Bank Street Park
Blackwattle Bay / Tjerruing

SSD-53386706

Appendix AE

Stormwater Management Report (Enspire)

December 2023

enspire

Bank Street Park Development Application (SSDA)

Civil Engineering - Stormwater Management Report

Prepared for Infrastructure NSW

28 November 2023

Document Information

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Document Title	**Bank Street Park Development Application (SSDA)**
Document Subject	Civil Engineering - Stormwater Management Report
Prepared For	Infrastructure NSW
Project Name	Bank Street Park
Project Number	220067
File Name	rept001-220067-00-enspire-r03-231128-bankstreetssda.docx

Transmittal

Revision	Date	Prepared by	Checked by	Approved by
A	11/09/2023	R.Hutchinson	R. Lenferna	
		Draft		
B	20/10/2023	R.Hutchinson	R. Lenferna	C.Vella
		Issued for SSDA		
C	28/11/2023	R.Hutchinson	R. Lenferna	C.Vella
		Issued for SSDA		

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1 Introduction

1.1 Purpose of Report

The purpose of this report is to provide information on the civil engineering and stormwater management design to support a State Significant Development Application (SSDA) for a new waterfront public park within Blackwattle Bay, to be known as Bank Street Park (SSD-53386706). Bank Street Park is located at 1A-19 Bank Street, Pyrmont on the shoreline of Tjerruing Blackwattle Bay and adjacent areas of Blackwattle Bay.

1.2 Blackwattle Bay Precinct

Bank Street Park forms part of the Blackwattle Bay Precinct, which is an area of predominantly government owned land located on the western edge of the Pyrmont Peninsula and adjoining the waters of Blackwattle Bay as seen in Figure 1.

Figure 1 – Blackwattle Bay Precinct

Source: INSW

The precinct was rezoned in December 2022 to facilitate a new mixed-use community, providing for around 2,000 new residents and 5,600 new jobs and creating a vibrant 24/7 economy. Updated planning and land use controls were incorporated into the Sydney Local Environmental Plan 2012, along with site specific design guidance in the Blackwattle Bay Design Guidelines.

A critical part of the Blackwattle Bay Precinct is the high quality public domain which includes a series of parks and open spaces connected by a foreshore promenade. Bank Street Park will bring new active and passive recreation uses into a unique park environment, catering for both existing and future communities in the vicinity.

1.3 Site Description

Bank Street Park is located at 1A-19 Bank Street, Pyrmont NSW within the City of Sydney local government area (LGA) and includes harbour development in Blackwattle Bay. The site area is 1.1 hectares. The relevant lot and deposited plans and the respective ownership for the site are detailed in **Table 1** and shown in **Figure 2.**

Table 1 – Summary of land title details of the site

Street address	Lot and Deposited Plan details	Ownership
1A Bank Street, Pyrmont NSW 2009	Lot 1 DP 85206 Lot 1 DP 188671	Transport for NSW
1-3 Bank Street, Pyrmont NSW 2009	Lots 1-2 DP 1089643 Lot 1 DP 439245	Infrastructure NSW
5 Bank Street, Pyrmont NSW 2009	Lot 20 DP 803159	Transport for NSW
7 Bank Street, Pyrmont NSW 2009	Lot 19 DP 803159	Transport for NSW
9 Bank Street, Pyrmont NSW 2009	Lot 21 DP 803159	Transport for NSW
11 Bank Street, Pyrmont NSW 2009	Lot 22 DP 803159	Transport for NSW
17-19 Bank Street, Pyrmont NSW 2009	Lots 5-6 DP 803160	Transport for NSW
Sydney Harbour	Lot 5 DP 1209992	Roads and Maritime Services (Transport for NSW)
Sydney Harbour	Lot 107 in DP 1076596	Transport for NSW
Part Bank Street road reserve	N/A	City of Sydney Council

Bank Street Park is located on Gadigal Land, one of the twenty-nine clans of the great Eora Nation. It adjoins the foreshores of Glebe to the west and Pyrmont Bridge Road and Wentworth Park to the south.

Figure 2 - Site context map

The indicative site location is outlined in red.
Source: SixMaps with Architectus edits (2023)

Figure 3 - Bank Street Park site location within Blackwattle Bay State Significant Precinct

The indicative site location is outlined in red.
Source: Blackwattle Bay Design Guidelines with Architectus edits (2023)

1.4 Proposed Development

Development consent is being sought for a *recreation area* for the primary purpose of a *public park*, comprising:

- Site preparation works, including tree removal, earthworks and remediation to facilitate the proposed use;
- Demolition of three existing buildings at 1-3 Bank Street;
- New and adapted facilities for community use, including:
  - New single storey building to accommodate flexible community space, café, and marina office/store facilities, with green roof and photovoltaics;
  - Adaptive reuse of Building D for public amenities, bin and other storage;
  - Boat launching ramp and pontoon for passive watercraft, including dragon boats and kayaks;
  - Boat storage building with change facilities for dragon boat users with publicly accessible rooftop deck;
- Public domain works, including:
  - 'Interpretation Garden' in existing building 'ruins' at 1-3 Bank Street;
  - Split level foreshore promenade;
  - Multi-purpose court with edge seating and partial fence;
  - Nature-based inclusive playspace for ages 2-12;
  - Fitness equipment;
  - Public plaza and grassed open space areas;
  - New tree plantings and planter beds;

- Public art, wayfinding and interpretative signage, lighting, bike parking and seating;

– Harbour works including:
  - Overwater boardwalk;
  - Land/water interface works, including sandstone terracing into water and support structure, to improve marine habitat;
  - Demolition and construction of a new timber launching ramp for dragon boats;
  - Kayak/passive craft pontoon; and
  - Restoration, repair and alterations to the existing seawall for new stormwater outlets.

– Works to Bank Street road reserve, including:
  - Road space reallocation to provide separated cycleway;
  - Cycleway transition to Bank Street to continue south as part of future works;
  - Reinstatement of existing on-street parallel parking;
  - Tree planting;
  - Accessible parking space; and
  - Loading zone adjacent 1-3 Bank Street.

1.5 Planning Secretary's Environmental Assessments Requirements

This report has been prepared in response to the relevant requirements outlined within the Planning Secretary's Environmental Assessments Requirements (SEARs) issued on 11 May 2023 for application SSD-53386706. **Table 2** addresses the relevant SEARs requirements and provides a project response.

Table 2 – Secretary's Environmental Assessment Requirements

Item	SEARs	Relevant report section(s)
15	Assess potential impacts on soil resources and related infrastructure and riparian lands on and near the site, including soil erosion, salinity, and acid sulfate soils.	Refer Acid Sulfate Soil Management Plan and Remedial Action Plan by JBS&G
	The EIS must map features relevant to water and soils including acid sulfate soils, rivers, streams, wetlands, estuaries, groundwater and groundwater dependent ecosystems, and proposed intake and discharge locations.	Refer Acid Sulfate Soil Management Plan and Remedial Action Plan by JBS&G
	The EIS must describe background conditions for any water resource likely to be affected by the development, including existing surface and groundwater, hydrology, including volume, frequency and quality of discharges at proposed intake and discharge locations.	Refer Geotechnical Assessment by JK Geotechnics for groundwater hydrology. Refer **Section 6.1** for surface water hydrology. Refer **Section 6.6** for water quality improvement of stormwater runoff.
	Provide a Surface and Groundwater Impact Assessment that:	

	▪ describes any works/activities that may intercept, extract, use, divert or receive surface water and/or groundwater. This includes the description of any development, activities or structures that will intercept, interfere with or remove groundwater, both temporary and permanent.	Refer Geotechnical Assessment by JK Geotechnics. Refer **Section 6** for surface water management strategy.
	▪ details of the water balance including quantity, quality and source and take for the life of the project and post closure where applicable. This is to include water taken directly and indirectly, and the relevant water source where water entitlements are required to account for the water take. If the water is to be taken from an alternative source confirmation should be provided by the supplier that the appropriate volumes can be obtained. ▪ details of Water Access Licences (WALs) held to account for any take of water where required, or demonstration that WALs can be obtained prior to take of water occurring. This should include an assessment of the current market depth where water entitlement is required to be purchased. Any exemptions or exclusions to requiring approvals or licenses under the Water Management Act 2000 should be detailed by the proponent.	Refer Geotechnical Assessment by JK Geotechnics. Water Access Licenses not required as no aquifer interference activities to occur.
	▪ assesses potential impacts on: o surface water resources (quality and quantity) including related infrastructure, hydrology, dependent ecosystems, drainage lines, downstream assets and watercourses. o groundwater resources in accordance with the Groundwater Guidelines.	Refer **Section 6** for surface water management strategy. Refer Geotechnical Assessment by JK Geotechnics for groundwater hydrology.
	▪ identifies and assesses all works/activities located on waterfront land including an assessment against Guidelines for Controlled Activities on Waterfront Land (NRAR 2018).	Refer **Section 5**
	▪ mitigates the effects of proposed stormwater and wastewater management during and after construction on hydrological attributes such as volumes, flow rates, management methods and re-use options.	Refer **Section 3** for surface water runoff control during construction. Refer **Section 6.1** for surface water hydrology post construction. Wastewater will be managed during construction by the contractor with wastewater carted offsite. Refer Infrastructure Delivery, Management & Staging Report by Mott MacDonald for wastewater infrastructure delivery.
	▪ identifies the proposed monitoring of hydrological attributes.	Refer Remedial Action Plan by JBS&G
	Assess the impact on the Sydney Metro West substratum directly beneath the land including:	

	▪ details of any proposed penetrative subsurface investigations (e.g. boreholes) 2m or deeper to be drilled within the first or second protection reserve	As noted in the Geotechnical Assessment by JK Geotechnics, no penetrative subsurface investigations proposed.
	▪ consideration of the Sydney Metro Underground Corridor Protection Guidelines and Sydney Metro at Grade and Elevated Sections Guidelines.	Refer Geotechnical Assessment by JK Geotechnics.
16	Provide an Integrated Water Management Plan for the development that:	
	▪ Is prepared in consultation with Council and any other relevant drainage or water authority.	Refer **Section 6.** The new internal in-ground pit and pipe networks will be separate to Council's drainage infrastructure which will be maintained by Placemaking NSW. Council have confirmed there are no specific parameters for park stormwater drainage design.
	▪ Details the proposed drainage design for the site including any on-site treatment, reuse and detention facilities, water quality management measures, and the nominated discharge points.	Refer **Section 6** and Development Application documentation prepared by Enspire Solutions.
	▪ Demonstrates compliance with Council or other drainage or water authority requirements and avoids adverse impacts on any downstream properties, including during construction.	Refer **Section 3, Section 6** and supporting models DRAINS (ILSAX) and Model for Urban Stormwater Improvement Conceptualisation (MUSIC)
	▪ Identify mitigating effects of the proposed stormwater and wastewater management during and after construction on hydrological attributes such as volumes, flow rates, management methods and re-use options.	Refer **Section 3** for surface water runoff control during construction. Refer **Section 6.1** for surface water hydrology post construction. Wastewater will be managed during construction by the contractor with wastewater carted offsite. Refer Infrastructure Delivery, Management & Staging Report by Mott MacDonald for

		wastewater infrastructure delivery.
	▪ Outline any sustainability initiatives that will minimise/ reduce the demand for drinking water, including any alternative water supply and end uses of drinking and non-drinking water that may be proposed, and demonstrate water sensitive urban design (principles are used), and any water conservation measures that are likely to be proposed.	Refer **Section 6.6** and Sustainability **S**trategy for Bank Street Park by Atelier Ten. Refer Infrastructure Delivery, Management & Staging Report by Mott MacDonald for details of the existing recycled water assets.
	Where water and drainage infrastructure works are required that would be handed over to the local council, or other drainage or water authority, provide full hydraulic details and detailed plans and specification of proposed works that have been prepared in consultation with, and comply with the relevant standards, the local council or other drainage or water authority.	Refer **Section 6.** The new internal in-ground pit and pipe networks will be separate to Council's drainage infrastructure which will be maintained by Placemaking NSW. Refer Development Application documentation prepared by Enspire Solutions and "Bank Street Park - Flood Risk and Impact Assessment" for existing Council drainage upgrade.

1.6 Precinct Objectives

The design guidelines for the Blackwattle Bay precinct include objectives and provisions relating to water management which includes developing a water sensitive urban design (WSUD) strategy for the precinct. This report outlines the WSUD strategy developed for the site with reference to the design guidelines.

Table 3 references the section of this report and provides a brief discussion on how the assessment responds to the relevant design guideline.

Table 3 – Implementation of the Blackwattle Bay Design Guidelines Provisions

Section	Design guideline objective and provisions	Relevant report section(s) and discussion
1	A water sensitive urban design (WSUD) Strategy is to be prepared for the Precinct by Infrastructure NSW or the developer prior to the lodgement of the first development application on the southern government land, and be generally in accordance with Figure 18 to deliver: a. Best practice quality / quantity targets including specifically a total area of 3,100m^2 for bio retention. Water quality treatment measures are to be	Refer Section **6.6** for the proposed water quality treatment system. a. Refer **Section 6.5** and **6.6.3**.

	incorporated into the development to meet this bio filtration area requirement noting that this area could be reduced/ substituted / offset during detailed design where additional measures such as green roofs, stormwater harvesting etc. are pursued. b. A reduction in post-development baseline (i.e. proposed development without any water quality treatment) annual pollutant loads of: o Gross Pollutants (GP) (litter and vegetation >5 mm) 90% o Total Suspended Solids (TSS) 85% o Total Phosphorus (TP) 65%, and o Total Nitrogen (TN) 45%	Bio-retention tree pits provide a primary treatment measure along with opportunities to incorporation of other WSUD measures. b. Refer **Section 6.6.3** for water quality results confirming pollutant reductions are satisfied for the post development discharge.
2	WSUD measures are to include: a. Filtration devices such as cartridge systems within building footprints, tree pits within road reserves, small raingardens in road reserves or open spaces, larger bioretention basins in open spaces b. gross pollutant traps (GPTs) as end of pipe systems c. potential harvesting of rainwater from roofs for potable or non-potable purposes within buildings d. potential harvesting of stormwater to reuse for irrigation or other non-potable purposes.	Refer **Section 6.6** for the proposed water quality treatment system.
3	WSUD measures are to be incorporated into streets where practicable.	No WSUD proposed within Bank Street.
4	Public open space is to be irrigated with recycled water.	Refer **Section 6.6.5**
5	On-site water capture and reuse is to be provided in all developments and used to water vegetation in parks and public spaces.	Refer **Section 6.6.4** for the analysis completed to assess the feasibility of implementing a stormwater harvesting system for the park.
6	Opportunities to reuse water in the landscape through WSUD are to be maximised.	As above
7	New development is to consider recycled water initiatives as part of integrated water management and, at a minimum, make provision for dual plumbing in all new development to allow the precinct to connect in future centralised non-potable water systems, such as recycled water.	Refer **Section 6.6.5**
8	Local drainage management plans prepared in accordance with Sydney DCP 2012 and in consultation with City of Sydney Council are required for new development.	Refer **Section 6** and Development Application documentation prepared by Enspire Solutions.

2 Related Reports and Documents

This report is to be read in conjunction with the following reports and documents.

1) Development Application documentation prepared by Enspire Solutions

Table 4 – Drawing Reference

Drawing Number	Drawing Title
220067-00-DA-C01.01	COVER SHEET AND DRAWING SCHEDULE
220067-00-DA-C01.21	SPECIFICATION NOTES SHEET 01
220067-00-DA-C01.22	SPECIFICATION NOTES SHEET 02
220067-00-DA-C01.41	GENERAL ARRANGEMENT PLAN HARBOUR PARK
220067-00-DA-C01.42	GENERAL ARRANGEMENT PLAN BANK STREET
220067-00-DA-C02.01	DEMOLITION PLAN SHEET 01
220067-00-DA-C02.02	DEMOLITION PLAN SHEET 02
220067-00-DA-C03.01	EROSION AND SEDIMENTATION CONTROL PLAN SHEET 01
220067-00-DA-C03.02	EROSION AND SEDIMENTATION CONTROL PLAN SHEET 02
220067-00-DA-C03.21	EROSION AND SEDIMENTATION CONTROL DETAILS
220067-00-DA-C03.31	SEDIMENT BASIN PLAN
220067-00-DA-C04.01	CUT AND FILL PLAN
220067-00-DA-C05.01	HARBOUR PARK SITEWORKS AND STORMWATER MANAGEMENT PLAN SHEET 01
220067-00-DA-C05.02	HARBOUR PARK SITEWORKS AND STORMWATER MANAGEMENT PLAN SHEET 02
220067-00-DA-C05.11	HARBOUR PARK PAVEMENT PLAN SHEET 01
220067-00-DA-C05.12	HARBOUR PARK PAVEMENT PLAN SHEET 02
220067-00-DA-C05.51	BANK STREET SITEWORKS AND STORMWATER MANAGEMENT PLAN SHEET 01
220067-00-DA-C05.52	BANK STREET SITEWORKS AND STORMWATER MANAGEMENT PLAN SHEET 02
220067-00-DA-C05.61	BANK STREET PAVEMENT, SIGNAGE AND LINEMARKING PLAN SHEET 01
220067-00-DA-C05.62	BANK STREET PAVEMENT, SIGNAGE AND LINEMARKING PLAN SHEET 02
220067-00-DA-C06.01	ROAD TYPICAL CROSS SECTIONS
220067-00-DA-C13.01	SITE SECTIONS SHEET 01
220067-00-DA-C14.01	DETAILS SHEET 01
220067-00-DA-C14.02	DETAILS SHEET 02

220067-00-DA-C14.03	DETAILS SHEET 03
220067-00-DA-C20.01	STORMWATER CATCHMENT PLAN
220067-00-DA-C23.01	SAFETY IN DESIGN

1) Blackwattle Bay Design Guidelines, December 2022
2) Sydney Development Control Plan 2012 Section 3, City of Sydney, December 2012
3) Public Domain Manual, City of Sydney July 2021
4) Sydney Streets Technical Specifications, Version 6, City of Sydney, August 2023
5) Stormwater Drainage Manual, City of Sydney
6) Interim Floodplain Management Policy, City of Sydney, May 2014
7) Sydney Streets Code, City of Sydney, July 2021
8) Blackwattle Bay Catchment Flood Study Model Update – 2019 ARR2019 Hydrology, WMA Water, September 2020
9) Bank Street Park - Flood Risk and Impact Assessment, Mott MacDonald, August 2023
10) Blackwattle Bay Precinct Water Sensitive Urban Design (WSUD) Strategy Report, Mott MacDonald, April 2023
11) Bank Street Park – Geotechnical Assessment, JK Geotechnics, June 2023
12) Bank Street Park - Detailed Site Investigation, JBS&G, May 2023
13) Bank Street Park - Remedial Action Plan, JBS&G, September 2023
14) Bank Street Park - Acid Sulfate Soil management Plan, JBS&G, August 2023

3 Erosion and Sediment Control

The objectives of the erosion and sediment control for the development site are to ensure:

- Adequate erosion and sediment control measures are applied prior to the commencement of construction and are maintained throughout construction; and
- Construction site runoff is appropriately treated in accordance with City of Sydney Council requirements.

As part of the works, the erosion and sedimentation control will be constructed in accordance with Council requirements and the Landcom Manual, “Managing Urban Stormwater: Soils & Construction” 2004 (Blue Book) prior to any earthworks commencing on site.

3.1 Sediment Basin

Sediment basins will be operated and maintained until the development site is stabilised. It is proposed to form the sediment basins from the excavation required for the bio-retention tree pits located along the promenade. The sediment basin design details are included on Enspire drawing 220067-00-DA-C03.31.

As per Appendix C of the Blue Book, the expected soil texture group for the proposed development is Type D. The sediment basin was designed and sized to represent this soil texture classification.

To ensure the sediment basin is working effectively it will be maintained throughout the construction works. Maintenance includes ensuring adequate settlement times or flocculation and pumping of clean water to reach the minimum storage volume at the lower level of the settling zone. The settling zone is to be identified by pegs to clearly show the level at which design storage capacity is available. The pumped water from the sediment basin can be reused for dust control during construction, if deemed acceptable implementing the recommendations of the *Remedial Action Plan* (RAP). An overflow weir is to be provided to control overflows for rainfall events more than the design criteria.

3.2 Sediment and Erosion Control Measures

Prior to any earthworks commencing on site, sediment and erosion control measure shall be implemented generally in accordance with the Development Application drawings and the “Blue Book”. The measures shown on the drawings are intended to be a minimum treatment only as the contractor will be required to modify and stage the erosion and sedimentation control measures to suit the construction program, sequencing and techniques. These measures will include:

- A temporary site security/safety fence is to be constructed around the site
- Sediment fencing provided downstream of disturbed areas, particularly adjacent the harbour
- Dust control measures including covering stockpiles, installing fence hessian and watering exposed areas
- Placement of mesh and gravel inlet filters around and along proposed catch drains and around stormwater inlets pits
- Stabilised site access at the construction vehicle entry/exits

Any stockpiled material shall be located as far away as possible from the harbour or temporary overland flow paths. Sediment fences shall be installed to the downstream side of stockpiles.

4 Bulk Earthworks

4.1 Cut and Fill Operations

Bulk earthworks on the site will require cut and fill operations to establish the proposed park levels. The approximate cut and fill depths for the proposed works are illustrated on Enspire drawing 220067-00-DA-C04.01.

Table 5 provides approximate earthworks quantities to achieve earthworks levels for the Subject Site.

Table 5 – Approximate Earthworks Quantities

Earthworks	Volume (m^3)
Cut	-6,900
Fill	+1,400
Balance	-5,500 (Export)

4.2 Environmental Considerations

The recent environmental investigation conducted by JBS&G (2023), in addition to the historical investigations have identified fill materials across the site as impacted to various degrees with heavy metals, polycyclic aromatic hydrocarbons (PAHs), total recoverable hydrocarbons (TRHs) and asbestos, being the Contaminants of Potential Concerns (COPCs) of the site.

The *Remedial Action Plan* (JBS&G, September 2023) outlines potential remedial options which include:

- Consolidation and isolation of the soil on-site by containment within a properly designed barrier
- Removal of contaminated soil to an approved site or facility, followed where necessary by replacement with clean fill

JBS&G have identified that most of the site fill materials are considered suitable to be retained on site under the 'cap and contain' remedial strategy. The cap and containment measures will comprise the installation of a permanent physical separation layer (barrier) between the underlying impacted fill material.

The *Remedial Action Plan* discusses the proposed physical separation strategy, which comprise:

- Permanent paved areas: measures such as a building footprints, concrete ground slabs, asphalt surfaced pavements, mortared stone/concrete/brick pavers or similar. The pavement base course shall be underlain by an easily discernible visual marker layer.
- Existing trees: A robust visual marker layer installed around the trees with minimal disruption to the shallow root system and without significantly raising soil levels against the tree trunks. The proposed methodology to be applied will be confirmed by consultation with the project arborist, but is anticipated to comprise the careful removal of the existing ground cover by hand, installation of a robust visual marker (such a geogrid product or similar) and subsequent covering with a free draining, no-fines inorganic mulch (10-20 mm diameter pea gravel or river pebbles, hard wood mulch, or similar), subject to the arborist's approval.
- New landscaped areas:
    - Shallow rooted plants: a thickness of soil/growing media (to be validated) that is unlikely to be penetrated by future users during everyday activities at the site (or

relevant parts thereof). A minimum of 0.5m is nominated in general site areas where shallow rooted plants are proposed, which is to be underlain by a visual marker layer.
    - Deep rooted plants: a thickness of soil/growing media (to be validated) that is unlikely to be penetrated by future users during everyday activities at the site (or relevant parts thereof). A minimum of 2.0 m is nominated where deep rooted plants (including trees) are proposed, which is to be underlain by a visual marker layer. Consideration of the specimen rootball size is also required, however the 2.0 m thickness may be reduced upon consultation with the design team/arborist, based on the specific size/details of proposed species.

- Service trenches: all utilities are to be installed in excavated trenches that are lined with geofabric and backfilled with suitable validated material such that future maintenance activities may occur without the requirement for workers to encounter contaminated material.

Site investigations by JBS&G also include the identification, assessment and management of Acid Sulfate Soils (ASS). The *Acid Sulfate Soil Management Plan* (ASSMP) identifies the presence of ASS materials that may be disturbed and provide appropriate procedures to manage the risks associated with the proposed activities.

5 Waterfront Land Controlled Activities

A controlled activity approval (CAA) is not required as Bank Street Park is considered exempt development. This was confirmed through an application submitted by Enspire to the Waterfront land e-tool to inform whether it was necessary for a CAA or if the development was exempt.

Controlled activities refer to work or action done on waterfront land, as defined by the Water Management Act 2000. Waterfront land is defined by the bed of any river, lake or estuary, and the land within 40 metres of riverbanks, lake shore or estuary mean high-water mark.

A CAA is required prior to the undertaking of any work or development on waterfront land, which Natural Resources Access Regulator (NRAR)/ Department of Planning and Environment – Water (DPE-Water) is to review and confirm compliance.

DPE – Water has produced a tool (known as waterfront land e-tool) which aids in determining whether a proposed development is required to complete a CAA.

An assessment was completed referring to several mapped development areas that are covered under Clause 36 of Schedule 4 of the Water Management (General) Regulation, 2018, which confirmed that the Bank Street Park was considered exempt development. Bank Street Park is listed under the Port Jackson (Sydney Harbour) area (as shown in Figure 4), and with reference to the waterfront land e-tool exempts a CAA for this development. A copy of the waterfront land e-tool results is included in **Appendix B**.

Figure 4 – Port Jackson (Sydney Harbour) area

Extract from Waterfront Land e-tool

6 Stormwater Management Strategy

This section addresses the potential water quality and hydrology impacts of surface water generated by both upstream external catchments and the extent of the proposed park works.

The stormwater management strategy has been designed to ensure site stormwater runoff is managed in the following key areas:

- Site catchments
- Stormwater Quantity
- Stormwater Quality

The proposed civil engineering package documents site levels, grading, and stormwater drainage components.

6.1 Hydrology

The existing site is predominantly impervious with gravel covered areas, carparking, boat storage, maintenance facilities and partially sealed compounds.

The proposed park will consist of both impervious areas (e.g. footpath pavements) and pervious areas (e.g. grassed areas). As a result of the proposed park works, the overall impervious fraction of the site will reduce compared to the pre-development scenario. This reduction in impervious fraction will result in a reduction in the volume of surface water runoff from the site towards Blackwattle Bay, which will have a positive impact on surface water hydrology discharging to the harbour.

Mean annual load estimates for the volume of surface water runoff generated by the site have been modelled using the Model for Urban Stormwater Improvement Conceptualisation (MUSIC) v6 software.

Table 6 below shows the results from the MUSIC model.

Table 6 – Surface Water Flow MUSIC Results

	Pre-development load	Post-development load
Flow (ML/yr)	7.67	5.61

A local pit and pipe network will be constructed in the park to collect and discharge park flows to the harbour via new outlets through the seawall. Further discussion for the internal drainage is provided in Section 6.4.

A DRAINS (ILSAX) model has been utilised to assess the site discharge rate from the internal drainage system. Table 7 provides a summary of the total flow discharged from the proposed outlets compared to the pre-development flow generated by the site area.

Table 7 –Stormwater Drainage Discharge DRAINS Results

Storm Event (AEP %)	Pre-Development Total Discharge (m^3/s)	Post-Development Total Discharge (m^3/s)
50	0.217	0.166
20	0.291	0.227

10	0.343	0.271
5	0.392	0.309
2	0.46	0.365
1	0.512	0.405

6.2 Site Catchments

The proposed works are generally maintaining existing catchment conditions. Local rainfall in the catchment is converted to runoff which forms overland flow paths towards the harbour to the south. The *Blackwattle Bay Catchment Flood Study Model Update – 2019 ARR2019 Hydrology* (WMA Water, September 2020) prepared for CoS demonstrates the two overland flowpaths through the park (Refer Figure 5 below).

Nuisance ponding is generated by the catchment with overflow occurring through the proposed park. The proposed park provides an overland flow path for overflow from Bank Street road reserve.

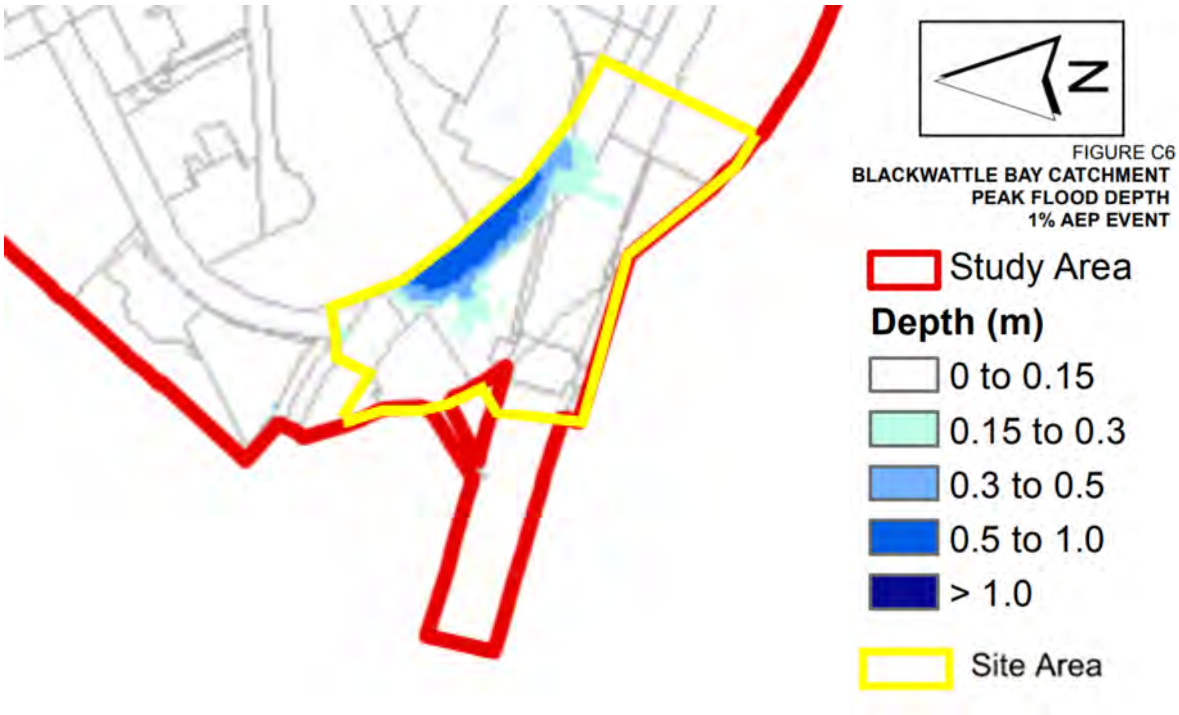

Figure 5 – Existing Overland Flowpaths

Extract from Blackwattle Bay Catchment Flood Study Model Update – 2019 ARR2019 Hydrology *(WMA Water, September 2020)*

The proposed development catchments are provided on Enspire drawing 220067-00-DA-C20.01. The total wetted site area for the site is shown indicatively on Figure 6.

The Western Distributor traverses across the site which intercepts rainfall via the Anzac Bridge stormwater drainage system. The wetted area for the site identifies the approximate extent wind would direct rainfall underneath the bridge by adopting a 2V:1H rainfall slope passing the bridge soffit. The wetted area is based on a north wind direction which may vary.

Figure 6 - Site Catchment (Wetted Area)

6.3 Council Stormwater Drainage

The contributing catchment for Bank Street road reserve is collected via two Council owned existing pit and pipe networks which traverse the park within easements and discharges to the harbour (Refer Figure 7 below). The *Blackwattle Bay Catchment Flood Study Model Update – 2019 ARR2019 Hydrology* (WMA Water, September 2020) prepared for CoS estimates the existing pipework through the park has a capacity of:

- Northern line: 0.5EY (i.e. approximately 2 year ARI)
- Southern line: Not full

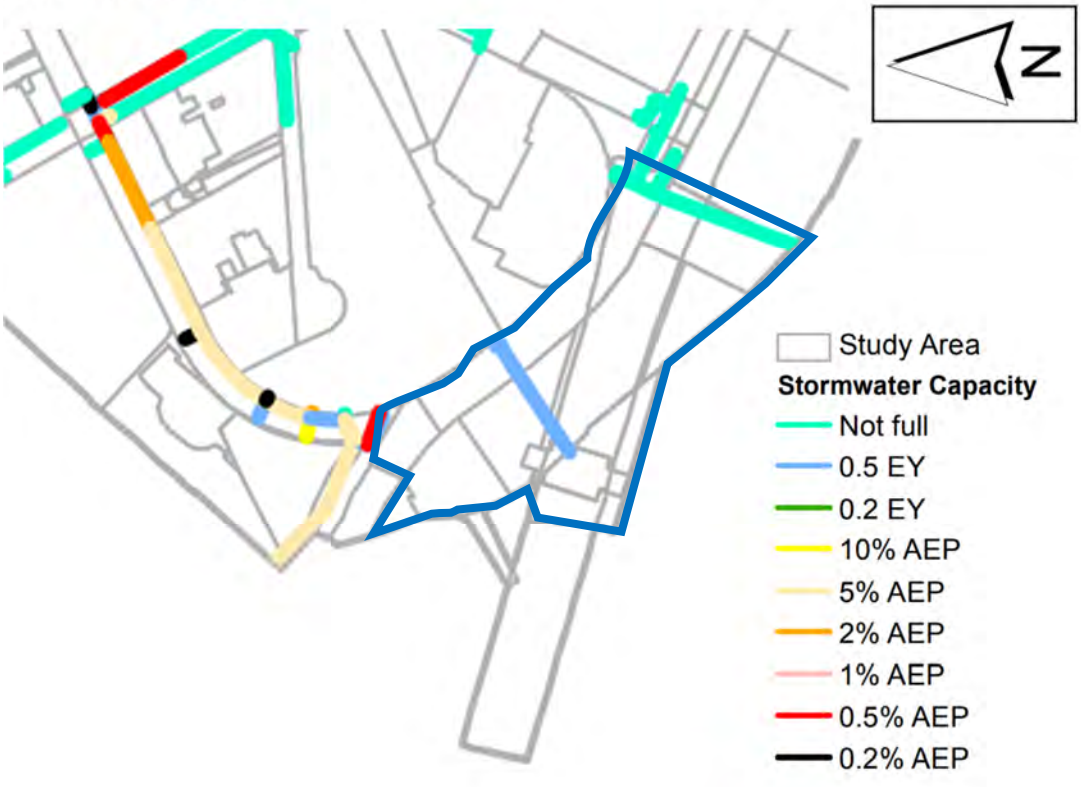

Figure 7 – Existing Stormwater Drainage Capacity

Extract from Blackwattle Bay Catchment Flood Study Model Update – 2019 ARR2019 Hydrology *(WMA Water, September 2020)*

Council's flood model indicates the northern line is a 225mm diameter pipe draining the sag in the road reserve. The line is shown to be undersized and results in ponding from the smallest of flood events (0.5 EY). Detailed survey of the area has confirmed the pipe diameter crossing the road is 300mm, connected to a 450mm diameter pipe continuing through to the discharge at Blackwattle Bay.

