

TOWN OF VICTORIA PARK
Received: 1/03/2024

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35. Stormwater run-off from constructed impervious surfaces generated by small rainfall events (that is, the first 15 mm of rainfall) must be retained and/or detained and treated (if required) at-source as much as practical and will not be permitted to enter the river untreated to the satisfaction of the Town of Victoria Park on the advice of the Department of Biodiversity, Conservation and Attractions.

The map displays two shaded regions, 306 and 308, on a topographic background. Region 306 is a large, irregularly shaped area with a total area of 4737m². It is bounded by a thick black line. Region 308 is a smaller, more rectangular area with a total area of 4480m², located to the right of region 306. The map includes contour lines and various numerical values along the boundaries of the shaded regions, indicating elevation and area measurements.

Figure 2 – Building Ground Floor Plan

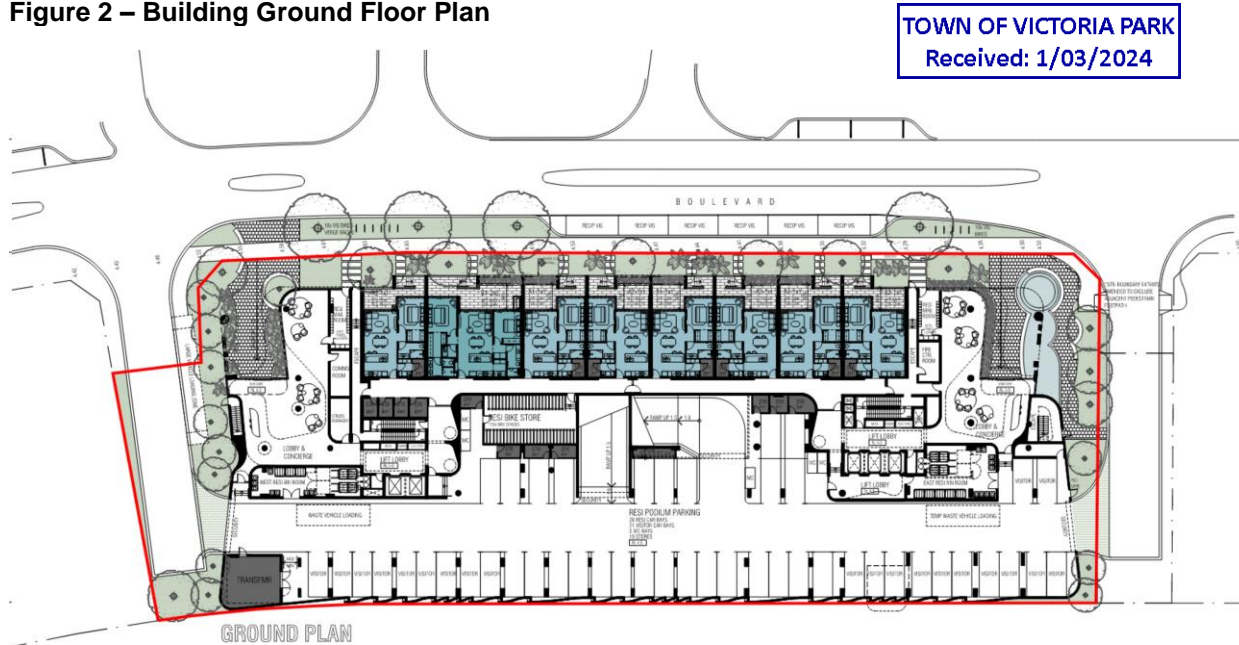
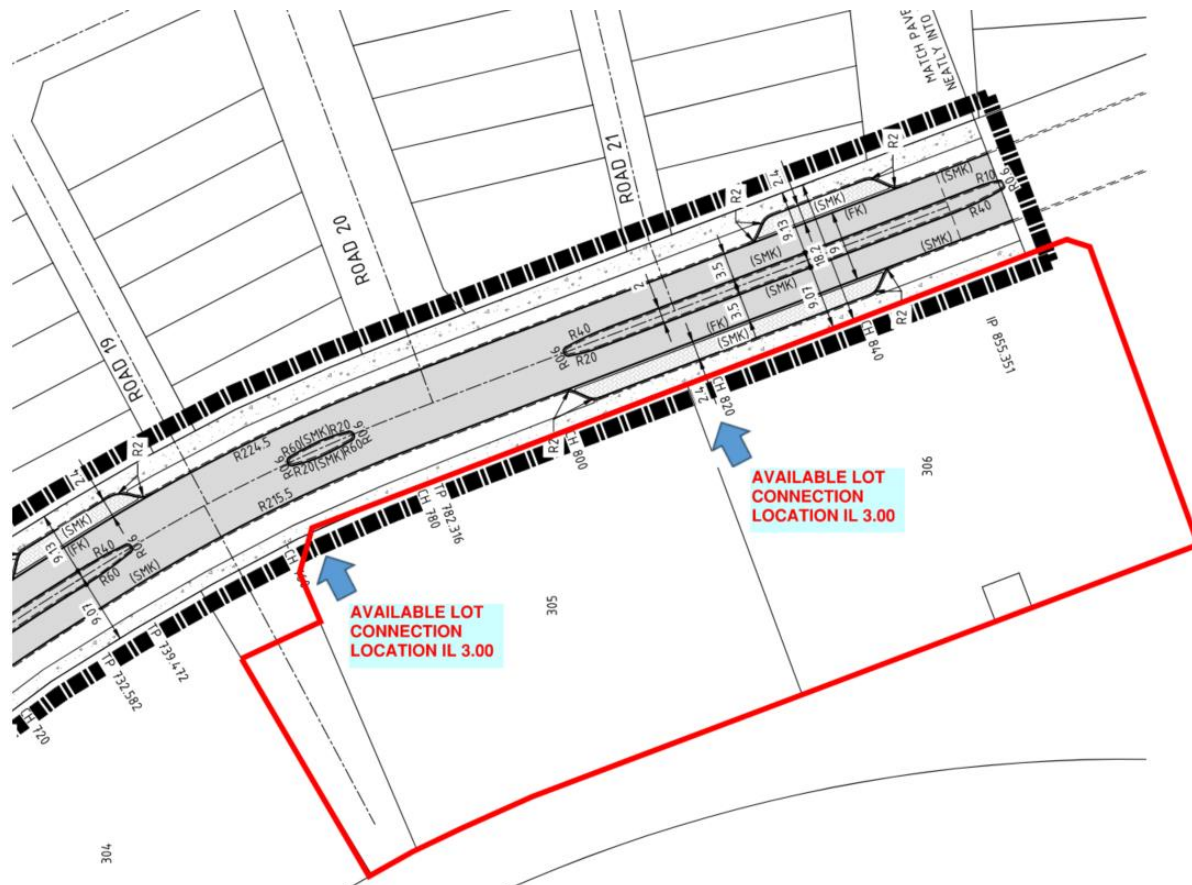


