisfaction that a 'minor beneficial' rating cannot be achieved, then a 'negligible' visual impact rating must be achieved. As described in Section 8 of this SDPP, the design elements considered in this plan will achieve a minimum 'minor beneficial' visual impact rating for the overall SDPP design, although some individual elements of the SDPP did not achieve a minor beneficial rating.

On 18th December 2018, the DRP has endorsed the SDPP based on the design information and associated documentation submitted in the Design Stage 3 documentations on 18th December 2018.

Evidence of the DRP reviews has been provided in Appendix B.

4. Design objectives, principles and standards

The development of the design and SDPP has been guided by a range of design objectives, principles and standards.

The Sydney Metro City & Southwest Chatswood to Sydenham Design Guidelines (June 2017), as included in the planning approval documents for SSI 15_7400, provide guidelines for the spatial and functional design of the urban and public domain in each station precinct as well as the urban form of associated project elements.

The Design Guidelines identifies the five project design objectives to help meet the transformational vision and world class aspirations of the project. These are supported by design principles which describe the intent of the objectives for the design of the stations, station precincts and the wider metro corridor. The project design objectives and supporting principles, as reviewed and refined by the Design Review Panel, are detailed in Section 4.1.

Sections 4.2 to 4.6 details the design principles relevant to the aspects identified in Condition E101(a) and scope of this SDPP. These have been captured from the Design Guidelines, relevant design reports that support the detailed design and other standards and guidelines listed in Section 4.8.

4.1. Project design objectives

Objective 1: Ensuring an easy customer experience
Principle – Sydney Metro places the customer first. Stations are welcoming and intuitive with simple, uncluttered spaces that ensure a comfortable, enjoyable and safe experience for a diverse range of customers. See Figure 4.1.1.

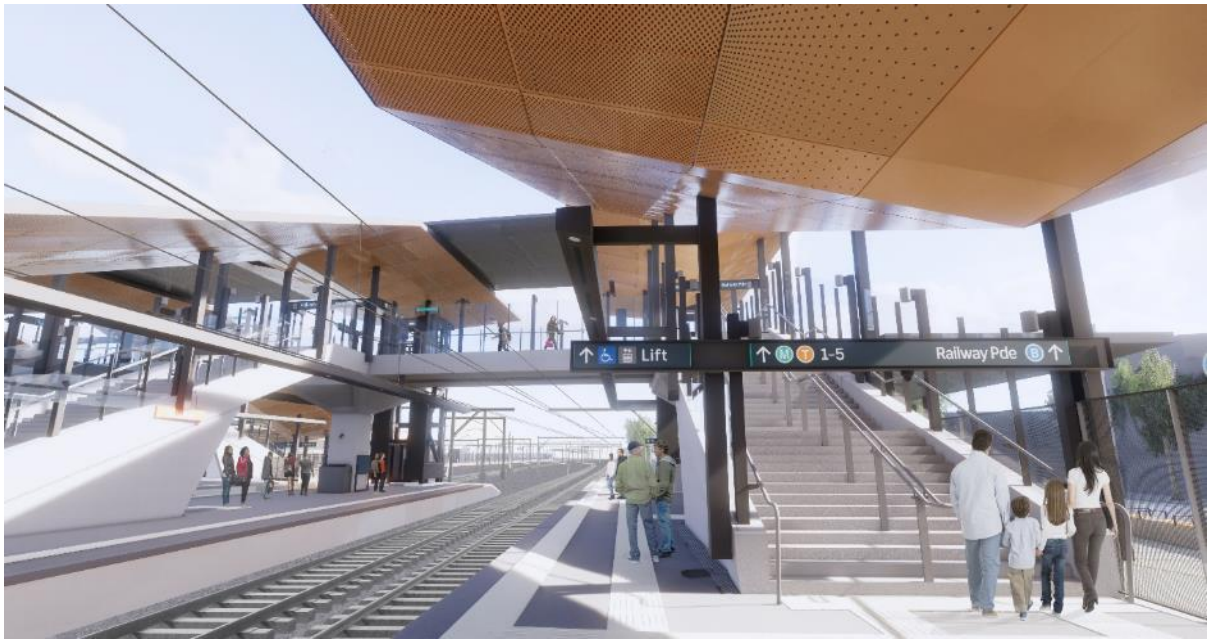


Figure 4.1.1: View of Platform showing a clear, simple design to ensure an easy customer experience

The objective is for the station and plazas to be designed simply, encompassing openness, safety, spatial clarity, comfort and visual vibrancy to achieve a high quality customer experience that is easy, enjoyable and stimulating.

Design the two new entrances to be framed by generous landscaped plazas with tree lined accessible paths to provide a comfortable and attractive environment for all. Design elegantly simple canopies to clearly signify the gateline and provide adequate weather protection. Enhance a sense of familiarity, the customer touch points and gatelines by logically arranging and adhering to Metro's established customer flow sequence.

Plan the station with safety, legibility and intuitive wayfinding in mind. All customer spaces should be adequately spaced to ensure comfort and safety in peak hours. Glazed balustrades, minimal structural arrangement and highly integrated components should be used to reduce visual clutter, enhances visual permeability and legibility and customers' sense of safety through CPTED. Utilize a bold ribbon canopy design to mirror the key circulation routes, to create a strong visual device for intuitive wayfinding. Echo Sydenham's industrial history and edgy character, by lining the canopy soffit to reflect customers' movement to create an added layer of animation.

Exploit the Customer Centric Design (CCD) process to ensure Sydenham's unique customer needs and behaviours are adequately addressed. The design should also integrate CPTED and security considerations to ensure adequate safety for all, including customers, staff and the general public.

Objective 2: Being part of a fully integrated transport system
Principle – Sydney Metro is a transit-oriented project that prioritises clear and legible connections with other public and active transport modes within the wider metropolitan travel network that intersect with this new spine. See Figure 4.1.2.

Figure 4.1.2: Sectional diagram showing bus and Metro interchange on Railway Parade

The design reinforces Sydenham as the key public transport interchange. The two new plazas provide accessible paths for effortless universal access connecting key transport modal interchange with the station.

The plazas are designed with a compact arrangement to provide direct and safe connections with all modes of transport, including walking, cycling, bus, taxi, kiss-and-ride and accessible

car parking. It is planned to Transport for NSW's modal hierarchy to encourage the use of public transport.

The bus stops on Railway Parade are relocated towards the northern entrance and connected with accessible paths to enhance convenience and connectivity with the northern entrance.

Working in tandem with the existing VT provisions in the western concourse (country end), the new stairs, lifts and footbridge in the city end provide an added choice for interchange between Sydney Metro and Sydney Trains. The transverse link also acts as a new public access, providing an accessible connection between the communities in the northern and the southern precinct.

Objective 3: Being a catalyst for positive change
Principle – Sydney Metro is a landmark opportunity to regenerate and invigorate the city with new stations and associated development that engage with their precincts, raise the urban quality and enhance the overall experience of the city as shown in Figure 4.1.3.

Figure 4.1.3: Future vision for a vibrant social hub on Railway Terrace

Sydney Metro will stimulate the employment growth and urban regeneration in Sydenham. The station design will improve the public realm in the southern precinct, support the council's unique Station Precinct Creative Hub initiative in the north and unlock the commercial potential of the adjacent site development.

The design team acknowledges the particular challenges and the aspirations in the local urban renewal strategy. The station design seeks to deliver the following:

Conserve and foster the unique creative character through a responsive architectural and landscape design;

Enhance the sense of safety, comfort and attractiveness in the public realm through considered landscape design, improved street lighting and the integration of retail and other activation opportunities.

Enrich the customer experience with activation and community engagement in the northern plaza through innovative landscaping, retail provisions and programmable spaces to create the genesis of an active and vibrant Railway Terrace.

Improve public transport connectivity to support employment growth in the northern precinct.

Objective 4: Being responsive to distinct contexts and communities
Principle – Sydney Metro's identity is stronger for the unique conditions of centres and communities through which it passes. This local character is to be embraced through distinctive station architecture and public domain that is well integrated with the inherited urban fabric of existing places.

The station design encompasses sensitive contextual responses to the diverse and distinctive characters of Sydenham, accentuating the unique local identity to strike resonance with the local community, and contribute to a vibrant travelling experience for its visitors.

The new plazas provide the much needed civic hubs in for Sydenham. They are of scale and design commensurate with the contrasting characters of the north and south precinct - a fine grain intimate design for residential precinct in the south; and a bolder design to celebrate the civic presence in the industrial and employment precinct in the north. The plazas will include retail areas with services provisions to support a vibrant and active public realm.

The station canopy design and the use of materials draw inspirations from the past and the present of Sydenham. The architecture will include an integrated public art strategy with input from local artist to celebrate the vibrancy and edginess of the place.

Objective 5: Delivering an enduring and sustainable legacy for Sydney
Principle – Sydney Metro is a positive legacy for future generations. A high standard of design across the corridor, stations and station precincts, that sets a new benchmark, is vital to ensuring the longevity of the Metro system, its enduring contribution to civic life and an ability to adapt to a changing city over time. See Figure 4.1.4.

Figure 4.1.4: Aerial view showing integration of photovoltaic roof panels on the northern services building

The station is designed to withstand the test of time through design simplicity, elegance in detailing and the use of bold and robust materials.

Careful juxtaposition of the new and the heritage, along with a considered heritage adaptive reuse strategy ensures the significance of the railway legacy of the past is respectfully conserved for the next generation.

The station and plazas include a range of sustainable design initiatives to reduce carbon footprint, water consumption and improve customer comfort. These include the capturing of solar energy, rain water and selection of drought tolerant plant species.

The design also enables safe and simple maintenance to ensure longevity throughout its design life.

4.2. Maximising amenity of public spaces and permeability around station entrances

All of the public transport infrastructure is public space, so internal and external spaces of the station are public realm. Having a consistent theme binds the internal and external areas and helps the station to integrate within its local context. The station entrances need to engage with their local context to create welcoming landmarks in the urban environment.

The following design principles and guidelines were identified in the Chatswood to Sydenham Design Guidelines to ensure that the amenity of public spaces and permeability around station entrances is maximised:

- The design must create welcoming, secure and well maintained public domain spaces and station buildings with an attractive ‘sense of place’
- The stations are to be integrated with the urban design of the adjoining precinct to provide direct and safe accessibility to the station entry
- Station plazas are to be designed as an extension of the internal station environment providing shelter, comfort, safety and security for customers and contributing positively to customer journey experiences. These spaces are to reflect the local public realm context and character
- Public spaces should be created which allow for spontaneous uses and activities by their occupants. The design should consider opportunities for temporary event, pop ups, retail spaces and the night time economy
- Integration of station precincts with the surrounding urban structure is to facilitate cross and through movements, enhancing precinct permeability and access to the transport interchange functions of the locality
- Entry spaces are to be well lit, bright and welcoming to enhance customer experience providing a safe, open environment that has good permeability and clear sight lines from inside and outside the station
- The design must provide adequate space to meet customer demands, including during peak periods and long-term patronage demands. Where constrained, this may be met by extending the public domain into the station forecourt

- The design must provide legible, intuitive spaces to enhance customer journeys through efficient navigation and interchange
- A system of appropriate pathway surfaces, widths and gradients is to provide safe and equitable pedestrian access throughout the public domain and to link transport modes
- Location, scale and articulation of external walls and fences are important elements of the public realm. Their design is to be an integral part of the urban design of the station areas and corridor sites to minimise excessively long unarticulated lengths, inactive, bland and unappealing frontages
- The design must ensure that earthworks and engineered structures such as noise walls, retaining walls and portals are visually integrated into their urban or landscape setting as must as possible
- Station public spaces are to be designed with a consistent hierarchy of landscape treatments. The treatment of the spaces is to reflect local character and context, integrate with their settings and provide attractive space and streetscapes
- The landscape design is an important component of a positive, high quality and appealing urban realm identity for Sydney Metro stations and structures
- Public art is to be integrated into the station and building designs to enliven and enrich the public realm and contribute to this sense of place.

4.3. Local environmental, heritage and place making values

The station and precinct design has been developed with reference to and to support and integrate with the local environmental, heritage, community and place making values of the locality.

Aboriginal Cultural Heritage
No Aboriginal objects or sites have been previously recorded within the Sydenham Station study area, though areas of moderate to high Aboriginal archaeological potential have been identified. The significance of the potential archaeological resources has been based on a preliminary assessment of the archaeological potential, and would be further clarified following excavation, if required. The project area retains potential for intact, deep residual deposits of the Birrong Soil Landscape which may be of considerable antiquity (greater than 10,000 years), to a depth of 7.5m below the present ground surface. Aboriginal sites in this region are a rare occurrence and, if present, have the potential to have moderate to high scientific value and high research potential.

No specific cultural value has been identified by the RAPs in relation to the Sydenham Station project area. However, sites of potential antiquity, and which contain extensive cultural material, are frequently identified as being of importance to Aboriginal people, and as such the project area can be considered to have moderate to high overall Aboriginal heritage significance.

Sydenham Station Heritage
Sydenham Railway Station - inclusive of all platform buildings and awnings, parcels office, waiting shed, brick faced platforms, Gleeson Avenue overbridge and brick perimeter walls - is

of State heritage significance. Sydenham Railway Station is of historical significance as a major junction station developed from 1884 to the present, with two 1884 platform buildings, 1925 platform building and waiting shed, 1962 parcels office, and 1920s Gleeson Avenue overbridge demonstrating its development over time, including the adaptation of the 1884 wayside platform buildings for island platform use.

Of aesthetic and historical significance, the platform building awnings demonstrate the range of awnings used on railway buildings from the small original awning of two bays on the Platform 2/3 building (the original minor platform) to the addition of cantilevered awnings in 1925. All platform buildings are of aesthetic significance as good representative examples of their types and periods. The surviving interior and exterior detailing of the 1884 platform buildings and awnings is considered rare on the Illawarra line.

Sydenham Pit And Drainage Pumping Station No.1 Heritage

The Sydenham Pit and Pumping Station is of historic, aesthetic and technical significance. Historically, it is the first such infrastructure built in the SWC system and is an intact and major component of the Marrickville low-level stormwater drainage infrastructure that was built in response to increasing urban expansion since the 1870s in an area prone to flooding. Its large scale and labour-intensive construction method of excavating the pit reflects the abundance of labour during the Great Depression and the type of public works undertaken to provide relief work for the unemployed.

Aesthetically, the use of pitched dry packed ashlar sandstone walls to line the sides of the pit provides a pleasantly textured and coloured finish to the pit. It is a major landmark and dramatic component of the industrial landscape of Sydenham particularly as viewed from the railway. The pumping station is a very good example of a utilitarian building displaying Inter-War Mediterranean style architectural details. Technically, the pumping plant contains good working examples of 1930s pumps, particularly three Metropolitan Vickers pumps, and its original electrical mains equipment has been preserved in situ during upgrading in c1992.

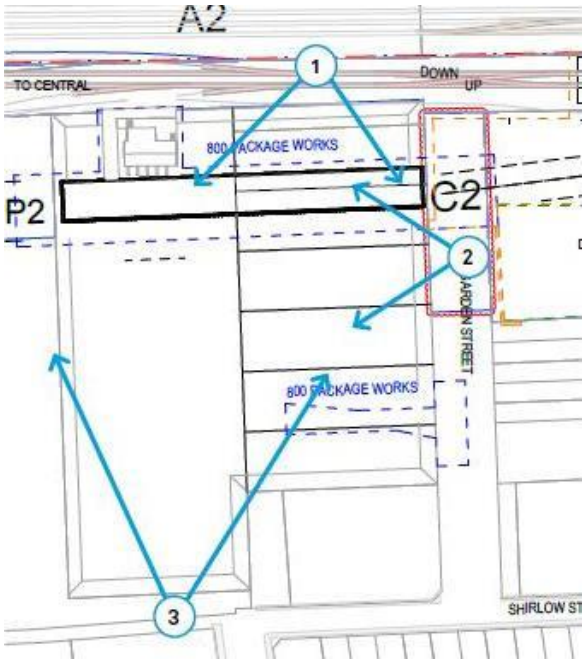


Figure 4.3.1: Key vistas to the heritage listed Sydenham Pit and Pumping Station. Note that the numbers refer to the viewpoints shown in Figures 4.3.2 to 4.3.4 below.

Figure 4.3.2: Key Vista 1 - Elevated view from train carriage. Source: RPS

Figure 4.3.3: Key Vista 2 - View from Garden Street

Figure 4.3.4: Key Vista 3 - North embankment view

Sydenham Pit and Pumping Station 1 are state heritage listed landmarks constructed during the Great Depression era as a piece of functional engineering. See Figures 4.3.1 to 4.3.4. The addition of the aqueduct and its associated works will necessarily have significant visual and physical impacts to the heritage fabric. To ensure a fitting response to the heritage context, the architectural design has adopted the following principles:

- Reflect contemporary and functional engineering;
- A refinement to a simple structural design; and
- Coherence in form and proportion to complement the heritage aesthetic.

The visual impact of the aqueduct and works was assessed on the three key vistas identified in the Conservation Management Plan (CMP) by Sydney Water Corporation (SWC), which included:

1. Shirlow Street lookout in the north - the footpath on Shirlow Street provides an overall elevational view of the southern side of the pit wall and pump house elevation
2. Garden Street - providing a view to the eastern pit wall and an oblique view of the pumping station
3. Trackside - providing an elevated view of the pit and pumping station.

Sydenham Station will service the surrounding mixed-use catchment, with low-density residential and commercial and industrial areas, and attractions including Fraser Park and Sydenham Green.

Railway Parade and Gleeson Avenue border the station, and with Sydenham and Marrickville Roads, form an important east/west connection for both general traffic and heavy vehicles.

Local businesses include large and small industrial and warehousing units, and small local businesses. Retail in the area includes the General Gordon Hotel, and other businesses consisting of mostly smaller-scale local shops, including cafes, take-away food and a station kiosk/newsagent.

Sydenham Station has a State heritage listing and includes surrounding streets of aesthetic significance. The station has recently been upgraded, including new platform stairs, lifts, and an entry concourse on Gleeson Avenue.

Current land use characteristics and values

The post-industrial Sydenham of today is emerging as a new creative precinct in Sydney. The availability of affordable warehouse spaces allows emerging artists, artisan breweries, independent businesses and small scale craft industries to flourish. Independent live music venues and bars such as the Camelot Lounge on Lower Railway Parade and the Red Ratters Theatre on Faversham Street create an active night time economy. The vibrant wall murals, boutique economy and independent entertainment venues contribute to a bohemian character that defines today's Sydenham.

Areas to the north and east of the station are mainly single- and double-storey industrial buildings. Immediately west of the station, the metropolitan freight network lines to Port Botany crosses via a bridge. Beyond this, the rail corridor splits into the T3 Bankstown Line to the north and the T4 Eastern Suburbs and Illawarra Line to the south. The NSW TrainLink XPT maintenance centre is located between these two lines at Meeks Road, west of Sydenham Station.

To the south of the station are residential areas, consisting of single- and double-storey terraces and detached houses.

The station is close to several recreation and open space areas. To the west, Fraser Park is north of the T3 Bankstown Line; Tillman Park is south of the T4 Eastern Suburbs and Illawarra Line beside the freight tracks; and Sydenham Green is south of the station, between Unwins Bridge Road and the Princes Highway.

To promote the development of a creative economy, Inner West Council has proposed the establishment of the Sydenham Station Creative Hub. A Sydenham enterprise area is to be established in the northern precinct to attract new creative industries and businesses.

The following design principles and guidelines were identified in the Chatswood to Sydenham Design Guidelines to ensure that the design responds to the local environmental, heritage and place making values:

- The design and location of public artworks is to be reflective of the distinctive character of each place
- Consideration should be given to integrating heritage interpretation with public art
- Sydney Metro is to be fully integrated within, and sensitive to, its heritage context
- Canopies and entrances are to respond to the built form and character of the surrounding context in terms of scale, setbacks and characters, as well as heritage context where relevant
- Where appropriate, the design of the rail corridor and station precincts are to integrate and conserve existing heritage items and mitigate any negative impacts
- Where Sydney Metro intervenes in or interfaces with heritage places, design excellence is to be sought to support inventive, interpretive and contemporary responses to heritage values of that place. The design should take into consideration the siting, scale, form, materials and colour and details of the heritage items and places
- The design should identify opportunities for heritage conservation to contribute to the celebration of local identity in station design

- A positive precinct image is to be developed around the particular heritage values or a place or by the quality of the existing urban context.

4.4. Urban design context

The urban and public domain design has been developed with reference to the existing urban context and infrastructure as well as planned initiatives in the locality.

