



RESIDENTIAL AND SUBDIVISION DEVELOPMENT 205-209 GRANGE AVENUE, MARSDEN PARK STORMWATER CONCEPT DESIGN



LOCALITY PLAN
NOT TO SCALE
COPYRIGHT OF SIX MAPS

DRAWINGS LIST			
SHEET No.	DWG No.	TITLE	REV
1	SW100	COVER SHEET	E
2	SW200	STORMWATER CONCEPT DESIGN - BASEMENT 2 PLAN - SHEET 1 OF 2	E
3	SW201	STORMWATER CONCEPT DESIGN - BASEMENT 2 PLAN - SHEET 2 OF 2	E
4	SW202	STORMWATER CONCEPT DESIGN - GROUND FLOOR PLAN - SHEET 1 OF 3	E
5	SW203	STORMWATER CONCEPT DESIGN - GROUND FLOOR PLAN - SHEET 2 OF 3	E
6	SW204	STORMWATER CONCEPT DESIGN - GROUND FLOOR PLAN - SHEET 3 OF 3	E
7	SW300	STORMWATER CONCEPT DESIGN - DETAILS SHEET - SHEET 1 OF 2	E
8	SW301	STORMWATER CONCEPT DESIGN - DETAILS SHEET - SHEET 2 OF 2	E
9	SW400	EROSION AND SEDIMENT CONTROL - PLAN	E
10	SW401	EROSION AND SEDIMENT CONTROL - DETAILS	E
11	SW500	STORMWATER CONCEPT DESIGN - MUSIC CATCHMENT PLAN & RESULTS	E
12	SW501	STORMWATER CONCEPT DESIGN - SEI CALCULATIONS	E



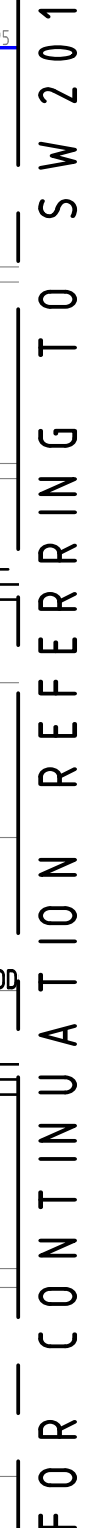
PREPARED BY:
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St. Leonards, NSW 2065
T: +61 2 8883 4239
Email: office@sgce.com.au
Web: www.sgce.com.au

ARCHITECT:



CLIENT :

**M DEVELOPMENT
GROUP PTY LTD**

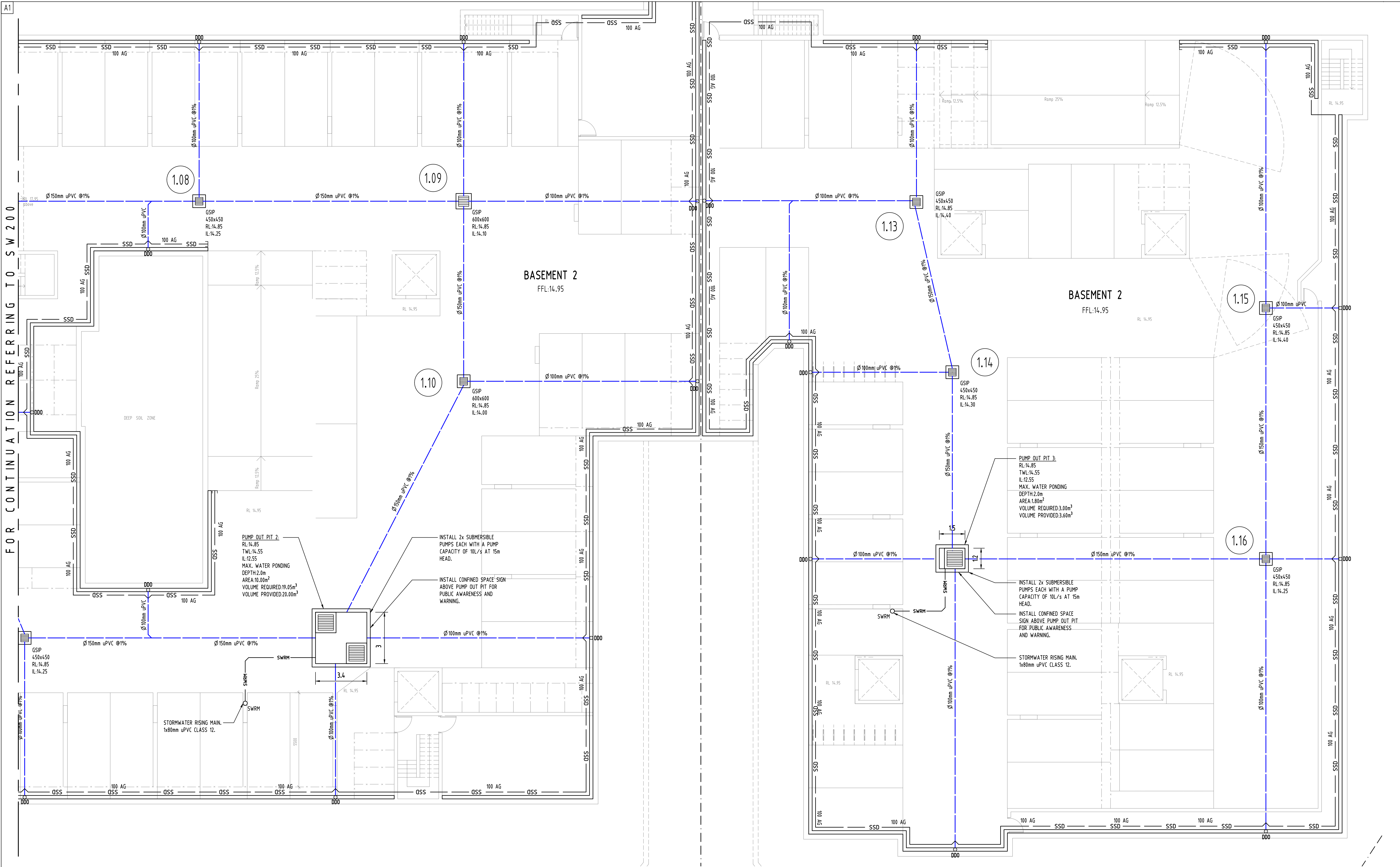


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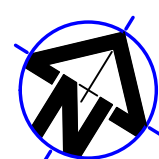
FOR CONTINUATION REFERRING TO SW 200

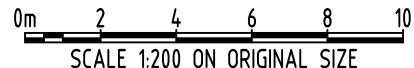


Reference Coordination Drawing					Rev.	Discipline	Drawing Title and Number	Date	Rev.
Issue	Last revision title	by	Date	Status					
1	ISSUE FOR APPROVAL	MS	25.06.21	2	ARCH				
2	ISSUE FOR APPROVAL	MS	17.03.21	2	ARCH				
3	ISSUE FOR APPROVAL	MS	09.02.21	2	STRUCT				
4	ISSUE FOR APPROVAL	MS	05.02.21	2	MECH				
5	ISSUE FOR APPROVAL	SH	18.02.20	2	ELEC				
6	PRELIMINARY ISSUE	JH	18.12.19	1	HYD				
Issue Last revision title					by	Date	Status		
Issuer internal sequence and revision history					1-preliminary	2-development application	3-construction certificate	4-tender	5-other

 ENGINEERS AUSTRALIA Chartered Professional Engineers MEMBER	DIMENSIONS NOT SHOWN TO BE CHECKED ON SITE. DO NOT SCALE OF THIS DRAWING. POSITIONS OF AUTHORITIES MANS AND/OR EXISTING SERVICES ARE TO BE CHECKED PRIOR TO COMMENCEMENT OF WORK. REPORT ANY DISCREPANCIES TO THE CONSULTING ENGINEER FOR DESIGN/CLARIFICATION BEFORE PROCEEDING WITH THE WORK. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE SPECIFICATIONS AND OTHER CONSULTANTS' DRAWINGS.	

QUALITY CONTROL			
DRAWN	MS	DATE	25.06.21
CHECKED	SH	DATE	25.06.21
DESIGNED	MS	DATE	25.06.21
VERIFIED	SH	DATE	25.06.21
APPROVED	MS	DATE	25.06.21

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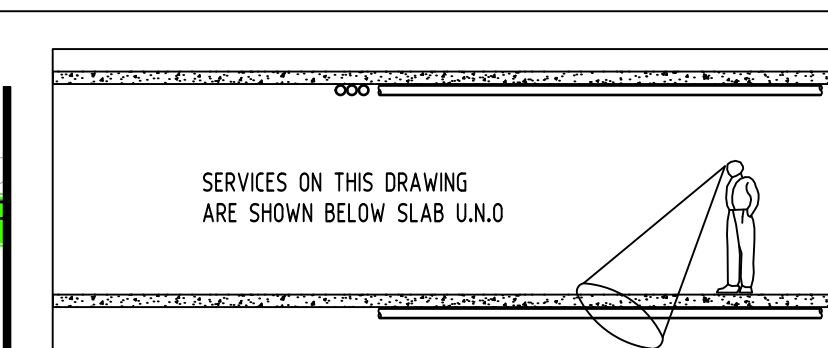
Scales	
	
SCALE 1:200 ON ORIGINAL SIZE	

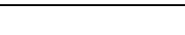
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M DEVELOPMENT GROUP PTY LTD	