Figure 3 – Main Boulevard Stormwater Connections Available to Lot 306



Basis of Design:

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- Approved LWMS requires all lots to detain and treat (if required) retain the first 15 mm of rainfall on site.
- Soakage Rate available based on site fill: > 5 m / day.
- Soakage Rate used in design: **No soakage** on site was allowed for the calculations on retention of the 15mm first flush event.

Based on AS/NZS 3500 the following catchments areas have been assessed and allocated to the design analysis.

Site Footprint (Gross Area less landscaping) = 4,737 m² x 0.95 = 4,500 m²
TOTAL IMPERMEABLE AREA = 4,500 m²

Therefore, the minimum size of on-site storage is to be 4,500 x 0.15mm = 67.50 m³.

The site has provided a total detention storage of 75.1 m³ (Refer to Appendix A).

Based on also accommodating the 1 in 100Yr event with an allowable 1 in 5 yr outflow from the site (80 litres/sec for the critical storm event), the on-site storage based on Tank, pipe and discharge manholes the Volume required is 60.3 m³.

The calculation of the 5yr outflow is as follows (note 6min Toc gives an allowed outflow of 120.3 litres/sec) but Toc = 10 mins was used for the actual storage calculation which allows for more storage on site:

$Q_5 = 2.78 \times C \times I \times A_{imp}$ (Toc 6 mins = 96.2 mm/hr or **Toc 10 mins = 75.8 mm/hr**)

Using 10 min Toc the $Q_5 = 2.78 \times 0.85 \times (4,500 / 10,000) \times 75.8 \text{ mm/hr} = 94.83 \text{ litres /s}$
(Use 90 L/s for site outflow)

For Storage Tank Calculations refer to Appendix A.

Should you require any further information please do not hesitate to contact the undersigned.

