

SANCROX EMPLOYMENT PRECINCT STAGE 1  
LOT 2 DP222740 SANCROX ROAD SANCROX

CONSTRUCTION DOCUMENTATION

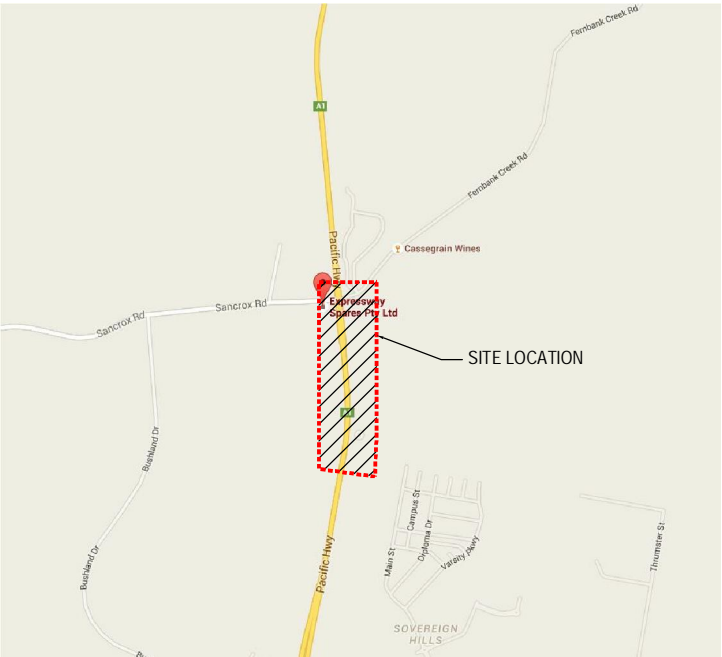
Job No. 5809                      MAY 2016

LEAD IN SEWER RISING MAIN & WATERMAIN - WAMBUYN DRIVE

DA 2012-305

DRAWING SCHEDULE

NO.	DRAWING TITLE	REVISION
01 -	ENGINEERING NOTES	D
02 -	PLAN OF SEWER RISING MAIN - WAMBUYN DRIVE	F
03 -	RISING MAIN CH 105.79 - 404.24	G
04 -	RISING MAIN CH 404.24 - 668.83	H
05 -	RISING MAIN CH 668.83 - 1023.94	F
06 -	RISING MAIN CH 1023.94 - 1185.29	F
07 -	PLAN OF WATERMAIN - WAMBUYN DRIVE	D
08 -	WATERMAIN CH 0 - 337.16	D
09 -	WATERMAIN CH 337.16 - 556.08	E
10 -	WATERMAIN CH 556.08 - 911.97	D
11 -	WATERMAIN CH 911.97 - 1070.34	E
12 -	CROSS SECTIONS - SEWER & WATERMAIN CH195 - 267.12	B
13 -	CROSS SECTIONS - SEWER & WATERMAIN CH285 - 360	A
14 -	CROSS SECTIONS - SEWER & WATERMAIN CH 375 - 465	A
15 -	CROSS SECTIONS - SEWER & WATERMAIN CH480 - CH556.08	A
16 -	CROSS SECTIONS - SEWER & WATERMAIN CH570 - CH644.28	A
17 -	CROSS SECTIONS - SEWER & WATERMAIN CH660 - CH743.88	A
18 -	CROSS SECTIONS - SEWER & WATERMAIN CH765 - CH840	A
19 -	CROSS SECTIONS - SEWER & WATERMAIN CH855 - CH911.97	A
20 -	CROSS SECTIONS - SEWER & WATERMAIN CH930 - CH954.30	A



LOCALITY PLAN  
NOT TO SCALE

prepared for

EXPRESSWAY SPARES PTY LTD

KING + CAMPBELL

These are the plans referred to in  
Infrastructure Construction Certificate Application No.:

17.2012.0305.02

and determined as APPROVED on: 26/05/2016  
PORT MACQUARIE-HASTINGS COUNCIL

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GENERAL NOTES

1. ALL WORK TO BE CARRIED OUT TO THE REQUIREMENTS AND SPECIFICATIONS OF AUS-SPEC DESIGN AND CONSTRUCTION GUIDELINES - PORT MACQUARIE HASTINGS COUNCIL VERSION.
2. TRAFFIC CONTROL PLAN (IN ACCORDANCE WITH AS1742.3) TO BE PREPARED, SUBMITTED AND APPROVED BY COUNCIL (AND RMS IF REQUIRED) PRIOR TO CONSTRUCTION.
3. EXISTING ACCESS TO BE MAINTAINED DURING CONSTRUCTION.
4. PERMISSION TO ENTER PROPERTIES TO BE SOUGHT FROM OWNERS BEFORE CONSTRUCTION WORK BEGINS.

STANDARD DOCUMENTS

MANAGING URBAN STORMWATER - SOILS & CONSTRUCTION VOL. 1.

AUS-SPEC - DESIGN & CONSTRUCTION PORT MACQUARIE HASTINGS COUNCIL VERSION.

HASTINGS COUNCIL STANDARD DRAWINGS.

APPLICABLE AUSTRALIAN STANDARDS AS MENTIONED IN THIS DRAWING SET.

CAUTION

1. UNDERGROUND SERVICES HAVE BEEN LOCATED BY SURFACE INVESTIGATION ONLY & MAY NOT BE EXHAUSTIVE OR CURRENT AT TIME OF CONSTRUCTION.

2. IT IS THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN CURRENT INFORMATION WITH REGARD TO ALL UNDERGROUND SERVICES & TO LOCATE THEM PRIOR TO COMMENCEMENT OF CONSTRUCTION.

3. WHERE LOCATION IS CRITICAL TO THE DESIGN IT IS THE CONTRACTOR'S RESPONSIBILITY TO LOCATE AND LEVEL THE APPROPRIATE SERVICE PRIOR TO CONSTRUCTION

4. ANY DIFFERENCES WITH SERVICES SHOWN ON THE DESIGN ARE TO BE REFERRED TO THE SUPERINTENDENT.

EROSION CONTROL NOTES

1. ALL EROSION & SEDIMENTATION CONTROL MEASURES ARE TO BE CARRIED OUT IN ACCORDANCE WITH AUS-SPEC DESIGN SPEC D7 & CONSTRUCTION SPEC C211 [FROM "SOILS & CONSTRUCTION - VOL. 1" (BLUE BOOK)]
2. ALL EROSION & SILTATION CONTROL MEASURES ARE TO BE PLACED PRIOR TO OR AS THE FIRST STEP IN GRADING.
3. ALL STORMWATER & SEWER LINES NOT IN STREETS ARE TO BE MULCHED & SEEDED WITHIN 15 DAYS AFTER BACKFILL.
4. ELECTRIC POWER & TELEPHONE TRENCHES ARE TO BE COMPACTED, SEEDED & MULCHED WITHIN 15 DAYS AFTER BACKFILL.
5. ALL TEMPORARY EARTH BANKS, DIVERSIONS & SEDIMENT DAM EMBANKMENTS ARE TO BE MACHINE COMPACTED, SEEDED & MULCHED FOR TEMPORARY VEGETATIVE COVER WITHIN 10 DAYS AFTER GRADING. STRAW OR HAY MULCH IS REQUIRED.
6. ALL FILLS ARE TO BE LEFT WITH A LIP AT THE TOP OF THE SLOPE AT THE END OF EACH DAYS OPERATION.
7. ALL CUT & FILL SLOPES ARE TO BE SEEDED & MULCHED IMMEDIATELY UPON COMPLETION OF GRADING AND AFTER TOPSOILING MAXIMUM BATTER SLOPES TO BE 1 : 3.
8. CONTRACTOR TO TAKE APPROPRIATE DUST SUPPRESSION MEASURES AS NECESSARY TO PREVENT DISTURBANCE TO ADJOINING RESIDENTS.
9. ALL AREAS PROPOSED TO HAVE EITHER TEMPORARY OR PERMANENT VEGETATION COVER ESTABLISHED, ARE TO BE TOPSOILED PRIOR TO CARRYING OUT THE REVEGETATION.
10. ALL DISTURBED AREAS TO BE STABILISED AND/OR REVEGETATED WITHIN 14 DAYS OF EARTHWORKS COMPLETION, USING TURF OR THE FOLLOWING SEED AND FERTILISER MIXTURE :

	SPRING/SUMMER	AUTUMN/WINTER
JAPANESE MILLET	15 kg/ha	5 kg/ha
RYECORNUATES	5 kg/ha	15 kg/ha
COUCH GRASS	10 kg/ha	8 kg/ha
RHODES GRASS #	10 kg/ha	8 kg/ha
PERENNIAL RYEGRASS	5 kg/ha	10 kg/ha
STARTER FERTILISER (SOWING)	300 kg/ha	300 kg/ha
MAINTENANCE FERTILISER (FOLLOWING SPRING / AUTUMN)	100 kg/ha	100 kg/ha

# NOT USED ADJACENT TO BUSHLAND AREAS

WORK AS EXECUTED INFORMATION

THIS INFORMATION IS TO BE FORWARDED TO KING & CAMPBELL PTY LTD UPON COMPLETION OF SEWER & DRAINAGE WORKS.

SEWER

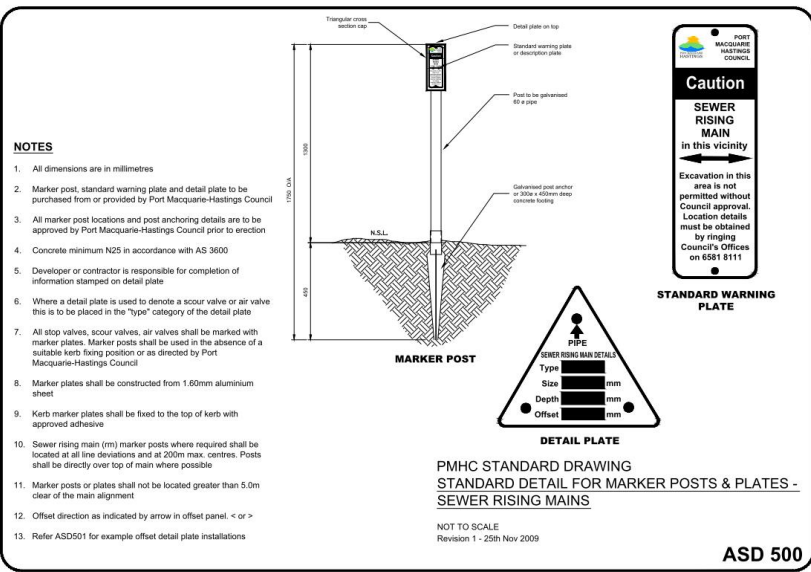
1. A MARKER IS TO BE PLACED DIRECTLY ABOVE ALL SEWER DEAD ENDS (AT GROUND LEVEL), WITH A DISTANCE DOWN TO THE INVERT OF THE PIPE.
2. THE DISTANCE FROM THE DOWNSTREAM MANHOLE. A DEPTH BELOW FINISHED SURFACE AND A LENGTH OF PIPE FOR ALL SEWER SIDELINES AND JUNCTIONS IS TO BE WRITTEN ON A COPY OF THE FINAL ENGINEERING PLANS. IT SHOULD ALSO BE INDICATED WHETHER THE SIDELINE IS AT 45° OR 90° TO THE MAIN SEWER LINE.
3. IT MUST BE INDICATED IF A RISER HAS BEEN USED.

