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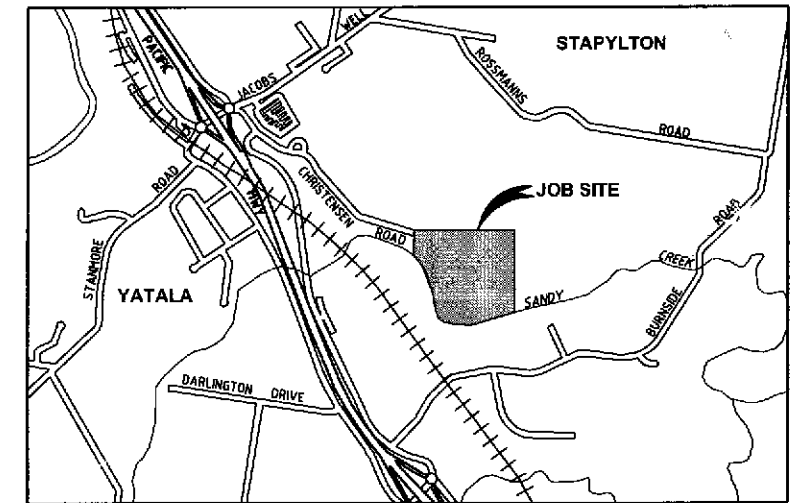
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INDUSTRIAL ESTATE CHRISTENSEN ROAD, YATALA

RP DESCRIPTION
LOT 334 ON
W311668

SURVEY DATUM
GASSMAN & ASSOCIATES PTY LTD
LICENSED SURVEYORS & DEVELOPMENT CONSULTANTS
PH 07 3807 3333



LOCALITY PLAN
N.T.S.

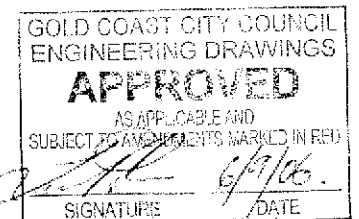
DRAWING INDEX - ROADWORKS AND DRAINAGE

DRAWING No.	DESCRIPTION
BEV417-C-DWG-001	SITE LAYOUT, LOCALITY PLAN AND DRAWING INDEX
BEV417-C-DWG-002	BULK EARTHWORKS - SHEET 1 OF 2
BEV417-C-DWG-003	BULK EARTHWORKS - SHEET 2 OF 2
BEV417-C-DWG-004	ROADWORKS AND DRAINAGE - SHEET 1 OF 2
BEV417-C-DWG-005	ROADWORKS AND DRAINAGE - SHEET 2 OF 2
BEV417-C-DWG-006	LONGITUDINAL SECTION ROAD - SHEET 1 OF 2
BEV417-C-DWG-007	LONGITUDINAL SECTION ROAD - SHEET 2 OF 2
BEV417-C-DWG-008	INTERSECTION AND CUL-DE-SAC DETAILS
BEV417-C-DWG-009	DRAINAGE LONGITUDINAL SECTIONS - SHEET 1 OF 3
BEV417-C-DWG-010	DRAINAGE LONGITUDINAL SECTIONS - SHEET 2 OF 3
BEV417-C-DWG-011	DRAINAGE LONGITUDINAL SECTIONS - SHEET 3 OF 3
BEV417-C-DWG-012	CUL-DE-SAC DRAINAGE, LAYOUT PLAN
BEV417-C-DWG-013	DRAINAGE MISCELLANEOUS DETAILS
BEV417-C-DWG-014	DETENTION \ WATER QUALITY BASIN SETOUT SHEET 1 OF 1
BEV417-C-DWG-015	DETENTION \ WATER QUALITY BASIN DETAILS SHEET 1 OF 1
BEV417-C-DWG-016	DETENTION \ WATER QUALITY BASIN PLANTING SHEET 1 OF 1
BEV417-C-DWG-017	DRAINAGE CALCULATIONS TABLE - SHEET 1 OF 3
BEV417-C-DWG-018	DRAINAGE CALCULATIONS TABLE - SHEET 2 OF 3
BEV417-C-DWG-019	DRAINAGE CALCULATIONS TABLE - SHEET 3 OF 3
BEV417-C-DWG-101	CROSS SECTIONS ROAD - SHEET 1 OF 9
BEV417-C-DWG-102	CROSS SECTIONS ROAD - SHEET 2 OF 9
BEV417-C-DWG-103	CROSS SECTIONS ROAD - SHEET 3 OF 9
BEV417-C-DWG-104	CROSS SECTIONS ROAD - SHEET 4 OF 9
BEV417-C-DWG-105	CROSS SECTIONS ROAD - SHEET 5 OF 9
BEV417-C-DWG-106	CROSS SECTIONS ROAD - SHEET 6 OF 9
BEV417-C-DWG-107	CROSS SECTIONS ROAD - SHEET 7 OF 9
BEV417-C-DWG-108	CROSS SECTIONS ROAD - SHEET 8 OF 9
BEV417-C-DWG-109	CROSS SECTIONS ROAD - SHEET 9 OF 9
BEV417-C-DWG-110	CROSS SECTIONS CUL-DE-SAC - SHEET 1 OF 2
BEV417-C-DWG-111	CROSS SECTIONS CUL-DE-SAC - SHEET 2 OF 2
BEV417-C-DWG-112	CROSS SECTIONS OPEN DRAIN - SHEET 1 OF 6
BEV417-C-DWG-113	CROSS SECTIONS OPEN DRAIN - SHEET 2 OF 6
BEV417-C-DWG-114	CROSS SECTIONS OPEN DRAIN - SHEET 3 OF 6
BEV417-C-DWG-115	CROSS SECTIONS OPEN DRAIN - SHEET 4 OF 6
BEV417-C-DWG-116	CROSS SECTIONS OPEN DRAIN - SHEET 5 OF 6
BEV417-C-DWG-117	CROSS SECTIONS OPEN DRAIN - SHEET 6 OF 6
BEV417-C-DWG-118	CATCHMENT PLAN

DRAWING INDEX - SEWER AND WATER RETICULATION

DRAWING No.	DESCRIPTION
BEV417-C-DWG-202	SEWER RETICULATION LAYOUT PLAN
BEV417-C-DWG-203	SEWER RISING MAIN LAYOUT PLAN - SHEET 1 OF 2
BEV417-C-DWG-204	SEWER RISING MAIN LAYOUT PLAN - SHEET 2 OF 2
BEV417-C-DWG-205	SEWER RETICULATION MAIN LONGITUDINAL SECTION
BEV417-C-DWG-206	SEWER RISING MAIN LONGITUDINAL SECTION - SHEET 1 OF 3
BEV417-C-DWG-207	SEWER RISING MAIN LONGITUDINAL SECTION - SHEET 2 OF 3
BEV417-C-DWG-208	SEWER RISING MAIN LONGITUDINAL SECTION - SHEET 3 OF 3
BEV417-C-DWG-209	WATER RETICULATION LAYOUT PLAN - SHEET 1 OF 2
BEV417-C-DWG-210	WATER RETICULATION LAYOUT PLAN - SHEET 2 OF 2

0 20 40 60 80 100
SCALE OF METRES
SCALE 1:2000



NOT FOR CONSTRUCTION

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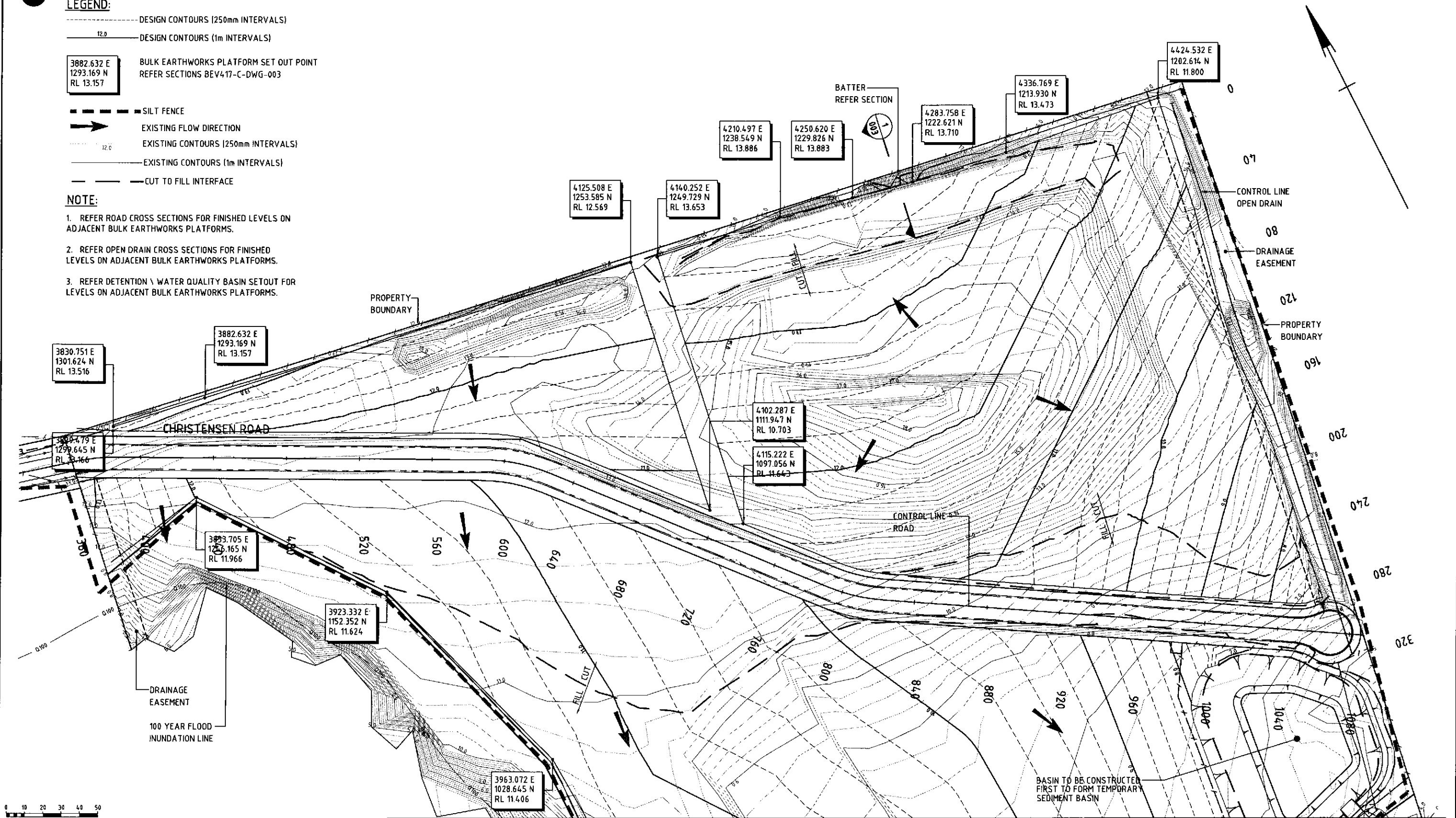
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LEGEND:

- DESIGN CONTOURS (250mm INTERVALS)
- DESIGN CONTOURS (1m INTERVALS)
- 3882.632 E
1293.169 N
RL 13.157 BULK EARTHWORKS PLATFORM SET OUT POINT
REFER SECTIONS BEV417-C-DWG-003
- SILT FENCE
- EXISTING FLOW DIRECTION
- EXISTING CONTOURS (250mm INTERVALS)
- EXISTING CONTOURS (1m INTERVALS)
- CUT TO FILL INTERFACE

NOTE:

1. REFER ROAD CROSS SECTIONS FOR FINISHED LEVELS ON ADJACENT BULK EARTHWORKS PLATFORMS.
2. REFER OPEN DRAIN CROSS SECTIONS FOR FINISHED LEVELS ON ADJACENT BULK EARTHWORKS PLATFORMS.
3. REFER DETENTION \ WATER QUALITY BASIN SETOUT FOR LEVELS ON ADJACENT BULK EARTHWORKS PLATFORMS.



0 10 20 30 40 50
SCALE OF METRES
SCALE 1:1000

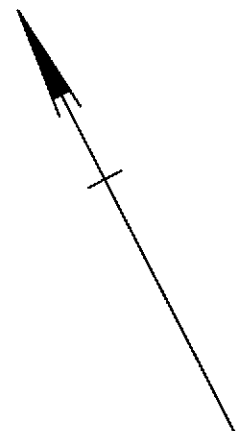
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BURNSIDE DEVELOPMENTS PTY LTD	
99 ANNERLEY ROAD	
WOOLLOONGABBA QLD 4102	
DRAWING No.	DESCRIPTION
REFERENCE DRAWINGS	
NOTES	

REV	DESCRIPTION	DATE	APPROVALS
A	FIRST ISSUE		
REV	DESCRIPTION	DATE	APPROVALS

Kellogg Brown & Root Pty Ltd	
KBR	
Kellogg Brown & Root Pty Ltd ABN 91 007 660 317 555 Coronation Drive, Toowong, Brisbane, Queensland, 4066 ph (07) 3721-6555 fax (07) 3721-6500	
DRAWING SCALE 1:1000 (A1)	ORIG. SIZE PROJECT No. A1 BEV417
DRAFTER: AM FRANGIOSA	CAD FILE: BEV417-C-DWG-002.dwg

INDUSTRIAL ESTATE CHRISTENSEN ROAD, YATALA BULK EARTHWORKS PLAN SHEET 1 OF 2	
DRAWING No. BEV417-C-DWG-002	REVISION A



3952.657 E
1044.878 N
RL 11.300

JOINS DRAWING No. BEV417-C-DWG-002

40m LANDSCAPE
BUFFER LINE

BENCH
REFER SECTION

3978.381 E
910.745 N
RL 11.5

4033.601 E
865.316 N
RL 11.300

CONNECT TO NEW
SANDY CREEK
CROSSING BY
GECE

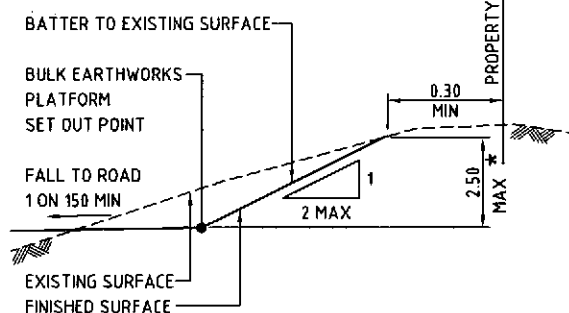
4307.000 E
779.459 N
RL 5.325

BENCH
REFER SECTION
4167.989 E
759.660 N
RL 10.325

100 YEAR FLOOD
INUNDATION LINE

4061.665 E
795.461 N
RL 11.500

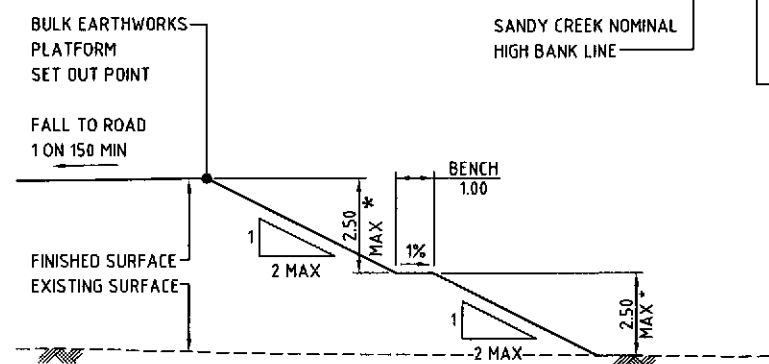
4105.005 E
763.780 N
RL 11.100



* NOTE: BATTERS > 2.50m HIGH
REQUIRE BENCHING

REFER SECTION 2 OPPOSITE
FOR BENCH

SECTION 1
SCALE 1:100 TYPICAL



* NOTE: BATTERS > 2.50m HIGH
REQUIRE BENCHING

SCALE SECTION 2
1:100 TYPICAL

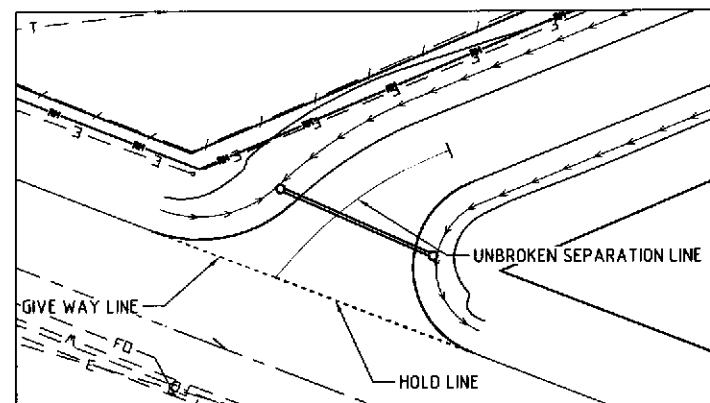
0 1 2 3 4 5
SCALE OF METRES (SECTIONS)
SCALE 1:100
0 10 20 30 40 50
SCALE OF METRES (PLAN)
SCALE 1:1000

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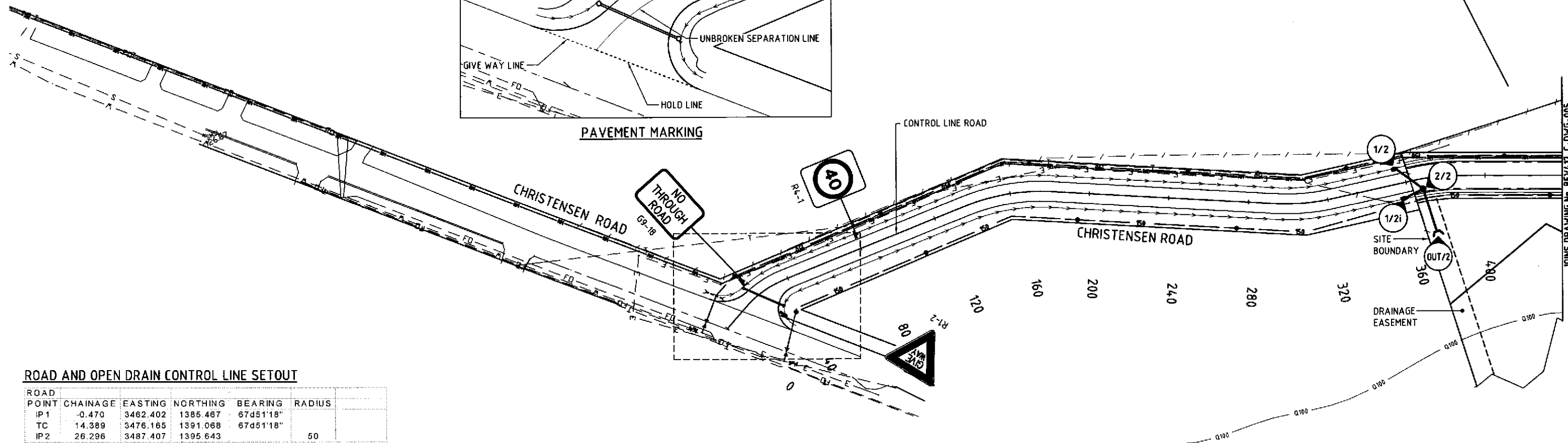
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NOTE:

FOR ROADWORKS AND DRAINAGE NOTES AND
LEGEND REFER DRAWING No. BEV417-C-DWG-005

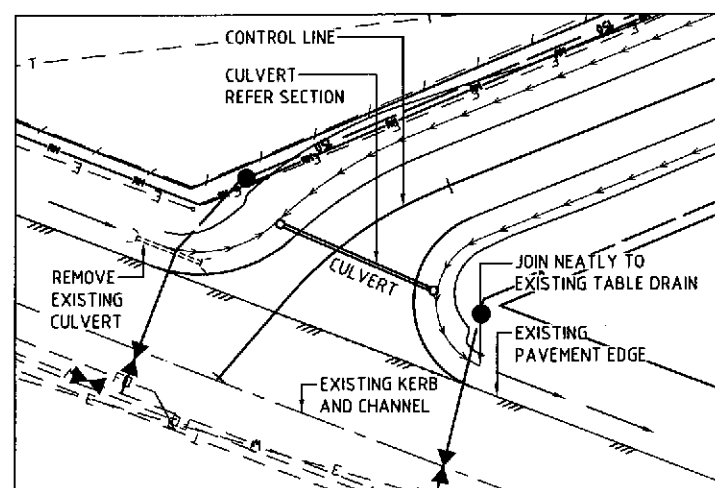


PAVEMENT MARKING

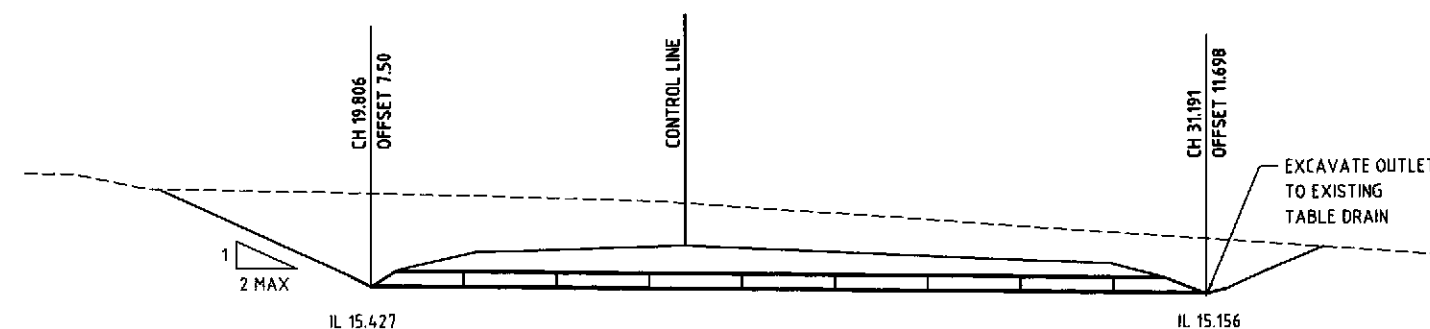


ROAD AND OPEN DRAIN CONTROL LINE SETOUT

ROAD POINT	CHAINAGE	EASTING	NORTHING	BEARING	RADIUS
IP1	0.470	3482.402	1385.487	67d51'18"	
TC	14.389	3476.165	1391.068	67d51'18"	
IP2	26.296	3487.407	1395.643		50
CT	38.202	3499.495	1394.555	95d08'35"	
TC	136.758	3597.653	1385.720	95d08'35"	
IP3	158.773	3619.942	1383.714		100
CT	180.789	3639.249	1372.400	120d22'17"	
TC	293.931	3736.864	1315.195	120d22'17"	
IP4	307.675	3748.798	1308.202		100
CT	321.420	3762.182	1304.710	104d37'16"	
TC	364.433	3803.801	1293.853	104d37'16"	
IP5	375.486	3814.540	1291.051		100
CT	386.539	3824.403	1285.963	117d17'13"	
TC	587.633	4003.120	1193.772	117d17'13"	
IP6	606.830	4020.393	1184.862		100
CT	626.026	4033.072	1170.130	139d17'05"	
TC	791.571	4141.057	1044.654	139d17'05"	
IP7	807.279	4151.388	1032.649		100
CT	822.987	4164.923	1024.424	121d17'05"	
IP8	1087.509	4391.068	887.008	121d17'05"	
OPEN DRAIN POINT	CHAINAGE	EASTING	NORTHING	BEARING	RADIUS
IP1	0.000	4429.881	1196.556	188d47'60"	
IP2	60.000	4420.702	1137.263	188d47'60"	
IP3	115.082	4409.324	1083.369	191d55'20"	
IP4	140.082	4405.499	1058.663	188d47'60"	
IP5	180.194	4402.344	1018.675	184d30'39"	
IP6	285.000	4388.310	915.103	188d47'60"	
IP7	406.894	4367.657	794.645	188d48'10"	

PLAN
SCALE 1:500

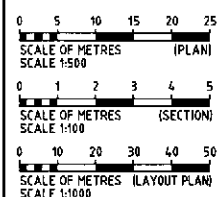
FOR INTERSECTION CONSTRUCTION
DETAILS REFER DRAWING No.
BEV417-C-DWG-008

SECTION
SCALE 1:100

CULVERT - SKEW
450 RCP, RRJ, CLASS 3, 21.96m (9x2.44m)
HEADWALLS - PRECAST SLOPING

CULVERT DETAILS

NOT FOR CONSTRUCTION



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BURNSIDE DEVELOPMENTS PTY LTD 99 ANNERLEY ROAD WOOLLOONGABBA QLD 4102		DRAFTING J POMROY DESIGN J POMROY DESIGN VERIFICATION D NEUHOLD PROJECT APPROVAL GC LOVELL CLIENT		NAME SIGNATURE J POMROY D NEUHOLD GC LOVELL		Kellogg Brown & Root Pty Ltd KBR Kellogg Brown & Root Pty Ltd ABN 91 087 668 317 555 Coronation Drive, Toowong, Brisbane, Queensland, 4066 ph (07) 3721-6555 fax (07) 3721-6500		TITLE INDUSTRIAL ESTATE CHRISTENSEN ROAD, YATALA ROADWORKS AND DRAINAGE SHEET 1 OF 2	
DRAWING No.	DESCRIPTION	DATE	REVISIONS	APPROVALS	DRAWING SCALE 1:1000 (A1)	ORIG. SIZE A1	PROJECT No. BEV417	DRAWING No. BEV417-C-DWG-004	REVISION A

ROADWORKS AND DRAINAGE NOTES

1. NOTWITHSTANDING THE LIMITS OF CUTTING AND FILLING ON THE DRAWINGS THE ACTUAL LIMITS SHALL BE DETERMINED ON SITE BY THE SUPERINTENDENT DURING CONSTRUCTION.

2. ROAD CONSTRUCTION WITHIN THE SITE (BETWEEN CH 360 AND 1000) SHALL COMPLY WITH THE INDUSTRIAL COLLECTOR STREET CROSS SECTION AS DETAILED ON GCCC STANDARD DRAWING No. 03-02-004. BARRIER KERB AND CHANNEL (HEAVY DUTY) AS DETAILED ON GCCC STANDARD DRAWING No. 03-02-102 IS REQUIRED. SUBSOIL DRAINS IN ACCORDANCE WITH GCCC STANDARD DRAWING No. 03-02-103 SHALL BE CONSTRUCTED UNDER ALL KERB AND CHANNEL.

3. ROAD CONSTRUCTION EXTERNAL TO THE SITE (CH 0 TO 360) SHALL COMPLY WITH TYPICAL SECTION AS SHOWN ON CONTROL LINE ROAD CH 100 ON DRAWING No. BEV417-C-DWG-016.

4. ALL STORMWATER PIPES UNDER ROADWAYS AND FOOTPATHS SHALL BE CLASS (2) RCP UNLESS NOTED OTHERWISE. ALL PIPES UP TO AND INCLUDING 600mm DIA. SHALL BE RUBBER RING JOINTED. ALL JOINTS IN STORMWATER LINES OTHER THAN RRJ SHALL BE SEALED EXTERNALLY WITH WATER PROOFED "DENSO TAPE" OR AN APPROVED EQUIVALENT.

5. FOOTPATHS TO BE TOPSOILED (75mm THICK) AND TURFED BETWEEN KERB AND FOOTPATH AND FOR TWO TURF STRIPS ADJACENT TO FOOTPATH BETWEEN FOOTPATH AND PROPERTY BOUNDARY.

6. ALL DIMENSIONS ARE IN METRES UNLESS SHOWN OTHERWISE.

7. THE CONTRACTOR SHALL INITIALLY EXCAVATE THE PAVEMENT BOX TO 300mm BELOW THE FINISHED PAVEMENT LEVEL SHOWN ON THE DRAWINGS AND THEN NOTIFY THE SUPERINTENDENT, WHO WILL FIX THE DEPTH OF PAVEMENT FOLLOWING A REVIEW OF THE RESULTS OF SUB-GRADE CBR TESTS AS SUPPLIED BY THE CONTRACTOR. PAVEMENT DEPTHS WILL BE CALCULATED ON THE INDUSTRIAL COLLECTOR STREET CLASSIFICATION AS DESCRIBED WITHIN GCCC DEVELOPMENT GUIDELINES.

8. THE PAVEMENT SHALL CONFORM TO GCCC STANDARD REQUIREMENTS AS DESCRIBED WITHIN GCCC DEVELOPMENT GUIDELINES. FOR A INDUSTRIAL COLLECTOR STREET CLASSIFICATION ROAD AS FOLLOWS: (MINIMUM COURSE THICKNESS)

- ASPHALT - 35
- BASE COURSE - 125
- CBR 80 (CLASS 1A) - 125
- UPPER SUB BASE - 125
- CBR 45 (CLASS 2) - 125
- LOWER SUB BASE - 125
- CBR 15 (CLASS 3) - FINAL THICKNESS IS DEPENDENT ON SUBGRADE CBR TEST RESULTS.

9. PRIOR TO COMMENCEMENT OF ANY WORKS ON SITE THE RELEVANT AUTHORITIES SHALL BE CONTACTED BY THE CONTRACTOR FOR DETAILED LOCATION OF ALL EXISTING SERVICES. ANY DAMAGE TO EXISTING SERVICES SHALL BE RECTIFIED AT THE CONTRACTOR'S EXPENSE. THE CONTRACTOR SHALL NOTIFY THE SUPERINTENDENT OF ANY DISCREPANCIES 21 DAYS PRIOR TO COMMENCEMENT OF WORK.

10. LEVELS FOR THE CONNECTION TO EXISTING WORKS MAY BE VARIED (UPON APPLICATION TO THE SUPERINTENDENT) WHERE NECESSARY ON SITE TO ACHIEVE A SATISFACTORY SMOOTH FINISH TO THE EXISTING WORKS.

11. LENGTHS OF STORMWATER DRAINS HAVE BEEN CALCULATED FROM THE SETOUT POINT OF DRAINAGE STRUCTURES.

12. ALL GULLY PITS TO BE CHANNEL LIP IN LINE IN ACCORDANCE WITH GCCC STANDARD DRAWING No.03-03-003 UNLESS NOTED OTHERWISE.

13. REFER TO GCCC STANDARD DRAWING No. 03-03-201 FOR BEDDING/BACKFILL DETAILS. SUPPORT FOR CONCRETE PIPES TO BE H2 UNLESS NOTED OTHERWISE.

14. PAVEMENT CONSTRUCTION AT CONNECTION OF NEW PAVEMENT TO EXISTING SHALL COMPLY WITH GCCC STANDARD DRAWING No.03-02-603.

15. 1200mm WIDE CONCRETE FOOTPATHS SHALL BE PROVIDED WITHIN SITE (CH 360 TO 1000) WITHIN FOOTPATH RESERVE ON BOTH SIDES OF ROAD IN ACCORDANCE WITH GCCC STANDARD DRAWING Nos. 03-02-005, 03-02-201, 03-02-205.

16. SERVICE CONDUIT ROAD CROSSINGS WHERE SPECIFIED SHALL COMPLY WITH GCCC STANDARD DRAWING No. 03-02-601.

17. SERVICE INSTALLATION WITHIN EXISTING ROADWAYS SHALL COMPLY WITH GCCC STANDARD DRAWING No. 03-02-602.

18. STORMWATER MANHOLES SHALL COMPLY WITH GCCC STANDARD DRAWING Nos. 03-03-101, 03-03-102, 03-03-103 AND 03-03-104 AS APPROPRIATE.

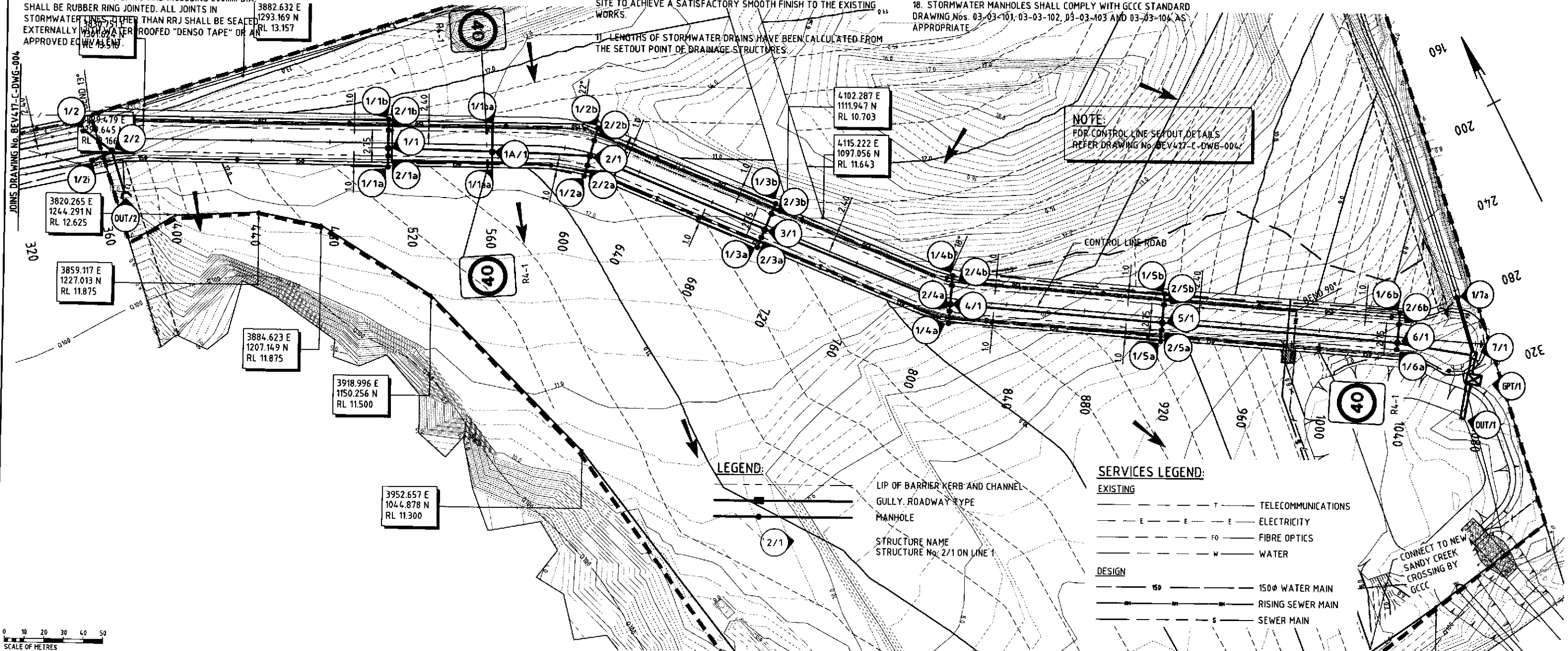
NOTE:
FOR CONTROL LINE SETOUT DETAILS
REFER DRAWING No. BEV417-C-DWG-004

LEGEND:

LIP OF BARRIER KERB AND CHANNEL
GULLY, ROADWAY TYPE
MANHOLE
STRUCTURE NAME
STRUCTURE No. 2/1 ON LINE 1

SERVICES LEGEND:

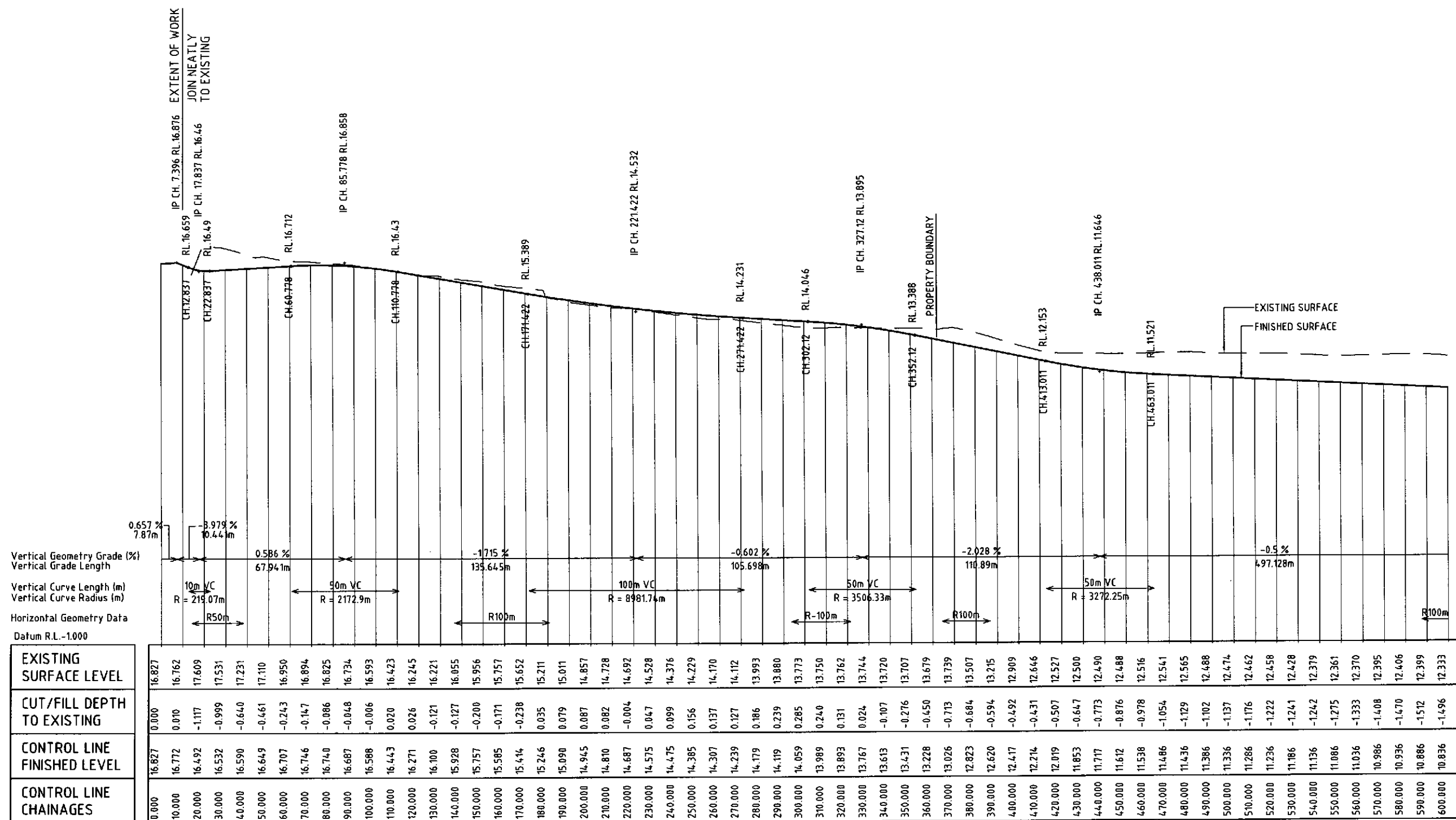
- EXISTING
- TELECOMMUNICATIONS
 - ELECTRICITY
 - FIBRE OPTICS
 - WATER
- DESIGN
- 150 WATER MAIN
 - RISING SEWER MAIN
 - SEWER MAIN