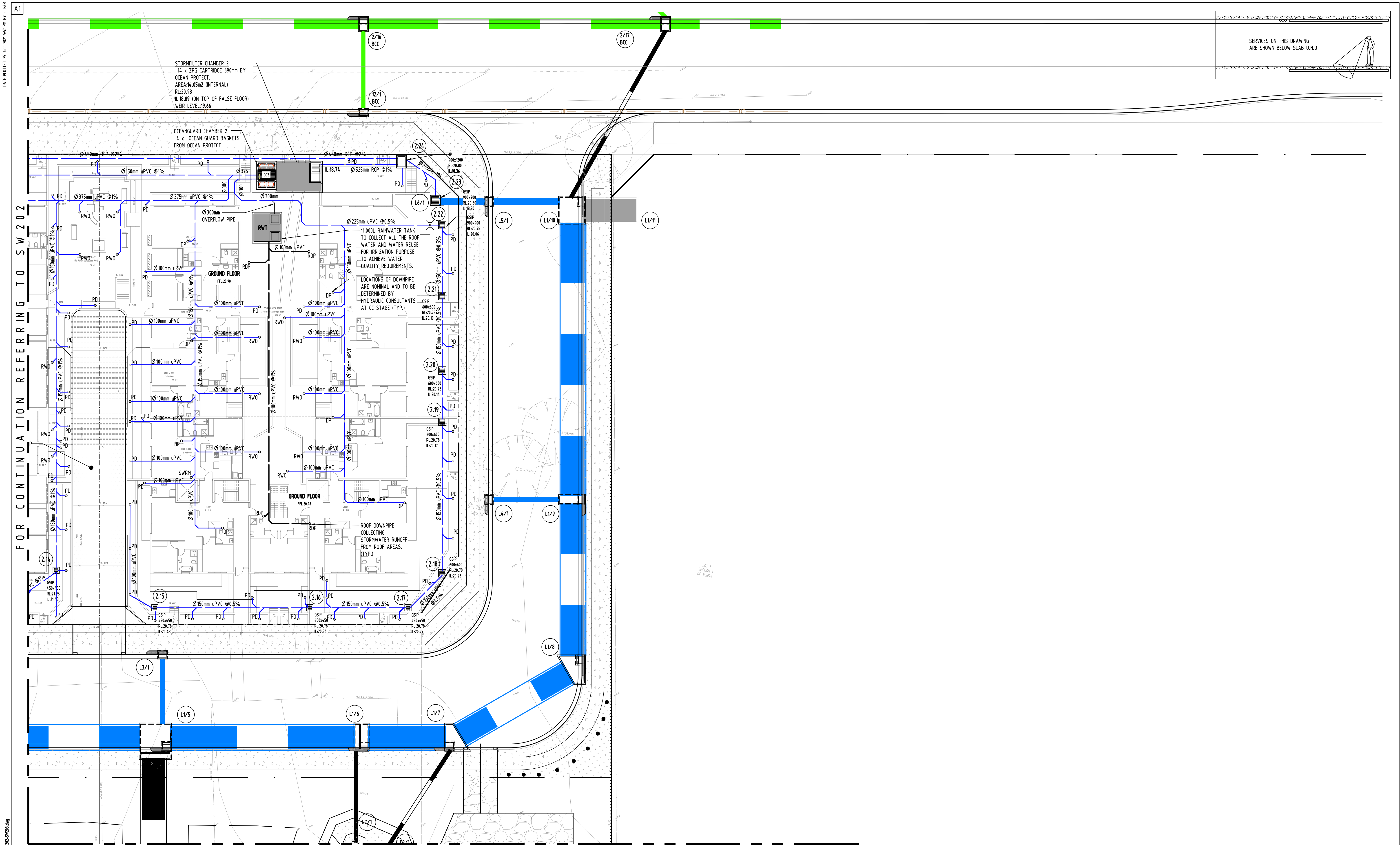
ARCHITECT	
	

	
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PROJECT	
PROPOSED RESIDENTIAL AND SUBDIVISION DEVELOPMENT	
205-209 GRANGE AVENUE, MARSDEN PARK	
Drawing Status	
FOR APPROVAL	
NOT TO BE USED FOR CONSTRUCTION PURPOSES	
Drawing Title	
STORMWATER CONCEPT DESIGN	
BASEMENT 2 PLAN	
SHEET 2 OF 2	
Project No	
20190191	
Drawing No	
SW201	
Revision No	
E	
Grid	Datum
-	A.H.D.
Sheet	3 OF 12
Scale (at original size)	1:100 @ A1



										Reference Coordination Drawing										 ENGINEERS AUSTRALIA Chartered Professional Engineers MEMBER										QUALITY CONTROL										WARNING: THE DESIGN, DRAWINGS, SPECIFICATIONS AND THE COPYRIGHT HEREIN REMAIN THE SOLE INTELLECTUAL PROPERTY OF S&G CONSULTANTS PTY LTD AND MUST NOT BE USED, COPIED, ALTERED OR REPRODUCED WHOLLY OR IN PART IN ANY FORM WITHOUT THE WRITTEN CONSENT OF S&G CONSULTANTS PTY LTD										Scales										CLIENT M DEVELOPMENT GROUP PTY LTD										ARCHITECT  design outside										 Suite 5.03, Level 5, 156 PACIFIC HIGHWAY ST. LEONARDS, NSW 2065 T: +61 2 8883 4239 Email: office@sgce.com.au Web: www.sgce.com.au A.B.N. 21 118 222 530										PROJECT PROPOSED RESIDENTIAL AND SUBDIVISION DEVELOPMENT 205-209 GRANGE AVENUE, MARSDEN PARK										Drawing Status FOR APPROVAL NOT TO BE USED FOR CONSTRUCTION PURPOSES										Drawing Title STORMWATER CONCEPT DESIGN GROUND FLOOR PLAN SHEET 1 OF 3										Project No 20190191										Drawing No SW202										Revision No 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Issue	Last revision title	by	Date	Status
E	ISSUE FOR APPROVAL	MS	25.06.21	2
D	ISSUE FOR APPROVAL	MS	17.03.21	2
C	ISSUE FOR APPROVAL	MS	09.02.21	2
B	ISSUE FOR APPROVAL	MS	05.02.21	2
A	ISSUE FOR APPROVAL	SH	18.02.20	2
P1	PRELIMINARY ISSUE	JH	18.12.19	1

Issue internal sequence and revision history

1-preliminary	2-development application	3-construction certificate	4-tender	5-construction	6-other

Reference Coordination Drawing			
Discipline	Drawing Title and Number	Date	Rev.
ARCH			
ARCH			
STRUCT			
MECH			
ELEC			
HYD			
FIRE			
LANDS			
CIVIL			
SURVEY			

QUALITY CONTROL			
DRAWN	MS	DATE	25.06.21
CHECKED	SH <td>DATE</td> <td>25.06.21</td>	DATE	25.06.21
DESIGNED	MS <td>DATE</td> <td>25.06.21</td>	DATE	25.06.21
VERIFIED	SH <td>DATE</td> <td>25.06.21</td>	DATE	25.06.21
APPROVED	MS <td>DATE</td> <td>25.06.21</td>	DATE	25.06.21

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SCALE 1:200 ON ORIGINAL SIZE

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PROJECT
PROPOSED RESIDENTIAL AND
SUBDIVISION DEVELOPMENT
205-209 GRANGE AVENUE,
MARSDEN PARK

Grid	Datum	Sheet	Scale (at original size)
-	A.H.D.	5 OF 12	1:200 @ A1

Project No	Drawing No	Revision No
20190191	SW203	E

Drawing Status
FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION PURPOSES

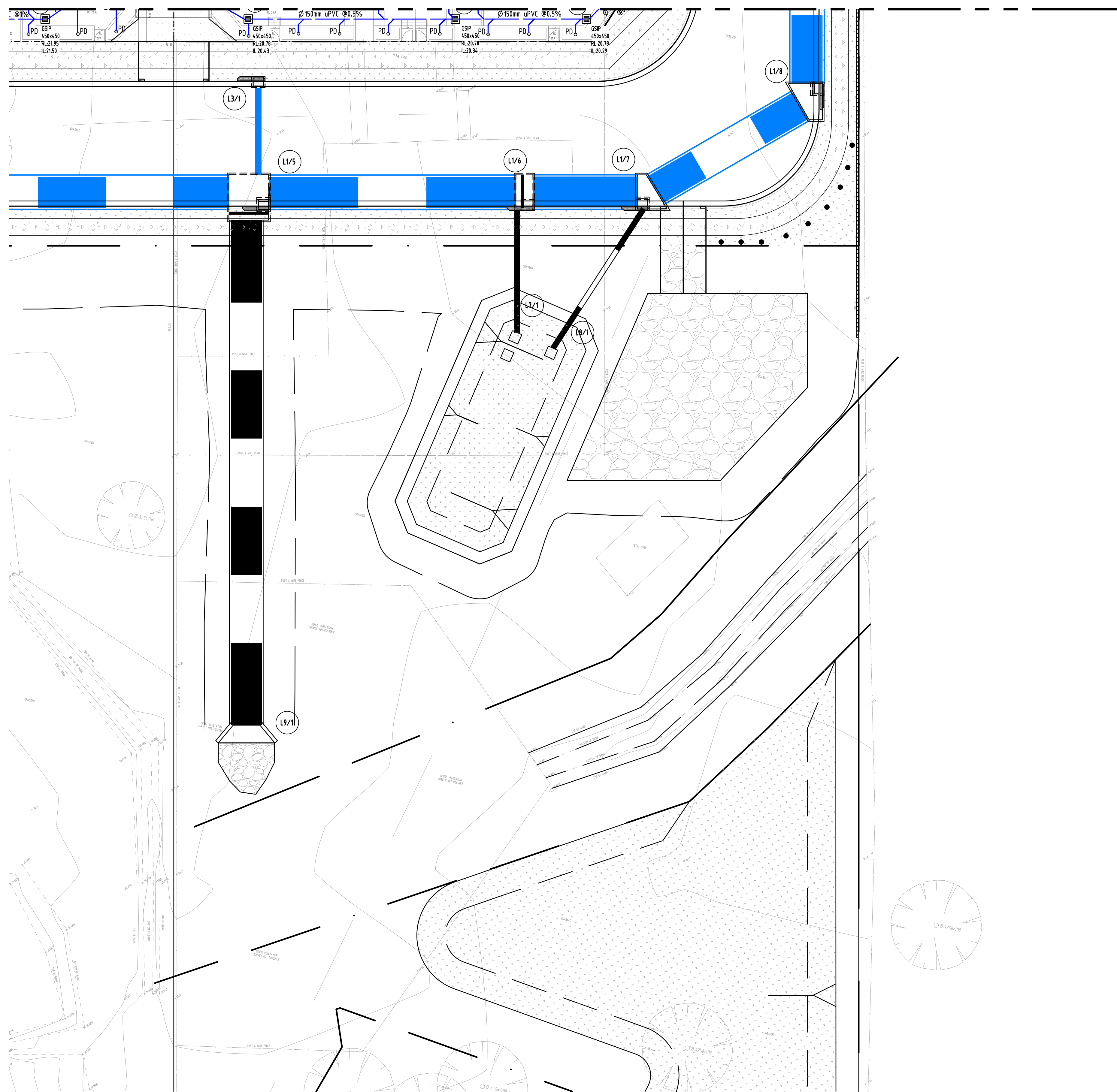
Drawing Title
STORMWATER CONCEPT DESIGN
GROUND FLOOR PLAN
SHEET 2 OF 3