The community of Sydenham takes pride in its idiosyncrasy and cultural progressiveness. The Sydenham to Bankstown Urban Renewal Corridor Strategy prepared by the Department of Planning and Environment NSW highlighted a number of local concerns in relation to the development of the Sydenham Station and precinct, including:

- The conservation of Sydenham's unique creative character
- Concerns of the loss of creative industry and artist studios as a result of gentrification
- Protection and support of independent local business and shops
- Improvement of streetscape and public realm to enhance liveability
- Improvement of connectivity for pedestrians and cyclist between Sydenham, Marrickville and Tempe railway stations.

The following design principles were identified in the Chatswood to Sydenham Design Guidelines to ensure that the design responds to the urban design context:

- A positive precinct image is to be developed around the particular heritage values or a place or by the quality of the existing urban context
- Lighting is to reinforce the visibility of station entries as safe and welcoming elements, within the local context at night
- The design of station buildings, service facilities and public domain elements must respond to be the local context and environment
- All earthworks are to sit lightly in their context, exhibiting a 'natural fit' within their landscape setting wherever possible
- The apparent scale and visual impact of noise walls is to be reduced with careful planting. Noise walls should be visually coordinated with all walls including retaining and parapet walls.

The following site-specific design principles and guidelines have also been identified to inform the development of the detailed design for Sydenham Station plazas, Figure 4.4.1 shows the overall design response to the following aspects.

1. Address and Legibility
Create direct lines of sight through the Primary Plazas to the station gatelines. The primary plazas are to have a simple clarity and easy and intuitive navigation through from the adjacent streets, and other transport interchange functions.

Clear, ground level pedestrian views across the plazas should be provided through the tree selection and placement.

2. Public Space
Reflect the unique cultural character and identity of the adjacent neighbourhoods in each primary plaza. The plazas should be generous, accessible and memorable public spaces which are activated by the adjacent streets, station entries, interchange functions and station retail.

3. Shelter
Add as much shade and shelter as possible, within the significant underground constraints, through the provision of a combination of trees, canopies and shelters.

4. Cross-Corridor Links
Utilise the existing Gleeson Avenue Bridge and the new footbridge to create cross corridor linkages.

5. Interchange
Minimise walking distances and ensures connections are accessible in locating interchange zones on Burrows Avenue and Railway Parade. Provide bicycle parking close to the gatelines in both the Northern and Southern Plazas.

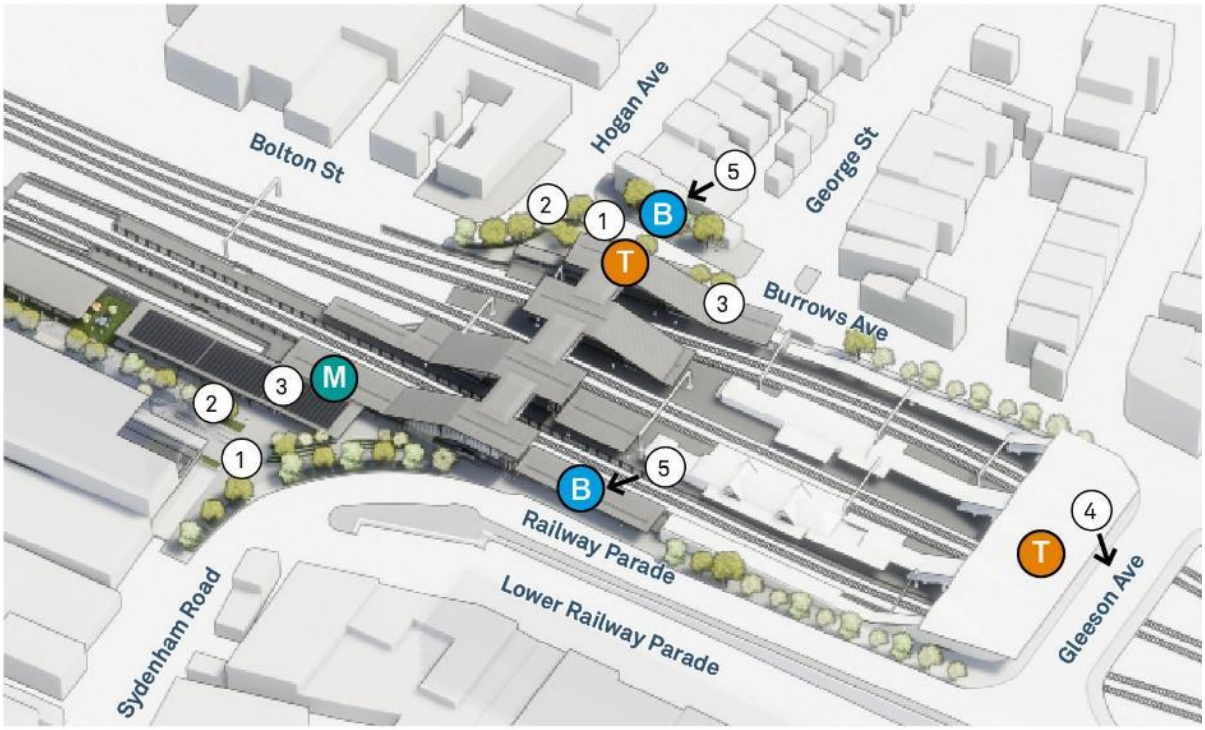


Figure 4.4.1: Axonometric diagram of the station and precinct

4.5. Community safety, amenity and privacy

Safety has been and will continue to be considered at all stages of design of the project, with the commitment to safety outlined in Section 1.6 of the Chatswood to Sydenham Design Guidelines. As described in the Interchange Access Plan (IAP) safety is of particular concern at interchange points between transportation modes; walking, bicycles, cars, buses, and differing trains modes. In addition, the project will provide new pedestrian plazas and public

domain to improve pedestrian amenity and safety. More broadly, through additional safer pedestrian signalised and zebra crossings there will be improved pedestrian and cycling connectivity between Sydenham Station and Marrickville Road shops.

The following design principles were identified in the Chatswood to Sydenham Design Guidelines to ensure that the design provides community safety, amenity and privacy:

- Sydney Metro must provide safe interfaces between stations and the existing urban environment
- The safe movement of customers, staff and contractors through the station areas needs to be facilitated through many aspects of physical design, including the provision of adequate circulation space, clear routes, adequate lighting and minimising obstructions
- Station and station precinct design will identify and reflect current architectural and engineering best practice with respect to safety
- The design must ensure stations and precincts provide a safe and secure environment and contribute to the overall public safety of urban places throughout the day and night
- Safety issues are to be embedded in the design development process and optimised through the application of relevant Crime Prevention through Environmental Design (CPTED) principles and guidelines
- The design must provide a comfortable environment that provides sufficient personal space and amenity and is well lit with effective and appropriate microclimate amenity for all users
- Station entry orientation and design are to minimise adverse micro climate effects, including wind tunnel impacts. The urban heat island effects should be minimised through light coloured finishes, roofs and pavements, green walls, roofs, plantings and shade trees
- Customer weather protection outside Sydney Metro stations is to be provided to ensure good levels of comfort are maintained and to provide useable spaces at ground level
- A high level of amenity and security in waiting areas is to be provided

The following site-specific design principles and guidelines have also been identified to inform the development of the detailed design for Sydenham Station:

Natural Surveillance
This is achieved by arranging physical elements, activities and customers in such a way as to maximise visibility, promote day and night time use and foster social interaction. This approach includes the following principles:

- Create external public places that are well lit including pathways, stairs, entrances/exits, and transport interchange areas
- Design and select landscaping with clear stemmed trees and low level planting, which allows uninterrupted eye level views across the public realm

- Find opportunities to activate public plazas with ground level uses where possible, such as retail
- Complement natural surveillance measures with CCTV at all stations and precincts. CCTV will be coordinated with plaza elements, including trees and signage
- Carefully arrange plaza elements to ensure a clutter free environment whilst providing a deterrent for inadvertent and accidental vehicle access to the gatelines and lifts.

Space Management
Successful safe public space is often attractive, well maintained and well used space. Continual maintenance of the following will be provided for in the maintenance manual:

- Site cleanliness
- Rapid repair of vandalism and graffiti
- Maintain pedestrian and street lighting
- Landscape maintenance
- Replacement of broken elements
- Emptying of rubbish bins

The principle is then to provide for internal and external public places to be well lit including pathways, stairs, entrances/exits, vehicular areas, interchange areas, and service areas and all public spaces for illumination at night.

Natural Territorial Reinforcement
Facilitate community ownership of the precinct, to send positive signals and encourage people to respect the space, gather and to enjoy the new community assets.

Natural Access Control
Passive surveillance is essential in the safety of a precinct. This principle has been applied at Sydenham through the following initiatives.

- The southern plaza is edged by existing residential streets which overlook the plaza that will ensure passive surveillance of the plaza
- The northern plaza will be framed by a future development with active edges which together with the proposed retail in the plaza will provide passive surveillance of the plaza
- Wayfinding and signage are extremely important for the wellbeing of visitors. It provides orientation and comfort for new visitors and helps identify key areas
- Multiple access and exit points to and from the plaza are provided with no possible places for hiding.

4.6. Sustainable design and maintenance

The Chatswood to Sydenham Design Guidelines outlines the commitment to sustainability and acknowledges that Sydney Metro would achieve new benchmarks in sustainability infrastructure delivery. The design must ensure best practice sustainable design solutions are

adopted for the public domain, stations and buildings to minimise environmental impacts and benefit customers and local communities. Figure 4.6.1 shows sustainability design features incorporated.

All design elements have been designed to achieve:

- an 'excellent' rating using the Infrastructure Sustainability Council of Australia (ISCA) Infrastructure Sustainability (IS) rating tool

In addition the Sydney Metro City & Southwest Sustainability Strategy 2017-2024 identifies examples of sustainable design initiatives being considered for the project.

Sustainability initiatives to be considered in the design and for maintenance include:

Energy and Carbon Reduction
The station design incorporates photovoltaic panels on the roof of the northern services building and the northern entrance canopy for solar energy generation. An area of monocrystalline photovoltaic panels is integrated.

Water Harvesting
Station canopies incorporate rain water harvesting features to achieve the requirements. The ribbon and platform canopies provide catchment area for rain harvesting. The drainage system is connected to a water storage tank, to provide supplementary water supply for toilet flushing and potential irrigation of the plaza trees and planting.

Discharges - Water
The public domain integrates a water sensitive urban design (WSUD) approach to manage and control rainwater runoffs in the public domain through more natural means. Water Sensitive Urban Design, outlines 4 key design features, including:

- Paving drainage
- Use of permeable tree grates at the base of trees
- Rain gardens / Bio swales
- Permeable kerb

These direct rainwater in the primary plazas to planter beds and designated rain gardens, reducing the impact of heavy rainfall.

Adaptive Reuse of Heritage Buildings
The works for the aqueduct requires the partial removal of the existing sandstone blocks on the heritage Sydenham Pit wall. The landscape design considers the integration and interpretation of some of the removed sandstone blocks as part of the hard landscaping in the northern plaza. In addition, the existing Pump Station will be modified and reused.

The station design incorporates adaptive reuse of the retained heritage listed buildings. The design strategy allows a considered approach to allow flexibility to adapt to operational changes to ensure continual functionality; and enhance the longevity of the building fabric through continual maintenance.

Soft Landscaping

The selected trees for the canopy in the public plazas and immediate pavements in the secondary plaza areas will provide additional shade to the entrance canopies, and plant selection will respond to the precinct on the relevant sides of the station.

Solar Shading
The entrance canopies provide solar shading for the station entrances, with bicycle lock-up spaces and immediate pavement area leading to key interchange points. The station canopies provide adequate coverage over the customer circulation and waiting areas.

The landscape design includes the following measures designed to reduce the urban heat island effect in the public domain:

- Generous Metro entry canopies provide shade to the plazas
- Tree species selected to maximise canopy spread and density
- Trees planted in the plazas and adjacent streetscapes wherever possible within the many constraints of underground services and culverts, road clearways, rail setbacks and maintaining sightlines to the Metro entries
- Maximised area of garden bed vs paving
- Paving colour will not be too dark in colour

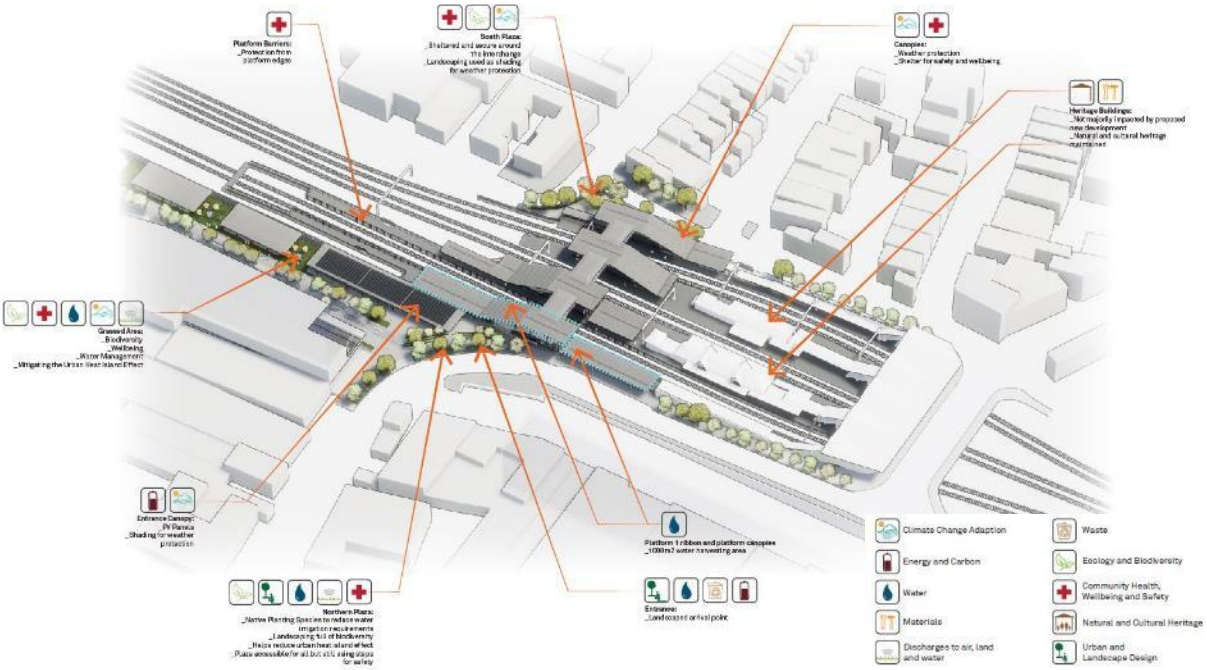


Figure 4.6.1: Sustainability design features incorporated

4.7. Minimising the project footprint

The following design principles were identified in the Chatswood to Sydenham Design Guidelines to ensure that the design minimises the project footprint:

- The design must ensure that earthworks and engineered structures such as noise walls, retaining walls and portals are visually integrated into their urban or landscape setting as must as possible, keeping engineered structures to a minimum
- Provide integrated public art, lighting, signage and heritage interpretation to minimise the footprint.

The following site-specific design principles and guidelines have also been identified to inform the development of the detailed design for:

- Make the intermodal plaza designs adjacent the northern and southern entrances as compact as possible to reduce customer's walking distances and enhance convenience for interchange and origin customers
- Seek to repurpose the under utilised heritage buildings on platforms 2/3 and 4/5 for station staff, operations and customer uses, to reduce the footprint of the new services buildings and safeguard the original intended use of the heritage buildings
- Look to a reduction in the length of the northern services building to maximise customer facing elements along Railway Terrace and enhance public activation opportunities
- Look to a reduction in canopy area from the Reference Design
- Rationalise the canopy design to reduce brownfield site works and reduce disruption to customer and train service during construction.

4.8. Relevant standards and guidelines

The following urban design and infrastructure standards and guidelines have been considered in developing the above design principles and the SDPP:

- Sydney Metro Chatswood to Sydenham Design guidelines
- Sydney Metro City & Southwest Sustainability Strategy
- Crime Prevention through Environmental Design
- TfNSW Wayfinding Planning Guide
- Wayfinding Customer Information Rules – Metro DRAFT
- Disability Standards for Public Transport (DSAPT) 2002
- ASA Standards for Station Design including Engineering and Station Stations and Building – Station Design Requirements
- Building Code Australia (BCA)
- Australian Standards
- NSW Sustainable Design Guidelines for Rail
- Infrastructure Sustainability Council of Australia (ISCA)

- Environmental Impact Assessment Guidance Note - Guidelines for landscape
- Character and visual impact assessment (RMS)
- The Burra Charter: The Australia ICOMOS Charter for Places of Cultural Significance, Australian ICOMOS, 2013 ‘The Burra Charter’
- Sydney Metro Artwork Catalogue
- Inner West Council Street Tree Masterplan, 2014

5. Design opportunities

5.1. Opportunities for landscaping and building design to mitigate visual impacts of Rail Infrastructure – Condition EOI (c)

The visual impact of the project has been mitigated by implementing the following building design and landscape initiatives:

- The station buildings have a strongly horizontal form, fine leading edge, a shallow roof profile and deep shadow lines.
- Screens and balustrades will be glazed enabling a high degree of visual transparency across the corridor and throughout the station
- The station canopy soffits will be clad in low reflectivity, anodised aluminium, ‘bronze’, perforated metal sheet which will have a low visual impact.
- The station canopies and public areas will be illuminated by low impact lights specifically designed to avoid glare and light spill into the public realm.
- The streets and plazas surrounding the station and interchange will be planted with super-advanced trees, which will provide substantial screening of the station buildings and rail infrastructure above eye-line, provide substantial shade to the ground plane and service building facades reducing glare and reflectivity.
- External metalwork to the station buildings will be painted charcoal in colour reducing glare and reflectivity
- The SSJ northern services building will be substantially reduced in size by relocating appropriate rail functions within the heritage buildings on P2/3 and 4/5.
- The visual impact of the northern services building will be substantially reduced by enveloping the northern facade, facing the street, with a bike parking facility and retail concession, thereby screening the services building from public view.
- The northern services building will be clad in a low reflectivity, anodised aluminium, ‘bronze ‘ , mesh screen which will have a low visual impact.
- The single storey western services building will be clad in low glare, anodised aluminium, ‘bronze ‘ , profiled panels and sit within a landscaped compound reducing its visual impact

5.2. Opportunities for public art

A key design principle for the project is to ensure public art is integrated within the design of stations and other corridor structures to aid place-making and to enhance local amenity and celebrate local character.

The Sydney Metro City & Southwest Public Art Master Plan identifies the need for a distinctive, readily communicable and memorable identity public art program, through the creation of the cohesive program brand 'MetroCulture'.

The program would provide six categories of art, including 2D works, suspended works, sculptural works, lighting installations, functional artworks and digital works, which will:

- Respond to themes
- Respond to place
- Use form, material and colour effectively
- Provide an uplifting experience for the customer
- Develop the Storylines theme
- Consider day and night time activation.

Opportunities being considered for public art at Sydenham Station include:

- Artwork/installation(s) situated in the entrance plazas on both sides of the station in Railway Parade and Burrows Avenue.
- Artworks may be integrated or stand-alone. Stand-alone sculptural elements should be carefully integrated into the plaza design. Integrated artworks may be integrated into the design of one or more of the following elements:
    - canopy soffits for entrances and bike storage buildings.
    - bike storage enclosure screens.
    - fencing and entrance fences.
    - walls, bleachers, benches and paving of the north and south entrance plazas.

5.3. Opportunities identified in the Heritage Interpretation Plan

The objective of the Heritage Interpretation Plan (HIP) is to establish how the significance of Sydenham Station and the Sydenham Pit and Pumping Station can be interpreted as part of the wider Sydney Metro project, and through the delivery of the Sydenham Metro upgrade project. The key objectives of the HIP are to:

- develop interpretation which will address the different needs and interests of relevant audiences;
- improve and enhance audience enjoyment and understanding of the cultural significance of the subject site;
- improve and enhance audience understanding of the area's cultural heritage and provide a mechanism for all visitors and local residents to experience and learn more about the study area;

- demonstrate best practice interpretation consistent with relevant state, national and international standards and guidelines;
- provide innovative device recommendations and appropriate locations for heritage interpretation across the site.

While it is acknowledged that the SMu Project sits within the wider context of the Sydney Metro project, the vision for this project is to deliver site specific interpretation outcomes which will enhance the engagement and understanding of the nominated audience with the immediate environment. It is proposed that the outcomes be innovative, high end and well designed.