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SCALE OF METRES
SCALE 1:1000

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100mm ON ORIGINAL DRAWING BURNSIDE DEVELOPMENTS PTY LTD 99 ANNERLEY ROAD WOOLLOONGABBA QLD 4102		NAME SIGNATURE DRAFTING J POMROY DESIGN J POMROY DESIGN VERIFICATION D NEUHOLD PROJECT APPROVAL GC LOVELL CLIENT		Kellogg Brown & Root Pty Ltd KBR Kellogg Brown & Root Pty Ltd ABN 91 007 660 317 555 Coronation Drive, Toowong, Brisbane, Queensland, 4066 ph (07) 3721-6555 fax (07) 3721-6500 DRAWING SCALE 1:1000 (A1) ORIG. SIZE A1 PROJECT No. BEV417 DRAFTER: AM FRANGIOSA CAD FILE: BEV417-C-DWG-005.dwg		TITLE INDUSTRIAL ESTATE CHRISTENSEN ROAD, YATALA ROADWORKS AND DRAINAGE SHEET 2 OF 2 DRAWING No. BEV417-C-DWG-005 REVISION A	
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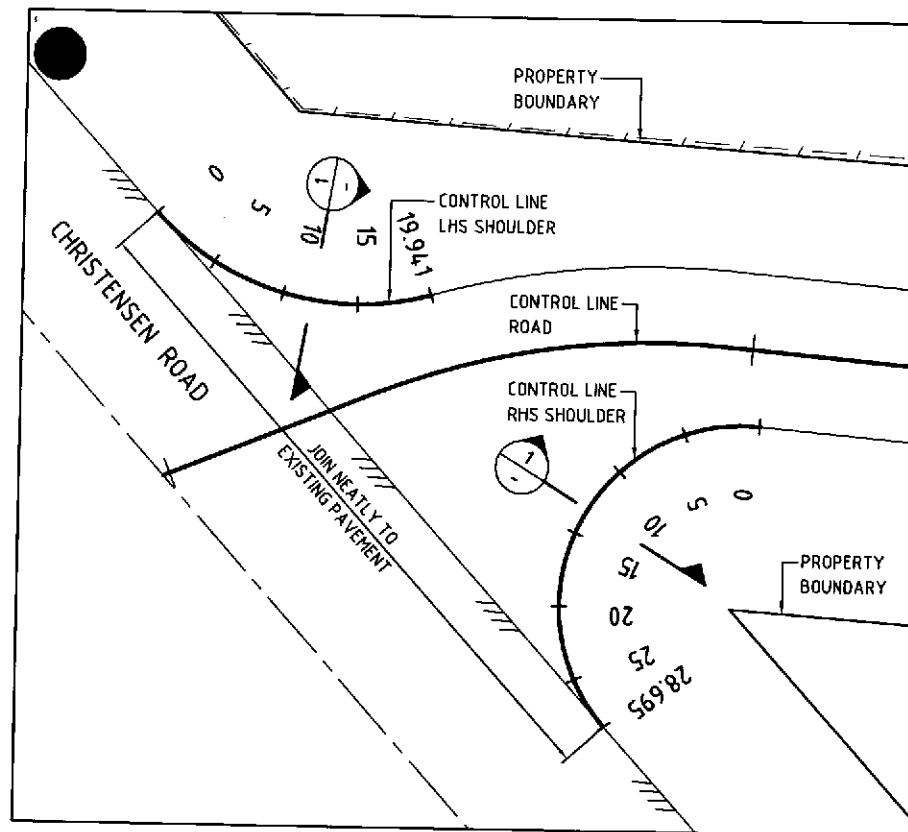
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				NAME		SIGNATURE	
				DRAFTING		J POMROY	
				DESIGN		J POMROY	
				DESIGN VERIFICATION		D NEUHOLD	
				PROJECT APPROVAL		GC LOVELL	
A		FIRST ISSUE					
REV		DESCRIPTION		DATE		CLIENT	
REVISIONS				APPROVALS			

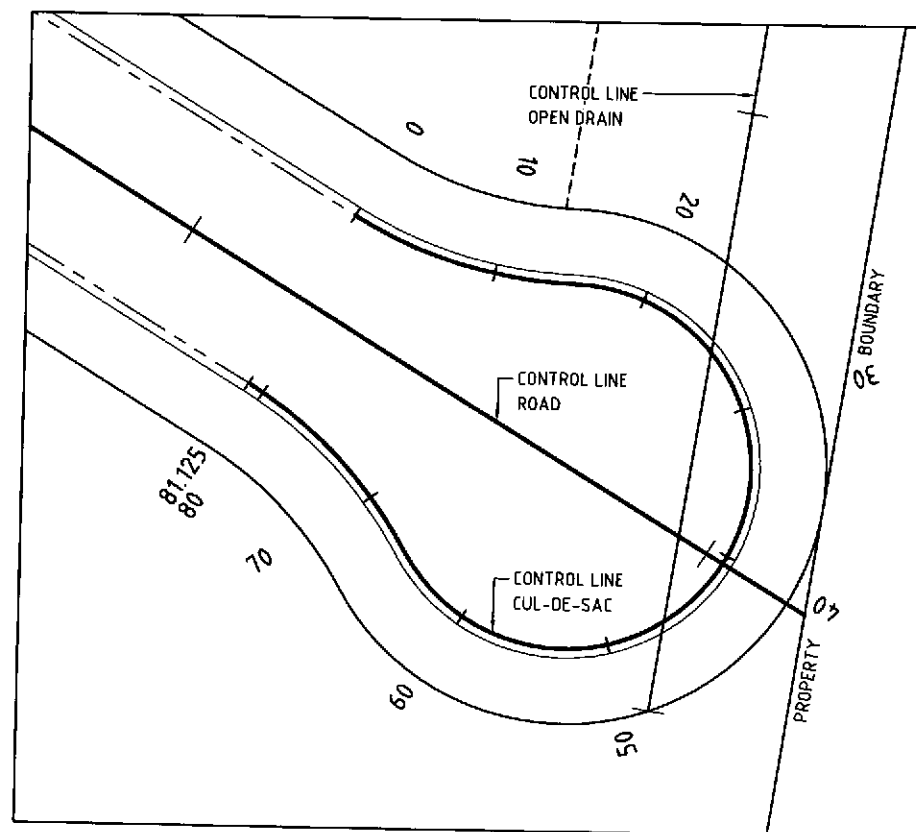
Kellogg Brown & Root Pty Ltd KBR		
Kellogg Brown & Root Pty Ltd ABN 91 007 660 317 555 Coronation Drive, Toowoomba, Brisbane, Queensland, 4666 ph (07) 3721-4555 fax (07) 3721-6500		
DRAWING SCALE 1:1000 (A1)	ORIG. SIZE A1	PROJECT No. BEV417
DRAFTER: AM FRANGIOSA		CAD FILE: BEV417-C-DWG-086.dwg

TITLE	
INDUSTRIAL ESTATE CHRISTENSEN ROAD, YATALA LONGITUDINAL SECTION ROAD SHEET 1 OF 2	
DRAWING No.	REVISION
BEV417-C-DWG-006	A

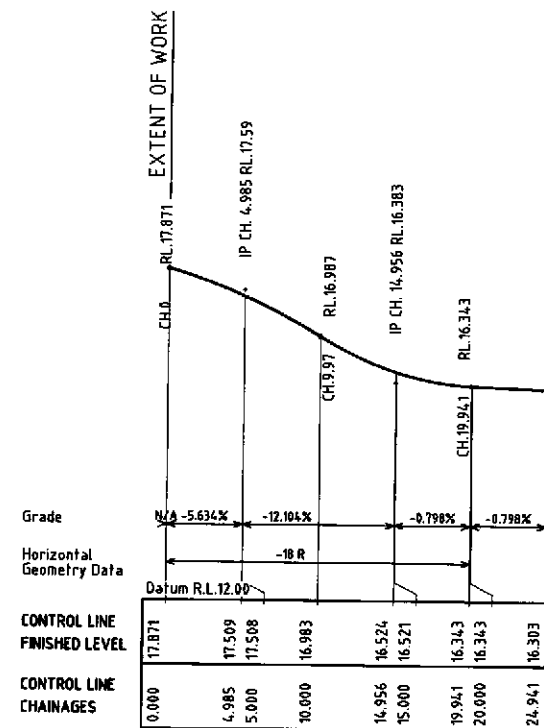
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PLAN - INTERSECTION



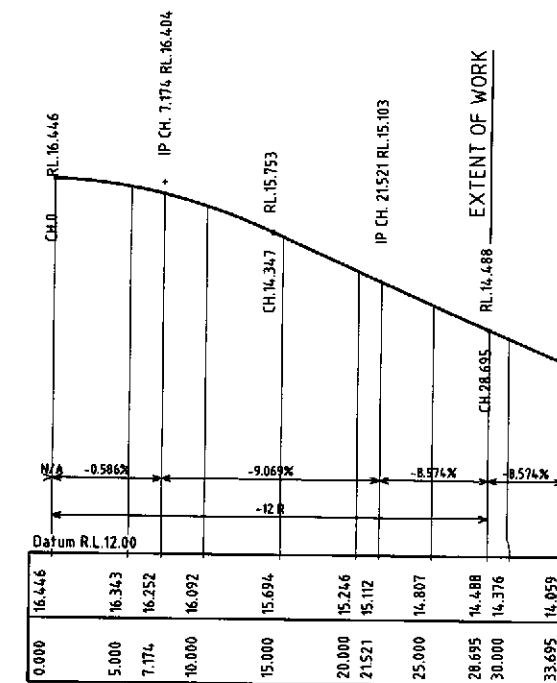
PLAN - CUL-DE-SAC



CONTROL LHS SHOULDER

CONTROL LINE LHS SHOULDER SETOUT

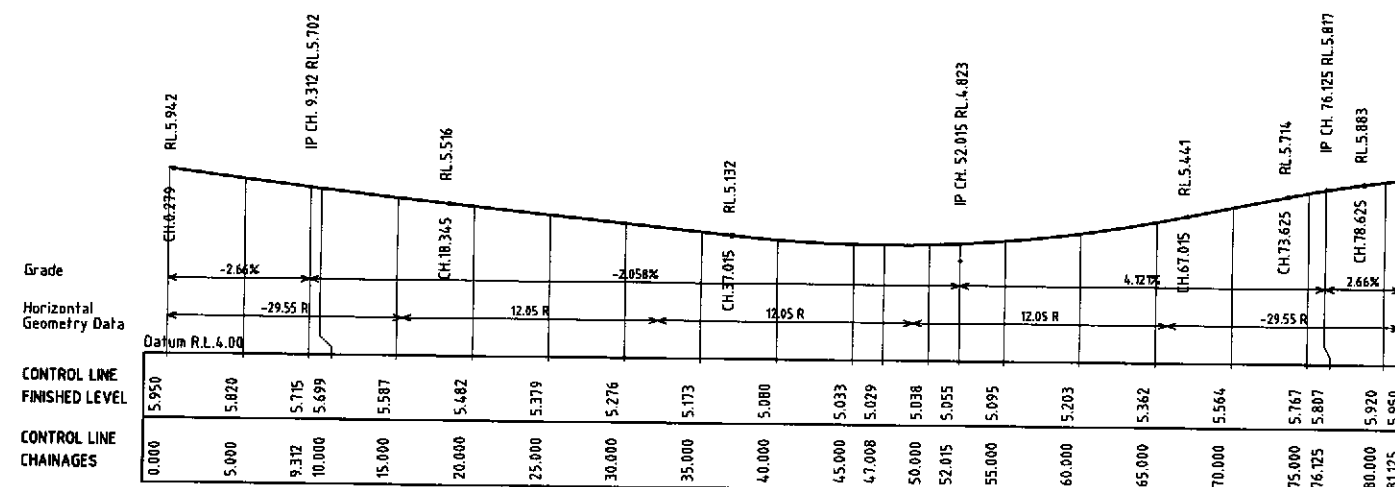
POINT	CHAINAGE	EASTING	NORTHING	BEARING	RADIUS
IP1	0	3461.689	1402.798	137d32'09"	
TC	0	3461.689	1402.798	137d32'09"	
IP2	9.970	3469.205	1394.585		18.000
CT	19.941	3479.910	1397.642	74d03'44"	
IP3	19.941	3479.910	1397.642	74d03'44"	



CONTROL RHS SHOULDER

CONTROL LINE RHS SHOULDER SETOUT

POINT	CHAINAGE	EASTING	NORTHING	BEARING	RADIUS
IP1	0	3501.805	1389.327	275d08'35"	
TC	0	3501.805	1389.327	275d08'35"	
IP2	14.347	3471.457	1392.058		12.000
CT	28.695	3491.793	1369.367	138d08'04"	
IP3	28.695	3491.793	1369.367	138d08'04"	



CONTROL LINE CUL-DE-SAC

FOR CROSS SECTIONS
REFER DRAWING No's. BEV417-C-DWG-025 AND 026

CONTROL LINE CUL-DE-SAC SETOUT

POINT	CHAINAGE	EASTING	NORTHING	BEARING	RADIUS
IP1	0	4361.080	912.895	121d17'05"	
TC	0	4361.080	912.895	121d17'05"	
IP2	7.684	4367.798	908.812		29.550
CTP	15.368	4375.658	908.608	91d29'15"	
IP3	23.766	4385.741	908.346		12.050
CT	32.164	4387.258	898.374	171d21'09"	
TC	32.164	4387.258	898.374	171d21'09"	
IP4	40.563	4388.775	888.402		12.050
CT	48.961	4379.225	885.154	251d13'02"	
TC	48.961	4379.225	885.154	251d13'02"	
IP5	57.359	4369.675	881.906		12.050
CTP	65.758	4364.797	890.735	331d04'56"	
IP6	73.441	4360.996	897.617		29.550
CT	81.125	4354.277	901.700	301d17'05"	
IP7	81.125	4354.277	901.700	301d17'05"	

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DRAWING No.	DESCRIPTION
REFERENCE DRAWINGS	
NOTES	
REVISIONS	
DATE	
DESCRIPTION	
REVISIONS	

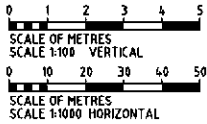
NAME	SIGNATURE
DRAFTING J POMROY	
DESIGN J POMROY	
DESIGN VERIFICATION D NEUHOLD	
PROJECT APPROVAL GC LOVELL	
CLIENT	
APPROVALS	

Kellogg Brown & Root Pty Ltd	
KBR	
Kellogg Brown & Root Pty Ltd ABN 91 007 660 317 555 Coronation Drive, Toowong, Brisbane, Queensland, 4066 ph (07) 3721-6555 fax (07) 3721-6500	
DRAWING SCALE	ORIG. SIZE
AS SHOWN	A1
PROJECT No.	BEV417
DRAFTER: AM FRANGIOSA	CAD FILE: BEV417-C-DWG-008.dwg

TITLE	
INDUSTRIAL ESTATE CHRISTENSEN ROAD, YATALA INTERSECTION AND CUL-DE-SAC DETAILS	
DRAWING No.	REVISION
BEV417-C-DWG-008	A

NOT FOR CONSTRUCTION

STRUCTURE MANHOLE
STRUCTURE DESCRIPTION



VELOCITY (m/s)	1.350	1.960	2.514	3.118	5.589	5.719	2.270	3.194
PIPE GRADE %	0.437%	0.616%	0.522%	0.611%	2.176%	1.242%	0.643%	0.151%
PIPE FLOW (m ³ /s)	0.302	0.895	1.461	3.026	4.168	5.496	5.944	5.944
PIPE SIZEmm (Class)	525 (2)	750 (2)	1050 (2)	1350 (2)	1500 (2)	1650 (2)	1800 (2)	1800 (2)
DATUM	-11.000							
DEPTH TO INVERT	1.516	1.485						
HYDRAULIC GRADE LEVEL	10.760	10.604						
INVERT LEVEL OF DRAIN	9.691	9.241	8.387	7.738	6.775	3.172	2.529	2.379
DESIGN SURFACE LEVEL	11.207	10.725	10.221	9.688	9.025	6.272	5.029	5.077
EXISTING SURFACE LEVEL	12.393	12.290	12.056	10.807	9.189	6.598	5.256	5.077
ROAD CHAINAGE	509.701	613.350	710.000	811.715	919.982	1040.000	1079.474	1078.632
RUNNING CHAINAGE	0.000	103.004	199.430	301.614	410.193	530.212	569.895	581.936

LINE

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DRAWING No.	DESCRIPTION
REFERENCE DRAWINGS	NOTES

BURNSIDE DEVELOPMENTS PTY LTD
99 ANNERLEY ROAD
WOOLLOONGABBA QLD 4102

REV	DESCRIPTION	DATE
A	FIRST ISSUE	

NAME	SIGNATURE
DRAFTING	J POMROY
DESIGN	J POMROY
DESIGN VERIFICATION	D NEUHOLD
PROJECT APPROVAL	GC LOVELL
CLIENT	

Kellogg Brown & Root Pty Ltd

KBR

Kellogg Brown & Root Pty Ltd ABN 91 007 660 317
555 Coronation Drive, Toowong,
Brisbane, Queensland, 4066
ph (07) 3721-6555 fax (07) 3721-6500

DRAWING SCALE
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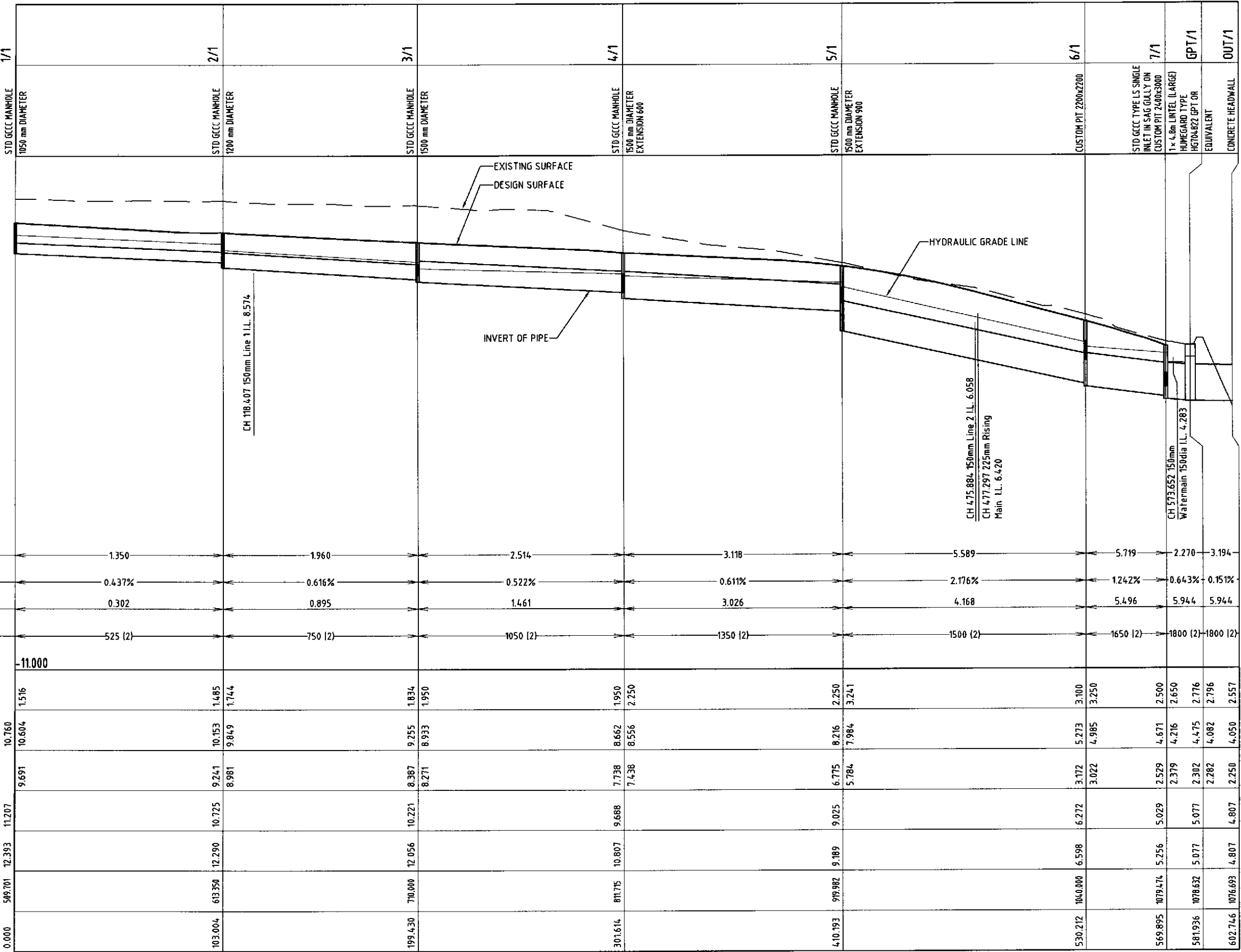
ORIG. SIZE
A1

PROJECT No.
BEV417

DRAFTER: AM FRANKOSA

CAD FILE: BEV417-C-DWG-009.dwg

TITLE	INDUSTRIAL ESTATE CHRISTENSEN ROAD, YATALA DRAINAGE LONGITUDINAL SECTIONS SHEET 1 OF 3
DRAWING No.	BEV417-C-DWG-009
REVISION	A



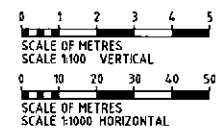
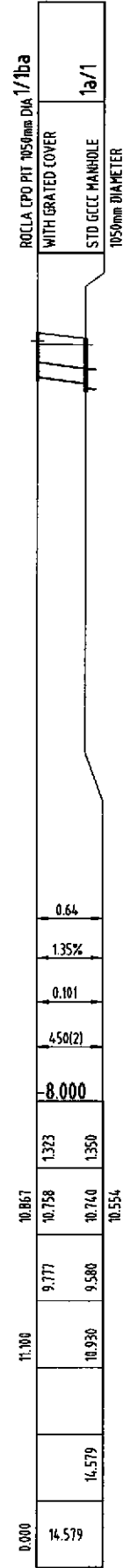
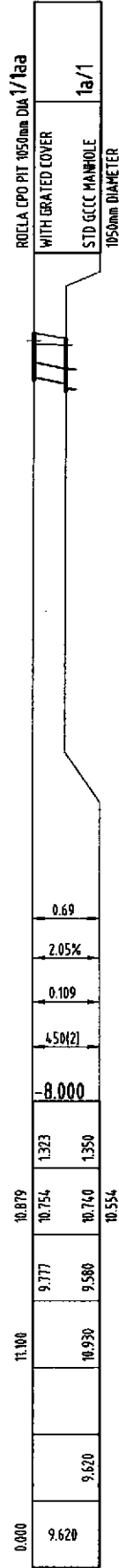
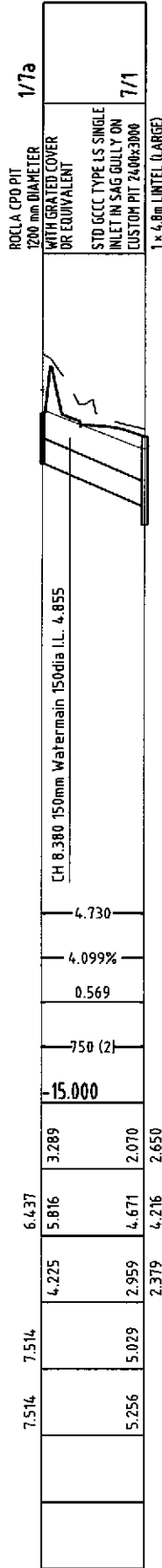
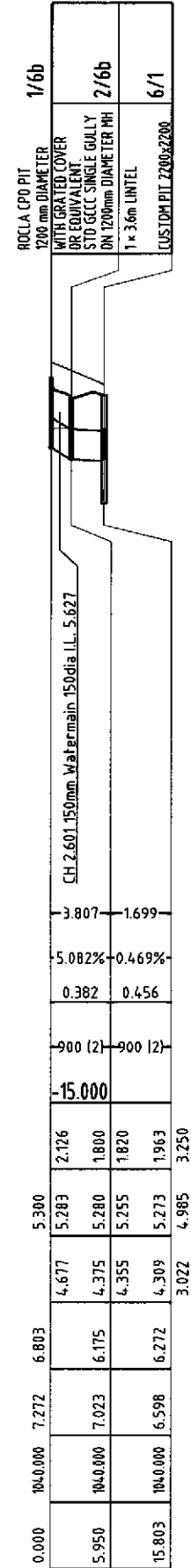
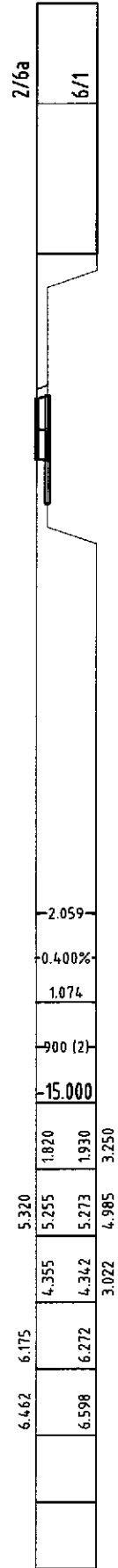
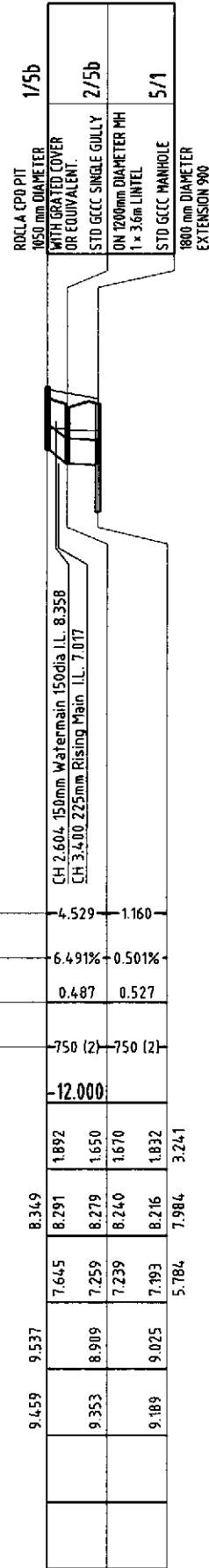
1/1a	1/1a	2/1a	1/1
ROCCA CPO PIT 1050 mm DIAMETER WITH INTEGRATED COVER OR EQUIVALENT.	1050 mm DIAMETER WITH INTEGRATED COVER OR EQUIVALENT.	1050 mm DIAMETER WITH INTEGRATED COVER OR EQUIVALENT.	1050 mm DIAMETER WITH INTEGRATED COVER OR EQUIVALENT.
1050 mm DIAMETER WITH INTEGRATED COVER OR EQUIVALENT.	1050 mm DIAMETER WITH INTEGRATED COVER OR EQUIVALENT.	1050 mm DIAMETER WITH INTEGRATED COVER OR EQUIVALENT.	1050 mm DIAMETER WITH INTEGRATED COVER OR EQUIVALENT.
1050 mm DIAMETER WITH INTEGRATED COVER OR EQUIVALENT.	1050 mm DIAMETER WITH INTEGRATED COVER OR EQUIVALENT.	1050 mm DIAMETER WITH INTEGRATED COVER OR EQUIVALENT.	1050 mm DIAMETER WITH INTEGRATED COVER OR EQUIVALENT.

NOT FOR CONSTRUCTION

STRUCTURE NAME
STRUCTURE DESCRIPTION

VELOCITY (m/s)	4.529	1.160
PIPE GRADE %	6.491%	0.501%
PIPE FLOW (m3/s)	0.487	0.527
PIPE SIZEmm (Class)	750 (2)	750 (2)

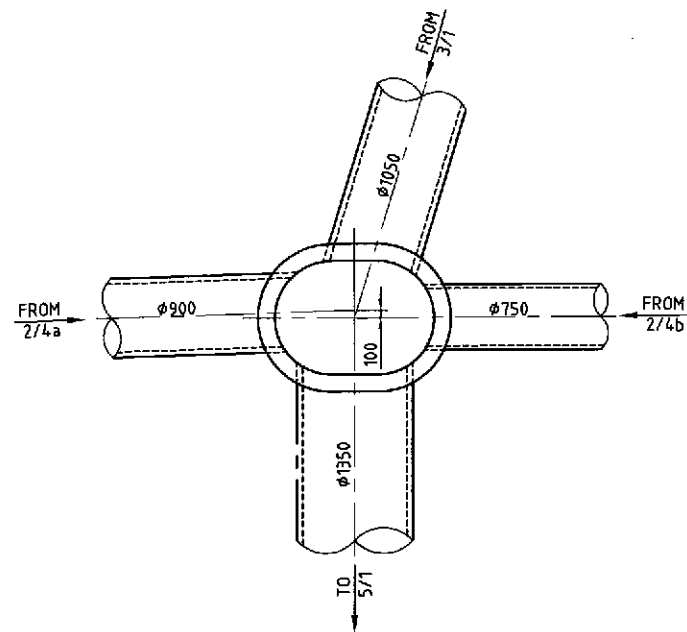
DATUM
DEPTH TO INVERT
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INVERT LEVEL OF DRAIN
DESIGN SURFACE LEVEL
EXISTING SURFACE LEVEL
ROAD CHAINAGE
RUNNING CHAINAGE



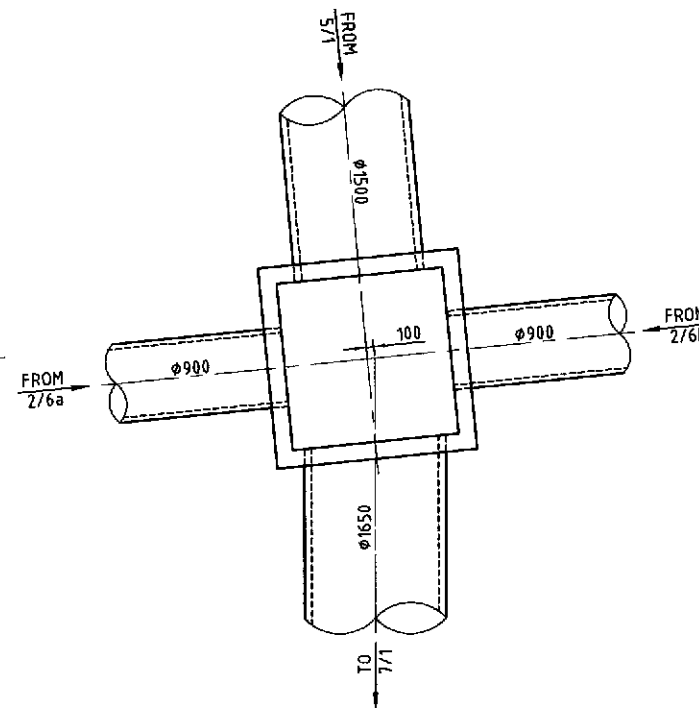
NOT FOR CONSTRUCTION

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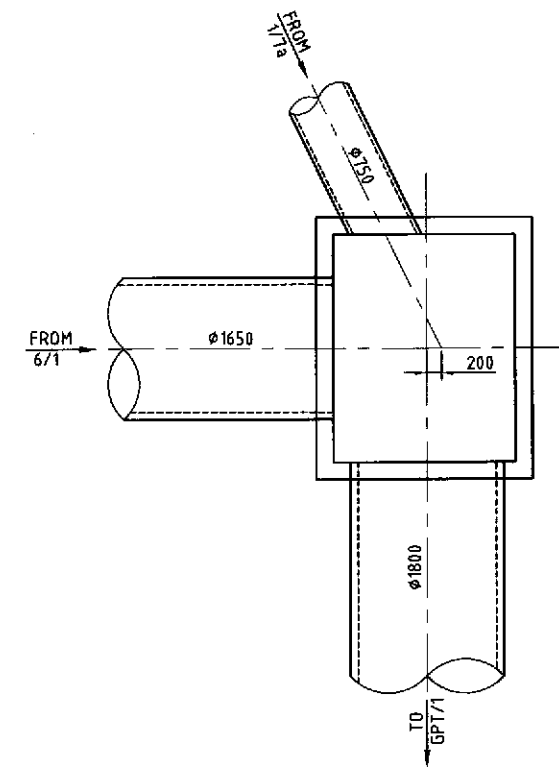
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BURNSIDE DEVELOPMENTS PTY LTD		99 ANNERLEY ROAD		WOOLLOONGABBA QLD 4102															
DRAFTING		J POMROY																	
DESIGN		J POMROY																	
DESIGN VERIFICATION		D NEUHOLD																	
PROJECT APPROVAL		GC LOVELL																	
CLIENT																			
DRAWING SCALE		1:1000 (A1)																	
ORIG. SIZE		A1																	
PROJECT No.		BEV417																	
DRAWING No.		BEV417-C-DWG-011																	
REVISION		A																	



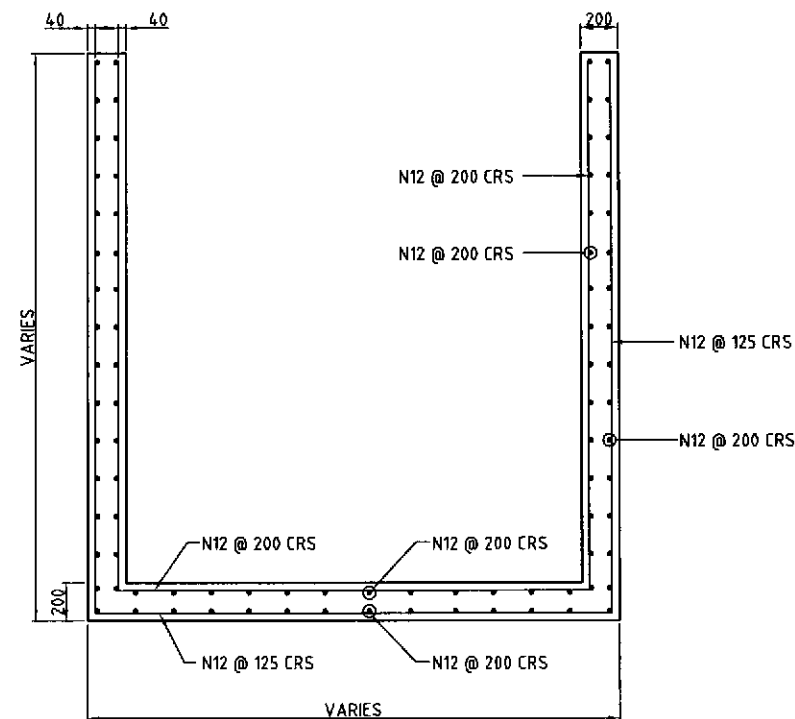
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 Ø1500 EXTEND 600
 SCALE: 1:50



PIT 6/1
 CUSTOM PIT 2200x2200
 SCALE: 1:50



PIT 7/1
 CUSTOM PIT 2400x3000
 SCALE: 1:50



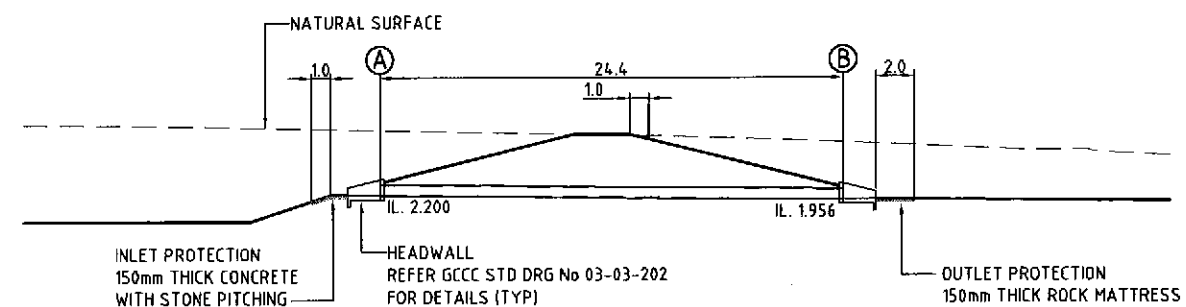
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 PIT 6/1 & PIT 7/1
 SCALE: 1:20



