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By: Carolyn Mellish
Date: 27 March 2019

AMENDED
By: Sondra Roberts
Date: 15-Apr-19

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By: Sondra Roberts
Date: 4-Jun-19

POD VOLUME 3: ATTACHMENT H: INFRASTRUCTURE MASTER PLAN

PREPARED BY: URBIS PTY LTD, TTM CONSULTING, RIDER LEVETT BUCKNALL, BORNHORST & WARD, AND CUSP

DESTINATION BRISBANE CONSORTIUM

QUEEN'S WHARF BRISBANE

Any items struck out are not approved.

AMENDED IN RED
By: K McGill
Date: 20 December 2017
Queensland Government

PLANS AND DOCUMENTS referred to in the PDA DEVELOPMENT APPROVAL
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DEV2017/846	21 December 2017	Karina McGill	-
DEV2017/846/135	27 March 2019	Sarah Davies, Urbis Pty Ltd (amended in green)	Section 3.3, Table 3 (p.11) Appendix B.7
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DEV2017/846/138	4 June 2019	Sarah Davies, Urbis Pty Ltd (amended in green)	Section 8.2.4.2, Table 19 (p.73) Section 9.2.2, Table 26 (p.99) Appendix B.2 Appendix B.4

URBIS

Urbis Pty Ltd Quality Management

Version	Issue Date	Reviewed By
URB-RPT-PLA-PWD-0009 Rev 21	23 May 2019	 Matthew Brown, Associate Director

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FIGURES:

TABLES:

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1. INTRODUCTION

This Infrastructure Master Plan (IMP) has been developed to support the proposed Queen's Wharf Brisbane Integrated Resort Development (QWBIRD) in the Queen's Wharf Brisbane Priority Development Area (QWB PDA) and on PDA-Associated Land. This IMP directly addresses the proposed development in the Plan of Development (PoD) in Volume 2 of this application.

This IMP has been formulated in accordance with the requirements of the *Queen's Wharf Brisbane Priority Development Area Development Scheme* (Development Scheme). The IMP is derived from the following reports:

- PoD Volume 3, Attachment B: Landscape Concept Report, prepared by Urbis Pty Ltd and Cusp
- PoD Volume 3, Attachment I: Civil Works and Infrastructure, prepared by Bornhorst & Ward
- PoD Volume 3, Attachment G: Traffic Engineering Report, prepared by TTM Consulting

A full list of all technical reports called up as part of this IMP is included in Appendix A.

This IMP addresses the requirements of the Development Scheme and:

- Covers water, sewer, stormwater, transport (including active transport), open space and community use trunk infrastructure (including land and works) which provide essential services to the development;
- Existing GFA on the site;
- Projected development yields on the site;
- A summary of existing and future infrastructure demand;
- Impacts on infrastructure and projected requirements;
- Desired standards of service;
- Future delivery of infrastructure; and
- Plans and schedules of infrastructure.

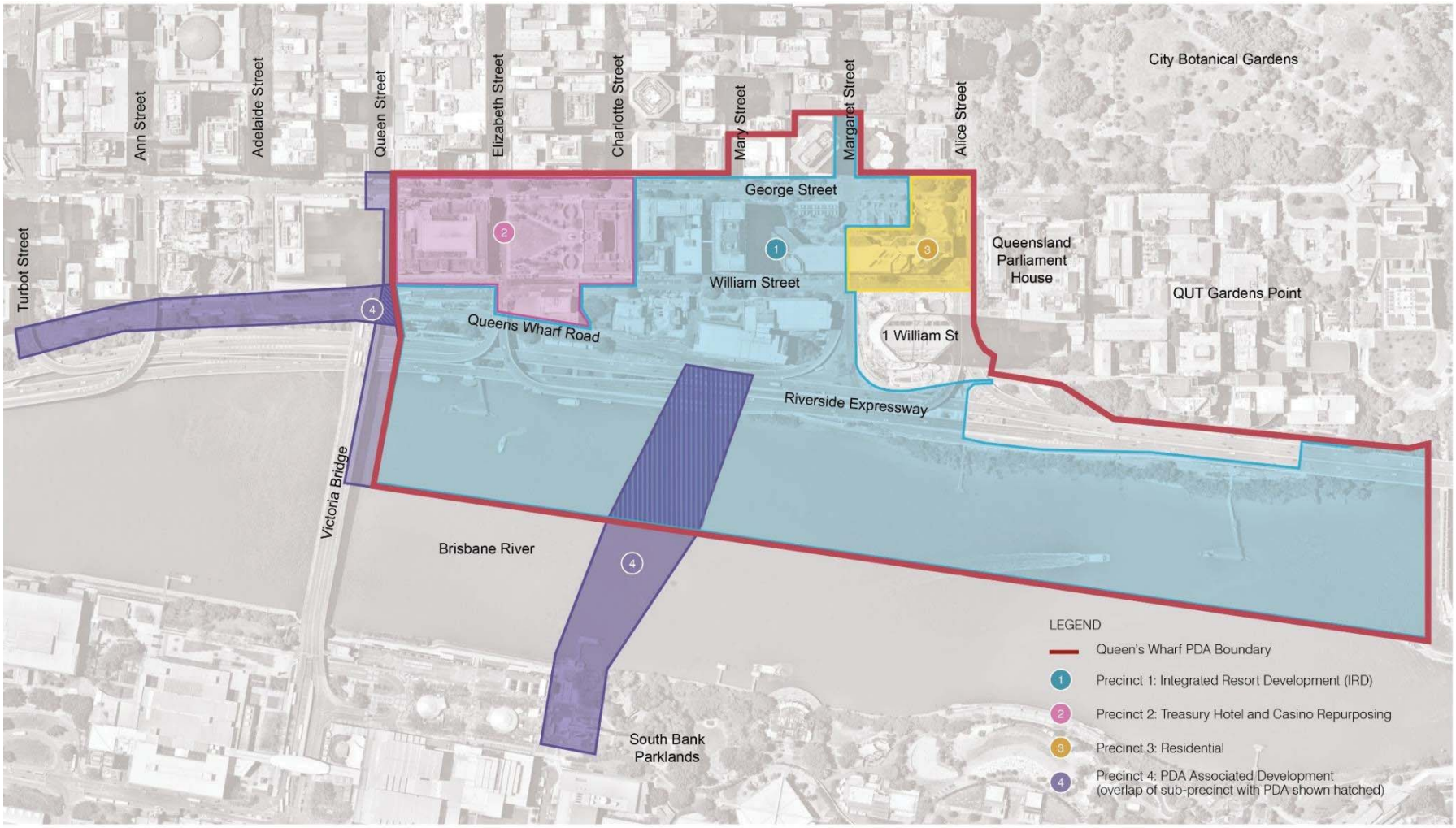
For the purpose of the PoD and the IMP the site has been divided into four precincts and the associated sub-precincts. These precincts and sub-precincts are outlined below and shown in **Figure 1** overleaf.

- Precinct 1: Integrated Resort Development Precinct:
  - Sub-Precinct 1a: Resort;
  - Sub-Precinct 1b: North-West;
  - Sub-Precinct 1c: North Quay;
  - Sub-Precinct 1d: Queens Wharf Plaza;
  - Sub-Precinct 1e: The Landing;
  - Sub-Precinct 1f: Waterline Park;
  - Sub-Precinct 1g: Goodwill Extension;
  - Sub-Precinct 1h: IRD Heritage; and
  - Sub-Precinct 1i: Miller Park.
- Precinct 2: Treasury Hotel and Casino Repurposing Precinct:
  - Sub-Precinct 2a: former Treasury Building;
  - Sub-Precinct 2b: former Land Administration Building; and
  - Sub-Precinct 2c: former State Library.

- Precinct 3: Residential Precinct.
- Precinct 4: PDA-Associated Development:
  - Sub-Precinct 4a: Pedestrian Bridge;
  - Sub-Precinct 4b: Queen Street Interface; and
  - Sub-Precinct 4c: Turbot Street Sewer Upgrade.

It is important to note that this IMP will be delivered by means of an infrastructure agreement between relevant parties or by conditions or a combination of both. This IMP contemplates infrastructure, charges, credits and offsets being calculated for the overall development rather than precinct by precinct. This approach recognises that the provision of infrastructure cannot be attributed to a single precinct but rather relates to the site as a whole.

Figure 1 – Precincts and Sub-Precincts



Picture 1 – QWB Precinct Plan

Source: Urbis, 2017

Picture 2 – QWB Sub-Precinct Plan

Source: Urbis, 2017

2. DEVELOPMENT SCHEME REQUIREMENTS

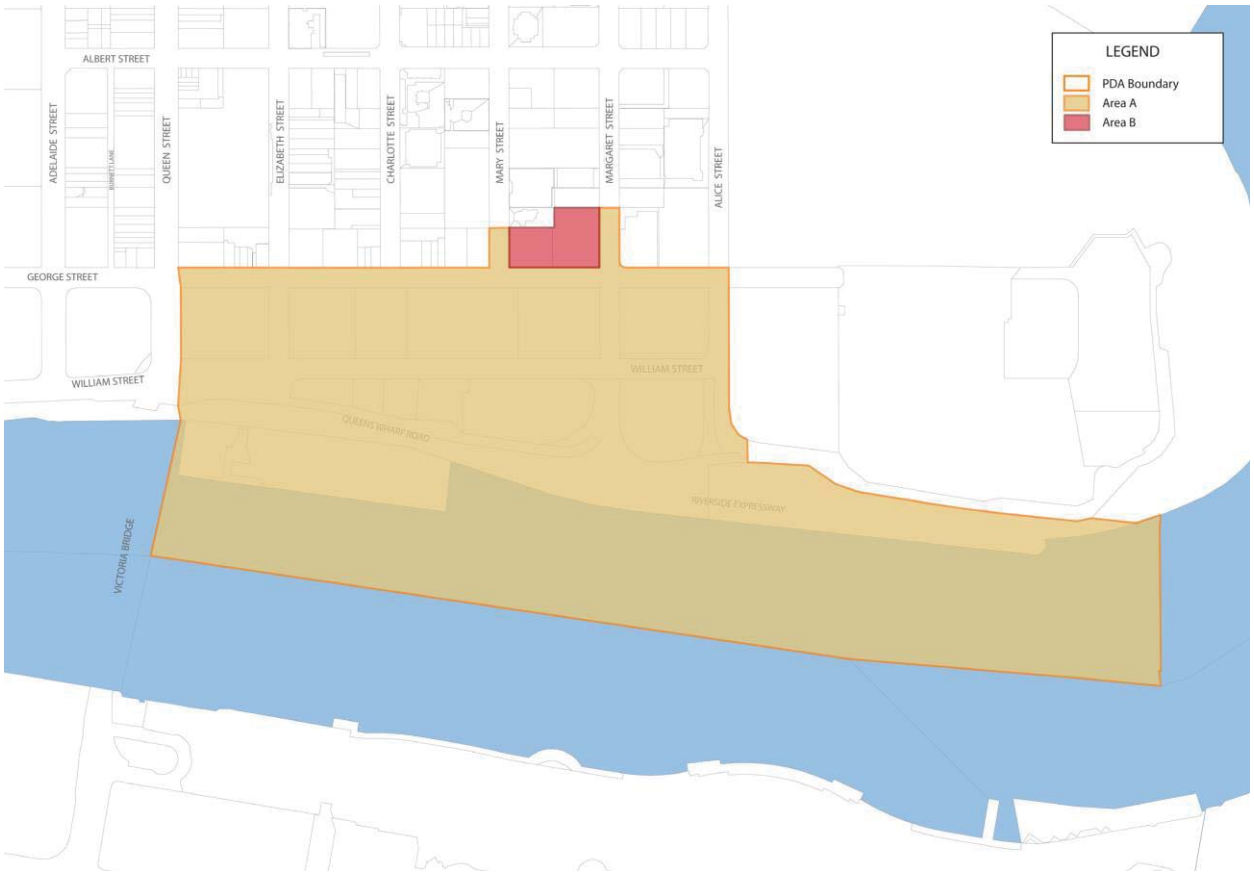
2.1. INFRASTRUCTURE MASTER PLAN

Part 4.4 of the Development Scheme provides that:

> *"The applicant will be required to lodge an Infrastructure Master Plan (IMP) with the first Material Change of Use or Reconfiguration of a Lot PDA development application in the QWB PDA. The IMP must:*
>
> - *Be for the whole PDA (excluding Area B);*
> - *Detail applicable infrastructure networks both within and external (but relatively proximate) to the PDA and identify where works are required to connect existing or future networks;*
> - *Respond to the requirements and standards outlined in the Development Scheme and applicable PDA guidelines current at the time of preparation of the IMP and address any non-compliance;*
> - *Articulate the overall planning and delivery principles for the infrastructure works, required to support the ultimate development of the PDA (excluding Area B);*
> - *Indicate how and when that component of infrastructure will be provided (including the dedication/transfer), or if not known, how and when the provision of that infrastructure is to be determined; and*
> - *Demonstrate consideration of the requirements, standards and guidance identified in the applicable EDQ guidelines for the Queen's Wharf Brisbane PDA."*

Areas A and B as referred to in the extract of the Development Scheme are shown in Figure 2 below. This IMP addresses infrastructure for land within Area A and PDA-Associated Land only.

Figure 2 – Queen's Wharf Brisbane Development Scheme Areas A and B



Source: Queensland Government, 2017

The Development Scheme defines 'trunk infrastructure' as the items listed in **Table 1**. Other forms of infrastructure, such as electricity, telecommunications and gas, are not defined as trunk infrastructure by the Development Scheme and are therefore not addressed in this IMP. Other forms of infrastructure are discussed in supporting documents where relevant, including the **PoD Volume 3, Attachment B: Landscape Concept Report, PoD Volume 3, Attachment I: Civil Works and Infrastructure** and **PoD Volume 3, Attachment G: Traffic Engineering Report**. This IMP is prepared to address the infrastructure identified in Tables 3 and 4 of the Development Scheme (Table 1 below).

Table 3 of the Development Scheme identifies the road network under 'Transport' and not within 'Public Realm'. This IMP therefore addresses all elements of the road network under 'Transport – Roads and Intersections'. It is relevant that the PoD defines the 'Public Realm' as "*any publicly accessible streets, pathways, cross-block links, arcades, plazas, parks, open spaces and any public and civic building and facilities"*. While the public realm (as defined in the PoD) includes some elements of the road network (i.e. shared zones as publicly accessible streets) these are included as 'Transport – Roads and Intersections' infrastructure items only. This is not considered to be an inconsistency between the Development Scheme and the IMP, rather it reduces repetition in the IMP while also appropriately addressing the requirements of the Development Scheme for an IMP.

Table 3 of the Development Scheme identifies 'footpaths, verges and pathways' under Transport – Roads and Intersections. While the footpaths and pathways may form part of the public realm also, this IMP addresses 'footpaths' under Transport – Pedestrian Infrastructure. This is considered the most appropriate description given the footpaths, verges and pathways are primarily for pedestrian movement. The footpath infrastructure has not been separated into both transport and public realm infrastructure to minimise repetition and assist in the usability of this IMP.

Elements relating to the Bicentennial Bikeway, including segregated components for pedestrians are discussed under 'Transport – Cycling Infrastructure'. This includes any end of trip facilities that may be used by pedestrians. The exception to this is the landscaping elements of the Bicentennial Bikeway, which are addressed under 'Public Realm'.

All subsequent sections of this IMP address the infrastructure identified in Tables 3 and 4 in the following manner:

- Transport (Table 3)
  - Roads and Intersections
  - Public Transport
  - Cycling Infrastructure
  - Pedestrian Infrastructure
- Public Realm (Table 3)
- Stormwater (Table 3)
- Water (Table 4)
- Waste Water (Table 4)

Table 1 – Infrastructure Plan items extracted from the Queen's Wharf Brisbane Development Scheme Tables 3 and 4

Infrastructure Category	**Item**	**Details**
Transport	Roads and Intersections	Provide road and intersection upgrades as required by comprehensive traffic and transport studies for the PDA (undertaken by the applicant and approved by the Minister of Economic Development Queensland (MEDQ)) to manage and mitigate impacts on the local road network and State-controlled roads including pedestrian and cyclist movements. This may include: • Upgrade to existing roads in the QWB PDA including Queens Wharf Road, William Street, George Street, Elizabeth Street, Alice Street and Margaret Street (including Riverside Expressway off-ramps); • An additional southbound lane along William Street, south of Margaret Street to provide additional capacity for turn movements into Alice Street; • Create a shared zone along Queens Wharf Road as prescribed in Map 2, including connections to North Quay, Victoria Bridge and Margaret Street; • Upgrade to significant intersections (as prescribed in Map 2: Structural elements plan); • Upgrade to other impacted intersections in or for the PDA including the Queen/William Streets and North Quay intersection; and • Upgrade to existing footpaths within the QWB PDA.
	Public Transport	Provide public transport infrastructure that allows integration with the existing public transport network.

Infrastructure Category	Item	Details
	Cycling Infrastructure	Upgrade the Bicentennial Bikeway. Upgrade other existing cycleways and provide new connections within the PDA to enable integration with the Bicentennial Bikeway, principally outbound on Alice Street. Provide publicly accessible cycle facilities.
	Pedestrian Infrastructure	A cross river connection between the QWB PDA and South Bank Parklands.
Public Realm	Parks	Retain and embellish the existing parks in the PDA.
	Other Public Realm	Provide all public realm infrastructure consistent with the vision of the QWB PDA including: • Landscaping and streetscape works; • Bulk earthworks; • Street furniture; • Signage and wayfinding; • Public art and monuments; • Services, security and miscellaneous lifts/escalators; and • Upgrades to existing landings.
Stormwater	Stormwater	Provide all stormwater infrastructure necessary to achieve compliance with requirements and standards, and adopt approaches consistent with guidance identified in relevant PDA guidelines including stormwater treatment and management of stormwater flows (including flows through the QWB PDA).
Water	Water Infrastructure	As required to service the PDA.
Waste Water	Waste water infrastructure	Provide all waste water infrastructure as required to service the PDA including a new sewer main along Charlotte Street.

3. YIELD ANALYSIS

3.1. INTRODUCTION

Section 3 of this report establishes:

- Existing Development and Gross Floor Area (GFA);
- Proposed Development and GFA;
- Population Projections; and
- Assumptions.

The Existing and Proposed Development and associated GFA in **Sections 3.2** and **3.3** (below) provide the basis for the generation of infrastructure charges. The Existing Development and GFA in **Section 3.2** are based on the current uses and floor plates which have been made available to Destination Brisbane Consortium (DBC). The Proposed Development and GFA in **Section 3.3** are based on the proposed uses and gross floor areas specified by the PoD.

Section 3.4 and **3.5** detail the Population Projections and assumptions which have been used to generate the capacity of the existing trunk infrastructure networks. These projections then inform the required upgrades to the different trunk infrastructure networks because of the proposed development.

3.2. EXISTING DEVELOPMENT AND GFA

In preparing this IMP, the existing GFA of the buildings has been identified to inform the existing demand on infrastructure, and for the purposes of future infrastructure charging. The existing GFA for the Neville Bonner Building, Executive Building, Executive Annex and 80A and 80B George Street has been based on Net Lettable Areas (NLA) provided from RP Data's CityScope. The NLA will be less than the GFA of these buildings but provides conservative estimates. Existing floor plans for these buildings had not been made available to DBC at the time of writing this report.

The existing development credits for the following buildings have been based on existing floor plans provided by ML Design:

- The former Treasury Building;
- The former Government Printing Office;
- Former Public Service Club;
- The Mansions;
- The former Land Administration Building;
- Former Department of Primary Industries Building;
- Harris Terrace;
- The former State Library; and
- The Commissariat Store.

Table 2 – Existing Development and GFA

Precinct	Residential - 1 and 2 bedroom	Residential - 3 or more bedrooms	Accommodation (Short) 1 and 2 bedroom	Accommodation (Short) 3 or more bedrooms	Places of Assembly (Function Facility + Museum) GFA (m^2)	Commercial (office) GFA (m^2)	Commercial (retail) GFA (m^2)	Entertainment GFA (m^2)	Total (GFA) (m^2)	Total (Hotel Numbers)	Total (Apartment Numbers)
Precinct Wide	0	0	0	0	0	0	0	0	0	0	0
Precinct 1	0	0	0	0	1201	56667	3046	0	60914	0	0
Precinct 2	0	0	127	2	0	2431	0	18556	20986	129	0
Precinct 3	0	0	0	0	0	7275	0	0	7275	0	0
Precinct 4	0	0	0	0	0	0	0	0	0	0	0
Total	**0**	**0**	**127**	**2**	**1201**	**66372**	**3046**	**18555.5**	**89174.5**	**129**	**0**

3.3. PROPOSED DEVELOPMENT AND GFA

For the purpose of this IMP, the proposed development and GFA is based on the maximum GFA specified by the PoD. The proposed GFA is therefore based on the scenario where all development within the PDA is built to this maximum.

GFA which is not allocated to hotel rooms, apartments and retail has been classified as 'Entertainment'. The 'Entertainment' category has the highest charge rate for the purposes of infrastructure charging. In subsequent Compliance Assessment applications, the allocation of GFA to specific land uses will be resolved through the detailed design of the buildings and floor plates.

The ratio of 1, 2 and 3 bedroom apartments and hotel suites may change as the reconfiguration of hotels and floor plans are developed. However, the overall total number of apartments and hotel rooms will not change.

Table 3 – Proposed Development and GFA

Precinct	Residential - 1 and 2 bedroom	Residential - 3 or more bedrooms	Accommodation (Short) 1 and 2 bedroom	Accommodation (Short) 3 or more bedrooms	Places of Assembly (Function Facility + Museum) GFA (m^2)	Commercial (office) GFA (m^2)	Commercial (retail) GFA (m^2)	Entertainment GFA (m^2)	Total (GFA) (m^2)	Total (Hotel Numbers)	Total (Apartment Numbers)
Precinct Wide	0	0	0	0	0	0	0	0	0	0	0
Precinct 1	611	39	968	484	0	0	~~33,560~~ 33,550	~~59,000~~ 60,300	~~92,560~~ 93,850	1,452	650
Precinct 2	0	0	99	49	0	0	17,550	17,350	~~22,200~~ 34,900	148	0
Precinct 3	1,269	81	0	0	0	0	1,200	3,050	4,250	0	1,350
Precinct 4	0	0	0	0	0	0	50	0	50	0	0
Total	**1,880**	**120**	**1,067**	**533**	**0**	**0**	~~52,360~~ 52,350	~~66,700~~ 80,700	~~119060~~ 133,050	**1,600**	**2,000**

3.4. POPULATION PROJECTIONS

To develop the traffic model and assessment, trunk infrastructure demand, capacity and future upgrades, determining the anticipated population projections for the QWBIRD was necessary.

Urbis Pty Ltd has developed population projections based on the proposed gross floor area and number of apartments and hotel rooms expected if the QWBIRD was to be developed to the maximum potential as proposed by the PoD as expressed in **Table 3** above. These population and dwelling projections are in **Table 4** below.

The population projections in **Table 4** below include hotel guests, residents in apartments, single and day trip visitors to the QWBIRD and all employees.

Table 4 – Population Projections

Population Type	Approximate Population Per Day Assuming 100% Occupancy
Hotels	2,400
Apartments	3,600
Visitors per day	40,000
Employees	10,118

3.5. PROPOSED GFA AND POPULATION PROJECTION ASSUMPTIONS

The population and dwelling GFA projections are based on of the following assumptions:

- The population projections are based on the QWBIRD being at 100 per cent occupancy for apartment and hotel rooms, employees and visitors, per day;
- Employees are based on the Deloitte Access Economics *'Economic Impact of the Development of the Queen's Wharf Brisbane Precinct – October 2014*' which states there will be 10,118 persons which includes 4,722 full time, 1,349 part-time and 4,047 casual employees with an equivalent of 6,476 full time jobs by 2050;
- Employee figures account for any staff across the entire QWBIRD including the Integrated Resort Development (IRD) casino, hotels and back of house, food and drink outlets, retail, foreshore precinct, all heritage buildings and future residential development;
- Employee figures assumed by Urbis are based on all employees on-site across the day, rather than the maximum number of employees at a single point in time. TTM Consulting has assumed 3,300 employees for the IRD only, which is based on the maximum number of employees at a single point in time on the site. This is more appropriate for traffic modelling purposes because it's the number of people on the site that determine the number of trips generated;
- The QWBIRD will generate approximately 40,000 visitors a day, which may be comprised of multiple visitations by a single visitor. The projection of 40,000 visitors a day, or 14.6 million visitors per year, has been assumed for the trunk infrastructure requirements;
- DBC has previously identified that the IRD would generate 1.39 million visitors per year;
- The 14.6 million visitors per year assumed for this IMP is based on the number of visitors to the precinct as a whole and the 1.39 million visitors is to the IRD on its own;
- The estimate of 1.39 million visitors per year represents a unique visitor (i.e. the number of distinct individuals attending the IRD in a single year, regardless of how many times they visit);

- The estimate of 14.6 million visitors per year represents visitations to the precinct as a whole, and may be comprised of multiple visits by a single visitor;
- The GFA derived by Urbis in **Section 3.2** and **3.3** of the IMP are primarily for the purposes of infrastructure charging and have not been used to determine the capacity of the trunk infrastructure networks. A large proportion of the area accounted for in the GFA tables in **Section 3.3** are non-trafficable areas, such as back of house, hotel hallways, cleaning cupboards, gyms and pools. These areas are required for the purpose of infrastructure charging, but do not equate to 'populated' areas. These areas have already been accounted for as part of the employee estimates. Therefore, the GFA figures in these are higher than the GFA assumed by Bornhorst & Ward for **Volume 3, Attachment I: Civil and Infrastructure Report** and TTM Consulting for **Volume 3, Attachment G: Traffic Engineering Report** for the purposes of infrastructure modelling which informed these reports;
- The hotel room numbers have been assumed on an efficiency of between 60 per cent and 80 per cent and an average hotel room size varying between 50m^2 and 75m^2. Hotel room sizes in the QWBIRD vary significantly, from 30m^2 to 270m^2;
- The apartment numbers have been assumed based on an efficiency of between 75 per cent and 90 per cent and an apartment size of 65m^2 for a one bedroom apartment, 95m^2 for a two bedroom apartment and 120m^2 for a three bedroom apartment. These efficiency rates have been derived from preliminary floor plates. The apartments in the residential towers of the QWBIRD will be significantly larger than the average apartment size for a one, two and three bedroom apartments;
- Hotels and apartments have different efficiency rates, with hotels typically having a lower efficiency rate due to the services and amenities which are required. This includes, but is not limited to, lobby, cleaning and luggage storage, gyms and pools and service lifts;
- The population projection based on the hotel room numbers has been derived from the Australian Bureau of Statistics 2011 census data with a rate of 1.5 persons per hotel room;
- The population projection based on the apartment numbers has been derived from the Australian Bureau of Statistics 2011 census data with a rate of 1.8 persons per apartment for Brisbane City; and
- The population projections for hotel and apartment numbers have been calculated based on 100 per cent occupancy, which is considered to be an extremely rare scenario in any resort complex.

4. EXISTING INFRASTRUCTURE DEMAND

Having regard to the existing development and GFA shown in **Table 2** in **Section 3.2** of the IMP the following section is an analysis of the existing infrastructure demand on all infrastructure networks.

Due to the extent of existing stormwater infrastructure, these have been described by each Sub-Precinct in the PoD. All other infrastructure has been described precinct wide.

4.1. TRANSPORT

As the site is located within the Central Business District (CBD), the existing transport networks near the site cater for a wide variety of transport options which are discussed separately below.

4.1.1. Roads and Intersections

Volume 3, Attachment G: Traffic Engineering Report, Section 10 identified that the roads within QWB are primarily the responsibility of the Brisbane City Council (BCC), the exception being the Riverside Expressway (REX) which is the responsibility of the Department of Transport and Main Roads (DTMR). The hierarchy and characteristics of roads in the immediate vicinity of the site are shown in **Table 5** below, extracted from Section 10.2 of **Volume 3, Attachment G: Traffic Engineering Report**.

Table 5 – Road Hierarchy and Characteristics

Road	Speed Limit	Lanes	Classification	Road Authority
Riverside Expressway	70-80kph	Dual 3-4 lane elevated road bridges, plus on/off ramps	Arterial and Motorway	DTMR
Margaret Street ~	40kph	4 lanes, one-way (northbound only)	Suburban Route	BCC
William Street	40kph	4 lanes, two-way	District Access Route	BCC
Alice Street ~	40kph	4 lanes, one-way (southbound only)	Suburban Route	BCC
Queens Wharf Road ^	40kph	Two lanes, two-way	Local Access	BCC
Gardens Point Road	40kph	One lane, one-way (north/eastbound only)	Non-gazetted Road	BCC *

~ The Riverside Expressway on and off ramps connecting to Margaret Street and Alice Street are under the authority of DTMR.

** Gardens Point Road is not a gazetted road, but DTMR is the owner of the land on which it is situated.*

^Queens Wharf Rd is restricted to bus/motorcycle access only to the west of the Royal Historical Society of Qld Commissariat Store.

All major intersections are signal controlled, except for Queens Wharf Road which intersects with Margaret Street as a give way sign.

The current traffic volumes operating on these roads have been recorded in a series of surveys from 2014 to 2016, which have been utilised by BCC to calibrate their Saturn model to assess traffic operation.

4.1.2. Public Transport

Volume 3, Attachment G: Traffic Engineering Report, Section 6.2 identified the existing public transport infrastructure.

4.1.2.1. Bus

QWB has direct access to 3 major Busway Stations. The Myer Centre is approximately 300m from QWB and provides a major bus hub for accessing key bus routes north and south of the city. The new pedestrian bridge proposed as part of the PDA-associated development in Precinct 4 will also provide access to the Cultural Centre and South Bank Busway Stations with 900m of the site, providing additional connectivity to key south side bus routes.

QWB is also within 400m of major on-street bus facilities, including Alice Street and Adelaide Street. Overall, QWB is within 400m of over 70 bus routes servicing all areas of the Brisbane Metropolitan Area.

There is also planning for the Busways and associated Stations to be upgraded to cater for a new high capacity Metro system. This will significantly increase the capacity along its route.

4.1.2.2. Train

QWB is already accessible (within 1km of) three train stations, namely Central, Roma Street and South Bank (via the Goodwill Bridge) Stations. Combined, these three stations offer access to every train line throughout Brisbane.

4.1.2.3. Ferry

QWB has the North Quay and QUT CityCat stops within the proposed public realm. Alternatively, the Eagle Street ferry terminal is within 600m of QWB directly along Mary Street. These locations provide access to the entire ferry network, including CityCats, City Hopper and cross river ferry services.

4.1.3. Cycling Infrastructure

QWB is traversed by the Bicentennial Bikeway, which is the primary cyclist access route to and from the CBD. This includes connections north and south along the river, with river crossings at the Goodwill Bridge and Kurilpa Bridge.

The secondary and local cycle path network extends from the Bicentennial Bikeway along William, Margaret, Alice and George Streets as shown in Figure 3.

Figure 3 - Local Area Cycle Network

Source: Brisbane City Council, 2017

4.1.4. Pedestrian Infrastructure

There are existing footpaths throughout QWB along all street frontages in various conditions.

Virtually all roads in the vicinity of QWB have footpaths along both verges, provided as full width pavements and a minimum clear path width of 2.4m. The exception to this is the local roads (Queens Wharf Road and Gardens Point Road) where the width and continuity of the paths on both verges is not fully maintained.

All signalised intersections in the vicinity of QWB include pedestrian crossing facilities. There is also a set of pedestrian signals in William Street. All crossing points are fitted with pram ramps; however, there is very limited provision of tactile pavement markings in this area of the CBD.

Sub-Precincts 1c-1g contain the Bicentennial Bikeway, which is a main commuter thoroughfare and connects the Coronation Drive Bikeway to the CBD and QUT Gardens Point.

4.2. PUBLIC REALM

Existing public realm infrastructure within QWB is primarily confined to two parks. Table 6 below shows the existing public realm infrastructure within each proposed precinct.

Table 6 – Existing Public Realm Infrastructure

Precinct	Public Realm Infrastructure
1	Miller Park
2	Queen's Gardens
3	None
4	None

4.3. STORMWATER

The following information is derived from Section 5 of the **PoD Volume 3, Attachment I: Civil Works and Infrastructure**.

Existing stormwater infrastructure within QWB has been identified through review of BCC information, as-constructed plans, and survey information. With the proximity of QWB to the Brisbane River, most of the stormwater lines collect runoff and discharge directly into the River. Therefore, there is no major infrastructure for collecting large stormwater catchments. The largest existing pipe size within QWB is the 1,050mm diameter pipe within Margaret St. The following summarises the existing stormwater drainage infrastructure within QWB.

Precinct 1a – Resort

- A 450mm diameter stormwater line starts on William St adjacent to 102 George St. This runs south-east on William Street before turning south-west down Margaret Street and enlarging to 525mm diameter before ultimately discharging into the Brisbane River as a 600mm diameter RCP. The upstream portion of this line within William Street will be removed for construction of the Resort basement;
- Three stormwater lines (2 x 450mm and a 375mm) are present on Queens Wharf Road discharging into the river. These pipes currently service the existing Neville Bonner building, and the road reserve of Queens Wharf Road;
- A 900mm diameter line starting at the intersection of Margaret Street and George Street runs north-east down Margaret St, away from the Precinct;
- Stormwater infrastructure is present within the intersection of George Street and Charlotte Street. A 300mm diameter pipe collects runoff from adjacent gully pits and drains into a 450mm diameter pipe running down Charlotte Street away from the Precinct;
- Other runoff within William Street is collected by gully pits within the road reserve adjacent to the existing Neville Bonner building, connecting into downstream infrastructure within the Resort and Landing Precincts;
- The Neville Bonner building connects to the existing main on Queens Wharf Road;
- 110/80A/and The Annex are all serviced by the 150mm sewer within William St; and
- A 300mm main in William St splits in front of the Commissariat Store into a 150mm diameter CICL and 180mm diameter PE water mains and run down to the intersection with Margaret St.

Precinct 1b – North-West Precinct

- The majority of the infrastructure running through this Precinct is to service the former Treasury Building area;
- A 150mm diameter pipe starts on Queens Wharf Road and discharges directly into the Brisbane River; and
- Multiple gully pits within Queens Wharf Road are suspected to discharge directly to the Brisbane River.

Precinct 1c and Precinct 1d – North Quay and Queens Wharf Road

- According to information obtained from a Dial Before You Dig enquiry and detailed survey within the site, there are multiple existing stormwater outlets into the river within the North Quay/Queens Wharf Plaza Precinct. These outlets range in size from 100mm up to 450mm diameters; and
- The stormwater infrastructure present within the Precinct drains upstream catchments within the former Treasury Building Precinct and North-West Precinct.

Precinct 1e and 1g – The Landing and Goodwill Extension

- Due to its location, existing stormwater infrastructure within the Precinct is mainly just outlets of upstream pipes collecting other Precincts.
- The riverside expressway above the Precinct currently has its runoff discharge in two different ways:
  - If the expressway is over land, pipes collect the runoff from the scuppers and drain it to the underground pipe network, ultimately discharging into the river at ground level; and
  - If the expressway is over the river, the runoff from the scuppers simply ‘spills’ over the edge and directly into the river. Refer to Figure 5 of PoD Volume 3, Attachment I: Civil Works and Infrastructure Report for further information.
- Existing runoff from the Bicentennial Bikeway currently sheet flows directly into the Brisbane River.

Precinct 1f – Waterline Park

- There are multiple outlets currently draining through the Precinct. These pipes pick up upstream catchments from QUT and the Queensland Parliament building;
- These existing pipes range in size from 100mm up to 1050mm;
- Existing runoff from the Bicentennial Bikeway currently sheet flows directly into the Brisbane River;
- The riverside expressway above the bikeway has pipes collecting stormwater discharge from the scuppers and directs it to an underground pipe system which runs beneath the bikeway and discharges into the Brisbane River; and
- There is an existing 150mm water main on Gardens Point Road being fed from Margaret St.

Precinct 1h and 1i – IRD Heritage and Miller Park

- A 225mm diameter line starts in the William St road reserve adjacent to 99 William St before traversing through the property and discharging directly into the Brisbane River;
- 3 lines (2 x 300mm & 1 x 100mm) serving the former State Library, Miller Park and the Commissariat Store Museum start on Queens Wharf Road discharge into the Brisbane River;
- The Public Service Club and the Printery currently have their sewer and water connections through the Executive Building Annex;
- Runoff from The Mansions currently discharges to the kerb and channel of George St;
- The former DPI building and the Commissariat Store both have water connections on William St and sewer connections on Queens Wharf Road; and
- The Mansions currently has water and sewer connections through 80B George.

Precinct 2 – Treasury

- A roof water line for the former State Library runs through Miller Park, across Queens Wharf Road, and ultimately discharging into the Brisbane River as a 300mm pipe;
- 4 separate lines starting around the former Treasury Building discharge straight into the Brisbane River (2 x 300mm, 2 x 100mm merging to a 450mm);
- A 225mm diameter line starting on Elizabeth Street adjacent to the former Treasury Building runs north-east enlarging to a 600mm diameter; and
- Existing water and sewer connections for the buildings are on George St.

Precinct 3 – Residential

- A 450mm diameter line starting at the intersection of George St and Alice St runs north-east along Alice St;
- A 300mm diameter line starting adjacent to the south-eastern border of the Precinct flows south-west along Alice St discharging into the Brisbane River;
- An unknown sized stormwater line starting on Margaret St adjacent to the north-western boundary of the Precinct discharges into the 450mm diameter line on Margaret St as mentioned above;
- Currently runoff from 80 George Street is directed into an underground pipe that crosses George Street and enters the 1 William Street site. This pipe has been diverted within the 1 William Street basement and discharges to infrastructure within Alice Street; and
- Water and sewer connections for 80B George Street are to Alice and Margaret St.

Precinct 4 – PDA Associated Development

- The majority of the existing infrastructure within the Turbot Street PDA-Associated land is near surface level, including gas, Energex, Optus, water, sewer, and other telecommunications carriers. Some stormwater drainage drops down beneath the expressway to discharge directly into the Brisbane River;
- There is an existing DTMR communications room near the proposed connection point on North Quay. It has been confirmed that this room is further to the north of the proposed connection location therefore it will not be affected; and
- Riverside Expressway columns are present along North Quay for the Turbot Street and Ann Street ramps.

Based on the size and location of the existing stormwater pits and pipes, the current infrastructure is able to adequately meet the requirements for the existing development within QWB.

4.4. WATER

The following information is derived from Section 3.4 of the **PoD Volume 3, Attachment I: Civil Works and Infrastructure**.

Queensland Urban Utility (QUU) Asset Maps reveal the presence of water infrastructure QWB. The water infrastructure is as follows:

- Margaret Street contains a 180mm diameter line adjacent to 80 George Street, and a 225mm diameter line adjacent to 40 George Street which continues past 1 William Street of unknown size;
- William Street contains a 150mm diameter line which runs on the north-eastern side of the road from to 40to 142 George Street, and a 180mm diameter line running adjacent to 115 and 127 William Street, where they combine into a single 300mm diameter pipeline;
- George Street contains a 150mm diameter line on the south-western side, and a 300mm diameter line on the north-eastern side;
- Stephens Lane has a 150mm diameter line reducing to 100mm diameter;
- Alice Street has water lines on both sides of unknown size; and

- No water reticulation infrastructure has been identified on Queens Wharf Road.

Copies of the QUU Asset Maps are included in **PoD Volume 3, Attachment I: Civil Works and Infrastructure - Appendix C** prepared by Bornhorst and Ward.

From the information that has been made available, it has been determined that the current water infrastructure within QWB has adequate capacity for the existing development.

4.5. WASTE WATER

The following information is derived from Section 3.3 of the **PoD Volume 3, Attachment I: Civil Works and Infrastructure**.

The existing sewerage infrastructure within QWB has been identified through a review of QUU Asset Maps and as constructed plans of existing assets. There are three main sewer catchments within QWB, being areas draining to the sewers within Alice St, Charlotte St, and Elizabeth St. The majority of the existing area is drained to the Alice St sewer with only small catchments on adjoining George St draining to the Charlotte and Elizabeth St sewers.

Copies of the QUU Asset Maps are included in **PoD Volume 3, Attachment I: Civil Works and Infrastructure - Appendix B** prepared by Bornhorst and Ward.

The existing sewerage infrastructure within the vicinity of QWB is described as follows:

- George Street contains a 225mm diameter sewer reticulation line starting adjacent to 80 George Street. This line flows to the intersection of George Street and Margaret Street;
- Margaret Street contains a 150mm diameter line from the intersection of Margaret and George Street, flowing south-west. This joins to a line at the intersection of Margaret Street and Gardens Point Road;
- Queens Wharf Road contains a 150mm diameter line starting at the intersection of Elizabeth Street and Queens Wharf Road which flows south-east connecting to the line at the intersection of Margaret Street and Gardens Point Road;
- William Street contains a 150mm diameter sewer line starting adjacent to 102 George Street and a second sewer line of unknown size starting adjacent to 40 George Street. Both lines connect into the line flowing down Margaret Street;
- There is also further infrastructure within the surrounding streets including Elizabeth Street, Charlotte Street, Mary Street, Alice Street and Gardens Point Road for which details are unknown;
- There is a private pump station near 266 George Street with a rising main heading west over the Victoria Bridge; and
- There are existing property connections to multiple lots within the development site. Some lots have more than 1 connection to the QUU mains.

Based on investigations and discussions with QUU, the portion of the existing infrastructure directly surrounding the development is adequate for the existing development demands.

5. FUTURE INFRASTRUCTURE DEMAND

Future infrastructure demand is based upon projected development yields outlined in **Section 3.3** and population projections outlined in **Section 3.4** of this IMP.

5.1. TRANSPORT

While the remainder of this IMP addresses Transport Infrastructure under Roads and Intersections, Public Transport, Cycling Infrastructure and Pedestrian Infrastructure, for the purposes of future infrastructure demand, it is prudent to assess the transport network as a whole. Therefore, this section of the IMP does not break down the future infrastructure demand further than 'Transport'.

To identify the future demand on the network, TTM Consulting undertook a first principles assessment of the overall development population. This is detailed in **Section 4** and **Appendix E** of the **PoD Volume 3 – Attachment G: Traffic Engineering Report** prepared by TTM Consulting. The TTM Consulting assessment identifies the peak loading on the transport network, correlating to current peak demands and peak operation of QWBIRD.

As QWB is in a CBD location, the trip demand matrix is divided across a number of modes. The 7 key transport modes assessed by TTM Consulting are:

- Private vehicles (parked in or near site);
- All vehicles for pick up and set down (taxi, coaches, private set down);
- Bus;
- Train;
- Ferry;
- Walk; and
- Cycling.

In assessing the demands, there are significant factors with respect to the sites travel patterns that need to be considered. Most notably that the site is within a CBD location, has a high level of accessibility to multiple forms of transport and is an integrated use, generating significant internal movements. The potential traffic demands of the development include the following:

- Weekday morning and evening commuter peak periods, when all modes of transport are operating at high demand in the CBD area (even if development demands are not at their greatest).
- Peak operating periods of the site during Friday and Saturday evening periods, when movement demands in and out are highest (but when demands on the external road network are lowest), to confirm suitability of internal transportation provisions and interface with the external road network.
- Off-peak periods when demand on external transportation provisions is reduced, such as early morning and Sundays when public transport options are reduced/limited, but where transport demands are still being generated by the development which need to be accommodated and impacts on specific transportation modes needs to be assessed.

The transport model incorporates options for 1 William Street to commence operation with the existing buildings in QWB to continue operating as commercial uses. This scenario is considered as the base case for the assessment of the proposed land redevelopment. While 1 William Street is contained within the PDA boundary, it does not form part of the QWBIRD and is therefore not part of the IMP.

When comparing this to the peak commuter demands on the transport networks (based on assessments against traffic flows) TTM Consulting notes that:

- Inbound trip demands are virtually unchanged in the AM peak;
- Outbound trip demands from the development zones will increase moderately in the AM peak hour;
- Outbound trip demands will slightly increase in the PM peak; and

- Inbound trip demands to the development zones will increase significantly in the PM peak hour.

QWBIRD is expected to significantly increase the transport demands outside these commuter peaks due to the 24 hour nature of the entertainment uses and more balanced trip generation from the short term accommodation.

As the CBD is the commercial centre of the region, the peak trip demand is generally in the direction of the key commute. That is, trips to the CBD peak in the AM peak and trips from the CBD peak in the PM peak. As such, the proposed development adds little or no demand to the commuter peak. Where it does add demand is to the direction opposing the commuter peak. In this way, the proposed development compliments the CBD transport task, by adding little or no trips in the commuter peak direction. Where trips are added, it is in the reverse direction, where roads, buses, trains, ferries and cycle paths have spare capacity.

On a Friday or Saturday, the trip demands have been estimated as per **Table 7** below. Note that these are the number of trips undertaken by individuals and need to be factored for occupancy to determine the number of transport trips required to cater for these trips.

Table 7 – Total Movement

Mode	Commuter Peak Generation	Development Peak Generation	Estimated Daily Generation
Cars Parking	1650	1825	17,000
Vehicle Setdown	400	1,400	10,000
Bus	535	515	7,000
Train	535	555	8,000
Ferry	50	50	700
Walking	1,740	1,940	19,000
Cycle	60	30	600
Total			**58,300**

This total movement includes all residents, visitors, patrons and employee movements. It does not take into account internal movements between the mixed uses on-site, which are expected to be very significant in the operation of the integrated resort.

Table 7 identifies the demands for Fridays and Saturdays. The remaining days of the week are expected to generate demands between 60% and 80%of these because the functionality of the site is based on leisure and entertainment which has peak demands on the weekends.

Existing footpaths will be upgraded throughout QWB to accommodate the additional population to QWBIRD. However, existing verge widths will be maintained as they are restricted by existing kerb and channel alignments and the retention of existing buildings in their current locations (i.e. heritage buildings).

5.2. PUBLIC REALM

Having regard to the future development proposed a full range of public realm infrastructure is proposed and listed in **Tables 14** and **15** (refer to Section 7.2 of this IMP). This infrastructure has a PDA and City wide catchment and relates specifically to the development proposed.

5.3. WATER, WASTE WATER AND STORMWATER EQUIVALENT PERSONS AND DENSITY LOADING

The following information is derived from Section 3 of the **PoD Volume 3, Attachment I: Civil Works and Infrastructure**.

The development density, in terms of Equivalent Persons (EP) has been calculated based on the following information:

> *SEQ Water and Sewer Supply and Sewerage Design & Construction Code – Design Criteria (SEQ WS&S)*

The SEQ Design Criteria contains the information and requirements for designing and sizing sewer and water infrastructure and as such have been used to calculate EP in **Table 8**. The QUU Netserv plan outlines future QUU strategies and the process, fees, and charges for connections and will be used for the future infrastructure.

The following **Table 8** is a summary of the Density loading for each development type.

