Our Ref: 304600730-L02: BCP/bcp
Contact: Dr Brett C. Phillips

8th February 2023

The Operations Manager,
AT&L
Level 7, 153 Walker Street
NORTH SYDNEY NSW 2060

Attention: Mr Andrew Tweedie

Stantec Australia Pty Ltd
ABN 17 007 820 322

Level 9
The Forum
203 Pacific Highway
St Leonards NSW 2065
Australia

Phone: 61 2 9496 7700
Fax: 61 2 9439 5170

Dear Andrew,

ADDENDUM TO STAGE 1 FLOOD IMPACT ASSESSMENT
SSD-9138102 WESTLINK INDUSTRIAL ESTATE AT 290-308 ALDINGTON ROAD, 59-62 ABBOTTS ROAD & 63 ABBOTTS ROAD, KEMPS CREEK

On 20 December 2022, Sydney Water provided comments to the Senior Planning Officer, Industry Assessments at the Department of Planning Industry and Environment, in part, on trunk drainage. We are please to provide the following advice on the impacts on flooding of the proposed trunk drainage scheme.

Trunk Drainage

As the nominated Stormwater Authority for Mamre Road, Sydney Water has planned trunk water drainage infrastructure, which was published in the Mamre Road DCP and included in Sydney Water's mid 2022 draft Stormwater Scheme Plan. Please note that the next update is anticipated to be published on 21/12/2022.

Sydney Water will permit a minor reduction in the planned open natural trunk drainage channel extent to allow the open channel to initiate downstream of the proposed internal (North/South) road.

- *The open natural trunk drainage channel within the site, which has been identified by Sydney Water and the Proponent (as above) and which will be managed by Sydney Water must be reflected in the Proposal. Right of access will be required to allow Sydney Water to manage and maintain the asset in perpetuity.*
- *The trunk drainage channel will be assessed in relation to standards set out in Sydney Water's Stormwater Scheme Infrastructure Technical Guidelines DRAFT (to be provided in December 2022).*

- *In advance of the Stormwater Scheme Infrastructure Technical Guidelines DRAFT, the following advice is provided:*
  - *The low flow channel must be sized to contain the 4EY.*
  - *Batter slopes should be between 1:4-1:6 wherever feasible, localised steepening of banks with appropriate surface treatment to protect from shear stress and velocity will be accepted to facilitate low flow channel base meander.*
  - *Sydney Water requires a compound waterway form wherever possible to assist in provision of low flow channel sinuosity.*
- *Typical longitudinal grading of the trunk drainage should be in the range of 0.4% - 0.8% with an upper limit of 1.4%. Shear force calculations are to be provided for low flows, 1% and 10% AEP flows and demonstration of appropriate surface treatment to protect from erosion. This is particularly important at the entry and exit of the major bends.*
- *Part of the function of the naturalised trunk drainage channels is to provide amenity and access to natural, green cool space within the precincts. It is recommended to consider safe access to the perimeters of the corridor. Access shall be provided as described in the Stormwater Scheme Infrastructure Technical Guidelines DRAFT.*
- *Sydney Water will not accept private OSD or interim stormwater retention storage in the naturalised trunk drainage channel. The proposal currently has an OSD basin shown where the trunk drainage channel is required. This will need to be amended.*
- *Sydney Water encourages a robust local native planting palette that enhances the ecological value of the site, balanced with considerations of not increasing attraction of wildlife that may be problematic to airport operations. See Stormwater Scheme Infrastructure Technical Guidelines DRAFT.*
- *Documentation must also be provided to demonstrate that the selected planting plan will facilitate flood conveyance appropriately at establishment and full maturity. See Stormwater Scheme Infrastructure Technical Guidelines DRAFT for appropriate Manning's 'n' values to test.*

The updated draft Stormwater Scheme Plan is appended in **Attachment A1**. It is overviewed as follows:

This Stormwater Scheme Plan shows the regional stormwater infrastructure required to service the Mamre Road precinct and to be managed by Sydney Water.