To address the ponding constraints within Bank Street the precinct guidelines and flooding provisions give direction as to possible treatment through infrastructure and design coordination:

- Upgrade existing and/or new drainage to carry flows from the impacted area on Bank Street to the discharge outlet across the proposed Miller Street reserve
- Provide overland flow path at the rear of proposed development adjoining the impacted area on Bank Street to the discharge outlet across the proposed Miller Street reserve
- Introduction of a relief flow path that connects ponded road reserve areas to designated low areas in Bank Street Park for overland flow

- The layout of proposed structures allows floodwaters to flow overland through the park to mitigate any potential off-site impact

As outlined in The *Bank Street Park - Flood Risk and Impact Assessment* (Mott MacDonald, August 2023), the northern existing network is proposed to be upgraded to provide a new 0.6m diameter to drain sag point to provide capacity to freely drain the sag point. A piped solution alone is not recommended due to the risk of blockage and residual overland flows, therefore provision for overland flow providing two measures in combination are to be adopted. The upgraded network is proposed to remain within the easement to drain water as Council owned infrastructure.

6.4 Internal Stormwater Drainage

To avoid impacting on the capacity of the existing Council owned drainage networks, a separate pit and pipe network will be constructed in the park to collect and discharge park flows. The new internal in-ground pit and pipe networks will be separate to Council's drainage infrastructure which will be maintained by Placemaking NSW.

As part of the design development, Council had been consulted to discuss stormwater drainage parameters to adopt for the park. Phone discussion with Council's Project Engineer for Environment and Water confirmed there are no specific parameters for park stormwater drainage design. General requirements for the proposed pit, pipe and overland flow network have been designed generally in accordance with City of Sydney's *Stormwater Drainage Manual* and *Sydney Development Control Plan 2012, Section 3*.

The proposed park will be drained by a new in-ground pit and pipe network designed to convey the 5% AEP (minor) event. It will discharge to the harbour via new outlets through the seawall. Figure 8 below identifies the location of the proposed outlets.

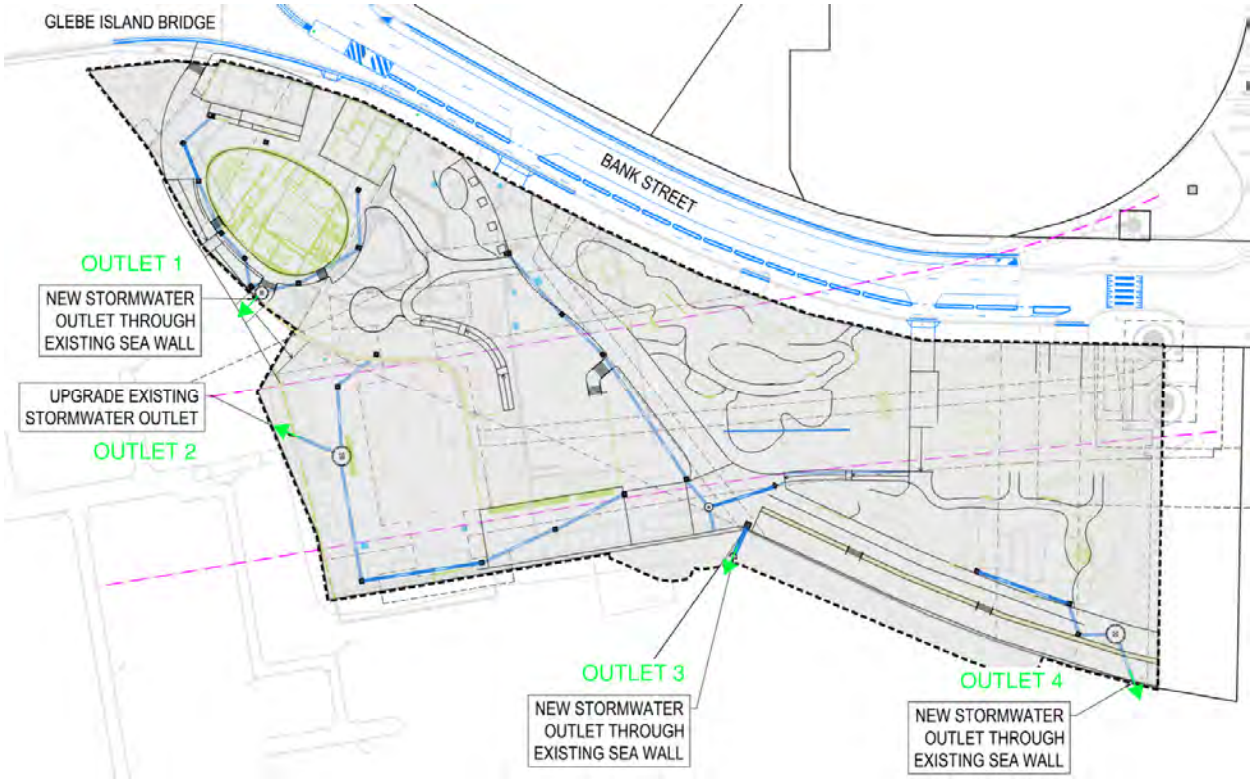

Figure 8 – Internal Stormwater Network Outlets

The surface drainage system has been designed to convey flows in excess of the minor event up to and including the 1% AEP (major) storm event through overland flows.

The local pit and pipe network has been designed and modelled using DRAINS (ILSAX) software for preliminary system sizing. The ILSAX methodology for assessing pipe capacity for the median temporal pattern from 10 representative temporal patterns was used in accordance with ARR2019.

Table 8 summarises the preliminary flow results for a range of storm events up to and including the 1% AEP for each stormwater outlet.

Table 8 – Local Stormwater Drainage Flow Results

Storm Event (AEP %)	Outlet 1 (m^3/s)	Outlet 2 (m^3/s)	Outlet 3 (m^3/s)	Outlet 4 (m^3/s)	Post-Development Total Discharge (m^3/s)	Pre-Development Total Discharge (m^3/s)
50	0.06	0.04	0.034	0.032	0.166	0.217
20	0.081	0.056	0.048	0.042	0.227	0.291
10	0.096	0.07	0.056	0.049	0.271	0.343
5	0.11	0.08	0.064	0.055	0.309	0.392
2	0.128	0.095	0.078	0.064	0.365	0.46
1	0.141	0.106	0.087	0.071	0.405	0.512

6.5 Stormwater Quantity (On-Site Stormwater Detention)

In the existing scenario, no on-site stormwater detention is installed on the site. Given the site is directly adjacent Blackwattle Bay, it would be expected that no on-site stormwater detention (OSD) is required. City of Sydney (CoS) *Stormwater Drainage Manual* states that requirements for OSD are determined by Sydney Water. The *Blackwattle Bay Precinct Water Sensitive Urban Design (WSUD) Strategy Report* (Mott MacDonald, April 2023) confirms Sydney Water have been contacted and determined that OSD is not required for the Blackwattle Bay Precinct.

6.6 Stormwater Quality

As discussed in **Section 3**, implementation of erosion and sediment control measures will ensure that the quality of the surface water runoff from both external and internal catchments is maintained at acceptable levels during the construction.

As part of the proposed stormwater management strategy, Water Sensitive Urban Design (WSUD) measures have been introduced to improve the quality of stormwater runoff into Blackwattle Bay.

The proposed water quality treatment system will consist of:

- Proprietary filter baskets at surface inlet pits
- Vegetated swales
- Bioretention tree pit
- Proprietary StormFilter® cartridge filters

The *Blackwattle Bay Design Guidelines* and *Sydney Development Control Plan 2012, Section 3* provides stormwater quality targets as presented in Table 9. Results from the proposed water quality treatment system are included in Table 10 (Section 6.6.3).

Table 9 – Water Quality Targets

Pollutant	% Reduction Post-Development Average Annual Load Reduction
Gross Pollutants (GP)	90
Total Suspended Solids (TSS)	85
Total Phosphorus (TP)	65
Total Nitrogen (TN)	45

6.6.1 Tree Pits

Tree pits can provide multiple WSUD benefits and are typically applied as a primary treatment measure in a stormwater treatment train. Tree pits can reduce stormwater runoff volume as well as provide reduction of pollutants such as phosphorus, nitrogen and suspended solids.

Figure 9 and Figure 10 show the proposed tree pit arrangement in the park and within the promenade.

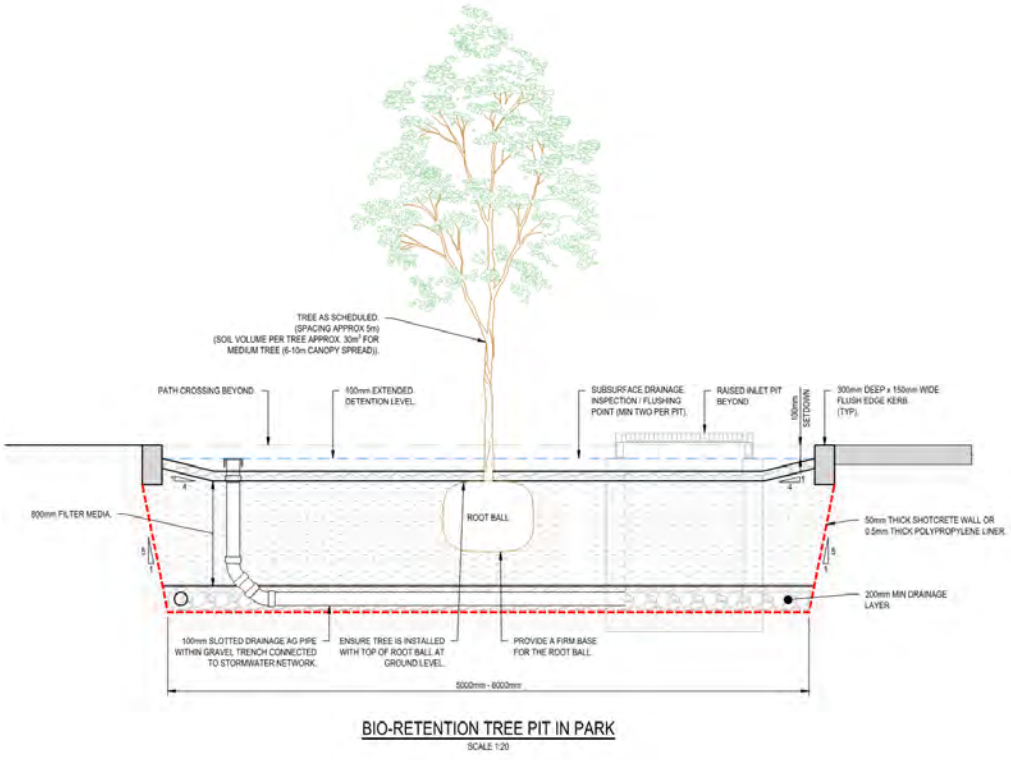

Figure 9 - Typical Tree Pit Arrangement in Park

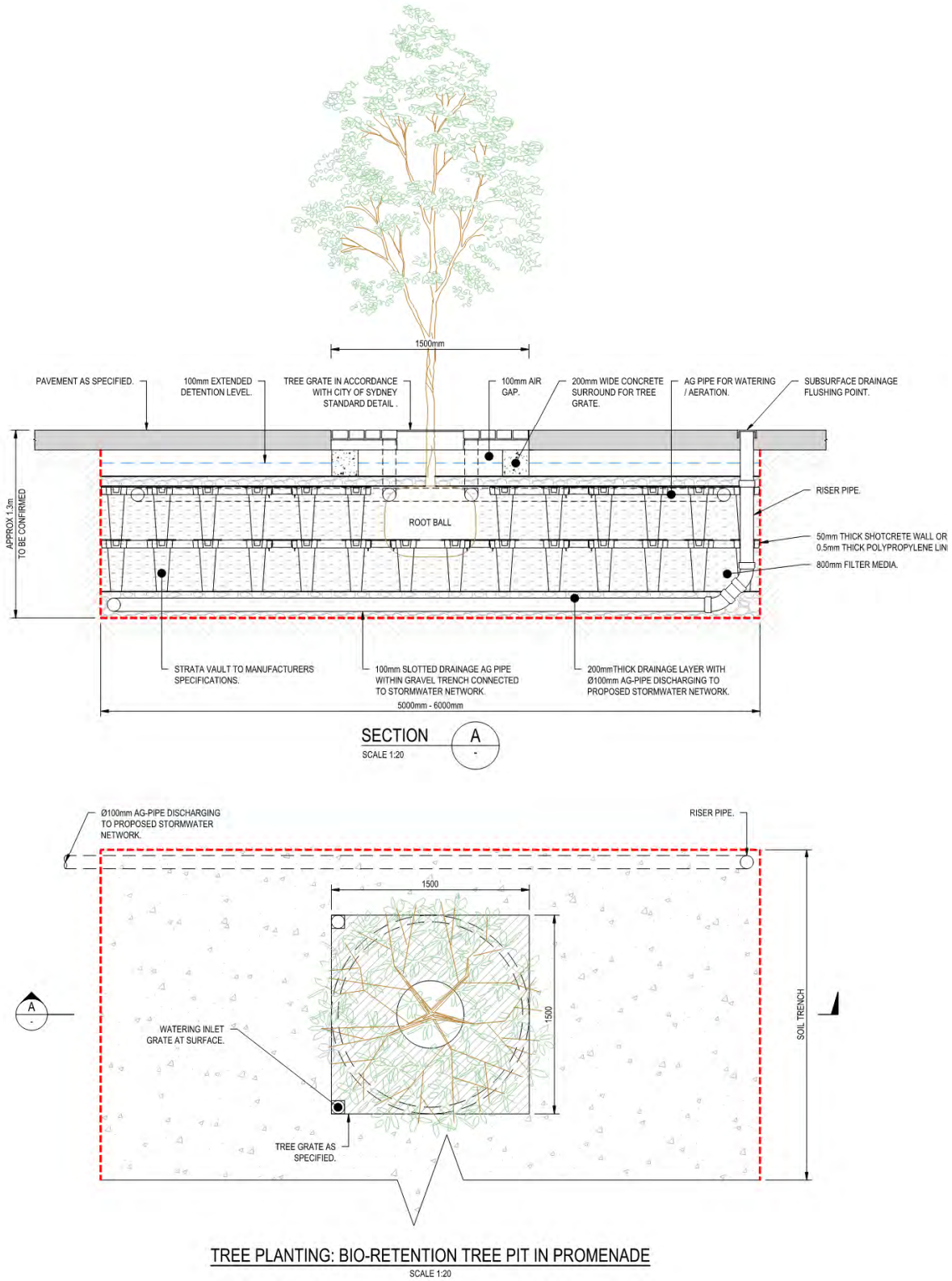

Figure 10 - Typical Tree Pit Arrangement in Promenade

6.6.2 Stormwater Quality Modelling

Stormwater quality improvement estimates have been modelled using the MUSIC software package to demonstrate the *Blackwattle Bay Design Guidelines* and *Sydney Development Control Plan 2012, Section 3* target pollutant reductions are satisfied (Table 9). City of Sydney MUSIC Link hydrology and parameters are adopted in the model as the *Blackwattle Bay Design Guidelines* do not provide specific input parameters. Catchments have been split into generic source nodes for Open Space.

The proposed treatment system involves:

- Proprietary filter baskets at surface inlet pits
- Vegetated swales
- Bioretention tree pits
- Proprietary StormFilter® cartridge filters

The community, café & marina building proposes a green roof. As part of detailed design, it will be explored to identify opportunities to incorporate the green roof to form part of the overall treatment train.

To achieve water quality performance and target objectives, the treatment train consists of:

- Gross pollutant traps utilising filter baskets at surface inlet pits
- Bio-Retention tree pits adopt with 439m^2 of bio- filter media, located within the park and promenade
- 45m vegetated swales are proposed within the park
- End of line proprietary StormFilters® are proposed with a total 29 filters.

The locations for the proposed treatment system are included on Enspire drawing 220067-00-DA-C05.01 and 220067-00-DA-C05.02.

Figure 11 illustrates all associated catchments modelled in MUSIC.

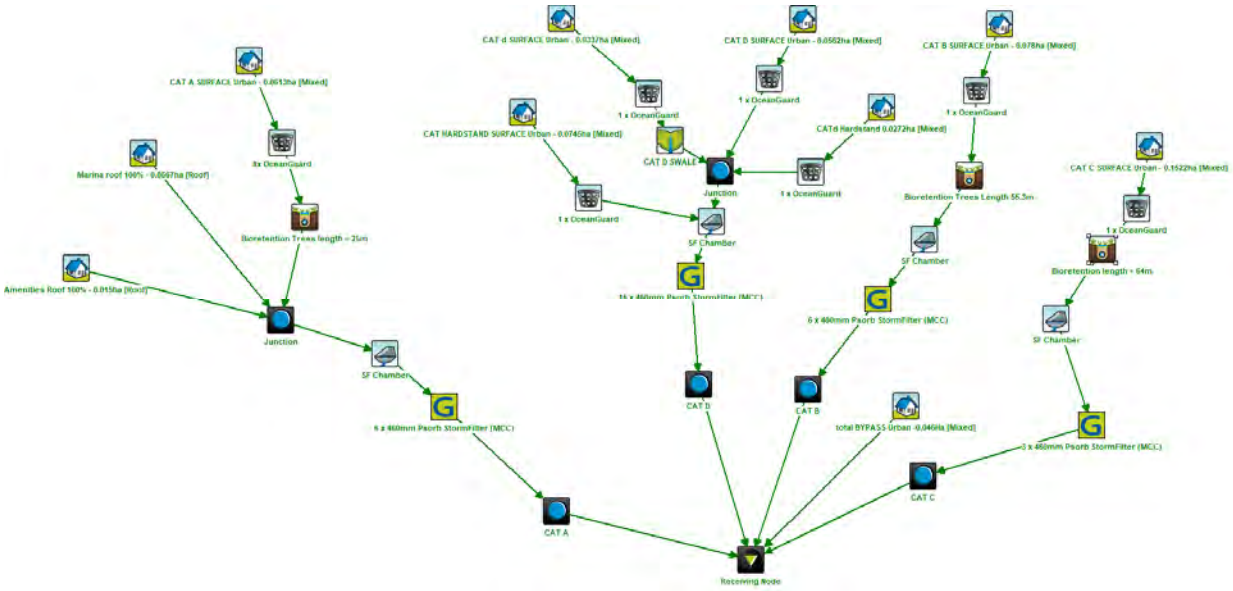

Figure 11 – MUSIC Arrangement

6.6.3 MUSIC Results

Table 10 – Estimated Average Annual Pollutant Load Reduction

Pollutant	Target % Reduction	Achieved Pollution Reduction	Compliance
Gross Pollutants (GP)	90	92	Compliant
Total Suspended Solids (TSS)	85	85	Compliant
Total Phosphorus (TP)	65	78	Compliant
Total Nitrogen (TN)	45	62	Compliant

The results as detailed in Table 10 indicate that target pollutant reductions are satisfied at the post development discharge node. Treatment train refinements will be made at detailed design.

A MUSIC-Link report included in **Appendix C** shows the effectiveness of the proposed treatment train, demonstrating compliance with Blackwattle Bay Design Guidelines.

6.6.4 Stormwater Harvesting

Stormwater harvesting is not proposed as a result of the feasibility assessment completed. The assessment considered:

- Assumptions/ parameters for collection catchment vs assumed irrigation area and irrigation demand.
- Stormwater harvesting tank sizing to meet rainwater demand efficiencies.
- Spatial consideration for the tanks (above ground or below ground) and to allow a treatment facility to purify surface runoff contaminants for irrigation use.
- Cost benefit analysis between stormwater harvesting vs potable water irrigation. Consideration that recycled water may be available for use in future.

It was determined through the analysis that a stormwater harvesting system for the park would not provide a favourable outcome based on the following considerations:

1. Roof areas do not provide sufficient area to collect rainwater.
   - The community, café & marina building roof is largely covered with a green roof which is not suitable for rainwater collection.
   - The amenities building roof area is relatively small for the reuse demand making the system inefficient.
2. Surface runoff collection would require an advanced treatment system to purify surface runoff contaminants for irrigation use to not pose a risk to human or environmental health.
3. Preliminary tank volumes were determined by assessing reuse efficiency curves which showed diminishing returns to meet the target of 80% non-potable water reuse demand. Preliminary tank sizing indicated two (2) tanks of 400kL would be required for the park, which was not considered practical due to the earthworks required to install the large tanks.
4. The tanks would need to be stored underground which would generate surplus material. As discussed in **Section 4.2**, the site fill materials contain COPCs. Therefore, strategies to reduce surplus material are preferred.
5. The high-level cost benefit analysis for the stormwater harvesting system did not provide a favourable outcome.

6.6.5 Recycled Water

Existing recycled water mains are located along and across Bank Street, as well as on the Western Distributor. Details of the existing recycled water assets are included within Mott MacDonald's *Bank Street Park Infrastructure Delivery, Management & Staging Report*. It is understood the development of Bank Street Park will include infrastructure to allow connection to the recycled water network in the vicinity, once operational. INSW is undertaking an investigation into precinct-scale utilities for the redevelopment of the broader precinct.

This will look at opportunities for precinct-scale facilities to improve sustainability outcomes, on the basis that the development of the mixed-use precinct will provide the critical mass of demand and utilisation required to catalyse investment. The opportunities being investigated include options to reduce potable water use, including a district recycled water system.

Bank Street Park will be integrated into potential future precinct scale utilities as a customer.

In addition, Sydney Water's regional plan outlined in the *Eastern Sydney Regional Masterplan* aims to increase the use of recycled water in the City of Sydney providing a future opportunity for Bank Street Park to integrate with this network.

7 Conclusion

This report supports a State Significant Development Application (SSD-53386706) addressing the relevant SEARs requirements outlined in **Table 2**. This Stormwater Management Report has been prepared to provide an understanding of the design assumptions, inputs and guide to the civil engineering and stormwater management components and techniques for the proposed Bank Street Park.

No on-site stormwater detention is proposed as part of the re-development works given the site is located next to and discharges directly to Blackwattle Bay, in-line with the existing scenario. However, it has been demonstrated that as a result of the proposed park works, the overall impervious fraction of the site will reduce compared to the pre-development scenario, thus resulting in a reduction in the volume of surface water runoff from the site towards Blackwattle Bay.

The stormwater quality assessment demonstrates that a specifically tailored treatment will be required to meet the pollutant removal targets as defined in the Blackwattle Bay Design Guidelines during the operational phase of the proposed development. The proposed treatment system location and details are included in appended Enspire plans.

Appendix A Civil Engineering Plans

INFRASTRUCTURE NSW

BANK STREET PARK, PYRMONT

DEVELOPMENT APPLICATION (SSD - 53386706)

DRAWING SCHEDULE

DRAWING NUMBER	DESCRIPTION
220067-00-DA-C01.01	COVER SHEET AND DRAWING SCHEDULE
220067-00-DA-C01.21	SPECIFICATION NOTES - SHEET 01
220067-00-DA-C01.22	SPECIFICATION NOTES - SHEET 02
220067-00-DA-C01.41	GENERAL ARRANGEMENT PLAN HARBOUR PARK
220067-00-DA-C01.42	GENERAL ARRANGEMENT PLAN BANK STREET
220067-00-DA-C02.01	DEMOLITION PLAN - SHEET 01
220067-00-DA-C02.02	DEMOLITION PLAN - SHEET 02
220067-00-DA-C03.01	EROSION AND SEDIMENTATION CONTROL PLAN - SHEET 01
220067-00-DA-C03.02	EROSION AND SEDIMENTATION CONTROL PLAN - SHEET 02
220067-00-DA-C03.21	EROSION AND SEDIMENTATION CONTROL DETAILS
220067-00-DA-C03.31	SEDIMENT BASIN PLAN AND DETAIL
220067-00-DA-C04.01	CUT AND FILL PLAN
220067-00-DA-C05.01	HARBOUR PARK SITEWORKS AND STORMWATER MANAGEMENT PLAN - SHEET 01
220067-00-DA-C05.02	HARBOUR PARK SITEWORKS AND STORMWATER MANAGEMENT PLAN - SHEET 02
220067-00-DA-C05.11	HARBOUR PARK PAVEMENT PLAN - SHEET 01
220067-00-DA-C05.12	HARBOUR PARK PAVEMENT PLAN - SHEET 02
220067-00-DA-C05.51	BANK STREET SITEWORKS AND STORMWATER MANAGEMENT PLAN - SHEET 01
220067-00-DA-C05.52	BANK STREET SITEWORKS AND STORMWATER MANAGEMENT PLAN - SHEET 02
220067-00-DA-C05.61	BANK STREET PAVEMENT, SIGNAGE AND LINEMARKING PLAN - SHEET 01
220067-00-DA-C05.62	BANK STREET PAVEMENT, SIGNAGE AND LINEMARKING PLAN - SHEET 02
220067-00-DA-C06.01	ROAD TYPICAL CROSS SECTIONS
220067-00-DA-C13.01	SITE SECTIONS
220067-00-DA-C14.01	DETAILS - SHEET 01
220067-00-DA-C14.02	DETAILS - SHEET 02
220067-00-DA-C14.03	DETAILS - SHEET 03
220067-00-DA-C20.01	STORMWATER CATCHMENT PLAN
220067-00-DA-C23.01	SAFETY IN DESIGN

REV.	DATE	DESCRIPTION	DRN.	DES.	VERIF.	APPD.
2	20/10/2023	ISSUED FOR SSD	AR	RH	RL	RH
1	23/08/2023	DRAFT ISSUE	CWH	RH	-	RH

Client: we are insw Infrastructure New South Wales

Scale: 0 50 100 150 200m — SCALE 1:2000 @A1

North: N

Enspire Solutions Pty Ltd
Level 4, 153 Walker Street, North Sydney NSW 2060
ABN: 71 624 801 690
Phone: 02 9922 6135 enspiresolutions.com.au

Scale: 1:2000
Date: 23/08/2023
Size: A1
Datum: GDA94

Status: FOR INFORMATION ONLY
NOT TO BE USED FOR CONSTRUCTION

Project Number/Drawing Number: 220067-00-DA-C01.01

Revision: 2

DATE PLOTTED: 20 October 2023 11:45 AM BY - AHMAD RAZAULLAH

CAD File: P:\220067 BankStPark\D-Civil\00-SiteWide\Drawings\6-DACC\1-DA\220067-00-DA-C01.01 COVER SHEET AND DRAWING SCHEDULE.dwg

SURVEY

1. ORIGIN OF SURVEY

PROJECT:	102-15G T02 [21]	DATE: 14/10/2022
CARRIED OUT BY:	CRAIG & RHODES	
SSM/PM:	SSM 32843	
E -	332363.188	
N -	6250919.54	
RL:	5.36	

2. THE EXISTING SITE CONDITIONS SHOWN ON THE FOLLOWING DRAWINGS HAVE BEEN SUPPLIED BY REGISTERED SURVEYORS TO PROVIDE A BASIS FOR DESIGN. THE USE OF THIS SURVEY BASE DOES NOT GUARANTEE THE ACCURACY OR COMPLETENESS OF THE SURVEY BASE OR ITS SUITABILITY AS A BASIS FOR CONSTRUCTION DRAWINGS.

3. SHOULD DISCREPANCIES BE ENCOUNTERED DURING CONSTRUCTION BETWEEN THE SURVEY DATA AND ACTUAL FIELD DATA, CONTACT THE SUPERINTENDENT.

4. THE RELATIONSHIP OF IMPROVEMENTS TO BOUNDARIES ARE DIAGRAMMATIC ONLY. WHERE DISTANCES TO BOUNDARIES ARE CRITICAL THEY SHOULD BE CONFIRMED ON SITE PRIOR TO CONSTRUCTION BY FURTHER SURVEY.

GENERAL NOTES

1. THESE DRAWINGS SHALL BE READ IN CONJUNCTION WITH OTHER CONSULTANTS' DRAWINGS AND SPECIFICATIONS AND WITH OTHER SUCH WRITTEN INSTRUCTIONS AS MAY BE ISSUED DURING THE COURSE OF THE CONTRACT. ANY DISCREPANCY SHALL BE REFERRED TO THE SUPERINTENDENT BEFORE PROCEEDING WITH THE WORK.

2. DO NOT OBTAIN DIMENSIONS BY SCALING THE DRAWINGS. ALL DIMENSIONS ARE IN MILLIMETERS (mm) AND ALL LEVELS ARE IN METERS (m), UNO. ALL LEVELS ARE TO AUSTRALIAN HEIGHT DATUM (AHD).

EROSION AND SEDIMENT CONTROL

GENERAL INSTRUCTIONS

1. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE CONTROL OF EROSION AND SEDIMENTATION TO THE SATISFACTION OF COUNCIL, NSW OFFICE OF WATER, DEPARTMENT OF PLANNING, INDUSTRY AND ENVIRONMENT. THE EROSION AND SEDIMENTATION CONTROLS SHOWN ON THE DRAWINGS SHALL ONLY BE USED AS A GUIDE BY THE CONTRACTOR, AND SHALL REPRESENT THE MINIMUM REQUIREMENT ONLY.

2. THE CONTRACTOR SHALL ENSURE THAT ALL SOIL AND WATER MANAGEMENT WORKS ARE LOCATED TO SUIT CONSTRUCTION STAGING AND WORK PRACTICES OR AS OTHERWISE DIRECTED BY THE SUPERINTENDENT.
   ALL WORK SHALL BE GENERALLY CARRIED OUT IN ACCORDANCE WITH
   a. LOCAL AUTHORITY REQUIREMENTS
   b. EPA REQUIREMENTS
   c. LANDCOM MANUAL "MANAGING URBAN STORMWATER, SOILS AND CONSTRUCTION", 4th EDITION, MARCH 2004.

3. MAINTAIN THE EROSION CONTROL DEVICES TO THE SATISFACTION OF THE SUPERINTENDENT AND THE LOCAL AUTHORITY.

4. WHEN STORMWATER PITS ARE CONSTRUCTED, PREVENT SITE RUNOFF ENTERING UNLESS SEDIMENT FENCES ARE ERECTED AROUND PITS.

5. CONTRACTOR IS TO ENSURE ALL EROSION & SEDIMENT CONTROL DEVICES ARE MAINTAINED IN GOOD WORKING ORDER AND OPERATE EFFECTIVELY. REPAIRS AND OR MAINTENANCE SHALL BE UNDERTAKEN AS REQUIRED, PARTICULARLY FOLLOWING STORM EVENTS.

LAND DISTURBANCE

6. WHERE PRACTICAL, THE SOIL EROSION HAZARD ON THE SITE WILL BE KEPT AS LOW AS POSSIBLE. TO THIS END, WORKS SHOULD BE UNDERTAKEN IN THE FOLLOWING SEQUENCE:
   a. INSTALL A SEDIMENT FENCE ALONG THE BOUNDARIES AS SHOWN ON PLAN. REFER DETAIL.
   b. CONSTRUCT STABILISED CONSTRUCTION ENTRANCE TO LOCATION AS DETERMINED BY SUPERINTENDENT/ENGINEER. REFER DETAIL.
   c. INSTALL SEDIMENT BASIN AS SHOWN ON PLAN, INSTALL SEDIMENT TRAPS AS SHOWN ON PLAN.
   d. UNDERTAKEN SITE DEVELOPMENT WORKS IN ACCORDANCE WITH THE ENGINEERING PLANS. WHERE POSSIBLE, PHASE DEVELOPMENT SO THAT LAND DISTURBANCE IS CONFINED TO AREAS OF WORKABLE SIZE.

EROSION CONTROL

7. DURING WINDY WEATHER, LARGE, UNPROTECTED AREAS WILL BE KEPT MOIST (NOT WET) BY SPRINKLING WITH WATER TO KEEP DUST UNDER CONTROL.

8. FINAL SITE LANDSCAPING WILL BE UNDERTAKEN AS SOON AS POSSIBLE AND WITHIN 20 WORKING DAYS FROM COMPLETION OF CONSTRUCTION ACTIVITIES.

SEDIMENT CONTROL

9. STOCKPILES WILL NOT BE LOCATED WITHIN 2 METRES OF HAZARD AREAS, INCLUDING LIKELY AREAS OF CONCENTRATED OR HIGH VELOCITY FLOWS SUCH AS WATERWAYS. WHERE THEY ARE BETWEEN 2 AND 5 METRES FROM SUCH AREAS, SPECIAL SEDIMENT CONTROL MEASURES SHOULD BE TAKEN TO MINIMISE POSSIBLE POLLUTION TO DOWNSTREAM WATERS, E.G. THROUGH INSTALLATION OF SEDIMENT FENCING.

10. ANY SAND USED IN THE CONCRETE CURING PROCESS (SPREAD OVER THE SURFACE) WILL BE REMOVED AS SOON AS POSSIBLE AND WITHIN 10 WORKING DAYS FROM PLACEMENT.

11. WATER WILL BE PREVENTED FROM ENTERING THE PERMANENT DRAINAGE SYSTEM UNLESS IT IS RELATIVELY SEDIMENT FREE, I.E. THE CATCHMENT AREA HAS BEEN PERMANENTLY LANDSCAPED AND/OR ANY LIKELY SEDIMENT HAS BEEN FILTERED THROUGH AN APPROVED STRUCTURE.

12. TEMPORARY SOIL AND WATER MANAGEMENT STRUCTURES WILL BE REMOVED ONLY AFTER THE LANDS THEY ARE PROTECTING ARE REHABILITATED.

13. ACCEPTABLE RECEPTORS WILL BE PROVIDED FOR CONCRETE AND MORTAR SLURRIES, PAINTS, ACID WASHINGS, LIGHT-WEIGHT WASTE MATERIALS AND LITTER.

14. ANY EXISTING TREES WHICH FORM PART OF THE FINAL LANDSCAPING PLAN WILL BE PROTECTED FROM CONSTRUCTION ACTIVITIES IN ACCORDANCE WITH SECTION 4 OF AS4970 "PROTECTION OF TREES ON DEVELOPMENT SITES" AND COUNCIL CONSENT CONDITIONS.