Table 8 – Density Loading

Type	EP Loading	Units	Notes	EP/ET Conversion	EP/Unit	Units
Detached Dwelling	2.65	Dwelling	SEQ WS&S Design Criteria Appendix A4	N/A	2.65	Dwelling
Residential Apartments	1.79	EP/Attached Dwelling	SEQ WS&S Design Criteria Appendix A4	N/A	1.79	Attached Dwelling
Hotel Suites	1.79	EP/Room	Assumed as per above	N/A	1.79	Hotel Room
Hotel GFA	0.0024	ET/m^2	Previous Advice from QUU	2.7	0.00648	m^2 GFA
Commercial GFA	0.0024	ET/m^2	Previous Advice from QUU	2.7	0.00648	m^2 GFA
Retail GFA	0.0024	ET/m^2	Previous Advice from QUU	2.7	0.00648	m^2 GFA

5.4. STORMWATER

The following information is derived from Section 4 of the **PoD Volume 3, Attachment I: Civil Works and Infrastructure**.

Due to the existing nature of the site being completely developed, it is not expected that there will be any increase in runoff from QWB as part of the development works. However, due to some of the proposed connection points, some of the existing stormwater infrastructure does not have the capacity to service QWB. Additional stormwater infrastructure is therefore required to service QWB sufficiently. This includes

end of line bio-retention basins, including upstream pipework to connect the majority of QWB for stormwater quality treatment. Details of this new infrastructure are detailed in **Section 6.3**.

The **PoD Volume 3, Attachment I: Civil Works and Infrastructure Report – Appendix C** has been prepared for stormwater management. The overarching stormwater strategy for the entire site includes and has considered:

- Management and treatment of stormwater from those parts of the site being developed to meet Brisbane City Council (BCC) load based water quality objectives and Urban Stormwater Quality Planning Guidelines, the *State Planning Policy 2017* and *Water by Design: MUSIC Modelling Guidelines 2010*;
- Stormwater from the external catchment that is conveyed through the site does not require treatment;
- Stormwater runoff from the site does not adversely impact on flooding or drainage for all events up to the 100-year Average Recurrence Interval (ARI) of properties that are upstream, downstream or adjacent to the site; and
- Stormwater solutions that are based on a minor event (pipe design) with a recurrence interval of 10 years and a major event (for setting flood levels) with a recurrence interval of 100 years.

5.5. WATER

The following information is derived from Section 3.4 of the **PoD Volume 3, Attachment I: Civil Works and Infrastructure**.

The Average Day (AD), Peak Day (PD) and Peak Hour (PH) demands have been calculated based on the development density as described above. Calculations based on methods described in SEQ WS&S Design Criteria, and summarised as follows:

- *Average Day Demand (AD)*

  AD = ($^{\text{demand category}}$ AD x EP) + (NRW + EP)

  Where: AD = Average Day Demand 230 L/EP/d

  EP = Equivalent Person calculated per catchment

  NRW = Non-Revenue Water 30L/EP/d

- *Peak Day Demand (PD)*
  PD = ($^{\text{demand category}}$ PD/AD x AD x EP) + (NRW + EP)

  Where: PD/AD = 2 based on High-Density Residential

  Although the site consists of a mixed-use, High-Density Residential is the predominate mix of density.

- *Peak Hour Demand (PH)*
  PD = ($^{\text{demand category}}$ PH/AD x AD x EP) + (NRW + EP)

  Where: PH/AD = 3.5 based on High-Density Residential

Based on the above and having regard to **Section 3.3** and **Section 3.4** the overall water demand for can be summarised as follows:

Table 9 – Water Demand

Precinct	EP	Average Day Demand (AD)	Peak Day Demand (PD)	Peak Hour Demand (PH)
1: IRD	4319	13	24.49	41.74
2: Treasury	447	1.35	2.54	4.32
3: Residential	2444	7.35	13.86	23.62
4: PDA-associated development	4	0.01	0.02	0.04

5.6. WASTE WATER

The following information is derived from Section 3.3 of the **PoD Volume 3, Attachment I: Civil Works and Infrastructure**.

Flow projections for the Peak Wet Weather Flow (PWWF) within the sewer network have been calculated based on the Development Density as described in **Section 5.5**. For the purposes of these calculations, individual segments of the new infrastructure have been identified to form catchments. All proposed sewer connection points from Sub-Precinct 1a to the new trunk line have been coordinated with the hydraulic engineers. Additional provisions have been included for future connections from surrounding Sub-Precincts of QWB.

Flow projections have been undertaken within each catchment boundary using methods described in SEQ WS&S Design Criteria, and summarised as follows:

- *PE (NuSewer) Catchments:*

  PWWF = 'd' x SF + GWI + RDF

  Where: PWWF = Peak Wet Weather Flow

  'd' = Peaking Factor based on population, recalculated at each inflow point

  SF = Sanitary Flow 150L/EP/d

  GWI = Ground Water Infiltration 30L/EP/d

  RDF = 360L/EP/d

- *Conventional Sewer Catchments (Rubber Ring Joint i.e. VC, HOBAS etc.)*

  PWWF = 5 x ADWF

  Where: ADWF = Average Dry Weather Flow 210L/EP/d

A detailed breakdown of catchment flows contributing to the sewer network is attached in **PoD Volume 3, Attachment I: Civil Works and Infrastructure – Appendix C**.

Based on the above flow projections, capacity calculations of the proposed network have been undertaken. These calculations have been completed using Manning's Equation and a maximum flow depth of 75 per cent as required by the SEQ Design Criteria **Table 10** No. D8 for a Maximum Flow Depth of 75 per cent. Manning's Equation is an equation used to calculate pipe capacity. A Manning's 'n' of 0.0128 has been applied for Nu Sewers (PE) and the grade has been selected based on existing ground levels along with any construction requirements for tunnel boring.

Based on the above and having regard to **Section 3.3** and **Section 3.4** the overall demand for sewerage in QWB can be summarised as follows:

Table 10 – Sewer Demand

Precinct	EP	Peaking Factor (D)	NuSewer PWWF (L/S)
1: IRD	4319	2.63	39.19
2: Treasury	447	4.80	5.74
3: Residential	2444	2.85	23.14
4: PDA-associated development	4	1.04	0.03

6. IMPACTS ON TRUNK INFRASTRUCTURE

The impacts of the additional demand on the trunk infrastructure networks described in Section 5 is assessed in the following section.

6.1. TRANSPORT

The following information is derived from the background information of the **PoD Volume 3, Attachment G: Traffic Engineering Report** (including Sections 4 and the pedestrian analysis in Appendix A of that report).

The total public transport impact within QWB as a consequence of the proposed development will be less than 16,000 movements per day. The current estimate for existing public transport trips within QWB is well in excess of 150,000 movements to the CBD (including South Bank) in each peak period and over 500,000 individual trips per day. In this context, the proposed development will increase the transport impact by less than 1 per cent at commuter peak times and approximately 3 per cent on a 24 hour basis. Further benefits occur as the peaks are reverse, particularly with the residential uses, such that more people use the below capacity outbound services in the morning and the reverse in the PM. Additionally, the proposed development results in the removal of 66,000m^2 of commercial GFA which is estimated to generate 500 to 600 peak hour public transport trips and 5,000 per day. This generally means that no additional services are required around the commuter peaks within QWB.

6.1.1. Roads and Intersections

With respect to the road networks, these have a static capacity. As such, if any deficiencies are identified, works are required to increase the physical capacity of the networks. However again, the development has the primary impact in the reverse direction to the prevailing peaks. As such, capacity is largely suitable in the direction of the peak flow and spare capacity is available in the reverse direction.

William Street and Queens Wharf Road were formally closed from 1 January 2017, following separate approvals for road closures for these streets.

6.1.2. Public Transport

The proposed development will spread the trip mode more evenly over the 24 hour period. For the public transport networks this may require that services operate more regularly for longer periods. Particularly over weekends, the proposed development would be expected to generate 200 to 300 trips per hour via public transport throughout the night. This may warrant additional night bus services on key night routes and/or the train service being extended on some lines.

William Street and Queens Wharf Road were formally closed from 1 January 2017, following separate approvals for road closures for these streets. Consequently, BCC have re-aligned a number of bus routes and relocated a number of bus stops that previously traversed these streets.

6.1.3. Cycling Infrastructure

With respect to the cyclist networks, these have a static capacity. As such, if any deficiencies are identified, works are required to increase the physical capacity of the networks. However again, the development has the primary impact in the reverse direction to the prevailing peaks. As such, capacity is largely suitable in the direction of the peak flow and spare capacity is available in the reverse direction.

6.1.4. Pedestrian Infrastructure

With respect to the pedestrian networks, these have a static capacity. As such, if any deficiencies are identified, works are required to increase the physical capacity of the networks. However again, the development has the primary impact in the reverse direction to the prevailing peaks. As such, capacity is largely suitable in the direction of the peak flow and spare capacity is available in the reverse direction.

It is also noted that the key external areas where pedestrian demands from the proposed development will occur (William Street within the site and the southern verge of George Street) already operate well below capacity, despite being primary access routes to existing uses through QWB.

6.2. PUBLIC REALM

Impacts on the existing public realm infrastructure to accommodate the new public realm works in **QWB PoD Volume 2** are outlined in the table below.

Table 11 – Existing Public Realm Infrastructure and Impacts

Precinct	Existing Public Realm Infrastructure	Impact
1	Miller Park	Retained and upgraded
2	Queen's Gardens	Retained and upgraded
3	None *	N/A
4	None	N/A

** Note: Bellevue Plaza is not considered as a Public Park. Unlike Queen's Gardens which is identified as Open Space, Bellevue Plaza is not and is therefore not considered existing 'trunk infrastructure'.*

6.3. STORMWATER

The following information is derived from Section 4 of the **PoD Volume 3, Attachment I: Civil Works and Infrastructure**.

As noted above, due to QWB currently being completely developed there will be no net increase in stormwater runoff from the proposed development. However, due to some of the proposed connection points, there is existing infrastructure that does not have the capacity to service QWB.

Additional stormwater infrastructure is therefore required to service QWB sufficiently. This includes end of line bio-retention basins, including upstream pipework to connect the majority of the IRD Precinct for stormwater quality treatment. Details of this new infrastructure are detailed in **Section 7.3** of this IMP.

6.4. WATER

The following information is derived from Section 3.4 of the **PoD Volume 3, Attachment I: Civil Works and Infrastructure**.

Based on discussions with QUU throughout the preliminary design phase of the proposed development, it was determined that the current water infrastructure surrounding QWB is sufficient to service the new use of the site.

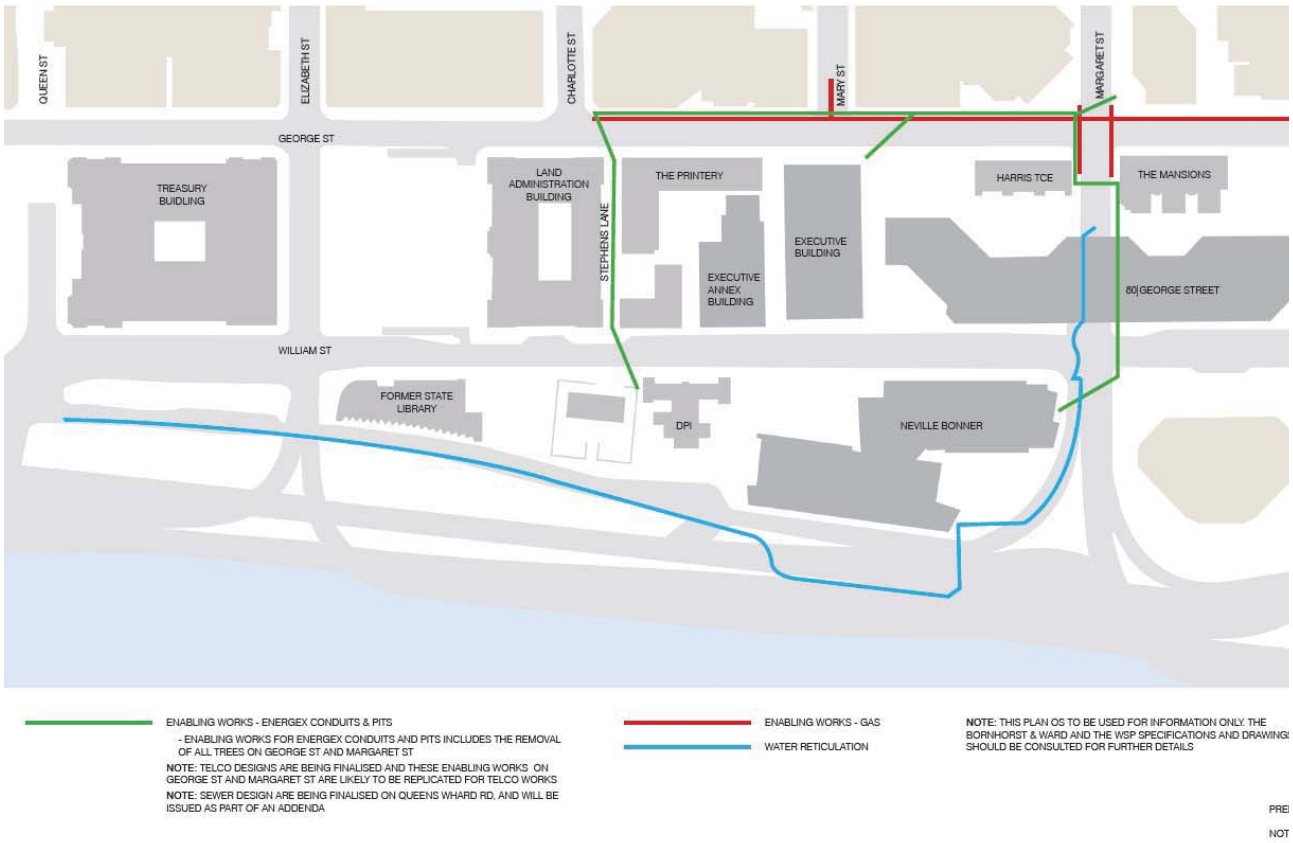
Due to construction of the basement, a section of William Street is to be completely demolished and later reinstated without services corridors. The two water mains that exist with this section are proposed to be removed. To maintain water circulation, the two pipes will be connected north of the IRD Precinct on William Street to provide a loop at the dead end. Also as a result of the proposed development a new water main is to be provided to replace the existing William Street main. This new water main will begin at the top of Queens Wharf Road from the intersection of William and Queen Street, down Queens Wharf Road around Sub-Precinct 1a, up Margaret Street to connect back into an existing main on William Street. Details of this new infrastructure are detailed in **Section 7.1** of this IMP.

6.4.1. Water Service Diversions

Water reticulation services diversions are required to be undertaken prior to development occurring. **Figure 4** identifies the proposed locations of the diverted services. These diversions allow the demolition of existing non-heritage buildings and the closure of Queens Wharf Road and temporary closure of William Street.

In addition, a new water main is required as specified in **Section 7.4** of this IMP.

Figure 4 – Proposed Water Services Diversions



Source: Urbis, 2017

6.5. WASTE WATER

The following information is derived from Section 3.3 of the **PoD Volume 3, Attachment I: Civil Works and Infrastructure**.

Based on discussion with QUU throughout the preliminary design phase of the proposed development, it was advised that the surrounding sewerage infrastructure does not have sufficient capacity for the proposed development. Investigations on possible connections throughout nearby sewer mains have also been carried out which did not identify any adequate connection in the relevant vicinity.

Therefore, due to the existing capacity of surrounding infrastructure, and additional demand generated by QWBIRD, a new sewerage trunk line is required to extend to an existing trunk line with sufficient capacity confirmed by QUU to support the significant increase in equivalent persons. From discussions with QUU, it was determined that the only sewer in the Brisbane CBD with adequate capacity is the S1 trunk sewer in Turbot St. The connection point to the existing S1 trunk line is located outside the general works area of QWB at the intersection of North Quay and Turbot Street, with Sub-Precinct 4c being created to accommodate the new sewer line. Details of this new infrastructure are detailed in **Section 7.5** of this IMP.

7. PROJECTED REQUIREMENTS FOR INFRASTRUCTURE

7.1. TRANSPORT

7.1.1. Roads and Intersections

The following section addresses the items of infrastructure identified in Table 3 of the Development Scheme for 'Roads and Intersections':

Infrastructure Category	***Item***	***Details***
Transport	*Roads and Intersections*	*Provide road and intersection upgrades as required by comprehensive traffic and transport studies for the PDA (undertaken by the applicant and approved by the Minister of Economic Development Queensland (MEDQ)) to manage and mitigate impacts on the local road network and State-controlled roads including pedestrian and cyclist movements.* *This may include:* • *Upgrade to existing roads in the QWB PDA including Queens Wharf Road, William Street, George Street, Elizabeth Street, Alice Street and Margaret Street (including Riverside Expressway off-ramps);* • *An additional southbound lane along William Street, south of Margaret Street to provide additional capacity for turn movements into Alice Street;* • *Create a shared zone along Queens Wharf Road as prescribed in Map 2, including connections to North Quay, Victoria Bridge and Margaret Street;* • *Upgrade to significant intersections (as prescribed in Map 2: Structural elements plan);* • *Upgrade to other impacted intersections in or for the PDA including the Queen/William Streets and North Quay intersection*

Based upon the current proposal set out in **QWB PoD Volume 2 – Section 5** the following road infrastructure is required as detailed by Section 10.10 of **PoD Volume 3, Attachment G: Traffic Engineering Report:**

- Removing the left turn slip lane from Margaret Street to William Street (refer to Section 10.10.2 of **PoD Volume 3, Attachment G: Traffic Engineering Report**);
- Provide an additional 35m long lane on the Southbound ramp approach to William Street at Margaret Street providing for left turns to William Street and through movements directly to the IRD access (refer to Section 10.10.2 of **PoD Volume 3, Attachment G: Traffic Engineering Report**);
- Provide a 65m long lane on William Street approach in the Allice Street intersection, resulting in a third right turn lane (refer to Section 10.10.1 of **PoD Volume 3, Attachment G: Traffic Engineering Report**);

- Set the William Street/Alice Street as the reference intersection of this group and coordinate both approaches to reduce queuing (refer to Appendix L of **PoD Volume 3, Attachment G: Traffic Engineering Report**);
- Provide a maximum 8 second green time for pedestrians at William Street/Margaret Street, William Street/Alice Street and George Street/Alice intersections to allow a short pedestrian lead phase, followed by a car only phase (refer to Appendix L of **PoD Volume 3, Attachment G: Traffic Engineering Report**);
- Retain the split phase at the Elizabeth Street/William Street intersection (refer to Section 10.10.3 of **PoD Volume 3, Attachment G: Traffic Engineering Report**);
- Convert Queens Wharf Road to a shared zone between Queen Street and the site access. The only permitted vehicle access will be service vehicles and emergency service vehicles operating to the site and the former Treasury Building loading dock in a managed scenario (refer to Section 8.3.2 of **PoD Volume 3, Attachment G: Traffic Engineering Report**);
- Reallocate kerbside lanes on the George Street approach to Charlotte Street (refer to Section 10.10.8 of **PoD Volume 3, Attachment G: Traffic Engineering Report**);
- Public verges and footpaths will be upgraded in accordance with **Table 13**, **Appendix B.3 and B.4**.

It is noted a bus lane in the William Street approach to the Victoria Bridge intersection for left and right turns and optimise signal phasing will be provided by Brisbane City Council.

7.1.2. Public Transport

The following information is derived from Section 6 of the **PoD Volume 3, Attachment G: Traffic Engineering Report**.

The following considerations are made with respect to public transport. It is noted that this infrastructure is not to be provided as part of the proposed development but has been included for completeness.

- Consider additional services on key bus and train routes;
- Relocate Bus Infrastructure from Queens Wharf Road (completed by Council); and
- Provide alternative bus routes due to the closure of William Street (completed by Council).

No upgrades to existing public transport or new public transport infrastructure is contemplated as part of this Infrastructure Master Plan to be undertaken by the Developer.

7.1.3. Cycling Infrastructure

The following section addresses the items of infrastructure identified in Table 3 of the Development Scheme for 'Cycling Infrastructure':

Infrastructure Category	***Item***	***Details***
Transport	*Cycling Infrastructure*	*Upgrade the Bicentennial Bikeway.* *Upgrade other existing cycleways and provide new connections within the PDA to enable integration with the Bicentennial Bikeway, principally outbound on Alice Street.* *Provide publicly accessible cycle facilities.*

Based upon the current proposal set out in QWB PoD Volume 2 – **Section 5** the following cycling infrastructure is required as detailed by Section 5.6, Figure 5.36 of **PoD Volume 3, Attachment B: Landscape Concept Report** and Section 5.2 of **PoD Volume 3, Attachment G: Traffic Engineering Report.**

The foreshore Sub-Precincts will be significantly upgraded to improve accessibility and amenity. This will introduce a shared zone operation in some locations for cyclists.

The entire length of the Bicentennial Bikeway will be upgraded as part of the development and cycling connections to the Bicentennial Bikeway will be provided.

The Bicentennial Bikeway will be segregated through Sub-Precinct 1G (Goodwill Extension), with pedestrians diverted to a boardwalk. The cycling connection on the Bicentennial Bikeway will be realigned to the indicative location identified on Figure 6, within the existing foreshore corridor.

The Bicentennial Bikeway will be designed in accordance with the Section 5.6, Figure 5.36 of **PoD Volume 3, Attachment B: Landscape Concept Report**. Where the Bicentennial Bikeway is in Sub-Precinct 1g, the bikeway is also in accordance with Section 6.9.2 of **PoD Volume 3, Attachment B: Landscape Concept Report.**

The development will provide end of trip facilities (EOT), suitable to cater for bikes to be stored securely on-site, as well as shower and locker facilities.

The locations of this cycling infrastructure are identified as an indicative location in **Appendix B.1**.

7.1.4. Pedestrian Infrastructure

The following section addresses the items of infrastructure identified in Table 3 of the Development Scheme for 'Roads and Intersections' where for footpaths and 'Pedestrian Infrastructure':

Infrastructure Category	***Item***	***Details***
Transport	*Roads and Intersections*	*Upgrade to existing footpaths within the QWB PDA*
	Pedestrian Infrastructure	*A cross river connection between the QWB PDA and South Bank Parklands.*

Based upon the current proposal set out in QWB PoD Volume 2 – **Section 5** the following pedestrian infrastructure is required as detailed by relevant sections of Sections 4.3.1, 4.3.3, 4.3.4, 4.3.6, 4.3.6 and 5.4 of **PoD Volume 3, Attachment B: Landscape Concept Report** and Section 5.1 of **PoD Volume 3, Attachment G: Traffic Engineering Report:**

- Upgrades to all verges in a road corridor (including a potential upgrade to the Alice St footpath adjoining Parliament House) and footpaths and pathways outside a road corridor;
- Pedestrian Bridge from South Bank to the QWBIRD;
- Segregation of the Bicentennial Bikeway (except where identified as a Shared Zone);
- Cross block links identified as Trunk Infrastructure in Appendix B.2 and B.6 of this IMP; and
- Upgrades to key intersections for pedestrian crossings, particularly the widening of pedestrian crossings at the William Street/Margaret Street intersection.

A potential upgrade to the Alice St footpath adjoining Parliament House is indicative only.

The Bicentennial Bikeway will be segregated through Sub-Precinct 1G (Goodwill Extension), with a separated pedestrian footpath and the Mangrove Walk boardwalk. The cycling connection on the Bicentennial Bikeway will be realigned to the indicative location identified in **Appendix B.2**, within the existing foreshore corridor.

It is also proposed to widen the pedestrian crossings at the intersection of Margaret Street and William Street. This is to allow the signals to be sequenced with a short pedestrian phase, then moving to a vehicle phase on each approach.

The development will contain a number of cross block links as identified in QWB PoD Volume 2 – **Section 5**. These will provide alternative routes through the development site, reducing the requirement on roadside footpaths to cater for pedestrian movements. These links will also provide additional accessibility between the southern CBD, ferry stops and South Bank. The cross block links identified in **Appendix B.2** are trunk infrastructure provided as part of the development.

Desired Standards of Service and Timing of Delivery for the Bicentennial Bikeway is specified under 'Cycling Infrastructure'.

7.1.4.1. Pedestrian Bridge

Table 3 of the Development Scheme identifies that a pedestrian bridge is identified as trunk infrastructure for Pedestrian Infrastructure.

The following information is derived from Section 6.16 of the **PoD Volume 3, Attachment B: Landscape Concept Report**.

As identified above, a pedestrian bridge is proposed from South Bank to the QWBIRD. Table 12 below identifies the relevant public realm elements proposed for the Pedestrian Bridge. Further standards are detailed in the Desired Standards of Service in Section 8.2.4.1 of this report.

As Public Art is addressed in 'Public Realm – Other Public Realm' in Table 3 of the Development Scheme, the indicative locations of Public Art on the bridge are identified in Section 7.2.1 of this report.

Table 12 – Public Realm Infrastructure for Pedestrian Bridge

Precinct / Sub Precinct	Works
4a – Pedestrian Bridge Pedestrian pavement (between handrails) to be of a width deemed acceptable by the MEDQ under a relevant PDA development condition.	Seating areas Lift access at both ends 4.5m wide pedestrian pavement (between handrails) DDA compliant Observation platform on the bridge Public Art in accordance with Figures 5-12 of this IMP

7.1.4.2. Footpaths and Verges

Based upon the current proposal set out in **QWB PoD Volume 2 – Section 5** the following footpaths and verge infrastructure is required as detailed by Section 4.3.4 and 4.3.5 of **PoD Volume 3, Attachment B: Landscape Concept Report.**

We note that Table 13 includes commentary on carriageway widths in Sub-Precincts 1h, 1i and 2b. These are associated with the footpath and verge requirements in these Sub-Precincts in Section 4.3.4, 4.3.5 and the relevant Sub-Precincts in Section 6 of **PoD Volume 3, Attachment B: Landscape Concept Report**.

The indicative locations of Footpaths and Verges addressed in this section are identified in Appendix B.3. The indicative locations of Pathways Outside of Road Corridors addressed in this section are identified in Appendix B.4.

All footpath pavements will be in accordance with Appendix B.3, B.4 and B.5 of this report.

All pedestrian crossings will be in accordance with Appendix B.8 of this report.

All other connectivity, including cross block links, will be in accordance with Appendix B.4 of this report.

For reference, the Sub-Precinct plan for QWB is in Figure 1 in **Section 1** of this report.

Table 13 – Footpaths and Verge Infrastructure

Precinct / Sub Precinct	Works
1a - Resort (Ground Level)	Footpath pavement on both sides of George, Margaret and William St Pedestrian crossings Potential for feature paved road surfaces on William Street 24hr pedestrian access to Queens Wharf Rd South & Margaret St footpath Lighting to support CPTED outcomes
1a - Resort (Upper Levels)	N/A
1b - North-West Precinct	Potential for feature paved road surface at pedestrian crossing Footpath pavements Lighting to support CPTED outcomes
1c - North Quay	N/A
1d - Queens Wharf Plaza	N/A
1e - The Landing	N/A
1f - Waterline Park	Footpath pavements
1g - Goodwill Extension	N/A
1h - IRD Heritage	Current road carriageway and verge widths maintained at George St and William St except where for pedestrian crossings Footpath pavements Priority pedestrian crossing area through feature paving at the end of Stephens Lane Lighting to support CPTED outcomes Portion of narrowed road carriageway for safer pedestrian crossing
1i - Miller Park To be deemed acceptable by the MEDQ under a relevant PDA development condition.	Portion of narrowed road carriageway for safer pedestrian crossing Priority pedestrian crossing area through feature paving to / from Queen's Gardens (e.g. between Queen's Gardens and Miller Park) Footpath pavements

Precinct / Sub Precinct	Works
	Lighting to support CPTED outcomes
2a – former Treasury Building	Potential for feature paved road surface at pedestrian crossings Footpath pavements Footpath pavement to both sides of George and William Street
2b – former Land Administration Building	Footpath pavements Lighting to support CPTED outcomes Drop off area for the former Land Administration Building Narrowed road carriageway for safer pedestrian crossing Designated pedestrian crossing area Potential for feature paved road surfaces
2c – former State Library	Footpath pavements Existing bus pick up / drop off areas to be potentially moved Existing kerb locations retained
3 - Residential	Footpath pavements Lighting to support CPTED outcomes Kerb locations may be modified where on William Street to accommodate turning lanes as specified by Section 7.1.1 of this IMP
4a – Pedestrian Bridge	Not Applicable Refer to Section 7.1.4.2
4b - Queen Street Interface	Potential for feature paving across George Street Potential for feature paving across William Street
4c - Turbot Street Sewer Upgrade	N/A

7.2. PUBLIC REALM

The following section addresses the items of infrastructure identified in Table 3 of the Development Scheme for all 'Public Realm' including 'Parks' and 'Other Public Realm' items:

Infrastructure Category	*Item*	*Details*
Public Realm	*Parks*	*Retain and embellish the existing parks in the PDA.*
	Other Public Realm	*Provide all public realm infrastructure consistent with the vision of the QWB PDA including:* • *Landscaping and streetscape works;* • *Bulk earthworks;* • *Street furniture;* • *Signage and wayfinding;* • *Public art and monuments;* • *Services, security and miscellaneous lifts/escalators; and* • *Upgrades to existing landings.*

Based upon the current proposal set out in QWB PoD Volume 2 – **Section 5** the following public realm works are required as detailed by Section 4.1, 4.2, 4.3.1, 4.3.5, 5.1 and 5.4 of the **PoD Volume 3, Attachment B: Landscape Concept Report**. Further detail on public realm infrastructure is organised by Sub-Precinct in Section 6 of the **PoD Volume 3, Attachment B: Landscape Concept Report.**

Any potential upgrades to Queen's Gardens will be undertaken in accordance with the **PoD Volume 3, Attachment B: Landscape Concept Report** and agreed by DBC and MEDQ.

Proposed public realm infrastructure which is publicly accessible 24/7 is outlined below in **Table 14** which relates to the whole of QWB and has been divided into precincts and sub precincts. The provision of the public realm infrastructure identified in **Table 14** is to be read in conjunction with the furniture and embellishments required by Section 5.1.4 of the **PoD Volume 3, Attachment B: Landscape Concept Report.**

Division into sub-precincts will enable the correct rate of offsets at the time of calculating infrastructure charges. All public realm works listed below are in accordance with **Table 3** of the Development Scheme and enable the vision of the PDA as stated in **Section 3.1** of the Development Scheme to be realised.

The indicative public realm connectivity for trunk infrastructure items is in Appendix B.6.

The indicative pavement treatment types for trunk infrastructure is in Appendix B.7.

Table 14 – Public Realm Infrastructure

To be in accordance with the Figure 5.3, Desired Standard of Provision, of the Approved LCR

Precinct / Sub Precinct	Works
1a - Resort (Ground Level)	Shaded seating areas Large shade trees and understorey planting Subtropical planting George Street vehicle drop off area Ramps and stairs Vertical structures/screens (i.e. vertical planting) Water feature Feature lighting Public Art in accordance with Figures 5-12 of this IMP End of trip facilities *Note: The existing geometry of the George Street vehicle drop off area may be modified to ensure pedestrian footpath movements are unobstructed.*
1a - Resort (Upper Levels)	Pedestrian connection to and from the South Bank Bridge and the IRD access points Subtropical planting Shaded seating areas
1b - North-West Precinct	N/A
1c - North Quay	Pedestrian only river walkway Stair and ramp access Landside wharf connections for river craft Existing mangrove zone retained and rehabilitated Shared zone promenade integrating Bicentennial Bikeway Lawn terrace Performance stage Iconic sculptures and way-finding devices Seating terraces Signature trees Large shade trees and understorey planting Bins, bollards, seats, drinking fountains and lighting

The existing extent and geometry is to be maintained.

Precinct / Sub Precinct	Works
	Public Art in accordance with Figures 5-12 of this IMP
	End of trip facilities
1d - Queens Wharf Plaza	Terraced seating
	The Cove – retracted shore line with river access opportunities
	Riverside promenade
	Plaza integrating Bicentennial Bikeway
	Infrastructure that enables the hosting of large scale outdoor performances/festivals/markets/events
	Large signature tree
	Palms and subtropical planting
	Platform terrace – seating/viewing opportunities
	Potential water taxi landing
	Public Art in accordance with Figures 5-12 of this IMP
1e - The Landing	Open lawns and flat event spaces
	Terraced and grass mound seating opportunities
	Walkway /promenade typologies
	Opportunities for water access e.g. river ramp
	Upgrade to existing Bicentennial Bikeway
	Public Art in accordance with Figures 5-12 of this IMP Feature pavement treatments
	Exhibition, market and festival space
	Tree shaded seating areas
	Urban Glade destination artwork
	Adventure playground, including climbing walls
	Palms and Large subtropical feature trees
	Rain gardens and subtropical planting
	Foreshore pedestrian link (on land only, no maritime or marine works)
1f - Waterline Park	Separate cyclist and pedestrian paths with crossing points

Precinct / Sub Precinct	Works
	Upgrade to existing Bicentennial Bikeway Foreshore pedestrian link (on land only, no maritime or marine works) Active recreation opportunities: (e.g. outdoor gym equipment and table tennis tables) WSUD stormwater capture and treatment areas Lighting elements Palms and large signature tree Subtropical understorey planting Rain garden Public Art in accordance with Figures 5-12 of this IMP
1g - Goodwill Extension	Mangrove Walk Launching facility for small non-motorised craft Access to QUT CityCat terminal Interpretive environmental educational signage Lookouts, landings and shelters Upgrade to existing Bicentennial Bikeway Mangrove retention and regeneration Public Art in accordance with Figures 5-12 of this IMP
1h - IRD Heritage	Open sight lines provided and suitable lighting for optimal CPTED outcomes Potential for low moveable planter boxes Ramps avoided where possible in favour of steps and lifts Shaded seating areas Feature trees Subtropical planting Provision for the Commissariat Store Forecourt to be used for functions and events Public Art in accordance with Figures 5-12 of this IMP

Precinct / Sub Precinct	Works
1i - Miller Park	Verandah style viewing platforms in the form of stepped terraces Terraces to be made of a permeable surface, e.g. decking Tree shaded seating areas Open sight lines to be maintained and lighting improved for optimal CPTED outcomes Understorey planting Some terraces to be turfed Visually unobtrusive fencing Ramps to be avoided where possible Heritage related shade trees if space allows
2a – former Treasury Building	The forecourt adjacent to Reddacliff Place to mark the entrance of the QWBIRD by using distinctive furniture Shade trees and palms with subtropical understorey planting (except along Elizabeth Street)
2b – former Land Administration Building	Turfed area for passive recreation and events Tree shaded seating terraces Open sight lines maintained and lighting improved for optimal CPTED outcomes Large canopy trees Understorey planting *Note: Any potential upgrades to Queen's Gardens will be undertaken in accordance with the PoD Volume 3, Attachment B: Landscape Concept Report and agreed by DBC and MEDQ.*
2c – former State Library	Adaptive reuse of building to create opportunities for food and beverages outlets Terraces / balconies may be provided along the Miller Park edge to allow access to park
3 - Residential	Open sight lines maintained and lighting improved for optimal CPTED outcomes Shaded seating areas Historical interpretation signage

Precinct / Sub Precinct	Works
	Large canopy shade tree Subtropical planting areas Urban space/public plaza
4a – Pedestrian Bridge	Refer to Section 7.1.4.1 of this report
4b - Queen Street Interface	Pavement finishes Public Art in accordance with Figures 5-12 of this IMP
4c - Turbot Street Sewer Upgrade	N/A

Table 15 – Public Realm –Streetscape Works Upgrades (Landscaping Elements)

Precinct / Sub Precinct	Works
1a - Resort (Ground Level)	Subtropical planting Street trees to frame plazas and frontages, maintain site lines and provide shade Palms aligned with heritage facades Understorey planting in verge where practicable Open sight lines to support CPTED outcomes
1a - Resort (Upper Levels)	N/A
1b - North-West Precinct	Palms to line heritage facade, central median and river side verge of William St where practicable Street tree planting Understorey planting in verge and under street trees where practicable Shaded seating area Open sight lines to support CPTED outcomes
1c - North Quay	N/A
1d - Queens Wharf Plaza	N/A
1e - The Landing	N/A
1f - Waterline Park	N/A
1g - Goodwill Extension	N/A
1h - IRD Heritage	Street trees with subtropical understorey planting where practicable Palms aligned with heritage facades Street trees to frame heritage facades/ building frontages and offer shade Open sight lines to support CPTED outcomes
1i - Miller Park	Street trees flanking key crossing points for shade Subtropical understorey planting to verge Open sight lines to support CPTED outcomes
2a – former Treasury Building	Palms aligned with heritage facades where practicable Street trees frame frontages and offer shade where practicable

Precinct / Sub Precinct	Works
	Understorey planting to William and Elizabeth Street verges where practicable
2b – former Land Administration Building	Palms aligned to heritage facades Street trees frame frontages and offer shade Understorey planting to William Street verge Open sight lines to support CPTED outcomes Original oil lamps maintained where possible
2c – former State Library	Palms aligned with heritage facades Street trees to frame frontages and offer shade
3 - Residential	Street trees lining street frontage to continue avenue character, offer shade and act as visual buffer Open sight lines to support CPTED outcomes Understorey planting to verges and street trees
4a – Pedestrian Bridge	Refer to Section 7.2.4.1 of this report
4b - Queen Street Interface	N/A
4c - Turbot Street Sewer Upgrade	N/A

7.2.1. Indicative Locations of Public Art

As identified in **Table 14**, Public Art is located within public spaces throughout QWB. Table 3 of the Development Scheme identifies that *"public art and monuments"* are considered trunk infrastructure. While there will be significantly more pieces of public art that are provided as part of the QWBIRD, the indicative locations of public art considered as trunk infrastructure are shown in **Figures 5-12** below.

The following information has been extracted from **PoD Volume 3, Attachment V: Public Art Report**. As **PoD Volume 3, Attachment V: Public Art Report** is a supporting report and is not an approved document as part of PoD, the locations of public art have been incorporated into this IMP to ensure they can be addressed appropriately through Compliance Assessment. The locations identified in Figures 5-12 do not reflect the quantity of public art provided. There may be locations which are indicatively identified for public art in Figures 5-12 which do not result in a final installation.

Public art considered as trunk infrastructure is specifically limited to locations which are solely within the public realm and publicly accessible 24 hours a day.

Public Art Types and Definitions

1. Destination

A Destination artwork is sited in a high profile location, considered to be of particular significance and interest, with high pedestrian activity and/or vehicular traffic. A Destination artwork predominantly lends itself to a large scale, stand-alone form or architectural intervention. It is intended to be an iconic attractor that is easily identifiable and highly memorable.

2. Precinct markers

A Precinct Marker is a focal point within the urban streetscape and landscape. This may be at a key pedestrian or vehicular decision point or a rest point along a pathway. Precinct Markers may be stand-alone or may be a collection of sculptural or integrated elements and are likely to be medium-to-large-scale and of moderate proportions. Precinct Markers may assist with intuitive wayfinding within a public space through planned placement and form.

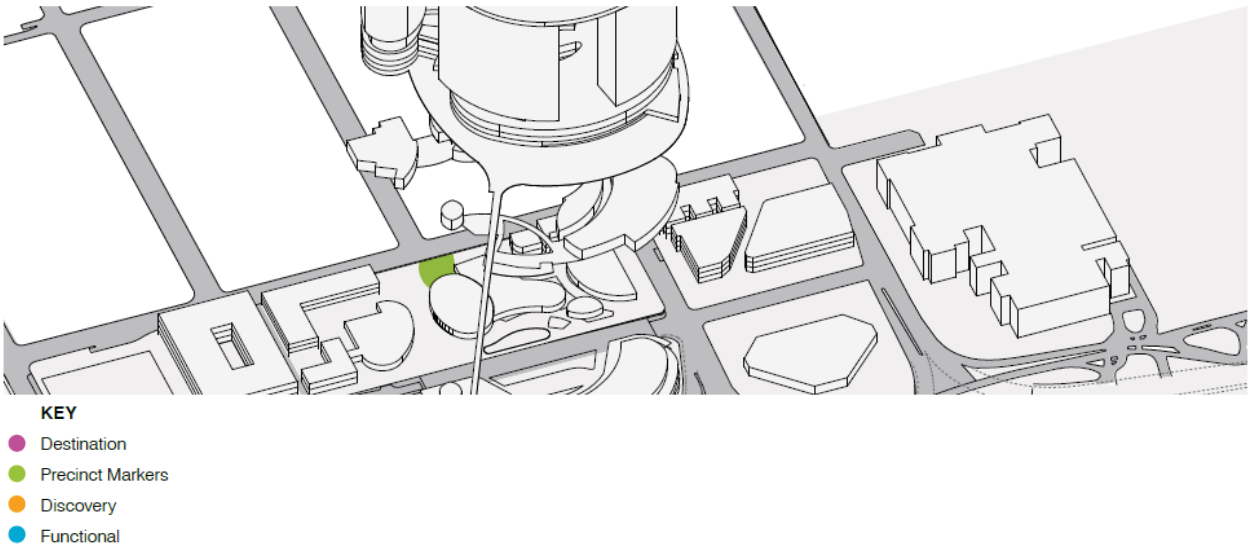
3. Discovery

Discovery artworks may be located along or integrated into a pedestrian pathway to create moments of surprise, pause and intrigue. Discovery artworks are typically small-to-medium in scale, may be integrated or stand-alone and may vary in form and number according to requirements.

4. Functional

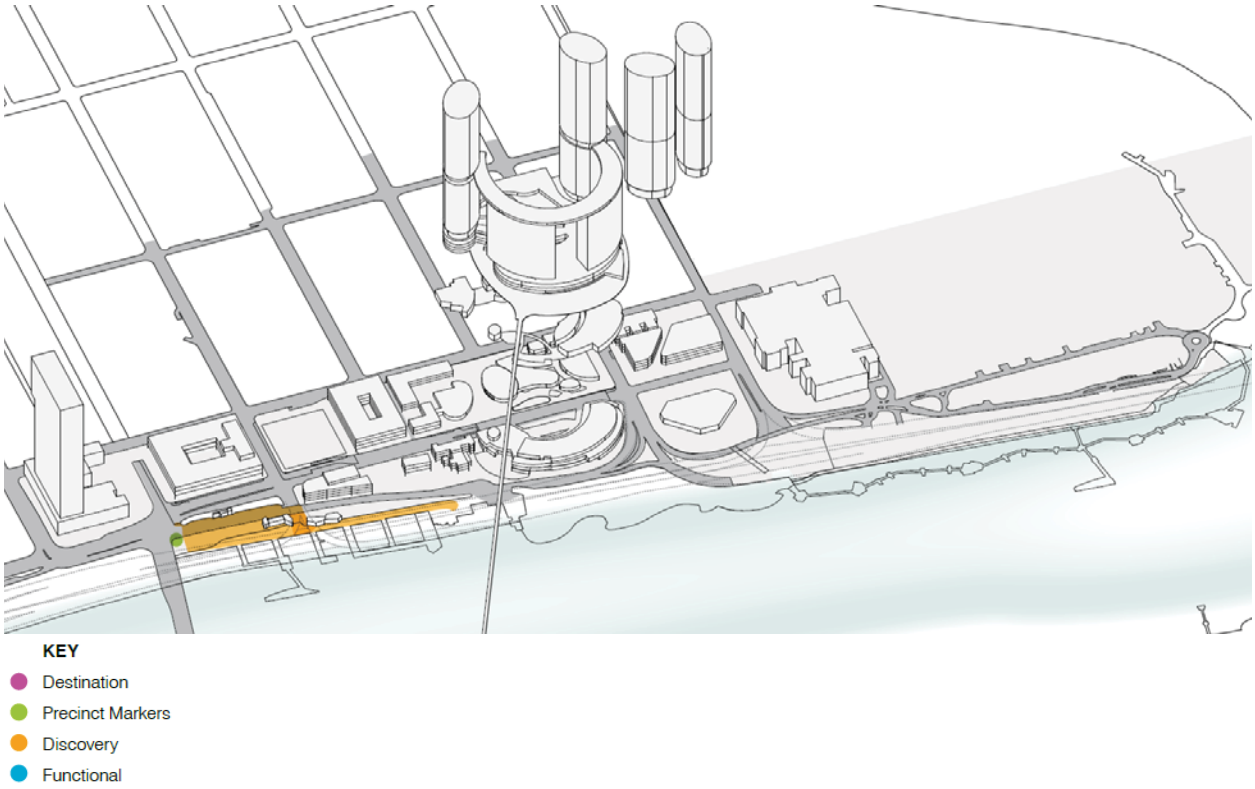
Functional artworks serve the dual purpose of being functional objects and artworks. They may take the form of sculptural seating elements, shade structures and play elements. Functional artworks can provide platforms for rest, relaxation and recreation, and add a distinctive flavour to the urban environment.