The Stormwater Scheme Plan was developed in fine with NSW Government planning requirements and ensures that development complies with NSW Government waterway objectives and stormwater targets specified in the Mamre Road Precinct Development Control Plan. The scheme outlines the infrastructure required to deliver a regional stormwater harvesting solution to achieving the stormwater targets.

This infrastructure will also support the NSW Governments Western Parkland City vision for greening and cooling. Elements of the scheme form part of the blue green infrastructure framework.

The key elements of the Mamre Road Precinct Stormwater Scheme Plan are:

- *Naturalised trunk drainage channels for stormwater conveyance as well as ecological and social benefits;*
- *Gross pollutant traps (GPTs) to remove fitter and other coarse pollutants;*
- *Constructed wetlands and storage ponds for treatment and harvesting of stormwater;*
- *Stormwater harvesting and distribution network that includes gravity and pressure mains as well as pumps, treatment plant and a reservoir.*

This Stormwater Scheme Plan is a conceptual layout which has been refined following public and stakeholder comment. The infrastructure sizing and locations are fixed from this point with exception of minor modifications subject to Sydney Water approval.

A Type 1 Typical Trunk Drainage Channel formulated by Sydney Water is appended in **Attachment A2.**

Amended Stage 1 of Westlink Industrial Estate

Based on the trunk drainage requirements identified by Sydney Water on 20 December 2022 as set out above, it is proposed to amend Stage 1 of the Westlink Industrial Estate to reflect these requirements.

The alignment of the proposed trunk drainage channel in Stage 1 is identified in **Attachment B.** It is proposed that the channel geometry be based on the Type 1 geometry set out in **Attachment A2**.

The intent of the trunk drainage channel is to convey runoff from the local catchment up to the 100 yr ARI (1% AEP) event to an outfall west of Mamre Road (refer **Attachment A**)

Flood Impact Assessment

In our Flood Impact Assessment of Stage 1 of the Westlink Industrial Estate we advised, in part:

These Figures disclose minor adverse impacts on flood levels downstream of the outfall of the Stage 1 drainage line in the 20yr ARI, 100 yr ARI, 200 yr ARI, 500 yr ARI and PMF events. The degree of impact progressively reduces as the severity of flooding increases such that in the 500 yr ARI event the extent of impacts is substantially reduced in area. The impacts occur on agricultural lands only. ……..

The flood impact assessment has been undertaken on the basis of currently available information downstream of the development in Abbotts Road and Aldington Road. We understand that the future upgrade to Abbotts Road and Aldington Road will include an upgrade to drainage to accommodate outflows from the Westlink Stage 1 development.

The proposed trunk drainage channel represents a future upgrade of drainage for the local catchment envisaged by the Stage 1 assessment.

Given the intent of the trunk drainage channel is to convey runoff from the local catchment up to the 100 yr ARI (1% AEP) event to an outfall west of Mamre Road and noting that the impacts identified in the 2022 Stage 1 FIA are greatest in the 20 yr ARI storm, and minimal in the larger floods and the PMF, we fully expect that the flooding impacts of concern will be removed by the trunk drainage channel in events up to the 100 yr ARI event and will be reduced in extreme floods.

It is our understanding that this will be confirmed by updating the Stage 1 flood impact assessment during the detailed design phase.

Yours faithfully

Brett C. Phillips

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Dr Brett C. Phillips
Senior Principal
for **Stantec Australia**