DATE PLOTTED: 25 June 2021 5:57 PM BY: USER

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A1

FOR CONTINUATION REFERRING TO SW 203



SERVICES ON THIS DRAWING
ARE SHOWN BELOW SLAB U.N.O

Reference Coordination Drawing					Discipline	Drawing Title and Number	Date	Rev.
Issue	Last revision title	by	Date	Status				
E	ISSUE FOR APPROVAL	MS	25.06.21	2	ARCH			
D	ISSUE FOR APPROVAL	MS	17.03.21	2	ARCH			
C	ISSUE FOR APPROVAL	MS	09.02.21	2	STRUCT			
B	ISSUE FOR APPROVAL	MS	05.02.21	2	MECH			
A	ISSUE FOR APPROVAL	SH	18.02.20	2	ELEC			
P1	PRELIMINARY ISSUE	JH	18.12.19	1	HYD			
Issuer internal sequence and revision history					LANDS			
1-preliminary	2-development application	3-construction certificate						
4-tender	5-construction	6-other						

ENGINEERS AUSTRALIA
Chartered Professional Engineer
MEMBER

QUALITY CONTROL			
DRAWN	MS	DATE	25.06.21
CHECKED	SH	DATE	25.06.21
DESIGNED	MS	DATE	25.06.21
VERIFIED	SH	DATE	25.06.21
APPROVED	MS	DATE	25.06.21

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Scales

SCALE 1:200 ON ORIGINAL SIZE

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ARCHITECT

design cubicle
ARCHITECTS

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Engineering Value

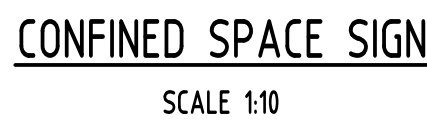
Suite 5.03, Level 5,
156 PACIFIC HIGHWAY
ST. LEONARDS, NSW 2065
T: +61 2 8883 4239
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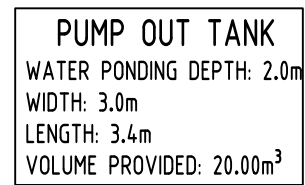
PROJECT
**PROPOSED RESIDENTIAL AND
SUBDIVISION DEVELOPMENT**
205-209 GRANGE AVENUE,
MARSDEN PARK

Grid	Datum	Sheet	Scale (at original size)
-	A.H.D.	6 OF 12	1:200 @ A1

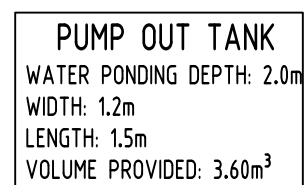
Drawing Status	FOR APPROVAL NOT TO BE USED FOR CONSTRUCTION PURPOSES		
Drawing Title	STORMWATER CONCEPT DESIGN GROUND FLOOR PLAN SHEET 3 OF 3		
Project No	Drawing No	Revision No	
20190191	SW204	E	



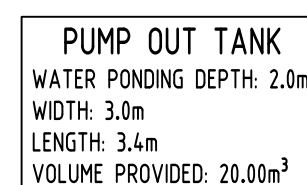
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NOT TO SCALE