Yours faithfully,

Enzo Biagioni-Froudust
Director
for **Peritas Consulting Pty. Ltd.**

Encl: Drainage storage Calculations & Supporting Design Sketches

DRAINAGE CALCULATIONS & RELATED DATA

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Calculations

Catchment areas (Refer to Sketches below further down in this Appendix)

Storage Soakage Calculator Catchment Area Description : **Catchment Whole Site (Lot 306)** Project Name : **Lot 306 North Park** Date : **27/02/2024**

Location: Jandakot Soil Type: No Soakage Catchment Area: **4,737** m² Critical Time: 9 min

Storm Event: 100 year Soakage Rate: 0.0 m/s Run-off Coeff: **0.95** Soakage Area: **86.9** m²

Rate Override: 0 m/s Vol at 350m3/ha: 165.8 Volume Required: **60.6** m³

→ 0.0 m³/s Vol at 15mm (m2): **67.5** Sub - Total Volume: **70.1** m³

Other Outlet: 0.090 m³/s Depth at 15mm (m): 0.903 Difference: **-9.6** m³

2% Area for Bio (m2): 94.74 Less Pavement Ponding: 0.0 m³ 300 Pipe Diam (mm)

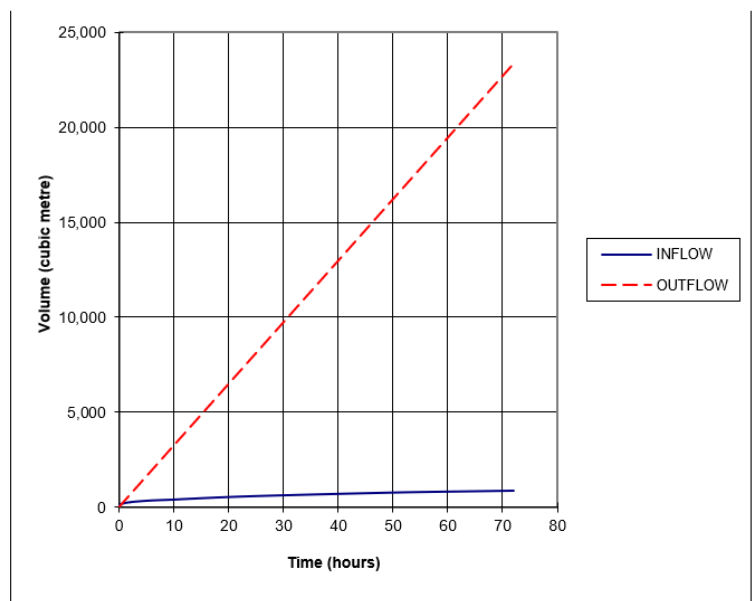
Less Pipe Storage: 5.0 m³ 70 Pipe Length (m)

Total Volume Provided: **75.1** m³

SOAKWELL	SIZE 1	SIZE 2	SIZE 3	TANK 1	BASIN 2	Graf EcoBloc Maxx	STORMTECH	SC-310
Diameter	1.8 m	1.20 m	1.05 m	Base Area	Base Area	Units High	Rows	0
Depth	1.8 m	0.9 m	1.5 m	Side Slope (1 in _)	Side Slope (1 in _)	Units Wide	Units per Row	0
Number	0	0	2	Storage Depth	Storage Depth	Units Long	Stone Cover	0.15
Stone Wrap	0.15 m	0.15 m	0.00 m	Infiltration Area	Infiltration Area		Stone Voids	0.40
Stone Voids	0.40	0.40	0.40	Storage Volume	Storage Volume		Infiltration Area	0.0
Infiltration Area	0.0 m ²	0.0 m ²	11.6 m ²				Storage Volume	0.0
Storage Volume	0.0 m ³	0.0 m ³	2.6 m ³				Footprint	0.5

CATCHMENT AREA: Catchment Whole Site (Lot 306)

TIME	INFLOW	OUTFLOW		STORAGE
		Ground Infiltration	Allowable Outlet	
	m ³	m ³	m ³	m ³
6 min.	89	0	32	57
9 min.	109	0	49	61
12 min.	124	0	65	59
15 min.	136	0	81	55
20 min.	151	0	108	43
30 min.	173	0	162	11
45 min.	195	0	243	-48
1 hour	210	0	324	-114
2 hours	260	0	648	-388
3 hours	293	0	972	-679
6 hours	358	0	1,944	-1,586
10 hours	404	0	3,240	-2,836
12 hours	438	0	3,888	-3,450
24 hours	594	0	7,776	-7,182
48 hours	787	0	15,552	-14,765
60 hours	852	0	19,440	-18,588
72 hours	905	0	23,328	-22,423



Storage in pipe network & Discharge Manholes x 2-off (ignoring internal downpipes and conveyance network)

Storage Provided = 7.6 m³

Storage in Landscaping areas (below ground storage tanks)

Storage Provided = 67.50 m³

Total Storage Volume Required (refer to above calculation sheets) = **67.5 m³**
(To Satisfy on 15mm requirement)

