CIVIL DRAWINGS
PROPOSED WAREHOUSE
14 LUKAARLIA DRIVE
BRIDGEWATER

C001	COVER	B	24/03/2025
C101	SITE PLAN	B	24/03/2025
C102	ROAD AND STORMWATER PLAN - SHEET 1	B	24/03/2025
C103	ROAD AND STORMWATER PLAN - SHEET 2	B	24/03/2025
C104	ROAD AND STORMWATER PLAN - SHEET 3	B	24/03/2025
C105	SEWER AND WATER PLAN	B	24/03/2025
C106	TURNPATH PLAN - SHEET 1	B	24/03/2025
C107	TURNPATH PLAN - SHEET 2	B	24/03/2025
C108	TURNPATH PLAN - SHEET 3	B	24/03/2025
C201	LONG SECTIONS - SHEET 1	B	24/03/2025

REV	ISSUE	DATE	APPROVAL
			DRAWN: DE
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			DESIGN: DE
B	PLANNING APPROVAL	24/03/2025	CHECKED: NM
A	PLANNING APPROVAL	27/02/2025	VERIFIED:

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Lower Ground
199 Macquarie Street
Hobart TAS 7000
03 6234 8666
mail@aldanmark.com.au
www.aldanmark.com.au

PROJECT: PROPOSED WAREHOUSE

ADDRESS: 14 LUKAARLIA DRIVE
BRIDGEWATER

CLIENT: ELLIOT RENSHAW

SHEET: COVER

SCALE: AS INDICATED

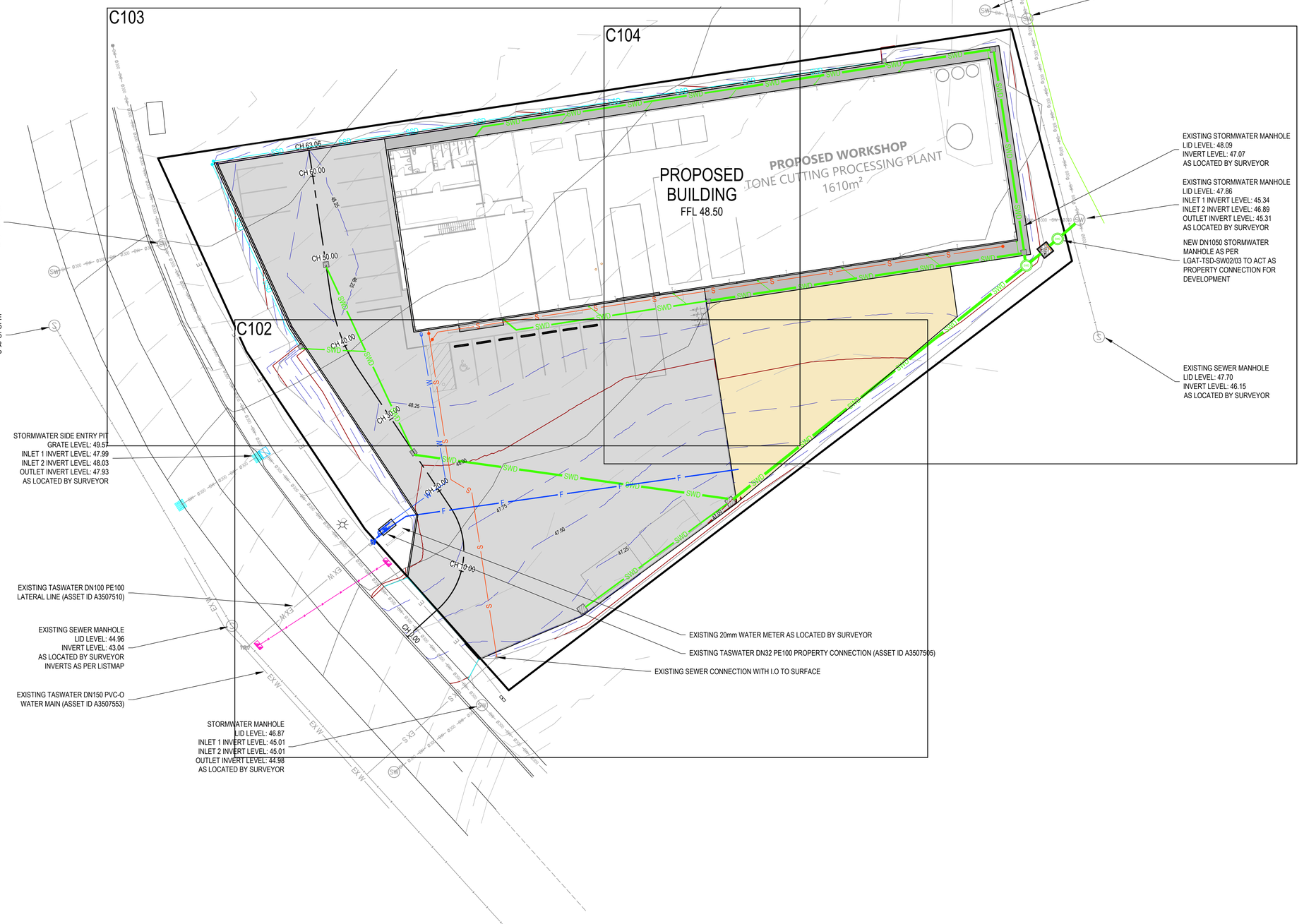
TOTAL SHEETS: 10

SIZE: A1

PROJECT No: 25 E 99 - 11

SHEET: C001

REV: B



STORMWATER LEGEND

SWD	PVC STORMWATER DN150 SN8 U.N.O.
SSD	SLOTTED PVC AG DRAIN
	TABLE DRAIN
EX SWD	EXISTING STORMWATER
	STORMWATER MANHOLE
	INSPECTION OPENING
	GRATED PIT
	GRATED TRENCH WITH PIT

SEWER LEGEND

S	uPVC SEWER DN100 SN6 U.N.O.
EX S	EXISTING SEWER
	SEWER MAINTENANCE HOLE 1050Ø AS PER MRWA-S-307
IO	INSPECTION OPENING
IOS	INSPECTION OPENING TO SURFACE
ORG	OVERFLOW RELIEF GULLY (DN100) WITH TAP OVER

SITE & EXISTING SERVICES LEGEND

26.0	DESIGN SURFACE CONTOUR (MAJ/MIN)
26.0	EXISTING SURFACE CONTOUR (MAJ/MIN)
	BOUNDARY
	EASEMENT
	EXISTING FENCE
OH	EXISTING OVERHEAD POWER
E	EXISTING UNDERGROUND POWER
OP	EXISTING TELSTRA
FOC	EXISTING NBN
G	EXISTING GAS

PAVEMENT LEGEND

	CONCRETE DRIVEWAY
	CONCRETE FOOTPATH
	GRAVEL

NOTES

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SITE PLAN

SCALE 1:250 (A1)

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PROJECT: PROPOSED WAREHOUSE

0 2.5 5 7.5 10 12.5 15 17.5 20 22.5 25m

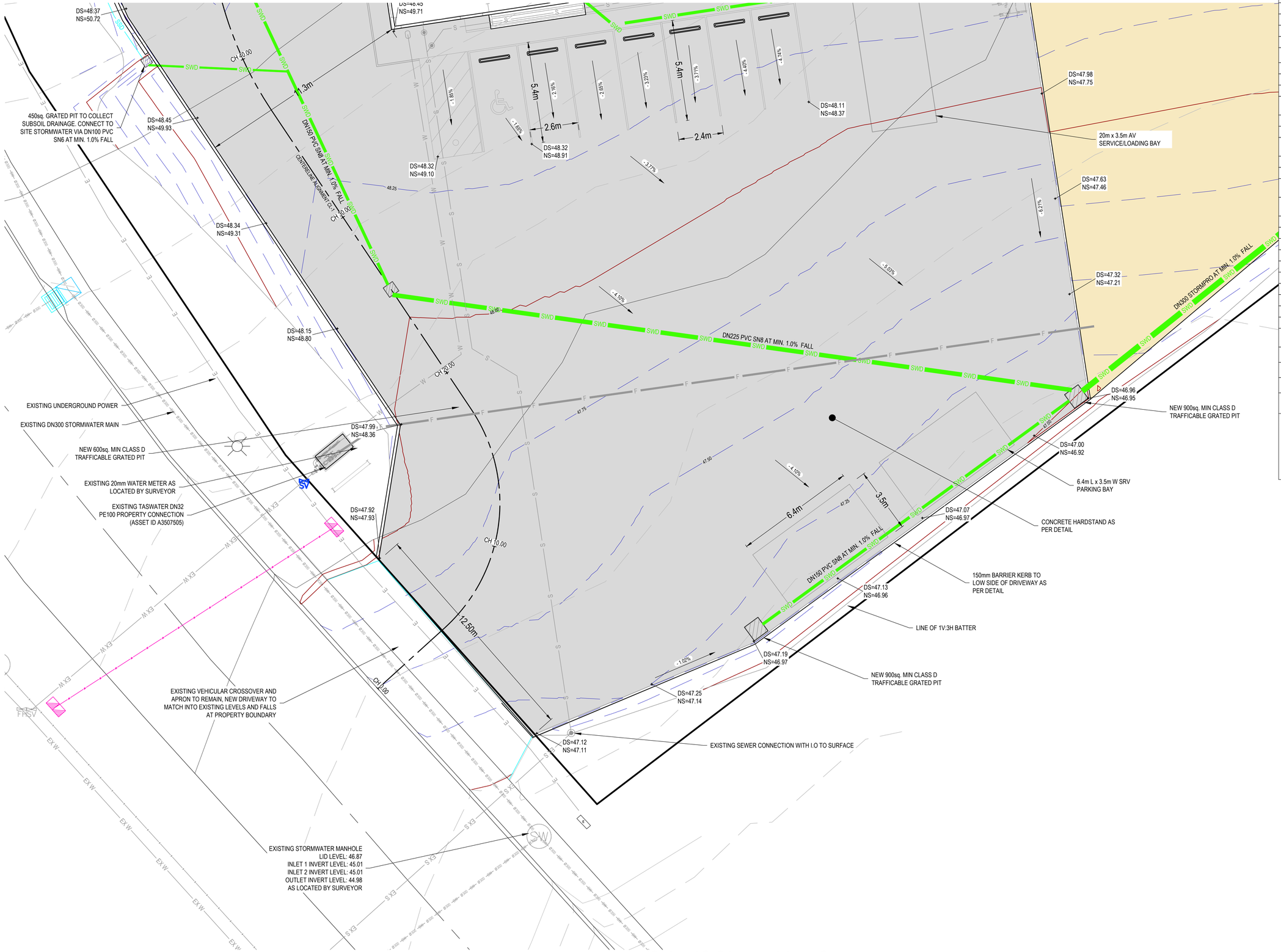
ADDRESS: 14 LUKAARLIA DRIVE
BRIDGEWATER

CLIENT: ELLIOT RENSHAW

SHEET: SITE PLAN

SCALE: 1:250 | TOTAL SHEETS: 10 | SIZE: A1

PROJECT No: 25 E 99 - 11 | SHEET: C101 | REV: B



STORMWATER LEGEND

SWD	PVC STORMWATER DN150 SN8 U.N.O.
SSD	SLOTTED PVC AG DRAIN
	TABLE DRAIN
EX SWD	EXISTING STORMWATER
	STORMWATER MANHOLE
	INSPECTION OPENING
	GRATED PIT
	GRATED TRENCH WITH PIT

SEWER LEGEND

S	uPVC SEWER DN100 SN6 U.N.O.
EX S	EXISTING SEWER
	SEWER MAINTENANCE HOLE 1050Ø AS PER MRWA-S-307
IO	INSPECTION OPENING
IOS	INSPECTION OPENING TO SURFACE
ORG	OVERFLOW RELIEF GULLY (DN100) WITH TAP OVER

SITE & EXISTING SERVICES LEGEND

26.0	DESIGN SURFACE CONTOUR (MAJ/MIN)
26.0	EXISTING SURFACE CONTOUR (MAJ/MIN)
	BOUNDARY
	EASEMENT
	EXISTING FENCE
OH	EXISTING OVERHEAD POWER
E	EXISTING UNDERGROUND POWER
OP	EXISTING TELSTRA
FOC	EXISTING NBN
G	EXISTING GAS

PAVEMENT LEGEND

	CONCRETE DRIVEWAY
	CONCRETE FOOTPATH
	GRAVEL

NOTES

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ROAD AND STORMWATER PLAN - SHEET 1

SCALE 1:100 (A1)

REV	ISSUE	DATE	APPROVAL
B	PLANNING APPROVAL	24/03/2025	NM
A	PLANNING APPROVAL	27/02/2025	

DRAWN: DE
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DESIGN: DE
CHECKED:
VERIFIED:

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Hobart TAS 7000
03 6234 8666
mail@aldanmark.com.au
www.aldanmark.com.au

PROJECT: PROPOSED WAREHOUSE
ADDRESS: 14 LUKAARLIA DRIVE BRIDGEWATER
CLIENT: ELLIOT RENSHAW
SHEET: ROAD AND STORMWATER PLAN - SHEET 1
SCALE: 1:100
TOTAL SHEETS: 10
SIZE: A1
PROJECT No: 25 E 99 - 11
SHEET: C102
REV: B

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ROAD AND STORMWATER PLAN - SHEET 2

SCALE 1:100 (A1)

STORMWATER LEGEND

SWD	PVC STORMWATER DN150 SN8 U.N.O.
SSD	SLOTTED PVC AG DRAIN
	TABLE DRAIN
EX SWD	EXISTING STORMWATER
	STORMWATER MANHOLE
	INSPECTION OPENING
	GRATED PIT
	GRATED TRENCH WITH PIT

SEWER LEGEND

S	uPVC SEWER DN100 SN6 U.N.O.
EX S	EXISTING SEWER
	SEWER MAINTENANCE HOLE 1050Ø AS PER MRWA-S-307
IO	INSPECTION OPENING
IOS	INSPECTION OPENING TO SURFACE
ORG	OVERFLOW RELIEF GULLY (DN100) WITH TAP OVER