NOT TO SCALE

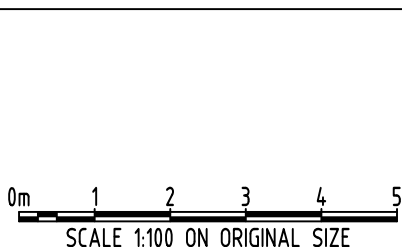


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Scales



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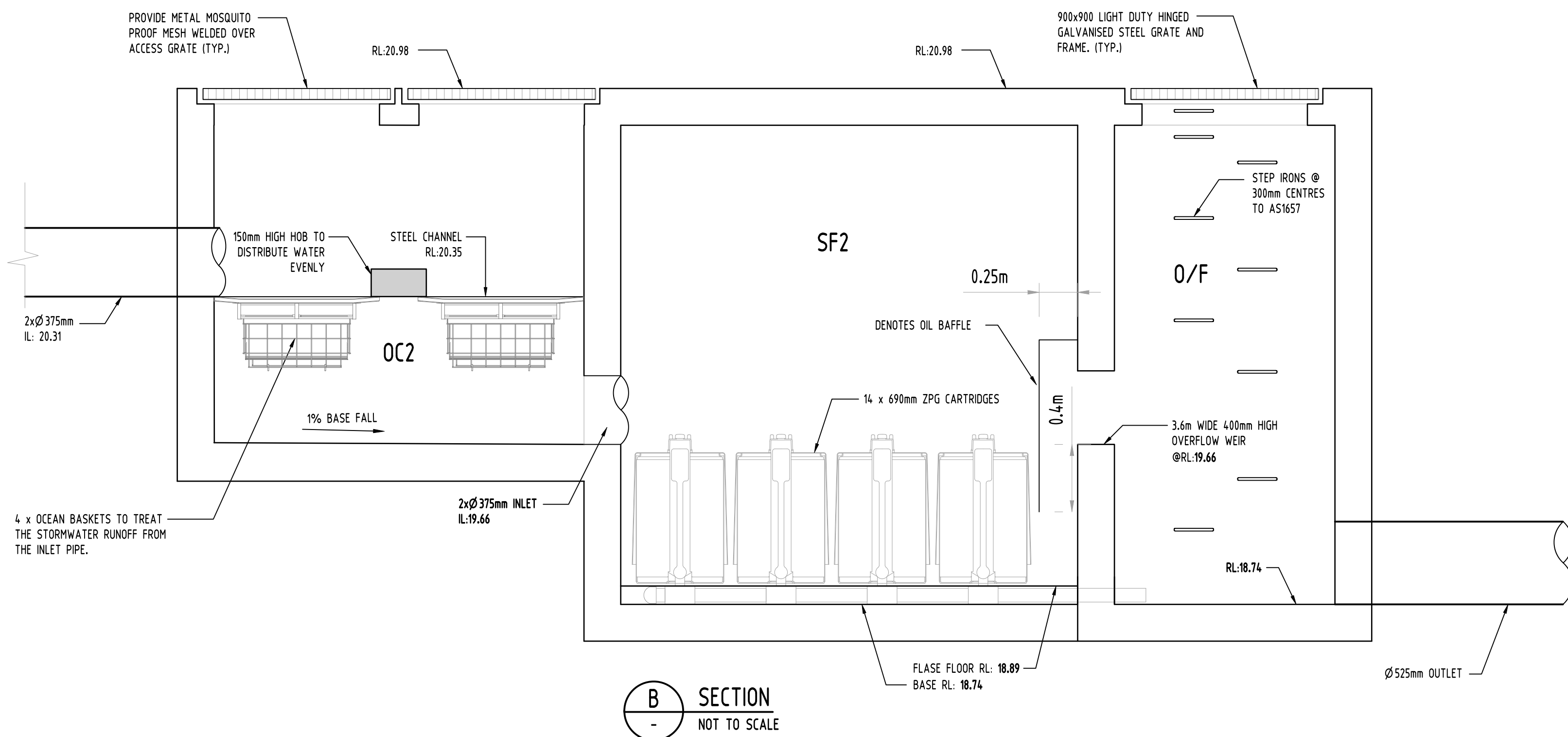
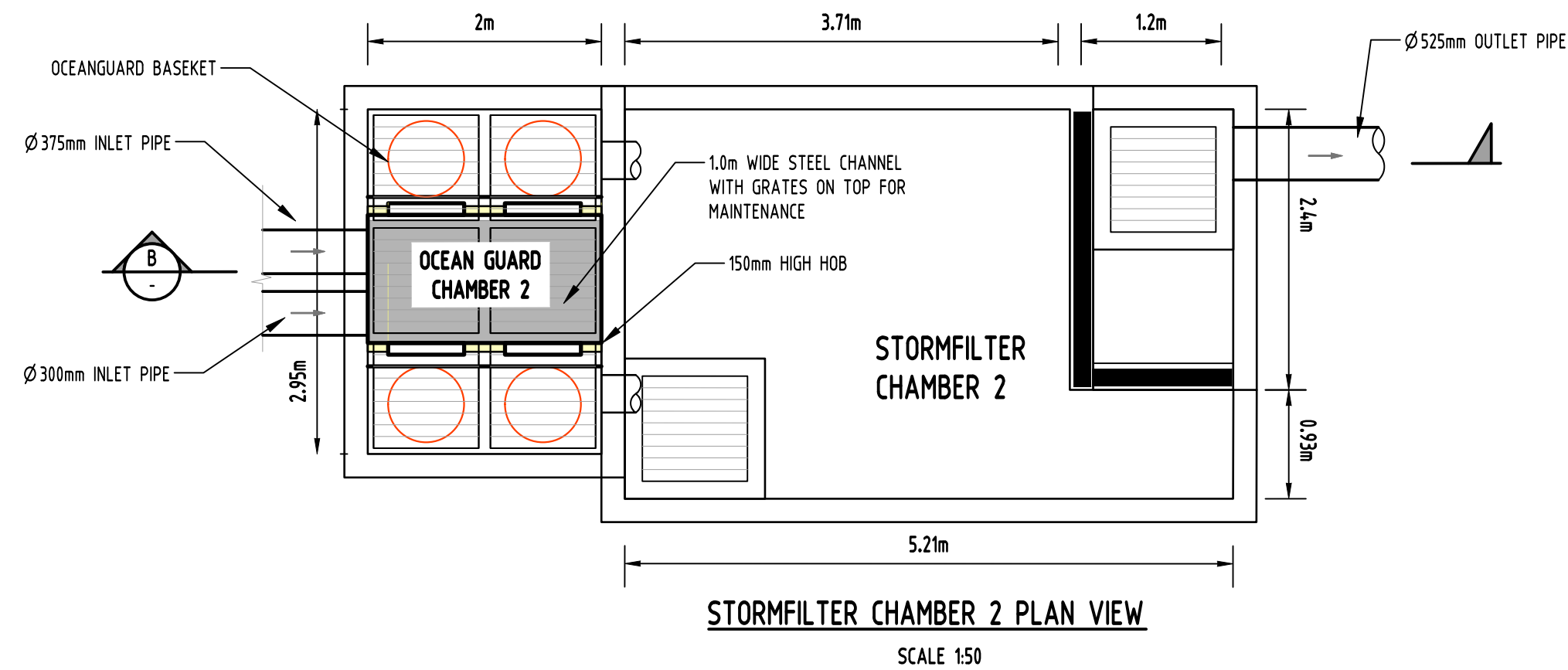
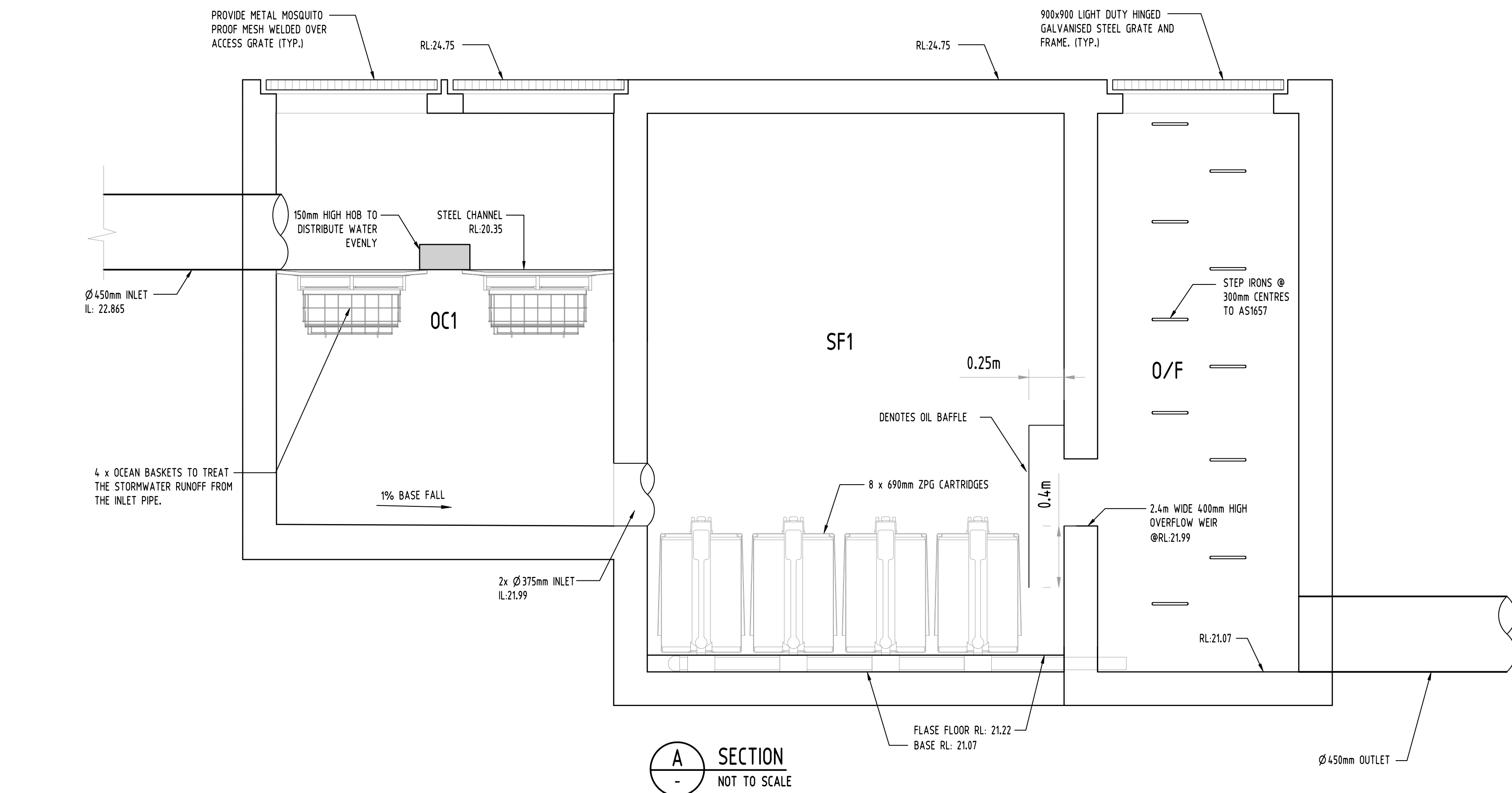
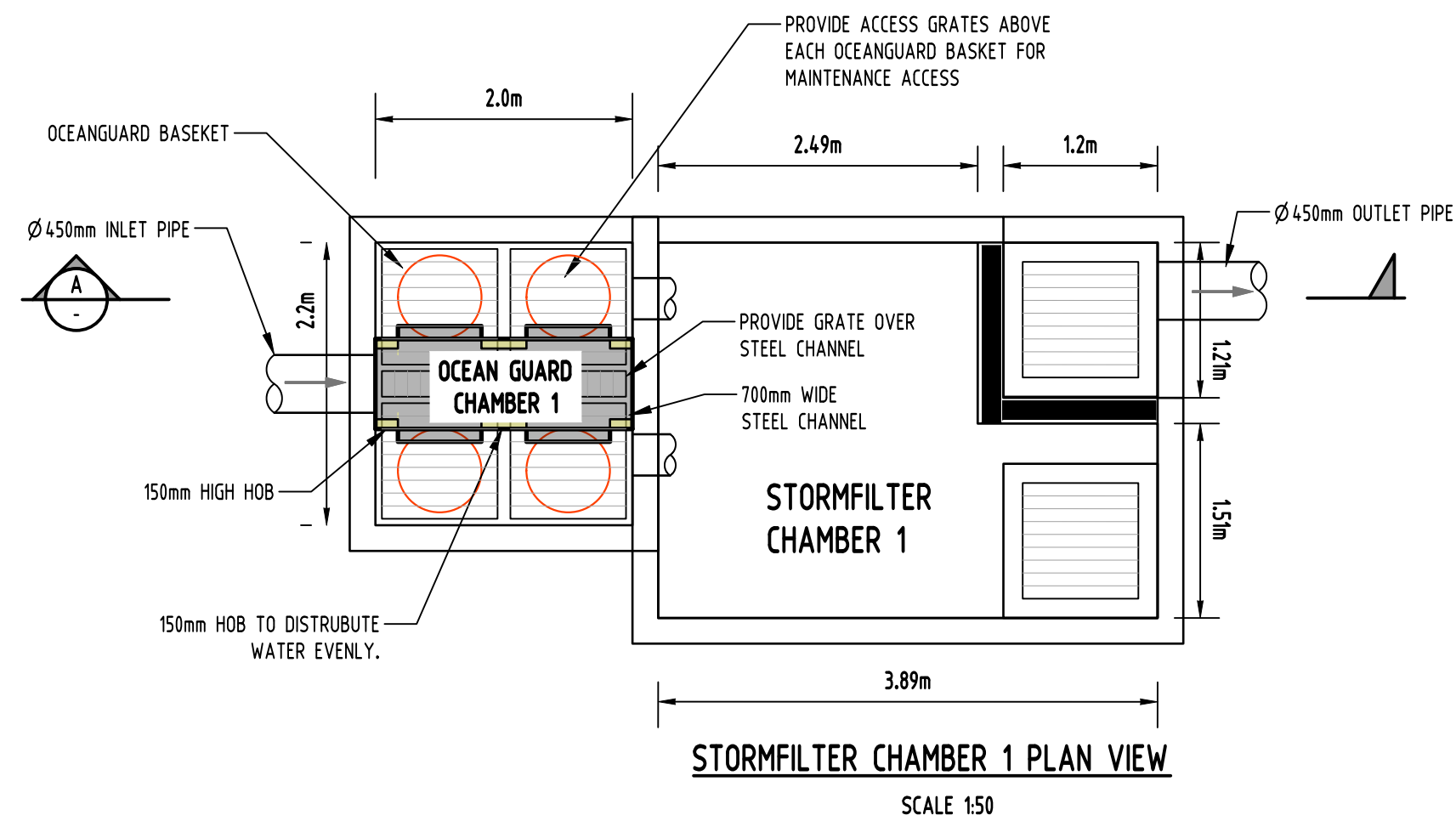