Overall, the HIP is to engage audiences with high-level themes within the context of the Plazas and draw in more detailed themes and stories across the individual platforms which are more specific to the Station, its history and function. The design team are exploring opportunities, which will align the scope of the project works with Interpretative Opportunities. Opportunities across the following built features that are being explored include:

- Platform edge screens.
- Platform inlays;
- Patterning to canopy soffits;
- Public Plazas including landscape and urban design features such as seating, fences, paths;
- Works to the historic platform buildings
- Signage

5.4. Opportunities for incorporating salvaged historic and artistic elements

The following are a summary of the salvaged items that are either incorporated into the design or removed for storage and reuse.

Platform 2/3
All of the following will be removed and stored for future reuse at ST sites

- Telephone demonstrates changes in function and technology in control rooms
- Wooden benches with direct past and current association with the use of the waiting rooms on the platforms
- Labelling of safe identifying as Sydney Trains Heritage Item.
- Clips and backing board with flags are still used in instances of point failure.
- Stretcher box and stretcher directly associated with a past activity in the operation of the station.
- Rail associated mirror retained for related significance

Platform 4/5
All of the following will be removed and stored for future reuse at ST sites

- Wooden benches with direct past and current association with the use of the waiting rooms on the platforms
- Rail associated mirror retained for related significance

Platform 6
All of the following will be removed and stored for future reuse at ST sites

- Series of Anderson and Ritchie, who operated in Fitzroy from 1905 to 1994, Fitzroy drinking fountains that contribute to the heritage aesthetic of the platforms
- Ceiling rose, some toilet stall doors and frames, awning trusses, some windows and window, the entrance door to women's toilet including door leaf, highlight window and architraves sashes and some sub-floor ventilation grilles removed and retained for potential reconstruction works at other ST sites

Sydenham Pit and Pump Station

- Sandstone blocks from the pit wall will be removed to facilitate the aqueduct construction. Some of these blocks that are structurally intact and not contaminated will be retained for reuse within the Northern Plaza hard landscape elements.

6. Details of the Station Design and Precinct Plan

6.1. Sydenham station key design features

The overall objective for the project is to deliver a world class, connected metro, which will provide more choice to customers and opportunities for our communities now and in the future. The project is also a unique opportunity to demonstrate an exemplary approach to station and precinct design and foster exemplary urban design, integrated transport and land use planning.

Sydenham Station will be located at the existing Sydney Trains Sydenham Station, where platforms 1 and 2 will straightened and lengthened in the city direction for Metro services. New station entries will be provided from the new aerial concourse to Railway Parade and Burrows Avenue.

Transport Interchange
Sydenham is a key transport interchange for the western and south western suburbs. It provides connection with buses, taxis, cars and trains. The design of the station precinct consolidates the different modes of transport to deliver a safe, convenient and integrated transport interchange. See Figure 6.1.1. The Interchange Access Plan - Sydenham (IAP) prepared for the project describes the traffic requirements and related pedestrian and cycle movement objectives and principles for the precinct. These have informed the precinct kerbside provisions for bus, taxi, kiss and ride, motorcycle and accessible parking to provide an integrated customer journey. See Figure 6.1.2.

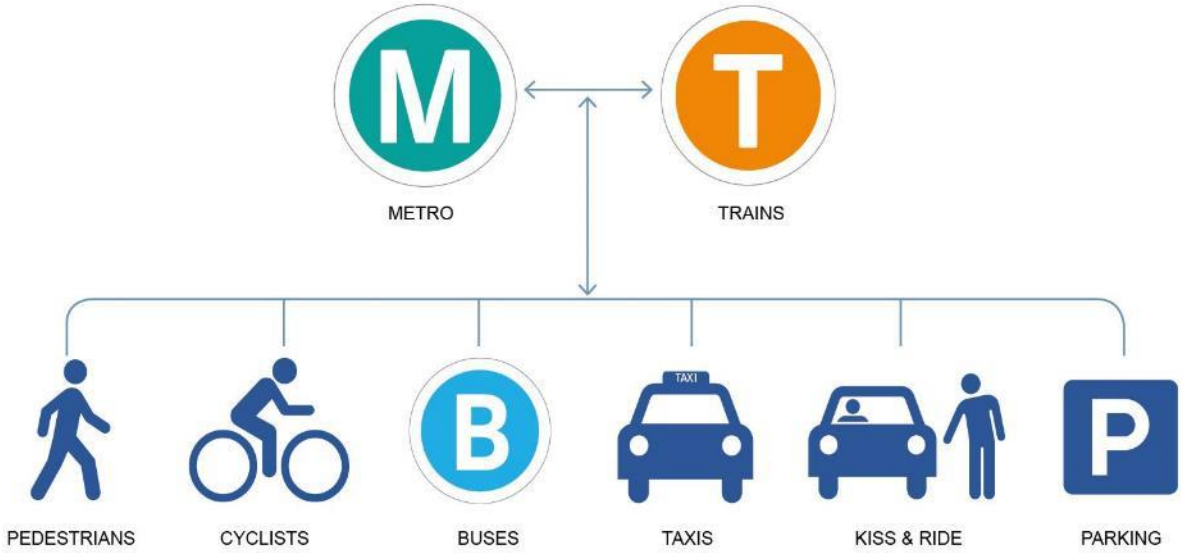


Figure 6.1.1: TfNSW's transport modal hierarchy

Figure 6.1.2: Northern plaza interchange section

Northern Metro Entrance and Plaza

The northern Metro entrance at Sydenham is located at the western end of Railway Terrace beside the curved road that transitions between Sydenham Road in the south to Railway Parade in the west. It is one of two new station entrances serving the employment zone and future creative precinct in the north. It will be a Metro operated entrance.

As customers embark on their journeys to Sydenham Station from the northern precinct, they will be greeted with a vibrant, welcoming and comfortable northern entrance. Set in an urbane landscaped plaza with retail offerings, generous awnings and a contemporary architecture that complements the character of the precinct, the northern entrance and plaza provides a dynamic meeting place for the community. See Figures 6.1.3 and 6.1.4.

The gateline is strategically positioned to establish direct sightline from Sydenham Road in the north. As customers approach the sweeping grand staircase that marks the beginning of the station plaza, they will be presented with the entrance gates beyond the plaza, signified by a simple entrance canopy and framed with tree landscaping, retail units and an integrated customer touchpoint. These customer elements are laid out longitudinally to express a welcoming sense of arrival while allowing customers to identify the entrance before entering the plaza. See Figure 6.1.5.

The station entrance features two glass fronted tenancy units and a bicycle storage facility along the public facing frontages of the northern services building on Railway Terrace. The roof of the building extends outwards to provide weather protection for outdoor seating of the tenancy units. Sydney Metro is a turn-up and go service. Customers can enjoy a coffee, service their bicycles or meet their friends before embarking on their journeys in the station.

Figure 6.1.3: Sydenham station northern entrance visualisation

Figure 6.1.4: Sydenham station northern entrance plaza visualisation

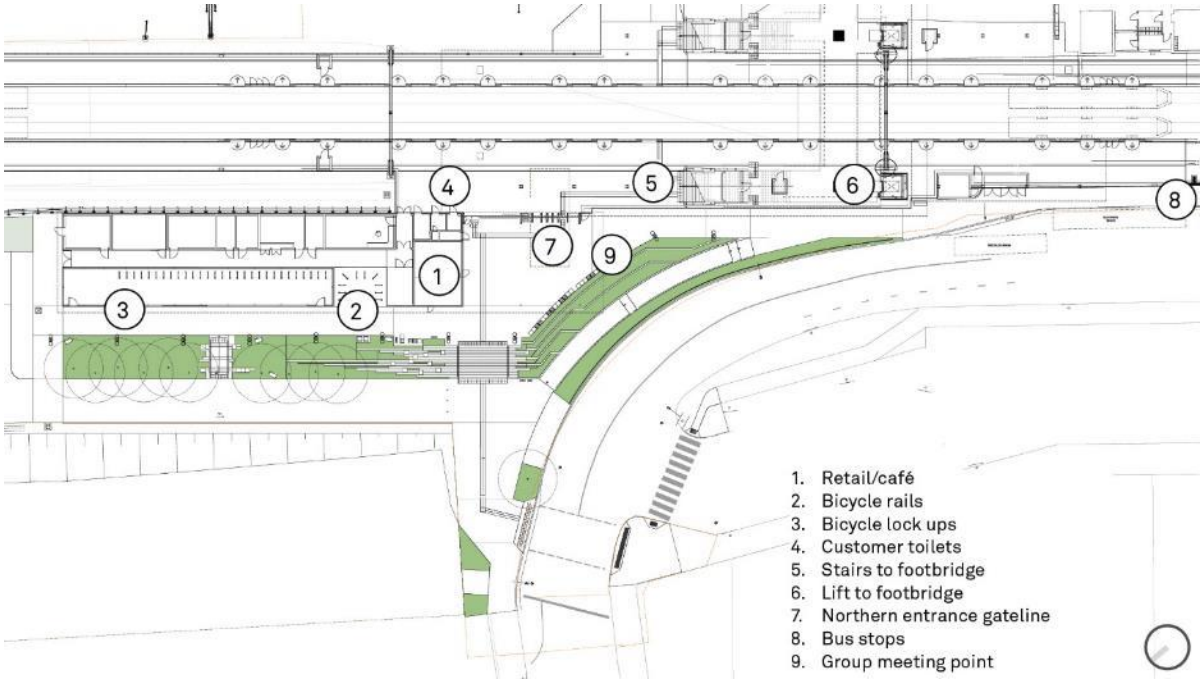


Figure 6.1.5: Sydenham station northern entrance plan

Adjacent to the gateline, the essential customer equipment is consolidated in a compact integrated customer touchpoint wall unit, providing a single point of access for customers.

When customers pass through the gateline, the customer toilets are located in the paid zone, in close proximity to the gateline. They include one accessible unisex unit, one male and one female super standard toilets, located in a highly visible location to achieve an effective CPTED design. The door openings are away from the main platform area to maintain discreetness for customers.

The Metro station manager room is located close to the gateline behind the customer toilets to allow swift response to customer assistance. Further along houses the essential plant equipment rooms.

The customers have a choice to go either direct to Platform 1 or embark on the stairs to access the other platforms.

Southern Metro Entrance and Plaza
The southern Metro entrance is the second of the new entrances in the design.

Located at the eastern side of Burrows Avenue between the George Street and Hogan Avenue, the entrance is set in a landscaped plaza. The design is consistent with the planning approach of the northern entrance to achieve an open and welcoming entrance. See figures 6.1.6 and 6.1.7.

The customer touchpoint and information wall module is located close to the new pedestrian crossing on western side of the primary plaza.

Figure 6.1.6: Sydenham station southern entrance visualisation

Figure 6.1.7: Sydenham station southern entrance plaza visualisation

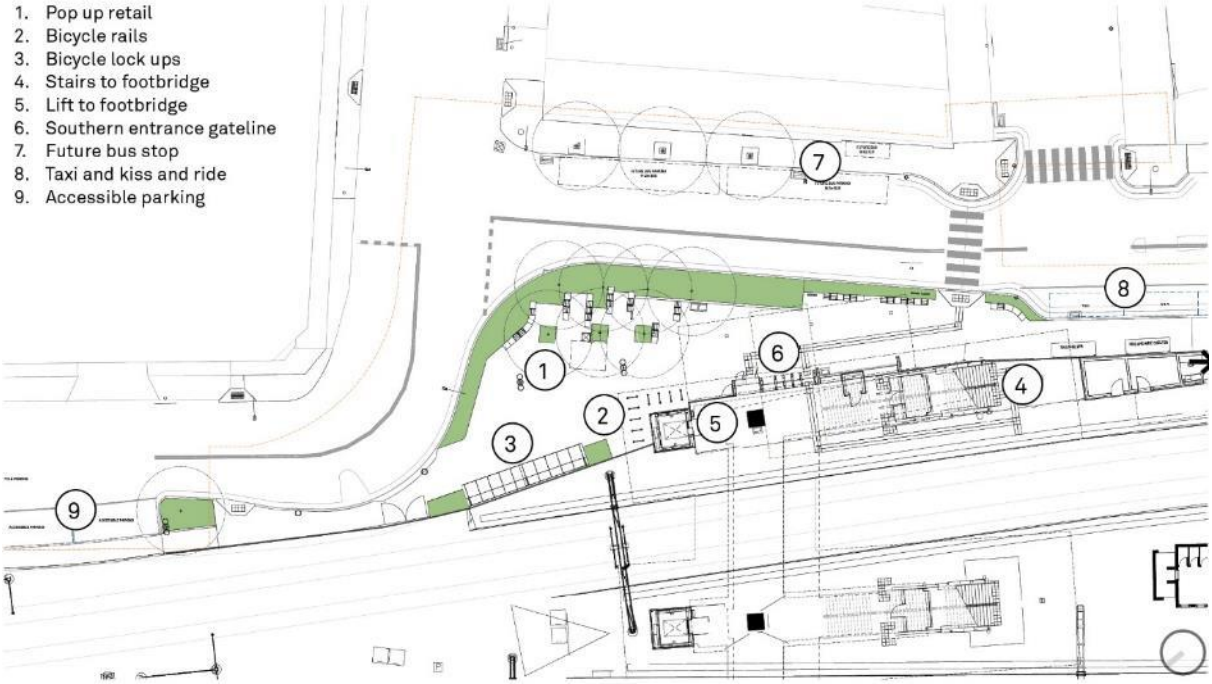


Figure 6.1.8: Sydenham station southern entrance plan

Platforms

Platform 1 and Platform 2 on the current Bankstown Line are to be modified to Sydney Metro platforms. The works includes:

- Partial demolition and modifications of the curved section of Platform 1 and Platform 2 at the city end to create two straight platforms.
- Extension of Platform 1 and 2 towards the city end to accommodate an 8-car Metro train;
- Integration of 1.7m high glazed platform edge barrier to accommodate 6-car train on day one operation;
- Installation of fixed barriers to the remainder of the platform edges;
- Installation of seating and equipment clusters; and
- Installation of new stairs, lifts and footbridge pier structure.

The straight section of Platform 1 and 2 are 170m in length.

The design also includes the installation of new lifts and stairs to all platforms. See Figures 6.1.9 and 6.1.10.

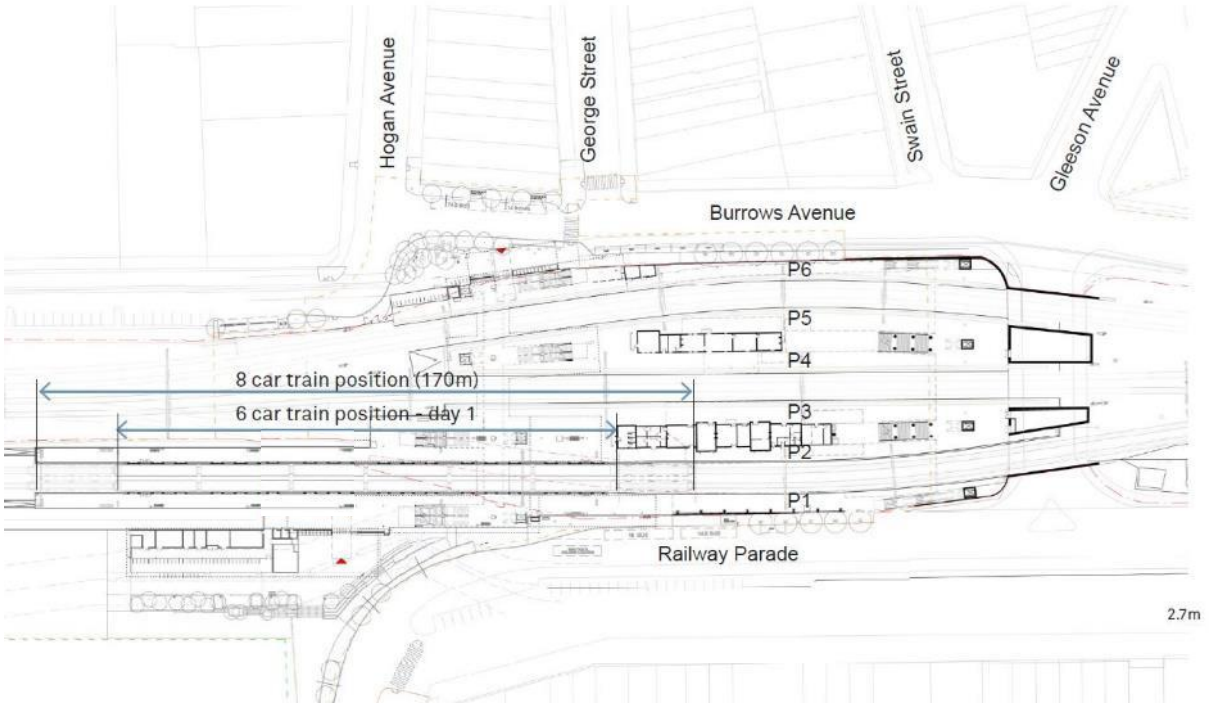


Figure 6.1.9: Platform level general arrangement plan

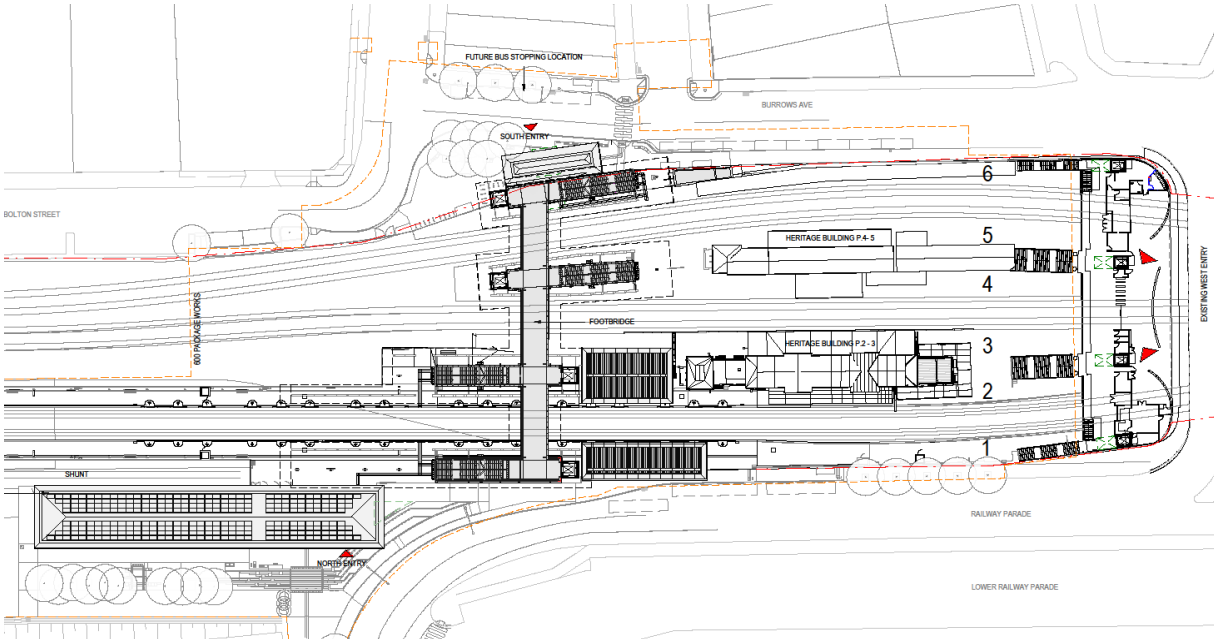


Figure 6.1.10: Concourse level general arrangement plan

Figure 6.1.11: View of Platform 2 showing lifts and stairs to footbridge

Vertical Transport

The design includes four new stairs and lifts connecting the footbridge, providing access from platforms 1 to 6.

Stairs

The stairs on platform 1 establishes direct line of sight with the entrance gate to enhance intuitive wayfinding. See Figure 6.1.11. The two stairs on the Metro platforms 1 and 2/3 are orientated towards the city end to coincide with the approximate mid-point of the 6 and 8 car Metro train-set. This allows customers equal choice of access to either end of the platforms. The stairs to the Sydney Trains platforms 4/5 and 6 are located at the end of the platforms at the city end. The stairs to the Sydney Trains platforms are orientated to the opposite side towards the country end.

