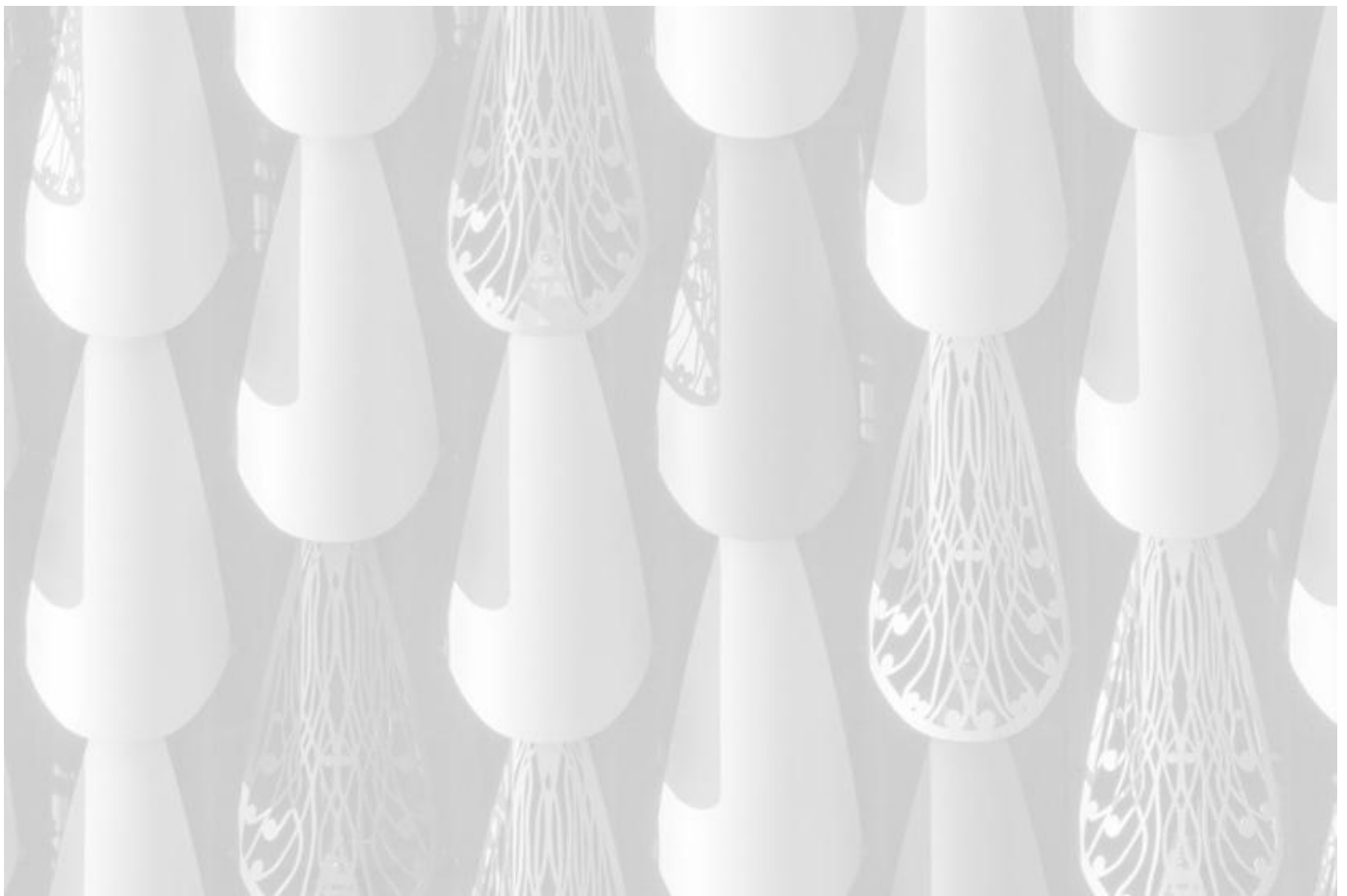




Waterloo Station Pre-Construction Report Reference Design



Prepared for:

Greater Wellington Regional Council

Version 2

18 / 08 / 2025

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1. Introduction

Waterloo Station is a principal rail station for the Lower Hutt Area and serves a catchment extending from the Lower Hutt City CBD to Wainuiomata. Train services on the Hutt Valley Line and Wairarapa Line both stop at the Station, and multiple bus stops are located on both sides of the station. An underpass below the Station links Trafalgar Square on the west with Oxford Terrace, providing a key east-west pedestrian connection, while also offering cross-track access to both Station platforms.

As part of its broader Regional Transport Plan, Greater Wellington Regional Council [GWRC] intend to upgrade Waterloo Station, replacing aging infrastructure while also including commercial and community spaces, delivering the wider outcomes of GWRC's Transport-Oriented Development strategy.

Various schemes and designs have been considered as part of the ongoing Reference Design phase. An optioneering and multi-criteria analysis has been completed to determine the preferred option for the Reference Design. The Reference Design includes the following features:

- ♦ Upgrade the existing rail platforms and shift and align the southbound platform to be opposite the northbound platform
- ♦ New bus interchange on the eastern side of the station
- ♦ New canopies and shelters for bus and rail passengers
- ♦ New commercial building to replace the existing small commercial building on the site
- ♦ A new overpass to provide a connection across the rail line
- ♦ New pedestrian crossing point on Cambridge Terrace
- ♦ Decommissioning of the existing underpass
- ♦ Demolition of the existing canopy and commercial building

This report assesses and identifies downstream programme and constructability challenges, detailing those to be addressed and confirmed during subsequent design stages.

2. Construction Staging

Staging Overview

The staging has been arranged to maintain the operational serviceability of the station. This includes working in distinct work zones away from members of the public and transit passengers. There are several options to deliver the works, the drivers of which will be assessed and verified as the design develops. The current construction project focuses on upgrading platforms and canopies, as well as reorienting the bus interchange.

The commercial development, overpass and TOD following the platform upgrade are sequenced to occur in the later stages, allowing the greatest flexibility as to when GWRC may wish to carry out these works. Stages 4, 5 & 6 can be delivered at a later point and are not essential for the successful delivery of Stages 1, 2 & 3.

Sequencing

Stage 1 – Temporary Platform Construction, Platform Upgrade & Bus Interchange

- 1) Site Establishment, including the repurposing of part of the public carpark on Oxford Terrace for a construction laydown and access point. The existing platforms are temporarily reduced in length by approximately 30%.
- 2) The SW end of the existing platforms on both sides of the rail tracks is lifted and widened. Additionally, temporary platforms are constructed to the southwest of the existing platforms. This will provide the minimum platform length in the next stage. The new platform canopies are constructed.
- 3) A smaller section of the existing platform extending from the SW to the existing underpass ramp is also upgraded. This construction site is set back from the platform edge, enabling passengers to continue to utilise the platform.
- 4) The public carpark on Cambridge Terrace is closed, and construction of approximately half of the bus interchange is completed. This work occurs simultaneously with items (2) and (3) above.

Stage 2 – Platform Construction, Demolition & Cambridge Terrace Entrance Construction

- 1) After the completion of Stage 1, the active platform location is shifted SW to the recently constructed permanent and temporary platforms. Access from the underpass ramps to the revised platform remains open.
- 2) The Bus Interchange is relocated to the SW, and the permanent Bus Interchange is opened in a temporary arrangement. This interchange is used by both buses and public vehicles, albeit in distinct and separate drop-off/pick-up areas. A section of the carpark on Cambridge Terrace is closed and utilised as a construction laydown.
- 3) The remaining half of the Oxford Terrace carpark is closed and construction laydown is expanded. This is required to support the demolition of the existing structures.
- 4) Demolition of the existing commercial building and of the existing canopy occurs. The large existing canopy would be dismantled during a 'Block of Line'.
- 5) The NE of the existing platforms are lifted and widened to suit the permanent design. Sections of the new canopy have been constructed, although modifications are required to permit the continued operation of the underpass access ramps.
- 6) Simultaneously with step 5, construction continues the remaining half of the bus interchange, along with the main entrance to the station from Cambridge Terrace. During this time, access to the southbound platform is via the SW end of the platform or via the underpass.
- 7) Once demolition of the existing commercial building is completed, a temporary entrance to the station from Oxford Terrace is constructed. This is required for the next stage.