SEWER NOTES

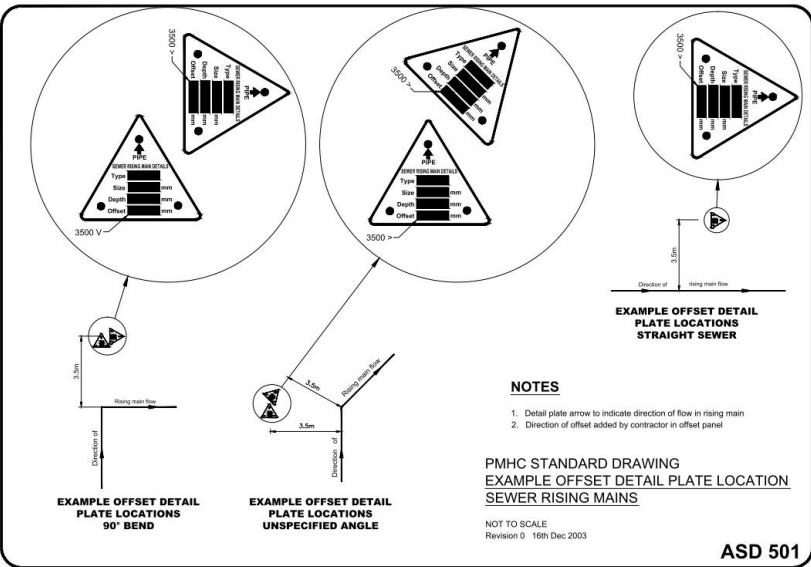
1. ALL WORK TO BE IN ACCORDANCE WITH THE REQUIREMENTS AND SPECIFICATIONS OF AUS-SPEC #1 SERIES NO. D12 & C402. REFER ALSO TO ASD 500 TO 517 (COUNCIL STD DWGS).
2. MANHOLE NUMBERS TO BE PAINTED ON LIDS.
3. JUNCTION PEGS 0.6M LONG MARKED "J" TO BE PLACED AT EACH JUNCTION CONSTRUCTED. REFER TO ASD 502.
4. CONCRETE PROTECTION OTHER THAN SHOWN ON SECTIONS MAY BE REQUIRED FOR PROTECTION FROM TREE ROOTS, SHALLOW TRENCHES, STEEP GRADES, SCOURING, ETC AS DIRECTED BY THE SUPERVISING CONSULTANT.
5. ALL PIPES ARE TO BE uPVC SNA TO AS 1260, uPVC TYPE SN8 OR UNIDEX SEWER PRO OR EQUIVALENT WHERE LAID AT DEPTHS GREATER THAN 3 METRES OR IN WATER CHARGED GROUND. (OR AS SPECIFIED ON PLANS AND SECTIONS).
6. BOUNDARY CUT CHAINAGES ARE TO BE OBTAINED BY THE CONTRACTOR FROM THE SUPERVISING CONSULTANTS TO ENSURE CORRECT LOCATION OF HOUSE SERVICE JUNCTIONS.
7. MANHOLE LIDS TO BE CONSTRUCTED TO A LEVEL OF 75MM ABOVE FINISHED GROUND LEVEL UNLESS OTHERWISE NOTED AND GRADED PARALLEL TO SLOPE OF LAND AND INSTALLED IN ACCORDANCE WITH ASD 509.
8. STEP IRONS ARE TO BE PROVIDED IN ALL MANHOLES DEEPER THAN 1.2M (MEASURED FROM THE TOP OF BENCHING TO GROUND LEVEL).
9. WHERE MULTIPLE INVERT LEVELS ARE SHOWN AT MANHOLES THEY REFER TO INLET AND/OR OUTLET LEVELS RESPECTIVELY AT THE WALL OF THE MANHOLE.
10. TRENCH STOPS ARE TO BE PROVIDED ON GRADES IN EXCESS OF 10%. REFER TO ASD 510.
11. ALL CONCRETE TO BE MANUFACTURED FROM TYPE D CEMENT.
12. ALL TRENCHES UNDER ROADWAYS TO BE FILLED WITH SAND.
13. ALL JUNCTIONS ARE TO BE BROUGHT TO WITHIN 1.5 METRES FROM FINISHED SURFACE.
14. SIDE LINES ARE TO BE 150mm EXTENSIONS CONSTRUCTED OFF AND AT THE LEVEL OF THE SEWER MAIN. WHERE RISERS ARE REQUIRED, THEY ARE TO BE LOCATED WITHIN THE PROPERTY SERVED. REFER TO ASD 503 & 504.
15. CONNECTION TO COUNCIL'S SEWER IS TO BE CARRIED OUT UNDER COUNCIL SUPERVISION.

SEWER RISING MAIN NOTES

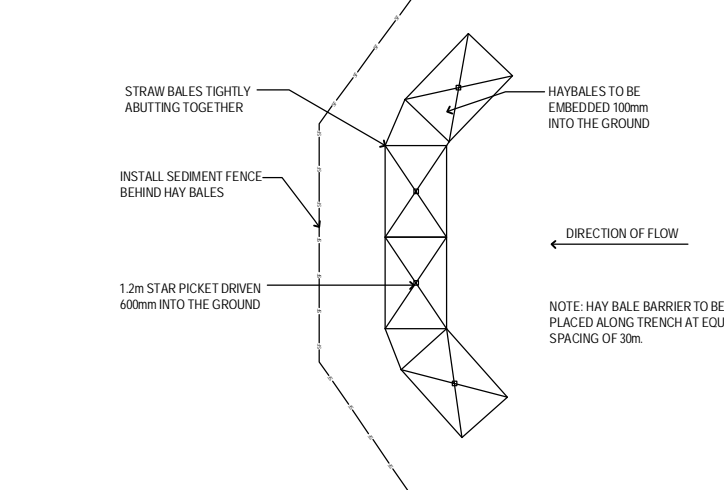
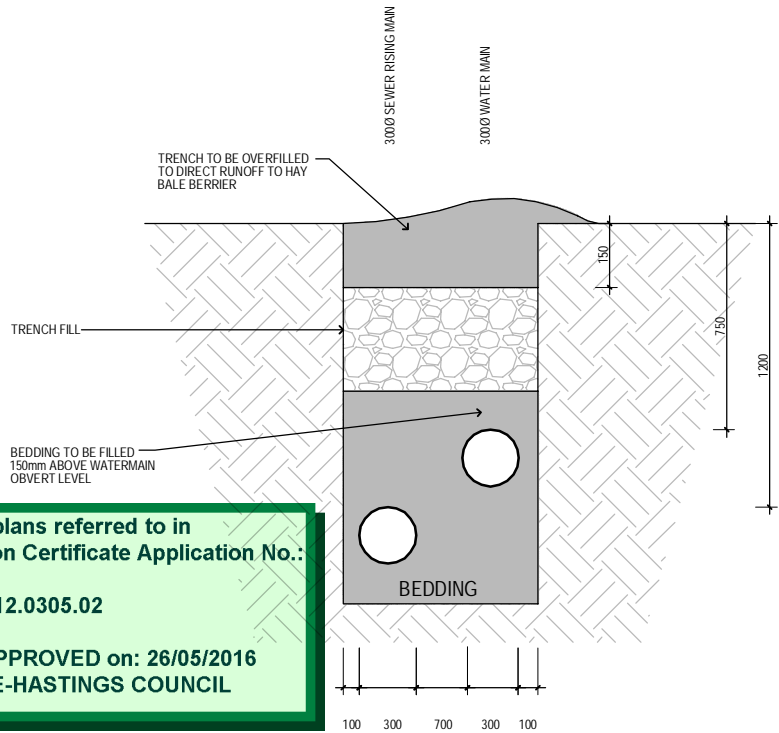
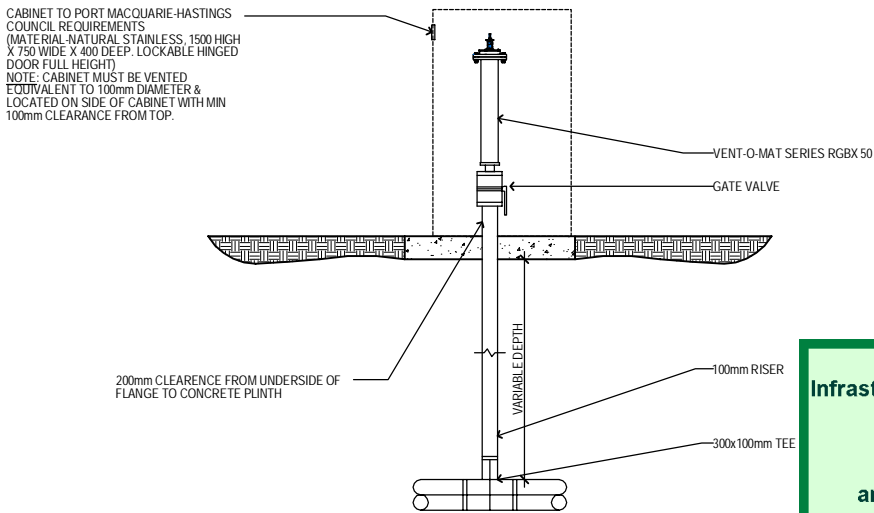
1. ALL WORK IS TO BE IN ACCORDANCE WITH THE REQUIREMENTS AND SPECIFICATIONS OF AUS-SPEC.
2. RISING MAIN PIPE TO BE AS SPECIFIED ON LONGITUDINAL SECTIONS.
3. MINIMUM COVER TO BE 600mm UNDER ROADWAYS, 450mm IN NON TRAFFIC AREAS AND 750mm UNDER UNSEALED ROADWAYS.
4. THE CONTRACTOR IS RESPONSIBLE FOR LOCATING ALL SERVICES WHICH MAY AFFECT THE WORK PRIOR TO CONSTRUCTION.
5. MARKER POSTS TO BE INSTALLED IN ACCORDANCE WITH ASD500 AND 511.
6. IF SPECIFIED SCOUR VALVES TO ASD530.
7. IF SPECIFIED AIR VALVES TO ASD443.