SITE & EXISTING SERVICES LEGEND

26.0	DESIGN SURFACE CONTOUR (MAJ/MIN)
26.0	EXISTING SURFACE CONTOUR (MAJ/MIN)
	BOUNDARY
	EASEMENT
	EXISTING FENCE
OH	EXISTING OVERHEAD POWER
E	EXISTING UNDERGROUND POWER
OP	EXISTING TELSTRA
FOC	EXISTING NBN
G	EXISTING GAS

PAVEMENT LEGEND

	CONCRETE DRIVEWAY
	CONCRETE FOOTPATH
	GRAVEL

NOTES

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PROJECT: PROPOSED WAREHOUSE

ADDRESS: 14 LUKAARLIA DRIVE BRIDGEWATER

CLIENT: ELLIOT RENSHAW

SHEET: ROAD AND STORMWATER PLAN - SHEET 2

SCALE: 1:100 | TOTAL SHEETS: 10 | SIZE: A1

PROJECT No: 25 E 99 - 11 | SHEET: C103 | REV: B

ROAD AND STORMWATER PLAN - SHEET 3

SCALE 1:100 (A1)

STORMWATER LEGEND

SWD	PVC STORMWATER DN150 SN8 U.N.O.
SSD	SLOTTED PVC AG DRAIN
	TABLE DRAIN
EX SWD	EXISTING STORMWATER
SWMH	STORMWATER MANHOLE
	INSPECTION OPENING
	GRATED PIT
	GRATED TRENCH WITH PIT

SEWER LEGEND

S	uPVC SEWER DN100 SN6 U.N.O.
EX S	EXISTING SEWER
SEW	SEWER MAINTENANCE HOLE 1050Ø AS PER MRWA-S-307
IO	INSPECTION OPENING
IOS	INSPECTION OPENING TO SURFACE
ORG	OVERFLOW RELIEF GULLY (DN100) WITH TAP OVER

SITE & EXISTING SERVICES LEGEND

26.0	DESIGN SURFACE CONTOUR (MAJ/MIN)
26.0	EXISTING SURFACE CONTOUR (MAJ/MIN)
	BOUNDARY
	EASEMENT
	EXISTING FENCE
OH	EXISTING OVERHEAD POWER
E	EXISTING UNDERGROUND POWER
OP	EXISTING TELSTRA
FOC	EXISTING NBN
G	EXISTING GAS

PAVEMENT LEGEND

	CONCRETE DRIVEWAY
	CONCRETE FOOTPATH
	GRAVEL

NOTES

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PROJECT: PROPOSED WAREHOUSE

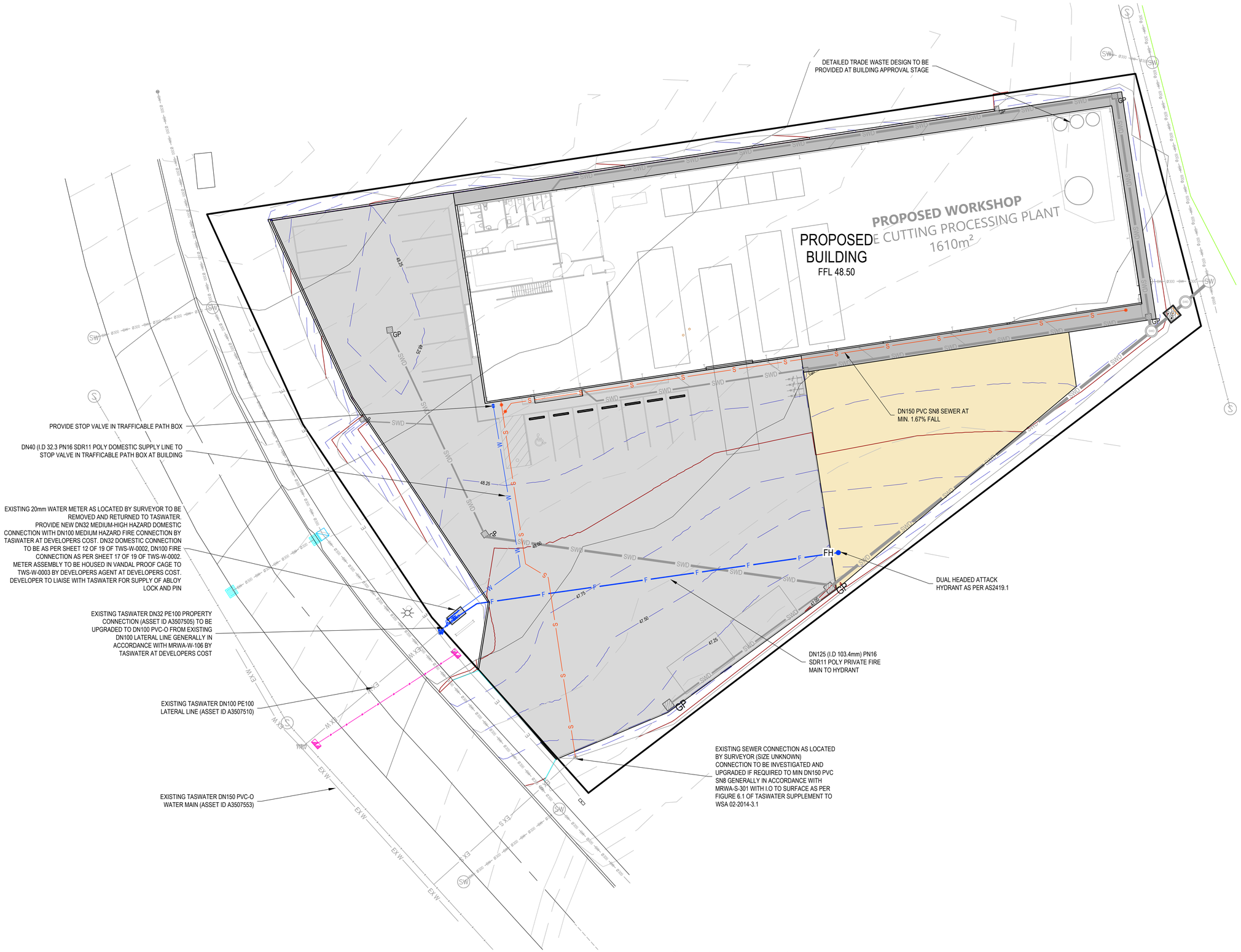
ADDRESS: 14 LUKAARLIA DRIVE BRIDGEWATER

CLIENT: ELLIOT RENSHAW

SHEET: ROAD AND STORMWATER PLAN - SHEET 3

SCALE: 1:100 | TOTAL SHEETS: 10 | SIZE: A1

PROJECT No: 25 E 99 - 11 | SHEET: C104 | REV: B



SEWER AND WATER PLAN

SCALE 1:200 (A1)

STORMWATER LEGEND

SWD	PVC STORMWATER DN150 SN8 U.N.O.
SSD	SLOTTED PVC AG DRAIN
	TABLE DRAIN
EX SWD	EXISTING STORMWATER
	INSPECTION OPENING
	GRATED PIT
	GRATED TRENCH WITH PIT

SEWER LEGEND

S	uPVC SEWER DN100 SN6 U.N.O.
EX S	EXISTING SEWER
SMH	SEWER MAINTENANCE HOLE 1050Ø AS PER MRWA-S-307
	MAINTENANCE SHAFT
	SEWER FIXTURE
IO	INSPECTION OPENING
IOS	INSPECTION OPENING TO SURFACE
ORG	OVERFLOW RELIEF GULLY (DN100) WITH TAP OVER

WATER SERVICES LEGEND

W	DN150 O-PVC PN16 WATER MAIN OR APPROVED EQUIVALENT UNO
W	HDPE WATER
EX W	EXISTING WATER MAIN
RPZD W	25OD POLY (20ID) CONNECTION WITH 20mm WATER METER INCL. OF BACKFLOW PREVENTION AS PER TWS-W-0002
W	DN100 CONDUIT TO ROAD CROSSING
	CHECK VALVE
SV	WATER VALVE
FH	HYDRANT

SITE & EXISTING SERVICES LEGEND

26.0	DESIGN SURFACE CONTOUR (MAJ/MIN)
26.0	EXISTING SURFACE CONTOUR (MAJ/MIN)
	BOUNDARY
	EASEMENT
	EXISTING FENCE
OH	EXISTING OVERHEAD POWER
E	EXISTING UNDERGROUND POWER
OP	EXISTING TELSTRA
FOC	EXISTING NBN
G	EXISTING GAS

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WATER & SEWER NOTES

ALL WORKS ARE TO BE IN ACCORDANCE WITH THE WATER SUPPLY CODE OF AUSTRALIA WSA 03 - 2011-3.1 VERSION 3.1 MRWA EDITION V2.0 AND SEWERAGE CODE OF AUSTRALIA MELBOURNE RETAIL WATER AGENCIES CODE WSA 02 - 2014-3.1 MRWA VERSION 2 AND TASWATER'S SUPPLEMENTS TO THESE CODES

WATER METER ASSEMBLY TO BE HOUSED IN VANDAL PROOF CAGE AS PER TWS-W-0003. DEVELOPER TO LIAISE WITH TASWATER FOR SUPPLY OF ABLOY LOCK AND PIN AT DEVELOPERS COST

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PROJECT: PROPOSED WAREHOUSE

0 2 4 6 8 10 12 14 16 18 20m

ADDRESS: 14 LUKAARLIA DRIVE
BRIDGEWATER

CLIENT: ELLIOT RENSHAW

SHEET: SEWER AND WATER PLAN

SCALE: 1:200 | TOTAL SHEETS: 10 | SIZE: A1

PROJECT No: 25 E 99 - 11 | SHEET: C105 | REV: B

TURNPATH PLAN - SHEET 1

SCALE 1:100 (A1)

NOTES

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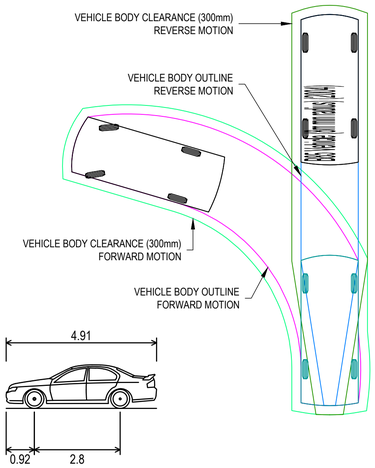

B85 Vehicle (8m min radius) (2004)	
Overall Length	4.910m
Overall Width	1.870m
Overall Body Height	1.421m
Min Body Ground Clearance	0.159m
Track Width	1.770m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	8.000m

VEHICLE TURNPATH - LEGEND

SCALE 1:100 (A1)