Stage 3 – Oxford Terrace Station Entrance and Commencement of Overpass Construction

- 1) After the completion of Stage 2, the active platform is shifted to the permanent design location and opened to full length. The temporary platforms are removed.
- 2) The Bus Interchange area is opened to full length, however, remaining in a temporary configuration, shared by both public vehicles and buses.
- 3) The station entrance from Cambridge Terrace is opened.
- 4) The station entry from Oxford Terrace is constructed. The underpass stairs to be closed. Access to the Northbound platform and Oxford Terrace remains open via the underpass ramp.
- 5) The foundation works for the rail overpass are installed on the Oxford Terrace side. This will involve installing piles adjacent to the operational underpass. In addition, the underpass stairs are demolished, and the lift is installed along with the supporting structure for the overpass. Work over the rail line does not occur at this stage.

Stage 4 – Overpass and Commercial Building Construction

- 1) The Permanent Station entrance from Oxford Terrace is opened. The underpass remains open and access from Oxford Terrace continues via the ramps.
- 2) The temporary station access is demolished and the Commercial Building is constructed.
- 3) The underpass stairs on the Cambridge Terrace side are closed and work commences on constructing the overpass foundations, substructure and lift.
- 4) Once the substructure is complete, the overpass structural truss is lifted into place in a pre-fabricated section. This work would occur during a 'Block of Line'. The overpass stairs are installed and lifts commissioned.

Stage 5 – Underpass decommissioning & TOD Construction

- 5) The overpass is opened and the underpass is closed at the beginning of this stage.
- 6) Following the successful trial and verification of the overpass, the underpass is backfilled or decommissioned.
- 7) The underpass access ramps are backfilled and the remaining platform canopies are constructed. On both platforms, these work sites are 'islands' within the operational platforms. It is proposed that large materials deliveries occur at night. Pumping of low-strength backfill could occur via an elevated platform that does not restrict operational use of the platforms.
- 8) The construction laydown off Oxford Terrace is demobilised and opportunity is available for the TOD construction.

Stage 6 – Station Construction Demobilisation & Public PUDO

- 9) Once the underpass decommissioning is complete, the construction laydown off Cambridge Terrace is removed and the public PUDO is constructed, along with the final elements of the station entry.
- 10) The public PUDO zone is relocated to the final design location and the Bus Interchange is opened in the final design configuration.
- 11) TOD construction would be ongoing; however, this would not affect the station operation.

3. Buildability Challenges

We have identified several constructability challenges that will need to be addressed as design development progresses. The key challenges are listed below, with further details provided thereafter.

Key Constructability Challenges

The project will require significant construction and staging efforts to minimise impacts to the operation of the station while not impacting construction productivity. The following key challenges and details will need to be considered:

- ♦ **Level of Service for Station Operation During Construction.** Details have yet to be finalised on the level of service required during construction. Details such as minimum platform lengths to remain open, passenger facilities, access requirements, and other operational requirements need to be confirmed in the next design phase. The requirements must be developed with construction considerations in mind, noting that if the requirements become too onerous on construction, then additional costs and an extended construction duration could likely occur.
- ♦ **Engagement with KiwiRail.** KiwiRail are a key stakeholder and is the landowner for a substantial portion of the project footprint. KiwiRail has specific requirements for working within the rail corridor and for approving the construction of third-party assets in the rail corridor. Early engagement with KiwiRail is essential to ensure the successful delivery of the project.
- ♦ **Overpass Design Location Relative to the Underpass.** Maintaining a safe rail crossing point through construction is a project objective and minimum requirement. Currently, the underpass provides a safe pedestrian crossing through the rail corridor. The Reference Design outlines the intention to replace the underpass with an overpass, which is situated in close proximity to, or partially overlaps with, the existing underpass. It will be essential that further design development ensures that there is sufficient separation to enable simultaneous operation of the underpass and construction of the overpass.
- ♦ **Construction Laydowns and Access.** Waterloo Station presents a highly confined construction environment, with limited space available for equipment storage, material laydown, and site access. The station's central urban location and continuous operational demands necessitate that construction activities be carefully coordinated to minimise disruptions to passenger flow and station services. Access routes are constrained, and suitable areas for staging construction equipment are scarce should a percentage of public parking remain. Striking a balance between maintaining station operability and achieving efficient, timely construction will be imperative.

Maintaining Station Operations and Rail Corridor Crossing

Station Operations

Maintaining station operations during construction presents a key construction challenge and programming constraints. Keeping access routes available for users to access the platforms and the bus stops, as well as providing sufficient length of platforms and bus stops in operation to achieve the required level of service, will impact construction.

At this stage, the level of service required for station operations is not confirmed. For the proposed construction sequencing, it has been assumed that one-third of each platform can be closed at any given time and that safe access to the platforms can be provided through the construction areas.

Obviously, the highest construction productivity could be achieved on site if there were no constraints on areas that could be made available for construction; however, this would require the station to be closed. Conversely, placing large restrictions on areas and times when construction could take place will reduce the impact on station operations. Striking a balance between the two will be key, and this will be developed further in combination with cost and stakeholder engagement in future design phases.

Rail Corridor Crossing (Underpass)

The existing underpass serves as a vital connection for the local community, offering a safe crossing point over the rail line and forming a key pedestrian and cycling route between the Hutt City CBD and the eastern suburbs. It also supports station operations by facilitating essential access between platforms and across the rail corridor.

Greater Wellington Regional Council has stipulated that a crossing must remain available to all users throughout the construction period. To meet this requirement, a continuous route must be maintained through the live construction site. The most practical solution is to first construct the new overpass, including access lifts and the

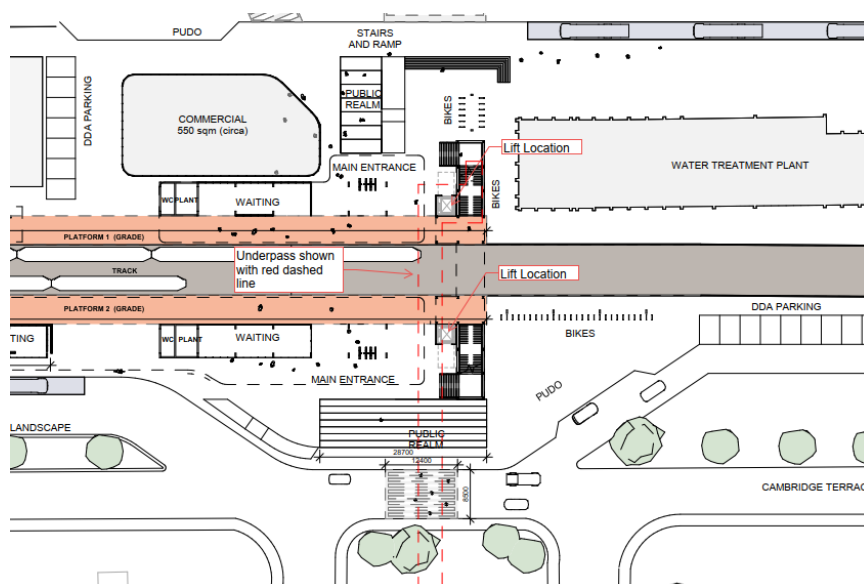
pedestrian crossing across Cambridge Terrace. Once these elements are in place, pedestrian and station users can be safely diverted to the new route, allowing the existing underpass to be closed. This requirement introduces a significant staging risk, as the location of the underpass and associated voids for stairs and ramps, along with the decommissioning activities, directly impact the construction of the overpass and operational use of the platforms.

Location of Existing Underpass and Design Overpass

To maintain a full level of service, either the underpass or an overpass must remain fully accessible for all users to maintain a safe grade-separated crossing of the rail line. Access to the overpass will be via stairs and lifts located on either side of the rail line. A potential conflict exists as the location of the lift partially overlaps the location of the underpass, refer to the figure on the following page.

To construct the lift pit, foundations and associated structure, the operation of the underpass will be impacted. Depending on the final design size and location, it may be possible to construct the lift in its current location. However, it is likely that the underpass width will be reduced around the construction site of the lift.

Furthermore, there is limited information on the structural condition and likely impacts to the structure during construction of the adjacent lifts and overpass foundations.



Snippet from Reference Design Drawing 1002 showing lift locations and clash with the underpass

Possible options to resolve the clash between the underpass and the lift include:

- ♦ Shift the lift locations so that they are not located above the underpass or any of the access voids. This option would likely require a longer overpass.
- ♦ Shift the lift locations so that they are positioned within the voids created by the existing stairs. This option may require the bridge to be shifted closer to the water treatment plant to make space for the lift. The stairs can be closed as the underpass is accessible from the ramps.
- ♦ Shift the lift locations so that they are located behind the underpass ramps and stairs. This option will require the section of underpass underneath Cambridge Terrace to be closed, so lift construction could only commence after the pedestrian crossing point is operational. With the lift placed behind the ramps and stairs, the underpass will still be accessible for pedestrians to cross the rail line.