SEWER RISING MAIN MARKER POST & PLATES - ASD500



SEWER RISING MAIN PLATE LOCATION - ASD501



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PORT MACQUARIE-HASTINGS COUNCIL



REV.	DATE	DESCRIPTION
A	10.09.2015	ISSUED FOR INFORMATION
B	02.10.2015	ISSUED FOR CC
C	03.02.2016	VARIOUS AMENDMENTS
D	18.04.2016	VARIOUS AMENDMENTS. ISSUED FOR CC APPROVAL

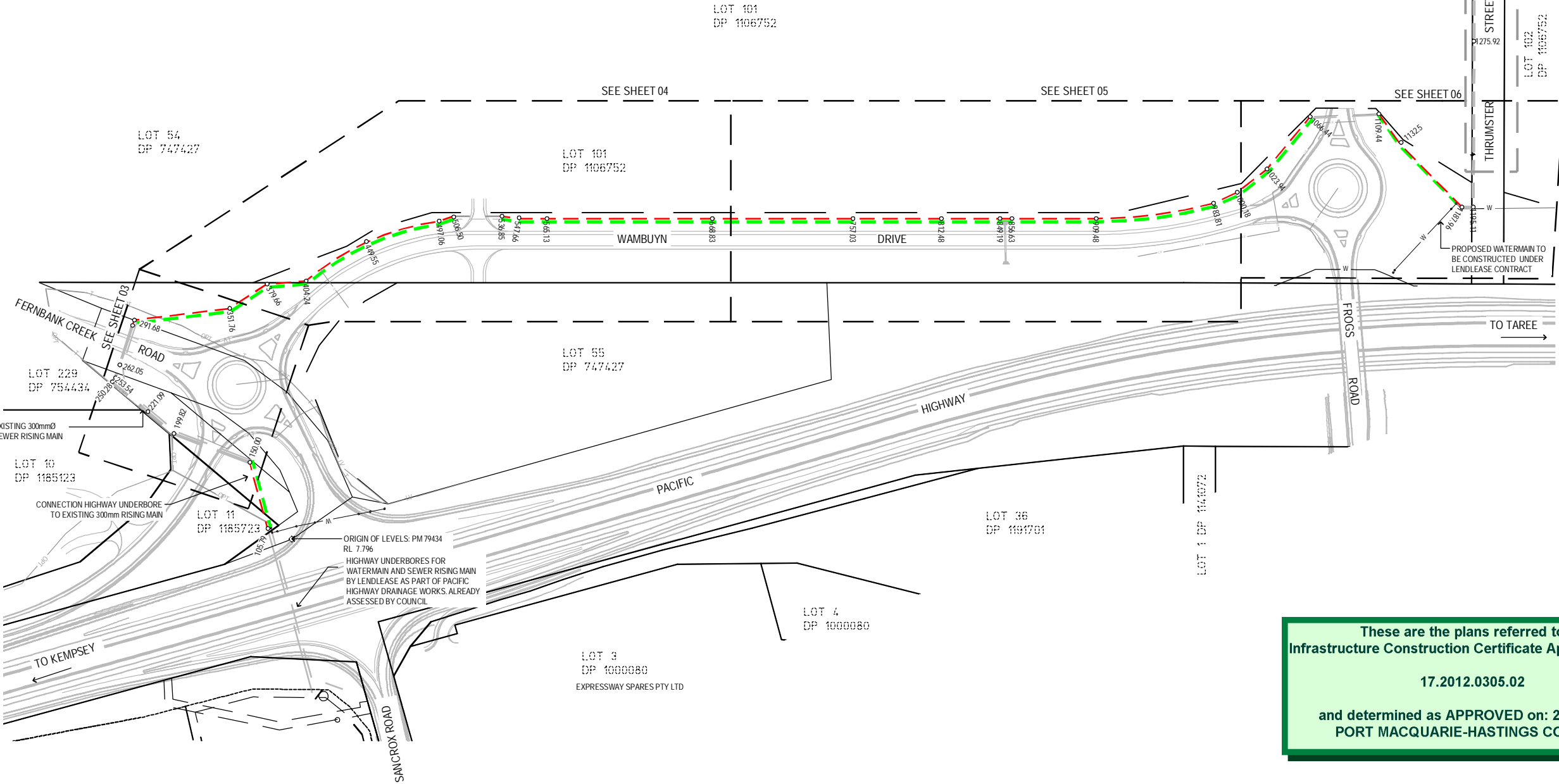
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PROJECT NO:	5809	DRAWING TITLE:	ENGINEERING NOTES
DA NO:	2012-305		
DESIGNED BY:	MW	PROJECT:	SANCROX EMPLOYMENT PRECINCT STAGE 1 LOT 2 DP222740 SANCROX ROAD SANCROX
DRAWN BY:	MM		
CHECKED BY:	MW	CLIENT:	EXPRESSWAY SPARES PTY LTD
DATE CREATED:	SEPT 2015		
		DRAWING NO:	5809E Cover
		SHEET:	01
		REVISION:	D

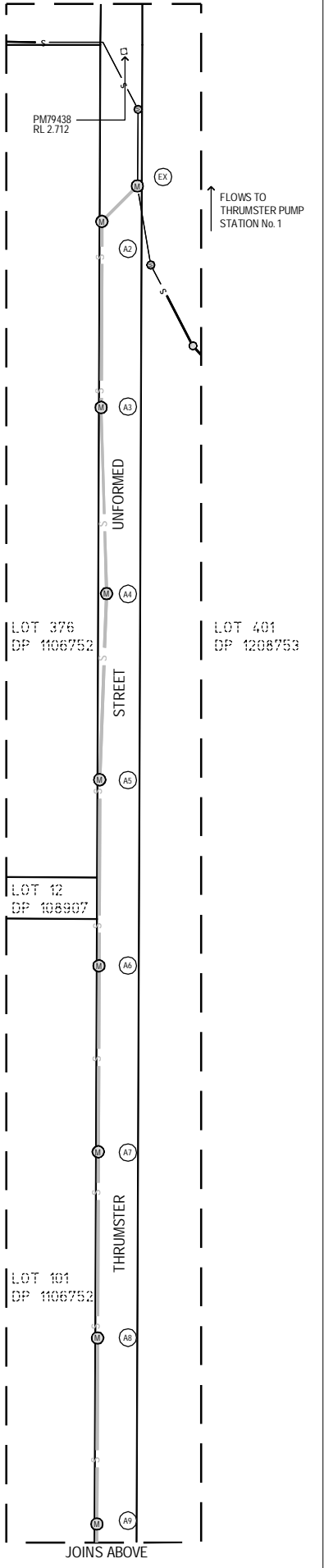


- LEGEND
- PROPERTY BOUNDARY
  - PROPOSED RMS PROPERTY ACQUISITION
  - EXISTING SEWER RISING MAIN LINE
  - EXISTING WATERMAIN LINE
  - PROPOSED SEWER RISING MAIN LINE
  - SEWER RISING MAIN UNDER SEPERATE CC
  - PROPOSED GRAVITY SEWER UNDER SEPERATE CC
  - WATERMAIN LOCATION. SEE SHEETS 08 - 11 FOR DETAILS
  - EXISTING ROAD SUPPLIED BY RMS
  - LOCATION OF LOW VOLTAGE ELECTRICITY (PLOTTED FROM RMS SERVICES PLANS)
  - LOCATION OF TELSTRA OPTICAL FIBRE SERVICES (PLOTTED FROM RMS SERVICES PLANS)
  - EXISTING SEWER

ORIGIN OF LEVELS: PM 79434  
RL 7.796



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K:\C REF: 015809\_Expressway\Plans - Sancrox North\2\_Engineering\Stage1\_LCPlans\809E\_Plan.dwg A111 Plan 25 May 2016 mchaw

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A	10.09.2015	ISSUED FOR INFORMATION
B	14.10.2015	ISSUED FOR CC
C	11.11.2015	SEWER RISING MAIN AMENDED
D	03.02.2016	VARIOUS AMENDMENTS
E	18.04.2016	VARIOUS AMMENDMENTS. ISSUED FOR CC APPROVAL
F	16.05.2016	VARIOUS AMMENDMENTS

DATUM: AHD

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(1:3000 @ A3)

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PROJECT NO:	5809	DRAWING TITLE:	PLAN OF SEWER RISING MAIN - WAMBUYN DRIVE				A1	
DA NO:	2012-305							
DESIGNED BY:	MW	PROJECT:	SANCROX EMPLOYMENT PRECINCT STAGE 1 LOT 2 DP222740 SANCROX ROAD SANCROX					
DRAWN BY:	MM							
CHECKED BY:	MW	CLIENT:	EXPRESSWAY SPARES PTY LTD			DRAWING NO:	SHEET:	REVISION:
DATE CREATED:	SEPT 2015					5809E Plan	02	F

A1





LEGEND

- PROPERTY BOUNDARY
- PROPOSED RMS PROPERTY ACQUISITION
- EXISTING ROAD. LOCATION SUPPLIED BY RMS
- PROPOSED RISING MAIN
- EXISTING RISING MAIN
- PROPOSED LOCATION OF WATERMAIN. SEE SHEETS 08 - 11
- LOCATION OF LOW VOLTAGE ELECTRICITY (PLOTTED FROM RMS SERVICES PLAN)
- LOCATION OF TELSTRA OPTICAL FIBRE SERVICES (PLOTTED FROM RMS SERVICES PLANS)
- CHAINAGE

ORIGIN OF LEVELS: PM 79434  
RL 7.796

DENOTES DUMPHY PEG PLACED

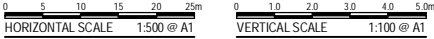
FLANGE CONNECTION ON PE PIPE.  
11.25" FL-BEND  
300mm FL-SP CONNECTOR  
300x100mm SOC-SP HYDRANT TEE  
VENTOMAT RX Gb AIR VALVE (50mm)  
(REFER SHEET 01)

STAGE 01

STAGE 02

Pipe Details		OD355 PN16 (SDR11) PE PIPE	300 uPVC CLASS 12	EXISTING 300 SEWER RISING MAIN	300 uPVC CLASS 12								
Grade													
Datum	-5.0												
INVERT R/L	6.50	6.80	4.87	4.62	2.74	1.71	2.33	2.35	3.09	3.38	2.78	4.37	15.75
CURRENT SURFACE	7.53	7.17	7.14	7.19	4.77	3.51	4.46	4.51	4.69	6.26	4.16	6.15	6.91
DEPTH	1.03	0.37	2.27	2.57	2.02	1.80	2.12	2.16	1.61	2.87	1.37	1.79	1.16
CHAINAGES	99.33 PEG RL 8.51	105.79 PEG RL 7.54	148.81 PEG RL 7.54	150.00	199.92	227.09	250.28	253.54	262.05	297.68 PEG RL 6.22	351.76	379.66 PEG RL 5.66	404.24