Figure 5 – Sub-Precinct 1a Public Art Indicative Location



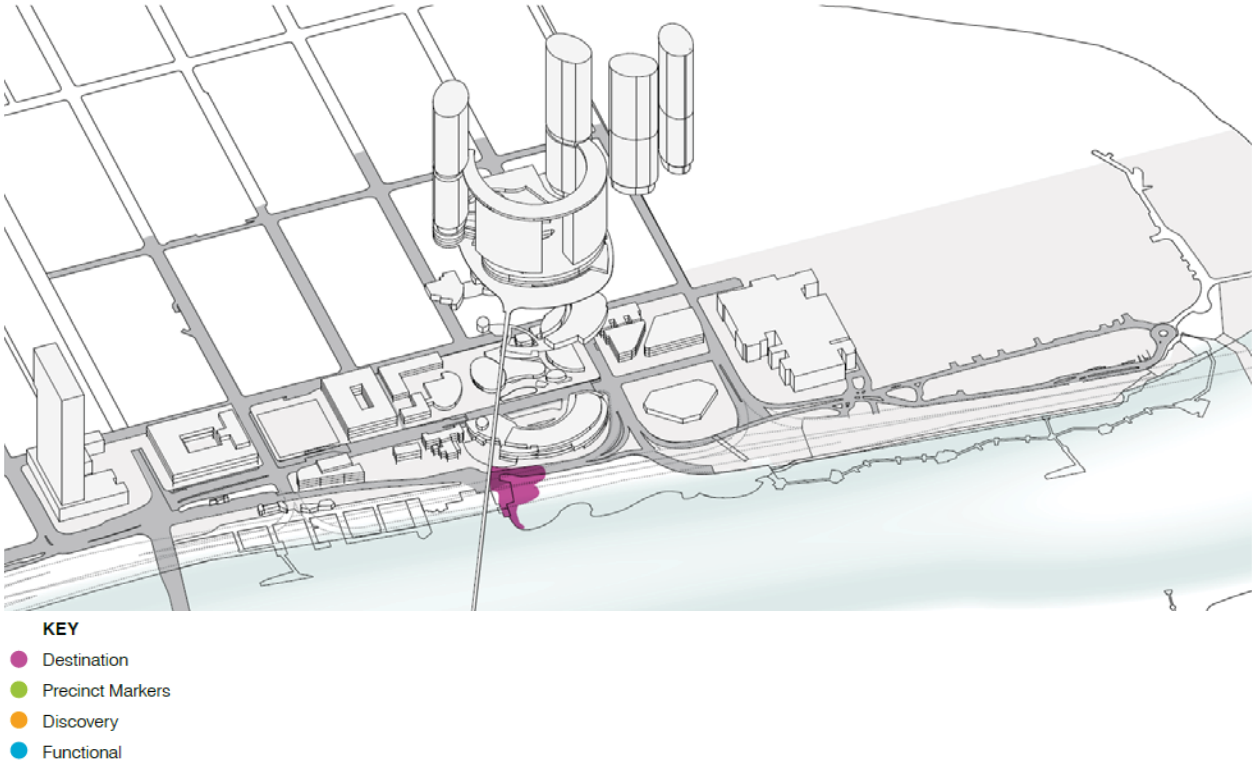
Source: ***Volume 3, Attachment V – Public Art Report***

Figure 6 – Sub-Precincts 1c and 4b – Public Art Indicative Locations



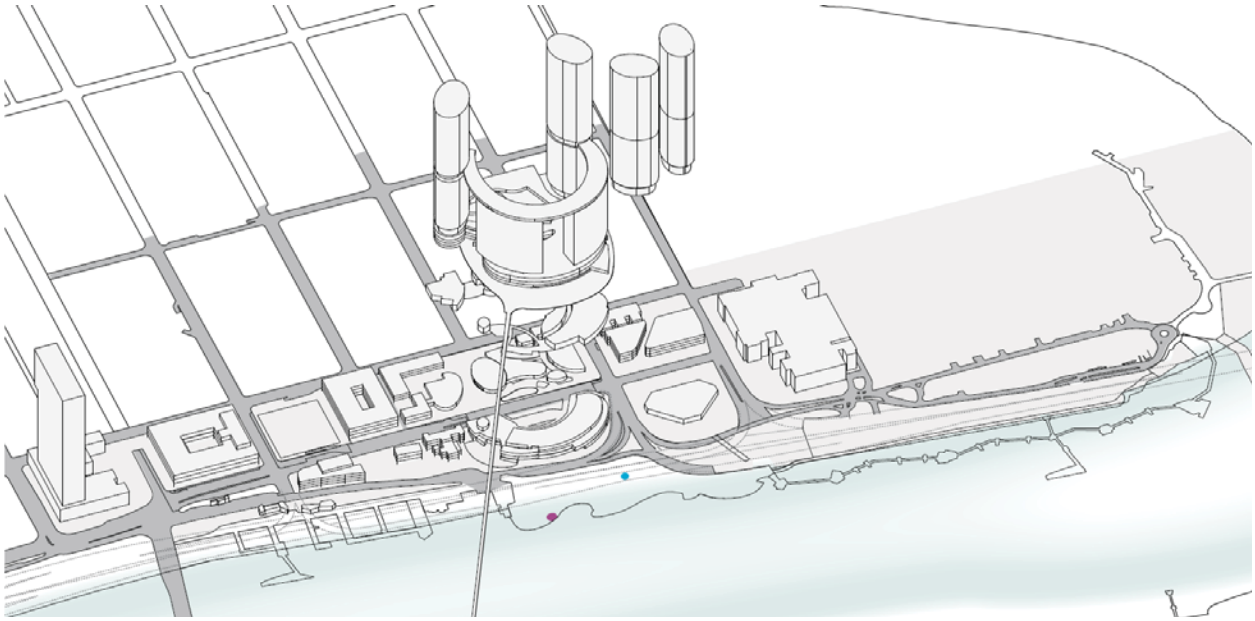
Source: ***Volume 3, Attachment V – Public Art Report***

Figure 7 - Sub-Precincts 1d – Public Art Indicative Locations



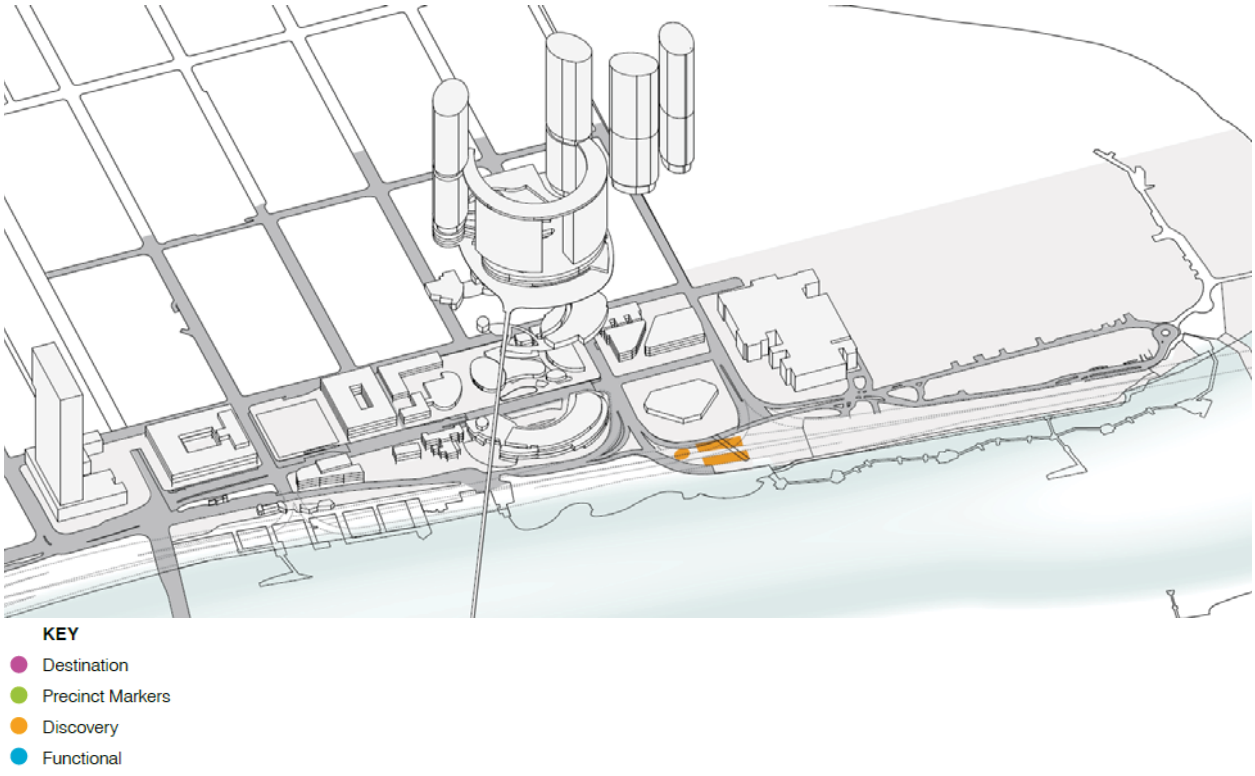
Source: ***Volume 3, Attachment V – Public Art Report***

Figure 8 - Sub-Precincts 1e – Public Art Indicative Locations



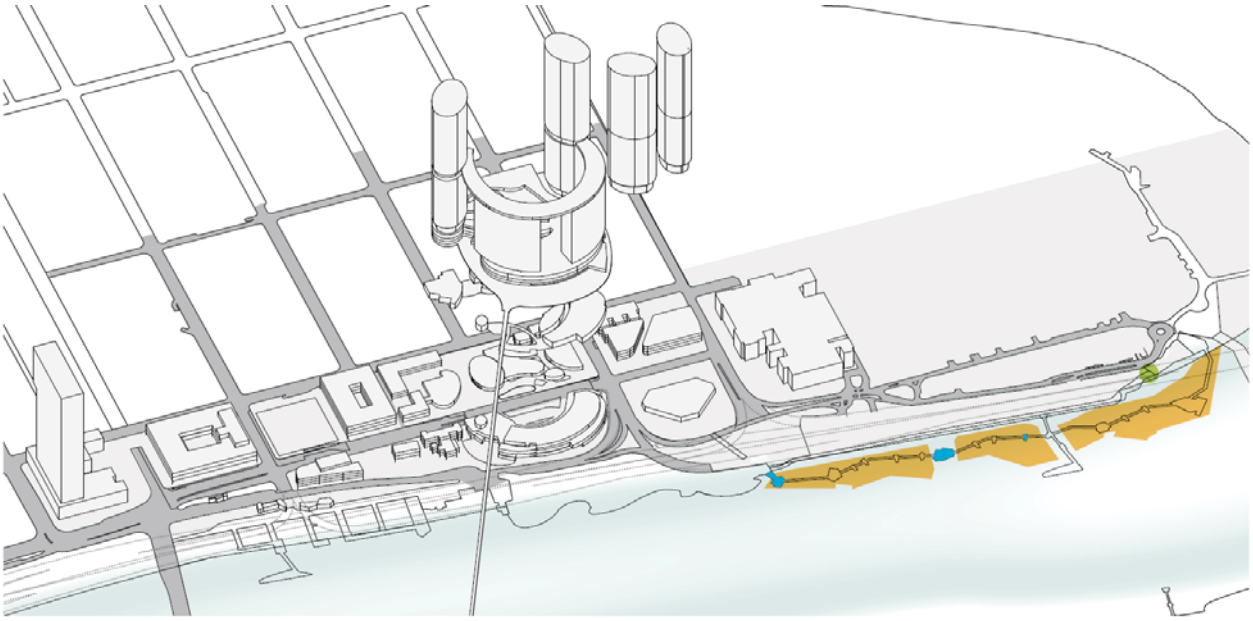
Source: ***Volume 3, Attachment V – Public Art Report***

Figure 9 - Sub-Precincts 1f – Public Art Indicative Locations



Source: ***Volume 3, Attachment V – Public Art Report***

Figure 10 - Sub-Precincts 1g – Public Art Indicative Locations

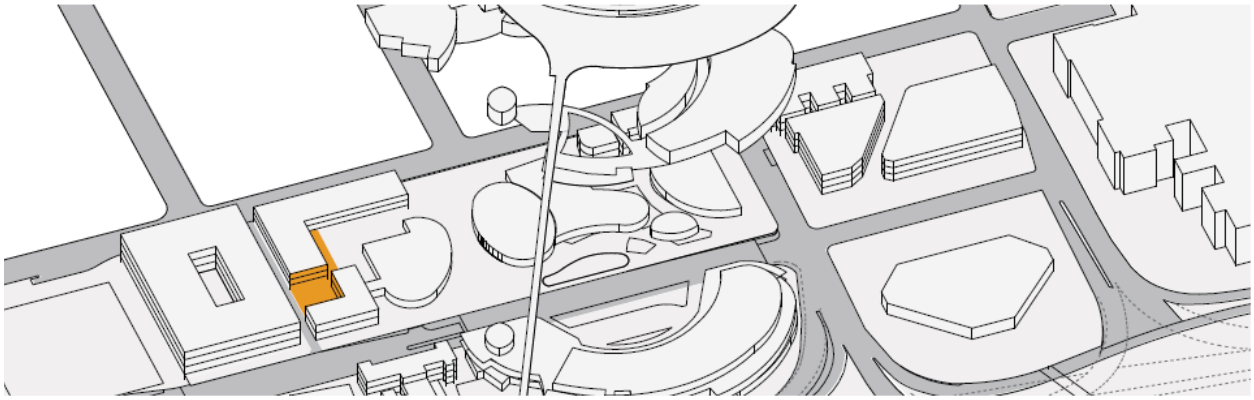


KEY

- Destination
- Precinct Markers
- Discovery
- Functional

Source: ***Volume 3, Attachment V – Public Art Report***

Figure 11 – Sub-Precinct 1h – Public Art Indicative Locations

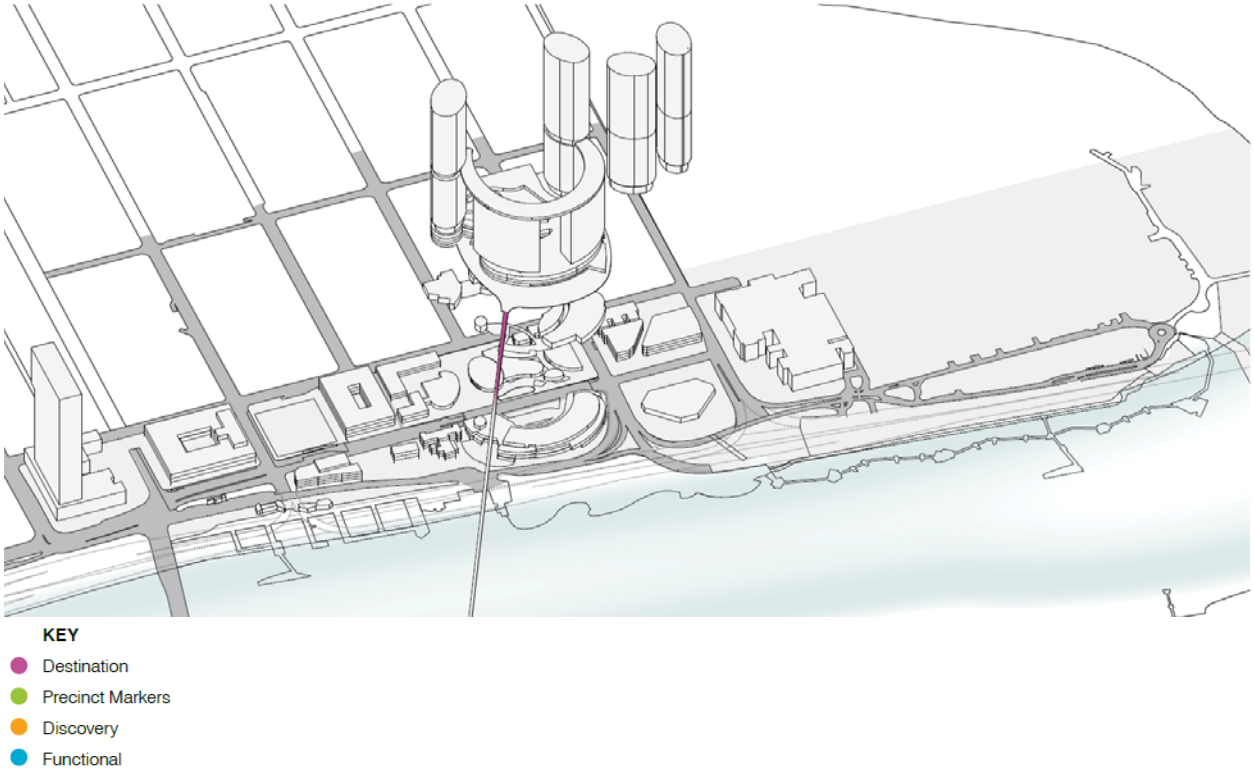


KEY

- Destination
- Precinct Markers
- Discovery
- Functional

Source: ***Volume 3, Attachment V – Public Art Report***

Figure 12 – Sub-Precinct 4a – Public Art Indicative Location



Source: ***Volume 3, Attachment V – Public Art Report***

7.3. STORMWATER

The following section addresses the items of infrastructure identified in Table 3 of the Development Scheme for 'Stormwater':

Infrastructure Category	*Item*	*Details*
Stormwater	*Stormwater*	*Provide all stormwater infrastructure necessary to achieve compliance with requirements and standards, and adopt approaches consistent with guidance identified in relevant PDA guidelines including stormwater treatment and management of stormwater flows (including flows through the QWB PDA).*

Based upon the current proposal set out in QWB PoD Volume 2 – **Section 5** the following stormwater infrastructure is required. The following information is derived from Section 4 of the **PoD Volume 3, Attachment I: Civil Works and Infrastructure**.

Water quality requirements set by the State Government and BCC require new developments to treat runoff before discharging into existing waterways. Treatment of the runoff from QWB will be done by a series of treatment devices throughout QWB, the largest of which will be a series of bio-retention basins located within Waterline Park.

Existing stormwater infrastructure within QWB ranges in size and condition either due to age or old design requirements. Some of this existing pipework will be replaced as part of the proposed development works to upgrade the capacity due to recent changes in design guidelines for stormwater infrastructure within the Brisbane CBD. All new works will be designed to cater for Q10 storm events whereas the majority of existing pipes are only for Q2 events.

The upgrades are outlined below:

- Waterline Park Bio-retention Basins;
- The Landing Bio-retention Basins; and
- Margaret Street Stormwater Upgrade.

To service the new connections to stormwater infrastructure within Margaret Street, the existing line will be replaced with a larger pipe size. This upgrade will run from the intersection of Margaret Street with William Street down to the outlet at the Brisbane River.

The locations of the proposed stormwater infrastructure are indicatively identified in **Appendix B.9**.

Locations and further details of these upgrades are shown on the **PoD Volume 3, Attachment I: Civil Works and Infrastructure - Appendix C**.

7.4. WATER

The following section addresses the items of infrastructure identified in Table 4 of the Development Scheme for 'Water':

Infrastructure Category	***Item***	***Details***
Water	*Water Infrastructure*	*As required to service the PDA.*

Based upon the current proposal set out in QWB PoD Volume 2 – **Section 5** the following water lines are required. The following information is derived from Section 3.4.2 of the **PoD Volume 3, Attachment I: Civil Works and Infrastructure**.

The indicative location of water infrastructure is identified in **Appendix B.10**.

7.4.1. William Street Diversion

The necessary services diversions will be undertaken as part of the Demolition and Enabling Works application which was approved by Economic Development Queensland (EDQ) on 19 December 2016. The details of these diversions have been included in this IMP for completeness.

To allow the construction of the IRD resort basement, a number of services must be diverted. Existing water mains within the road reserve will be cut and looped either end of the basement line. To create a redundant loop around the Resort building, a new DN300mm water main will be run from William Street down to Queens Wharf Road connecting back to the existing 225mm diameter water main at the intersection of William Street and Margaret Street. The indicative location for the proposed diversion for this infrastructure please refer to **Figure 4**.

Based on discussions with QUU during the preliminary design phase, it was determined that other existing infrastructure within and surrounding the site was sufficient to service the development. QUU has confirmed through a service advice notice that the combination of existing and newly constructed infrastructure does have the capacity to service the proposed development. This service advice notice is included in **Appendix C** of this IMP. This report will also be forwarded on to QUU for review and endorsement.

7.5. WASTE WATER

The following section addresses the items of infrastructure identified in Table 4 of the Development Scheme for 'Waste water':

Infrastructure Category	*Item*	*Details*
Waste Water	*Waste water infrastructure*	*Provide all waste water infrastructure as required to service the PDA including a new sewer main along Charlotte Street.*

Based upon the current proposal set out in QWB PoD Volume 2 – **Section 5** the following sewer lines are required. The following information is derived from Section 3.3.2 of the **PoD Volume 3, Attachment I: Civil Works and Infrastructure**.

The indicative location of waste water infrastructure is identified in **Appendix B.11**.Pipe sizes have been calculated based on grades close to minimum incorporating construction tolerances for tunnel bored sewers.

7.5.1. New Trunk Sewer Line

To alleviate further capacity issues within the Alice Street catchment, which are expected to be caused by the development of the IRD and surrounding refurbishing, a new **~~500mm diameter PE line~~ 1403mm pipe** is proposed to be constructed from the **~~intersection of William and Margaret St, around the Resort building, up Queens Wharf Road and along North Quay to the intersection with Turbot St~~ driving pit, adjacent to the IRD and the former DPI Building, up Queens Wharf Road and along North Quay to the S1 Sewer located at the intersection of North Quay and Turbot Street**. This line will collect all flows from new development within the precinct, including the foreshore.

Due to the construction of this new line, a number of existing lots that currently flow into the existing Alice Street sewer, will now flow directly into the new trunk line. Buildings including 75 William St and 80 George Street are among the existing sites that will in future flow through the new infrastructure, alleviating the capacity issues within Alice Street.

It is proposed that this IMP will be provided to QUU for review and endorsement. It is noted that all findings within the water and sewer sections of this report have been discussed with QUU at length during the preliminary design phase of the development.

8. DESIRED STANDARDS SERVICE

8.1. INTRODUCTION

The desired standards of service for a trunk infrastructure network are the key standards of performance as stated in this section.

This section identifies the relevant standards for Transport, Public Realm, Stormwater, Water and Waste Water. It is identified where the infrastructure proposed complies with either the Brisbane City Council or an EDQ equivalent desired standard of service. Where there is a variation proposed, this is identified.

The following section identifies specific documents, technical reports and statements to provide Desired Standards of Service for each item of infrastructure previously identified in **Section 7** of this IMP. In the event of any inconsistency between the standard identified in each table in the following section, the hierarchy is as follows:

- PoD Volume 2: Plan of Development prevails over all other documents;
- PoD Volume 3 Reports have the same hierarchy insofar as specifically referenced in Section 8;
  - PoD Volume 3, Attachment B: Landscape Concept Report
  - PoD Volume 3, Attachment I: Civil Works and Infrastructure
  - PoD Volume 3, Attachment G: Traffic Engineering Report
  - PoD Volume 3, Attachment X: Foreshore Management Plan and Basis of Design
- Specific statements of standards of service as identified in the following section;
- Australian Standards insofar as specifically referenced in Section 8;
- Austroads Guides insofar as specifically referenced in Section 8;
- Commonwealth Legislation, Regulations and Guidelines insofar as specifically referenced in Section 8;
- Queensland Legislation, Regulation and Guidelines insofar as specifically referenced in Section 8, including but not limited to:
  - *South-East Queensland Water (Distribution and Retail Restructuring) Act 2009*
  - *State Planning Policy 2017*
  - DTMR Guidelines and Manuals
  - Queensland Development Code
  - Queensland Urban Drainage Manual 2013
- Healthy Land and Water, Water by Design Guidelines insofar as specifically referenced in Section 8;
- New South Wales (NSW) Guidelines insofar as specifically referenced in Section 8;
- Codes and Guidelines produced by the Water Services Association of Australia insofar as specifically referenced in Section 8;
- Guidelines produced by the Australian Transport Council insofar as specifically referenced in Section 8;
- PDA Guidelines insofar as specifically referenced in Section 8;
- Brisbane City Council Brisbane City Plan 2014 Codes and Planning Scheme Policies insofar as specifically referenced in Section 8;
- British, American and European Standards insofar as specifically referenced in Section 8; then
- Any other foreign legislation or guidelines.

A full list of all standards referenced throughout Section 8 of the IMP is included in Appendix D.

Unless otherwise provided for in this IMP, a reference in the IMP to a specific resource document or standard means the version of that resource document or standard current at the date of submission of the relevant request for compliance assessment or where there is no compliance assessment, then the version of the resource document or standard that is current at the date of this Approval.

In the event that the desired standard of service for an infrastructure item identified in Section 7 of this IMP is not detailed within this section, the standard is to be a reasonable standard

8.2. TRANSPORT

8.2.1. Roads and Intersections

The standards applicable to delivering road network infrastructure as identified by the Development Scheme are contained within the following:

- *Brisbane City Council Brisbane City Plan 2014 Traffic, Access, Parking and Servicing (TAPS) Planning Scheme Policy (PSP);*
- *Brisbane City Council Brisbane City Plan 2014 Traffic, Access, Parking and Servicing Code;*
- *DTMR Guidelines for the Assessment of Road Impacts of Development;*
- *DTMR Road Planning and Design Manual;*
- *Austroads guidelines; and*
- *AS2890 Parking Facilities.*

The Desired Standards of Service for the road network infrastructure identified in **Section 7.1**, are detailed in **Table 16** below.

The proposed infrastructure does not require compliance with the Brisbane City Council *Brisbane City Plan 2014* TAPS Code and PSP. The TAPS PSP relates to the aspects of a development internal to the site (i.e. within a property boundary). Design requirements relating to the trunk infrastructure network which are external to a development are defined in the *Brisbane City Plan 2014 Infrastructure Design Planning Scheme Policy (BCC IDPSP)*. Therefore, as this IMP relates to trunk infrastructure as part of an external road network, the TAPS PSP is not relevant.

Table 16 – Road Network Desired Standard of Service

Type of Infrastructure	Desired Standard of Service
Removal of left slip lane from Margaret Street to William Street	DTMR Guidelines for the Assessment of Road Impacts of Development DTMR Road Planning and Design Manual Austroads Guide to Road Design Part 4A: Signalised and Unsignalised Intersections BCC Road Hierarchy Overlay Code BCC Streetscape Hierarchy Overlay Code
Additional lane on southbound ramp approach to William Street at Margaret Street	DTMR Guidelines for the Assessment of Road Impacts of Development DTMR Road Planning and Design Manual Austroads Guide to Road Design Part 4A: Signalised and Unsignalised Intersections

Type of Infrastructure	Desired Standard of Service
	BCC Road Hierarchy Overlay Code BCC Streetscape Hierarchy Overlay Code
Additional right turn lane on William Street from William Street into Alice Streets	DTMR Guidelines for the Assessment of Road Impacts of Development DTMR Road Planning and Design Manual Austroads Guide to Road Design Part 4A: Signalised and Unsignalised Intersections BCC Infrastructure Design Planning Scheme Policy (IDPSP) BCC Road Hierarchy Overlay Code BCC Streetscape Hierarchy Overlay Code
William Street and Alice Street reference intersection	BCC IDPSP
Intersection phasing of William/Margaret Street	DTMR Guidelines for the Assessment of Road Impacts of Development DTMR Road Planning and Design Manual BCC IDPSP BCC Road Hierarchy Overlay Code
Intersection phasing of William/Alice Street	DTMR Guidelines for the Assessment of Road Impacts of Development DTMR Road Planning and Design Manual BCC IDPSP BCC Road Hierarchy Overlay Code
Intersection phasing of William/Elizabeth Street	DTMR Guidelines for the Assessment of Road Impacts of Development DTMR Road Planning and Design Manual BCC IDPSP BCC Road Hierarchy Overlay Code
Intersection phasing of George/Alice Street	DTMR Guidelines for the Assessment of Road Impacts of Development DTMR Road Planning and Design Manual BCC IDPSP BCC Road Hierarchy Overlay Code

Type of Infrastructure	Desired Standard of Service
Conversion of Queens Wharf Road to shared zone between Queen Street and entry to the IRD	BCC IDPSP BCC Road Hierarchy Overlay Code BCC Streetscape Hierarchy Overlay Code NSW RMS Design and Implementation of Shared Zones where considered relevant in accordance with the Landscape Concept Report

8.2.2. Public Transport

No upgrades to existing public transport or new public transport infrastructure are contemplated as part of this IMP or required to be undertaken by the Developer. ~~Therefore, there are no specified Desired Standards of Service applicable as part of this IMP.~~

However it is proposed to reinstate the bus stop(s) removed as part of the construction works, as well as upgrade existing stops where associated with footpath works being undertaken.

Type of infrastructure	Desired Standards of Service
At a minimum—Two eastbound William Street bus stops (adjacent to Queens Gardens and between Alice and Margaret Streets)	Brisbane City Council Standard Drawings
At a minimum—Two westbound George Street bus stops (upgrade of existing bus stops)	Brisbane City Council Standard Drawings

8.2.3. Cycling Infrastructure

Table 17 – Cycling Infrastructure Desired Standard of Service

Precinct/Sub-Precinct	Type of Infrastructure	Standard
1c, 1d, 1e, 1f,1g and 4b	All upgrades to Bicentennial Bikeway except where for landscaping	Widths in accordance with Section 5.6 and 6.9.2 (where in Sub-Precinct 1g) **PoD Volume 3, Attachment B: Landscape Concept Report** NSW Bicycle Guidelines, Roads and Maritime Services Austroads Guide to Road Design Part 6A: Pedestrian and Cycle Paths where practicable TMR TN 128 Selection and Design of Cycle Tracks (for transition zones) DTMR Traffic and Road Use Management (TRUM) Manual, Vol. 1, Part 10, section 6.6-1 G13 Emerald (AS 2700 S 1996) or approximate colour match in accordance with AS/NZ 1580.601.1 except where in a shared zone *Note: For shared zone treatments, refer to Table 20 of this IMP.*
1a and 1c	End of trip facilities located within development	Queensland Development Code Mandatory Part 4.1 BCC IDPSP Section 4.6.3 Mid-trip facilities (except for bicycle shelters) *Note: Bicycle shelters are not proposed as part of the PoD* QWB Priority Development Area Public Realm and Movement Network Planning and Design Guideline will be applied where technically practicable, for the items specified as follows: • Page 17, Functional, Amenities and hardscape, column 3, dot point 2:

Precinct/Sub-Precinct	Type of Infrastructure	Standard *Provide facilities including cycling racks and storage facilities*
1a, 1c, 1d, 1e, 1f, 1g and 4b	Cyclist connections to Bicentennial Bikeway from Margaret Street and other locations	Widths in accordance with Section 5.6 and the relevant sections of Section 6 of **PoD Volume 3, Attachment B: Landscape Concept Report** NSW Bicycle Guidelines, Roads and Maritime Services Austroads Guide to Road Design Part 6A: Pedestrian and Cycle Paths where practicable TMR TN 128 Selection and Design of Cycle Tracks (for transition zones)

8.2.4. Pedestrian Infrastructure

Desired Standards of Service for all Pedestrian Infrastructure is specified in the following section.

8.2.4.1. Pedestrian Bridge

There are no standards applicable to delivering the Pedestrian Bridge infrastructure as identified by the Development Scheme.

The Desired Standards of Service for the Pedestrian Bridge are extracted from the relevant sections of the Brisbane City Council *Brisbane City Plan 2014 Infrastructure Design Planning Scheme Policy*.

Australian Standards have also been identified in addition to any in the extracts of the BCC IDPSP relating to:

- Bridge Design Standards;
- Vibration Serviceability Design;
- Stay-Cable Design;
- Ship Impacts; and
- Complimentary Local Guidance.

The Desired Standards of Service for the Pedestrian Bridge infrastructure identified in **Section 7.1.4.1**, are detailed in **Table 18** below.

Table 18 – Pedestrian Bridge Desired Standard of Service

Infrastructure Type – Pedestrian Bridge – Element of Infrastructure	**Desired Standard of Service**
General design criteria Pedestrian bridge to be of a width deemed acceptable by the MEDQ under a relevant PDA development condition	Widths in accordance with Section 4.3.4 of PoD Volume 3, Attachment B: Landscape Concept Report Minimum clearance in accordance with PDA Associated Development Declaration (unless otherwise agreed in writing with EDQ Development Assessment) and BCC IDPSP Section 8.2.6 Highway Capacity Manual as referenced in the Austroads Guide to Traffic Management Part 3 (Random Flow Analysis) AS1428.1 and AS1428.4 QWB Priority Development Area Public Realm and Movement Network Planning and Design Guideline will be applied where technically practicable, for the items specified as follows: • Page 16, Functional, Streets, laneways and intersections, column 2, dot point 2: *The bridge is:* *» is navigable, legible and accessible to all pedestrians* *» allows an appropriate clearance for existing river traffic*

Infrastructure Type – Pedestrian Bridge – Element of Infrastructure	Desired Standard of Service
	» enhances the connection from… the primary plaza adjacent to the Commissariat Store and the Riverside Expressway and onto South Bank Parklands. *» optimises visual amenity at landing points* *» is integrated into the existing movement network and surrounding public realm.* • Page 24, Integrated, Brisbane River, column 1, dot point 2: *The bridge is integrated with existing networks, facilities and infrastructure.*
Bridge Design Standards, Design Specifications and Guidelines	AS 5100 AS 1428.1-2009 Department of Transport and Main Roads specifications (as appropriate) for interface with REX only. For all other aspects, there is no requirement to comply with DTMR standards Designed by a RPEQ Where the above references are silent in relation to specific standards or technical requirements, compliance is with one of the following technical publications: • British Standards (BS 5400); • American Standards (AASHTO LRFD); • European Standards (Euro codes). The design of pedestrian facilities conforms with the latest edition of the following unless otherwise stated: • Disability Discrimination Act (DDA) 1992; • Human Rights and Equal Opportunity Commission (HREOC) Advisory notes on access to premises issued under section 67(1)(k) of the Disability Discrimination Act 1992; • AS 1428.2-1992; • AS 1428.1-2009; • AS/NZS 1428.4.1:2009;

Infrastructure Type – Pedestrian Bridge – Element of Infrastructure	Desired Standard of Service
	• AS 1742.10-2009; • AS/NZS 1158.3.1:2005; • Austroads Guide to Engineering Practice, 'Pedestrians', Part 13; • Austroads Guide to Road Design Part 6A: Pedestrian and Cycle Paths; • AS/NZS 4586:2004; • Disability Standards for Accessible Public Transport (Draft) and Part 2 Draft Guidelines, Australian Transport Council; If conflicts between the standards and guidelines arise, riverside facilities comply with the Human Rights and Equal Opportunities Commission (HREOC) Advisory notes on access to premises on the Australian Human Rights Commission website.
Vibration Serviceability Design	BS EN 1991-2:2003 Amendment 2:2010 NA to BS EN 1991-2:2003 JRC 53442 – 2009
Stay-Cable Design	PTI DC45.1-12 [6th Edition, 2012]
Ship Impact	AASHTO [2nd edition 2009]
Complimentary Local Guidance	DTMR Policy - Reduction of Risk from Objects Thrown from Overpass Structures onto Roads *Note: Local complimentary guidance will be adopted only where applicable within the context of adjacent assets (i.e. REX) and is for guidance only*
Design Life	Bridge is designed to achieve the minimum design life of 100 years without replacement of elements, whilst remaining safe and functional. All elements will require inspection and maintenance at specified intervals Drainage elements that are accessible for refurbishment and maintenance is designed to achieve the minimum design life of 40 years without replacement of elements, whilst remaining safe and functional. All elements will require inspection and maintenance at specified intervals If part of an asset including asset items and asset sub-items is not readily accessible for maintenance

Infrastructure Type – Pedestrian Bridge – Element of Infrastructure	Desired Standard of Service
	or replacement, it satisfies the design life requirements of the asset which it forms a part. A replacement methodology is specified for components that have life shorter than the structure design life.
Durability	A bridge and its associated works meet the following minimum requirements for durability. A bridge is designed to comply with AS 5100 for code compliance only. *Note: Bespoke analysis of exposure conditions for the site has been undertaken in accordance with the requirements of AS 5100 and referenced standards AS 2159*
Concrete Durability	Minimum concrete strengths and associated nominated concrete covers comply with AS 5100 to suit the required exposure classification. Cover spacers or permanent fixings are incorporated within the concrete covers zone and are structurally adequate, durable and compatible with the material characteristics of the surrounding concrete with good adhesion, so that their inclusion will not cause any cracking, spalling or other defect leading to corrosion of the reinforcement within the structures design life.
Structural steel durability – miscellaneous metalwork	Exposed metalwork is protected in compliance with AS/NZS 2312:2002
Structural steel durability – steel girder bridges	Steel girder bridges are not used over or immediately adjacent to salt water or where they may be inundated by brackish water in less than a 100 year ARI flood. Where steel girder bridges are used, all steel surfaces are protected in compliance with AS/NZS 2312:2002
Miscellaneous components durability	Structures are designed to enable items such as bearings, expansion joint seals, railings and drains to be readily accessible for inspection, maintenance, renewal or replacement. Structures are designed so that all corrosion protection systems including concrete covers can be easily inspected, maintained or renewed.

Infrastructure Type – Pedestrian Bridge – Element of Infrastructure	Desired Standard of Service
Joints	Expansion joints are minimised or ideally avoided in the design. All other joints (e.g. joints between pre-cast element and construction joints) are waterproofed.
Deck drainage	Deck drainage is in compliance with AS 5100. Drainage from overbridges is not discharged onto railway lines, traffic lanes or shared use paths or footpaths below the bridge. Drainage pipes are fire resistant and meet the durability requirements of this performance specification. The minimum diameter of scuppers is 150mm and the minimum diameter of drainage pipe is 200mm. Parapets have a top surface that angle towards the bridge path by a minimum of 2.5° to channel rainwater onto the bridge to minimise staining of the outside parapet face. To conceal any drainage or service pipes, the parapet must hang below the underside of the bridge deck slabs and girder flanges if applicable by a minimum of 100mm.
Bearings	Bearings for new girder bridges are designed and constructed for ease of replacement during the life of the bridge. 'Ease of replacement' is considered as placing a jack on the bearing shelf and jacking against the girder or diaphragm, using normal height commercially hired jacks. Elastomeric bearings are in compliance with DIN EN ISO 1523:2002-08 All elastomeric bearings are in a 10mm recess, and where located within 1km of salt water the retraining plates are stainless steel. All other types of bearings and fixings are marine grade stainless steel.
Bridge barriers	Where a bridge structure is over permanent water deeper than 300mm or where the drop height exceeds 1.2m, vertical balustrade pedestrian handrails are provided on the structure’s outer edge.
Hydrology	The hydraulic loads on bridges are based on a 2000 year ARI flood for ultimate limit state flood levels and

Infrastructure Type – Pedestrian Bridge – Element of Infrastructure	Desired Standard of Service
	flows and a 20 year ARI flood for serviceability limit state flood levels and flows. Structures are designed to prevent or minimise increased flooding or flood pattern changes.
Steel girder bridges	Steel bridges are designed in compliance with AS 5100 and the following: • all steel box girders have access holes suitable for inspection and maintenance access; • access holes are located in the bottom flange in areas of low stress; • access holes are fitted with hinged doors and provided with locks; • access holes are provided in all diaphragms; • access holes are large enough to permit maintenance personnel access; • access provisions comply with the Workplace Health and Safety Act 1995 and the Workplace Health and Safety Regulation 1997 which includes, but is not limited to, the provisions for the design of confined spaces; • provision is made for ventilation and drainage of the interior of all box sections; • outside openings in steel box sections are screened to exclude unauthorised persons, birds and vermin; • water, gas or drainage pipes are not permitted within steel box girders.
Pier protection for overbridges	Piers for overbridges are designed for the impact loads in compliance with AS 5100
Pedestrian loads	All structures with walkways are designed to support pedestrian loads as specified in AS 5100 Where vehicle access for maintenance is proposed and the full width access is greater than 1.8m, the structure may be designed to accommodate up to a 6,100kg GVM full size tractor, 2,500kg utility vehicle or a mini tractor.
Thermal loads	Bridge structures are designed for thermal effects as detailed in AS 5100. For determination of

Infrastructure Type – Pedestrian Bridge – Element of Infrastructure	Desired Standard of Service
	temperature effects, all structures are considered as coastal.
Material standards and specifications	Material standards for bridge design are described in AS 5100
Surface treatments	Paths are durable, stable, firm, even, relatively smooth but slip resistant, safe and traversable by all users. Treatments are chosen depending on a number of different criteria, including: • their location within the river corridor; • the grade of the surface and the coefficient of friction required; • whether the surface provides guidance; • the physical environment, climate and the potential demands which could be placed on the surface; Paving achieves a Class V classification in compliance with AS 4586:1999. Use devices including tactile or other physical cues to provide direction and alert to the presence of hazards in accordance with AS 1428.4-1992 Path surfaces and sub-bases are designed, constructed and maintained in accordance with Guide to Engineering Practice, Part 13 – 'Pedestrians' and comply with AS 1428.2-1992, to ensure a satisfactory level of service for pedestrians throughout its life Service lid covers and drainage grates are avoided in paths.
Handrails and Balustrades	Handrails are provided where necessary for support, balance and guidance for all pedestrians and also as a means of propulsion for wheelchair users. Standards to be addressed during Compliance Assessment include: • Austroads Guide to Engineering Practice Part 13: Pedestrians; • Section D of the Building Code of Australia; • AS 1428.1-2009;

Infrastructure Type – Pedestrian Bridge – Element of Infrastructure	Desired Standard of Service
	• AS 1428.2-1992; • Human Rights and Equal Opportunity Commission Advisory notes on Access to premises. Issued under section 67 (1)(k) of the Disability Discrimination Act 1992; • Austroads Bridge Design Code; • ASTM A380. Handrails will be constructed of 316 stainless steel, which is an acceptable material for handrails, with minimum finish str 400 grit (Ra <0.5 micron) – bright polished finish.
Shade Structures	Shading structures on the bridge will: • Provide 100% shade to seating to lookout/rest points (minimum 12m^2 each) • In addition to the look out and rest point shelters; provide a linear shade structure to not less than 60% to the length of the bridge • Limit the separation of cover between shade structures to a max distance of 40m • Have a minimum effective width of 2.7m. • Consist of a material that has a Ultraviolet Protection value of not less than 99% • Maintains a minimum internal clearance height of 2.7m (FFL of bridge deck to underside of structure).

8.2.4.2. Footpaths and Verges

The standards applicable to delivering pathway network (footpaths) infrastructure as identified by the Development Scheme are contained within the following:

- Australian Standards (no specification); and
- Queen's Wharf Brisbane Priority Development Area Public Realm and Movement Network Planning and Design Guideline.

While Chapter 5.3.2 of the Brisbane City Council *Brisbane City Plan 2014 Infrastructure Design Planning Scheme Policy* is not identified by the Development Scheme or the QWB PDA Public Realm and Movement Network Planning and Design Guideline as standards for public realm, it is considered relevant to address these.

The proposed public realm infrastructure works will comply with the parameters in the QWB PDA Public Realm and Movement Network Planning and Design Guideline and/or the BCC Infrastructure Design Planning Scheme Policy, however the quality of materials and finishes may vary in accordance with **PoD**

Volume 3, Attachment B: Landscape Concept Report. Where the infrastructure deviates from the above standards, the public realm will comply with **PoD Volume 3, Attachment B: Landscape Concept Report**

Footpath requirements, particularly for verge widths and clearances, are restricted by the existing kerb and channel and building locations (i.e. heritage buildings). The existing kerbs will not be relocated to accommodate wider verges to comply with IDPSP standards.

Desired Standards of Service for all streetscape works which relate to furniture, landscaping and other works are contained within **Section 8.3** of this report.

The Desired Standards of Service for the pathway network infrastructure identified in **Section 7.1.2**, are detailed in **Table 19** below.

