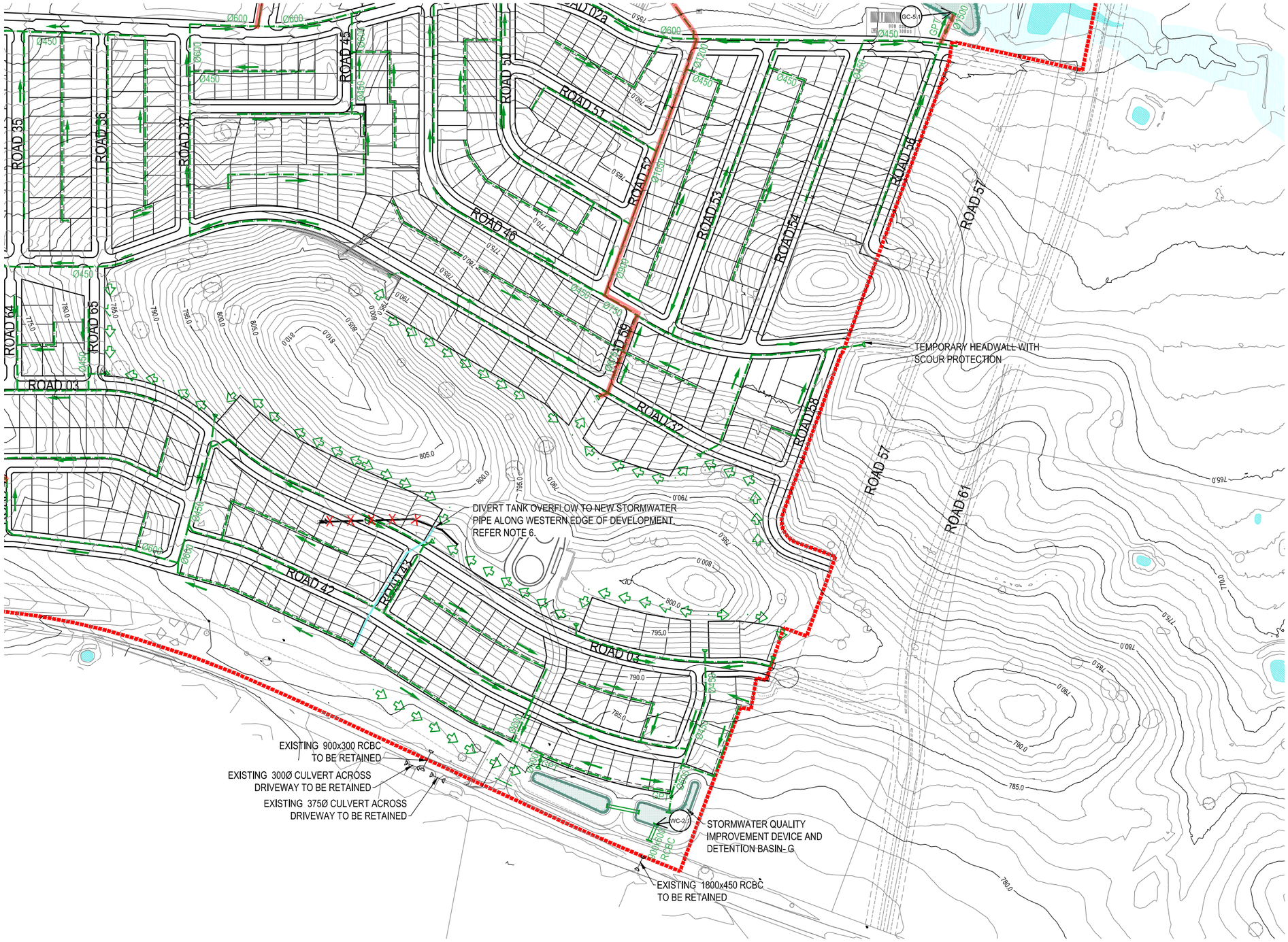
FOR CONTINUATION REFER 16-001756-D167+

FOR CONTINUATION REFER 16-001756-D165+



NOTE:

1. REFER DRAWING 16-001756-D161+ FOR CATCHMENT FLOW TABLE.
2. REFER DRAWING 16-001756-D163+ FOR LEGEND
3. PIPE/CULVERT SIZES AND CONFIGURATIONS SHOWN ARE INDICATIVE AND ARE INTENDED TO GIVE AN INDICATION OF THE REQUIRED CAPACITY OF THE UNDERGROUND STORMWATER SYSTEM, ALLOWING FOR APPROXIMATE OVERLAND FLOW CARRYING CAPACITY AND BLOCKAGE. FINAL PIPE/CULVERT SIZE WILL DEPEND ON MANY DESIGN CONSIDERATIONS, INCLUDING PIPE HYDRAULIC MODELLING, COVER AND GRADES.
4. CDS GPT LOCATIONS ARE INDICATIVE. UNITS ARE TO BE INCORPORATED AND LOCATED IN A SAFE LOCATION FOR MAINTENANCE. SIZING AND LOCATION OF UNITS WILL BE FINALISED IN DETAIL DESIGN.
5. EXISTING FARM DAMS ARE TO BE FILLED AS PER GRADING PLAN
6. CONSTRUCT MANHOLE ON 450mmØ TANK OVERFLOW PIPE. DECOMMISION AND DISPOSE OF DOWNSTREAM PIPE AND SCOUR PROTECTION WORKS. CONSTRUCT NEW 450mmØ PIPE FROM NEW MANHOLE, ALONG ROAD 43 VERGE, TO NEW WESTERN STORMWATER PIPE.

	DESIGN	DRAWN	CHECK	APPROVED	DATE	AMENDMENT DETAILS
FIRST ISSUE	BC	VVB			23/03/2017	
A	BC	KC			29/09/2017	QPRC COMMENTS ADDRESSED

WAE No.

PROJECT No.

A3 PLOT 1:4000 | SCALE (METRES) 20 10 0 20 40 60 80 100 | A1 PLOT 1:2000

CLIENT

PROJECT
GOOGONG NORTH
NEIGHBOURHOOD 2
DA SUBMISSION

calibre CONSULTING
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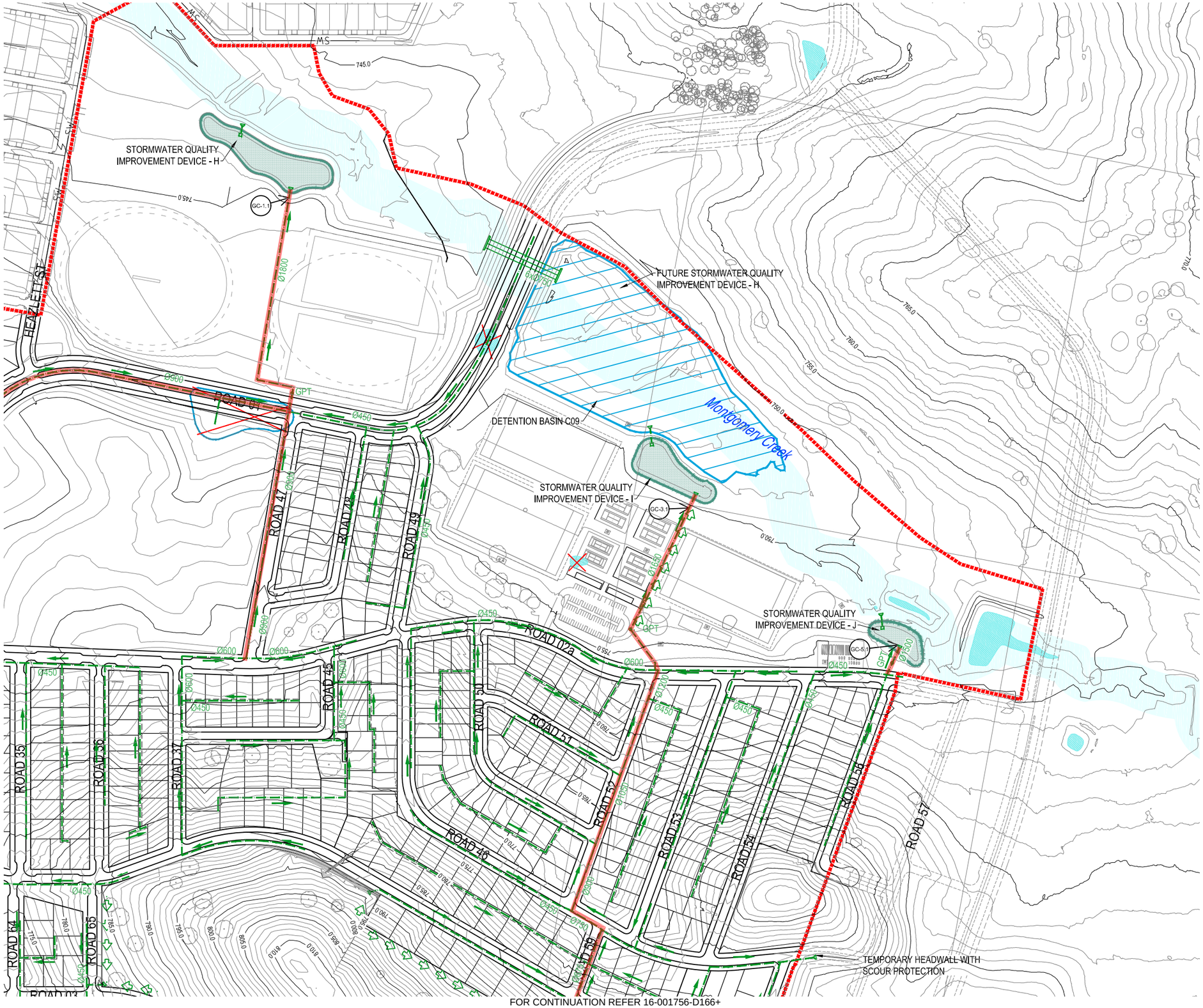
DRAWING TITLE
DRAINAGE CONCEPT MASTER PLAN - SHEET 3