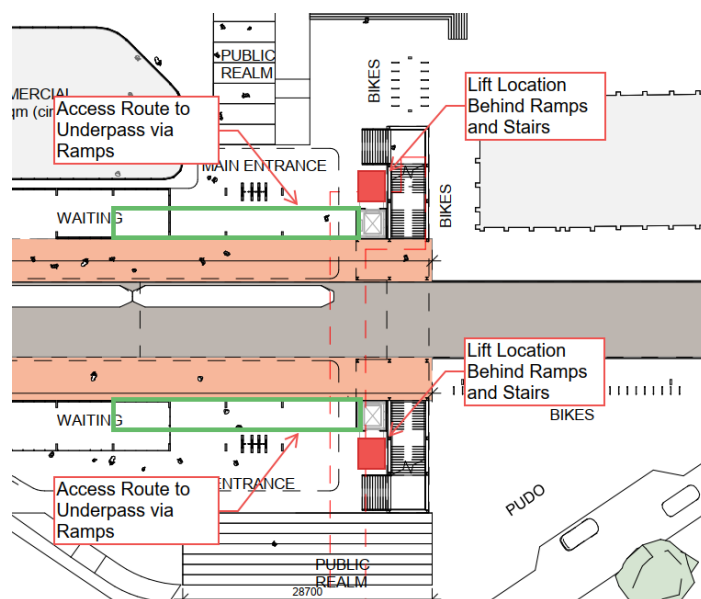


Figure: Alternate location for lifts to be positioned outside of the footprint of the existing stairs and ramps.

Proximity of Works to Rail Line

The Reference Design includes works immediately adjacent to and over the Wairarapa Rail Line. Controls such as a Block of Line, for major works such as lifting the overpass into position, and Rail Protection Officers will be required. While not uncommon for rail station developments, these controls are likely to constrain the programme, particularly the Block of Line. Subsequently, early engagement with KiwiRail and understanding opportunities and timing of Block of Line periods will be key to successful construction.

Waterloo Water Treatment Plant

The Waterloo Water Treatment Plant is located immediately adjacent to the Waterloo Station on the western side of the Wairarapa rail line. The water treatment plant must remain accessible and operational throughout the construction period. Bulk water mains run on the western side of the station site, near or under the existing canopy, buildings, and western car park. The bulk watermains must also remain operational during the construction works.

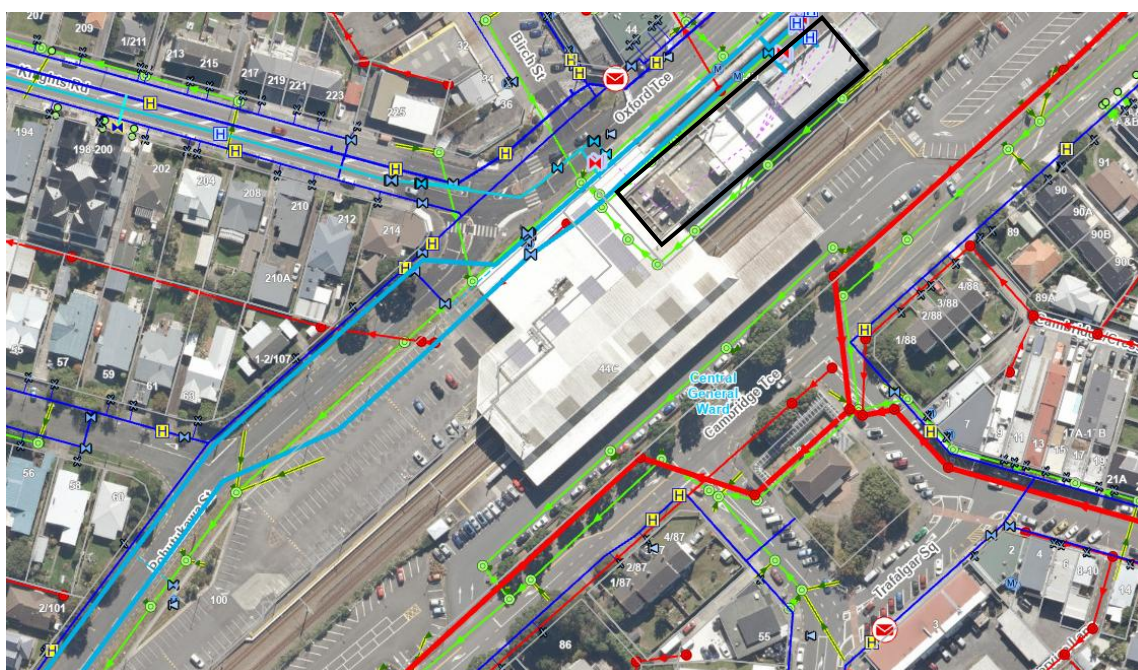


Figure – Snapshot from HCC GIS Portal showing bulk watermains in light blue. The Waterloo Water Treatment Station is bordered by the black rectangle.

The bulk watermains from the Waterloo Treatment Plant run along the western edge of the Reference Design area. The mains will require protection during construction to ensure they remain operational. It is recommended that the design accounts for the location of the bulk water mains to ensure that any foundation and building works remain clear of the bulk water mains and Wellington Water offsets.

The location of the Treatment Plant does restrict access to the site from Oxford Terrace, in particular with regard to the construction of the overpass. Notwithstanding, the proposed construction staging has been developed to incorporate this constraint.

Waiwhetū Aquifer

The Waiwhetū Aquifer Borefield is located near the station footprint and is a key source of drinking water for the Wellington Region.

One of the project objectives is that the project should not result in negative impacts on water quality or supply. Risk of impact to this supply may come from the construction of the foundations and utilities servicing the rail station and interchange that are in the vicinity of the Waiwhetū Aquifer. The foundation system for the buildings and overpass has yet to be designed, but piles are likely to be used as the foundations. It is recommended that the foundations and any piles are designed to avoid or minimise any penetration into the Waiwhetū Aquifer.

Demolition of Existing Canopy Structure

The demolition of the existing canopy structure is a critical construction consideration that must be carefully planned and sequenced. Spanning above the rail corridor and overhead electrical systems, the removal of the canopy poses significant operational and safety challenges. Its demolition will require a Block of Line and temporary station closure to safely dismantle the roof structure above the rail envelope. It would be preferable for this to be undertaken as a single event over a long 1-2 week Block of Line, making the extended Christmas–New Year period the most practical period for execution.

During project planning, several actions should be considered to mitigate risks and ensure smooth delivery:

- Detailed structural assessment of the canopy to inform safe demolition methods.
- Coordination with KiwiRail to confirm Block of Line timing and operational impacts.
- Contingency planning for unforeseen structural complexities.

4. Details to Confirm in Next Design Stages

The Waterloo Station Project is in an early stage, with the Reference Design containing high-level information only. This section lists items that should be addressed and confirmed to minimise impact on construction costs and programme.

Station Operational Requirements During Construction

Operational Requirements

The minimum operational requirements for the Waterloo Station have yet to be confirmed. For this initial constructability review, it is assumed that the station and the rail corridor crossing will remain open. Operational requirements that need to be confirmed include, but are not limited to:

- ♦ Minimum length of platform required to remain open
- ♦ Size of passenger waiting areas (shelters, number of seats, etc)
- ♦ Toilet facilities
- ♦ Security and fire systems, including emergency evacuation
- ♦ Sizing of ingress and egress walkways for passengers

It will be possible to maintain station operations during construction; however, this will come with increased construction cost and programme duration. If the construction requirements are too onerous, there will be significant impacts on productivity, resulting in total construction costs and duration that will likely be unaffordable or undesirable.

Station and Rail Corridor Crossing Closure

Closing Waterloo Station and the underground rail corridor during construction will remove multiple constraints, allowing for maximum productivity to be achieved. This will result in a reduced construction programme and likely lower construction costs.

Conversely, closing the station and the underpass will likely increase costs for operating the wider public transport network as routes and scheduling will need to be changed to minimise the impacts of the closure. It is possible that works to increase capacity at other train stations or bus stops may be required to maintain network capacity.