NOT FOR CONSTRUCTION

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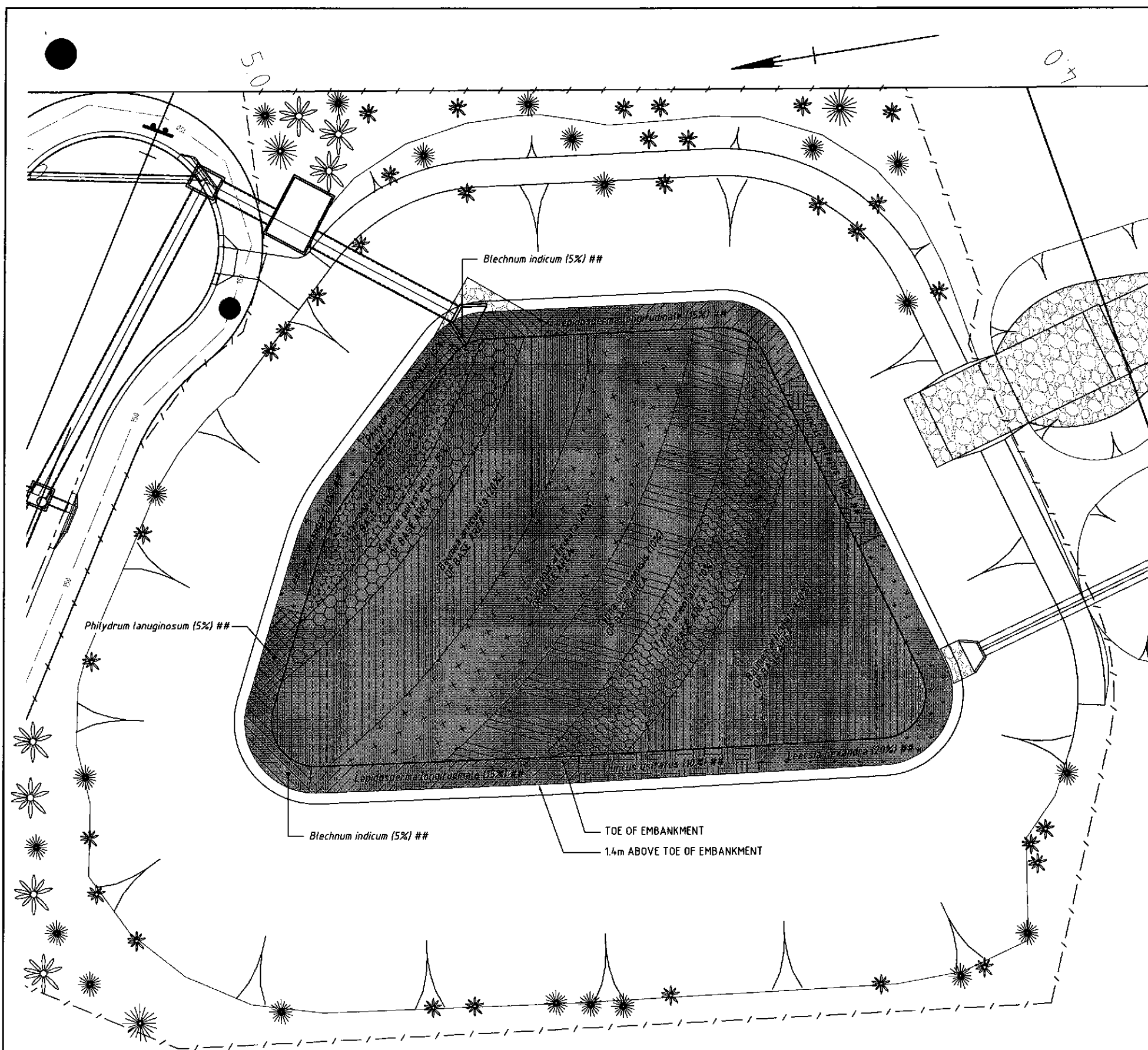
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BURNSIDE DEVELOPMENTS PTY LTD		99 ANNERLEY ROAD		WOOLLOONGABBA QLD 4102		A		FIRST ISSUE				NAME		SIGNATURE		KBR		INDUSTRIAL ESTATE		A	
												DRAFTING		J POMROY		Kellogg Brown & Root Pty Ltd		CHRISTENSEN ROAD, YATALA			
												DESIGN		J POMROY		ABN 91 007 660 317		DRAINAGE MISCELLANEOUS DETAILS			
												DESIGN VERIFICATION		D NEUHOLD		555 Coronation Drive, Toowong,					
												PROJECT APPROVAL		GC LOVELL		Brisbane, Queensland, 4866					
												CLIENT				ph (07) 3721-6555 fax (07) 3721-6500					
																DRAWING SCALE		BEV417-C-DWG-013			
																ORIG. SIZE					
																A1					
																AS SHOWN					



CULVERT A-B
2/600 RCP, RRJ, CLASS 2, 24.4m (10x2.44m)
SCALE 1:200

NOT FOR CONSTRUCTION

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				BURNSIDE DEVELOPMENTS PTY LTD 99 ANNERLEY ROAD WOOLLOONGABBA QLD 4102								DRAWING No. AS SHOWN		REVISION A	
DRAWING No.		DESCRIPTION		A FIRST ISSUE		REV		DESCRIPTION		DATE		DRAFTER: AM FRANGIOSA		CAD FILE: BEV417-C-DWG-015.dwg	
REFERENCE DRAWINGS		NOTES		REVISIONS		APPROVALS									



REVEGETATION TABLE

SPECIES	COMMON NAME	SYMBOL	No.	DENSITY/m²	EMERGENT	EDGE/BANKS
Baumea articulata	JOINTED TWIGRUSH (TUBESTOCK)	[Symbol]	4500	3.0	X	
Blechnum indicum	SWAMP WATER FERN (TUBESTOCK)	[Symbol]	200	4.0		X
Cyperus polystachyos	BUNCHY SEDGE (TUBESTOCK)	[Symbol]	608	4.0	X	
Juncus usitatus	COMMON RUSH (TUBESTOCK)	[Symbol]	504	6.0		X
Leersia hexandra	SWAMP RICE GRASS (TUBESTOCK)	[Symbol]	520	4.0		X
Lepidosperma longitundale	PITHY SWORDSEDE (TUBESTOCK)	[Symbol]	2150	4.0		X
Lepironia articulata	- (TUBESTOCK)	[Symbol]	1800	3.0	X	
Philydrum lanuginosum	FROGSMOUTH (TUBESTOCK)	[Symbol]	360	6.0		X
Schoenoplectus validus	- (TUBESTOCK)	[Symbol]	640	4.0	X	
Typha domingensis	CUMBUNGI, BULRUSH (TUBESTOCK)	[Symbol]	1200	4.0	X	
Typha orientalis	CUMBUNGI, BULRUSH (TUBESTOCK)	[Symbol]	1200	4.0	X	
Callistemon viminalis	RED BOTTLEBRUSH (45L POTS)	[Symbol]	100	0.2		X
Lophospermum suaveolens	SWAMP MAHOGANY (45L POTS)	[Symbol]	100	0.2		X
TOTAL			13882			

* ABOVE TOP OF EMBANKMENT

% OF AREA BETWEEN TOE OF EMBANKMENT AND 1.4m ABOVE TOE OF EMBANKMENT.

LEGEND

- [Symbol] - MACROPHYTE ZONE
- [Symbol] - ROCK PROTECTION



NOT FOR CONSTRUCTION

© Kellogg Brown & Root Pty Ltd XREFS:Address_block /NEW_A1_APAC_STD_xr_bk /Control Lines /Design Road /Survey Base /Design Platform /Design Basin /Christensen Road /1396 Christensen Road Alignment /BEV417-C-DWG-204 /Design SEW

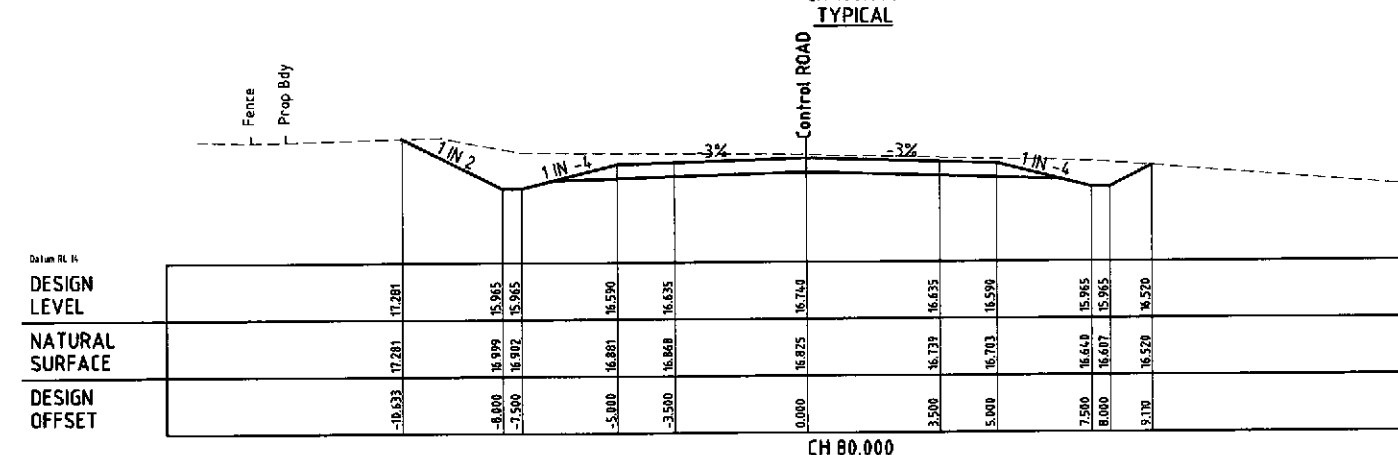
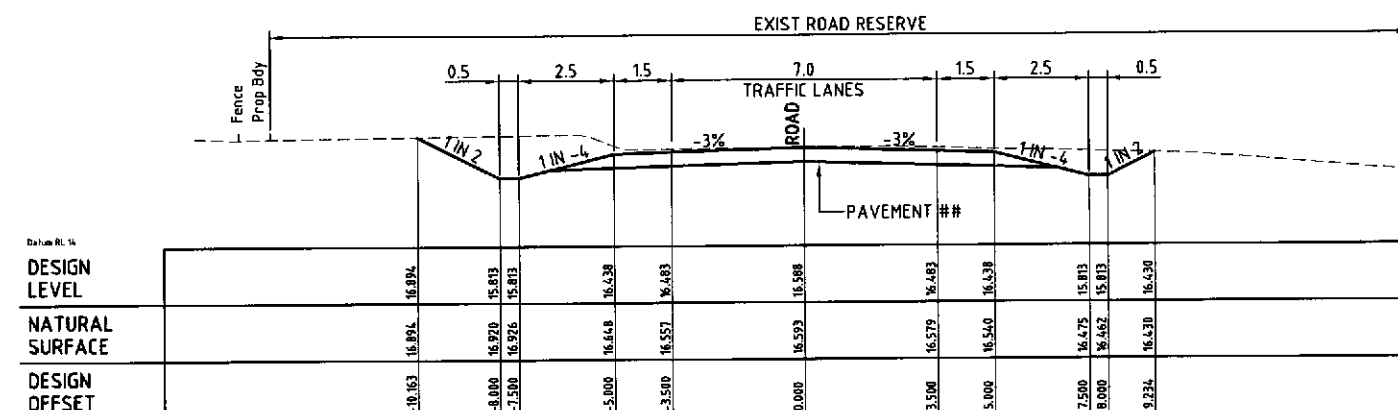
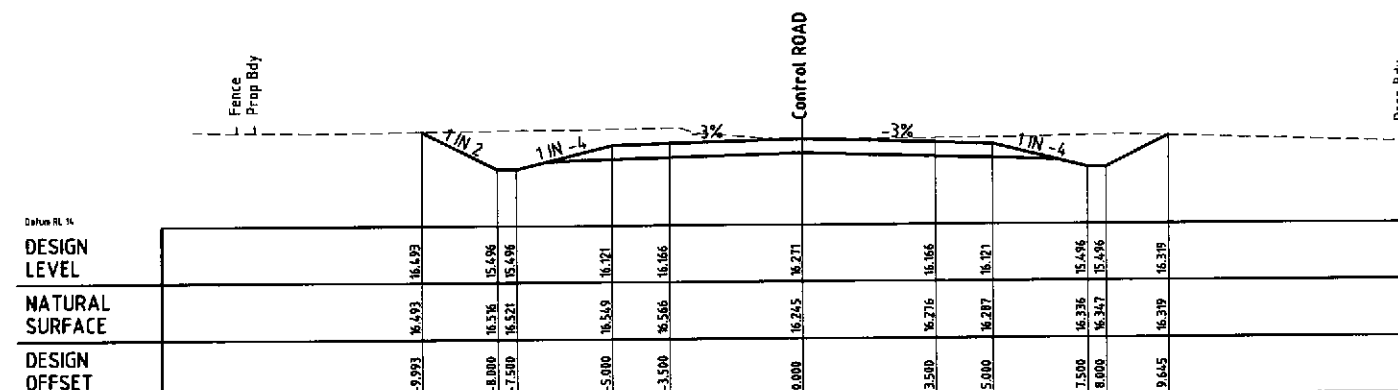
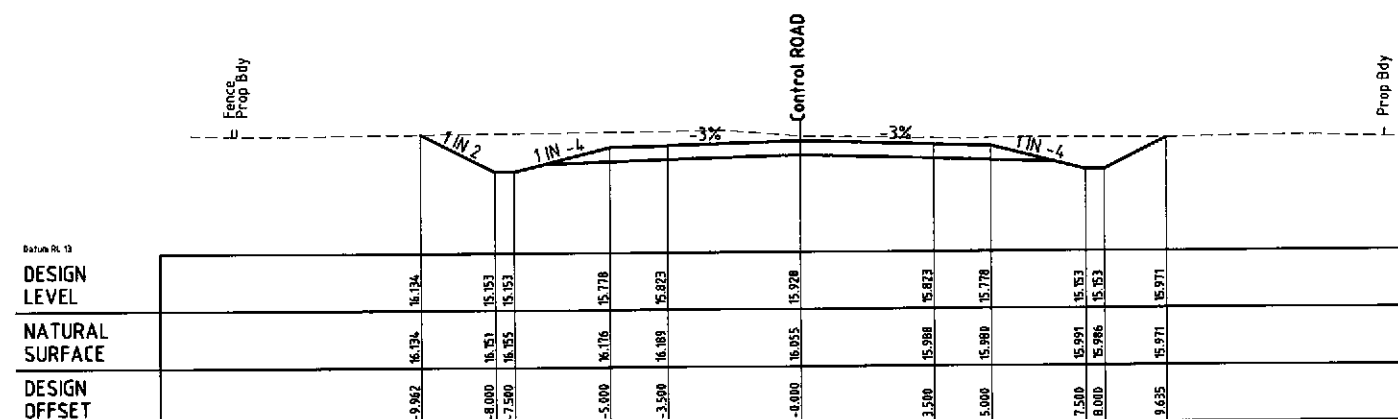
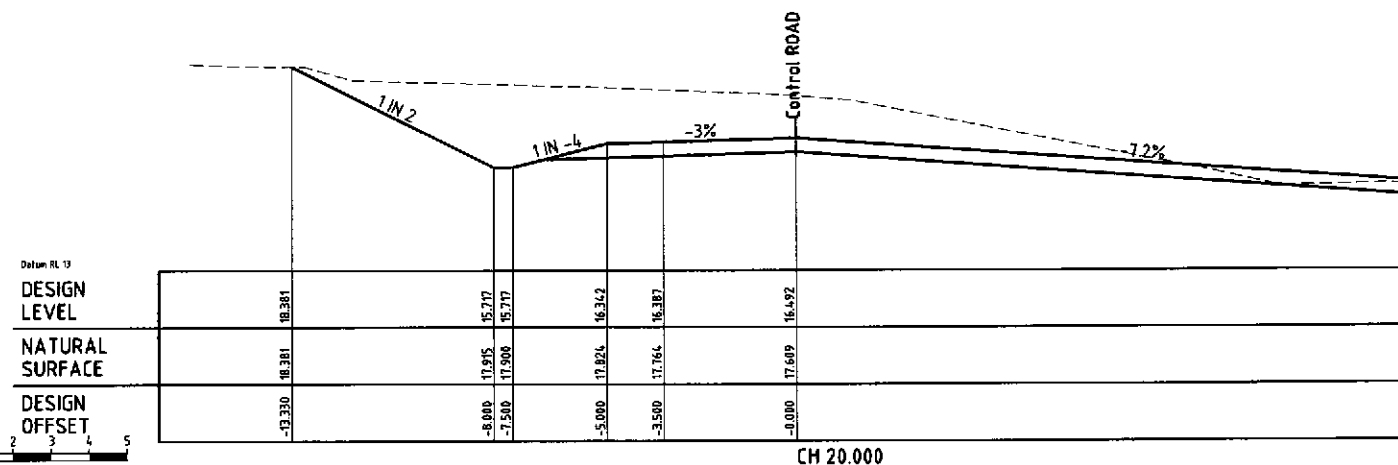
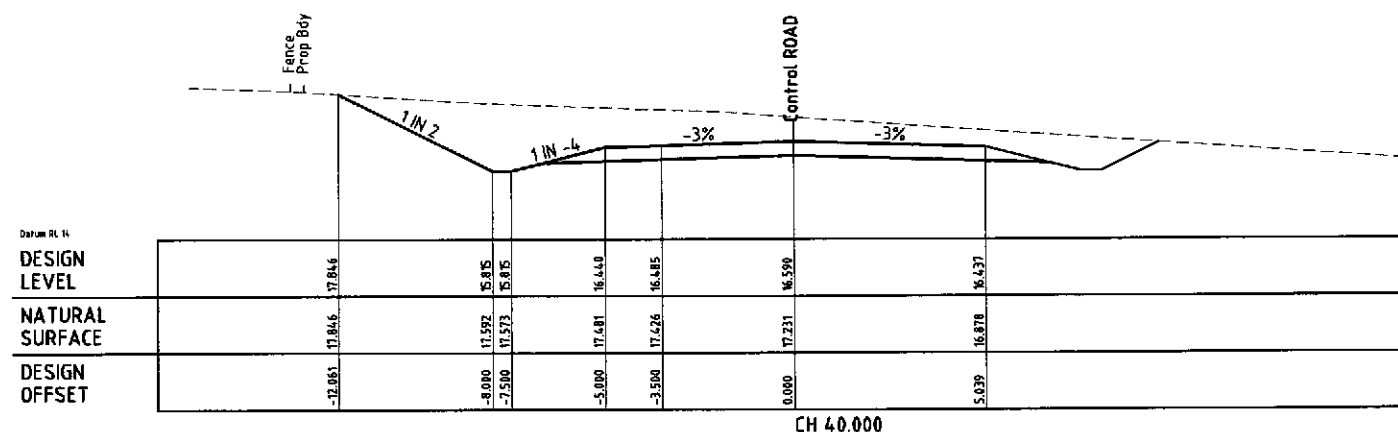
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BURNSIDE DEVELOPMENTS PTY LTD		99 ANNERLEY ROAD		WOOLLOONGABBA QLD 4102		A		FIRST ISSUE				DRAFTING		J. POMROY		J. POMROY		INDUSTRIAL ESTATE		CHRISTENSEN ROAD, YATALA	
																		DETENTION \ WATER QUALITY BASIN		PLANTING ARRANGEMENT SHEET 1 OF 1	
																		BEV417-C-DWG-016		A	

NOT FOR CONSTRUCTION

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[illegible]

DESIGN LEVEL	NATURAL SURFACE	DESIGN OFFSET
17.351	17.351	-0.03%
15.932	17.134	-8.00%
15.932	17.121	-7.50%
16.557	17.053	-5.00%
16.602	17.019	-3.50%
16.707	16.950	0.00%
16.602	16.878	3.50%
16.557	16.848	5.00%
15.932	16.762	1.50%
15.932	16.772	8.00%
16.613	16.613	9.66%



NOT FOR CONSTRUCTION

Q:\BR5\Projects\bev\BEV417\Drawings\ISSUED REV A\BEV417-C-DWG-101.dwg 17.7.06 08:25

Datum RL 11

DESIGN LEVEL	12.892	12.870	12.870	12.790	12.736	12.676	12.718	12.823	12.718	12.626	12.586	12.790	12.820	12.892
NATURAL SURFACE	14.492	13.953	13.915	13.871	13.851	13.851	13.728	13.587	13.284	13.089	13.061	12.945	12.889	12.786
DESIGN OFFSET	-11.500	-9.700	-8.500	-7.150	-6.550	-3.500	0.000	3.500	6.550	7.000	8.500	9.700	11.500	

CH 380.000

FOR TYPICAL CROSS SECTION
REFER CH 100.

Datum RL 11

DESIGN LEVEL	14.177	12.453	12.453	13.078	13.183	13.078	12.453	12.453	13.183	13.078	12.453	13.183	13.078	14.177
NATURAL SURFACE	14.177	13.871	13.857	13.791	13.673	13.399	13.260	13.232	13.232	13.260	13.399	13.673	13.791	14.177
DESIGN OFFSET	-11.328	-8.000	-7.500	-5.000	-3.500	0.000	3.500	5.000	7.500	8.000	9.400	11.328		

CH 360.000

Datum RL 11

DESIGN LEVEL	14.002	12.938	12.938	13.463	13.508	13.463	12.938	12.938	13.463	13.508	12.938	13.463	13.508	14.002
NATURAL SURFACE	14.002	13.930	13.939	13.863	13.837	13.508	13.212	13.174	13.174	13.212	13.508	13.837	13.939	14.002
DESIGN OFFSET	-10.328	-8.000	-7.500	-5.000	-3.500	0.000	3.500	5.000	8.586	8.586	13.130	13.130	13.508	

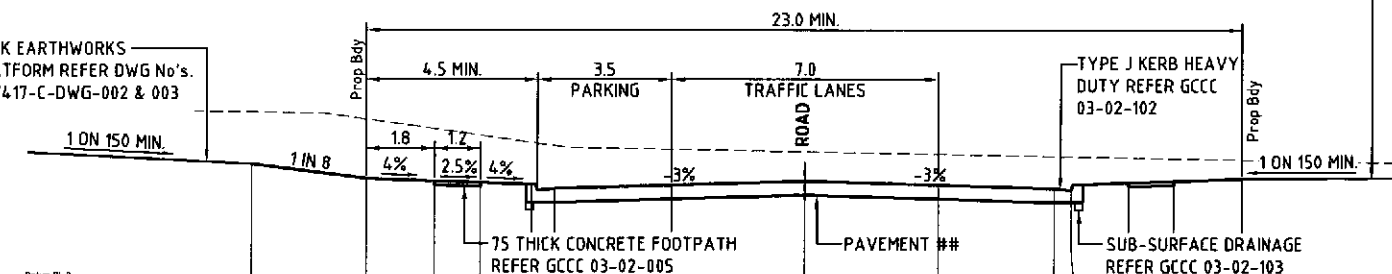
CH 340.000

Datum RL 11

DESIGN LEVEL	14.072	13.118	13.118	13.743	13.788	13.743	13.118	13.118	13.743	13.788	13.118	13.743	13.788	14.072
NATURAL SURFACE	14.072	14.022	14.006	13.927	13.880	13.788	13.640	13.640	13.788	13.880	13.927	14.006	14.022	14.072
DESIGN OFFSET	-9.909	-8.000	-7.500	-5.000	-3.500	0.000	3.500	5.000	13.378	13.378	13.160	13.160	13.788	

CH 320.000

BULK EARTHWORKS
PLATFORM REFER DWG No's.
BEV417-C-DWG-002 & 003



DESIGN LEVEL	12.662	11.787	11.715	11.695	11.631	11.571	11.631	11.695	11.715	11.787	12.662
NATURAL SURFACE	10.572	10.367	10.381	10.291	10.239	10.264	10.264	10.291	10.381	10.367	10.572
DESIGN OFFSET	-16.500	-11.500	-9.700	-8.500	-7.150	-6.550	-3.500	0.000	3.500	6.550	11.500

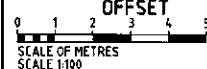
CH 440.000
TYPICAL
REFER GCCC 03-02-004

DESIGN LEVEL	12.664	12.089	12.017	11.987	11.933	11.873	11.933	11.987	12.017	12.089	12.664
NATURAL SURFACE	13.567	13.487	13.245	13.084	12.902	12.821	12.821	12.902	13.084	13.487	13.567
DESIGN OFFSET	-16.500	-11.500	-9.700	-8.500	-7.150	-6.550	-3.500	0.000	3.500	6.550	11.500

CH 420.000

DESIGN LEVEL	12.662	12.427	12.415	12.395	12.331	12.271	12.331	12.395	12.415	12.427	12.662
NATURAL SURFACE	13.770	13.650	13.576	13.540	13.492	13.449	13.449	13.540	13.576	13.650	13.770
DESIGN OFFSET	-11.500	-11.500	-9.700	-8.500	-7.150	-6.550	-3.500	0.000	3.500	6.550	11.500

CH 400.000



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DRAWING No.	
DESCRIPTION	
REFERENCE DRAWINGS	
NOTES	

BURNSIDE DEVELOPMENTS PTY LTD
99 ANNERLEY ROAD
WOOLLOONGABBA QLD 4102

NOTES

REV	DESCRIPTION	DATE
A	FIRST ISSUE	

CHRISTENSEN ROAD

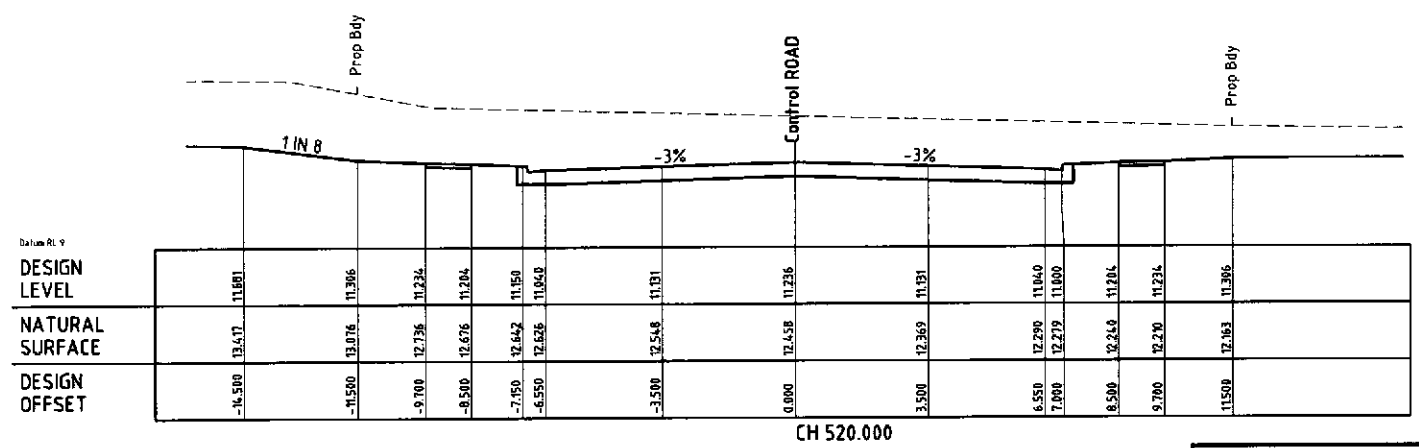
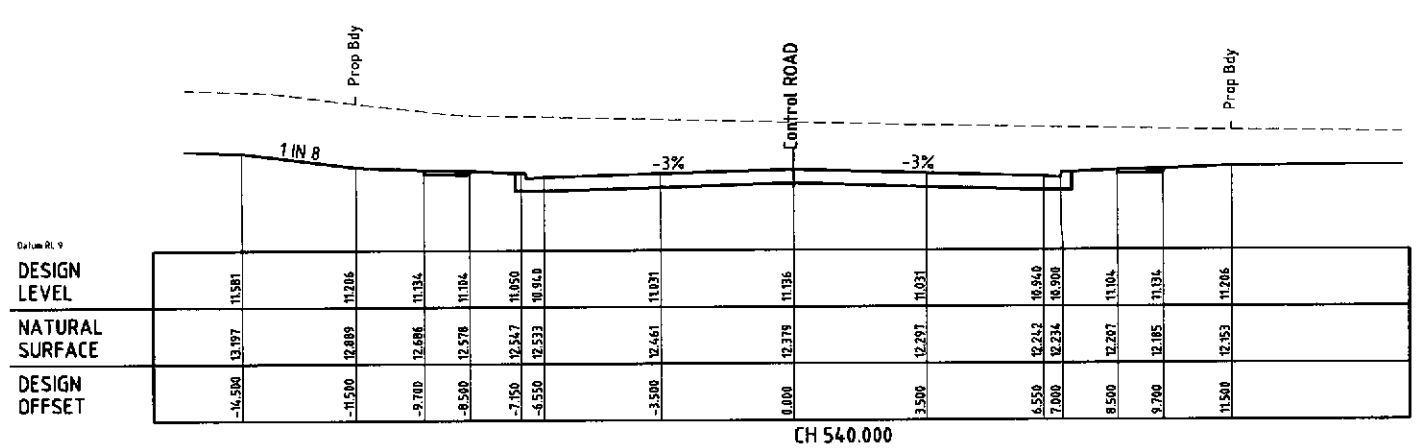
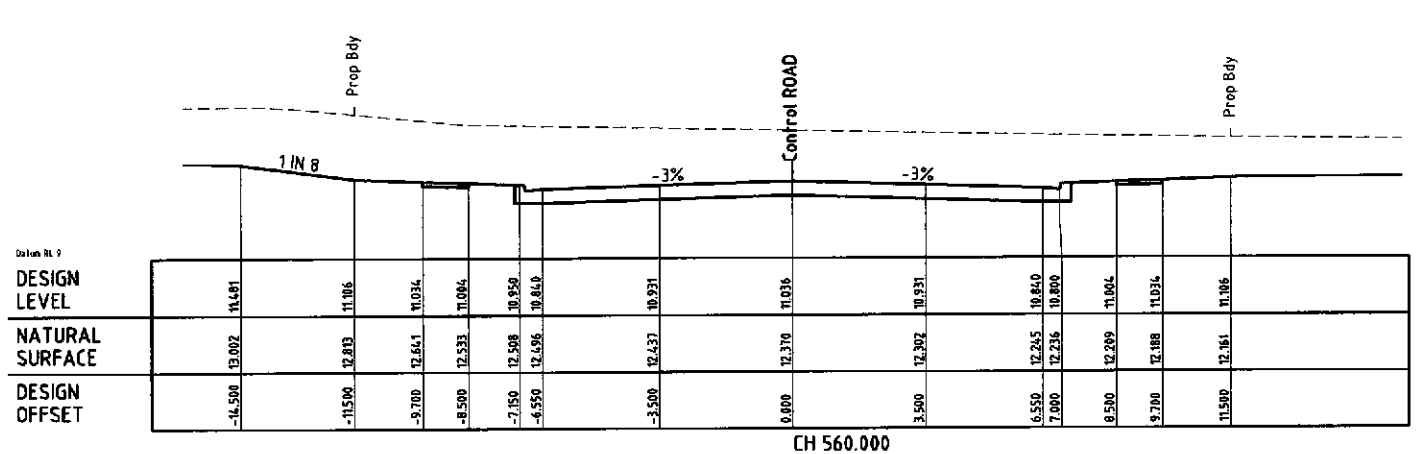
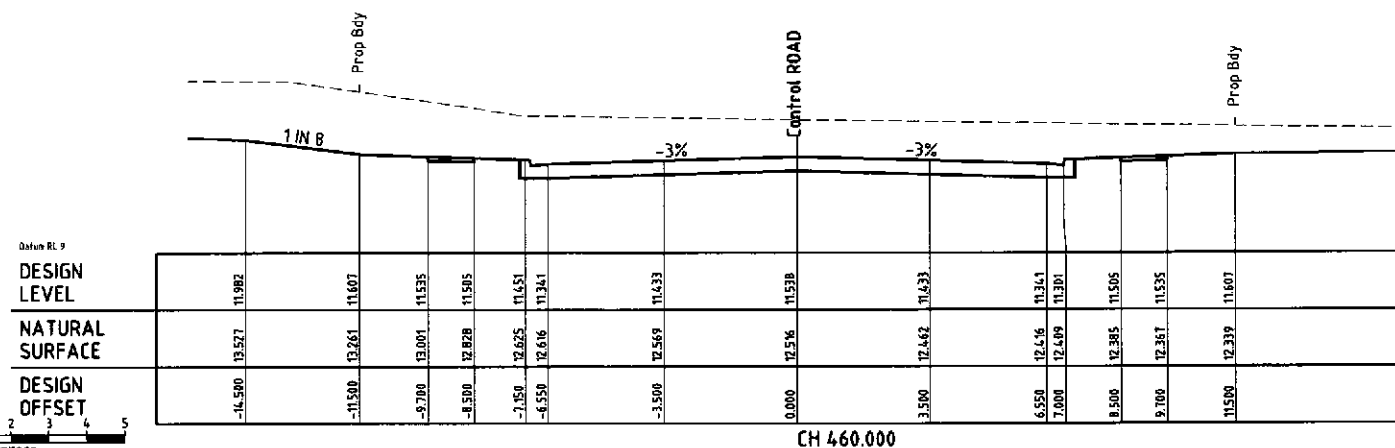
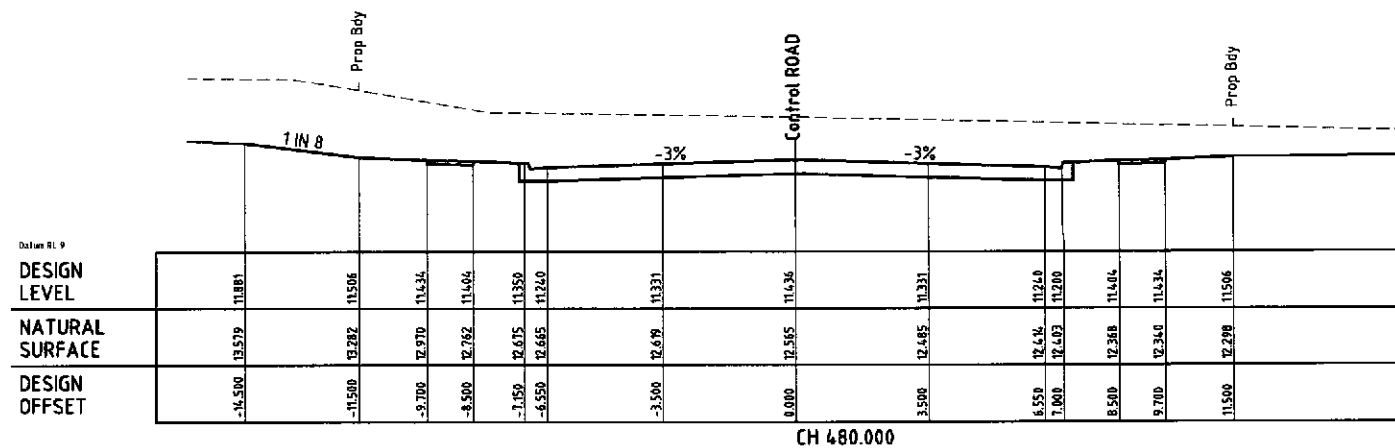
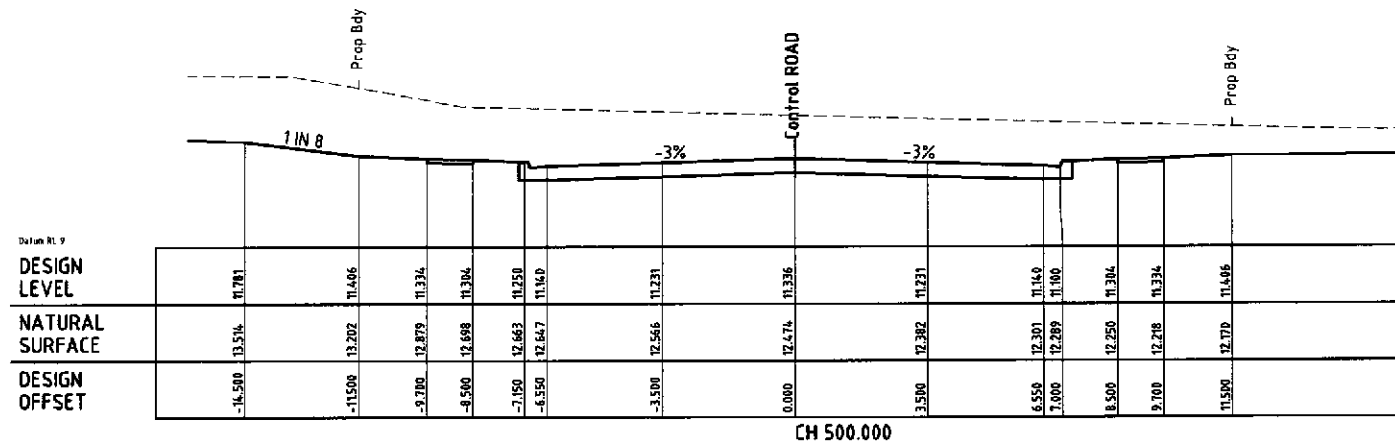
NAME	SIGNATURE
DRAFTING	J POMROY
DESIGN	J POMROY
DESIGN VERIFICATION	D NEUHOLD
PROJECT APPROVAL	GC LOVELL
CLIENT	

Kellogg Brown & Root Pty Ltd		
KBR		
Kellogg Brown & Root Pty Ltd ABN 91 007 668 317 555 Coronation Drive, Toowong, Brisbane, Queensland, 4066 ph (07) 3721-6555 fax (07) 3721-6500		
DRAWING SCALE	ORIG. SIZE	PROJECT No.
1:100 (A1)	A1	BEV417
DRAFTER: AM FRANGOSA	CAD FILE: BEV417-C-DWG-103.dwg	

TITLE	INDUSTRIAL ESTATE CHRISTENSEN ROAD, YATALA CROSS SECTIONS ROAD SHEET 3 OF 9
DRAWING No.	BEV417-C-DWG-103
REVISION	A

NOT FOR CONSTRUCTION

FOR TYPICAL CROSS SECTION
REFER CH 440.



