

APPENDIX 3. STORMWATER MANAGEMENT REPORT & CIVIL PLAN



TMK Consulting Engineers

Adelaide | Melbourne | Riverland

2512153-SMR_A
Document Ref BF223
20 February 2026

STORMWATER MANAGEMENT REPORT

PORT MALL REDEVELOPMENT

ST. VINCENT STREET,
PORT ADELAIDE, SA

Prepared for:

BELL / Antunes Group
& The City of PAE



DISTRIBUTION

Document Issue	Copy Detail	Issued To	Issue Date
2512153_SMR_A	1 PDF	BELL	20/02/2026



Principal:	Job Number:	2512153
Project Title:	Date:	20 February 2026
Site: Port Mall, St Vincent Street, Port Adelaide		

ATTACHMENTS:

SW1 – SW3 Critical 1:10 Year A.R.I. minor storm calculations
 Critical 1:100 Year A.R.I. major storm calculations

DESIGN:

The proposed development consists of upgraded retail and commercial space, upgraded landscape and pedestrian areas, with a predevelopment discharge of 190.43L/s. Post development conditions considered are 94% impervious and 4% pervious for the future developments. Roof runoff shall be captured and detained within above ground detention tank storage and discharged at 150.0L/s to the proposed legal point of discharge, surface stormwater shall be captured and treated through mechanical treatment then to the legal point of discharge via a pump system at 40.0L/s.

Total Post-Development Discharge: 190.0L/s (total of two discharge points)
Total Proposed Detention Volume: 50,000L
Total Proposed Detention Volume/Pump Chamber below ground: 20,000L

GENERAL NOTES:

1. These calculations are to be read in conjunction with the relevant associated Drawings, Footing Construction Report, Civil Drawings and / or details.
2. All work is to comply with relevant SAA Standards and Guides.

AS 2876-1987: Concrete kerbs and channels (gutters) – manually or machine placed
AS 2200-2006: Design charts for water supply and sewerage
AS/NZS 3500: Plumbing and drainage
AS 3798-1990: Guidelines on earthworks for commercial and residential developments
AS 4000-1997:
 and General conditions of contract
AS 2124-1992:

ARRB Special Report 35: Subsurface drainage of road structures
Australian Rainfall and Run-off Volumes 1 and 2: A guide to flood estimation
Austroads 2008 – Guide to pavement technology
NAASRA 1987 – Pavement design
Storm drainage design in small urban catchments: A handbook for Australian practice
Water Sensitive Urban Design (WSUD) Engineering Procedure: Stormwater
Water Services Association of Australia Code (WSAA).

For and on behalf of
TMK Consulting Engineers

Jake Rogers
Civil Design Lead



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DATE: 20/02/2026
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DESIGN: JR

STORMWATER CALCULATIONS - DETENTION VOLUMES

MINOR STORM EVENT 10 % AEP

MAJOR STORM EVENT 1 % AEP

PRE-DEVELOPMENT:

1. CATCHMENT DETAILS

	Coefficient	Area (m ²)	Area (%)
Roof:	0.75	3550	39
Paving:	0.75	5200	57
Landscaping:	0.75	300	3
Total Pre-Dev	0.75	9050	100

2. PRE-DEVELOPMENT SITE DISCHARGE

Design Storm Event	10	% AEP
Time of Concentration	5 min	
Run-off Coefficient (C)	0.75	
Rainfall Intensity	101.00	mm/hr
Catchment Area	9050	m ²
Allowable Discharge	190.43	L/sec

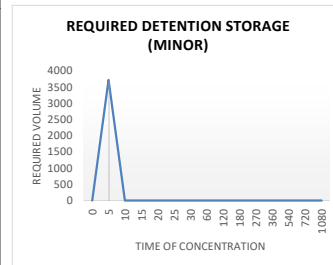
POST-DEVELOPMENT:

Proposed Detained:	Coefficient	Area (m ²)	Area (%)
Roof:	0.90	4350	48
Paving:	0.75	4200	46
Landscaping:	0.30	500	6
	0.80	9050	100

Proposed Undetained:	Coefficient	Area (m ²)	Area (%)
Roof:	0.90	0	0
Paving:	0.75	0	0
Landscaping:	0.30	0	0
	0.00	0	0
Total Post-Dev	0.80	9050	100

3. REQUIRED DETENTION STORAGE - 10% AEP(MINOR STORM EVENT)

Design Storm Event Catchment Area to Detention Run-off Coefficient (Detained Areas)		10 9050 0.80 190.00	% AEP m ² L/sec	
Time of Concentration (mins)	Rainfall Intensity (mm/hr)	Inflow (L/sec)	Outflow (L/sec)	Required Volume (L)
0	0	0	0	0
5	101.00	202.42	190.00	3726
10	73.20	146.71	146.71	0
15	59.00	118.25	118.25	0
20	50.10	100.41	100.41	0
25	43.80	87.78	87.78	0
30	39.20	78.56	78.56	0
60	25.20	50.51	50.51	0
120	15.90	31.87	31.87	0
180	12.00	24.05	24.05	0
270	9.09	18.22	18.22	0
360	7.43	14.89	14.89	0
540	5.56	11.14	11.14	0
720	4.51	9.04	9.04	0
1080	3.34	6.69	6.69	0
Critical Detention Volume (L)				3726



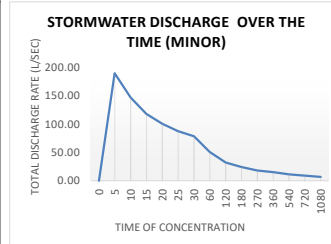


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4. PROPOSED MAX DISCHARGE RATE - 10% AEP

Design Storm Event	10	% AEP
Run-off Coefficient (C) Undetained Area	0.00	
Catchment Area	0	m ²

Time of Concentration (mins)	Rainfall Intesity (mm/hr)	Undetained Discharge (L/sec)	Detained Discharge (L/sec)	Total Discharge (L/sec)
0	0	0	0.00	0.00
5	101.00	0.00	190.00	190.00
10	73.20	0.00	146.71	146.71
15	59.00	0.00	118.25	118.25
20	50.10	0.00	100.41	100.41
25	43.80	0.00	87.78	87.78
30	39.20	0.00	78.56	78.56
60	25.20	0.00	50.51	50.51
120	15.90	0.00	31.87	31.87
180	12.00	0.00	24.05	24.05
270	9.09	0.00	18.22	18.22
360	7.43	0.00	14.89	14.89
540	5.56	0.00	11.14	11.14
720	4.51	0.00	9.04	9.04
1080	3.34	0.00	6.69	6.69
Max Discharge Rate Minor Storm Event				190.00
Pre Development Flow				190.43
Flow rate satisfies				



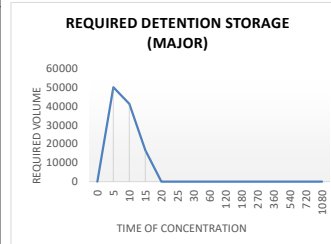
5. STORAGE SIZE AND ORIFICE RESTRICTOR SIZE - 10% AEP

Proposed Number of Detention Storage	1
Detention Storage Required (Total)	3726 L
Detention Storage Required (Per Tank)	3726 L
Allowable discharge (Total)	190.00 L/sec
Allowable discharge (Per Orifice)	190.00 L/sec
Orifice Head	0.90 m
Required Orifice Diameter	310 mm