FROM AUTOCAD CIVIL 3D VEHICLE TRACKING SOFTWARE

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PROJECT: PROPOSED WAREHOUSE

0 1 2 3 4 5 6 7 8 9 10m

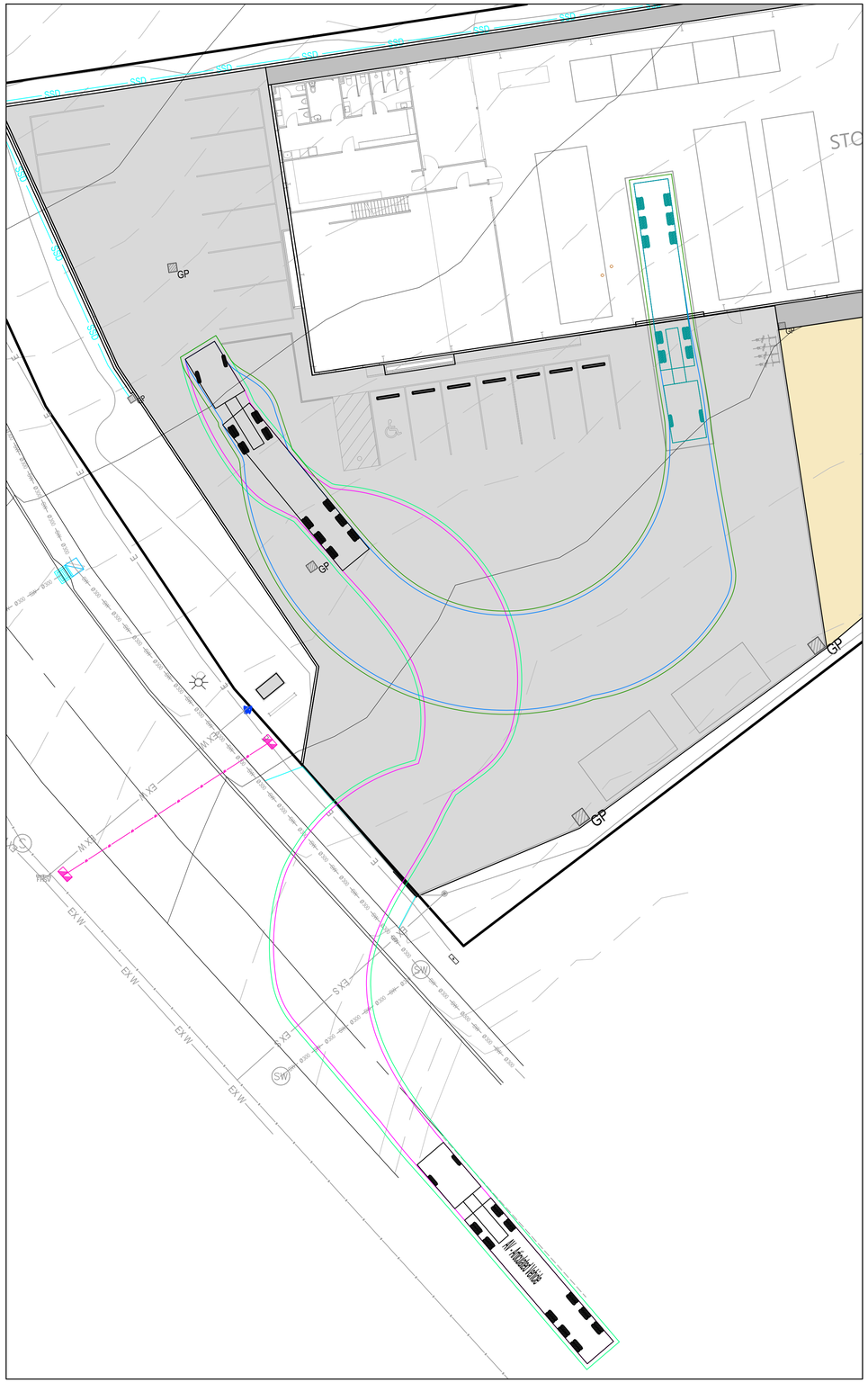
ADDRESS: 14 LUKAARLIA DRIVE
BRIDGEWATER

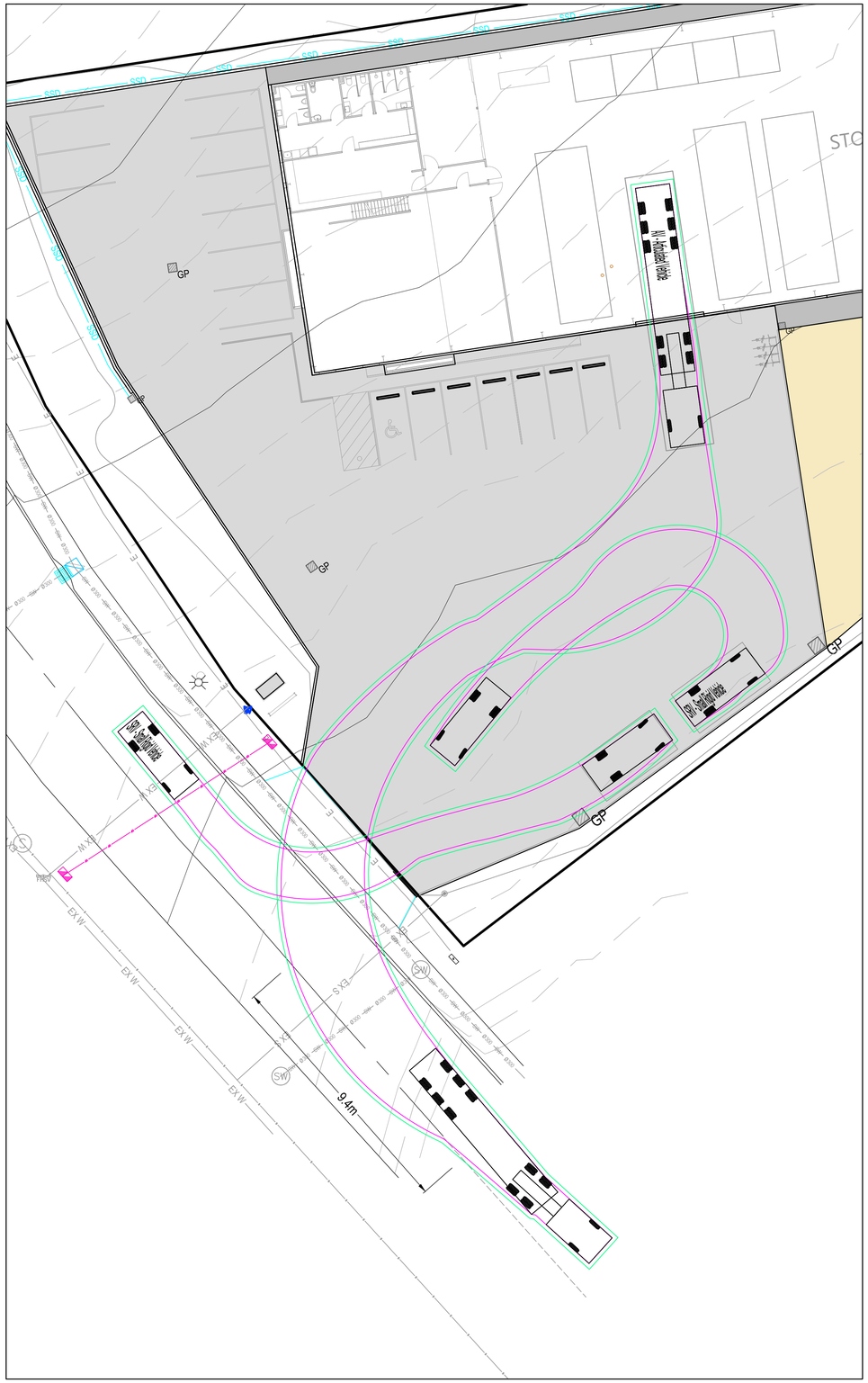
CLIENT: ELLIOT RENSHAW

SHEET: TURNPATH PLAN - SHEET 1

SCALE: 1:100 | TOTAL SHEETS: 10 | SIZE: A1

PROJECT No: 25 E 99 - 11 | SHEET: C106 | REV: B





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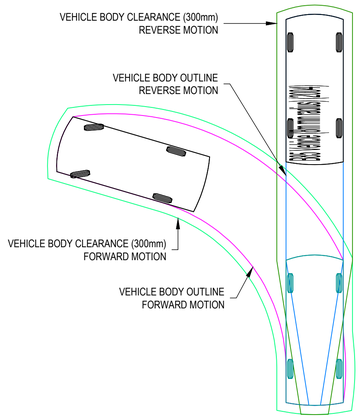

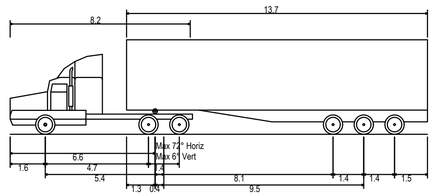

AV - Articulated Vehicle

Overall Length	19.000m
Overall Width	2.500m
Overall Body Height	4.301m
Min Body Ground Clearance	0.418m
Track Width	2.500m
Lock-to-lock time	6.00s
Curb to Curb Turning Radius	12.500m

VEHICLE TURNPATH - LEGEND

SCALE 1:100 (A1)

FROM AUTOCAD CIVIL 3D VEHICLE TRACKING SOFTWARE

TURNPATH PLAN - SHEET 2

SCALE 1:200 (A1)

REV	ISSUE	DATE	APPROVAL
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PROJECT: PROPOSED WAREHOUSE

0 2 4 6 8 10 12 14 16 18 20m

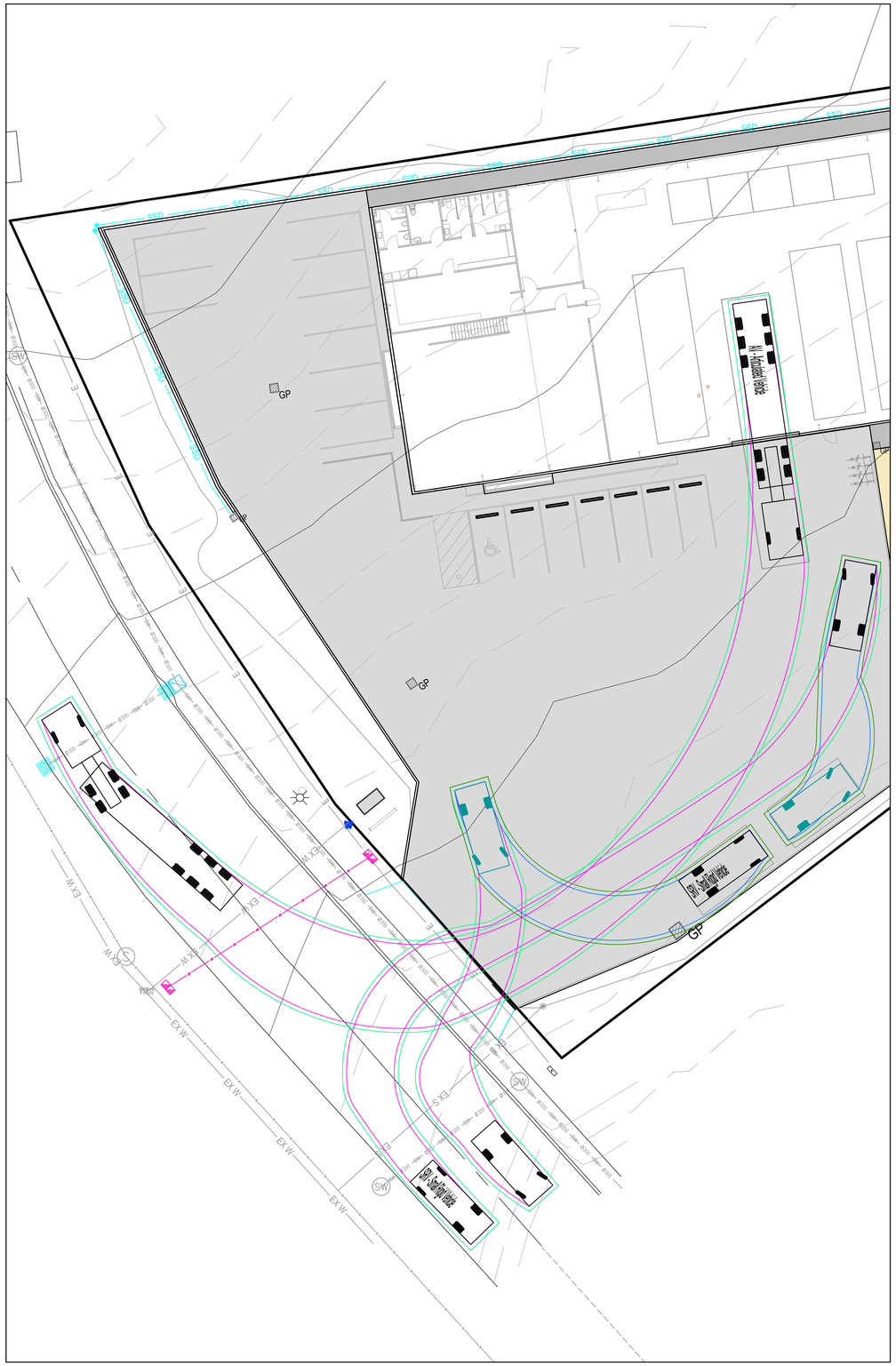
ADDRESS: 14 LUKAARLIA DRIVE
BRIDGEWATER

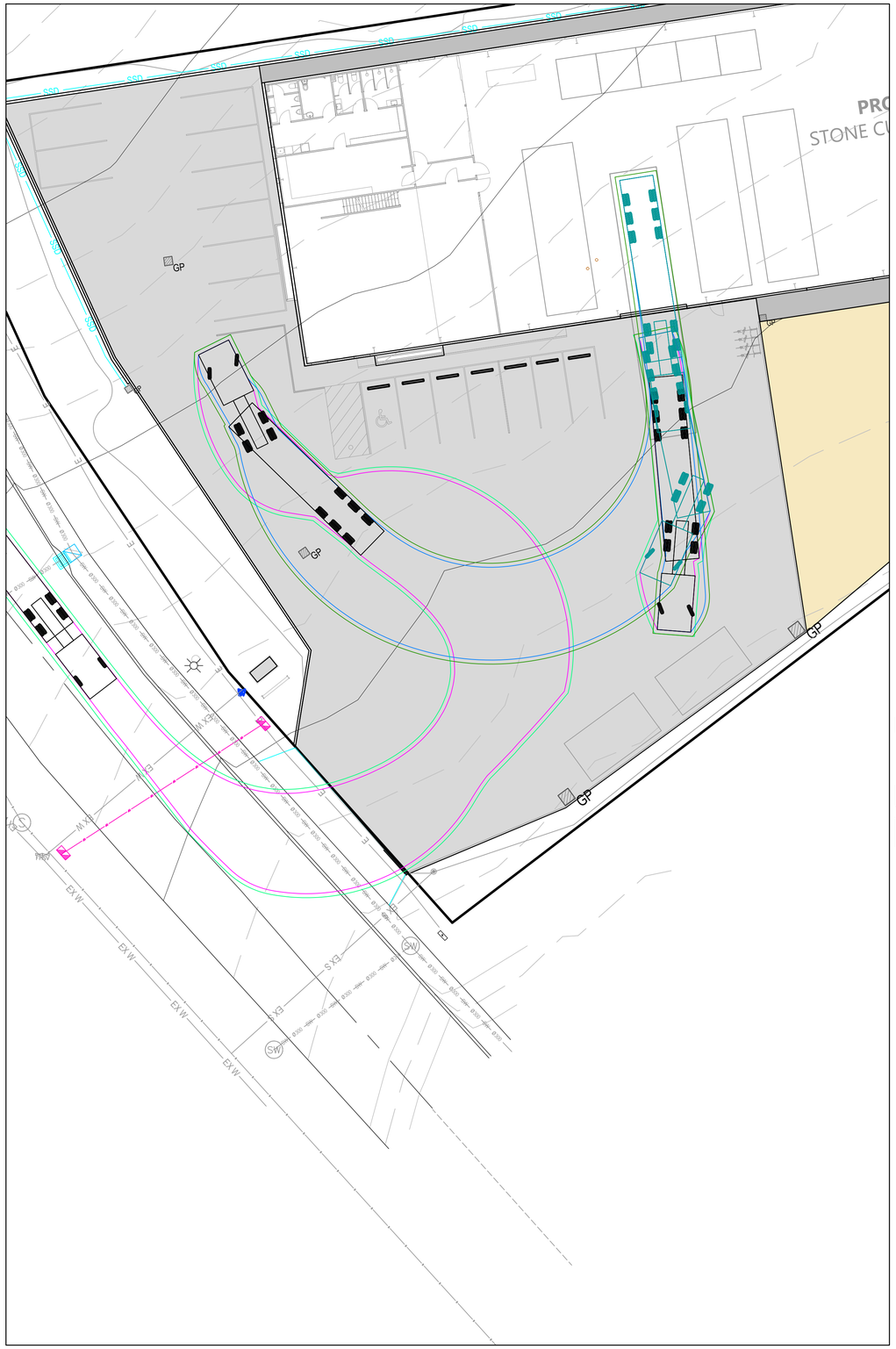
CLIENT: ELLIOT RENSHAW

SHEET: TURNPATH PLAN - SHEET 2

SCALE: 1:200 | TOTAL SHEETS: 10 | SIZE: A1

PROJECT No: 25 E 99 - 11 | SHEET: C107 | REV: B





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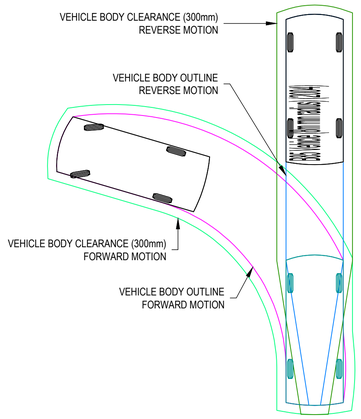