SEWER RISING MAIN CH 99.33- CH 375.33



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A	10.09.2015	ISSUED FOR INFORMATION
B	02.10.2015	ISSUED FOR CC
C	11.11.2015	SEWER RISING MAIN AMENDED
D	03.02.2016	VARIOUS AMENDMENTS
E	18.04.2016	VARIOUS AMENDMENTS. ISSUED FOR CC APPROVAL
F	12.05.2016	MINOR AMENDMENTS. ISSUED FOR CC APPROVAL
G	16.05.2016	SETOUT INFORMATION ADDED

DATUM: AHD

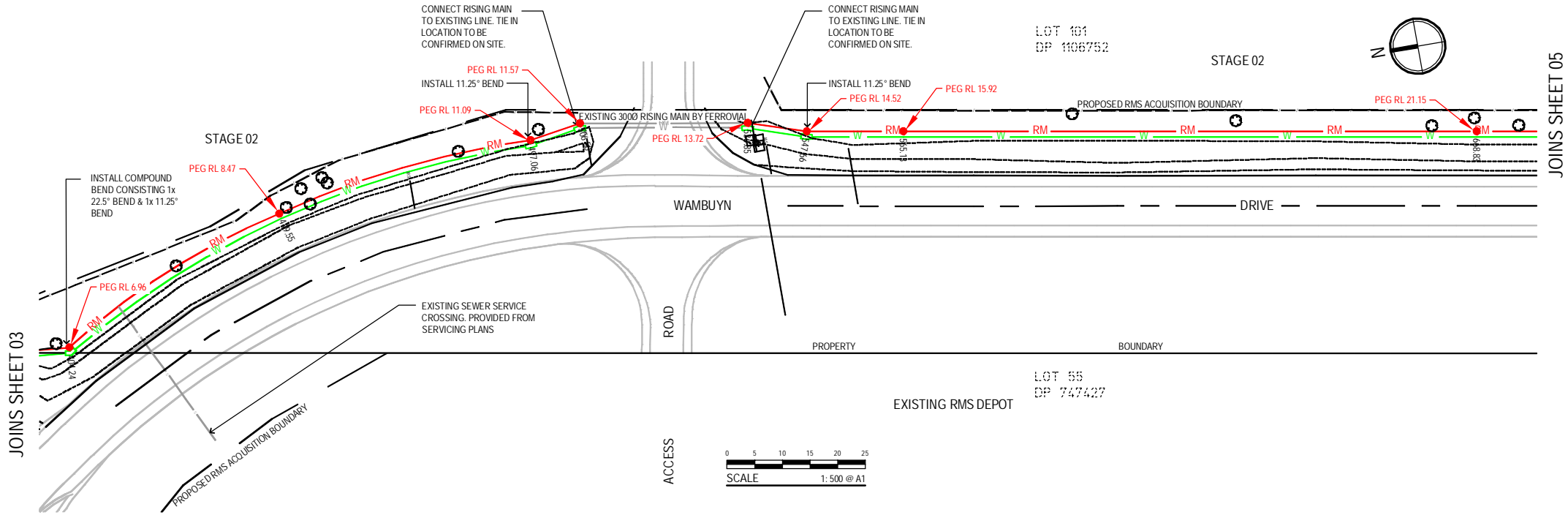
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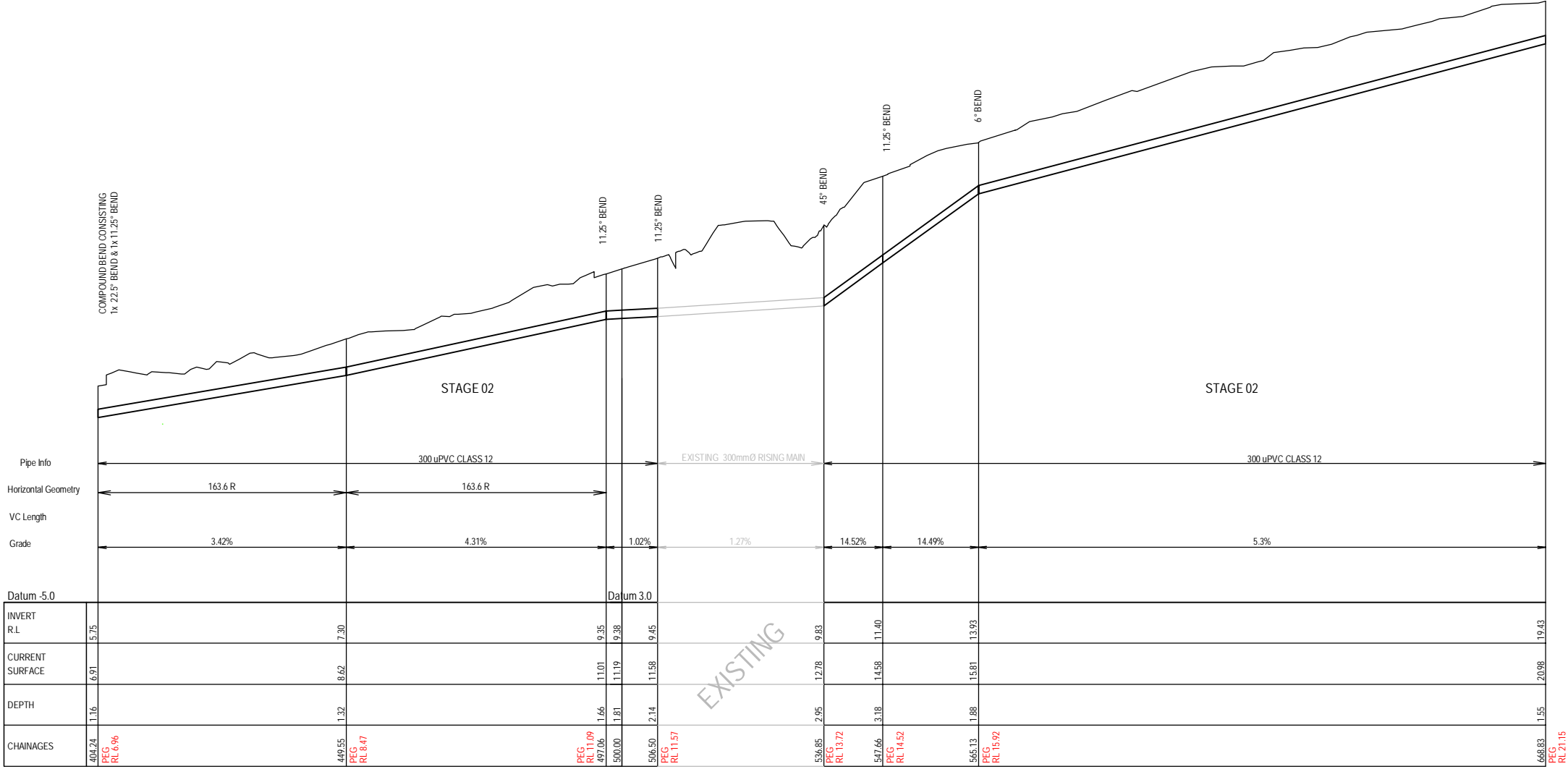
PROJECT NO:	5809	DRAWING TITLE:	RISING MAIN CH 105.79 - 404.24
DA NO:	2012-305		
DESIGNED BY:	MW	PROJECT:	SANCROX EMPLOYMENT PRECINCT STAGE 1 LOT 2 DP222740 SANCROX ROAD SANCROX
DRAWN BY:	MM		
CHECKED BY:	MW	CLIENT:	EXPRESSWAY SPARES PTY LTD
DATE CREATED:	SEPT 2015		

DRAWING NO:	SHEET:	REVISION:
5809E Plan	03	G

A1



LEGEND	
	PROPERTY BOUNDARY
	PROPOSED RMS PROPERTY ACQUISITION
	EXISTING ROAD LOCATION SUPPLIED BY RMS
	PROPOSED RISING MAIN
	EXISTING RISING MAIN
	PROPOSED LOCATION OF WATERMAIN. SEE SHEETS 08 - 11
	EXISTING WATERMAIN
	CHAINAGE
	DENOTES DUMPY PEG PLACED



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NOTE: CURRENT SURFACE BASED ON  
LIMITED SURVEY, PMHC ALS DATA AND  
DESIGN SURFACE SUPPLIED BY RMS.

ORIGIN OF LEVELS: PM 79434  
RL 7.796

SEWER RISING MAIN CH 375.33 - CH 673.22



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REV.	DATE	DESCRIPTION
A	10.09.2015	ISSUED FOR INFORMATION
B	02.10.2015	ISSUED FOR CC
C	03.02.2016	VARIOUS AMENDMENTS
D	18.04.2016	VARIOUS AMENDMENTS. ISSUED FOR CC APPROVAL
E	09.05.2016	AIR VALVE LOCATION AMENDED
F	12.05.2016	MINOR AMENDMENTS. ISSUED FOR CC APPROVAL
G	16.05.2016	SETOUT INFORMATION ADDED
H	25.05.2016	AIR VALVES REMOVED

DATUM: AHD SCALE: AS SHOWN

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PROJECT NO:	5809	DRAWING TITLE:	RISING MAIN CH 404.24 - 668.83		
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DESIGNED BY:	MW	CLIENT:	EXPRESSWAY SPARES PTY LTD	DRAWING NO:	5809E Plan
DRAWN BY:	MM			SHEET:	04
CHECKED BY:	MW			REVISION:	G
DATE CREATED:	SEPT 2015				