6. REQUIRED DETENTION STORAGE - 1% AEP (MAJOR STORM EVENT)

Design Storm Event	1	% AEP
Catchment Area to Detention	9050	m ²
Run-off Coefficient (Detained Areas) Discharge	0.80	
	190.00	L/sec

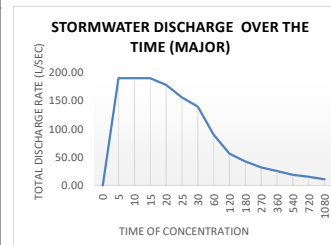
Time of Concentration (mins)	Rainfall Intesity (mm/hr)	Inflow (L/sec)	Outflow (L/sec)	Required Volume (L)
0	0	0	0	0
5	178.00	356.74	190.00	50023
10	129.00	258.54	190.00	41123
15	104.00	208.43	190.00	16590
20	88.60	177.57	177.57	0
25	77.70	155.72	155.72	0
30	69.60	139.49	139.49	0
60	44.80	89.79	89.79	0
120	28.10	56.32	56.32	0
180	21.10	42.29	42.29	0
270	15.80	31.67	31.67	0
360	12.80	25.65	25.65	0
540	9.43	18.90	18.90	0
720	7.56	15.15	15.15	0
1080	5.48	10.98	10.98	0
Critical Detention Volume (L)				50023



7. PROPOSED MAX DISCHARGE RATE - 1% AEP

Design Storm Event	1	% AEP
Run-off Coefficient (C) Undetained Area	0.00	
Catchment Area	0	m ²

Time of Concentration (mins)	Rainfall Intesity (mm/hr)	Undetained Discharge (L/sec)	Detained Discharge (L/sec)	Total Discharge (L/sec)
0	0	0	0.00	0.00
5	178.00	0.00	190.00	190.00
10	129.00	0.00	190.00	190.00
15	104.00	0.00	190.00	190.00
20	88.60	0.00	177.57	177.57
25	77.70	0.00	155.72	155.72
30	69.60	0.00	139.49	139.49
60	44.80	0.00	89.79	89.79
120	28.10	0.00	56.32	56.32
180	21.10	0.00	42.29	42.29
270	15.80	0.00	31.67	31.67
360	12.80	0.00	25.65	25.65
540	9.43	0.00	18.90	18.90
720	7.56	0.00	15.15	15.15
1080	5.48	0.00	10.98	10.98
Max Discharge Rate				190.00
Pre Development Flow				190.43
Flow rate satisfies				





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8. STORAGE SIZE AND ORIFICE RESTRICTOR SIZE - 1% AEP

Proposed Number of Detention Storage	1	
Detention Storage Required (Total)	50023	L
Detention Storage Required (Per Tank)	50023	L
Allowable discharge (Total)	190.00	L/sec
Allowable discharge (Per Orifice)	190.00	L/sec
Orifice Head	0.90	m
Required Orifice Diameter	310	mm

9. OVERSIZED PIPE STORAGE VOLUME IF APPLICABLE

Pipe Diameter	0	mm
Pipe Length	0	m
EFFECTIVE VOLUME:	0	L

10. ABOVE GROUND DETENTION BASIN VOLUMES IF APPLICABLE

BASIN 1

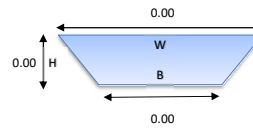
Area	0	m ²
Depth	0	m
BASIN VOLUME =	0	L

BASIN 2

Area	0	m ²
Depth	0	m
BASIN VOLUME =	0	L

11. SWALE VOLUMES IF APPLICABLE

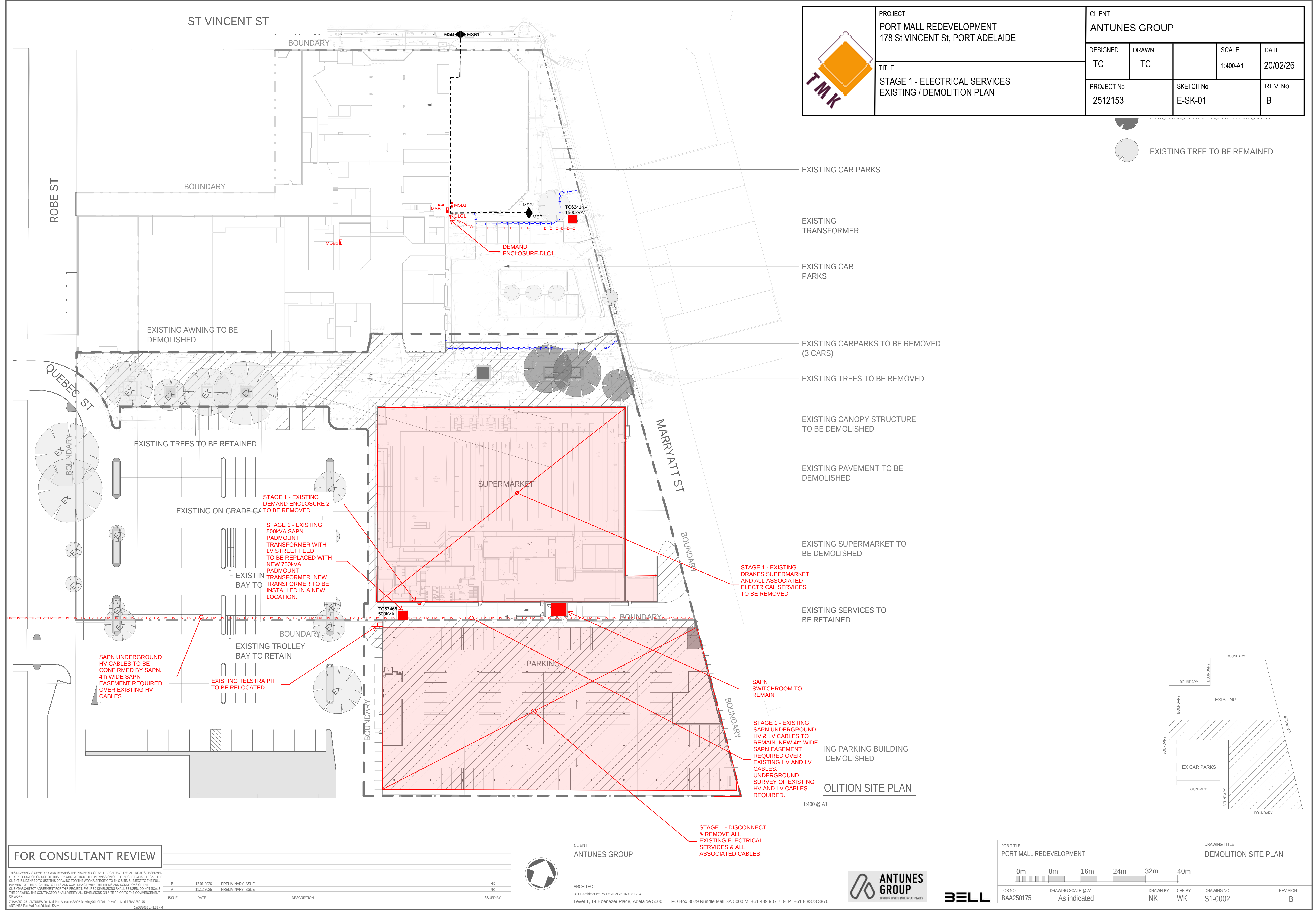
Wide (W)	0.00	m
Base (B)	0.00	m
Height (H)	0.00	m
Length	0.00	m
SWALE VOLUME =	0	L