DRAWING NUMBER
16-001756-D166+

AMEND.
A



NOTE:

1. REFER DRAWING 16-001756-D161+ FOR CATCHMENT FLOW TABLE.
2. REFER DRAWING 16-001756-D163+ FOR LEGEND
3. PIPE/CULVERT SIZES AND CONFIGURATIONS SHOWN ARE INDICATIVE AND ARE INTENDED TO GIVE AN INDICATION OF THE REQUIRED CAPACITY OF THE UNDERGROUND STORMWATER SYSTEM, ALLOWING FOR APPROXIMATE OVERLAND FLOW CARRYING CAPACITY AND BLOCKAGE. FINAL PIPE/CULVERT SIZE WILL DEPEND ON MANY DESIGN CONSIDERATIONS, INCLUDING PIPE HYDRAULIC MODELLING, COVER AND GRADES.
4. CDS GPT LOCATIONS ARE INDICATIVE. UNITS ARE TO BE INCORPORATED AND LOCATED IN A SAFE LOCATION FOR MAINTENANCE. SIZING AND LOCATION OF UNITS WILL BE FINALISED IN DETAIL DESIGN.
5. EXISTING FARM DAMS ARE TO BE FILLED AS PER GRADING PLAN

AMENDMENTS	DESIGN	DRAWN	CHECK	APPROVED	DATE	AMENDMENT DETAILS
FIRST ISSUE	BC	VVB			23/03/2017	
A	BC	KC			29/09/2017	QPRC COMMENTS ADDRESSED

WAE No.

PROJECT No.

A3 PLOT SCALE (METRES) A1 PLOT
1:4000 20 10 0 20 40 60 80 100 1:2000

CLIENT

PROJECT
GOOGONG NORTH
NEIGHBOURHOOD 2
DA SUBMISSION

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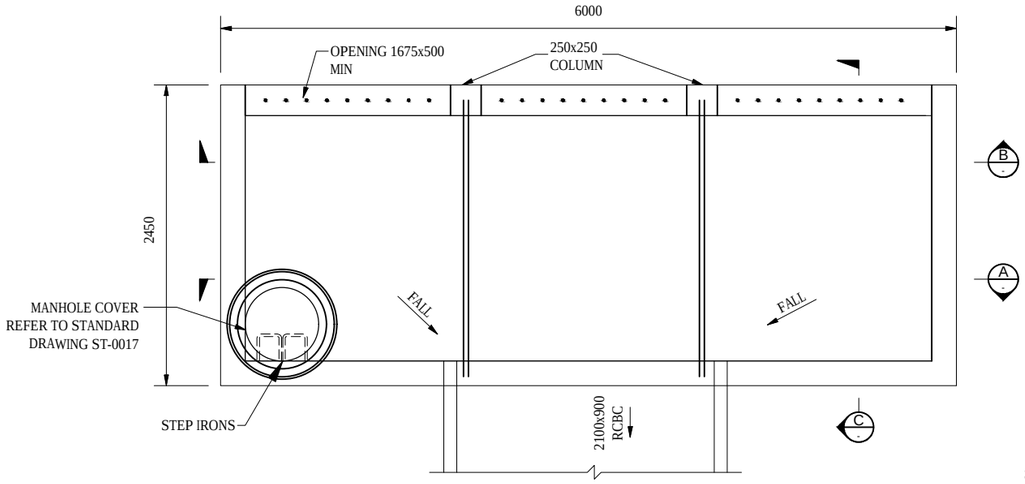
DRAWING TITLE
DRAINAGE CONCEPT MASTER PLAN - SHEET 4