Attachment A1

Overview

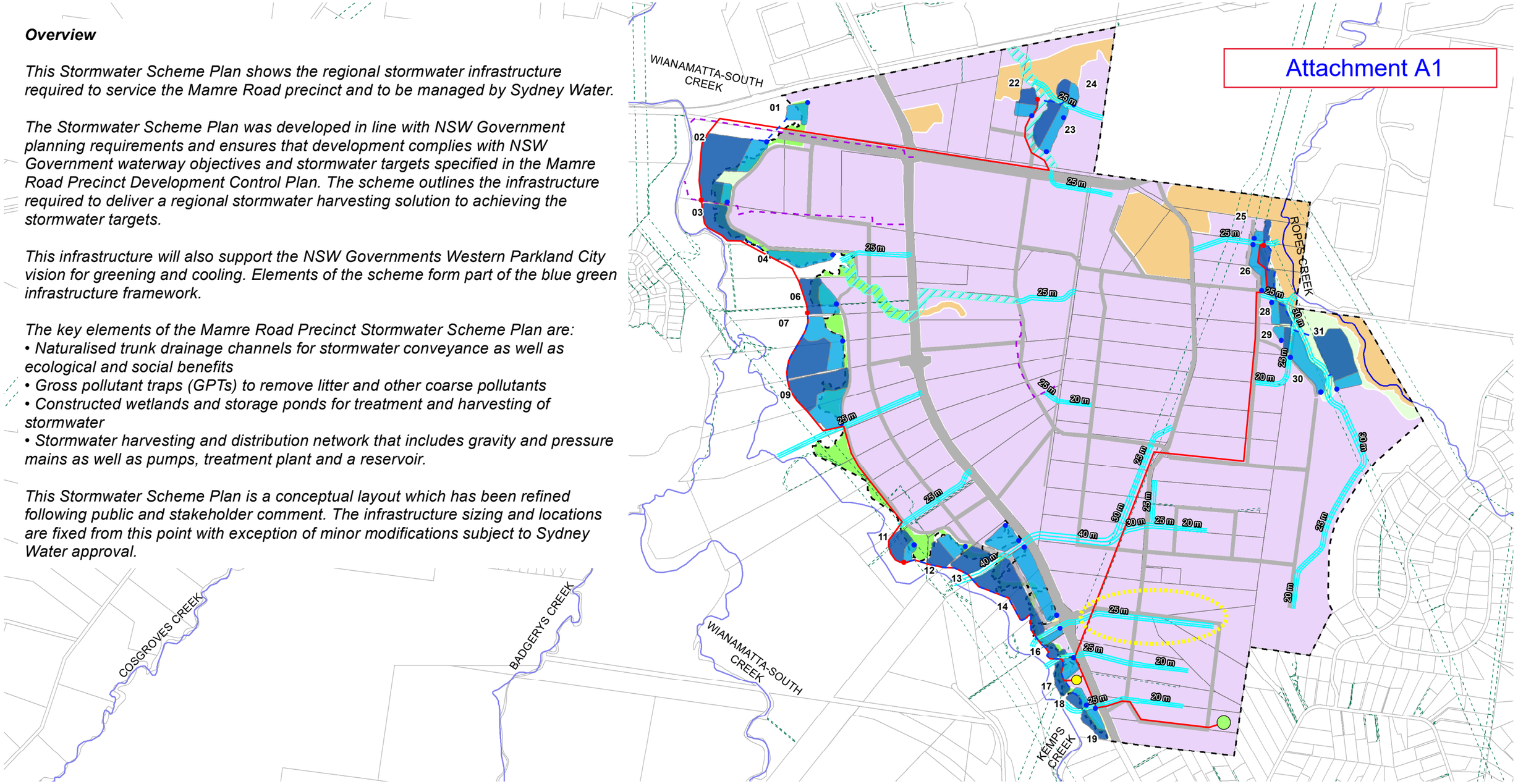
This Stormwater Scheme Plan shows the regional stormwater infrastructure required to service the Mamre Road precinct and to be managed by Sydney Water.

The Stormwater Scheme Plan was developed in line with NSW Government planning requirements and ensures that development complies with NSW Government waterway objectives and stormwater targets specified in the Mamre Road Precinct Development Control Plan. The scheme outlines the infrastructure required to deliver a regional stormwater harvesting solution to achieving the stormwater targets.