Table 19 – Footpath and Verges Desired Standard of Service

Infrastructure Type	Desired Standard of Service
All infrastructure	All Brisbane City Council *Brisbane Standard Drawings* will be used as a guideline for design of all elements of the public realm, footpaths and streetscapes. However, the design, materials and finishes will be undertaken in accordance with **PoD Volume 3, Attachment B: Landscape Concept Report**.
Footpath pavements (all except where listed below)	Paving in accordance with Appendix B.3 and B.7 of this report and Section 4.3.5 of **PoD Volume 3, Attachment B: Landscape Concept Report** Widths in accordance with Appendix B.5 of this report and Section 4.3.4 pf **PoD Volume 3, Attachment B: Landscape Concept Report** QWB Priority Development Area Public Realm and Movement Network Planning and Design Guideline will be applied where technically practicable for the items specified as follows: • Page 17, Functional, Amenities and hardscape, column 1, dot point 1: *» establish a consistent streetscape palette* • Page 17, Functional, Amenities and hardscape, column 2, dot point 1 - 2: *Hardscape materials are durable and resilient to Brisbane's climate including overland flow and flooding events* *Hard materials for paved surfaces are selected based on the following characteristics:* *» minimal porosity to ensure low maintenance requirements* *» complementary to proposed building materials*

Infrastructure Type	Desired Standard of Service
	» contain recycled materials, such as recycled aggregates as much as possible • Page 25, Integrated, Built form interface, column 1, dot point 2: *The pavement material and texture palette is commensurate to that of the adjacent built form* Where not in accordance with the above, in accordance with **PoD Volume 3, Attachment B: Landscape Concept Report** AS1428.4
Footpath pavements on Margaret, Elizabeth and Alice Streets	Paving in accordance with Appendix B.3 and B.7 of this report and Section 4.3.5 of **PoD Volume 3, Attachment B: Landscape Concept Report** Widths in accordance with Appendix B.5 of this report and Section 4.3.4 pf **PoD Volume 3, Attachment B: Landscape Concept Report** QWB Priority Development Area Public Realm and Movement Network Planning and Design Guideline will be applied where technically practicable for the items specified as follows: • Page 17, Functional, Amenities and hardscape, column 1, dot point 1: *» establish a consistent streetscape palette* • Page 17, Functional, Amenities and hardscape, column 2, dot point 1 - 2: *Hardscape materials are durable and resilient to Brisbane's climate including overland flow and flooding events* *Hard materials for paved surfaces are selected based on the following characteristics:* *» minimal porosity to ensure low maintenance requirements* *» complementary to proposed building materials* *» contain recycled materials, such as recycled aggregates as much as possible* • Page 25, Integrated, Built form interface, column 1, dot point 2:

Infrastructure Type	Desired Standard of Service
	The pavement material and texture palette is commensurate to that of the adjacent built form AS1428.4
Pathways outside of a road corridor (e.g. public open space) excluding cross block links	Paving in accordance with Appendix B.3 and B.7 of this report and Section 4.3.5 of **PoD Volume 3, Attachment B: Landscape Concept Report** Widths in accordance with Appendix B.5 of this report and Section 4.3.4 pf **PoD Volume 3, Attachment B: Landscape Concept Report** QWB Priority Development Area Public Realm and Movement Network Planning and Design Guideline will be applied where technically practicable for the items specified as follows: • Page 17, Functional, Amenities and hardscape, column 2, dot point 1 - 2: *Hardscape materials are durable and resilient to Brisbane's climate including overland flow and flooding events* *Hard materials for paved surfaces are selected based on the following characteristics:* *» minimal porosity to ensure low maintenance requirements* *» complementary to proposed building materials* *» contain recycled materials, such as recycled aggregates as much as possible* • Page 25, Integrated, Built form interface, column 1, dot point 2: *The pavement material and texture palette is commensurate to that of the adjacent built form* DTMR Manual of Uniform Traffic Control Devices Austroads Guide to Road Design Part 6A: Pedestrian and Cycle Paths where practicable Where not in accordance with the above, in accordance with **PoD Volume 3, Attachment B: Landscape Concept Report**
Footpath layout	Paving in accordance with Appendix B.3 and B.7 of this report and Section 4.3.5 of **PoD Volume 3, Attachment B: Landscape Concept Report**

Infrastructure Type	Desired Standard of Service
	Widths in accordance with Appendix B.5 of this report and Section 4.3.4 **PoD Volume 3, Attachment B: Landscape Concept Report** Unobstructed pavement width for George and William Streets generally in accordance with the BCC IDPSP, Section 5.3.3.1.3.2.A where practicable. In all other instances, footpaths will be designed in accordance with **PoD Volume 3, Attachment B: Landscape Concept Report**
Feature paved road surfaces (all except where listed below)	Paving in accordance with Appendix B.3 and B.7 of this report and Section 4.3.5 of **PoD Volume 3, Attachment B: Landscape Concept Report** Widths in accordance with Appendix B.5 of this report and Section 4.3.4 of **PoD Volume 3, Attachment B: Landscape Concept Report** QWB Priority Development Area Public Realm and Movement Network Planning and Design Guideline will be applied where technically practicable, for the items specified as follows: • Page 17, Functional, Amenities and hardscape, column 2, dot point2: *Hard materials for paved surfaces are selected based on the following characteristics:* *» minimal porosity to ensure low maintenance requirements* *» complementary to proposed building materials* *» contain recycled materials, such as recycled aggregates as much as possible*
Feature paved road surfaces at pedestrian crossings	Paving in accordance with Appendix B.3 and B.7 of this report and Section 4.3.5 and relevant Sub-Precincts in Section 6 of **PoD Volume 3, Attachment B: Landscape Concept Report** QWB Priority Development Area Public Realm and Movement Network Planning and Design Guideline will be applied where technically practicable, for the items specified as follows: • Page 17, Functional, Amenities and hardscape, column 2, dot point2:

Infrastructure Type	Desired Standard of Service
	Hard materials for paved surfaces are selected based on the following characteristics: *» minimal porosity to ensure low maintenance requirements* *» complementary to proposed building materials* *» contain recycled materials, such as recycled aggregates as much as possible*
Feature paved road surfaces at Queens Wharf Road and Queen's Wharf Plaza	Paving in accordance with Appendix B.3 and B.7 of this report and Section 4.3.5 of **PoD Volume 3, Attachment B: Landscape Concept Report** Widths in accordance with Appendix B.5 of this report and Section 4.3.4 of **PoD Volume 3, Attachment B: Landscape Concept Report** QWB Priority Development Area Public Realm and Movement Network Planning and Design Guideline will be applied where technically practicable, for the items specified as follows: • Page 17, Functional, Amenities and hardscape, column 2, dot point2: *Hard materials for paved surfaces are selected based on the following characteristics:* *» minimal porosity to ensure low maintenance requirements* *» complementary to proposed building materials* *» contain recycled materials, such as recycled aggregates as much as possible*
Cross block links	Section 4.2.5 and 4.3.5 of **PoD Volume 3, Attachment B: Landscape Concept Report** Paving in accordance with Appendix B.3 and B.7 of this report and Section 4.3.5 of **PoD Volume 3, Attachment B: Landscape Concept Report** Widths in accordance with Appendix B.5 of this report and Section 4.3.4 of **PoD Volume 3, Attachment B: Landscape Concept Report** QWB Priority Development Area Public Realm and Movement Network Planning and Design Guideline

Infrastructure Type	Desired Standard of Service
	will be applied where technically practicable, for the items specified as follows: • Page 17, Functional, Amenities and hardscape, column 2, dot point2: *Hard materials for paved surfaces are selected based on the following characteristics:* *» minimal porosity to ensure low maintenance requirements* *» complementary to proposed building materials* *» contain recycled materials, such as recycled aggregates as much as possible*
All lighting (street lighting, outdoor and/or pedestrian lighting)	Unless otherwise agreed in writing with the ~~nominated assessing authority:~~ MEDQ • All lights are to be LED • Luminare is to be on Energex approved list for the relevant rated lighting (i.e. Rate 2 or 3); • Lights not to dim below the minimum level of the Australian Standard with the maintenance factor is taken into consideration; • The installation to be based on 3 years maintenance period
Lighting which is for outdoor and/or pedestrian lighting, except where for in the foreshore	AS 4282:1997 AS/NZS3000 Electrical installations known as the Australian/New Zealand Wiring Rules AS/NZS 1158.3.1 Lighting for roads and public spaces - Pedestrian area (Category P) lighting - Performance and Design requirements. Where the asset is to be accepted by BCC as a BCC standard asset: Council's standard drawings BSD11001-11004 and relevant Brisbane Planning Scheme Codes Where the asset is to be accepted by BCC as a BCC non-standard asset or will remain a private asset: an alternative standard agreed with the ~~nominated assessing authority.~~ MEDQ
Lighting which is for outdoor and/or pedestrian lighting where in the foreshore	AS 4282:1997

Infrastructure Type	Desired Standard of Service
	AS/NZS3000 Electrical installations known as the Australian/New Zealand Wiring Rules AS/NZS 1158.3.1 Lighting for roads and public spaces - Pedestrian area (Category P) lighting - Performance and Design requirements. Where the asset is to be accepted by BCC as a BCC standard asset: Council's standard drawings BSD11001-11004 and relevant Brisbane Planning Scheme Codes Where the asset is to be accepted by BCC as a BCC non-standard asset or will remain a private asset: an alternative standard agreed with the ~~nominated assessing authority.~~ MEDQ Electrical reticulation is designed as standalone private installation with conduits, pits and controls to suit. Controls are supplied from a main switchboard
Street lighting	AS/NZS 1158.3.1 Lighting for roads and public spaces Relevant standards of the electricity supply authority Evidence is to be provided to the MEDQ ~~nominated assessing authority~~ that Council has agreed to be the billable customer for the street lighting Lighting is supplied through • the development power source; or • Power source connections as provided by the electricity supply provider as shown in the relevant Brisbane Standard Drawings. Evidence is to be provided to the MEDQ ~~nominated assessing authority~~ that Council has agreed to be the billable customer for the street lighting. Light pole control protection is provided through: • The source switchboard of the development power source; or • In accordance with the relevant Brisbane Standard Drawings
Pedestrian crossings	Austroads Guide to Road Design Part 4: Intersections and Crossings General

Infrastructure Type	Desired Standard of Service
	Austroads Guide to Road Design Part 4A: Signalised and Unsignalised Intersections
Pedestrian crossings where at Queen's Gardens and Stephens Lane	Austroads Guide to Road Design Part 4: Intersections and Crossings General Austroads Guide to Road Design Part 4A: Signalised and Unsignalised Intersections
The Ribbon feature	Paving in accordance with Appendix B.3 and B.7 of this report and Section 4.3.5 of **PoD Volume 3, Attachment B: Landscape Concept Report** Widths in accordance with Appendix B.5 of this report and Section 4.3.4 of **PoD Volume 3, Attachment B: Landscape Concept Report**
Verges	Paving in accordance with Appendix B.3 and B.7 of this report and Section 4.3.5 of **PoD Volume 3, Attachment B: Landscape Concept Report** Widths in accordance with Appendix B.5 of this report and Section 4.3.4 of **PoD Volume 3, Attachment B: Landscape Concept Report** Existing verge cross-falls where adjoining a heritage building will be maintained throughout the precinct in accordance with **PoD Volume 3, Attachment B: Landscape Concept Report** as the existing situation for verge cross-falls cannot comply with the BCC IDPSP Section 3.7.3.5QWB Priority Development Area Public Realm and Movement Network Planning and Design Guideline will be applied where technically practicable, for the items specified as follows: • Page 17, Functional, Amenities and hardscape, column 1, dot point 1: *Establish a consistent streetscape palette*
Road carriageway where for George, Margaret, Alice and Elizabeth Streets (Major Roads)	**PoD Volume 3, Attachment B: Landscape Concept Report** QWB Priority Development Area Public Realm and Movement Network Planning and Design Guideline will be applied where technically practicable, for the items specified as follows: • Page 16, Functional, Streets, laneways and intersections, column 1, dot point 1 - 2:

Infrastructure Type	Desired Standard of Service
	George Street is maintained as a two-way street from Charlotte Street to Alice Street *George Street is maintained as a one-way street from Charlotte Street to Queen Street* *The existing functionality of Elizabeth, Margaret and Alice Streets are maintained.*
Road carriageway where for William Street	**PoD Volume 3, Attachment B: Landscape Concept Report** QWB Priority Development Area Public Realm and Movement Network Planning and Design Guideline will be applied where technically practicable, for the items specified as follows: • Page 15, Functional, Streets, laneways and intersections, column 1, dot point 4: *William Street is maintained as a two-way street with ultimate connectivity to the Riverside Expressway.*
Road carriageway where for Queens Wharf Road **Shared Zone ~~(Minor Road)~~**	NSW RMS Design and Implementation of Shared Zones where considered relevant in accordance with the Landscape Concept Report **PoD Volume 3, Attachment B: Landscape Concept Report** QWB Priority Development Area Public Realm and Movement Network Planning and Design Guideline will be applied where technically practicable, for the items specified as follows: • Page 8, Distinct, Heritage, column 2, dot point 1: *Queens Wharf Road provides a physical and visual link.* • Page 16, Functional, Streets, laneways and intersections, column 1 - 2, dot point 3: *Queens Wharf Road operates as a Shared Zone. Note: Queens Wharf Road is for service vehicles only*
Kerbs and kerb locations where for all streets except William Street and Margaret Street	NSW RMS Design and Implementation of Shared Zones Existing kerb locations will be maintained except where on William Street in Precinct 3 to accommodate turning lanes as specified in Section 7.1.1 of this IMP **PoD Volume 3, Attachment B: Landscape Concept Report**

Infrastructure Type	Desired Standard of Service
	Where there are existing locations of Heritage Kerb (i.e. Brisbane Tuff), undertake works in accordance with Section 3.8 of the BCC IDPSP QWB Priority Development Area Public Realm and Movement Network Planning and Design Guideline will be applied where technically practicable, for the items specified as follows: • Page 17, Functional, Amenities and hardscape, column 1, dot point 1: *Establish a consistent streetscape palette* *Note: Queens Wharf Road is for service vehicles only*
Kerbs and kerb locations where for William Street and Margaret Street	Kerb locations will be in accordance with **PoD Volume 3, Attachment B: Landscape Concept Report** All other components will be in accordance with Section 5.4.7 of **PoD Volume 3, Attachment B: Landscape Concept Report** QWB Priority Development Area Public Realm and Movement Network Planning and Design Guideline will be applied where technically practicable, for the items specified as follows: • Page 17, Functional, Amenities and hardscape, column 1, dot point 1: *Establish a consistent streetscape palette*
Tactile Marking	AS1428.4 **PoD Volume 3, Attachment B: Landscape Concept Report** QWB Priority Development Area Public Realm and Movement Network Planning and Design Guideline will be applied where technically practicable, for the items specified as follows: • Page 20, Inviting, Safe and equitable access, dot point 4: *Provide tactile markers along major pedestrian thoroughfares.* *Note: Tactile marking will be provided at key points such as stairs, ramps and kerb ramps.* Generally in accordance with PoD Volume 3, Attachment O: Equitable Access Assessment.

Infrastructure Type	Desired Standard of Service
Vehicle access driveways	**PoD Volume 3, Attachment B: Landscape Concept Report** BCC TAPS PSP where relevant

8.3. PUBLIC REALM

The standards applicable to delivering public realm infrastructure as identified by the Development Scheme are contained within the following:

- Australian Standards (no specification);
- Queen's Wharf Brisbane Priority Development Area Public Realm and Movement Network Planning and Design Guideline; and
- Water Sensitive Urban Design Technical Design Guidelines for South East Queensland (Water Sensitive Urban Design only).

While Chapter 5.3.2 of Brisbane City Council's *Brisbane City Plan 2014 IDPSP* is not identified by the Development Scheme of the QWB PDA Public Realm and Movement Network Planning and Design Guideline as standards for public realm, it is considered relevant to address these.

The proposed public realm infrastructure works will comply with the parameters in the QWB PDA Public Realm and Movement Network Planning and Design Guideline and/or the BCC IDPSP, however the quality of materials and finishes may vary in accordance with **Volume 3, Attachment B: Landscape Concept Report**. Where the infrastructure deviates from the above standards, the public realm will comply with the **Volume 3, Attachment B: Landscape Concept Report**. The Desired Standards of Service for the public realm infrastructure (including verge and footpath streetscape works) identified in **Section 7.2**, are detailed in **Table 20** below. Quantities of public realm furniture, such as seats and bins, will be provided in accordance with Section 5.1 of the **Volume 3, Attachment B: Landscape Concept Report.**

Table 20 – Public Realm Infrastructure (Including streetscape Works) Desired Standard of Service

Infrastructure Type	Desired Standard of Service
All infrastructure	All BCC *Brisbane Standard Drawings* will be used as a guideline for design of all elements of the public realm, footpaths and streetscapes. However, the design, materials and finishes will be undertaken in accordance with **PoD Volume 3, Attachment B: Landscape Concept Report**.
Shaded seating areas	Seating in accordance with Seating standards identified below Landscaping in accordance with planting specifications below
Subtropical planting, shade trees, street trees and signature trees	All plant species are generally in accordance with Section 4.3.7 for the Overall Strategy and Section 6 for each Sub-Precinct of **PoD Volume 3, Attachment B: Landscape Concept Report** Sections 5.1.9 to 5.1.12 of **PoD Volume 3, Attachment B: Landscape Concept Report** identifies the indicative planting palette

Infrastructure Type	Desired Standard of Service
	Tree planting will be undertaken generally in accordance with Section 5.3 of **PoD Volume 3, Attachment B: Landscape Concept Report** Tree grate sizes will be designed generally in accordance with Section 5.3.3.1.4.1 of the BCC IDPSP. BCC IDPSP Section 3.7.6.5(a) for the design and Section 3.7.6.5(b) for the materials and finishes of tree grates. Fixing and all other elements will be in accordance with **PoD Volume 3, Attachment B: Landscape Concept Report** Tree centreline locations will be generally in accordance with Section 5.3.3.1.4.1 of the BCC IDPSP Street tree locations will be generally in accordance with Section 3.7.5 Items (1)-(6) (except for 3.7.5.3 Item (6)) and Item (9)(a)-(d) and (9)(h) of the BCC IDPSP where practicable and will otherwise be in accordance with **PoD Volume 3, Attachment B: Landscape Concept Report** except for compliance with Brisbane Standard drawings which are used as a guideline QWB Priority Development Area Public Realm and Movement Network Planning and Design Guideline will be applied where technically practicable, for the items specified as follows: • Page 11, Distinct, Subtropical design, column 1 - 2, dot point 2 – 3: *Address ecologically sustainable design principles including appropriate orientation, shading, natural daylight and the ability to capture cooling breezes* *Establish a consistent subtropical streetscape and landscape palette which contributes to the local natural ecology including:* *» local subtropical species that at maturity are complementary in scale and height to the building form **or** respond to the site location and design needs;* *» large subtropical street trees* *» horizontal and vertical greenery typologies* • Page 11, Distinct, Subtropical design, column 2, dot point 2:

Infrastructure Type	Desired Standard of Service
	Provide landscape treatments that are durable and resilient to Brisbane's climate
Subtropical planting, shade trees, street trees and signature trees where in areas not on a street (i.e. public open space)	Indicative plant palettes are included in Section 5.1.10 and 5.1.12 of **PoD Volume 3, Attachment B: Landscape Concept Report.** All plant species are generally in accordance with Section 4.3.7 for the Overall Strategy and Section 6 for each Sub-Precinct of **PoD Volume 3, Attachment B: Landscape Concept Report** Sections 5.1.9 to 5.1.12 of **PoD Volume 3, Attachment B: Landscape Concept Report** identifies the indicative planting palette Tree planting will be undertaken generally in accordance with Section 5.3 of **PoD Volume 3, Attachment B: Landscape Concept Report.** Tree grate sizes will be designed generally in accordance with Section 5.3.3.1.4.1 of the BCC IDPSP Where modifying an existing Council tree pit: • a soil volume of 9m3 is adopted where existing or proposed underground infrastructure permit. • companion planting is not required • advanced tree stock supported by tree cells is to be used QWB Priority Development Area Public Realm and Movement Network Planning and Design Guideline will be applied where technically practicable, for the items specified as follows: • Page 11, Distinct, Subtropical design, column 1 - 2, dot point 2 – 3: *Address ecologically sustainable design principles including appropriate orientation, shading, natural daylight and the ability to capture cooling breezes* *Establish a consistent subtropical streetscape and landscape palette which contributes to the local natural ecology including:* *» local subtropical species that at maturity are complementary in scale and height to the building form **or** respond to the site location and design needs;* *» large subtropical street trees*

Infrastructure Type	Desired Standard of Service
	» horizontal and vertical greenery typologies • Page 11, Distinct, Subtropical design, column 2, dot point 2: *Provide landscape treatments that are durable and resilient to Brisbane's climate*
All turfed areas	AS 4419 AusGAP certified turf At least 80% grass cover is achieved prior to the on-maintenance period. Stones are removed, or alternatively the hazardous items are covered with at least 100mm of topsoil. Topsoil profiles prepared for turfing are free of deleterious material, such as sticks, tree roots, and stones greater than 20mm in diameter. New turf areas are married into existing levels and set-downs for hard surfaces are specified. Holes and depressions greater than 50mm are filled and trip hazards rectified. A grass species is to be used that best suits the local conditions, proposed function and level of use. In flood-prone locations, turf is well-established prior to off-maintenance through: • site preparation; • topsoil depth; • using species that provide protection to the park from erosion. Turf is laid in overland flow paths or areas subject to regular inundation, alongside pathways and around visitor facilities and sport and recreation facilities. Areas of grass that are only occasionally or never mown may be required or approved in situations, such as: • under mature trees; • adjoining revegetation areas; • on steep slopes or other areas where mowing is impractical.

Infrastructure Type	Desired Standard of Service
	In accordance with **PoD Volume 3, Attachment B: Landscape Concept Report** *Note: Turfed areas will not be transferred back to Brisbane City Council for maintenance unless otherwise specified in Section 10 of this IMP.*
Segregated pedestrian and cyclist pathways and crossings TMR TN 128 Selection and Design of Cycle Tracks (for transition zones)	Widths in accordance with **PoD Volume 3, Attachment B: Landscape Concept Report** NSW Bicycle Guidelines, Roads and Maritime Services Austroads Guide to Road Design Part 6A: Pedestrian and Cycle Paths where practicable
Pedestrian river walkway (e.g. boardwalk)	Widths in accordance with Appendix B.5 of this report and Figure 4.3.4 of **PoD Volume 3, Attachment B: Landscape Concept Report** Austroads Guide to Road Design Part 6A: Pedestrian and Cycle Paths where practicable Section 1.3 and Section 2 (where relevant) of **POD Volume 3, Attachment X: Foreshore Environmental Management Plan & Basis of Design**
Foreshore pedestrian link in Sub-Precinct 1e Landing and Sub-Precinct 1f Waterline Park (on land only, no maritime or marine infrastructure)	Paving in accordance with Appendix B.7 of this report and Figure 4.3.5 of **PoD Volume 3, Attachment B: Landscape Concept Report** Widths in accordance with Appendix B.5 of this report and Figure 4.3.4 **PoD Volume 3, Attachment B: Landscape Concept Report** Austroads Guide to Road Design Part 6A: Pedestrian and Cycle Paths
Shared zones where in the foreshore	Paving in accordance with Appendix B.7 of this report and Figure 4.3.5 of **PoD Volume 3, Attachment B: Landscape Concept Report** Widths in accordance with Appendix B.5 of this report and Figure 4.3.4 **PoD Volume 3, Attachment B: Landscape Concept Report** BCC IDPSP Section 4.3.4 Surface Treatments BCC IDPSP Section 4.3.5 for signage, intersections and path pavement markings

Infrastructure Type	Desired Standard of Service
	NSW RMS Design and Implementation of Shared Zones where considered relevant in accordance with the Landscape Concept Report
All understorey planting	All plant species are generally in accordance with Section 4.3.7 for the Overall Strategy and Section 6 for each Sub-Precinct of **PoD Volume 3, Attachment B: Landscape Concept Report**
Water features	Building Code of Australia for safety requirements
Ramps and stairs	AS1428.1 BCC IDPSP Section 3.7.36.10 for kerb ramps where required by **PoD Volume 3, Attachment B: Landscape Concept Report**
Seating / Benches	All furniture will be bespoke or in keeping with the surrounding public realm. Any custom design will be in accordance with the principles and performance criteria in Section 5.1 of the **PoD Volume 3, Attachment B: Landscape Concept Report** Seating / benches will be constructed of timber, concrete, steel or composite material All furniture will adopt parameters of the BCC IDPSP for location and placement All materials and finishes will be in accordance with **PoD Volume 3, Attachment B: Landscape Concept Report** BCC IDPSP Section 5.3.3.1.3.2 for location of all furniture outside of unobstructed pavement area BCC IDPSP Section 3.7.6.2 for the location of street furniture (except for Section 3.7.6.2(3)) AS1428.1
Drinking fountains	All furniture will be bespoke or in keeping with the surrounding public realm. Any custom design will be in accordance with the principles and performance criteria in Section 5.1 of the **PoD Volume 3, Attachment B: Landscape Concept Report** Drinking fountains will be constructed of timber, concrete, steel or composite material All furniture will adopt parameters of the BCC IDPSP for location and placement

Infrastructure Type	Desired Standard of Service
	BCC IDPSP Section 3.7.6.2 for the location of street furniture (except for Section 3.7.6.2(3)) BCC IDPSP Section 10.3.8.1.5 for the location of street furniture AS1428.1
Bins, bollards and all other street and public realm furniture	All furniture will be bespoke or in keeping with the surrounding public realm. Any custom design will be in accordance with the principles and performance criteria in Section 5.1 of the **PoD Volume 3, Attachment B: Landscape Concept Report** Bins, bollards and all other street furniture will be constructed of timber, concrete, steel or composite material, unless otherwise specified by the **PoD Volume 3, Attachment B: Landscape Concept Report**. All furniture will adopt parameters of the BCC IDPSP for location and placement BCC IDPSP Section 3.7.6.2 for the location of street furniture (except for Section 3.7.6.2(3)) BCC IDPSP Section 10.3.8.1.2 for the location of street furniture (except for section 10.3.8.1.2(4)) AS1428.1 QWB Priority Development Area Public Realm and Movement Network Planning and Design Guideline will be applied where technically practicable, for the items specified as follows: • Page 17, Functional, Amenities and hardscape, column 1, dot point 1: *Establish a consistent streetscape palette* *Bins, bollards and other street and public realm furniture are located outside the unobstructed width where a path is identified as having a minimum unobstructed width in Appendix B.5 of this report and Figure 4.3.4 of* ***PoD Volume 3, Attachment B: Landscape Concept Report*** • Page 17, Functional, Amenities and hardscape, column 2, dot point 1: *Hardscape materials are durable and resilient to Brisbane's climate including overland flow and flooding events*
End of trip facilities	Queensland Development Code Mandatory Part 4.1

Infrastructure Type	Desired Standard of Service
	BCC IDPSP Section 4.6.3 Mid-trip facilities (except for bicycle shelters) *Note: Bicycle shelters are not proposed as part of the PoD* QWB Priority Development Area Public Realm and Movement Network Planning and Design Guideline will be applied where technically practicable, for the items specified as follows: • Page 17, Functional, Amenities and hardscape, column 3, dot point 2: *Provide facilities including cycling racks and storage facilities*
Playgrounds, including climbing walls	AS4685 AS4422 BCC IDPSP Section 10.3.7 where practicable
Active recreation opportunities (i.e. outdoor gym equipment, table tennis tables)	AS4685 AS4422 BCC IDPSP Section 10.3.10.6 where practicable Section 6.3.2 and 6.8 (where relevant) of **PoD Volume 3, Attachment B: Landscape Concept Report**
WSUD stormwater capture and treatment areas	BCC IDPSP Section 3.7.3.13 *Queensland State Planning Policy 2017* *Water by Design: Bioretention Technical Design Guidelines 2012* *Water by Design: Music Modelling Guidelines 2010*
Planter boxes / garden beds	Where on Margaret and Alice Streets and Queens Wharf Road in accordance with Section 5.3.3.1.3.2 of the BCC IDPSP All streets, including Margaret and Alice Streets and Queens Wharf Road in accordance with Sections 4.3.7 and 4.3.8 of **PoD Volume 3, Attachment B: Landscape Concept Report** QWB Priority Development Area Public Realm and Movement Network Planning and Design Guideline will be applied where technically practicable, for the items specified as follows:

Infrastructure Type	Desired Standard of Service
	• Page 11, Distinct, Subtropical design, column 2, dot point 2: *Provide landscape treatments that are durable and resilient to Brisbane's climate*
Design Principles for wayfinding devices and signage (including for Heritage Interpretation Signage)	The sign is for people with diverse abilities. The sign accommodates a wide range of individual preferences and abilities. The sign is easy to understand, regardless of the user's experience, knowledge, language skills, or current concentration level. The sign communicates necessary information effectively to the user, regardless of ambient conditions or the user's sensory abilities. The sign minimizes hazards and the adverse consequences of accidental or unintended actions. Appropriate size and space is provided for approach, reach, manipulation, and use of the sign regardless of user's body size, posture, or mobility. Signage completes and enhances the existing tourism loops along and across the South Brisbane reach of the river, supplemented by signage and way finding. Where located on the Bicentennial Bikeway, signage is to be integrated into the wider wayfinding signage suite and is to be suitable for cyclists in line with the above principals QWB Priority Development Area Public Realm and Movement Network Planning and Design Guideline will be applied where technically practicable, for the items specified as follows: • Page 8, Distinct, Heritage, column 1 -3, dot point 8: *Wayfinding strategies are integrated with any existing Brisbane City Council heritage trails.*
Signage types for wayfinding devices and signage	Signage types will be designed depending on the functional signage category: • Identifying signs: communicate what something is such as a building, location or public facility

<table>
<tr><th>Infrastructure Type</th><th>Desired Standard of Service</th></tr>
<tr><td></td><td>

Directional signs: directs to designations, located on several strategic points in the built environment
Information signs: informs users of what is accessible from that point and to orientate within the built environment
Art and non-messaging signs: promotes current and upcoming events at relevant venues within the QWBIRD
Regulatory signs: indicates safety procedures and other building and statutory regulations for a specific area.

</td></tr>
<tr><td>Locations of wayfinding devices and signage</td><td>Locations and signage types in accordance with Section 4.3.6 of PoD Volume 3, Attachment B: Landscape Concept Report</td></tr>
<tr><td>Design of wayfinding devices and signage</td><td>
Typography, arrows, pictograms and colour are to be used to create a bespoke graphic information system for a wayfinding signage design.

Where used, pictograms provide unambiguous and universally recognisable pictorial information, which bridge language barriers and simplify basic messages

Fonts will be legible at short and long viewing distances as specified by AS 1428.2:
<table>
<tr><th>Required viewing distance</th><th>Minimum letter height</th></tr>
<tr><td>2 metres</td><td>6 millimetres</td></tr>
<tr><td>4 metres</td><td>12 millimetres</td></tr>
<tr><td>6 metres</td><td>20 millimetres</td></tr>
<tr><td>8 metres</td><td>25 millimetres</td></tr>
<tr><td>12 metres</td><td>40 millimetres</td></tr>
<tr><td>15 metres</td><td>50 millimetres</td></tr>
<tr><td>25 metres</td><td>80 millimetres</td></tr>
<tr><td>35 metres</td><td>100 millimetres</td></tr>
<tr><td>40 metres</td><td>130 millimetres</td></tr>
<tr><td>50 metres</td><td>150 millimetres</td></tr>
</table>
</td></tr>
</table>

Infrastructure Type	Desired Standard of Service
Wayfinding devices and signage attached to a heritage building or element	Any signage attached to a heritage place must: • be located thoughtfully, and positioned to be sympathetic to the building's fenestrations, cornices, parapets, columns and other key architectural features; • utilise construction materials that are light-weight in nature, modern and sympathetic to the heritage fabric; • be designed to be reversible (able to be removed with no permanent markers that a sign was previously attached); • fixed on the building with minimal fixing points; • not painted on, unless it is painted onto a non-original glass window; and • be undertaken in accordance with the relevant Conservation Management Plan for the heritage place
Wayfinding devices and signage where on Road Corridors	Regulatory signage and pavement marking designs are to be prepared in accordance with the Queensland Manual of Uniform Traffic Control Devices (MUTCD, Queensland Department of Transport and Main Roads)
Vertical structures and screens	Building Code of Australia QWB Priority Development Area Public Realm and Movement Network Planning and Design Guideline will be applied where technically practicable, for the items specified as follows: • Page 11, Distinct, Subtropical design, column 1 – 2, dot point 3: *Establish a consistent subtropical streetscape and landscape palette*
Terrace seating	All furniture will be bespoke or in keeping with the surrounding public realm. Any custom design will be in accordance with the principles and performance criteria in Section 5.1 of the **PoD Volume 3, Attachment B: Landscape Concept Report** Seating / benches will be constructed of timber, concrete, steel or composite material

Infrastructure Type	Desired Standard of Service
	All materials and finishes will be in accordance with **PoD Volume 3, Attachment B: Landscape Concept Report** BCC IDPSP Section 10.3.8.1.1 for the location of street furniture AS1428.1
All lighting (street lighting, outdoor and/or pedestrian lighting)	Unless otherwise agreed in writing with the ~~nominated assessing authority:~~ MEDQ • All lights are to be LED • Luminaire is to be on Energex approved list for the relevant rated lighting (i.e. Rate 2 or 3); • Lights not to dim below the minimum level of the Australian Standard with the maintenance factor is taken into consideration; The installation to be based on 3 years maintenance period
Lighting which is for outdoor and/or pedestrian lighting, except where for in the foreshore	AS 4282:1997 AS/NZS3000 Electrical installations known as the Australian/New Zealand Wiring Rules AS/NZS 1158.3.1 Lighting for roads and public spaces - Pedestrian area (Category P) lighting - Performance and Design requirements. Where the asset is to be accepted by BCC as a BCC standard asset: Council's standard drawings BSD11001-11004 and relevant Brisbane Planning Scheme Codes Where the asset is to be accepted by BCC as a BCC non-standard asset or will remain a private asset: an alternative standard agreed with the ~~nominated assessing authority.~~ MEDQ
Lighting which is for outdoor and/or pedestrian lighting where in the foreshore	AS 4282:1997 AS/NZS3000 Electrical installations known as the Australian/New Zealand Wiring Rules AS/NZS 1158.3.1 Lighting for roads and public spaces - Pedestrian area (Category P) lighting - Performance and Design requirements. Where the asset is to be accepted by BCC as a BCC standard asset: Council's standard drawings

Infrastructure Type	Desired Standard of Service
	BSD11001-11004 and relevant Brisbane Planning Scheme Codes Where the asset is to be accepted by BCC as a BCC non-standard asset or will remain a private asset: an alternative standard agreed with the ~~nominated assessing authority.~~ MEDQ Electrical reticulation is designed as standalone private installation with conduits, pits and controls to suit. Controls are supplied from a main switchboard
Street lighting	AS/NZS 1158.3.1 Lighting for roads and public spaces Relevant standards of the electricity supply authority Evidence is to be provided to the MEDQ ~~nominated assessing authority~~ that Council has agreed to be the billable customer for the street lighting Lighting is supplied through • the development power source; or • Power source connections as provided by the electricity supply provider as shown in the relevant Brisbane Standard Drawings. Evidence is to be provided to the MEDQ ~~nominated assessing authority~~ that Council has agreed to be the billable customer for the street lighting. Light pole control protection is provided through: • The source switchboard of the development power source; or In accordance with the relevant Brisbane Standard Drawings

8.3.1. Marine and Maritime Structures

The following Desired Standards of Service apply to the following Marine and Maritime Structures:

- Wharves;
- Berthing Structures;
- Walkway deck structures;
- Marine retaining walls;
- Reclamation;
- Deck structures;
- Revetment;
- Scour protection;
- Man-made beach;
- Boardwalk;
- Resting platforms;
- Boat house;
- Gangway;
- Pontoon;
- Guide piles; and
- Bikeway (structural component where in marine area).

The technical reports which are relevant to the above identified structures include: Section 2 of **PoD Volume 3, Attachment X: Foreshore Environmental Management Plan & Basis of Design** and all relevant standards as identified by **PoD Volume 3, Attachment X: Foreshore Environmental Management Plan & Basis of Design**.

Table 21 – Maritime and Marine Desired Standards of Service

Infrastructure Type – Marine and Maritime Structures – Element of Infrastructure	**Desired Standard of Service**	
Design Life	Item	Design Life (years)
	Superstructure (up to and including superstructure deck, but excluding replaceable/removable deck surface and furniture)	100
	Substructure	100
	Pontoon	25
	Expansion Joint	40
	Handrail	25

Infrastructure Type – Marine and Maritime Structures – Element of Infrastructure	Desired Standard of Service	
Return Periods	Timber Decking	25
	Lightweight Removable Deck Spans (Aluminium)	50
	Berthing Piles	50
	Rock Revetment	100
	Case	Return Period
	Extreme case (Ultimate Limit State)	1 in 1000 year
	Operational case (Serviceability Limit State)	1 in 20 year
Design Standards and Guidelines	AS 1170 AS 1428 AS 1657 AS 3962 for Gangway and Pontoons in Sub-Precinct 1g only AS 4997 AS 3600 AS 5100 AS 2159 AS 4678 for reclamation area in Sub-Precinct 1e only AS 4312 AS 2312 BS 6349 Austroads Guide Part 6A: Pedestrian and Cyclist Paths for bikeway in marine areas in Sub-Precinct 1g only CIRIA C683 The Rock Manual (2007) for revetment and scour protection for the reclamation area in Sub-Precinct 1e only	
Concrete Durability for Reclamation Areas	Minimum concrete strengths and associated nominated concrete cover thickness must comply with the relevant Australian Standard.	

Infrastructure Type – Marine and Maritime Structures – Element of Infrastructure	Desired Standard of Service
	Any cover spacers or permanent fixings incorporated within the concrete cover zone must be structurally adequate, durable and compatible with the material characteristics of the surrounding concrete with good adhesion, so that their inclusion will not cause any cracking, spalling or other defect leading to corrosion of the reinforcement within the structure's design life.
Material Standards and Specifications for Reclamation Areas	Materials complying with the Department of Transport and Main Roads specifications must be used.
Design Principles for Wharves, Jetties and Pontoons	The specifications, guidelines and standards in relation to the design and construction of water access structures. These specifications, guidelines and standards apply to wharves, jetties and pontoons. The design and construction of elevated structures aligns with the following: • structural design is based on proven methods, materials and technology; • all structures have an attractive appearance appropriate to their general surroundings and any adjacent structures.
Concrete Durability for Wharves, Jetties and Pontoons	Minimum concrete strengths and associated nominated concrete covers thickness is to comply with the relevant Australian Standard. Any cover spacers or permanent fixings to be incorporated within the concrete covers zone are structurally adequate, durable and compatible with the material characteristics of the surrounding concrete with good adhesion, so that their inclusion will not cause any cracking, spalling or other defect leading to corrosion of the reinforcement within the structure's design life.
Floating Pontoons	Designed to AS 3962

8.3.2. Public Art

Table 22 – Public Art Desired Standards of Service

Infrastructure Type – Public Art – Element of Infrastructure	Desired Standard of Service
Guidelines for design and construction	The following standards are for guidance only to inform the design and construction of public art and are applied where relevant to the location of the artwork to be installed: • AS/NZS 1158.3.1:2005; • AS 1428 (Set)-2010; • AS 4685 (Set)-2004; • AS/NZS 3661.2:1994; • AS/NZS 4586:2004; • AS/NZS 4663:2004; and/or • Austroads Guide to Road Design Part 6A: Pedestrian and Cyclist Paths.
Visibility and Position	Artworks are located in a publicly visible location, such as the building facade or on publicly accessible sites such as a building forecourt. Artworks are not located within a building foyer or lift lobby, where these areas are not permanently accessible to the members of the public. If artwork is a freestanding structure positioned in the verge, it: • does not impede sightlines to un-signalled intersections, pedestrian crossings, traffic signals and bus stops; and/or • does not impede clear access to all above ground and sub-surface services in the verge.
Design	If the completed artwork will be subjected to unsupervised physical contact, it is designed to withstand contact with an appropriate number of people, climbing, pushing or pulling at the structures. Artwork is designed to: • ensure safety for members of the public from all age groups in all weather conditions; • contain no protrusions which might cause injury if accidentally collided with;

Infrastructure Type – Public Art – Element of Infrastructure	Desired Standard of Service
	• avoid entrapment of any part of a person (e.g. fingers); • be resistant to vandalism; and/or • have low ongoing maintenance liability. Artwork has a minimum design life of 25 years.
Materials	Materials used in artwork resist the rigours of weather, both structurally and in appearance. Materials used in artwork do not cause hazardous or nuisance light reflectivity, unless the art has been specifically designed to be a light reflecting art piece.
Structural Requirements	Structural requirements, where relevant, are considered in the concept development stage and addressed in the design development stage. All structural components including the fixing method are certified by a Registered Professional Engineer Queensland.
Lighting to artwork	If artwork is to be lit, lighting is considered separately from the requirement for pedestrian lighting. Point of supply for electricity is gained from the adjacent development site. Lighting design, including luminaire specification and placement, addresses safety considerations (e.g. low heat generation where lighting can come into contact with a person). Lighting design does not cause nuisance glare to any neighbouring residential properties
Installation	An artwork attribution plaque is to be located close to the artwork, and is positioned to allow a person to read the information on the plaque.

8.4. STORMWATER

The Desired Standard of Service applicable to delivering stormwater infrastructure as identified by the Development Scheme is contained within the following:

- Queensland Urban Drainage Manual 2013, Australian Rainfall and Runoff (ARR);
- *Queensland Environmental Protection Policy 2009;*
- *Queensland State Planning Policy 2017;*
- *Urban Stormwater Quality Planning Guidelines*
- *Water by Design: Concept Guidelines for WSUD 2009;*
- *Water by Design: WSUD Technical Design Guidelines in SEQ 2006;*
- *Water by Design: Bioretention Technical Design Guidelines 2012;*
- *Water by Design: Music Modelling Guidelines 2010;*
- *Water by Design: Framework for the Integration of Flooding and Stormwater Management into Open Space; and*
- *Brisbane City Council Brisbane City Plan 2014 Infrastructure Design Planning Scheme Policy, Chapter 7*

The Desired Standards of Service for the stormwater infrastructure identified in **Section 7.3**, are detailed in **Table 23** below.

Table 23 – Stormwater Desired Standard of Service

Type of Infrastructure	Desired Standard of Service
Waterline Park Bio-retention Basins	*Queensland State Planning Policy 2017* *Water by Design: Bioretention Technical Design Guidelines 2012* *Water by Design: Music Modelling Guidelines 2010*
The Landing Bio-retention Basins	*Queensland State Planning Policy 2017* *Water by Design: Bioretention Technical Design Guidelines 2012* *Water by Design: Music Modelling Guidelines 2010*
Margaret Street Stormwater Upgrade	Queensland Urban Drainage Manual 2013, ARR 2016 *Brisbane City Plan 2014 IDPSP, Chapter 7*

8.5. WATER

The Desired Standard of Service applicable to networks delivering Water Services (being Drinking Water Services and Non-Drinking Water Services) as identified by the Development Scheme is to design and construct the network in accordance with the following:

- The Queensland Urban Utilities Design and Construction Standards, incorporating the SEQ Water Supply and Sewerage Design and Construction Code;
- *The South-East Queensland Water (Distribution and Retail Restructuring) Act 2009;*
- *The Water Supply (Safety and Reliability) Act 2008; and*
- *Water Act 2000.*

The Desired Standards of Service for the water infrastructure identified in **Section 7.4**, are detailed in **Table 24** below.

Table 24 – Water Desired Standard of Service

Type of Infrastructure	Desired Standard of Service
William Street Diversion	The Water Services Association of Australia Water Supply Code, incorporating the SEQ Water Supply and Sewerage Design and Construction Code and QUU amendments to the SEQ Guidelines *The South-East Queensland Water (Distribution and Retail Restructuring) Act 2009*

8.6. WASTE WATER

The Desired Standard of Service applicable to networks delivering Waste water Services as identified by the Development Scheme is to design and construct the network in accordance with the following:

- The Queensland Urban Utilities Design and Construction Standards, incorporating the SEQ Water Supply and Sewerage Design and Construction Code;
- *The South-East Queensland Water (Distribution and Retail Restructuring) Act 2009*;
- *The Water Supply (Safety and Reliability) Act 2008*; and
- Water Act 2000.

The Desired Standards of Service for the waste water infrastructure identified in **Section 7.5**, are detailed in **Table 25** below.

Table 25 – Waste Water Desired Standard of Service

Type of Infrastructure	Desired Standard of Service
New sewer line	The Water Services Association of Australia Sewerage Code incorporating the SEQ Water Supply and Sewerage Design and Construction Code and QUU amendments to the SEQ Guidelines *South-East Queensland Water (Distribution and Retail Restructuring) Act 2009*

9. TIMING OF DELIVERY

All infrastructure specified in **Section 7** will be delivered for completion and transferred to Government in accordance with the following section.

9.1. BACKGROUND

Infrastructure Ownership

Where the infrastructure is contained within the area to be leased by DBC, such infrastructure will be owned by DBC until such time as it is transferred to the Government as specified in the tables below. Upon expiry of the lease to DBC, the infrastructure will be transferred to the registered owner of the land at that time.

Where such infrastructure is situated outside the area to be leased to DBC, ownership of the infrastructure will vest in the entity that owns the land on which the infrastructure is located immediately following construction, practical completion or final completion (e.g. after on-maintenance period) of the relevant infrastructure as specified in the tables below.

Infrastructure Maintenance

Where DBC has constructed infrastructure outside of the area to be leased by DBC to a higher standard than the general standard required by BCC, DBC is obliged to repair and maintain that infrastructure to the standard agreed with the State (Represented by the Department of State Development) as set out in the tables below.

For the areas leased to DBC, once the lease expires and ownership of the infrastructure is transferred to the then registered owner of the land, then all maintenance obligations will be transferred to that entity.

The maintenance obligations imposed on DBC (where applicable) extend to the repair, maintenance and renewal of adjacent footpaths including collecting and disposing litter (except where BCC has undertaken such obligations to the agreed standard). Further, DBC has no obligation to carry out renewal works after 25 years with respect to certain areas, including the Brisbane side of Queens Wharf Road, the Goodwill Bridge Extension Area and Miller Park. All non-BCC standard road surfaces which form part of QWB will be maintained by DBC to the agreed standard and any reopened roads will be returned to BCC for maintenance. Where maintenance is required by DBC, this has been identified in Appendix E.

Residential Precinct

After the development phase, the residential precinct areas will be transferred in freehold to a separate entity and become part of the community title scheme for the apartment complex. Individual apartments will be transferred to individual freehold owners and a BMS will be used for maintenance to the property boundary. There will be no ongoing operation and maintenance obligations transferred to the State in relation to the residential precinct. Similarly, all non-BCC standard road surfaces which form part of the precinct will be maintained by DBC to the agreed standard and any reopened roads will be returned to BCC for maintenance.

9.2. TRANSPORT

9.2.1. Roads and Intersections

Table 26 – Timing of Delivery of Roads and Intersections Infrastructure

Type of Infrastructure	Precinct and Sub-Precinct	Timing for Completion	Location of Infrastructure	Transfer to Government (if Applicable)	Timing of Transfer to Government	Maintenance Standard	Maintenance Period for QWB IRD Developer
Removal of left slip lane from Margaret Street to William Street	Precinct 1a	Prior to the commencement of the use of Precinct 1a	External to the area leased to DBC	N/A	N/A	N/A	N/A
Additional lane on southbound ramp approach to William Street at Margaret Street	Precinct 1a	Prior to the commencement of the use of Precinct 1a	External to the area leased to DBC	Yes Dedicated as BCC controlled road	Prior to the commencement of the use in Precinct 1a	N/A	12 months after completion of works After this, BCC will assume the maintenance responsibilities.
Additional right turn lane on William Street between Margaret and Alice Streets	Precinct 3	Prior to the commencement of the use of in Precinct 3	External to the area leased to DBC	Yes Dedicated as BCC controlled road	Prior to the commencement of the use in Precinct 3	N/A	12 months after completion of works After this, BCC will assume the maintenance responsibilities.

Type of Infrastructure	Precinct and Sub-Precinct	Timing for Completion	Location of Infrastructure	Transfer to Government (if Applicable)	Timing of Transfer to Government	Maintenance Standard	Maintenance Period for QWB IRD Developer
William Street and Alice Street reference intersection	Precinct 3	Prior to the commencement of the use of Precinct 1a	External to the area leased to DBC	Yes Dedicated as BCC controlled road	Prior to the commencement of the use in Precinct 1a	N/A	12 months after completion of works After this, BCC will assume the maintenance responsibilities.
Intersection phasing of William/Margaret Street	Precinct 1a	Prior to the commencement of the use of Precinct 1a	External to the area leased to DBC	N/A	N/A	N/A	N/A
Intersection phasing of William/Alice Street	Precinct 3	Prior to the commencement of the use of Precinct 1a	External to the area leased to DBC	N/A	N/A	N/A	N/A
Intersection phasing of William/Elizabeth Street	Precinct 2c	Prior to the commencement of the use of Precinct 1a	External to the area leased to DBC	N/A	N/A	N/A	N/A
Intersection phasing of George/Alice Street	Precinct 3	Prior to the commencement of the use of Precinct 1a	External to the area leased to DBC	N/A	N/A	N/A	N/A

Type of Infrastructure	Precinct and Sub-Precinct	Timing for Completion	Location of Infrastructure	Transfer to Government (if Applicable)	Timing of Transfer to Government	Maintenance Standard	Maintenance Period for QWB IRD Developer
Conversion of Queens Wharf Road to shared zone between Queen Street and the entry to the IRD	Precinct 1a, 1c, 1d and 1e	Prior to the commencement of the use of Precinct 1a	External to the area leased to DBC	Yes ~~**Dedicated as BCC controlled road**~~ **The Registered Owner of the land**	~~**Prior to the commencement of the use in Precinct 1a**~~ **When the term of the lease to DBC expires**	Public Realm Standard	In accordance with section 9.1, the term of the lease to DBC

9.2.3. Public Transport

~~No infrastructure is proposed to be undertaken by the development for Public Transport.~~

Table 26B — Timing of Delivery of Public Transport Infrastructure

Type of Infrastructure	Precinct and Sub-Precinct	Timing for Completion	Location of Infrastructure	Transfer to Government (if applicable)	Timing of Transfer to Government	Maintenance Standard	Maintenance Period for QWB IRD Developer
Type of Infrastructure	Precinct and Sub-Precinct	Timing for Completion	Location of Infrastructure	Transfer to Government (if applicable)	Timing of Transfer to Government	Maintenance Standard	Maintenance Period for QWB IRD Developer

9.2.4. Cycling Infrastructure

Table 27 – Timing of Delivery of Cycling Infrastructure

Type of Infrastructure	Precinct/Sub-Precinct	Timing for Completion	Location of Infrastructure	Transfer to Government (if Applicable)	Timing of Transfer to Government	Maintenance Standard	Maintenance Period for QWB IRD Developer
All upgrades to Bicentennial Bikeway	1c, 1d, 1e, 1f, 1g	Prior to the commencement of the use of Precinct 1a	Within the area leased to DBC	Yes, to the registered owner of the land when lease to DBC expires	In accordance with section 9.1, upon expiry of the lease to DBC	Public Realm Standard	In accordance with section 9.1, the term of the lease to DBC
End of trip facilities located within development	1a, 1c	Prior to the commencement of the use of Precinct 1a	Within the area leased to DBC	Yes, to the registered owner of the land when lease to DBC expires	In accordance with section 9.1, upon expiry of the lease to DBC	N/A	N/A
Cyclist connections to Bicentennial Bikeway from Margaret Street and other locations	1a, 1c, 1d, 1e, 1f, 1g, 3	Prior to the commencement of the use of Precinct 1a	Within the area leased to DBC	Yes, to the registered owner of the land when lease to DBC expires	In accordance with section 9.1, upon expiry of the lease to DBC	Public Realm Standard	In accordance with section 9.1, the term of the lease to DBC

9.2.5. Pedestrian Infrastructure

9.2.5.1. Pedestrian Bridge

Table 28 – Timing of Delivery of Pedestrian Bridge

Works	Precinct / Sub Precinct	Timing for Completion	Location of Infrastructure	Transfer to Government (if Applicable)	Timing of Transfer to Government	Maintenance Standard	Maintenance Period for QWB IRD Developer
Seating areas Lift access at ends 4.5m wide pedestrian pavement DDA compliant Observation platform on the bridge	4a - Neville Bonner Bridge	Prior to the commencement of the use of Precinct 1a	External to the area leased to DBC	Yes The State of Queensland (Represented by the Department of Housing and Public Works) or other such department as advised by the Department of State Development	At commissioning completion for the Neville Bonner Bridge Prior to the commencement of the use in Precinct 1a	Regularly sweep the deck of the Neville Bonner Bridge and collect and dispose of litter	7 years after the Neville Bonner Bridge opens. After this, the State of Queensland (Represented by the Department of Housing and Public Works) will assume the maintenance responsibilities.
South Bank Landing	4a - Neville Bonner Bridge	Prior to the commencement of the use of Precinct 1a	External to the area leased to DBC	Yes The State of Queensland (Represented by the Department of Housing and Public Works) or other such department as advised by the Department of State Development	At commissioning completion for the Neville Bonner Bridge Prior to the commencement of the use in Precinct 1a	Regularly sweep, collect and dispose of litter	7 years after the Neville Bonner Bridge opens. After this, the State of Queensland (Represented by the Department of Housing and Public Works) will assume the maintenance responsibilities.