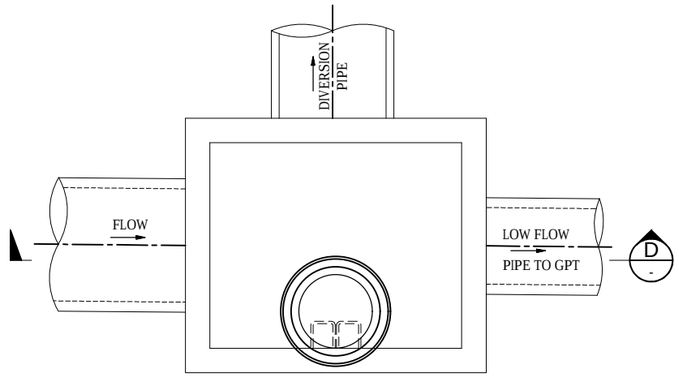
DRAWING NUMBER
16-001756-D167+

AMEND.
A



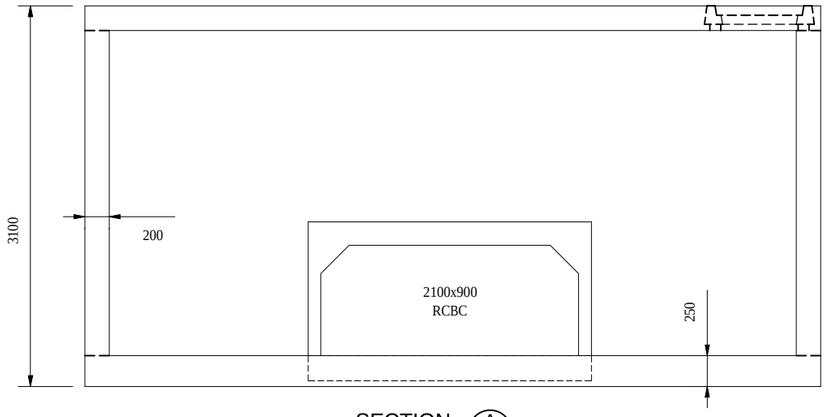
BASIN C OUTLET PLAN VIEW

SCALE 1:25 @ A1



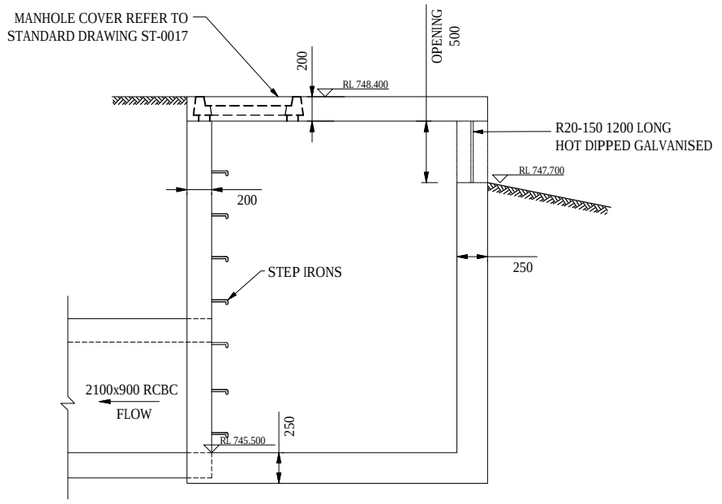
TYPICAL DIVERSION STRUCTURE PLAN VIEW

SCALE 1:25 @ A1



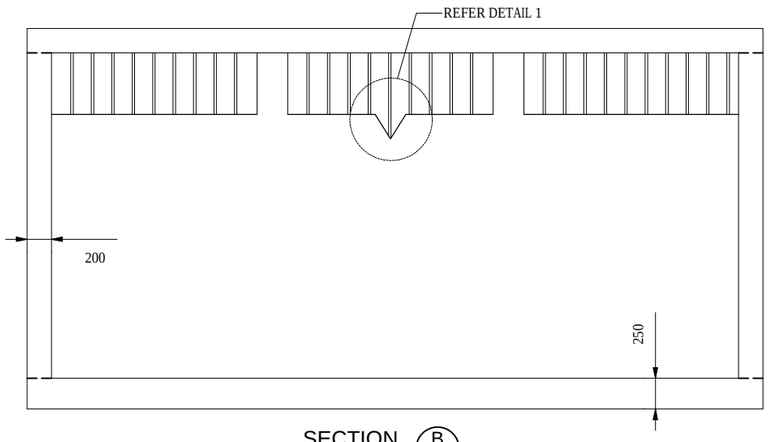
SECTION A

SCALE 1:25 @ A1



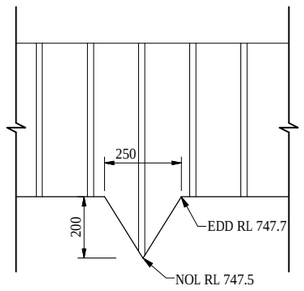
SECTION C

SCALE 1:25 @ A1



SECTION B

SCALE 1:25@ A1



DETAIL 1

SCALE 1:10 @ A1

SECTION D

SCALE 1:25 @ A1

NOTE

1. STRUCTURES TO BE DESIGNED DURING DETAILED DESIGN.

FIRST ISSUE	DESIGN	DRAWN	CHECK	APPROVED	DATE	AMENDMENT DETAILS
AMENDMENTS	AM	DC			23/03/2017	
A	BC	KC			29/09/2017	QPRC COMMENTS ADDRESSED

WAE No. .....

PROJECT No. .....

A3 PLOT SCALE (METRES) A1 PLOT

1:20 0.1 0 0.1 0.2 0.3 0.4 0.5 1:10

1:50 0.5 0 0.5 1.0 1:25

CLIENT

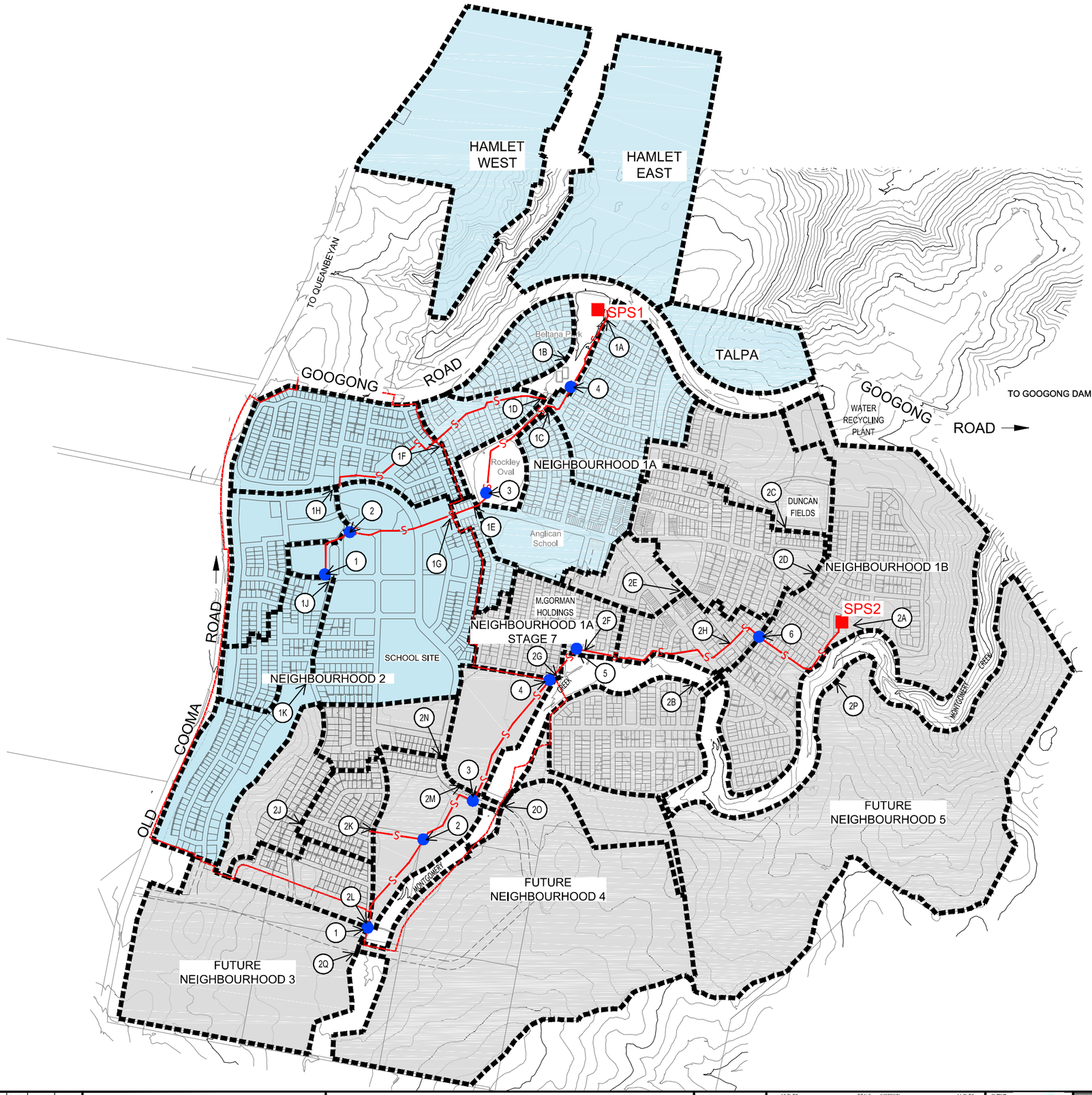
PROJECT: GOOGONG NORTH NEIGHBOURHOOD 2 DA SUBMISSION

calibre CONSULTING www.calibreconsulting.co

DRAWING TITLE: BASIN C OUTLET STRUCTURE & TYPICAL DIVERSION STRUCTURE

DRAWING NUMBER: 16-001756-D170+

AMEND.: A



N

LEGEND

- NEIGHBOURHOOD BOUNDARY
- SEWER CATCHMENT BOUNDARY
- S — SEWER CARRIER MAIN
- 730.0 — CONTOURS (5m CONTOUR INTERVALS)
- SEWER PUMP STATION
- SEWER PUMP STATION 1 CATCHMENT
- SEWER PUMP STATION 2 CATCHMENT
- CHECK POINTS
- 2A — SEWER NODE

DESIGN FLOWS BASED ON THE FOLLOWING FORMULAE:

1. PDWF = d * ADWF = d * 0.0021 * EP
   $d = 0.01(\log A)^4 - 0.19(\log A)^3 + 1.4(\log A)` - 4.66\log A + 7.57$
   ADWF IS BASED ON 180L/EP/DAY.