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PROJECT
PROPOSED RESIDENTIAL AND
SUBDIVISION DEVELOPMENT
205-209 GRANGE AVENUE,
MARSDEN PARK

Drawing Status	FOR APPROVAL		
NOT TO BE USED FOR CONSTRUCTION PURPOSES			
Drawing Title	STORMWATER CONCEPT DESIGN DETAILS SHEET SHEET 1 OF 2		
Project No	Drawing No	Revision No	
20190191	SW300	E	



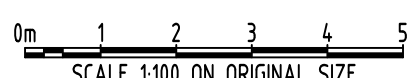
Reference Coordination Drawing				Discipline			
Issue	Last revision title	by	Date	Status	Discipline	Drawing Title and Number	Date
1	PRELIMINARY ISSUE	MS	18.12.19	1	HYD		
2	2-development application	MS	05.02.21	2	MECH		
3	3-construction certificate	MS	09.02.21	2	STRUCT		
4	4-tender	MS	17.03.21	2	ARCH		
5	5-construction	MS	25.06.21	2	ARCH		

ENGINEERS AUSTRALIA	Qualified Professional Engineer
MEMBER	

QUALITY CONTROL			
DRAWN	MS	DATE	25.06.21
CHECKED	SH	DATE	25.06.21
DESIGNED	MS	DATE	25.06.21
VERIFIED	SH	DATE	25.06.21
APPROVED	MS	DATE	25.06.21

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Scales



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design cubicle
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PROJECT
PROPOSED RESIDENTIAL AND
SUBDIVISION DEVELOPMENT
205-209 GRANGE AVENUE,
MARSDEN PARK

Grid
-
Datum
A.H.D.
Sheet
8 OF 12
Scale (at original size)
AS SHOWN

Drawing Status
FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION PURPOSES

Drawing Title
STORMWATER CONCEPT DESIGN
DETAILS SHEET
SHEET 2 OF 2

Project No
20190191

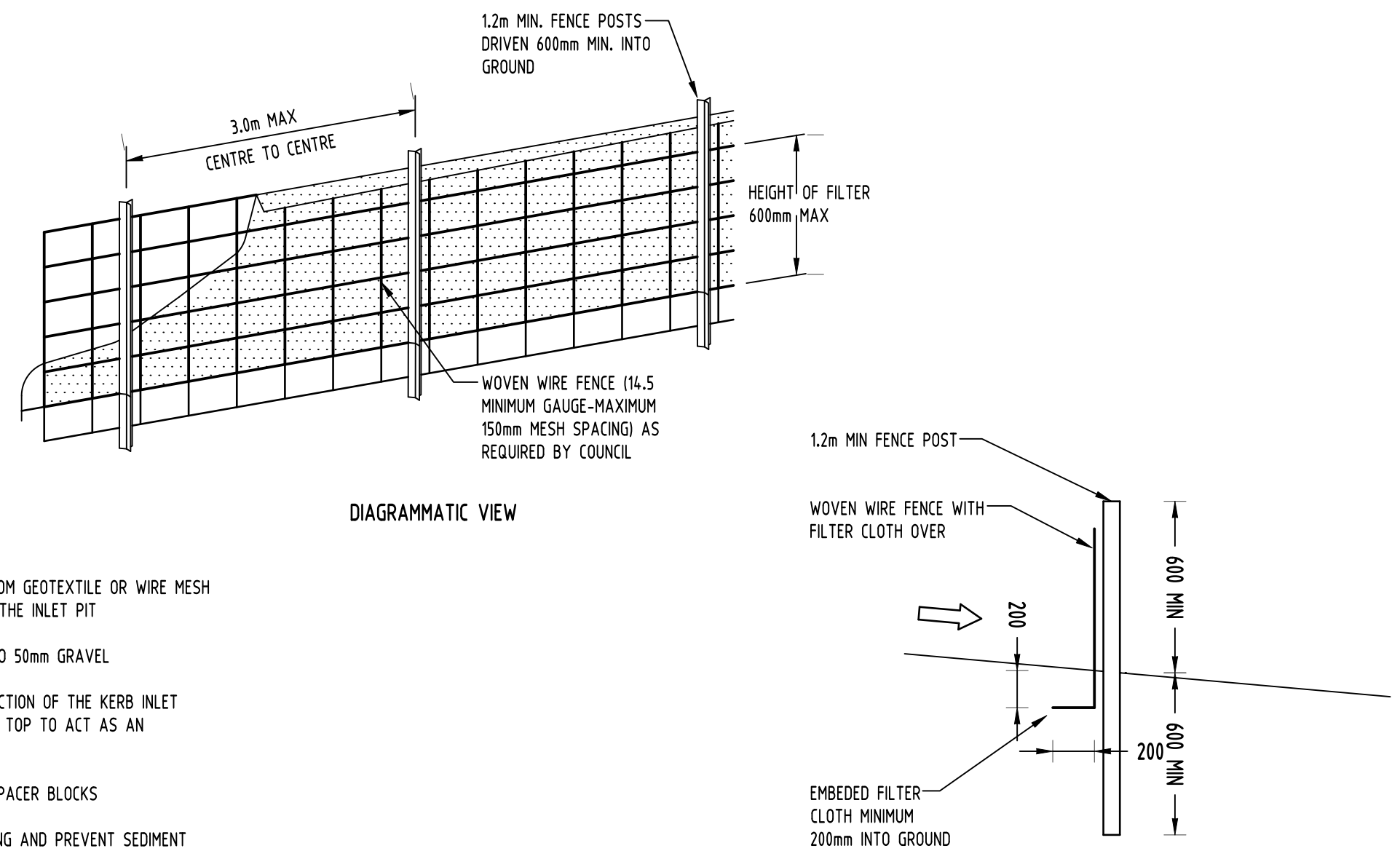
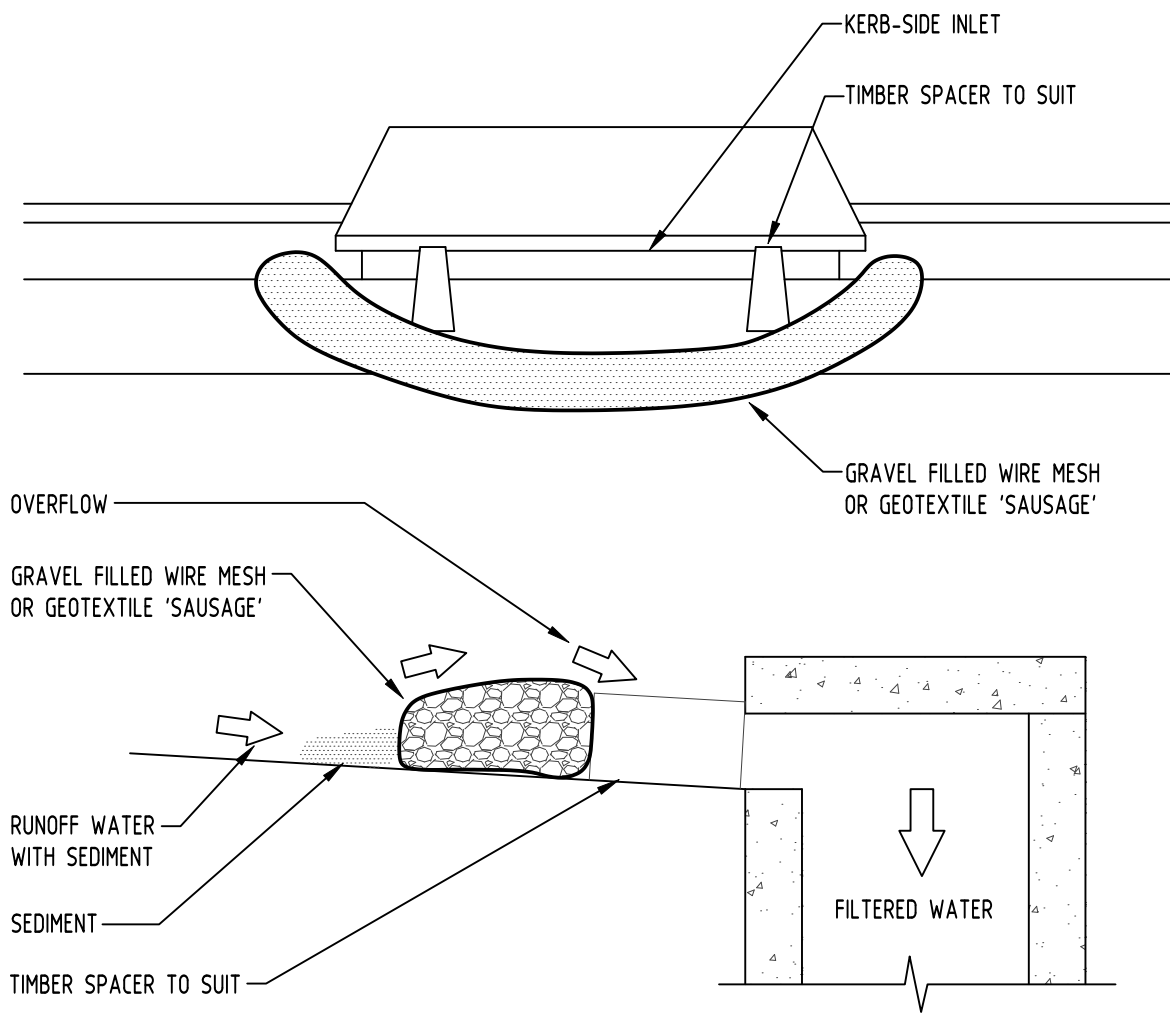
Drawing No
SW301