EARTHWORKS

1. AT THE COMMENCEMENT OF THE CUT AND FILLING OPERATIONS FOR BULK EARTHWORKS A GEOTECHNICAL ENGINEER IS TO VISIT THE SITE & CONFIRM THE SUITABILITY OF THE METHODOLOGY OF ACHIEVING THE REQUIRED BUILDING PLATFORMS AND COMPACTION REQUIREMENTS. SUBSEQUENTLY, THE HEAD CONTRACTOR IS TO CONFIRM, IN WRITING TO THE SUPERINTENDENT THAT THE METHODOLOGY APPROVED AT THE TIME OF THE GEOTECHNICAL ENGINEERS VISIT WAS MAINTAINED DURING ALL THE BULK EARTHWORKS PROCESS.

2. STRIP TOPSOIL, ORGANIC MATTER AND RUBBLE FROM CONSTRUCTION AREA TO EXPOSE NATURALLY OCCURRING MATERIAL AND STOCKPILE ON SITE AS DIRECTED BY THE SUPERINTENDENT.

3. WHERE FILLING, STRUCTURAL SLABS OR PAVEMENTS ARE REQUIRED, PROOF ROLL THE EXPOSED NATURAL SURFACE WITH A MINIMUM OF TEN PASSES OF A SMOOTH DRUM NON-VIBRATING ROLLER (MINIMUM STATIC WEIGHT OF 10 TONNES) TO DETECT THEN REMOVE SOFT SPOTS (AREAS WITH MORE THAN 2mm MOVEMENT UNDER ROLLER) IN THE PRESENCE OF THE SUPERINTENDENT. THE CONTRACTOR IS TO ALLOW TO REMOVE AND REPLACE A PROVISIONAL QUANTITY OF UNSUITABLE SUBGRADE MATTER.

4. ALL SOFT, WET OR UNSUITABLE MATERIAL IS TO BE REMOVED AS DIRECTED BY THE SUPERINTENDENT AND REPLACED WITH APPROVED MATERIAL SATISFYING THE REQUIREMENTS LISTED BELOW.

5. EXCAVATED MATERIAL IS NOT TO BE USED AS STRUCTURAL FILL UNLESS APPROVED BY THE GEOTECHNICAL ENGINEER.

6. THE CONTRACTOR IS TO PROVIDE CERTIFICATES VERIFYING THE QUALITY OF IMPORTED MATERIAL FOR THE SUPERINTENDENTS APPROVAL.

7. ALL FILL MATERIAL SHALL BE PLACED IN MAXIMUM LAYER THICKNESS TO COUNCIL SPECIFICATIONS AND COMPACTED AT OPTIMUM MOISTURE CONTENT (+ OR - 2%) TO ACHIEVE A DRY DENSITY DETERMINED IN ACCORDANCE WITH AS1289 E3.1 OF NOT LESS THAN THE FOLLOWING STANDARD MINIMUM DRY DENSITY IN ACCORDANCE WITH AS1289 E5.1.1.1:

LOCATION	COMPACTION REQUIREMENT
UNDER BUILDING SLABS	98% SMDD
LANDSCAPED AREAS	95% SMDD
ROADS & PAVED AREAS	100% SMDD

8. FOR NON COHESIVE MATERIAL, COMPACT TO NOT LESS THAN
   UNDER ROAD 80% DENSITY
   OTHER AREA 75% DENSITY

9. THE CONTRACTOR IS TO ALLOW FOR COMPACTION TESTING BY NATA REGISTERED LABORATORY FOR PLATFORMS AND FILL LAYERS IN ACCORDANCE WITH THE LATEST VERSION OF AS3798 - FOR TYPE 1 OPERATIONS (MINIMUM 3 TESTS PER LAYER).

10. FREQUENCY OF COMPACTION TESTING SHALL NOT BE LESS THAN:
    A. 1 TEST PER 200m^3 OF FILL PLACED PER LAYER OF FILL
    B. 3 TESTS PER VISIT
    C. 1 TEST PER 1000m² OF EXPOSED SUBGRADE

11. TESTING SHALL BE "LEVEL 1" UNDERTAKEN IN ACCORDANCE WITH AS 3798.

12. WHERE TEST RESULTS ARE BELOW THE SPECIFIED COMPACTION, RECOMPACT AND RETEST UNTIL SPECIFIED COMPACTION STANDARD IS ACHIEVED.

13. ALLOW FOR EXCAVATION IN ALL MATERIALS AS FOUND U.N.O. NO ADDITIONAL PAYMENTS WILL BE MADE FOR EXCAVATION IN WET OR HARD GROUND.

14. WHERE THERE IS INSUFFICIENT EXCAVATED MATERIAL SUITABLE FOR FILLING OR SUBGRADE REPLACEMENT, THE CONTRACTOR IS TO ALLOW TO IMPORT FILL. IMPORTED FILL SHALL COMPLY WITH THE FOLLOWING:
    A. MAXIMUM SIZE 50mm. PASSING 75 MICRON SIEVE (<25%).
    B. PLASTICITY INDEX BETWEEN 2-15% AND CBR>8.
    C. FREE FROM ORGANIC AND PERISHABLE MATTER.

15. THE CONTRACTOR SHALL PROGRAM THE EARTHWORKS OPERATION SO THAT THE WORKING AREAS ARE ADEQUATELY DRAINED DURING THE PERIOD OF CONSTRUCTION. THE SURFACE SHALL BE GRADED AND SEALED OFF TO REMOVE DEPRESSIONS, ROLLER MARKS AND SIMILAR WHICH WOULD ALLOW WATER TO POND AND PENETRATE THE UNDERLYING MATERIAL. ANY DAMAGE RESULTING FROM THE CONTRACTOR NOT OBSERVING THESE REQUIREMENTS SHALL BE RECTIFIED AT THEIR COST.

16. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ENSURE AND MAINTAIN THE INTEGRITY OF ALL SERVICES, CONDUITS AND PIPES DURING CONSTRUCTION, SPECIFICALLY DURING THE BACKFILLING AND COMPACTION PROCEDURE. ANY AND ALL DAMAGE TO NEW OR EXISTING SERVICES AS A RESULT OF THESE WORKS SHALL BE REPAIRED BY THE CONTRACTOR AT NO EXTRA COST.

17. PROTECT FINAL SURFACE WITH EITHER A TEMPORARY LOOSE SOIL LAYER OR A GRANULAR SUB-BASE LAYER TO PREVENT DRYING OUT PRIOR TO ON-GROUND SLAB CONSTRUCTION.

SITEWORKS

1. ALL WORKS TO BE IN ACCORDANCE WITH LOCAL AUTHORITY REQUIREMENTS, SPECIFICATIONS AND AUSTRALIAN STANDARDS. CONFLICTS SHALL BE REFERRED TO THE SUPERINTENDENT FOR DIRECTION.

2. CONTRACTOR MUST VERIFY ALL DIMENSIONS AND EXISTING LEVELS ON SITE PRIOR TO COMMENCEMENT OF WORK. ANY DISCREPANCIES TO BE REPORTED TO THE SUPERINTENDENT.

3. THE CONTRACTOR IS TO DESIGN, OBTAIN APPROVALS AND CARRY OUT REQUIRED TEMPORARY TRAFFIC CONTROL PROCEDURES DURING CONSTRUCTION IN ACCORDANCE WITH TINSW AND LOCAL AUTHORITY REGULATIONS AND REQUIREMENTS.

4. THE CONTRACTOR IS TO OBTAIN ALL AUTHORITY APPROVALS AS REQUIRED.

5. RESTORE ALL PAVED, COVERED, GRASSED AND LANDSCAPED AREAS TO THEIR ORIGINAL CONDITION ON COMPLETION OF WORKS.

6. ON COMPLETION OF ANY TRENCHING WORKS, ALL DISTURBED AREAS SHALL BE RESTORED TO THEIR ORIGINAL CONDITION, INCLUDING KERBS, FOOTPATHS, CONCRETE AREAS, GRAVEL, GRASSED AREAS AND ROAD PAVEMENTS.

7. THE CONTRACTOR SHALL ARRANGE ALL SURVEY SETOUT TO BE CARRIED OUT BY A REGISTERED SURVEYOR.

8. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND EXISTING LEVELS ON SITE PRIOR TO LODGMENT OF TENDER AND ON SITE WORKS. THE PRICE AS TENDERED SHALL BE INCLUSIVE OF ALL WORKS SHOWN ON THE TENDER PROJECT DRAWINGS. ADDITIONAL PAYMENTS FOR WORKS SHOWN ON THE TENDER PROJECT DRAWINGS WILL NOT BE APPROVED.

9. THESE DRAWINGS ARE TO BE READ IN CONJUNCTION WITH THE ENGINEERING PLANS AND SPECIFICATIONS, AND ANY OTHER WRITTEN INSTRUCTIONS THAT MAY BE ISSUED RELATING TO DEVELOPMENT OF THE SUBJECT SITE.

10. THESE PLANS SHALL BE READ IN CONJUNCTION WITH ALL APPROVED DRAWINGS AND SPECIFICATIONS PREPARED BY OTHER PROJECT CONSULTANTS.

11. DO NOT OBTAIN DIMENSIONS BY SCALING THE DRAWINGS. ALL DIMENSIONS ARE IN MILLIMETERS (mm) AND ALL LEVELS ARE IN METRES (m), UNO. ALL LEVELS ARE TO AUSTRALIAN HEIGHT DATUM (AHD).

12. IN CASE OF DOUBT OR DISCREPANCY REFER TO THE SUPERINTENDENT FOR CLARIFICATION OR CONFIRMATION PRIOR TO THE COMMENCEMENT OF CONSTRUCTION. OTHERWISE THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COST OF REMEDIATION WORKS.

13. WHERE NEW WORKS ABUT EXISTING THE CONTRACTOR SHALL ENSURE THAT A SMOOTH EVEN PROFILE, FREE FROM ABRUPT CHANGES IS OBTAINED.

14. THE CONTRACTOR SHALL COMPLY WITH ALL STATUTORY AND INDUSTRIAL REQUIREMENTS FOR PROVISION OF A SAFE WORKING ENVIRONMENT INCLUDING TRAFFIC CONTROL.

15. THE CONTRACTOR SHALL ENSURE THAT AT ALL TIMES ACCESS TO ALL BUILDINGS ADJACENT THE WORKS IS NOT DISRUPTED.

16. WHERE NECESSARY THE CONTRACTOR SHALL PROVIDE SAFE PASSAGE OF VEHICLES AND/OR PEDESTRIANS THROUGH OR BY THE SITE.

17. WHERE NOTED ON THE DRAWINGS THAT WORKS ARE TO BE CARRIED BY OTHERS, (eg. ADJUSTMENT OF SERVICES), THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CO-ORDINATION OF THESE WORKS.

18. ALL VARIATIONS TO SPECIFIED PRODUCTS OR DESIGNS SHALL BE REFERRED TO THE DESIGN ENGINEER IN WRITING FOR APPROVAL.

19. EPA AND COUNCIL REQUIREMENTS MUST BE ADHERED TO REGARDING THE LEVEL OF NOISE AND WORKING HOURS, TO ENSURE THAT RESIDENTS AND OTHER APPLICABLE NEIGHBOURS TO THE SITE ARE NOT DISTURBED UNREASONABLY. THE GENERATION OF NOISE MUST BE MINIMISED.

STORMWATER DRAINAGE

1. ALL INTERNAL WORKS WITHIN PROPERTY BOUNDARIES ARE TO COMPLY WITH THE REQUIREMENTS OF AS 3500 3.1 AND AS/NZS 3500 3.2.

2. PIPES UP TO 300 DIA SHALL BE SEWER GRADE uPVC (CLASS SN4) WITH SOLVENT WELDED JOINTS.

3. PIPES 300 DIA. AND LARGER TO BE REINFORCED CONCRETE MIN CLASS '2' APPROVED SPIGOT AND SOCKET WITH RUBBER RING JOINTS. U.N.O.

4. ALL PIPES ARE TO BE LAID AT (min) 1.0% GRADE (UNO)

5. ALL PIPES ARE TO BE UNIFORMLY SUPPORTED ALONG THE LENGTH OF THE BARREL BY SUITABLE FILL MATERIAL. REFER TO BEDDING SUPPORT TYPE.

6. PIPES WITH SOCKETS SHALL BE LAID IN BEDDING WHERE SUITABLE RECESSES HAVE BEEN PROVIDED TO ENSURE PIPES DO NOT BEAR ON THEIR SOCKETS.

7. ENLARGERS, CONNECTIONS AND JUNCTIONS TO BE PREFABRICATED FITTINGS WHERE PIPES ARE LESS THAN 300 DIA.

8. ALL STORMWATER DRAINAGE LINES UNDER PROPOSED BUILDING SLABS TO BE uPVC PRESSURE PIPE GRADE

9. ENSURE ALL VERTICALS AND DOWNPIPES ARE uPVC PRESSURE PIPE, GRADE 6 FOR A MIN OF 3.0m IN HEIGHT.

10. WHERE WORKING METHODS REQUIRE HIGHER CLASS PIPE, THE CONTRACTOR SHALL REFER TO AS 3725 TO DETERMINE THE APPROPRIATE PIPE CLASS. ANY CHANGES IN PROPOSED PIPE CLASS SHALL BE SUBMITTED TO THE SUPERINTENDENT FOR APPROVAL PRIOR TO INSTALLATION.

11. CARE IS TO BE TAKEN WITH LEVELS OF STORMWATER LINES. GRADES SHOWN ARE NOT TO BE REDUCED WITHOUT APPROVAL.

12. PRECAST PITS MAY BE USED SUBJECT TO WRITTEN APPROVAL BY THE SUPERINTENDENT.

13. ALL PIPE PENETRATIONS (EXISTING, IN-SITU AND PRECAST) ARE TO BE FINISHED FLUSH WITH THE INTERNAL PIT WALL AND PROPERLY SEALED WITH CEMENT RENDER. MASS CONCRETE BENCHING IS TO BE INSTALLED TO MATCH THE OUTLET PIPE INVERT LEVEL AND A LOCKABLE HINGED GRATE AND FRAME WITH CONCRETE SURROUND INSTALLED U.N.O.

14. COVERS
    A. USE HOT DIPPED GALVANISED GRATES AND CONCRETE FILLED COVERS WITH HINGES AND HOLD DOWN BOLTS COMPLYING WITH AS3996 AND OTHER RELEVANT AUSTRALIAN AND COUNCIL STANDARDS.
    B. ALL COVERS AND GRATES TO BE POSITIONED IN A FRAME AND MANUFACTURED AS A UNIT.
    C. ALL COVERS AND GRATES TO BE FITTED WITH POSITIVE COVER LIFTING KEYS.
    D. OBTAIN SUPERINTENDENT'S APPROVAL FOR THE USE OF CAST IRON SOLID COVERS AND GRATES. CAST IRON SOLID COVERS (IF APPROVED) TO CONSIST OF CROSS-WEBBED, CELLULAR CONSTRUCTION WITH THE RIBS UPPERMOST TO ALLOW INFILLING WITH CONCRETE. INSTALL POSITIVE COVER LIFTING KEYS AND PLASTIC PLUGS.
    E. UNLESS DETAILED OR SPECIFIED OTHERWISE COVERS AND GRATES TO BE CLASS "D" IN VEHICULAR PAVEMENTS AND CLASS "B" ELSEWHERE.

16. NOTE THAT THE PIT COVER LEVEL NOMINATED IN GUTTERS ARE TO THE INVERT OF THE GUTTER WHICH IS 40mm LOWER THAN THE PAVEMENT LEVEL AT LIP OF GUTTER.

17. Ø100mm SUB-SOIL DRAINAGE LINES SHALL BE CONNECTED TO A STORMWATER DRAINAGE PIT AND PROVIDED IN THE FOLLOWING LOCATIONS:
    A. ADJACENT ALL TRAFFICKED AND CARPARK PAVEMENT AREAS (BEHIND KERB);
    B. ALL PLANTER AND TREE BEDS PROPOSED ADJACENT TO PAVEMENT AREAS;
    C. BEHIND RETAINING WALLS (IN ACCORDANCE WITH DRAWINGS);
    D. BELOW ALL TRAFFICABLE DISH DRAINS;
    E. ALL OTHER AREAS SHOWN ON THE DRAWINGS.

18. THE CONTRACTOR SHALL INSTALL FLUSHING POINTS TO ALL SUBSOIL DRAINAGE LINES AND DOWNPIPE LINES AS SPECIFIED ON DRAWINGS, AT MAXIMUM CENTRES TO COUNCIL SPECIFICATION AND AT ALL UPSTREAM ENDPOINTS.

19. PROVIDE 3.0m LENGTH OF Ø100 SUBSOIL DRAINAGE PIPE WRAPPED IN A NON-WOVEN GEOTEXTILE FABRIC, TO THE UPSTREAM SIDE OF STORMWATER PITS, LAID IN STORMWATER PIPE TRENCHES AND CONNECTED TO THE DRAINAGE PIT.

20. SUBSOIL TRENCHES SHALL BE BACKFILLED WITH SINGLE SIZED 10mm AGGREGATE WRAPPED IN NON-WOVEN GEOTEXTILE FABRIC. SUBSOIL TRENCHES BELOW TRAFFICABLE PAVEMENTS SHALL BE BACKFILLED WITH NO FINES CONCRETE WRAPPED IN NON-WOVEN GEOTEXTILE FABRIC, U.N.O.

21. ALL RECTANGULAR HOLLOW SECTIONS (RHS) SPECIFIED AS STORMWATER CONDUITS TO BE HOT DIPPED GALVANISED AND HAVE (MINIMUM) 5mm WALL THICKNESS.

STORMWATER DRAINAGE (CONT.)

22. ALL BOX CULVERTS SHALL BE STRUCTURALLY DESIGNED BY THE MANUFACTURER AND DELIVERED TO SITE AS FIT FOR PURPOSE.

23. ELECTRICAL PITS ARE TO DRAIN TO THE NEAREST STORMWATER PIT WITH VERMIN PROOF NON-RETURN FLAP VALVES AS REQUIRED. THE CONTRACTOR IS TO CONFIRM WITH THE ELECTRICAL DESIGNER AS PART OF THE TENDER.

24. THE CONTRACTOR SHALL ENSURE AND PROTECT THE INTEGRITY OF ALL STORMWATER PIPES DURING CONSTRUCTION. ANY AND ALL DAMAGE TO THESE PIPES AS A RESULT OF THESE WORKS SHALL BE REPAIRED BY THE CONTRACTOR UNDER THE DIRECTION OF THE SUPERINTENDENT, AND AT NO EXTRA COST.

25. AT ALL TIMES DURING CONSTRUCTION OF STORMWATER PITS, ADEQUATE SAFETY PROCEDURES SHALL BE TAKEN TO ENSURE AGAINST THE POSSIBILITY OF PERSONNEL FALLING DOWN PITS.

26. ALL EXISTING STORMWATER DRAINAGE LINES AND PITS THAT ARE TO REMAIN ARE TO BE INSPECTED AND CLEANED. DURING THIS PROCESS ANY PART OF THE STORMWATER DRAINAGE SYSTEM THAT WARRANTS REPAIR SHALL BE REPORTED TO THE SUPERINTENDENT/ENGINEER FOR FURTHER DIRECTIONS.

27. ANY VARIATION TO SPECIFIED PRODUCTS OR DETAILS SHALL BE REFERRED TO THE SUPERINTENDENT FOR APPROVAL.

SIGNAGE AND LINE MARKING

1. LINE MARKING AND PAINT SHALL BE IN ACCORDANCE WITH AS 2700 AND AS 4049 AND TINSW SPECIFICATIONS.

2. ALL PAINT SHALL BE APPLIED BY MECHANICAL SPRAYER.

3. LINE MARKING SHALL BE SPOTTED OUT AND APPROVED PRIOR TO SPRAYING.

4. PAINT SHALL BE APPLIED AT A WET THICKNESS OF BETWEEN 0.35mm TO 0.40mm.

5. TRANSITION LINEMARKING TO SUIT EXISTING WHERE REQUIRED.ALL SIGNAGE TO BE INSTALLED IN ACCORDANCE WITH AUSTRALIAN STANDARDS.

6. REMOVE ALL REDUNDANT PAVEMENT MARKING AS REQUIRED.

7. PROVIDE RETRO-REFLECTORISED PAVEMENT MARKERS TO COUNCIL AND TINSW. REQUIREMENTS.

8. ALL LINEMARKING TO BE WHITE IN COLOUR WITH THE EXCEPTION OF C2 AND C3 LINES ARE TO BE YELLOW.

9. CARPARK LINEMARKING PAINT SHALL BE TYPE 3, CLASS A, AND THE COLOUR SHALL BE WHITE AND NOT DISCOLOURED BY BITUMEN. EACH LINE SHALL BE 80mm WIDE.

10. ALL SIGNAGE TO BE IN ACCORDANCE WITH THE CURRENT VERSION OF THE TINSW. REGULATORY SIGNS MANUAL.

11. RELOCATE OR REMOVE EXISTING SIGNS AS REQUIRED.

12. PROVIDE ADEQUATE APPROACH WARNING SIGNS DURING AND AFTER CONSTRUCTION.

REV.	DATE	DESCRIPTION	DRN.	DES.	VERIF.	APPD.
2	20/10/2023	ISSUED FOR SSD	AR	RH	RL	RH
1	23/08/2023	DRAFT ISSUE	CWH	RH	-	RH

Client: we are NSW Infrastructure New South Wales

Scale:

North:

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Enspire Solutions Pty Ltd
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Project: BANK STREET PARK, PYRMONT

Title: SPECIFICATION NOTES

SHEET 01

Scale: NTS

Date: 23/08/2023

Size: A1

Datum: GDA94

Status: FOR INFORMATION ONLY
NOT TO BE USED FOR CONSTRUCTION

Project Number/Drawing Number: 220067-00-DA-C01.21

Revision: 2

DATE PLOTTED: 20 October 2023 11:45 AM BY - AHMAD RAZAULLAH

CAD File: P:\220067 BankStPark\D-Civil\00-SiteWide\Drawings\6-DACC\1-DA\220067-00-DA-C01.21-C01.22 SPECIFICATION NOTES.dwg

EXISTING SERVICES

1. ALL UTILITY SERVICES INDICATED ON THE DRAWINGS ORIGINATE FROM SUPPLIED DATA, THEREFORE THEIR ACCURACY AND COMPLETENESS IS NOT GUARANTEED. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO DETERMINE AND CONFIRM THE LOCATION AND LEVEL OF ALL EXISTING SERVICES PRIOR TO THE COMMENCEMENT OF ANY WORK. ANY DISCREPANCIES SHALL BE REPORTED TO THE SUPERINTENDENT. CLEARANCES SHALL BE OBTAINED FROM THE RELEVANT SERVICE AUTHORITY.
2. CARE TO BE TAKEN WHEN EXCAVATING NEAR EXISTING SERVICES. NO MECHANICAL EXCAVATIONS ARE TO BE UNDERTAKEN OVER ALL LIVE SERVICES. HAND EXCAVATION ONLY IN THESE AREAS.
3. THE CONTRACTOR SHALL PROTECT AND MAINTAIN ALL EXISTING SERVICES THAT ARE TO BE RETAINED IN THE VICINITY OF THE PROPOSED WORKS. ANY AND ALL DAMAGE TO THESE SERVICES AS A RESULT OF THESE WORKS SHALL BE REPAIRED BY THE CONTRACTOR UNDER THE DIRECTION OF THE SUPERINTENDENT, AND AT NO EXTRA COST.
4. THE CONTRACTOR SHALL ALLOW IN THE PROGRAM FOR ADJUSTMENT (IF REQUIRED) OF EXISTING SERVICES IN AREAS AFFECTED BY WORKS.
5. THE CONTRACTOR SHALL ALLOW IN THE PROGRAM FOR THE CAPPING OFF, EXCAVATION AND REMOVAL (IF REQUIRED) OF EXISTING SERVICES IN AREAS AFFECTED BY WORKS UNLESS DIRECTED OTHERWISE ON THE DRAWINGS OR BY THE SUPERINTENDENT.
6. THE CONTRACTOR SHALL ENSURE THAT AT ALL TIMES SERVICES TO ALL BUILDINGS NOT AFFECTED BY THE WORKS ARE NOT DISRUPTED.
7. PRIOR TO COMMENCEMENT OF ANY WORKS THE CONTRACTOR SHALL GAIN APPROVAL OF THE PROGRAM FOR THE RELOCATION AND/OR CONSTRUCTION OF TEMPORARY SERVICES AND FOR ANY ASSOCIATED INTERRUPTION OF SUPPLY.
8. THE CONTRACTOR SHALL CONSTRUCT TEMPORARY SERVICES TO MAINTAIN EXISTING SUPPLY TO BUILDINGS REMAINING IN OPERATION DURING WORKS TO THE SATISFACTION AND APPROVAL OF THE SUPERINTENDENT. ONCE DIVERSION IS COMPLETE AND COMMISSIONED THE CONTRACTOR SHALL REMOVE ALL SUCH TEMPORARY SERVICES AND MAKE GOOD TO THE SATISFACTION OF THE SUPERINTENDENT.
9. PRIOR TO ANY DEMOLITION, EXCAVATION OR CONSTRUCTION A THOROUGH SEARCH OF ALL SERVICE AUTHORITIES SHOULD BE MADE TO DETERMINE THE POSSIBLE LOCATION OF ANY FURTHER UNDERGROUND SERVICES.
10. AUTHORITY PLANS GENERALLY SHOW ONLY THE PRESENCE OF CABLES AND PLANT AND DO NOT WARRANT OR GUARANTEE THAT SUCH PLANS ARE ACCURATE. DO NOT ASSUME DEPTH OR ALIGNMENT OF CABLES OR PLANT AS THESE VARY SIGNIFICANTLY. THE CONTRACTOR HAS A DUTY OF CARE WHEN EXCAVATING NEAR EXISTING SERVICES AND PLANT. BEFORE USING MACHINE EXCAVATORS SERVICES MUST FIRST BE PHYSICALLY EXPOSED BY SOFT DIG POTHOLING TO IDENTIFY IT'S LOCATION.
11. THE CONTRACTOR IS TO UNDERTAKE A DIAL-BEFORE-YOU-DIG SEARCH PRIOR TO ANY EXCAVATION AND MAINTAIN A CURRENT SET ON-SITE DURING EXCAVATION WORKS.
12. THE LOCATIONS OF UNDERGROUND SERVICES SHOWN IN THIS SET OF DRAWINGS HAVE BEEN PLOTTED FROM SURVEY INFORMATION AND SERVICE AUTHORITY INFORMATION. THE SERVICE INFORMATION HAS BEEN PREPARED ONLY TO SHOW THE APPROXIMATE POSITIONS OF ANY KNOWN SERVICES AND MAY NOT BE AS CONSTRUCTED OR ACCURATE. ENSPIRE SOLUTIONS CAN NOT GUARANTEE THAT THE SERVICES INFORMATION SHOWN ON THESE DRAWINGS ACCURATELY INDICATES THE PRESENCE OR ABSENCE OF SERVICES OR THEIR LOCATION AND WILL ACCEPT NO LIABILITY FOR INACCURACIES IN THE SERVICES INFORMATION SHOWN FROM ANY CAUSE WHATSOEVER.
13. CONTRACTORS SHALL TAKE DUE CARE WHEN EXCAVATING ONSITE INCLUDING HAND EXCAVATION WHERE NECESSARY. CONTRACTORS ARE TO CONTACT THE RELEVANT SERVICE AUTHORITY PRIOR TO COMMENCEMENT OF EXCAVATION WORKS. CONTRACTORS ARE TO UNDERTAKE A SERVICES SEARCH, PRIOR TO COMMENCEMENT OF WORKS ON SITE. SEARCH RESULTS ARE TO BE KEPT ON SITE AT ALL TIMES.

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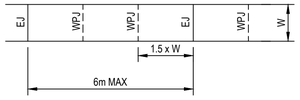
PAVEMENTS

1. ALL PAVEMENT MATERIALS SHALL COMPLY WITH CURRENT TINSW SPECIFICATIONS. PROVIDE MECHANICAL ANALYSIS FOR EACH BATCH OF PAVEMENT MATERIAL TO ENSURE CONFORMITY.
2. COMPACTION STANDARDS:
   A) BASE: 98% MODIFIED MAXIMUM DRY DENSITY
   B) SUBBASE: 95% MODIFIED MAXIMUM DRY DENSITY
3. THE CONTRACTOR SHALL CONFIRM THE DESIGN CBR WITH A MINIMUM OF 3 TESTS TAKEN AT SUBGRADE LEVEL. WHERE DISCREPANCY IS FOUND, CONTACT THE SUPERINTENDENT.
4. ALLOW FOR COMPACTION TESTING BY NATA REGISTERED LABORATORY FOR: BASE LAYER, SUBBASE LAYER, SUBGRADE IN ACCORDANCE WITH THE LATEST VERSION OF AS3798 FOR PAVEMENTS. ALLOW FOR AT LEAST TWO SUCCESSFUL COMPACTION TESTS IN EACH LAYER.
5. MATCH NEW PAVEMENT LAYERS NEATLY AND FLUSH WITH EXISTING WHERE REQUIRED.
6. KEY NEW BASE AND SUBBASE LAYERS INTO EXISTING WITH 150mm WIDE STEPS. ASPHALTIC CONCRETE WEARING COURSE IS TO EXTEND 150mm (MIN) PAST BASECOURSE INTERFACE.
7. TRENCHES THROUGH EXISTING ROAD AND CONCRETE PAVEMENTS SHALL BE SAWCUT TO FULL DEPTH OF CONCRETE AND A MIN 50mm IN BITUMINOUS PAVING.
8. ALL ASPHALTIC CONCRETE (AC) WORK TO BE PREPARED AND CARRIED OUT IN ACCORDANCE WITH GOOD ASPHALTIC PAVING PRACTICE AS DESCRIBED IN AS2734 "ASPHALT (HOT-MIXED) PAVING - GUIDE TO GOOD PRACTICE" AND CURRENT TINSW SPECIFICATIONS (R116).
9. WHERE NOMINATED, THE CONTRACTOR SHALL ALLOW FOR ALL COMPONENTS OF PROPRIETARY JOINTING SYSTEMS INCLUDING FIXING, TEMPLATES & PEGGING TO ENSURE THAT ALL DOWEL BARS REMAIN IN THE CORRECT ALIGNMENT AND POSITION.
10. ALL BASECOURSE MATERIAL SHALL BE IGNEOUS ROCK QUARRIED MATERIAL TO COMPLY WITH TINSW. SPECIFICATION 3051, COMPACTED TO MINIMUM 98% MODIFIED DENSITY IN ACCORDANCE WITH AS 1289 5.2.1 FREQUENCY OF COMPACTION TESTING SHALL NOT BE LESS THAN 1 TEST PER 50m^3 OF BASECOURSE MATERIAL PLACED.
11. ALL SUB-BASE COURSE MATERIAL SHALL BE IGNEOUS ROCK QUARRIED MATERIAL TO COMPLY WITH TINSW. SPECIFICATION 3051, AND COMPACTED TO MINIMUM 95% MODIFIED DENSITY IN ACCORDANCE WITH A.S 1289 5.2.1 FREQUENCY OF COMPACTION TESTING SHALL NOT BE LESS THAN 1 TEST PER 50m^3 OF SUB-BASE COURSE MATERIAL PLACED.
12. AS AN ALTERNATIVE TO THE USE OF IGNEOUS ROCK AS A SUB-BASE MATERIAL IN (11) A CERTIFIED RECYCLED CONCRETE MATERIAL COMPLYING WITH TINSW. SPECIFICATION 3051 WILL BE CONSIDERED. SUBJECT TO MATERIAL SAMPLES AND APPROPRIATE CERTIFICATIONS BEING PROVIDED TO THE SATISFACTION OF THE COUNCIL ENGINEER.
13. SHOULD THE CONTRACTOR WISH TO USE A RECYCLED PRODUCT THIS SHALL BE CLEARLY INDICATED IN THEIR TENDER AND THE PRICE DIFFERENCE BETWEEN AN IGNEOUS PRODUCT AND A RECYCLED PRODUCT SHALL BE CLEARLY INDICATED.

PAVEMENT JOINTS

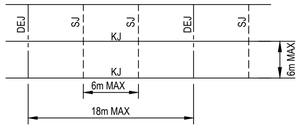
PEDESTRIAN PAVEMENTS

1. ALL PEDESTRIAN PAVEMENTS ARE TO BE JOINTED AS FOLLOWS U.N.O ON THE DESIGN DRAWINGS.
2. EXPANSION JOINTS ARE TO BE LOCATED WHERE POSSIBLE AT TANGENT POINTS OF CURVES AND ELSEWHERE AT MAX. 6.0m CENTRES.
3. WEAKENED PLANE JOINTS ARE TO BE LOCATED AT A MAX. SPACING OF 1.5 x WIDTH OF THE PAVEMENT.
4. WHERE POSSIBLE JOINTS SHOULD BE LOCATED TO MATCH KERBING AND OR ADJACENT PAVEMENT JOINTS.
5. TYPICAL PEDESTRIAN PAVEMENT JOINT DETAIL.



VEHICULAR PAVEMENTS

6. ALL VEHICULAR PAVEMENTS TO BE JOINTED AS FOLLOWS U.N.O ON THE DESIGN DRAWINGS.
7. TIED KEYED CONSTRUCTION JOINTS SHOULD GENERALLY BE LOCATED LONGITUDINALLY AT A MAX OF 6.0m CENTRES
8. SAWN JOINTS SHOULD GENERALLY BE LOCATED LATERALLY AT A MAX OF 6.0m CENTRES WITH DOWELED EXPANSION JOINTS AT MAX 18.0m CENTRES
9. TYPICAL VEHICULAR PAVEMENT JOINT DETAIL.



10. PROVIDE 10mm EXPANSION FOAM BETWEEN NEW CONCRETE WORKS AND EXISTING STRUCTURES.
11. LOCAL AUTHORITY REQUIREMENTS SHALL TAKE PRECEDENCE WITHIN THE PUBLIC ROAD RESERVE.
12. DOWELS TO BE PLACED ON PROPRIETARY CRADLES TO ENSURE CORRECT SPACING AND ALIGNMENT.