2. $GWI = 0.025 * A * PORTION_{WET}$

3. $IIF = 0.028 * A_{EFF} * C * I$
   $A_{EFF\text{-}RESIDENTIAL} = A * (DENSITY / 150)^{0.5}$ IF DENSITY < 150EP/Ha
   $A_{EFF\text{-}COMMERCIAL} = A * (1\text{-}0.75 * PORTION_{IMPERVIOUS})$
   $A_{EFF} = A_{EFF\text{-}RESIDENTIAL} + A_{EFF\text{-}COMMERCIAL}$
   $I = I_{1.2} * FACTOR_{SIZE} * FACTOR_{CONTAINMENT}$
   $FACTOR_{SIZE} = (40/A)^{0.12}$

4. DESIGN FLOW = PDWF + GWI + IIF

GLOSSARY OF TERMS:

A	-	GROSS PLAN AREA OF DEVELOPMENT'S CATCHMENT (ha)
ADWF	-	AVERAGE DRY WEATHER FLOW (L/s)
C	-	THE IIF LEAKAGE SEVERITY COEFFICIENT
$A_{EFF\text{-}COMMERCIAL}$	-	THE EFFECTIVE COMMERCIAL AREA CAPABLE OF CONTRIBUTING RAINFALL DEPENDENT INFILTRATION (ha)
$A_{EFF\text{-}RESIDENTIAL}$	-	THE EFFECTIVE RESIDENTIAL AREA CAPABLE OF CONTRIBUTING RAINFALL DEPENDENT INFILTRATION (ha)
EP	-	EQUIVALENT POPULATION
$FACTOR_{SIZE}$	-	ACCOUNTS FOR THE FACT THAT II FLOW CONCENTRATION TIMES ARE FASTER FOR SMALL CATCHMENTS
$FACTOR_{CONTAINMENT}$	-	REFLECTS LOCAL ENVIRONMENT ASPECTS & REGULATIONS ON WET WEATHER SEWAGE CONTAINMENT (OVERFLOW FREQUENCY)
GWI	-	GROUND WATER INFILTRATION (L/s)
I	-	IS A FUNCTION OF RAINFALL INTENSITY AT THE DEVELOPMENT'S GEOGRAPHIC LOCATION
IIF	-	PEAK (RAINFALL DEPENDENT) INFLOW & INFILTRATION (L/s)
PDWF	-	PEAK DRY WEATHER FLOW (L/s)
PORTION WET	-	THE PORTION OF THE PLANNED PIPE NETWORK ESTIMATED TO HAVE GROUNDWATER TABLE LEVELS IN EXCESS OF PIPE INVERTS (%)

	FIRST ISSUE	DESIGN	DRAWN	CHECK	APPROVED	DATE	AMENDMENT DETAILS
AMENDMENTS		BC	VVB	CJC		23/03/2017	
	A	BC	KC			29/09/2017	QPRC COMMENTS ADDRESSED

WAE No.

PROJECT No.

A3 PLOT SCALE (METRES) A1 PLOT
1:15000 100 0 100 200 300 400 1:7500

CLIENT

PROJECT
GOOGONG NORTH
NEIGHBOURHOOD 2
DA SUBMISSION

calibre CONSULTING
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DRAWING TITLE
GOOGONG TOWNSHIP SEWER CONCEPT CATCHMENT PLAN

DRAWING NUMBER 16-001756-D180+

AMEND. A

NODE	CATCHMENT AREA	NET SEWERED AREA (ha)	LOTS	EP UNIT	EP	EQUIVALENT POPULATION	ADWF (l/s)	LOG A	d	PDWF (l/s)	PORTION $_{WET}$	GWI	DENSITY	Aeff	C	$I_{1,2}$	F_{size}	$F_{containment}$	I	IIF (l/s)	DESIGN FLOW (l/s)
SPS 1 CATCHMENT																					
1A CLUB				20	20	20															
1A GENERAL			253	3	759	759															
1A	NH1A	20.8	253		779	779	1.6	1.3	3.5	5.7	0.00	0.00	37.45	10.39	0.80	23.00	1.08	1.50	37.32	8.7	14.3
1B	NH1A	7.8	83	3	249	249	0.5	0.9	4.4	2.3	0.00	0.00	31.92	3.60	0.80	23.00	1.22	1.50	41.98	3.4	5.7
1C SLH	NH1A		90	2	180	180															
1C SCHOOL	NH1A			0.2	126	126															
1C GENERAL	NH1A		89	3	267	267															
1C	NH1A	17.5	179		573	573	1.2	1.2	3.6	4.3	0.00	0.00	32.74	8.18	0.80	23.00	1.10	1.50	38.10	7.0	11.3
1D ROCKLEY OVAL	NH1A	0.3		0.25	25	25															
1D	NH1A	7.0	85	3	280	280	0.6	0.8	4.5	2.7	0.00	0.00	40.00	3.61	0.80	23.00	1.23	1.50	42.53	3.4	6.1
1E	NH1A	3.5	41	3	123	123	0.3	0.5	5.4	1.4	0.00	0.00	35.14	1.69	0.80	23.00	1.34	1.50	46.21	1.8	3.2
1G SCHOOL	NH1			0.2	65	65															
1G COMM	NH2	0.4	-	75	32	32															
1G MU	NH2		432	2	864	864															
1G LOTS	NH2		131	3	393	393															
1G SLH	NH3		94	2	188	188															
1G	NH2	33.4	657		1542	1542	3.2	1.5	3.1	10.0	0.00	0.00	46.12	18.54	0.80	23.00	1.02	1.50	35.25	14.6	24.7
1J SLH	NH2		39	2	78	78															
1J GENERAL	NH2		96	3	288	288															
1J	NH2	9.6	135		366	366	0.8	1.0	4.2	3.2	0.00	0.00	37.97	4.85	0.80	23.00	1.19	1.50	40.92	4.4	7.6
1F SLH	NH2		37	2	74	74															
1F GENERAL	NH2		251	3	753	753															
1F	NH2	20.7	288		827	827	1.7	1.3	3.5	6.0	0.00	0.00	39.95	10.68	0.80	23.00	1.08	1.50	37.34	8.9	14.9
1H MU			194	2	388	388															
1H RL			100	1.5	150	150															
1H LOTS			72	3	216	216															
1H	NH2	10.2	366		754	754	1.6	1.0	4.1	6.5	0.00	0.00	74.21	7.15	0.80	23.00	1.18	1.50	40.67	6.5	13.0
1K	NH2	9.3	102	3	306	306	0.6	1.0	4.2	2.7	0.00	0.00	32.80	4.36	0.80	23.00	1.19	1.50	41.08	4.0	6.7
	TOTAL	139.9	2189.0		5799.3	5799.3	12.2	2.1	2.4	28.6	0.00	0.00	41.46	73.54	0.80	23.00	0.86	1.50	29.69	48.9	77.5

NOTES

1. THE SEWER CATCHMENT DATA SHEET 1 AND 2 ABOVE INDICATES THE BASIS FOR THE CONCEPT DESIGN FLOW CALCULATIONS FOLLOWING APPENDIX B FLOW ESTIMATION FOR UNDEVELOPED AREAS OF THE WSA02-2002-2.3 GUIDELINE.
2. ASSUME EP=3.5 IF RESIDENTIAL DENSITY IS LESS THAN 15 DWELLINGS PER HECTARE; EP=2.5 IF RESIDENTIAL DENSITY IS MORE THAN 15 DWELLINGS PER HECTARE. GOOGONG COMMON IS ASSUMED TO ONLY HAVE A SEWERED NET AREA FOR BUILDINGS LOCATED WITHIN THE GOOGONG COMMON
3. THE PORTION$_{WET}$ (THE PORTION OF SEWAGE SYSTEM IS BELOW GROUNDWATER TABLE LEVELS) IS 0% BASED ON GOOGONG GEOTECHNICAL/GROUNDWATER LEVEL INFORMATION OBTAINED ON SITE. GEOTECHNICAL INVESTIGATION INDICATES GROUNDWATER TABLE IS VERY DEEP IN GOOGONG.
4. I_{23} IS 1 HOUR RAINFALL INTENSITY OF 2 YEARS ARI. THE DESIGN USES 23 WHICH IS APPROXIMATE VALUES OF INTENSITY FOR CANBERRA LOCATION.
5. THE DESIGN ADOPTS $F_{CONTAINMENT}$ AS 1.5 WHICH REPRESENTS 1 IN 10 YEARS AR OF SEWAGE OVERFLOW. THIS DESIGN CRITERIA MEETS QUEANBEYAN PALERANG REGIONAL COUNCIL'S REQUIREMENTS OF 1 IN 10 YEARS OVERFLOW RECURRENCE INTERVAL.
6. ASSUME THE IF LEAKAGE SEVERITY COEFFICIENT (C) IS 0.8 BASED ON SOIL AND NETWORK ASPECT CONTRIBUTOR TO LEAKAGE.
7. ASSUME COMMERCIAL TOWN CENTRE AREA IN NEIGHBOURHOOD 2 IS THE STANDARD LOCAL COMMERCIAL AREA WITH 75 EP/Ha AND IMPERVIOUS AREA IS 70%.
8. ASSUME AVERAGE SIZE OF SINGLE OCCUPANCY LOTS OF NEIGHBOURHOOD 2 IS 500m`,
   NUMBER OF LOTS = $\frac{0.7 * \text{GROSS HECTARES} * 10{,}000}{500\text{m (AVERAGE AREA IN m OF A SINGLE OCCUPANCY LOT)}}$
   THEN THE NUMBER OF LOTS * 3 EP.
9. THE ESTIMATES OF TOTAL NUMBER OF STUDENTS AT THE PROPOSED PRIVATE AND PUBLIC PRIMARY SCHOOLS IN NEIGHBOURHOOD 1A ARE 630 STUDENTS RESPECTIVELY AND 0.2 EP/STUDENT, IMPERVIOUS AREA OF LOCAL PRIMARY SCHOOLS IS 70%. (ESTIMATED NUMBER OF SCHOOL STUDENTS IS BASED ON 'GOOGONG ESTIMATED NUMBER OF SCHOOL STUDENTS' BY ELTON CONSULTING ISSUED ON AUGUST 2009).
10. PRIVATE HIGH SCHOOL IN NEIGHBOURHOOD 2 SHOULD HAVE CAPACITY FOR UP TO 650 STUDENTS (0.2 EP/STUDENT), IMPERVIOUS AREA OF HIGH SCHOOLS IS 70%. THE HIGH SCHOOL IN NEIGHBOURHOOD 2 IS ASSUMED TO BE EQUALLY DIVIDED BETWEEN SPS1 AND SPS2 CATCHMENT AREAS.
11. ASSUME PVC PIPE SHALL BE USED FOR SEWER PIPES, THEREFORE PIPE ROUGHNESS n = 0.012.
12. NODE 2Q INCLUDES NEIGHBOURHOOD 3, FUTURE HAMSON DEVELOPMENT AND EXCLUDES SBSTATION LOCATION
13. HAMLET EAST, WEST AND TALPA ARE IN THE PUMP STATION 1 CATCHMENT.
14. THE TABLES ARE FOR THE PURPOSE OF PIPE SIZING ONLY AND NOT TO CALCULATE PUMP STATION CAPACITY.