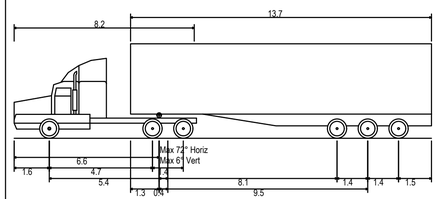

AV - Articulated Vehicle

Overall Length	19.000m
Overall Width	2.500m
Overall Body Height	4.301m
Min Body Ground Clearance	0.418m
Track Width	2.500m
Lock-to-lock time	6.00s
Curb to Curb Turning Radius	12.500m

VEHICLE TURNPATH - LEGEND
SCALE 1:100 (A1)
FROM AUTOCAD CIVIL 3D VEHICLE TRACKING SOFTWARE

TURNPATH PLAN - SHEET 3

SCALE 1:200 (A1)

REV	ISSUE	DATE	APPROVAL
B	PLANNING APPROVAL	24/03/2025	CHECKED: NM
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PROJECT: PROPOSED WAREHOUSE

0 2 4 6 8 10 12 14 16 18 20m

ADDRESS: 14 LUKAARLIA DRIVE
BRIDGEWATER

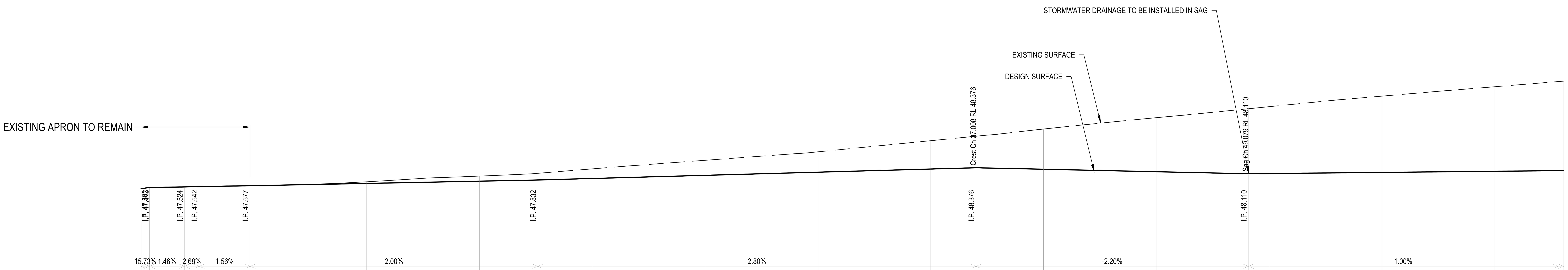
CLIENT: ELLIOT RENSHAW

SHEET: TURNPATH PLAN - SHEET 3

SCALE: 1:200 | TOTAL SHEETS: 10 | SIZE: A1

PROJECT No: 25 E 99 - 11 | SHEET: C108 | REV: B

NOTES
THESE DRAWINGS SHALL BE APPROVED BY RELEVANT AUTHORITIES (INCL. COUNCIL & TASWATER) PRIOR TO CONSTRUCTION.
THIS DRAWING MUST ONLY BE DISTRIBUTED IN FULL COLOUR. ALDANMARK CONSULTING ENGINEERS ACCEPTS NO LIABILITY ARISING FROM FAILURE TO COMPLY WITH THIS REQUIREMENT.
BEWARE OF UNDERGROUND SERVICES: THE LOCATION OF UNDER GROUND SERVICES ARE APPROXIMATE ONLY AND THEIR EXACT LOCATION SHOULD BE PROVEN ON SITE BY THE RELEVANT AUTHORITIES. NO GUARANTEE IS GIVEN THAT ALL SERVICES ARE SHOWN.



CUT (-) FILL (+)	+0.00	+0.00	+0.00	+0.00	+0.00	+0.00	-0.07	-0.23	-0.30	-0.43	-0.67
DESIGN CENTRE LINE	47.443	47.502	47.524	47.542	47.577	47.580	47.680	47.780	47.832	47.900	48.040
EXISTING SURFACE	47.44	47.50	47.52	47.54	47.58	47.58	47.75	48.01	48.13	48.33	48.71
CHAINAGE	0.00	0.37	1.92	2.57	4.83	5.00	10.00	15.00	17.59	20.00	25.00

CUT (-) FILL (+)	-0.90	-1.26	-1.40	-1.79	-2.40	-2.89	-2.97	-3.39	-3.75	-3.97
DESIGN CENTRE LINE	48.180	48.320	48.376	48.310	48.200	48.110	48.119	48.169	48.219	48.250
EXISTING SURFACE	49.08	49.58	49.78	50.10	50.60	51.00	51.09	51.56	51.97	52.22
CHAINAGE	30.00	35.00	37.01	40.00	45.00	49.08	50.00	55.00	60.00	63.06

ALIGNMENT CL-1

From 0.000m To 63.056m Scales: H 1:100 V 1:100

ACCES LONG SECTION

SCALE 1:100 (A1)

REV	ISSUE	DATE	APPROVAL	
			DRAWN:	DE
			CHECKED:	NM
			DESIGN:	DE
B	PLANNING APPROVAL	24/03/2025	CHECKED:	NM
A	PLANNING APPROVAL	27/02/2025	VERIFIED:	

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PROJECT: PROPOSED WAREHOUSE

0 1 2 3 4 5m H1:100 V1:100

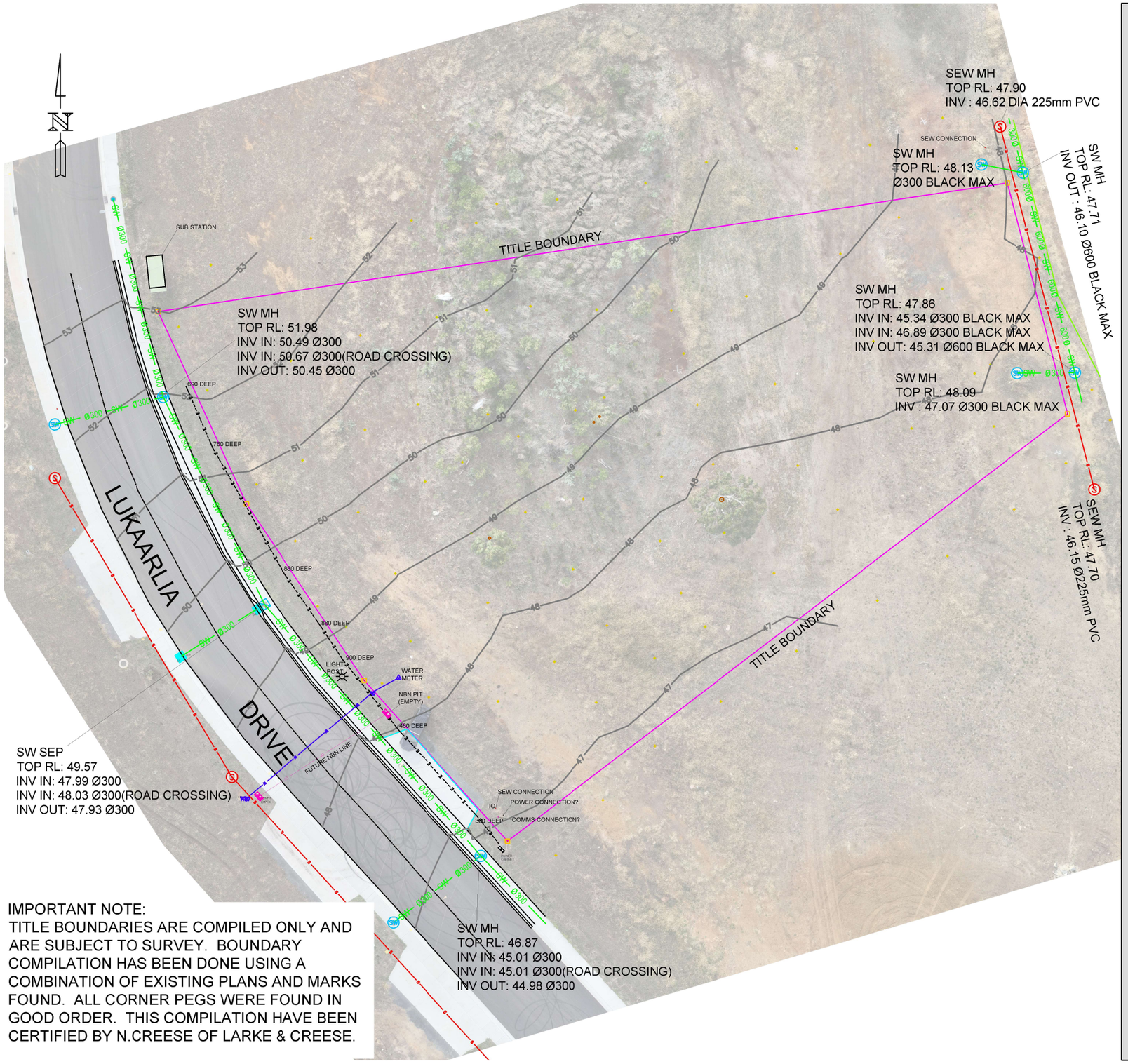
ADDRESS: 14 LUKAARLIA DRIVE BRIDGEWATER

CLIENT: ELLIOT RENSHAW

SHEET: LONG SECTIONS - SHEET 1

SCALE: AS INDICATED | TOTAL SHEETS: 10 | SIZE: A1

PROJECT No: 25 E 99 - 11 | SHEET: C201 | REV: B



IMPORTANT NOTE:
TITLE BOUNDARIES ARE COMPILED ONLY AND ARE SUBJECT TO SURVEY. BOUNDARY COMPILATION HAS BEEN DONE USING A COMBINATION OF EXISTING PLANS AND MARKS FOUND. ALL CORNER PEGS WERE FOUND IN GOOD ORDER. THIS COMPILATION HAVE BEEN CERTIFIED BY N.CREESE OF LARKE & CREESE.

STORMWATER LEGEND

SW Ø300 SW Ø300 SW Ø300	STORMWATER DN300
	SIDE ENTRY PIT
	GRATED PIT

SEWER LEGEND

S	SEWER (size as noted)
S	SEWER MANHOLE
IO	INSPECTION OPENING

SITE & EXISTING SERVICES LEGEND

	TELSTRA PIT
FP	FIRE PLUG
	WATER METER
W W	WATER PIPE U/G
S	SPRINKLER
	TAP
OF OF	OPTIC FIBRE
	LIGHT POLE

FEATURES LEGEND

	EDGE OF CONCRETE

IMPORTANT NOTE:

THIS PLAN HAS BEEN PREPARED FOR TAS BUILDING DESIGN Pty Ltd FROM A COMBINATION OF FIELD SURVEY AND EXISTING RECORDS FOR THE PURPOSE OF DESIGNING NEW CONSTRUCTIONS ON THE LAND AND SHOULD NOT BE USED FOR ANY OTHER PURPOSE.

UNDERGROUND SERVICES HAVE BEEN LOCATED BY THEIR ABOVE GROUND INDICATORS AND AUSLOACTIONS.

THE RELEVANT AUTHORITIES SHOULD BE CONTACTED REGARDING THE LOCATION OF UNDERGROUND UTILITIES (TELSTRA, WATER MAINS, SEWER, DRAINAGE, GAS) WHICH REQUIRE VERIFICATION ON SITE BEFORE CONSTRUCTION.

THIS DATA IS ON A PLANE COORDINATE SYSTEM -

DISTANCES ARE WHAT WOULD BE MEASURED ON THE GROUND USING A TAPE MEASURE. THE COORDINATES HAVE AN MGA ORIGIN AT SPM8324 (E:519308.046 N:5269317.243)
THE COMBINED SCALE FACTOR (CSF) TO BE APPLIED TO CONVERT TO MGA COORDINATE SYSTEM IS 0.99959854 USING SPM8324 AS THE SCALE ORIGIN POINT.

Arthur Moehrke Surveys

ARTHUR MOEHRKE SURVEYS PTY LTD
ABN: 69 661 947 557

NO	DATE	DRN	CHKD	DESCRIPTION
0	01/05/24	AM	AM	FIRST ISSUE

This plan is not intended for attachment to sale contract documents

OUR REF: REN2404-01 BRIGHTON D01		
CONTOUR INTERVAL: 200mm		
DATUM: PLANE MGA BASED ON SPM8324		
SCALE: 1:500 @ A3	ORIGINAL SHEET SIZE: A3	
DATE OF SURVEY: 18/04/23		AM
DRAWING No: 01	REV 00	SHEET No: 1 OF 1

RENSHAW STONE
DETAIL SURVEY

LOT 17 LUKAARLIA DR., BRIGHTON

STORMWATER REPORT

Proposed Warehouse
14 Lukaarlia Drive
Bridgewater TAS 7030

250211 SR 25 E 99 - 11 REV A

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ABN 79 097 438 714

PROJECT INFORMATION

DOCUMENT TITLE	Stormwater Report - 25 E 99 - 11 Rev A
PROJECT LOCATION	14 Lukaarlia Drive, Bridgewater TAS 7030
CLIENT ORGANISATION	Renshaw Stone
CLIENT REFERENCE	N/A
CLIENT CONTACT/S	Jenny Lim – Oramatis Studio
ALDANMARK REFERENCE	25 E 99 - 11
ALDANMARK CONTACT/	Danton Evans (devans@aldanmark.com.au)

DOCUMENT CONTROL

REVISION	DATE	REVISION DETAILS	PREPARED	VERIFIED	APPROVED
A	12/02/2025	Development Approval	DE	NM	MG

TABLE OF CONTENTS

1. INTRODUCTION

Aldanmark have been engaged to provide a stormwater report for the proposed development at 14 Lukaarlia Drive, Bridgewater.