Revision No
E

1. CONTRACTOR SHALL PROVIDE SEDIMENT FENCING MATERIAL DURING CONSTRUCTION TO THE LOW SIDE OF THE WORKS. THE SEDIMENT FENCING MATERIAL TO CYCLONE WIRE SECURITY FENCE. SEDIMENT CONTROL FABRIC SHALL BE AN APPROVED MATERIAL (EG. HUMES PROPEX SILT STOP) STANDING 300mm ABOVE GROUND & EXTENDING 150mm BELOW GROUND.
2. EXISTING DRAINS LOCATED WITHIN THE SITE SHALL ALSO BE ISOLATED BY SEDIMENT FENCING MATERIAL.
3. NO PARKING OR STOCKPILING OF MATERIALS IS PERMITTED ON THE LOWER SIDE OF THE SEDIMENT FENCE.
4. GRASS VERGES SHALL BE MAINTAINED AS MUCH AS PRACTICAL TO PROVIDE A BUFFER ZONE TO THE CONSTRUCTION SITE.
5. CONSTRUCTION ENTRY/EXIT SHALL BE VIA THE LOCATION NOTED ON THE DRAWING. CONTRACTOR SHALL ENSURE ALL DRIPPABLE SOIL & SEDIMENT IS REMOVED PRIOR TO CONSTRUCTION TRAFFIC EXITING SITE. CONTRACTOR SHALL ENSURE ALL CONSTRUCTION TRAFFIC ENTERING & LEAVING THE SITE DO SO IN A FORWARD DIRECTION.

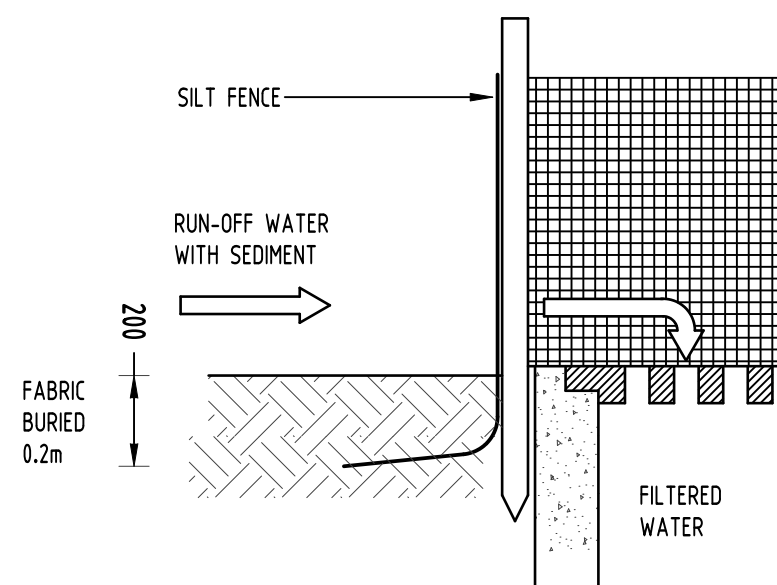
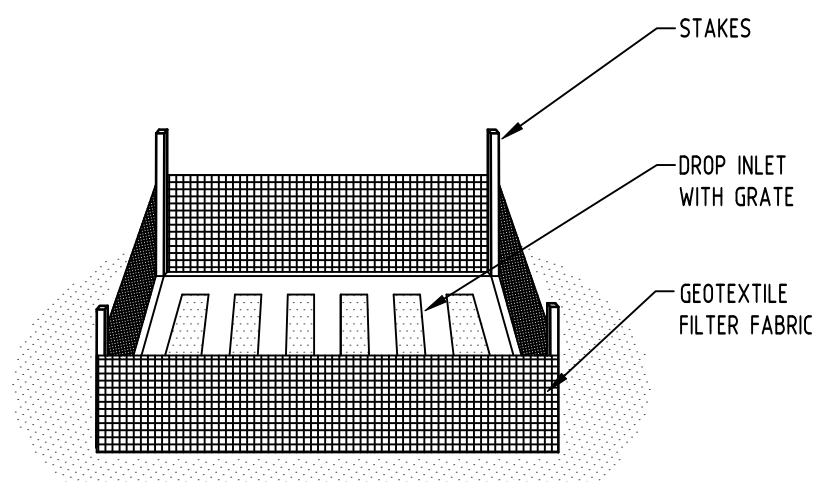
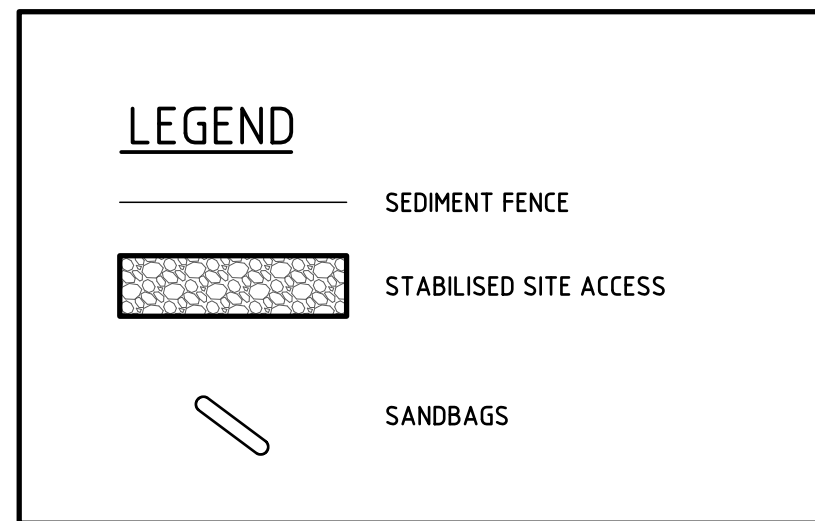
1. THIS PLAN IS A CONCEPT PLAN ONLY FOR STORMWATER DISPOSAL & EROSION CONTROL. IT IS NOT SUITABLE FOR CONSTRUCTION. THIS PLAN SHOULD BE ADAPTED BY THE BUILDER DURING DEMOLITION, EXCAVATION & CONSTRUCTION PHASES TO ENSURE ADEQUATE PERFORMANCE.
2. ALL DRAINAGE LAYOUT & DETAILS ARE DIAGRAMMATIC & INDICATIVE ONLY. ACTUAL LOCATION, SIZES, LEVELS & GRADES MAY ALTER WHEN DETAIL DESIGN WORKS ARE DOCUMENTED.

1. TRANSPORT STORMWATER RUNOFF WITH SUSPENDED SOLIDS FROM SITE VIA PUMP TRUCKS.
2. TREAT THE STORMWATER RUNOFF WITH SUSPENDED SOLIDS SO THE DISCHARGE WATER QUALITY TO COUNCIL STORMWATER DRAINAGE SYSTEM HAS A MAXIMUM CONCENTRATION OF SUSPENDED SOLIDS THAT DOES NOT EXCEED 50 MILLIGRAMS PER LITRE IN ACCORDANCE WITH THE PROTECTION OF THE ENVIRONMENT OPERATION ACT (POEO 1997) AND SHALL BE APPROVED BY LOCAL COUNCIL

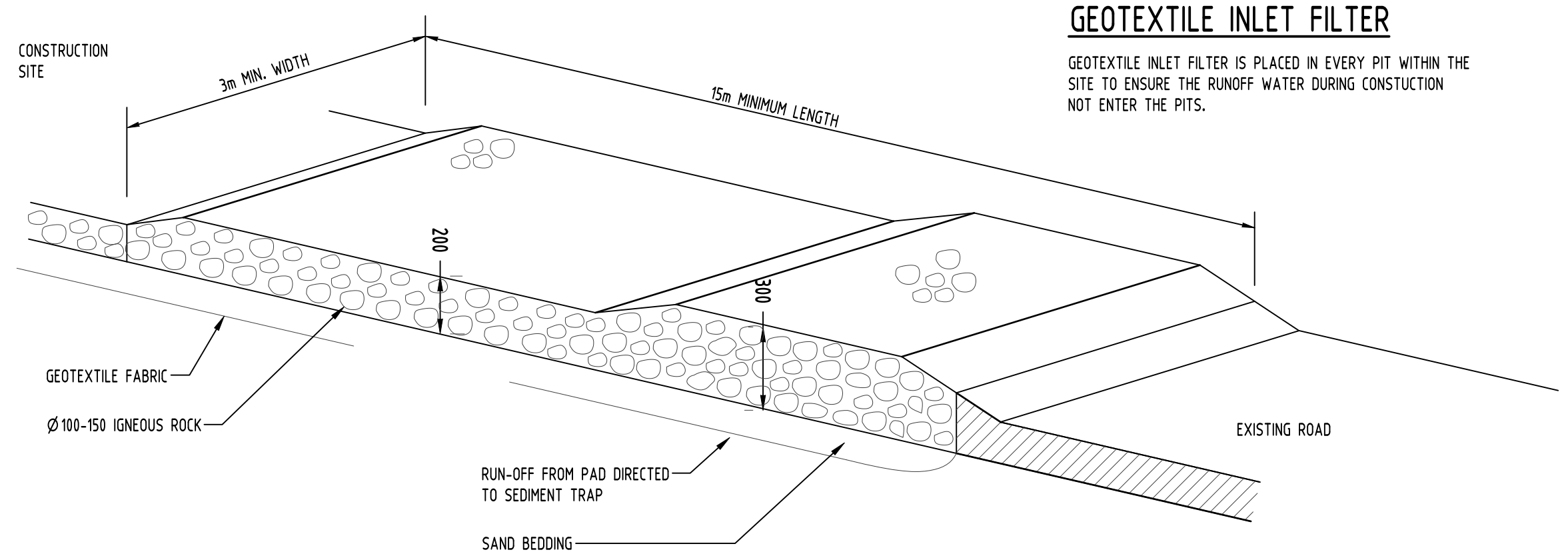


NOT TO SCALE

NOT TO SCALE



NOT TO SCALE



NOT TO SCALE

						Reference Coordination Drawing				
							Discipline	Drawing Title and Number	Date	Rev.
E	ISSUE FOR APPROVAL	MS	25.06.21	Z			ARCH			
D	ISSUE FOR APPROVAL	MS	17.03.21	Z			STRUCT			
C	ISSUE FOR APPROVAL	MS	09.02.21	2			STRUC T			
B	ISSUE FOR APPROVAL	MS	05.02.21	2			MECH			
A	ISSUE FOR APPROVAL	SH	18.02.20	2			ELEC			
P1	PRELIMINARY ISSUE	JH	18.12.19	1			HVAC			
Issue	Last revision title	by	Date	Status			FIRG			
Issuer internal sequence and revision history										
LANDS										
CIVIL										
SURVEY										
1-preliminary 4-tender										