Total Storage Volume Provided = 75.1 m³



SUPPORTING DESIGN SKETCHES

(Refer to full size plans below)

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BURSWOOD IFD DATA

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Australian Government
Bureau of Meteorology

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LOCATION **31.950 S 115.900 E** * NEAR.. Burswood WA

LIST OF COEFFICIENTS TO EQUATIONS OF THE FORM

$$\ln(I) = A + B \times (\ln(T)) + C \times (\ln(T))^2 + D \times (\ln(T))^3 + E \times (\ln(T))^4 + F \times (\ln(T))^5 + G \times (\ln(T))^6$$

T = TIME IN HOURS AND I = INTENSITY IN MILLIMETRES PER HOUR

RETURN PERIOD	A	B	C	D	E	F	G
1	2.776412	-0.62856E+0	-0.20790E-1	0.73969E-2	-0.36168E-3	-0.72895E-4	-0.18217E-4
2	3.032809	-0.63623E+0	-0.19514E-1	0.70741E-2	-0.40988E-3	-0.46194E-5	-0.25485E-4
5	3.254875	-0.65464E+0	-0.18245E-1	0.61128E-2	-0.73948E-4	0.18493E-3	-0.67694E-4
10	3.382627	-0.66527E+0	-0.16924E-1	0.52885E-2	0.39061E-4	0.33688E-3	-0.95186E-4
20	3.540150	-0.67492E+0	-0.16091E-1	0.48621E-2	0.18026E-3	0.42972E-3	-0.11536E-3
50	3.731168	-0.68645E+0	-0.14957E-1	0.40589E-2	0.34361E-3	0.57279E-3	-0.14269E-3
100	3.866651	-0.69530E+0	-0.13909E-1	0.40164E-2	0.35328E-3	0.61171E-3	-0.14863E-3

RAINFALL INTENSITY IN mm/h FOR VARIOUS DURATIONS AND RETURN PERIODS

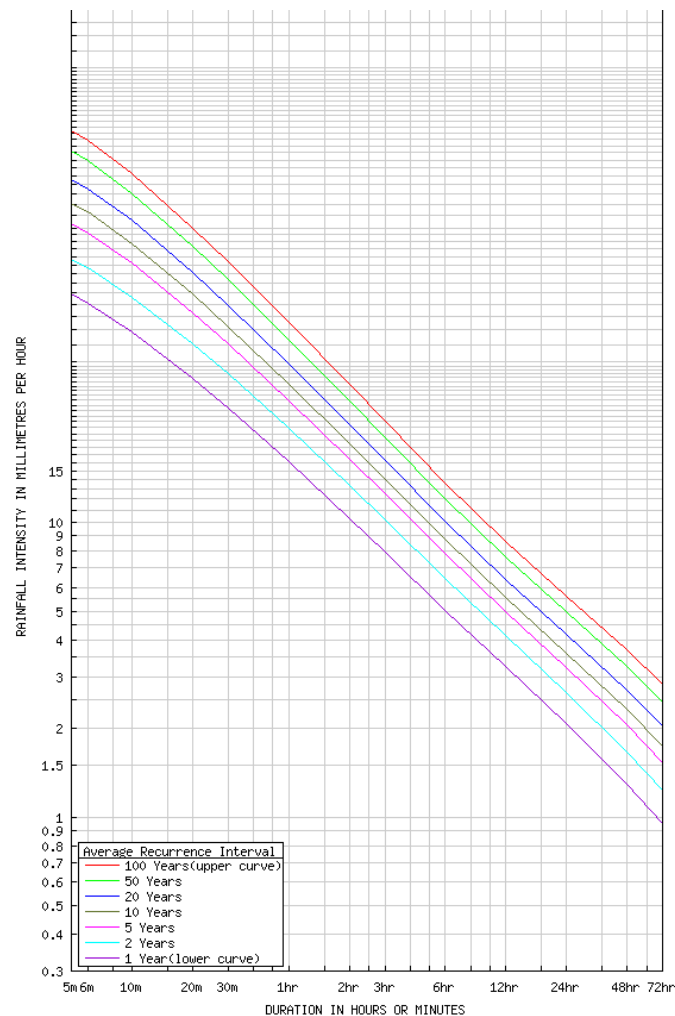
DURATION	RETURN PERIOD (YEARS)						
	1	2	5	10	20	50	100
5 mins	59.5	78.5	103.	121.	146.	183.	214.
6 mins	55.4	73.2	96.2	113.	136.	170.	199.
10 mins	44.3	58.2	75.8	88.3	106.	131.	153.
20 mins	30.9	40.4	51.6	59.5	70.5	86.6	100.
30 mins	24.5	31.9	40.4	46.2	54.5	66.6	76.7
1 hour	16.1	20.8	25.9	29.4	34.5	41.7	47.8
2 hours	10.3	13.3	16.4	18.5	21.5	25.8	29.4
3 hours	7.92	10.2	12.5	14.0	16.2	19.4	22.0
6 hours	5.05	6.46	7.84	8.76	10.1	12.0	13.6
12 hours	3.24	4.13	4.99	5.57	6.42	7.61	8.59
24 hours	2.07	2.64	3.22	3.60	4.17	4.97	5.62
48 hours	1.29	1.66	2.05	2.32	2.70	3.25	3.71
72 hours	951	1.23	1.53	1.74	2.03	2.46	2.82