A1



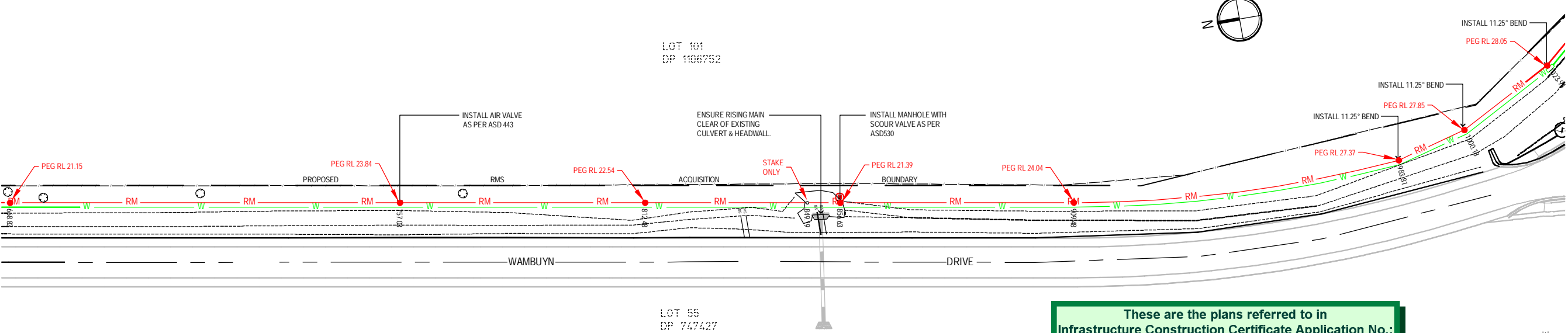
- LEGEND
- PROPERTY BOUNDARY
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  - EXISTING ROAD LOCATION SUPPLIED BY RMS
  - PROPOSED RISING MAIN
  - EXISTING RISING MAIN
  - PROPOSED LOCATION OF WATERMAIN. SEE SHEETS 08 - 11
  - CHAINAGE

ORIGIN OF LEVELS: PM 79434  
RL 7.796

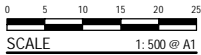
• DENOTES DUMPY PEG PLACED

JOINS SHEET 04

JOINS SHEET 06

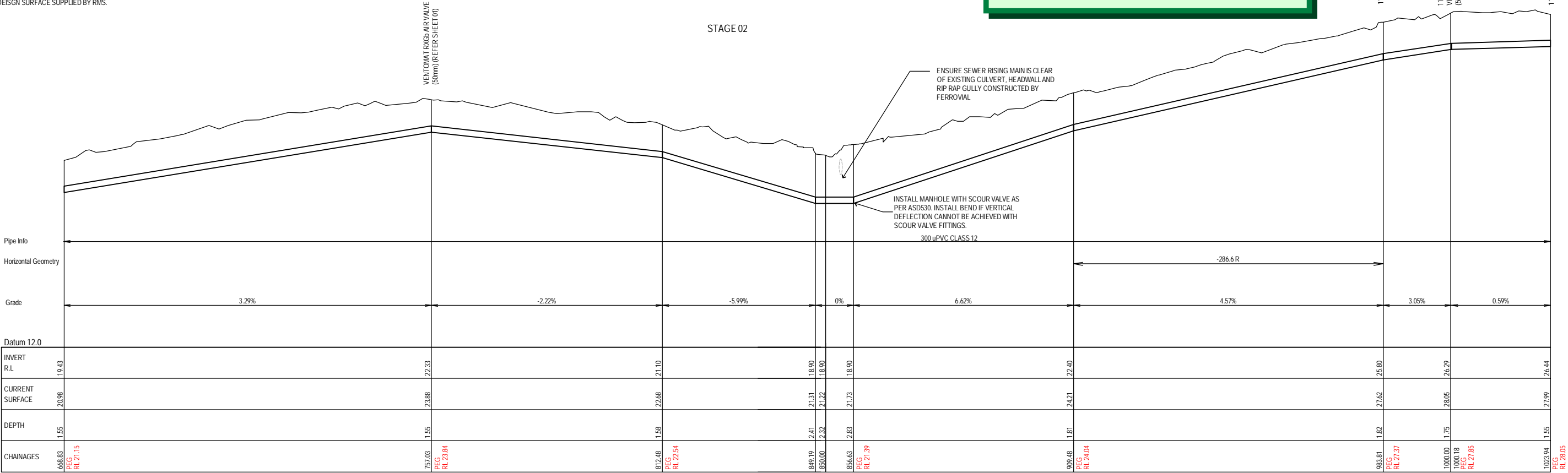


NOTE: CURRENT SURFACE BASED ON LIMITED SURVEY, PMHC ALS DATA AND DEISGN SURFACE SUPPLIED BY RMS.



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STAGE 02



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B	02.10.2015	ISSUED FOR CC
C	03.02.2016	VARIOUS AMENDMENTS
D	18.04.2016	VARIOUS AMENDMENTS. ISSUED FOR CC APPROVAL
E	09.05.2016	AIR VALVE LOCATION AMENDED
F	16.05.2016	SET OUT INFORMATION ADDED

DATUM: AHD

SCALE: AS SHOWN

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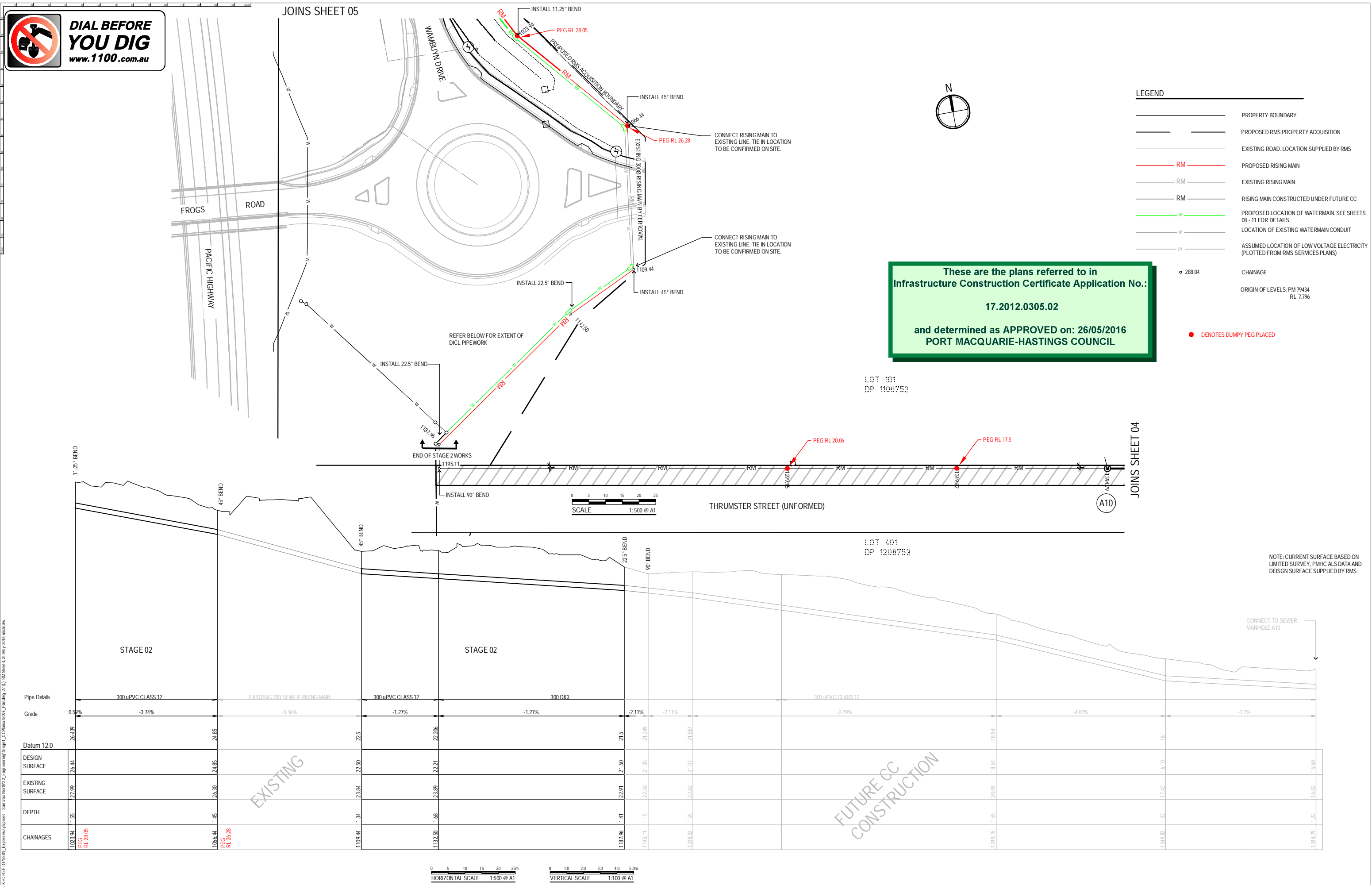
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DRAWN BY:	MM		
CHECKED BY:	MW	CLIENT:	EXPRESSWAY SPARES PTY LTD
DATE CREATED:	SEPT 2015		

DRAWING NO:	SHEET:	REVISION:
5809E Plan	05	F

A1



JOINS SHEET 05



K:\C REF: 015809 Expressway Spares - Sancrox North\2. Engineering\Stage1\_CPlans\809E\_Plan.dwg A11 - Join Sheet 4, 26 May 2016, mchadaw

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F: 02 6583 4064  
E: info@kingcampbell.com.au

REV.	DATE	DESCRIPTION
A	10.09.2015	ISSUED FOR INFORMATION
B	02.10.2015	ISSUED FOR CC
C	03.02.2016	VARIOUS AMENDMENTS
D	18.04.2016	VARIOUS AMENDMENTS, ISSUED FOR CC APPROVAL
E	16.05.2016	SETOUT INFORMATION ADDED GRADE AND LEVEL OF RISING MAIN AMENDED
F	25.05.2016	AMENDED ALIGNMENT AND PIPE DETAILS

DATUM: AHD SCALE: AS SHOWN

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PROJECT NO:	5809	DRAWING TITLE:	RISING MAIN CH 1023.94 - 1185.29
DA NO:	2012-305		
DESIGNED BY:	MW	PROJECT:	SANCROX EMPLOYMENT PRECINCT STAGE 1 LOT 2 DP222740 SANCROX ROAD SANCROX
DRAWN BY:	MM		
CHECKED BY:	MW	CLIENT:	EXPRESSWAY SPARES PTY LTD
DATE CREATED:	SEPT 2015		
		DRAWING NO:	5809E Plan
		SHEET:	06
		REVISION:	E