It is recommended that an assessment is undertaken in the subsequent design stages to confirm whether a full closure of Waterloo Station and the Rail Corridor Crossing during construction is a feasible option and represents value for money.

Early Engagement with KiwiRail

KiwiRail, as owner of the rail network and operator, is a key stakeholder for the project. KiwiRail owns the land under a significant portion of the Waterloo Station footprint, including the rail corridor, much of the land under the station canopy, and the carparks on the eastern side of the rail line.

Design Approval and Approval to Construct Assets in the Rail Corridor

The Reference Design includes modifications to KiwiRail-owned assets, such as the platforms and the shifting of a signalling hut. The overpass will be a new asset constructed within the rail corridor, while the existing underpass within the rail corridor is to be decommissioned.

KiwiRail has standard processes for new third-party assets within the rail corridor that will apply to the overpass. KiwiRail advertises that a Deed of Grant can take up to 10 weeks to process and requires supporting documentation, including:

- ♦ Location plan
- ♦ Construction drawings and methodology

- ♦ Photos of the site and environment
- ♦ Soil test results
- ♦ Confirmation that clearance requirements are met.

As the overpass is an integral part of the Reference Design, it is likely that the Deed of Grant process will take longer than the 10-week period advertised by KiwiRail. It is possible that KiwiRail may require design modifications, which could further extend the timeframe for a Deed of Grant.

Although it has not been sighted by RCP, a Deed of Grant or similar agreement should be in place for the existing underpass. KiwiRail will have an interest in how the Underpass is decommissioned after the overpass is opened.

It is recommended that the need for a Deed of Grant for the overpass and the decommissioning of the underpass be discussed with KiwiRail as soon as possible. This will ensure that KiwiRail's requirements for the overpass design and the underpass decommissioning are understood and included from the start of the design development process. The design programme must include a timeframe at the end of detailed design to obtain the Deed of Grant and other approvals from KiwiRail.

Block of Lines and Rail Corridor Access

A Block of Line (BOL) is a scheduled closure of the rail corridor to allow for construction and maintenance works to take place without conflicting with passing train services. For the Wellington Region, these are typically programmed for the Christmas/New Year period. Notwithstanding, a BOL are often scheduled for other periods such as the Easter break and long weekends.

We anticipate that both the canopy deconstruction and the overpass installation will require a BOL. It is recommended that the BOL be scheduled and approved with KiwiRail at least 12 months prior to the works commencing.

The other works included in the Reference Design appear to be outside of the rail line but within the rail corridor. The construction activities will, at a minimum, require a Rail Protection Officer while work is being carried out within the rail corridor. Some works, such as platform upgrades, may also require a speed restriction on the rail line and other controls to be installed to maintain safety between the working areas and the rail services.

It is recommended that KiwiRail are engaged early during the planning process to discuss the level of controls required.

Early Engagement with Hutt City Council

Changes to Local Roads

The design includes changes to both Cambridge Terrace and Oxford Terrace, where Hutt City Council is the Road Controlling Authority. The Reference Design includes a pedestrian crossing facility on Cambridge Terrace and changes to bus stop layouts and markings on Oxford Terrace. The type of pedestrian crossing facility has yet to be confirmed, but is likely to be either a set of traffic signals or a formal pedestrian crossing.

The changes made to the local roads will need to be agreed with Hutt City Council. It is recommended that Hutt City Council be engaged in the next design stage to get their agreement to the proposed changes.

Southbound Platform Extension

The reference design involves relocating the southbound platform to be situated opposite the northbound platform. The platform shift is completed by extending the platform south and removing the northern section of the platform.

The rail line to the south of Waterloo station has a slight curve to the east, and this curve partly overlaps the southern extension of the southbound platform. From discussions during the design stage, it is understood that there are three possible options to resolve the clash between the curved rail and the platform. These are:

- ♦ Option 1 – Shorten the platform extension so that it does not clash with the curve.
- ♦ Option 2 – Construct a curved platform along the section of curved rail

- ♦ Option 3 – Realign the rail along the platform so that it is straight



Figure: Aerial image taken from GWRC GIS, showing a markup with the location of the southbound platform extension and curve in the rail line to the south of Waterloo Station.

From a buildability perspective, Option 1 is preferred as it does not change the construction activities, sequencing, or constraints on site. An additional length of the northern end of the southbound platform will need to be upgraded to ensure that the required platform length for the station is constructed.

Option 1 will result in the northbound and southbound platforms being offset from one another. Although less than the current platform offset, it is not as efficient in footprint as the Reference Design. The impacts on future potential development will need to be considered.

Option 2 is also achievable a curved platform will be more difficult to install than a straight platform to achieve the required alignments. However, it does not fundamentally change the construction works required. The main concern is that curved platforms are not standard practice and will require KiwiRail approval.

Option 3, realignment of the track, should not be considered, as it would bring additional scope of work and increased cost. Any realignment may require shifting both tracks to maintain clearances and extending them some distance south to meet geometric requirements. Any realignment works either must be completed under a Block of Line or under a closure of one of the two rail lines to and would result in significant programming constraints. Any realignment works will require KiwiRail agreement and design approvals

It is recommended that only Options 1 and 2 are considered to address any clash with the southbound platform extension and the rail alignment.

Rail Signal Infrastructure

We understand that the southbound platform extension clashes with an existing KiwiRail signalling hut, and the signals for the platform will need to be relocated and adjusted. The design for relocating the signal hut and adjusting the signals has not been finalised. It is not anticipated that relocating the signal hut would be complicated, as there is sufficient space available to construct a new hut.

Signal design requires KiwiRail's confirmation and approval. Limited nationwide resources for signalling design may constrain the design programme.

Property Ownership and Agreements

The land area and assets at Waterloo Station, which are impacted by the Reference Design, are owned by KiwiRail, Hutt City Council, and GWRC. KiwiRail owns the rail corridor, the rail platforms, a significant portion of the existing canopy, and the carparks on the eastern side of the rail line. Hutt City Council owns the Cambridge Terrace and Oxford Terrace Road Reserves, as well as Trafalgar Square. Refer to the figure below showing land ownership at the Waterloo Station Site

Property Agreements will need to be confirmed and agreed with both KiwiRail and Hutt City Council before works can commence. The agreements will at a minimum need to include access to the property to complete the works, allowance for temporary works, and agreement to modify, demolish, and decommission existing infrastructure, as well as to construct new infrastructure.



Figure: Land ownership of the Waterloo Station Site and surrounding area.

Early Contractor Involvement

The site presents several physical, programming, and operational constraints that will make construction challenging, particularly if the station and rail crossing must remain operational. Construction works will need to be staged in a manner that allows an acceptable level of service to be maintained. The staging will not just be dependent on site constraints but also on the contractors' capacity and capabilities.

It is recommended that an Early Contractor Involvement (ECI) process be considered as the design progresses. This will ensure that a construction methodology and staging are in place to meet operational requirements before construction commences. It will also allow any temporary works considerations to be incorporated in the permanent design.

Groundwater

The area around Waterloo Station can experience high groundwater tables, especially during winter. The existing underpass has ongoing issues with groundwater ingress. Large excavations will need to be either completed during the summer when groundwater levels are lower or allow for dewatering to control groundwater ingress. Areas of excavation that could be impacted include any basement or foundation excavations for the Commercial Building, rain gardens, and trenching for underground services. The method to decommission the underpass has not yet been confirmed, but it is understood that it will not be removed. Subsequently, it will have to be backfilled to minimise the risk of future subsidence. Potential long-term drainage may have to be considered.

Rain Gardens

The design includes large areas of rain gardens for landscaping, stormwater control and pretreatment. Raingardens require an area of soil to be excavated out to provide space for drainage and filter layers, as well as storage capacity. The gardens are typically surrounded by a cast-in-situ or precast concrete wall to provide separation from the surrounding soils.

Construction of rain gardens can be adversely impacted by underground services, which either must be diverted or penetrations made through the surrounding walls for the services. Service penetrations pose a risk of the surrounding soil migrating into the rain garden, potentially impacting its long-term maintenance, as well as the maintenance requirements of the service asset if it is located within the rain garden.

It is recommended that rain garden locations are optimised to minimise clashes with underground services and designed to a depth that allows construction to be completed without or with minimal dewatering.

Existing Services

There are several underground services located within and near the Waterloo Station site, in addition to the bulk watermains discussed in Section 0. These services will need to be located, and either be relocated, protected, or avoided as the design progresses.

The 900mm diameter gravity wastewater main running on the western side of Cambridge Terrace has been identified as being shallow and requiring protection during construction.