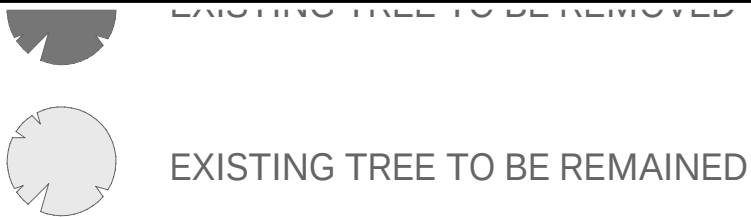
Total Basin Volume	0	L
Rainwater Tank	55000	L
Total Swale volume	0	L
Total Storage	55000	L
Total Storage Required	50023	L

(only tank volume not including oversized pipes ie. RI industries etc)

Therefore,
 Total storage volume required has been achieved.



	PROJECT PORT MALL REDEVELOPMENT 178 St VINCENT St, PORT ADELAIDE				CLIENT ANTUNES GROUP	
	TITLE STAGE 1 - ELECTRICAL SERVICES EXISTING / DEMOLITION PLAN		DESIGNED TC	DRAWN TC	SCALE 1:400-A1	DATE 20/02/26
			PROJECT No 2512153		SKETCH No E-SK-01	REV No B



- EXISTING CAR PARKS
- EXISTING TRANSFORMER
- EXISTING CAR PARKS
- EXISTING CARPARKS TO BE REMOVED (3 CARS)
- EXISTING TREES TO BE REMOVED
- EXISTING CANOPY STRUCTURE TO BE DEMOLISHED
- EXISTING PAVEMENT TO BE DEMOLISHED
- EXISTING SUPERMARKET TO BE DEMOLISHED
- EXISTING SERVICES TO BE RETAINED
- STAGE 1 - EXISTING DRAKES SUPERMARKET AND ALL ASSOCIATED ELECTRICAL SERVICES TO BE REMOVED
- STAGE 1 - EXISTING SAPN UNDERGROUND HV & LV CABLES TO REMAIN. NEW 4m WIDE SAPN EASEMENT REQUIRED OVER EXISTING HV AND LV CABLES. UNDERGROUND SURVEY OF EXISTING HV AND LV CABLES REQUIRED.
- STAGE 1 - DISCONNECT & REMOVE ALL EXISTING ELECTRICAL SERVICES & ALL ASSOCIATED CABLES.



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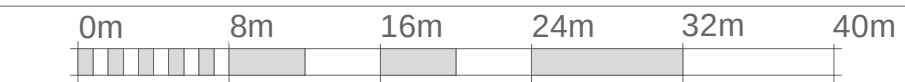


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JOB TITLE
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DEMOLITION SITE PLAN

DRAWING NO
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PROJECT
PORT MALL REDEVELOPMENT
178 St VINCENT St, PORT ADELAIDE

TITLE
STAGE 1 - ELECTRICAL SERVICES
PROPOSED PLAN

CLIENT
ANTUNES GROUP

DESIGNED
TC

DRAWN
TC

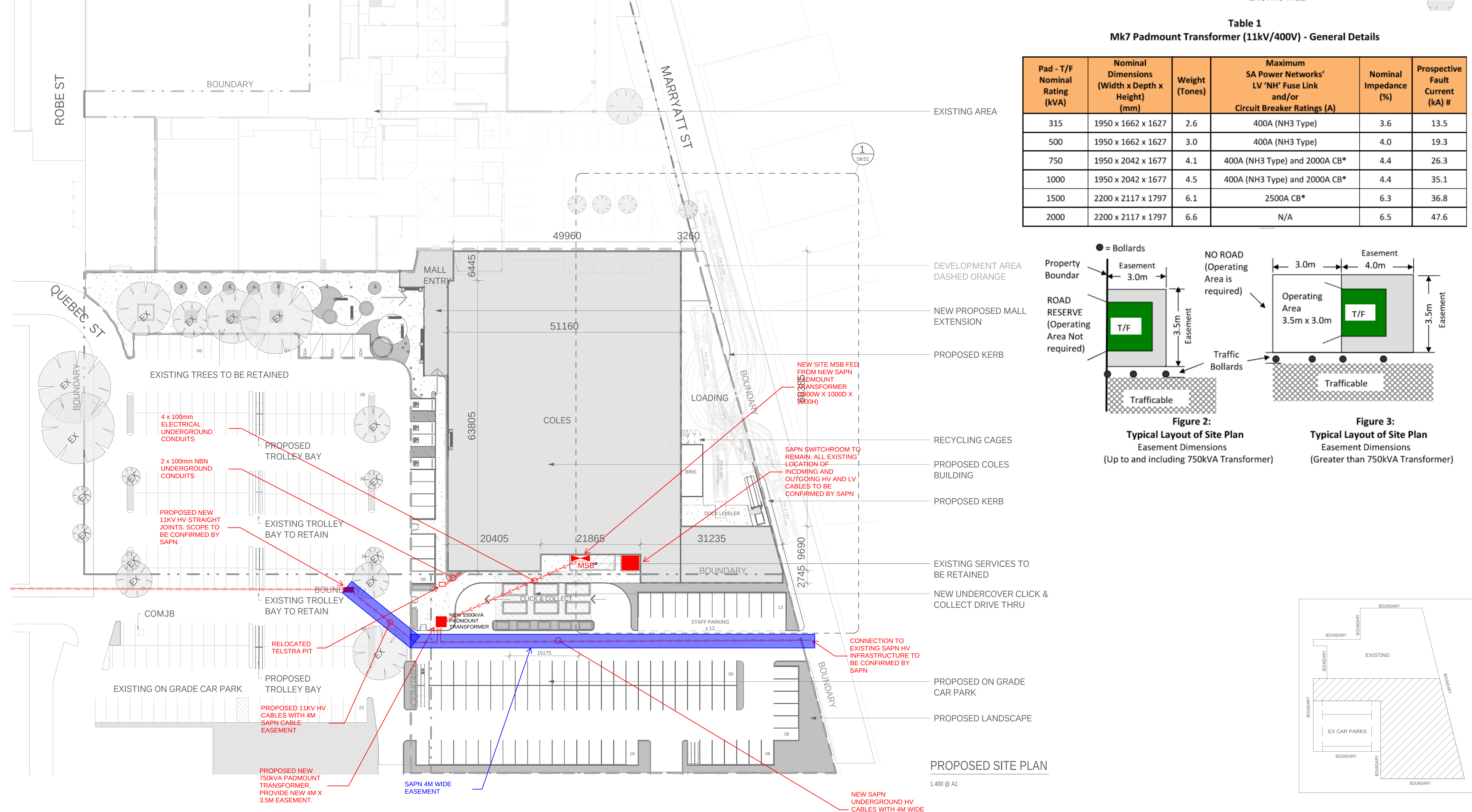
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DATE
20/02/26