(Raw data: 21.39, 4.25, 1.27, 36.83, 6.81, 2.20 skew=0.670)

HYDROMETEOROLOGICAL ADVISORY SERVICE

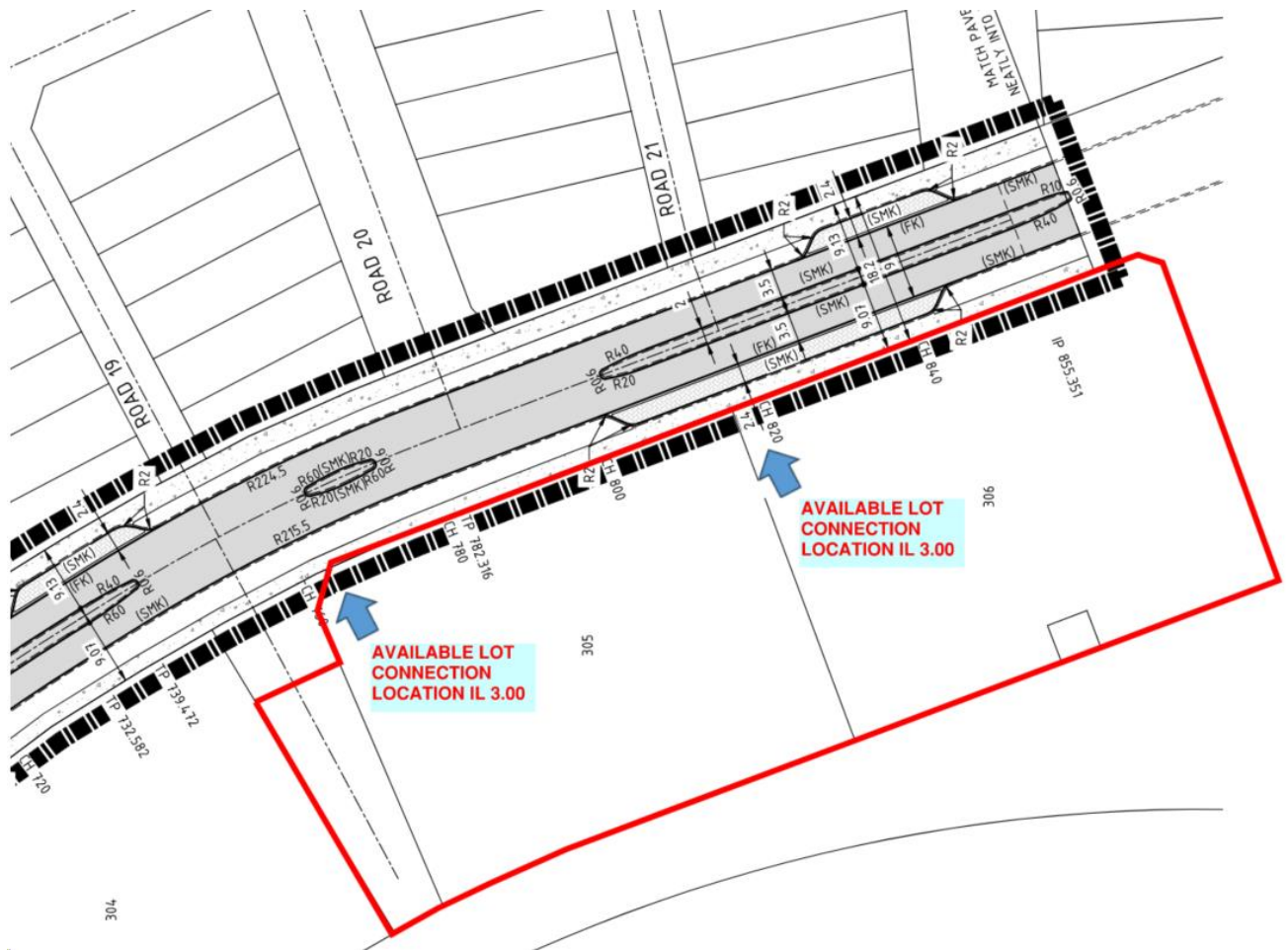
(C) AUSTRALIAN GOVERNMENT, BUREAU OF METEOROLOGY

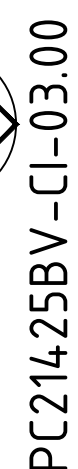
* ENSURE THE COORDINATES ARE THOSE REQUIRED SINCE DATA IS BASED ON THESE AND NOT LOCATION NAME.



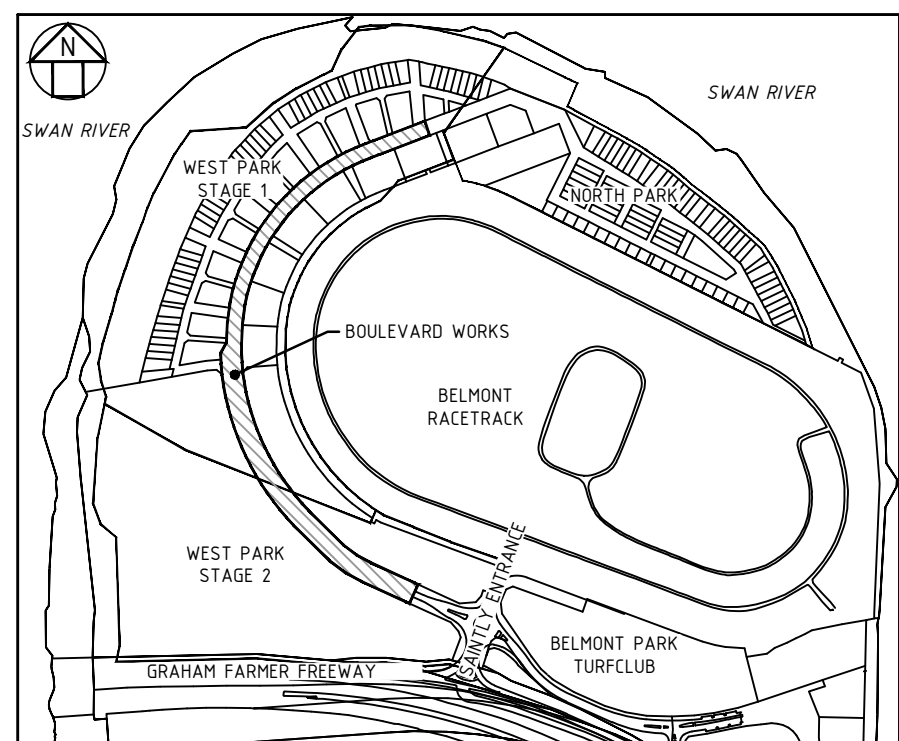
SECTION LOCAL

SUBDIVISION STORMWATER & LOT CONNECTION LOCATIONS















MATCHLINE




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LEGEND:

- | | |
|---|--|
|  | PROPOSED SEMI-MOUNTABLE KERB. REFER DRG CI-03.30 FOR DETAILS |
|  | PROPOSED FLUSH KERB. REFER DRG CI-03.30 FOR DETAILS |
|  | PROPOSED BLACK ASPHALT |
|  | PROPOSED BRICK PAVING. REFER LANDSCAPING DRAWINGS FOR FINISHES |
|  | PROPOSED FOOTPATH. REFER DRG CI-03.30 FOR DETAILS |
|  | PROPOSED RAIN GARDEN/DRAINAGE BASIN |
|  | EXTENT OF WORKS BOUNDARY |
|  | PROPOSED GULLY PIT |
|  | PROPOSED JUNCTION PIT |
|  | PROPOSED SIDE ENTRY PIT |

DRAFT

1:500 AT A1 

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[illegible]

PERTH	MELBOURNE
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E: ENQUIRE@PERITASGROUP.COM.AU	E: ENQUIRE@PERITASGROUP.COM.AU

CLIENT:



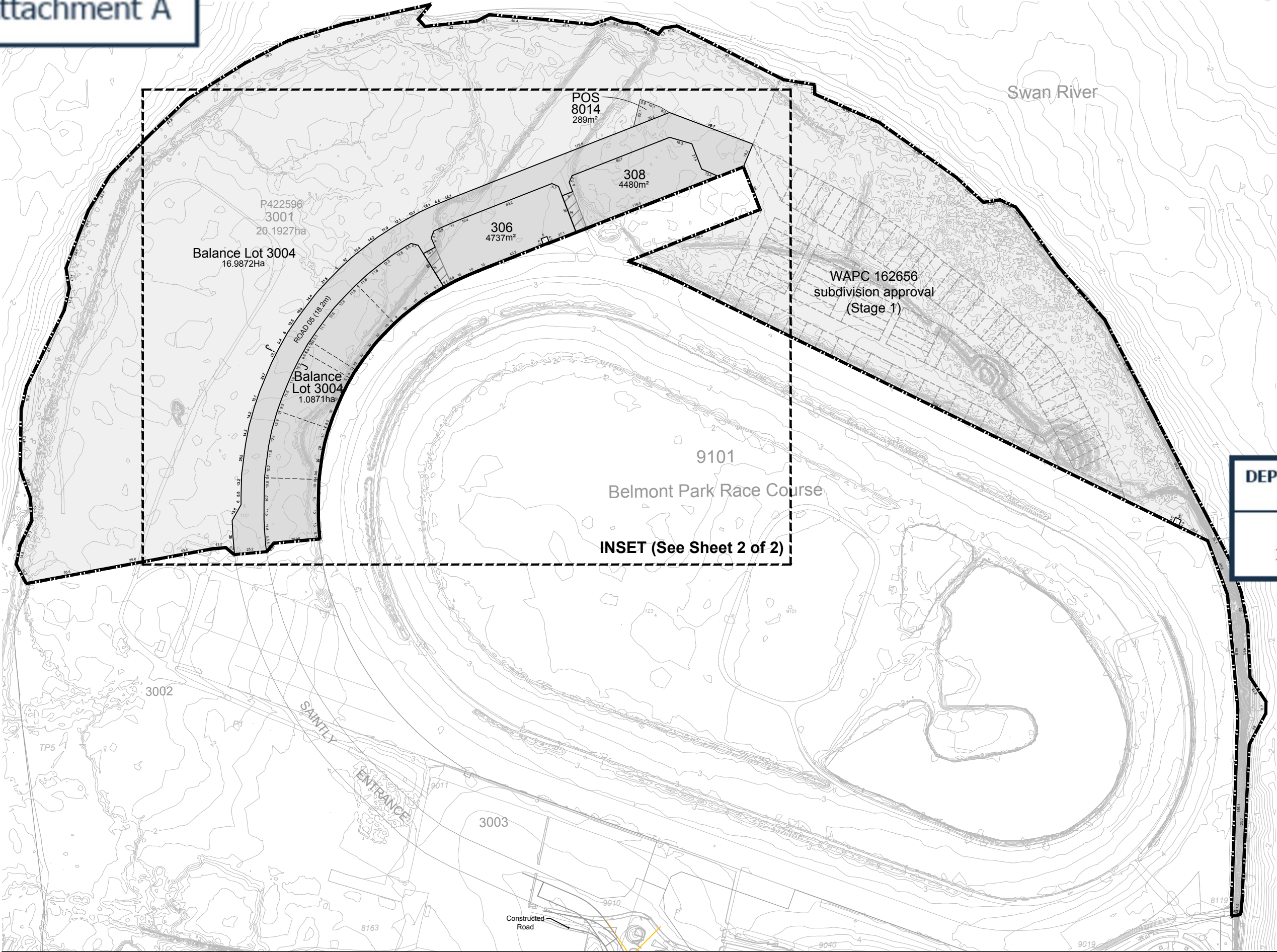
GOLDEN SEDAYU

DESIGNED:	DRAWN:	CHECKED:
C.DENSMORE	C.DENSMORE	R.PIZZINO
SURVEY DATUM:	WAPC No:	SCALE:
PCG94		1:500 @ A
DWG IS NOT FOR CONSTRUCTION UNLESS SIGNED BELOW:		DATE CREATED:
		NOV 2023

PROJECT: BURSWOOD PENINSULA
PRECINCT A – WEST PARK BOULEVARD
BELMONT PARK, BURSWOOD

TITLE:
ROAD AND FOOTPATH
LAYOUT PLAN
SHEET 2 OF 2

PROJECT NUMBER:	DRG NUMBER:	REV:
PC21425BV	CI-03.01	A



LEGEND

- Application Area
- Subject Site
- TOWN OF VICTORIA PARK
Received: 1/03/2024
- Existing Boundary
- Existing Contours / Survey
- Proposed Boundary
- Future Lot
- Proposed Reciprocal Easement
- Existing Water Infrastructure
- Existing Power Infrastructure