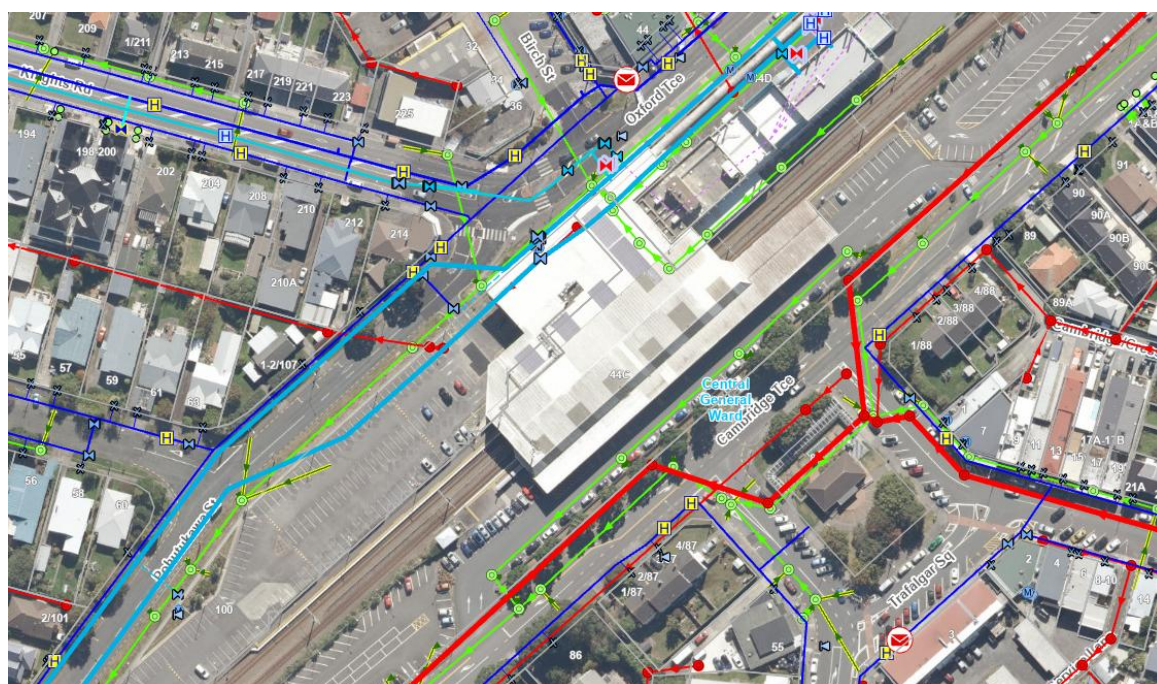


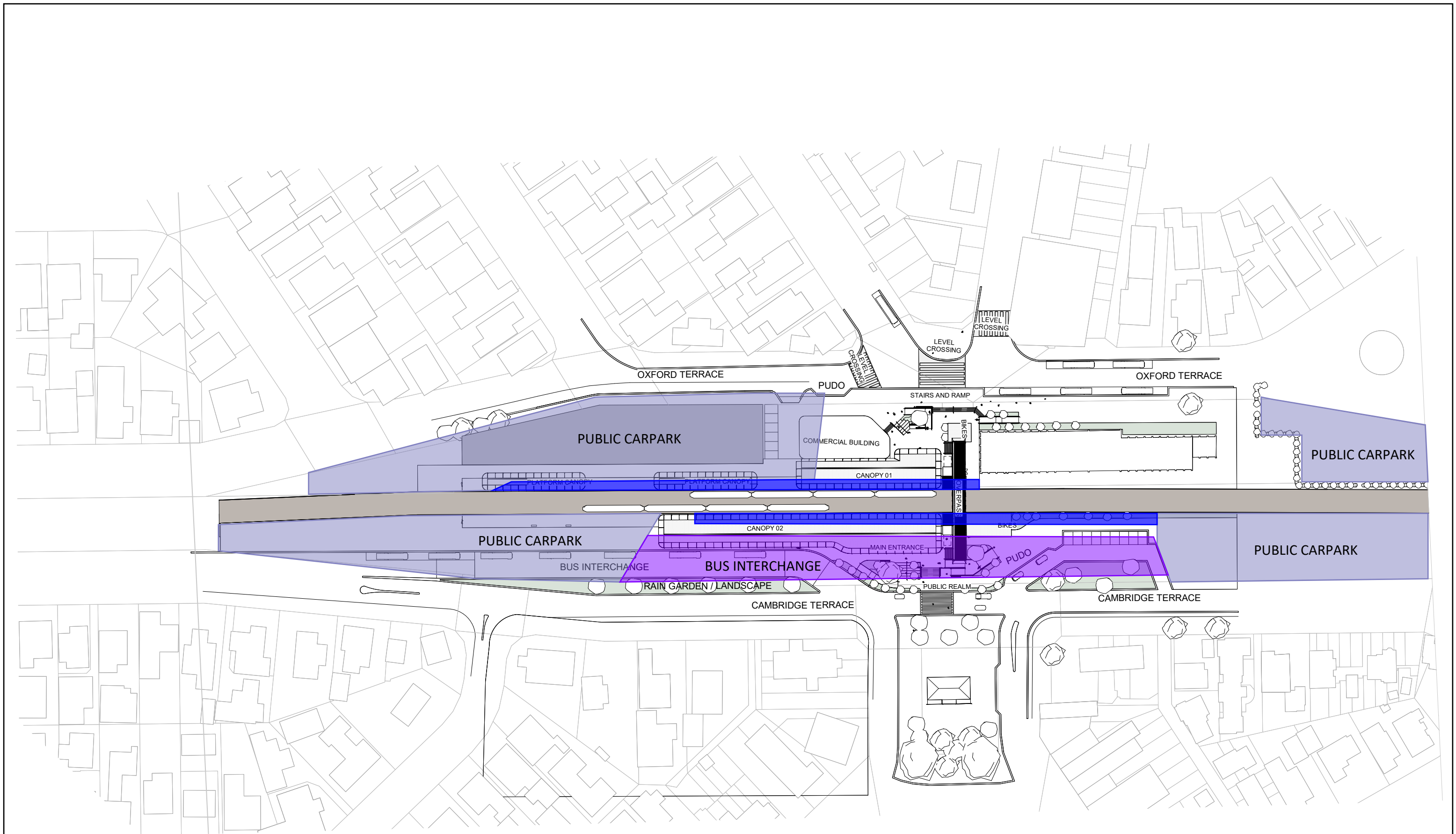
Figure – Snapshot from HCC GIS Portal showing the 900mm diameter gravity wastewater line (red line) running along the eastern edge of the Waterloo Station site.

It is recommended in the next design stages that the location, depth, and condition of underground infrastructure within and near the site be determined. It is essential that the actual location of underground services, as well as any necessary relocation, removal, or protection, is incorporated into the design before construction commences.