CHRISTENSEN ROAD

NOT FOR CONSTRUCTION

BURNSIDE DEVELOPMENTS PTY LTD
99 ANNERLEY ROAD
WOOLLOONGABBA QLD 4102

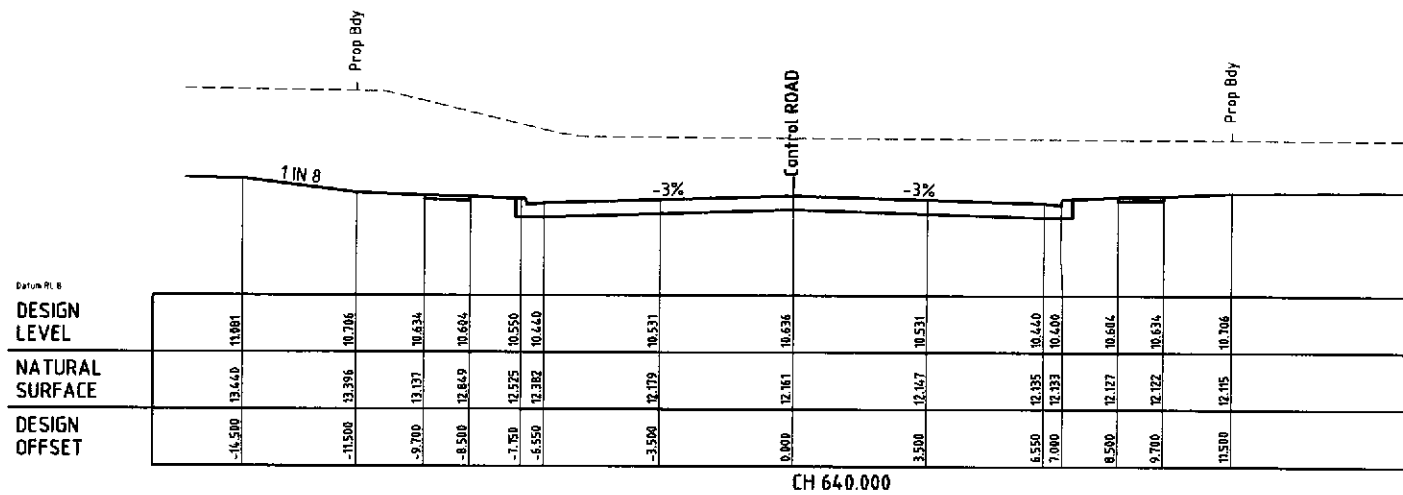
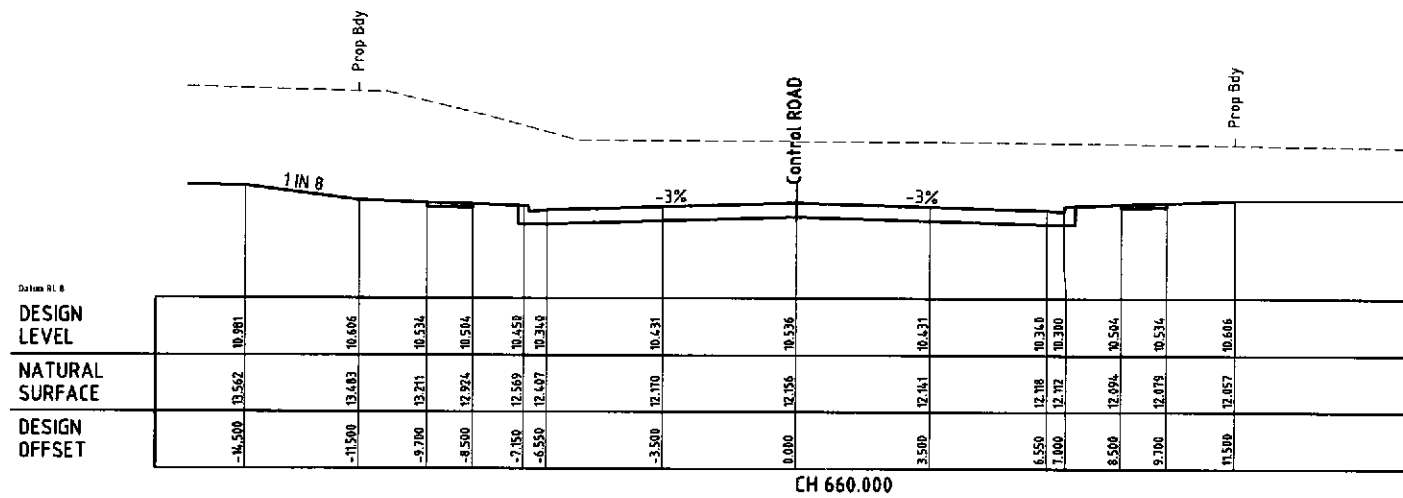
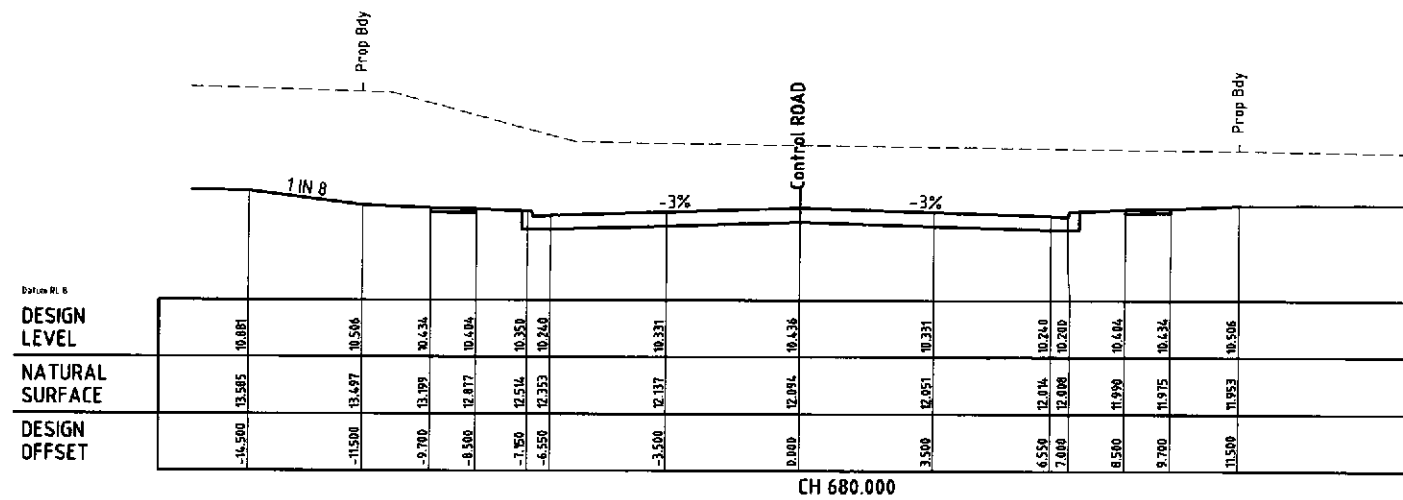
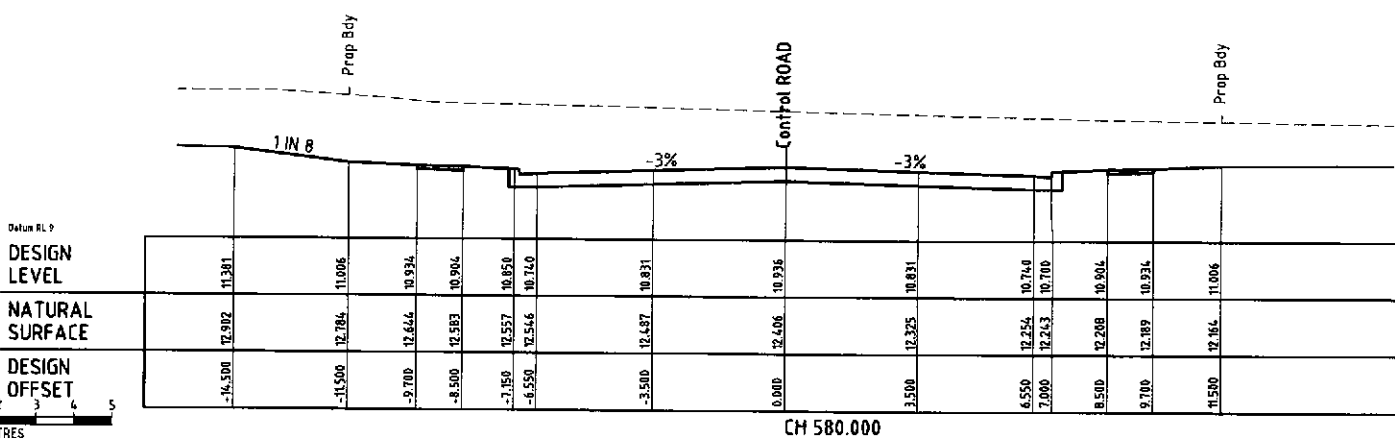
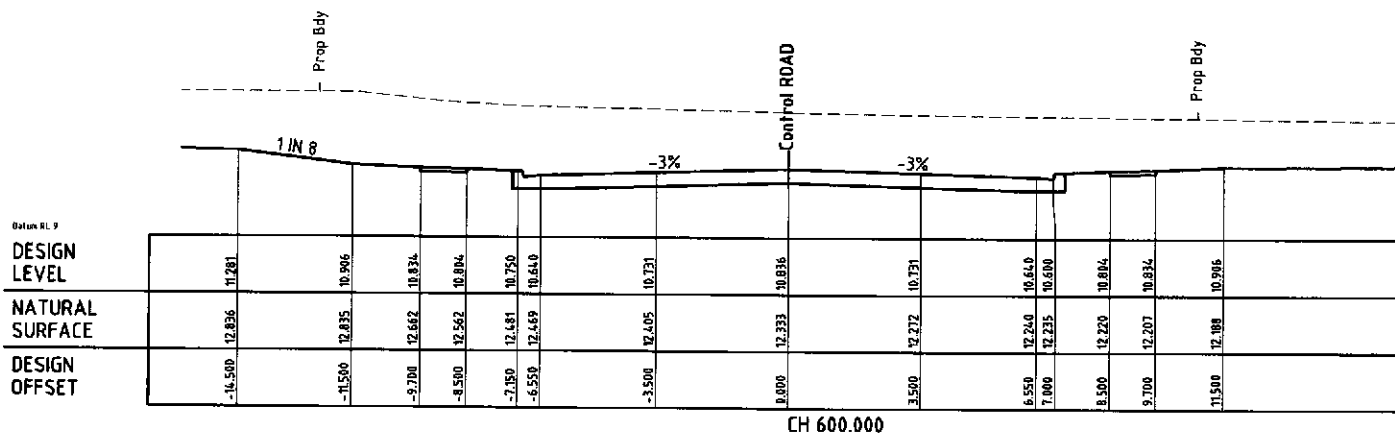
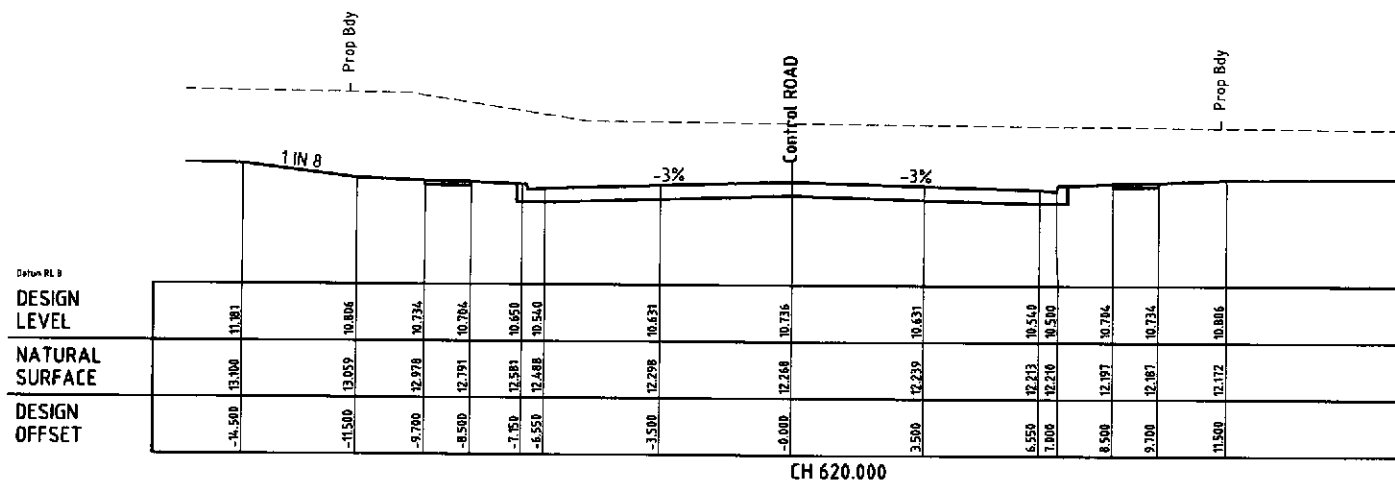
REVISIONS		DATE
A	FIRST ISSUE	

APPROVALS	
DRAFTING	J POMROY
DESIGN	J POMROY
DESIGN VERIFICATION	D NEUHOLD
PROJECT APPROVAL	GC LOVELL
CLIENT	

Kellogg Brown & Root Pty Ltd		
KBR		
Kellogg Brown & Root Pty Ltd ABN 91 007 660 317 555 Coronation Drive, Toowong, Brisbane, Queensland, 4066 ph (07) 3721-6555 fax (07) 3721-6500		
DRAWING SCALE	DRG. SIZE	PROJECT No.
1:100 (A1)	A1	BEV417
DRAFTER: AM FRANGIOSA	CAD FILE: BEV417-C-DWG-104.dwg	

TITLE	INDUSTRIAL ESTATE CHRISTENSEN ROAD, YATALA CROSS SECTIONS ROAD SHEET 4 OF 9	
DRAWING No.	BEV417-C-DWG-104	REVISION A

FOR TYPICAL CROSS SECTION
REFER CH 440.

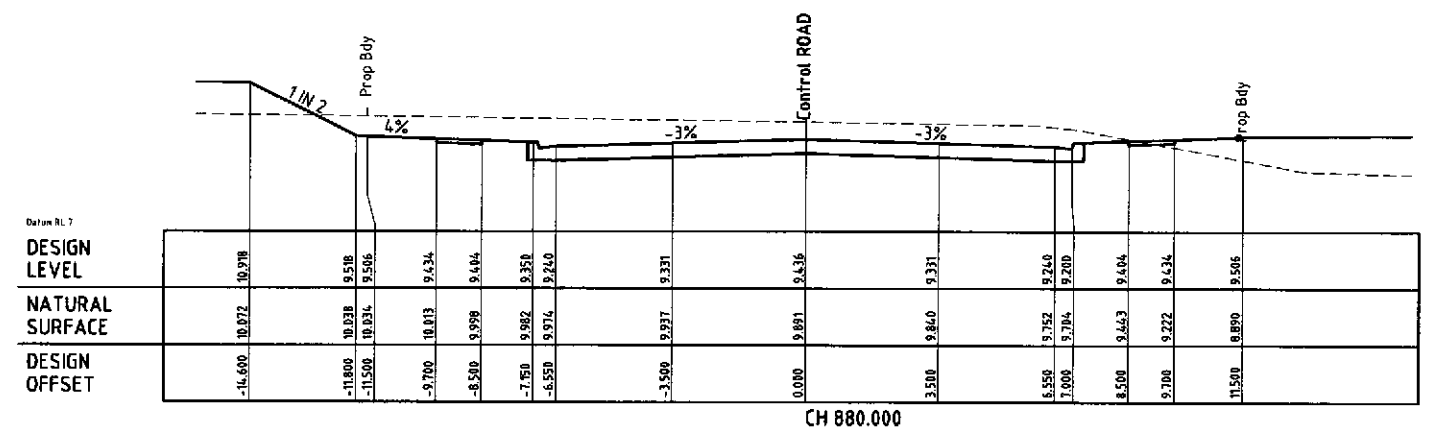
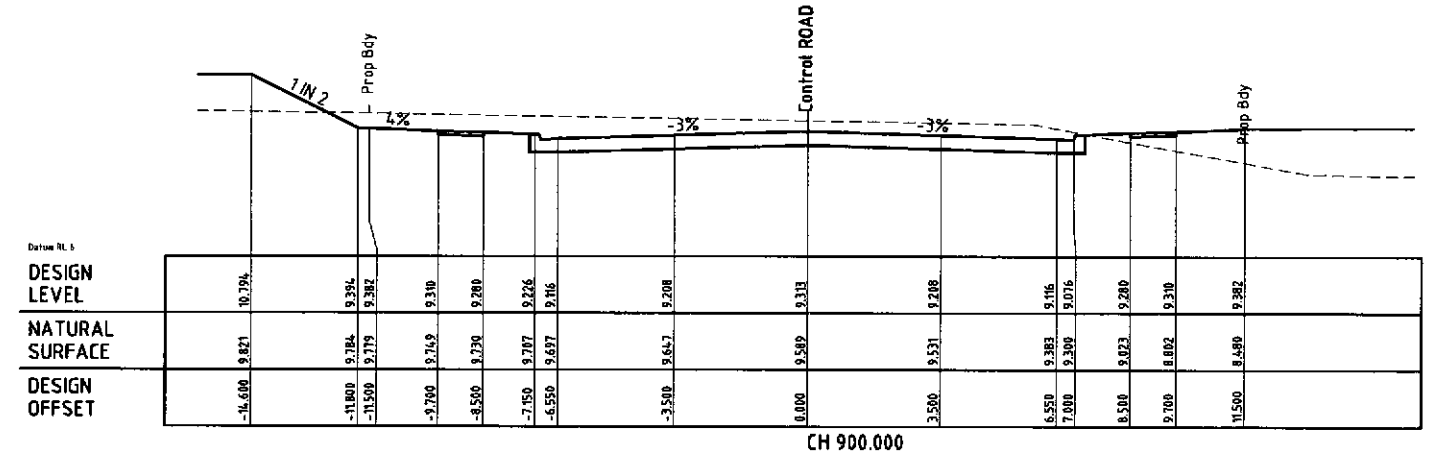
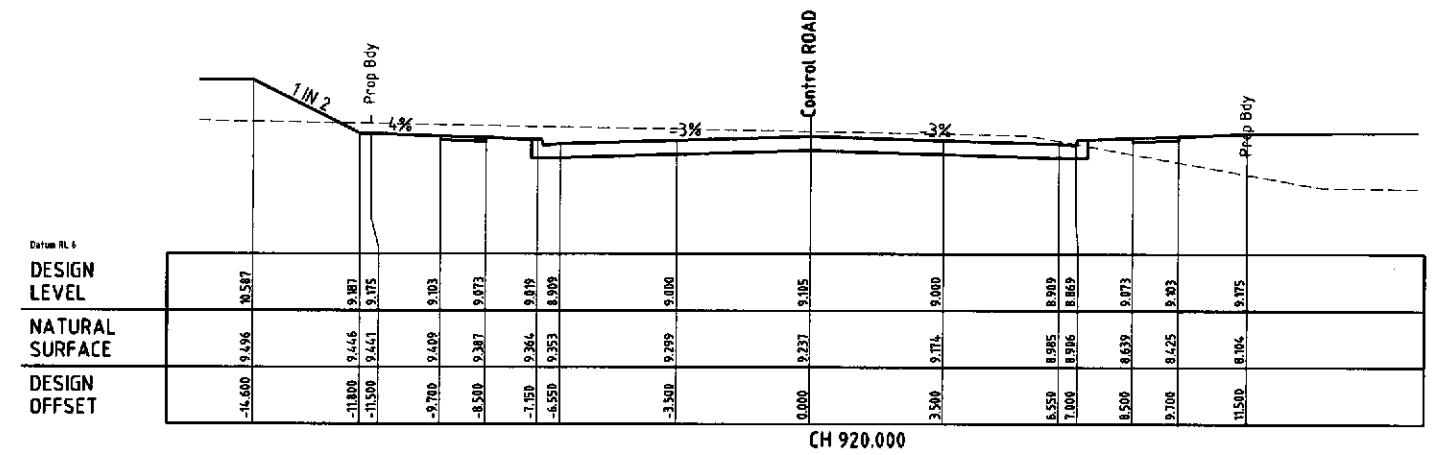
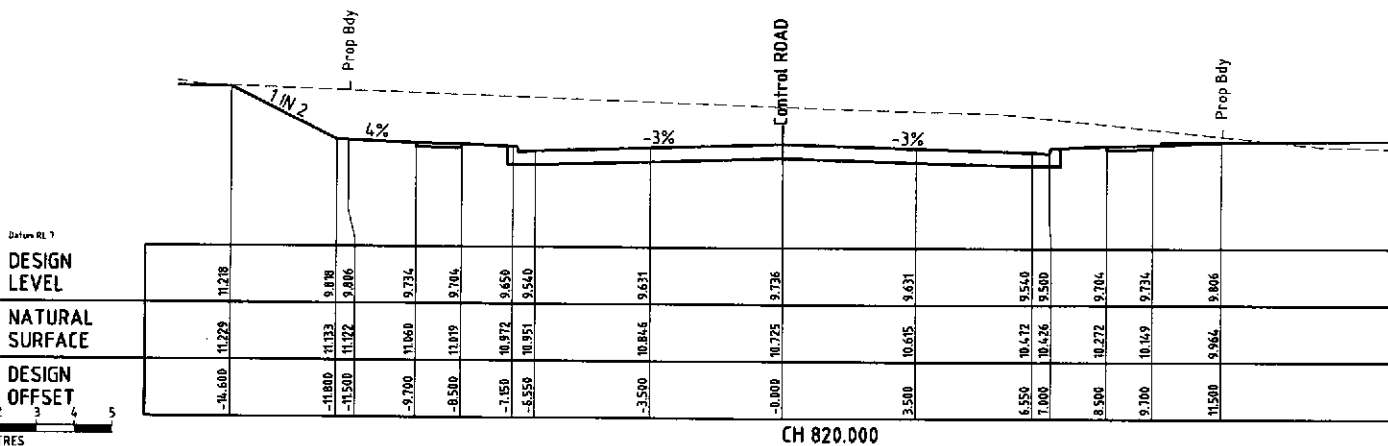
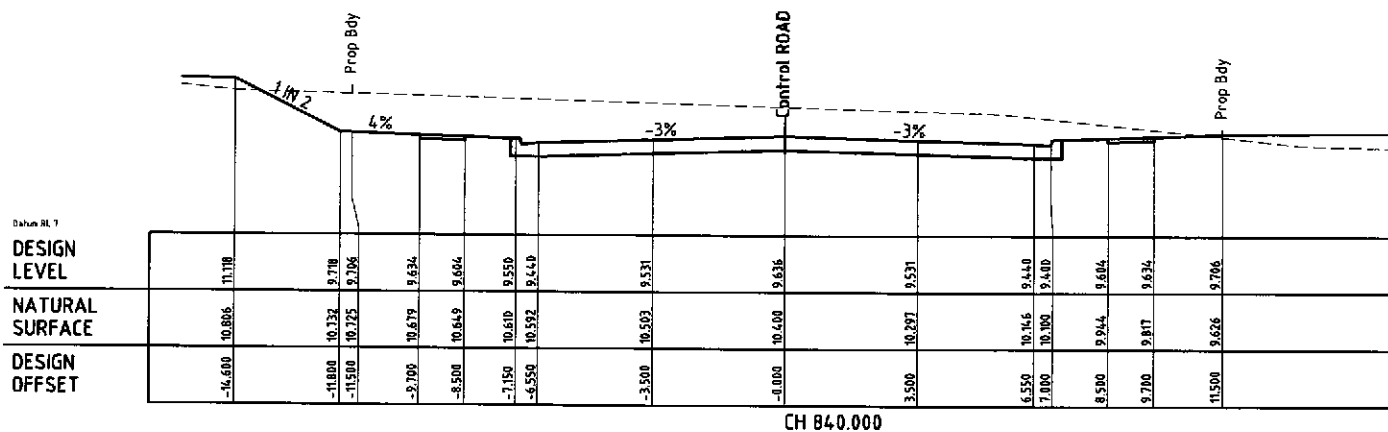
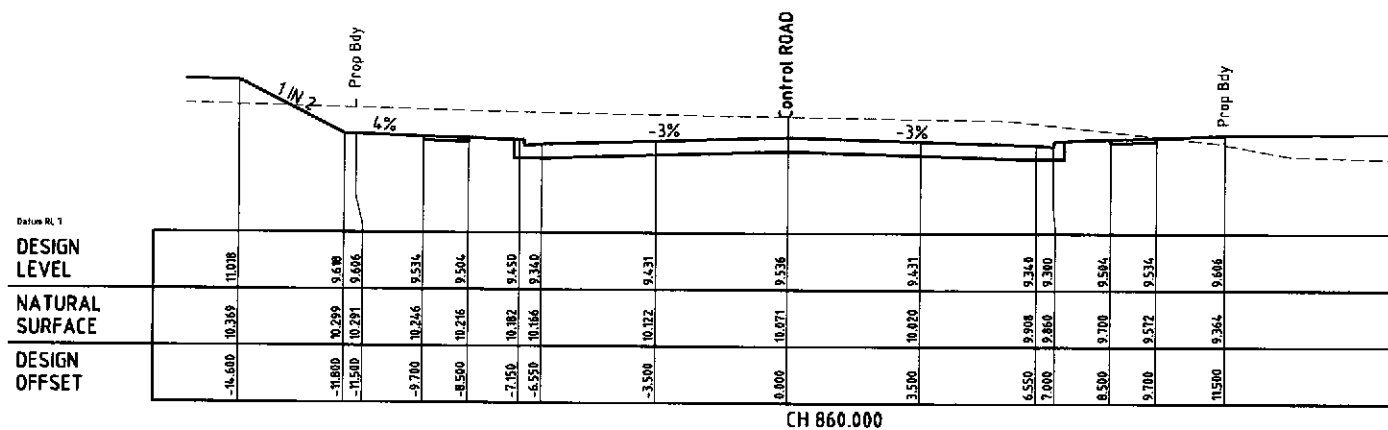


CHRISTENSEN ROAD

NOT FOR CONSTRUCTION

[illegible]

FOR TYPICAL CROSS SECTION
REFER CH 740.

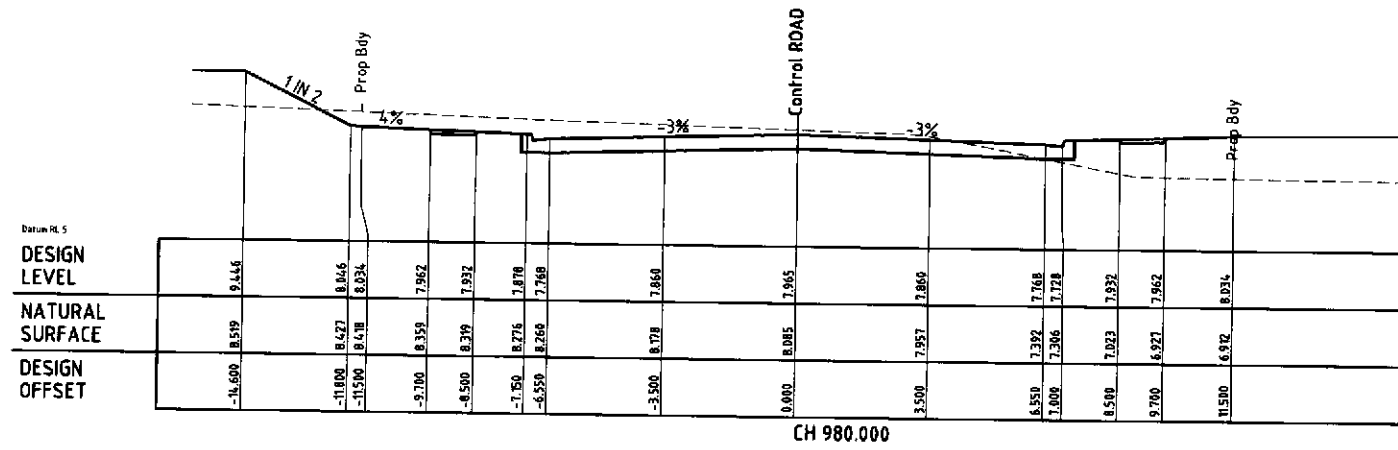


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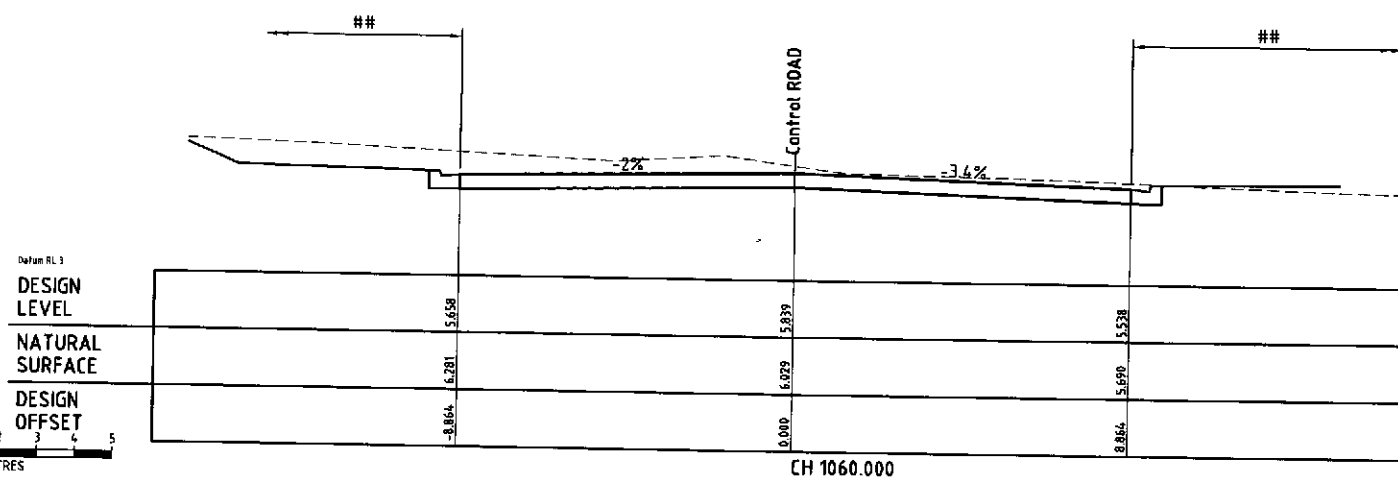
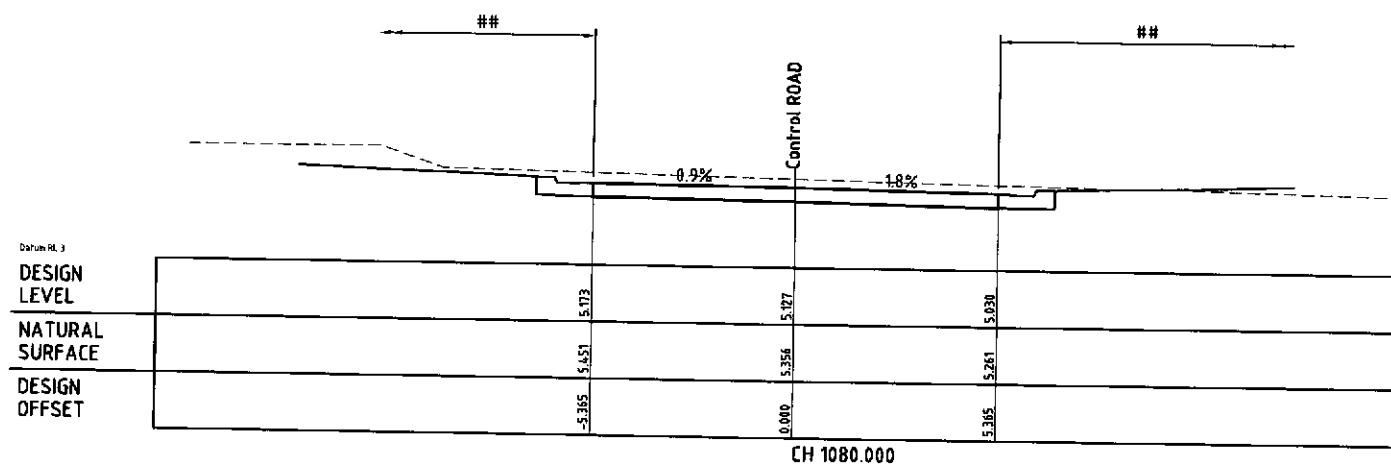
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BURNSIDE DEVELOPMENTS PTY LTD		99 ANNERLEY ROAD		WOOLLOONGABBA QLD 4102											
INDUSTRIAL ESTATE		CHRISTENSEN ROAD, YATALA		CROSS SECTIONS ROAD		SHEET 7 OF 9									
BEV417-C-DWG-107															

FOR TYPICAL CROSS SECTION
REFER CH 740.