SKETCH No
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REV No
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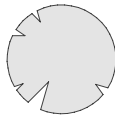
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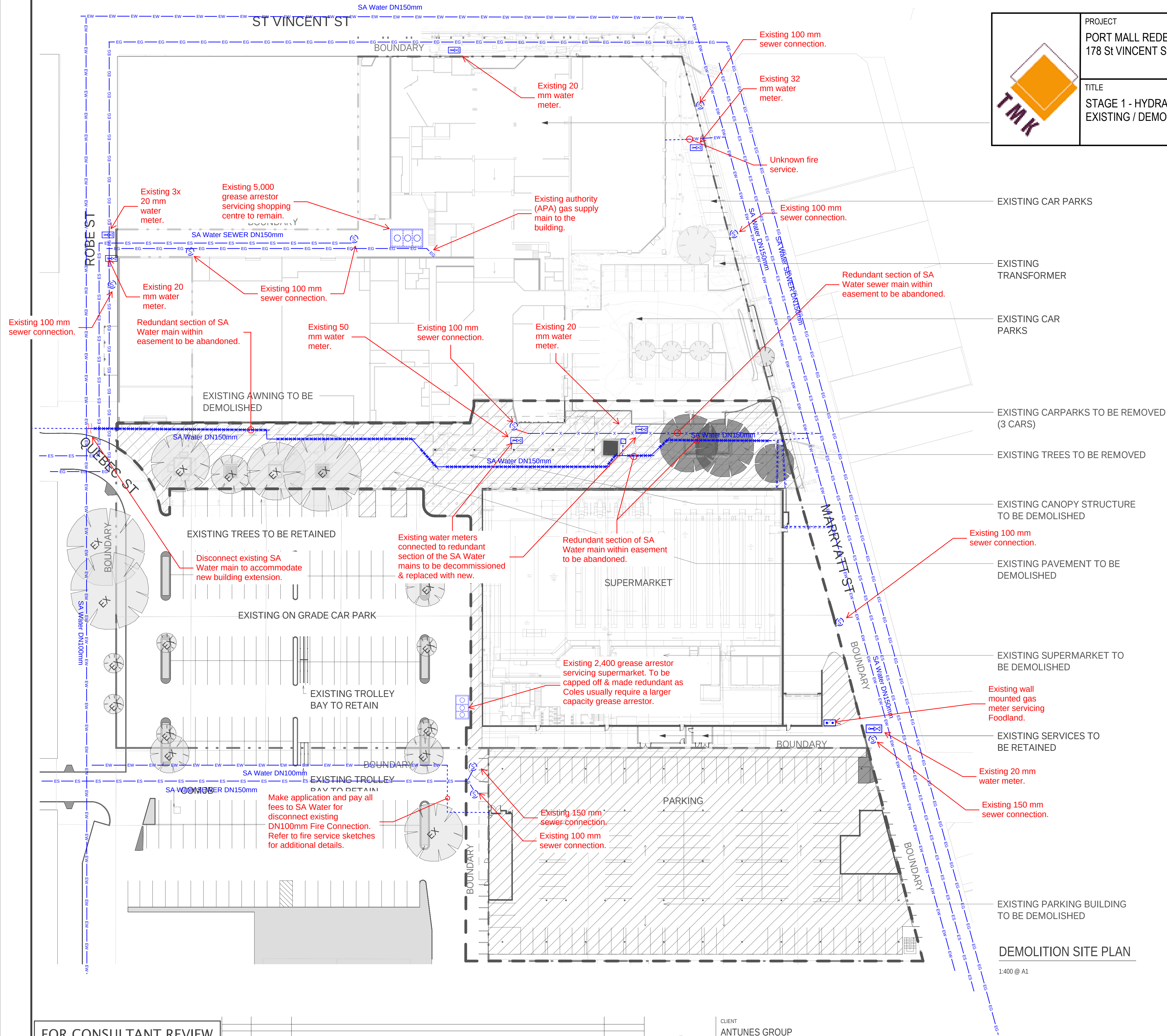
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		PROJECT No 2512153		SKETCH No H-SK-01	REV No B	



EXISTING TREE TO BE REMAINED



— Existing
— New



DEMOLITION SITE PLAN

1:400 @ A1

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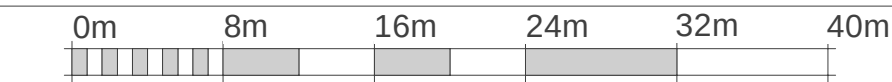