REV.	DATE	DESCRIPTION	DRN.	DES.	VERIF.	APPD.
2	20/10/2023	ISSUED FOR SSD	AR	RH	RL	RH
1	23/08/2023	DRAFT ISSUE	CWH	RH	-	RH

Client: we are insw Infrastructure New South Wales

Scale:

North:

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Project: BANK STREET PARK, PYRMONT

Title: SPECIFICATION NOTES

SHEET 02

Scale: NTS

Date: 23/08/2023

Size: A1

Datum: GDA94

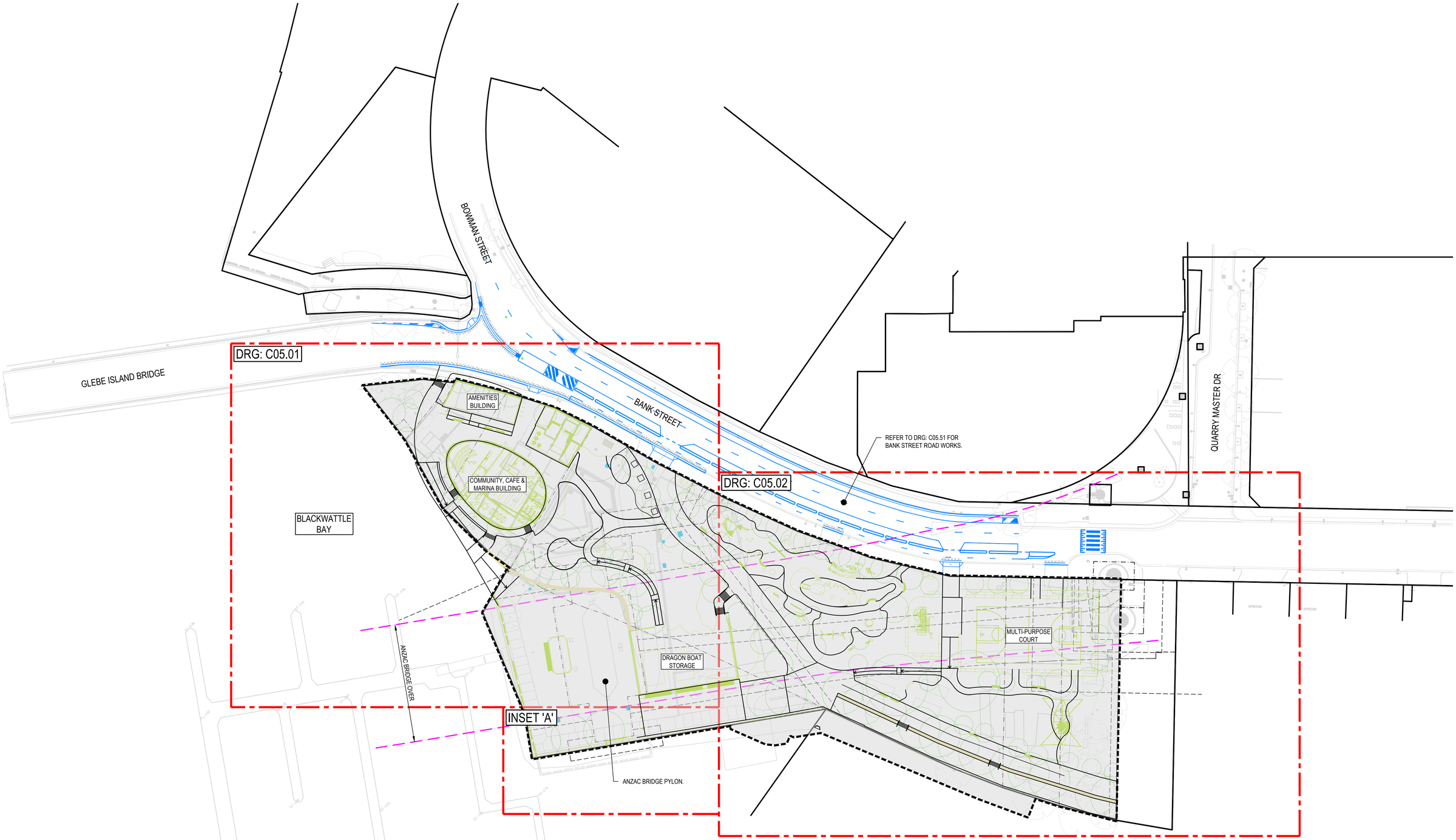
Status: FOR INFORMATION ONLY
NOT TO BE USED FOR CONSTRUCTION

Project Number/Drawing Number: 220067-00-DA-C01.22

Revision: 2

DATE PLOTTED: 20 October 2023 11:45 AM BY: AHMAD RAZAULLAH

CAD File: P:\220067 BankStPark\D-Civil\00-SiteWide\Drawings\6-DACC\1-DA\220067-00-DA-C01.21-C01.22 SPECIFICATION NOTES.dwg



REV.	DATE	DESCRIPTION	DRN.	DES.	VERIF	APPD.
2	20/10/2023	ISSUED FOR SSD	AR	RH	RL	RH
1	23/08/2023	DRAFT ISSUE	CWH	RH	-	RH

Client: we are NSW Infrastructure New South Wales

Scale: 0 10 20 30 40 50m — SCALE 1:500 @A1

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Project: BANK STREET PARK, PYRMONT

Title: GENERAL ARRANGEMENT PLAN HARBOUR PARK

Scale: 1:500

Date: 23/08/2023

Size: A1

Datum: GDA94

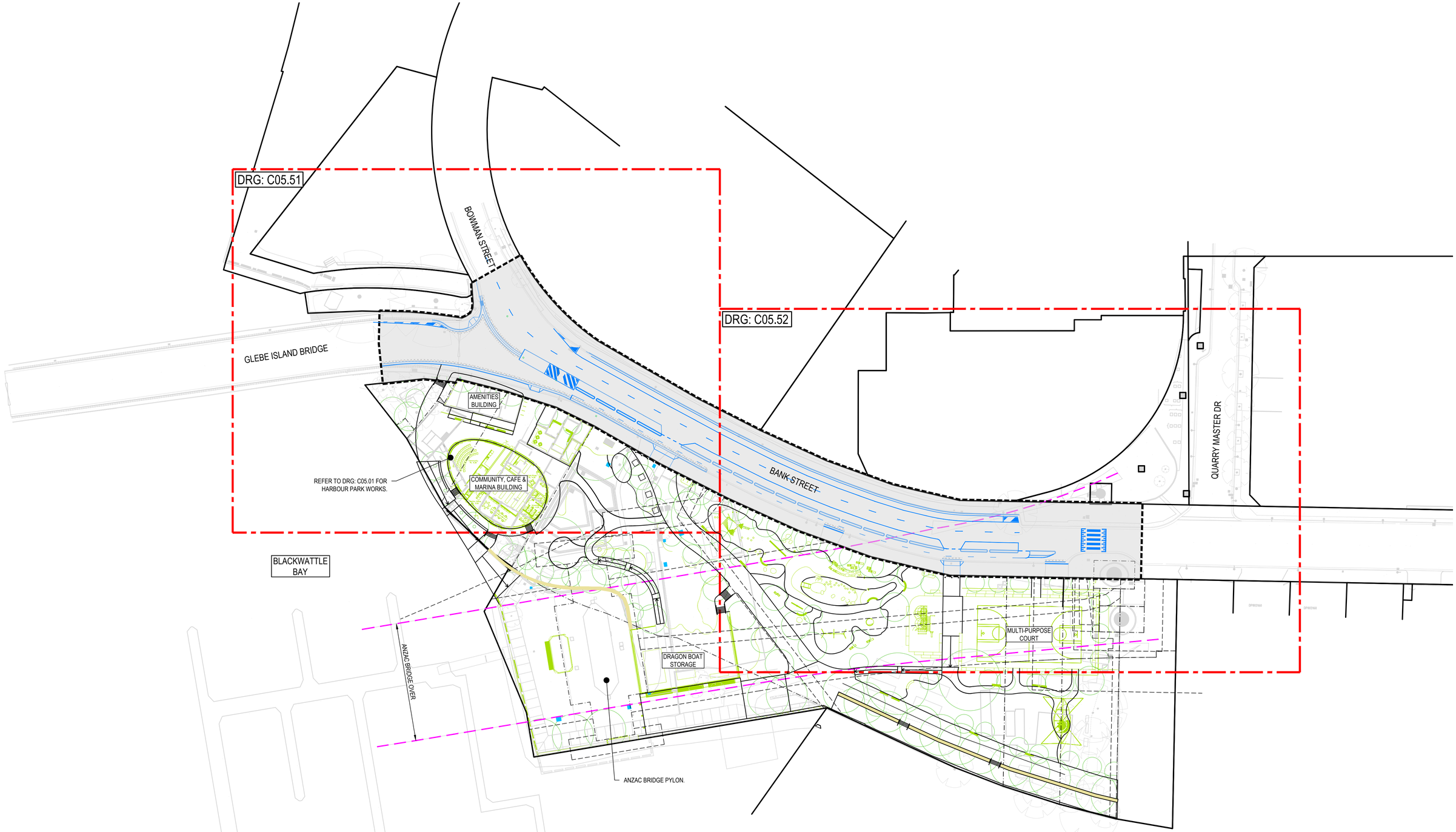
Status: FOR INFORMATION ONLY NOT TO BE USED FOR CONSTRUCTION

Project Number/Drawing Number: 220067-00-DA-C01.41

Revision: 2

DATE PLOTTED: 20 October 2023 11:46 AM BY : AHMAD RAZAULLAH

CAD File: P:\220067 BankStPark\D-Civil\00-SiteWide\Drawings\6-DACC\1-DA\220067-00-DA-C01.41 GENERAL ARRANGEMENT PLAN - HARBOUR PARK.dwg



REV.	DATE	DESCRIPTION	DRN.	DES.	VERIF.	APPD.
2	20/10/2023	ISSUED FOR SSD	AR	RH	RL	RH
1	23/08/2023	DRAFT ISSUE	CWH	RH	-	RH

Client

we are NSW Infrastructure New South Wales

Scale

0 10 20 30 40 50m

SCALE 1:500 @A1

North

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Project
BANK STREET PARK,
PYRMONT

Scale
1:500

Date
23/08/2023

Status
FOR INFORMATION ONLY
NOT TO BE USED FOR CONSTRUCTION

Title
GENERAL ARRANGEMENT PLAN
BANK STREET

Size
A1

Datum
GDA94

Project Number/Drawing Number
220067-00-DA-C01.42

Revision
2

DATE PLOTTED: 20 October 2023 11:46 AM BY - AHMAD RAZAULLAH

CAD File: P:\220067 BankStPark\D-Civil\00-SiteWide\Drawings\6-DACC\1-DA\220067-00-DA-C01.42 GENERAL ARRANGEMENT PLAN - BANK STREET.dwg

LEGEND

- SITE BOUNDARY
- EXISTING EASEMENT
- STRUCTURE TO BE DEMOLISHED
- TREE TO BE REMOVED
- TREE TO BE RETAINED

EXISTING UTILITIES

- STORMWATER
- ELECTRICAL
- COMMUNICATIONS
- SEWER
- GAS
- WATER

EASEMENTS:

'A' - EASEMENT FOR WATER SUPPLY 1.8 WIDE (D.P.882897) LIMITED IN STRATUM
'B' - EASEMENT TO DRAIN WATER VARIABLE WIDTH (D.P.882897) LIMITED IN STRATUM
'C' - EASEMENT FOR MAINTENANCE VARIABLE WIDTH (D.P.1041963 & 9420339)
'D' - EASEMENT TO DRAIN WATER 3 WIDE (D.P.1041963 & 9420339) LIMITED IN STRATUM
'E' - EASEMENT FOR ELECTRICITY 3 & 4.265 WIDE (D.P.1041963) LIMITED IN STRATUM
'F' - EASEMENT TO DRAIN WATER 1.735 WIDE (D.P.1041963) LIMITED IN STRATUM
'G' - EASEMENT TO DRAIN WATER 1.735 WIDE (D.P.830160) LIMITED IN STRATUM
'H' - EASEMENT FOR FOOTINGS & SUPPORT (D.P.803160) LIMITED IN STRATUM
'I' - PROPOSED EASEMENT FOR ELECTRICITY & OTHER PURPOSES 5 & 6.5 WIDE (D.P.1202991)
'J' - PROPOSED EASEMENT FOR ELECTRICITY & OTHER PURPOSES OVER EXISTING LINE
OF PIPE (APPROXIMATE POSITION) (D.P.120299)
'K' - EASEMENT FOR PUBLIC ACCESS VARIABLE WIDTH (D.P.1267667)
'KB' - DENOTES EASEMENT 'K' IS UNLIMITED IN HEIGHT AND DEPTH
'KC' - DENOTES EASEMENT 'K' COMPRISES THE STRATUM EXTENT OF LOT 20 D.P.803159 ONLY
'KD' - DENOTES EASEMENT 'K' COMPRISES THE STRATUM EXTENT OF LOT 19 D.P.803159 ONLY
'KE' - EASEMENT 'K' LIMITED IN STRATUM TO BELOW STRATUM PLANE RL8.0
'L' - EASEMENT FOR ELECTRICITY AND OTHER PURPOSES 3.31 WIDE (D.P.1267666)

NOTE:

1. EXISTING ELECTRICAL HV ASSETS TO BE RETAINED. EARTHWORKS OVER THESE ASSETS TO BE CARRIED OUT IN ACCORDANCE WITH AUTHORITY (AUSGRID) GUIDELINES, SUBJECT TO AUTHORITY CONSENT. SCOPE OF ASSET ADJUSTMENTS TO BE DETERMINED AT DETAILED DESIGN STAGE.
2. EXISTING MINOR UTILITY INFRASTRUCTURE (ELECTRICAL LV, TELECOMMUNICATIONS, LOCAL STORMWATER DRAINAGE) TO BE ADJUSTED OR REMOVED TO SUIT THE RE-DEVELOPMENT OF THE SITE, SUBJECT TO AUTHORITY CONSENT

CAUTION:

BEWARE WORKING AROUND EXISTING UNDERGROUND UTILITIES.

BEFORE YOU DIG
www.byda.com.au

GLEBE ISLAND BRIDGE

BOWMAN STREET

BANK STREET

BLACKWATTLE BAY

AMENITIES BUILDING (RETAIN)

REFER DRG: C05.51 FOR EXISTING KERB RE-ALIGNMENT. EXISTING TRACHYTE KERB TO BE CAREFULLY REMOVED, STORED AND REUSED

ADJUST / REMOVE EXISTING GATE.

EXISTING ELECTRICAL SUBSTATION TO BE RETAINED.

BUILDING FOUNDATION TO BE RETAINED FOR PROPOSED INTERPRETATION GARDEN.

EXISTING ACCESS ROAD TO BE DEMOLISHED.

EXISTING BUILDING TO BE DEMOLISHED.

EXISTING HV TRANSMISSION LINE TO BE RETAINED.

EXISTING CONCRETE PAVEMENT TO BE REMOVED TO SUIT THE RE-DEVELOPMENT OF THE SITE.

EXISTING BUILDING TO BE DEMOLISHED.

REFER TO ARCHITECTURAL DEMOLITION PLAN FOR FURTHER 1-3 BANK ST DEMOLITION DETAIL.

EXISTING GABION WALLS TO BE DEMOLISHED.

POTENTIAL LOWERING OF EXISTING HV TRANSMISSION LINE REQUIRED.

EXISTING STORMWATER DRAINAGE PIPE TO BE UPGRADED. REFER DRG C05.01 FOR DETAILS

EXISTING BRICK WALLS TO BE DEMOLISHED.

ADJUST DISTRIBUTION BOARD. POTENTIAL RELOCATION.

FOR CONTINUATION REFER DRG: C02.02

REV.	DATE	DESCRIPTION	DRN.	DES.	VERIF.	APPD.
3	28/11/2023	ISSUED FOR SSD	AR	RH	RL	RH
2	20/10/2023	ISSUED FOR SSD	AR	RH	RL	RH
1	23/08/2023	DRAFT ISSUE	CWH	RH	-	RH

Client: we are NSW Infrastructure New South Wales

Scale: 0 5 10 15 20 25m
SCALE 1:250 @A1

North

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Phone: 02 9922 6135 enspiresolutions.com.au

Project: BANK STREET PARK, PYRMONT

Title: DEMOLITION PLAN

SHEET 01

Scale: 1:250
Date: 23/08/2023
Size: A1
Datum: GDA94

Status: FOR INFORMATION ONLY
NOT TO BE USED FOR CONSTRUCTION

Project Number/Drawing Number: 220067-00-DA-C02.01

Revision: 3

DATE PLOTTED: 28 November 2023 3:33 PM BY: AHMAD RAZAULLAH

CAD File: P:\220067 BankStPark\D-Civil\00-SiteWide\Drawings\6-DACC\1-DA\220067-00-DA-C02.01-C02.02 DEMOLITION PLAN.dwg

FOR CONTINUATION REFER DRG: C02.01

REFER TO DRG: C02.01 FOR LEGEND.

BUILDING FOUNDATION TO BE RETAINED FOR PROPOSED INTERPRETATION GARDEN.

EXISTING BUILDING TO BE DEMOLISHED.

EXISTING ELECTRICAL SUBSTATION TO BE RETAINED.

EXISTING ACCESS ROAD TO BE DEMOLISHED.

EXISTING HV TRANSMISSION LINE TO BE RETAINED.

EXISTING DRIVEWAY TO BE DEMOLISHED.

REMOVED BOUNDARY FENCE.

EXISTING DRIVEWAY TO BE DEMOLISHED.

BANK STREET

EXISTING GABION WALLS TO BE DEMOLISHED.

POTENTIAL LOWERING OF EXISTING HV TRANSMISSION LINE REQUIRED.

EXISTING STORMWATER DRAINAGE PIPE TO BE UPGRADED. REFER DRG C05.01 FOR DETAILS

EXISTING BRICK WALLS TO BE DEMOLISHED.

ADJUST DISTRIBUTION BOARD. POTENTIAL RELOCATION.

ANZAC BRIDGE OVER

EXISTING POWER CABLES BETWEEN PYLON SWITCHBOARDS WITHIN EASEMENT TO BE RETAINED.

ANZAC BRIDGE PYLON

EXISTING CONCRETE WALLS AND STAIRS TO BE DEMOLISHED.

ADJUST EXISTING ELECTRICAL SWITCHBOARDS TO SUIT PROPOSED LEVELS.

EXISTING DRAGON BOAT RACKS TO BE REMOVED.

EXISTING STORMWATER PIT WITH STORMFILTERS. POTENTIAL TO RE- USE STORMFILTERS AS PART OF THE DEVELOPMENT.

ANZAC BRIDGE FLOOD LIGHTS TO BE RAISED TO SUIT PROPOSED LEVELS.

EXISTING TIMBER BOARDWALK TO BE DEMOLISHED.

EXISTING DRAGON BOAT RAMP TO BE DEMOLISHED.

EXISTING SHIPPING CONTAINERS TO BE REMOVED.

EXISTING BOAT RACKS TO BE REMOVED.

EXISTING STORMWATER DRAINAGE PIPE TO BE RETAINED. STORMWATER PIPE ALIGNMENT TO BE VERIFIED BY DETAILED SURVEY.

REV.	DATE	DESCRIPTION	DRN.	DES.	VERIF.	APPD.
3	28/11/2023.	ISSUED FOR SSD	AR	RH	RL	RH
2	20/10/2023.	ISSUED FOR SSD	AR	RH	RL	RH
1	23/08/2023.	DRAFT ISSUE	CWH	RH	-	RH

Client: we are NSW Infrastructure New South Wales

Scale: 0 5 10 15 20 25m — SCALE 1:250 @A1

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ABN: 71 624 801 690
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Project: BANK STREET PARK, PYRMONT

Title: DEMOLITION PLAN

SHEET 02

Scale: 1:250

Date: 23/08/2023

Size: A1

Datum: GDA94

Status: FOR INFORMATION ONLY
NOT TO BE USED FOR CONSTRUCTION

Project Number/Drawing Number: 220067-00-DA-C02.02

Revision: 3

DATE PLOTTED: 28 November 2023 3:33 PM BY : AHMAD RAZAULLAH

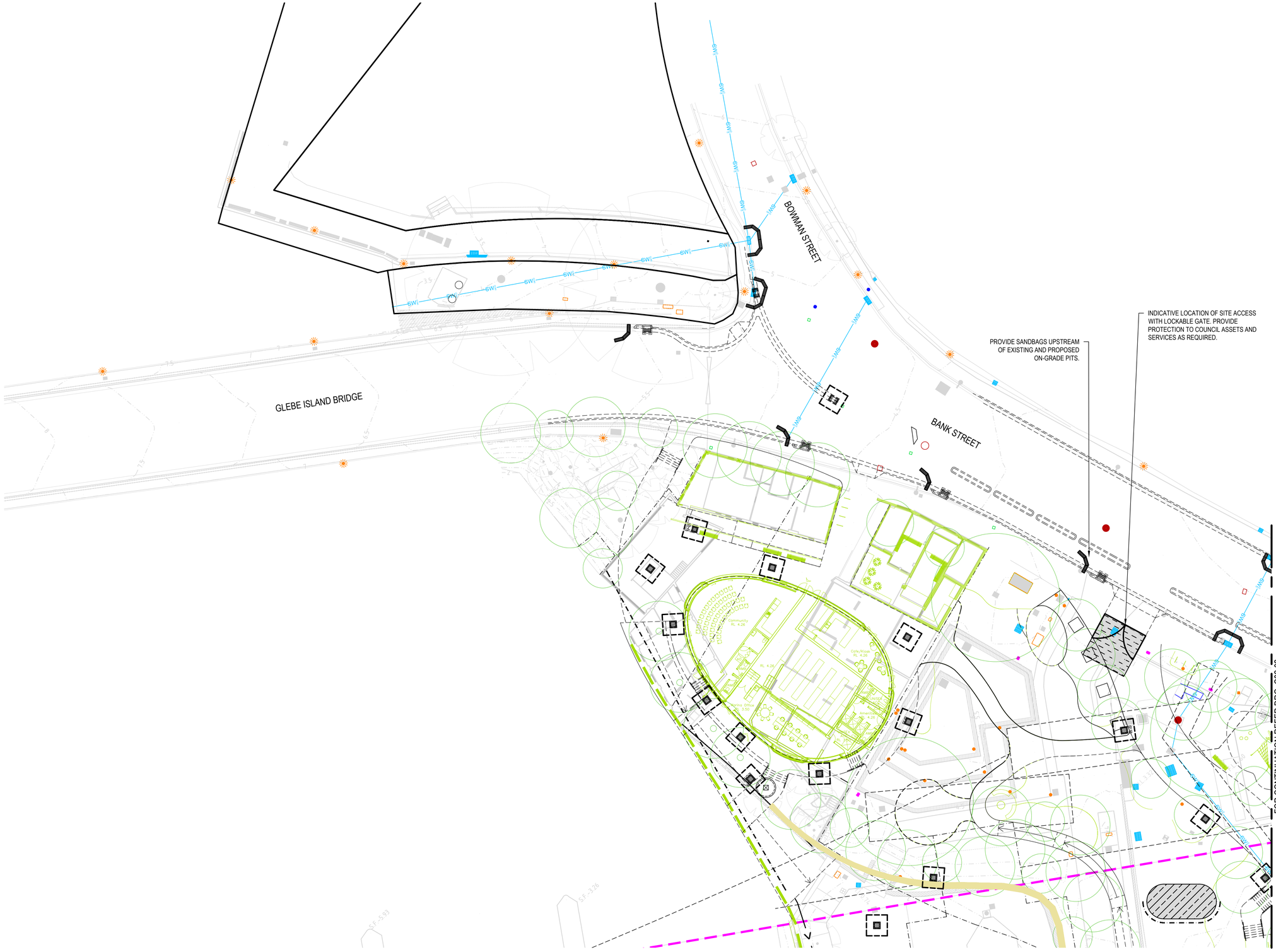
CAD File: P:\220067 BankStPark\D-Civil\00-SiteWide\Drawings\6-DACC\1-DA\220067-00-DA-C02.01-C02.02 DEMOLITION PLAN.dwg

LEGEND

- SITE BOUNDARY
- EXISTING CONTOUR (100.00)
- TEMPORARY CONSTRUCTION EXIT — REFER TO DRG. C03.21 FOR DETAIL
- STOCKPILES (SD 4-1) — REFER TO DRG. C03.21 FOR DETAIL
- SEDIMENT FENCE (SD 6-8) — REFER TO DRG. C03.21 FOR DETAIL
- CATCH DRAIN / SWALE
- SEDIMENT TRAP FOR KERB INLET (ON GRADE - SANDBAG) — REFER TO DRG. C03.21 FOR DETAIL
- SEDIMENT TRAP FOR KERB INLET (AT LOW POINT - SANDBAG) — REFER TO DRG. C03.21 FOR DETAIL
- GEOTEXTILE INLET FILTER (SD 6-12) — REFER TO DRG. C03.21 FOR DETAIL

GENERAL NOTES:

1. ALL SEDIMENT AND SOIL EROSION CONTROL MEASURES TO BE INSTALLED IN ACCORDANCE WITH THE 'BLUE BOOK'. CONTRACTOR TO ENSURE APPROPRIATE MEASURES ARE IN PLACE AND MAINTAINED AT ALL TIMES DURING CONSTRUCTION WORKS.
2. PROVIDE GEOTEXTILE INLET FILTER OR MESH GRAVEL INLET FILTER TO ALL STORMWATER PITS AND INLETS AS CONSTRUCTED.



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Project: BANK STREET PARK, PYRMONT

Scale: 1:250

Date: 23/08/2023

Status: FOR INFORMATION ONLY — NOT TO BE USED FOR CONSTRUCTION

Title: EROSION AND SEDIMENTATION CONTROL PLAN

SHEET 01

Size: A1

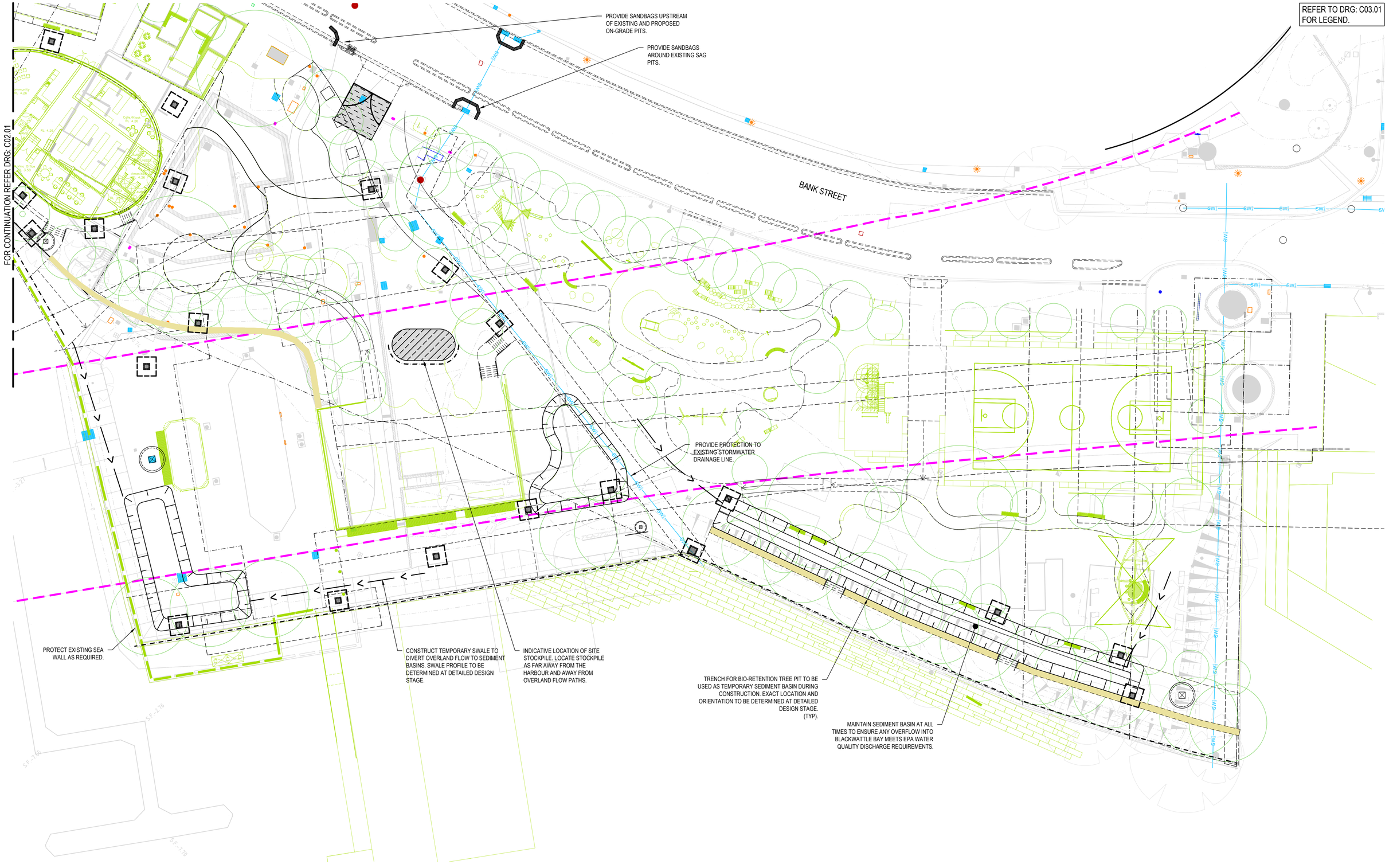
Datum: GDA94

Project Number/Drawing Number: 220067-00-DA-C03.01

Revision: 2

DATE PLOTTED: 20 October 2023 11:46 AM BY : AHMAD RAZAULLAH

CAD File: P:\220067 BankStPark\D-Civil\00-SiteWide\Drawings\6-DACC\1-DA\220067-00-DA-C03.01-C03.02 EROSION AND SEDIMENTATION CONTROL PLAN.dwg



REV.	DATE	DESCRIPTION	DRN.	DES.	VERIF.	APPD.
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Project: BANK STREET PARK, PYRMONT

Title: EROSION AND SEDIMENTATION CONTROL PLAN

SHEET 02

Scale: 1:250

Date: 23/08/2023

Size: A1

Datum: GDA94

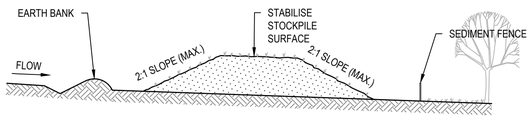
Status: FOR INFORMATION ONLY — NOT TO BE USED FOR CONSTRUCTION

Project Number/Drawing Number: 220067-00-DA-C03.02

Revision: 2

DATE PLOTTED: 20 October 2023 11:46 AM BY : AHMAD RAZAULLAH

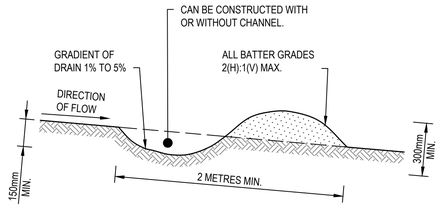
CAD File: P:\220067 BankStPark\D-Civil\00-SiteWide\Drawings\6-DACC\1-DA\220067-00-DA-C03.01-C03.02 EROSION AND SEDIMENTATION CONTROL PLAN.dwg



CONSTRUCTION NOTES

1. PLACE STOCKPILES MORE THAN 2m (PREFERABLY 5m) FROM EXISTING VEGETATION, CONCENTRATED WATER FLOW, ROADS AND HAZARD AREAS.
2. CONSTRUCT ON THE CONTOUR AS LOW, FLAT, ELONGATED MOUNDS.
3. WHERE THERE IS SUFFICIENT AREA, TOPSOIL STOCKPILES SHALL BE LESS THAN 2m IN HEIGHT.
4. WHERE THEY ARE TO BE IN PLACE FOR MORE THAN 10 DAYS, STABILISE FOLLOWING THE APPROVED ESCP OR SWMP TO REDUCE THE C-FACTOR TO LESS THAN 0.10.
5. CONSTRUCT EARTH BANKS (STANDARD DRAWING 5-5) ON THE UPSLOPE SIDE TO DIVERT WATER AROUND STOCKPILES AND SEDIMENT FENCES (STANDARD DRAWING 6-8) 1 TO 2m DOWNSLOPE.

STOCKPILES (SD 4-1)

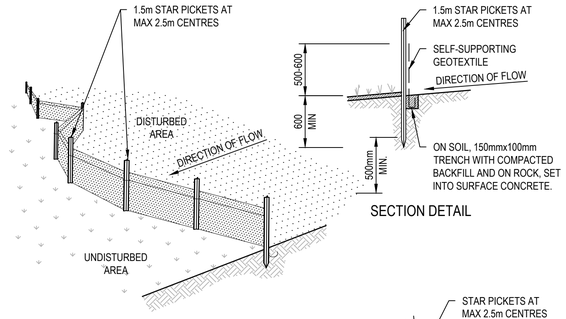


CONSTRUCTION NOTES

1. BUILD WITH GRADIENTS BETWEEN 1 AND 5 PERCENT.
2. AVOID REMOVING TREES AND SHRUBS IF POSSIBLE - WORK AROUND THEM.
3. ENSURE THE STRUCTURES ARE FREE OF PROJECTIONS OR OTHER IRREGULARITIES THAT COULD IMPEDE WATER FLOW.
4. BUILD THE DRAINS WITH CIRCULAR, PARABOLIC OR TRAPEZOIDAL CROSS SECTIONS, NOT V SHAPED.
5. ENSURE THE BANKS ARE PROPERLY COMPACTED TO PREVENT FAILURE.
6. COMPLETE PERMANENT OR TEMPORARY STABILISATION WITHIN 10 DAYS OF CONSTRUCTION.

NOTE: ONLY TO BE USED AS TEMPORARY BANK
WHERE MAXIMUM UPSLOPE LENGTH IS 80 METRES.

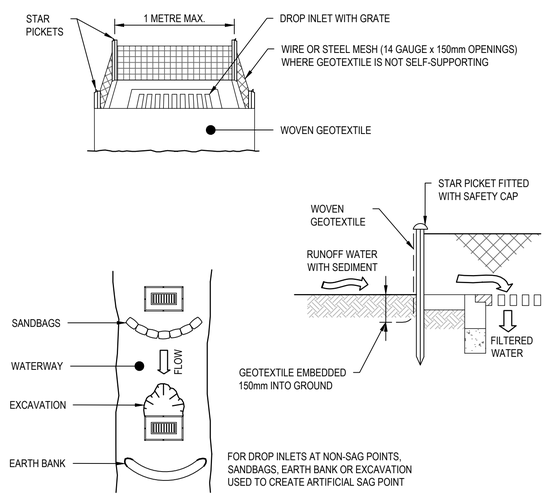
EARTH BANK - LOW FLOW (SD 5-5)



CONSTRUCTION NOTES

1. CONSTRUCT SEDIMENT FENCES AS CLOSE AS POSSIBLE TO BEING PARALLEL TO THE CONTOURS OF THE SITE, BUT WITH SMALL RETURNS AS SHOWN IN THE DRAWING TO LIMIT THE CATCHMENT AREA OF ANY ONE SECTION. THE CATCHMENT AREA SHOULD BE SMALL ENOUGH TO LIMIT WATER FLOW IF CONCENTRATED AT ONE POINT TO 50 LITRES PER SECOND IN THE DESIGN STORM EVENT, USUALLY THE 10-YEAR EVENT.
2. CUT A 150mm DEEP TRENCH ALONG THE UPSLOPE LINE OF THE FENCE FOR THE BOTTOM OF THE FABRIC TO BE ENTRENCHED.
3. DRIVE 1.5 METRE LONG STAR PICKETS INTO GROUND AT 2.5 METRE INTERVALS (MAX) AT THE DOWNSLOPE EDGE OF THE TRENCH. ENSURE ANY STAR PICKETS ARE FITTED WITH SAFETY CAPS.
4. FIX SELF-SUPPORTING GEOTEXTILE TO THE UPSLOPE SIDE OF THE POSTS ENSURING IT GOES TO THE BASE OF THE TRENCH. FIX THE GEOTEXTILE WITH WIRE TIES OR AS RECOMMENDED BY THE MANUFACTURER. ONLY USE GEOTEXTILE SPECIFICALLY PRODUCED FOR SEDIMENT FENCING. THE USE OF SHADE CLOTH FOR THIS PURPOSE IS NOT SATISFACTORY.
5. JOIN SECTIONS OF FABRIC AT A SUPPORT POST WITH A 150mm OVERLAP.
6. BACKFILL THE TRENCH OVER THE BASE OF THE FABRIC AND COMPACT IT THOROUGHLY OVER THE GEOTEXTILE.