Appendix A

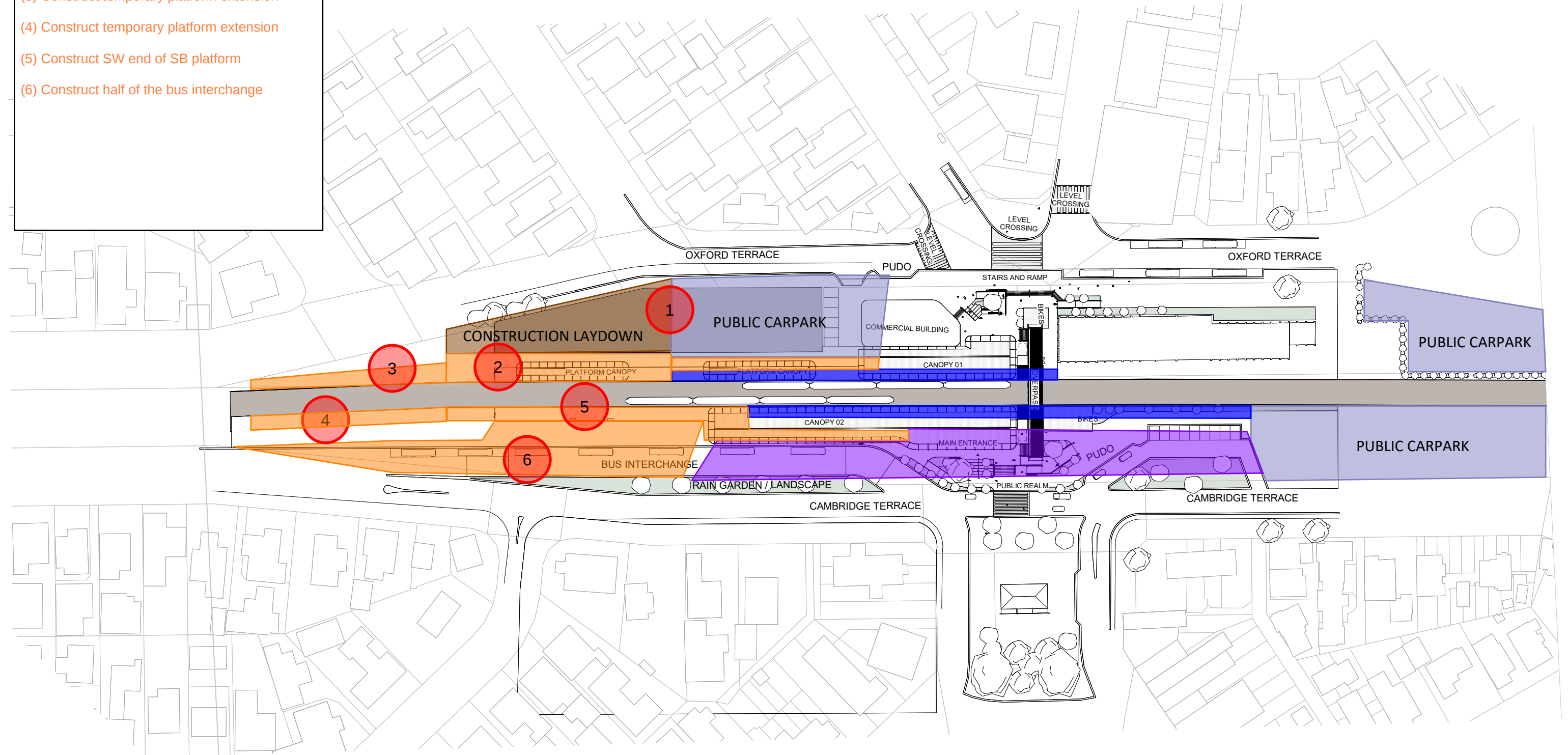
Construction Staging Drawings



STAGE 0 - CURRENT STATE

CONSTRUCTION ACITIVITIES

- (1) Reduce size of public carpark and create construction laydown
- (2) Construct SW end of NB platform
- (3) Construct temporary platform extension
- (4) Construct temporary platform extension
- (5) Construct SW end of SB platform
- (6) Construct half of the bus interchange



SCALE
NTS



Drawing Title

WATERLOO STATION CONSTRUCTION STAGING

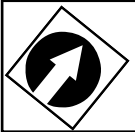
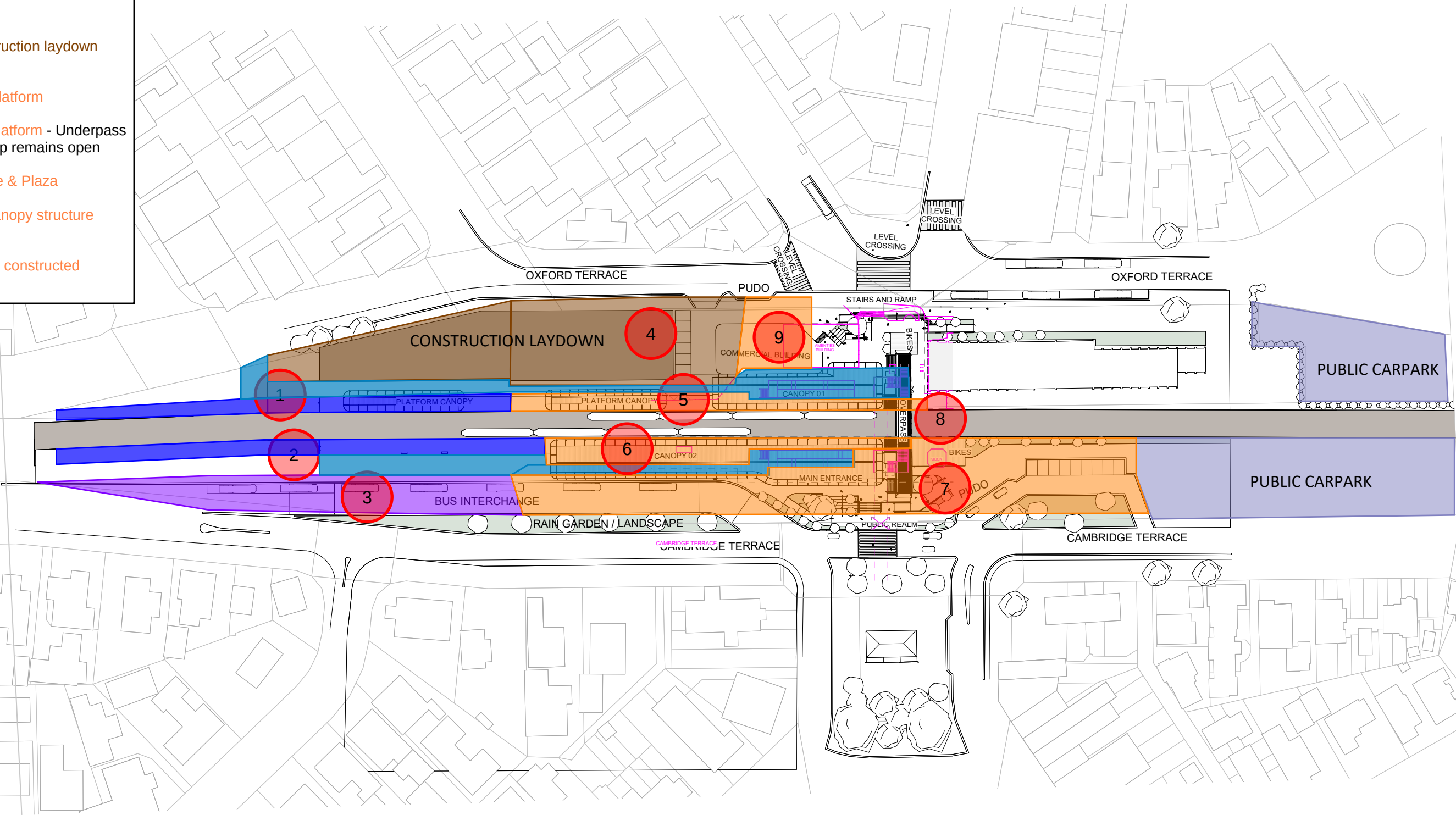
STAGE 1

BASE DRAWING CARE OF GRIMSHAW

Issue Status: REFERENCE	
Issue Date: 15/08/2025	
Sheet No: [SHEET NO]	Revision A

CONSTRUCTION ACITIVITIES

- (1) NB Platform relocated with temporary connection to underpass
- (2) SB Platform relocated with temporary connection to underpass
- (3) Bus Interchange relocated
- (4) Carpark closed and construction laydown expanded
- (5) Construct NE end of NB platform
- (6) Construct NE end of SB platform - Underpass stairs temporarily closed, ramp remains open
- (7) Construct Bus Interchange & Plaza
- (8) Demolish existing large canopy structure under Block of Line
- (9) Temporary Station access constructed