Pedestrian pavement (between handrails) to be of a width deemed acceptable by the MEDQ under a relevant PDA development condition.

9.2.5.2. Footpaths and Verges

Table 29 – Timing of Delivery of Footpaths and Verges

Works	Precinct / Sub Precinct	Timing for Completion	Location of Infrastructure	Transfer to Government (if Applicable)	Timing of Transfer to Government	Maintenance Standard	Maintenance Period for QWB IRD Developer
Footpath pavement on both sides of George, Margaret and William St Pedestrian crossings Potential for feature paved road surfaces on William Street 24hr pedestrian access to Queens Wharf Rd South & Margaret St footpath Lighting to support CPTED outcomes	1a - Ground Level	Prior to the commencement of the use of Precinct 1a	External to the area leased to DBC	Yes* Dedicated as BCC controlled footpath and crossing Lighting to BCC	Prior to the commencement of the use in Precinct 1a	Public Realm Standard	In accordance with section 9.1, the term of the lease to DBC
N/A	1a - (Upper Levels)	N/A	N/A	N/A	N/A	N/A	N/A
Potential for feature paved road surface at pedestrian crossing Footpath pavements Lighting to support CPTED outcomes	1b - North-West Precinct	Prior to the commencement of the use of Precinct 1a	External to the area leased to DBC	Yes* Dedicated as BCC controlled footpath and crossing Lighting to BCC	Prior to the commencement of the use in Precinct 1a	Public Realm Standard	In accordance with section 9.1, the term of the lease to DBC
N/A	1c - North Quay	N/A	N/A	N/A	N/A	N/A	N/A

Works	Precinct / Sub Precinct	Timing for Completion	Location of Infrastructure	Transfer to Government (if Applicable)	Timing of Transfer to Government	Maintenance Standard	Maintenance Period for QWB IRD Developer
N/A	1d - Queens Wharf Plaza	N/A	N/A	N/A	N/A	N/A	N/A
N/A	1e - The Landing	N/A	N/A	N/A	N/A	N/A	N/A
Footpath pavements	1f - Waterline Park	Prior to the commencement of the use of Precinct 1a	Within the area leased to DBC	Yes, to the registered owner of the land when lease to DBC expires	In accordance with section 9.1, upon expiry of the lease to DBC	Public Realm Standard	In accordance with section 9.1, the term of the lease to DBC
N/A	1g - Goodwill Extension	N/A	N/A	N/A	N/A	N/A	N/A
Current road carriageway and verge widths maintained at George St and William St Footpath pavements Priority pedestrian crossing area through feature paving at the end of Stephens Lane Lighting to support CPTED outcomes	1h - IRD Heritage	Works within the vicinity of the Printery and the Public Service Club and the Former Department of Primary Industries Building – Prior to the commencement of the use of Precinct 1a	External to the area leased to DBC	Yes* Dedicated as BCC controlled footpath and crossing Lighting to BCC	Prior to the commencement of the use in the relevant Precinct	Public Realm Standard	In accordance with section 9.1, the term of the lease to DBC

Works	Precinct / Sub Precinct	Timing for Completion	Location of Infrastructure	Transfer to Government (if Applicable)	Timing of Transfer to Government	Maintenance Standard	Maintenance Period for QWB IRD Developer
		Works within Stephens Lane – Prior to the commencement of the use of Precinct 1a Works within the vicinity of The Mansions – Prior to the commencement of the use of Precinct 3					
Portion of narrowed road carriageway for safer pedestrian crossing Priority pedestrian crossing area through feature paving to / from Queen's Gardens Potential for feature paved road surface between Queen's Gardens and Miller Park Footpath pavements Lighting to support CPTED outcomes	1i - Miller Park	Prior to the commencement of the use of Precinct 1a	External to the area leased to DBC	Yes* Dedicated as BCC controlled footpath and crossing Lighting to BCC	Prior to the commencement of the use in Precinct 1a	Public Realm Standard	In accordance with section 9.1, the term of the lease to DBC

Works	Precinct / Sub Precinct	Timing for Completion	Location of Infrastructure	Transfer to Government (if Applicable)	Timing of Transfer to Government	Maintenance Standard	Maintenance Period for QWB IRD Developer
Potential for feature paved road surface at pedestrian crossings Footpath pavements Footpath pavement to both sides of George and William Street	2a – former Treasury Building	Prior to the commencement of the use of Precinct 2	External to the area leased to DBC	Yes* Dedicated as BCC controlled footpath and crossing	Prior to the commencement of the use in Precinct 2	Public Realm Standard	In accordance with section 9.1, the term of the lease to DBC
Footpath pavements Lighting to support CPTED outcomes Drop off area for the former Land Administration Building Narrowed road carriageway for safer pedestrian crossing Designated pedestrian crossing area Potential for feature paved road surfaces	2b – former Land Administration Building	Works within Queen's Gardens – Prior to the commencement of the use of Precinct 2 Works within Stephens Lane – Prior to the commencement of the use of Precinct 1a Works at the George and William Street frontages of the former Land Administration Building – Prior	External to the area leased to DBC	Yes* Dedicated as BCC controlled footpath and crossing Lighting to BCC	Prior to the commencement of the use in the relevant Precinct	Public Realm Standard	In accordance with section 9.1, the term of the lease to DBC

Works	Precinct / Sub Precinct	Timing for Completion to the commencement of the use of Precinct 1a	Location of Infrastructure	Transfer to Government (if Applicable)	Timing of Transfer to Government	Maintenance Standard	Maintenance Period for QWB IRD Developer
Footpath pavements Existing bus pick up / drop off areas to be potentially moved Existing kerb locations retained	2c – former State Library	Prior to the commencement of the use of Precinct 1a	External to the area leased to DBC	Yes* Dedicated as BCC controlled footpath Lighting to BCC	Prior to the commencement of the use in Precinct 1a	Public Realm Standard	In accordance with section 9.1, the term of the lease to DBC
Footpath pavements Lighting to support CPTED outcomes	3 - Residential	Prior to the commencement of the use of Precinct 3	External to the area leased to DBC	Yes* Dedicated as BCC controlled footpath Lighting to BCC	Prior to the commencement of the use in Precinct 3	For external footpaths, Public Realm Standard. For internal footpaths, maintenance obligations to be governed by the BMS	For external footpaths, in accordance with section 9.1, the term of the lease to DBC. For internal footpaths, as it is governed by the BMS.
Not Applicable Refer to Section 7.1.4.2	4a – Pedestrian Bridge	N/A	N/A	N/A	N/A	N/A	N/A

Works	Precinct / Sub Precinct	Timing for Completion	Location of Infrastructure	Transfer to Government (if Applicable)	Timing of Transfer to Government	Maintenance Standard	Maintenance Period for QWB IRD Developer
Potential for feature paving across George Street	4b - Queen Street Interface	Prior to the commencement of the use of Precinct 2	External to the area leased to DBC	Yes* Dedicated as BCC controlled road	Prior to the commencement of the use in Precinct 1a	Public Realm Standard	In accordance with section 9.1, the term of the lease to DBC
N/A	4c - Turbot Street Sewer Upgrade	N/A	N/A	N/A	N/A	N/A	N/A

* Footpaths in road reserves adjacent to the Queen's Wharf precinct will remain or become dedicated as part of the BCC road network. Internal footpaths will be part of the Queen's Wharf precinct leased to the QWB IRD Developer.

9.3. PUBLIC REALM

Table 30 – Timing of Delivery Public Realm Infrastructure

Works	Precinct / Sub Precinct	Timing for Completion	Location of Infrastructure	Transfer to Government (if Applicable)	Timing of Transfer to Government	Maintenance Standard	Maintenance Period for QWB IRD Developer
Shaded seating areas Large shade trees and understorey planting Subtropical planting Street tree planting George Street vehicle drop off area Ramps and stairs Vertical structures/screens (i.e. vertical planting) Water feature Feature lighting Public Art in accordance with Figures 5-12 of this IMP	1a - Resort (Ground Level)	Prior to the commencement of the use of Precinct 1a	Within the area leased to DBC	Yes, to the registered owner of the land when lease to DBC expires	In accordance with section 9.1, upon expiry of the lease to DBC	Public Realm Standard	In accordance with section 9.1, the term of the lease to DBC
Pedestrian connection to and from the South Bank Bridge and the IRD access points Subtropical planting	1a - Resort (Upper Levels)	Prior to the commencement of the use of Precinct 1a	Within the area leased to DBC	Yes, to the registered owner of the land when lease to DBC expires	In accordance with section 9.1, upon expiry of the lease to DBC	Public Realm Standard	In accordance with section 9.1, the term of the lease to DBC

Works	Precinct / Sub Precinct	Timing for Completion	Location of Infrastructure	Transfer to Government (if Applicable)	Timing of Transfer to Government	Maintenance Standard	Maintenance Period for QWB IRD Developer
Shaded seating areas							
N/A	1b - North-West Precinct	N/A	N/A	N/A	N/A	N/A	N/A
Pedestrian only river walkway Stair and ramp access Landside wharf connections for river craft Existing mangrove zone retained and rehabilitated Shared zone promenade integrating Bicentennial Bikeway Lawn terrace Performance stage Iconic public art, sculptures and way-finding devices Seating terraces Signature trees Large shade trees and understorey planting Street tree planting	1c - North Quay	Prior to the commencement of the use of Precinct 1a	Within the area leased to DBC	Yes, to the registered owner of the land when lease to DBC expires	In accordance with section 9.1, upon expiry of the lease to DBC	Public Realm Standard	In accordance with section 9.1, the term of the lease to DBC

Works	Precinct / Sub Precinct	Timing for Completion	Location of Infrastructure	Transfer to Government (if Applicable)	Timing of Transfer to Government	Maintenance Standard	Maintenance Period for QWB IRD Developer
Bins, bollards, seats, drinking fountains and lighting Public Art in accordance with Figures 5-12 of this IMP							
Terraced seating The Cove – retracted shore line with river access opportunities Riverside promenade Plaza integrating Bicentennial Bikeway Infrastructure that enables the hosting of large scale outdoor performances/festivals/markets/events Large signature tree Palms and subtropical planting Potential water taxi landing Public Art in accordance with Figures 5-12 of this IMP	1d - Queens Wharf Plaza	Prior to the commencement of the use of Precinct 1a	Within the area leased to DBC	Yes, to the registered owner of the land when lease to DBC expires	In accordance with section 9.1, upon expiry of the lease to DBC	Public Realm Standard	In accordance with section 9.1, the term of the lease to DBC
Open lawns and flat event spaces	1e - The Landing	Prior to the commencement	Within the area leased to DBC	Yes, to the registered owner of the	In accordance with section 9.1, upon expiry of	Public Realm Standard	In accordance with section 9.1,

Works	Precinct / Sub Precinct	Timing for Completion	Location of Infrastructure	Transfer to Government (if Applicable)	Timing of Transfer to Government	Maintenance Standard	Maintenance Period for QWB IRD Developer
Terraced and grass mound seating opportunities		of the use of Precinct 1a		land when lease to DBC expires	the lease to DBC		the term of the lease to DBC
Walkway /promenade typologies							
Opportunities for water access e.g. river ramp							
Upgrade to existing Bicentennial Bikeway							
Public Art in accordance with Figures 5-12 of this IMP							
Feature pavement treatments							
Exhibition, market and festival space							
Tree shaded seating areas							
Urban Glade destination artwork							
Adventure playground, including climbing walls							
Palms and Large subtropical feature trees							
Rain gardens and subtropical planting							
Foreshore pedestrian link (on land only, no maritime or marine works)							

Works	Precinct / Sub Precinct	Timing for Completion	Location of Infrastructure	Transfer to Government (if Applicable)	Timing of Transfer to Government	Maintenance Standard	Maintenance Period for QWB IRD Developer
Separate cyclist and pedestrian paths with crossing points Upgrade to existing Bicentennial Bikeway Foreshore pedestrian link (on land only, no maritime or marine works) Active recreation opportunities: (e.g. outdoor gym equipment and table tennis tables) WSUD stormwater capture and treatment areas Lighting elements Palms and large signature tree Subtropical understorey planting Rain garden Public Art in accordance with Figures 5-12 of this IMP	1f - Waterline Park	Prior to the completion of Precinct 1a	Within the area leased to DBC	Yes, to the registered owner of the land when lease to DBC expires	In accordance with section 9.1, upon expiry of the lease to DBC	Public Realm Standard	In accordance with section 9.1, the term of the lease to DBC
Mangrove Walk Launching facility for small non-motorised craft	1g - Goodwill Extension	Prior to the commencement of the use of Precinct 1g	Within the area leased to DBC	Yes, to the registered owner of the land when lease to DBC expires	In accordance with section 9.1, upon expiry of the lease to DBC	Public Realm Standard	In accordance with section 9.1, the term of the lease to DBC but no

Works	Precinct / Sub Precinct	Timing for Completion	Location of Infrastructure	Transfer to Government (if Applicable)	Timing of Transfer to Government	Maintenance Standard	Maintenance Period for QWB IRD Developer
Access to QUT CityCat terminal Interpretive environmental educational signage Lookouts, landings and shelters Upgrade to existing Bicentennial Bikeway Mangrove retention and regeneration Public Art in accordance with Figures 5-12 of this IMP							obligation to carry out renewal works after 25 years
Open sight lines provided and suitable lighting for optimal CPTED outcomes Potential for low moveable planter boxes Ramps avoided where possible in favour of steps and lifts Shaded seating areas Feature trees Subtropical planting Provision for the Commissariat Store Forecourt to be used for functions and events	1h - IRD Heritage	Works within the vicinity of the Printery and the Public Service Club and the Former Department of Primary Industries Building – Prior to the commencement of the use of Precinct 1a	Within the area leased to DBC	Yes, to the registered owner of the land when lease to DBC expires	In accordance with section 9.1, upon expiry of the lease to DBC	Public Realm Standard	In accordance with section 9.1, the term of the lease to DBC

Works	Precinct / Sub Precinct	Timing for Completion	Location of Infrastructure	Transfer to Government (if Applicable)	Timing of Transfer to Government	Maintenance Standard	Maintenance Period for QWB IRD Developer
Public Art in accordance with Figures 5-12 of this IMP		Works within the vicinity of The Mansions – Prior to the commencement of the use of Precinct 3					
Verandah style viewing platforms in the form of stepped terraces Terraces to be made of a permeable surface, e.g. decking Tree shaded seating areas Open sight lines to be maintained and lighting improved for optimal CPTED outcomes Understorey planting Some terraces to be turfed Visually unobtrusive fencing Ramps to be avoided where possible Heritage related shade trees if space allows	1i - Miller Park	Prior to the commencement of the use of Precinct 1a	External to the area leased to DBC	Yes	Prior to the commencement of the use in Precinct 1a	Public Realm Standard	In accordance with section 9.1, the term of the lease to DBC but no obligation to carry out renewal works after 25 years

Works	Precinct / Sub Precinct	Timing for Completion	Location of Infrastructure	Transfer to Government (if Applicable)	Timing of Transfer to Government	Maintenance Standard	Maintenance Period for QWB IRD Developer
The forecourt adjacent to Reddacliff Place to mark the entrance of the QWBIRD by using distinctive furniture Shade trees and palms with subtropical understorey planting	2a – former Treasury Building	Prior to the commencement of the use of Precinct 2	Within the area leased to DBC	Yes, to the registered owner of the land when lease to DBC expires	In accordance with section 9.1, upon expiry of the lease to DBC	Public Realm Standard	In accordance with section 9.1, the term of the lease to DBC
Turfed area for passive recreation and events Tree shaded seating terraces Open sight lines maintained and lighting improved for optimal CPTED outcomes Large canopy trees Understorey planting	2b – former Land Administration Building	Works within Queen's Gardens – Prior to the commencement of the use of Precinct 2 Works within Stephens Lane – Prior to the commencement of the use of Precinct 1a Works at the George and William Street frontages of LAB – Prior to the commencement	Within the area leased to DBC	Yes, to the registered owner of the land when lease to DBC expires	In accordance with section 9.1, upon expiry of the lease to DBC	Public Realm Standard	In accordance with section 9.1, the term of the lease to DBC

Works	Precinct / Sub Precinct	Timing for Completion	Location of Infrastructure	Transfer to Government (if Applicable)	Timing of Transfer to Government	Maintenance Standard	Maintenance Period for QWB IRD Developer
		of the use of Precinct 1a					
Adaptive reuse of building to create opportunities for food and beverages outlets Terraces / balconies may be provided along the Miller Park edge to allow access to park	2c - former State Library	Prior to the commencement of the use of Precinct 1a	Within the area leased to DBC	Yes, to the registered owner of the land when lease to DBC expires	In accordance with section 9.1, upon expiry of the lease to DBC	Public Realm Standard	In accordance with section 9.1, the term of the lease to DBC
Open sight lines maintained and lighting improved for optimal CPTED outcomes Shaded seating areas Historical interpretation signage Large canopy shade tree Subtropical planting areas Urban space/public plaza	3 - Residential	Prior to the commencement of the use of Precinct 3	External to the area leased to DBC	N/A	N/A	Maintenance obligations to be governed by the BMS	N/A
Refer to Section 7.1.4.2 of this report	4a – Neville Bonner Bridge	Refer to Section 9.1.5.1	External to the area leased to DBC	Refer to Section 9.1.5.1	Refer to Section 9.1.5.1	Refer to Section 9.1.5.1	Refer to Section 9.1.5.1
Pavement finishes	4b - Queen Street Interface	Prior to the commencement	Within the area leased to DBC	Yes, to the registered owner of the	In accordance with section 9.1, upon expiry of	Public Realm Standard	In accordance with section 9.1,

Works	Precinct / Sub Precinct	Timing for Completion	Location of Infrastructure	Transfer to Government (if Applicable)	Timing of Transfer to Government	Maintenance Standard	Maintenance Period for QWB IRD Developer
		of the use of Precinct 2		land when lease to DBC expires	the lease to DBC		the term of the lease to DBC
N/A	4c - Turbot Street Sewer Upgrade	N/A	N/A	N/A	N/A	N/A	N/A

Table 31 – Timing of Delivery Public Realm Infrastructure – Verge and Footpath Streetscape Works

Works	Precinct / Sub Precinct	Timing for Completion	Location of Infrastructure	Transfer to Government (if Applicable)	Timing of Transfer to Government	Maintenance Standard	Maintenance Period for QWB IRD Developer
Subtropical planting Street trees to frame plazas and frontages, maintain site lines and provide shade Palms aligned with heritage facades Understorey planting in verge and medians where practicable Open sight lines to support CPTED outcomes	1a - Resort (Ground Level)	Prior to the commencement of the use of Precinct 1a	External to the area leased to DBC	No change of ownership, improvements installed in BCC controlled roads or footpaths	N/A	Public Realm Standard	In accordance with section 9.1, the term of the lease to DBC
N/A	1a - Resort (Upper Levels)	Prior to the commencement	N/A	N/A	N/A	N/A	N/A

Works	Precinct / Sub Precinct	Timing for Completion of the use of Precinct 1a	Location of Infrastructure	Transfer to Government (if Applicable)	Timing of Transfer to Government	Maintenance Standard	Maintenance Period for QWB IRD Developer
Palms to line heritage facade, central median and river side verge of William St where practicable Street trees planting Understorey planting in verge and under street trees where practicable Shaded seating area Open sight lines to support CPTED outcomes	1b - North-West Precinct	Prior to the commencement of the use of Precinct 1a	External to the area leased to DBC	No change of ownership, improvements installed in BCC controlled roads or footpaths	N/A	Public Realm Standard	In accordance with section 9.1, the term of the lease to DBC
N/A	1c - North Quay	N/A	N/A	N/A	N/A	N/A	N/A
N/A	1d - Queens Wharf Plaza	N/A	N/A	N/A	N/A	N/A	N/A
N/A	1e - The Landing	N/A	N/A	N/A	N/A	N/A	N/A
N/A	1f - Waterline Park	N/A	N/A	N/A	N/A	N/A	N/A
N/A	1g - Goodwill Extension	N/A	N/A	N/A	N/A	N/A	N/A

Works	Precinct / Sub Precinct	Timing for Completion	Location of Infrastructure	Transfer to Government (if Applicable)	Timing of Transfer to Government	Maintenance Standard	Maintenance Period for QWB IRD Developer
Street trees with subtropical understorey planting where practicable Palms aligned with heritage facades Street trees to frame heritage facades/ building frontages and offer shade Open sight lines to support CPTED outcomes	1h - IRD Heritage	Works within the vicinity of the Printery and the Public Service Club and the Former Department of Primary Industries Building – Prior to the commencement of the use of Precinct 1a Works within Stephens Lane – Prior to the commencement of the use of Precinct 1a Works within the vicinity of The Mansions – Prior to the commencement of the use of Precinct 3	External to the area leased to DBC	No change of ownership, improvements installed in BCC controlled roads or footpaths	N/A	Public Realm Standard	In accordance with section 9.1, the term of the lease to DBC

Works	Precinct / Sub Precinct	Timing for Completion	Location of Infrastructure	Transfer to Government (if Applicable)	Timing of Transfer to Government	Maintenance Standard	Maintenance Period for QWB IRD Developer
Street trees flanking key crossing points for shade Subtropical understorey planting to verge Open sight lines to support CPTED outcomes	1i - Miller Park	Prior to the commencement of the use of Precinct 1a	External to the area leased to DBC	No change of ownership, improvements installed in BCC controlled roads or footpaths	N/A	Public Realm Standard	In accordance with section 9.1, the term of the lease to DBC but no obligation to carry out renewal works after 25 years.
Palms aligned with heritage facades where practicable Street trees frame frontages and offer shade where practicable Understorey planting to William and Elizabeth Street verges where practicable	2a – former Treasury Building	Prior to the commencement of the use of Precinct 2	External to the area leased to DBC	No change of ownership, improvements installed in BCC controlled roads or footpaths	N/A	Public Realm Standard	In accordance with section 9.1, the term of the lease to DBC
Palms aligned to heritage facades Street trees frame frontages and offer shade Understorey planting to William Street verge Open sight lines to support CPTED outcomes Original oil lamps maintained where possible	2b – former Land Administration Building	Works within Queen's Gardens – Prior to the commencement of the use of Precinct 2 Works within Stephens Lane – Prior to the commencement	External to the area leased to DBC	No change of ownership, improvements installed in BCC controlled roads or footpaths	N/A	Public Realm Standard	In accordance with section 9.1, the term of the lease to DBC

Works	Precinct / Sub Precinct	Timing for Completion	Location of Infrastructure	Transfer to Government (if Applicable)	Timing of Transfer to Government	Maintenance Standard	Maintenance Period for QWB IRD Developer
		of the use of Precinct 1a Works at the George and William Street frontages of LAB – Prior to the commencement of the use of Precinct 1a					
Palms aligned with heritage facades Street trees to frame frontages and offer shade	2c – former State Library	Prior to the commencement of the use of Precinct 1a	External to the area leased to DBC	No change of ownership, improvements installed in BCC controlled roads or footpaths	N/A	Public Realm Standard	In accordance with section 9.1, the term of the lease to DBC
Street trees lining street frontage to continue avenue character, offer shade and act as visual buffer Open sight lines to support CPTED outcomes Understorey planting to verges and street trees	3 - Residential	Prior to the commencement of the use of Precinct 3	External to the area leased to DBC	No change of ownership, improvements installed in BCC controlled roads or footpaths	N/A	Maintenance obligations to be governed by the BMS	N/A

Works	Precinct / Sub Precinct	Timing for Completion	Location of Infrastructure	Transfer to Government (if Applicable)	Timing of Transfer to Government	Maintenance Standard	Maintenance Period for QWB IRD Developer
Refer to Section 9.1.5.2 of this report	4a – Pedestrian Bridge	N/A	External to the area leased to DBC	N/A	N/A	N/A	N/A
N/A	4b - Queen Street Interface	N/A	N/A	N/A	N/A	N/A	N/A
N/A	4c - Turbot Street Sewer Upgrade	N/A	N/A	N/A	N/A	N/A	N/A

9.4. STORMWATER

Table 32 – Timing of Delivery of Stormwater Infrastructure

Type of Infrastructure	Precinct/Sub-Precinct	Timing for Completion	Location of Infrastructure	Transfer to Government (if Applicable)	Timing of Transfer to Government	Maintenance Standard	Maintenance Period for QWB IRD Developer
Waterline Park Bio-retention Basins	1f	Prior to the commencement of the use of Precinct 1f	Within the area leased to DBC	Yes, to the registered owner of the land when lease to DBC expires	In accordance with section 9.1, upon expiry of the lease to DBC	Public Realm Standard	In accordance with section 9.1, the term of the lease to DBC
Margaret Street Stormwater Upgrade	1a, 3, 1e	Prior to the commencement of the use of Precinct 1a	External to the area leased to DBC	Yes Brisbane City Council	Off maintenance	BCC Standard	12 months after completion of works After this, the BCC will assume the maintenance responsibilities
The Landing Bio-Retention Basins	1e	Prior to the commencement of the use of Precinct 1e	Within the area leased to DBC	Yes, to the registered owner of the land when lease to DBC expires	In accordance with section 9.1, upon expiry of the lease to DBC	Public Realm Standard	In accordance with section 9.1, the term of the lease to DBC

9.5. WATER

Table 33 – Timing of Delivery for Water Infrastructure

Type of Infrastructure	Precinct/Sub-Precinct	Timing for Completion	Location of Infrastructure	Transfer to Government (if Applicable)	Timing of Transfer to Government	Maintenance Standard	Maintenance Period for QWB IRD Developer
William Street Diversion	4b, 1c, 1d, 1e, 1a	Prior to the commencement of the use of Precinct 1a	External to the area leased to DBC	Yes QUU	Off maintenance	QUU Standard	12 months after completion of works After this, the QUU will assume the maintenance responsibilities

9.6. WASTE WATER

Table 34 – Timing of Delivery of Waste Water Infrastructure

Type of Infrastructure	Precinct/Sub-Precinct	Timing for Completion	Location of Infrastructure	Transfer to Government (if Applicable)	Timing of Transfer to Government	Maintenance Standard	Maintenance Period for QWB IRD Developer
Turbot Street Sewer Upgrade	4c, 4b, 1c, 1d, 1a	Prior to commencement of the use in Precinct 1a	External to the area leased to DBC	Yes QUU	Off maintenance	QUU Standard	12 months after completion of works After this, the QUU will assume the maintenance responsibilities

10. IMPLEMENTATION PROCESS

Assessment of all infrastructure identified in in **Sections 7, 8** and **9** will be undertaken against the EDQ Certification Procedures Manual where sufficient detail is included in this IMP and the supporting technical reports. Where detailed design has not yet been undertaken, detailed plans of that infrastructure identified in in **Sections 6, 7** and **8** will be submitted to demonstrate compliance with the PoD through the Compliance Assessment process. Compliance Assessment for Trunk Infrastructure contained within this IMP is subject to the following sections and any relevant condition(s) of approval.

10.1. TRANSPORT

10.1.1. Roads and Intersections

MEDQ

Submit for Compliance Assessment by the ~~Nominated Assessing Authority~~ detailed design plans of the road and intersection upgrades listed in **Table 26**.

The detailed design plans are to be:

- Prepared by a suitably qualified and experienced professional engineer and the design must be certified by a Registered Professional Engineer Queensland (RPEQ);
- Where for footpath treatments: Prepared by a Registered Landscape Architect;
- Where for specialist treatments in the road carriageway: Prepared by a suitably qualified and experienced professional engineer and the design must be certified by a RPEQ and/or prepared by a Registered Landscape Architect;
- Generally in accordance with the Desired Standards of Service specified in **Section 8.2** of this IMP (unless otherwise agreed to by the ~~Nominated Assessing Authority~~); MEDQ
- Generally in Accordance with **PoD Volume 3, Attachment B: Landscape Concept Report** (where applicable), **PoD Volume 3, Attachment G: Traffic Engineering Report** and the **PoD Volume 3, Attachment I: Civil Works and Infrastructure Report** (where applicable) where the document is an Approved document or Endorsed through Compliance Assessment. Where the **PoD Volume 3, Attachment B: Landscape Concept Report** (where applicable), **PoD Volume 3, Attachment G: Traffic Engineering Report** or the **PoD Volume 3, Attachment I: Civil Works and Infrastructure Report** (where applicable) is not an Approved document or Endorsed through Compliance Assessment, the document is to be used as a reference document for the preparation of detailed design plans; and
- Generally in Accordance with the PoD (where relevant).

10.1.2. Public Transport

There is no Trunk Infrastructure being proposed as part of this Infrastructure Master Plan for Public Transport to be undertaken by the Developer.

10.1.3. Cycling Infrastructure

MEDQ

Submit for Compliance Assessment by the ~~Nominated Assessing Authority~~ detailed design plans of the bikeway and bikeway connection upgrades listed in **Table 27**.

The detailed design plans are to be:

- Prepared by a suitably qualified and experienced professional engineer and the design must be certified by a RPEQ;
- Generally in accordance with the Desired Standards of Service specified in **Section 8.2.3** of this IMP (unless otherwise agreed to by the ~~Nominated Assessing Authority~~); MEDQ
- Generally in Accordance with **PoD Volume 3, Attachment G: Traffic Engineering Report** and **PoD Volume 3, Attachment B: Landscape Concept Report** (where applicable) where the document is an Approved document or Endorsed through Compliance Assessment. Where the **PoD Volume 3, Attachment G: Traffic Engineering Report** or the **PoD Volume 3, Attachment B: Landscape Concept Report** (where applicable) is not an Approved document or Endorsed through Compliance

Assessment, the document is to be used as a reference document for the preparation of detailed design plans; and

- Generally in Accordance with the PoD (where relevant).

10.1.4. Pedestrian Infrastructure MEDQ

Submit for Compliance Assessment by the ~~Nominated Assessing Authority~~ detailed design for footpaths proposed to service the relevant building or precinct. The plan is to be:

- Prepared by a suitably qualified and experienced professional engineer and the design must be certified by a RPEQ (where appropriate) and/or prepared by a Registered Landscape Architect (where appropriate);
- Generally in accordance with the Desired Standards of Service specified in **Section 8.2.4** (where relevant) of this IMP (unless otherwise agreed to by the ~~Nominated Assessing Authority~~); MEDQ
- Generally in Accordance with **PoD Volume 3, Attachment B: Landscape Concept Report** (where applicable), **PoD Volume 3, Attachment G: Traffic Engineering Report** (where applicable), the **PoD Volume 3, Attachment I: Civil Works and Infrastructure** (where applicable) and **PoD Volume 3, Attachment X: Foreshore Management Plan and Basis of Design** (where applicable) where the document is an Approved document or Endorsed through Compliance Assessment. Where the **PoD Volume 3, Attachment B: Landscape Concept Report** (where applicable), **PoD Volume 3, Attachment G: Traffic Engineering Report** (where applicable), the **PoD Volume 3, Attachment I: Civil Works and Infrastructure** (where applicable) or **PoD Volume 3, Attachment X: Foreshore Management Plan and Basis of Design** (where applicable) (where applicable) is not an Approved document or Endorsed through Compliance Assessment, the document is to be used as a reference document for the preparation of detailed design plans; and
- Generally in Accordance with the PoD (where relevant).

Detailed plans pertaining to the segregation of the Bicentennial Bikeway will be executed under **Section 8.2.3** of this IMP.

10.2. PUBLIC REALM

10.2.1. Street Lighting MEDQ

Submit to the ~~Nominated Assessing Authority~~ written evidence that the detailed design for street lighting proposed to service the relevant public realm is in accordance with the relevant Standards identified in the relevant parts of **Section 8.2** and **8.3** of this IMP.

10.2.2. Landscape Works

MEDQ

Submit for Compliance Assessment by the ~~Nominated Assessing Authority~~ detailed design plans of the landscape and public realm works listed in **Table 30** and **31**.

The detailed design plans are to be:

- Prepared by a Registered Landscape Architect;
- Reviewed by a DDA Consultant (where relevant);
- Generally in accordance with the Desired Standards of Service specified in **Section 8.3** of this IMP (unless otherwise agreed to by the ~~Nominated Assessing Authority~~);MEDQ
- Generally in Accordance with **PoD Volume 3, Attachment B: Landscape Concept Report** (where applicable) where the document is an Approved document or Endorsed through Compliance Assessment. Where the **PoD Volume 3, Attachment B: Landscape Concept Report** (where applicable) is not an Approved document or Endorsed through Compliance Assessment, the document is to be used as a reference document for the preparation of detailed design plans; and
- Generally in Accordance with the PoD (where relevant).

10.3. STORMWATER

Submit to the ~~Nominated Assessing Authority (~~MEDQ~~)~~, detailed design plans for stormwater management work listed in **Table 32.** These plans are to be:

- Certified by a RPEQ;
- Generally in accordance with the Desired Standards of Service specified in **Section 8.4** of this IMP;
- Generally in accordance with **PoD Volume 3, Attachment I: Civil Works and Infrastructure** where the document is an Approved document or Endorsed through Compliance Assessment. Where the **PoD Volume 3, Attachment I: Civil Works and Infrastructure** is not an Approved document or Endorsed through Compliance Assessment, the document is to be used as a reference document for the preparation of detailed design plans; and
- Generally in Accordance with the PoD (where relevant).

Submit to MEDQ for approval to connect into the stormwater infrastructure.

10.4. WATER

MEDQ

Submit for Compliance Assessment by the ~~Nominated Assessing Authority~~, detailed design plans for water infrastructure listed in **Table 33**. These plans are to be:

- Certified by a RPEQ;
- Generally in accordance with the Desired Standards of Service specified in **Section 8.5** of this IMP;
- Generally in accordance with **PoD Volume 3, Attachment I: Civil Works and Infrastructure** where the document is an Approved document or Endorsed through Compliance Assessment. Where the **PoD Volume 3, Attachment I: Civil Works and Infrastructure** is not an Approved document or Endorsed through Compliance Assessment, the document is to be used as a reference document for the preparation of detailed design plans; and
- Generally in Accordance with the PoD (where relevant).

Submit to MEDQ a copy of the detailed design plans as reviewed (and where appropriate approved) by QUU.

10.5. WASTE WATER

MEDQ

Submit for Compliance Assessment by the ~~Nominated Assessing Authority~~, detailed design plans for waste water infrastructure listed in **Table 34**. These plans are to be:

- Certified by a RPEQ;
- Generally in accordance with the Desired Standards of Service specified in **Section 8.6** of this IMP;
- Generally in accordance with **PoD Volume 3, Attachment I: Civil Works and Infrastructure** where the document is an Approved document or Endorsed through Compliance Assessment. Where the **PoD Volume 3, Attachment I: Civil Works and Infrastructure** is not an Approved document or Endorsed through Compliance Assessment, the document is to be used as a reference document for the preparation of detailed design plans;
- Generally in Accordance with the PoD (where relevant); and
- Submit to MEDQ a copy of the detailed design plans as reviewed (and where appropriate approved) by QUU.

11. COSTING OF INFRASTRUCTURE

It is important to note that this plan will be delivered by means of an infrastructure agreement between relevant parties or by conditions or a combination of both. Regardless the provision of infrastructure, charges, credits and offsets are to be calculated for the overall development rather than precinct by precinct to recognise that the provision of infrastructure cannot be attributed a single precinct but relates to the site as a whole.

Costing of infrastructure will be undertaken in accordance with an Infrastructure Charges and Offsets Plan, at such a time that it is adopted by EDQ for the QWB PDA.

APPENDIX A SUPPORTING TECHNICAL REPORTS

The following reports are identified throughout this IMP:

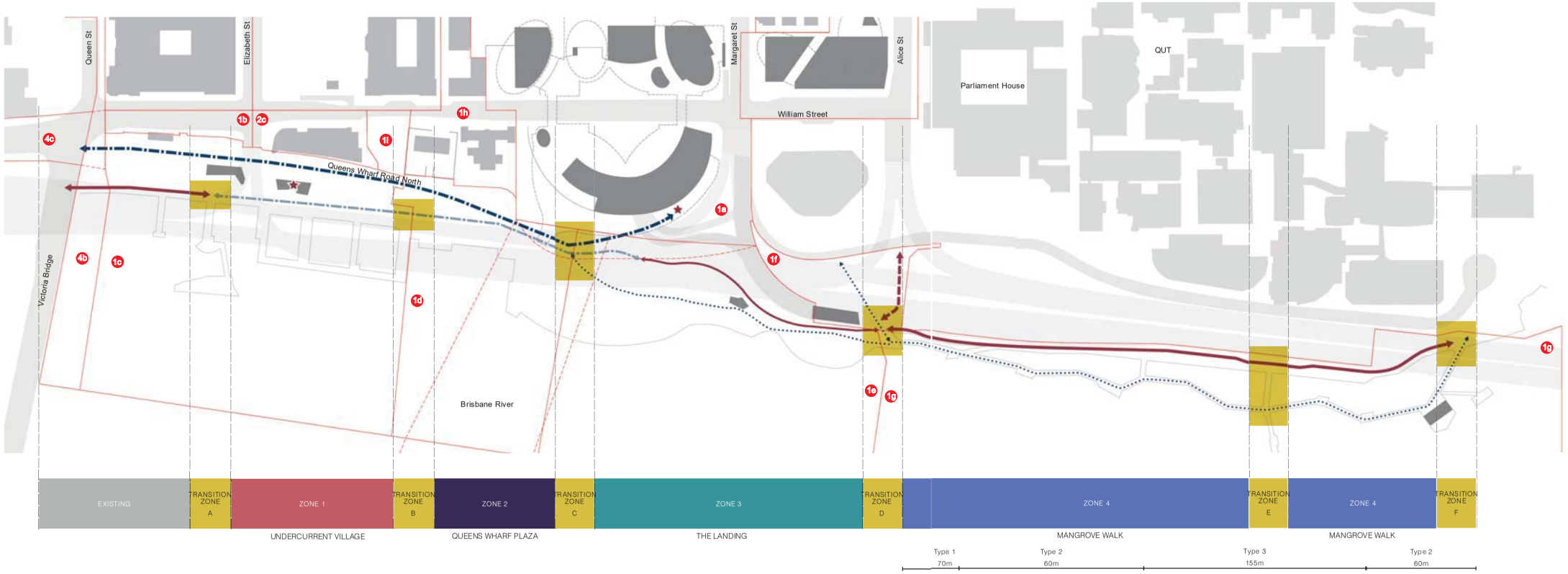
- PoD Volume 3, Attachment B: Landscape Concept Report, prepared by Urbis Pty Ltd and Cusp, Revision 17, dated, 24/11/2017
- PoD Volume 3, Attachment I: Civil Works and Infrastructure, prepared by Bornhorst & Ward, Revision K, dated 09/05/2017
- PoD Volume 3, Attachment G: Traffic Engineering Report, prepared by TTM Consulting, Revision 9, dated 09/05/2017
- PoD Volume 3, Attachment O: Equitable Access Assessment prepared by Morris Goding Accessibility Consulting, Revision 7, dated 12/05/2017
- PoD Volume 3, Attachment X: Foreshore Management Plan and Basis of Design, prepared by Arup, Revision 8, dated 10/05/2017

APPENDIX B PLANS OF INDICATIVE TRUNK INFRASTRUCTURE

The Plans for Trunk Infrastructure are as follows:

1. Indicative Location of Cycling Infrastructure
2. Indicative Location of Pedestrian Infrastructure
3. Footpath Pavement Locations
4. All other Public Realm Locations and Pathways Outside of Road Corridor
5. Path Width Strategy
6. Indicative Public Realm Connectivity - Trunk Infrastructure Only
7. Indicative Paving Treatment Types
8. Indicative Pedestrian Crossing Locations
9. Indicative Stormwater Infrastructure
10. Indicative Water Infrastructure
11. Indicative Waste Water Infrastructure

B.1 INDICATIVE LOCATION OF CYCLING INFRASTRUCTURE



LEGEND	Minimum Width
Sub-precinct boundary	
Sub-precinct number	
Existing buildings (indicative only)	
Proposed buildings (indicative only)	
Key pedestrian route (off road)	3m
Key pedestrian/cycle route (off road)	5m total containing 3m unobstructed cycle
Bicentennial bikeway	3m unobstructed cycle and 1.5m pedestrian path
Cycle connection	3m unobstructed cycle
Shared zone (pedestrian/cycle/ limited, controlled vehicle access)	5.5m
Transition Zone	
End of trip facilities	

To the extent of any inconsistencies between this drawing and the Approved LCR, the Approved LCR prevails.

DESTINATION BRISBANE CONSORTIUM

CLIENT NAME:
DESTINATION BRISBANE CONSORTIUM

PROJECT NAME:
QUEENS WHARF BRISBANE

DRAWING NAME:
CYCLE INFRASTRUCTURE

SCALE
NOT TO SCALE

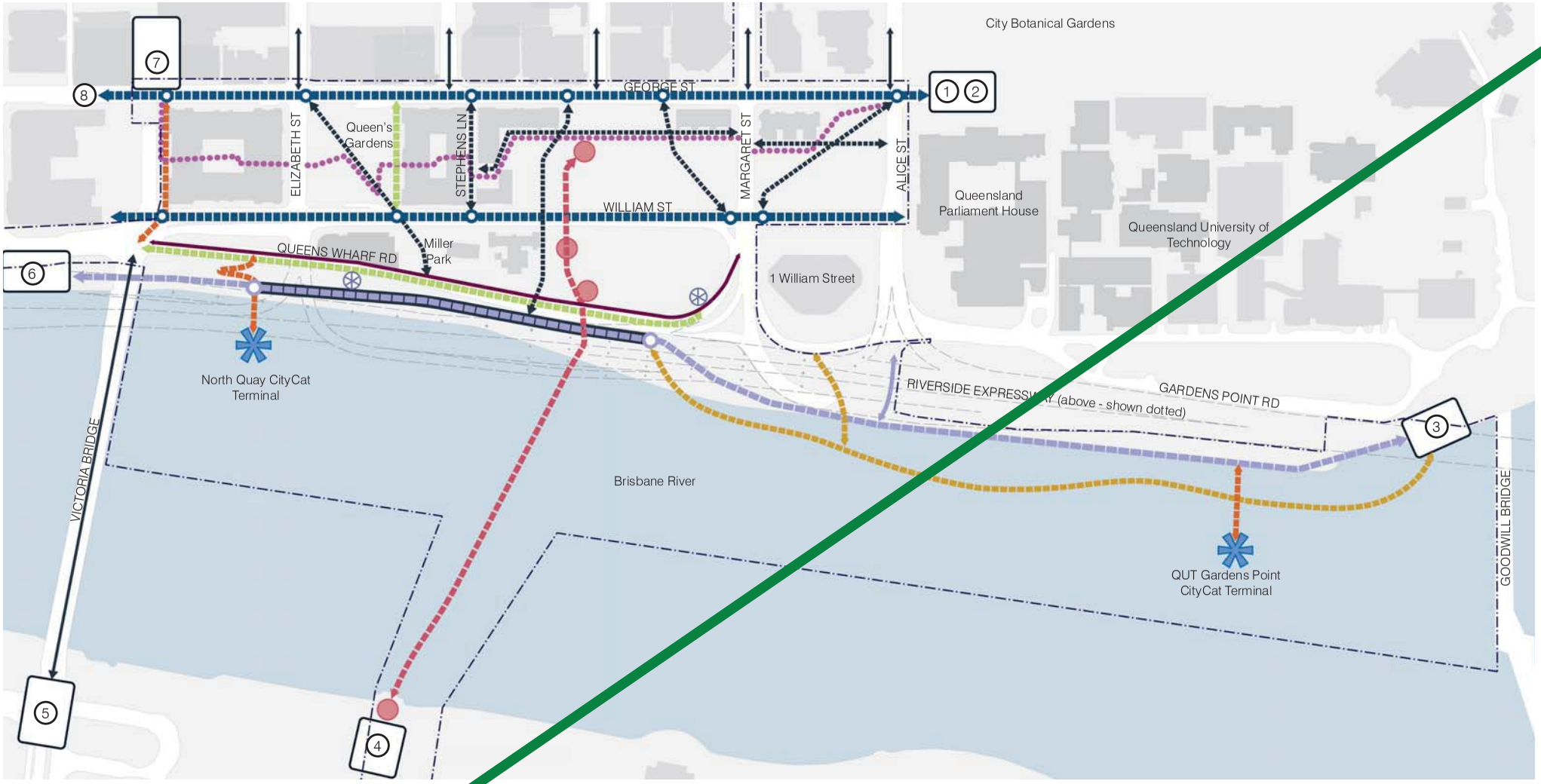
DRAWN BY: URBIS

DATE: 21/11/2017

REVISION: C

NORTH

B.2 INDICATIVE LOCATION OF PEDESTRIAN INFRASTRUCTURE



LEGEND

- QWB boundary

Spaces

- End-of-trip facility
- CityCat terminal

Connectivity

- Cross block link at ground level
- City street connections
- Key pedestrian and cycle route (shared)
- Bicentennial Bikeway
- Cycle connection
- City street pedestrian movement and heritage frontage facades
- Key existing pedestrian connection
- Key pedestrian route (at ground level)
- Shared zone (pedestrian, cycle and vehicle access)
- Key pedestrian route (above ground level)
- Key public vertical circulation
- Indicative location of Wayfinding device (The Ribbon)
- Controlled service vehicle access
- Connections to wider context

City Context

1. City Botanic Gardens
2. Queensland University of Technology - Gardens Point Campus
3. Goodwill Bridge and link to South Bank and South Bank Rail Station
4. South Bank Parklands, QPAC and Brisbane Convention and Exhibition Centre
5. Cultural Precinct and Cultural Centre Busway Station
6. Bicentennial Bikeway
7. Queen Street Mall and Myer Centre Busway Station
8. George Street to Roma Street Station

To the extent of any inconsistencies between this drawing and the Approved LCR, the Approved LCR prevails.