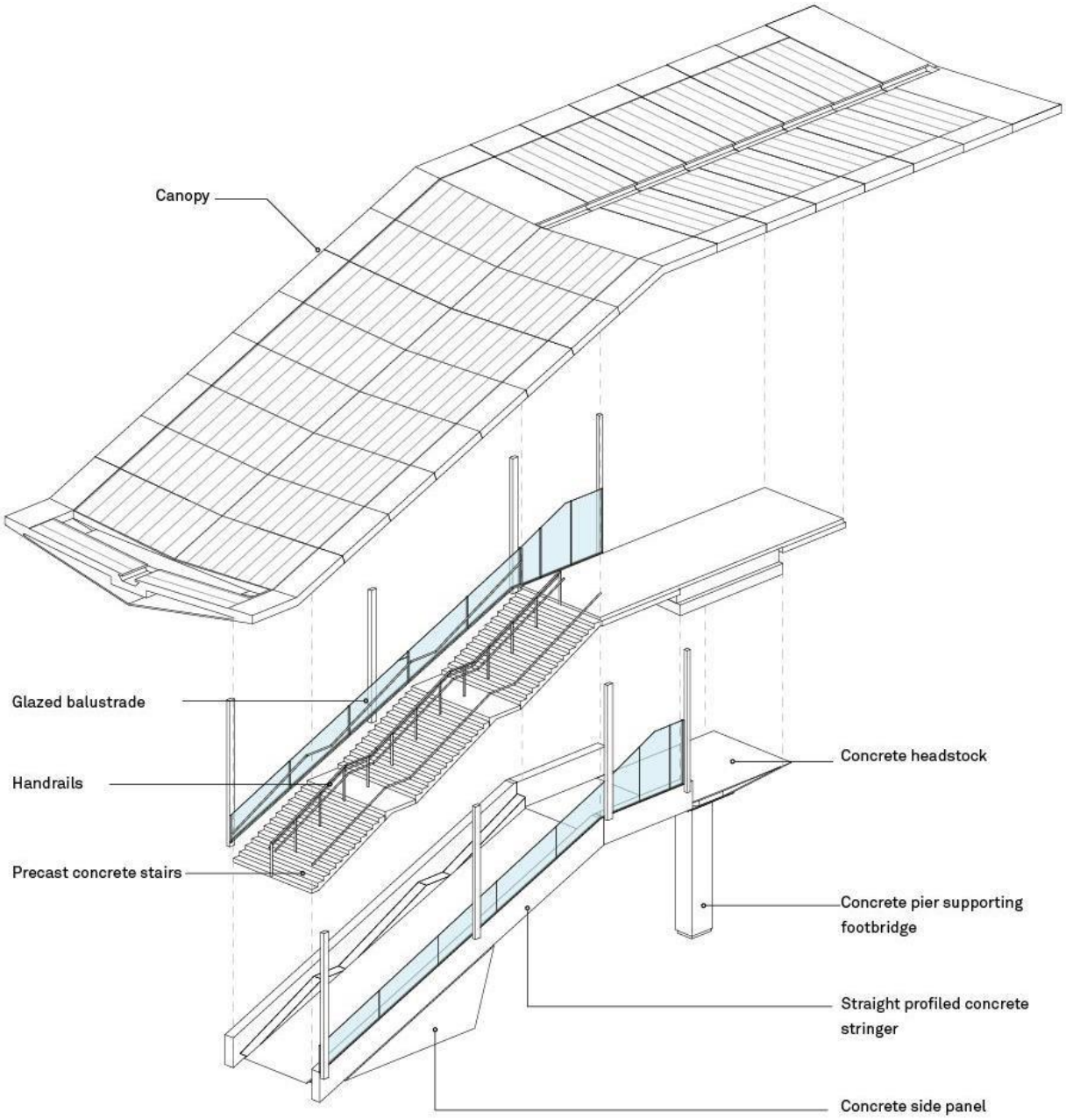


Figure 6.1.12: Stairs

The design of the stairs has a simple profile. See Figure 6.1.12. Continuous straight concrete stringers on either side of the stairs conceal the stair treads and intermediate landings. The glazed balustrades and the ribbon canopy mirror straight stringer profile to create a strong visual signifier for customers to identify the key vertical circulation routes between the platforms and the footbridge. The bottom end of the stairs include a sculptural abutment that house the stair supporting structures.

Lifts

Four new lifts providing universal access to all platforms. The lifts are located on the opposite side to the staircases. The design includes the following features:

- Glazed lift enclosure

- 17 person lift car
- Top and bottom ventilation; and
- One sided lift

Figure 6.1.13: Lift entrance view on footbridge level

Footbridge

The footbridge connects the northern and southern precincts. See Figure 6.1.10. Arriving at the footbridge, the customers will encounter a simple and airy linear link bridge, 65m in length and 5m clear in width, providing a direct transfer space for accessing the station's six platforms. Opal tap on and tap off access at the ticket gates provides free public access for customers to cross the railway corridor safely.

The footbridge includes clear glazed balustrades at 2.4m high providing customer clear views to the platforms and the heritage buildings. See Figure 6.1.13. The four dynamic ribbon canopies orientated in the perpendicular direction provide clear visual guides for customers to the direction of the various platforms.

The bridge structure is a prominent feature in the station. The design embraces the following design principles:

- Celebration of simple engineering expression;
- Slenderness in span and depth proportion; and
- Expression of structural efficiency in form.

Four square concrete piers, one on each platform, support the bridge structure with a tapering headstock. Each span is spaced between 12m to 15m. Precast concrete planks will be installed in the parallel direction as the edge beam.

Station Canopy

The canopy design is a simple, functional and contemporary response to heritage, context, and customer experience. The canopy consists of a group of four longitudinal ribbons in the

direction of the platforms and a second family of connection canopies in the north south direction, span across the tracks and above the station entrances. See Figure 6.1.14.

Together, the canopy group provides customers with weather protection over the length of four train cars on the Sydney Metro platforms on 1 and 2 and a continuous coverage from the north and south entrances to each of the six platforms in the station. The side platform canopies on Platform 1 and Platform 6 terminate close to the existing canopies to achieve an almost continuous coverage from the new northern and southern entrances to the existing western concourse on Gleeson Avenue. The side platforms also extend into the public domain to provide weather protection from the bus stop on Railway Parade to the entrance in the north and from the new pedestrian crossing to the entrance in the south.

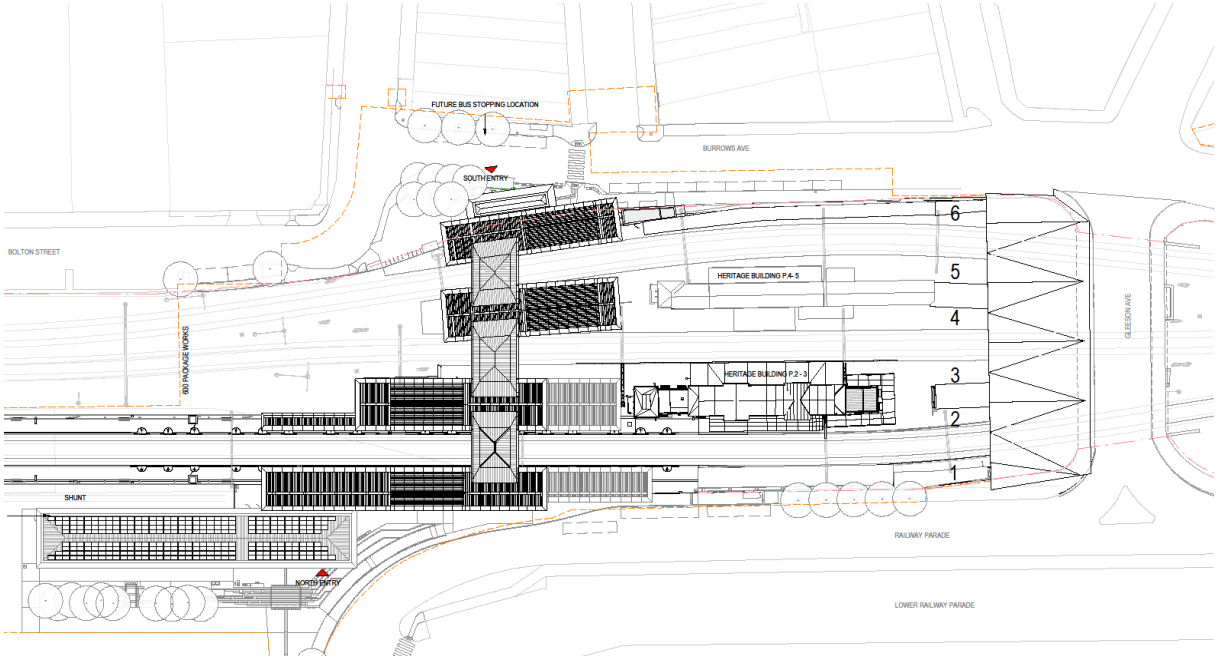


Figure 6.1.14: Roof plan

Canopy Concept

Inspired by the architecture of the platform heritage buildings as shown in Figure 6.1.15, the ribbons make reference to their distinctive roof gables. The design interprets the pitched profile as an inverted gable form to allow roof drainage away from the tracks. The simple inverted gable profile is applied to the length of the ribbon.

Longitudinally, the ribbon mirrors the key customer movement, creating a dynamic folded ribbon form, which acts as an intuitive wayfinding device. Each ribbon glides along the length of the platform, inclines above the stairs, across the footbridge and terminates beyond the lift shaft. Three distinctive edges on the soffit – a central valley and two fine edges run parallel with the linear profile of the stairs and balustrades. Collectively, the design creates a strong visual aid that guides the customer's line of sight to the stairs and escalators on the platform level and towards the direction of the platforms on the footbridge level. See Figures 6.1.16 to 6.1.19.

To emphasise the visual primacy of the ribbons, the connection canopies have a subservient design. Each consist of a flat soffit positioned above the ribbons and allow the line of the ribbon edge and valley to flow continuously. The entrance canopies over the northern and southern

canopy follow the same design to achieve a clear visual hierarchy. In addition, a visually minimal canopy structure system is integrated to reinforce the ribbon as the primary canopy element.

Citing Sydenham's association with industries in the past and the present, a metallic material palette is selected for soffit cladding. The ribbons are to be clad in bronze anodised aluminium sheet panels as a reference to the gritty industrial local character. The connection canopies are to be clad in natural anodised aluminium to provide a neutral tone. The design considers a satin brushed finish that can subtly reflect customers' movements as abstract dynamic patterns on the soffit to create an added layer of visual animation.

Figure 6.1.15: Platform heritage buildings

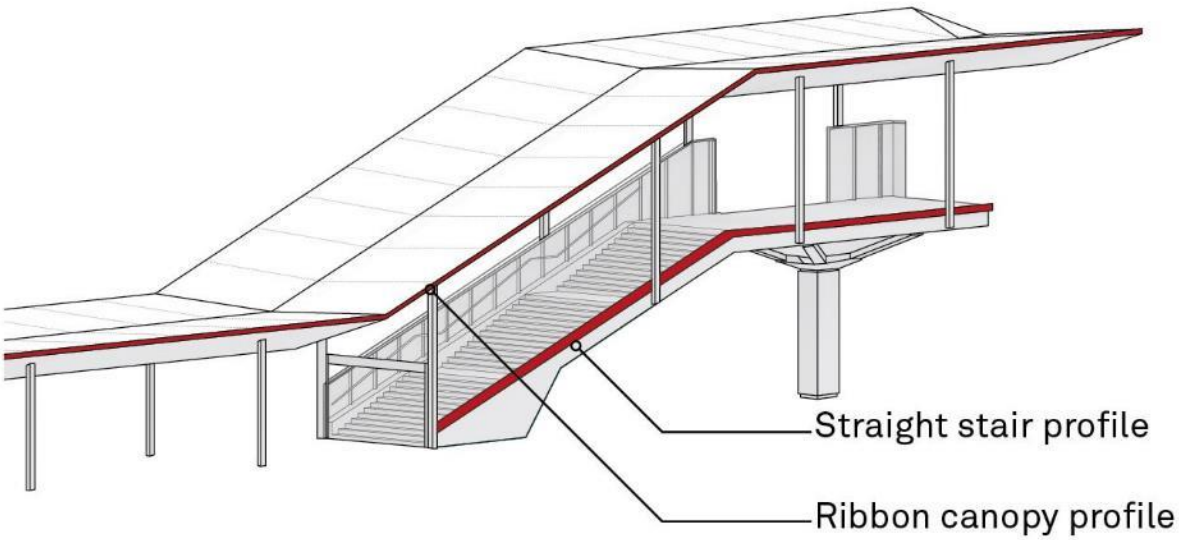


Figure 6.1.16: Stairs and canopy profile

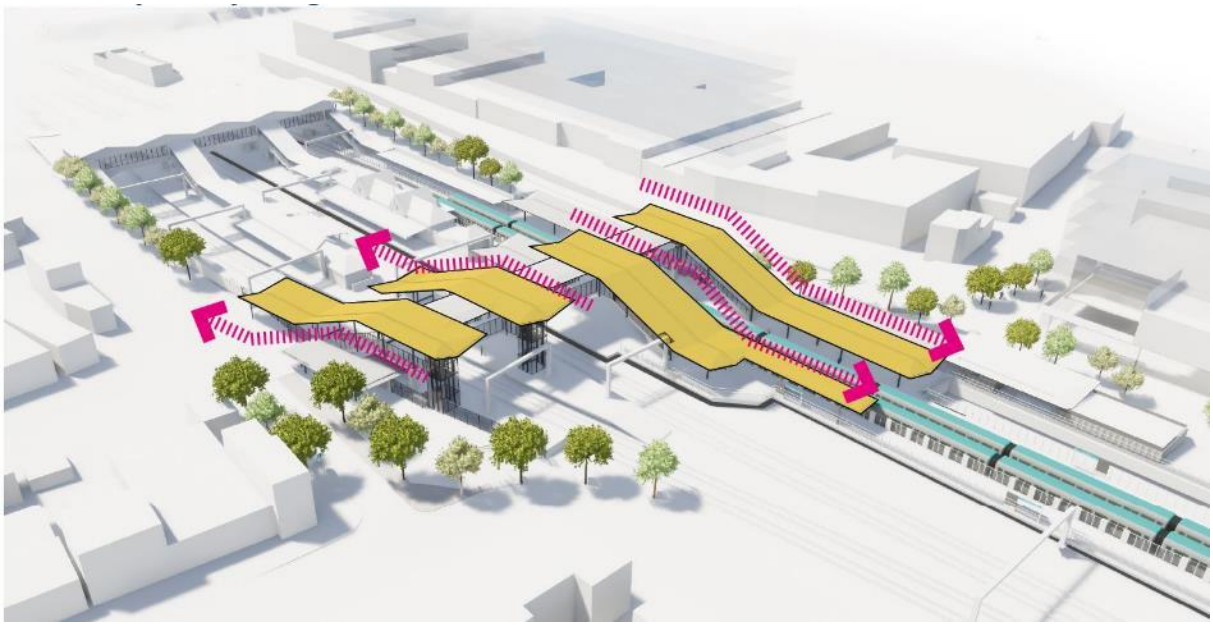


Figure 6.1.17: Ribbon form acting as a wayfinding device

Figure 6.1.18: Canopy hierarchy

Visual Beacon in the Public Domain

As shown in Figure 6.1.19, the dynamic canopy design provides a contemporary identity for Metro in the renewed station. In the wider context, the simple ribbon roof form creates a distinctive landmark and a visual beacon for customers to identify the station in the public domain.

Figure 6.1.19: Folding ribbon canopy – a Metro presence in the public domain

Heritage Response

The folded ribbon canopy design pays homage to the gable roof form of the Platform 2/3 and Platform 4/5 heritage buildings. The simple and modern design creates a distinctive contrast to the heritage architecture. To achieve visual clarity for buildings of different periods, the new ribbon canopies maintain clear separations from the heritage platform buildings and canopy. The use of bronze coloured aluminium in the primary ribbon soffit complements the terracotta painted brick colour of the heritage. Figure 6.1.20 shows the new station canopy in context with the station heritage building on Platform 2/3.

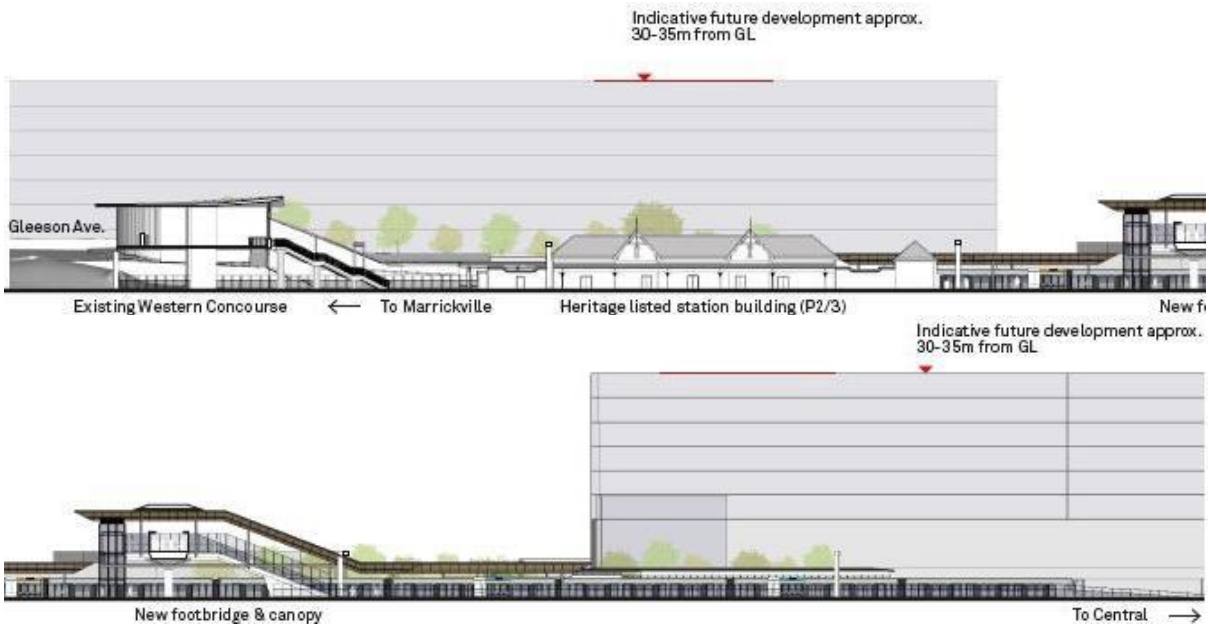


Figure 6.1.20: Section A-A_Longitudinal section across Platform 2/3.

Height, Scale and Massing

The height and scale of the canopy creates a modest civic presence that is commensurate with the local context. The new canopy is approximately 11.2m high from the platform level. The footbridge canopy is set below the height of the existing concourse roof on Gleeson Avenue.

The arrival of Sydney Metro in 2026 will stimulate the regeneration of Sydenham. Profound changes, especially in the northern precinct, are likely to take place. Figures 6.1.20 to 6.1.22 shows the station canopy in the context of the future Sydenham. Figure 6.1.20 shows the approximate massing of the indicative maximum height (based on the OLS airport height limit of 36m) of the potential future development in the northern precinct.

Figure 6.1.21: North south sectional elevation of new station bridge and canopy

Figure 6.1.22: North south sectional elevation of new station bridge and canopy

Adaptive Reuse of Platform Heritage Buildings

The Platform 2/3 and 4/5 buildings of Sydenham Station dated from the earliest period of the station's development. They are in sound condition and are of exceptional heritage significance. Most spaces retain a high level of integrity and are currently underutilised. They present opportunity for adaptive reuse with a continuation of rail and metro operations. The strategy for adaptive reuse of the Platform 2/3 and 4/5 buildings seeks to positively and sympathetically activate the underutilised spaces, enhance their presentation and interpretation and reduce the new built footprint within the vicinity of the station by consolidating the operational requirements within existing built footprints.

The adaptive reuse of the existing heritage and storage facilities provide the following benefits:

- Enhances cost efficiency by reducing the area of new builds;
- Reduces the area and inactive frontage of the ancillary building on Railway Terrace in order to maximise future activation opportunities;
- The heritage buildings on platforms 2/3 and 4/5 are of exceptional significance. Their adaptive reuse ensures a continuity of their intended use.