REFER CUL-DE-SAC CROSS SECTIONS



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SCALE OF METRES
SCALE 1:100

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CHRISTENSEN ROAD

NOT FOR CONSTRUCTION

BURNSIDE DEVELOPMENTS PTY LTD
99 ANNERLEY ROAD
WOOLLOONGABBA QLD 4102

	NAME	SIGNATURE
DRAFTING	J POMROY	JP
DESIGN	J POMROY	JP
DESIGN VERIFICATION	D NEUHOLD	DN
PROJECT APPROVAL	GC LOVELL	GL
CLIENT		

Kellogg Brown & Root Pty Ltd
KBR
Kellogg Brown & Root Pty Ltd ABN 91 007 660 317
855 Coronation Drive, Toowong,
Brisbane, Queensland, 4066
ph (07) 3721-6555 fax (07) 3721-6500

DRAWING SCALE
1:100 (A1)

ORIG. SIZE
A1

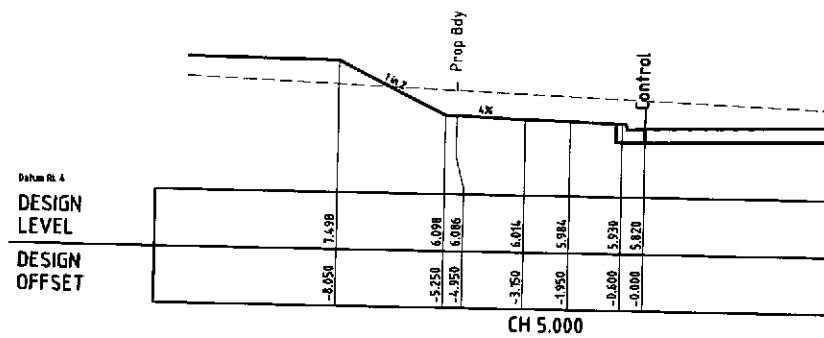
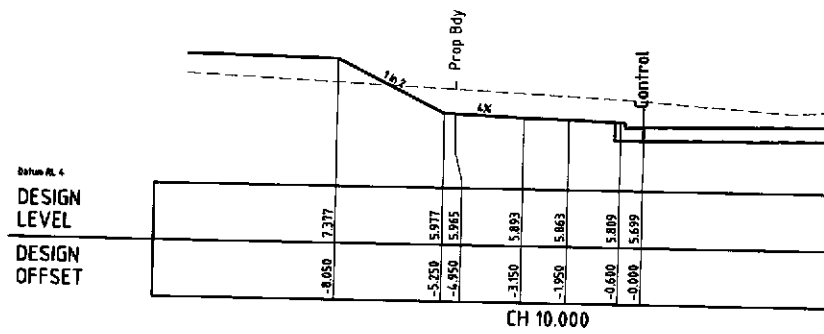
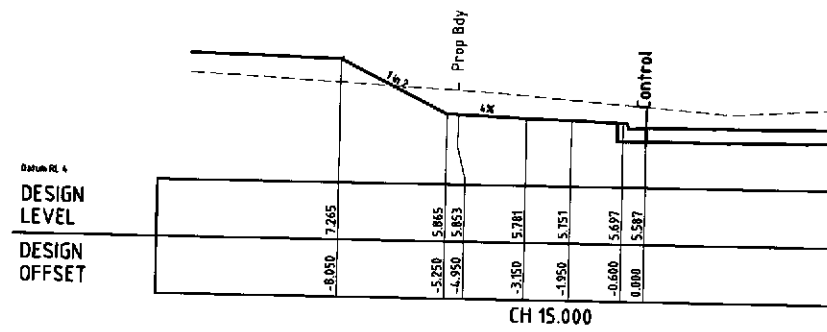
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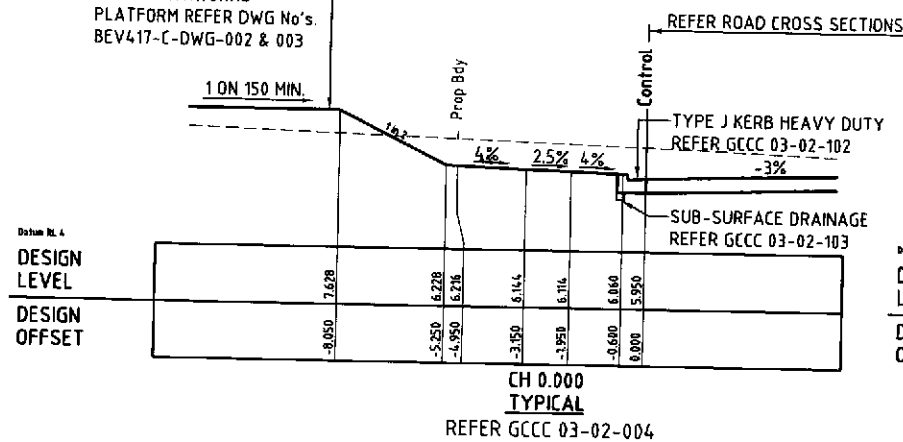
TITLE
INDUSTRIAL ESTATE
CHRISTENSEN ROAD, YATALA
CROSS SECTIONS ROAD
SHEET 9 OF 9

DRAWING No.
BEV417-C-DWG-109

REVISION
A



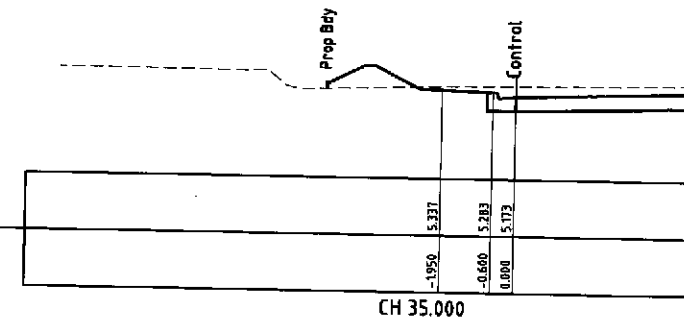
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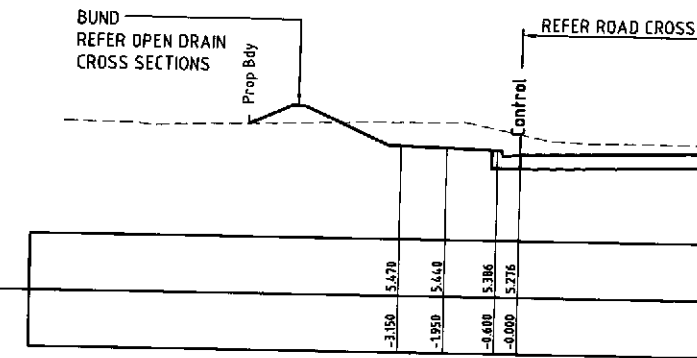
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DESIGN
LEVEL
DESIGN
OFFSET



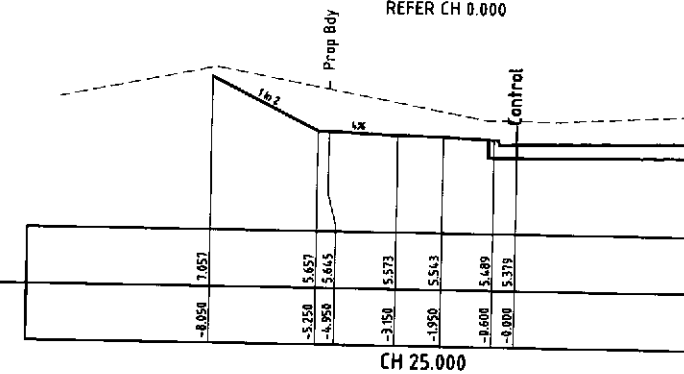
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REFER OPEN DRAIN
CROSS SECTIONS

Station RL 3
DESIGN
LEVEL
DESIGN
OFFSET

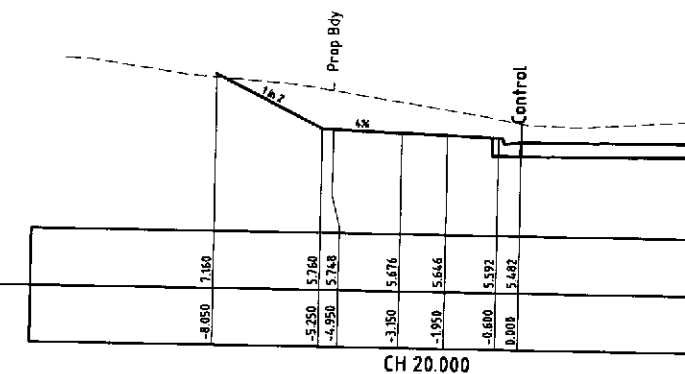


FOR DETAILS NOT SHOWN
REFER CH 0.000

Station RL 3
DESIGN
LEVEL
DESIGN
OFFSET



Station RL 3
DESIGN
LEVEL
DESIGN
OFFSET



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SCALE OF METRES
SCALE 1:100

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BURNSIDE DEVELOPMENTS PTY LTD
99 ANNERLEY ROAD
WOOLLOONGABBA QLD 4102

DRAWING No. DESCRIPTION

REFERENCE DRAWINGS

NOTES

REV FIRST ISSUE

DESCRIPTION

REVISIONS

DATE

	NAME	SIGNATURE
DRAFTING	J POMROY	
DESIGN	J POMROY	
DESIGN VERIFICATION	D NEUHOLD	
PROJECT APPROVAL	GC LOVELL	
CLIENT		

APPROVALS

Kellogg Brown & Root Pty Ltd
KBR
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555 Coronation Drive, Toowoomba,
Brisbane, Queensland, 4066
ph (07) 3721-6555 fax (07) 3721-6500

DRAWING SCALE

1:100 (A1)

ORIG. SIZE

A1

PROJECT No.

BEV417

DRAFTER: AM FRANGIOSA

CAD FILE: BEV417-C-DWG-110.dwg

TITLE

INDUSTRIAL ESTATE
CHRISTENSEN ROAD, YATALA
CROSS SECTIONS CUL-DE-SAC
SHEET 1 OF 2

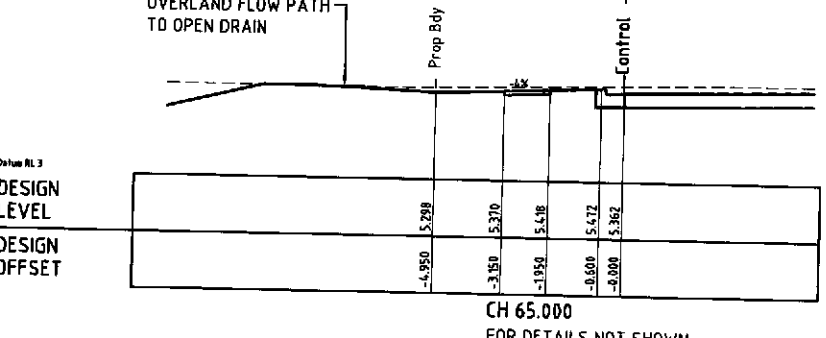
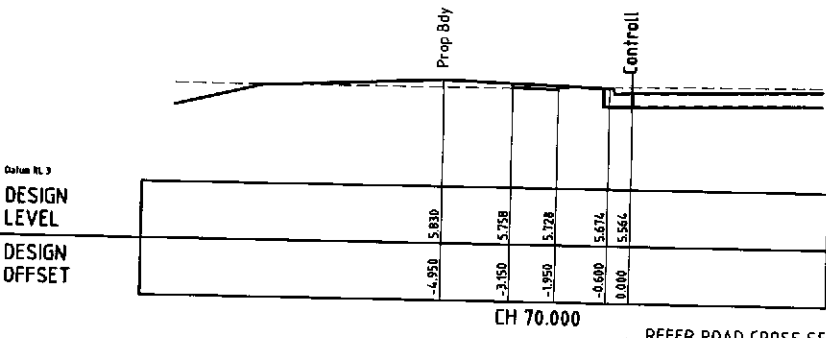
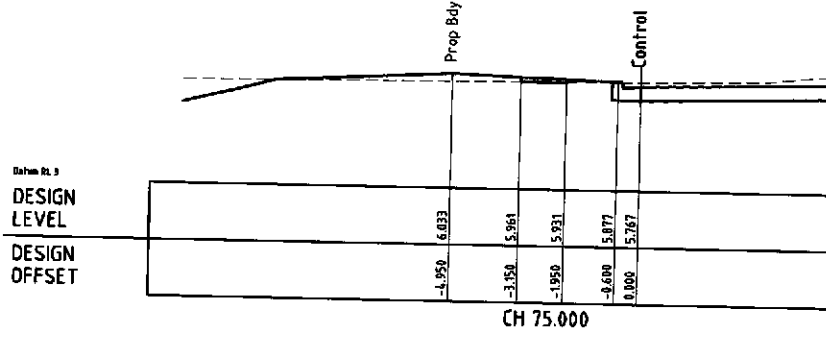
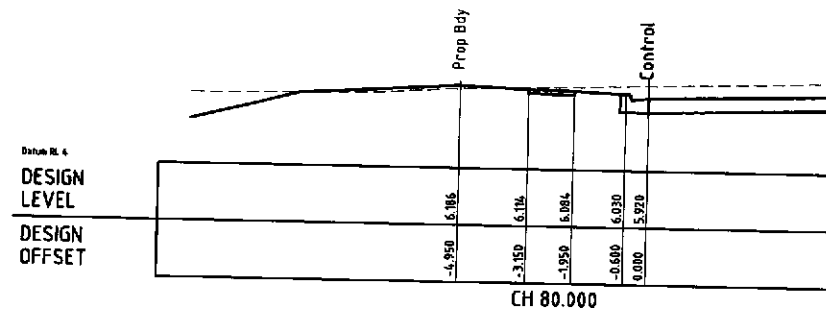
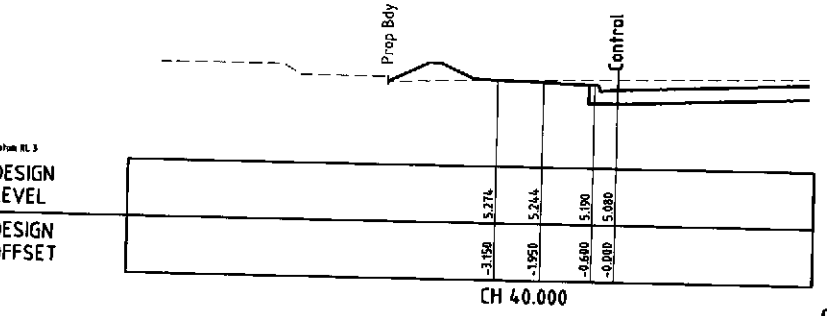
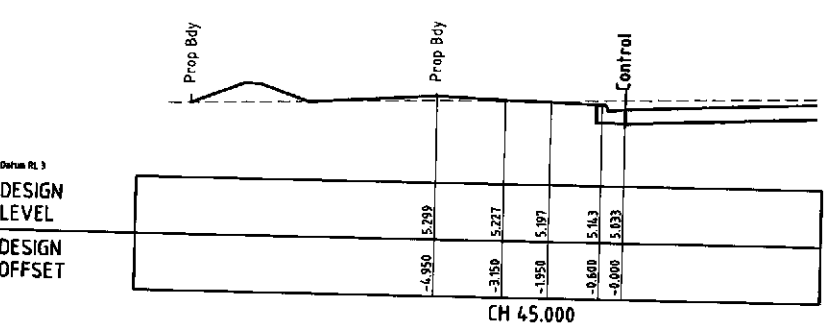
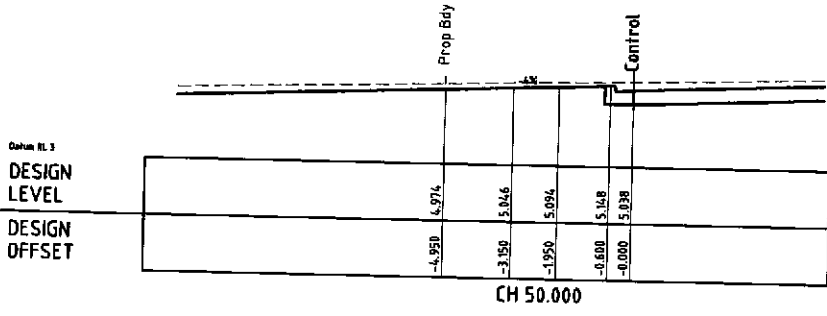
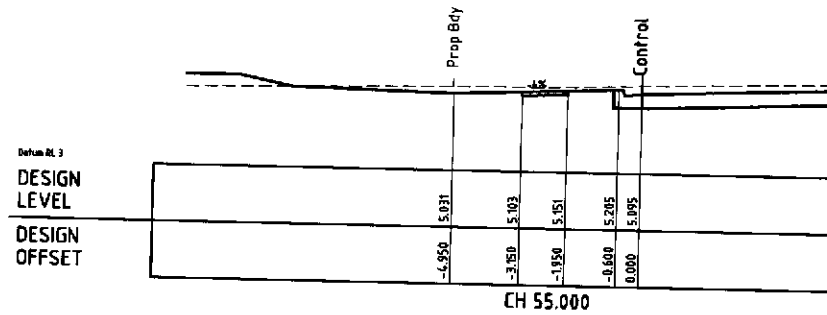
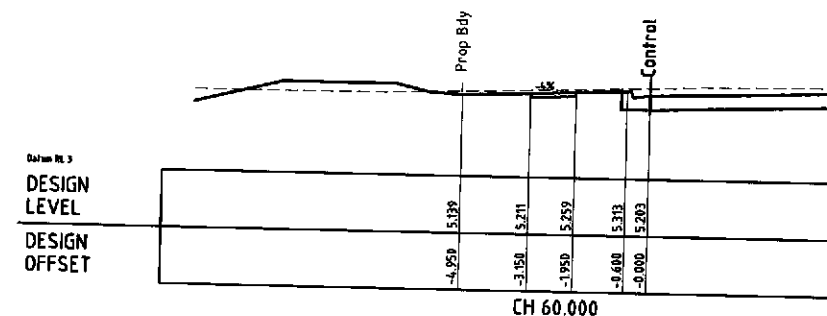
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BEV417-C-DWG-110

REVISION

A

NOT FOR CONSTRUCTION



OVERLAND FLOW PATH TO OPEN DRAIN

REFER ROAD CROSS SECTIONS

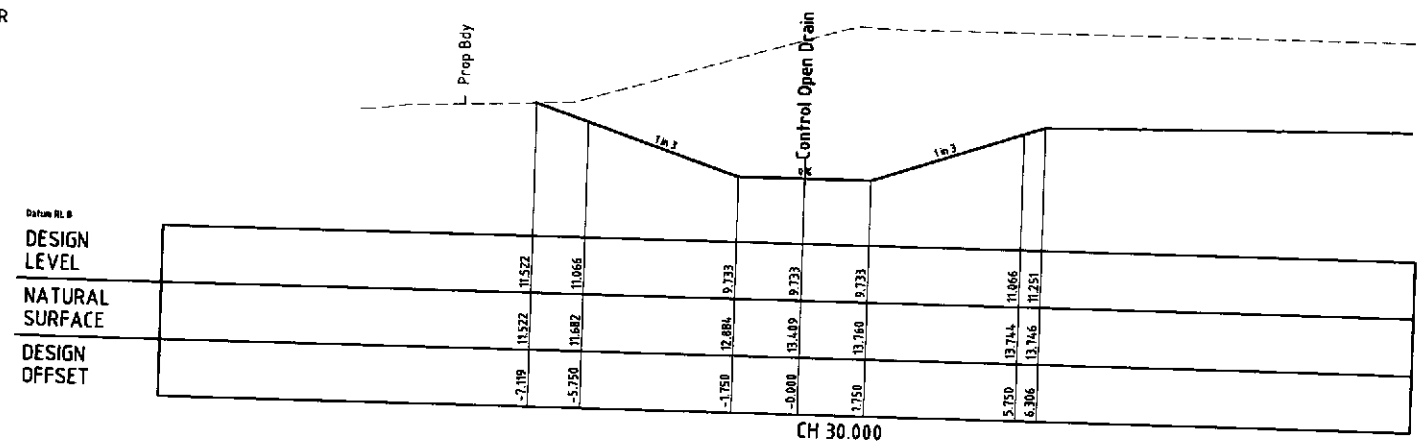
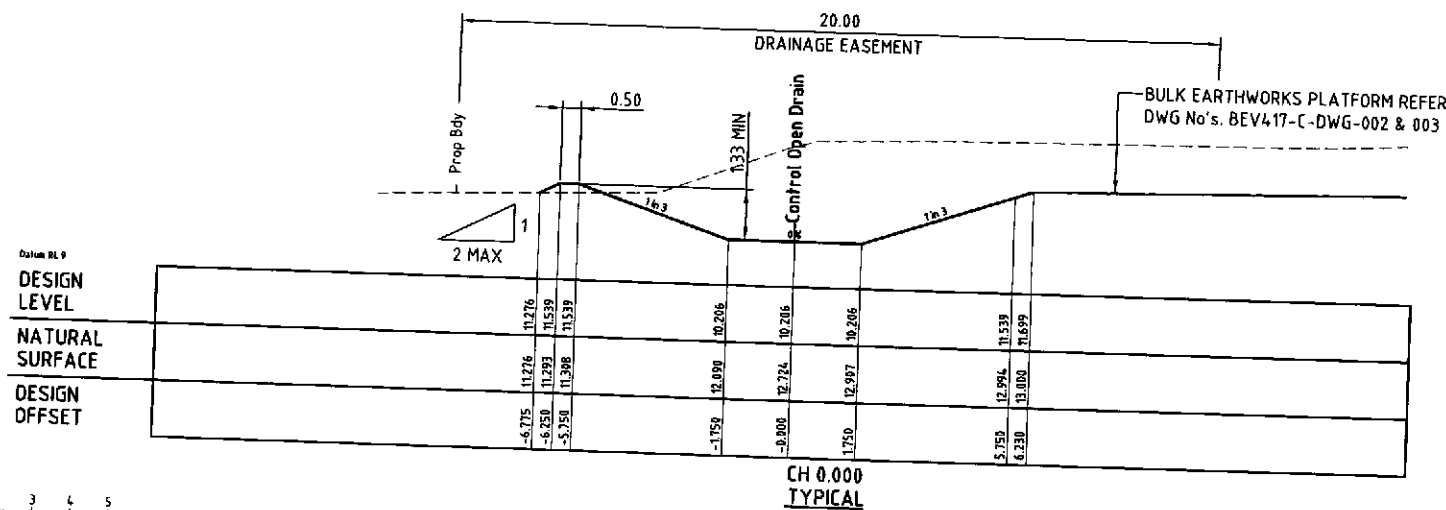
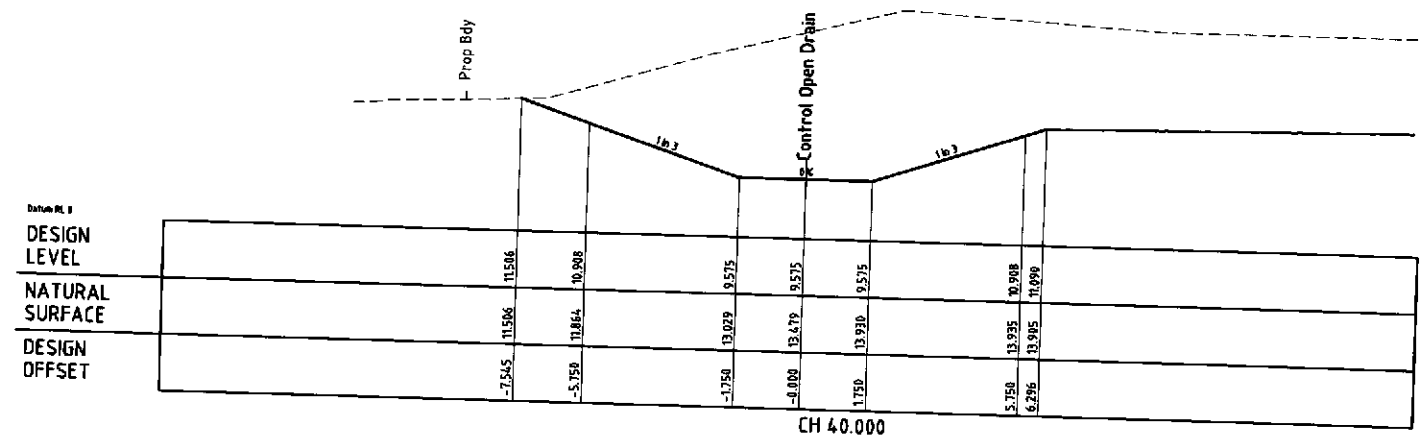
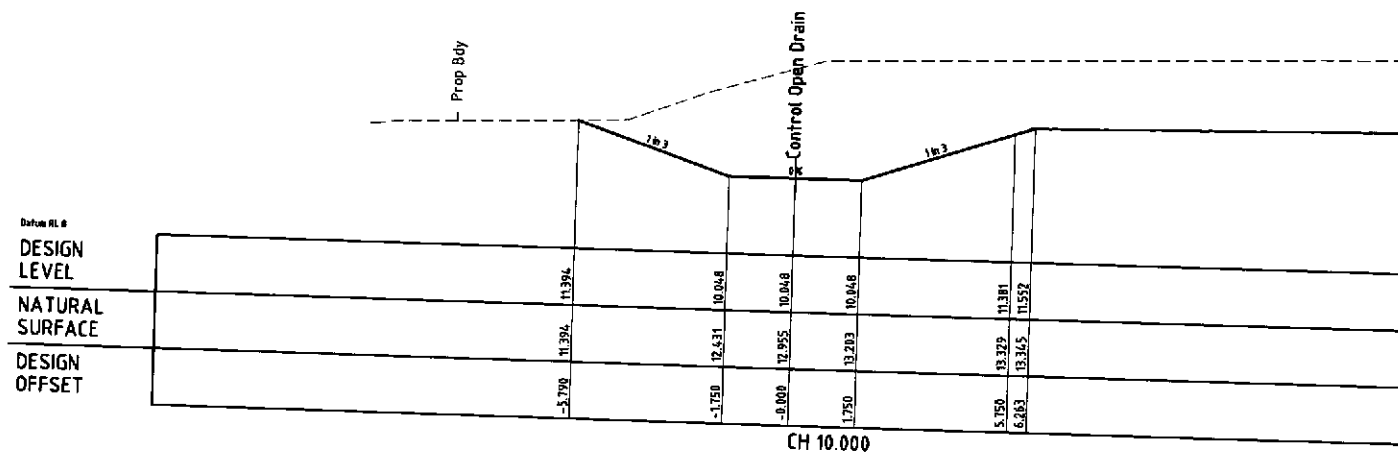
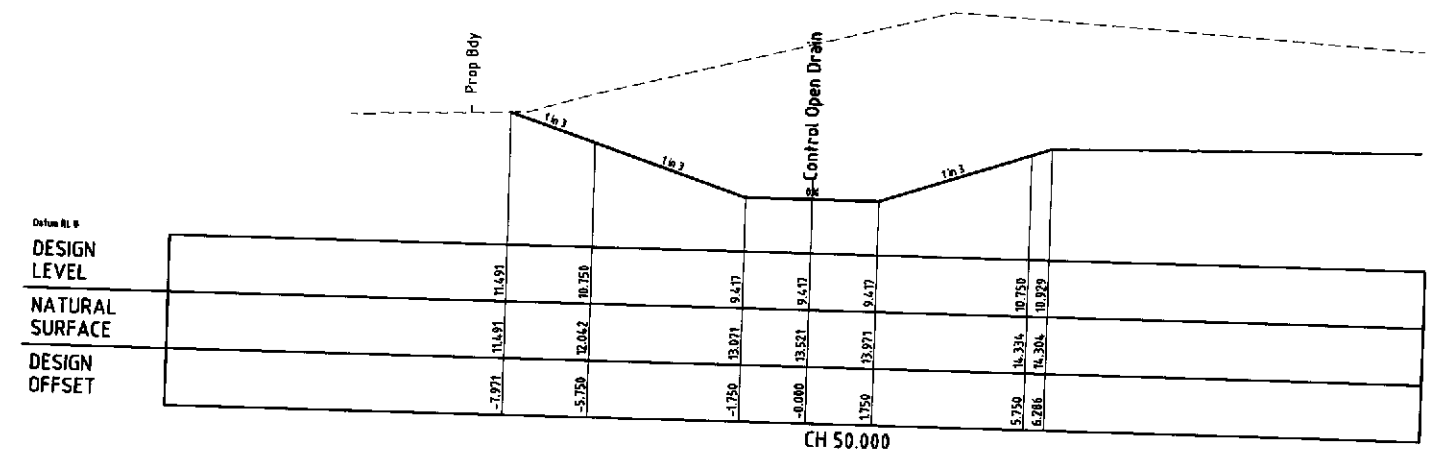
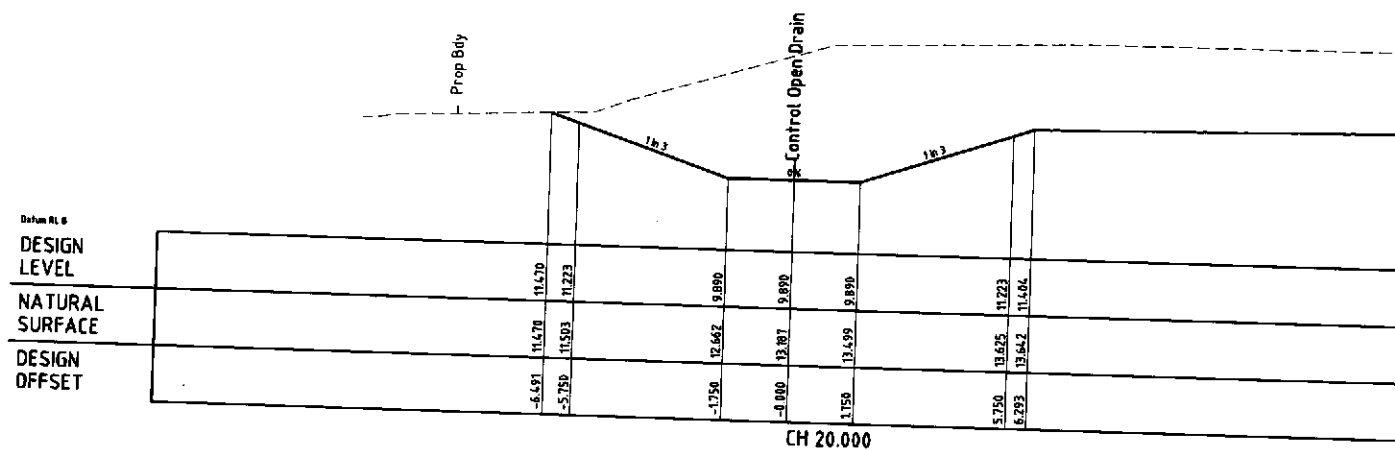
FOR DETAILS NOT SHOWN
REFER CH 0.000

CHRISTENSEN ROAD

0 1 2 3 4 5
SCALE OF METRES
SCALE 1:100

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100mm ON ORIGINAL DRAWING BURNSIDE DEVELOPMENTS PTY LTD 99 ANNERLEY ROAD WOOLLOONGABBA QLD 4102		NOT FOR CONSTRUCTION INDUSTRIAL ESTATE CHRISTENSEN ROAD, YATALA CROSS SECTIONS CUL-DE-SAC SHEET 2 OF 2																			
DRAWING No. REFERENCE DRAWINGS 0:\BRS\Projects\bev\BEV417\Drawings\ISSUED REV A\BEV417-C-DWG-111.dwg 17.7.06 08:29	NOTES	<table border="1"> <tr> <th>REV</th> <th>DESCRIPTION</th> <th>DATE</th> </tr> <tr> <td>A</td> <td>FIRST ISSUE</td> <td></td> </tr> </table>	REV	DESCRIPTION	DATE	A	FIRST ISSUE		<table border="1"> <tr> <th>NAME</th> <th>SIGNATURE</th> </tr> <tr> <td>DRAFTING J POMROY</td> <td><i>JP</i></td> </tr> <tr> <td>DESIGN J POMROY</td> <td><i>JP</i></td> </tr> <tr> <td>DESIGN VERIFICATION D NEUHOLD</td> <td><i>DN</i></td> </tr> <tr> <td>PROJECT APPROVAL GC LOVELL</td> <td><i>GL</i></td> </tr> <tr> <td>CLIENT</td> <td></td> </tr> </table> APPROVALS	NAME	SIGNATURE	DRAFTING J POMROY	<i>JP</i>	DESIGN J POMROY	<i>JP</i>	DESIGN VERIFICATION D NEUHOLD	<i>DN</i>	PROJECT APPROVAL GC LOVELL	<i>GL</i>	CLIENT	
REV	DESCRIPTION	DATE																			
A	FIRST ISSUE																				
NAME	SIGNATURE																				
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DESIGN VERIFICATION D NEUHOLD	<i>DN</i>																				
PROJECT APPROVAL GC LOVELL	<i>GL</i>																				
CLIENT																					
Kellogg Brown & Root Pty Ltd KBR Kellogg Brown & Root Pty Ltd ABN 91 007 660 317 555 Coronation Drive, Toowoomba, Queensland, 4606 ph (07) 3721-6555 Fax (07) 3721-6500		DRAWING SCALE 1:100 (A1) ORIG. SIZE A1 PROJECT No. BEV417 DRAWING No. BEV417-C-DWG-111 REVISION A																			



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SCALE OF METRES
SCALE 1:100

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BURNSIDE DEVELOPMENTS PTY LTD
99 ANNERLEY ROAD
WOOLLOONGABBA QLD 4102

REV	DATE	DESCRIPTION	REVISIONS
A		FIRST ISSUE	

NAME	SIGNATURE
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DESIGN J. POMROY	
DESIGN VERIFICATION D. NEUHOLD	
PROJECT APPROVAL G.C. LOVELL	
CLIENT	

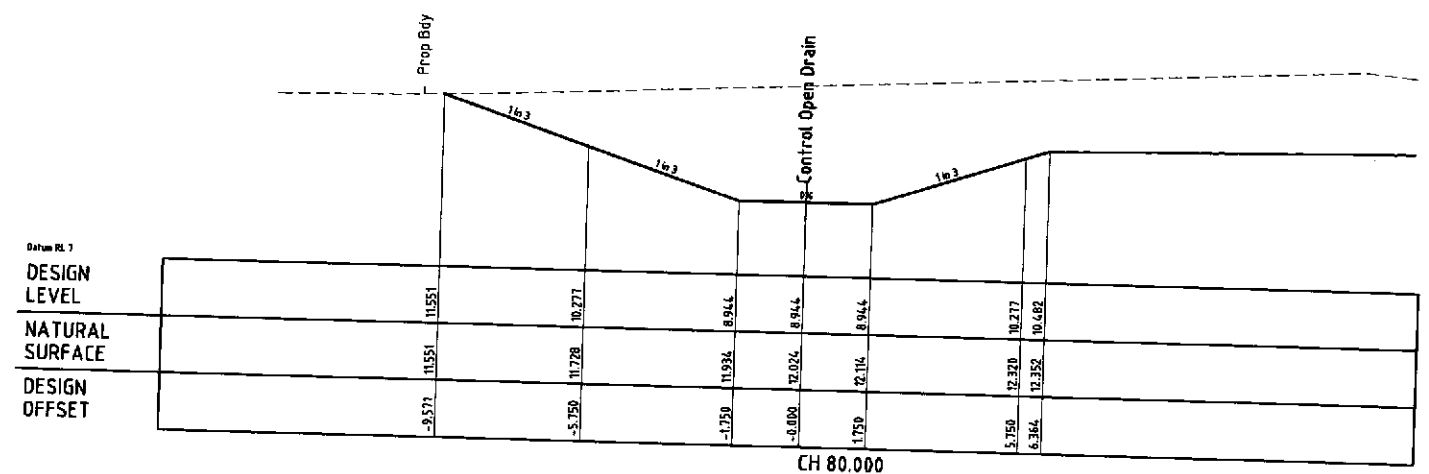
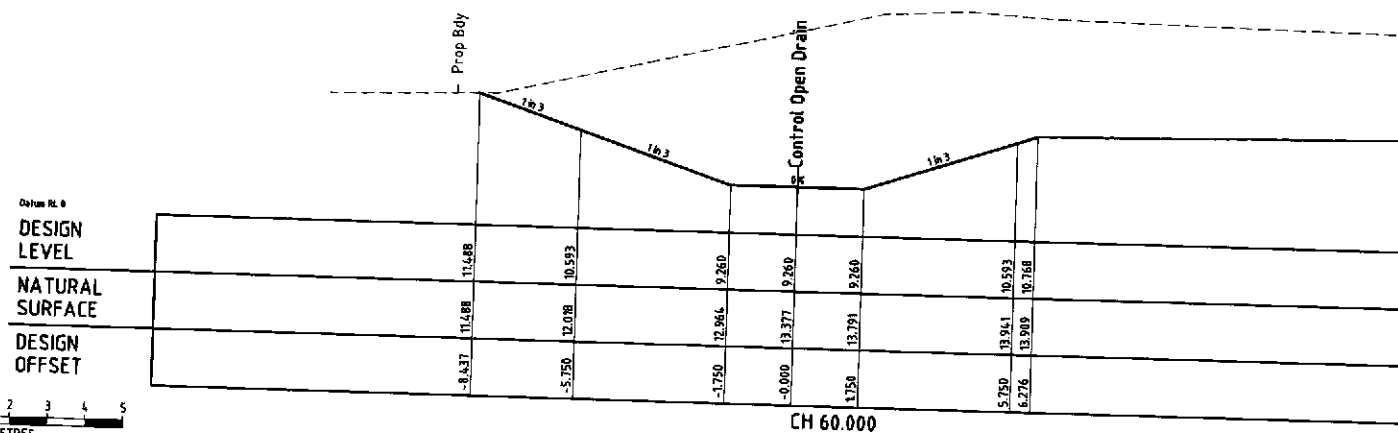
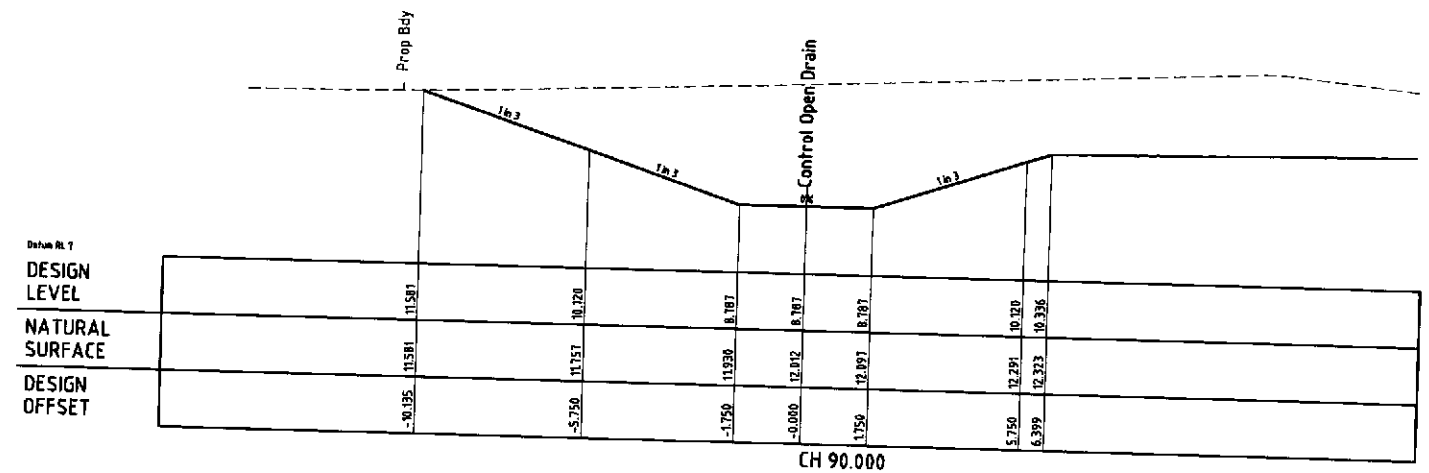
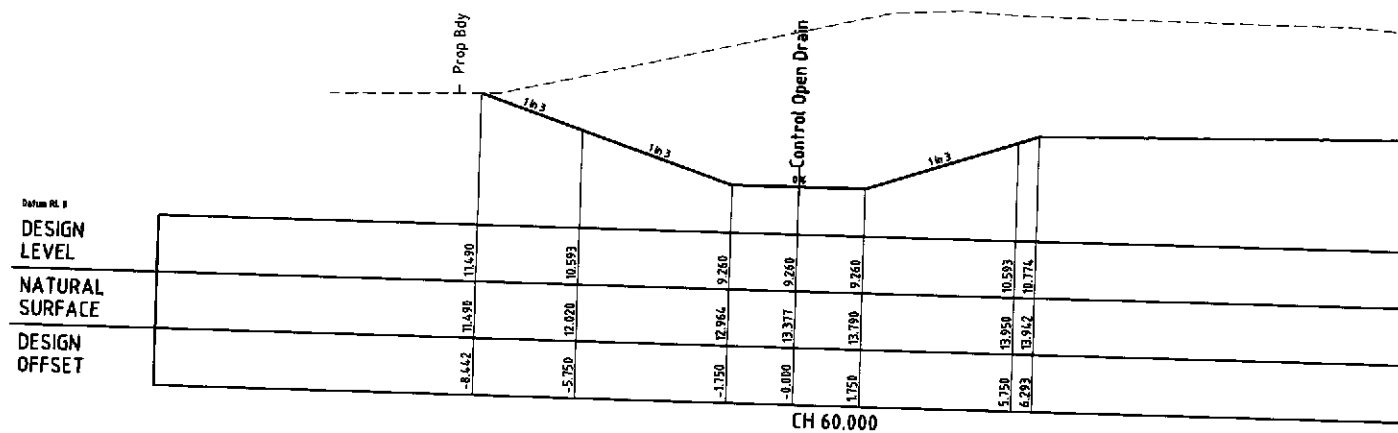
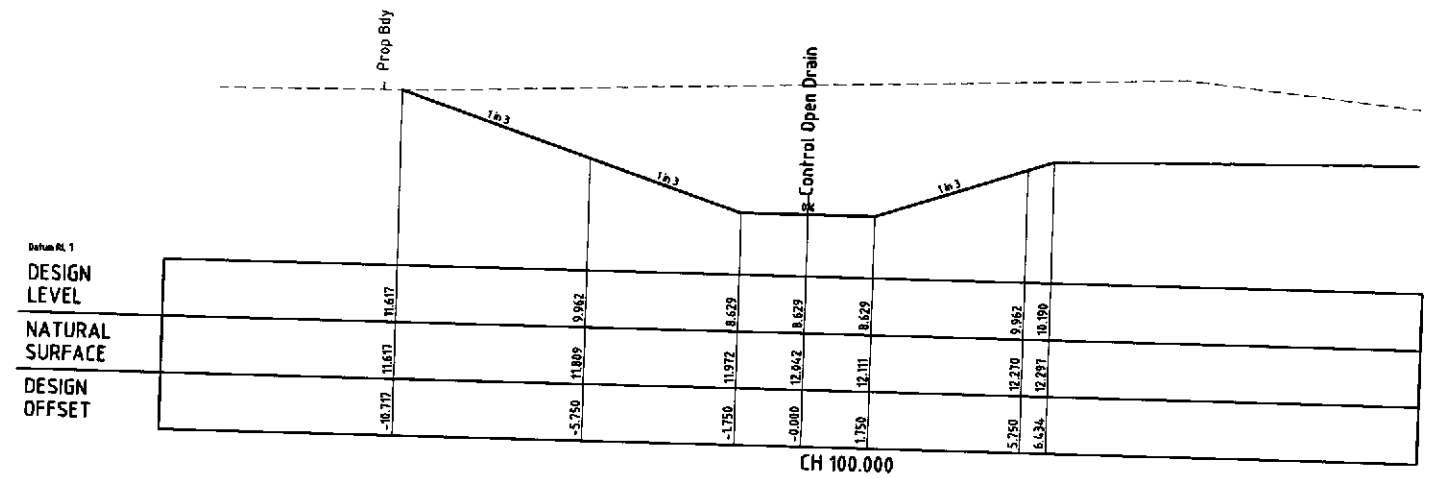
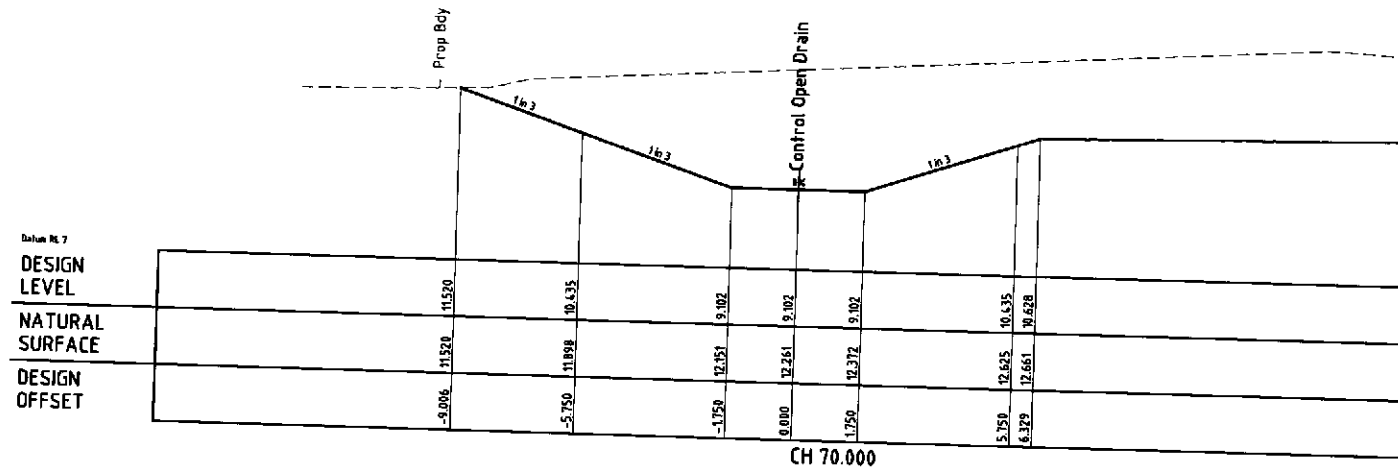
Kellogg Brown & Root Pty Ltd
KBR
Kellogg Brown & Root Pty Ltd ABN 91 007 660 317
555 Coronation Drive, Toowong,
Brisbane, Queensland, 4066
ph (07) 3721-6555 fax (07) 3721-6500
DRAWING SCALE 1:100 (A1) ORG. SIZE A1 PROJECT No. BEV417
DRAFTER: AM FRANGIOSA CAD FILE: BEV417-C-DWG-112.dwg