The development must comply with the stormwater requirements as detailed in the Brighton Council Further Request for Information dated 13/9/2024 for DA 2024/00160.

These requirements include but are not limited to:

- Be able to accommodate a storm with a 2% AEP, when the land serviced by the system is fully developed.
- Stormwater runoff from the site will be no greater than pre-existing runoff or any increase can be accommodated within existing or upgraded public stormwater infrastructure.
- The development must consider an overland flow path to accommodate a storm with a 1% AEP.
- Stormwater quality from the site must meet the following:
    - Standard Stormwater Treatment Requirements specified in Table 3 Water Quality Treatment Targets in DEP and LGAT Tasmanian Stormwater Policy Guidance and Standard for Development 2021 V1.
    - Runoff from the development must be “visually free: of hydrocarbons prior to entering the public stormwater system.

This report aims to demonstrate that the development at 14 Lukaarlia Drive, Bridgewater complies with the above stormwater quality and quantity requirements.

2. SITE OVERVIEW

The existing site is completely undeveloped as it currently stands and is approx. 4,565m^2 in total. The site is serviced by an existing DN300 stormwater property connection which is connected to a DN600 stormwater main running parallel to the rear of the property.

The proposed development includes the construction of a large single building, which will include a stone cutting workshop, showroom, office, and staff amenities. The development will also include an associated external concrete hardstand and carparking area. The increase in impervious area within the site is expected to increase the quantity of site stormwater runoff.

3. CATCHMENT MODEL

3.1 MODIFIED RATIONAL METHOD

The modified rational method was applied within the software Autodesk Storm and Sanitary Analysis (SSA) to determine the increase in runoff between the pre-development and post-development conditions. The SSA model was then used to determine the volume and configuration of on-site detention required to reduce the site runoff below the pre-development condition for the 5% AEP storm.

3.2 DESIGN RAINFALL DEPTHS

Rainfall depths for the model were retrieved from the Bureau of Meteorology website (http://www.bom.gov.au/water/designRainfalls/revised-ifd/). Multiple durations of the 2% AEP storm were analysed to determine the critical storm duration.

TABLE 1: DESIGN RAINFALL DEPTHS

DESIGN RAINFALL EVENT	DESIGN RAINFALL (mm/hr)
2% AEP 5 minute	99.50
2% AEP 10 minute	76.4
2% AEP 20 minute	41.4
2% AEP 30 minute	26.4

3.3 SITE CATCHMENTS

The site catchments assumed for the modified rational method calculations were determined from the architectural site plan prepared by Oramatis Studio dated 11/02/2025. Runoff coefficients were adopted for each catchment area as per industry standards.

TABLE 2: PRE-DEVELOPMENT SITE CATCHMENT

CATCHMENT	AREA (m^2)	RUNOFF COEFFICENT C
Pre-development pervious areas	4,565	0.40

TABLE 3: POST-DEVELOPMENT SITE CATCHMENTS

CATCHMENT	AREA (m^2)	RUNOFF COEFFICENT C
Post-development impervious roofed areas	1,538	1.00
Post-development impervious paved areas	1,845	0.90
Post-development pervious areas	1,182	0.40

3.4 PROPERTY CONNECTION CAPACITY

As per the Further Request for Information, any increase in stormwater runoff will either need to be reduced below pre-development levels or be able to be accommodated in existing or upgraded public stormwater infrastructure. As such, a capacity check was carried out on the existing connection to determine the approximate maximum discharge.

Upon review of the survey provided, the site is serviced by an existing DN300 property connection at approximately 2.7%. The proposed development intends to relocate the connection to a more suitable location; however it is the intention to install the new connection at the same gradient.

The following calculations were utilised to estimate the capacity of the DN300 property connection (refer Aldanmark Civil Drawings for further details).

Diameter:	$300mm$	
Freeboard:	$5mm$	(assumed)
Slope, S:	2.70%	(as calculated from survey investigation)
Manning's Coefficient:	0.012	(for PVC pipe)

Radius, r:	$0.15m$	$r = \frac{Diameter/2}{1000}$
Theta, θ:	$2.88\ Rads$	$\theta = \pi - \cos^{-1}\left(\frac{Radius - \frac{Freeboard}{1000}}{r}\right)$
	$165.16\ Degrees$	$Degs = \frac{\theta \times 180}{\pi}$
Area (Hydraulic):	$0.07m^2$	$A_h = r^2 \times \left(\theta - (\sin\theta \times \cos\theta)\right)$
Radius (Hydraulic):	$0.08m^2$	$R_h = \frac{A_h}{2 \times r \times \theta}$
Velocity:	$2.57\ m/s$	$V = \frac{R_h^{2/3} \times S^{1/2}}{Manning's\ Coefficient}$
Flow:	$181.19\ L/s$	$Q = (V \times A) \times 1000$

The approximate maximum capacity of the existing stormwater property connection is 181.19 L/s.

3.5 DETENTION MODEL RESULTS

The results of the Stormwater and Sanitary Analysis model showed that the post-development site runoff is increased by 50.16 L/s over pre-existing runoff quantities, as shown in Table 3.

Despite this increase, the capacity of the existing site connection far exceeds that of the post development peak flow. As such, there is no need to install stormwater detention facilities on site.

TABLE 3: PEAK FLOW RATE SUMMARY

SCENARIO	SITE RUNOFF (L/s)
Pre-development	50.46
Approximate capacity of existing property connection	188.19
Post-development unmitigated	100.63
Post-development with OSD	N/A

4. STORMWATER QUALITY MODEL

4.1 STORMWATER QUALITY MODEL

In accordance with the Brighton Council Request for Additional Information the Stormwater Quality from the site must meet the following:

- Standard Stormwater Treatment Requirements specified in Table 3 Water Quality Treatment Targets in DEP AND LGAT TASMANIAN STORMWATER POLICY GUIDANCE AND STANDARDS FOR DEVELOPMENT 2021 V1.
- Runoff from the developments must be 'visually free' of hydrocarbons prior to entering the public stormwater system.

Aldanmark Engineers have collaborated with OceanProtect, utilising Model for Urban Stormwater Improvement Conceptualisation (MUSIC) software to model the site and the effectiveness of various treatment devices to achieve the stormwater quality targets.

- An 80% reduction in the average load of total suspended solids (TSS)
- An 45% reduction in the average annual load of total phosphorous (TP)
- An 45% reduction in the average annual load of total nitrogen (TN)

Proprietary devices by OceanProtect were utilised to meet the water quality targets. Theses propriety devices include:

- 4 x OceanGuards with 200µm mesh bags (OG-200)
- 3 x Tall (690) PSorb StormFilters, installed with a 1200x1200 pre-cast pit

Figure 1 below shows a MUSIC Model screenshot of the effectiveness of the system.

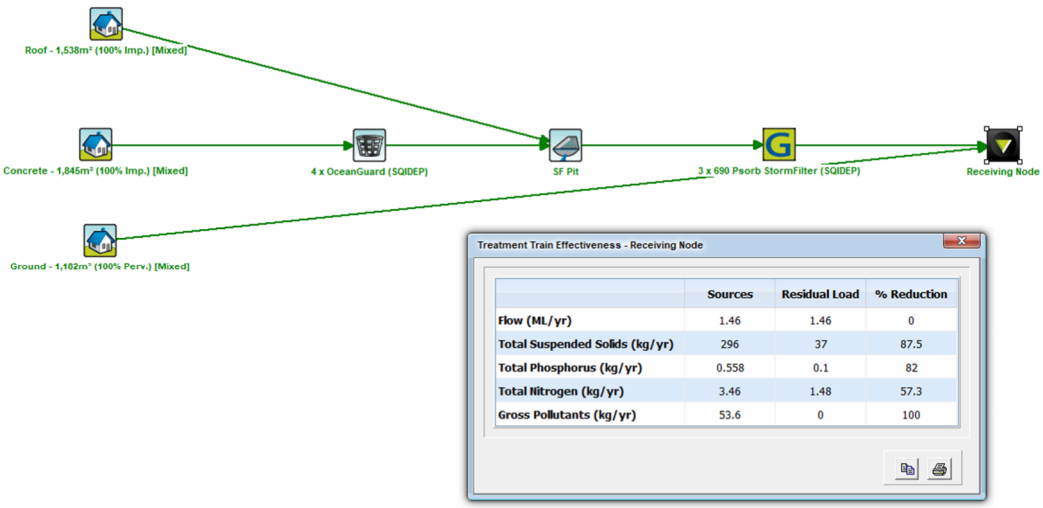


FIGURE 1: MODEL FOR URBAN STORMWATER IMPROVEMENT CONCEPTUALISATION OUTPUT

5. MAINTENANCE

The recommended maintenance schedule for the on-site detention and stormwater treatment devices specified in this report are outlined in Table 4.

The manufacturer's maintenance requirements for the stormwater detention and treatment devices that are installed will form part of the project's Plumbing Maintenance Schedule.

TABLE 4: MAINTENANCE FOR OCEAN PROTECT OCEANGUARDS AND STORMFILTERS

OCEANGUARDS	FREQUENCY
MINOR SERVICE Filter bat inspection and evaluation Removal of capture pollutants Disposal of material	1 – 6 times annually
MAJOR SERVICE Filter bag replacement Support frame rectification	As required
STORMFILTERS	
VISUAL INSPECTION Removal of larger gross pollutants Minimal rectification works as needed	Every 6 months
MINOR SERVICE Evaluation of cartridges and media Removal of accumulated sediment Wash down of StormFilter chamber.	Every 12 Months
MAJOR SERVICE Replacement of StormFilter cartridge media	As required

6. CONCLUSION

This report has demonstrated that the proposed development at 14 Lukaarlia Drive, Bridgewater complies with the stormwater quantity conditions of Brighton Council Request for Additional Information.

Note:

- No assessment has been undertaken of Council's stormwater infrastructure and its capacity.
- This report assumes the Council stormwater main has capacity for the pre-development peak discharge.
- It is the responsibility of Council to assess their infrastructure and determine the impact (if any) of altered inflows into their stormwater network.

Please contact me at devans@aldanmark.com.au if you require any additional information.

Yours faithfully,

Danton Evans BEng (Hons)
Civil Engineer

GEO-ENVIRONMENTAL

SOLUTIONS

ENVIRONMENTAL MANAGEMENT PLAN

14 Lukaarlia Drive Bridgewater

August 2025

Geo-Environmental Solutions P/L 29 Kirksway Place Battery point TAS 7004. Ph 6223 1839

1 CONTACTS REGISTER

1.1 Key Contacts

Site Owners	Renshaw Stone Elliot Renshaw 18 Sunderland Street, Moonah, Tas, 7009 M: 0400864009 E: elliot@renshawstone.com.au
Site Operators	Renshaw Stone Elliot Renshaw 14 Lukaarlia Drive, Bridgewater, Tas, 7030 M: 0400864009 E: elliot@renshawstone.com.au
Environmental Consultants	Geo Environmental Solutions – GES 29 Kirksway Place Battery Point 7004 Contact: John Paul Cumming T: (03) 6223 1839 M: 0413 541 531

1.2 Emergency Procedure

Immediately after a person causes, or becomes aware of an environmental incident relating to activities described in this Environmental Management Plan (EMP) they should:

1. Ensure the site is safe	First, consider personal safety, and if *safe to do so*, prevent any further environmental impact from occurring.
2. Notify	Emergency Services if required on **000**
3. Inform Regulator & Council	Inform EPA Tasmania of incident (**1800 005 171**) Inform Brighton Council (**62687000**)

Any significant environmental incidents/accidents or major breaches of undertakings during site operations must be reported to EPA Tasmania as soon as practically possible.

EXECUTIVE SUMMARY

This document has been prepared for Renshaw Stone Pty Ltd in response to a request by Brighton Council under Planning Permit Application: DA 2024 / 00160 for a an Environmental Management Plan (EMP).

This EMP primarily covers the management of environmental risks from operations at the site, and outlines management strategies associated with storage and disposal of potentially contaminating goods. A Complaints Register, a complaints handling system is recommended for the management of any issues arising from the operation of the site.

A basic overview of commitments arising from this plan are as follows:

- Surface water and groundwater. Site surfaces will be always kept clean and free of debris to minimise impact on water ways. Plant machinery fixed and mobile plus the trade waste plant and recycled water system will be checked regularly and maintained in accordance of manufacturing guidelines. Trade waste to be treated prior to discharge from site to legal point of connection.
- Odour and Vapours: all dangerous goods such as glues, resins, cleaners and fuels will be stored in appropriate cabinets and storage bunds with appropriate signage. MSDS should be stored with all chemicals on site. Regular maintenance of the buildings ventilation system is recommended. Spill kits should be onsite and available to use at all times.
- Noise pollution should be monitored and managed to reduce any significant effect the operation of the site has on the surrounding land uses. If a complaint is received, a suitably qualified environmental consultant may be engaged to conduct a noise survey from a minimum of four locations, with one acting as a control location.
- Dust: All stone cutting activities will be kept inside the workshop building. If a complaint arises regarding dust, a review into dust requirements will be required by a suitably qualified environmental consultant and a dust monitoring survey may be required.
- Light: The site will be operational approximately 5 days a week 6:30am until 6:30pm requiring lighting during early morning and late afternoon. As the site is within an already established industrial estate, light pollution is not considered a potentially significant environmental impact to customers or adjacent operations.
- Maintain A Complaints Register which should include but not limited to, any complaints regarding odour and vapours, noise, dust, light, water management or potentially contaminating issues.