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Drawing Title

WATERLOO STATION CONSTRUCTION STAGING

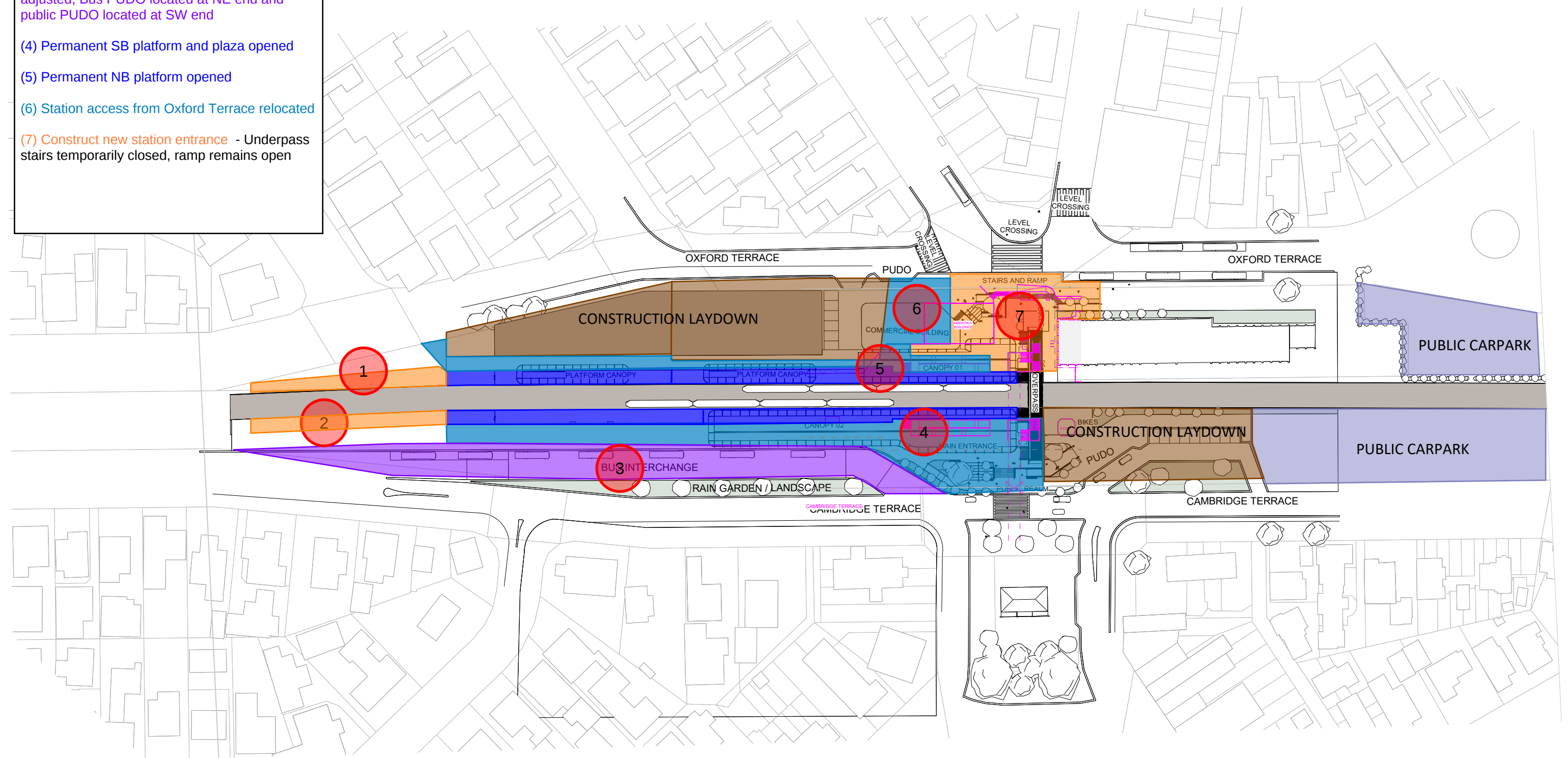
STAGE 2

BASE DRAWING CARE OF GRIMSHAW

Issue Status:	REFERENCE	
Issue Date:	15/08/2025	
Sheet No:	[SHEET NO]	Revision A

CONSTRUCTION ACITIVITIES

- (1) Temporary NB platform removed
- (2) Temporary SB platform removed
- (3) Temporary arrangement - Bus Interchange adjusted, Bus PUDO located at NE end and public PUDO located at SW end
- (4) Permanent SB platform and plaza opened
- (5) Permanent NB platform opened
- (6) Station access from Oxford Terrace relocated
- (7) Construct new station entrance - Underpass stairs temporarily closed, ramp remains open



SCALE
NTS



Drawing Title

WATERLOO STATION CONSTRUCTION STAGING

STAGE 3

BASE DRAWING CARE OF GRIMSHAW

Issue Status: REFERENCE

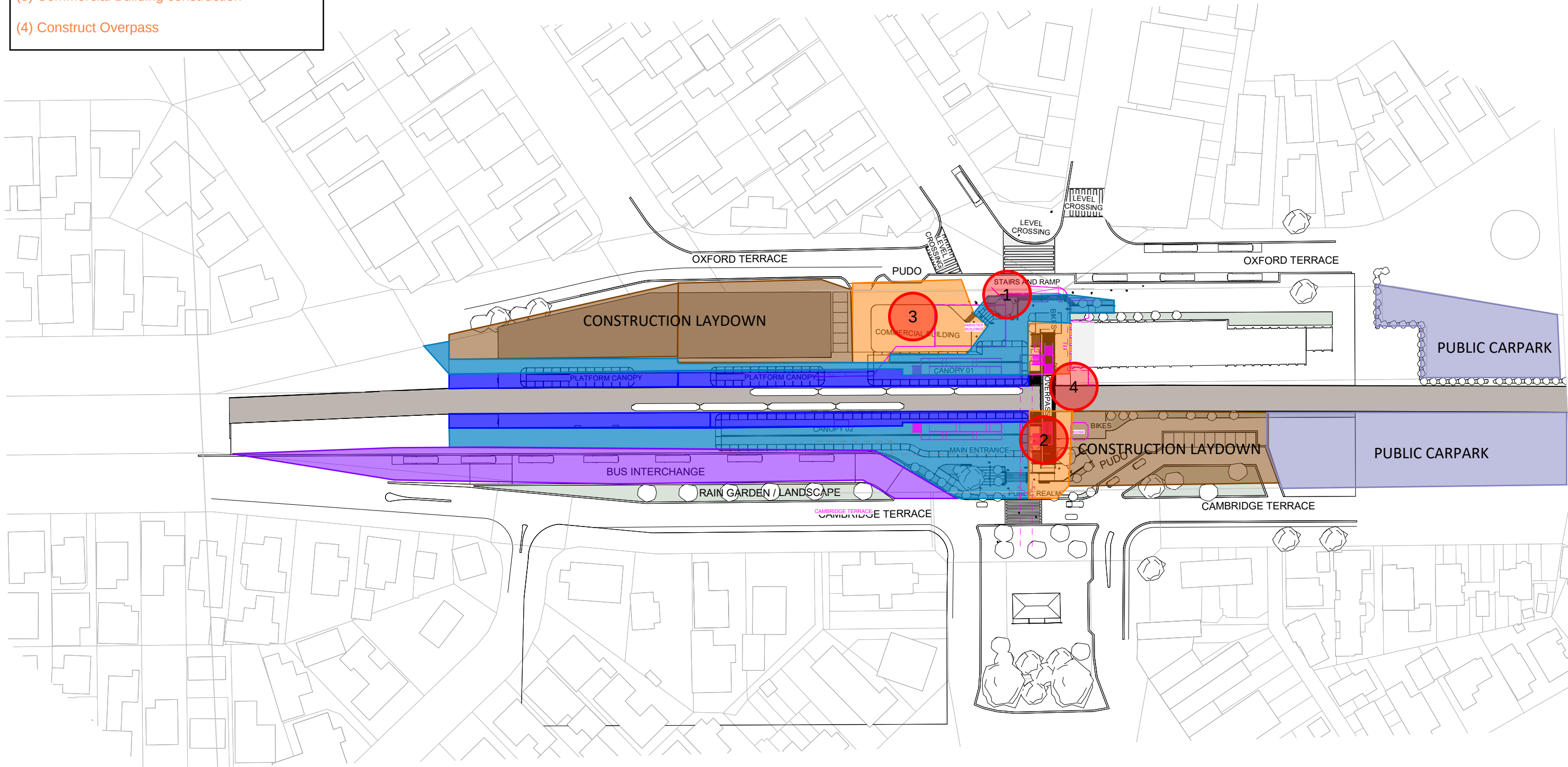
Issue Date: 15/08/2025

Sheet No: [SHEET NO]

Revision A

CONSTRUCTION ACITIVITIES

- (1) Permanent Station entrance from Oxford Street opened
- (2) Underpass stairs closed
- (3) Commercial Building construction
- (4) Construct Overpass