DESTINATION BRISBANE CONSORTIUM

CLIENT NAME: DESTINATION BRISBANE CONSORTIUM

PROJECT NAME: QUEENS WHARF BRISBANE

DRAWING NAME: PEDESTRIANINFRASTRUCTURE

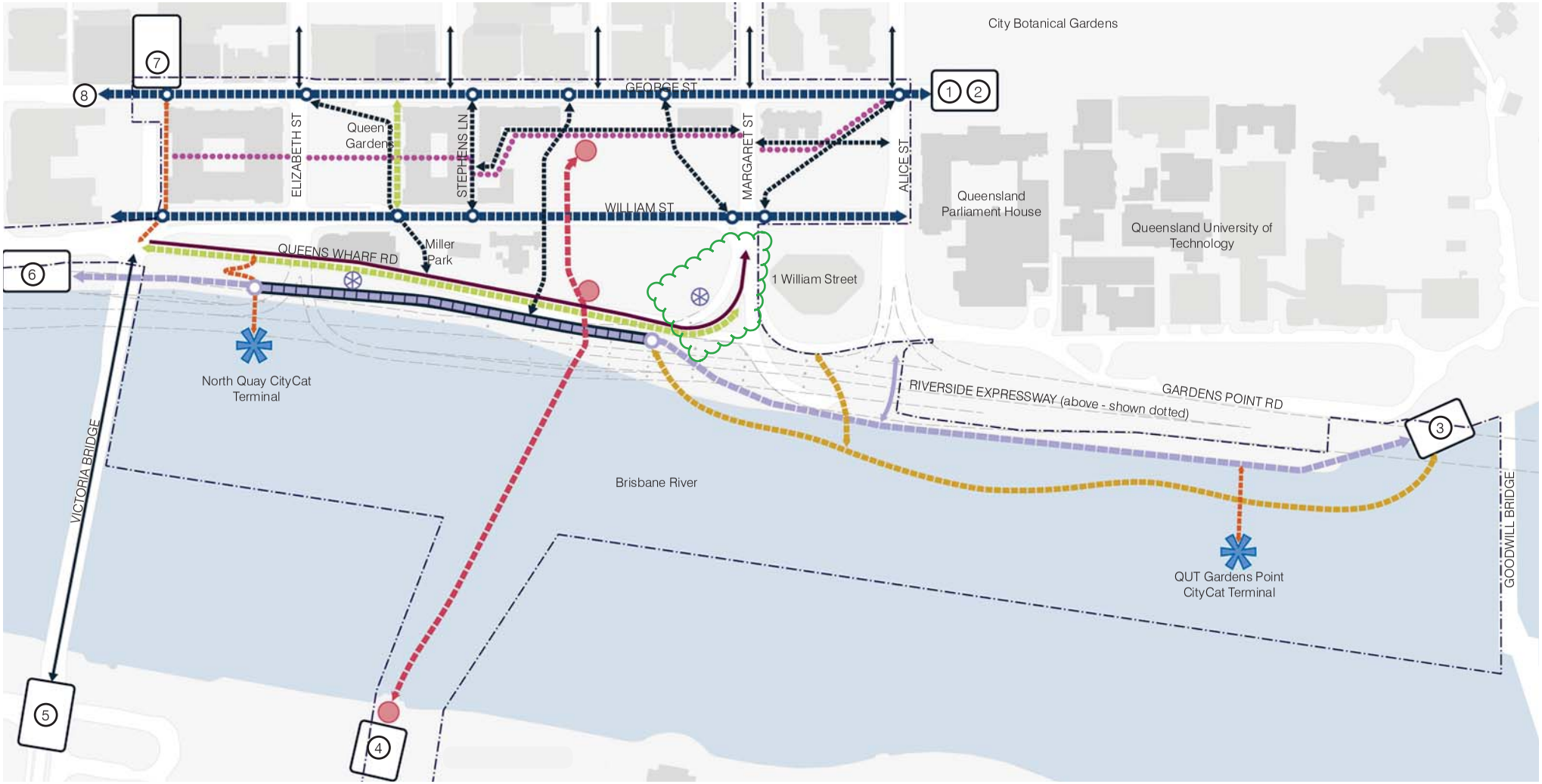
SCALE NOT TO SCALE

DRAWN BY: URBIS

DATE: 21/11/2017

REVISION: C

NORTH



LEGEND

- QWB boundary

Spaces

- End-of-trip facility
- CityCat terminal

Connectivity

- Cross block link at ground level
- City street connections
- Key pedestrian and cycle route (shared)
- Bicentennial Bikeway
- Cycle connection
- City street pedestrian movement and heritage frontage facades
- Key existing pedestrian connection
- Key pedestrian route (at ground level)
- Shared zone (pedestrian, cycle and vehicle access)
- Key pedestrian route (above ground level)
- Key public vertical circulation
- Indicative location of Wayfinding device (The Ribbon)
- Controlled service vehicle access
- Connections to wider context

City Context

1. City Botanic Gardens
2. Queensland University of Technology - Gardens Point Campus
3. Goodwill Bridge and link to South Bank and South Bank Rail Station
4. South Bank Parklands, QPAC and Brisbane Convention and Exhibition Centre
5. Cultural Precinct and Cultural Centre Busway Station
6. Bicentennial Bikeway
7. Queen Street Mall and Myer Centre Busway Station
8. George Street to Roma Street Station

To the extent of any inconsistencies between this drawing and the Approved LCR, the Approved LCR prevails.

DESTINATION BRISBANE CONSORTIUM

CLIENT NAME: DESTINATION BRISBANE CONSORTIUM

PROJECT NAME: QUEENS WHARF BRISBANE

DRAWING NAME: PEDESTRIANINFRASTRUCTURE

SCALE NOT TO SCALE

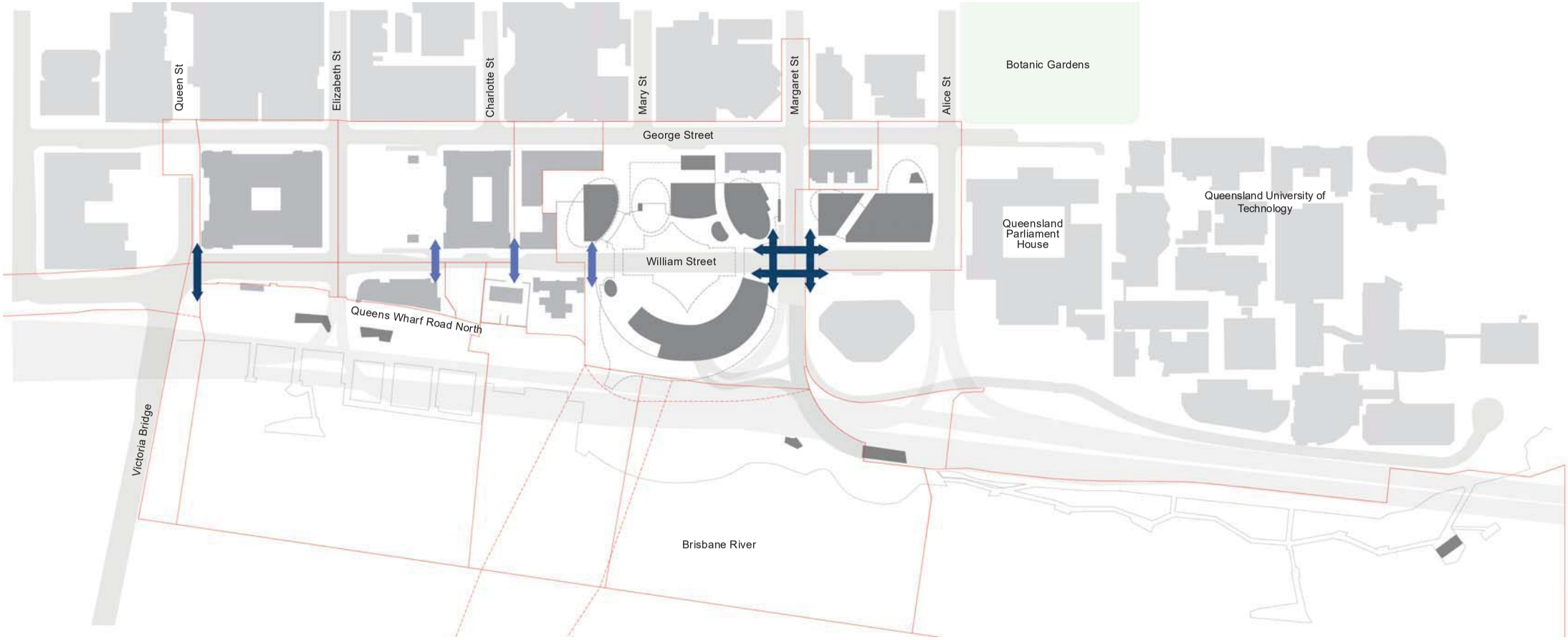
DRAWN BY: URBIS

DATE: 21/11/2017

REVISION: C

NORTH

B.3 FOOTPATH PAVEMENT LOCATIONS



LEGEND

- Sub-precinct boundary
- Existing building (indicative only)
- Proposed building (indicative only)
- Indicative existing intersection upgrades
- Indicative priority pedestrian crossing areas through feature paving

To the extent of any inconsistencies between this drawing and the Approved LCR, the Approved LCR prevails.

DESTINATION BRISBANE CONSORTIUM

CLIENT NAME:
DESTINATION BRISBANE CONSORTIUM

PROJECT NAME:
QUEENS WHARF BRISBANE

DRAWING NAME:
INDICATIVE PEDESTRIAN CROSSINGS AND PRIORITY PEDESTRIAN CROSSING AREAS

SCALE
NOT TO SCALE

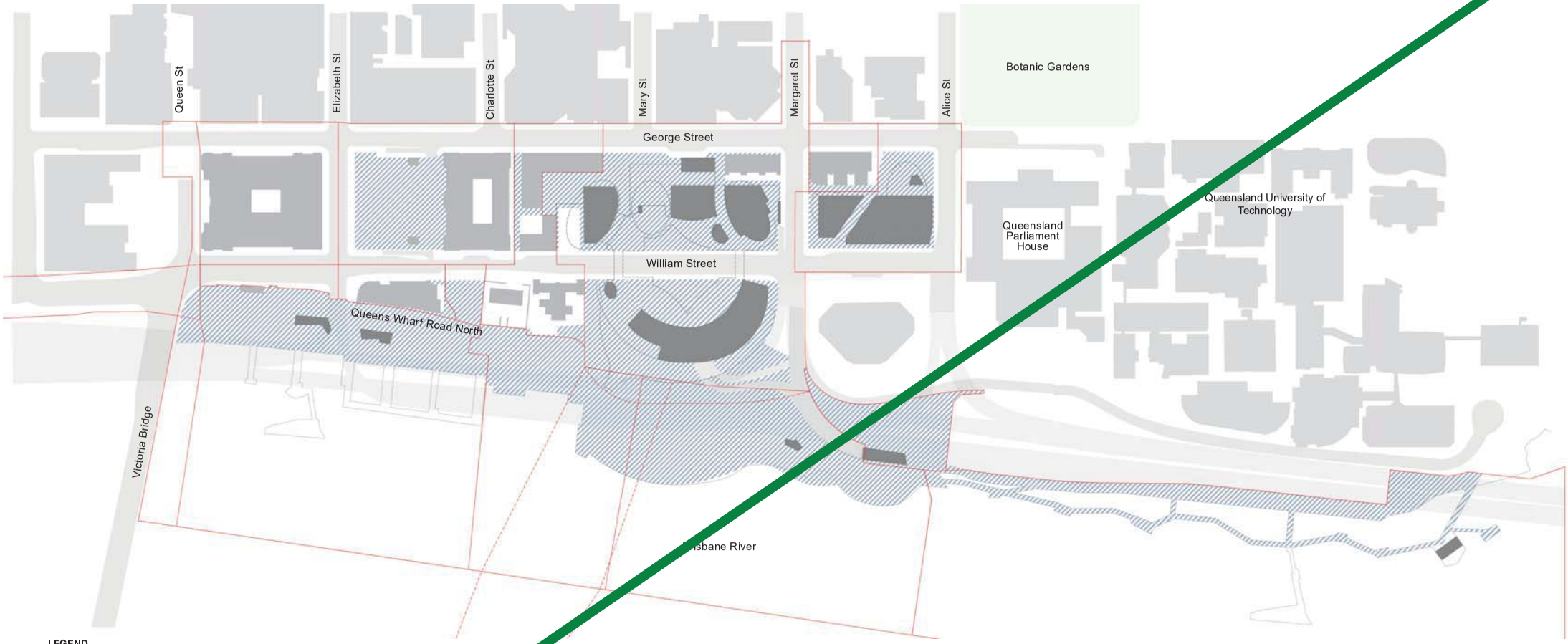
DRAWN BY: URBIS

DATE: 21/11/2017

REVISION: C

NORTH

B.4 PATHWAYS OUTSIDE OF ROAD CORRIDOR



LEGEND

- Sub-precinct boundary
- 1f Sub-precinct number
- Existing buildings (indicative only)
- Proposed buildings (indicative only)
- Public Access Areas - Public Access 24/7

To the extent of any inconsistencies between this drawing and the Approved LCR, the Approved LCR prevails.

DESTINATION BRISBANE CONSORTIUM

CLIENT NAME:
DESTINATION BRISBANE CONSORTIUM

PROJECT NAME:
QUEENS WHARF BRISBANE

DRAWING NAME:
ALL OTHER PUBLIC REALM LOCATIONS AND PATHWAYS OUTSIDE ROAD CORRIDOR

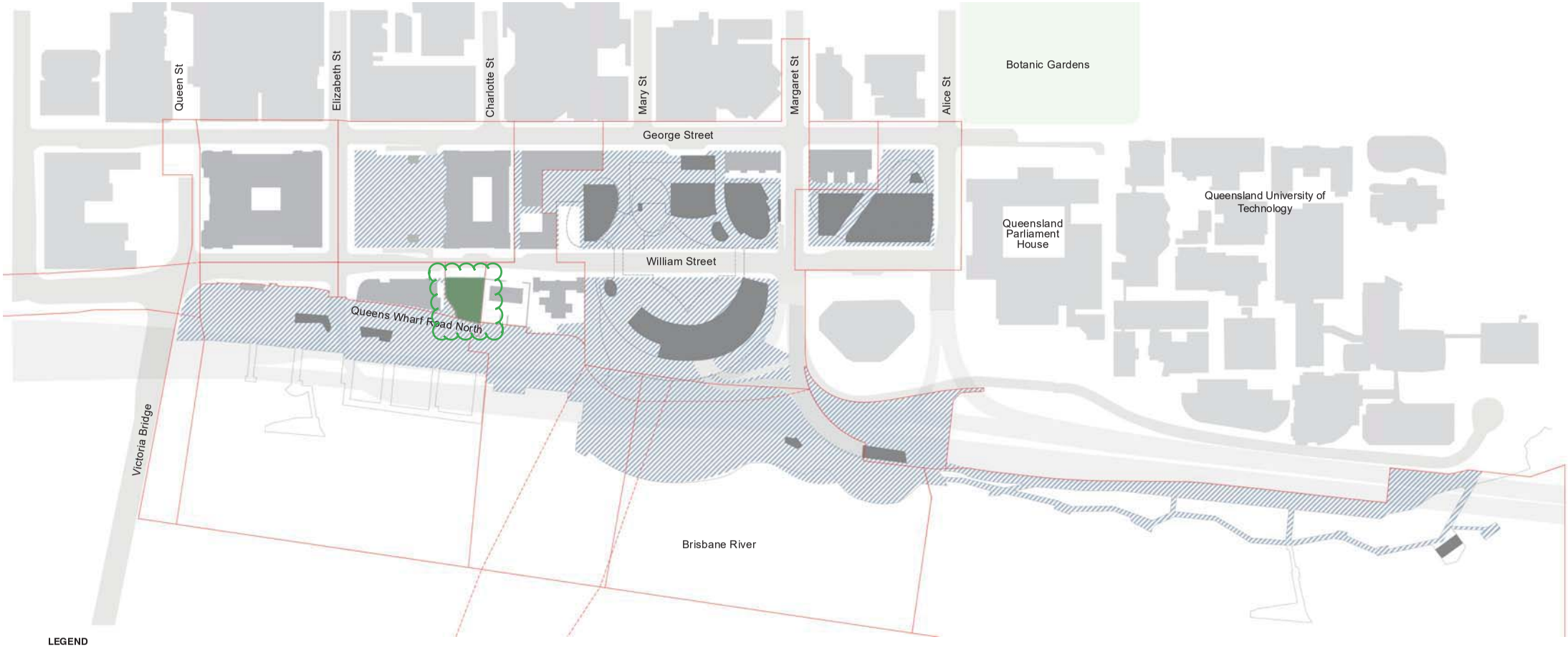
SCALE
NOT TO SCALE

DRAWN BY: URBIS

DATE: 21/11/2017

REVISION: C

NORTH



LEGEND

- Sub-precinct boundary
- 1f Sub-precinct number
- Existing buildings (indicative only)
- Proposed buildings (indicative only)
- Public Access Areas - Public Access 24/7
- Public Park - Public Access 24/7

To the extent of any inconsistencies between this drawing and the Approved LCR, the Approved LCR prevails.

DESTINATION BRISBANE CONSORTIUM

CLIENT NAME:
DESTINATION BRISBANE CONSORTIUM

PROJECT NAME:
QUEENS WHARF BRISBANE

DRAWING NAME:
ALL OTHER PUBLIC REALM LOCATIONS AND PATHWAYS OUTSIDE ROAD CORRIDOR

SCALE
NOT TO SCALE

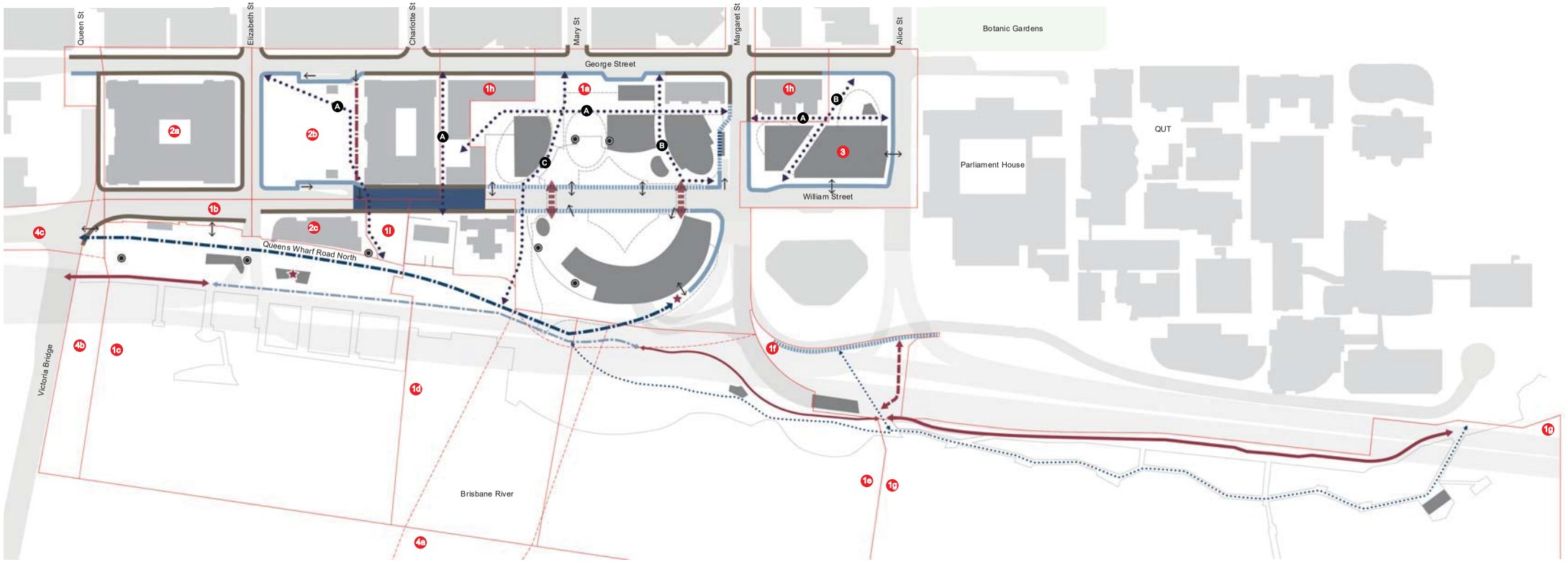
DRAWN BY: URBIS

DATE: 21/11/2017

REVISION: C

NORTH

B.5 PATH WIDTHS STRATEGY



LEGEND

- Sub-precinct boundary
- 1f Sub-precinct number
- Existing buildings (indicative only)
- Proposed buildings (indicative only)
- Potential for narrowing of road carriageway to facilitate better pedestrian cross movements (location indicative)
- Indicative vehicle access point
- Key public vertical circulation
- End of trip facilities

PATH TYPE	MINIMUM WIDTH
City street pedestrian movement A (footpaths)	3.75m verge with 2.4m unobstructed path
City street pedestrian movement B (footpaths)	3.4m verge with 2.4m unobstructed path
City street pedestrian movement C (footpaths)	2.4m unobstructed path

Heritage frontage footpaths	Maintains existing width
Cross block links A	3.2m unobstructed
Cross block links B	Min 4.5m total width with 3.2 unobstructed
Cross block links C	Min 5m total width with 3.2 unobstructed
Key pedestrian route (off road)	3m
Key pedestrian/cycle route (off road)	5m total containing 3m unobstructed cycle
Bicentennial bikeway	3m unobstructed cycle and 1.5m pedestrian path
Cycle connection	3m unobstructed cycle
Shared zone (pedestrian/cycle/ limited, controlled vehicle access)	5.5m
Shared zone (pedestrian/cycle/ limited, controlled vehicle access)	10m (max)
Key elevated pedestrian bridge	Min 6m above street level and 4.5m between handrails

To the extent of any inconsistencies between this drawing and the Approved LCR, the Approved LCR prevails.

DESTINATION BRISBANE CONSORTIUM

CLIENT NAME:
DESTINATION BRISBANE CONSORTIUM

PROJECT NAME:
QUEENS WHARF BRISBANE

DRAWING NAME:
PATH WIDTHS STRATEGY

SCALE
NOT TO SCALE

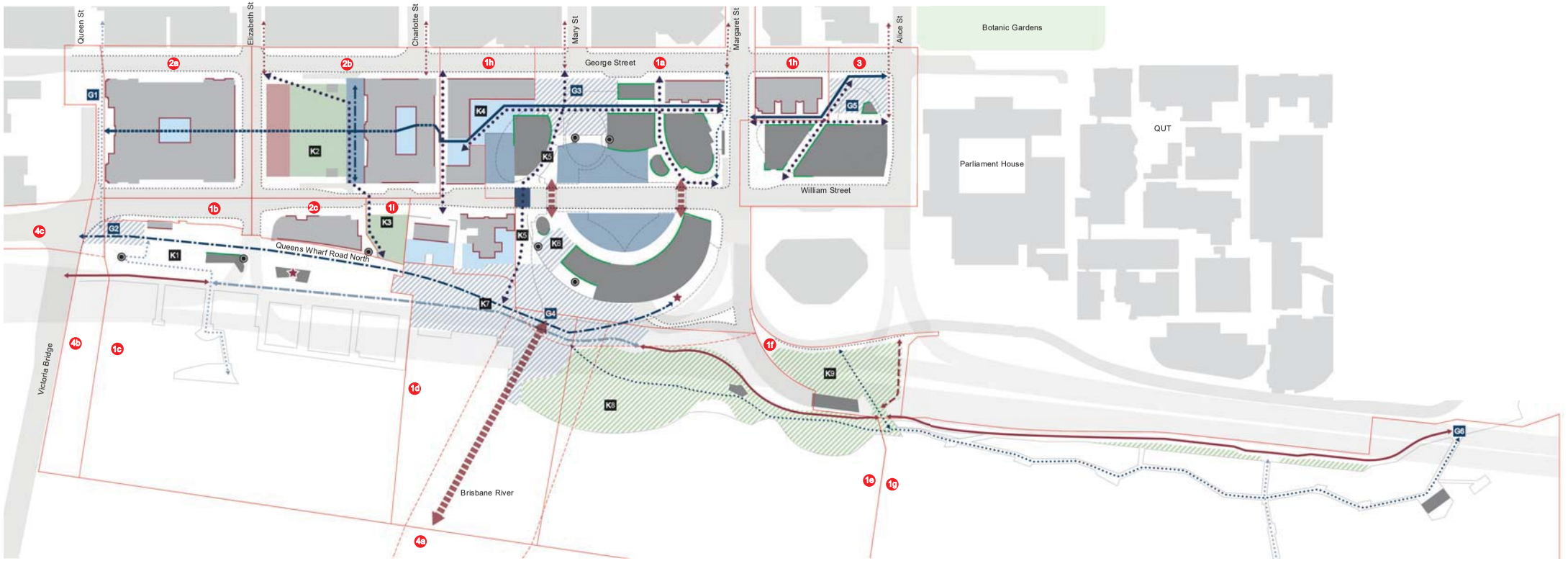
DRAWN BY: URBIS

DATE: 21/11/2017

REVISION: A

NORTH

B.6 INDICATIVE PUBLIC REALM CONNECTIVITY - TRUNK INFRASTRUCTURE ONLY



LEGEND

- Sub-precinct boundary
- 1f Sub-precinct number

WAYFINDING

- The Ribbon - on ground level
- The Ribbon - within building and/or below ground level

PLACES

- Existing buildings (indicative only)
- Proposed buildings (indicative only)
- Plaza
- Shared zone (pedestrian & vehicle access)
- Courtyard
- Indicative zone where void to level below is to occur
- Heritage park
- Key open recreation space

EDGES

- Indicative active edge
- Indicative passive edge

MOVEMENT SYSTEMS

- Key public vertical circulation
- End of trip facilities
- Indicative extent of building above
- Footpaths proposed to be repaved
- Cross block links
- Key pedestrian route
- Key existing pedestrian connection
- City street connection
- Key pedestrian/cycle route
- Bicentennial Bikeway
- Cycle connection
- Shared zone (pedestrian/cycle/limited vehicle access)
- Existing pedestrian crossing moved to align with the Brisbane Steps (all other ped crossings to remain as existing)
- Key elevated pedestrian bridge (level 4 IRD)

GATEWAYS

- G1 Treasury Forecourt
- G2 Victoria Plaza
- G3 George Street Plaza
- G4 River View Terrace Bridge Landing (elevated)
- G5 Bellevue Plaza
- G6 Mangrove Walk South Entry Plaza

KEY PUBLIC SPACES

- K1 Queens Wharf Road North & Undercurrent Village (North Quay)
- K2 Queens Gardens
- K3 Miller Park
- K4 Printery Courtyard
- K5 Brisbane Steps
- K6 William Street Plaza
- K7 Queens Wharf Plaza
- K8 The Landing
- K9 Waterline park

To the extent of any inconsistencies between this drawing and the Approved LCR, the Approved LCR prevails.

DESTINATION BRISBANE CONSORTIUM

CLIENT NAME:
DESTINATION BRISBANE CONSORTIUM

PROJECT NAME:
QUEENS WHARF BRISBANE

DRAWING NAME:
INDICATIVE PUBLIC REALM CONNECTIVITY
- TRUNK INFRASTRUCTURE ONLY

SCALE
NOT TO SCALE

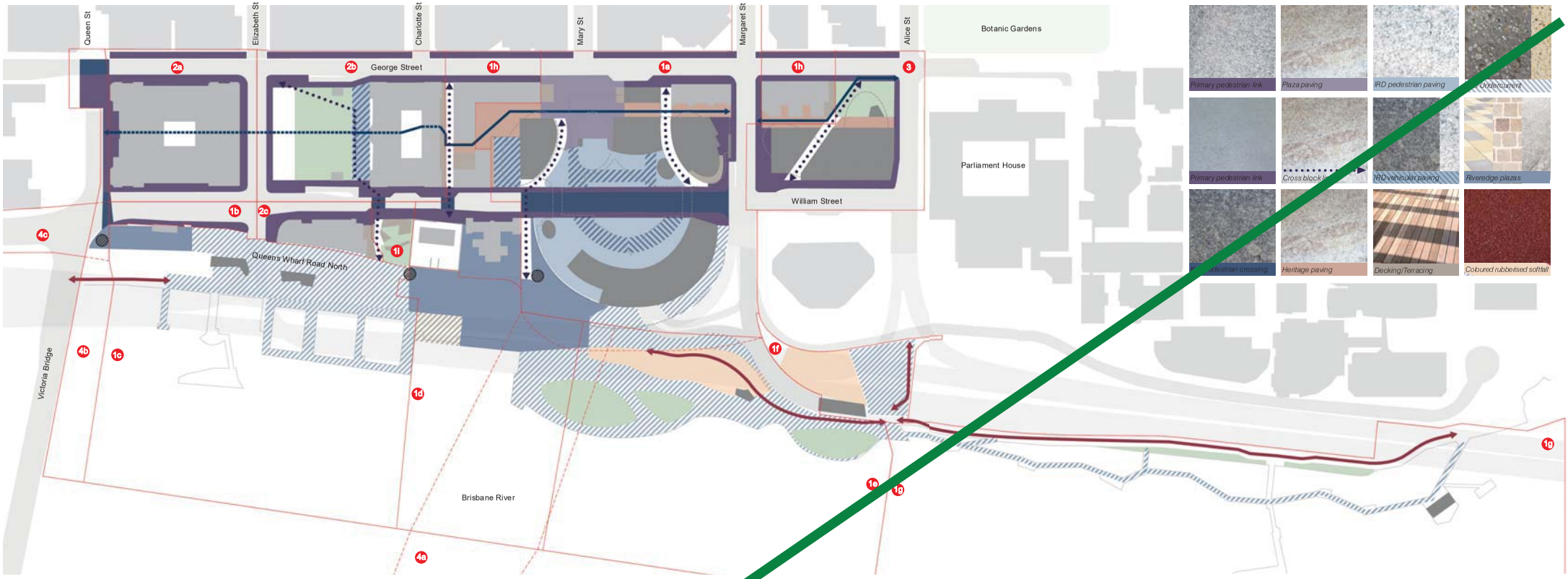
DRAWN BY: URBIS

DATE: 21/11/2017

REVISION: C

NORTH

B.7 INDICATIVE PAVING TREATMENT TYPES



LEGEND

- Sub-precinct boundary
- 1f Sub-precinct number
- Existing buildings (indicative only)
- Proposed buildings (indicative only)
- Queen's Wharf - Interpretative installation
- Nodes with blended paving pattern

ROLE	PREDOMINANT FINISH
Primary pedestrian link	Grey stone pavers or honed grey concrete (BCC standard)
Wayfinding Spine	Decking or stone pavers
Ridgeline plaza paving	Earth tone, large scale stone pavers
Cross block link	Earth tone, medium scale stone pavers
Heritage paving	Earth tone, small scale stone pavers

IRD pedestrian paving	Light coloured stone
IRD vehicular paving	Dark coloured stone with light stone highlights
Key pedestrian crossing	Potential for surrounding stone paving treatments or dark coloured stone to continue on-road
Riveredge plaza paving	Coloured concrete and stone paving
The Undercurrent	Coloured concrete
Park/ Open recreation space	Paths within to be either stone pavers or coloured concrete
Open recreation space	Coloured rubberised softfall
Bicentennial Bikeway	Asphalt and colour paint system
Decking/Terracing	Decking

To the extent of any inconsistencies between this drawing and the Approved LCR, the Approved LCR prevails.

DESTINATION BRISBANE CONSORTIUM

CLIENT NAME:
DESTINATION BRISBANE CONSORTIUM

PROJECT NAME:
QUEENS WHARF BRISBANE

DRAWING NAME:
INDICATIVE PAVING TREATMENT TYPES

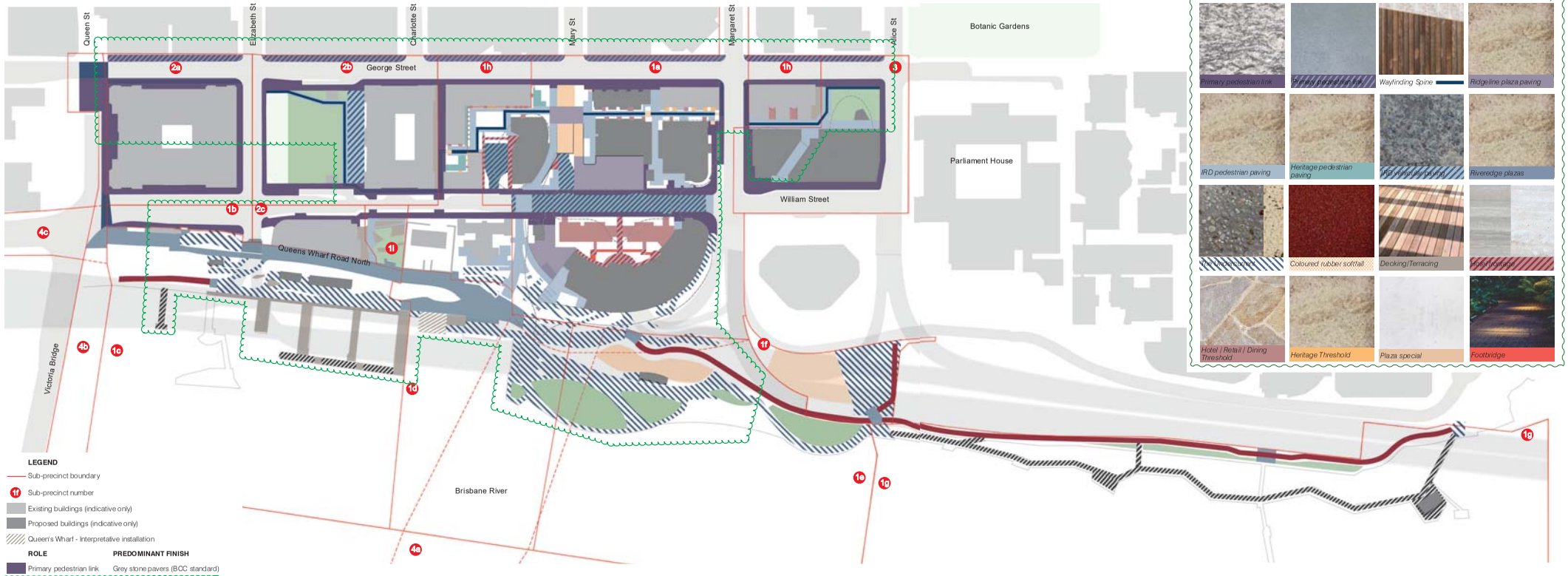
SCALE
NOT TO SCALE

DRAWN BY: URBIS

DATE: 21/11/2017

REVISION: C

NORTH



LEGEND

- Sub-precinct boundary
- 1f Sub-precinct number
- Existing buildings (indicative only)
- Proposed buildings (indicative only)
- Queen's Wharf - Interpretative installation

ROLE	PREDOMINANT FINISH
Primary pedestrian link	Grey stone pavers (BCC standard)
Primary pedestrian link	Honed coloured concrete (BCC standard)
Wayfinding Spine	Decking with decorative metal edge
Wayfinding Spine	Decorative metal edge only
Ridgeline plaza paving	Juperana - large rectilinear format
IRD pedestrian paving	Juperana - medium rectilinear format
Heritage pedestrian paving	Juperana - small rectilinear format
IRD vehicular paving	Dark granite
Riveredge plaza paving	Juperana - small format + setts
The Undercurrent	Coloured concrete
Park/ Open recreation space	Paths within to be either stone pavers or coloured concrete
Open recreation space	Coloured rubberised softfall
Bikeway	Asphalt and colour paint system
Decking / terracing	Decking
Hotel Frontage	Light coloured pavers
Hotel / Retail / Dining Threshold	Juperana 'crazy pave'
Heritage Threshold	Juperana - format to be agreed
Plaza Special	Coloured concrete
Footbridge	Coloured perforated metal
Finger Wharf & Mangrove Walk Marine structures	Broom finished plain grey concrete

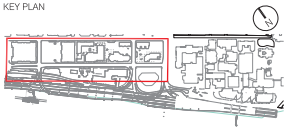
Paving format subject to conditions of approval and requires further compliance assessment - Amended in Red 27 March 2019

CONSULTANT
LEVEL 7, 123 ALBERT STREET
BRISBANE QLD 4000 AUSTRALIA
TEL +617 3007 3800
FAX +617 3007 3811
www.urbis.com.au

URBIS

Urbis Pty Ltd ABN 50 105 256 228
Australia · Asia · Middle East

KEY PLAN



LEGEND

CLIENT

DESTINATION BRISBANE CONSORTIUM

REV	DESCRIPTION	DWN	CHK	DATE
2	Paving Strategy	AA	SD	25.03.19
1	Paving Strategy	AA	SD	17.07.17

PROJECT
QUEENS WHARF BRISBANE

DRAWING TITLE
PAVING STRATEGY

ISSUE
FOR INFORMATION

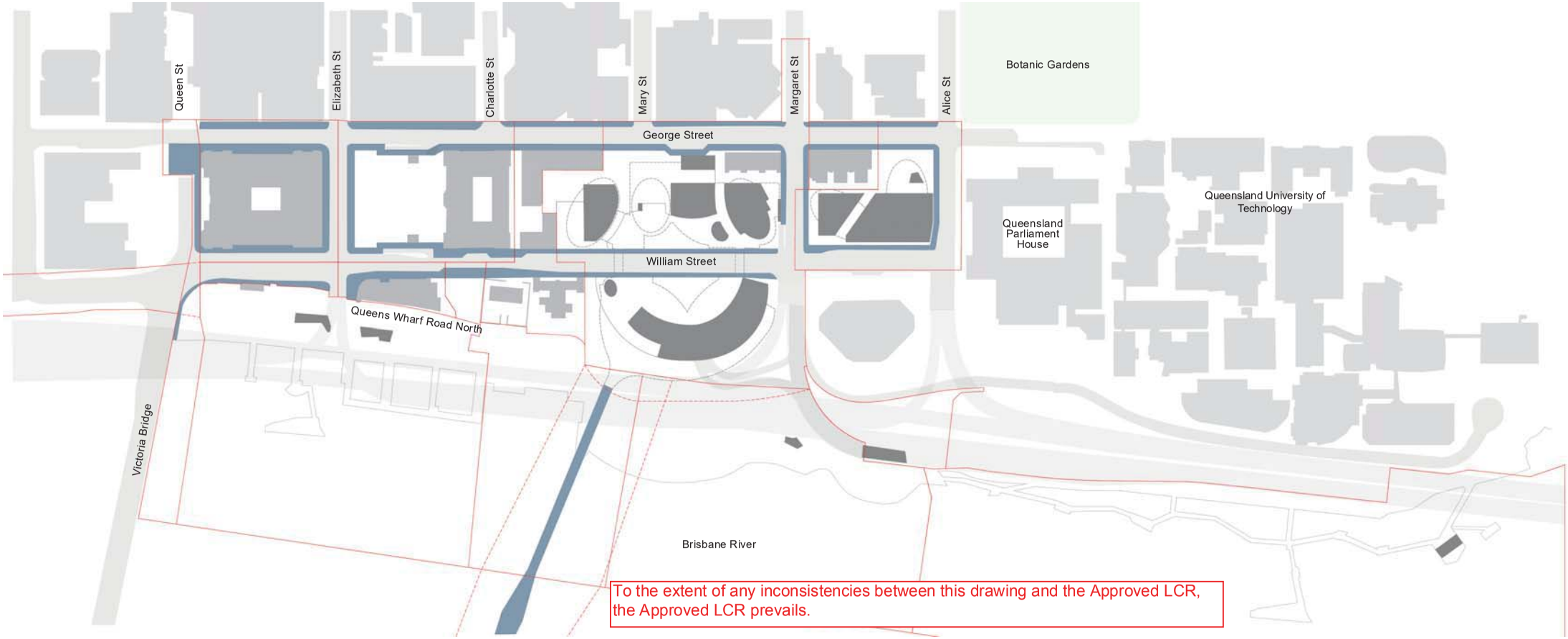
PROJECT NO.
ND1456

SCALE NTS @ A3

REVISION
2

DRAWING NO.

B.8 INDICATIVE PEDESTRIAN CROSSING LOCATIONS



LEGEND

- Sub-precinct boundary
- Sub-precinct number
- Existing buildings (indicative only)
- Proposed buildings (indicative only)
- Public verge/footpath (Public access 24/7)

DESTINATION BRISBANE CONSORTIUM

CLIENT NAME:
DESTINATION BRISBANE CONSORTIUM

PROJECT NAME:
QUEENS WHARF BRISBANE

DRAWING NAME:
FOOTPATH PAVEMENT LOCATIONS

SCALE
NOT TO SCALE

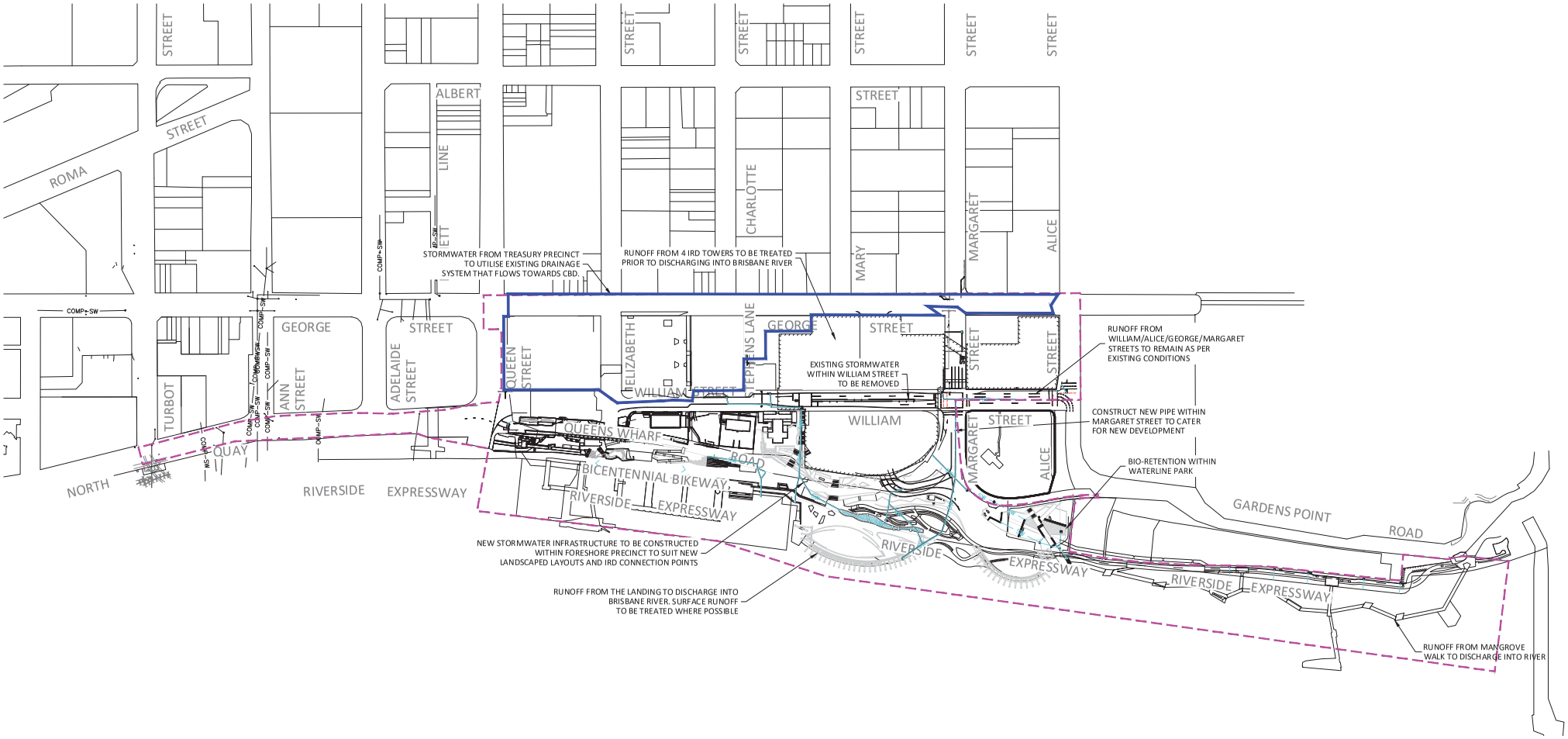
DRAWN BY: URBIS

DATE: 21/11/2017

REVISION: C

NORTH

B.9 INDICATIVE STORMWATER INFRASTRUCTURE



PLAN
SCALE 1:2000

CONSULTANT
LEVEL 4 67 ASTOR TERRACE
SPRING HILL QLD 4000
TEL +617 3013 4699
FAX +617 3013 4611
www.bornhorstward.com.au

BORNHORST + WARD
CONSULTING ENGINEERS
CIVIL AND STRUCTURAL

BORNHORST + WARD
ABN 78 010 151 354

KEY PLAN

APPROVED	CHECKED
7729 RPEQ	
DATE	DATE

CLIENT
DESTINATION BRISBANE CONSORTIUM

REV	NO	DESCRIPTION	DWN	CHK	DATE
	1	FOR INFOMATION			23.05.16

PROJECT
QUEENS WHARF BRISBANE

DRAWING TITLE
EXISTING CATCHMENT PLAN

ISSUE
FOR APPROVAL

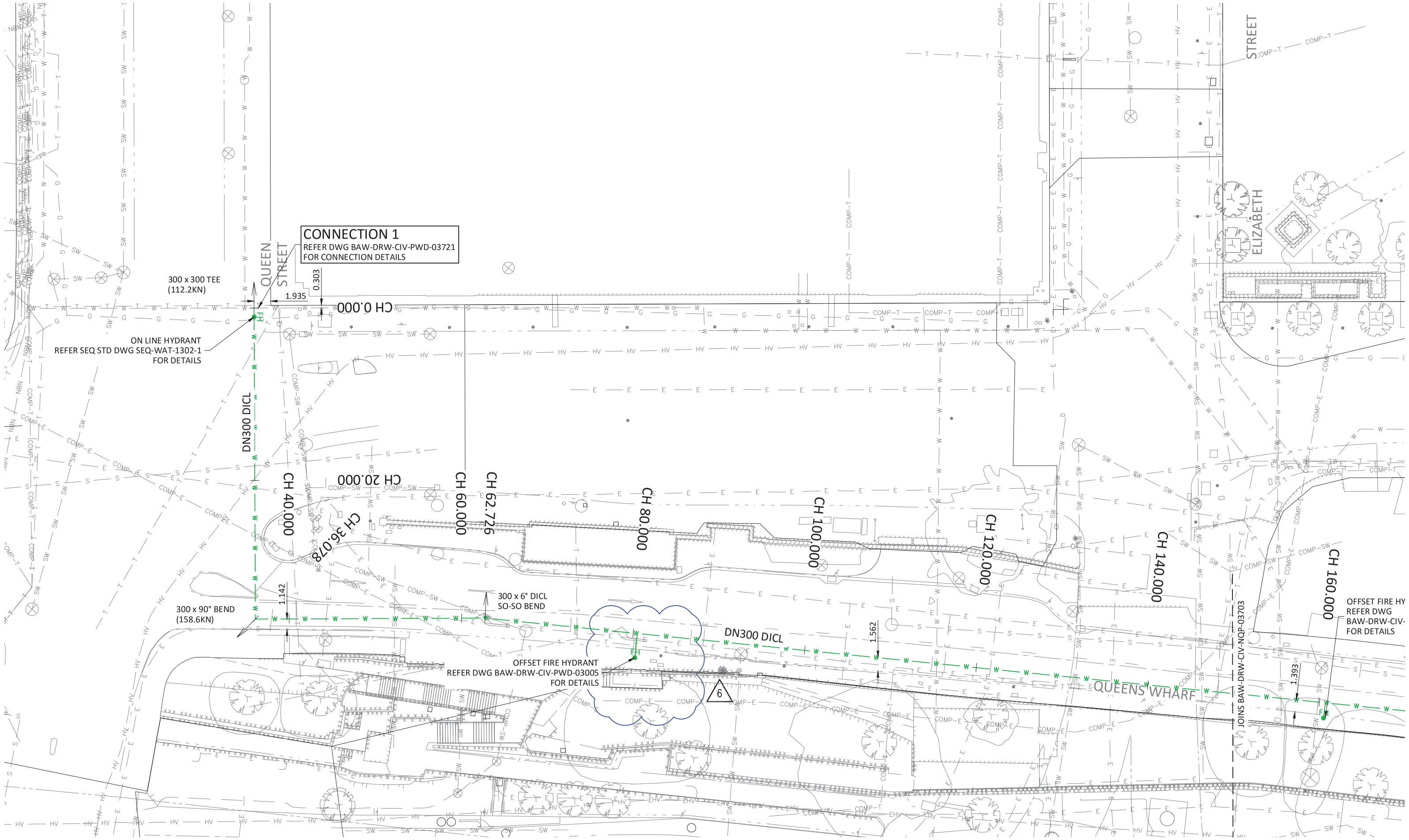
PROJECT NO.
14250

SCALE A1 UNREDUCED / A3 REDUCED
0 20 40 60 80 100m 1 : 2000 / 1 : 4000
A1 / A3

REVISION
1

DRAWING NO.
BAW-SKT-CIV-PWD-00104

B.10 INDICATIVE WATER INFRASTRUCTURE



NOTE:
CONTRACTOR TO LOCATE EXISTING SERVICES ON-SITE DURING CONSTRUCTION AND DETERMINE SERVICE CROSSING TREATMENT (PASS OVER OR UNDER) DEPENDING ON AVAILABLE COVER IN ACCORDANCE WITH 'TYPICAL SERVICE CROSSING DETAIL 1 OR 2 ON DWG BAW-DRW-CIV-PWD-03720. ANY DEFERMENT FROM THE TYPICAL DETAILS SHALL BE REFEREED TO THE SITE ENGINEER FOR DIRECTION.