It should be noted that this document is only valid for the management of operations as currently understood by GES and any changes to site management, site infrastructure, or major changes to operations will require amendments to the plan and invalidate this document.

2 INTRODUCTION

2.1 Background Information

The Environmental Management Plan (EMP) has been prepared by Geo Environmental Solutions Pty Ltd for Renshaw Stone Pty Ltd (Renshaw) to outline and document management of activities and processes that occur on the site for the purposes of operating and maintaining machinery in line with current environmental standards.

Renshaw are applying for planning permission by Brighton Council, to construct a Warehouse that houses a stone cutting workshop, show room and staff amenities at Lot 14 Lukaarlia Drive, Bridgewater. An application for Planning Permit has been submitted to the Brighton Council, reference: DA 2024 / 00160.

The front of the proposed Warehouse building includes a Showroom, Lunchroom, Toilet / shower and Design Room plus a Mezzanine Floor housing storage and Office spaces. The middle section of the Warehouse building will have an area designated to stone storage. The rear of the proposed Warehouse building will be the Stone Cutting and Processing Workshop which will include but may not be limited to the following fixed machinery:

- Water Jet cutter 5 axis
- Farnese Marc5 Bridge Saw
- Farnese Mitre Saw Gen 2
- Farnese Legend 3 Axis CNC
- Marmo Meccanica LCR edge line polisher

At the rear of the Processing workshop will house the onsite Trade Waste Treatment plant with a Farnese Silo 7500 which is a stainless-steel silo for waste sludge collection. A recycled water system will be installed throughout the facility.

Outside the building is a proposed sealed concrete carpark and driveway. A garden bed housing native plants will be situated on the street front.

See Appendix 1 – Proposed Warehouse Design.

2.2 Objectives

The objectives of this EMP are to address potential future environmental impacts of the proposed stone cutting operation, including dust, noise and trade waste produced by the approved use, and anticipated potential leakages or spillages, and provide recommendations of how impacts are to be managed.

The recommendations provided in this report will form part of the planning permit requirements for the site, reference: DA 2024 / 00160.

This EMP addresses the operational phase of the development, and specific environmental management considerations during the Construction Phase of the project will be addressed under the Construction Management Plan (CMP).

2.3 Responsibilities and Obligations

A copy of the EMP must be available on site and Renshaw Stone Pty Ltd head office.

2.3.1 Site Operator & owner

The site owner and operator (Renshaw Stone Pty Ltd) are responsible for all on site infrastructure. In particular Renshaw Stone Pty Ltd is responsible for the underground infrastructure including all stormwater pipes traps, recycled water and trade waste treatment infrastructure and is responsible for all remaining infrastructure (concrete forecourt, lighting, garden beds etc.).

3 General Information

3.1 Legislative Framework

This EMP has been prepared in general accordance with Commonwealth, state and local government legislation, policies and guidelines, which include the following key references:

3.1.1 Commonwealth

1. Environment Protection and Biodiversity Conservation Act 1999.
2. Environment Protection and Biodiversity Conservation Regulations 2000.
3. Australian and New Zealand Guidelines for the Assessment and Management of Contaminated Sites (ANZECC, January 1992).
4. National Environment Protection (Assessment of Site Contamination) Measure (NEPM), 2013.

3.1.2 Tasmania

1. Dangerous Goods Act 1998:

2. Dangerous Goods (General) Regulations 1998.
3. Workplace Health and Safety Act 1995;
4. Workplace Health and Safety Regulations 1998; and
5. Environmental Management and Pollution Control Act 1994.

3.2 Site Setting

The site is located at Lot 14 Lukaarlia Drive Bridgwater, approximately 20 km north of the Hobart's CBD.

The site is part of the Bridgwater Industrial Estate, which consists of more than 100 hectares of industrial zoned land. The site is zoned as General Industrial is bordered by adjacent industrial lots except to the east which is Lot 101 Lukaarlia Drive owned by Brighton Council which houses the drainage line of Ashburton Creek. Prior to subdivision the estate was agricultural land.

3.2.1 Topography

The site is gently sloping to the southeast, with an elevation of approximately 48m above sea level (asl).

3.2.2 Soil Type and Geology

According to The LIST website, the site consists of clay soils derived from Jurassic Dolerite (Jd).

3.2.3 Hydrology

Any rainfall onsite is expected to follow the local topography and fall towards drainage depression to the east of Ashburton Creek and proposed stormwater infrastructure on the site and current existing stormwater and sewer lines. At present there are no known drainage lines or watercourse present on the property.

3.2.4 Hydrogeology

A neighbouring site on Greenbanks Road, 380 m to the north east recently had a hydrogeological survey conducted involving the drilling of multiple monitoring wells. Groundwater at the site is between 10 and 12m in the underlying dolerite bedrock. Therefore, it is considered highly unlikely that groundwater will be encountered or impacted during site operations.

3.3 Site Activities

The primary function of the site will be processing of stone bench tops plus the storage of raw materials and completed bench tops. A showroom for customers will be situated at the front of the property. There

will be 15 light vehicle car parking spaces and two canter truck parking spaces. Vehicles will enter and exit the site from the southwestern side of the site from Lukaarlia Drive.

All processing of the bench tops will be inside the proposed workshop stone cutting processing plant, including all cutting, storing, recycled water and trade waste treatment.

The site will be open Monday to Friday 6:30AM to 6:30PM with the occasional work to be completed on Saturday and Sunday.

CCTV cameras will be installed at the site to monitor all onsite activities and provide information in the event of any incidents involving vehicle damage to infrastructure.

It is anticipated that the site would be supervised daily by staff for office activities and to conduct required inspections on infrastructure.

3.4 Infrastructure and Design

Site infrastructure has been designed to minimise the potential risk of environmental impact at all stages of the development and stone processing operation.

3.4.1 Proposed Site Layout

The proposed site consists of one large building divided into a showroom area, offices, storage and staff amenities at the road front, plus a large stone storage area and a Stone Cutting and Processing Workshop at the rear of the building plus the onsite Trade Waste Treatment plant with a Farnese Silo 7500 which is a stainless-steel silo for waste sludge collection. A recycled water system will be installed throughout the facility. On the outside of the building is a proposed sealed concrete carpark and driveway and a garden bed housing native plant.

3.4.2 Fixed Machinery

Dedicated stone cutting machines will be situated in the Stone Cutting Workshop including but not limited to:

- Water Jet cutter 5 axis.
- Farnese Marc5 Bridge Saw.
- Farnese Mitre Saw Gen 2.
- Farnese Legend 3 Axis CNC.
- Marmo Meccanica LCR edge line polisher.

At the rear of the Processing workshop will house the onsite Trade Waste Treatment plant with a Farnese Silo 7500 which is a stainless-steel silo for waste sludge collection.

3.4.3 Mobile Plant

Dedicated mobile plant for stone moving operations will be used on site including a 2.5 tonne forklift and a 5 tonne forklift and two small Fuso trucks. These vehicles will require regular maintenance inspections as recommended by the manufacturer.

4 Environmental Management

A series of management actions will be applied to on the site to mitigate potential environmental impact or nuisance.

4.1 Potential Environmental Impacts

4.1.1 Surface Water

The majority of the site is to be covered by a building with a concrete floor and the carpark surface will also be concrete. There will be a small portion of the site that will not be sealed. It is anticipated that surface water will be diverted into proposed 0225 UPVC Stormwater line and proposed drainage pits (Refer to civil plans by Aldanmark) to link up with the existing sewer lines on the eastern and western boundaries.

All vehicle maintenance oils and fluids will be kept on a storage bund or appropriate cabinets within the workshop shed on site.

Management Actions

- Ensure the site surfaces are always kept clean and free of debris, to minimise impact on water ways.
- Conduct regular inspections of the underground stormwater management related infrastructure and the associated alarm notification system.
- Provide adequate signage detailing emergency procedures for any onsite personnel and clients.
- Conduct regular inspections of all fixed plant machinery including all stone cutting, sawing and polishing equipment as well as the Trade Waste Treatment plant as per the manufacturer's recommendations.
- Conduct regular inspections of all mobile plant machinery including but not limited to the two forklifts and two small Fuso trucks as per the manufacturer's recommendations.

4.1.2 Groundwater

In the event of a fuel/oil spill or leak, all contaminants should be contained on a concreted surface and cleaned up using a designated spill kit. This will minimise the risk of potential contamination to groundwater. Contamination of groundwater is most likely to occur due to failure of any underground infrastructure.

Management Actions

- Regular inspection of the concrete forecourt surface for cracks as a potential pathway of contaminants to groundwater;
- Conduct regular inspections and servicing of all mobile plant machinery including but not limited to the two forklifts and two small Fuso trucks as per the manufacturer's recommendations.
- Regular service and inspection of the recycled water system and the onsite trade waste treatment system.
- A appropriate number of spill kits for the number of fixed and mobile plant on site should be spaced in appropriately around with processing plant workshop and should be accessible at all times.

4.1.3 Odours and Vapours

As part of the stone bench top production the operators of the site will store and dispense the following dangerous goods; glues, resins, cleaners and fuels. All dangerous goods will be stored in suitable storage cabinets inside the workshop building, which will have a concrete floor. The workshop building will be well ventilated.

Management Actions

- Dangerous goods such as glues, resins, cleaners and fuels will be stored in appropriate cabinets with appropriate signage. MSDS should be stored with all chemicals on site.
- Regular maintenance of the buildings ventilation system is recommended.
- Spill kits should be onsite and available to use at all times.
- Maintain A Complaints Register including any associated odor issues. Review the register on a regular basis in order to determine key characteristics and any requirement for further investigation and corrective actions.

4.1.4 Noise

The Brighton Industrial Estate is a developing industrial area that does not have a history of complaints related to either ambient or nuisance noise. Noise generated by normal use of the site include traffic entering and exiting the site (i.e. truck air brakes, starting of motors) and day to day operation of stone cutting machinery plus maintenance activities of vehicles and machinery in the shed. The operation of

the site is not anticipated to produce any noise above and beyond typical background noise for an industrial area. At the control panel of the machines the noise generated is under 100 decibels (db).

Management Actions

- Impose speed limits for all traffic entering and exiting site to minimise noise from the use of truck brakes;
- Maintain a Complaints Register including any associated noise issues. Review the register on a regular basis in order to determine key characteristics and any requirement for further investigation and corrective actions; and
- If a complaint arises regarding ambient or nuisance noise, review requirements to engage a suitably qualified environmental consultant to conduct a noise survey from a minimum of four locations, with one acting as a control location.

4.1.5 Dust

All activities associated with stone cutting and sawing with be contained to the proposed stone cutting workshop. As all roads leading to the site are sealed and the forecourt is concrete-sealed, no routine activities onsite are expected to contribute to the generation of dust. Non-sealed areas of the site are landscaped to prevent the generation of dust.

Management Actions

- If a complaint arises regarding dust, a review into dust requirements may be required by a suitably qualified environmental consultant and a dust monitoring survey may be required. Similar to reports previously prepared by IPM Consulting Services for Renshaw Stone.
- Regular maintenance of the landscaped garden beds and non-concreted surfaces.

4.1.6 Light

The site will be operational approximately 5 days a week 6:30am until 6:30pm requiring lighting during early morning and late afternoon. As the site is within an already established industrial estate, light pollution is not considered a potentially significant environmental impact to customers or adjacent operations.

Management Actions

- Conduct regular inspections of the lighting infrastructure (i.e. replacement of flickering or broken bulbs);

- Ensure all lights are directed to the forecourt minimise light spill to nearby properties; and
- Maintain a Complaints Register including any associated light pollution issues. Review the register on a regular basis in order to determine key characteristics and any requirement for further investigation and corrective actions.

4.1.7 Treated Trade Waste

Where required water from the onsite Trade Waste Treatment, the Farnese Silo 7500 that can not be collected as sludge or reused through the recycled water system, treated waste will be discharged via the proposed 0100 UPVC sever line which will feed into the existing sewer system.

Management Actions

- Conduct regular inspections of the recycled water infrastructure including outflow and connection points to ensure spills are not occurring.
- Maintain a Complaints Register including any associated discharge pollution issues. Review the register on a regular basis in order to determine key characteristics and any requirement for further investigation and corrective actions.

4.2 Site Access and Traffic

4.2.1 Infrastructure Protection

The site is designed for two-way traffic movement with one access driveway onto Lukaarlia Drive. The entry and exit point of the site will be adequately signed to manage onsite traffic movement.

Management Actions

- Impose speed limits for all traffic entering and exiting site to minimise potential impact damage resulting from a vehicle collision; and
- Regularly inspect the condition of all traffic signage onsite.

4.3 Waste Management

4.3.1 Domestic and Industrial Waste

General office waste will be contained within designated general waste and recycling wheelie bins. Industrial waste of stone offcuts will be stored in small skip bins. De watered sludge waste from the onside trade waste treatment fixed machine; the Farnese Silo 7500 will be collected in the designated

waste bags. JJ Richards has the contract to collect and dispose of the stone offcuts and the dewatered sludge.

In the event of use of the site spill kits (3M 190L petroleum spill kits for fuels and oils located in workshop), any materials contaminated by fuel or oil (such as sorbent pads or vermiculite) will need to be managed and disposed of off-site by a licensed waste management contractor, to an approved receiving facility. Spill kits are to be deployed in accordance with the operational instructions on each kit and will require replacement of absorbent materials (absorbent bunding socks, pads and vermiculite) after use from the supplier.

5 Reporting and Review

5.1 Site Inspections and Maintenance

All infrastructures should be maintained as per the manufacturer's specifications. All routine inspections, maintenance visits, complaints and specific responses to incident should be recorded.

5.2 Incident Response and Notification

If an incident or accident that causes an impact to the environment occurs during the activities to which this Plan relates, the person responsible for the activities must:

- Immediately take all practicable action to minimise any adverse environmental effects from the incident;
- As soon as reasonably practicable, but no later than 24 hours, after becoming aware of the incident notify the Facilities & Maintenance Co-Ordinator of the incident via a phone call (refer Contact Register);
- No later than 24 hours after becoming aware of the incident, proved written details of the incident to the Facilities & Maintenance Co-Ordinator via email or hand delivery; and
- In the event that the incident is deemed to have the potential to cause environmental harm the person responsible for the release must notify the EPA Director and Brighton Council (refer Contact Register).