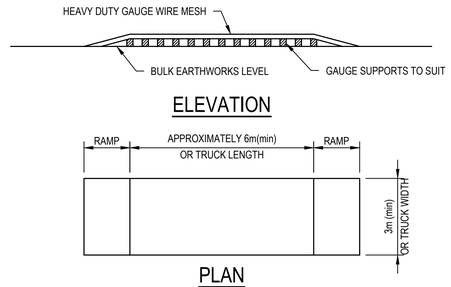
SEDIMENT FENCE (SD 6-8)



CONSTRUCTION NOTES

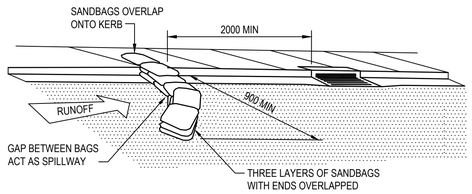
1. FABRICATE A SEDIMENT BARRIER MADE FROM GEOTEXTILE OR STRAW BALES.
2. FOLLOW STANDARD DRAWING 6-7 AND STANDARD DRAWING 6-8 FOR INSTALLATION PROCEDURES FOR THE STRAW BALES OR GEOFABRIC. REDUCE THE PICKET SPACING TO 1 METRE CENTRES.
3. IN WATERWAYS, ARTIFICIAL SAG POINTS CAN BE CREATED WITH SANDBAGS OR EARTH BANKS AS SHOWN IN THE DRAWING.
4. DO NOT COVER THE INLET WITH GEOTEXTILE UNLESS THE DESIGN IS ADEQUATE TO ALLOW FOR ALL WATERS TO BYPASS IT.

GEOTEXTILE INLET FILTER (SD 6-12)



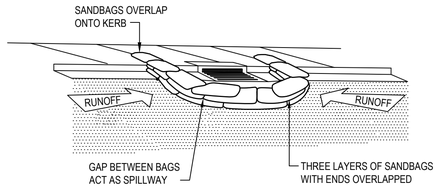
TEMPORARY CONSTRUCTION EXIT (SHAKER PAD DETAIL)

THE EXIT SHALL BE MAINTAINED IN A CONDITION WHICH PREVENTS TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS OF WAY. THIS MAY REQUIRE REPAIR AND OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS OF WAY MUST BE REMOVED IMMEDIATELY.



SEDIMENT TRAP FOR KERB INLET (ON GRADE - SANDBAG)

NOT TO SCALE



SEDIMENT TRAP FOR KERB INLET (AT LOW POINT - SANDBAG)

NOT TO SCALE

REV.	DATE	DESCRIPTION	DRN.	DES.	VERIF.	APPD.
2	20/10/2023	ISSUED FOR SSD	AR	RH	RL	RH
1	23/08/2023	DRAFT ISSUE	CWH	RH	-	RH

Client: we are INSW Infrastructure New South Wales

Scale:

North:

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Project: BANK STREET PARK, PYRMONT

Scale: NTS

Date: 23/08/2023

Status: FOR INFORMATION ONLY
NOT TO BE USED FOR CONSTRUCTION

Title: EROSION AND SEDIMENTATION CONTROL DETAILS

Size: A1

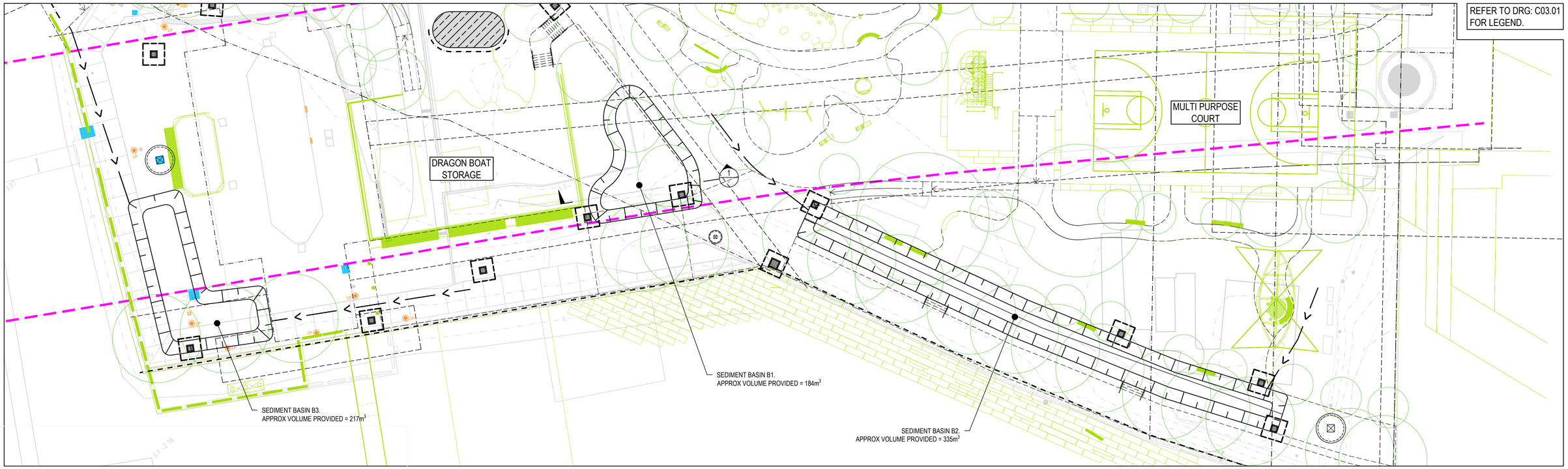
Datum: GDA94

Project Number/Drawing Number: 220067-00-DA-C03.21

Revision: 2

DATE PLOTTED: 20 October 2023 11:46 AM BY : AHMAD RAZAULLAH

CAD File: P:\220067 BankStPark\D-Civil\00-SiteWide\Drawings\6-DACC\1-DA\220067-00-DA-C03.21 EROSION AND SEDIMENTATION CONTROL DETAILS.dwg



REFER TO DRG: C03.01 FOR LEGEND.

1. Erosion Hazard and Sediment Basins

Site Name:

Site Location:

Precinct/Stage:

Other Details:

Site area	Sub-catchment or Name of Structure						Notes
	B1	B2	B3				
Total catchment area (ha)	0.2	0.14	0.24				
Disturbed catchment area (ha)	0.2	0.14	0.24				

Soil analysis (enter sediment type if known, or laboratory particle size data)

Sediment Type (C, F or D) if known:	D	D	D				From Appendix C (if known)
% sand (fraction 0.02 to 2.00 mm)	30	30	30				Enter the percentage of each soil fraction. E.g. enter 10 for 10%
% silt (fraction 0.002 to 0.02 mm)	30	30	30				
% clay (fraction finer than 0.002 mm)	30	30	30				
Dispersion percentage	10.0	10.0	10.0				E.g. enter 10 for dispersion of 10%
% of whole soil dispersible	4.5	4.5	4.5				See Section 6.3.3(e). Auto-calculated
Soil Texture Group	D	D	D				Automatic calculation from above

Rainfall data

Design rainfall depth (no of days)	5	5	5				See Section 6.3.4 and, particularly, Table 6.3 on pages 6-24 and 6-25.
Design rainfall depth (percentile)	85	85	85				
x-day, y-percentile rainfall event (mm)	38.8	38.8	38.8				
Rainfall R-factor (if known)							Only need to enter one or the other here
IFD: 2-year, 6-hour storm (if known)	42.9	42.9	42.9				

RUSLE Factors

Rainfall erosivity (*R*-factor)	219740	219740	219740				Auto-filled from above
Soil erodibility (*K*-factor)	0.036	0.036	0.036				RUSLE LS factor calculated for a high rill/interrill ratio.
Slope length (m)	43	38	92				
Slope gradient (%)	2.5	2.5	2.5				
Length/gradient (*LS*-factor)	0.40	0.38	0.56				
Erosion control practice (*P*-factor)	1.3	1.3	1.3	1.3	1.3	1.3	
Ground cover (*C*-factor)	1	1	1	1	1	1	

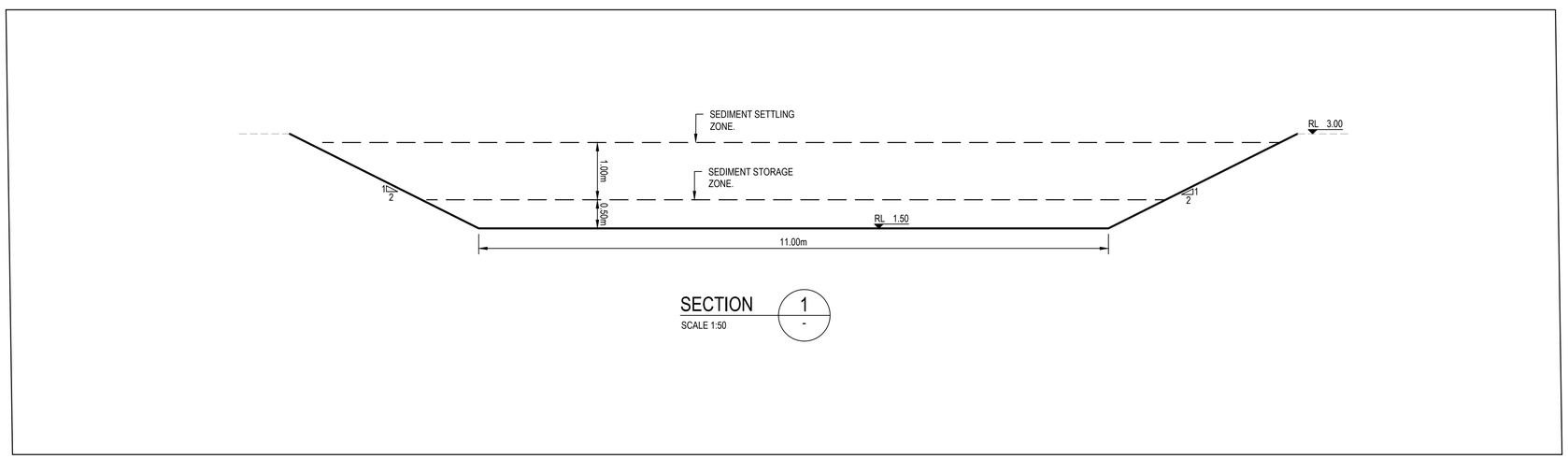
Sediment Basin Design Criteria (for Type D/F basins only. Leave blank for Type C basins)

Storage (soil) zone design (no of months)	2	2	2	2	2	2	Minimum is generally 2 months
Cv (Volumetric runoff coefficient)	0.34	0.34	0.34				See Table F2, page F-4 in Appendix F

Calculations and Type D/F Sediment Basin Volumes

Soil loss (t/ha/yr)	4124	3907	5753				
Soil Loss Class	7	7	7				See Table 4.2, page 4-13
Soil loss (m^3/ha/yr)	3173	3005	4426				Conversion to cubic metres
Sediment basin storage (soil) volume (m^3)	106	70	177				See Sections 6.3.4(i) for calculations
Sediment basin settling (water) volume (m^3)	26	18	32				See Sections 6.3.4(i) for calculations
Sediment basin total volume (m^3)	132	88	209				

NB for sizing of Type C (coarse) sediment basins, see Worksheet 3 (if required).



SECTION 1 / SCALE 1:50

GENERAL NOTES:

1. ALL SEDIMENT AND SOIL EROSION CONTROL MEASURES TO BE INSTALLED IN ACCORDANCE WITH THE 'BLUE BOOK'. CONTRACTOR TO ENSURE APPROPRIATE MEASURES ARE IN PLACE AND MAINTAINED AT ALL TIMES DURING CONSTRUCTION WORKS.
2. REFER SPECIFICATION NOTES FOR SEDIMENT AND SOIL EROSION CONTROL REQUIREMENTS.
3. CONTRACTOR TO CONSTRUCT AND MAINTAIN SEDIMENT BASIN IN ACCORDANCE WITH RELEVANT AUTHORITY SPECIFICATIONS AND DETAILS.
4. TEST ANY EXISTING STORED WATER AND FLOCCULATE AS REQUIRED TO ENSURE WATER QUALITY MEETS THE REQUIREMENTS OF COUNCIL PRIOR TO PUMPING FOR DUST CONTROL.
5. THE SITE IS SUBJECT TO CONTAMINATED SOILS. THE CONTRACTOR SHALL ENSURE THE RECOMENDATIONS OF THE RAP ARE IMPLEMENTED.

REV.	DATE	DESCRIPTION	DRN.	DES.	VERIF.	APPD.
1	20/10/2023	ISSUED FOR SSDA	AR	RH	-	RH

Client: we are NSW Infrastructure New South Wales

Scale: 0 5 10 15 20 25m — SCALE 1:250 @A1; 0 1 2 3 4 5m — SCALE 1:50 @A1

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Project: BANK STREET PARK, PYRMONT

Title: SEDIMENT BASIN PLAN AND DETAIL

Scale: AS SHOWN

Date: 23/08/2023

Size: A1

Datum: GDA94

Status: FOR INFORMATION ONLY — NOT TO BE USED FOR CONSTRUCTION

Project Number/Drawing Number: 220067-00-DA-C03.31

Revision: 1

DATE PLOTTED: 20 October 2023 11:58 AM BY : AHMAD RAZAULLAH

CAD File: P:\220067 BankStPark\D-Civil\00-SiteWide\Drawings\6-DACC\1-DA\220067-00-DA-C03.31-HARBOUR PARK - SEDIMENT BASIN PLAN AND DETAILS.dwg

LEGEND

- GREATER THAN 3.5m CUT
- 3.0m TO 3.5m CUT
- 2.5m TO 3.0m CUT
- 2.0m TO 2.5m CUT
- 1.5m TO 2.0m CUT
- 1.0m TO 1.5m CUT
- 0.5m TO 1.0m CUT
- 0.0m TO 0.5m CUT
- 0.0m TO 0.5m FILL
- 0.5m TO 1.0m FILL
- 1.0m TO 1.5m FILL
- 1.5m TO 2.0m FILL
- 2.0m TO 2.5m FILL
- GREATER THAN 2.5m FILL
- TREE TO BE RETAINED

NOTES

1. REFER SPECIFICATION NOTES FOR EARTHWORKS GENERAL REQUIREMENTS.
2. ALL WORKS TO BE CARRIED OUT IN ACCORDANCE WITH COUNCIL / RELEVANT AUTHORITY SPECIFICATIONS AND DETAILS.
3. NO ALLOWANCE HAS BEEN MADE FOR BULKING FACTORS.
4. NO ALLOWANCE HAS BEEN MADE FOR TOPSOIL STRIPPING AND DETAILED EARTHWORKS AND THE LIKE.
5. CONTOURS REPRESENT APPROXIMATE BULK SURFACE LEVELS.
6. CUT TO FILL CALCULATIONS ARE BASED ON EXISTING SURFACE TO BULK SURFACE.
7. APPROXIMATE BULK EARTHWORK VALUES AS FOLLOWS;
   - 7.1. CUT 6,911 cu.m
   - 7.2. FILL 1,422 cu.m
   - 7.3. BALANCE 5,489 cu.m EXPORT
8. THE FOLLOWING DEPTH ASSUMPTIONS HAVE BEEN MADE:
   - 8.1. TURF - 300mm DEEP
   - 8.2. PAVING AREAS - 300mm DEEP
   - 8.3. PLANTING AREAS - 500mm DEEP
   - 8.4. TREES - 1.0m DEEP
   - 8.5. BIO-RETENTION TREE PITS - 1.0m DEEP

CAUTION:

BEWARE WORKING AROUND EXISTING UNDERGROUND UTILITIES.

BEFORE YOU DIG www.byda.com.au

REV.	DATE	DESCRIPTION	DRN.	DES.	VERIF.	APPD.
2	20/10/2023	ISSUED FOR SSD	AR	RH	RL	RH
1	23/08/2023	DRAFT ISSUE	CWH	RH	-	RH

Client: we are inSW Infrastructure New South Wales

Scale: 0 10 20 30 40m — SCALE 1:400 @A1

North

enspire
Enspire Solutions Pty Ltd
Level 4, 153 Walker Street, North Sydney NSW 2060
ABN: 71 624 801 690
Phone: 02 9922 6135 enspiresolutions.com.au

Project: BANK STREET PARK, PYRMONT

Title: CUT AND FILL PLAN

Scale: 1:400

Date: 23/08/2023

Size: A1

Datum: GDA94

Status: FOR INFORMATION ONLY — NOT TO BE USED FOR CONSTRUCTION

Project Number/Drawing Number: 220067-00-DA-C04.01

Revision: 2

DATE PLOTTED: 20 October 2023 11:47 AM BY : AHMAD RAZAULLAH

CAD File: P:\220067 BankStPark\D-Civil\00-SiteWide\Drawings\6-DACC\1-DA\220067-00-DA-C04.01 CUT AND FILL PLAN.dwg

LEGEND

- SITE BOUNDARY
- INTERNAL BOUNDARY
- 100.00 — CONTOUR
- ANZAC BRIDGE OVER
- BATTER
- RW — RETAINING WALL TO LANDSCAPE ARCHITECTS DETAILS
- SEATING WALL TO LANDSCAPE ARCHITECTS DETAILS
- EXISTING SEA WALL
- FFL 10.00 — FINISHED FLOOR LEVEL
- ● F 100.00 — FINISHED LEVEL
- VEGETATED SWALE
- ● B — REMOVABLE BOLLARDS
- 375 — PIPE SIZE, STORMWATER DRAINAGE LINE, FLOW DIRECTION
- Ø375 / USIL= 0.00 / % 1.0 / DSIL= 0.00 / L= 20.00 — PIPE INFORMATION: PIPE SIZE, UP-STREAM INVERT LEVEL, PIPE GRADE, DOWN-STREAM INVERT LEVEL, PIPE LENGTH
- OVERLAND FLOW
- KERB INLET PIT REFER CITY OF SYDNEY COUNCIL STANDARD DRG: 7.1.1 FOR DETAILS
- SURFACE INLET PIT/JUNCTION PIT REFER CITY OF SYDNEY COUNCIL STANDARD DRG: 7.1.7 FOR DETAILS
- GTD — GRATED TRENCH DRAIN
- STORM-FILTER WATER QUALITY CHAMBER
- BIO-RETENTION TREE PIT
- SS — SUBSOIL DRAINAGE LINE
- ⁺FP — SUBSOIL DRAINAGE FLUSHING POINT
- PROPOSED TREE TO LANDSCAPE ARCHITECTS DETAILS

MET-OCEAN CONDITIONS:

- TIDAL RANGE = 2.1m
  - LOWEST ASTRONOMICAL TIDE: -0.93m AHD
  - MEAN WATER LEVEL: 0.07 AHD
  - HIGHEST ASTRONOMICAL TIDE: 1.17m AHD
- 2050 CLIMATIC CONDITION: 1.78m AHD
- 2100 CLIMATIC CONDITION: 2.28m AHD

NOTES:

1. ALL WORKS TO BE CARRIED OUT IN ACCORDANCE WITH RELEVANT AUTHORITY SPECIFICATIONS AND DETAILS.
2. ROOF DRAINAGE SUBJECT TO DETAILED DESIGN.
3. PIPE SIZES SHOWN INDICATIVE SUBJECT TO DETAILED DESIGN.
4. EXISTING MINOR UTILITY INFRASTRUCTURE (ELECTRICAL LV, TELECOMMUNICATIONS, LOCAL STORMWATER DRAINAGE) TO BE ADJUSTED OR REMOVED TO SUIT THE RE-DEVELOPMENT OF THE SITE, SUBJECT TO AUTHORITY CONSENT.

CAUTION

EXISTING UTILITY SERVICE ADJUSTMENT IS SUBJECT TO DETAILED INVESTIGATION AT DETAILED DESIGN.

GLEBE ISLAND BRIDGE

BLACKWATTLE BAY

BANK STREET

INFILL WITH LANDSCAPING.

STORMWATER SURFACE INLET PITS WITH FILTER BASKET INSERTS. (TYP).

PROVIDE REMOVABLE BOLLARDS. (TYP).

RETAIN EXISTING ELECTRICAL SUBSTATION.

BIO-RETENTION TREE PIT IN PARK. REFER DRG: C14.01 FOR DETAILS

REFER DRG: C05.51 FOR BANK STREET UPGRADE.

MAINTAIN EXISTING LANDSCAPING.

AMENITIES BUILDING FFL 4.40

INTERPRETATION GARDEN REFER LANDSCAPE ARCHITECTS DETAILS

TOP OF WALL LEVELS TO BE 0.4-0.5m ABOVE PLAZA TO ACT AS SEATING WALL..

RETAINING WALL TO LANDSCAPE ARCHITECTS DETAILS.

EXISTING HV TRANSMISSION LINE TO BE RETAINED.

LOW FLOW DISCHARGE TO BIO RETENTION TREE PIT VIA SUBSOIL LINE. HIGH FLOW DISCHARGE VIA STORMWATER PIPE (TYP).

COMMUNITY FFL4.26

COMMUNITY, CAFE & MARINA BUILDING / OFFICES

CAFE KIOSK FFL4.26

MARINA OFFICES FFL3.50

AMENITIES FFL4.26

SHELTER

BIO-RETENTION FILTER SOIL

BIO-RETENTION FILTER SOIL

STRUCTURAL REQUIREMENTS TO RETAIN EXISTING SEA WALL TO BE CONFIRMED BY STRUCTURAL ENGINEER DURING DETAILED DESIGN.

EXISTING SEA WALL BELOW.

NEW TIMBER DECKING BEYOND EXISTING SEA WALL.

STORMFILTER WATER QUALITY TREATMENT PIT (x6 FILTER CARTRIDGES). (TYP).

NEW OUTLET THROUGH EXISTING SEA WALL. IL1.75m AHD.

RETAIN EXISTING HV TRANSMISSION LINE. POTENTIAL LOWERING REQUIRED.

ADJUST EXISTING DISTRIBUTION BOARD TO SUIT PROPOSED LEVELS.

OVERLAND FLOW PATH FOR BANK STREET SAG.

ADJUST PIT TO BE WHOLLEY OUTSIDE OF PAVEMENT.

DISCHARGE NEW STORMWATER DRAINAGE THROUGH EXISTING SEA WALL OUTLET.

USIL:1.34
DSIL:1.25
%: 1
L: 9.40m

KAYAK RENTAL KIOSK

UPGRADE EXISTING STORMFILTER WATER QUALITY TREATMENT PIT. (x15 FILTER CARTRIDGES). (TYP).

ANZAC BRIDE PYLON

DRAGON BOAT STORAGE
TOP FFL5.50
BOTTOM FFL2.50

ADJUST EXISTING ELECTRICAL SWITCHBOARDS TO SUIT PROPOSED LEVELS.

ADJUST EXISTING FLOOD LIGHTS TO SUIT PROPOSED LEVELS. (TYP).

FOR CONTINUATION REFER DRG: C05.02

FOR CONTINUATION REFER INSET 'A'

FOR CONTINUATION REFER DRG: C05.01

INSET 'A'
SCALE 1:200

EDGE OF PROMENADE. REFER LANDSCAPE ARCHITECTS DRAWINGS FOR DETAILS.

REV.	DATE	DESCRIPTION	DRN.	DES.	VERIF.	APPD.
2	20/10/2023	ISSUED FOR SSD	AR	RH	RL	RH
1	23/08/2023	DRAFT ISSUE	CWH	RH	-	RH

Client: we are NSW Infrastructure New South Wales

Scale: 0 5 10 15 20m — SCALE 1:200 @A1

North

enspire
Enspire Solutions Pty Ltd
Level 4, 153 Walker Street, North Sydney NSW 2060
ABN: 71 624 801 690
Phone: 02 9922 6135 enspiresolutions.com.au

Project: BANK STREET PARK, PYRMONT

Scale: 1:200

Date: 23/08/2023

Status: FOR INFORMATION ONLY — NOT TO BE USED FOR CONSTRUCTION

Title: HARBOUR PARK SITEWORKS AND STORMWATER MANAGEMENT PLAN SHEET 01

Size: A1

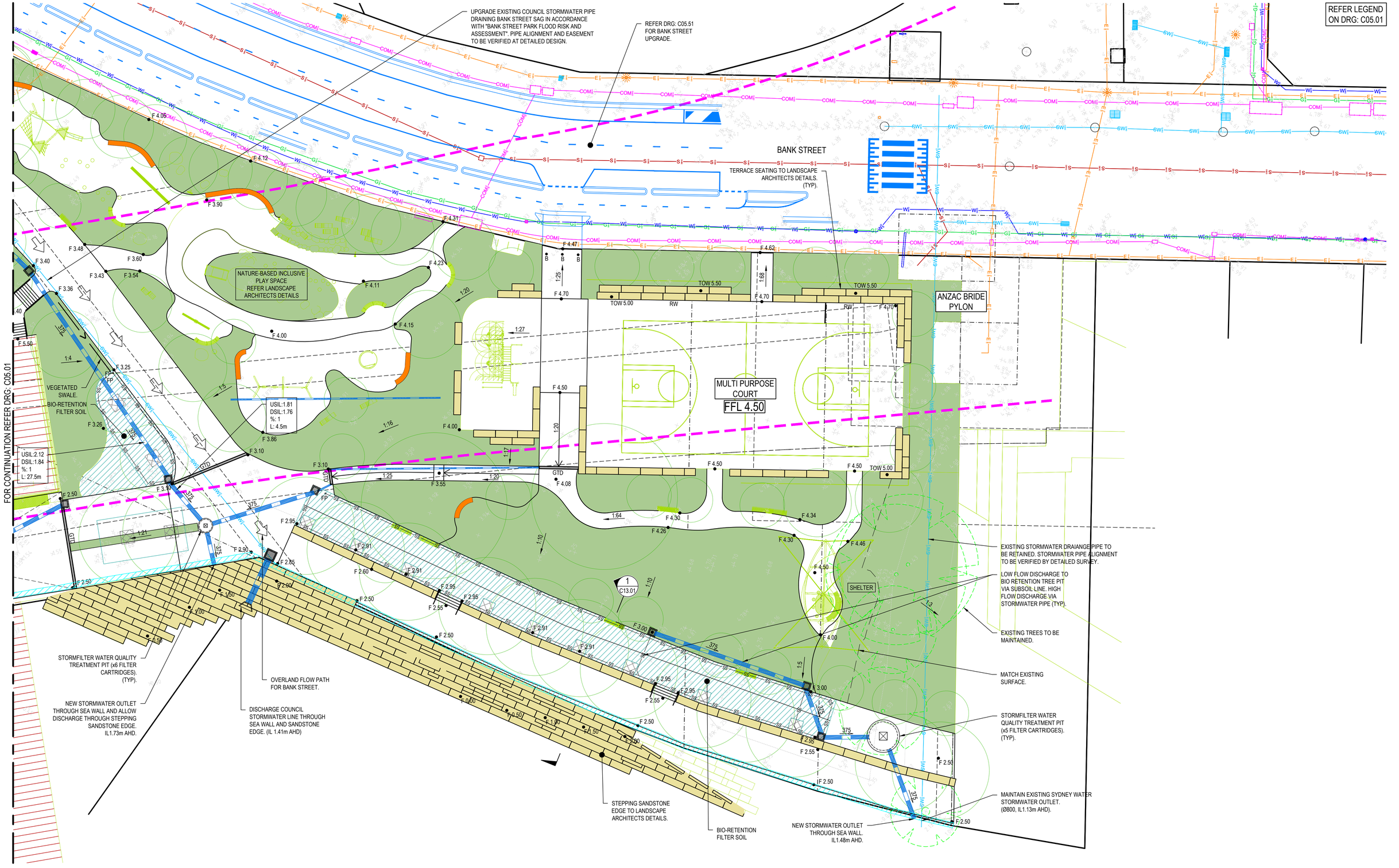
Datum: GDA94

Project Number/Drawing Number: 220067-00-DA-C05.01

Revision: 2

CAD File: P:\220067 BankStPark\D-Civil\00-SiteWide\Drawings\6-DACC\1-DA\220067-00-DA-C05.01-C05.02 HARBOUR PARK - SITEWORKS AND STORMWATER MANAGMENET PLAN.dwg

DATE PLOTTED: 20 October 2023 12:02 PM BY : AHMAD RAZAULLAH



REV.	DATE	DESCRIPTION	DRN.	DES.	VERIF.	APPD.
2	20/10/2023	ISSUED FOR SSD	AR	RH	RL	RH
1	23/08/2023	DRAFT ISSUE	CWH	RH	-	RH

Client: we are insw Infrastructure New South Wales

Scale: 0 5 10 15 20m — SCALE 1:200 @A1

North

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ABN: 71 624 801 690
Phone: 02 9922 6135 enspiresolutions.com.au

Project: BANK STREET PARK, PYRMONT

Title: HARBOUR PARK SITEWORKS AND STORMWATER MANAGEMENT PLAN SHEET 02

Scale: 1:200

Date: 23/08/2023

Size: A1

Datum: GDA94

Status: FOR INFORMATION ONLY NOT TO BE USED FOR CONSTRUCTION

Project Number/Drawing Number: 220067-00-DA-C05.02

Revision: 2

DATE PLOTTED: 20 October 2023 12:02 PM BY : AHMAD RAZAULLAH

CAD File: P:\220067 BankStPark\D-Civil\00-SiteWide\Drawings\6-DACC\1-DA\220067-00-DA-C05.01-C05.02 HARBOUR PARK - SITEWORKS AND STORMWATER MANAGMENET PLAN.dwg

LEGEND

- SITE BOUNDARY
- CONCRETE PAVING
- CONCRETE SHARED PATH - FOOTPATH AND VEHICLE MAINTENANCE ACCESS
- RW — RETAINING WALL TO LANDSCAPE ARCHITECTS DETAILS

LANDSCAPE ARCHITECT FINISHES

- RECYCLED BRICK PAVING
- GRAVEL PAVING
- MULCH
- DECORATIVE PAVEMENT
- TURF / PLANTING
- MULTI PURPOSE COURT
- PLAYGROUND SOFT-FALL
- DECKING

NOTES

1. REFER LANDSCAPE ARCHITECT DRAWINGS FOR FINISH DETAILS.
2. PAVEMENT STRUCTURAL DETAILS SUBJECT TO DETAILED DESIGN.

INSET 'A'
SCALE 1:200

REV.	DATE	DESCRIPTION	DRN.	DES.	VERIF.	APPD.
2	20/10/2023	ISSUED FOR SSD	AR	RH	RL	RH
1	23/08/2023	DRAFT ISSUE	CWH	RH	-	RH

Client: we are NSW Infrastructure New South Wales

Scale: 0 5 10 15 20m — SCALE 1:200 @A1

North

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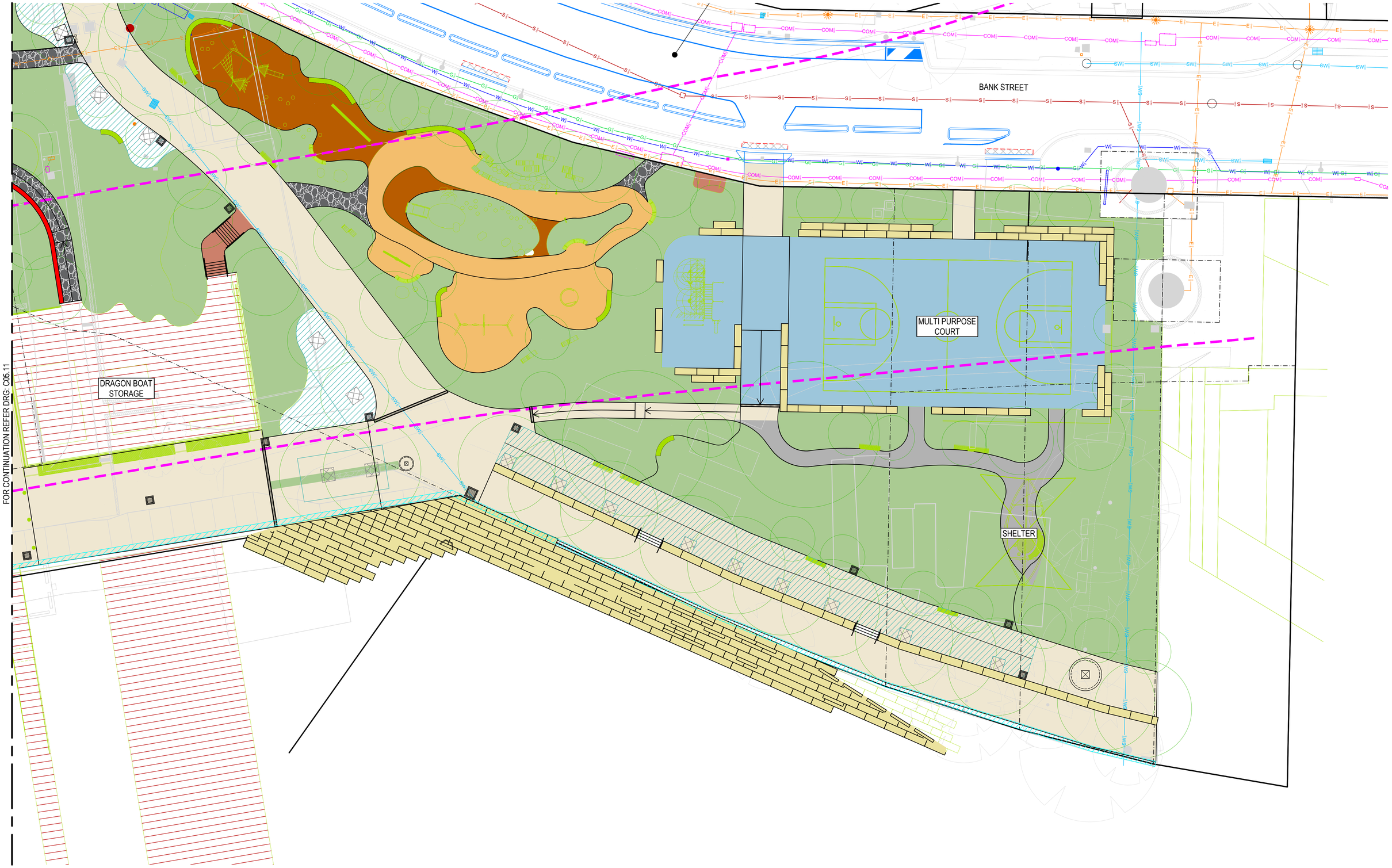
ABN: 71 624 801 690
Phone: 02 9922 6135 enspiresolutions.com.au