The following principles were developed to guide the adaptive reuse design and to mitigate potential impacts:

- Change will be guided by the Burra Charter and OEH Guidelines 'Altering Heritage Assets' and 'New Uses for Heritage Places;
- Compatible uses established in accordance with the Burra Charter. Such uses should favour either public or operational occupation, unless originally designed as a service or amenity space;
- Proposed adaptation to consider alternatives and involve minimal change, as outlined by the Burra Charter;
- Maximise the retention of original significant fabric and investigate opportunities for the reconstruction of missing original elements;
- The placement of major plant and equipment within the heritage buildings is to be avoided;
- Retain the current external fenestration of door and window openings;

- The overall volume and envelope of the platform buildings will be retained, noting minor opportunity for reconstruction;

Figure 6.1.23: Exterior of heritage platform buildings view from Platform 2/3

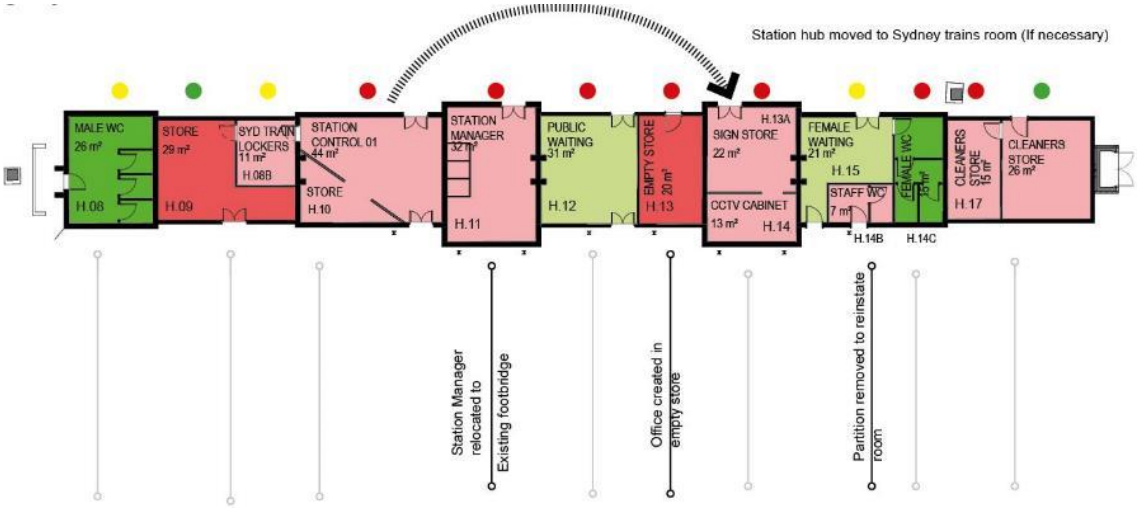
Platform 2/3 Heritage Building

The heritage building on Platforms 2/3 is to be designated to Sydney Metro operation, with the exception of the existing CCTV cabinet room, which is to be retained for Sydney Trains operation. The building currently houses a collection of Sydney Trains operation accommodations and customer amenities. Figure 6.1.24 shows the existing layout.

The design retains the original layout. The customer amenities shown in green, including the existing toilets (upgraded recently) and waiting rooms are to be retained. The rooms shown in blue to be allocated for Metro staff and operation accommodation.

Sydney Trains requires a staff refuge room for the operation on Platform 3. Room H14 on the diagram currently houses Sydney Trains' CCTV equipment cabinet in the internal partitioned area. To satisfy Sydney Trains' needs and reduce disruptions to station operation, Room H14 is to be retained as the only Sydney Trains asset in the platform 2/3 heritage building.

Existing Layout



Proposed Layout

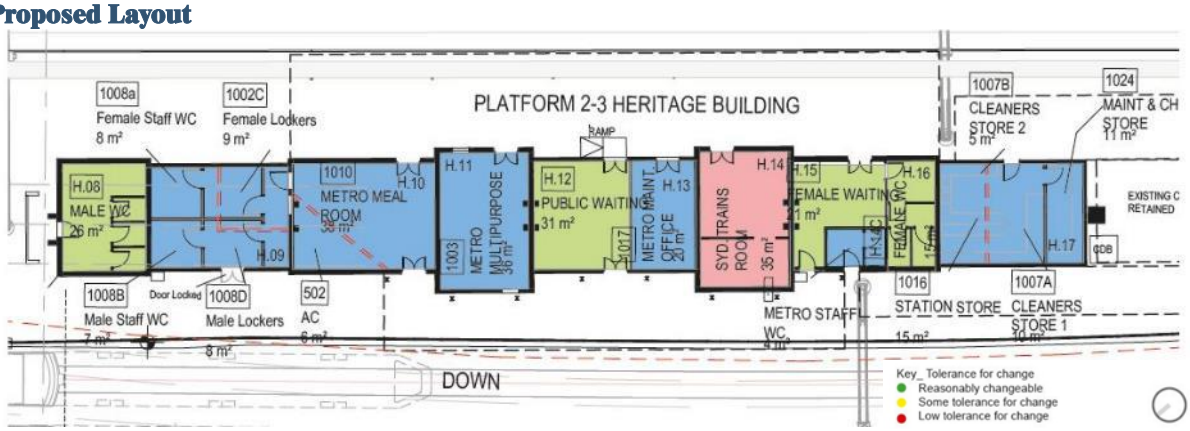
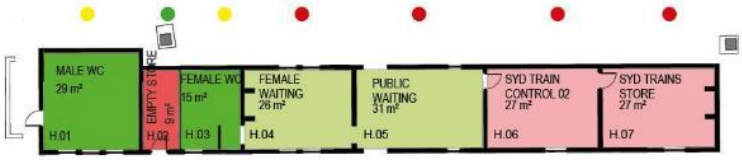


Figure 6.1.24: Exterior of heritage platform buildings view from Platform 2/3

Platform 4/5 Heritage Building

Under the adaptive re-use strategy, Sydney Trains staff and operations accommodation are to be augmented in the heritage building on platforms 4/5. Figure 6.1.25 shows the existing layout is retained and room functions adjusted to satisfy Sydney Trains' operational needs.

Existing Layout



Proposed Layout

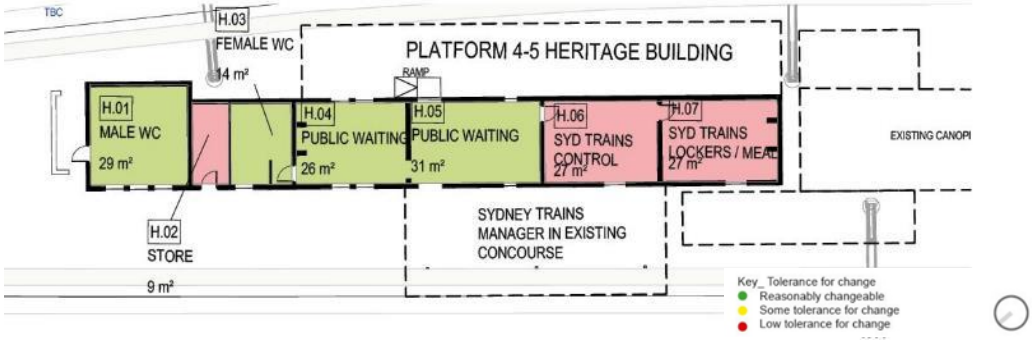


Figure 6.1.25: Platform 4/5 heritage building adaptive reuse strategy

Northern Services Building

The northern services building forms an essential customer and operational component to the northern entrance. It includes three customer toilets, a station manager room and plant rooms along the edge of the shunt track. The building is completed with retail tenancy units and bicycle store to achieve active frontages on the public facing elevations. See Figures 6.1.26 and 6.1.27.

The EIS concept design for the northern services building located an extensive list of staff accommodations and plant rooms in the northern services building, resulting in a visually dominate building approximately 73m in length with a long inactive elevation along Railway Terrace. To maximise active frontage and reduce the size of the building the following initiatives were undertaken:

- Relocation of plant rooms to the western services building and staff accommodation to the platform 2/3 heritage building as part of the adaptive reuse strategy; and
- Locate retail units and bicycle store around the public facing frontages in the north, east and west elevations to provide active frontages that encapsulate the residue plants and station manager rooms.

The result is a significantly smaller building (43m long rather than 73m) that includes active public facing elevations in the public domain. See Figure 6.1.28.

Figure 6.1.26: Northern services building visualisation

Figure 6.1.27: Northern services building visualisation

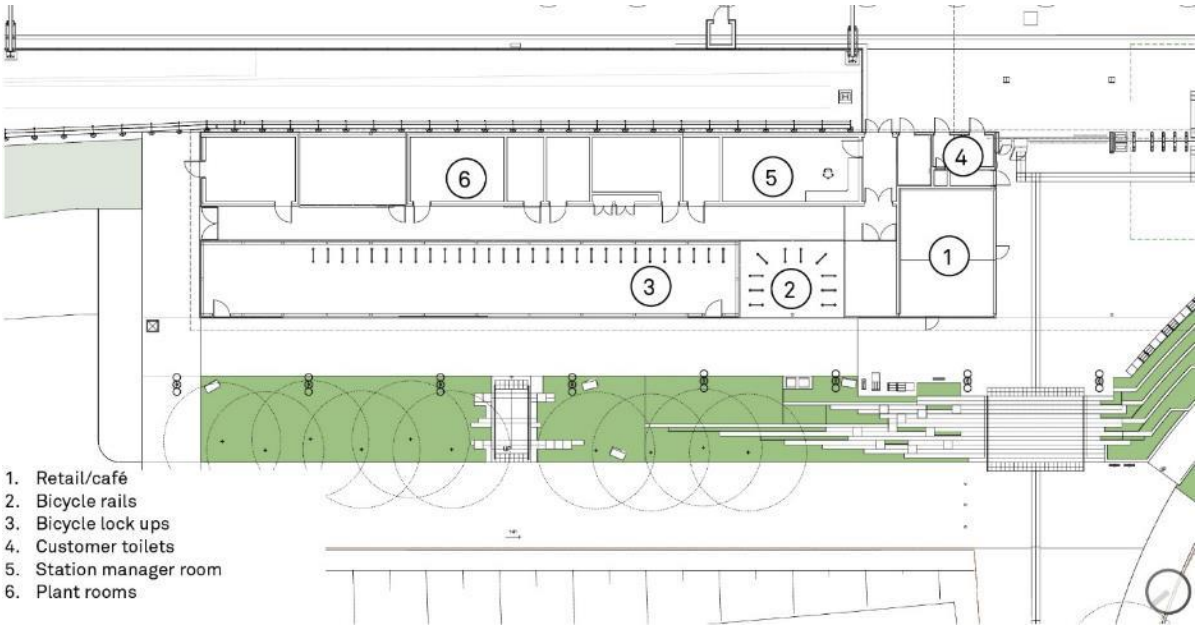


Figure 6.1.28: Northern services building plan

6.2. Precinct (public realm) plan

The urban design principles which were established to inform the development of the design for the Sydenham Station precinct and public domain are outlined in Section 4.4 and Figure 4.4.1. These have informed the design of the two new plazas at the northern and southern Metro Station entries.

Northern Plaza

The new northern entry will open onto a plaza near the corner of Railway Parade and Sydenham Road, providing access to bus services, cycle parking, and nearby industrial areas. See Figures 6.2.1 and 6.2.2. As noted in the delivery and implementation program of the IAP (Action KR2), Sydney Metro will investigate the relocation of two kiss and ride spaces to Sydenham Road southbound, north of Lower Railway Parade.

The Urban Renewal Corridor Strategy proposes to transition the substantial industrial area to the north of Sydenham Station into the Sydenham Station Creative Hub, which will nurture creative and entertainment related uses, along with restaurants and cafés.

Character:

- Sydenham Station Creative Hub Meeting Place
- Retail/café activates the Plaza
- Bleachers/stairs/walls create informal gathering spaces for larger groups
- Character – creative, noisy, active, gritty urban

Main Features:

- The design proposes a grand stair with civic presence in front of the station entrance that can also act as public seating. The stair is required to resolve the significant level difference between the existing street and existing station. This will be flanked by two integrated walkways at either side to provide an accessible pathway to the Metro station and bus stops.
- Bleachers, seating blocks and trees have been integrated into the stairs to provide gathering spaces for users

Traffic Movements:

- Service vehicle access to the plaza, service building and aqueduct is provided from Railway Parade.

Transport Interchange:

- Railway Parade allows for two bus stops for the southbound bus routes providing space for the 14.5m buses for routes 418/425 and 18m buses for the M30 route.

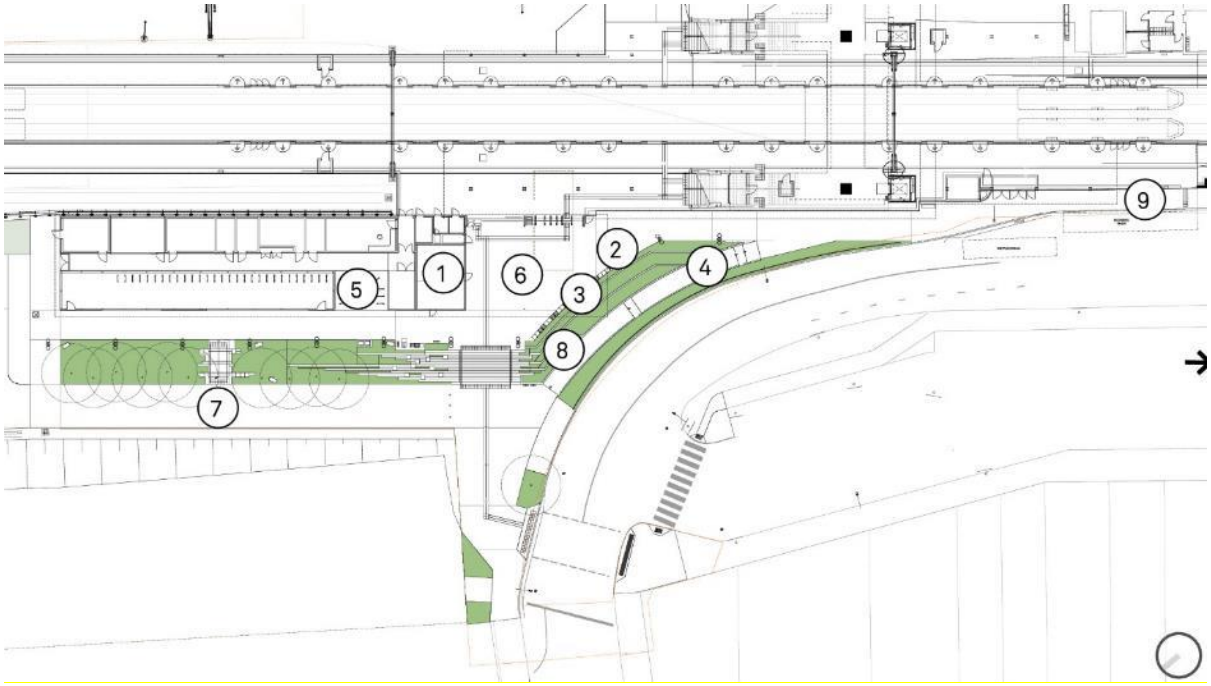


Figure 6.2.1: Northern plaza plan

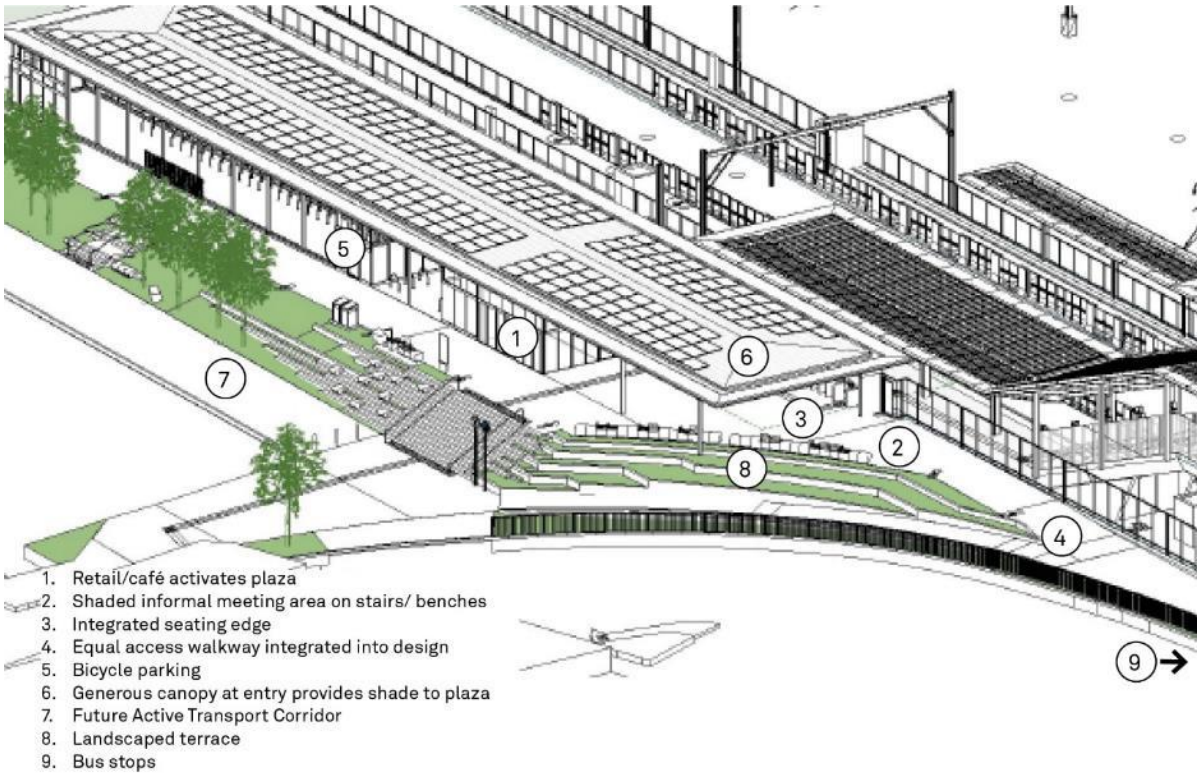


Figure 6.2.2: Northern plaza axonometric view

Southern Plaza

A new southern entry will open onto a plaza on Burrows Avenue near Hogan Avenue, providing access to cycle parking, bus services, taxis, nearby industrial areas, and local residential areas. See Figures 6.2.3 and 6.2.4.

The area to the south of Sydenham Station currently consists of a mix of shop top housing and semi-detached and detached dwellings dating from around the early 20th Century.

Main Features:

- The design proposes a shaded seating area to the east of the gateline near the corner of Burrows Avenue and Hogan Street.
- A rain garden/bio-swale is proposed along the southern edge of the southern plaza to utilise water from the plaza and the adjacent section of Burrows Avenue.
- A permeable kerb on the northern side of Burrows Avenue adjacent to the southern primary plaza is being proposed to direct water from the road into the proposed raingarden on the southern edge of the plaza.

Traffic Movements:

- The Stage 3 plans are based on a three lane two way, one lane each way and a bus stop lane, road layout for the section of Burrows Avenue adjacent to the Metro entry. This layout will accommodate semi-trailer to the industrial businesses to the east of the station.

Transport Interchange:

- Burrows Avenue (west) includes allowance for two future bus stops (14.5m buses) for northbound bus routes 418/425.
- Two accessible parking bays and two motorcycle parking spaces will be provided in the Bolton Street car park closest to the southern plaza

Figure 6.2.3: Southern plaza plan

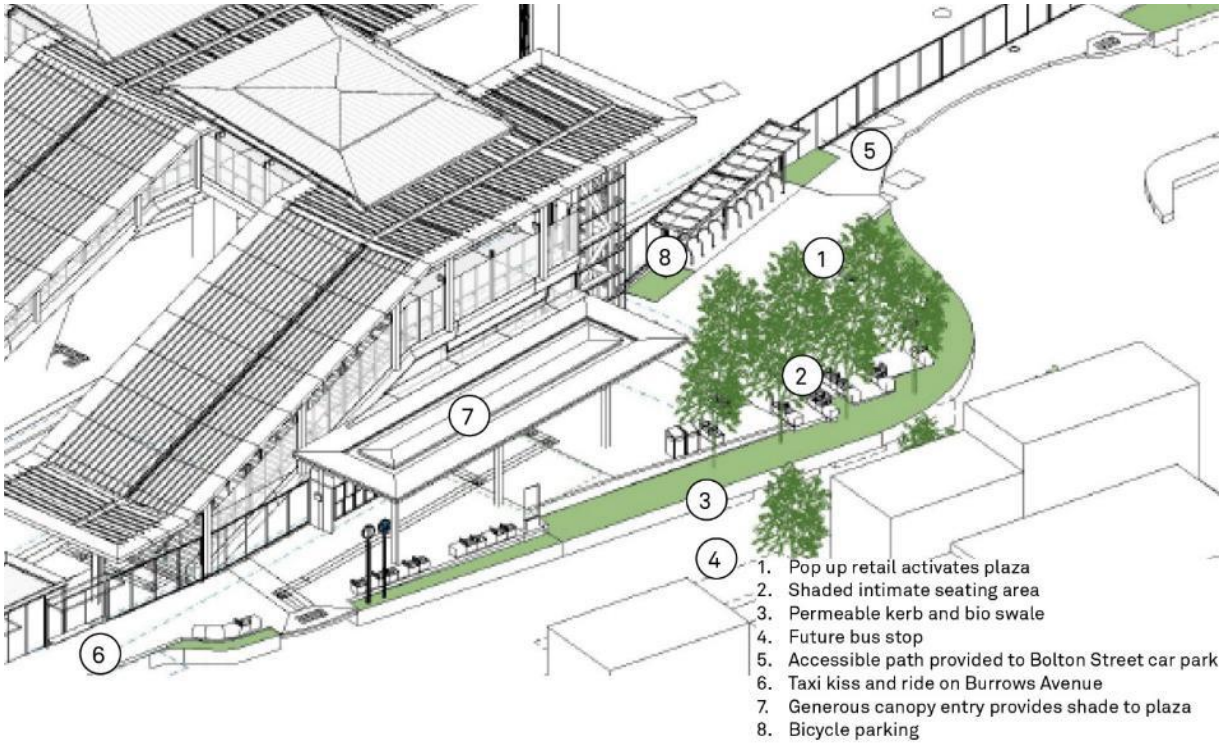


Figure 6.2.4: Southern plaza axonometric view

Public Domain Activation

The new station plazas create two distinctive meeting places for the customers, visitors and local communities in the northern and southern precincts. To enhance activation and enrich the customer experience, the design includes a number of retail provisions including:

- Two 20m2 tenancy units at the western corner of the northern services building which open out to the station entrance and the Railway Terrace;
- Services provisions for future retail kiosks and pop up units along the secondary plazas on Railway Terrace (See Figure 6.2.5); and
- Service provision for pop-up retail in the southern plaza.