CHECK	CONTRIBUTING NODES	INITIAL EP	CONTRIBUTING EP	TOTAL EP	INITIAL PDWF (L/s)	CONTRIBUTING PDWF (L/s)	TOTAL PDWF (L/s)	INITIAL FLOW (L/s)	CONTRIBUTING FLOW (L/s)	TOTAL FLOW (L/s)	MINIMUM SEWER PIPE	DESIGNED SEWER CARRIER	DESIGNED SEWER CAPACITY (L/s)	MINIMUM VS DESIGNED
SPS 1 CATCHMENT														
1	1K, 1J	0.00	672.00	672.00	0.00	5.90	5.90	0.00	14.37	14.37	225mm DIA @ minimum 0.1%	225mm DIA @ minimum 1%	48.64	OK
2	1H	672.00	754.00	1426.00	5.90	6.51	12.42	14.37	13.02	27.39	225mm DIA @ minimum 0.3%	225mm DIA @ minimum 1%	48.64	OK
3	1G, 1E	1426.00	1602.25	3028.25	12.42	9.71	22.12	27.39	27.01	54.40	275mm DIA @ minimum 0.5%	300mm DIA @ minimum 1%	104.76	OK
4	1F,1D,1C	3028.25	1680.00	4708.25	22.12	1.40	23.52	54.40	32.35	86.75	300mm DIA @ minimum 0.7%	300mm DIA @ minimum 1%	104.76	OK

FIRST ISSUE	DESIGN	DRAWN	CHECK	APPROVED	DATE	AMENDMENT DETAILS
A	BC	VVB	CJC		23/03/2017	
AMENDMENTS						
A	BC	KC			29/09/2017	QPRC COMMENTS ADDRESSED

WAE No. .....
PROJECT No. .....

A3 PLOT SCALE (METRES) A1 PLOT

CLIENT

PROJECT
GOOGONG NORTH
NEIGHBOURHOOD 2
DA SUBMISSION

calibre CONSULTING
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DRAWING TITLE
GOOGONG TOWNSHIP SEWER CATCHMENT DATA SHEET 1 OF 2

DRAWING NUMBER 16-001756-D181+
AMEND. A

NODE	CATCHMENT AREA	NET SEWERED AREA (ha)	LOTS	EP UNIT	EP	EQUIVALENT POPULATION	ADWF (l/s)	LOG A	d	PDWF (l/s)	PORTION $_{WET}$	GWI	DENSITY	Aeff	C	$I_{1,2}$	F_{size}	$F_{containment}$	I	IIF (l/s)	DESIGN FLOW (l/s)
SPS 2 CATCHMENT																					
2A	NH1B	58.2	350	3	1050	1050	2.21	1.76	2.78	6.06	0.00	0.00	18.04	20.18	0.80	23.00	0.96	1.50	32.98	14.91	21.00
2B	NH1B	20.0	237	3	711	711	1.49	1.30	3.49	5.21	0.00	0.00	35.62	9.73	0.80	23.00	1.09	1.50	37.50	8.17	13.38
2C	NH1A	17.9	98		294	294	0.62	1.25	3.58	2.21	0.00	0.00	16.42	5.92	0.80	23.00	1.10	1.50	37.99	5.04	7.25
2D	NH1A	22.6	280		891	891	1.87	1.35	3.39	6.34	0.00	0.00	39.41	11.59	0.80	23.00	1.07	1.50	36.94	9.59	15.93
2E	NH1A	6.8	91		279	279	0.59	0.83	4.56	2.67	0.00	0.00	41.24	3.54	0.80	23.00	1.24	1.50	42.70	3.39	6.06
2F	NH1A	7.8	141	3	423	423	0.89	0.89	4.40	3.91	0.00	0.00	54.23	4.69	0.80	23.00	1.22	1.50	41.96	4.41	8.32
2G	NH1A	6.7	63	3	189	189	0.40	0.83	4.57	1.82	0.00	0.00	28.21	2.91	0.80	23.00	1.24	1.50	42.75	2.78	4.60
2H	NH1A	10.0	126		353	353	0.74	1.00	4.13	3.06	0.00	0.00	35.30	4.85	0.80	23.00	1.16	1.50	40.74	4.43	7.49
2J	NH2	5.1	47	3	141	141	0.30	0.71	4.90	1.45	0.00	0.00	27.54	2.19	0.80	23.00	1.28	1.50	44.15	2.17	3.62
2K	NH2	7.5	96	3	288	288	0.60	0.88	4.44	2.69	0.00	0.00	38.40	3.79	0.80	23.00	1.22	1.50	42.18	3.58	6.27
2L	NH2	3.0	55	3	165	165	0.35	0.48	5.65	1.96	0.00	0.00	55.00	1.62	0.80	23.00	1.36	1.50	47.08	1.92	3.87
2M	NH2	2.7	19	3	71	71	0.15	0.42	5.83	0.86	0.00	0.00	26.57	1.12	0.80	23.00	1.38	1.50	47.77	1.20	2.06
2N	NH2	11.8	87	3	326	326	0.68	1.07	3.96	2.71	0.00	0.00	27.68	5.06	0.80	23.00	1.16	1.50	39.95	4.53	7.24
2O	NH4	78.6	1100	3	3364	3364	7.07	1.90	2.60	18.39	0.00	0.00	42.83	41.98	0.80	23.00	0.92	1.50	31.82	29.92	48.30
2P	NH5	86.6	1212	3	3701	3701	7.77	1.94	2.56	19.87	0.00	0.00	42.75	46.22	0.80	23.00	0.91	1.50	31.45	32.58	52.42
2Q	NH3	41.3	579	3	1801	1801	3.78	1.62	2.96	11.20	0.00	0.00	43.57	22.28	0.80	23.00	1.00	1.50	34.36	17.15	28.36
TOTAL		396.5	4582.5		14046.8	14046.8	29.50	2.59	2.04	60.25	0.00	0.00	36.36	190.24	0.80	23.00	0.76	1.50	26.28	111.98	172.23

CHECK	CONTRIBUTING NODES	INITIAL EP	CONTRIBUTING EP	TOTAL EP	INITIAL PDWF (l/s)	CONTRIBUTING PDWF (l/s)	TOTAL PDWF (l/s)	INITIAL FLOW (l/s)	CONTRIBUTING FLOW (l/s)	TOTAL FLOW (l/s)	MINIMUM SEWER PIPE	DESIGNED SEWER CARRIER	DESIGNED SEWER CAPACITY (l/s)	MINIMUM VS DESIGNED
SPS 2 CATCHMENT														
1	2O,2I	0.00	1965.86	1965.86	0.00	13.16	13.16	0.00	32.22	32.22	225mm DIA @ minimum 0.4%	300mm DIA @ minimum 1%	104.76	OK
2	2K, 2J, 2M	1965.86	499.60	2465.46	13.16	5.00	18.16	32.22	11.95	44.17	225mm DIA @ minimum 0.8%	300mm DIA @ minimum 1%	104.76	OK
3	2N	2465.46	317.00	2782.46	18.16	2.58	20.74	44.17	7.20	51.36	275mm DIA @ minimum 0.3%	300mm DIA @ minimum 1%	104.76	OK
4	2G	2782.46	252.00	3034.46	20.74	2.47	23.16	51.36	5.63	57.01	275mm DIA @ minimum 0.5%	300mm DIA @ minimum 1%	104.76	OK
5	2F	3034.46	423.00	3457.46	23.16	3.91	27.07	57.01	8.32	65.33	300mm DIA @ minimum 0.8%	300mm DIA @ minimum 1%	104.76	OK
6	2H, 2E	3457.46	631.75	4089.21	27.07	5.73	32.80	65.33	13.55	78.88	300mm DIA @ minimum 0.8%	300mm DIA @ minimum 1%	104.76	OK

NOTE

REFER 16-001756-D181+ FOR NOTES

FIRST ISSUE	DESIGN	DRAWN	CHECK	APPROVED	DATE	AMENDMENT DETAILS
	BC	VVB	CJC		23/03/2017	
AMENDMENTS A	BC	KC			29/09/2017	QPRC COMMENTS ADDRESSED

WAE No.