This infrastructure will also support the NSW Governments Western Parkland City vision for greening and cooling. Elements of the scheme form part of the blue green infrastructure framework.

The key elements of the Mamre Road Precinct Stormwater Scheme Plan are:
• Naturalised trunk drainage channels for stormwater conveyance as well as ecological and social benefits
• Gross pollutant traps (GPTs) to remove litter and other coarse pollutants
• Constructed wetlands and storage ponds for treatment and harvesting of stormwater
• Stormwater harvesting and distribution network that includes gravity and pressure mains as well as pumps, treatment plant and a reservoir.

This Stormwater Scheme Plan is a conceptual layout which has been refined following public and stakeholder comment. The infrastructure sizing and locations are fixed from this point with exception of minor modifications subject to Sydney Water approval.



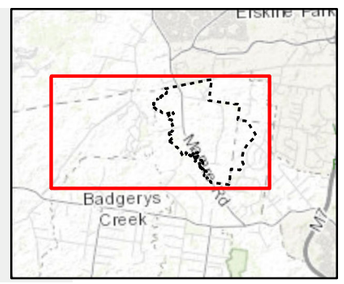
Mamre Road Precinct Boundary
Existing Lot Boundary
Major Waterways
Existing Easement
Indicative Roads (DPE)
Indicative Road Realignment
Indicative Private Drainage Asset

Land Zoning
C2 Environmental Conservation
IN1 General Industrial
RE1 Public Recreation
RE2 Private Recreation
SP2 Infrastructure

Proposed Stormwater Scheme Infrastructure
Proposed Treatment Systems
Wetland
Storage Pond
01 Basin Reference Number Labels
Indicative GPT Location

Proposed Trunk Drainage
Naturalised Channel Alignment
20 m Minimum Required Trunk Drainage Corridor Width Labels
Waterways with Riparian Corridor

Proposed Recirculation Infrastructure
Indicative Stormwater Gravity Main
Indicative Stormwater Rising Main
Indicative Harvesting Pump Location
Indicative Stormwater Reservoir Location
Indicative Distribution Reservoir Location