TITLE
INDUSTRIAL ESTATE
CHRISTENSEN ROAD, YATALA
CROSS SECTIONS OPEN DRAIN
SHEET 1 OF 6

DRAWING No. BEV417-C-DWG-112 REVISION A

NOT FOR CONSTRUCTION

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SCALE OF METRES
SCALE 1:100

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BURNSIDE DEVELOPMENTS PTY LTD
99 ANNERLEY ROAD
WOOLLOONGABBA QLD 4102

NAME	SIGNATURE
DRAFTING J POMROY	
DESIGN J POMROY	
DESIGN VERIFICATION D NEUHOLD	
PROJECT APPROVAL GC LOVELL	
CLIENT	
DATE	
APPROVALS	

Kellogg Brown & Root Pty Ltd
KBR
Kellogg Brown & Root Pty Ltd ABN 91 007 660 317
255 Coronation Drive, Toowong,
Brisbane, Queensland, 4066
ph (07) 3721-6555 fax (07) 3721-6500

TITLE
INDUSTRIAL ESTATE
CHRISTENSEN ROAD, YATALA
CROSS SECTIONS OPEN DRAIN
SHEET 2 OF 6

DRAWING No. BEV417-C-DWG-113

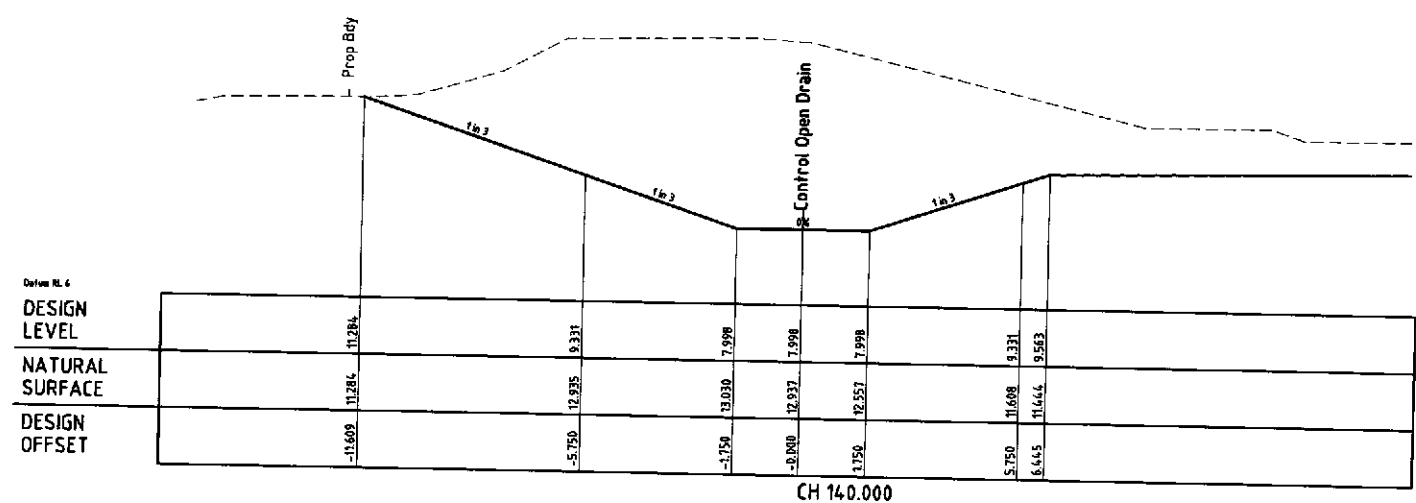
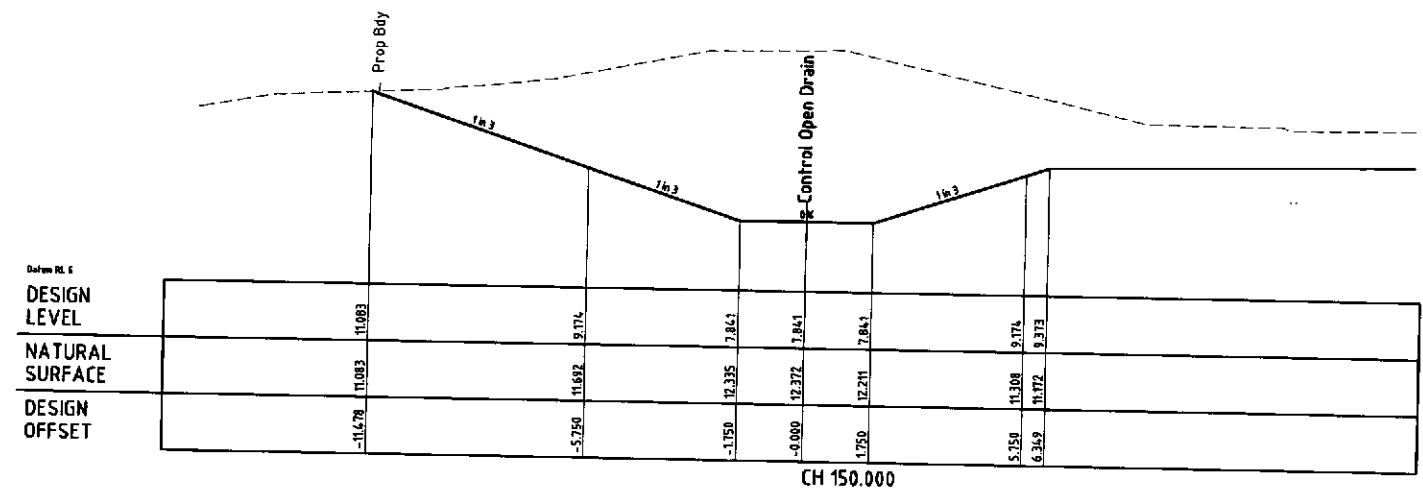
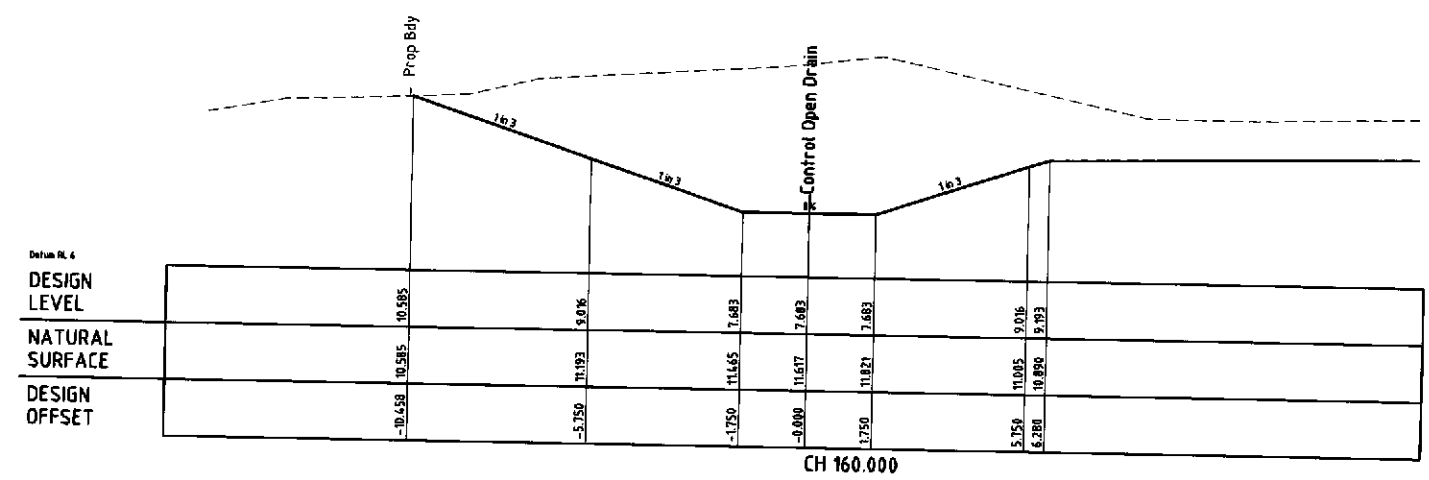
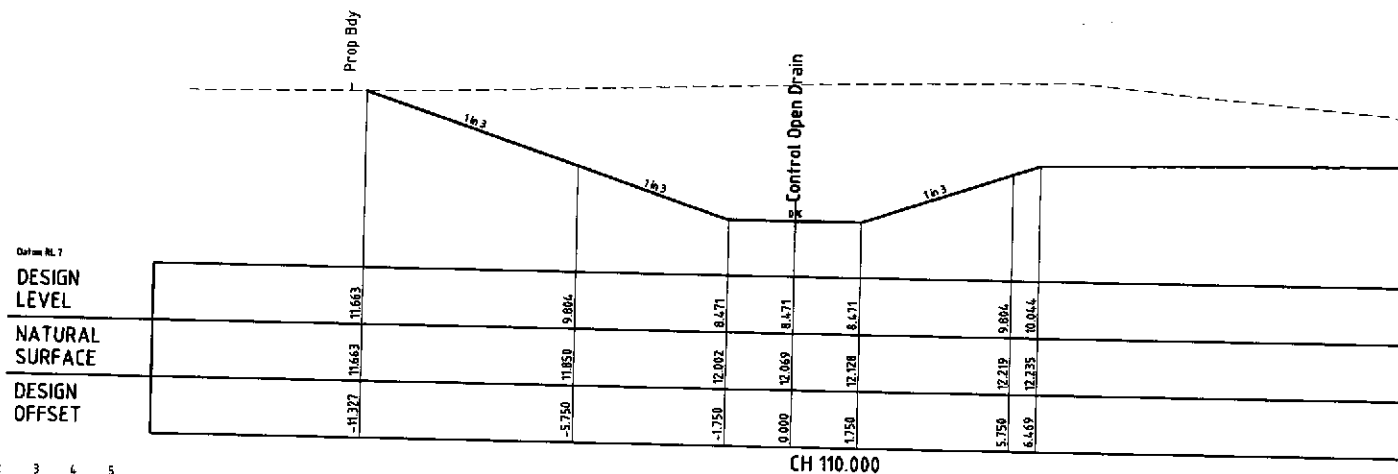
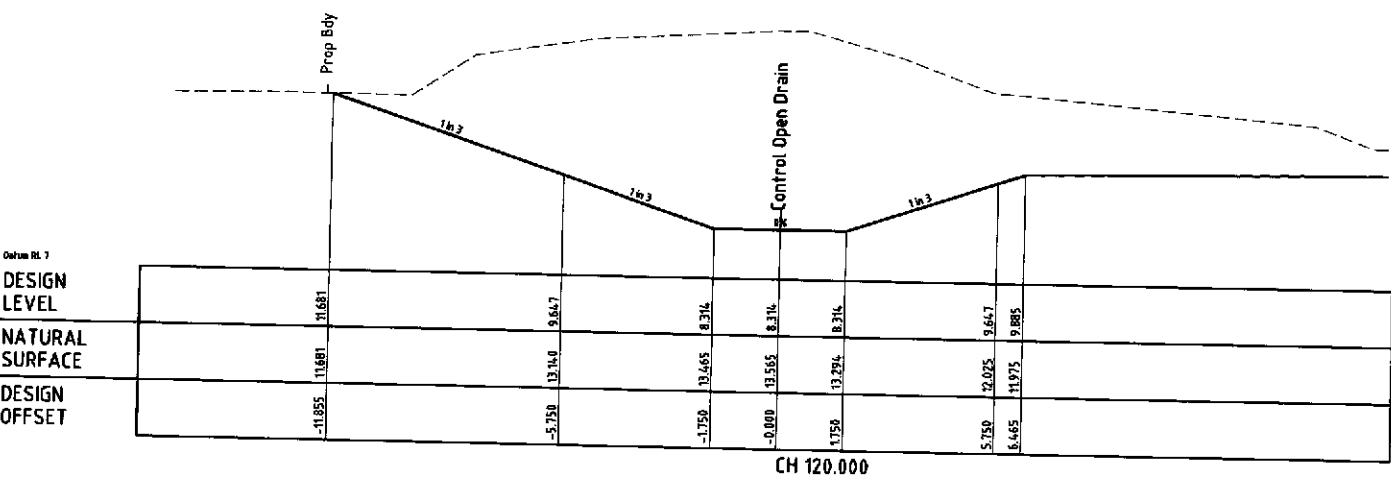
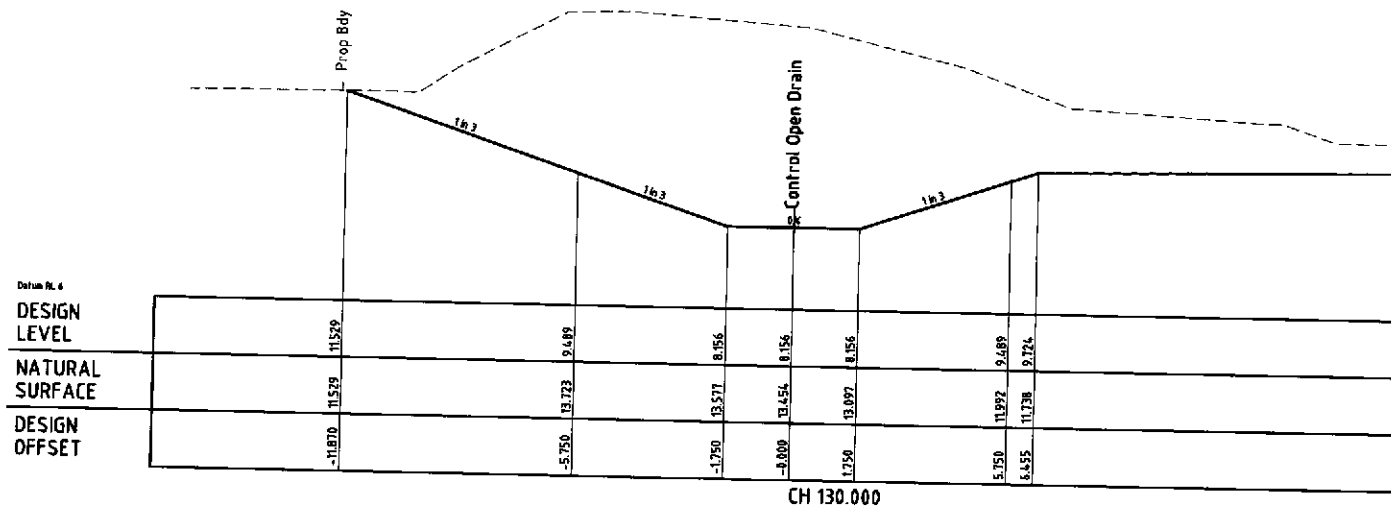
REVISION
A

NOT FOR CONSTRUCTION

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NOTES

DESCRIPTION
REVISIONS



0 1 2 3 4 5
SCALE OF METRES
SCALE 1:100

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BURNSIDE DEVELOPMENTS PTY LTD
99 ANNERLEY ROAD
WOOLLOONGABBA QLD 4102

REV	DESCRIPTION	DATE
A	FIRST ISSUE	
	REVISIONS	

NAME	SIGNATURE
DRAFTING J POMROY	<i>[Signature]</i>
DESIGN J POMROY	<i>[Signature]</i>
DESIGN VERIFICATION D NEUHOLD	<i>[Signature]</i>
PROJECT APPROVAL GC LOVELL	<i>[Signature]</i>
CLIENT	

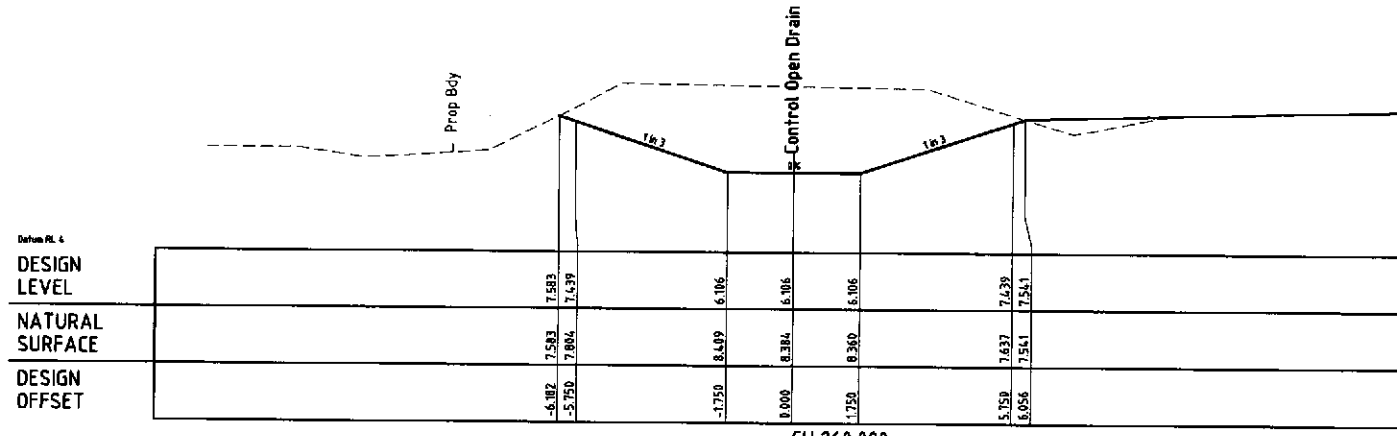
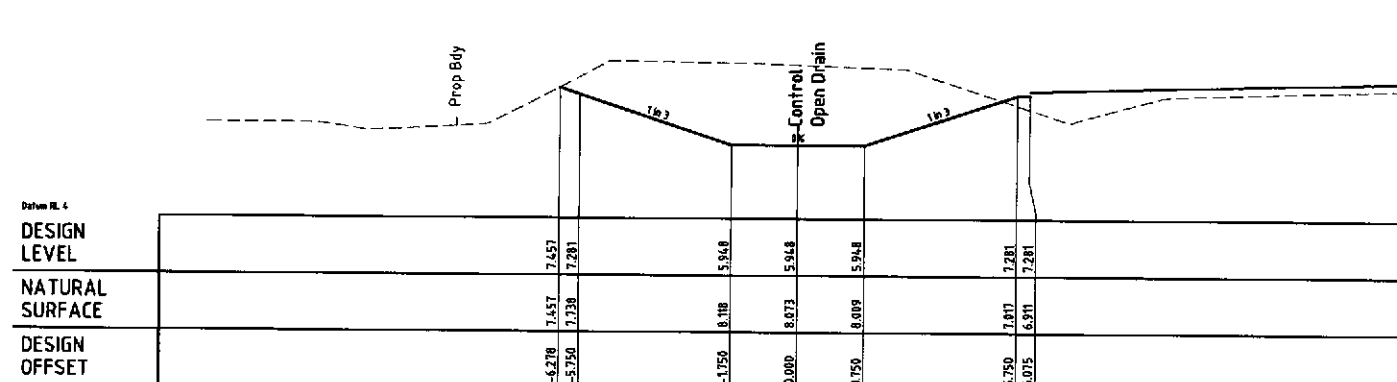
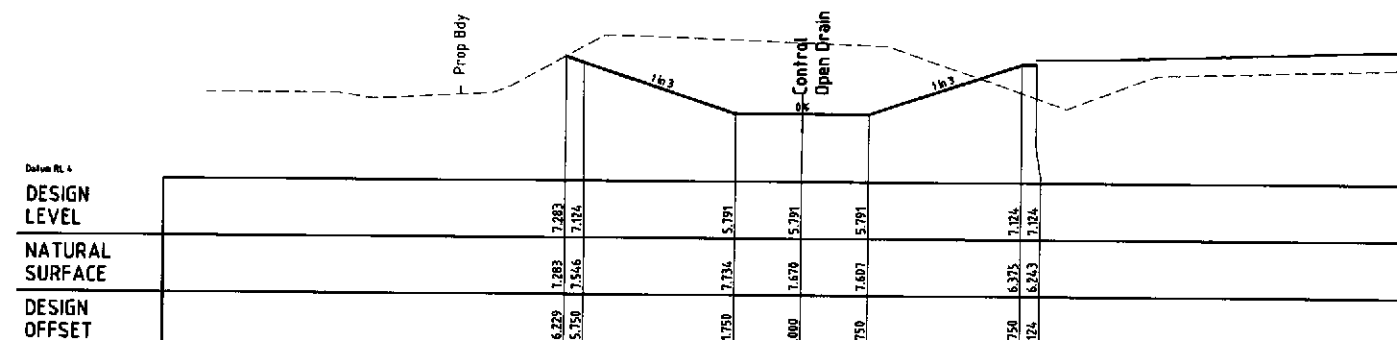
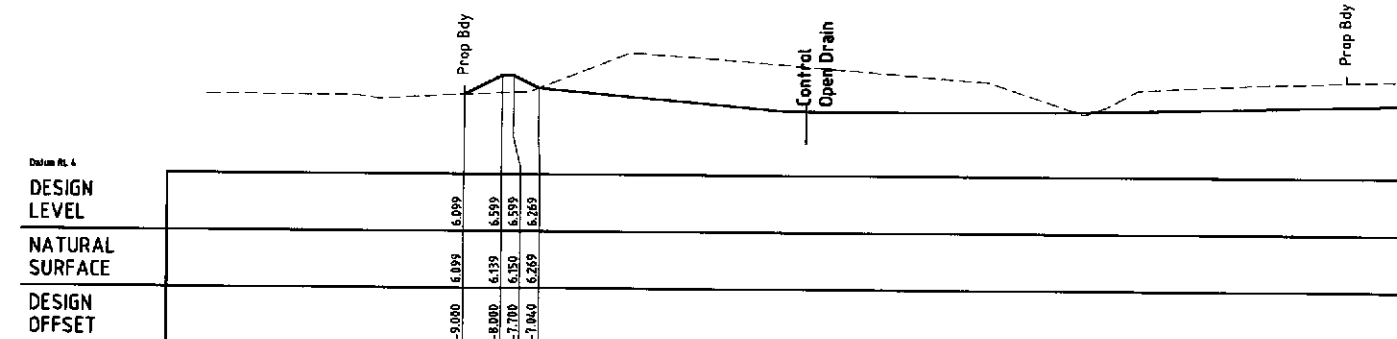
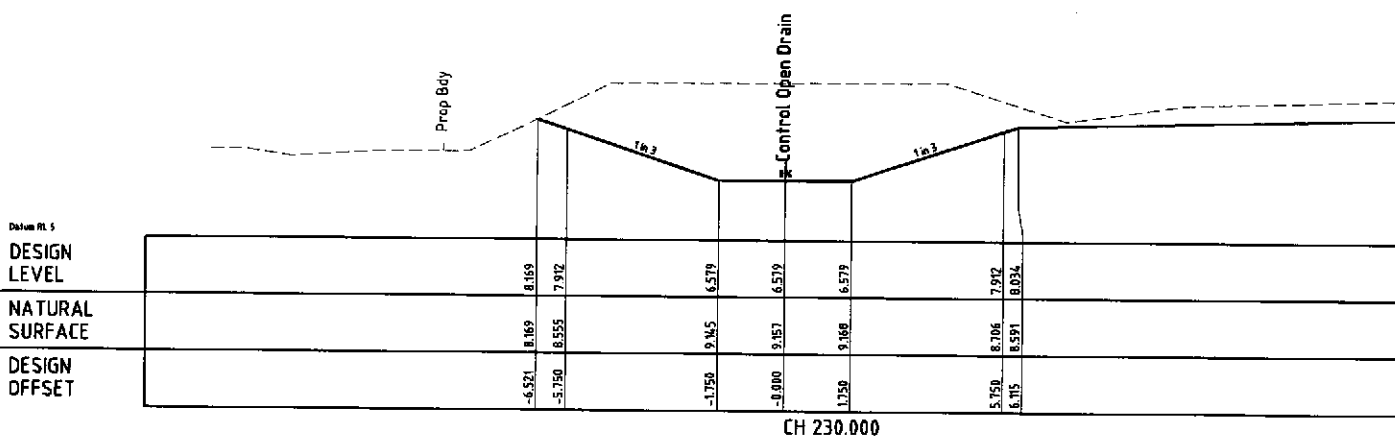
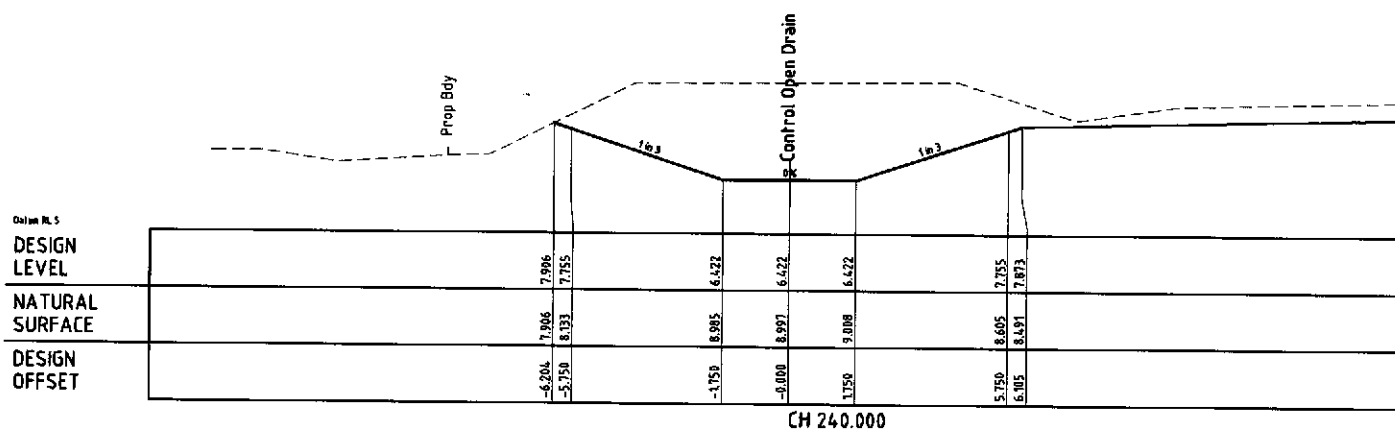
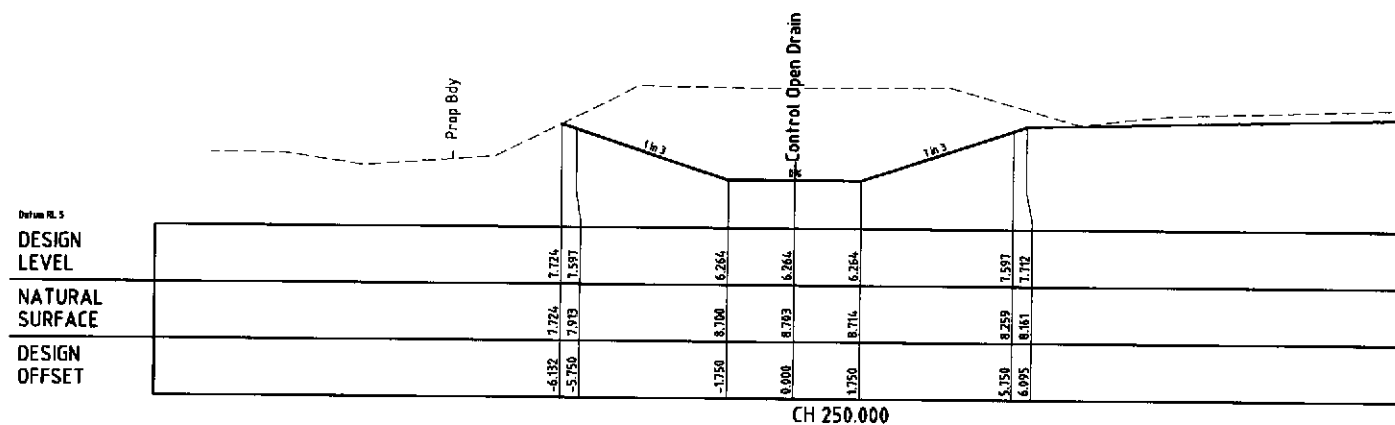
Kellogg Brown & Root Pty Ltd
KBR
Kellogg Brown & Root Pty Ltd ABN 91 007 660 317
555 Coronation Drive, Taewong,
Brisbane, Queensland, 4086
ph (07) 3721-6555 fax (07) 3721-6500

DRAWING SCALE 1:100 (A1)
ORIG. SIZE A1
PROJECT No. BEV417
DRAFTER: AM FRANGIOSA
CAD FILE: BEV417-C-DWG-114.dwg

NOT FOR CONSTRUCTION

TITLE INDUSTRIAL ESTATE
CHRISTENSEN ROAD, YATALA
CROSS SECTIONS OPEN DRAIN
SHEET 3 OF 6

DRAWING No. BEV417-C-DWG-114
REVISION A

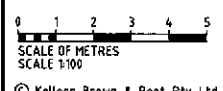
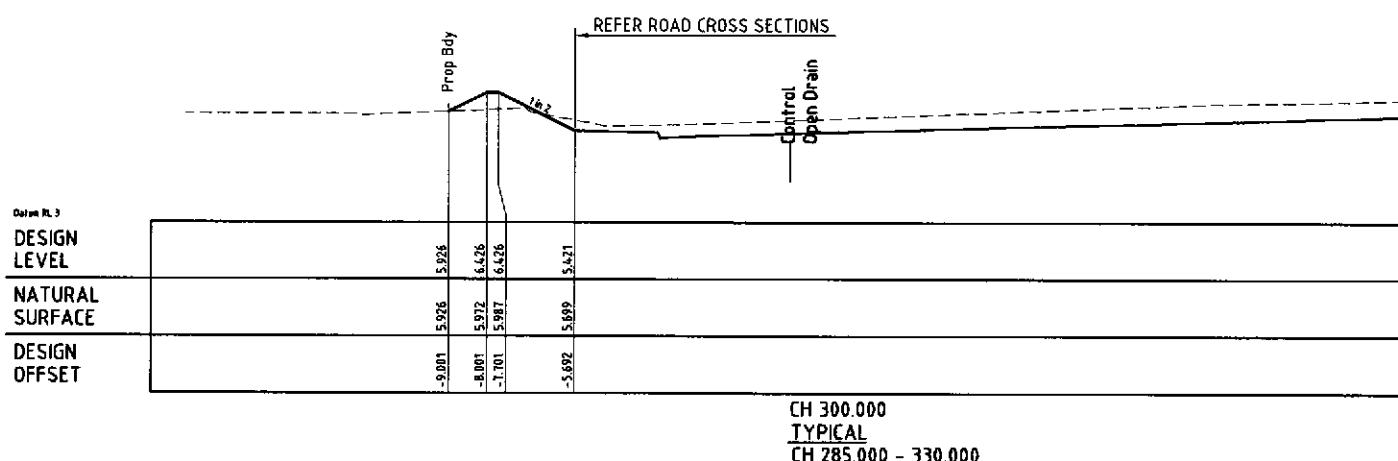
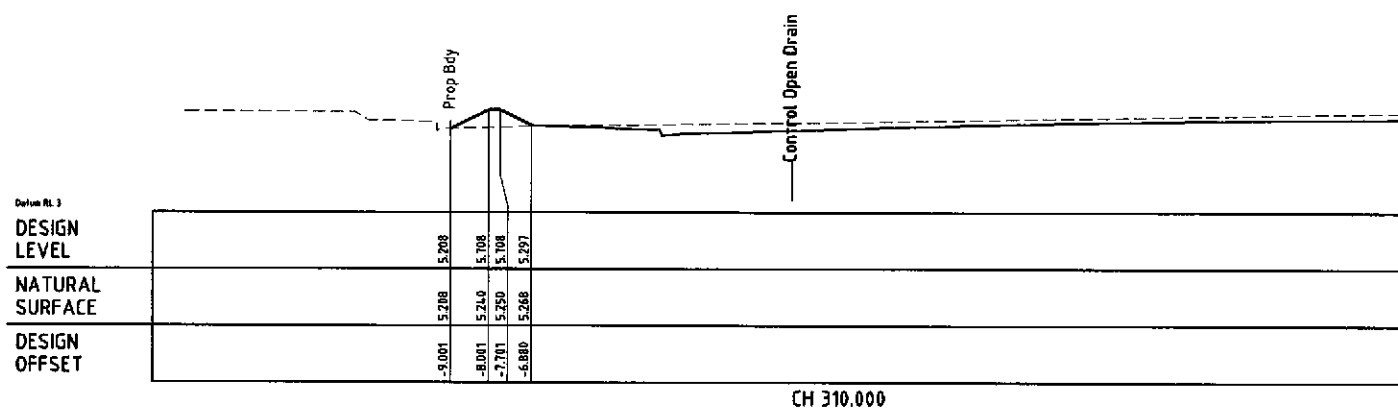
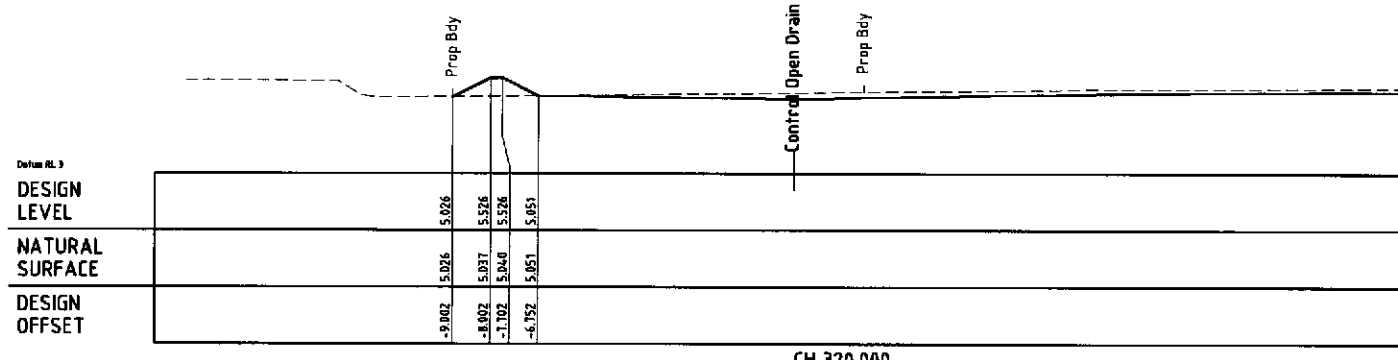