PROJECT No.

A3 PLOT SCALE (METRES) A1 PLOT

CLIENT

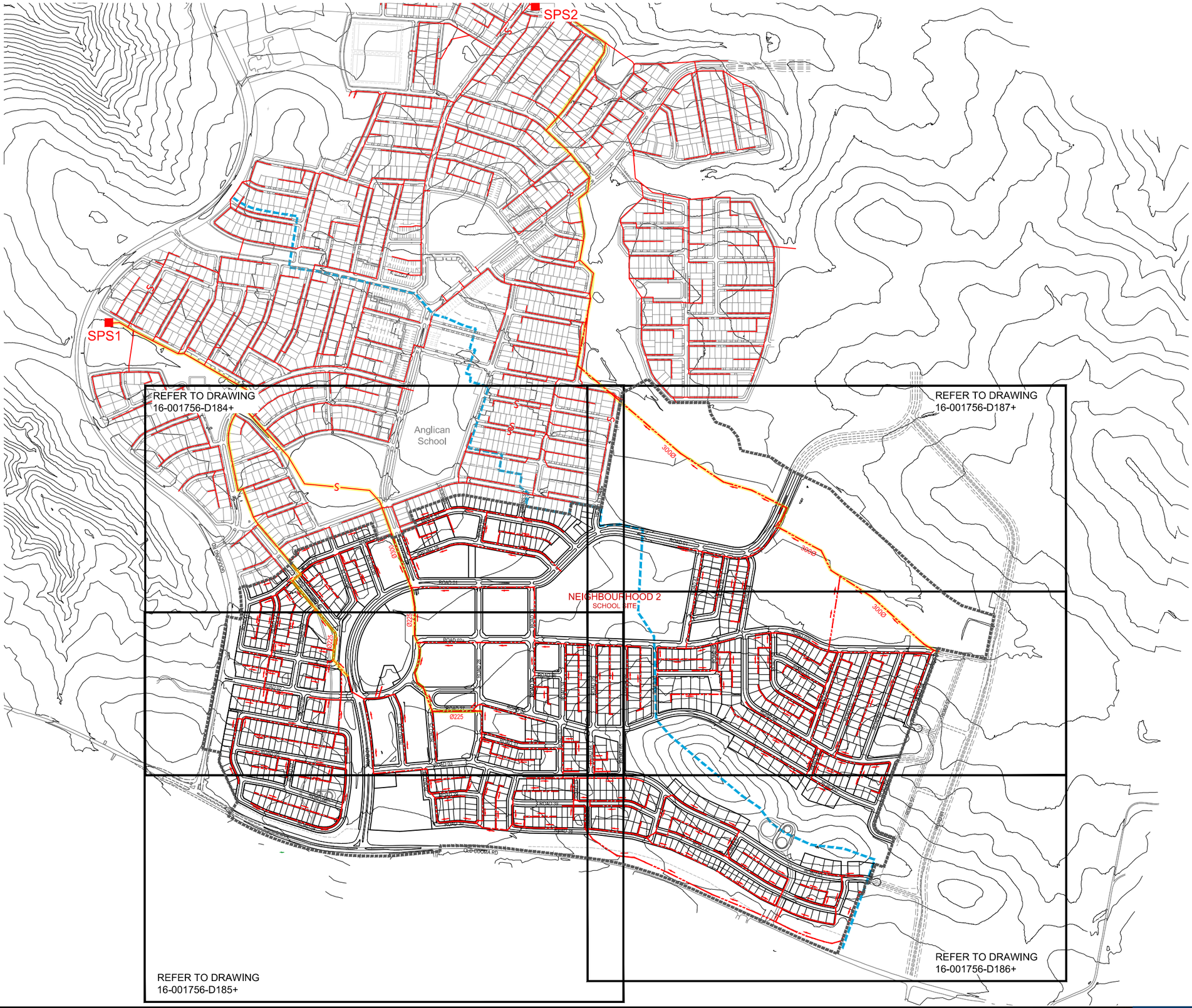
PROJECT
GOOGONG NORTH
NEIGHBOURHOOD 2
DA SUBMISSION

calibre CONSULTING
www.calibreconsulting.co

DRAWING TITLE
GOOGONG TOWNSHIP SEWER CATCHMENT DATA SHEET 2

DRAWING NUMBER
16-001756-D182+

AMEND.
A



N

LEGEND

- EXISTING SEWER MAIN
- PROPOSED 150Ø SEWER MAIN UNLESS OTHERWISE NOTED
- SEWER CARRIER MAIN
- SEWER PUMP STN 1 & PUMP STN 2 CATCHMENT BOUNDARY
- NEIGHBOURHOOD BOUNDARY

		DESIGN	DRAWN	CHECK	APPROVED	DATE	AMENDMENT DETAILS
FIRST ISSUE		BC	VVB	CJC		23/03/2017	
AMENDMENTS							
	A	BC	KC			29/09/2017	QPRC COMMENTS ADDRESSED

WAE No.

PROJECT No.

A3 PLOT SCALE (METRES) A1 PLOT
1:10000 100 50 0 100 200 1:5000

CLIENT

PROJECT
GOOGONG NORTH
NEIGHBOURHOOD 2
DA SUBMISSION

calibre CONSULTING
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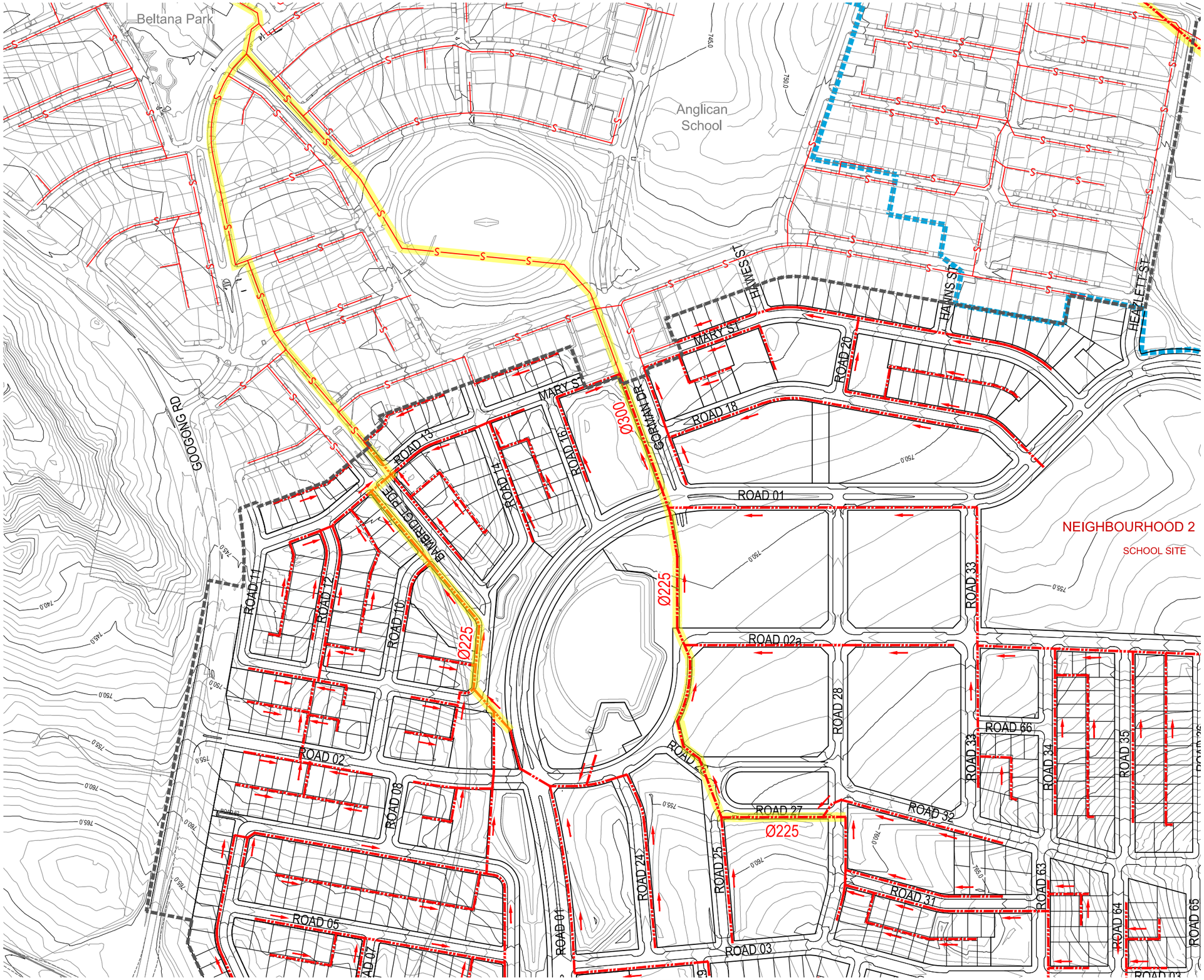
DRAWING TITLE
SEWER CONCEPT KEY PLAN