A1

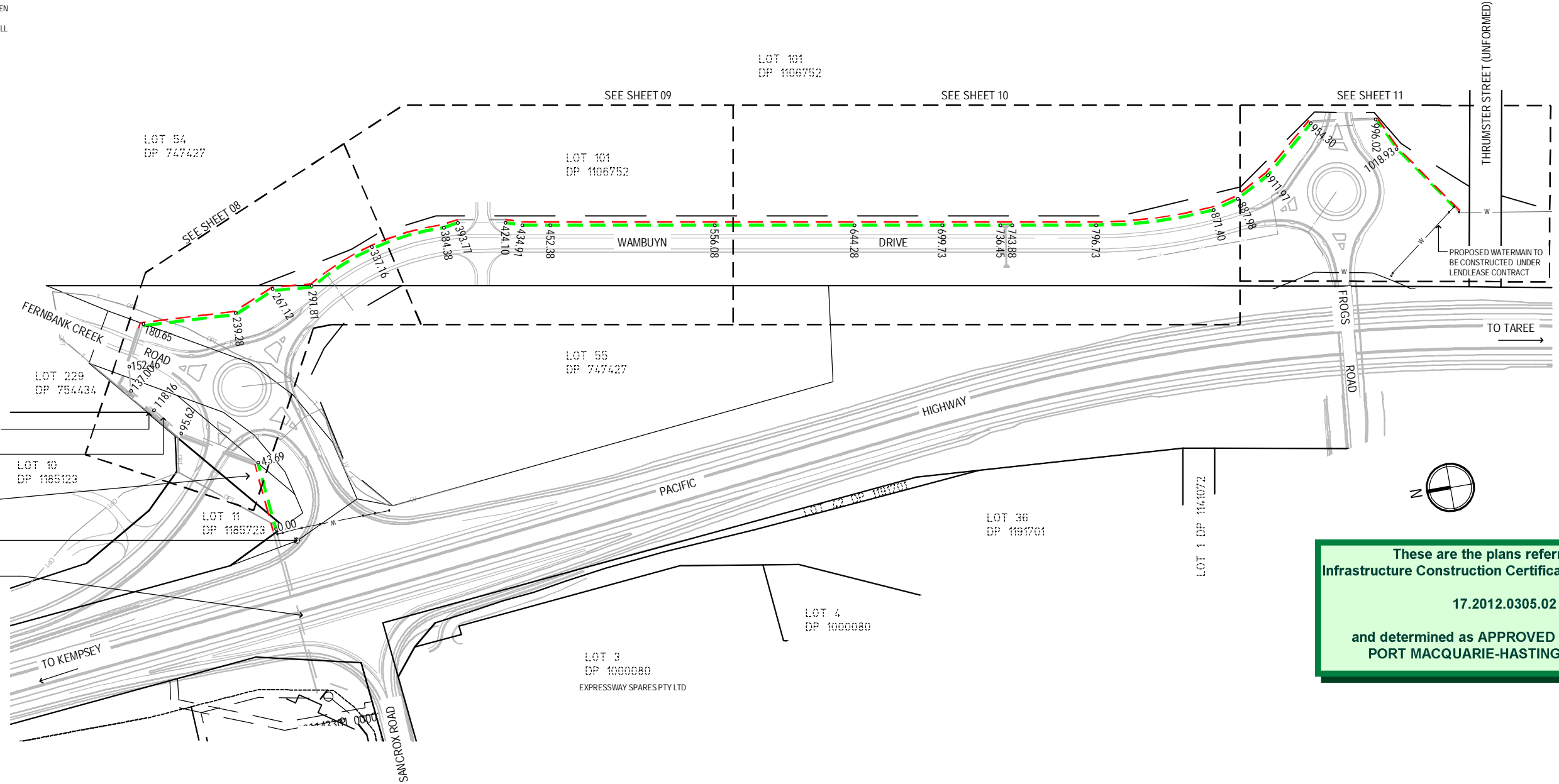




- LEGEND
- PROPERTY BOUNDARY
  - PROPOSED RMS PROPERTY ACQUISITION
  - EXISTING SEWER RISING MAIN LINE
  - EXISTING WATERMAIN LINE
  - PROPOSED SEWER RISING MAIN LINE. SEE SHEETS 02 - 06 FOR DETAILS
  - WATERMAIN LOCATION
  - EXISTING ROAD SUPPLIED BY RMS
  - LOCATION OF LOW VOLTAGE ELECTRICITY (PLOTTED FROM RMS SERVICES PLANS)
  - LOCATION OF TELSTRA OPTICAL FIBRE SERVICES (PLOTTED FROM RMS SERVICES PLANS)
  - EXISTING SEWER
  - WATERMAIN TO BE CONSTRUCTED UNDER LENDLEASE CONTRACT
  - EXISTING OVERHEAD ELECTRICITY & POWERPOLE

ORIGIN OF LEVELS: PM 79434  
RL 7.796

SETOUT TO BE UNDERTAKEN  
USING ELECTRONIC DATA  
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SEE ABOVE FOR  
SOUTHERN  
WATERMAIN

These are the plans referred to in  
Infrastructure Construction Certificate Application No.:  
  
17.2012.0305.02  
  
and determined as APPROVED on: 26/05/2016  
PORT MACQUARIE-HASTINGS COUNCIL

ORIGIN OF LEVELS: PM 79434  
RL 7.796  
E: 483253.504 N: 6521580.424  
SETOUT TO BE UNDERTAKEN  
USING ELECTRONIC DATA  
ISSUED BY KING + CAMPBELL

KING + CAMPBELL

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REV.	DATE	DESCRIPTION
A	10.09.2015	ISSUED FOR INFORMATION
B	14.10.2015	ISSUED FOR CC
C	03.02.2016	VARIOUS AMENDMENTS
D	18.04.2016	VARIOUS AMENDMENTS. ISSUED FOR CC APPROVAL

DATUM: AHD

SCALE: 1:1500 @ A1  
(1:3000 @ A3)

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PROJECT NO:	5809	DRAWING TITLE:	PLAN OF WATERMAIN - WAMBUYN DRIVE
DA NO:	2012-305	PROJECT:	SANCROX EMPLOYMENT PRECINCT STAGE 1 LOT 2 DP222740 SANCROX ROAD SANCROX
DESIGNED BY:	MW	CLIENT:	EXPRESSWAY SPARES PTY LTD
DRAWN BY:	MM	DRAWING NO:	5809E Plan
CHECKED BY:	MW	SHEET:	07
DATE CREATED:	SEPT 2015	REVISION:	D

A1



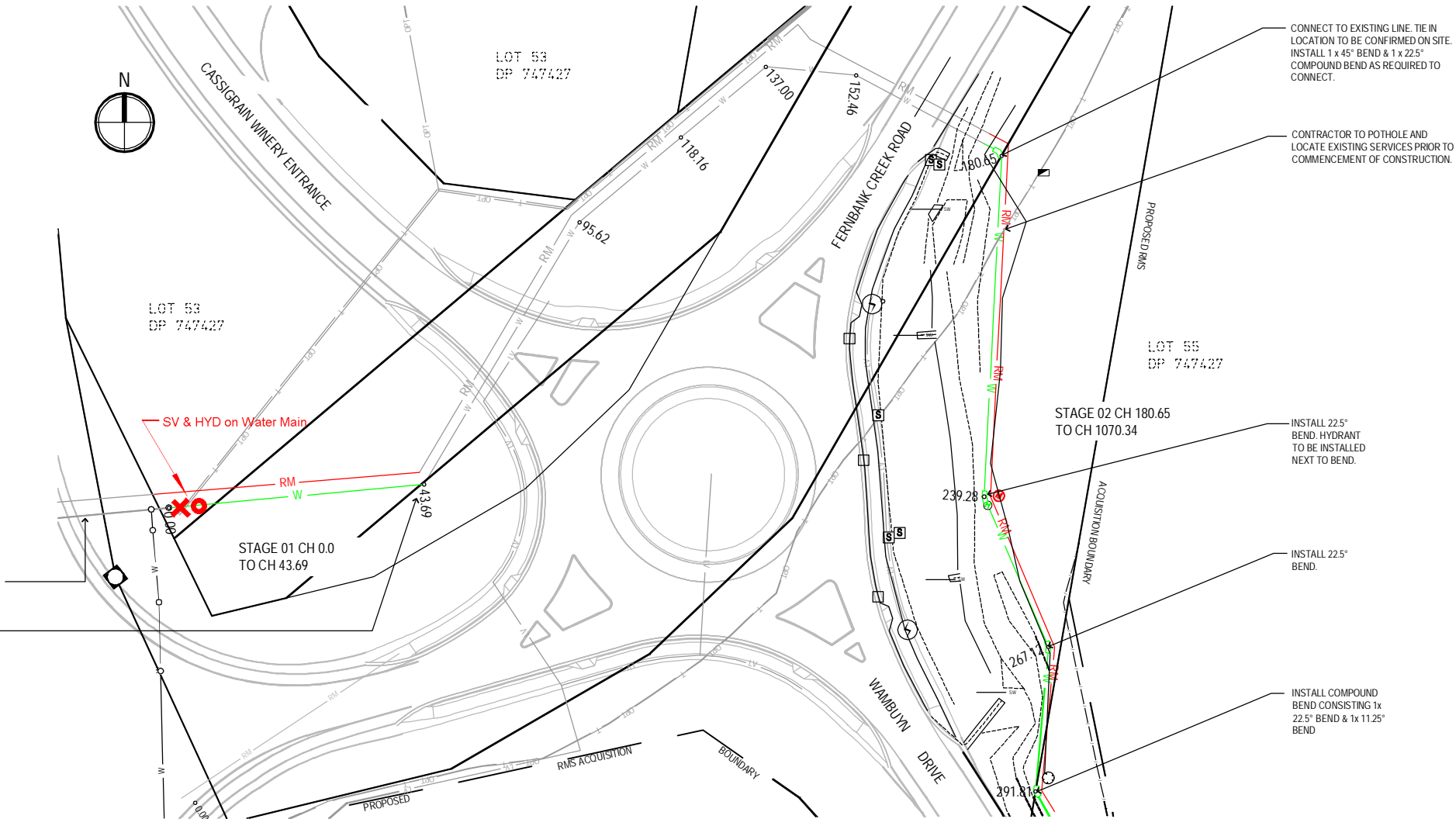


- LEGEND
- PROPERTY BOUNDARY
  - PROPOSED RMS PROPERTY ACQUISITION
  - EXISTING ROAD. LOCATION SUPPLIED BY RMS
  - PROPOSED RISING MAIN. SEE DETAILS SHEET 02 - 06.
  - EXISTING RISING MAIN
  - PROPOSED WATERMAIN AND HYDRANT
  - EXISTING WATERMAIN
  - LOCATION OF LOW VOLTAGE ELECTRICITY (PLOTTED FROM SERVICES PLANS)
  - LOCATION OF TELSTRA SERVICES (PLOTTED FROM SERVICES PLANS)
  - LOCATION OF TELSTRA OPTICAL FIBRE SERVICES (PLOTTED FROM SERVICES PLANS)
  - CHAINAGE
  - ORIGIN OF LEVELS: PM 79434 RL 7.796

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17.2012.0305.02  
  
and determined as APPROVED on: 26/05/2016  
PORT MACQUARIE-HASTINGS COUNCIL

WATERMAIN HIGHWAY UNDERBORE  
AND PIPEWORK BY LEND LEASE AS  
PART OF PACIFIC HIGHWAY WORKS

CONNECT TO EXISTING WATERMAIN  
LINE AS CONSTRUCTED BY  
FERROVIAL. INSTALL 1 x 45° BEND &  
x 11.25° COMPOUND BEND IF  
REQUIRED.