The retail locations are shown in Figure 6.2.6.

The mix of retail offerings provides a framework for a vibrant social hub for the local community. The fixed tenancy units provide the customer a regular venue to buy a coffee, pick up a newspaper or simply meet a friend. The pop-up and future retail units provide the infrastructure to host a range of functions in the plazas, such as coffee cart in the morning, craft makers market over the weekends to live music performance at night-time to complement the creative local character of the area.

In the wider context, an active northern plaza has the potential to unlock the commercial opportunities for the future adjacent site development and stimulate a vibrant streetscape along Railway Parade.

Figure 6.2.5: Vision of a future vibrant social hub on Railway Parade near the northern plaza

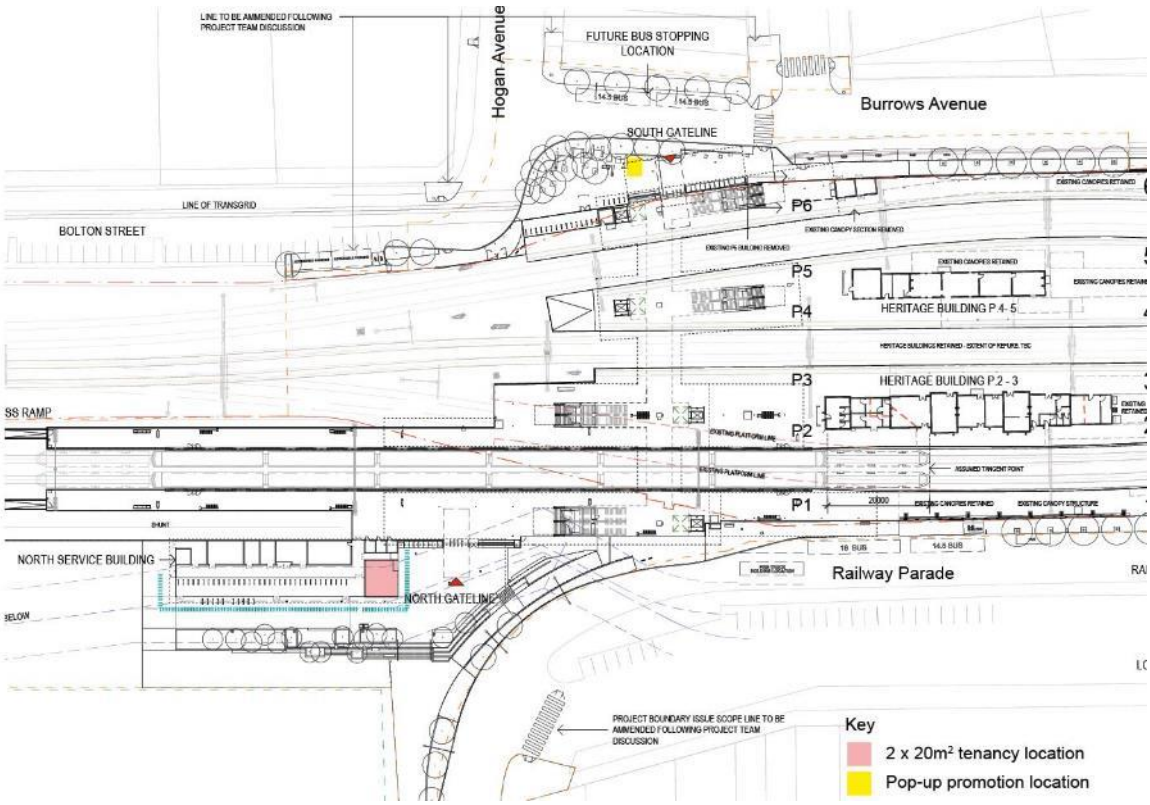


Figure 6.2.6: Retail Provisions

Materials and Finishes

Materials and finishes selected for the public domain will be generally consistent in detailing with those used on Sydney Metro Northwest, however they will be adjusted to create a distinct Sydenham character for the public domain in response to the local context.

All materials will be high quality, robust and durable. Paving will achieve required slip resistance and colour contrast to increase safety in the public domain. The pavers will be sealed to help mitigate staining and aid in cleaning.

A suite of fixed and informal seating will accommodate individuals and groups in locations which are mostly shaded, comfortable and appropriate for resting. See Figure 6.2.7. These will be located in the Primary Plazas. Most of the seating in the Plazas will be provided through informal seating opportunities such as bleachers, seating blocks and low seating walls. Furniture elements such as signs, bubblers, fixed seating, etc. will be consistent with the suite of furniture developed for Sydney Metro Northwest.

The three basic sign products used in the precinct areas are totem (or mode ID signs), blade signs and pole signs. TfNSW totem signs are used to provide long distance identification. See Figure 6.2.8. Blade signs have been developed by TfNSW to provide directional/orientation information including poster frames displaying local area maps and other relevant local information.

Figure 6.2.7: Seating precedent images

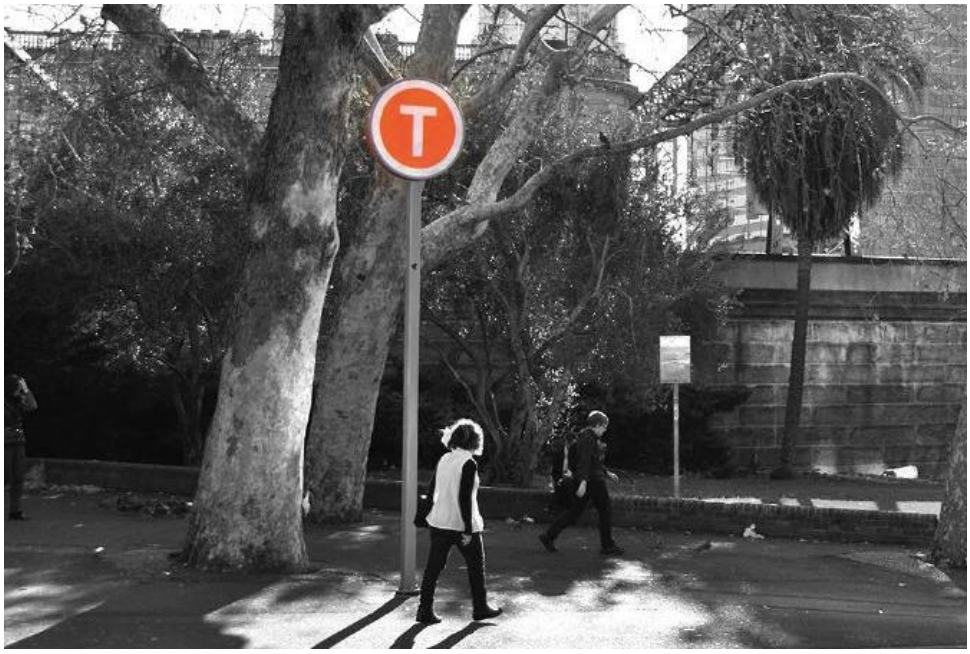


Figure 6.2.8: TfNSW totem sign

Pole signs are primarily finger-post signs providing directions to and from the station. Pole signs will also be used with ‘flag’ attachments to identify bus stops, taxi ranks, kiss and ride areas etc.

Lighting

Street lighting and public domain pole top lighting (see Figure 6.2.9) will be supplemented with amenity lighting, such as lighting to bleachers, seating blocks and other landscape

features. Uplighting to trees will not be provided due to the Station's location under the flight path.

Key features of the lighting includes:

- Promote a memorable, consistent and high quality experience
- Enable safe and intuitive circulation through the public domain
- Reinforce the visibility of the Station entrances as welcoming elements within the local context with feature lighting in the primary plazas
- All lighting will be located to minimise glare and obtrusive light
- Enhance safety and wellbeing by providing lux levels to achieve facial recognition
- Integrate with public art and feature landscape areas via the station specific colour lighting
- LED lighting strips will be integrated into key landscape features where appropriate

Figure 6.2.9: WEEF RMT G300 plaza lighting

Sensitive Urban Design

Water sensitive urban design (WSUD) involves a more integrated approach to the urban water cycle than conventional methods of storm water design. At Sydenham, the design aims to control and treat water throughout the public domain through a series of natural processes.

The WSUD initiatives proposed in the public domain include the following (read in conjunction with Figure 6.2.10):

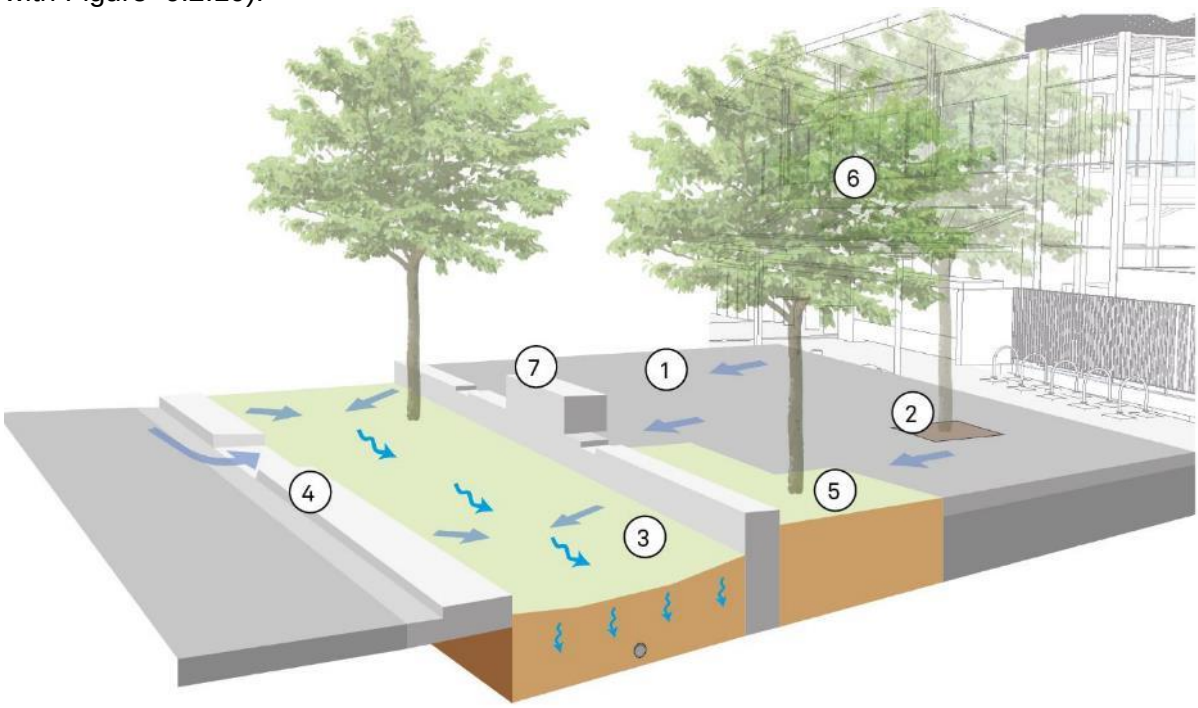


Figure 6.2.10: Axonometric diagram of WSUD on Burrows Ave & southern plaza

6.3. Paving Drainage

Plazas are graded, where possible, to allow run off to be directed to planting beds and tree grates, allowing the planting to take advantage of storm water runoff.

1. Tree Grates

Where the design allows, permeable tree grates will be provided at the base of trees. The tree grates will take advantage of levels and where possible paving falls will direct water flows to the trees.

2. Rain Garden/ Bio Swale

A rain garden/bio swale proposed along the southern edge of the southern plaza to utilise water from the plaza and adjacent section of Burrows Avenue.

3. Permeable Kerb

A permeable kerb on the northern side of Burrows Avenue adjacent to the southern primary plaza is being proposed to direct water from the road into the proposed raingarden on the southern edge of the plaza

4. Plant Selection

Endemic and drought tolerant plant species will be selected where possible.

5. Shade

Tree planting and Station canopies maximised to provide shade to the public domain to reduce near island effect.

6. Permeable Edge to Plazas

A permeable edge on the southern side of the plaza allows the plaza to drain into the rain garden.

Planting Strategy

Public Domain Street Trees

Trees for the streets adjacent to the Plazas have been selected to comply with the Marrickville Street Tree Master Plan as follows. They will be planted at 400 litre size.

- Railway Parade - Tristaniopsis laurina (Water Gum)
- Sydenham Road - Lophostemon confertus (Brush Box)
- Burrows Avenue - Tristaniopsis laurina (Water Gum)
- Bolton Street - Lophostemon confertus (Brush Box)

Plaza Trees

Plaza trees, planted at 400 and 800 litre sizes where available, in the primary plaza will identify the Metro Station entries and assist with orientation. Feature trees have been selected for the plazas. From the options referenced in the Marrickville Street Tree Master Plan we have selected:

- *Zelkova serrata 'Green Vase'* (Japanese Zelkova)

Understorey Planting

The design includes a preliminary planting list for the understorey planting which has been based on using endemic species where possible to encourage biodiversity and meet the requirements of Inner West Council guidelines.

Plants will be planted in either single species mass planting arrangements or structured groupings of plant species that are consistent in height and character. Understorey plants will be setback from planter bed edges so that plants when established do not spill out onto pedestrian paths or roads. Plants will be selected so that they do not include fruits, spikes or seeds that will cause a hazard to pedestrians or cyclists in the locations that they are planted. Understorey planting have been selected to generally have a maximum height lower than 1m in areas that require clear sightlines across the plazas to meet CPTED guidelines.

All groundcovers and grasses will have a minimum 140mm diameter container size when planted and will be planted at a density of six (6) plants/m2. All shrubs will have a minimum 140mm diameter container size when planted and will be planted at a density of three (3) plants/m2.

6.3.1. Sydenham Pit and Pumping Station Design Features

Sydenham Pit and Pumping Station 1 together is a state heritage listed landmark due to its rarity and historic value. Built between 1935 to 1941, the pit and pump station are an integral component to the Marrickville Low-Level Stormwater System, providing essential flood defence infrastructure to the Sydenham and Marrickville areas. Constructed using unskilled labourers funded by the Unemployment Relief Works, the installation is of an austere functional design featuring pitched dry packed ashlar sandstone lined pit walls and the utilitarian gabled concrete pump house. The NSW State Heritage Register noted the pit and pumping station is the first of such facilities in the Sydney Waters Corporation (SWC)'s asset one of only two examples of such in NSW. The pumping station is a representative example of interwar Mediterranean style architecture.

In response to the new Sydney Metro track alignment over the existing stormwater open culvert south of the pit, a new aqueduct is required to ensure the continual functionality of the storm water drainage and retention system and provide improved resilience to future climate change.

The aqueduct design includes the following components:

1. A new 120m long rectangular concrete aqueduct structure spanning in the east west direction across the Sydenham Pit at the southern side.
2. A new concrete pit access ramp at the northern side of Garden Street, providing heavy vehicular access for periodic pit maintenance;
3. The repurposing and modification of the existing pumping station;
4. A new concrete flume connection between the aqueduct and the pumping station;
5. A new access ramp providing vehicular access between the aqueduct and pumping station; and
6. New maintenance platform at the southern elevation of the pumping station.

The addition of the aqueduct and its associated works will have significant visual and physical impacts to the heritage fabric.

7. Implementation

7.1. Timing

Condition E101 states that the:

> …Elements covered by the SDPP(s) must be complete no later than the commencement of operation of the Sydney Metro to paid services, unless otherwise agreed with the Secretary.

The Sydenham Station and Junction and Pit and Pumping Station project is divided up into several packages and deliverable dates by portions and milestones that relate to areas, zones and works associated with different other contractor coordination and completion times. At a high level, this timing is:

Q4 2018 Submission of Design Stage 3 for early station works

Q1 2019 Remaining Stage 3 designs complete.

Q1 2019 Handover all works required to enable and segregate Transgrid suspended slab and tunnel

Q2 2019 Commencement of construction SDPP elements of the works

Q1 2020 Handover Sydney Water stormwater drainage works

Q2 2020 Commencement of landscaping and public art program

Q2 2021 Commencement of monitoring and maintenance of landscaping

Q3 2023 Commissioning of replacement computer based interlocking for Sydenham Junction, and transfer of Bankstown Line services to platforms 3 and 4.

Q1 2024 Handover of Metro shunt to the north of the cross over, north of Sydenham Station

Q1 2024 Handover of station services building and cable routes to the operator

Q2 2024 Construction completion and handover of all remaining project works except station services.

Q3 2024 Testing and commissioning of LV, Lifts, Earthing, Bonding and Electrolysis.

2024 Operation of Sydney Metro to paid services

7.2. Monitoring and maintenance of landscaping

The landscaping has been designed to optimise long-term maintenance. Irrigation shall be provided on an ongoing basis at primary and secondary plazas of stations.

Landscape maintenance would be continuous throughout operation of the project. The operator would be responsible for maintaining the landscaping in their licenced maintenance area to a high standard of health and appearance.

The following regular horticultural practices shall be carried out to ensure plants are maintained in a vigorous condition by the site operator.

- Watering: generally ensure that all planting is receiving sufficient water to ensure vigorous growth and maintained in a healthy condition
- Weed and pest control: eradicate all grass, weeds and pests from within planted area manually or with approved weedicides and insecticides and remove from site and use measures to prevent reinfestation
- Monitoring all plants and trees for pest and disease on a monthly basis
- Fertilising as appropriate to the species
- Replacement of plants: treat or replace damaged and dead plants and replace unhealthy or stolen plants to ensure minimum planting densities maintained
- Re-mulch as necessary to maintain mulched areas to the specified depths
- Litter and debris: ensure that the site is kept clean, free of litter, and general debris at all times
- Pruning of vegetation for safety with regards to operations of rail line, safety of public domain and CPTED surveillance

In addition, the selection and detailing of hard and soft landscape elements considers their durability in the public realm. While considering high quality materials that are robust, durability includes the maintenance requirements for those materials. For example, paving will achieve the required slip resistance and colour contrast to increase safety in the public domain, and be sealed to help mitigate staining and aid in cleaning.

7.3. Interchange Access Plan – Delivery and Implementation Program

The IAP sets out the intended design and operating outcomes required for customers to achieve an easy, safe and seamless transfer between modes at Sydenham Station. A number of actions have been identified to achieve these outcomes, and are summarised in the following table below.