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DEMOLITION SITE PLAN

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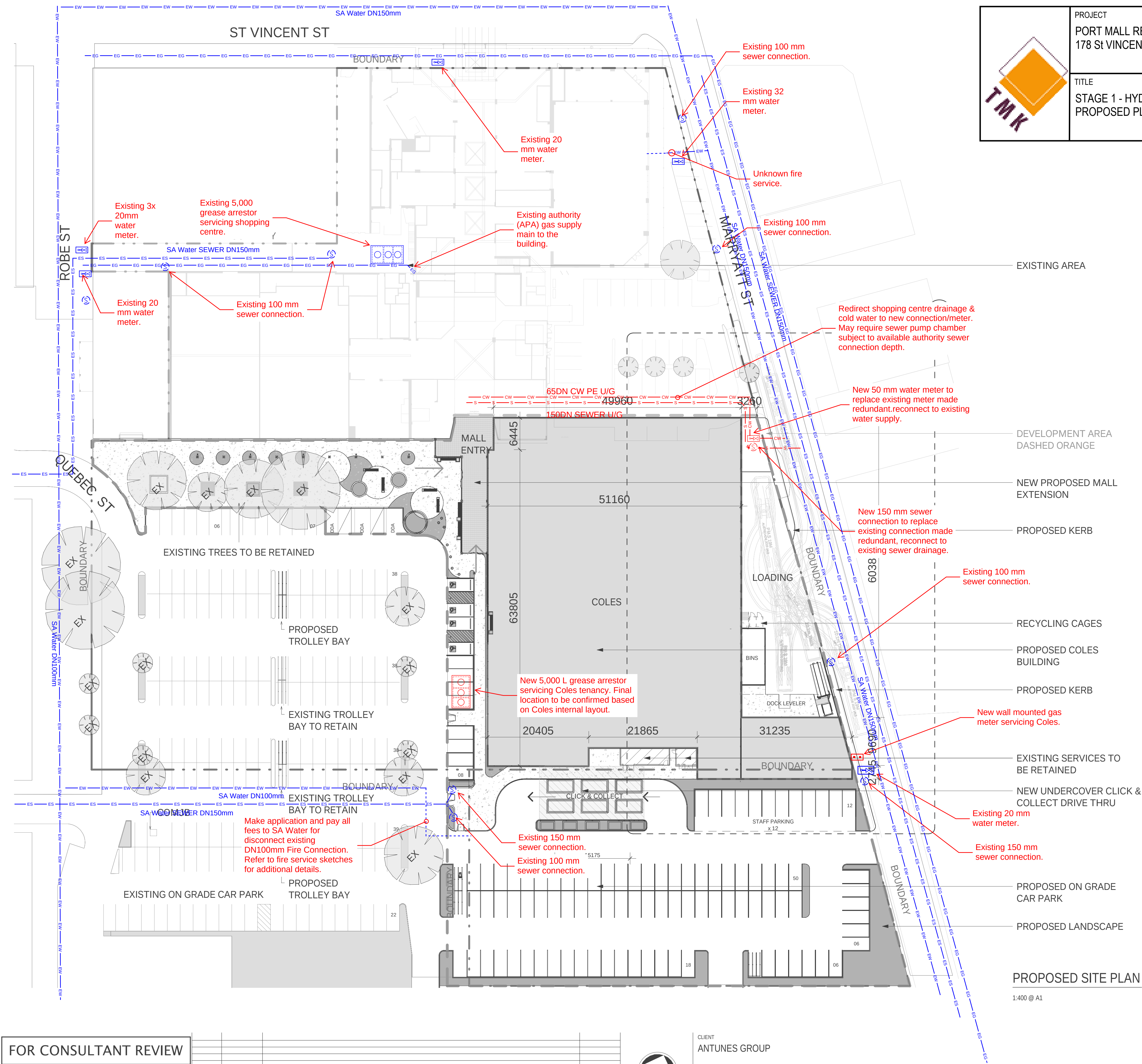
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	TITLE STAGE 1 - HYDRAULIC SERVICES PROPOSED PLAN	DESIGNED smo	DRAWN smo	SCALE 1:400-A1	DATE 20/02/26	
		PROJECT No 2512153		SKETCH No H-SK-02		REV No B

TOTAL NO. PROPOSED CARPARKS
PROVIDED ON SITE STAGE 1
no. 101
(incl. 1 x DDA CAR PARK)

- GENERAL NOTES:
- THE BUILDING CONTRACTOR IS TO CONFIRM ALL DIMENSIONS ON SITE PRIOR TO COMMENCEMENT OF ANY PART OF THE WORKS.
 - ALL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH THE SPECIFICATION AND SCHEDULES.
 - CONSULT ARCHITECT ON ANY DISCREPANCIES PRIOR TO COMMENCEMENT OF ANY PART OF THE WORKS.
 - FIRE INDICES OF MATERIALS, LININGS AND SURFACES TO COMPLY WITH THE SPECIFICATION C1.10 OF THE BCA.
 - NON SLIP FINISHES TO BE PROVIDED TO ALL STEPS, RAMPS, LANDINGS AND WET AREAS IN COMPLIANCE WITH THE BCA PROVISIONS.
 - FIRE HOSE REEL AND FIRE HYDRANT INSTALLATION TO COMPLY WITH AS2441 AND AS2419.1
 - PORTABLE FIRE EXTINGUISHERS TO COMPLY WITH AS2444. PROVIDE 2A 20B (E) DRY CHEMICAL FIRE EXTINGUISHER ADJACENT TO EACH ELECTRICAL SWITCHBOARD.
 - ALL EXTERNAL STEELWORK IS TO BE HOT DIP GALVANISED ALL INTERNAL STEELWORK IS TO BE SHOP PRIMED.
 - EXIT SIGNS AND EMERGENCY LIGHTING TO COMPLY WITH AS2293.
 - MECHANICAL VENTILATION TO BE PROVIDED IN ACCORDANCE WITH AS1668.2 AND AS3666.
 - TRAFFIC SIGNAGE SHALL COMPLY WITH AS1753. REFER TO THE TRAFFIC ENGINEER'S DETAILS.
 - LIFT DESIGN SHALL COMPLY WITH AS1735.1, AS1735.11 AND AS1735.12 AND DESIGN FOR ACCESS AND MOBILITY TO AS1428.1.

- GENERAL NOTES:
- BUILDER IS TO SECURE AND OR HOARD THE SITE TO THE SATISFACTION OF THE LOCAL AUTHORITY AND TO MAINTAIN PUBLIC SAFETY.
- CONTRACTOR TO CONFIRM ALL DIMENSIONS ON SITE PRIOR TO COMMENCEMENT OF ANY PART OF THE WORKS.
- REFERENCE TO CONSULTANTS' DOCUMENTS:
- REFER TO CIVIL ENGINEER'S DOCUMENTATION FOR ALL EXTERNAL LEVELS, FALLS, STORM WATER DRAINAGE AND PAVEMENT DESIGN.
 - REFER LANDSCAPE ARCHITECT'S DOCUMENTATION FOR THE LANDSCAPE DETAILS.
 - REFER FIRE ENGINEER'S DOCUMENTATION FOR THE DETAILS OF FIRE SERVICES.
 - REFER BUILDING SERVICES CONSULTANT'S DOCUMENTATION FOR THE DETAILS OF SERVICES.
- BUILDER IS TO LOCATE, REDIRECT, CAP AND SEAL ETC. ANY IN-GROUND SERVICES PRIOR TO COMMENCEMENT OF ANY PART OF THE WORKS.



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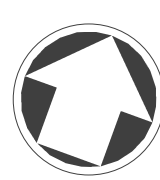
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PORT MALL REDEVELOPMENT