NOTE: CURRENT SURFACE BASED ON  
LIMITED SURVEY, PMHC ALS DATA AND  
DEIGN SURFACE SUPPLIED BY RMS &  
IS APPROXIMATE ONLY.

ORIGIN OF LEVELS: PM 79434  
RL 7.796  
E: 483253.504  
N: 6521580.424  
PM 151826  
RL 10.622  
E: 483078.638  
N: 6519841.191

SETOUT TO BE UNDERTAKEN  
USING ELECTRONIC DATA  
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D	18.04.2016	VARIOUS AMENDMENTS. ISSUED FOR CC APPROVAL

DATUM: AHD

SCALE: AS SHOWN

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PROJECT NO:	5809
DA NO:	2012-305
DESIGNED BY:	MW
DRAWN BY:	MM
CHECKED BY:	MW
DATE CREATED:	SEPT 2015

DRAWING TITLE:

WATERMAIN CH 0 - 337.16

PROJECT:

SANCROX EMPLOYMENT PRECINCT STAGE 1  
LOT 2 DP222740 SANCROX ROAD SANCROX

CLIENT:

EXPRESSWAY SPARES PTY LTD

DRAWING NO:

5809E Plan

SHEET:

08

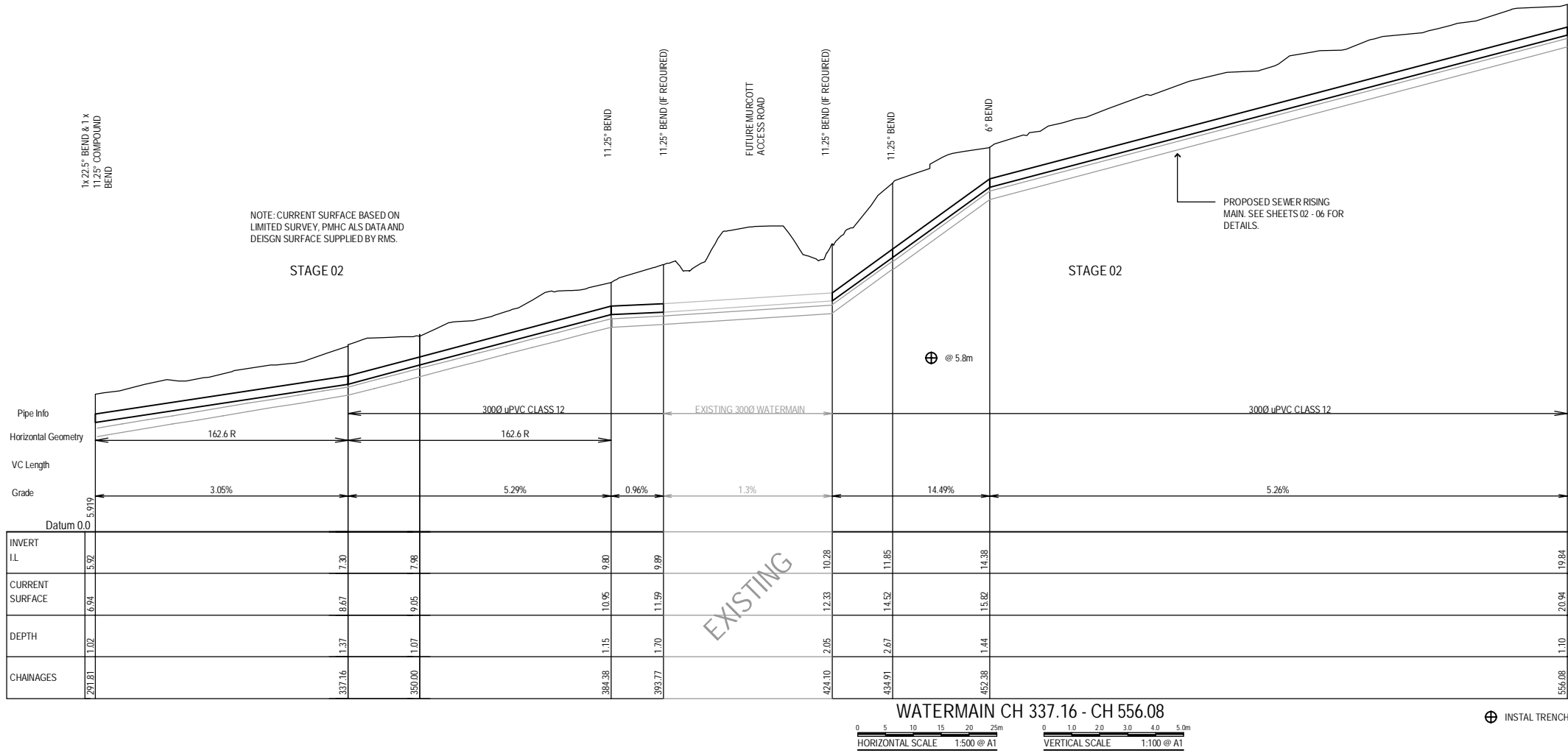
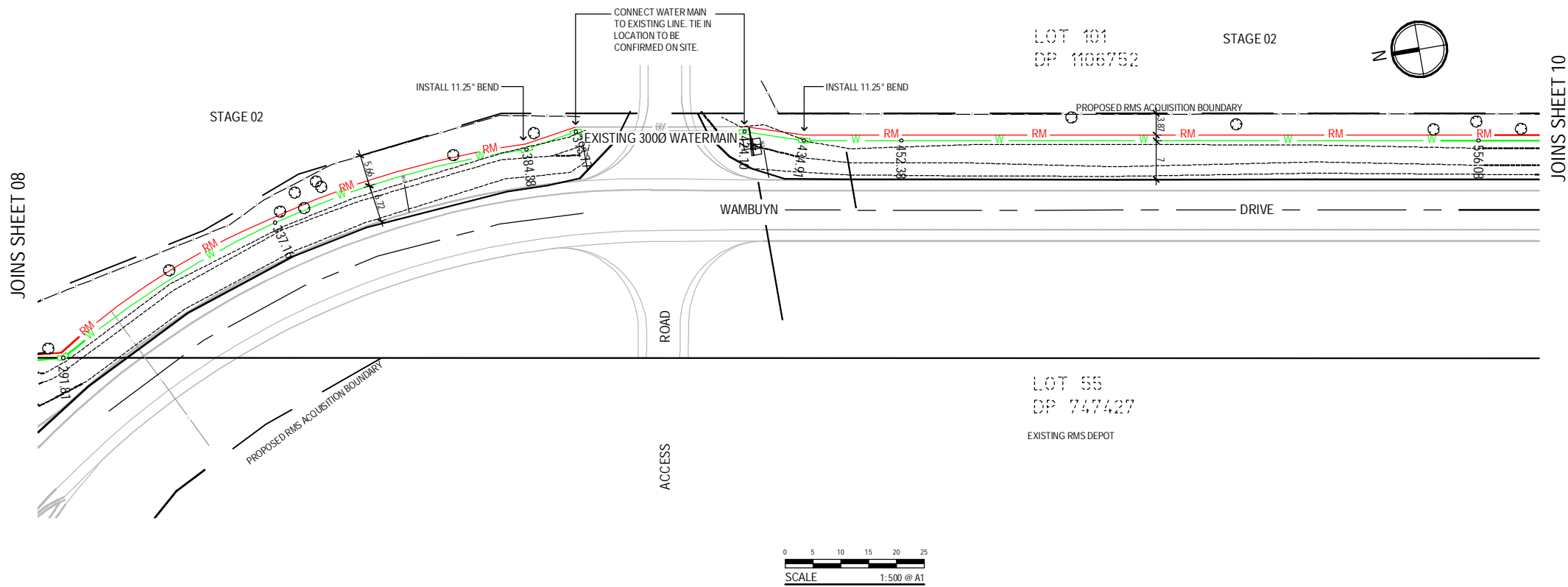
REVISION:

D

A1



- LEGEND
- PROPERTY BOUNDARY
  - PROPOSED RMS PROPERTY ACQUISITION
  - EXISTING ROAD LOCATION SUPPLIED BY RMS
  - RM PROPOSED RISING MAIN. SEE SHEETS 02 - 06
  - RM EXISTING RISING MAIN
  - W PROPOSED LOCATION OF WATERMAIN
  - W EXISTING WATERMAIN
  - CHAINAGE
  - ORIGIN OF LEVELS: PM 79434 RL 7.79%



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PORT MACQUARIE-HASTINGS COUNCIL

NOTE: CURRENT SURFACE BASED ON LIMITED SURVEY, PMHC ALS DATA AND DEIGN SURFACE SUPPLIED BY RMS & IS APPROXIMATE ONLY.

ORIGIN OF LEVELS: PM 79434 RL 7.79% E: 483253.504 N: 6521580.424 PM 151826 RL 10.622 E: 483078.638 N: 6519841.191

SETOUT TO BE UNDERTAKEN USING ELECTRONIC DATA ISSUED BY KING + CAMPBELL

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REV.	DATE	DESCRIPTION
A	10.09.2015	ISSUED FOR INFORMATION
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C	03.02.2016	VARIOUS AMENDMENTS
D	18.04.2016	VARIOUS AMENDMENTS. ISSUED FOR CC APPROVAL
E	12.05.2016	MINOR AMENDMENTS. ISSUED FOR CC APPROVAL