Action		Delivered by	Timing (Start-Finish)
Walking			
W1	Review pedestrian facilities and entry treatments at the intersection of Lower Railway Parade and Sydenham Road.	Transport cluster[1]	2023 - 2025
W2	Provide safe access to the station from Lower Railway Parade and areas north/west along Sydenham Road via new signals on Sydenham Road close to the intersection of Lower Railway Parade.	Transport cluster	2018 - 2023
W3	Provide a pedestrian crossing on Burrows Avenue east of George Street, and investigate a raised crossing through the design process.	Transport cluster	2018 - 2023
W4	Provide a pedestrian facility on George Street at Burrows Avenue, with the type of facility determined through the detailed design process.	Transport cluster	2018 - 2023
W5	Ensure smooth transitions from new footpaths to existing footpaths in the station precinct.	Transport cluster	2018 - 2023
W6	Investigate widening the footpath on the southern side of Railway Parade between Gleeson Avenue and Sydenham Road, relocating the existing taxi zone to Burrows Avenue and upgrading existing bus shelter infrastructure near Gleeson Avenue (subject to clarification of heritage significance). Consider the potential to enhance possession bus operations and active transport facilities.	Transport cluster	2018 - 2020
W7	Investigate the feasibility and delivery options for modifying the layout at the intersection of Gleeson Avenue/Railway Parade to help improve network operations for all customers.	Transport cluster Inner West Council	2018 - 2023
W8	Investigate improvements to kerb ramps and kerb widening at the intersection of Gleeson Avenue/Burrows Avenue to help improve network operations for all customers.	Transport cluster Inner West Council	2018 - 2023
W9	Provide customer access through a combined plaza function at the northern and southern station entrances.	Transport cluster	2018 - 2023

Action		Delivered by	Timing (Start-Finish)
Cycling			
C1	Investigate the provision of a shared path along the western side of Gleeson Avenue between Railway Parade and Burrows Avenue (the bridge).	Transport cluster Inner West Council	2018 - 2023
C2	Provide at least 90 Class 2 bike spaces and 30 Class 3 bike spaces at the northern plaza on Railway Parade and the southern plaza to link with the cycle route on George Street, and retain the 36 existing spaces at the western station entrance.	Transport cluster	2018 - 2023
C3	Safeguard for a further 60 spaces (to total 180 new bike parks).	Transport cluster	2018 - 2023
C4	Investigate provision of a new cycle route from Gleeson Avenue/ Railway Parade (via new northern station entrance) to Marrickville Metro Shopping Centre via the Sydenham Pit.	Transport cluster	2018 - 2023
C5	Investigate the provision of a cycle route west along Marrickville Road East from Gleeson Avenue/Railway Parade.	Inner West Council	2018 - 2023
C6	Investigate cycle improvements on Burrows Avenue.	Transport cluster Inner West Council	2018 - 2023
C7	Further to condition E95.1 (to investigate the delivery of dedicated cycle connections between Sydenham Station and Marrickville Station, and include provision for delivery of opportunities identified), provide for the delivery of a potential shared path on Railway Parade.	Transport cluster	2018 - 2023
C8	Investigate cycle improvements on George Street from the station to Sydenham Green.	Transport cluster Inner West Council	2018 - 2023
Rail			
R1	Provide platform to platform interchange with existing Sydney Trains platforms at Sydenham Station via a new footbridge.	Transport cluster	2018 - 2023
Bus			
B1	Provide space to accommodate a new bus stop on Burrows Avenue and investigate widening of the footpath between George Street and Hogan Avenue to accommodate passenger waiting and pedestrian through movement.	Transport cluster	2018 - 2023

Action		Delivered by	Timing (Start-Finish)
B2	Provide bus stops on Railway Parade between Gleeson Avenue and the northern plaza, capable of accepting at least one 18-metre articulated bus and one 14.5-metre standard bus.	Transport cluster	2018 - 2023
B3	Investigate signal phasing to improve bus access leading from Burrows Avenue to Gleeson Avenue.	Transport cluster	2018 - 2023
B4	Investigate future potential bus route enhancements, for example new or extended routes that provide additional bus interchange options at the station.	Transport cluster	2018 - 2023
B5	Investigate the delivery of permanent measures on Railway Parade to manage rail replacement bus operations during possession periods.	Transport cluster	2018 - 2023
B6	Investigate the provision of signage and wayfinding to direct passengers to use the new northern plaza (an accessible path of travel) to access the bus stops.	Transport cluster	2018 - 2023
Taxi			
T1	Provide one taxi space on Burrows Avenue opposite George Street.	Transport cluster	2018 - 2023
T2	Investigate the provision of an additional car share space within the interchange precinct for use by a commercial car share provider.	Inner West Council	2018 - 2023
Kiss-and-ride			
KR1	Provide six kiss and ride bays on Burrows Avenue northbound, adjacent to the station plaza.	Transport cluster	2018 - 2023
KR2	Investigate the relocation of two kiss and ride spaces to Sydenham Road southbound, north of Lower Railway Parade.	Transport cluster	2018 - 2019

Action		Delivered by	Timing (Start-Finish)
Accessible and motorbike parking			
P1	Provide two accessible parking spaces on Bolton Street near the new southern metro entrance, with an accessible path of travel to the station.	Transport cluster	2018 - 2023
P2	Provide two motorbike parking spaces on Bolton Street near the new southern metro entrance.	Transport cluster	2018 - 2023
Management and maintenance			
OM1	Prepare an Interchange Operations and Maintenance Plan (IOMP) in accordance to the Interchange Operations and Maintenance Framework to allocate clear responsibility for all aspects of day-to-day running of the interchange, and to ensure that nominated infrastructure and assets in the interchange are monitored and maintained to a high standard. The IOMP will be developed in line with the detail design programme over the course of the next 12 months.	Transport cluster	2018 - 2019
OM2	Produce a parking study to manage the long-term impact on parking and other kerbside use in local streets.	Transport cluster	2024-2025
Road network modifications			
RN1	Investigate the modification of Railway Parade between Gleeson Avenue and Sydenham Road to two travel lanes and one bus lane with a short through lane at the intersection of Gleeson Avenue, in light of action W6.	Transport cluster	2018 - 2019
RN2	Investigate reducing the speed limit at Railway Parade and Sydenham Road to 50km/h.	Transport cluster Inner West Council	2018 - 2023
RN3	Investigate reducing the speed limit at Burrows Avenue to 40km/h.	Transport cluster Inner West Council	2018 - 2023
RN4	Investigate traffic calming measures on Burrows Avenue to slow heavy vehicles, for example lane narrowing, speed bumps or a reduction in posted speed limits.	Transport cluster Inner West Council	2018 - 2023
RN5	Investigate the provision of signalised pedestrian crossings on all legs of the intersection at Railway Parade and Gleeson Avenue.	Transport cluster Inner West Council	2018 - 2023

8. Visual impact assessment

A visual impact assessment was undertaken for the Chatswood to Sydenham project as part of the Environmental Impact Statement (EIS) and associated modification reports. This assessment was based on the concept design for the project.

Condition E102 requires the SDPP design to achieve a minimum visual impact rating of at least 'minor beneficial', as defined in the EIS, for all design elements of the project where feasible and reasonable. Where it can be demonstrated, to the DRP's satisfaction, that a 'minor beneficial' rating is not achievable, then a 'negligible' visual impact rating must be achieved as a minimum.

Using the methodology for the visual impact assessment used for the EIS, Refer Figure 8.0.1 below, the visual impact assessment has been updated based on the visual sensitivity and visual modifications from all relevant viewpoints of the elements of the design considered in this SDPP.

Visual change	Daytime visual sensitivity				
	National	State	Regional	Local	Neighbourhood
Considerable reduction	Very high adverse	Very high adverse	High adverse	Moderate adverse	Minor adverse
Noticeable reduction	Very high adverse	High adverse	Moderate adverse	Minor adverse	Negligible
No perceived change	Negligible	Negligible	Negligible	Negligible	Negligible
Noticeable improvement	Very high beneficial	High beneficial	Moderate beneficial	Minor beneficial	Negligible
Considerable improvement	Very high beneficial	Very high beneficial	High beneficial	Moderate beneficial	Minor beneficial

Figure 8.0.1: Daytime Visual Impacts. Source: Table 16-2 Sydney Metro Chatswood to Sydenham from the EIS Modification Report

8.1. Sydenham Station

The visual assessment in the EIS modification report identified that the daytime visual impacts for Sydenham Station would result in mostly 'negligible' and 'minor beneficial' visual impacts on the five viewpoints assessed. Refer Figure 8.1.1 for a summary of the daytime visual impact assessments that were determined in the EIS modification report from each of the viewpoints identified in Figure 8.1.2.

Location	Sensitivity rating	Construction		Operation	
		Visual change	Visual impact	Visual change	Visual impact
Viewpoint 1 View north-east from Railway Parade	Local	Noticeable reduction	Minor adverse	Noticeable improvement	Minor beneficial
Viewpoint 2 View south-east from Sydenham Road	Neighbour-hood	Considerable reduction	Minor adverse	Considerable improvement	Minor beneficial
Viewpoint 3 View south-west from Railway Parade	Neighbour-hood	N/A	N/A	Considerable improvement	Minor beneficial
Viewpoint 4 View north-west from Hogan Avenue	Neighbour-hood	Considerable reduction	Minor adverse	Noticeable improvement	Negligible
Viewpoint 5 View north-east along Burrows Avenue	Local	Noticeable reduction	Minor adverse	Noticeable reduction	Minor adverse

Figure 8.1.1: Extract from 'Daytime Visual Impacts. Source: Figure 16-10 from the EIS Modification Report

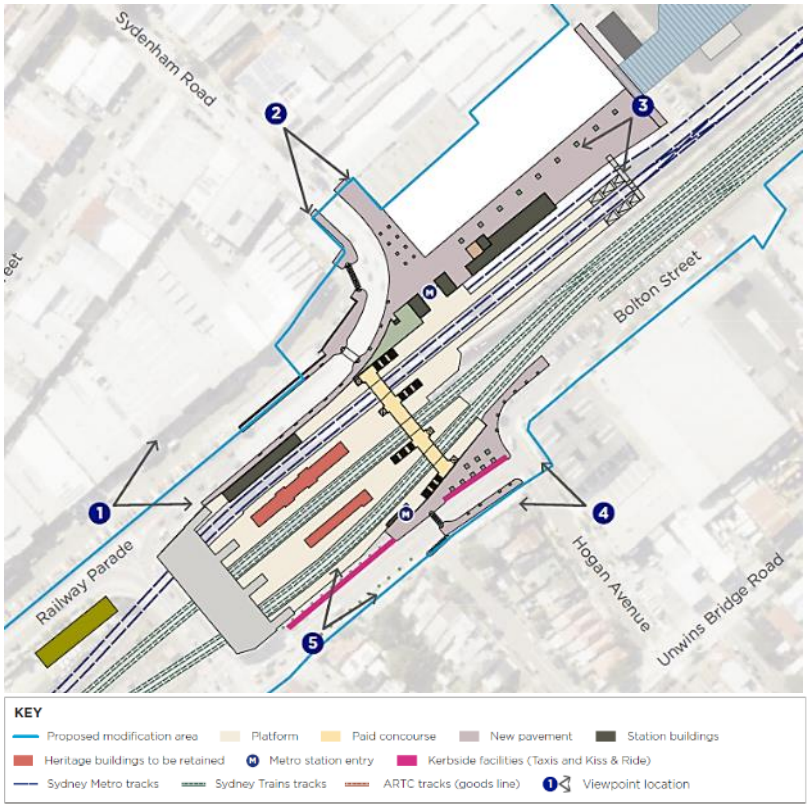


Figure 8.1.2: Representative viewpoints for Sydenham Station. Source: Figure 16-1 from the EIS Modification Report

Viewpoint 1 – View north-east from Railway Parade

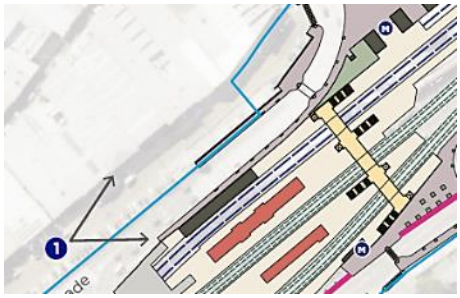


Figure 8.1.3: Viewpoint 1 – Location plan

Figure 8.1.4: Viewpoint 1 - Existing

Figure 8.1.5: Viewpoint 1 - SDPP design

In the EIS Modification Report, Viewpoint 1 was assessed as **'Local'** in terms of visual sensitivity.

The SDPP Station design from this viewpoint contributes positively to the existing streetscape through:

- the provision of new street trees, bus shelters, paving on Railway Parade
- a new urban plaza, trees, furniture and planting
- the new Metro entry, bridge and platform canopies

This results in a **'Noticeable Improvement'** compared to the existing condition.

Visual Impact Assessment achieved - **'Minor Beneficial'** rating.

Viewpoint 2 – View south-east from Sydenham Road

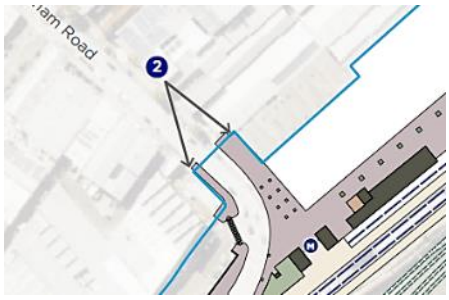


Figure 8.1.6: Viewpoint 2 – Location plan

Figure 8.1.7: Viewpoint 2 - Existing

Figure 8.1.8: Viewpoint 2 - SDPP design

In the EIS Modification Report, Viewpoint 2 was assessed as **'Neighbourhood'** in terms of visual sensitivity.

The SDPP Station design from this viewpoint contributes positively to the existing streetscape through the provision of:

- a new urban plaza, trees, furniture and planting
- new Metro entry, retail and bridge canopies
- reduction in the amount of road pavement
- reduction in the visibility of the rail infrastructure

This results in a **'Considerable Improvement'** compared to the existing condition.

Visual Impact Assessment achieved - **'Minor Beneficial'** rating.

Viewpoint 3 – View south-west from Railway Parade

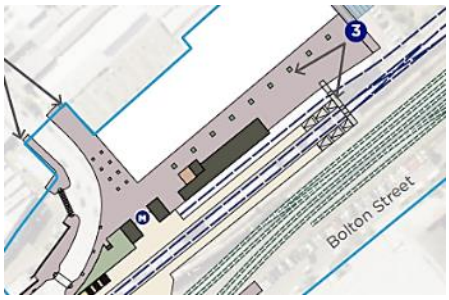


Figure 8.1.9: Viewpoint 3 – Location plan

Figure 8.1.10: Viewpoint 3 – Existing

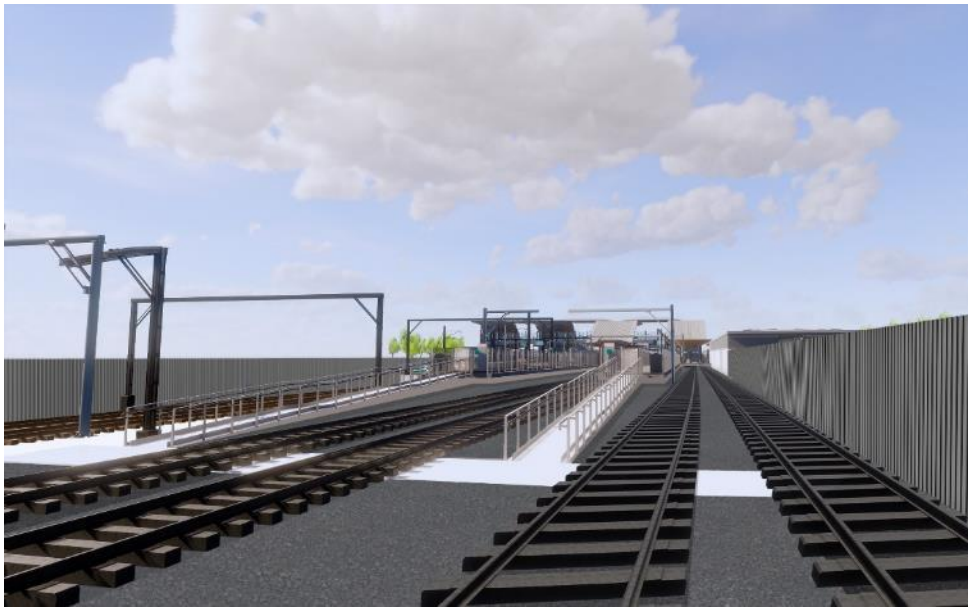


Figure 8.1.11: Viewpoint 3 - SDPP design

In the EIS Modification Report, Viewpoint 3 was assessed as **'Neighbourhood'** in terms of visual sensitivity. However, this viewpoint will be located on the new metro rail tracks so will not be a public viewpoint.

The view of the SDPP design from this viewpoint will be of:

- the new metro rail tracks, platforms and canopies
- the temporary fenced asphalt and grassed area, which is the Sydney Water access route to the Sydenham pit and pumping station (not publically accessible), will be visible through the rail security fence
- the new Metro service building, canopies and northern plaza trees will be visible in the distance through the rail security fence

This would result in a **'Noticeable Improvement'** compared to the existing condition due to the introduction of grassed areas and the view of the northern plaza plantings in the distance.

Visual Impact Assessment achieved - **'Negligible'** rating.

Viewpoint 4 – View north-west from Hogan Avenue

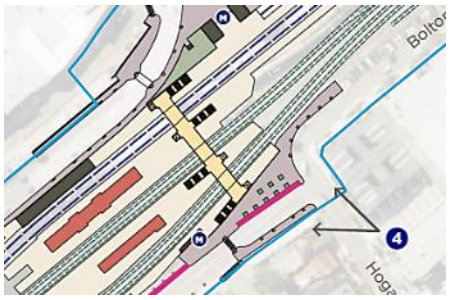


Figure 8.1.12: Viewpoint 4 – Location plan

Figure 8.1.13: Viewpoint 4 - Existing

Figure 8.1.14: Viewpoint 4 - SDPP design

In the EIS Modification Report, Viewpoint 4 was assessed as **'Neighbourhood'** in terms of visual sensitivity.

The SDPP Station design from this viewpoint contributes positively to the existing streetscape through the provision of:

- a new urban plaza, trees, furniture and planting
- new Metro entrance canopy
- reduction in the amount of road pavement
- reduction in the visibility of the rail infrastructure

This results in a **'Considerable Improvement'** compared to the existing condition.

Visual Impact Assessment achieved - **'Minor Beneficial'** rating.

Viewpoint 5 – View north-east along Burrows Avenue

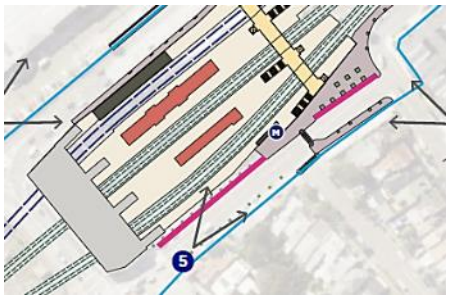


Figure 8.1.15: Viewpoint 5 – Location plan

Figure 8.1.16: Viewpoint 5 - Existing

Figure 8.1.17: Viewpoint 5 - SDPP design

In the EIS Modification Report, Viewpoint 5 was assessed as **'Local'** in terms of visual sensitivity.

The SDPP Station design from this viewpoint contributes positively to the existing streetscape through the provision of:

- new Metro entrance and canopy
- reduction in the visibility of the rail infrastructure
- a new urban plaza, trees, furniture and planting

This results in a **'Noticeable Improvement'** compared to the existing condition.

Visual Impact Assessment achieved - **'Minor Beneficial'** rating.

The visual impact assessment of the SDDP station design at each of viewpoints 1-5 is summarised in Figure 8.1.18.

Location	Sensitivity Rating	Visual Change	Visual Impact
Viewpoint 1	Local	Noticeable improvement	Minor beneficial
Viewpoint 2	Neighbourhood	Considerable improvement	Minor beneficial
Viewpoint 3	Neighbourhood	Noticeable improvement	Negligible
Viewpoint 4	Neighbourhood	Considerable improvement	Minor beneficial
Viewpoint 5	Local	Noticeable improvement	Minor beneficial

Figure 8.1.18: Visual Impact Assessment Table: Sydenham Station – SDDP design

8.2. Sydenham Pit and Aqueduct

The visual assessment in the modification report identified that the daytime visual impacts for viewpoints of the Sydenham Pit and Aqueduct would result in negligible and moderate adverse visual impacts on the viewpoints assessed. Refer Figure 8.2.1 for the daytime visual impacts from each of the Sydenham Pit and Aqueduct viewpoints (5, 6 and 11) identified in Figure 8.2.2.