QUALITY CONTROL			
DRAWN	MS	DATE	25.06.21
CHECKED	SH	DATE	25.06.21
DESIGNED	MS	DATE	25.06.21
VERIFIED	SH	DATE	25.06.21
APPROVED	MS	DATE	25.06.21

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ARCHITECTURAL SOLUTIONS



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Engineering Value

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PROJECT			
PROPOSED RESIDENTIAL AND SUBDIVISION DEVELOPMENT			
205-209 GRANGE AVENUE, MARSDEN PARK			
Grid	Datum	Sheet	Scale (at original size)
-	A.H.D.	10 OF 12	AS SHOWN

Drawing Status	FOR APPROVAL		
NOT TO BE USED FOR CONSTRUCTION PURPOSES			
Drawing Title	EROSION AND SEDIMENT CONTROL DETAILS		
Project No	Drawing No	Revision No	
20190191	SW401	E	

LEGEND

ROOF AREAS INTO STORMFILTER 1
A = 795.00m²

IMPERVIOUS AREAS INTO STORMFILTER 1
A = 2262m²

PERVIOUS AREAS (100% PERVIOUS)
INTO STORMFILTER 1
A = 194m²

SWALE BYPASS
A = 138m²

DRIVEWAY AREAS INTO STORMFILTER 1
A = 210m²

ROOF AREAS INTO STORMFILTER 2
A = 948.00m²

IMPERVIOUS AREAS INTO STORMFILTER 2
A = 3798m²

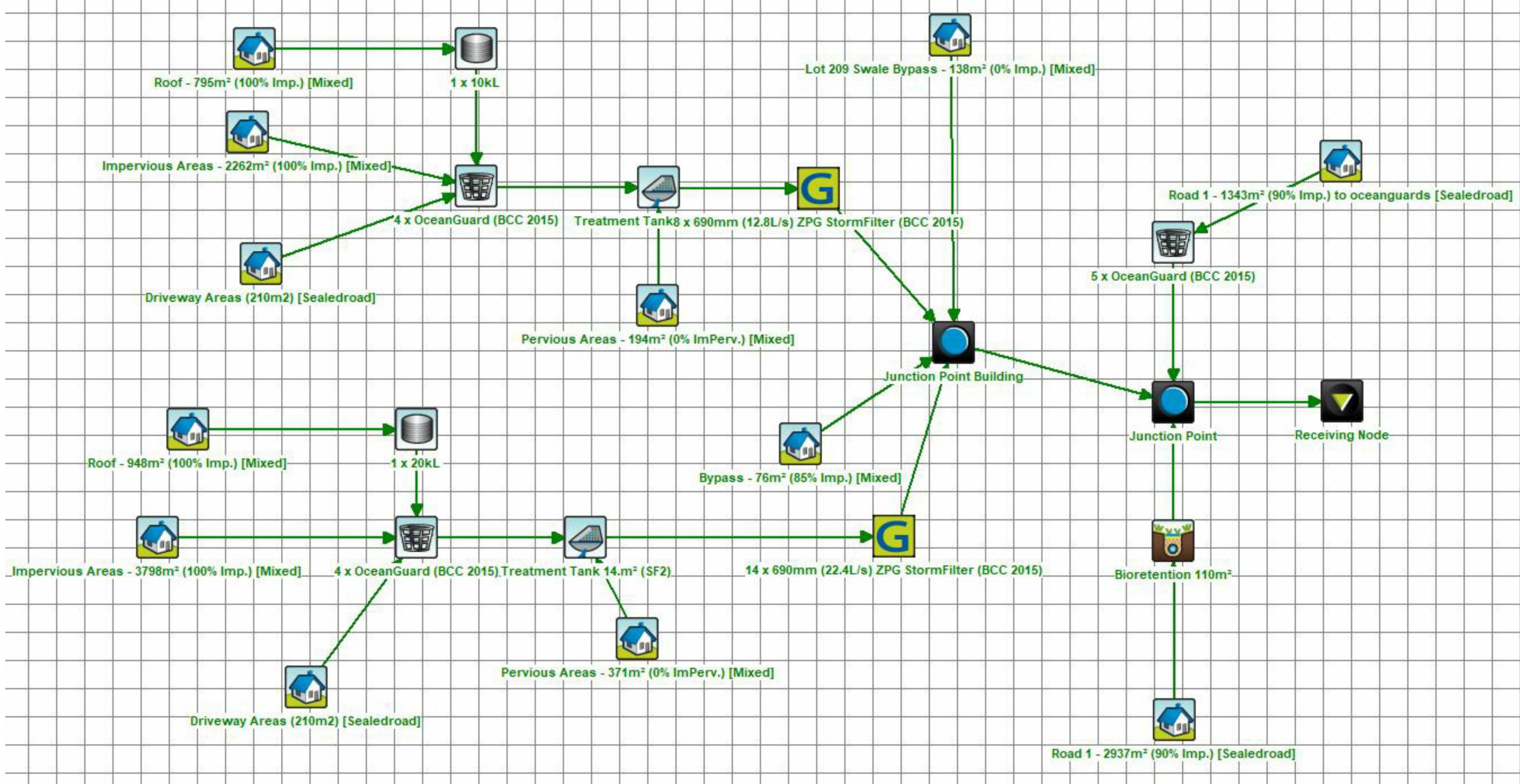
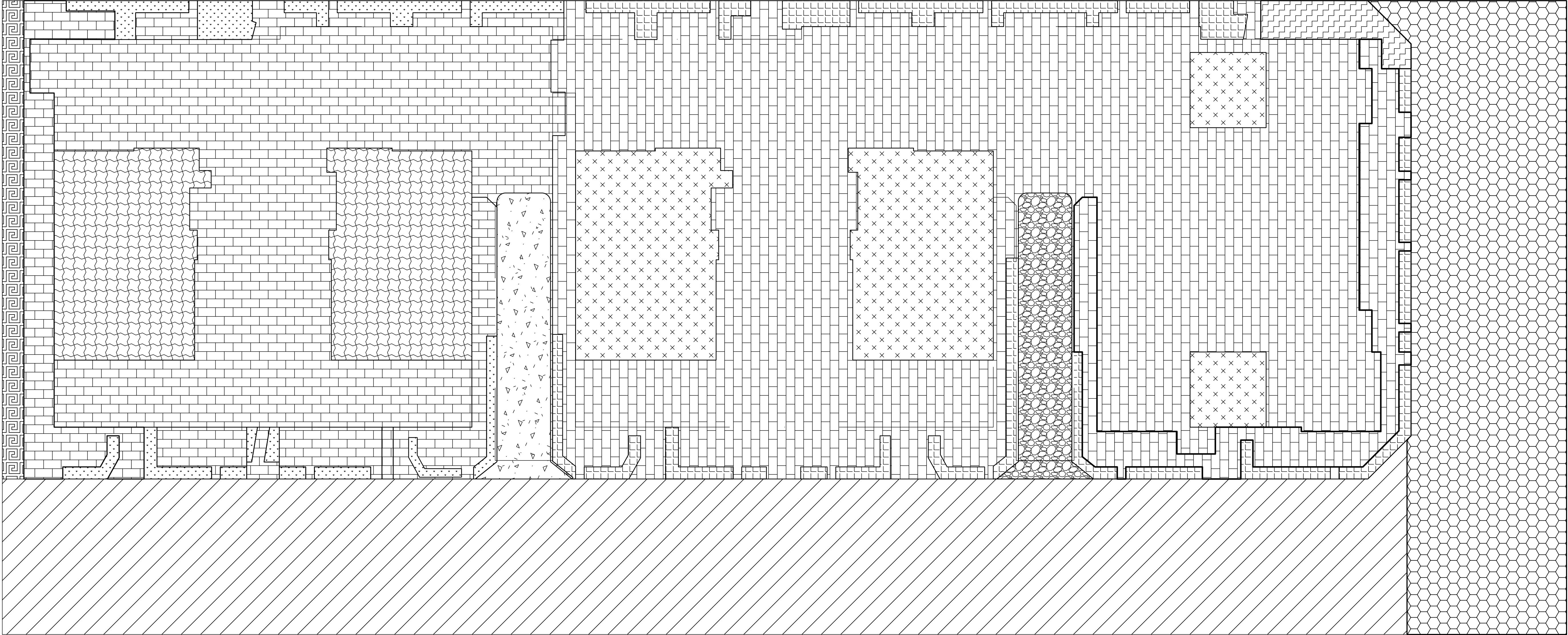
PERVIOUS AREAS (100% PERVIOUS)
INTO STORMFILTER 2
A = 371m²