DRAWING NUMBER
16-001756-D183+

AMEND.
A



FOR CONTINUATION REFER 16-001756-D187+

FOR CONTINUATION REFER 16-001756-D185+

NOTE:

REFER 16-001756-D183+ FOR LEGEND

FIRST ISSUE	DESIGN	DRAWN	CHECK	APPROVED	DATE	AMENDMENT DETAILS
	BC	VVB	CJC		23/03/2017	
AMENDMENTS A	BC	KC			29/09/2017	QPRC COMMENTS ADDRESSED

WAE No. .....

PROJECT No. .....

A3 PLOT 1:4000 SCALE (METRES) 20 10 0 20 40 60 80 100 A1 PLOT 1:2000

CLIENT

PROJECT
GOOGONG NORTH
NEIGHBOURHOOD 2
DA SUBMISSION

calibre CONSULTING
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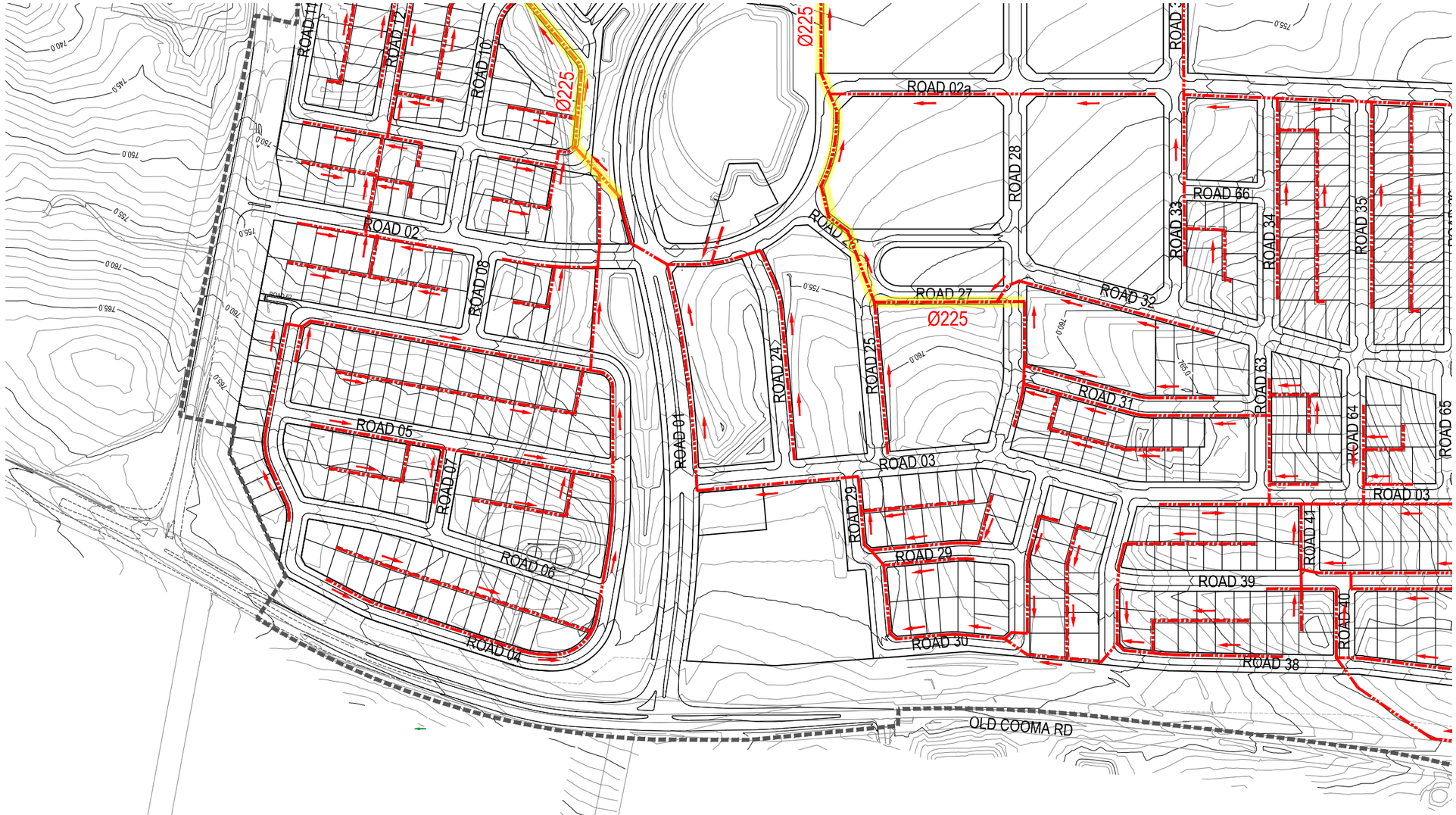
DRAWING TITLE
SEWER CONCEPT MASTER PLAN
SHEET 1 OF 4

DRAWING NUMBER 16-001756-D184+

AMEND. A

FOR CONTINUATION REFER 16-001756-D184+



FOR CONTINUATION REFER 16-001756-D186+

NOTE:

REFER 16-001756-D183+ FOR LEGEND

	FIRST ISSUE	DESIGN	DRAWN	CHECK	APPROVED	DATE	AMENDMENT DETAILS
AMENDMENTS		BC	VVB	CJC		23/03/2017	
	A	BC	KC			29/09/2017	QPRC COMMENTS ADDRESSED

WAE No.

PROJECT No.