Project: BANK STREET PARK, PYRMONT
Title: HARBOUR PARK PAVEMENT PLAN SHEET 01
Scale: 1:200
Date: 23/08/2023
Size: A1
Datum: GDA94
Status: FOR INFORMATION ONLY — NOT TO BE USED FOR CONSTRUCTION
Project Number/Drawing Number: 220067-00-DA-C05.11
Revision: 2

DATE PLOTTED: 20 October 2023 11:48 AM BY : AHMAD RAZAULLAH

CAD File: P:\220067 BankStPark\D-Civil\00-SiteWide\Drawings\6-DACC\1-DA\220067-00-DA-C05.11-C05.12 HARBOUR PARK - PAVEMENT, SIGNAGE AND LINEMARKING PLAN.dwg



REV.	DATE	DESCRIPTION	DRN.	DES.	VERIF.	APPD.
2	20/10/2023	ISSUED FOR SSD	AR	RH	RL	RH
1	23/08/2023	DRAFT ISSUE	CWH	RH	-	RH

Client: we are insw Infrastructure New South Wales

Scale: 0 5 10 15 20m
SCALE 1:200 @A1

North

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Project: BANK STREET PARK, PYRMONT

Title: HARBOUR PARK PAVEMENT PLAN SHEET 02

Scale: 1:200

Date: 23/08/2023

Size: A1

Datum: GDA94

Status: FOR INFORMATION ONLY
NOT TO BE USED FOR CONSTRUCTION

Project Number/Drawing Number: 220067-00-DA-C05.12

Revision: 2

DATE PLOTTED: 20 October 2023 11:48 AM BY - AHMAD RAZAULLAH

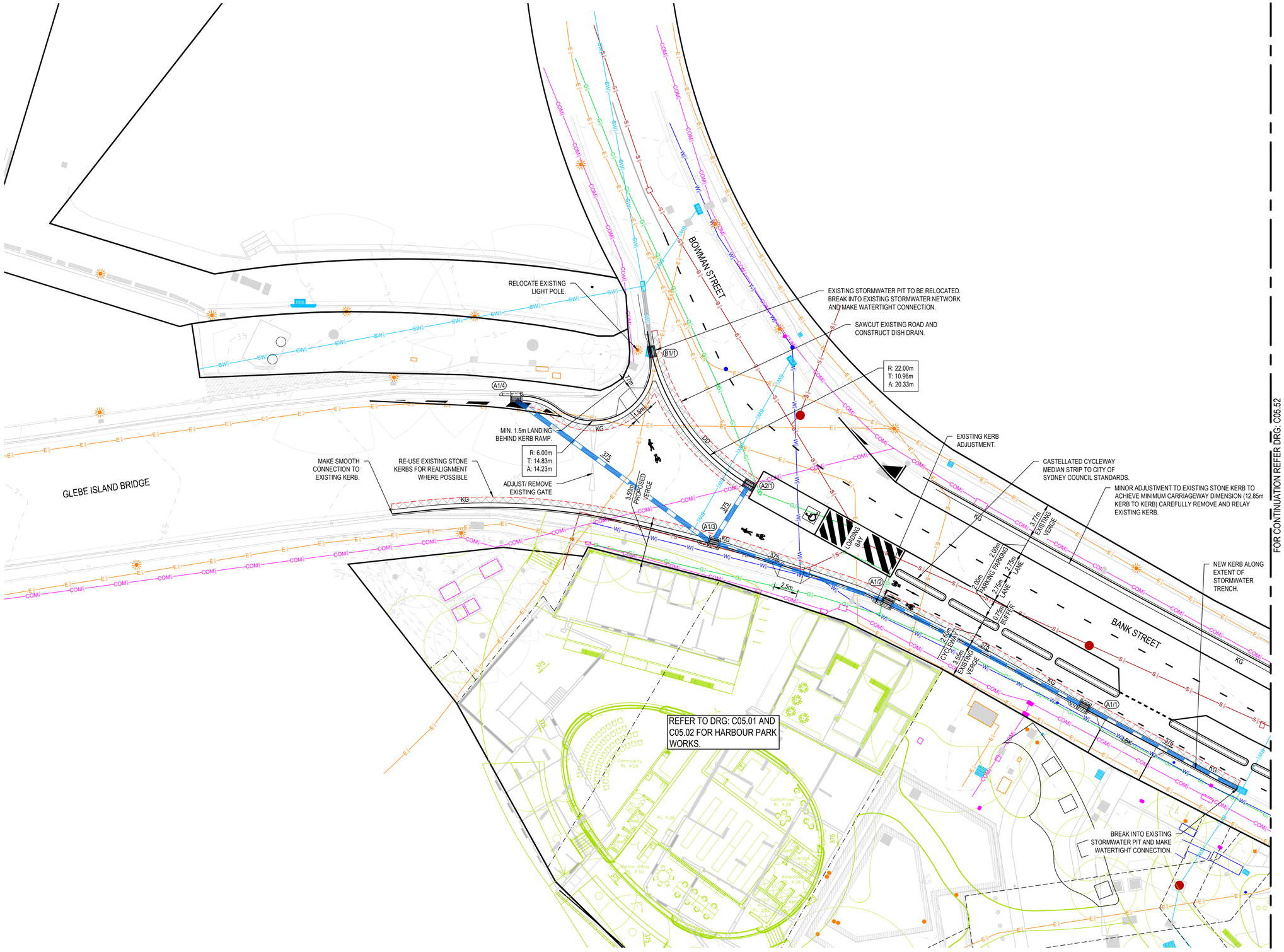
CAD File: P:\220067 BankStPark\D-Civil\00-SiteWide\Drawings\6-DACC\1-DA\220067-00-DA-C05.11-C05.12 HARBOUR PARK - PAVEMENT, SIGNAGE AND LINEMARKING PLAN.dwg

LEGEND

- SITE BOUNDARY
- KG — STONE KERB WITH CONCRETE GUTTER. REFER CITY OF SYDNEY COUNCIL STANDARD DRG: 1.1.1 FOR DETAILS
- DD — DISH DRAIN. REFER CITY OF SYDNEY COUNCIL STANDARD DRG: 1.1.2 FOR DETAILS
- KERB RAMP. REFER CITY OF SYDNEY COUNCIL STANDARD DRG: 2.6.5 FOR DETAILS
- LBK — LAYBACK KERB. REFER CITY OF SYDNEY COUNCIL STANDARD DRG: 2.6.8 FOR DETAILS
- SAWCUT AND PAVEMENT RESTORATION. REFER CITY OF SYDNEY COUNCIL STANDARD DRG: 1.1.6 FOR DETAILS
- 375 — PIPE SIZE. STORMWATER DRAINAGE LINE. FLOW DIRECTION
- A01/01 — STORMWATER LINE/PIT NUMBER
- R: 1.0m, T: 2.0m, A: 3.0m — KERB SETOUT INFORMATION. RADIUS, TANGENT LENGTH, ARC LENGTH
- SURFACE INLET / KERB INLET PIT. REFER CITY OF SYDNEY COUNCIL STANDARD DRG: 7.1.1 FOR DETAILS

NOTES:

1. ALL WORKS TO BE CARRIED OUT IN ACCORDANCE WITH RELEVANT AUTHORITY SPECIFICATIONS AND DETAILS.
2. PIPE SIZES SHOWN INDICATIVE SUBJECT TO DETAILED DESIGN.



REV.	DATE	DESCRIPTION	DRN.	DES.	VERIF	APPD.
2	20/10/2023	ISSUED FOR SSD	AR	RH	RL	RH
1	23/08/2023	DRAFT ISSUE	CWH	RH	-	RH

Client: we are NSW Infrastructure New South Wales

Scale: 0 5 10 15 20m — SCALE 1:200 @A1

North

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Level 4, 153 Walker Street, North Sydney NSW 2060
ABN: 71 624 801 690
Phone: 02 9922 6135 enspiresolutions.com.au

Project: BANK STREET PARK, PYRMONT

Scale: 1:200

Date: 23/08/2023

Status: FOR INFORMATION ONLY — NOT TO BE USED FOR CONSTRUCTION

Title: BANK STREET SITEWORKS AND STORMWATER MANAGEMENT PLAN SHEET 01

Size: A1

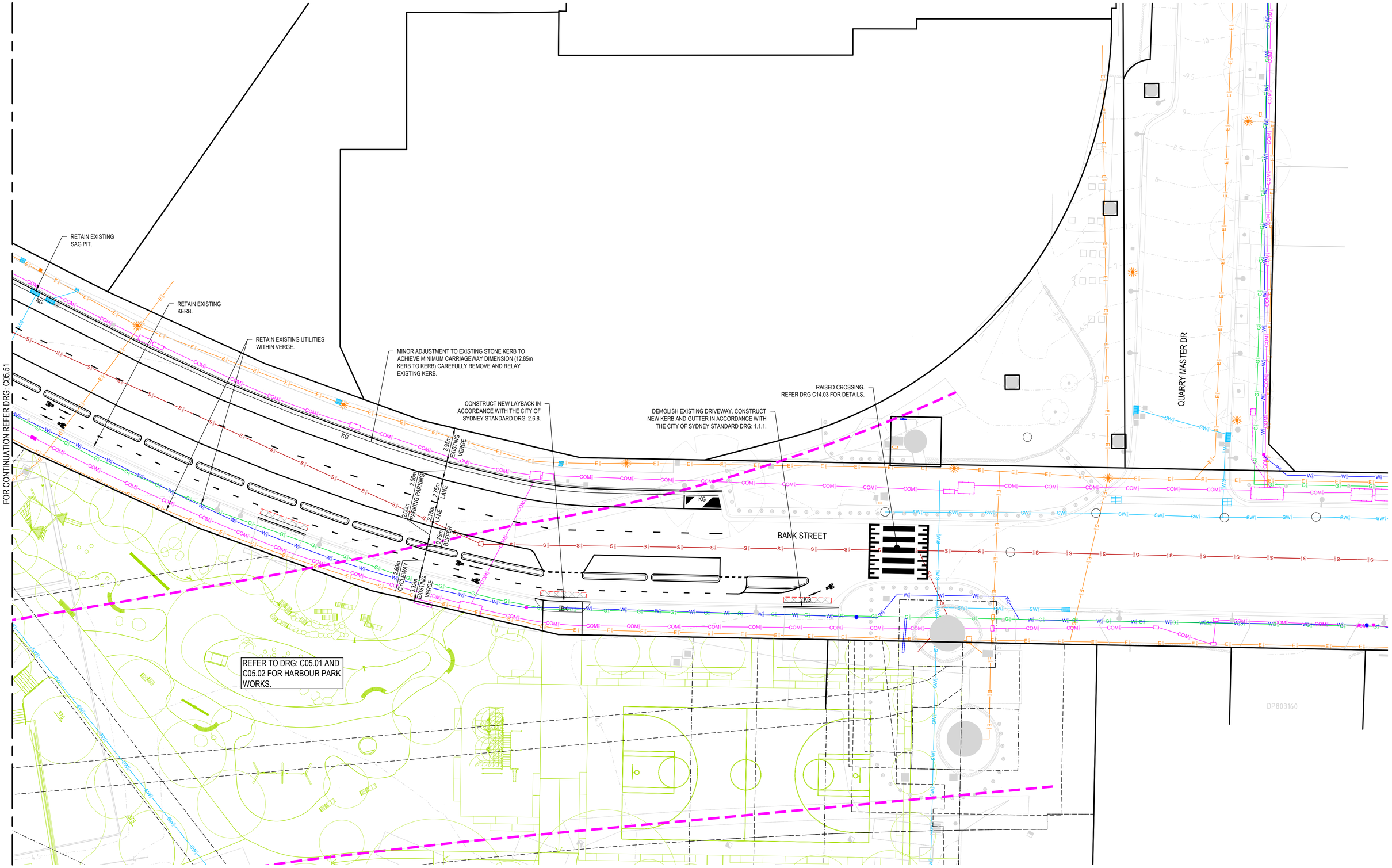
Datum: GDA94

Project Number/Drawing Number: 220067-00-DA-C05.51

Revision: 2

DATE PLOTTED: 20 October 2023 11:48 AM BY: AHMAD RAZAULLAH

CAD File: P:\220067 BankStPark\D-Civil\00-SiteWide\Drawings\6-DACC\1-DA\220067-00-DA-C05.51-C05.52 BANK STREET - SITEWORKS AND STORMWATER MANAGMENET PLAN.dwg



REV.	DATE	DESCRIPTION	DRN.	DES.	VERIF.	APPD.
2	20/10/2023	ISSUED FOR SSD	AR	RH	RL	RH
1	23/08/2023	DRAFT ISSUE	CWH	RH	-	RH

Client: we are insw Infrastructure New South Wales

Scale: 0 5 10 15 20m — SCALE 1:200 @A1

North

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Enspire Solutions Pty Ltd
Level 4, 153 Walker Street, North Sydney NSW 2060
ABN: 71 624 801 690
Phone: 02 9922 6135 enspiresolutions.com.au

Project: BANK STREET PARK, PYRMONT

Title: BANK STREET SITEWORKS AND STORMWATER MANAGEMENT PLAN SHEET 02

Scale: 1:200

Date: 23/08/2023

Size: A1

Datum: GDA94

Status: FOR INFORMATION ONLY NOT TO BE USED FOR CONSTRUCTION

Project Number/Drawing Number: 220067-00-DA-C05.52

Revision: 2

DATE PLOTTED: 20 October 2023 11:48 AM BY - AHMAD RAZAULLAH

CAD File: P:\220067 BankStPark\D-Civil\00-SiteWide\Drawings\6-DACC\1-DA\220067-00-DA-C05.51-C05.52 BANK STREET - SITEWORKS AND STORMWATER MANAGMENET PLAN.dwg

LEGEND

- SITE BOUNDARY
- FOOTPATH
- DRIVEWAY
- MEDIAN / BUFFER ISLAND

LANDSCAPE ARCHITECT FINISHES

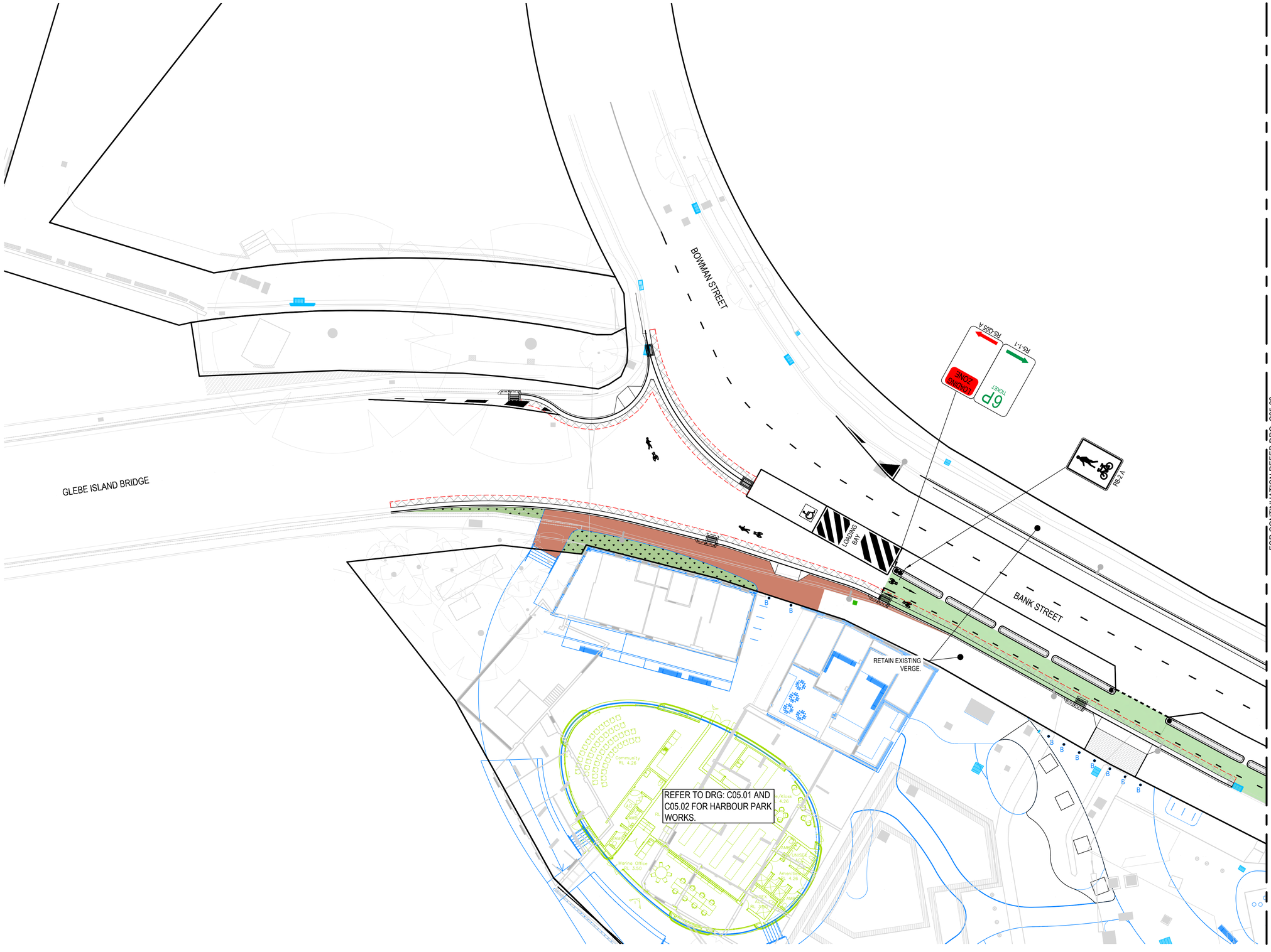
- PLANTING

PAVEMENT MARKINGS

- CYCLEWAY PAVEMENT MARKING
- EDGE LINES (E1)
- E1
- E4
- BARRIER LINES (BB)
- BB
- LANE LINES (L1)
- L1
- CONTINUITY LINES (C1)
- C1
- GIVEWAY LINES (TB)
- TB
- PEDESTRIAN CROSSING (PCW)
- PCW

SIGNAGE

- PROPOSED SIGN
- EXISTING SIGN / PARKING METER



FOR CONTINUATION REFER DRG: C05.62

REV.	DATE	DESCRIPTION	DRN.	DES.	VERIF.	APPD.
2	20/10/2023	ISSUED FOR SSD	AR	RH	RL	RH
1	23/08/2023	DRAFT ISSUE	CWH	RH	-	RH

Client: we are NSW Infrastructure New South Wales

Scale: 0 5 10 15 20m
SCALE 1:200 @A1

North

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Level 4, 153 Walker Street, North Sydney NSW 2060
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Phone: 02 9922 6135 enspiresolutions.com.au

Project: BANK STREET PARK, PYRMONT

Title: BANK STREET
PAVEMENT, SIGNAGE AND LINEMARKING PLAN
SHEET 01

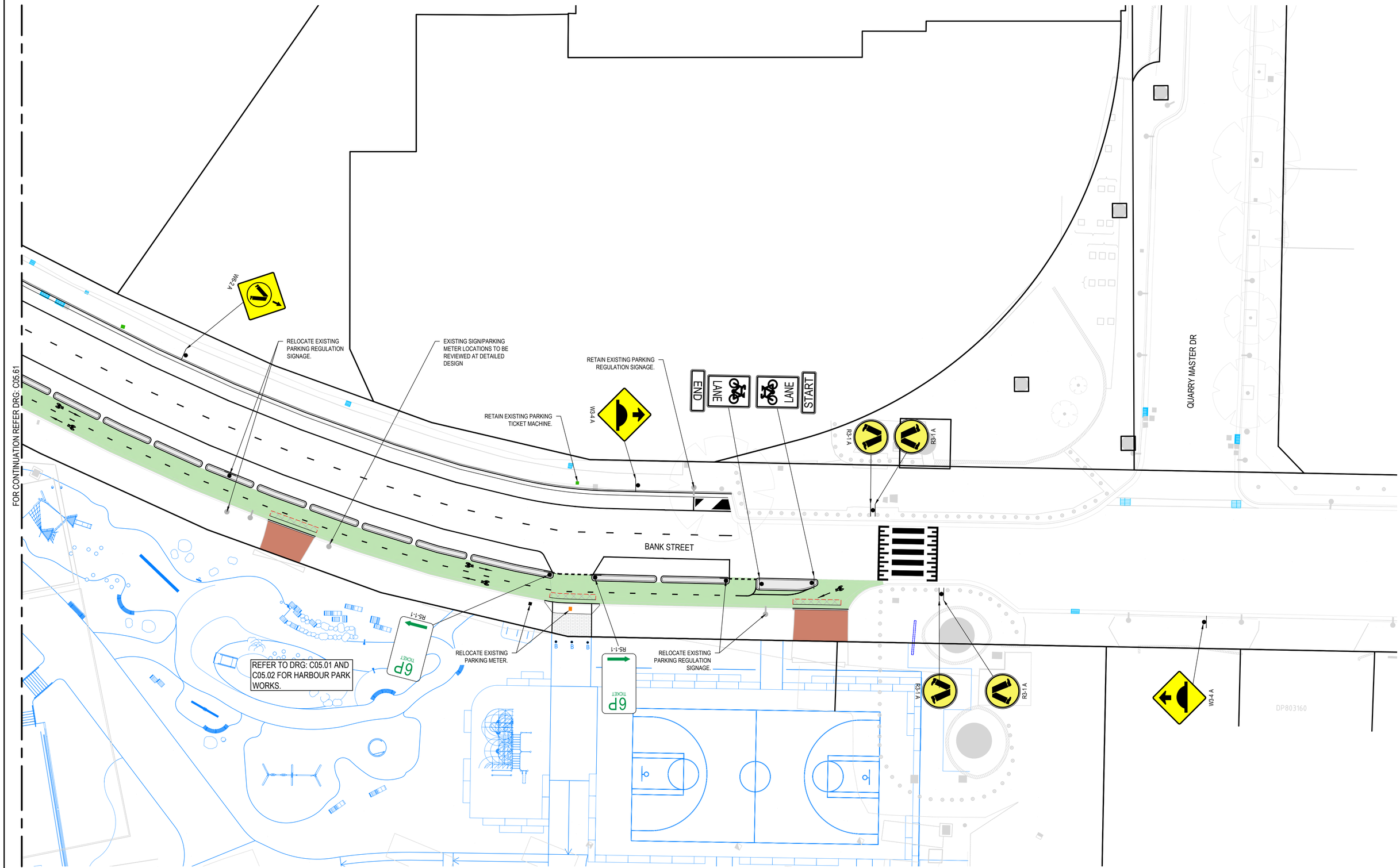
Scale: 1:200
Date: 23/08/2023
Size: A1
Datum: GDA94

Status: FOR INFORMATION ONLY
NOT TO BE USED FOR CONSTRUCTION

Project Number/Drawing Number: 220067-00-DA-C05.61
Revision: 2

DATE PLOTTED: 20 October 2023 11:48 AM BY : AHMAD RAZAULLAH

CAD File: P:\220067 BankStPark\D-Civil\00-SiteWide\Drawings\6-DACC\1-DA\220067-00-DA-C05.61-C05.62 BANK STREET - PAVEMENT, SIGNAGE AND LINEMARKING PLAN.dwg



REV.	DATE	DESCRIPTION	DRN.	DES.	VERIF.	APPD.
2	20/10/2023	ISSUED FOR SSD	AR	RH	RL	RH
1	23/08/2023	DRAFT ISSUE	CWH	RH	-	RH

Client

we are NSW Infrastructure New South Wales

Scale

0 5 10 15 20m

SCALE 1:200 @A1

North

enspire

Enspire Solutions Pty Ltd
Level 4, 153 Walker Street, North Sydney NSW 2060
ABN: 71 624 801 690
Phone: 02 9922 6135 enspiresolutions.com.au

Project: BANK STREET PARK, PYRMONT

Scale: 1:200

Date: 23/08/2023

Status: FOR INFORMATION ONLY
NOT TO BE USED FOR CONSTRUCTION

Title: BANK STREET
PAVEMENT, SIGNAGE AND LINEMARKING PLAN
SHEET 02

Size: A1

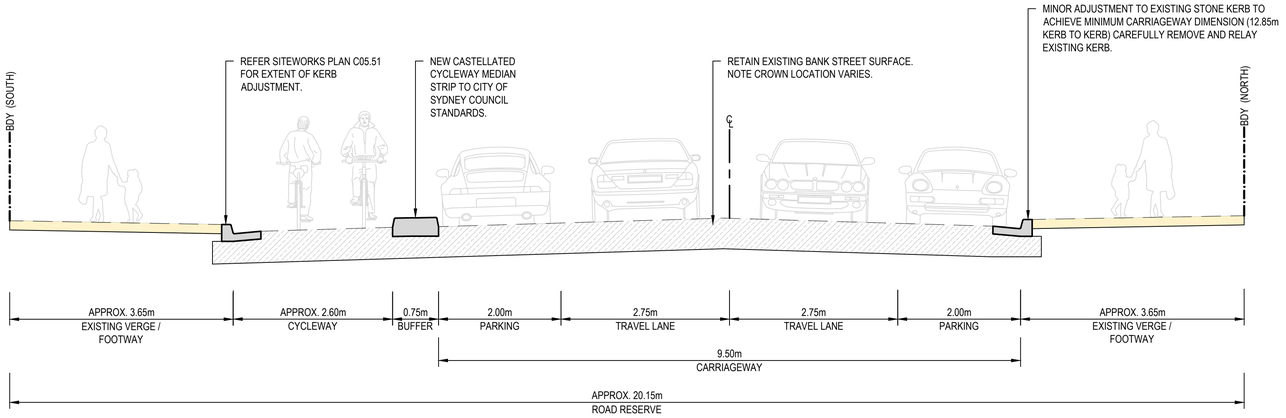
Datum: GDA94

Project Number/Drawing Number: 220067-00-DA-C05.62

Revision: 2

DATE PLOTTED: 20 October 2023 11:48 AM BY - AHMAD RAZAULLAH

CAD File: P:\220067 BankStPark\D-Civil\00-SiteWide\Drawings\6-DACC\1-DA\220067-00-DA-C05.61-C05.62 BANK STREET - PAVEMENT, SIGNAGE AND LINEMARKING PLAN.dwg



BANK STREET - TYPICAL SECTION

SCALE 1:50

REV.	DATE	DESCRIPTION	DRN.	DES.	VERIF.	APPD.
2	20/10/2023	ISSUED FOR SSD	AR	RH	RL	RH
1	23/08/2023	DRAFT ISSUE	CWH	RH	-	RH

Client: we are insw Infrastructure New South Wales

Scale: 0 1 2 3 4 5m — SCALE 1:50 @A1

North

Enspire Solutions Pty Ltd
Level 4, 153 Walker Street, North Sydney NSW 2060
ABN: 71 624 801 690
Phone: 02 9922 6135

Project: BANK STREET PARK, PYRMONT

Scale: 1:50

Date: 23/08/2023

Status: FOR INFORMATION ONLY — NOT TO BE USED FOR CONSTRUCTION

Title: ROAD TYPICAL CROSS SECTIONS

Size: A1

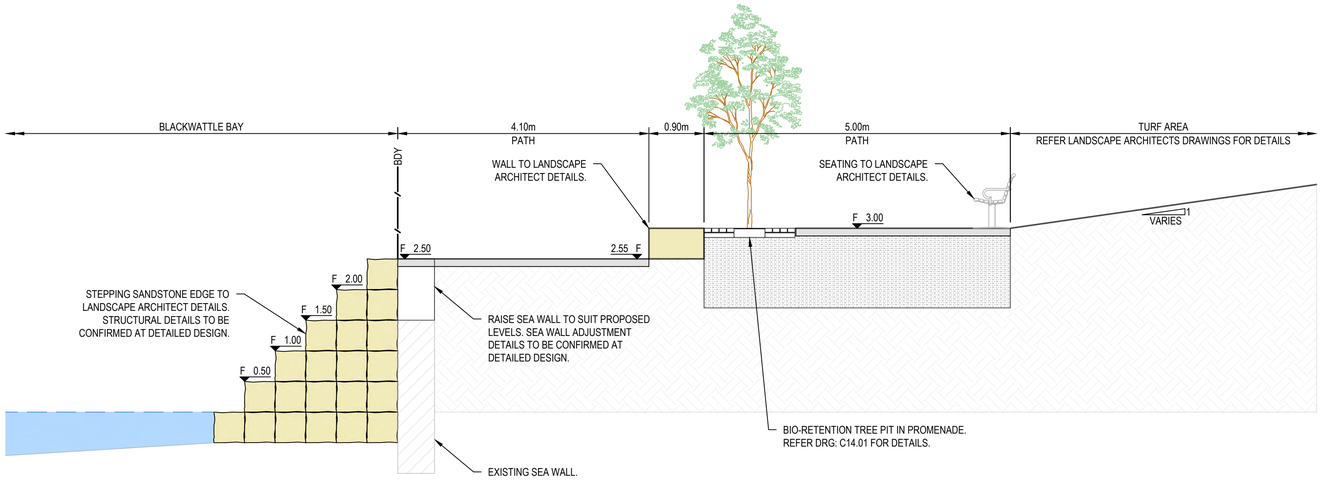
Datum: GDA94

Project Number/Drawing Number: 220067-00-DA-C06.01

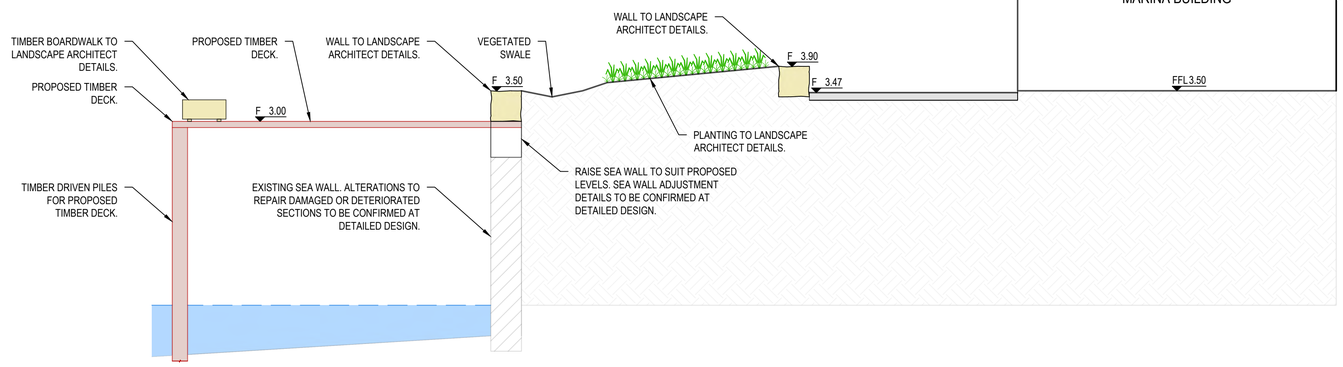
Revision: 2

DATE PLOTTED: 20 October 2023 11:49 AM BY : AHMAD RAZAULLAH

CAD File: P:\220067 BankStPark\D-Civil\00-SiteWide\Drawings\6-DACC\1-DA\220067-00-DA-C06.01 ROAD TYPICAL CROSS SECTIONS.dwg



SECTION 1
SCALE 1:50
C05.02



SECTION 2
SCALE 1:50
C05.01

REV.	DATE	DESCRIPTION	DRN.	DES.	VERIF.	APPD.
2	20/10/2023	ISSUED FOR SSD	AR	RH	RL	RH
1	23/08/2023	DRAFT ISSUE	CWH	RH	-	RH

Client: we are NSW Infrastructure New South Wales

Scale: 0 1 2 3 4 5m
SCALE 1:50 @A1

North

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Enspire Solutions Pty Ltd
Level 4, 153 Walker Street, North Sydney NSW 2060
ABN: 71 624 801 690
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Project: BANK STREET PARK, PYRMONT

Scale: AS SHOWN
Date: 23/08/2023

Status: FOR INFORMATION ONLY
NOT TO BE USED FOR CONSTRUCTION

Title: SITE SECTIONS

Size: A1
Datum: GDA94

Project Number/Drawing Number: 220067-00-DA-C13.01

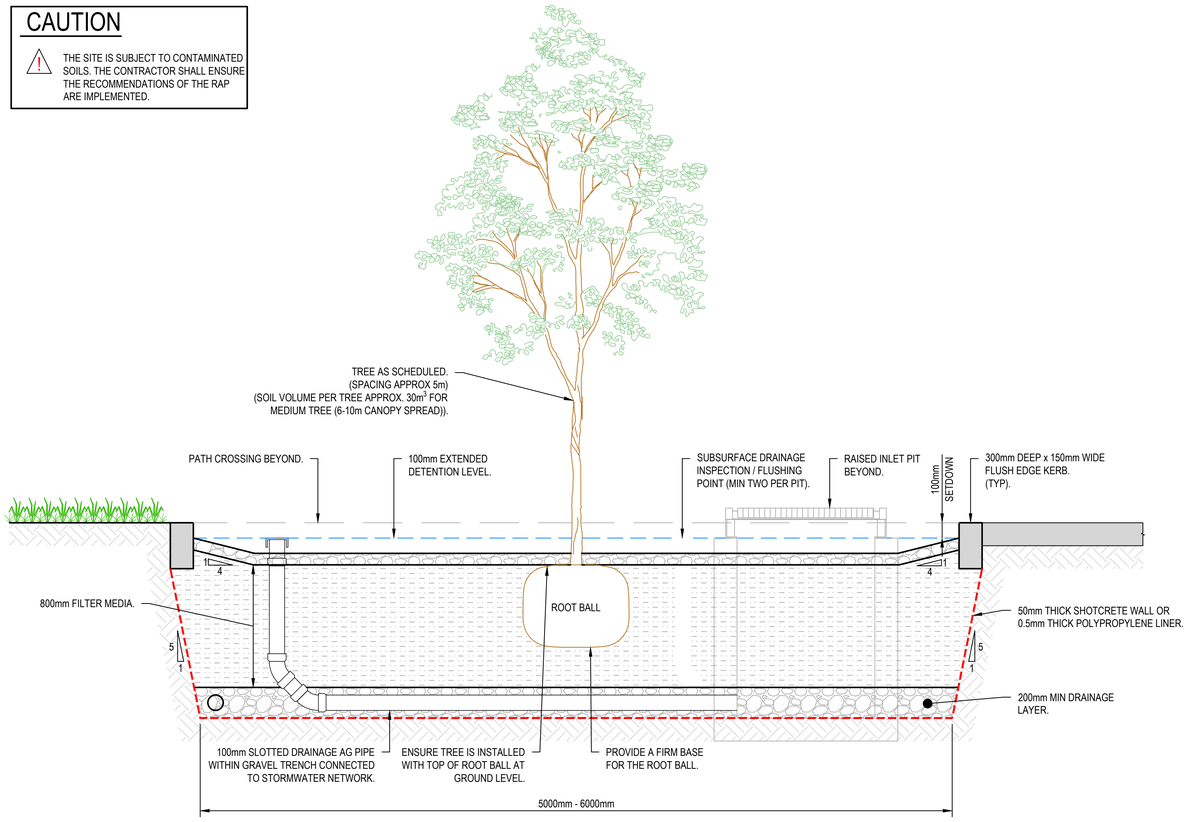
Revision: 2

DATE PLOTTED: 20 October 2023 11:49 AM BY : AHMAD RAZAULLAH

CAD File: P:\220067 BankStPark\D-Civil\00-SiteWide\Drawings\6-DACC\1-DA\220067-00-DA-C13.01 SITE SECTIONS.dwg

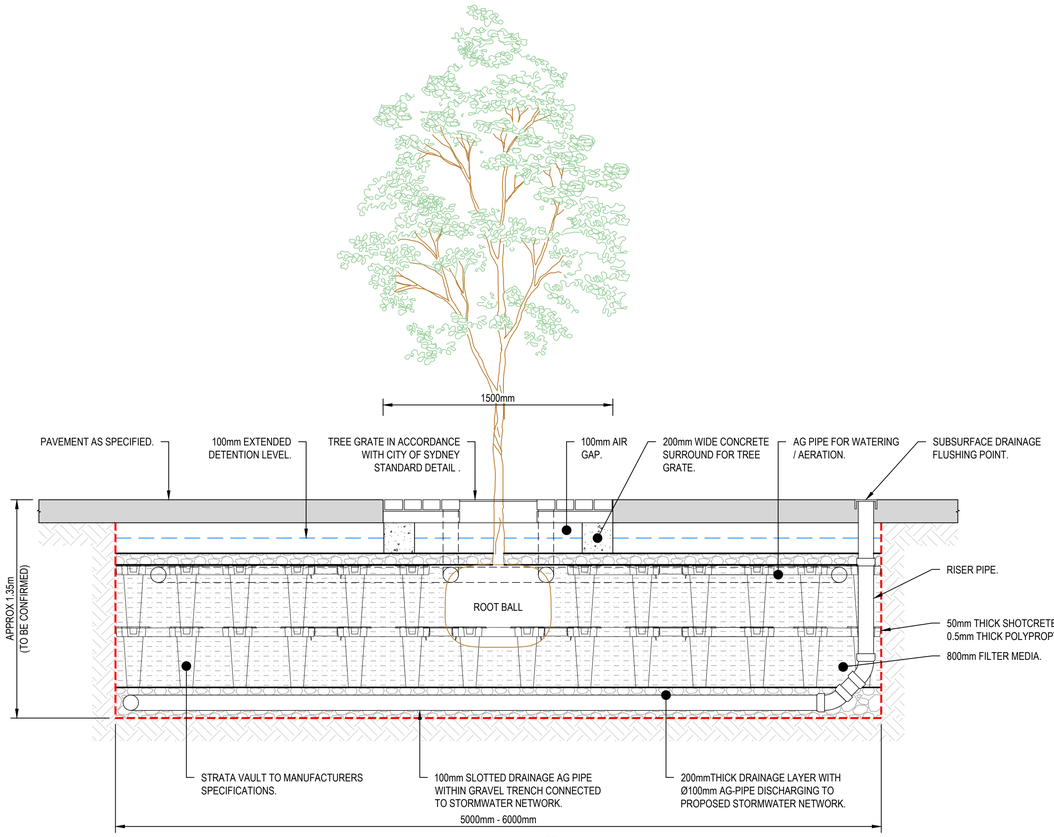
CAUTION

⚠ THE SITE IS SUBJECT TO CONTAMINATED SOILS. THE CONTRACTOR SHALL ENSURE THE RECOMMENDATIONS OF THE RAP ARE IMPLEMENTED.