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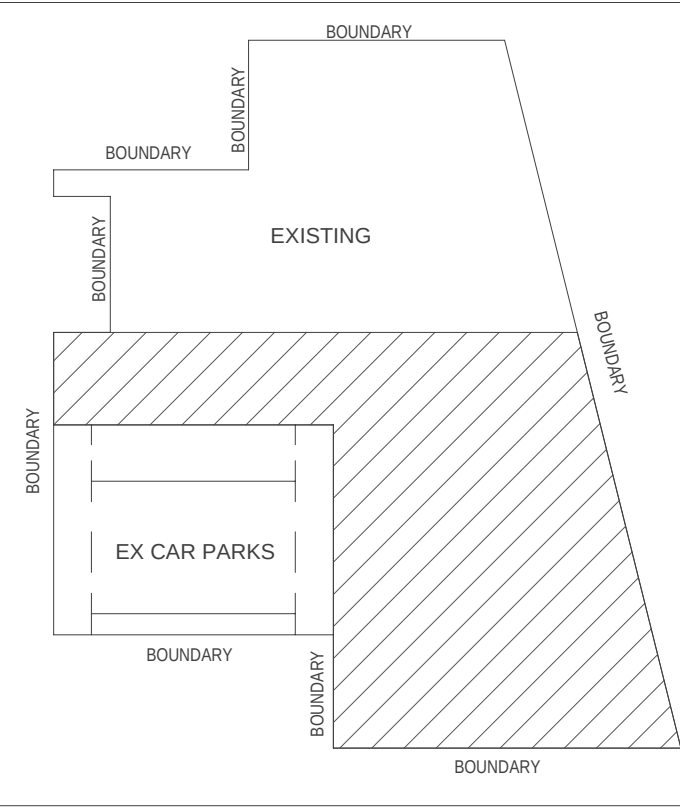
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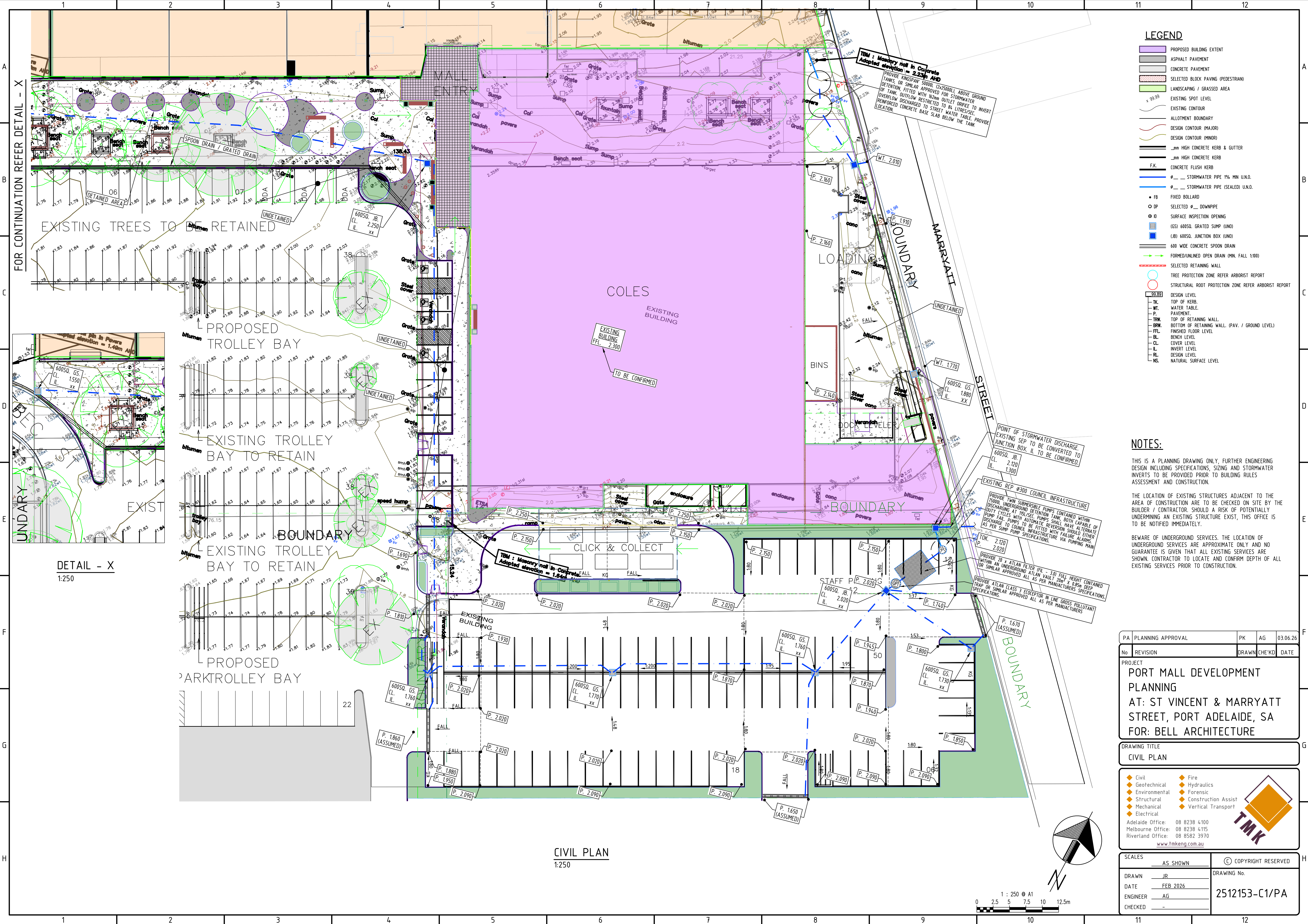
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REVISION
B

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FOR CONTINUATION REFER DETAIL - X



- LEGEND**
- PROPOSED BUILDING EXTENT
 - ASPHALT PAVEMENT
 - CONCRETE PAVEMENT
 - SELECTED BLOCK PAVING (PEDESTRIAN)
 - LANDSCAPING / GRASSED AREA
 - EXISTING SPOT LEVEL
 - EXISTING CONTOUR
 - ALLOTMENT BOUNDARY
 - DESIGN CONTOUR (MAJOR)
 - DESIGN CONTOUR (MINOR)
 - mm HIGH CONCRETE KERB & GUTTER
 - mm HIGH CONCRETE KERB
 - CONCRETE FLUSH KERB
 - mm STORMWATER PIPE 1% MIN UNLO.
 - mm STORMWATER PIPE (SEALED) UNLO.
 - FIXED BOLLARD
 - SELECTED DOWNPIPE
 - SURFACE INSPECTION OPENING
 - (GS) 600SQ. GRATED SUMP (UNO)
 - (JB) 600SQ. JUNCTION BOX (UNO)
 - 600 WIDE CONCRETE SPOON DRAIN
 - FORMED/UNLINED OPEN DRAIN (MIN. FALL 1:100)
 - SELECTED RETAINING WALL
 - TREE PROTECTION ZONE REFER ARBORIST REPORT
 - STRUCTURAL ROOT PROTECTION ZONE REFER ARBORIST REPORT
 - DESIGN LEVEL
 - TOP OF KERB
 - WATER TABLE
 - PAVEMENT
 - TOP OF RETAINING WALL
 - BOTTOM OF RETAINING WALL (PAV. / GROUND LEVEL)
 - FINISHED FLOOR LEVEL
 - BENCH LEVEL
 - COVER LEVEL
 - INVERT LEVEL
 - DESIGN LEVEL
 - NATURAL SURFACE LEVEL

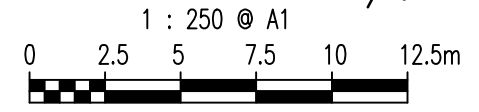
NOTES:

THIS IS A PLANNING DRAWING ONLY, FURTHER ENGINEERING DESIGN INCLUDING SPECIFICATIONS, SIZING AND STORMWATER INVERTS TO BE PROVIDED PRIOR TO BUILDING RULES ASSESSMENT AND CONSTRUCTION.

THE LOCATION OF EXISTING STRUCTURES ADJACENT TO THE AREA OF CONSTRUCTION ARE TO BE CHECKED ON SITE BY THE BUILDER / CONTRACTOR. SHOULD A RISK OF POTENTIALLY UNDERMINING AN EXISTING STRUCTURE EXIST, THIS OFFICE IS TO BE NOTIFIED IMMEDIATELY.