A3 PLOT 1:4000 SCALE (METRES) 20 10 0 20 40 60 80 100 A1 PLOT 1:2000

CLIENT

PROJECT
GOOGONG NORTH
NEIGHBOURHOOD 2
DA SUBMISSION

calibre CONSULTING
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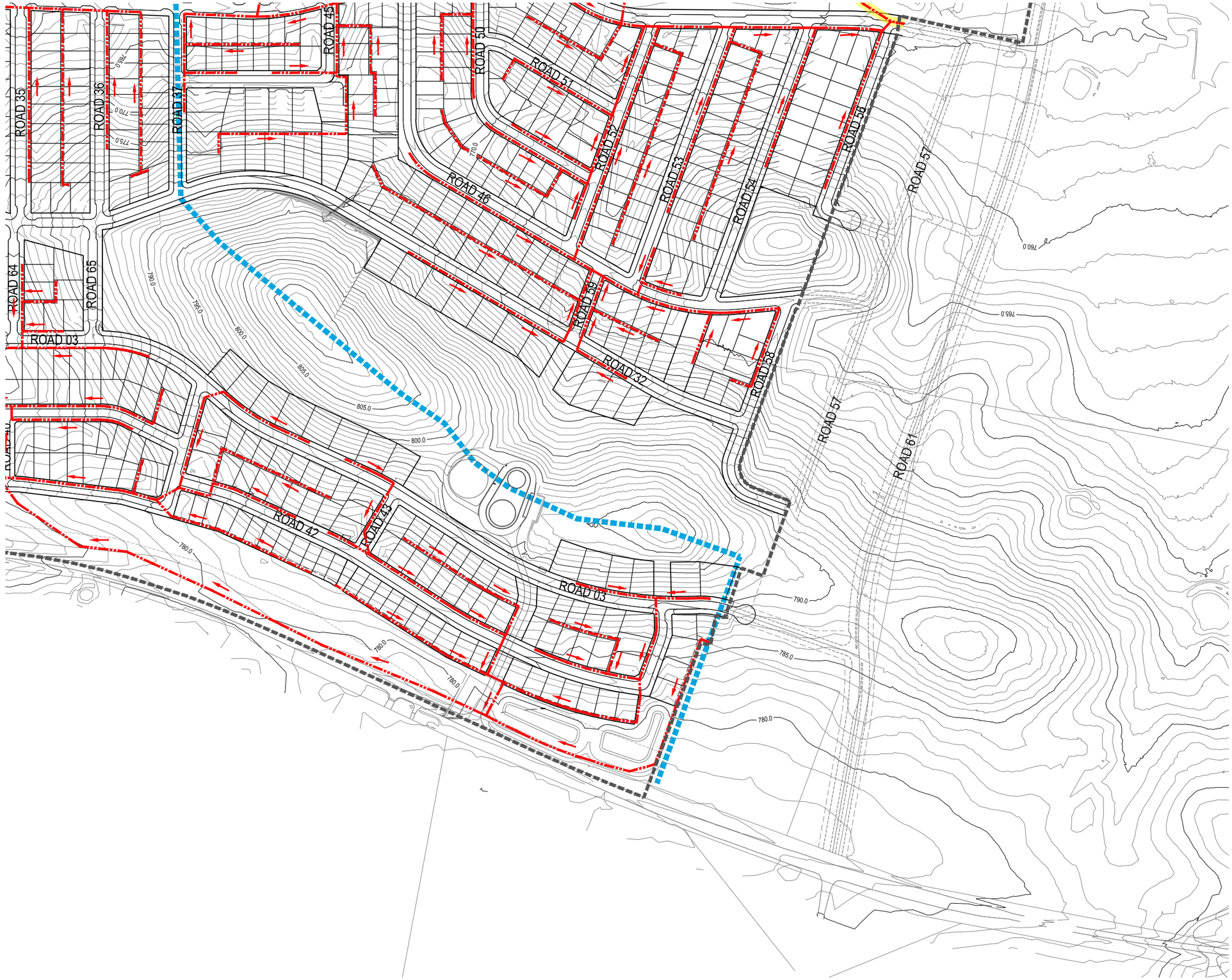
DRAWING TITLE
SEWER CONCEPT MASTER PLAN
SHEET 2

DRAWING NUMBER
16-001756-D185+

AMEND.
A

FOR CONTINUATION REFER 16-001756-D187+

FOR CONTINUATION REFER 16-001756-D185+



NOTE:

REFER 16-001756-D183+ FOR LEGEND

	FIRST ISSUE	DESIGN	DRAWN	CHECK	APPROVED	DATE	AMENDMENT DETAILS
		BC	VVB	CJC		23/03/2017	
AMENDMENTS	A.	BC	KC			29/09/2017	QPRC COMMENTS ADDRESSED

WAE No.

PROJECT No.

A3 PLOT SCALE (METRES) A1 PLOT

1:4000 20 10 0 20 40 60 80 100 1:2000

CLIENT

PROJECT
GOOGONG NORTH
NEIGHBOURHOOD 2
DA SUBMISSION

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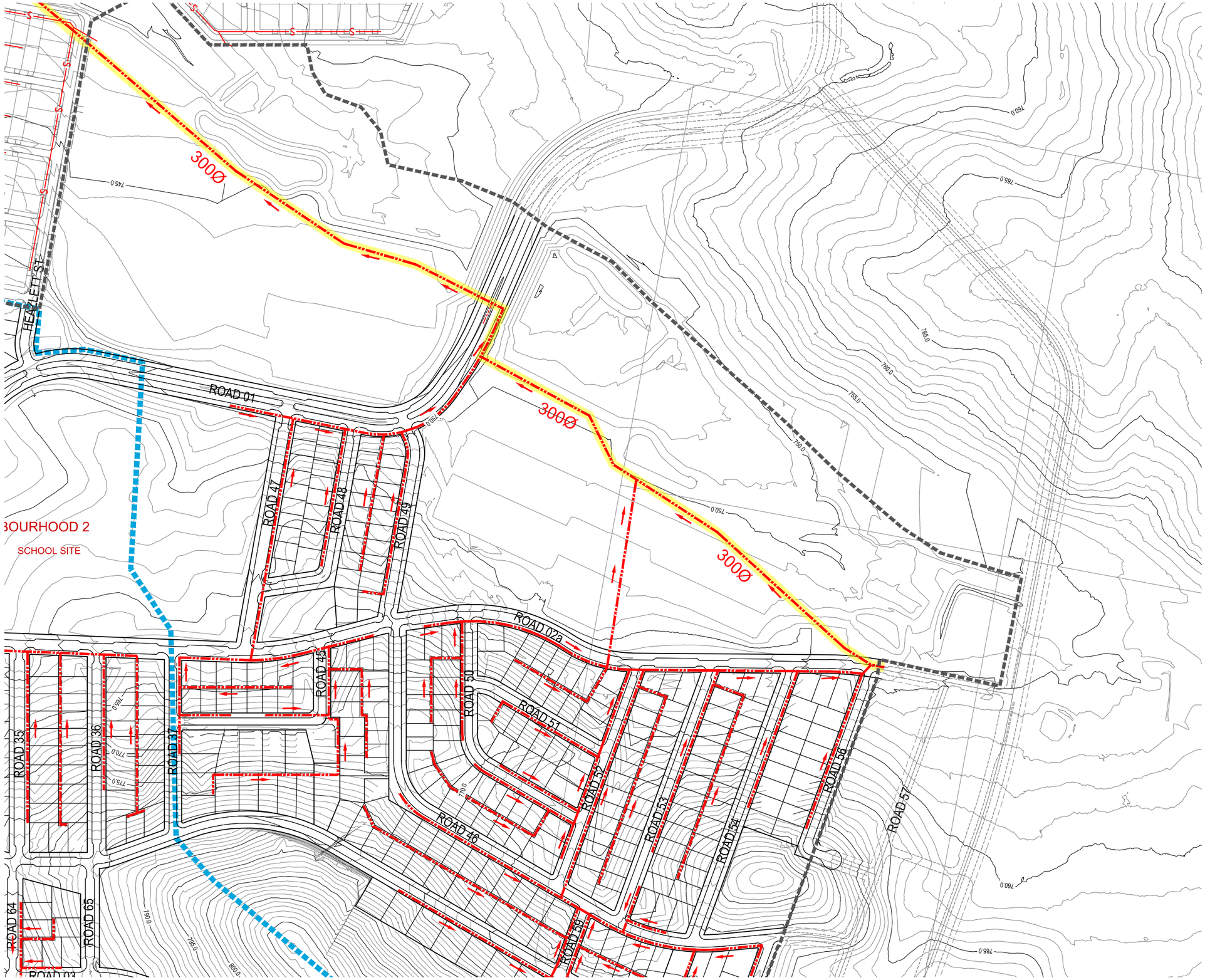
DRAWING TITLE
SEWER CONCEPT MASTER PLAN
SHEET 3

DRAWING NUMBER
16-001756-D186+

AMEND.
A



BOURHOOD 2

SCHOOL SITE

FOR CONTINUATION REFER 16-001756-D184+

NOTE:

REFER 16-001756-D183+ FOR LEGEND

FOR CONTINUATION REFER 16-001756-D186+

AMENDMENTS	ISSUE	DESIGN	DRAWN	CHECK	APPROVED	DATE	AMENDMENT DETAILS
	FIRST ISSUE	BC	VVB	CJC		23/03/2017	
	A	BC	KC			29/09/2017	QPRC COMMENTS ADDRESSED

WAE No. .....

PROJECT No. .....

A3 PLOT SCALE (METRES) A1 PLOT

1:4000 20 10 0 20 40 60 80 100 1:2000

CLIENT

PROJECT
GOOGONG NORTH
NEIGHBOURHOOD 2
DA SUBMISSION

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DRAWING TITLE
SEWER CONCEPT MASTER PLAN
SHEET 4

DRAWING NUMBER
16-001756-D187+

AMEND.
A