All incidents (including near miss incidents) occurring at the site must be immediately reported to the Facilities & Maintenance Co-ordinator.

5.3 Monitoring Commitments

Following an incident or accident with potential to cause impact to the environment, the Facilities & Maintenance Co-ordinator should engage a suitably qualified environmental professional (GES contact details in section 1.1) to assess the extent of impact to the environment and propose appropriate remedial actions to mitigate the risk to an acceptable level.

5.4 Review

The Plan should be reviewed by all relevant parties every three years or by mutual agreement.

6 Summary of Commitments

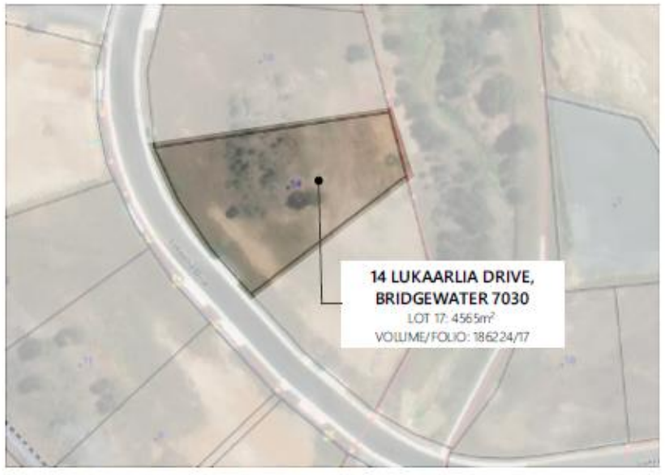
Table 1 – Summary of Commitments

Number	Commitment	Document Section Number
1	In the event of an incident please notify the below as soon as practically possible: Renshaw Stone (Elliot Renshaw) 14 Lukaarlia Drive, Bridgewater, Tas, 7030 M: 0400864009 E: elliot@renshawstone.com.au Geo Environmental Solutions – GES (John Paul Cumming) 29 Kirksway Place Battery Point 7004 T: (03) 6223 1839 M: 0413 541 531 jcumming@geosolutions.net.au	Contacts Register
2.	Emergency Procedure – Notify: Emergency Services if required on **000** Inform EPA TAS of incident **(1800 005 171)** Inform Brighton Council **(6268 7000)**	Contacts Register
3.	Conduct regular inspections and routine servicing of all fixed and mobile plant to ensure all machinery are clean and free from spills or leaks.	5
4.	Ensure that JJ Richards (or another suitable waste manager) are engaged on appropriate rotation to ensure that cut stone waste and dewatered sludge waste does not build up and spill on the site.	
5.	Conduct inspections of stormwater and sewer lines on regular intervals.	5
6.	Conduct regular maintenance inspections on site lighting infrastructure, garden areas, and traffic signage to ensure compliance with dust, lighting and traffic requirements.	5
7.	Maintain a Complaints Register including but not limited to, any complaints regarding water, noise, dust, light, odour or potentially contaminating issues.	5
8	Ensure that all dangerous goods; glues, resins, cleaners and fuels are stored in suitable location with appropriate signage and chemical storage and handling instructions. MSDS should be stored with the chemicals.	

7 Appendix 1 – Proposed Warehouse Design

PROPOSED WAREHOUSE / WORKSHOP

ID	NAME	REV
	COVER PAGE	
DA01	NOTES & SITE LOCATION PLAN	
DA02	SITE PLAN	B
DA03	LANDSCAPING PLAN	A
DA04	CUT & FILL	A
DA05	GROUND FLOOR PLAN	
DA06	MEZZANINE FLOOR PLAN	
DA07	GF FITOUT PLAN	
DA08	GF FITOUT PLAN	B
DA09	ELEVATION	
DA10	ELEVATION	B
DA11	ROOF PLAN	
DA12	MATERIAL BOARD | EXTERIOR FINISHES	



1 LOCATION PLAN/SATELLITE IMAGERY
1:2000

GENERAL NOTES

GENERAL
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DO NOT SCALE FROM THIS DRAWING

THE CONTRACTOR SHALL CONFIRM ON SITE EXISTING CONDITIONS, LEVELS AND DIMENSIONS PRIOR TO COMMENCEMENT OF WORKS

ALL DISCREPANCIES TO BE REPORTED TO THE ARCHITECT FOR INSTRUCTION

ALL LEVELS INDICATED PERTAIN TO FINISHED LEVELS AND NOT STRUCTURAL LEVELS UNLESS OTHERWISE INDICATED

MATERIALS AND WORK PRACTICES SHALL COMPLY WITH THE NATIONAL CONSTRUCTION CODE (NCC) AND OTHER RELEVANT CODES REFERRED TO IN THE NCC

THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER CONTRACT DOCUMENTS, SPECIFICATIONS AND DRAWINGS

PROPRIETARY ITEMS, SYSTEMS AND ASSEMBLIES ARE TO BE ASSEMBLED, INSTALLED OR FIXED IN CONFORMANCE WITH THE CURRENT WRITTEN RECOMMENDATIONS AND INSTRUCTIONS OF THE MANUFACTURER OR SUPPLIER

WORKPLACE HEALTH AND SAFETY
ALL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH THE PROJECT SAFE DESIGN REPORT

ALL CONTRACTORS MUST CARRY OUT WORKS IN ACCORDANCE WITH CURRENT HEALTH AND SAFETY LEGISLATION AND BEST PRACTICE INCLUDING PREPARATION OF A CONSTRUCTION SAFETY MANAGEMENT PLAN

LAND TITLE REFERENCE
VOLUME (PLAN): 186224/17

DESIGN WIND SPEED
WIND LOADING TO AS 4055: N3

SOIL CLASSIFICATION
SOIL CLASSIFICATION TO AS 2870: H-1

CLIMATE ZONE FOR THERMAL DESIGN
CLIMATE ZONE TO BCA FIGURE 1.1.4: 7

BUSHFIRE PRONE AREA BAL RATING
BUSHFIRE ATTACK LEVEL (BAL) TO AS 3959: BAL-LOW
CORROSION ENVIRONMENT
CORROSION ENVIRONMENT TO AS/NZS 2312: N/A
KNOWN SITE HAZARDS: n/a

PLANNING ZONE: 19:GENERAL INDUSTRAL

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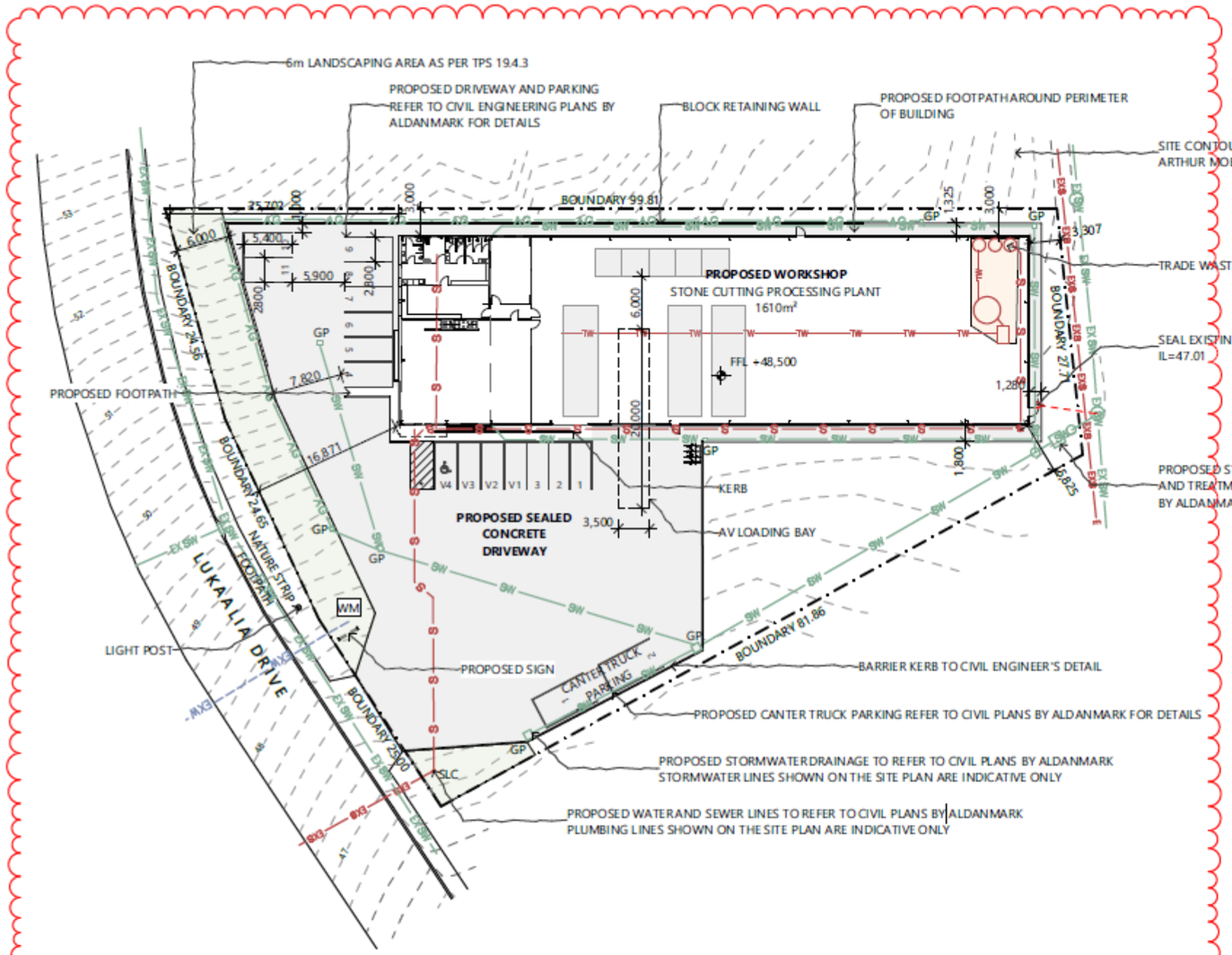
REV ID	DESCRIPTION	DATE

PROJECT	REVISION	DATE	SCALE	PAGE	NORTH
PROPOSED WAREHOUSE 14 LUKAARLIA DRIVE, BRIDGEWATER 7030		24/03/2025	AS SHOWN @ A3	DA01	N
CLIENT	PROJECT ID	CHECKED BY	DRAWN BY	DRAWING	
RENSHAW STONE	2467	D.D	C.L	NOTES & SITE LOCATION PLAN	



1 SITE PLAN
1:500

LEGEND

WM	EXISTING WATER METER
SLC	SEWER LOT CONNECTION
SWLC	STORMWATER LOT CONNECTION
S	PROPOSED Ø100 UPVC SEWER LINE
SW	PROPOSED Ø225 UPVC STORMWATER LINE
W	PROPOSED UPVC WATER LINE
EXS	EXISTING SEWER LINE
EXSW	EXISTING STORMWATER LINE
EXW	EXISTING WATER LINE
TW	TRADE WASTE LINE

AREA SCHEDULE

GROUND FLOOR	1610m²
MEZZANINE FLOOR	200m²
TOTAL	**1810m²**

CARPARKING NUMBER REQUIRED BY TPS

USE	AREA	NO. OF CARPARKING	
DISPLAY	160m²	4 (+1 DISABLED)	1 PER 50m²
MANUFACTURING	1170m²	6	1 PER 200m²
STORAGE	91m²	1	1 PER 200m²
OFFICE	34+112	4	1 PER 40m²
TOTAL		**15**	

BICYCLE NUMBER REQUIRED BY TPS

USE	AREA	NO. OF BICYCLE PARKING	
DISPLAY	160m²	1	1 PER 500m²
MANUFACTURING	1170m²	2	1 PER 5 EMPLOYEES
STORAGE	91m²	0	NO REQ.
OFFICE	34+112	1	1 PER 500m²
TOTAL		**4**	

BUSINESS DETAILS

NAME:	RENSHAW STONE
SERVICE:	MANUFACTURER AND DISTRIBUTOR OF STONE AND PORCELAIN
STAFF NO.:	7
VEHICLE TYPE & NO.:	CARS x6 (EMPLOYEES - DAILY ACCESS) FUSO CANTER TRUCK x2 (PRODUCT DELIVERY - DAILY ACCESS) SEMI-TRUCKS (DELIVERY OF STONE - ONCE A MONTH)