Source: Aurecon, Sydney Water, LPI, DPIE, ESRI
Date: 21/12/2022

0 250 500m

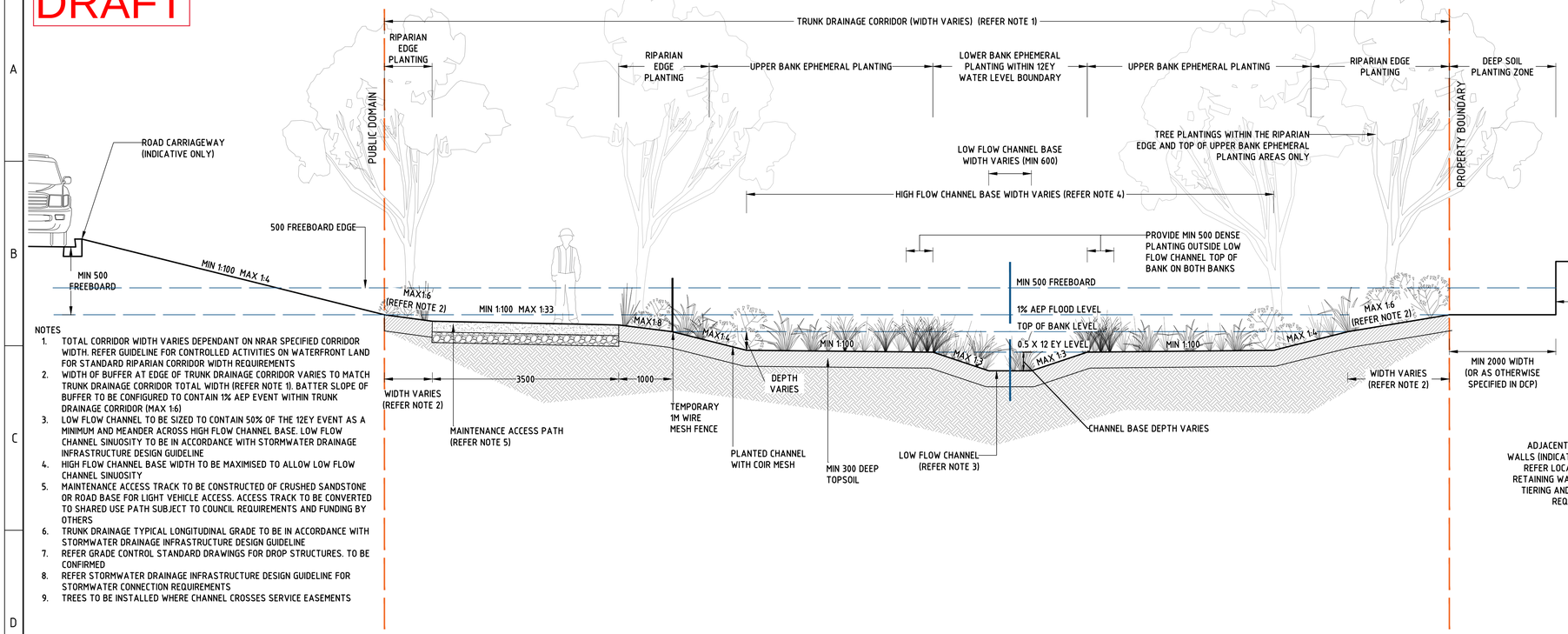
Projection: GDA 1994 MGA Zone 56

MAMRE ROAD PRECINCT STORMWATER SCHEME PLAN

Sydney WATER

DRAFT

Attachment A2

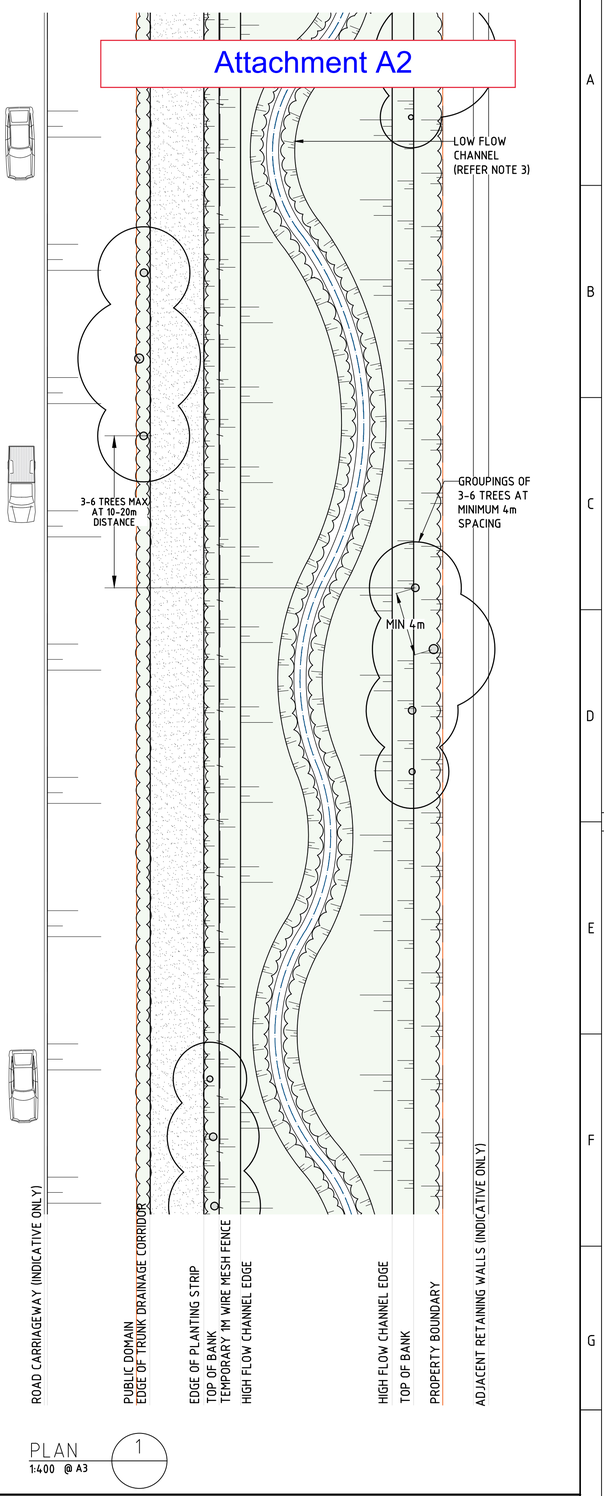


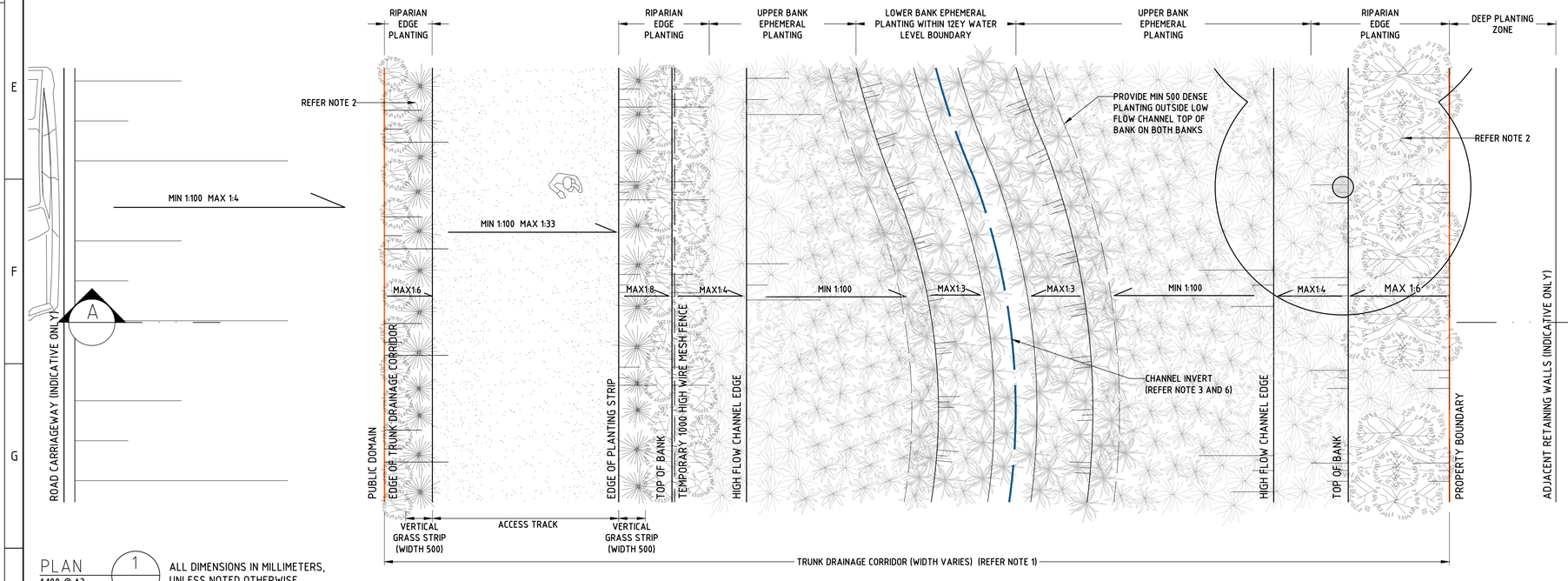
NOTES

1. TOTAL CORRIDOR WIDTH VARIES DEPENDANT ON NRAR SPECIFIED CORRIDOR WIDTH. REFER GUIDELINE FOR CONTROLLED ACTIVITIES ON WATERFRONT LAND FOR STANDARD RIPARIAN CORRIDOR WIDTH REQUIREMENTS
2. WIDTH OF BUFFER AT EDGE OF TRUNK DRAINAGE CORRIDOR VARIES TO MATCH TRUNK DRAINAGE CORRIDOR TOTAL WIDTH (REFER NOTE 1). BATTER SLOPE OF BUFFER TO BE CONFIGURED TO CONTAIN 1% AEP EVENT WITHIN TRUNK DRAINAGE CORRIDOR (MAX 1:6)