Location	Sensitivity rating	Approved project		Proposed modification	
		Visual change	Visual impact	Visual change	Visual impact
Viewpoint 5 View north from Bolton Street	Neighbour-hood	No perceived change	Negligible	No perceived change	Negligible
Viewpoint 6 View north-east along Railway Parade	Neighbour-hood	Noticeable reduction	Negligible	Noticeable reduction	Negligible
Viewpoint 11 View from path between Shirlow Street and Sydney Steel Road	Local	N/A	N/A	Considerable reduction	Moderate adverse

Figure 8.2.1: Extract from 'Daytime Visual Impacts Source: Extract from Table 16-12 from the EIS Modification Report

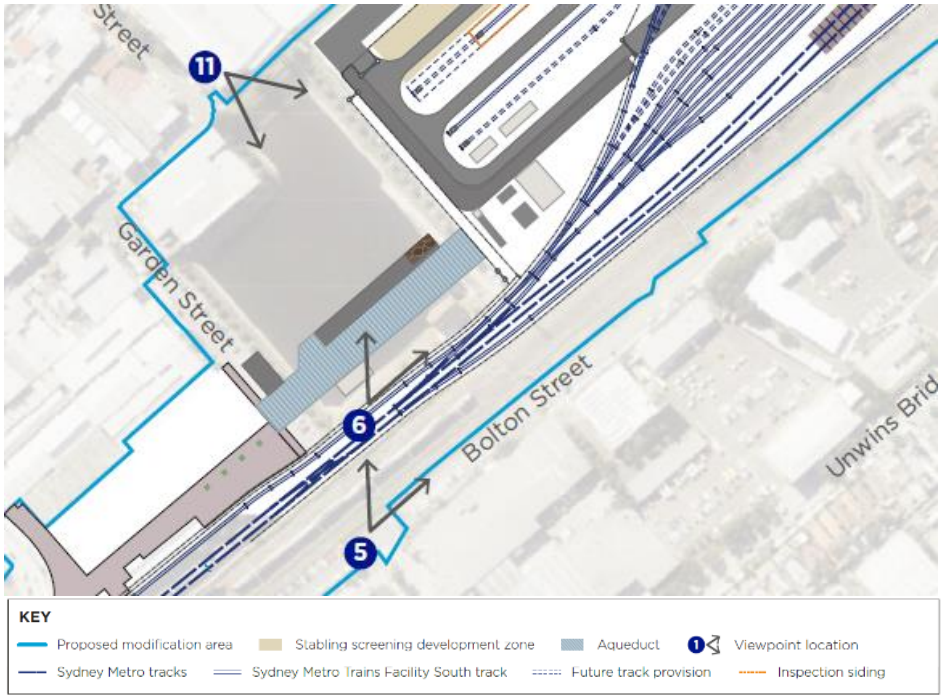


Figure 8.2.2: Extract from 'Representative viewpoints for Sydenham Pit and Aqueduct. Source: Figure 16-2 from the EIS Modification Report

Viewpoint 5 – View north from Bolton Street

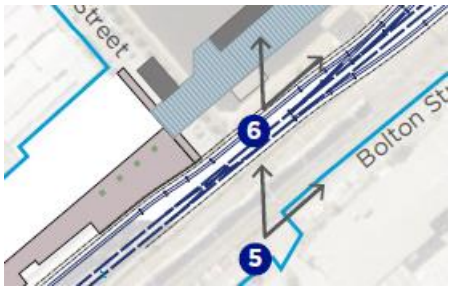


Figure 8.2.3: Viewpoint 5 – Location plan

Figure 8.2.4: Viewpoint 5 - Existing

Figure 8.2.5: Viewpoint 5 - SDPP design (no perceived change)

In the EIS Modification Report, Viewpoint 5 was assessed as **'Neighbourhood'** in terms of visual sensitivity.

The SDPP Sydenham Pit and Aqueduct design from this viewpoint would not be visible.

This results in a **'Negligible'** visual change compared to the existing condition.

Visual Impact Assessment achieved - **'Minor Beneficial'** rating.

Viewpoint 6 – View north-east along Railway Parade

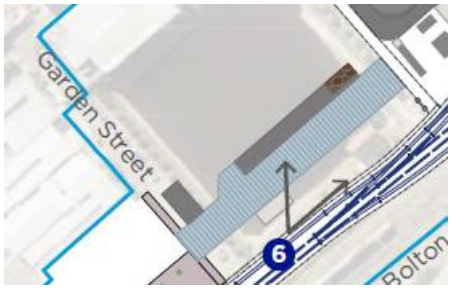


Figure 8.2.6: Viewpoint 6 – Location plan

Figure 8.2.7: Viewpoint 6 - Existing

Figure 8.2.8: Viewpoint 6 - SDPP design

In the EIS Modification Report, Viewpoint 6 was assessed as **'Neighbourhood'** in terms of visual sensitivity.

This results in a **'Noticeable Reduction'** in terms of visual change compared to the existing condition due to:

- the construction of a new aqueduct across the pit;
- relocation of vehicle access ramp to the northern embankment of the pit; and
- the removal of the Oleanders from the southern embankment of the pit as a result of the construction of retaining walls for the new Metro rail tracks on the view of the pit and pumping station from this viewpoint.

However, the visual impact of the changes is an improvement compared to the EIS design due to the removal of the pit access ramp from the aqueduct and building a new pumping station building is no longer required

Visual Impact Assessment achieved - **'Negligible'** rating.

Viewpoint 11 – View from path between Shirlow Street and Sydney Steel Road

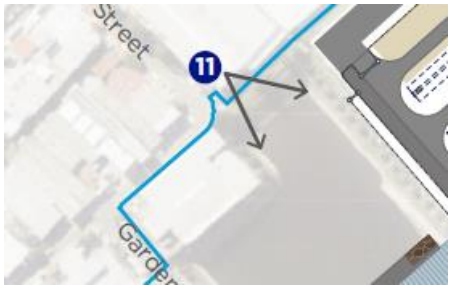


Figure 8.2.9: Viewpoint 11 – Location plan

Figure 8.2.10: Viewpoint 11 - Existing

Figure 8.2.11: Viewpoint 11 - SDPP design

In the EIS Modification Report, Viewpoint 11 was assessed as **'Local'** in terms of visual sensitivity.

This results in a **'Noticeable Reduction'** in terms of visual change compared to the existing condition due to the impact of the new aqueduct on the view of the pit and pumping station from this viewpoint.

However, the visual impact of the changes is an improvement compared to the EIS design due to the removal of the need to build a new pumping station building and the relocation of the proposed vehicle access ramp on the northern side of the aqueduct to a new location on the northern embankment of the pit.

Visual Impact Assessment achieved - **'Minor Adverse'** rating.

The visual impact assessment of the SDDP Sydenham Pit and Aqueduct design at each of viewpoints 5.6 and 11 is summarised in Figure 8.2.12.

Location	Sensitivity Rating	Visual Change	Visual Impact
Viewpoint 5	Neighbourhood	No perceived change	Negligible
Viewpoint 6	Neighbourhood	Noticeable reduction	Negligible
Viewpoint 11	Local	Noticeable reduction	Minor adverse

Figure 8.2.12: Visual Impact Assessment Table: Sydenham Pit and Aqueduct – SDDP design

8.3. Review by DRP

The above Visual Impact Assessment visualisations and ratings for the Sydenham Station precinct and Sydenham pit and pumping station were presented to the DRP at the 16 October 2018 DRP meeting. Although some individual elements of the SDPP did not achieve a minor beneficial rating, the VIA concluded that the SDPP design achieves an overall minimum visual impact rating of 'minor beneficial'. Refer Appendix B – Evidence of review by the Design Review Panel.

Appendix A How feedback from consultation has been addressed

Consultations with key stakeholders of the Sydenham Station Works were undertaken throughout the Design Stages. Comments are recorded in meeting minutes. Comments and actions were addressed in each design phase.

The following table lists the consultations and details how the feedback received during consultation with the stakeholders and the community has been addressed in the SDPP.

Item	Date	Stakeholder	Key Themes / Issues Raised	How addressed in the plan
1	15/11/2016	DRP	- Flooding - Station Canopy - Services	This meeting with DRP occurred prior to JHLOR being engaged. Comments were received by Sydney Metro for consideration in the reference design.
2	22/5/2017	DRP	- Reference Design review	This meeting with DRP occurred prior to JHLOR being engaged. Comments were received by Sydney Metro for consideration in the reference design.
3	10/10/2017	DRP	- Station Design - Station Canopy - Adaptive Reuse of heritage buildings - Sydenham Pit	Comments have been minuted and addressed in the detailed design which informed this SDPP in Section 5 and Section 6.
4	21/11/2017	DRP	- Station Canopy - Lifts/Stairs - Public Domain	Comments have been minuted and addressed in the detailed design which informed this SDPP in Section 6
5	19/12/2017	DRP	- Project Integration with locality - Urban Design and Canopy - Heritage Buildings	Comments have been minuted and addressed in the detailed design which informed this SDPP in Section 5.4 and Section 6.
6	20/3/2018	DRP	- Plazas - Road network design	Comments have been minuted and addressed in the detailed design which informed this SDPP in Section 6
7	10/04/2018	Sydney Trains Working Group Attended by representatives from Sydney Trains, Sydney Metro, JHLOR, DJV and AJV.	- Toilets - Parking - Ticketing - Fire Systems - Stairs/handrails - Heritage	Comments have been minuted and addressed in the detailed design which informed this SDPP in Section 5.4 and Section 6.

Item	Date	Stakeholder	Key Themes / Issues Raised	How addressed in the plan
8	03 - 04 / 2018	Community Engagement by Customer Centred Design (CCD) team with participation from Sydney Metro, JHLOR, DJV and AJV	- General Urban Design - Public Art - Toilets - Canopy Design/shelter - Accessibility - Seating	The summary of the key findings are contained in Section 3.1 of this SDPP. Further design development continued which informed this SDPP in Section 6.
9	07/05/2018	Heritage Working Group Attended by Sydney Metro, JHLOR, DJV and AJV	- Adaptive Reuse of station buildings - Salvage requirements - Canopy design - Aqueduct and pumping stations	No formal comments were received. Further design development continued which informed this SDPP in Sections 5.3 and 5.4
10	15/5/2018	DRP	- Northern Plaza - Viaduct	Comments have been minuted and addressed in the detailed design which informed this SDPP in Section 6.1
11	19/6/2018	DRP	- Plazas - Concourse - Lighting - Materials - Precinct access and parking	Comments have been minuted and addressed in the Design which informed this SDPP in Section 6
12	02/07/2018	Heritage Working Group Attended by Sydney Metro, JHLOR, DJV and AJV	- Adaptive Reuse of station buildings - Salvage requirements - Canopy design - Aqueduct and pumping stations	No formal comments were issued received. Further design development continued which informed this SDPP in Section 5.4 and Section 6
13	17/07/2018	Sydney Trains Working Group Attended by representatives from Sydney Trains, Sydney Metro, JHLOR, DJV and AJV.	- Demolition of Platforms 1 and 6 buildings and salvage - Reuse of heritage buildings - Station GA - Wayfinding and CPTED - Planting	No formal comments were received. Further design development continued which informed this SDPP in Section 5.4 and Section 6.
14	7/8/2018	DRP	- Overall design - Bike storage	Comments have been minuted and addressed in the Design which informed this SDPP in Section 6.
15	08/08/2018	Heritage Working Group Attended by Sydney Metro, JHLOR, DJV and AJV	- Heritage Interpretation Strategy - Heritage Impact Assessment for Sydenham Pit and Sydenham Station	No formal comments were received. Further design development continued which informed this SDPP and the Heritage Interpretation Plan referred to in Section 5.3
16	21/08/2018	Inner West Council engagement	- Roads and bridge finishes - Trees and line of sight - SSJ requested council to make formal comment on Stage 1 and 2 designs that were issued.	No formal comments received. Further design development continued which informed this SDPP in Section 6.2

Item	Date	Stakeholder	Key Themes / Issues Raised	How addressed in the plan
17	11/09/2018	Heritage Working Group Attended by Sydney Metro, JHLOR, DJV and AJV	- Materials conservation and salvage register - Design update on the Sydenham Station Precinct and the Sydenham Pit	No formal comments received. Further design development continued which informed this SDPP in Section 5.4
18	11/09/2018	Sydney Trains Working Group Attended by representatives from Sydney Trains, JHLOR, DJV and AJV.	- General design update - Adaptive reuse of Platform 2/3 and 4/5 buildings - Southern entry - Materials and finishes	Comments have been minuted and addressed. Further design development continued which informed this SDPP in Sections 5.4 and 6.2
19	12/09/2018	Inner West Council engagement	Sydenham Masterplan briefing	No formal comments received.
20	18/09/2018	Inner West Council engagement	General design update	No formal comments received.
21	16/10/2018	DRP	- Presentation of SDPP template - Visual impact assessment	Section 8 updated
22	18/10/2018	TSOM (Train, Systems, Operations and Maintenance) interface with MTR	- Platform screen doors - Gates	Comments have been minuted and addressed. Further design development continued which informed this SDPP in Section 6.
23	24/10/2018 28/11/2018	Inner West Council engagement	Copy of SDPP sent to council for review. Follow up correspondence sent on 28/11/2018.	IWC acknowledged receipt and advised they would provide comment if they had any. No formal comments received.
24	18/12/2018	DRP	Viewpoints DRP endorsement of the plan	Viewpoints identified by the DRP as needing further refinement were amended in Section 8 and re-presented to the DRP for their endorsement. As per the statement made by the last DRP meeting on the 18 Dec '18, '*Subject to the comments provided by Panel members, and the notes above, the Panel endorses the Sydenham Station Design and Precinct Plan*'. The 'subject to…' statement refers to the corrected viewpoints to show existing infrastructure that will not

Item	Date	Stakeholder	Key Themes / Issues Raised	How addressed in the plan
				be changed, such as power poles, street signs and the like. These views (images) have been amended and now included and have therefore addressed all of the 'subject to' conditions. The DRP endorsed the plan which confirms all previous comments and issues have been addressed.

Appendix B Evidence of review by the Design Review Panel

REDACTED – CAN BE PROVIDED ON REQUEST

Appendix C Qualifications and Experience of the author(s) who prepared this plan

Author(s)

Julieanne Boustead

Curriculum vitae

Julieanne Boustead

Principal, HASSELL
Julieanne joined the firm in January 1994 and has over 25 years experience in the design and implementation of a wide range of complex landscape architectural projects. Following three years in the HASSELL London studio, Julieanne returned to the Sydney studio in July 2014.

Julieanne is a specialist in master planning and design of major public domain and parkland projects. She has particular expertise in managing multidisciplinary teams to successfully deliver complex urban landscape architectural projects. Many of the projects she has been responsible for have been recognised by awards.

Qualifications
_BPD, Melbourne University
_MLA, Melbourne University

Professional affiliations
_Registered Landscape Architect, Australian Institute of Landscape Architects, #1285

Project experience
Infrastructure
_North West Rail Link, Sydney, Australia
Public Domain
_Darwin City Waterfront Public Domain, Northern Territory, Australia
_Macquarie University Central Courtyard, Sydney, Australia
_Fox Studios Public Domain, Sydney, Australia
_Broadway Gateway Project, Sydney, Australia
_ATP Building D, Sydney, Australia
_Luna Park Redevelopment, Sydney, Australia
_Riverbank Plaza, Adelaide, Australia
_Commonwealth Law Courts, Melbourne, Australia
_Darling Walk Competition, Sydney, Australia
_Federation Square Design Competition, Melbourne, Australia
_Suva Foreshore Masterplan, Fiji
_Brisbane Northbank Tender, Australia

Parklands
_Wentworth Common Regional Playground, Sydney, Australia
_Turruwul Park, Sydney, Australia
_Centennial Parklands Ponds Remediation, Sydney, Australia
_Blaxland Common Master Plan, Sydney, Australia
_Newington Armory Master Plan, Sydney, Australia
_Luna Park Cliff Top Park, Sydney, Australia
_Newington Armory Pedestrian Bridge, Sydney, Australia
_Sydney Olympic Parklands Concept Plan, Australia
_Hill Road Corridor Wetlands, Sydney
_Waterfront Park, Jacksons Landing, Sydney, Australia
_Escarpment and Knoll Parks, Sydney, Australia
_Rouse Hill Regional Park, Sydney, Australia
_Bicentennial Park Boardwalk Upgrade, Sydney, Australia
_Narrawang Wetland Dipnetting Platforms, Sydney, Australia
Master Planning
_Australian Technology Park Landscape Master Plan, Sydney, Australia
_Cooks Cove Master Plan, Sydney, Australia
_Campus Homebush Master Plan, Sydney, Australia
_Bate Bay Coastline Study, Sydney, Australia
_Vintage Resort Landscape Master Plan, Cessnock, Australia
_Commonwealth Games Village Master Plan, Melbourne, Australia

Ross de la Motte

Curriculum vitae

Ross de la Motte

Principal, HASSELL
Ross is a Principal of HASSELL and the international leader of Urban Transport. As an architect and landscape architect he is uniquely placed to direct, design and deliver complex, large scale urban development, renewal and infrastructure projects.

His specialised expertise is in urban design, master planning, transport and infrastructure projects, interpretive design and mixed use development.

His experience embraces signature urban development and transportation projects throughout Australia, New Zealand and South East Asia including Fox Studios Moore Park, Homebush Bay Urban Infrastructure, Civic Place Parramatta, Homebush Bay Rail Link and Olympic Park Station, Dee Why Town Centre, Cross City Tunnel, South West Rail Link and the multi-award winning Epping to Chatswood Rail Link and Parramatta Transport Interchange projects.

He is currently leading the architecture and urban design of Sydney Metro North West OTS PPP on behalf of Northwest Rapid Transit and the Reference Design for Sydney Metro City and Southwest on behalf of TfNSW.

Ross aspires to make memorable, sustainable places for people of lasting beauty and meaning.

Qualifications
- BArch (Hons.1) (University Medal), University of Technology Sydney
- BLArch (Hons. 1), University of New South Wales

Professional affiliations
- Registered Architect, NSW Architects Registration Board #7398
- Registered Landscape Architect, Australian Instititute of Landscape Architects #010
- Member, Royal Australian Institute of Architects
- Fellow, Australian Institute of Landscape Architects
- President, Australian Institute of Landscape Architects, NSW State Group 1991-93
- President, Australian Institute of Landscape Architects, SA State Group 1985-87
- Secretary/Treasurer, Australian Institute of Landscape Architects SA State Group 1981-83

Professional experience
- 2002–2011 Director, HASSELL
- 2005–2009 & 2011-2012 Managing Principal, Sydney, HASSELL
- 1990–current, Principal, HASSELL
- 1987–1990 Director, Land Systems EBC
- 1984–1987 Associate, Land Systems EBC
- 1980–1984, Landscape Architect, Public Buildings Department, South Australia

Appointments
- 2013 NSW Creative Industries Taskforce
- 2012 – 2014 Project Review Panel, Landcom/ Urban Growth, NSW
- 2010–2013 Director, Consult Australia

Design awards

Epping to Chatswood Rail Link
Sydney, Australila
- 2010 Australian Institute of Architects (National) Awards – Sir Zelman Cowan Award for Public Architecture
- 2010 Australian Institute of Architects (NSW) Awards – Sir John Sulman Medal for Public Architecture
- 2009 Australian Institute of Architects (NSW) Awards – Premier's Prize

Parramatta Transport Interchange
Sydney, Australia
- 2006 Royal Australian Institute of Architects (NSW) Awards – Premier's Award

Selected Project experience
- Sydney Metro Central Station Main Works Bid, Australia
- Melbourne Metro Tunnel and Stations PPP, Australia
- Sydney Metro City and South West, Concept and Reference Design, Australia
- Capital Metro Light Rail, Concept, Urban Design Handbook and Reference Design, Canberra, Australia
- Sydney Metro North West, OTS PPP, Australia
- Albert Tibby Cotter Bridge , Moore Park, Sydney, Australia
- Sydney CBD and South East Light Rail, Concept & Reference Design, Australia
- WestConnex Business Case, Urban Renewal Framework, Sydney, Australia
- WestConnex Urban Design Guidelines, Sydney, Australia
- Biome, Royal Botanic Garden, Sydney, Australia
- North West Rail Link, Master Planning and Urban Design, Sydney, Australia
- Making Interchange Places, TfNSW Product Strategy, Sydney, Australia
- Western Express, Sydney, Australia
- Sydney Metro Network, CBD and West Metro, Concept and Reference Design, Australia
- Dee Why Civic Centre, Sydney, Australia
- North West Metro, Feasibility, Sydney, Australia
- Dee Why Town Centre Master Plan, Sydney, Australia
- South West Rail Link, Sydney, Australia
- Brisbane Inner City Rail Capacity Study, Australia
- Civic Place Parramatta, Concept Design, Sydney, Australia
- Parramatta Transport Interchange, Sydney, Australia
- Circle Line, Contract 870C, Singapore
- North West Rail Link, Station Concept Design, Sydney, Australia
- Epping to Chatswood Rail Link, Intermediate Stations, Sydney, Australia
- Town Hall Station, Concept Design, Sydney, Australia
- Station Design Guide, RailCorp, Sydney, Australia
- Perth Metro Rail, Australia
- Liverpool-Parramatta Transitway, Sydney, Australia
- Fox Studios, Moore Park, Sydney, Australia
- Homebush Bay Public Domain, Sydney, Australia
- Cross City Tunnel, Sydney, Australia
- Homebush Bay Rail Link/ Olympic Park Station, Sydney, Australia
- Parramatta Rail Link, Concept Design and EIS, Sydney, Australia
- Woronora River Bridge, Sydney, Australia