0 1 2 3 4 5
SCALE OF METRES
SCALE 1:100

© Kellogg Brown & Root Pty Ltd XREFS:Address_block/NEW_A1_APAC_STD_xr_bh/Xsec_mc00_1

DRAWING No.		DESCRIPTION		NOTES		REVISIONS		APPROVALS		DRAFTER: AM FRANGIOSA CAD FILE: BEV417-C-DWG-116.dwg	
BURNSIDE DEVELOPMENTS PTY LTD		99 ANNERLEY ROAD		WOOLLOONGABBA QLD 4102		A FIRST ISSUE		CLIENT		KBR	
KELLOGG BROWN & ROOT PTY LTD		ABN 91 007 660 317		655 Coreanation Drive, Toowong		Brisbane, Queensland, 4066		ph (07) 3721-6555 fax (07) 3721-6500		INDUSTRIAL ESTATE	
CHRISTENSEN ROAD, YATALA		CROSS SECTIONS OPEN DRAIN		SHEET 5 OF 6		DRAWING No.		BEV417-C-DWG-116		REVISION	
A		A		A		A		A		A	

NOT FOR CONSTRUCTION

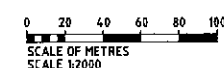
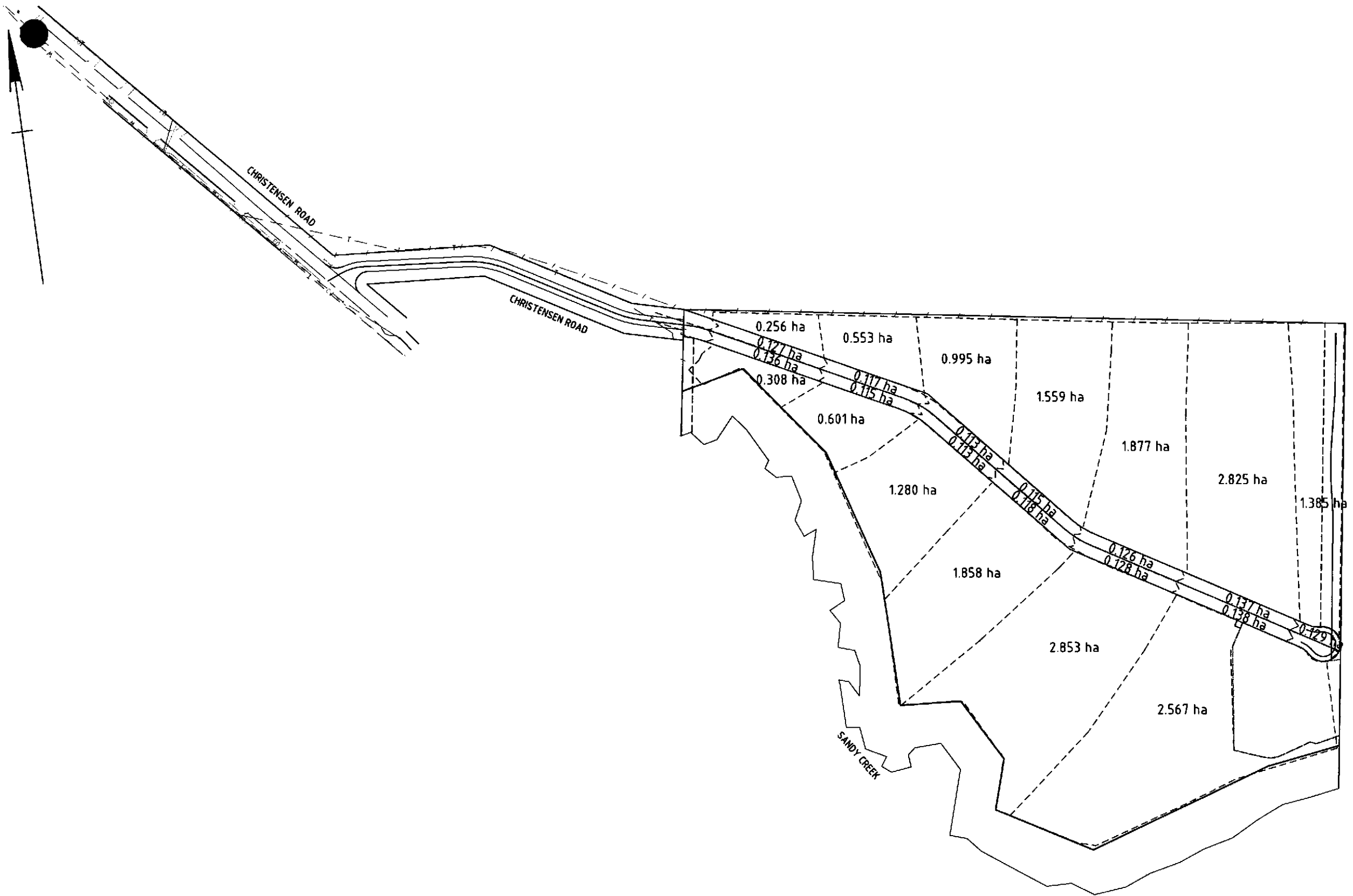


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BURNSIDE DEVELOPMENTS PTY LTD 99 ANNERLEY ROAD WOOLLOONGABBA QLD 4102		100mm ON ORIGINAL DRAWING		NAME		SIGNATURE		KBR Kellogg Brown & Root Pty Ltd ABN 91 007 460 377 555 Coronation Drive, Toowong, Brisbane, Queensland, 4066 ph (07) 3721-6555 fax (07) 3721-6500		TITLE INDUSTRIAL ESTATE CHRISTENSEN ROAD, YATALA CROSS SECTIONS OPEN DRAIN SHEET 6 OF 6	
		DRAFTING	J POMROY	JP							
		DESIGN	J POMROY	JP							
		DESIGN VERIFICATION	D NEUHOLD	DN							
DRAWING No.		DESCRIPTION		PROJECT APPROVAL		GC LOVELL		DRAWING SCALE		DRAWING No.	
REFERENCE DRAWINGS		NOTES		CLIENT		APPROVALS		1:100 (A1)		BEV417	
G:\BRS\Projects\bev\BEV417\Drawings\ISSUED REV A\BEV417-C-DWG-117.dwg 17.7.06 08:29		REVISIONS		DATE		DATE		DRAFTER: AM FRANGIOSA		CAD FILE: BEV417-C-DWG-117.dwg	

NOT FOR CONSTRUCTION

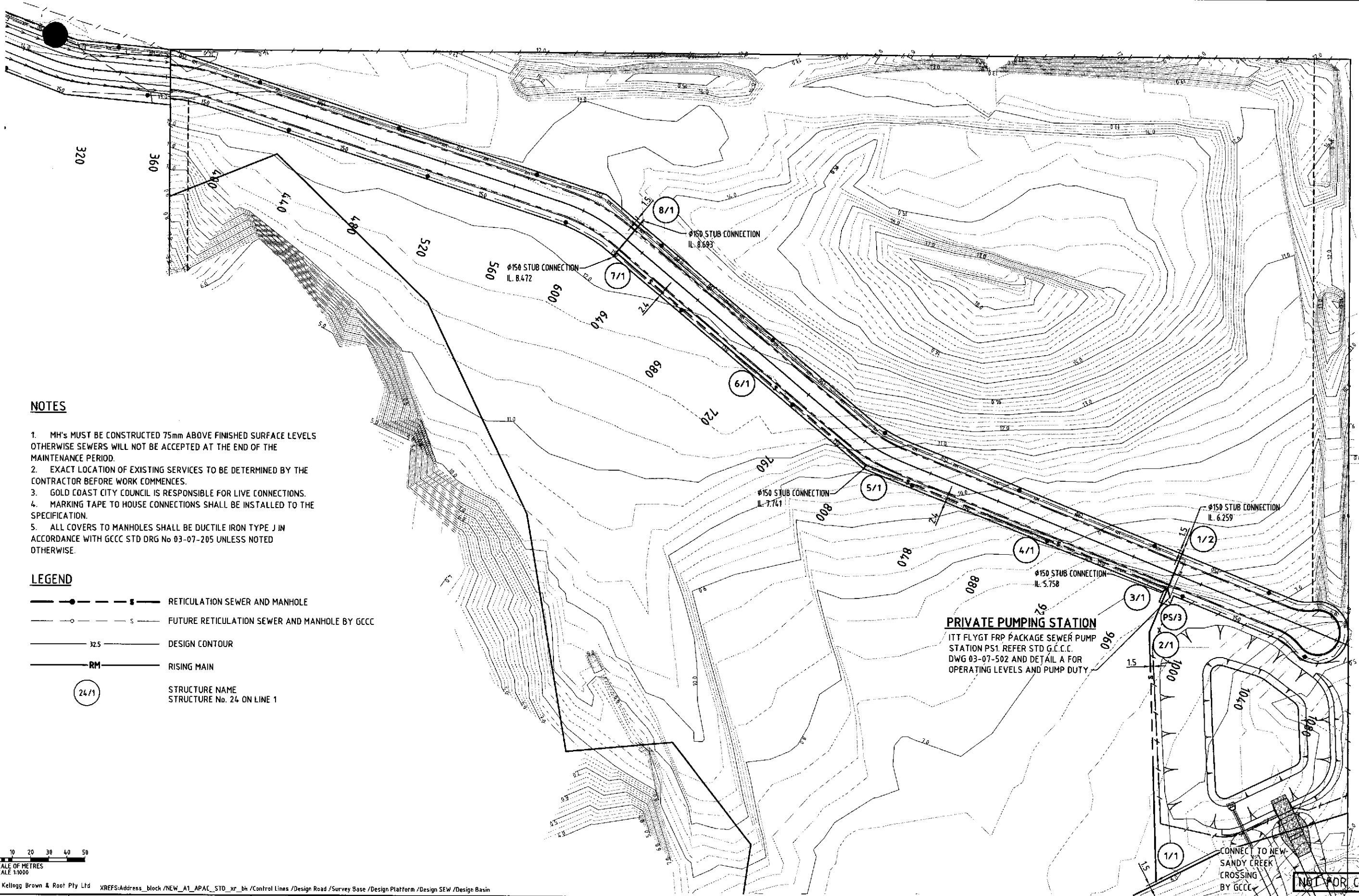
REVISION
A



NOT FOR CONSTRUCTION

© Kellogg Brown & Root Pty Ltd XREFS:Address_block/NEW_A1_APAC_STD_xr_bk/Survey Base/Design Road/Control Lines/Design Catchments/Design Basin/Design Platform

		100mm ON ORIGINAL DRAWING										NAME		SIGNATURE		Kellogg Brown & Root Pty Ltd		TITLE									
				BURNSIDE DEVELOPMENTS PTY LTD								DRAFTING		J POMROY				KBR Kellogg Brown & Root Pty Ltd ABN 91 007 650 317 555 Coronation Drive, Toowong, Brisbane, Queensland, 4066 ph (07) 3721-6595 fax (07) 3721-6500		INDUSTRIAL ESTATE CHRISTENSEN ROAD, YATALA CATCHMENT PLAN							
				99 ANNERLEY ROAD								DESIGN		J POMROY													
				WOOLLOONGABBA QLD 4102								DESIGN VERIFICATION		D NEUHOLD													
												PROJECT APPROVAL		GC LOVELL													
DRAWING No.		DESCRIPTION				A		FIRST ISSUE				CLIENT						DRAWING SCALE		DRG. SIZE		PROJECT No.		DRAWING No.		REVISION	
		REFERENCE DRAWINGS				REV				DESCRIPTION		DATE				APPROVALS		1:2000 (A1)		A1		BEV417		BEV417-C-DWG-118		A	
		NOTES								REVISIONS								DRAFTER: AM FRANGIOSA		CAD FILE: BEV417-C-DWG-118.dwg							



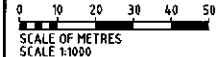
- NOTES**
- 1. MH's MUST BE CONSTRUCTED 75mm ABOVE FINISHED SURFACE LEVELS OTHERWISE SEWERS WILL NOT BE ACCEPTED AT THE END OF THE MAINTENANCE PERIOD.
 - 2. EXACT LOCATION OF EXISTING SERVICES TO BE DETERMINED BY THE CONTRACTOR BEFORE WORK COMMENCES.
 - 3. GOLD COAST CITY COUNCIL IS RESPONSIBLE FOR LIVE CONNECTIONS.
 - 4. MARKING TAPE TO HOUSE CONNECTIONS SHALL BE INSTALLED TO THE SPECIFICATION.
 - 5. ALL COVERS TO MANHOLES SHALL BE DUCTILE IRON TYPE J IN ACCORDANCE WITH GCCC STD DRG No 03-07-205 UNLESS NOTED OTHERWISE.

- LEGEND**
- RETICULATION SEWER AND MANHOLE
 - FUTURE RETICULATION SEWER AND MANHOLE BY GCCC
 - 32.5 --- DESIGN CONTOUR
 - RM--- RISING MAIN
 - (24/1) STRUCTURE NAME
STRUCTURE No. 24 ON LINE 1

PRIVATE PUMPING STATION
ITT FLYGT FRP PACKAGE SEWER PUMP
STATION PS1. REFER STD G.C.C.C.
DWG 03-07-502 AND DETAIL A FOR
OPERATING LEVELS AND PUMP DUTY

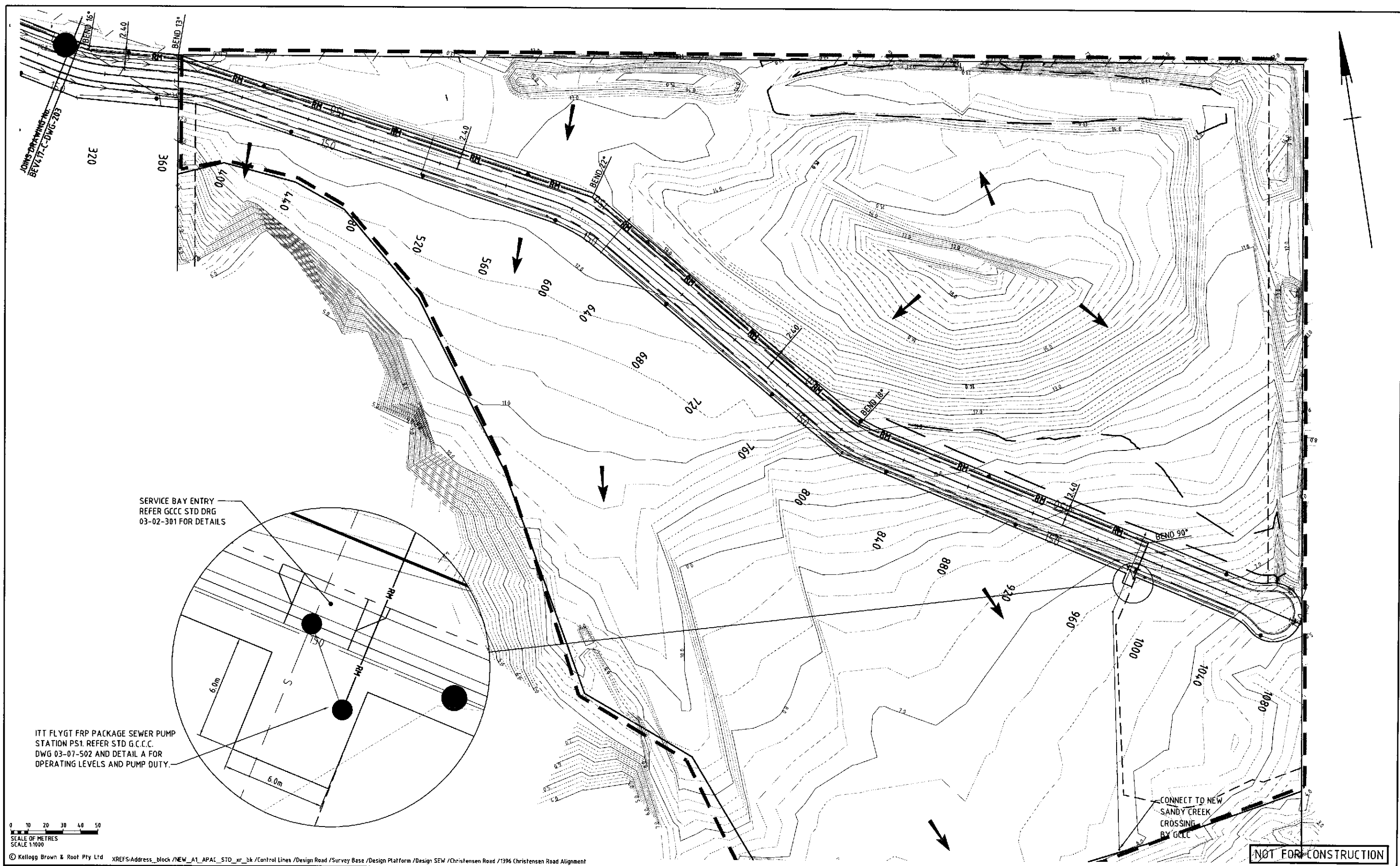
CONNECT TO NEW
SANDY CREEK
CROSSING
BY GCCC

NOT FOR CONSTRUCTION



© Kellogg Brown & Root Pty Ltd XREFS:Address_block/NEW_A1_APAC_STD_xr_bk/Control Lines /Design Road /Survey Base /Design Platform /Design SEW /Design Basin

		100mm ON ORIGINAL DRAWING																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
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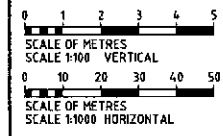
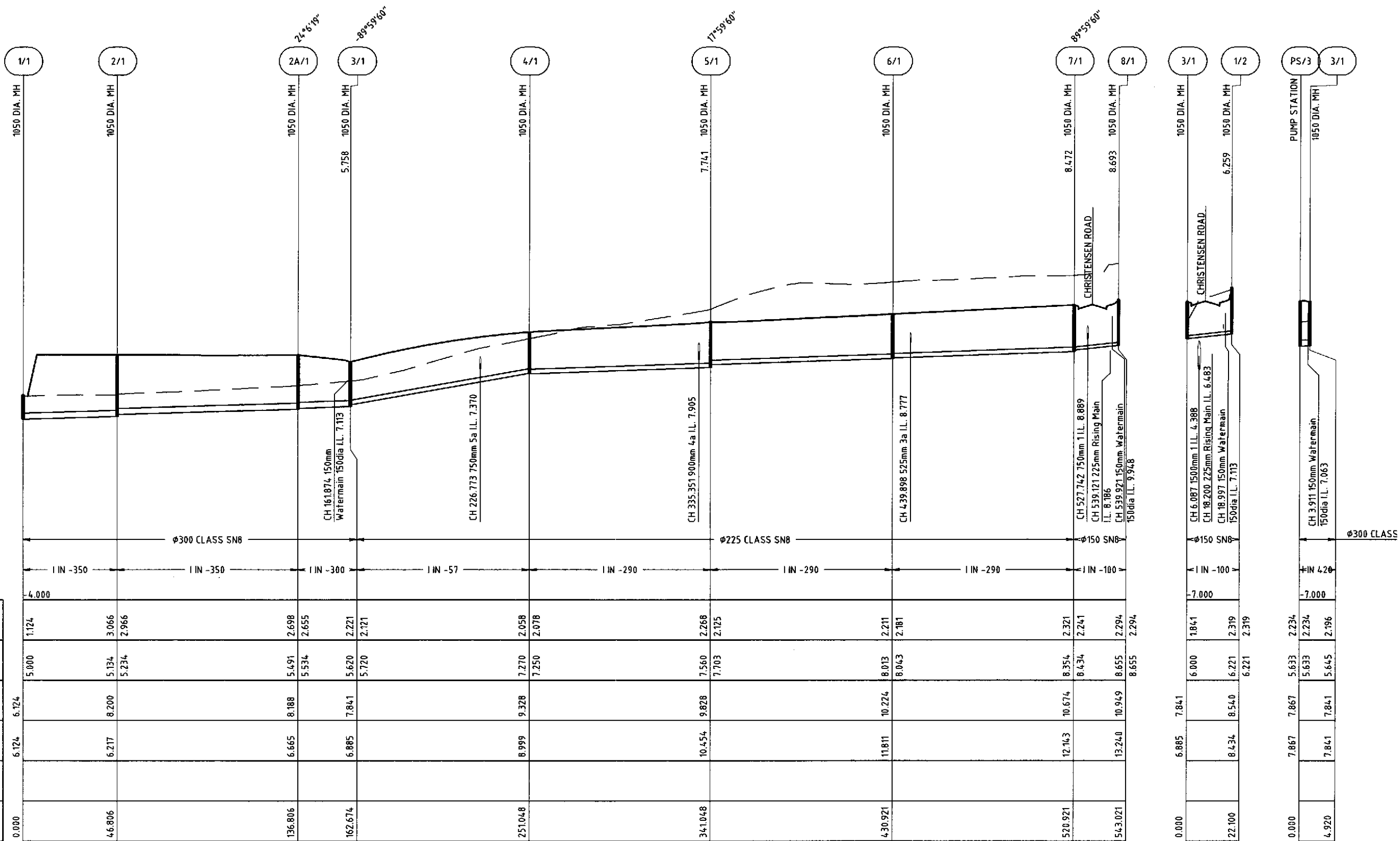


DRAFTING J POMROY		SIGNATURE		NAME	
DESIGN J POMROY		J. POMROY		J. POMROY	
DESIGN VERIFICATION D NEUHOLD		D. NEUHOLD		D. NEUHOLD	
PROJECT APPROVAL GC LOVELL		GC LOVELL		GC LOVELL	
CLIENT		APPROVALS		APPROVALS	
A FIRST ISSUE		DESCRIPTION		DATE	
REV		REVISIONS		DATE	
BURNSIDE DEVELOPMENTS PTY LTD 99 ANNERLEY ROAD WOOLLOONGABBA QLD 4102					
KELLOGG BROWN & ROOT PTY LTD 555 CORONATION DRIVE, TAOWONG BRISBANE, QUEENSLAND, 4066 ph (07) 3721-6555 fax (07) 3721-6500					
INDUSTRIAL ESTATE CHRISTENSEN ROAD, YATALA SEWER RISING MAIN LAYOUT PLAN SHEET 2 OF 2					
DRAWING No.		BEV417-C-DWG-204		REVISION	
REFERENCE DRAWINGS		NOTES		A	

TYPE
STUB INVERT LEVEL

PIPE DIA
PIPE GRADE

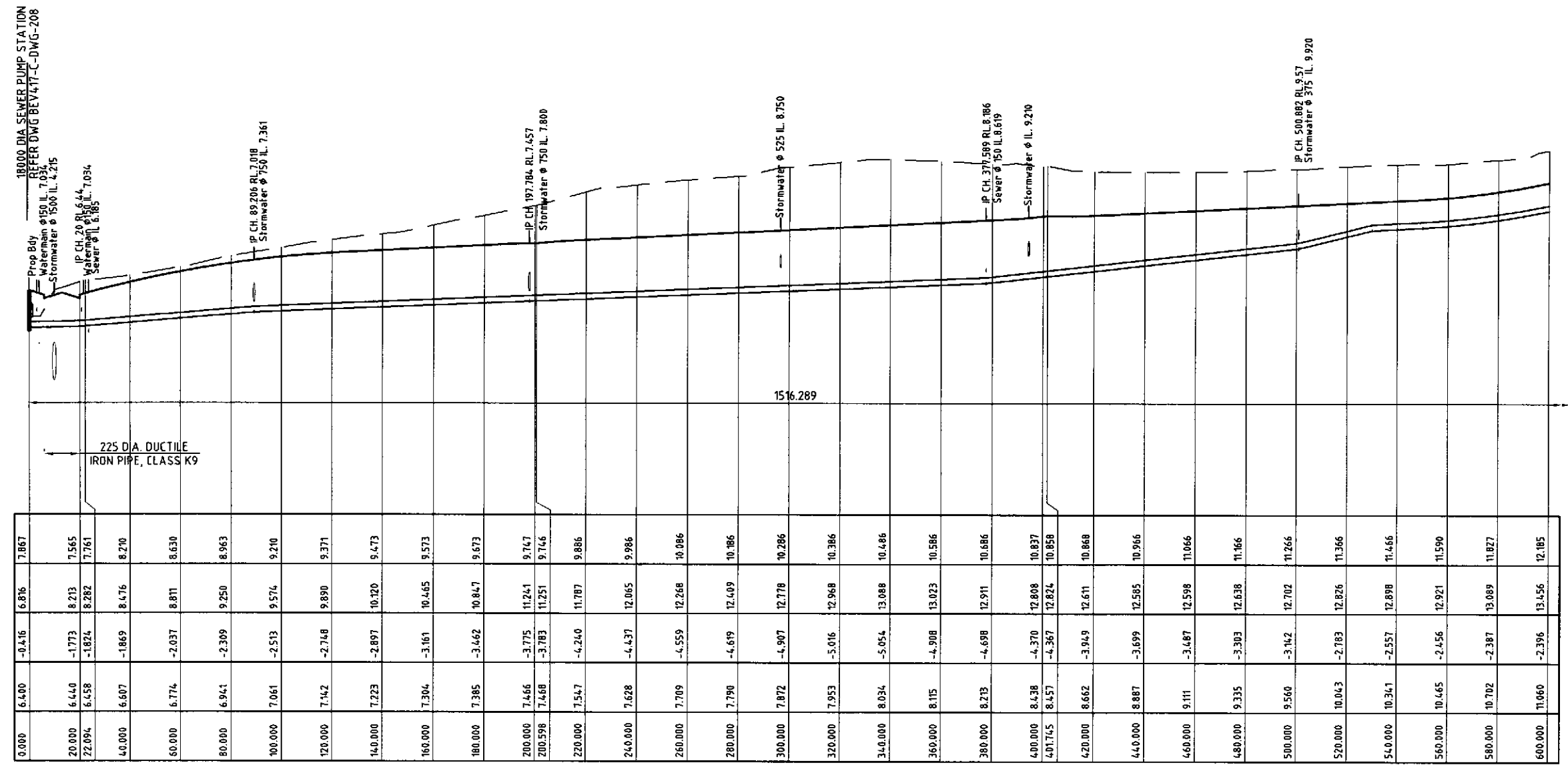
DEPTH TO INVERT
INVERT LEVEL
DESIGN SURFACE LEVEL
EXISTING SURFACE LEVEL
ROAD CHAINAGE
CHAINAGE



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BURNSIDE DEVELOPMENTS PTY LTD 99 ANNERLEY ROAD WOOLLOONGABBA QLD 4102		DRAFTING J POMROY DESIGN J POMROY DESIGN VERIFICATION D NEUHOLD PROJECT APPROVAL GC LOVELL		NAME SIGNATURE J D GC		Kellogg Brown & Root Pty Ltd KBR Kellogg Brown & Root Pty Ltd ABN 91 007 668 317 555 Coronation Drive, Toowong, Brisbane, Queensland, 4066 ph (07) 3721-6555 fax (07) 3721-6508		TITLE INDUSTRIAL ESTATE CHRISTENSEN ROAD, YATALA SEWER RETICULATION LONGITUDINAL SECTION				
DRAWING No.	DESCRIPTION	NOTES	REV	DESCRIPTION	DATE	CLIENT	APPROVALS	DRAWING SCALE AS SHOWN	DRKS. SIZE A1	PROJECT No. BEV417	DRAWING No. BEV417-C-DWG-205	REVISION A

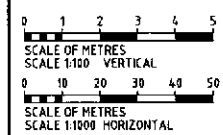
NOTE:
1. MINIMUM GRADE 1:500
2. MINIMUM COVER 900mm TO TOP OF PIPE.
3. PIPE TO CONSIST OF 225 DIA. uPVC PN16, EXCEPT WHERE NOTED OTHERWISE.



PIPE LENGTH
PIPE DIAMETER

DATUM HT -1.00
FINISHED SURFACE LEVEL
NATURAL SURFACE LEVEL (INTERPOLATED)
DEPTH FROM F.S.L
INVERT LEVEL
DISTANCES ALONG SEWER

0.000	6.400	-0.416	7.867
20.000	6.440	-1.773	7.565
22.094	6.458	-1.824	7.761
40.000	6.507	-1.869	8.270
60.000	6.774	-2.037	8.630
80.000	6.941	-2.309	8.963
100.000	7.061	-2.513	9.574
120.000	7.142	-2.748	9.890
140.000	7.223	-2.897	9.473
160.000	7.304	-3.161	9.573
180.000	7.385	-3.462	9.673
200.000	7.466	-3.775	9.747
200.598	7.468	-3.783	9.746
220.000	7.547	-4.240	9.886
240.000	7.628	-4.437	9.986
260.000	7.709	-4.559	10.086
280.000	7.790	-4.619	10.186
300.000	7.872	-4.907	10.286
320.000	7.953	-5.016	10.386
340.000	8.034	-5.054	10.486
360.000	8.115	-4.908	10.586
380.000	8.213	-4.698	10.686
400.000	8.438	-4.370	10.837
401.745	8.457	-4.367	10.858
420.000	8.662	-3.949	10.868
440.000	8.887	-3.699	10.966
460.000	9.111	-3.487	11.066
480.000	9.335	-3.303	11.166
500.000	9.560	-3.142	11.266
520.000	10.043	-2.783	11.366
540.000	10.341	-2.557	11.466
560.000	10.465	-2.456	11.590
580.000	10.702	-2.387	11.827
600.000	11.060	-2.396	12.185



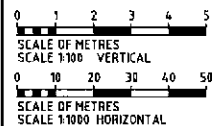
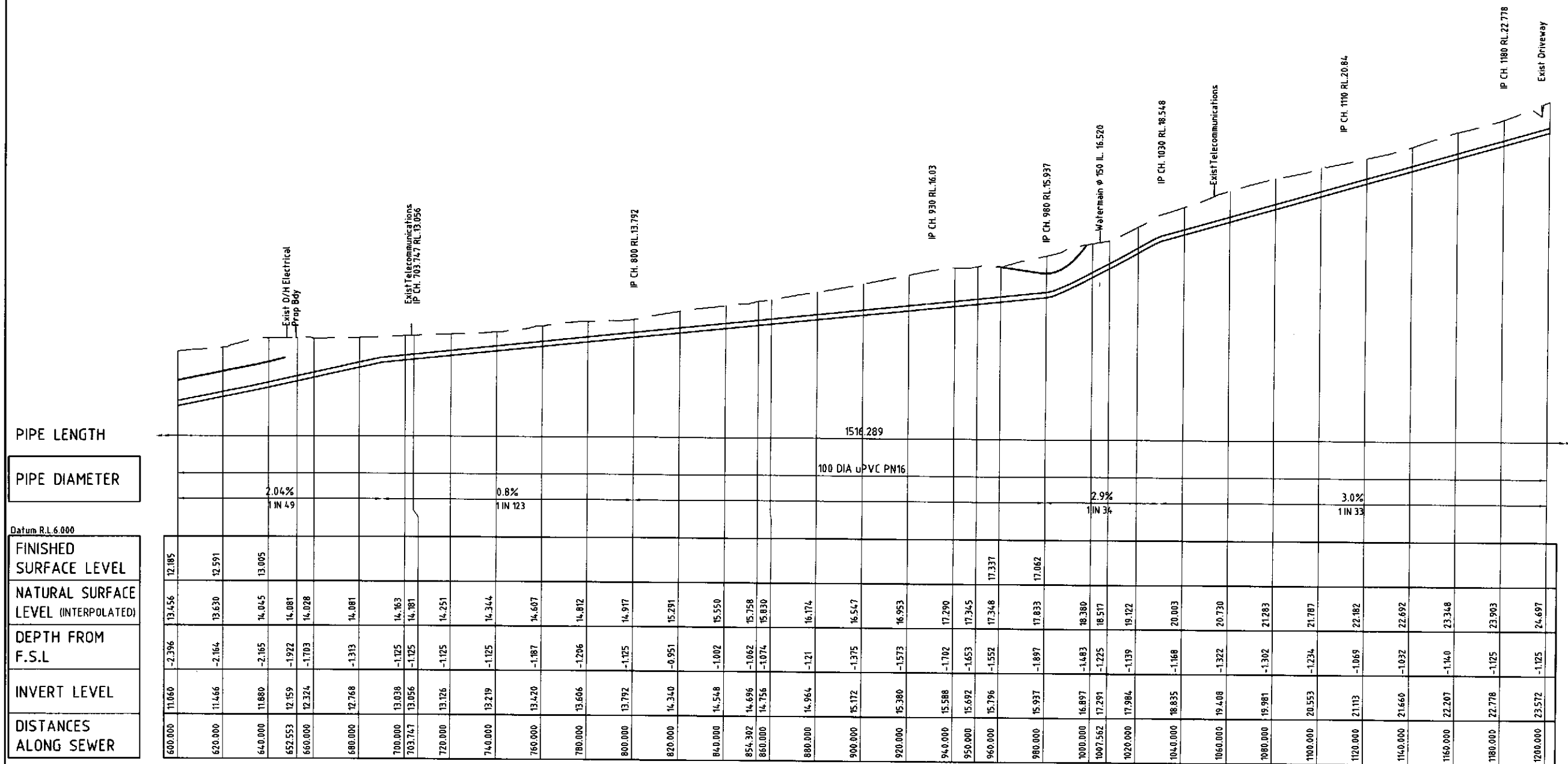
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100mm ON ORIGINAL DRAWING		NAME		SIGNATURE		Kellogg Brown & Root Pty Ltd		TITLE	
BURNSIDE DEVELOPMENTS PTY LTD		DRAFTING		J POMROY		KBR		INDUSTRIAL ESTATE	
99 ANNERLEY ROAD		DESIGN		J POMROY		Kellogg Brown & Root Pty Ltd ABN 91 007 660 317		CHRISTENSEN ROAD, YATALA	
WOOLLOONGABBA QLD 4102		DESIGN VERIFICATION		D NEUHOLD		555 Coronation Drive, Toowong, Brisbane, Queensland, 4066		SEWER RISING MAIN	
		PROJECT APPROVAL		GC LOVELL		ph (07) 3721-6555 fax (07) 3721-6500		LONGITUDINAL SECTION - SHEET 1 OF 3	
DRAWING No.		DESCRIPTION		CLIENT		DRAWING SCALE		DRAWING No.	
						1:1000 (A1)		BEV417-C-DWG-206	
REFERENCE DRAWINGS		NOTES		APPROVALS		DRAFTER: AM FRANGOSA		REVISION	
						CAD FILE: BEV417-C-DWG-206.dwg		A	

NOT FOR CONSTRUCTION

NOTE:

1. MINIMUM GRADE 1:500
2. MINIMUM COVER 900mm TO TOP OF PIPE.
3. PIPE TO CONSIST OF 100 DIA. uPVC PN16, EXCEPT WHERE NOTED OTHERWISE.