3. LOW FLOW CHANNEL TO BE SIZED TO CONTAIN 50% OF THE 12EY EVENT AS A MINIMUM AND MEANDER ACROSS HIGH FLOW CHANNEL BASE. LOW FLOW CHANNEL SINUOSITY TO BE IN ACCORDANCE WITH STORMWATER DRAINAGE INFRASTRUCTURE DESIGN GUIDELINE
4. HIGH FLOW CHANNEL BASE WIDTH TO BE MAXIMISED TO ALLOW LOW FLOW CHANNEL SINUOSITY
5. MAINTENANCE ACCESS TRACK TO BE CONSTRUCTED OF CRUSHED SANDSTONE OR ROAD BASE FOR LIGHT VEHICLE ACCESS. ACCESS TRACK TO BE CONVERTED TO SHARED USE PATH SUBJECT TO COUNCIL REQUIREMENTS AND FUNDING BY OTHERS
6. TRUNK DRAINAGE TYPICAL LONGITUDINAL GRADE TO BE IN ACCORDANCE WITH STORMWATER DRAINAGE INFRASTRUCTURE DESIGN GUIDELINE
7. REFER GRADE CONTROL STANDARD DRAWINGS FOR DROP STRUCTURES. TO BE CONFIRMED
8. REFER STORMWATER DRAINAGE INFRASTRUCTURE DESIGN GUIDELINE FOR STORMWATER CONNECTION REQUIREMENTS
9. TREES TO BE INSTALLED WHERE CHANNEL CROSSES SERVICE EASEMENTS

SECTION AA 1
1:100 @ A3

ALL DIMENSIONS IN MILLIMETERS, UNLESS NOTED OTHERWISE.





PLAN 1
1:100 @ A3

ALL DIMENSIONS IN MILLIMETERS, UNLESS NOTED OTHERWISE.

PLAN 1
1:400 @ A3

LEGEND

- ROAD CARRIAGEWAY (INDICATIVE ONLY)
- LOW FLOW CHANNEL CENTERLINE
- TRUNK DRAINAGE CORRIDOR EDGE
- TEMPORARY 1000 HIGH WIRE MESH FENCE
- LOWER BANK EPHEMERAL PLANTING
- UPPER BANK EPHEMERAL PLANTING
- RIPARIAN EDGE PLANTING

DESIGNED	TBLD		
DRAWN	VM		
VERIFIED	AZ		
APPROVED			

LETTER	DETAILS OF ISSUE	APP'D	DATE
3	UPDATED DESIGN		8/12/22
2	UPDATED DESIGN		7/12/22
1	DRAFT DESIGN FOR SYDNEY WATER REVIEW		24/11/22