For Queensland Urban Utilities Preliminary Approval Only
Not For Construction Use
(Plans submitted are to Queensland Urban Utilities' standards)

Water Approval ref. number: -
Endorsed Consultant: Bornhorst and Ward
Nominated RPEQ: Nicholas Rozis - 7729

RPEQ contact details: 07 3013 4699

PLAN
SCALE 1:250

CONSULTANT
LEVEL 4 67 ASTOR TERRACE
SPRING HILL QLD 4000
TEL +617 3013 4699
FAX +617 3013 4611
www.bornhorstward.com.au

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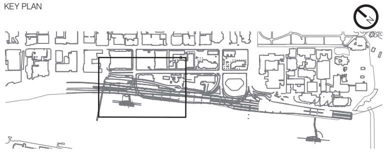
CONSULTING ENGINEERS
CIVIL AND STRUCTURAL

BORNHORST + WARD
ABN 78 010 151 354

KEY PLAN



APPROVED	CHECKED
. . . . 7729 RPEQ	. . . . . .
DATE	DATE

CLIENT
DESTINATION BRISBANE CONSORTIUM

REV	NO	DESCRIPTION	DWN	CHK	DATE
2		PRELIMINARY	NB	AL	12.08.16
3		WATER ALIGNMENT AMENDED	SY	AL	31.08.16
4		ISSUE DESCRIPTION ALTERED			05.09.16
5		WATER ALIGNMENT UPDATED			11.10.16
6		HYDRANT LOCATION ALTERED			31.10.16

PROJECT
QUEENS WHARF BRISBANE
North Quay / Queens Wharf Plaza

DRAWING TITLE
WATER RETICULATION
LAYOUT SHEET 1

ISSUE
FOR TENDER

PROJECT NO.
14250

SCALE A1 UNREDUCED / A3 REDUCED
0 2.5 5.0 7.5 10.0 12.5m 1 : 250 / 1 : 500
A1 / A3

REVISION
6

DRAWING NO.
BAW-DRW-CIV-NQP-03701

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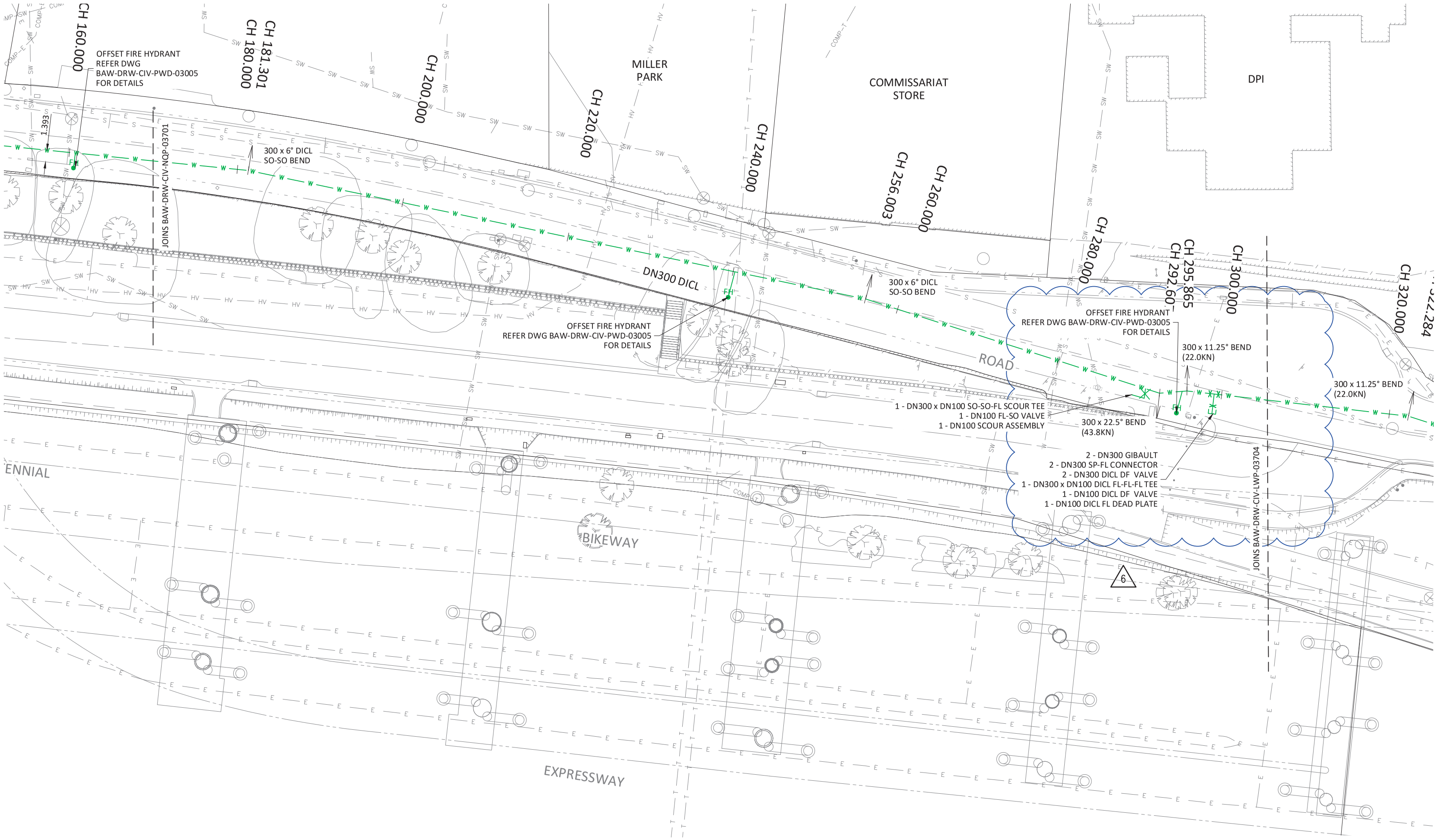

PLAN
SCALE 1:500

NOTE:
CONTRACTOR TO LOCATE EXISTING SERVICES ON-SITE DURING CONSTRUCTION AND DETERMINE SERVICE CROSSING TREATMENT (PASS OVER OR UNDER) DEPENDING ON AVAILABLE COVER IN ACCORDANCE WITH 'TYPICAL SERVICE CROSSING DETAIL 1 OR 2 ON DWG BAW-DRW-CIV-PWD-03720. ANY DEFERMENT FROM THE TYPICAL DETAILS SHALL BE REFEREED TO THE SITE ENGINEER FOR DIRECTION.

For Queensland Urban Utilities Preliminary Approval Only
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Water Approval ref. number: -
Endorsed Consultant: Bornhorst and Ward
Nominated RPEQ: Nicholas Rozis - 7729

RPEQ contact details: 07 3013 4699

CONSULTANT
LEVEL 4 67 ASTOR TERRACE
SPRING HILL QLD 4000
TEL +617 3013 4699
FAX +617 3013 4611
www.bornhorstward.com.au

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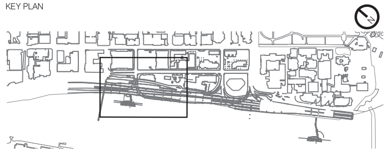
ABN 78 010 151 354

KEY PLAN



APPROVED	CHECKED
7729 RPEQ	
DATE	DATE

CLIENT
DESTINATION BRISBANE CONSORTIUM

REV	NO	DESCRIPTION	DWN	CHK	DATE
2		PRELIMINARY	NB	AL	12.08.16
3		WATER ALIGNMENT AMENDED	SY	AL	31.08.16
4		ISSUE DESCRIPTION ALTERED			05.09.16
5		WATER ALIGNMENT UPDATED			11.10.16
6		CONNECTION POINT RELOCATED			31.10.16

PROJECT
QUEENS WHARF BRISBANE
North Quay / Queens Wharf Plaza

DRAWING TITLE
WATER RETICULATION LAYOUT SHEET 2

ISSUE
FOR TENDER

PROJECT NO.
14250

SCALE A1 UNREDUCED / A3 REDUCED
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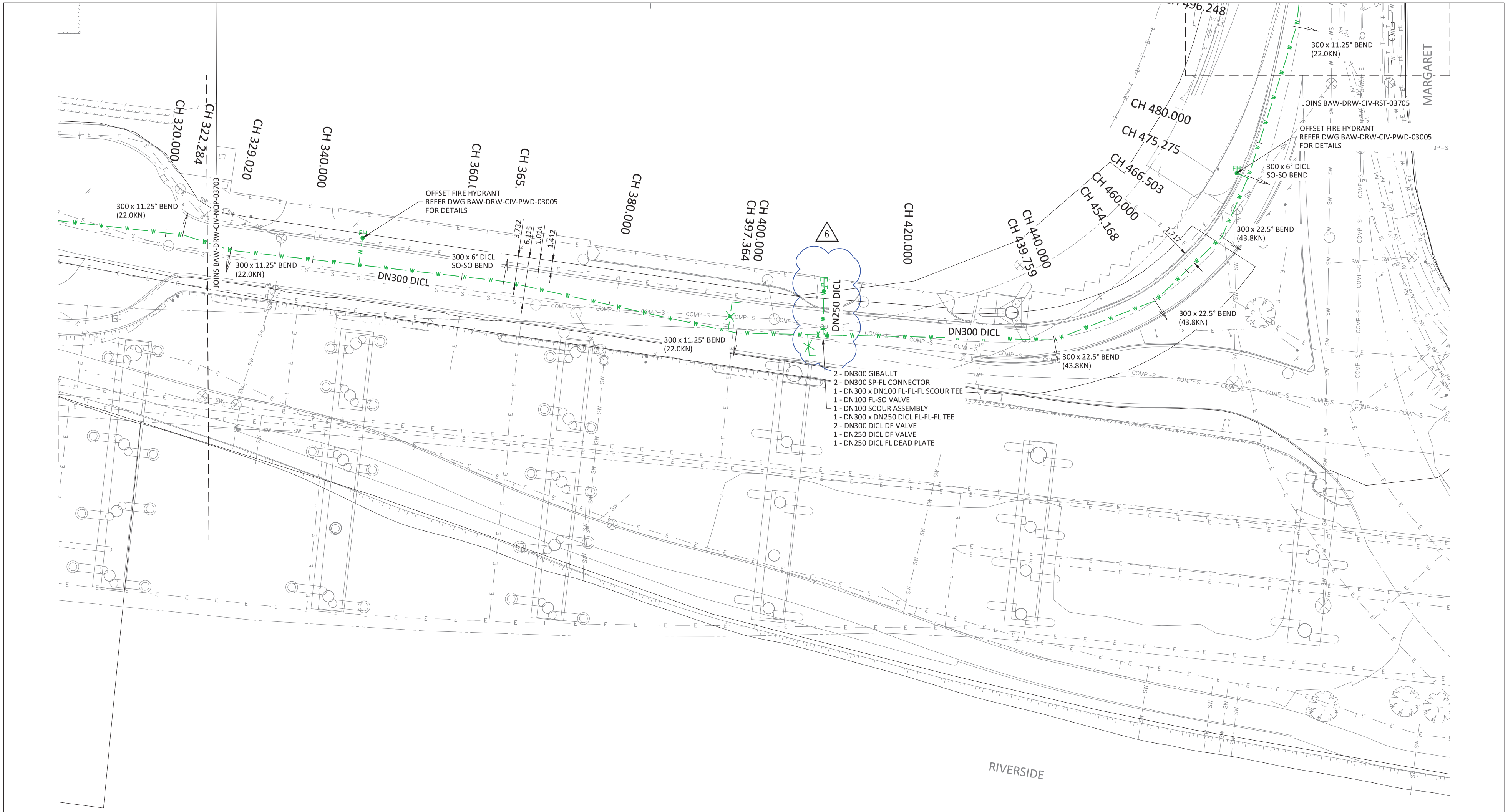
REVISION
6

DRAWING NO.
BAW-DRW-CIV-NQP-03703



PLAN
SCALE 1:250

NOTE:
CONTRACTOR TO LOCATE EXISTING SERVICES ON-SITE DURING CONSTRUCTION AND DETERMINE SERVICE CROSSING TREATMENT (PASS OVER OR UNDER) DEPENDING ON AVAILABLE COVER IN ACCORDANCE WITH 'TYPICAL SERVICE CROSSING DETAIL 1 OR 2 ON DWG BAW-DRW-CIV-PWD-03720. ANY DEFERMENT FROM THE TYPICAL DETAILS SHALL BE REFEREED TO THE SITE ENGINEER FOR DIRECTION.

For Queensland Urban Utilities Preliminary Approval Only
Not For Construction Use
(Plans submitted are to Queensland Urban Utilities' standards)

Water Approval ref. number: -
Endorsed Consultant: Bornhorst and Ward
Nominated RPEQ: Nicholas Rozis - 7729

RPEQ contact details: 07 3013 4699

CONSULTANT
LEVEL 4 67 ASTOR TERRACE
SPRING HILL QLD 4000
TEL +617 3013 4699
FAX +617 3013 4611
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BORNHORST + WARD
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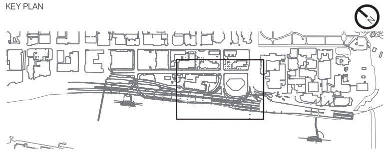
CIVIL AND STRUCTURAL

BORNHORST + WARD
ABN 78 010 151 354

KEY PLAN



APPROVED	CHECKED
7729 RPEQ	
DATE	DATE

CLIENT
DESTINATION BRISBANE CONSORTIUM

REV	NO	DESCRIPTION	DWN	CHK	DATE
	2	PRELIMINARY	NB	AL	12.08.16
	3	WATER ALIGNMENT AMENDED	SY	AL	31.08.16
	4	ISSUE DESCRIPTION ALTERED			05.09.16
	5	WATER ALIGNMENT UPDATED			11.10.16
	6	CONNECTION POINT RELOCATED			31.10.16

PROJECT
QUEENS WHARF BRISBANE
The Landing / Waterline Park

DRAWING TITLE
WATER RETICULATION
LAYOUT SHEET 3

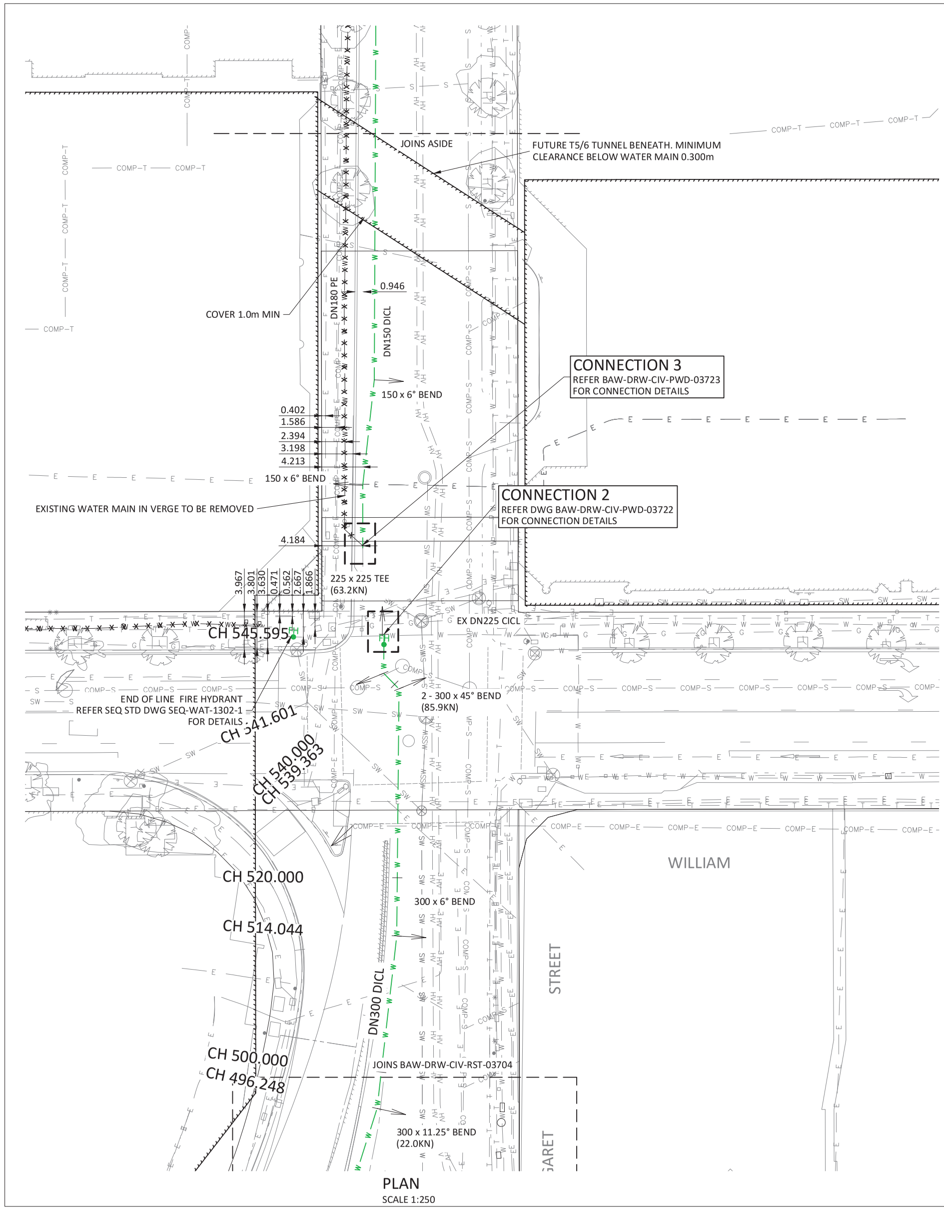
ISSUE
FOR TENDER

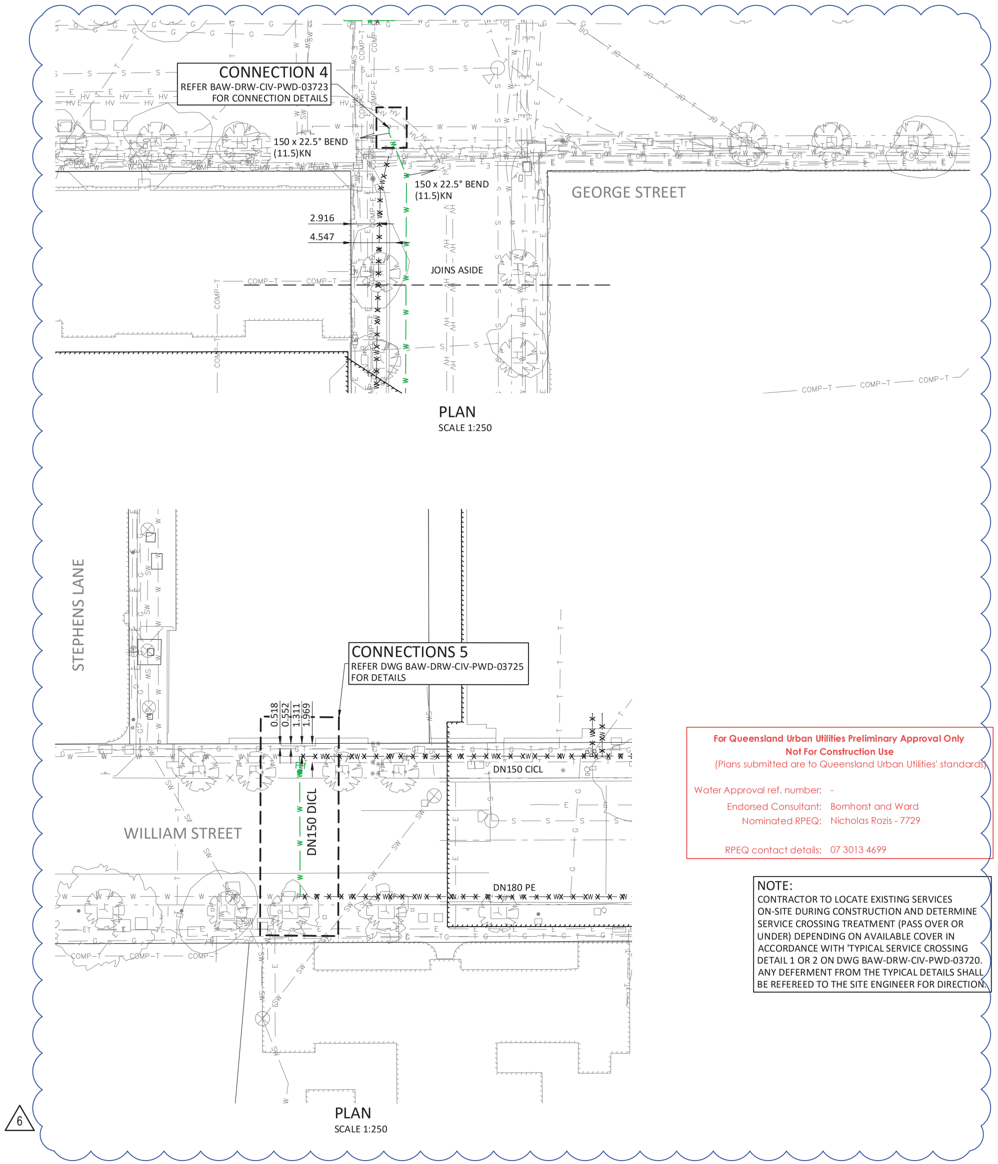
PROJECT NO.
14250

SCALE A1 UNREDUCED / A3 REDUCED
0 2.5 5.0 7.5 10.0 12.5m 1 : 250 / 1 : 500
A1 / A3

REVISION
6

DRAWING NO.
BAW-DRW-CIV-LWP-03704





For Queensland Urban Utilities Preliminary Approval Only
Not For Construction Use
(Plans submitted are to Queensland Urban Utilities' standards)

Water Approval ref. number: -
Endorsed Consultant: Bornhorst and Ward
Nominated RPEQ: Nicholas Rozis - 7729

RPEQ contact details: 07 3013 4699

NOTE:
CONTRACTOR TO LOCATE EXISTING SERVICES ON-SITE DURING CONSTRUCTION AND DETERMINE SERVICE CROSSING TREATMENT (PASS OVER OR UNDER) DEPENDING ON AVAILABLE COVER IN ACCORDANCE WITH 'TYPICAL SERVICE CROSSING DETAIL 1 OR 2 ON DWG BAW-DRW-CIV-PWD-03720. ANY DEFERMENT FROM THE TYPICAL DETAILS SHALL BE REFEREED TO THE SITE ENGINEER FOR DIRECTION.

CONSULTANT
LEVEL 4 67 ASTOR TERRACE
SPRING HILL QLD 4000
TEL +617 3013 4699
FAX +617 3013 4611
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CONSULTING ENGINEERS
CIVIL AND STRUCTURAL
BORNHORST + WARD
ABN 78 010 151 354

KEY PLAN

APPROVED	CHECKED
7729 RPEQ	
DATE	DATE

CLIENT
DESTINATION BRISBANE CONSORTIUM

REV	NO	DESCRIPTION	DWN	CHK	DATE
2		PRELIMINARY	NB	AL	12.08.16
3		WATER ALIGNMENT AMENDED	SY	AL	31.08.16
4		ISSUE DESCRIPTION ALTERED			05.09.16
5		WATER ALIGNMENT UPDATED			11.10.16
6		WATER ALIGNMENT UPDATED			31.10.16

PROJECT
QUEENS WHARF BRISBANE
Integrated Resort Development

DRAWING TITLE
WATER RETICULATION LAYOUT SHEET 4

ISSUE
FOR TENDER
PROJECT NO.
14250
SCALE A1 UNREDUCED / A3 REDUCED
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REVISION
6
DRAWING NO.
BAW-DRW-CIV-IRD-03705

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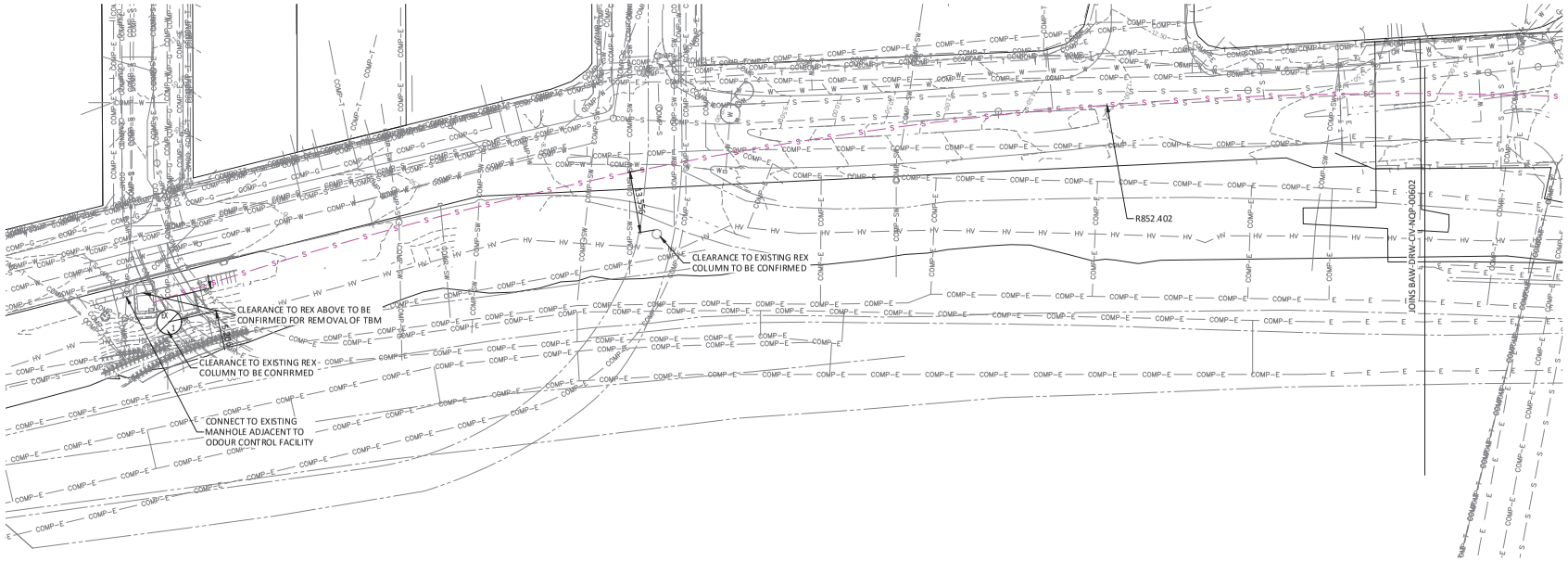
B.11 INDICATIVE WASTE WATER INFRASTRUCTURE



PLAN
SCALE 1:500

CONSULTANT

LEVEL 4 67 ASTOR TERRACE
SPRING HILL QLD 4000
TEL +617 3013 4089
FAX + 617 3013 4611
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CIVIL AND STRUCTURAL

BORNHORST + WARD
ABN 78 010 151 354

KEY PLAN

APPROVED	CHECKED
7729 RPEQ	
DATE	DATE

CLIENT

DESTINATION BRISBANE CONSORTIUM

REV	NO	DESCRIPTION	DWN	CHK	DATE
1		ORIGINAL ISSUE	NB	AL	23.09.16
2		UPDATED SEWER LAYOUT			18.10.16
3		IRD TO WILLIAM ST LAYOUT AMENDED			25.10.16

PROJECT
QUEENS WHARF BRISBANE
North Quay/ Queens Wharf Plaza

DRAWING TITLE
SEWER RETICULATION LAYOUT SHEET 1

ISSUE
FOR CO-ORDINATION

PROJECT NO.
14250

SCALE A1 UNREDUCED / A3 REDUCED
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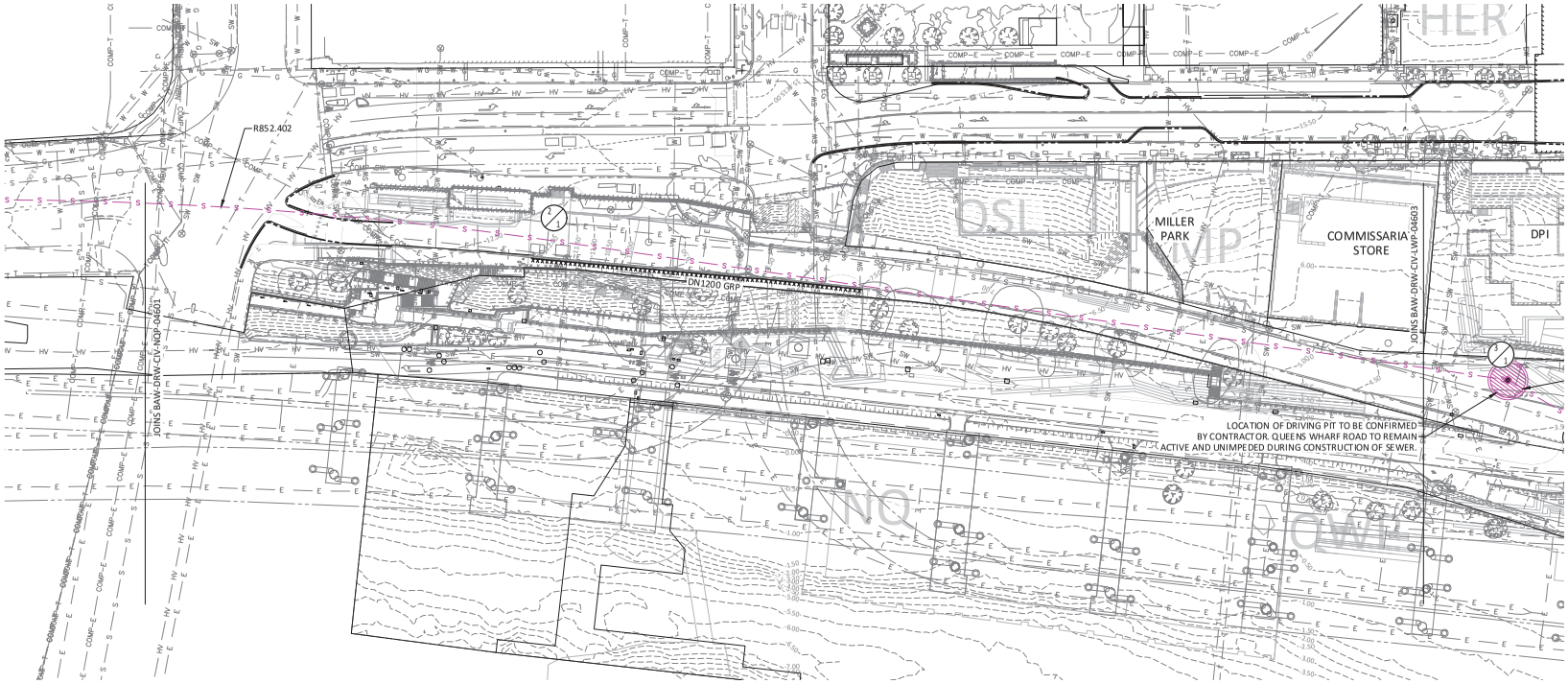
REVISION
3

DRAWING NO.
BAW-DRW-CIV-NQP-04601



PLAN
SCALE 1:500

CONSULTANT
LEVEL 4 67 ASTOR TERRACE
SPRING HILL QLD 4000
TEL +617 3013 4089
FAX +617 3013 4611
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CIVIL AND STRUCTURAL

BORNHORST + WARD
ABN 78 010 151 354

KEY PLAN

APPROVED	CHECKED
7729 RPEQ	
DATE	DATE

CLIENT
DESTINATION BRISBANE CONSORTIUM

REV	NO	DESCRIPTION	DWN	CHK	DATE
1		ORIGINAL ISSUE	NB	AL	23.09.16
2		UPDATED SEWER LAYOUT			18.10.16
3		IRD TO WILLIAM ST LAYOUT AMENDED			25.10.16

PROJECT
QUEENS WHARF BRISBANE
North Quay/ Queens Wharf Plaza

DRAWING TITLE
SEWER RETICULATION LAYOUT SHEET 2

ISSUE
FOR CO-ORDINATION

PROJECT NO.
14250

SCALE A1 UNREDUCED / A3 REDUCED
0 5 10 15 20 25m 1:500 / 1:1000 A1 / A3

REVISION
3

DRAWING NO.
BAW-DRW-CIV-NQP-04602

APPENDIX C QUEENSLAND URBAN UTILITIES SERVICE ADVICE NOTICE

Queensland Urban Utilities
GPO Box 2765
BRISBANE QLD 4001
Phone: 07 3432 2200 or 13 26 57
www.urbanutilities.com.au/development-services

29th November 2016

Mr Nicholas Rozis
Bornhorst Ward Pty Ltd
Level 4, 67 Astor Terrace
Spring Hill QLD 4000

Via Email: QUUMail@bornhorstward.com.au

Dear Mr Rozis

Queensland Urban Utilities Services Advice Notice

QUU Application Number:	16-SRV-23998
Applicant Name:	Mr Nicholas Rozis
Street Address:	75 William Street Brisbane City QLD 4000
Real Property Description:	Lot 492 on CP855445, Lot 10 on CP866932, Lot 682 on CP855445, Lot 101 on CP905886, Lot 100 on CP898752, Lot 12 on B32389, Lot 9 on B32389, Lot 10 on B31553, Lot 8 on SP236637, Lot 532 on CP905886, Lot 2 on B32444, Lot 3 on CP882348 & Lot 1 on B32444

Proposed service connection/alteration/disconnection type:

Drinking water	☑
Non-drinking water	☐
Wastewater	☑

Queensland Urban Utilities provides this Services Advice Notice in response to the request received on **28/11/2016**. In accordance with section 99BRAC(3) of the *South East Queensland Water (Distribution and Retail Restructuring) Act 2009,* this Services Advice Notice provides advice about the proposed connection having regard to the connections policy in the Queensland Urban Utilities Water Netserv Plan, the charges and conditions that may apply to the connection and other relevant matters about the connection. All terms used in this Services Advice Notice are defined by reference to the Queensland Urban Utilities Water Netserv Plan.

This Services Advice Notice does not constitute an application for connection, is not an approval to connect to the Queensland Urban Utilities network(s) and does not bind any future Queensland Urban Utilities' decision if the applicant applies for a connection.

Queensland Urban Utilities understands that the proposed development will consist of a mixed used development (**Precinct 1 & 3** - ((**2000** residential units, Accommodation (Short Term) – 1126

units, **60950** m^2 of retail space, and **82700** m^2 of commercial space)), **Precinct 2** - (Accommodation Short Term – 170 units, **12500** m^2 of retail space, and **7500** m^2 of commercial space).

Based on your proposal and discussion with Queensland Urban Utilities officers, the following advice is provided:

Queensland Urban Utilities Services Advice

Infrastructure and Design

Water

The site is currently serviced by the existing 100mm/150mm/225mm/300mm diameter water mains in Margaret Street, George Street, William Street and Alice street.

Wastewater

The site is currently serviced by the existing 150mm/225mm/300mm diameter sewer lines in Queens Wharf Road, William Street, Alice Street and George Street.

Note that the (water/wastewater) infrastructure required for the proposed development is to be provided in accordance with QUU requirements, including but not limited to, the *SEQ Water Supply and Sewerage Design and Construction Code* (SEQ WS&S D&C Code, 2013), or current equivalent.

Network Demand and Capacity

Water

The applicant has proposed to construct a 300mm diameter water main from the intersection of Queen Street & William Street to the intersection of Margaret Street/George Street (refer to attached plan BAW-DRW-CIV-NQP-03701/6, BAW-DRW-CIV-NQP-03703/6, BAW-DRW-CIV-LWP-03704/6 & BAW-DRW-CIV-IRD-03705/6).

An assessment of the water supply available at the site, including computational hydraulic modelling of the network under peak demand and fire flow conditions, has been completed.

The assessment indicates that the combination of existing and proposed (300mm diameter water main from the intersection of Queen Street & William Street to the intersection of Margaret Street/George Street) water supply infrastructure will have sufficient capacity to service the proposed development in accordance with the *SEQ Water Supply and Sewerage Design and Construction Code, 2013 (SEQ WS&S D&C Code).*

Wastewater

A hydraulic assessment of the sewerage network servicing the site under peak wet weather flow conditions has been completed.

Assessment indicates that the existing sewerage infrastructure has insufficient capacity to service the proposed development.

The applicant has proposed to construct a DN1200mm diameter sewer main from the development site in Queens Wharf Road to the existing 2400mm diameter sewer main in Turbot Street/North Quay intersection (refer to attached plans BAW-DRW-CIV-NQP-04601/v3 & BAW-DRW-CIV-NQP-04602/v3).

After construction of the DN1200mm diameter sewer, the combination of the existing (2400mm diameter trunk sewer in Turbot Street) and the proposed (a DN1200mm diameter sewer main from the development site in Queens Wharf Road to the existing 2400mm diameter sewer main in

Turbot Street/North Quay intersection) will have sufficient capacity to service the proposed development.

Land and Easements

Sewer Main in Private Properties
Please refer to following link for easement requirements:
http://www.urbanutilities.com.au/development-services/our-services/building

Water Main in Private Properties
Please refer to table 5.2 and clause 5.4.4 of *SEQ WS&S D&C Code* for easement requirements.

Infrastructure Integration

No infrastructure integration is required in this instance.

Contributed Assets

No contributing assets are required in this instance.

Trade Waste

The **proposed development** the subject of this Services Advice Notice has been identified as a potential generator of Trade Waste. Trade Waste is water-borne waste from business, trade or manufacturing premises excluding domestic sewerage, stormwater, and prohibited substances. It is an offence under section 193(1) of the ***Water Supply (Safety and Reliability) Act 2008*** to discharge trade waste into Queensland Urban Utilities' infrastructure without a Trade Waste Approval.

To obtain a Trade Waste Approval, the proponent for the proposed development must submit an application to Queensland Urban Utilities, who will assess and decide the application. Any Trade Waste Approval granted by Queensland Urban Utilities will be subject to Trade Waste Approval conditions and the Queensland Urban Utilities Trade Waste Environmental Management Plan (**TWEMP**).

The TWEMP and an online application form are available on the Queensland Urban Utilities website:

www.urbanutilities.com.au/business/business-services/trade-waste

For advice on the suitability of waste for discharge to sewer, and likely Trade Waste Approval conditions, you may contact Queensland Urban Utilities Trade Waste section on **13 26 57**.

Proposed trade waste drainage solutions will be assessed for compliance with plumbing and drainage regulations and the requirements of the TWEMP at the time of plumbing compliance assessment. Proposed trade waste solutions that do not meet the requirements in the TWEMP and plumbing and drainage regulations may result in delays to the plumbing compliance process and the issue of a Trade Waste Approval.

Further information is available at the following website:
https://www.urbanutilities.com.au/business/business-services/trade-waste

This *Services Advice Notice* is current for a period of two (2) years from the date of issue. Should you wish to proceed with applying for a service connection please lodge your application via Queensland Urban Utilities Development Services Online Lodgement Portal at

http://www.urbanutilities.com.au/development-services. Please include your Services Advice Notice reference number in your application.

Queensland Urban Utilities may, at its discretion, provide a reduced fee for a service connection application based on this Services Advice Notice if your application is received within 12 months of the date of issue and is substantially in accordance with the proposal upon which this advice was issued.

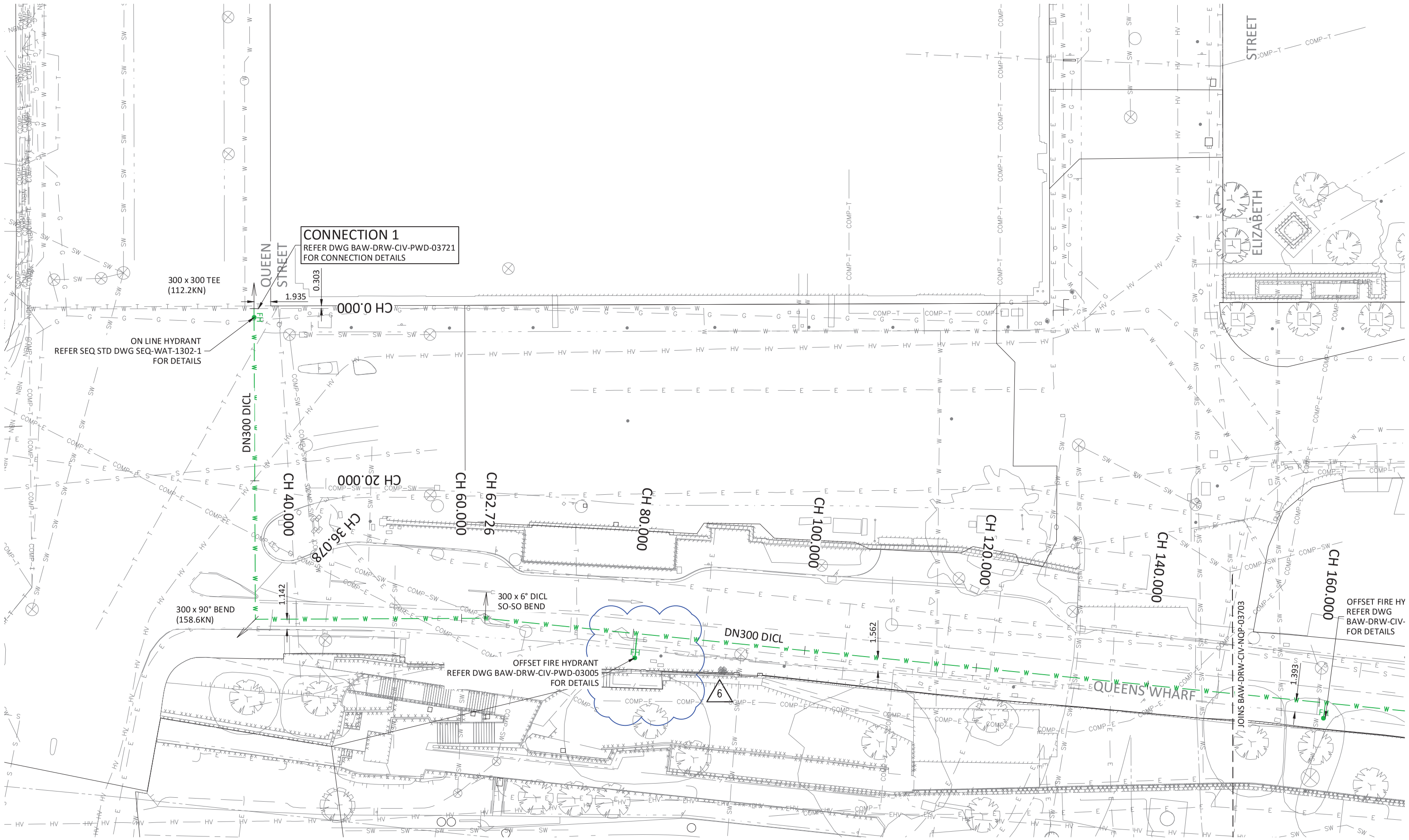
If you have any questions in relation to this Service Advice Notice, please do not hesitate to contact your account manager, Sajid Syed on 07 3855 6646 or sajid.syed@urbanutilities.com.au.

Alternatively, please email DCMTenquiries@urbanutilities.com.au.