DRIVEWAY AREAS INTO
STORMFILTER 2
A = 210m²

BYPASS AREA
A = 77m²

ROAD AREA TO
BIORETENTION GARDEN
A = 2937m²

ROAD AREA TO
OCEANGUARDS
A = 1343m²



Treatment Train Effectiveness - Receiving Node			
	Sources	Residual Load	% Reduction
Flow (ML/yr)	9.07	8.62	5
Total Suspended Solids (kg/yr)	1970	283	85.7
Total Phosphorus (kg/yr)	3.45	1.11	67.8
Total Nitrogen (kg/yr)	20.5	10.7	47.9
Gross Pollutants (kg/yr)	235	2.62	98.9

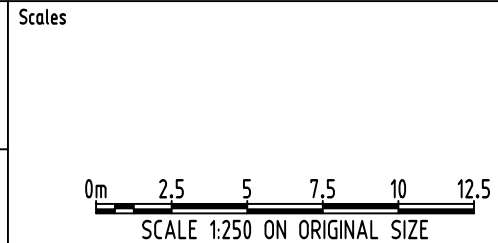
Reference Coordination Drawing				
	Discipline	Drawing Title and Number	Date	Rev.
E	ISSUE FOR APPROVAL	MS	25.06.21	2
D	ISSUE FOR APPROVAL	MS	17.03.21	2
C	ISSUE FOR APPROVAL	MS	09.02.21	2
B	ISSUE FOR APPROVAL	MS	05.02.21	2
A	ISSUE FOR APPROVAL	SH	18.02.20	2
P1	PRELIMINARY ISSUE	JH	18.12.19	1
Issue	Last revision title	by	Date	Status
Issuer internal sequence and revision history				
1-preliminary	2-development application	3-construction certificate		
4-tender	5-construction	6-other		

ENGINEERS
AUSTRALIA
Chartered Professional Engineer
MEMBER

QUALITY CONTROL			
DRAWN	MS	DATE	25.06.21
CHECKED	SH	DATE	25.06.21
DESIGNED	MS	DATE	25.06.21
VERIFIED	SH	DATE	25.06.21
APPROVED	MS	DATE	25.06.21

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DIMENSIONS NOT SHOWN TO BE CHECKED ON SITE. DO NOT SCALE OF THIS DRAWING. POSITIONING OF AUTHORITIES MARKS AND/OR EXISTING SERVICES ARE TO BE CHECKED PRIOR TO COMMENCEMENT OF WORK. REPORT ANY DISCREPANCIES TO THE CONSULTING ENGINEER FOR DESIGN/CLARIFICATION BEFORE PROCEEDING WITH THE WORK. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE SPECIFICATIONS AND OTHER CONSULTANTS' DRAWINGS.



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PROJECT

PROPOSED RESIDENTIAL AND
SUBDIVISION DEVELOPMENT

205-209 GRANGE AVENUE,
MARSDEN PARK

Grid Datum Sheet Scale (at original size)

- A.H.D. 11 OF 12 AS SHOWN

Drawing Status FOR APPROVAL

NOT TO BE USED FOR CONSTRUCTION PURPOSES

Drawing Title

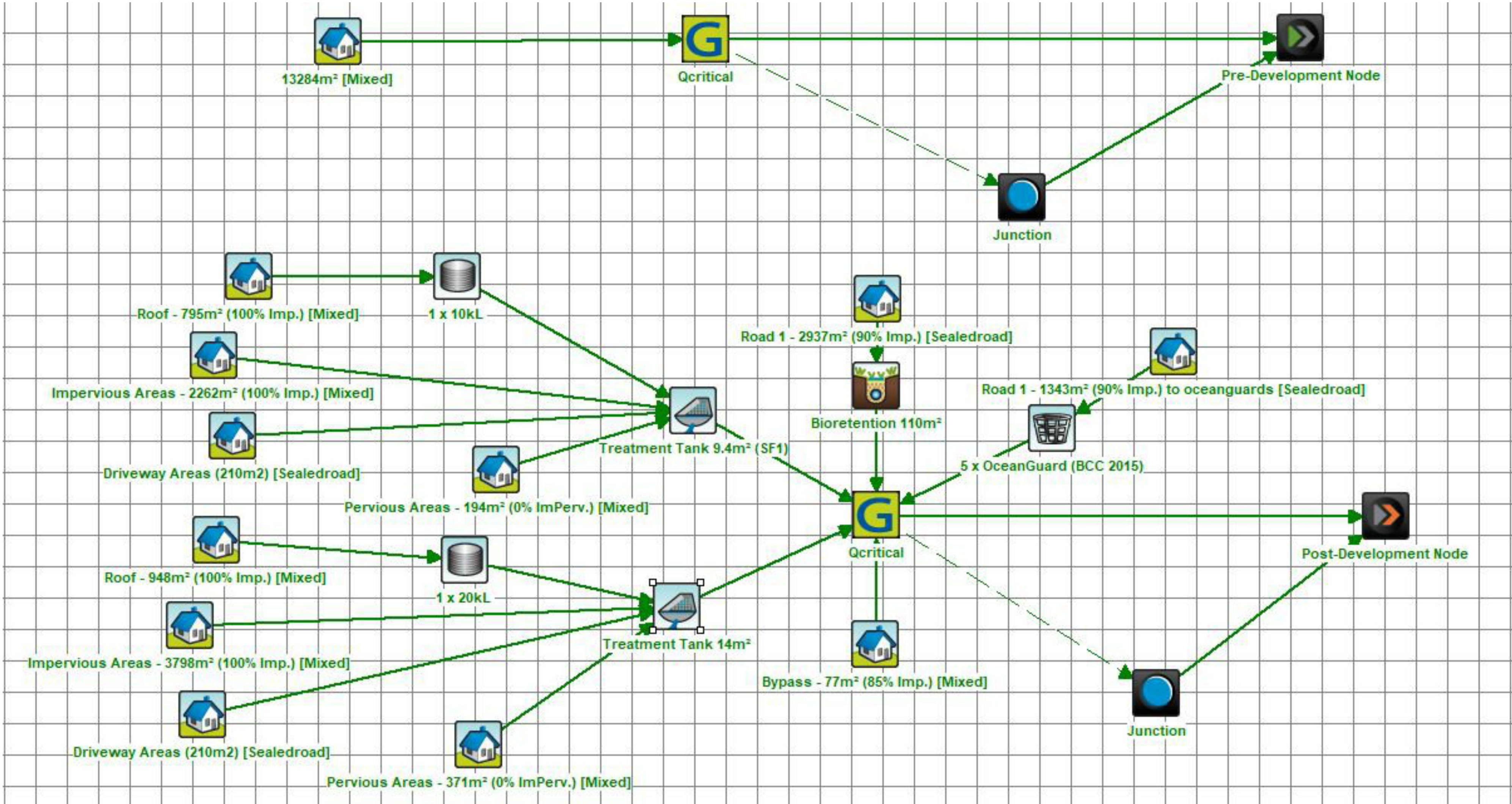
STORMWATER CONCEPT DESIGN
MUSIC CATCHMENT PLAN
& RESULTS

Project No Drawing No Revision No

20190191 SW500 E

Mean Annual Loads - Junction			
	Inflow	Outflow	% Reduction
Flow (ML/yr)	0.436	0.436	0.0
Total Suspended Solids (kg/yr)	82.4	82.4	0.0
Total Phosphorus (kg/yr)	0.122	0.122	0.0
Total Nitrogen (kg/yr)	0.936	0.936	0.0
Gross Pollutants (kg/yr)	0.00	0.00	0.0

Mean Annual Loads - Junction			
	Inflow	Outflow	% Reduction
Flow (ML/yr)	1.42	1.42	0.0
Total Suspended Solids (kg/yr)	211	211	0.0
Total Phosphorus (kg/yr)	0.396	0.396	0.0
Total Nitrogen (kg/yr)	2.95	2.95	0.0
Gross Pollutants (kg/yr)	0.280	0.280	0.0



Step 1:					Step 5:		
Site Area:	13284 m ²	0.013284 km ²			Q _{pre}	0.436	
Determin T _c = 0.76 x (A) ^{0.38} // A is in km ²	0.15 hrs	8.8 mins			Q _{post}	1.42	
Intensity from Rainfall Charts for 2 yr ARI:	86 mm/hr				SEI = Q _{post} /Q _{pre}	3.256880734	
Calculate Q ₂ = 0.278 x 0.444 x I ₂ x A	0.141011679				Value is Less than or Equal to 3.5 and therefore complies with the SEI test		
Q in m ³ /s, I in mm/hr, A in km ²							
Q _{critical} = Q ₂ x 25%	0.03525						

Reference Coordination Drawing			
Discipline	Drawing Title and Number	Date	Rev.
MS	25.06.21	2	ARCH
MS	17.03.21	2	ARCH
MS	09.02.21	2	STRUCT
MS	05.02.21	2	MECH
SH	18.02.20	2	ELEC
JH	18.12.19	1	HYD
Issue	Last revision title	by	Date
Issuer internal sequence and revision history			
1-preliminary	2-development application	3-construction certificate	6-other
4-tender	5-construction		

ENGINEERS AUSTRALIA	Qualified Professional Engineer
MEMBER	

QUALITY CONTROL			
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PROJECT
PROPOSED RESIDENTIAL AND
SUBDIVISION DEVELOPMENT
205-209 GRANGE AVENUE,
MARSDEN PARK

Grid	Datum	Sheet	Scale (at original size)
-	A.H.D.	12 OF 12	NTS

Drawing Status	FOR APPROVAL		
NOT TO BE USED FOR CONSTRUCTION PURPOSES			
Drawing Title	STORMWATER CONCEPT DESIGN SEI CALCULATIONS		
Project No	Drawing No	Revision No	
20190191	SW501	E	