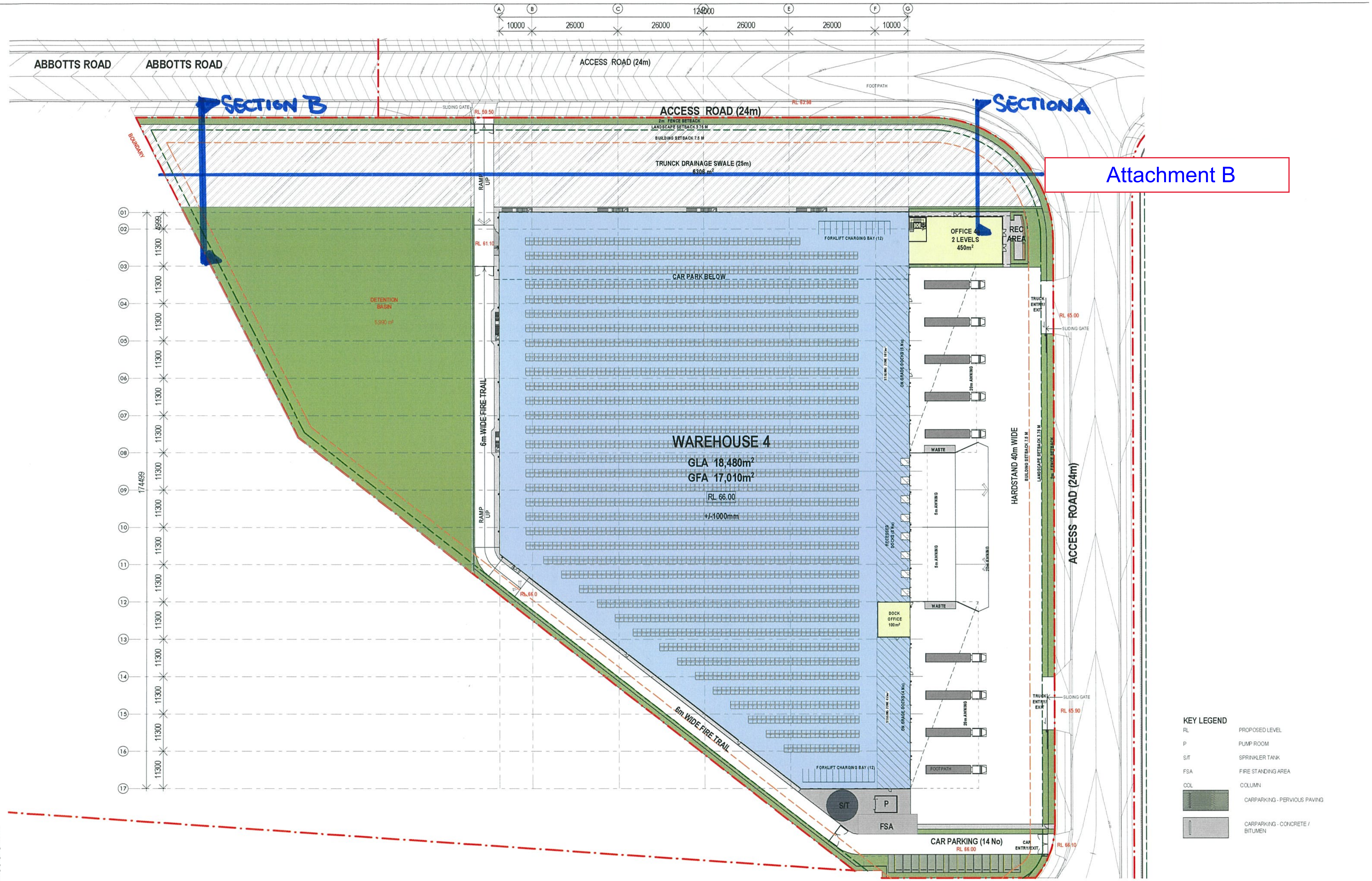
Sydney WATER

AEROTROPOLIS
REGIONAL STORMWATER INFRASTRUCTURE DESIGN GUIDELINE
TRUNK DRAINAGE CHANNEL TYPICAL 1
PLAN AND SECTION

DRAWING No. AERO-RSI TDC-SK01
SHEET No.

A1 | PROJ No. NISP0049 | DRAWING STATUS: DRAFT

SW41-EXT AUG 2014
554
801



ESR

SSD APPROVAL

Key Plan

Project Name
Westlink

Project Address
Mamre Road, Kemps Creek

Bar Scales

Ground Floor Plan - LOT4

BC/HS MA A1 1:500@A1 1:1000@A3

12587_DA106 P10

nettletontribe

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