BASE DRAWING CARE OF GRIMSHAW



SCALE
NTS



Drawing Title

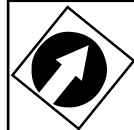
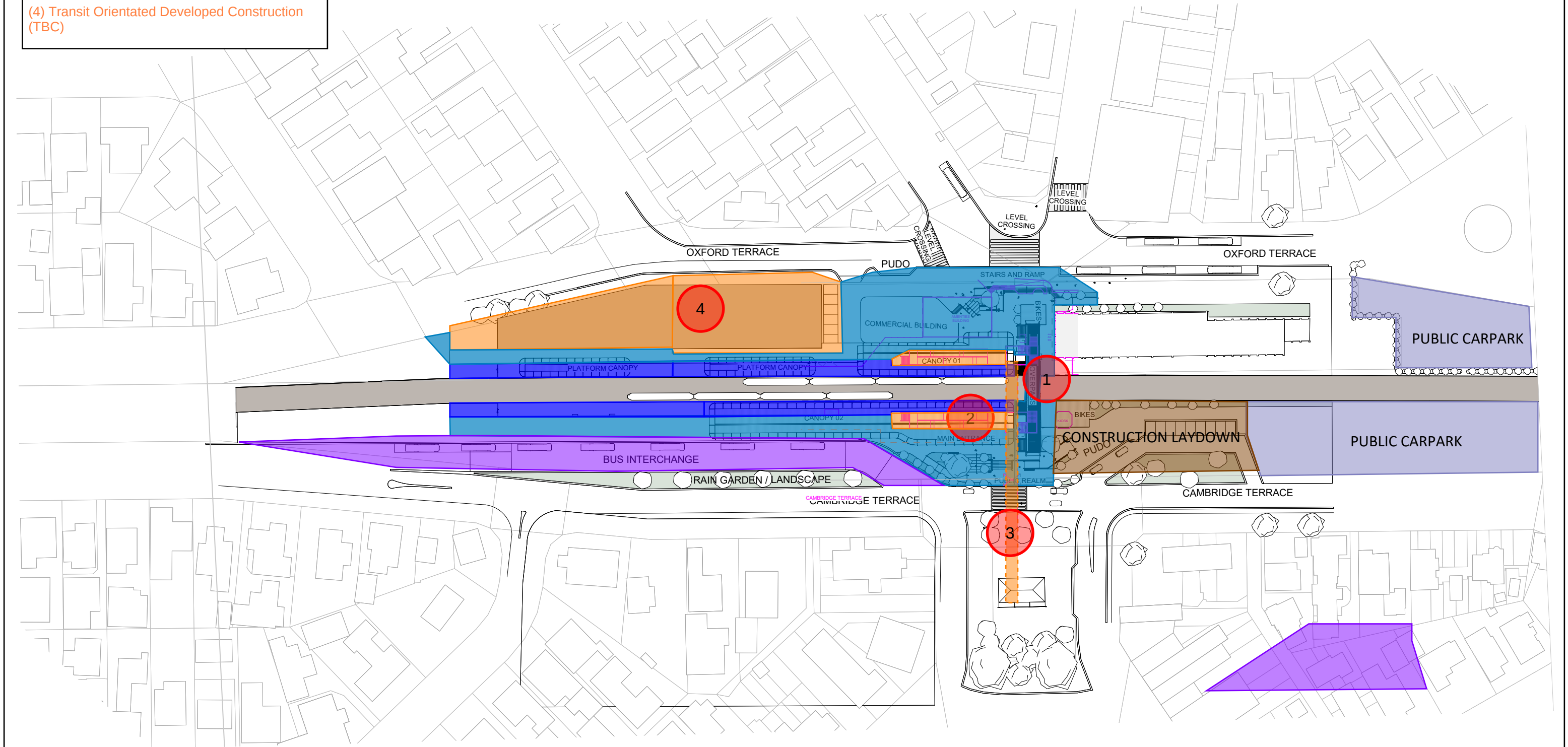
WATERLOO STATION CONSTRUCTION STAGING

STAGE 4

Issue Status: REFERENCE	
Issue Date: 15/08/2025	
Sheet No: [SHEET NO]	Revision A

CONSTRUCTION ACITIVITIES

- (1) Overpass opened
- (2) Underpass ramps backfilled
- (3) Underpass backfilled
- (4) Transit Orientated Developed Construction (TBC)



SCALE
NTS



Drawing Title

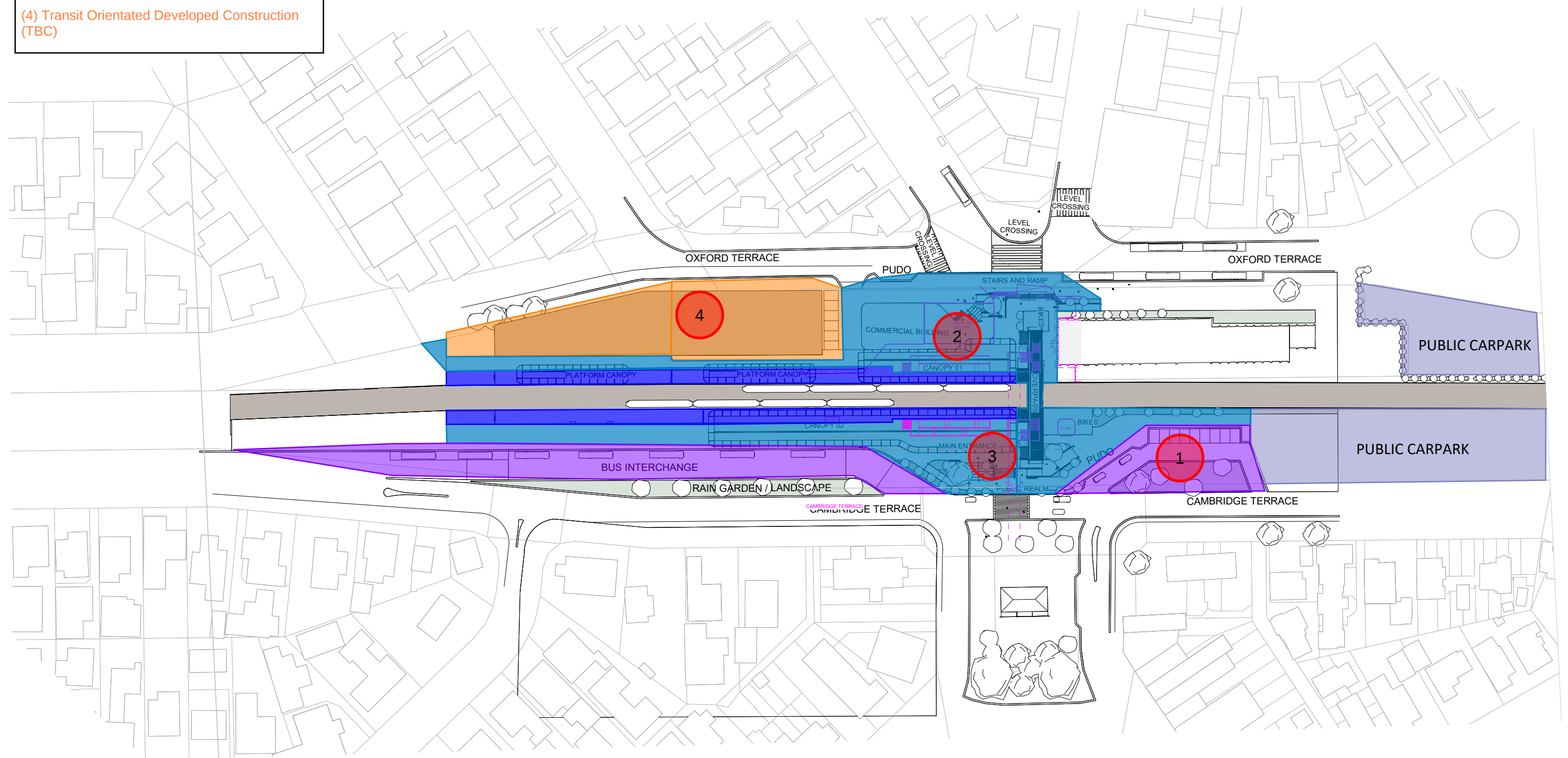
WATERLOO STATION CONSTRUCTION STAGING

STAGE 5

BASE DRAWING CARE OF GRIMSHAW

Issue Status: REFERENCE	
Issue Date: 15/08/2025	
Sheet No: [SHEET NO]	Revision A

- CONSTRUCTION ACITIVITIES
- (1) Public PUDO Opened
 - (2) Oxford Terrace side of Station complete
 - (3) Cambridge Terrace side of Station complete
 - (4) Transit Orientated Developed Construction (TBC)



SCALE
NTS



Drawing Title

WATERLOO STATION CONSTRUCTION STAGING

STAGE 6

BASE DRAWING CARE OF GRIMSHAW

Issue Status: REFERENCE	
Issue Date: 15/08/2025	
Sheet No: [SHEET NO]	Revision A