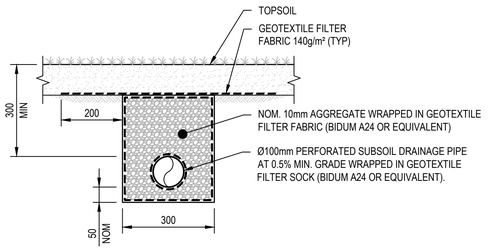
BIO-RETENTION TREE PIT IN PARK

SCALE 1:20



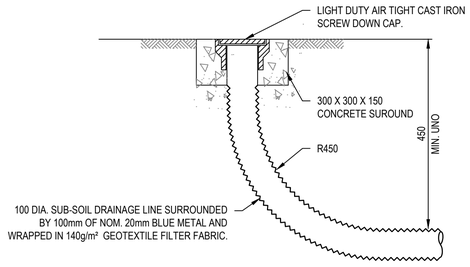
SECTION A

SCALE 1:20



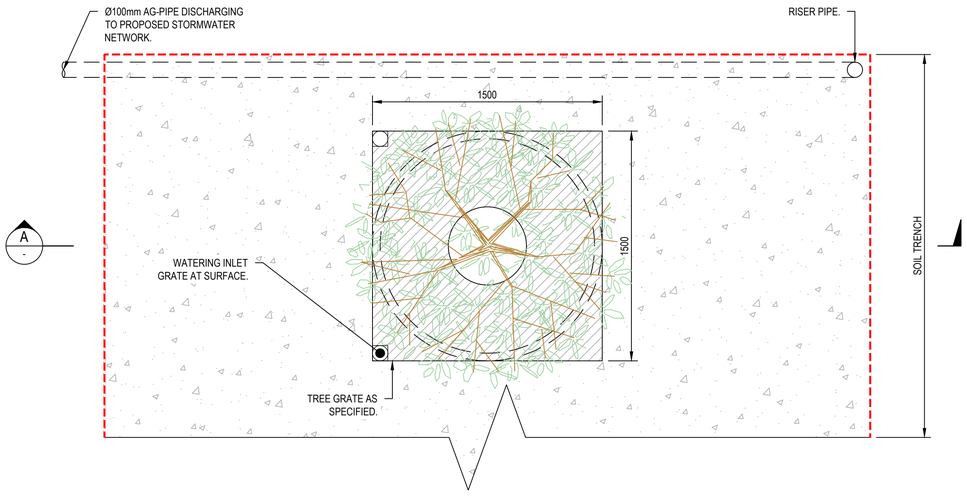
SUBSOIL IN LANDSCAPE AREAS

SCALE 1:10



FLUSHING POINT

SCALE 1:10



TREE PLANTING: BIO-RETENTION TREE PIT IN PROMENADE

SCALE 1:20

REV.	DATE	DESCRIPTION	DRN.	DES.	VERIF.	APPD.
2	20/10/2023	ISSUED FOR SSD	AR	RH	RL	RH
1	23/08/2023	DRAFT ISSUE	CWH	RH	-	RH

Client: we are insw Infrastructure New South Wales

Scale: 0 200 400 600 800 1000mm — SCALE 1:10 @A1; 0 500 1000 1500 2000mm — SCALE 1:20 @A1

North

enspire
Enspire Solutions Pty Ltd
Level 4, 153 Walker Street, North Sydney NSW 2060
ABN: 71 624 801 690
Phone: 02 9922 6135 enspiresolutions.com.au

Project: BANK STREET PARK, PYRMONT

Title: DETAILS

SHEET 01

Scale: AS SHOWN

Date: 23/08/2023

Size: A1

Datum: GDA94

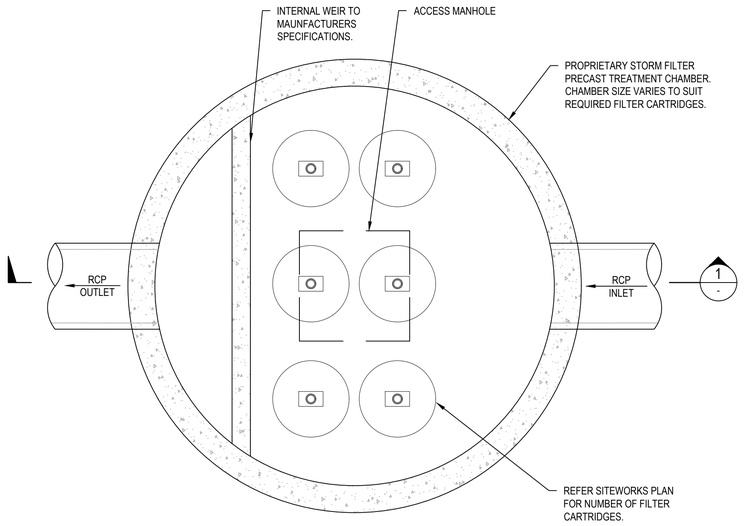
Status: FOR INFORMATION ONLY — NOT TO BE USED FOR CONSTRUCTION

Project Number/Drawing Number: 220067-00-DA-C14.01

Revision: 2

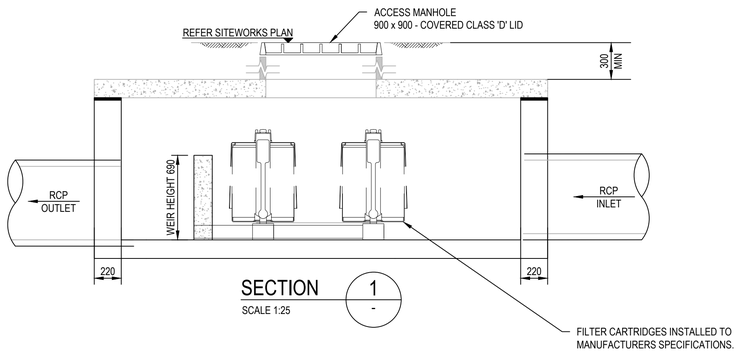
DATE PLOTTED: 20 October 2023 11:49 AM BY: AHMAD RAZAULLAH

CAD File: P:\220067 BankStPark\D-Civil\00-SiteWide\Drawings\6-DACC\1-DA\220067-00-DA-C14.01-C14.03-DETAILS.dwg



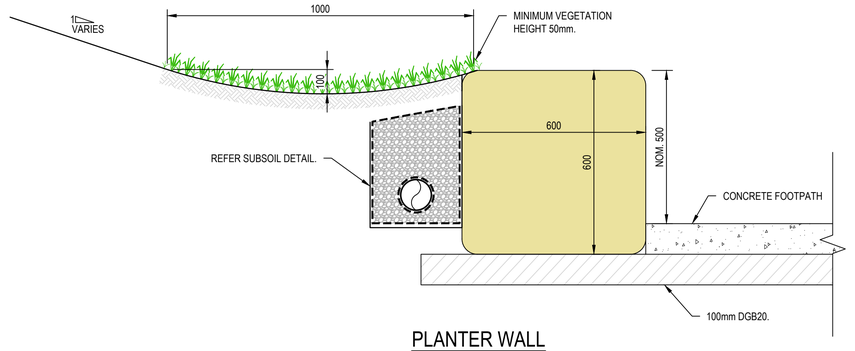
WATER QUALITY TREATMENT CHAMBER

SCALE 1:25



SECTION 1

SCALE 1:25



PLANTER WALL

SCALE 1:10

REV.	DATE	DESCRIPTION	DRN.	DES.	VERIF.	APPD.
2	20/10/2023	ISSUED FOR SSD	AR	RH	RL	RH
1	23/08/2023	DRAFT ISSUE	CWH	RH	-	RH

Client: we are insw Infrastructure New South Wales

Scale: SCALE 1:10 @A1; SCALE 1:25 @A1

North

Enspire Solutions Pty Ltd
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ABN: 71 624 801 690
Phone: 02 9922 6135 enspiresolutions.com.au

Project: BANK STREET PARK, PYRMONT

Title: DETAILS

SHEET 02

Scale: AS SHOWN

Date: 23/08/2023

Size: A1

Datum: GDA94

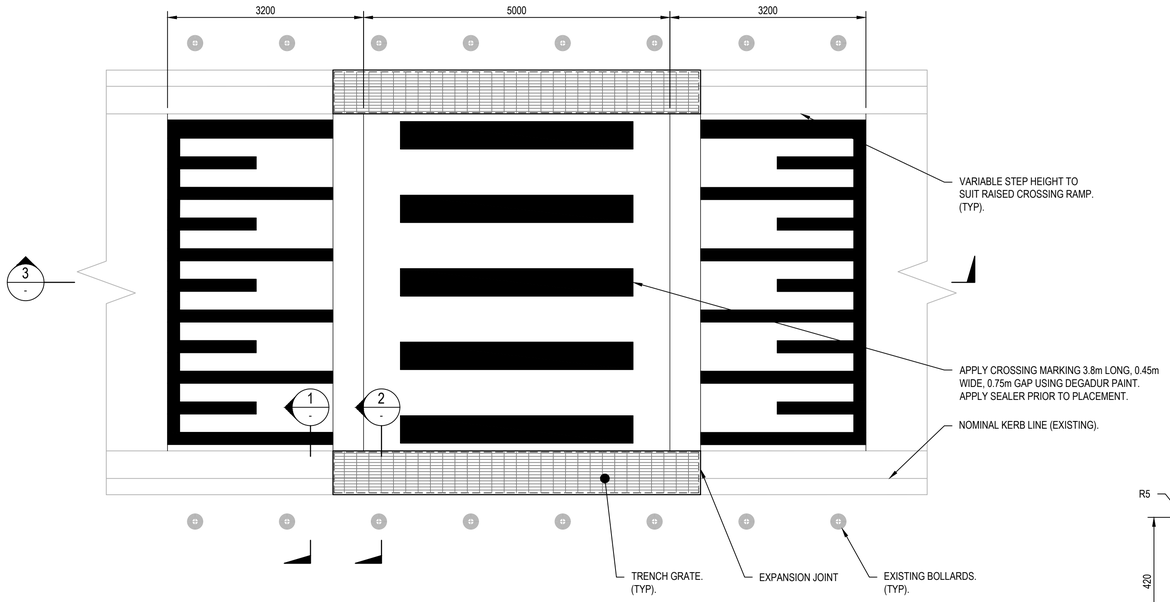
Status: FOR INFORMATION ONLY
NOT TO BE USED FOR CONSTRUCTION

Project Number/Drawing Number: 220067-00-DA-C14.02

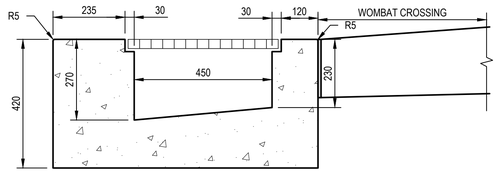
Revision: 2

DATE PLOTTED: 20 October 2023 11:49 AM BY : AHMAD RAZAULLAH

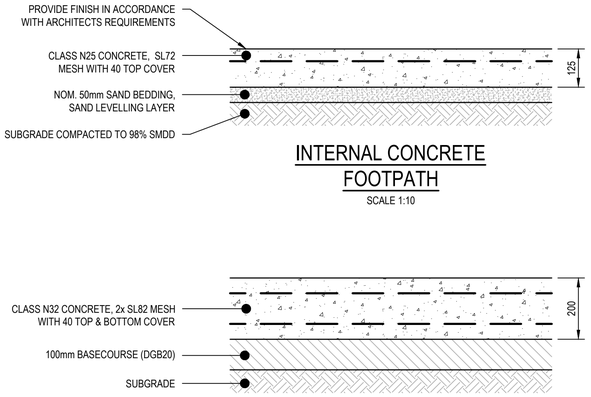
CAD File: P:\220067 BankStPark\ID-Civil\00-SiteWide\Drawings\6-DACC\1-DA\220067-00-DA-C14.01-C14.03-DETAILS.dwg



PLAN
SCALE 1:50



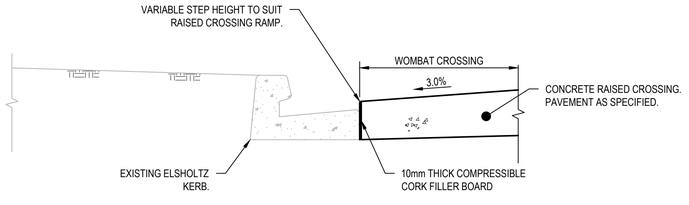
DETAIL 'A'
SCALE 1:10



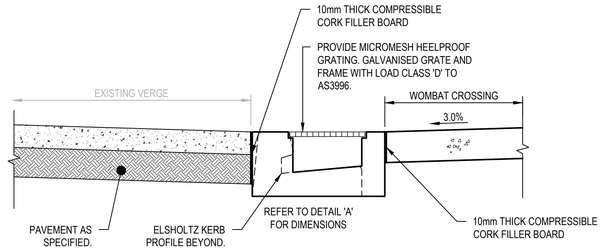
INTERNAL CONCRETE FOOTPATH
SCALE 1:10

MAINTENANCE ACCESS TRACK
SCALE 1:10

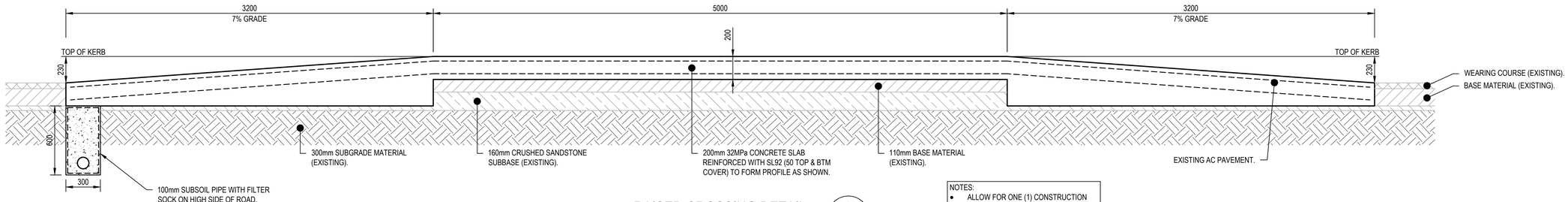
CONTRACTOR TO ALLOW FOR JOINTS - REFER JOINT DETAILS



SECTION 1
SCALE 1:20



SECTION 2
SCALE 1:20



RAISED CROSSING DETAIL
SCALE 1:20

NOTES:
- ALLOW FOR ONE (1) CONSTRUCTION JOINT ALONG ROAD CENTRELINE.
- ALLOW FOR SAWN JOINT CENTRALLY IN TRANSVERSE DIRECTION.

0 200 400 600 800 1000mm
SCALE 1:10 @A1

REV.	DATE	DESCRIPTION	DRN.	DES.	VERIF.	APPD.
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Client: we are NSW Infrastructure New South Wales

Scale: 0 500 1000 1500 2000mm — SCALE 1:20 @A1; 0 1000 2000 3000 4000 5000mm — SCALE 1:50 @A1

North

enspire
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Level 4, 153 Walker Street, North Sydney NSW 2060
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Project: BANK STREET PARK, PYRMONT

Title: DETAILS

SHEET 03

Scale: AS SHOWN

Date: 23/08/2023

Size: A1

Datum: GDA94

Status: FOR INFORMATION ONLY
NOT TO BE USED FOR CONSTRUCTION

Project Number/Drawing Number: 220067-00-DA-C14.03

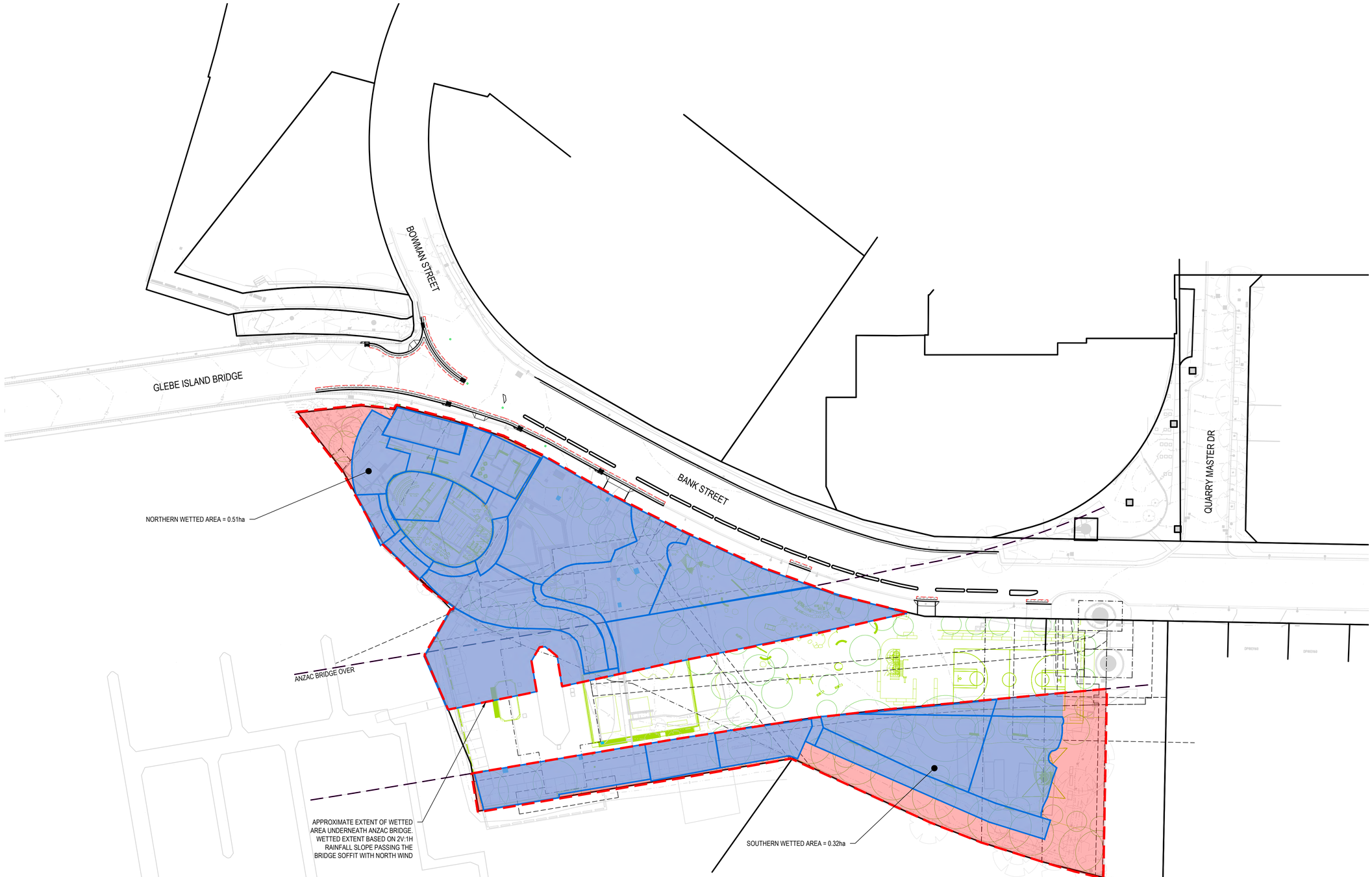
Revision: 2

DATE PLOTTED: 20 October 2023 11:49 AM BY - AHMAD RAZAULLAH

CAD File: P:\220067 BankStPark\ID-Civil\00-SiteWide\Drawings\6-DACC\1-DA\220067-00-DA-C14.01-C14.03-DETAILS.dwg

LEGEND

- CATCHMENT BOUNDARY
- TOTAL WETTED AREA = 8300m²
- CATCHMENT AREA DRAINING TO PIT = 7200m²
- BYPASS = 1100m²



REV.	DATE	DESCRIPTION	DRN.	DES.	VERIF.	APPD.
2	20/10/2023	ISSUED FOR SSD	AR	RH	RL	RH
1	23/08/2023	DRAFT ISSUE	CWH	RH	-	RH

Client: we are insw Infrastructure New South Wales

Scale: 0 10 20 30 40 50m — SCALE 1:500 @A1

North

enspire
Enspire Solutions Pty Ltd
Level 4, 153 Walker Street, North Sydney NSW 2060
ABN: 71 624 801 690
Phone: 02 9922 6135 enspiresolutions.com.au

Project: BANK STREET PARK, PYRMONT

Title: STORMWATER CATCHMENT PLAN

Scale: 1:500

Date: 23/08/2023

Size: A1

Datum: GDA94

Status: FOR INFORMATION ONLY — NOT TO BE USED FOR CONSTRUCTION

Project Number/Drawing Number: 220067-00-DA-C20.01

Revision: 2

DATE PLOTTED: 20 October 2023 11:49 AM BY : AHMAD RAZAULLAH

CAD File: P:\220067 BankStPark\D-Civil\00-SiteWide\Drawings\6-DACC\1-DA\220067-00-DA-C20.01 STORMWATER CATCHMENT PLAN.dwg

SAFETY IN DESIGN REPORT

INTRODUCTION

ENSPIRE HAS PREPARED DESIGN DOCUMENTATION FOR ROAD UPGRADE WORKS, SITE GRADING, STORMWATER PIT AND PIPE INFRASTRUCTURE AND WATER QUALITY INFRASTRUCTURE FOR BANK STREET PARK. THIS SAFETY IN DESIGN REPORT HAS BEEN DEVELOPED IN PARALLEL WITH THE DESIGN TO IDENTIFY POTENTIAL HAZARDS TO WORK HEALTH AND SAFETY AND DEVELOP RISK ASSESSMENT METHODS TO POTENTIALLY REDUCE THE LIKELIHOOD AND SEVERITY OF HAZARDS.

THIS SAFETY IN DESIGN REPORT HAS BEEN PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE WORK HEALTH AND SAFETY REGULATION 2017 AND THE WORK HEALTH AND SAFETY REGULATION PART 6.2 CLAUSE 295. UNDER THE WORK HEALTH AND SAFETY REGULATION DESIGNERS HAVE THE RESPONSIBILITY TO ENSURE THEIR DESIGN ELIMINATES OR MINIMISES RISKS TO HEALTH AND SAFETY AND GIVE ADEQUATE INFORMATION TO PEOPLE COMMISSIONING THE DESIGN AND UNDERTAKING CONSTRUCTION, OPERATION AND MAINTENANCE ACTIVITIES BASED ON THE DESIGN.

THIS REPORT SPECIFIES POTENTIAL HEALTH AND SAFETY RISKS AND HAZARDS ASSOCIATED WITH THE DESIGN ELEMENTS DOCUMENTED IN THIS DRAWING PACKAGE TO RELEVANT PERSONNEL DURING THE DESIGN, CONSTRUCTION, OPERATION AND MAINTENANCE, AND DEMOLITION AS WELL AS ULTIMATE DEMOLITION PROCESS AND ASSESSES THEIR LIKELIHOOD AND CONSEQUENCES. THIS REPORT PROPOSES ACTIONS AND STRATEGIES AGAINST RISKS IDENTIFIED TO ACHIEVE EFFECTIVE MITIGATION OF THE RISKS AND HAZARDS, AND ASSESSES RESIDUAL RISKS BASED ON CONTROL MEASURES BEING IMPLEMENTED. ANY SAFETY ISSUES UNRESOLVED THROUGH DESIGN ARE ALSO IDENTIFIED FOR THEIR APPROPRIATE MANAGEMENT.

THE INFORMATION CONTAINED IN THIS SAFETY IN DESIGN REPORT HAS BEEN PREPARED PRIOR TO THE COMMENCEMENT OF THE WORK ON SITE. IT DOES NOT TAKE ACCOUNT OF ANY MATTERS OR INFORMATION WHICH MAY COME TO LIGHT AFTER THAT TIME. WHEN A DESIGN IS ALTERED, AN ADDITIONAL REVIEW MUST BE CONDUCTED TO ENSURE NEW RISKS HAVE BEEN CAPTURED DUE TO MODIFICATION OF THE DESIGN. ADDITIONALLY, CLIENTS ARE REQUIRED TO INFORM ENSPIRE OF ANY EXISTING RISKS AND HAZARDS IN THE AREA WHERE CONSTRUCTION WILL TAKE PLACE.

THE RISKS IDENTIFIED IN THIS SAFETY IN DESIGN REPORT ARE PROJECT AND DESIGN SPECIFIC RISKS WHICH WOULD NOT BE EASILY RECOGNIZED BY A REASONABLY COMPETENT STAKEHOLDER. IT DOES NOT ADDRESS THE COMMON-PLACE HAZARDS OR HAZARDS WHERE KNOWN SOLUTIONS APPLY, AND WHICH ARE ASSOCIATED WITH CONSTRUCTION, OPERATION AND MAINTENANCE AND DEMOLITION GENERALLY. THESE COMMON-PLACE HAZARDS MUST BE CONTROLLED BY THE APPLICATION OF NORMAL GOOD MANAGEMENT PRACTICES.

THIS DESIGN REPORT ASSUMES THAT DURING CONSTRUCTION, OPERATION AND MAINTENANCE OF THE DEVELOPMENT, THE PRINCIPAL WILL ENGAGE EXPERIENCED AND COMPETENT PERSONNEL AS PART OF THE RESPECTIVE TENDER EVALUATION PROCESS. IT IS THE HEAD CONTRACTOR'S OBLIGATION TO PREPARE AND IMPLEMENT SITE SPECIFIC WORK HEALTH AND SAFETY MANAGEMENT PLANS TO MITIGATE COMMON RISKS ASSOCIATED WITH GENERAL CONSTRUCTION AND OPERATION ACTIVITIES IN ACCORDANCE WITH THE WORK HEALTH AND SAFETY REGULATION 2017.

PROPOSED WORKS

THE SCOPE OF THE MAIN ACTIVITIES INVOLVED IN THESE WORKS ARE:

- DESIGN OF ROAD UPGRADE WORKS TO INCLUDE A DEDICATED CYCLE PATH, SITE GRADING, STORMWATER INFRASTRUCTURE AND WATER QUALITY INFRASTRUCTURE;
- CONSTRUCTION OF A NEW HARBOUR SIDE PARK.

INFORMATION TRANSFER

SAFETY IN DESIGN RELIES ON EFFECTIVE DOCUMENTATION AND COMMUNICATION BETWEEN EVERYONE INVOLVED IN THE LIFE CYCLE OF THE DESIGN ELEMENTS. IN ACCORDANCE WITH THE WORK HEALTH AND SAFETY REGULATION 2017, THE DESIGNER MUST PROVIDE A COPY OF THIS SAFETY IN DESIGN REPORT TO THE PRINCIPAL CONTRACTOR IN PARALLEL WITH THE COMPLETED DESIGN DOCUMENTATION AND ENSURE THAT THE FOLLOWING ACTIONS ARE UNDERTAKEN:

- ONSITE SAFETY INDUCTIONS, INCLUDING HAZARDS IDENTIFIED IN THIS REPORT, SHOULD BE CONDUCTED FOR ALL STAFF;
- SAFETY MANAGEMENT PLANS SHOULD BE PREPARED FOR THE HAZARDS IDENTIFIED IN THIS REPORT;
- THERE SHOULD BE NO VARIATION ON DESIGN REQUIREMENTS WITHOUT CONSULTATION WITH THE ORIGINAL DESIGNERS;
- ONSITE MANAGEMENT OF CONTRACTORS TO ENSURE THAT HAZARDS THAT ARISE THROUGH STARTING/COMPLETION OF JOBS DOES NOT OCCUR; AND
- THIS DESIGN MAY INTERFACE WITH OTHER PLANS AND ACCOUNT SHOULD BE TAKEN OF ANY INTERFACE ISSUES.

IT IS RECOMMENDED THAT THIS SAFETY IN DESIGN REPORT BE PASSED ONTO ANY PARTICIPANT IN THE PROJECT WHO MAY EXTEND THE DESIGN OR FURTHER DEVELOP THE DESIGN.

SAFE DESIGN PROCESS

A SAFE DESIGN PROCESS SHOULD BE ENGAGED EARLY IN THE DEVELOPMENT OF THE DESIGN TO IDENTIFY ALL CONCEIVABLE RISKS AND HAZARDS THAT MAY AFFECT THE FUNDAMENTALS OF THE DESIGN AND AVOID UNNECESSARY REWORK. IT SHOULD BE IMPLEMENTED THROUGH A STRUCTURED APPROACH ACROSS EACH PHASE OF THE DESIGN PROCESS.

DELIVERY OF SAFE DESIGN FOR EACH DESIGN PHASE OF THE PROJECT HAS BEEN CARRIED OUT FOLLOWING THE STEPS BELOW:

- STEP 1: PRELIMINARY RISK IDENTIFICATION

  THE DESIGNER/DESIGN TEAM TO CONDUCT A PRELIMINARY ASSESSMENT AND IDENTIFY ANY POTENTIAL RISKS RELEVANT TO THE SCOPE OF DESIGN WORKS. WITH PROJECTS INVOLVING MULTIPLE DISCIPLINES, THE DESIGNER/DESIGN TEAM TO ATTEND SAFETY IN DESIGN WORKSHOP (IF APPROPRIATE) AND IDENTIFY RISKS IN CONSULTATION WITH OTHER KEY PROJECT STAKEHOLDERS.
- STEP 2: RISK ASSESSMENT AND MITIGATION

  THE DESIGNER/DESIGN TEAM TO ASSESS THE LIKELIHOOD AND SEVERITY OF EACH HAZARD AND DEVELOP CONTROLS AND MEASURES TO ELIMINATE OR MINIMISE THE CONSEQUENCES OF THE HAZARD.
- STEP 3: VERIFICATION

  ENSPIRE TO PERFORM INTERNAL VERIFICATION ON THE SAFE DESIGN RISK REGISTER PRIOR TO ISSUING TO THE CONTRACTOR AND CLIENT.
- STEP 4: REVIEW DESIGN

  THE DESIGNER/DESIGN TEAM TO IDENTIFY ANY ALTERATIONS IN DESIGN AND REVIEW AND UPDATE RISK REGISTER ACCORDINGLY.