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BURNSIDE DEVELOPMENTS PTY LTD
99 ANNERLEY ROAD
WOOLLOONGABBA QLD 4102

REV	DESCRIPTION	DATE
A	FIRST ISSUE	

	NAME	SIGNATURE
DRAFTING	J POMROY	
DESIGN	J POMROY	
DESIGN VERIFICATION	D NEUHOLD	
PROJECT APPROVAL	GC LOVELL	
CLIENT		

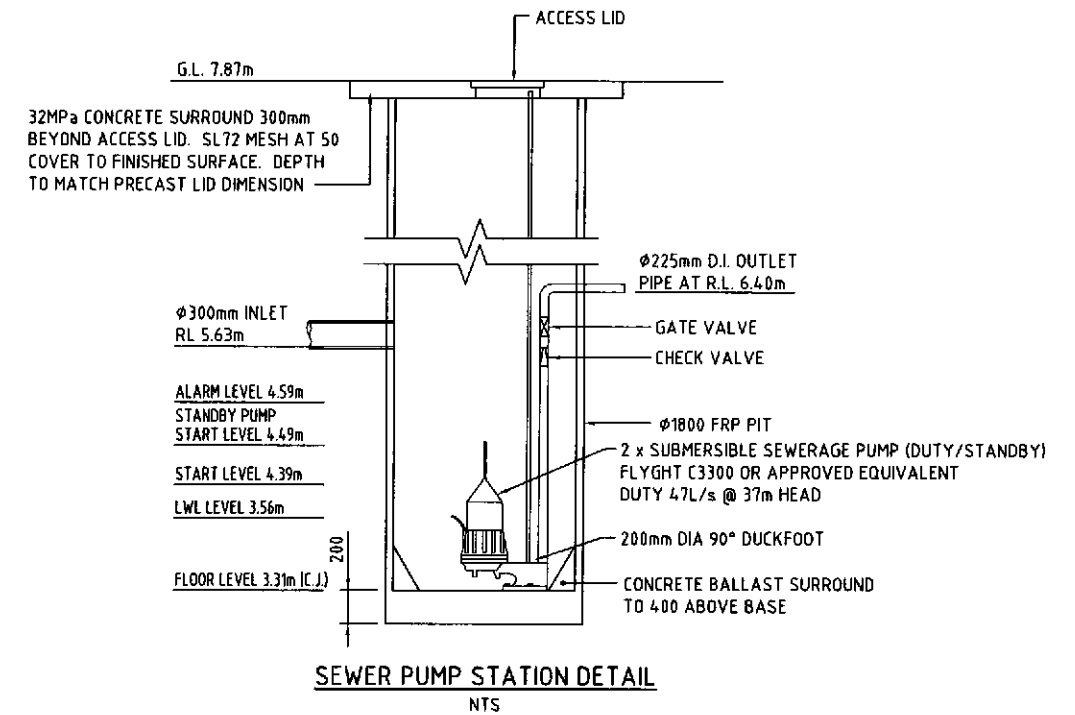
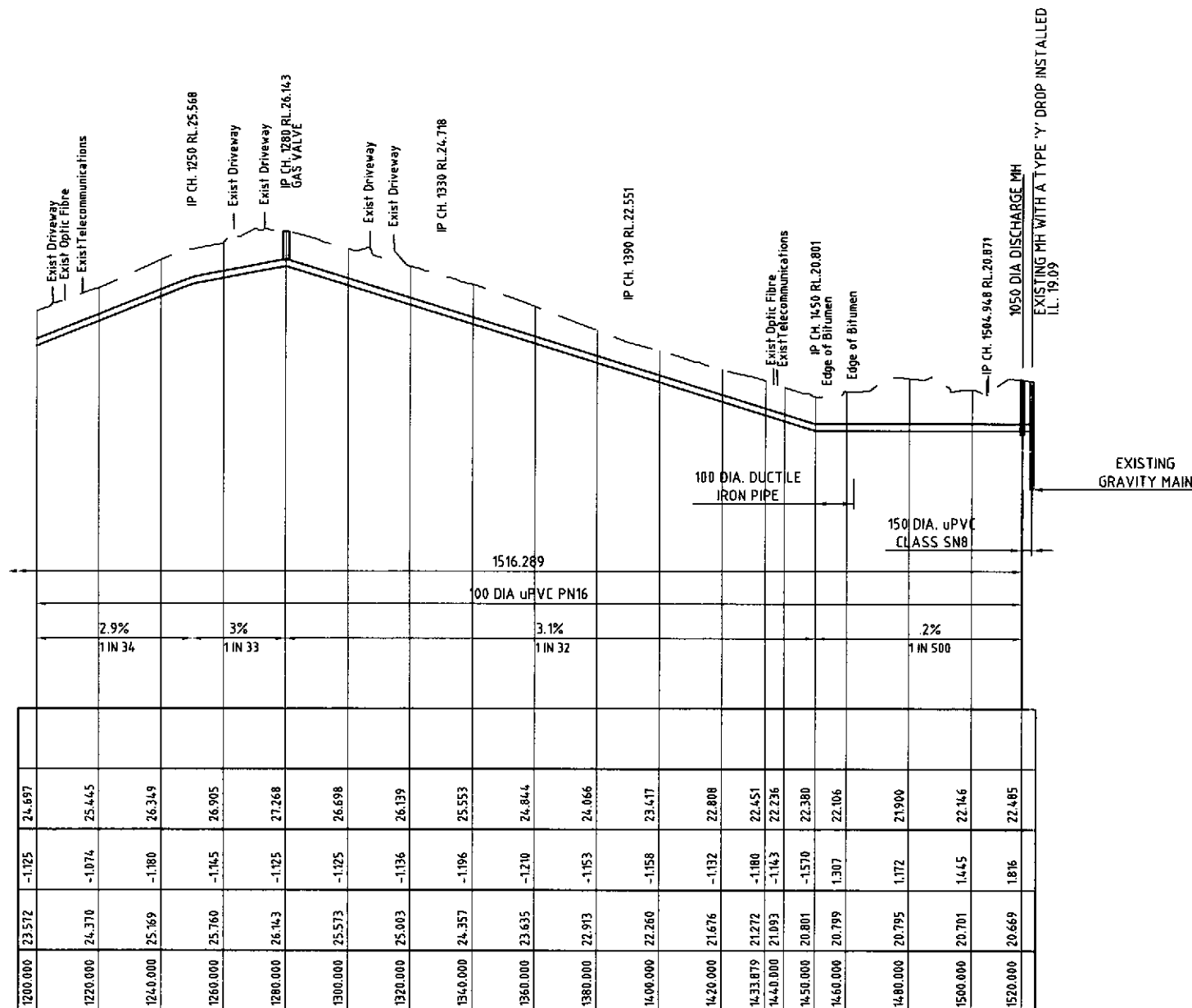
Kellogg Brown & Root Pty Ltd KBR Kellogg Brown & Root Pty Ltd ABN 91 007 660 317 555 Coronation Drive, Toowong, Brisbane, Queensland, 4066 ph (07) 3721-6555 fax (07) 3721-6500		
DRAWING SCALE 1:1000 (A1)	ORIG. SIZE A1	PROJECT No. BEV417
DRAFTER: AM FRANGIOSA	CAD FILE: BEV417-C-DWG-207.dwg	

TITLE INDUSTRIAL ESTATE CHRISTENSEN ROAD, YATALA SEWER RISING MAIN LONGITUDINAL SECTION - SHEET 2 OF 3	
DRAWING No. BEV417-C-DWG-207	REVISION A

NOT FOR CONSTRUCTION

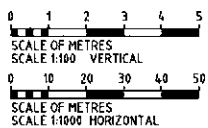
NOTE:

1. MINIMUM GRADE 1:500
2. MINIMUM COVER 900mm TO TOP OF PIPE.
3. PIPE TO CONSIST OF 100 DIA. uPVC PN16, EXCEPT WHERE NOTED OTHERWISE.



NOTES:

1. PUMP STATION ELECTRICAL AND CONTROL SYSTEMS TO INCLUDE RTU AND BE SUPPLIED AND INSTALLED IN ACCORDANCE WITH G.C.C.C. STD ELECTRICAL SPEC SS12, SECTION 40.
2. ALL MATERIALS IN ACCORDANCE WITH G.C.C.C. STANDARD SPECIFICATION SS1, SECTION 30.0 AND STD DWG's 03-07-501 TO 505.
3. ALL ELECTRICAL WORK IN ACCORDANCE WITH G.C.C.C. STD ELECTRICAL SPEC. SS12.



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DRAWING No.		DESCRIPTION		NOTES		REVISIONS		APPROVALS		DRAFTING		DESIGN		PROJECT APPROVAL		CLIENT		KBR		TITLE		REVISION	
																		Kellogg Brown & Root Pty Ltd		INDUSTRIAL ESTATE			
																		KBR		CHRISTENSEN ROAD, YATALA			
																		Kellogg Brown & Root Pty Ltd		SEWER RISING MAIN			
																		555 Coronation Drive, Toowoomba,		LONGITUDINAL SECTION - SHEET 3 OF 3			
																		Brisbane, Queensland, 4865					
																		ph (07) 3721-6555 fax (07) 3721-6500					
																		DRAWING SCALE		DRAWING No.			
																		1:1000 (A1)		BEV417			
																		DRAFTER: AM FRANGIOSA		BEV417-C-DWG-208.dwg			
																				BEV417-C-DWG-208		A	

NOTES:

1. WATER MAINS TO BE LAID TRUE TO LOCATION WITH RESPECT TO REAL PROPERTY ALIGNMENT SUBJECT TO APPROVAL BY THE COUNCIL ENGINEER.
2. ALL WATER MAINS TO BE uPVC PIPE (A.S. 1477) CLASS 16. DIAMETERS OF uPVC TO BE D.I.C.L. COMPATIBLE. MIN. COVER TO PIPE ACROSS ROADWAYS TO BE 900mm. MINIMUM COVER TO PIPE UNDER FOOTPATHS- FOR 100 AND 150DIA IS 600mm, FOR 225, 300 AND 375DIA IS 750mm.
3. ALL FITTINGS SHALL CONFORM TO AS2280, LATEST REVISION, AND SHALL BE CAST IRON OR DUCTILE IRON, CEMENT LINED, MINIMUM CLASS K9.
4. ALL D.I.C.L. PIPEWORK SHALL BE POLYTHENE WRAPPED AS SPECIFIED.
5. STANDARD BENDS : 90°=1/4, 45°=1/8, 22°30'=1/16, 11°15'=1/32.
6. WATER MAINS TO BE BACTERIOLOGICALLY TESTED TO COUNCIL'S STANDARDS AND SUPERCHLORINATED BEFORE CONNECTION TO EXISTING.
7. WATER MAINS TO BE BEDDED ON SAND AND HAVE FULL SAND SURROUND TO 75mm BEDDING UNDER PIPE AND 150mm OVER PIPE.
8. DEPTH TO FIRE HYDRANT TO G.C.C.C. STANDARD DRG. No. 03-06-106
9. WATER MAIN LEVELS TO BE CONFIRMED ON SITE BY ENGINEER BEFORE COMMENCEMENT OF CONSTRUCTION.
10. MINIMUM COVER APPLIES ALSO TO DRIVEWAYS AND PROPOSED FOOTPATHS AS INDICATED ON DRAWINGS.
11. CONNECTION TO EXISTING WATER MAIN IS TO BE MADE BY GOLD COAST CITY COUNCIL AT CONTRACTORS EXPENSE.
12. ALL BENDS AND FITTINGS TO BE LOCATED IN THE FOOTPATH.
13. REFER TO TABLE FOR BEND AND FITTING TYPES.
14. FOR THRUST BLOCK SIZES SEE G.C.C.C. STANDARD DRG. No. 03-06-103
15. ALL WATER SERVICE CONNECTIONS SHALL BE CONSTRUCTED IN IN ACCORDANCE WITH G.C.C.C. STANDARD DRG. No. 03-06-104
16. HYDRANTS AND VALVES TO BE INSTALLED IN ACCORDANCE WITH G.C.C.C. STANDARD DRG. No's. 03-06-105 & 03-06-106
17. ROAD CROSSINGS TO BE DCIL.

TABLE OF FITTINGS

NO.	FITTING
1	90° BEND
2	45° BEND
3	22.5° BEND
4	11.25° BEND
5	DEFLECT MAIN
6	150x150 TEE
7	225x150 TEE
8	300x150 TEE
9	375x300 TEE
10	END CAP
11	REDUCER
12	SKEW

LEGEND

150 Ø PVC CL16 WATERMAIN	150
FIRE HYDRANTS	150
SLUICE VALVE	150
DEAD END CAP	150
REDUCER	150
ELECTRICAL RETICULATION	E
EXISTING 150Ø WATERMAIN	W

0 10 20 30 40 50
SCALE OF METRES
SCALE 1:1000

© Kellogg Brown & Root Pty Ltd XREFS:Address_block /NEW_A1_APAC_STD_er_bk /Control Lines /Design Road /Survey Base

100mm ON ORIGINAL DRAWING	
BURNSIDE DEVELOPMENTS PTY LTD	
99 ANNERLEY ROAD	
WOOLLOONGABBA QLD 4102	
DRAWING No.	DESCRIPTION
REFERENCE DRAWINGS	
NOTES	

REV	DESCRIPTION	DATE	CLIENT
A	FIRST ISSUE		
REVISIONS		DATE	CLIENT
APPROVALS		DATE	CLIENT

Kellogg Brown & Root Pty Ltd KBR Kellogg Brown & Root Pty Ltd ABN 91 087 660 317 555 Coronation Drive, Toowong, Brisbane, Queensland, 4066 ph (07) 3721-6555 fax (07) 3721-6500	
DRAWING SCALE	1:1000 (A1)
ORIG. SIZE	A1
PROJECT No.	BEV417
DRAFTER: AM FRANGIOSA	CAD FILE: BEV417-C-DWG-209.dwg

TITLE INDUSTRIAL ESTATE CHRISTENSEN ROAD, YATALA WATER RETICULATION LAYOUT PLAN SHEET 1 OF 2	
DRAWING No.	BEV417-C-DWG-209
REVISION	A

NOT FOR CONSTRUCTION

6 September 2006
Trent Purdon
Implementation & Assessment Branch, Nerang
(07) 5582 8497
BEV417-C01-S0030
PN184435/03/DA5
OPW Number: 2601687

Kellogg Brown & Root Pty Ltd
PO Box 2177
TOOWONG QLD 4066

Dear Sir/Madam

DECISION NOTICE TO APPLICANT
APPLICATION TYPE: OPERATIONAL WORKS
PROPERTY DESCRIPTION: LOT 334 ON W311668
PROPERTY SITUATED AT: Christensen Road, Stapylton

I wish to advise that on 6 September 2006 the issue of a Development Permit for Operational Works for Civil Works at the site described above, was approved subject to the conditions outlined in the attached document.

An extract from the Integrated Planning Act 1997, which details your appeal rights, is attached for your information.

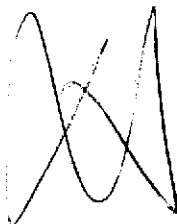
Should you wish to clarify any issues contained in this letter, please do not hesitate to contact Trent Purdon on telephone (07) 5582 8497.

Yours faithfully



Dr Shahadat Hossain
COORDINATOR ECOLOGICAL & HYDRAULIC ASSESSMENT
for the Chief Executive Officer
tp

attach



AMS
6/9/06
(K)

CONDITIONS OF APPROVAL FOR OPERATIONAL WORKS FOR CIVIL WORKS & CHANGE TO GROUND LEVEL

This operational works application has been assessed against the conditions of MCU or ROL applicable at the above date. Should any change to or amendment of conditions of MCU or ROL occur during the currency of this operational works approval, additional or amended engineering drawings are to be submitted as necessary to comply with such conditions.

The conditions of this approval are to be read in conjunction with the attached stamped approved engineering drawings. The conditions of this approval shall take precedence where a conflict occurs between the conditions of this approval and the stamped approved engineering drawings.

GENERAL

1. The works shall be carried out in accordance with the stamped approved engineering drawings numbered BEV417-C-DWG-001A, 002A, 003A, 004A, 005A, 006A, 007A, 008A, 009A, 010A, 011A, 012A, 013A, 014A, 015A, 016A, 017A, 018A, 019A, 101A, 102A, 103A, 104A, 105A, 106A, 107A, 108A, 109A, 110A, 111A, 112A, 113A, 114A, 115A, 116A, 117A, 118A, 202A, 203A, 204A, 205A, 206A, 207A, 208A, 209A and 210A prepared by Kellogg Brown & Root Pty Ltd except where amended in red and subject to the following conditions.
2. Prior to commencement of work, Council's Subdivision & Environmental Assessment Inspection Staff are to be contacted on (07) 5582 8623 to arrange a Pre-start Inspection. (Please note that Council's Inspector in this area is Joe Ambrose (5582 8298), should you need to clarify any construction or bonding issues relating to this approval)
3. Compliance with all related Development Permit approval conditions.
4. Works as approved herein shall be constructed in accordance with the current edition of Council's Land Development Guidelines, Standard Drawings and Specifications.
5. The development shall be completed to the satisfaction of the Chief Executive Officer, including variations and/or additions to the approved stamped engineering drawings required as a result of insufficient detail on the engineering drawings or to ensure that Council Policies and/or good engineering practices are achieved.
6. You are required to comply with the provisions of the Workplace Health and Safety Act and Australian Standard AS1742; particularly in respect of works being conducted on a public road, traffic control and ensuring safe public access at all times.
7. Any deviation from the approved engineering drawings that may occur in the field as a result of on site or in-situ conditions will require that amended engineering drawings are submitted to Council for further approval.
8. The written consent of the registered proprietors of adjoining land is required where any works associated with this approval encroach on that land.

9. No work shall be commenced on site until the name of the responsible (principal) contractor has been advised to Council. Construction of the works approved herein shall be carried out with due regard to the statutory requirements of the Workplace Health and Safety Act.
10. A copy of this approval is to be retained on site at all times.

WATER USAGE

11. The use of potable water is not permitted in activities associated with road and pavement construction, the compaction of fill material or dust suppression. The use of recycled water is encouraged, especially where other alternative sources do not exist. Where the development applicant decides to use recycled water, its use shall be in accordance with the requirements of the Gold Coast Water Recycled Water Safety Plan (the "Safety Plan"). The Safety Plan sets out the requirements for transport and use of Recycled Water.
 - The development applicant is required to complete the recycled water training course with Gold Coast Water, in accordance with the Safety Plan. Proof of completion of the training course will be by issue of a valid certification card.
 - The development applicant can only contract to use a recycled water carrier who is accredited and certified by Gold Coast Water. Accreditation requires a current authorised agreement between the Water Carrier and Gold Coast Water. In turn, the water carrier is only allowed to employ certified tanker operator/drivers, who have completed the recycled water training course with Gold Coast Water and hold a valid certification card.
 - To obtain a copy of the safety plan and also to obtain a list of approved water carrier operators, the applicant should contact Gold Coast Water.
 - Contact details are as follows:
 - i. Coordinator Recycled Water ph. (07) 5582 8422
 - ii. Gold Coast Water ph. 1300 366 692

NOTES:

- Potable water is defined as water treated to drinking water standards (NHMRC guidelines 1996) and being available in Councils normal reticulated potable water supply system.
- Recycled water is defined as treated wastewater in class A, B or C in accordance with the Queensland Guidelines for the Safe use of Recycled Water (draft 2004).

INFRASTRUCTURE CHARGES/CONTRIBUTIONS

12. Contributions toward Sewerage Network Infrastructure shall be paid to the Council in accordance with Planning Scheme Policy 3B - Policy for Infrastructure Sewerage Network Developer Contributions prior to the endorsement of the plan of survey, the issue of a certificate for building works, the carrying out of final plumbing inspection or use commencing whichever occurs first. The amount of the contribution shall be calculated at rates current at due date for payment.

Contributions may be paid in stages commensurate with the rate of development at the site, however, in the event that contributions remain unpaid after five (5)

years from the date of this approval, the Developer shall pay the outstanding amount within three months (3) of Council's notice that contributions for the Development remain outstanding.

Where the Developer enters Council's Commercial and Industry Water Conservation Scheme Infrastructure Agreement, the initial developer contribution for sewerage shall be calculated using 10ET per hectare.

13. Contributions toward Water Supply Network Infrastructure shall be paid to the Council in accordance with Planning Scheme Policy 3A - Policy for Infrastructure Water Supply Network Developer Contributions prior to the endorsement of the plan of survey, the issue of a certificate for building works, the carrying out of final plumbing inspection or use commencing whichever occurs first. The amount of the contribution shall be calculated at rates current at due date for payment.

Contributions may be paid in stages commensurate with the rate of development at the site, however, in the event that contributions remain unpaid after five (5) years from the date of this approval, the Developer shall pay the outstanding amount within three months (3) of Council's notice that contributions for the Development remain outstanding.

Where the Developer enters Council's Commercial and Industry Water Conservation Scheme Infrastructure Agreement, the initial developer contribution for water shall be calculated using 10ET per hectare.

WATER & SEWERAGE RETICULATION

14. The Developer shall construct reduced infiltration gravity sewerage reticulation to service all lots (or lease allotments) within the estate and connect the reticulation to Council's existing sewerage network.
15. Water reticulation system is to be provided and constructed, at no cost to Council, to all lots (or lease allotments).
16. All developments within Lot 334 on WD311668 are limited to maximum draw-off of 30L/s for water supply under fire load conditions per building per allotment (or lease allotment) per meter point. For example, if an allotment has several buildings, the maximum draw-off for that allotment (or lease allotment) is 30L/s. The lease allotment in this condition excludes leases within a building. The objective of this clause is to restrict the proliferation of fire services directly connected to Council's water mains.
17. The private pump station located on Lot 334 on WD311668 is limited to a maximum discharge of 1.0 L/s for Average Dry Weather Flow (ADWF) and a maximum of 5.0 L/s under Peak Wet Weather Flow (PWWF).
18. The private pump station shown on drawing BEV417-C-DWWG-208 shall be operated and maintained to work efficiency with no occurrences of odour observed at the property boundary. The top of the pump station shall be above flood level, with four hours storage at ADWF conditions in accordance with Council's Land Development Guidelines.

19. The temporary pump station and rising main shall be removed by the Developer at no cost to Council within 18 months of the date of written Council notification that the trunk sewerage line in Sandy Creek Sewerage External Works Scheme is operational:
- (a) The Developer shall construct a gravity sewerage line from PS/3 to Manhole 1/1 (drawing BEV417-CDWG-210) to service Lot 334 on WD311668 from the Sandy Creek External Works Scheme;
 - (b) The Developer shall remove the temporary pump station and rising main infrastructure;
 - (c) Prior to the issuing the first Certificate of Classification or endorsement of survey plans, which ever occurs first, the Developer shall lodge with Council a performance bond in the amount of \$50,000 (includes GST) for diverting the temporary pump station to the proposed Sandy Creek Sewerage External Works Scheme;
 - (d) Prior to the issuing the first Certificate of Classification or endorsement of survey plans, which ever occurs first, they Developer shall lodge with Council a performance bond in the amount of \$15,000 (includes GST) for decommissioning the temporary sewerage pump station once the diversion to the proposed Sandy Creek Sewerage External Works Scheme is completed and the Scheme becomes operational; and
 - (e) Prior to the issuing the first Certificate of Classification or endorsement of survey plans, which ever occurs first, the Developer shall lodge with Council a performance bond in the amount of \$30,000 (includes GST) for the dedication of an easement over the future gravity sewerage main between PS/3 and Manhole 1/1 shown on drawing BEV417-CDWG-210.
20. Easements shall be provided for all gravity sewers where not located in road reserve. Easements widths shall be approved by Council and shall be not less than 3m wide and make reasonable allowance (considering the depth of the sewer) for future access and maintenance. All costs associated with the provision of any easements are the responsibility of the develop:
- (a) The Developer shall dedicate at no cost to Council an easement over the future gravity sewerage line from PS/3 to Manhole 1/1 (drawing BEV417-CDWG-210) within two years of the date of this consent.
21. Council will maintain sewerage mains PS/3 to 1/2, and PS/3 to 8/1 as shown on drawing BEV417-C-DWG-202. Accordingly these works must be constructed and accepted by Council in accordance with Council's Land Development Guidelines.
22. Council will maintain sewerage main PS/3 to 1/1 as shown on drawing BEV417-C-DWG-202. Accordingly these works must be constructed and accepted by Council in accordance with Council's Land Development Guidelines.
23. Council will maintain the proposed 150mm diameter water mains in Christensen Road. Accordingly these works must be constructed and accepted by Council in accordance with Council's Land Development Guidelines.

24. Council will only maintain services in the proposed Christensen Road extension if that road has been "opened" and comes "on-maintenance" by Council. Accordingly the road must be constructed and accepted by Council in accordance with Council's Land Development Guidelines.
25. The Developer shall enter a metering agreement with Council concerning the installation of water meters and fire connections along the water main proposed for the Christensen Road extension:
 - (a) The Development is limited to 10 meter points where a meter point comprises a meter and a fire connection;
 - (b) Council will only provide one water account, which may be itemised; and
 - (c) The Developer shall prepare a Metering Management Plan for the Development for Council's approval showing the relationship between uses at the site and meter points.
26. Where water services are to be provided to Pump Stations, Parks, Medians, Irrigation Systems etc. (including the supply and installation of a water meter to each service connection where applicable) a formal application shall be made to the "Field Services and Construction Branch" of the Gold Coast Water Section of Council (5581 7564).
27. Connection to Council maintained water & sewerage services are to be undertaken by Council at the applicant's cost. To obtain a quotation for these works contact the "Field Services and Construction Branch" of the Gold Coast Water Section of Council (5581 7564).

ENVIRONMENTAL MANAGEMENT

28. An Operational Works Application (Vegetation Management) is required to be submitted to and be approved by Council prior to any works commencing on site if any protected vegetation as defined by the Planning Scheme is to be removed from the subject site.
29. Where it is proposed to install a Gross Pollutant Trap within this development site as part of the storm-water treatment train, maintenance drop boards are to be provided. Such boards are to be used to isolate the GPT unit from upstream and downstream flows to enable maintenance activities to be undertaken. Drop boards are to stay with the GPT and are to be designed such that they can be lowered into position within workplace health and safety lifting requirements.
30. Sediment and erosion control measures are to be implemented in accordance with the approved engineering drawings with due regard to the Soil Erosion and Sediment Control Engineering Guidelines for Queensland Construction Sites (The Institution of Engineers, Australia Queensland Division June 1996).
31. All exposed areas greater than 1 ha are to be directed to appropriately sized sediment basins. These basins are to be designed by a suitably qualified hydraulic engineer with detailed design diagrams submitted and approved by Council prior to any works commencing on-site.
32. The environmental section of Council recommends that the GPT still be installed to treat pollutants from the road surface, yet does not require the basin to be

vegetated as this device may be amended drastically once a future development proposal on the south-western lot is submitted to Council for assessment.

33. The following information is to be submitted and approved by Council prior to any works commencing onsite:
- Description of the proposed staging and programming of proposed development to minimise the area of disturbance and duration that the disturbed areas are exposed, including details of proposed stabilisation works;
 - Description of the proposed permanent/temporary sediment and erosion controls designed installed and maintained in accordance with the Institute of Engineers Australia (Qld) Sediment and Erosion Control Guidelines indicating the locations and sizing of sediment basins;
 - Description of the proposed performance monitoring program, assessment and reporting provisions. Information required for inclusion in the submitted monitoring program includes:
 - Water Quality Objectives;
 - Monitoring and reporting frequency;
 - Monitoring locations; and
 - Monitoring parameters.
 - An outline of the management/maintenance requirements including predicted frequency and responsibility for all treatment elements during the construction phase of the development.
34. Regular visual inspections/monitoring are to be carried out on all developments during the construction phase. Additional quantitative water quality monitoring is required for developments disturbing >2,500m² at any one point in time, with the monitoring required to be carried out for the duration of construction activities.
35. All lots must be adequately vegetated and action taken to prevent erosion from wind and/or water to the satisfaction of the Chief Executive Officer.
36. A turf strip 1 metre wide is to be placed behind all kerbing immediately after backfilling. In addition, a turf strip is to be placed at 90 degrees to the kerb every 10 metres to prevent scouring along the turf edge. Please refer to Section A5-C4 of Soil Erosion and Sediment Control Engineering Guidelines for Queensland Construction Sites (The Institution of Engineers, Australia Queensland Division June 1996).
37. All open drains shall be turfed immediately after completion unless approved otherwise in a Council approved stormwater management plan. In addition, a turf strip is to be placed at 90 degrees to the invert every 10 metres to prevent scouring along the turf edge. Reinforced turf shall be used where invert grades exceed 5%.
38. Sediment control structures (eg sediment fence) shall be placed at the base of all materials imported on-site to trap any sediment runoff.
39. Regular inspections are to be carried out on site to ensure that adequate erosion control measures are in place and in good condition both during and after construction. Additional inspections are also required after each storm event to

assess the adequacy of the erosion control measures, make good any erosion control devices and clean up any sediment that has left the site or is in the roadway. This inspection program is to be maintained until 'off maintenance' or until the site is fully rehabilitated.

40. All water from the site including dewatering discharge is to be directed through a sediment pond prior to leaving the site. The sediment ponds or other approved devices are to be maintained in good condition until 'off maintenance' or until the site is fully rehabilitated.

HYDRAULIC MANAGEMENT

41. The applicant shall ensure that the works within the development site has:

- No adverse effects external to the subject site arising from any increase in velocity and/or redirection of flow, and
- No increase in the duration of inundation outside the site where such increased inundation could cause loss or damage.

EARTHWORK MANAGEMENT

42. All earthworks must comply with the Gold Coast City Council's Land Development Guidelines.
43. Appropriate construction procedures including any necessary monitoring and the undertaking of appropriate building inspection reports are to be implemented if the use of vibratory compaction equipment (other than hand held devices) is proposed within 100m of any building or structure.
44. All batters are to be stabilised within 10 days of the completion of bulk earthworks. Stabilisation techniques may include hydro-mulching, returfing, erosion resistant blankets etc.
45. Council may request a full Geotechnical Engineering report (prepared by a qualified and experienced Geotechnical Engineer) certifying the stability of any constructed cut/fill batter or retaining structures.
46. The earthworks are to be carried out in accordance with AS 3798-1996, "Guidelines on earthworks for commercial and residential developments". The material shall be placed in layers, watered and compacted to achieve the specified density ratio as monitored in Table 5.1 - Guidelines for Minimum Relative Compaction.
47. The requirement for the installation of safety fences, barriers and/or guard railing will be assessed once construction is completed prior to works being accepted on maintenance.

HAULAGE ACCESS/DUST NOISE MANAGEMENT

48. The applicant shall provide a vehicle barrier along the frontages of the land, to ensure that all vehicles only use crossovers approved by the Chief Executive Officer or delegate.

49. Loading/unloading operations shall be conducted entirely within the site and vehicles waiting to be loaded/unloaded shall also stand within the site.
50. All reasonable methods are to be used to reduce nuisance from dust, noise, vibration, smoke and material tracked onto public roads from hauling and filling operations in accordance with Council's Bylaws/Local Laws.
51. The applicant shall water the site and/or use other means to prevent dust from affecting surrounding properties. Upon receipt of a dust nuisance complaint or notification of a dust nuisance by the Council, the applicant will take reasonable and immediate action to remedy the dust problem to the satisfaction of the Chief Executive Officer.
52. The applicant shall ensure that gravel access areas to the site, transport dust covers and shake (hose) down areas are in place to control both on-site dust nuisance and contamination of external properties, roadways and receiving waterways.
53. Disposal of debris, resulting from site clearance, is to be in accordance with Council's policy. Combustion of any material shall not be permitted on the subject site without prior approval of Council.
54. Provision shall be made for the land to be maintained in a clean and tidy state at all times. Satisfactory arrangements shall be made for the collection, storage and disposal of all waste materials.
55. Any damage to property (including pavement damage) is to be rectified to the satisfaction of Council prior to the issuing of the certificate of practical completion and/or endorsement of survey plans. The surrounding carriageways are to be kept clean of any material carried onto the roadway by construction vehicles. Any work carried out by Council to remove material from the roadway will be at the applicants expense and any such cost are payable prior to the issuing of the certificate of practical completion and /or endorsement of survey plans.

PRACTICAL COMPLETION

56. Prior to the issuing of a certificate of practical completion and works being formally accepted "On maintenance" it is required that "As Constructed" data (Electronically and Hard Copy Format) (refer to Section 10 of Land Development Guidelines) is submitted to and be approved by the Subdivision & Environmental Assessment Section of Council.
57. The Council, upon being satisfied that effective completion of the works has been achieved and all conditions of approval have been complied with, shall issue a certificate of practical completion (being, the certificate required by Section 5.2(9) of the Local Government Planning & Environment Act 1990 and Section 9.0 of Council's Land Development Guidelines 1999) and notify the applicant, in writing, accordingly that the works are accepted as being "on maintenance". A defects liability period of 6 months, or as otherwise advised by Council, shall commence from the date of the formal "on maintenance" acceptance pursuant to Section 9.0 of Council's Land Development Guidelines 1999. Any defects advised in writing to the developer, or his agent, by the Council during the defects

liability period must be corrected within a reasonable time, as stated in the notice given by the Council to the developer.

Environmental Harm

58. This approval does not remove the applicant's general environmental duty and does not authorise environmental harm as defined by the Environmental Protection Act 1994 to be caused by the activity/development. This approval does not warrant that such plans and specifications have been checked in detail, nor does it absolve the owner or proponent from complying with the conditions of this approval, relevant Council Policy and Local Law, relevant statutes and/or statutory regulations in the execution and/or performance of the said works. Neither the Council nor the Chief Executive Officer accept any responsibility for the accuracy of such plans and specifications as approved. Please note that variations and/or additions to the approved plans may be required by the Chief Executive Officer as a result of insufficient details on the plans or incorrect information being provided, to ensure that Council Policies are complied with or environmental harm is not caused.

Discharge of Sediment

59. Under section 32 of the Environmental Protection (Water) Policy 1997 it is an offence to allow the release of stormwater run off into a stormwater system or waters that results in the build-up of sediment in the system or waters; or to deposit sediment into a stormwater system or waters or in a place where it could reasonably be expected to discharge into the system or waters or result in a build-up in the same.

GENERAL ENVIRONMENTAL DUTY

60. Under section 319 of the Environmental Protection Act 1994 it is an offence to carry out any activity that causes, or is likely to cause, environmental harm unless the person takes all reasonable and practicable measures to prevent or minimise the harm. In deciding the measures required to be taken regard must be had to:

- (a) The nature of the harm or potential harm;
- (b) The sensitivity of the receiving environment;
- (c) The current state of technical knowledge for the activity;
- (d) The likelihood of successful application of the different measures that might be taken;
- (e) The financial implications of the different measures as they would relate to the type of activity.

DUTY TO NOTIFY ENVIRONMENTAL HARM

61. Under section 320 of the Environmental Protection Act 1994, if while carrying out an activity, a person becomes aware that serious or material environmental harm is caused or threatened to be caused the person must give written notice to the administering authority of the event, its nature and the circumstances in which it happened as soon as reasonably practicable after becoming aware of the event involving the harm.

ADVISORY

The applicant is to observe all requirements of relevant State and Federal Government Departments/Regulations (eg. EPP, EPA).

In respect to this Permit, the Applicant has the right of appeal to the Planning and Environment Court regarding this decision. A copy of section 4.1.27 of the Integrated Planning Act is enclosed for your information.

If the applicant notifies Council in writing that the applicant accepts this decision without dispute and will not exercise any right of appeal to the Court in respect of this decision, this Decision Notice may be taken to be the Development Permit.

Development may commence only where the approval given by Council is a Development Permit and no other Development Permits are required to allow development to be carried out. (Further approvals may be required for tree clearing)

Please note that, in accordance with section 3.5.21 of the IPA, this Operational Works approval lapses on 6 September 2008.

Any approval granted does not warrant that such plans and specifications have been checked in detail, nor does it absolve the owner of the land from complying with all the conditions of this approval and/or relevant Council Local Laws, Codes and Policies and/or relevant statutes and/or statutory regulations in the execution and/or performance of said works. Neither the Council nor the Chief Executive Officer accepts any responsibility for the accuracy of such plans and specifications as approved. It is to be noted that variations and/or additions to the approved plans may be required as directed by the Chief Executive Officer, as a result of insufficient detail on the plans or to ensure that Council Policies and/or good engineering practices are achieved.

NOTICE OF INDIGENOUS CULTURAL HERITAGE LEGISLATION & DUTY OF CARE REQUIREMENT

The Aboriginal Cultural Heritage Act 2003 commenced in Queensland on April 16, 2004. The Act is administered by the Department of Natural Resources, Mines and Energy (DNRME). Under the new Act, Indigenous parties are key in assessing cultural heritage significance.

The *Aboriginal Cultural Heritage Act 2003* establishes a Duty of Care for Indigenous cultural heritage. This applies on all land and water, including freehold land. The Cultural Heritage Duty of Care lies with the person or entity conducting an activity.

Penalty provisions apply for failing to fulfil the Cultural Heritage Duty of Care.

Those proposing an activity that involves additional surface disturbance beyond that which has already occurred at the proposed site need to be mindful of the Duty of Care requirement.

Details of how to fulfil the Duty of Care are outlined in the Duty of Care Guidelines gazetted with the Act.

Council strongly advises that you contact DNRM&E's Cultural Heritage Coordination Unit on 3238 3835 or 3238 3839 to obtain a copy of the Duty of Care Guidelines and further information on the responsibilities of developers under the terms of the *Aboriginal Cultural Heritage Act 2003*.

APPEAL RIGHTS FOR APPROVAL OR REFUSAL OF DEVELOPMENT APPLICATIONS FOR MATERIAL CHANGE OF USE, RECONFIGURATION OF A LOT OR OPERATIONAL WORKS APPLICATIONS.

Appeals by applicants

- 4.1.27(1)** An applicant for a development application may appeal to the court against any of the following -
- (a) the refusal, or the refusal in part, of a development application;
 - (b) a matter stated in a development approval, including any condition applying to the development, and the identification of a code under section 3.1.6; **
 - (c) the decision to give a preliminary approval when a development permit was applied for;
 - (d) the length of a currency period;
 - (e) a deemed refusal.
- (2) An appeal under subsection (1)(a) to (d) must be started within 20 business days (the “applicant’s appeal period”) after the day the decision notice or negotiated decision notice is given to the applicant.
- (3) An appeal under subsection (1)(e) may be started at any time after the last day a decision on the matter should have been made.