Yours sincerely

Sajid Imam Syed
Senior Engineer
Queensland Urban Utilities

ABN 86 673 835 011



NOTE:
CONTRACTOR TO LOCATE EXISTING SERVICES ON-SITE DURING CONSTRUCTION AND DETERMINE SERVICE CROSSING TREATMENT (PASS OVER OR UNDER) DEPENDING ON AVAILABLE COVER IN ACCORDANCE WITH 'TYPICAL SERVICE CROSSING DETAIL 1 OR 2 ON DWG BAW-DRW-CIV-PWD-03720. ANY DEFERMENT FROM THE TYPICAL DETAILS SHALL BE REFEREED TO THE SITE ENGINEER FOR DIRECTION.

For Queensland Urban Utilities Preliminary Approval Only
Not For Construction Use
(Plans submitted are to Queensland Urban Utilities' standards)

Water Approval ref. number: -
Endorsed Consultant: Bornhorst and Ward
Nominated RPEQ: Nicholas Rozis - 7729

RPEQ contact details: 07 3013 4699

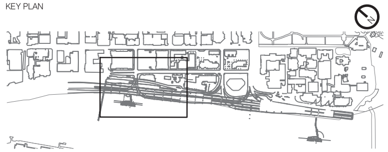
PLAN
SCALE 1:250

CONSULTANT
LEVEL 4 67 ASTOR TERRACE
SPRING HILL QLD 4000
TEL +617 3013 4699
FAX +617 3013 4611
www.bornhorstward.com.au

BORNHORST + WARD
CONSULTING ENGINEERS
CIVIL AND STRUCTURAL

BORNHORST + WARD
ABN 78 010 151 354

KEY PLAN



APPROVED	CHECKED
7729 RPEQ	
DATE	DATE

CLIENT
DESTINATION BRISBANE CONSORTIUM

REV	NO	DESCRIPTION	DWN	CHK	DATE
	2	PRELIMINARY	NB	AL	12.08.16
	3	WATER ALIGNMENT AMENDED	SY	AL	31.08.16
	4	ISSUE DESCRIPTION ALTERED			05.09.16
	5	WATER ALIGNMENT UPDATED			11.10.16
	6	HYDRANT LOCATION ALTERED			31.10.16

PROJECT
QUEENS WHARF BRISBANE
North Quay / Queens Wharf Plaza

DRAWING TITLE
WATER RETICULATION
LAYOUT SHEET 1

ISSUE
FOR TENDER

PROJECT NO.
14250

SCALE A1 UNREDUCED / A3 REDUCED
0 2.5 5.0 7.5 10.0 12.5m 1 : 250 / 1 : 500
A1 / A3

REVISION
6

DRAWING NO.
BAW-DRW-CIV-NQP-03701

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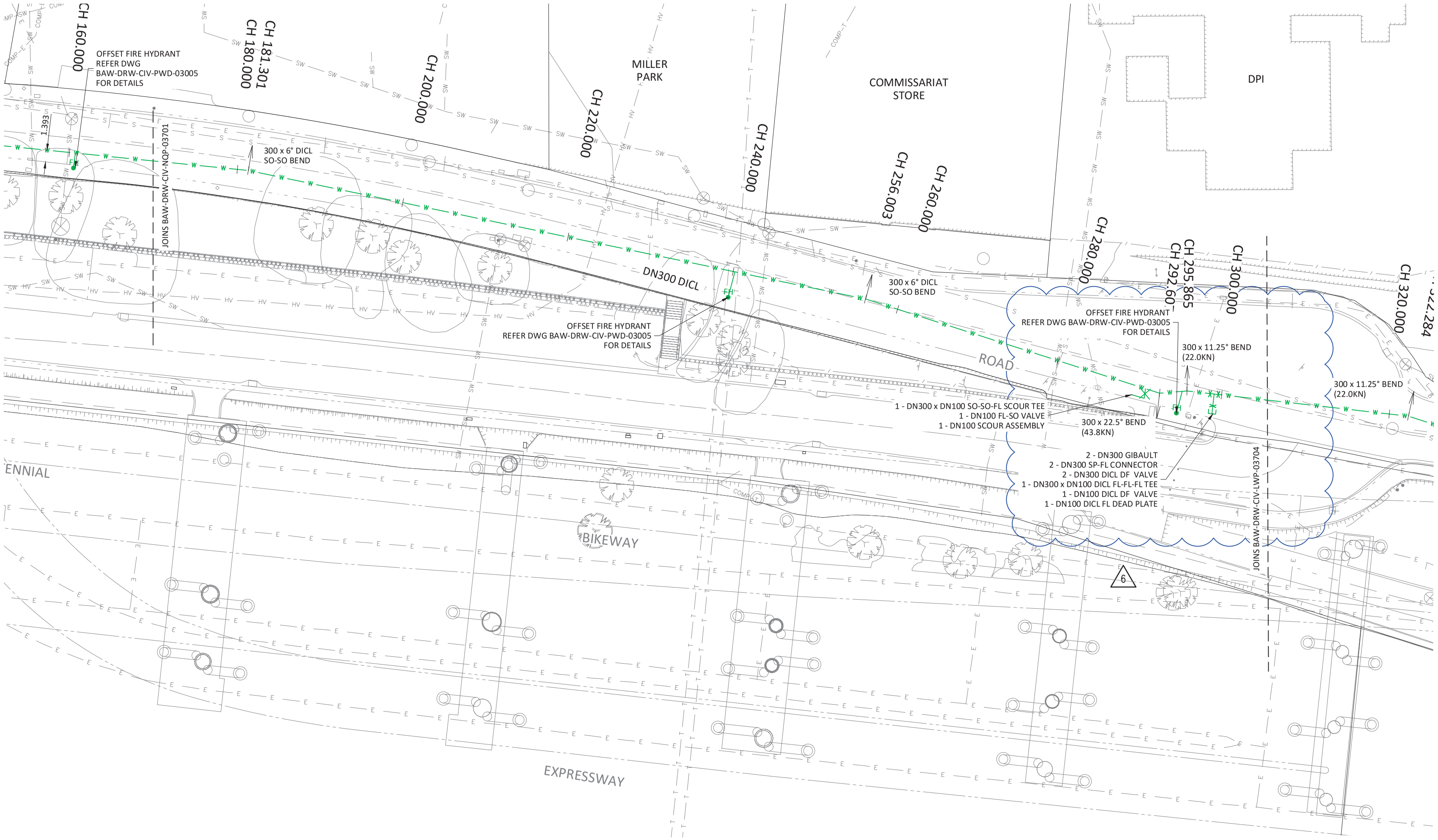

PLAN
SCALE 1:500

NOTE:
CONTRACTOR TO LOCATE EXISTING SERVICES ON-SITE DURING CONSTRUCTION AND DETERMINE SERVICE CROSSING TREATMENT (PASS OVER OR UNDER) DEPENDING ON AVAILABLE COVER IN ACCORDANCE WITH 'TYPICAL SERVICE CROSSING DETAIL 1 OR 2 ON DWG BAW-DRW-CIV-PWD-03720. ANY DEFERMENT FROM THE TYPICAL DETAILS SHALL BE REFEREED TO THE SITE ENGINEER FOR DIRECTION.

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SPRING HILL QLD 4000
TEL +617 3013 4699
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CONSULTING ENGINEERS
CIVIL AND STRUCTURAL

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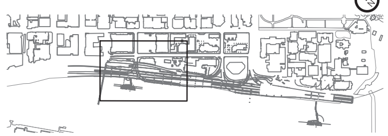
ABN 78 010 151 354

KEY PLAN



APPROVED	CHECKED
7729 RPEQ	
DATE	DATE

CLIENT
DESTINATION BRISBANE CONSORTIUM

REV	NO	DESCRIPTION	DWN	CHK	DATE
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3		WATER ALIGNMENT AMENDED	SY	AL	31.08.16
4		ISSUE DESCRIPTION ALTERED			05.09.16
5		WATER ALIGNMENT UPDATED			11.10.16
6		CONNECTION POINT RELOCATED			31.10.16

PROJECT
QUEENS WHARF BRISBANE
North Quay / Queens Wharf Plaza

DRAWING TITLE
WATER RETICULATION LAYOUT SHEET 2

ISSUE
FOR TENDER

PROJECT NO.
14250

SCALE A1 UNREDUCED / A3 REDUCED
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REVISION
6

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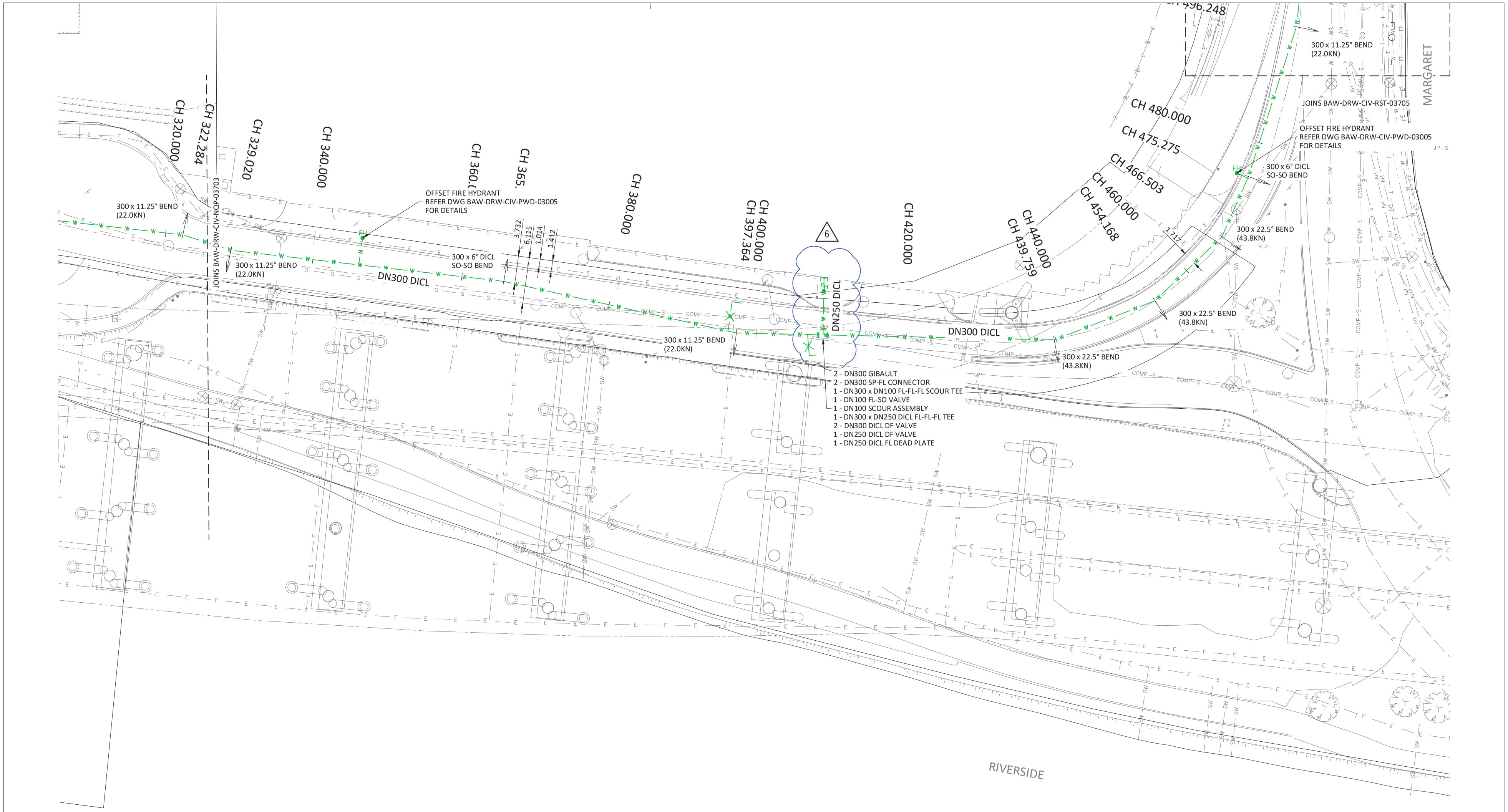

PLAN
SCALE 1:250

NOTE:
CONTRACTOR TO LOCATE EXISTING SERVICES ON-SITE DURING CONSTRUCTION AND DETERMINE SERVICE CROSSING TREATMENT (PASS OVER OR UNDER) DEPENDING ON AVAILABLE COVER IN ACCORDANCE WITH 'TYPICAL SERVICE CROSSING DETAIL 1 OR 2 ON DWG BAW-DRW-CIV-PWD-03720. ANY DEFERMENT FROM THE TYPICAL DETAILS SHALL BE REFEREED TO THE SITE ENGINEER FOR DIRECTION.

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CONSULTANT
LEVEL 4 67 ASTOR TERRACE
SPRING HILL QLD 4000
TEL +617 3013 4699
FAX +617 3013 4611
www.bornhorstward.com.au
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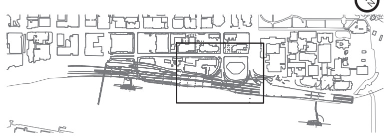
BORNHORST + WARD
ABN 78 010 151 354

KEY PLAN



APPROVED	CHECKED
7729 RPEQ	
DATE	DATE

CLIENT
DESTINATION BRISBANE CONSORTIUM

REV	NO	DESCRIPTION	DWN	CHK	DATE
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	3	WATER ALIGNMENT AMENDED	SY	AL	31.08.16
	4	ISSUE DESCRIPTION ALTERED			05.09.16
	5	WATER ALIGNMENT UPDATED			11.10.16
	6	CONNECTION POINT RELOCATED			31.10.16

PROJECT
QUEENS WHARF BRISBANE
The Landing / Waterline Park

DRAWING TITLE
WATER RETICULATION
LAYOUT SHEET 3

ISSUE
FOR TENDER

PROJECT NO.
14250

SCALE A1 UNREDUCED / A3 REDUCED
0 2.5 5.0 7.5 10.0 12.5m 1 : 250 / 1 : 500
A1 / A3

REVISION
6

DRAWING NO.
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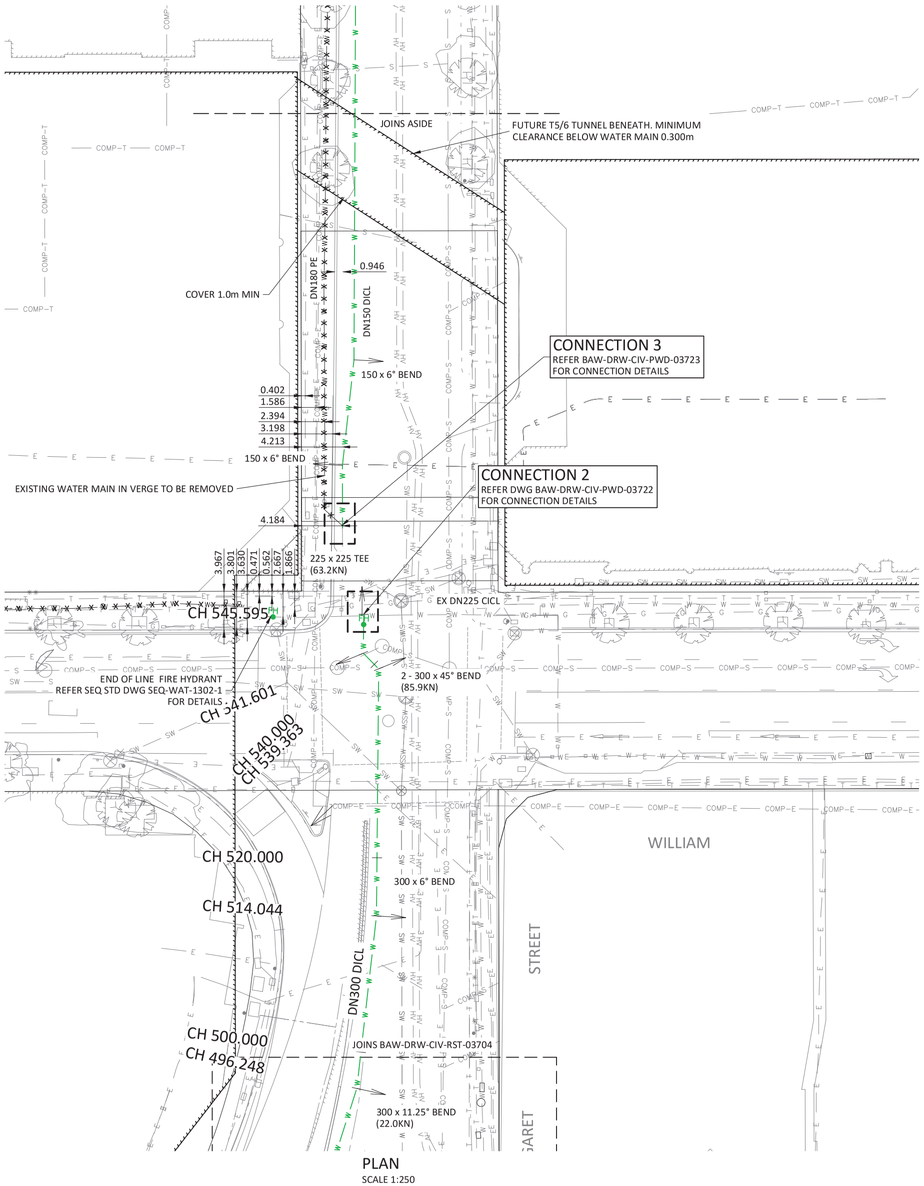

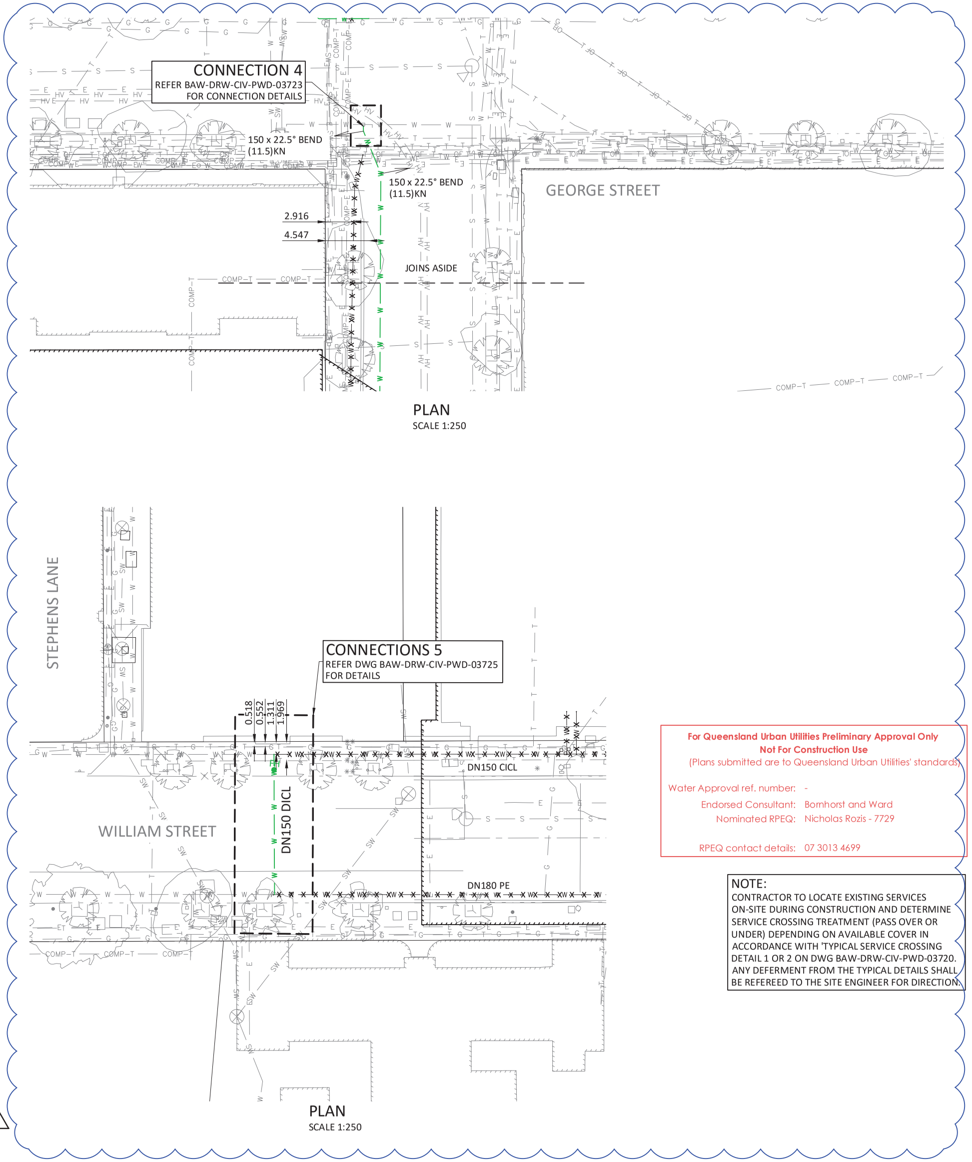

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Endorsed Consultant: Bornhorst and Ward
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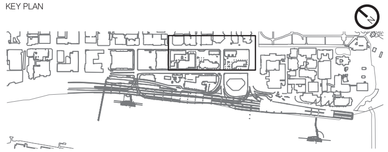
6

CONSULTANT
LEVEL 4 67 ASTOR TERRACE
SPRING HILL QLD 4000
TEL +617 3013 4699
FAX +617 3013 4611
www.bornhorstward.com.au
BORNHORST + WARD
CONSULTING ENGINEERS
CIVIL AND STRUCTURAL
BORNHORST + WARD
ABN 78 010 151 354

KEY PLAN



APPROVED	CHECKED
7729 RPEQ	
DATE	DATE

CLIENT
DESTINATION BRISBANE CONSORTIUM

REV	NO	DESCRIPTION	DWN	CHK	DATE
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3		WATER ALIGNMENT AMENDED	SY	AL	31.08.16
4		ISSUE DESCRIPTION ALTERED			05.09.16
5		WATER ALIGNMENT UPDATED			11.10.16
6		WATER ALIGNMENT UPDATED			31.10.16

PROJECT
QUEENS WHARF BRISBANE
Integrated Resort Development

DRAWING TITLE
WATER RETICULATION
LAYOUT SHEET 4

ISSUE
FOR TENDER
PROJECT NO.
14250
SCALE A1 UNREDUCED / A3 REDUCED
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REVISION
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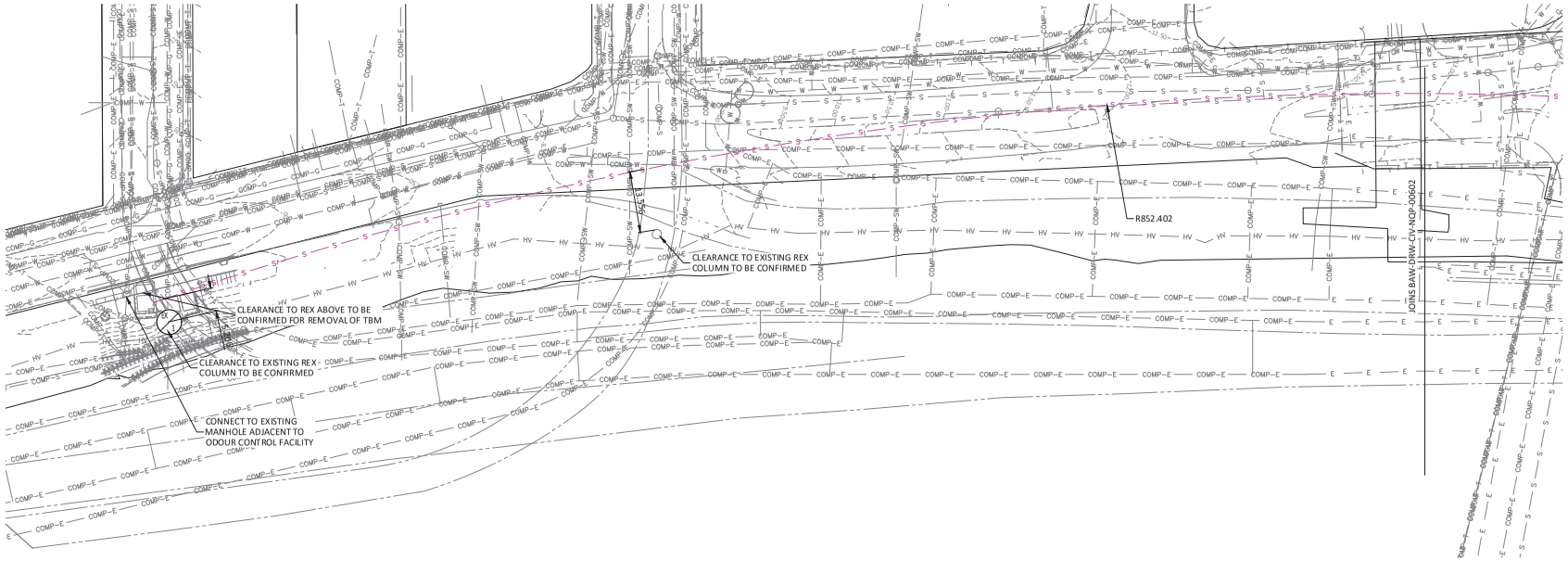

PLAN
SCALE 1:500

CONSULTANT

LEVEL 4 67 ASTOR TERRACE
SPRING HILL QLD 4000
TEL +617 3013 4089
FAX + 617 3013 4611
www.bornhorstward.com.au

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ABN 78 010 151 354

KEY PLAN

APPROVED	CHECKED
7729 RPEQ	
DATE	DATE

CLIENT

DESTINATION BRISBANE CONSORTIUM

REV	NO	DESCRIPTION	DWN	CHK	DATE
1		ORIGINAL ISSUE	NB	AL	23.09.16
2		UPDATED SEWER LAYOUT			18.10.16
3		IRD TO WILLIAM ST LAYOUT AMENDED			25.10.16

PROJECT
QUEENS WHARF BRISBANE
North Quay/ Queens Wharf Plaza

DRAWING TITLE
SEWER RETICULATION LAYOUT SHEET 1

ISSUE
FOR CO-ORDINATION

PROJECT NO.
14250

SCALE A1 UNREDUCED / A3 REDUCED
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REVISION
3

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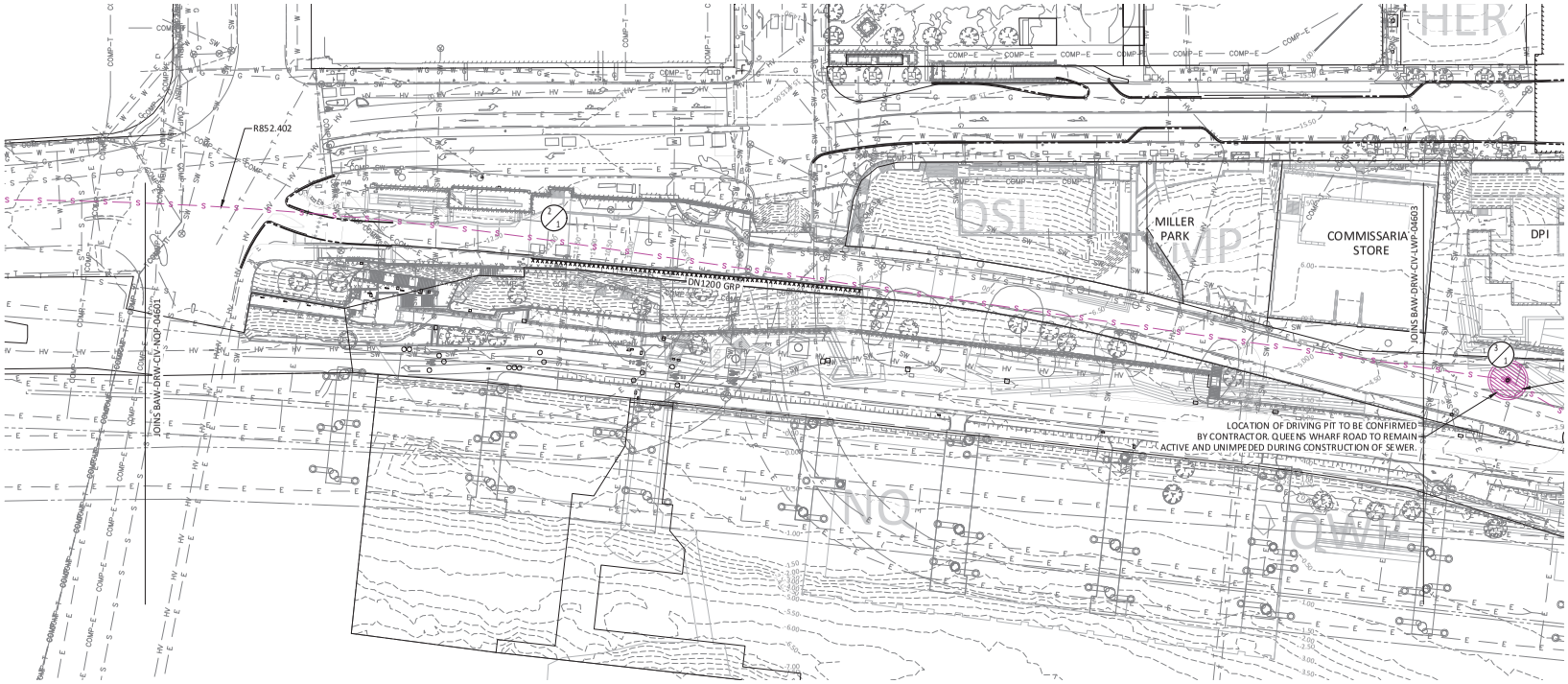

PLAN
SCALE 1:500

CONSULTANT
LEVEL 4 67 ASTOR TERRACE
SPRING HILL QLD 4000
TEL +617 3013 4089
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KEY PLAN

APPROVED	CHECKED
7729 RPEQ	
DATE	DATE

CLIENT
DESTINATION BRISBANE CONSORTIUM

REV	NO	DESCRIPTION	DWN	CHK	DATE
1		ORIGINAL ISSUE	NB	AL	23.09.16
2		UPDATED SEWER LAYOUT			18.10.16
3		IRD TO WILLIAM ST LAYOUT AMENDED			25.10.16

PROJECT
QUEENS WHARF BRISBANE
North Quay/ Queens Wharf Plaza

DRAWING TITLE
SEWER RETICULATION LAYOUT SHEET 2

ISSUE
FOR CO-ORDINATION

PROJECT NO.
14250

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REVISION
3

DRAWING NO.
BAW-DRW-CIV-NQP-04602

APPENDIX D STANDARDS IDENTIFIED IN DESIRED STANDARDS OF SERVICES

The following standards are referenced throughout Section 8 of this IMP. The list below is the formal description of each standard, as specified by the relevant Desired Standard of Service in Section 8.

The standards referenced in this IMP are as follows:

Unless otherwise provided for in this IMP, a reference in the IMP to a specific resource document or standard means the version of that resource document or standard current at the date of submission of the relevant request for compliance assessment or where there is no compliance assessment, then the version of the resource document or standard that is current at the date of this Approval.

References in Section 8	Formal Reference and Date of Standard, Regulation, Guideline or Other Regulating Document
AASHTO [2nd edition 2009] AASHTO LRFD	American Association of State Highway and Transportation Officials (AASHTO) 2009, *LRFD Guide Specifications for the Design of Pedestrian Bridges*, 2nd Edition, AASHTO, Washington, D.C.
AS 1158 AS/NZS 1158.3.1:2005	Standards Australia & Standards New Zealand 2005, *Lighting for roads and public spaces – Part 0: Introduction*, AS/NZS 1158.0:2005 (Incorporating Amendment Nos. 1 & 2), Standards Australia & Standards New Zealand, Sydney & Wellington. Standards Australia & Standards New Zealand 2005, *Lighting for roads and public spaces – Part 1.1: Vehicular traffic (Category V) lighting – Performance and design requirements*, AS/NZS 1158.1.1:2005 (Incorporating Amendment Nos. 1, 2 & 3), Standards Australia & Standards New Zealand, Sydney & Wellington. Standards Australia & Standards New Zealand 2010, *Lighting for roads and public spaces – Part 1.2: Vehicular traffic (Category V) lighting – Guide to design, installation, operation and maintenance*, AS/NZS 1158.1.2:2010, Standards Australia & Standards New Zealand, Sydney & Wellington. Standards Australia & Standards New Zealand 2005, *Lighting for roads and public spaces – Part 2: Computer procedures for the calculation of light technical parameters for Category V and Category P lighting*, AS/NZS 1158.2:2005 (Incorporating Amendment No. 1), Standards Australia & Standards New Zealand, Sydney & Wellington. Standards Australia & Standards New Zealand 2005, *Lighting for roads and public spaces – Part 3.1: Pedestrian area (Category P) lighting – Performance and design requirements*, AS/NZS 1158.3.1:2005 (Incorporating Amendment Nos. 1, 2, 3 & 4), Standards Australia & Standards New Zealand, Sydney & Wellington. Standards Australia & Standards New Zealand 2015, *Lighting for roads and public spaces – Part 4: Lighting of pedestrian crossings*, AS/NZS 1158.4:2015, Standards Australia & Standards New Zealand, Sydney & Wellington. Standards Australia & Standards New Zealand 2014, *Lighting for roads and public spaces – Part 5: Tunnels and underpasses*, AS/NZS 1158.5:2014, Standards Australia & Standards New Zealand, Sydney & Wellington. Standards Australia & Standards New Zealand 2015, *Lighting for roads and public spaces – Part 6: Luminaires – Performance*, AS/NZS 1158.6:2015, Standards Australia & Standards New Zealand, Sydney & Wellington.
AS 1170	Standards Australia & Standards New Zealand 2002, *Structural design actions – Part 0: General Principles*, AS/NZS 1170.0:2002 (Incorporating

References in Section 8	Formal Reference and Date of Standard, Regulation, Guideline or Other Regulating Document
	Amendment Nos. 1, 2, 3, 4 & 5), Standards Australia & Standards New Zealand, Sydney & Wellington. Standards Australia & Standards New Zealand 2002, *Structural design actions – Part 1: Permanent, imposed and other actions*, AS/NZS 1170.1:2002 (Incorporating Amendment Nos. 1 & 2) (Reconfirmed 2016), Standards Australia & Standards New Zealand, Sydney & Wellington. Standards Australia & Standards New Zealand 2011, *Structural design actions – Part 2: Wind actions*, AS/NZS 1170.2:2011 (Incorporating Amendment Nos. 1, 2, 3, 4 & 5), Standards Australia & Standards New Zealand, Sydney & Wellington. Standards Australia & Standards New Zealand 2003, *Structural design actions – Part 3: Snow and ice actions*, AS/NZS 1170.3:2003 (Incorporating Amendment Nos. 1 & 2), Standards Australia and Standards New Zealand, Sydney & Wellington. Standards Australia 2007, *Structural design actions – Part 4: Earthquake actions in Australia*, AS 1170.4-2007 (Incorporating Amendment No. 1), Standards Australia, Sydney.
AS 1428 (Set)-2010	Standards Australia 2010, *Design for access and mobility Set*, AS 1428 (Set)-2010 (Parts 1, 2, 4.1 & 5), Standards Australia, Sydney.
AS 1428.1-2009	Standards Australia 2009, *Design for access and mobility – Part 1: General requirements for access – New building work*, AS 1428.1-2009 (Incorporating Amendment Nos. 1 & 2), Standards Australia, Sydney.
AS 1428.2-1992	Standards Australia 1992, *Design for access and mobility – Part 2: Enhanced and additional requirements – Buildings and facilities*, AS1428.2-1992 (Reconfirmed 2015), Standards Australia, Sydney.
AS 1428.4: Tactile AS/NZS 1428.4.1:2009	Standards Australia & Standards New Zealand 2009, *Design for access and mobility – Part 4.1: Means to assist the orientation of people with vision impairment – Tactile ground surface indictors*, AS/NZS 1428.4.1:2009 (Incorporating Amendment Nos. 1 & 2), Standards Australia & Standards New Zealand, Sydney & Wellington.
AS 1428.4-1992	Standards Australia 1992, *Design for access and mobility – Part 4: Tactile ground surface indictors for the orientation of people with vision impairment*, AS 1428.4-1992, Standards Australia, Sydney.
AS 1657	Standards Australia 2013, *Fixed platforms, walkways, stairways and ladders – Design, construction and installation*, AS 1657-2013 (Incorporating Amendment No. 1), Standards Australia, Sydney.
AS 1742.10-2009	Standards Australia 2009, *Manual of uniform traffic control devices – Part 10: Pedestrian control and protection*, AS 1742.10-2009, Standards Australia, Sydney.

References in Section 8	Formal Reference and Date of Standard, Regulation, Guideline or Other Regulating Document
AS 2159	Standards Australia 2009, *Piling – Design and installation*, AS 2159-2009 (Incorporating Amendment No. 1), Standards Australia, Sydney.
AS 2312	Standards Australia & Standards New Zealand 2014, *Guide to the protection of structural steel against atmospheric corrosion by the use of protective coatings – Part 1: Paint coating*, AS/NZS 2312.1:2014, Standards Australia & Standards New Zealand, Sydney & Wellington. Standards Australia & Standards New Zealand 2014, *Guide to the protection of structural steel against atmospheric corrosion by the use of protective coatings – Part 2: Hot dip galvanizing*, AS/NZS 2312.2:2014, Standards Australia & Standards New Zealand, Sydney & Wellington.
AS 3600	Standards Australia 2009, *Concrete structures*, AS 3600-2009 (Incorporating Amendment Nos. 1 & 2), Standards Australia, Sydney.
AS 3962	Standards Australia 2001, *Guidelines for design of marinas*, AS 3962-2001, Standards Australia, Sydney.
AS 4312	Standards Australia 2008, *Atmospheric corrosivity zones in Australia*, AS 4312-2008, Standards Australia, Sydney.
AS 4419	Standards Australia 2003, *Soils for landscaping and garden use*, AS 4419-2003, Standards Australia, Sydney.
AS4422	Standards Australia 2016, *Playground surfacing – Specifications, requirements and test method*, AS 4422:2016, Standards Australia, Sydney.
AS 4586:1999 AS/NZS 4586:1999	Standards Australia & Standards New Zealand 1999, *Slip resistance classification of new pedestrian surface materials*, AS/NZS 4586:1999, Standards Australia & Standards New Zealand, Sydney & Wellington.
AS 4586:2004 AS/NZS 4586:2004	Standards Australia & Standards New Zealand 2004, *Slip resistance classification of new pedestrian surface materials*, AS/NZS 4586:2004 (Incorporating Amendment No. 1), Standards Australia & Standards New Zealand, Sydney & Wellington.
AS 4678	Standards Australia 2002, *Earth-retaining structures*, AS 4678-2002 (Incorporating Amendment Nos. 1 & 2), Standards Australia, Sydney.
AS 4685 (Set)-2004	Standards Australia 2014, *Playground equipment and surfacing Set*, AS 4685 Set:2014 (Parts 1, 2, 3, 4, 5 & 6), Standards Australia, Sydney.
AS 4997	Standards Australia 2005, *Guidelines for the design of maritime structures*, AS 4997-2005, Standards Australia, Sydney.
AS 5100	Standards Australia (& Standards New Zealand) 2017, *Bridge design*, AS(/NZS) 5100:2017 Series (Parts 1, 2, 3, 4, 6, 6, 7, 8 & 9), Standards Australia (& Standards New Zealand), Sydney (& Wellington).

References in Section 8	Formal Reference and Date of Standard, Regulation, Guideline or Other Regulating Document
AS/NZS 2312:2002	Standards Australia & Standards New Zealand 2002, *Guide to the protection of structural steel against atmospheric corrosion by the use of protective coating*, AS/NZS 2312:2002 (Incorporating Amendment No. 1), Standards Australia & Standards New Zealand, Sydney & Wellington.
AS/NZS 3661.2:1994	Standards Australia & Standards New Zealand 1994, *Slip resistance of pedestrian surfaces – Part 2: Guide to the reduction of slip hazards*, AS/NZS 3661.2:1994, Standards Australia & Standards New Zealand, Sydney & Wellington.
AS/NZS 4663:2004	Standards Australia & Standards New Zealand 2013, *Slip resistance measurement of existing pedestrian surfaces*, AS 4663-2013, Standards Australia & Standards New Zealand, Sydney & Wellington.
ASTM A380	American Society for Testing and Materials (ASTM) 2013, *Standard Practice for Cleaning, Descaling, and Passivation of Stainless Steel Parts, Equipment, and Systems*, ASTM A380/A380M-13, ASTM, West Conshohocken.
AusGAP certified turf	AusGAP certified turf is a certification process that must be complied with.
Austroads Guide to Road Design Part 4: Intersections and Crossings General	Austroads 2017, *Guide to Road Design Part 4: Intersections and Crossings – General*, AGRD04-17, Austroads, Sydney.
Austroads Guide to Road Design Part 4A: Signalised and Unsignalised Intersections	Austroads 2017, *Guide to Road Design Part 4A: Unsignalised and Signalised Intersections*, AGRD04A-17, Austroads, Sydney.
Austroads Guide to Engineering Practice Part 13: Pedestrians	Austroads 1995, *Guide to Traffic Engineering Practice Part 13: Pedestrians*, AP-11.13/95, Austroads, Sydney.
Austroads Guide to Engineering Practice Part 14: Bicycles	Austroads 1999, *Guide to Traffic Engineering Practice Part 14: Bicycles*, AP-11.14/99, Austroads, Sydney.
Brisbane City Council Brisbane Standard Drawings	Brisbane City Council 2017, *Brisbane Standard Drawings (BSD)*, viewed 31 July 2017, <https://www.brisbane.qld.gov.au/planning-building/planning-guidelines-tools/planning-guidelines/standard-drawings>.
BCC IDPSP	Brisbane City Council 2014, *Brisbane City Plan 2014: Schedule 6 – Planning scheme policies: SC6.16 – Infrastructure design planning scheme policy*, Brisbane City Council, Brisbane.
BCC Road Hierarchy Overlay Code	Brisbane City Council 2014, *Brisbane City Plan 2014: Part 8 – Overlays: Section 8.2 – Overlay Codes: 8.2.18 – Road hierarchy overlay code,* Brisbane City Council, Brisbane.

References in Section 8	Formal Reference and Date of Standard, Regulation, Guideline or Other Regulating Document
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APPENDIX E MAINTENANCE DETAILS FOR PUBLIC REALM

PUBLIC REALM STANDARDS FOR MAINTENANCE

Element	Standard
Irrigated grassed areas	Soil treatment undertaken to maintain healthy growth. Must be of uniform appearance with no bare patches over 2 m2. Edges must be trimmed. Must be free from weed infestation. Must be maintained to a uniform length of between 20 and 50 mm.
Non-irrigated grassed areas	Soil treatment undertaken to maintain healthy growth. Must be of uniform appearance with no significant bare patches. Edges (where applicable) must be trimmed. Must be free from significant weed infestation. Must be maintained to a uniform length.
Artificial grass / synthetic surfaces	Must be free from standing water. Must be free from fallen leaves, moss algae or interstitial weeds. Must be free from graffiti and/or vandalism. Lines maintained in accordance with use. Must be maintained in accordance with manufacturer's instructions and recommendations.
Flower/garden beds	Must be fully stocked with an appropriate mix of annual, perennial and display plants which require minimal Maintenance and water usage and are Facility-appropriate and aesthetically pleasing throughout the year. Must be free from weeds and litter. Must be free from disease and/or aphid infestation. Replaced as and when necessary to maintain appearance
Trees, shrubs and hedges	Must be trimmed, pruned and/or cut to maintain healthy growth and so as to minimise the: • Risk of crime and or vandalism • Opportunity for storm wind damage; • Risk of fire; • Obstruction of the premises; and • Obstruction of lines of sight Must be secure and safe.

Element	Standard
	Must be free from dead or dying branches. Must be free from litter. Must not compromise any security measures. Must be free from disease and/or aphid infestation. Must be replaced as and when necessary to maintain appearance.
Circulation routes, including but not limited to: • Pavings • Paths • Driveways • Roads • Hardstand areas • Building entrances • Courtyards, terraces and paved areas	Must be free from standing water, ice and hail. Must be free from fallen leaves, moss algae or interstitial weeds Must be free from graffiti and/or vandalism Must be sound, safe and even surface with no potholes, sinking's or trip hazards Kerbs and edgings must be sound. Must be free from loose kerbs or paving stones. Road markings must be clear and complete. Good disabled access such as for the visually impaired and wheelchair users must be maintained.
Carpark equipment including but not limited to: • Roller shutters • Automatic access control • Ticket machines • Payment machines • Way finding	Must function as intended without undue noise. All installations to comply with and operate within relevant quality standards Weatherproof where appropriate. Wiring, fittings, fixtures, controls and safety devices must be properly housed and fastened securely to their intended point of anchorage and labelled. Operation must not cause undue delay to carpark users.
External furniture and features (including street furniture) including but not limited to: • Guard rails • Copings • Statues or ornamental objects • Seating, tables • Permanent waste bins • Fences, barriers and bollards • Hydrants	Must be free from moss algae and/or interstitial weeds. Must be free from graffiti or vandalism. Sound, secure, safe and free from damage. Operating at their design performance where applicable Maintained in accordance with manufacturer's instructions Garden furniture is intact and operational Free from surface or structural degradation, consistent with a building maintained in accordance with current best practice

Element	Standard
• Grates and grills	
Gutters, drains, culverts and waterways	Must be swept. Must be free from litter, leaves, weeds and extraneous material. Must be free from blockages.
• External entrances, fire exits and stairwells, etc. • Landings • Ramps • Stairwells • Fire exits • Steps • Entrances • Porches • Patios • Balconies • Eaves • External light fittings	Are clean, including by being free of dust, grit, dirt, chewing gum, leaves, cobwebs, rubbish, graffiti, cigarette and cigar butts and bird and animal excreta Handrails are clean and free of stains.
External lighting	Sound, secure, and safe and free from damage Operating at their design performance where applicable.
Boundaries, including but not limited to: • Fences/walls • Gates	Intact, safe, sound and secure. Must be free from graffiti and/or vandalism
External areas	Must be sound, safe and even surface with no potholes, sinkings or trip hazards. At all times suitable for disabled and elderly access. At all times accessible and easily observable by carers and staff. Must be free from graffiti and or vandalism Kerbs and edgings must be sound. No loose kerbs or paving stones. Line markings are clear and complete.

Element	Standard
External sign posting	Compliant with the signage standards and protocols of the Landlord. Secure and sound. Do not hinder visibility to car and pedestrians at junctions. Must be in appropriate locations. Must be highly visible, both day and night. Must offer clear and concise information. Must be free from graffiti and/or vandalism
Irrigation	Must be regularly inspected and maintained including: • Checking for possible leaks; • Checking timing and operation of automatic systems; • Inspecting and testing the operation of pumps, emitters, valves, backflow prevention devices and filters; and • Periodic flushing.


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