BEWARE OF UNDERGROUND SERVICES. THE LOCATION OF UNDERGROUND SERVICES ARE APPROXIMATE ONLY AND NO GUARANTEE IS GIVEN THAT ALL EXISTING SERVICES ARE SHOWN. CONTRACTOR TO LOCATE AND CONFIRM DEPTH OF ALL EXISTING SERVICES PRIOR TO CONSTRUCTION.

PA	PLANNING APPROVAL	PK	AG	03.06.26
No	REVISION	DRAWN	CHE/KD	DATE
PROJECT				
PORT MALL DEVELOPMENT PLANNING AT: ST VINCENT & MARRYATT STREET, PORT ADELAIDE, SA FOR: BELL ARCHITECTURE				
DRAWING TITLE				
CIVIL PLAN				
◆ Civil ◆ Geotechnical ◆ Environmental ◆ Structural ◆ Mechanical ◆ Electrical ◆ Fire ◆ Hydraulics ◆ Forensic ◆ Construction Assist ◆ Vertical Transport 				
Adelaide Office: 08 8238 4100 Melbourne Office: 08 8238 4115 Riverland Office: 08 8582 3970 www.tmkeng.com.au				
SCALES		© COPYRIGHT RESERVED		
AS SHOWN		DRAWING No.		
DRAWN JR		2512153-C1/PA		
DATE FEB 2026				
ENGINEER AG				
CHECKED -				



Christopher Webber

From: Jake Rogers <jrogers@tmkeng.com.au>
Sent: Tuesday, 10 March 2026 5:30 PM
To: Christopher Webber; Bao Hoang; Tony Garreffa
Cc: Thaddeus Chin; Adrian Ko; Sakil Mostafa; Richard Antunes; Scott Henley; Wade Kampes; Marc Duncan
Subject: RE: Port Mall Development [TMK REF: 2512153] (Re-send due to file size)

Hi Chris,

Yes, I have spoken with council and the information I was given from their assets team is as follows:

Minimum FFL:

A detailed site survey will be required to confirm the final FFL (Finished Floor Level) however based on Council's records a minimum FFL of 2.33m AHD would be anticipated. This has been calculated as follows,

$$\rightarrow 1.63 \text{ m AHD (water Table)} + 0.4 \text{ m (1\% AEP Flood Depth)} + 0.3 \text{ m (Freeboard)} = 2.33 \text{ m AHD}$$

Based on this existing FFL is satisfactory.

Regards,

Jake Rogers

Civil Design Lead

D (08) 8151 1611 **M** 0403 158 755

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TMK Consulting Engineers

Civil – Construction Assist – Electrical – Environmental – ESD – Fire Protection – Forensic – Geotechnical – Hydraulics – Mechanical – Structural – Temporary Works – Transport – Urban Development – Vertical Transport

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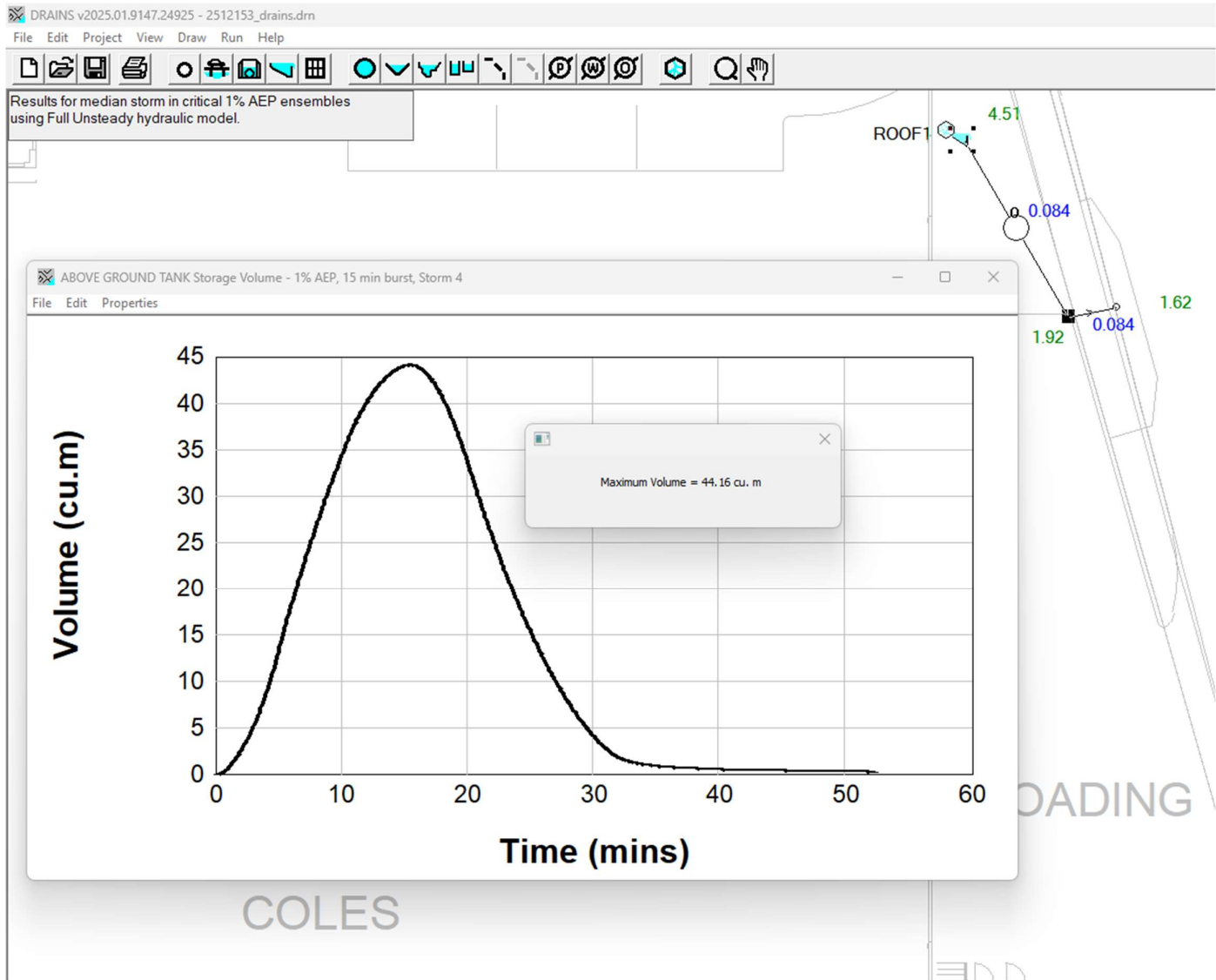
TMK JN 2512153 Port Mall, St. Vincent & Marryatt st., Pt. Adelaide SA

DRAINS results prepared from Version 2025.01.9147.24925

LOCATION AND LAND-USE	TIME AND RUNOFF	INLET DESIGN	PIPE SYSTEM DESIGN	PIT RESULTS
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Column 29b: Ratios used to define a K value from the appropriate QUDM chart, if teh QUDM method is applied.
Column 30: Water Surface Elevation (m AHD).
Column 31: Surface or Kerb and Channel (Kerb and Gutter) Obvert Level (m AHD).
Column 32: Freeboard (m), the difference between the levels in the two previous columns.
Column 33: Pit Name (repeated).