MATRIX FOR DETERMINATION OF RISK LEVEL

CONSEQUENCE			RARE (1)	UNLIKELY (2)	POSSIBLE (3)	LIKELY (4)	ALMOST CERTAINLY (5)
	CATASTROPHIC	(5)	HIGH	VERY HIGH	VERY HIGH	VERY HIGH	VERY HIGH
	MAJOR	(4)	HIGH	HIGH	VERY HIGH	VERY HIGH	VERY HIGH
	MODERATE	(3)	MODERATE	MODERATE	HIGH	HIGH	VERY HIGH
	MINOR	(2)	LOW	LOW	MODERATE	HIGH	VERY HIGH
	INSIGNIFICANT	(1)	LOW	LOW	LOW	MODERATE	HIGH
			LIKELIHOOD				

QUALITATIVE MEASURES OF IMPACT - CONSEQUENCE SEVERITY

LEVEL	MEASURE	CRITERIA
1	INSIGNIFICANT	NO INJURIES; NO ENVIRONMENTAL IMPACT.
2	MINOR	FIRST AID; ENVIRONMENTAL RELEASE IMMEDIATELY CONTAINED.
3	MODERATE	MEDICAL TREATMENT; ENVIRONMENTAL RELEASE NOT IMMEDIATELY CONTAINED WITH NO DETRIMENTAL EFFECTS.
4	MAJOR	LOST TIME AND/OR LONG-TERM INJURY/ILLNESS; ENVIRONMENTAL RELEASE NOT IMMEDIATELY CONTAINED WITH TOXIC EFFECTS.
5	CATASTROPHIC	FATALITY; RELEASE TO THE ENVIRONMENT WITH LONG TERM OR PERMANENT TOXIC EFFECTS.

QUALITATIVE MEASURES OF LIKELIHOOD OR FREQUENCY

LEVEL	MEASURE	CRITERIA
1	RARE	WOULD ONLY OCCUR IN HIGHLY EXCEPTIONAL CIRCUMSTANCES THAT ARE UNLIKELY TO EXIST IN ANY PHASE OF THE DEVELOPMENT'S LIFECYCLE PERIOD. EXTREMELY REMOTE CHANCE OF OCCURRENCE IN DEVELOPMENT'S LIFECYCLE PERIOD. 'ONCE IN A LIFETIME' EVENT.
2	UNLIKELY	NOT LIKELY TO OCCUR IN THE DEVELOPMENT'S LIFECYCLE PERIOD. A SMALL, BUT REMOTE CHANCE OF OCCURRENCE DUE TO CIRCUMSTANCES / SITUATIONS THAT COULD ARISE.
3	POSSIBLE	LIKELY TO OCCUR AT LEAST ONCE BUT NOT EXPECTED TO OCCUR MUCH MORE THAT THIS IN THE DEVELOPMENT'S LIFECYCLE PERIOD.
4	LIKELY	LIKELY TO OCCUR MORE THAN ONCE IN THE DEVELOPMENT'S LIFECYCLE PERIOD BUT NOT AN 'EVERYDAY' OCCURRENCE. PRECONDITIONS WILL ARISE AT TIMES THROUGHOUT THE PERIOD.
5	ALMOST CERTAIN	WILL OCCUR. CIRCUMSTANCES OR SITUATIONS ARE LIKELY TO ARISE OFTEN THROUGHOUT THE DEVELOPMENT'S LIFECYCLE PERIOD WHICH PROVIDES THE OPPORTUNITY FOR CRYSTALLISATION OF RISK. EXPECT FREQUENT, REGULAR OCCURRENCES.

PROJECT REPRESENTATIVE

ORGANISATION	PROJECT ROLE	MAIN CONTACT	CONTACT DETAILS
ENSPIRE SOLUTIONS	CIVIL DESIGN CONSULTANT	ROBERT HUTCHINSON	TEL: 0490533547 EMAIL: ROBERT HUTCHINSON@ ENSPIRESOLUTIONS.COM.AU ADD: LEVEL 4, 153 WALKER STREET, NORTH SYDNEY NSW 2060

SAFE DESIGN RISK REGISTER

ITEM	ACTIVITY	HAZARD	STAGE	INITIAL RISK			DESIGN ACTION	RESIDUAL RISK		
				LIKELIHOOD	CONSEQUENCE	RISK LEVEL		LIKELIHOOD	CONSEQUENCE	RISK LEVEL
1	WORKS NEAR LIVE UTILITIES	ELECTROCUTION	CONSTRUCTION	3	4	VERY HIGH	LOCATED EXISTING SERVICES AND PROVIDE PROTECTION, ISOLATE WHEN NECESSARY	1	4	HIGH
2	DUST POLLUTION AND DUST CONTROL	- POTENTIAL OF AIR AND WATER POLLUTION. - INHALATION OF DUST DURING EXCAVATION WORKS MAY CAUSE RESPIRATORY PROBLEMS WITH WORKERS AND TO THOSE USING ADJACENT OCCUPIED SPACES	CONSTRUCTION	2	4	HIGH	-CONSTRUCTION MANAGEMENT PLAN TO OUTLINE METHOD STATEMENTS FOR DEALING WITH DUST AND DEBRIS. - ENSURE DUST CONTROL HAS BEEN ESTABLISHED DURING CONSTRUCTION. EG. BY EMPLOYING WATER TRUCKS AND SPEED LIMITS. - PROVIDE SUITABLE PPE SUCH AS FACE MASKS FOR WORKERS UNDERTAKING DUTIES IN THE VICINITY OF EARTHWORKS.	2	3	MODERATE
3	SITE ACCESS	TRESPASSERS CAUSING DAMAGE OR INJURY TO SELF AND OTHERS	CONSTRUCTION	2	4	HIGH	- SITE FENCING TO BE DETAILED ON PLANS. - CONTRACTOR TO ADJUST FENCING STRATEGY TO SUIT CONSTRUCTION ACTIVITIES.	1	4	HIGH
4	WORKS NEAR SEDIMENT BASINS	FALLING INTO BASIN	CONSTRUCTION	3	2	MODERATE	- THE DESIGN OF THE SEDIMENT BASINS HAS BATTER SLOPES CONDUCIVE TO SAFE ACCESS AND EGRESS. - WARNING MARKERS PLACED AROUND BASIN.	1	2	LOW
5	PLANT OPERATION ON SITE	- PLANT-PLANT COLLISION ON SITE - COLLISION OF PLANT WITH SITE PERSONNEL	CONSTRUCTION	3	3	HIGH	- SCHEDULE WORKS SUCH THAT PLANT AND LABOUR ARE NOT WORKING IN THE SAME AREA AT THE SAME TIME. - PROVIDE TRAFFIC MANAGEMENT PLAN TO CAPTURE TRAFFIC FLOWS AND PLANT MOVEMENT.	1	3	MODERATE
6	SITE INSPECTIONS	FALLS, INJURY, COLLISION WITH CONSTRUCTION TRAFFIC	CONSTRUCTION	3	4	VERY HIGH	- COMPULSORY SAFETY INDUCTIONS PRIOR TO SITE VISITS. - PROTECTIVE CLOTHING TO BE WORN AT ALL TIMES ONSITE. - VISITORS TO BE ESCORTED THROUGHOUT SITE BY CONTRACTOR PERSONNEL AT ALL TIMES. - SITE VEHICLES TO BE APPROPRIATELY MARKED WITH FLAGS/HEADLIGHTS AND SITE LIGHTS AS PER CONTRACTOR POLICY. - DEEP OPEN EXCAVATIONS TO BE CLEARLY MARKED OR COVERED.	2	4	HIGH
7	RETAINING WALL CONSTRUCTION	- POTENTIAL FALLS FROM HEIGHT - FAILURE OF WALL DURING CONSTRUCTION	CONSTRUCTION	3	5	VERY HIGH	- PROVISION OF FENCING WHERE THERE ARE HIGH LEVEL DIFFERENCES OF MORE THAN 900mm. - SITE SHOULD BE KEPT TIDY TO AVOID TRIP HAZARDS. - GROUND CONDITIONS SHOULD BE MONITORED TO MINIMISE FAILURE OF RETAINING WALL DURING CONSTRUCTION.	2	4	HIGH
8	DELIVERY AND UNLOADING OF MATERIALS	- SITE PERSONNEL COLLISION BY VEHICLE - COLLISION OF DELIVERY VEHICLE WITH PLANT	CONSTRUCTION	2	3	MODERATE	- ENSURE TRAFFIC MANAGEMENT PLAN CONSIDERS DELIVERY AND PLANT MOVEMENT TO AVOID CLASH. - SITE PERSONNEL WEAR REFLECTIVE CLOTHING TO BECOME MORE VISIBLE ON SITE.	1	3	MODERATE
9	EXCAVATION OF UNKNOWN HAZARDOUS SUBSTANCE	POTENTIAL UNEARTHING OF HAZARDOUS SUBSTANCE SUCH AS ASBESTOS	CONSTRUCTION	1	4	HIGH	- ENSURE SURVEY IS OBTAINED TO DETERMINE IF HAZARDOUS MATERIAL IS PRESENT UNDERGROUND. - PPE IS PROVIDED IN CASE OF HAZARDOUS MATERIAL FOUND ON SITE. - ENSURE ADEQUETE MEASURES ARE SET IN PLACE TO DISPOSE HAZARDOUS MATERIAL FROM SITE.	1	3	MODERATE
10	GENERAL SITE OPERATION	FALL FROM HEIGHTS / RETAINING STRUCTURES	CONSTRUCTION / OPERATION	3	4	VERY HIGH	- APPROVED HANDRAILS / BARRIERS TO BE INSTALLED UPON COMPLETION OF RETAINING STRUCTURES DEEMED AS A RISK.	2	4	HIGH
11	EROSION AND SEDIMENT MANAGEMENT	SEDIMENT IMPACTING THE EXTERNAL ENVIRONMENT / PUBLIC AREAS. CONTAMINATION OF WATERCOURSES.	CONSTRUCTION	2	3	MODERATE	- INSTALL SEDIMENT AND EROSION CONTROL MEASURES IN ACCORDANCE WITH 'BLUE BOOK'REQUIREMENTS	2	2	LOW
12	SHARE ROAD WITH VEHICLES INCLUDING HEAVY VEHICLES	POTENTIAL OF COLLISION WITH PEDESTRIANS, CYCLISTS AND VEHICLES	OPERATION	3	5	VERY HIGH	- ENSURE VEHICLE FLOW IS RESTRICTED WITH SPEED REDUCTION MEASURES THROUGH DESIGN. NARROW CARRIAGEWAY WILL PROMOTE SPEED DETERRENT. - INCREASE AWARENESS BY HIGHER LEVEL OF LIGHTING AND HEAVY PEDESTRIAN ACTIVITY SIGNAGE.	2	5	VERY HIGH
13	CYCLIST USING BI-DIRECTIONAL PATH AND SHARED PATH	COLLISION WITH TRAFFIC AND PEDESTRIANS	OPERATION	3	4	VERY HIGH	- PROVIDE CLEARANCES FOR CYCLISTS. - LANEMARKING AND SIGNAGE. - CLEAR SIGHT LINES	2	4	HIGH
14	DROWING IN HARBOUR	ACCIDENTAL FALLS INTO HARBOUR	OPERATION	3	5	VERY HIGH	- PROVIDE ADEQUATE SIGNAGE TO WARN PUBLIC OF DANGERS. - PROVIDE MULTIPLE OPPORTUNITIES FOR EGRESS. - PROVIDE SAFETY/RESCUE EQUIPMENT	2	4	HIGH
15	VEHICLES ENTERING PARK AREA	COLLISION BETWEEN VEHICLES, PEDESTRIANS AND CYCLISTS	OPERATION	3	4	VERY HIGH	- RESTRICT UNAUTHORISED VEHICLE ACCESS. - LIMIT MAINTENANCE VEHICLE ACCESS TO TIMES OF LOW PEDESTRIAN ACTIVITY. - CLEAR SIGHT LINES ALONG MAINTENANCE VEHICLE PATHWAYS.	1	4	HIGH
16	WATER QUALITY PIT ACCESS	- FALL FROM ENTERING THE PIT - SUFFOCATION OR ILLNESS DUE TO LACK OF VENTILATION	OPERATION	3	3	HIGH	- PROVIDE STEP IRONS NEXT TO HATCH - PERSONNEL ENTERING PIT MUST COMPLETE CONFINED SPACE TRAINING	1	3	MODERATE
17	STORMWATER PIT/PIPE MAINTENANCE	- THE STORMWATER PIPE NETWORK MAY CONTAIN HARMFUL LEVELS OF CONTAMINANTS/ ODOURS	MAINTENANCE	3	4	VERY HIGH	- ENSURE STAFF IDENTIFIED TO ACCESS STORMWATER PITS FOR MAINTENANCE HAVE COMPLETED CONFINED SPACE TRAINING	1	3	MODERATE
18	BULK EARTHWORKS EXCAVATIONS	CONTAMINATED SOILS	CONSTRUCTION	3	4	VERY HIGH	-ENSURE REMEDIAL ACTION PLAN (RAP) IS IN PLACE PRIOR TO COMMENCEMENT OF EXCAVATION, AND ALL THE RECCOMENDATIONS OF THE RAP ARE IMPLEMENTED	2	4	HIGH

REV.	DATE	DESCRIPTION	DRN.	DES.	VERIF.	APPD.
2	20/10/2023	ISSUED FOR SSD	AR	RH	RL	RH
1	23/08/2023	DRAFT ISSUE	CWH	RH	-	RH

Client: we are NSW Infrastructure New South Wales

Scale:

North:

Enspire Solutions Pty Ltd
Level 4, 153 Walker Street, North Sydney NSW 2060
ABN: 71 624 801 690
Phone: 02 9922 6135 enspiresolutions.com.au

Project: BANK STREET PARK, PYRMONT

Title: SAFETY IN DESIGN

Scale: NTS

Date: 23/08/2023

Size: A1

Datum: GDA94

Status: FOR INFORMATION ONLY
NOT TO BE USED FOR CONSTRUCTION

Project Number/Drawing Number: 220067-00-DA-C23.01

Revision: 2

DATE PLOTTED: 20 October 2023 11:45 AM BY - AHMAD RAZAULLAH

CAD File: P:\220067 BankStParkID-Civil\00-SiteWide\Drawings\6-DACC\1-DA\220067-00-DA-C23.01 SAFETY IN DESIGN.dwg

Appendix B Waterfront Land E-tool Results

Google Forms

1 Thanks for filling in Waterfront land e-tool

Here's what was received.

Edit response

2 Waterfront land e-tool

Version 1 - 2020

2.1 Email *

adrian.nhan@enspiresolutions.com.au

2.1.1 Is this the right e-tool for me?

This waterfront land e-tool has been developed to help controlled activity applicants and consultants determine if a controlled activity approval is required under the provisions of the Water Management Act 2000. The tool can be used to help identify:

- if there is waterfront land
- the location of top of bank of the waterfront land and
- if an exemption applies for works within certain mapped areas under clause 36 of Schedule 4 of the Regulation

The e-tool is recommended for use by people who are familiar with environmental assessment and suitably qualified consultants. Members of the general public who are planning works near waterfront land should seek professional advice.

2.1.2 The e-tool must be completed separately for each individual mapped or visible watercourse on, or near, your property. If you have multiple properties or multiple watercourses on or near your property, submit your response for the first assessment and then re-start the tool from the beginning to assess another watercourse or property. This will ensure each property and watercourse receives its own separate emailed result outcome that you can keep as a record.

2.1.3 Using the tool

Some of the questions in this e-tool can be answered using materials online. Depending on your circumstances, you may also need to the visit the site of the proposed work in person to gather supporting evidence.

There is a PDF version of the tool available that you can download and take into the field at:
https://water.nsw.gov.au/__data/assets/pdf_file/0009/367272/waterfront-land-tool.pdf

The e-tool must be completed separately for each individual mapped or visible watercourse on the property. Each watercourse assessed with the e-tool will then receive a separate emailed result outcome.

2.1.4 Stopping and returning

You can choose to exit the tool at certain questions where field work is recommended. You will be asked if you wish to exit, and, if you agree, be emailed a link that you can use to return to the tool later to complete the rest of the questions.

If you close the tool anywhere else - without completing it and clicking the 'Submit' button - your data will not be retained. Please ensure you only close the tool when prompted if you wish to retain your answers.

2.1.5 Supporting evidence

When you complete the tool, you will receive email confirmation containing your answers, which you must keep as a record of your decision-making. You must also keep all reference material and information used–including maps, photos and observations to answer the tool questions. You will be prompted throughout the tool about what information to keep.

Department of Planning and Environment—Water may request copies of the Waterfront land tool answers and supporting documents from landholders where works are carried out without a controlled activity approval under the Water Management Act 2000.

The Waterfront land e-tool will store your email address so you can be emailed a record of your answers on completion. It will also record your answers but it will not identify your location or any other personal details. If you do not wish to supply your email address, please use the hard copy version of the tool at: https://water.nsw.gov.au/__data/assets/pdf_file/0009/367272/waterfront-land-tool.pdf

2.1.6 More information

- about this e-tool, contact Department of Planning and Environment—Water via email: waterlicensing.servicedesk@dpie.nsw.gov.au
- about controlled activity approvals, visit https://water.dpie.nsw.gov.au/licensing-and-trade/controlled-activity-approvals

2.2 Disclaimer

- This tool is intended for guidance purposes only and cannot be used as evidence of compliance with the Water Management Act 2000.
- Users of this tool will be responsible for making their own assessment of the material and should verify all relevant representations, statements and information with their own professional advisers.
- This tool only applies controlled activities on waterfront land—it does not apply to water access licences or water supply work and/or water use approvals.
- This is not an approval to undertake work on waterfront land and you will still need to obtain relevant approvals as required under the Water Management Act 2000 (WM Act).
- The use of this tool does not remove the obligation to obtain approval under any other relevant legislation.
- Users should also refer to the disclaimer on the department's website at: https://www.industry.nsw.gov.au/disclaimer

2.3 Description or Reference

2.4 Please enter a description or reference number below for the property or watercourse you are going to assess. This will allow you to easily identify this assessment from any other assessments you undertake using the tool. *

Bank Street Park

2.5 Question 1 - Department of Planning and Environment—Water waterfront land maps

2.5.1 After answering the question, click next at the bottom of the screen.

2.6 Is your property located on a watercourse, lake or estuary within the area marked in orange in any of the Department of Planning and Environment—Water waterfront land maps below? *

Yes, Botany Bay

Yes, Brisbane Water

Yes, Hunter River

Yes, Lake Macquarie

Yes, Lake Mulwala

Yes, Port Hacking

Yes, Port Jackson

Yes, Port Stephens

Yes, Tuggerah Lakes

Yes, Wallis Lakes

No, none of the above

2.6.1 Using the maps below

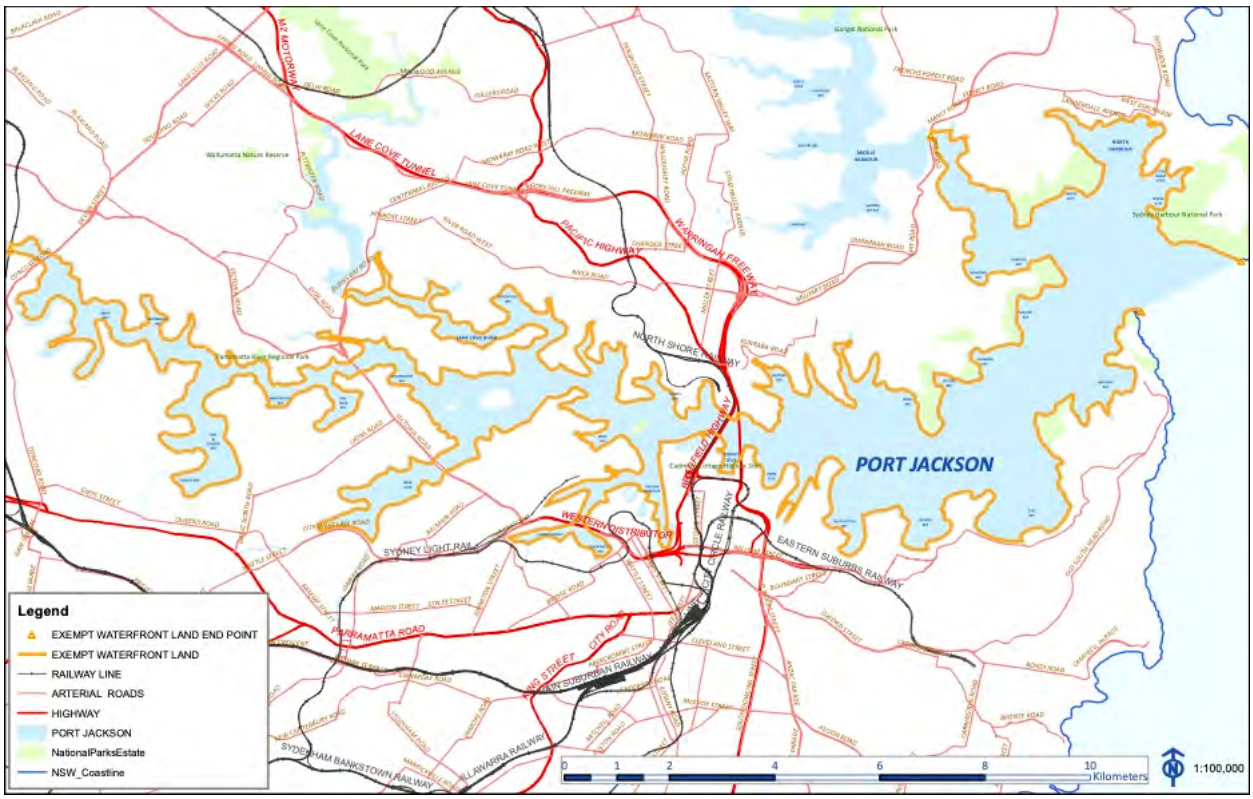
Using your browser zoom in to any of the maps below to help you identify the location of your property.

Alternatively you can access the maps at the below link:
https://www.dpie.nsw.gov.au/water/licensing-and-trade/controlled-activity-approvals/controlled-activity-exemptions

2.6.2 What supporting evidence do I need?

- Saved or printed screenshot of aerial photo of your property
- Saved or printed copy of any maps to identify property boundary
- Saved or printed screenshot of the location of your property on the waterfront land map

Port Jackson



2.7 Result 10 - Controlled activity approval not required - Exempt

Based on your answers, the result is:

2.7.1 CONTROLLED ACTIVITY APPROVAL NOT REQUIRED - EXEMPT

2.7.2 Statement

When completing the e-tool you provided the following answers:

• The site is located within the area marked in orange on the Department of Planning and Environment—Water Waterfront land
maps from clause 36 of Schedule 4 of Water Management (General) Regulation 2018

2.8 Is the above statement correct? *

Yes

No (restart tool)

2.9 Record keeping and Disclaimer

Please ensure you keep the electronic and/or printed copies of all supporting evidence required for questions answered in this tool and the confirmation email you receive after clicking submit.

NOTE:

• The results given by this tool are generated using the answers you have provided.
If any answers are incorrect or incomplete, the result produced may be incorrect.
• This tool is intended for guidance purposes only and cannot be used as evidence of compliance with the Water Management Act 2000.
• Users of this tool will be responsible for making their own assessment of the material and should verify all relevant representations, statements and information with their own professional advisers.
• This is not an approval to undertake work on waterfront land and you will still need to obtain

relevant approvals as required under the Water Management Act 2000 (WM Act).
• The use of this tool does not remove the obligation to obtain approval under any other relevant legislation.
• Users should also refer to the disclaimer on the department's website at industry.nsw.gov.au/disclaimer.

2.9.1 If ANY of your assessments identify that a controlled activity approval is required for your proposed works, you must complete the following tasks:

• Confirm if an exemption applies to your site or proposed works by using the Department's Controlled activity exemption e-tool at: https://forms.office.com/pages/responsepage.aspx?id=IYjvIjkqHEe4mmewgz3TuaJ8VvZiyYZKiR3x1NniFCZUQ0lWTUZRUVpWMFhHTlBEM05aNFVOVlFSOC4u or refer to exemption information here: https://www.dpie.nsw.gov.au/water/licensing-and-trade/controlled-activity-approvals/controlled-activity-exemptions
• For matters requiring a development application (DA) from Council, you should lodge your DA as Integrated Development.
• For matters NOT requiring a DA, please refer to the Department of Planning and Environment—Water website for instructions on how to apply for a Controlled Activity Approval: https://www.dpie.nsw.gov.au/water/licensing-and-trade/controlled-activity-approvals/how-to-apply

2.9.2 You MUST click Submit to be emailed a copy of your answers and your result.

2.9.3 Reminder: The e-tool must be completed separately for each individual mapped or visible watercourse on, or near, your property. If you have multiple properties or multiple watercourses on or near your property, submit your response for the first assessment and then re-start the tool from the beginning to assess another watercourse or property. This will ensure each property and watercourse receives its own separate emailed result outcome that you can keep as a record.

2.10 Feedback

Please let us know whether you found this tool helpful and what we could do to make it better. Your comments will help us to improve the tool further.

Thankyou for your feedback.

2.11 How helpful was this tool?

2.12 Additional feedback about this tool

If you have a question or require further information regarding your specific circumstances, please email waterlicensing.servicedesk@dpie.nsw.gov.au

2.12.1 If you wish to undertake another assessment, please click 'Submit' below and then select 'Submit another response'.

Appendix C MUSIC Link Report

MUSIC-*link* Report

Project Details		Company Details	
Project:	Bank Street Park	**Company:**	Enspire Solutions
Report Export Date:	22/10/2023	**Contact:**	Robert Hutchinson
Catchment Name:	231018 Bank St WSUD Concept Phase 4	**Address:**	Level 4, 153 Walker Street, North Sydney NSW 2060
Catchment Area:	0.758ha	**Phone:**	+61 490 533 547
Impervious Area*:	61.93%	**Email:**	Robert.Hutchinson@enspiresolutions.com.au
Rainfall Station:	66062 SYDNEY		
Modelling Time-step:	6 Minutes		
Modelling Period:	1/01/1982 - 31/12/1986 11:54:00 PM		
Mean Annual Rainfall:	1278mm		
Evapotranspiration:	1265mm		
MUSIC Version:	6.3.0		
MUSIC-link data Version:	6.34		
Study Area:	City of Sydney Sandy Loam Soil		
Scenario:	City of Sydney Development		

* takes into account area from all source nodes that link to the chosen reporting node, excluding Import Data Nodes

Treatment Train Effectiveness

Node: Receiving Node	Reduction
Flow	12.9%
TSS	85.5%
TP	78.5%
TN	61.7%
GP	92%

Treatment Nodes

Node Type	Number
Bio Retention Node	3
Swale Node	1
Sedimentation Basin Node	4
GPT Node	7
Generic Node	4

Source Nodes

Node Type	Number
Urban Source Node	10

Comments

SF Chambers nodes per StormFilter MUSIC Calculator parameters

Passing Parameters

Node Type	Node Name	Parameter	Min	Max	Actual
Bio	Bioretention length = 64m	Exfiltration Rate (mm/hr)	0	None	0
Bio	Bioretention length = 64m	Hi-flow bypass rate (cum/sec)	0	None	100
Bio	Bioretention length = 64m	Orthophosphate Content in Filter (mg/kg)	0	55	40
Bio	Bioretention length = 64m	PET Scaling Factor	2.1	2.1	2.1
Bio	Bioretention length = 64m	Total Nitrogen Content in Filter (mg/kg)	1	800	800
Bio	Bioretention Trees length = 25m	Exfiltration Rate (mm/hr)	0	None	0
Bio	Bioretention Trees length = 25m	Hi-flow bypass rate (cum/sec)	0	None	100
Bio	Bioretention Trees length = 25m	Orthophosphate Content in Filter (mg/kg)	0	55	40
Bio	Bioretention Trees length = 25m	PET Scaling Factor	2.1	2.1	2.1
Bio	Bioretention Trees length = 25m	Total Nitrogen Content in Filter (mg/kg)	1	800	800
Bio	Bioretention Trees Length 55.3m	Exfiltration Rate (mm/hr)	0	None	0
Bio	Bioretention Trees Length 55.3m	Hi-flow bypass rate (cum/sec)	0	None	100
Bio	Bioretention Trees Length 55.3m	Orthophosphate Content in Filter (mg/kg)	0	55	40
Bio	Bioretention Trees Length 55.3m	PET Scaling Factor	2.1	2.1	2.1
Bio	Bioretention Trees Length 55.3m	Total Nitrogen Content in Filter (mg/kg)	1	800	800
GPT	1 x OceanGuard	Hi-flow bypass rate (cum/sec)	None	99	0.02
GPT	1 x OceanGuard	Hi-flow bypass rate (cum/sec)	None	99	0.02
GPT	1 x OceanGuard	Hi-flow bypass rate (cum/sec)	None	99	0.02
GPT	2 x OceanGuard	Hi-flow bypass rate (cum/sec)	None	99	0.04
GPT	2 x OceanGuard	Hi-flow bypass rate (cum/sec)	None	99	0.04
GPT	3 x OceanGuard	Hi-flow bypass rate (cum/sec)	None	99	0.06
GPT	9x OceanGuard	Hi-flow bypass rate (cum/sec)	None	99	0.18
Receiving	Receiving Node	% Load Reduction	None	None	12.9
Receiving	Receiving Node	GP % Load Reduction	90	None	92
Receiving	Receiving Node	TN % Load Reduction	45	None	61.7
Receiving	Receiving Node	TP % Load Reduction	65	None	78.5
Receiving	Receiving Node	TSS % Load Reduction	85	None	85.5
Sedimentation	SF Chamber	% Reuse Demand Met	None	None	0
Sedimentation	SF Chamber	% Reuse Demand Met	None	None	0
Sedimentation	SF Chamber	% Reuse Demand Met	None	None	0
Sedimentation	SF Chamber	% Reuse Demand Met	None	None	0
Sedimentation	SF Chamber	Exfiltration Rate (mm/hr)	0	0	0
Sedimentation	SF Chamber	Exfiltration Rate (mm/hr)	0	0	0
Sedimentation	SF Chamber	Exfiltration Rate (mm/hr)	0	0	0
Sedimentation	SF Chamber	Exfiltration Rate (mm/hr)	0	0	0
Sedimentation	SF Chamber	Extended detention depth (m)	0.25	1	0.54
Sedimentation	SF Chamber	Extended detention depth (m)	0.25	1	0.54
Sedimentation	SF Chamber	Extended detention depth (m)	0.25	1	0.54
Sedimentation	SF Chamber	Extended detention depth (m)	0.25	1	0.54
Sedimentation	SF Chamber	High Flow Bypass Out (ML/yr)	None	None	0

Only certain parameters are reported when they pass validation

Node Type	Node Name	Parameter	Min	Max	Actual
Sedimentation	SF Chamber	High Flow Bypass Out (ML/yr)	None	None	0
Sedimentation	SF Chamber	High Flow Bypass Out (ML/yr)	None	None	0
Sedimentation	SF Chamber	High Flow Bypass Out (ML/yr)	None	None	0
Swale	CAT D SWALE	Bed slope	0.01	0.05	0.01
Urban	Amenities Roof 100% - 0.015ha	Area Impervious (ha)	None	None	0.015
Urban	Amenities Roof 100% - 0.015ha	Area Pervious (ha)	None	None	0
Urban	Amenities Roof 100% - 0.015ha	Total Area (ha)	None	None	0.015
Urban	CAT A SURFACE Urban - 0.0613ha	Area Impervious (ha)	None	None	0.034
Urban	CAT A SURFACE Urban - 0.0613ha	Area Pervious (ha)	None	None	0.026
Urban	CAT A SURFACE Urban - 0.0613ha	Total Area (ha)	None	None	0.061
Urban	CAT B SURFACE Urban - 0.078ha	Area Impervious (ha)	None	None	0.083
Urban	CAT B SURFACE Urban - 0.078ha	Area Pervious (ha)	None	None	0.152
Urban	CAT B SURFACE Urban - 0.078ha	Total Area (ha)	None	None	0.236
Urban	CAT C SURFACE Urban - 0.1522ha	Area Impervious (ha)	None	None	0.071
Urban	CAT C SURFACE Urban - 0.1522ha	Area Pervious (ha)	None	None	0.080
Urban	CAT C SURFACE Urban - 0.1522ha	Total Area (ha)	None	None	0.152
Urban	CAT d SURFACE Urban - 0.0337ha	Area Impervious (ha)	None	None	0.004
Urban	CAT d SURFACE Urban - 0.0337ha	Area Pervious (ha)	None	None	0.028
Urban	CAT d SURFACE Urban - 0.0337ha	Total Area (ha)	None	None	0.033
Urban	CAT D SURFACE Urban - 0.0562ha	Area Impervious (ha)	None	None	0.056
Urban	CAT D SURFACE Urban - 0.0562ha	Area Pervious (ha)	None	None	0
Urban	CAT D SURFACE Urban - 0.0562ha	Total Area (ha)	None	None	0.056
Urban	CAT HARDSTAND SURFACE Urban - 0.0745ha	Area Impervious (ha)	None	None	0.075
Urban	CAT HARDSTAND SURFACE Urban - 0.0745ha	Area Pervious (ha)	None	None	0
Urban	CAT HARDSTAND SURFACE Urban - 0.0745ha	Total Area (ha)	None	None	0.075
Urban	CATd Hardstand 0.0272ha	Area Impervious (ha)	None	None	0.027
Urban	CATd Hardstand 0.0272ha	Area Pervious (ha)	None	None	0
Urban	CATd Hardstand 0.0272ha	Total Area (ha)	None	None	0.027
Urban	Marina roof 100% - 0.0567ha	Area Impervious (ha)	None	None	0.057
Urban	Marina roof 100% - 0.0567ha	Area Pervious (ha)	None	None	0
Urban	Marina roof 100% - 0.0567ha	Total Area (ha)	None	None	0.057
Urban	total BYPASS Urban -0.046Ha	Area Impervious (ha)	None	None	0.046
Urban	total BYPASS Urban -0.046Ha	Area Pervious (ha)	None	None	0
Urban	total BYPASS Urban -0.046Ha	Total Area (ha)	None	None	0.046

Only certain parameters are reported when they pass validation

Failing Parameters

Node Type	Node Name	Parameter	Min	Max	Actual
Sedimentation	SF Chamber	Notional Detention Time (hrs)	8	12	0.156
Sedimentation	SF Chamber	Notional Detention Time (hrs)	8	12	0.0956
Sedimentation	SF Chamber	Notional Detention Time (hrs)	8	12	0.121
Sedimentation	SF Chamber	Notional Detention Time (hrs)	8	12	0.121

Only certain parameters are reported when they pass validation