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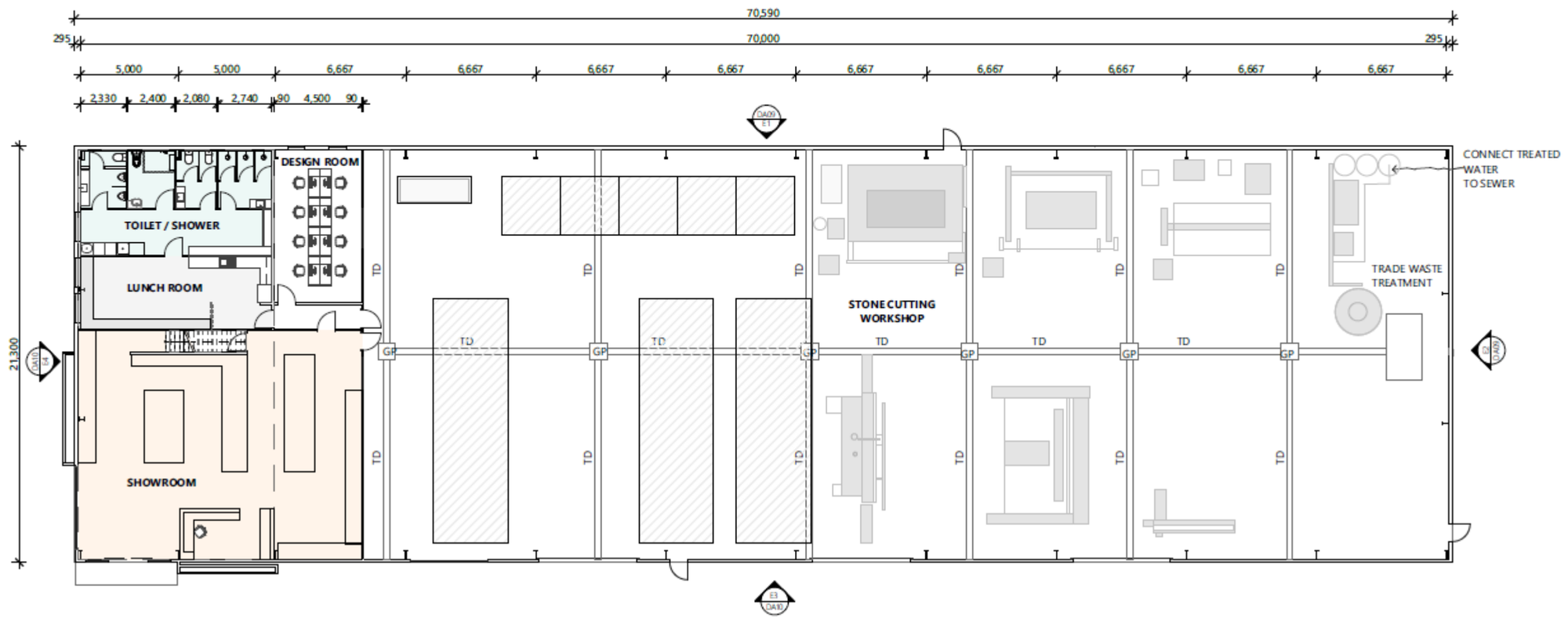
REV ID	DESCRIPTION	DATE
A	BUSINESS DETAILS, DRAINAGE DESIGN	5/03/2025
B	CAR & BICYCLE PARKING, VEHICLE DETAILS	24/03/2025

PROJECT	REVISION	DATE	SCALE
PROPOSED WAREHOUSE 14 LUKAARLIA DRIVE, BRIDGEWATER 7030	B	24/03/2025	AS SHOWN @ A3
CLIENT	**PROJECT ID**	**CHECKED BY**	**DRAWN BY**
RENSHAW STONE	2467	D.D	C.L

PAGE: DA02
NORTH: N
DRAWING: SITE PLAN



1 GROUND FLOOR PLAN
1:200

LEGEND

GP GRATED PIT
TD GRATED TRENCH DRAIN

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REV ID	DESCRIPTION	DATE

PROJECT	REVISION	DATE	SCALE
PROPOSED WAREHOUSE 14 LUKAARLIA DRIVE, BRIDGEWATER 7030		24/03/2025	AS SHOWN @ A3
CLIENT	**PROJECT ID**	**CHECKED BY**	**DRAWN BY**
RENSHAW STONE	2467	D.D	C.L

PAGE DA05
NORTH N
DRAWING GROUND FLOOR PLAN

Submission to Planning Authority Notice

Application details

Council Planning Permit No.	DA 2024/00160
Council notice date	27/08/2024
TasWater Reference No.	TWDA 2024/01029-BTN
Date of response	23/12/2024
TasWater Contact	Phil Papps
Phone No.	0474 931 272
Trade Waste Contact	Scott James
Phone No.	0417 240 264

Response issued to

Council name	BRIGHTON COUNCIL
Contact details	development@brighton.tas.gov.au

Development details

Address	14 LUKAARLIA DR, BRIDGEWATER
Property ID (PID)	9638571
Description of development	Warehouse for Processing & Storage of Natural Stone and Other Stone Surfaces

Schedule of drawings/documents

Prepared by	Drawing/document No.	Revision No.	Issue date
Oramatis Studio	Site Plan / DA02	--	03/12/2024
Oramatis Studio	Floor Plans / DA04 – DA07	--	03/12/2024

Conditions

Pursuant to the *Water and Sewerage Industry Act* 2008 (TAS) Section 56P(1) TasWater imposes the following conditions on the permit for this application:

CONNECTIONS, METERING & BACKFLOW

1. A suitably sized water supply with metered connections and sewerage system and connections to the development must be designed and constructed to TasWater's satisfaction and be in accordance with any other conditions in this permit.

2. Any removal/supply and installation of water meters and/or the removal of redundant and/or installation of new and modified property service connections must be carried out by TasWater at the developer's cost.

3. Prior to commencing construction/use of the development, any water connection utilised for construction/the development must have a backflow prevention device and water meter installed, to the satisfaction of TasWater.

TRADE WASTE

4. Prior to the commencement of operation the developer/property owner must obtain Consent to discharge Trade Waste from TasWater.

5. The developer must install appropriately sized and suitable pre-treatment devices prior to gaining Consent to discharge.

6. The Developer/property owner must comply with all TasWater conditions prescribed in the Trade Waste Consent

DEVELOPER CHARGES

7. Prior to TasWater issuing a Certificate(s) for Certifiable Work (Building) and/or (Plumbing), the applicant or landowner as the case may be, must pay a developer charge totalling $3,865.40 to TasWater for water infrastructure for 2.2 additional Equivalent Tenements, indexed by the Consumer Price Index All groups (Hobart) from the date of this Submission to Planning Authority Notice until the date it is paid to TasWater.

8. Prior to TasWater issuing a Certificate(s) for Certifiable Work (Building) and/or (Plumbing), the applicant or landowner as the case may be, must pay a developer charge totalling $6,676.60 to TasWater for sewerage infrastructure for 3.8 additional Equivalent Tenements, indexed by the Consumer Price Index All groups (Hobart) from the date of this Submission to Planning Authority Notice until the date it is paid to TasWater.

DEVELOPMENT ASSESSMENT FEES

9. The applicant or landowner as the case may be, must pay a development assessment fee of $403.51 to TasWater, as approved by the Economic Regulator and the fee will be indexed, until the date paid to TasWater.

The payment is required within 30 days of the issue of an invoice by TasWater.

Advice

General

For information on TasWater development standards, please visit
https://www.taswater.com.au/building-and-development/technical-standards
For application forms please visit
https://www.taswater.com.au/building-and-development/development-application-form

Developer Charges

For information on Developer Charges please visit the following webpage -
https://www.taswater.com.au/building-and-development/developer-charges

Service Locations

Please note that the developer is responsible for arranging to locate the existing TasWater infrastructure and clearly showing it on the drawings. Existing TasWater infrastructure may be located by a surveyor and/or a private contractor engaged at the developers cost to locate the infrastructure.

(a) A permit is required to work within TasWater's easements or in the vicinity of its infrastructure. Further information can be obtained from TasWater.
(b) TasWater has listed a number of service providers who can provide asset detection and location services should you require it. Visit https://www.taswater.com.au/building-and-development/service-locations for a list of companies.

Trade Waste

If the process involves the discharge of water or any other substance used for example in the cutting/polishing of product then prior to any Building and/or Plumbing work being undertaken, the applicant will require a Certificate for Certifiable Work (Building and/or Plumbing). The Certificate for Certifiable Work (Building and/or Plumbing) must accompany all documentation submitted to Council. Documentation must include a floor and site plan with:

- Location of all pre-treatment devices (i.e Basket Arrestors/Sediment Traps/Screens)
- Schematic drawings and specification (including the size and type) of any proposed pre-treatment device and drainage design.

Declaration

The drawings/documents and conditions stated above constitute TasWater's Submission to Planning Authority Notice.

ALDANMARK
CONSULTING ENGINEERS

Lower Ground – 199 Macquarie Street
Hobart TAS 7000
(03) 6234 8666
mail@aldanmark.com.au
www.aldanmark.com.au

ENGINEERS ADVICE

250213 EA 25E99-11

To:	TasWater Development Mailbox	**TasWater** **development@taswater.com.au**	**INSPECTION** ☐
			INSTRUCTION ☒
Cc:			**MEMO** ☐
			RFI RESPONSE ☐
			SHOP DRAWING APPROVAL ☐

PROJECT:	Proposed Warehouse: 14 Lukaarlia Drive, Bridgewater
SUBJECT:	TasWater Sewer and Water Demands

RELEVANT DOCUMENTS:

- Architectural/building design drawings by Oramatis Studio dated 11/02/2025
- Survey Detail Plan provided by: Arthur Moehrke Surveys Pty Ltd
- TasWater supplement to the Sewerage Code of Australia WSA 02-2014-3.1
- TasWater supplement to the Water Code of Australia WSA 03-2014-3.1

Aldanmark Engineering have been engaged to provide preliminary assessment of the sewer and water demands for the proposed development at 14 Lukaarlia Drive, Bridgewater.

PROPERTY ID: 9638571
TITLE REFERENCE: 186224/17

The proposed development involves the construction of a single building including workshop, office, showroom and associated amentites for a stone cutting and manufacturing business.

TASWATER SEWERAGE DEMANDS

Sewerage loadings are in accordance with TasWater Sewerage Code Supplement to the Sewerage Code of Australia WSA 02-2014 Version 3.1.

TASWATER SUPPLEMENT

Gross development areas are based on survey documents provided to Aldanmark by Arthur Moehrke dated 18/04/2023. The total equivalent (ET's) calculation is provided in tabular form below:

$$DESIGN\ FLOW = PDWF + GWI + RDI$$

Where:

$$Peak\ Dry\ Weather\ Flow = d * Average\ Dry\ Weather\ Flow$$
$$Groundwater\ Infiltration,\ GWI = 0.025 * A * Portion_{wet}$$
$$Rainfall\ Dependent\ Inflow\ and\ Infiltration,\ RDI = 0.028 * A_{eff} * C * I$$

TABLE 1: SEWERAGE EQUIVALENT TENEMENTS

TYPE	COMMENTS	QUANTITY	UNIT RATING	TOTAL SEWERAGE ET'S
BE01 - Retail	Showroom Area	172	0.003	0.516
BE04 - Office	Office, Lunchroom and Design Room	198	0.006	1.188
MM01 - Workshop	Stone Cutting Workshop	1166	0.004	4.664
CF08 – Amenities Building	Per SHR	4	0.6	2.4
CF09 – Amenities Building	Per WC	4	0.6	2.4
TOTAL APPROXIMATE EQUIVALENT TENEMENTS (ET'S)				11.168

Based on the above information and WSA 02-2014 and 450L/ET/day, the sewerage flows are:

$$Q_{ADWF} = 0.058\ L/s$$
$$Q_{PDWF} = 0.543 L/s$$
$$Q_{RDI} = 0.68\ L/s$$
$$\mathbf{Q_{TOTAL} = 1.23\ L/s}$$

SEWER CONNECTION POINT

The proposed development has an existing sewer connection point as shown on the survey as produced by Arthur Moehrke from the existing DN225 PVC sewer main (ID A3507414).

TASWATER WATER DEMANDS

Water demands have been calculated in accordance with WSA 03-2015-2.0 and TasWater's Supplement to this code.

TASWATER SUPPLEMENT

TABLE 2: TASWATER WATER DESIGN FLOWS

TYPE	COMMENTS	QUANTITY	UNIT RATING	TOTAL WATER ET'S
BE01 - Retail	172	0.003	0.516	0.344
BE04 - Office	198	0.006	1.188	0.792
MM01 - Workshop	1166	0.004	4.664	4.664
CF08 – Amenities Building	4	0.6	2.4	1.6
CF09 – Amenities Building	4	0.6	2.4	1.6
TOTAL APPROXIMATE EQUIVALENT TENEMENTS (ET'S)				9.00

$$AD = \frac{685\frac{L}{ET}}{day}\ X\ 9.0\ ET's\ X\ \frac{1}{24X60X60} = 0.071\frac{L}{s}$$

$$PD = 2.5\ X\ AD = 0.1175\ L/s$$

$$PH = 2.0\ X\ PD = 0.355\ L/s$$

As per Section 3 of AS3500.1:2021 Table 3.2.1, the Probable simultaneous loading units for the development are as follows:

TABLE 3: PSFR LOADING UNITS

FIXTURE/APPLIANCE	QUANTITY	UNIT RATING	TOTAL PSFR'S
Water closet cistern	4	2	8
Basin	4	1	4
Shower	4	2	8
Sink (Standard)	1	3	3
Laundry trough	1	3	3
Washing machine	2	3	6
Mains pressure water heater	1	8	8
Hose Tap	4	8	32
		TOTAL PSFR'S	72

As Table 3.2.4 – probably simultaneous flow rates are limited to 60 loading units, a factor of 0.01133 $\left(\frac{0.68}{60} = 0.01133\right)$ is added per loading unit outside of Table 3.2.4. The resulting PSD is therefore calculated as:

$$Q = 0.68 + 72 \times 0.01133 = 1.495 \ L/s$$

The site will require a DN100 medium hazard fire connection with a min. DN32 (I.D) medium-high hazard domestic property service connection as per TWS-W-0002 from the existing DN150 PVC-O Water main (ID A3507553)

Total fire demands will not be known until detailed design has commenced. Based on previous projects, Aldanmark anticipate the internal fire supply must take in consideration:

- Attack hydrants 10 L/s @ 350kpa

Fire flows from TasWater fire hydrants must complete with Table 3.1.5 of the TasWater Supplement.

To assist Aldanmark with the detailed design of the property connections for each site, can TasWater please provide the following information at each proposed connection point:

- Details on supply zone and supply head
- Connection point elevation in m/AHD & max static pressure
- Residual pressure at boundary without fire flow
- Fire flow residual pressures at the connection point elevation with the reservoir at its lowest operable level for the following fire flow demands: 10 l/s, 20 l/s, 30 l/s, 40 l/s, 50 l/s and Full flow

WATER CONNECTION POINT

The proposed development is serviced by an existing DN100 PE100 lateral line, with a DN32 property connection point as shown on the site survey, LISTMap and the TasWater Asset Information Portal. The lateral line is fed from the existing DN150 PVC-O TasWater water main (ID A3507553).

Please do not hesitate to contact the office should you have any questions or wish to discuss the presented information further.

Regards,

Danton Evans BEng (Hons)
Civil Engineer