DETENTION TANK - NORTHERN PAVEMENT AREA - ABOVE GROUND TANK



DETENTION TANK - SOUTHERN PAVEMENT AREA - BELOW GROUND TANK

DRAINS v2025.01.9147.24925 - 2512153_drains.drm

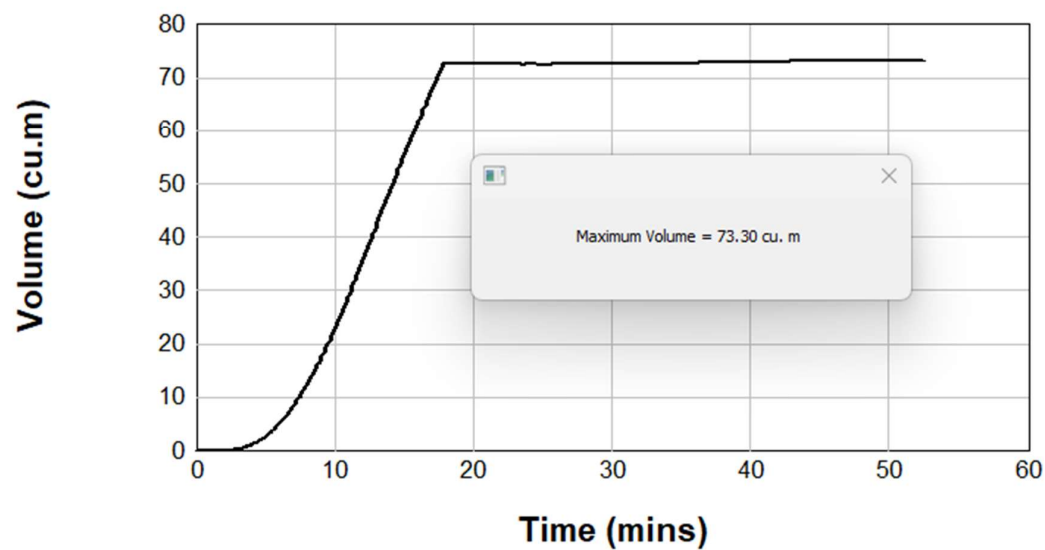
File Edit Project View Draw Run Help



Results for median storm in critical 1% AEP ensembles
using Full Unsteady hydraulic model.

UNDERGROUND DETENTION TANK 1 Storage Volume - 1% AEP, 20 min burst, Storm 7

File Edit Properties



BOUNDARY

1.94
1.55

-0.64
0.115
0.146

0.118

0.014

Cat C1

Cat G1

0.009
0.009
0.009

0.41
0.009

1.74
0.37

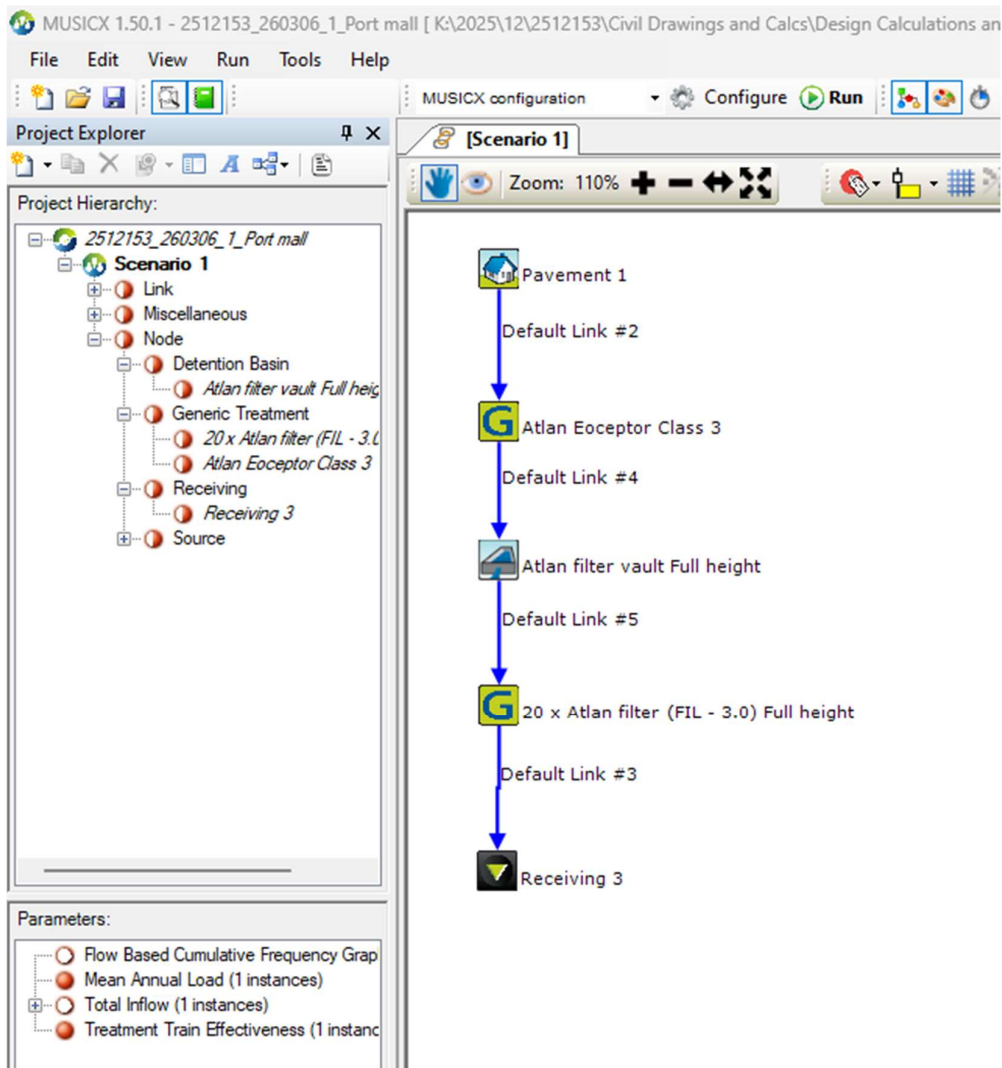
06

18

06

Cat D1 0.36

MUSIC LAYOUT:



MUSIC RESULT:

eWater Results Manager

File Options Help

Treatment Train Effect

Latest Run : Treatment Train Effectiveness : Receiving

	Sources	Residual Load	% Reduction
Flow (ML/yr)	1.412	1.413	-0.01878
Total Suspended Solids (kg/yr)	529	6.858	98.7
Total Phosphorus (kg/yr)	0.8021	0.06687	91.66
Total Nitrogen (kg/yr)	3.523	1.24	64.82
Gross Pollutants (kg/yr)	62.67	0	100

Scenario Results

- Latest Run
 - Analysis
 - Climate Data
 - Detention Basin
 - Generic Treatment
 - Music Routing
 - Receiving
 - Receiving 3
 - Mean Annual Load
 - Treatment Train Effectiveness
 - Source
- (1) Scenario 1