LOT SUMMARY

Subject Site	20.1927ha
Existing Lot 3001	20.1927ha
Proposed Residential Multiple Dwellings (2)	0.9217ha
Public Open Space (1)	0.0289ha
Balance Lot (Lot 3004)	18.0743ha

DEPARTMENT OF PLANNING, LANDS AND HERITAGE

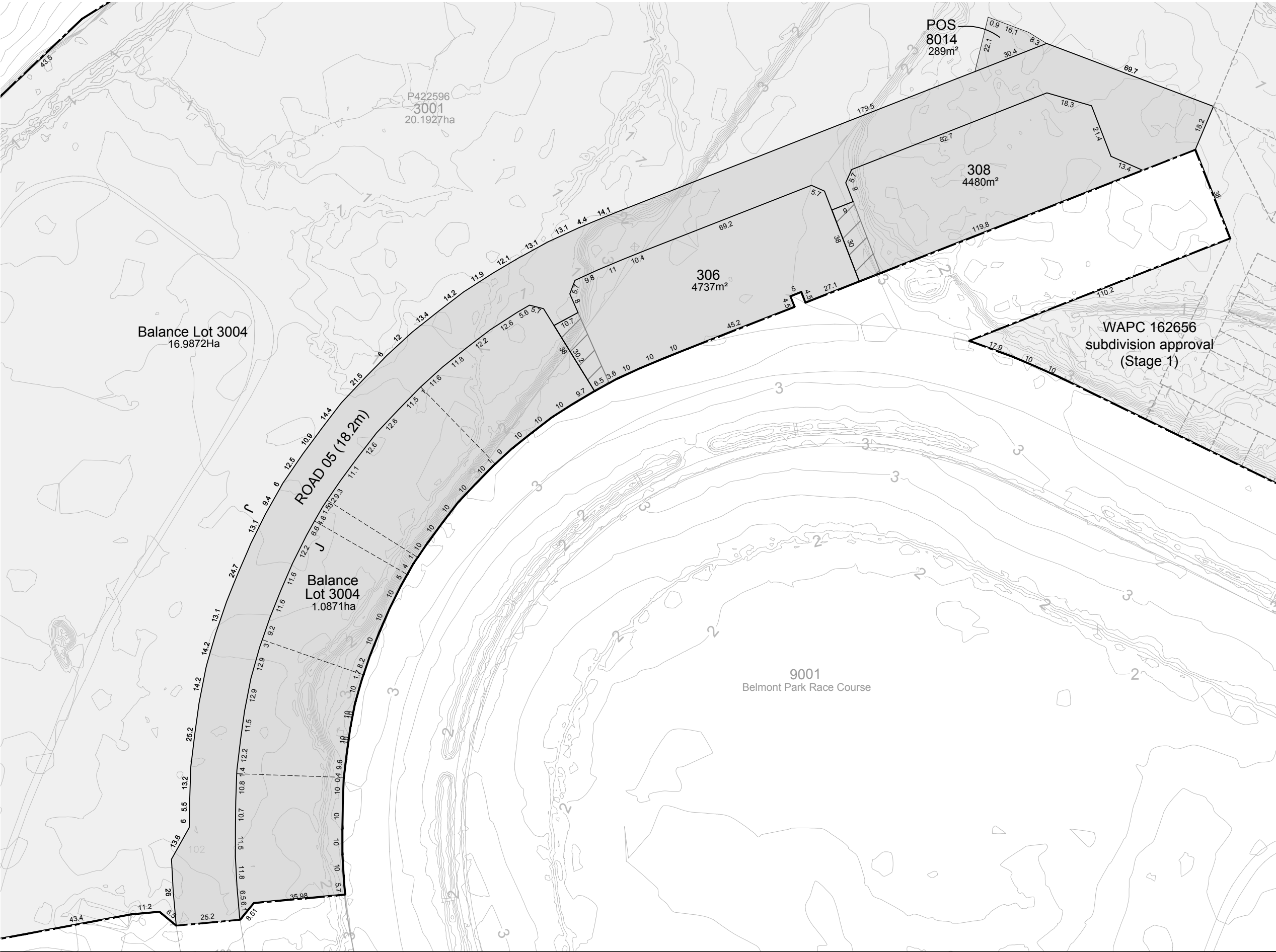
DATE	FILE
12-Dec-2023	163991

Subdivision Plan (1 of 2)
Lot 3001 (3) Graham Farmer Freeway, Burswood

Date: 7 December 2023 Scale: 1:3000 @ A3 1:1500 @ A1 File: 21-055 SU03F Staff: JP LC Checked: JP

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Subdivision Plan (2 of 2)

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