DATUM: AHD SCALE: AS SHOWN

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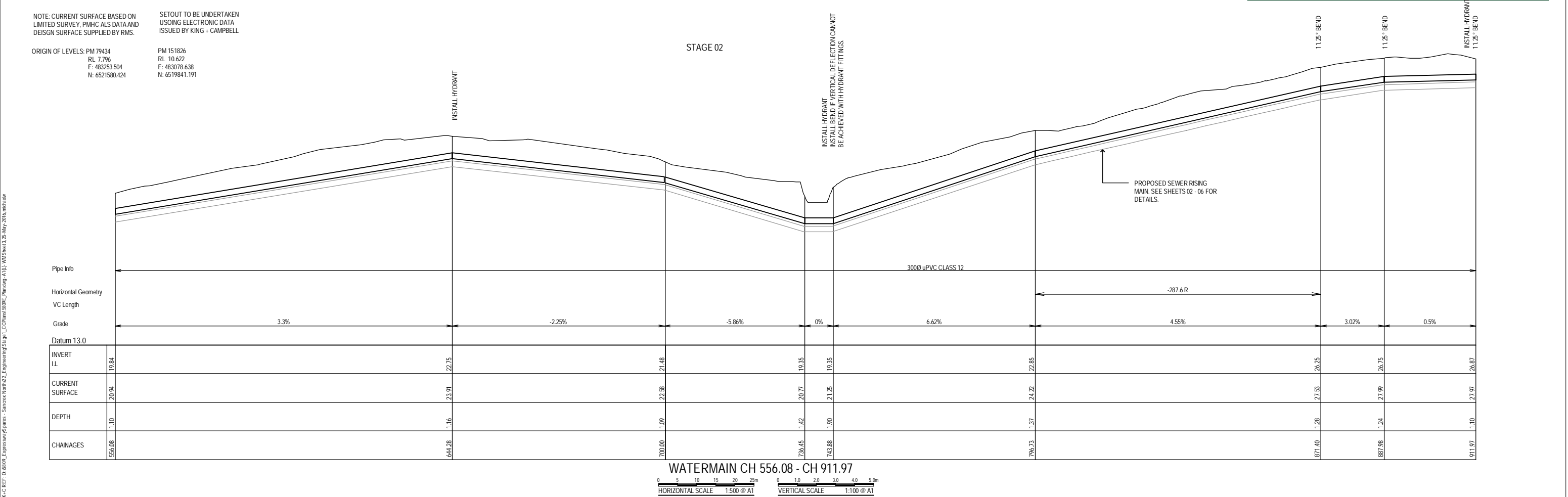
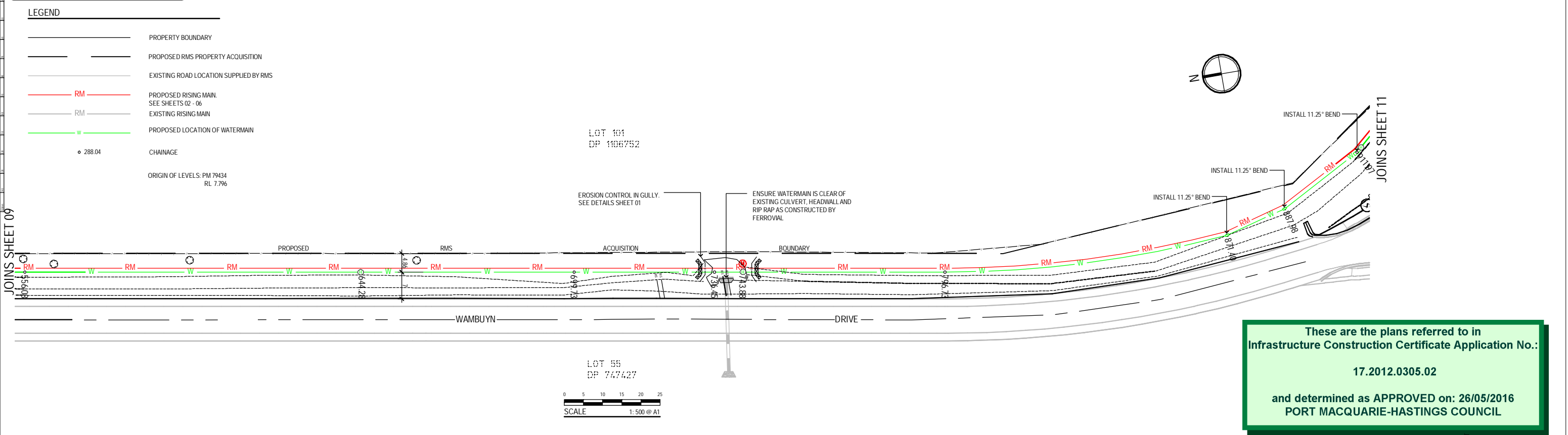
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DA NO:	2012-305	PROJECT:	SANCROX EMPLOYMENT PRECINCT STAGE 1 LOT 2 DP222740 SANCROX ROAD SANCROX
DESIGNED BY:	MW	CLIENT:	EXPRESSWAY SPARES PTY LTD
DRAWN BY:	MM	DRAWING NO:	5809E Plan
CHECKED BY:	MW	SHEET:	09
DATE CREATED:	SEPT 2015	REVISION:	E

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D	18.04.2016	VARIOUS AMENDMENTS. ISSUED FOR CC APPROVAL

DATUM: AHD

SCALE: AS SHOWN

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PROJECT NO:	5809	DRAWING TITLE:	WATERMAIN CH 556.08 - 911.97		
DA NO:	2012-305	DESIGNED BY:	MM		
DRAWN BY:	MM	PROJECT:	SANCROX EMPLOYMENT PRECINCT STAGE 1 LOT 2 DP222740 SANCROX ROAD SANCROX		
CHECKED BY:	MM	CLIENT:	EXPRESSWAY SPARES PTY LTD		
DATE CREATED:	SEPT 2015	DRAWING NO:	5809E Plan	SHEET:	10
				REVISION:	D

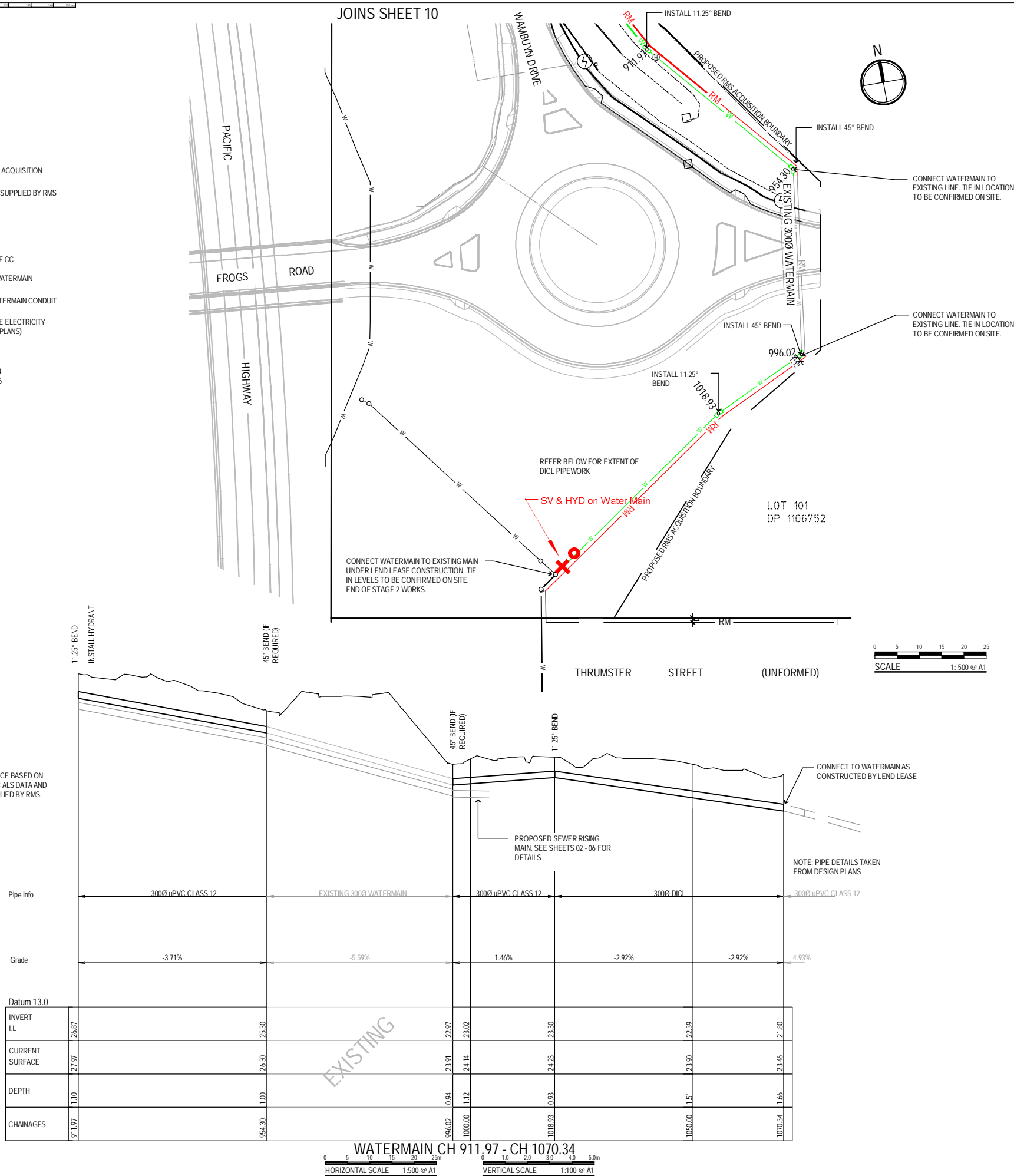
A1



LEGEND

- PROPERTY BOUNDARY
- PROPOSED RMS PROPERTY ACQUISITION
- EXISTING ROAD, LOCATION SUPPLIED BY RMS
- RM PROPOSED RISING MAIN, SEE SHEETS 02 - 06
- RM EXISTING RISING MAIN
- RM RISING MAIN UNDER FUTURE CC
- W PROPOSED LOCATION OF WATERMAIN
- W LOCATION OF EXISTING WATERMAIN CONDUIT
- LV LOCATION OF LOW VOLTAGE ELECTRICITY (PLOTTED FROM SERVICES PLANS)
- CHAINAGE
- ORIGIN OF LEVELS: PM 79434 RL 7.796

NOTE: CURRENT SURFACE BASED ON LIMITED SURVEY, PMHC ALS DATA AND DEISGN SURFACE SUPPLIED BY RMS.



These are the plans referred to in  
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PORT MACQUARIE-HASTINGS COUNCIL

NOTE: CURRENT SURFACE BASED ON LIMITED SURVEY, PMHC ALS DATA AND DEISGN SURFACE SUPPLIED BY RMS & IS APPROXIMATE ONLY.

ORIGIN OF LEVELS: PM 79434  
RL 7.796  
E: 483253.504  
N: 6521580.424  
PM 151826  
RL 10.622  
E: 483078.638  
N: 6519841.191

SETOUT TO BE UNDERTAKEN USING ELECTRONIC DATA ISSUED BY KING + CAMPBELL

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REV.	DATE	DESCRIPTION
A	10.09.2015	ISSUED FOR INFORMATION
B	14.10.2015	ISSUED FOR CC
C	03.02.2016	VARIOUS AMENDMENTS
D	18.04.2016	VARIOUS AMENDMENTS, ISSUED FOR CC APPROVAL
E	12.05.2016	MINOR AMENDMENTS, ISSUED FOR CC APPROVAL

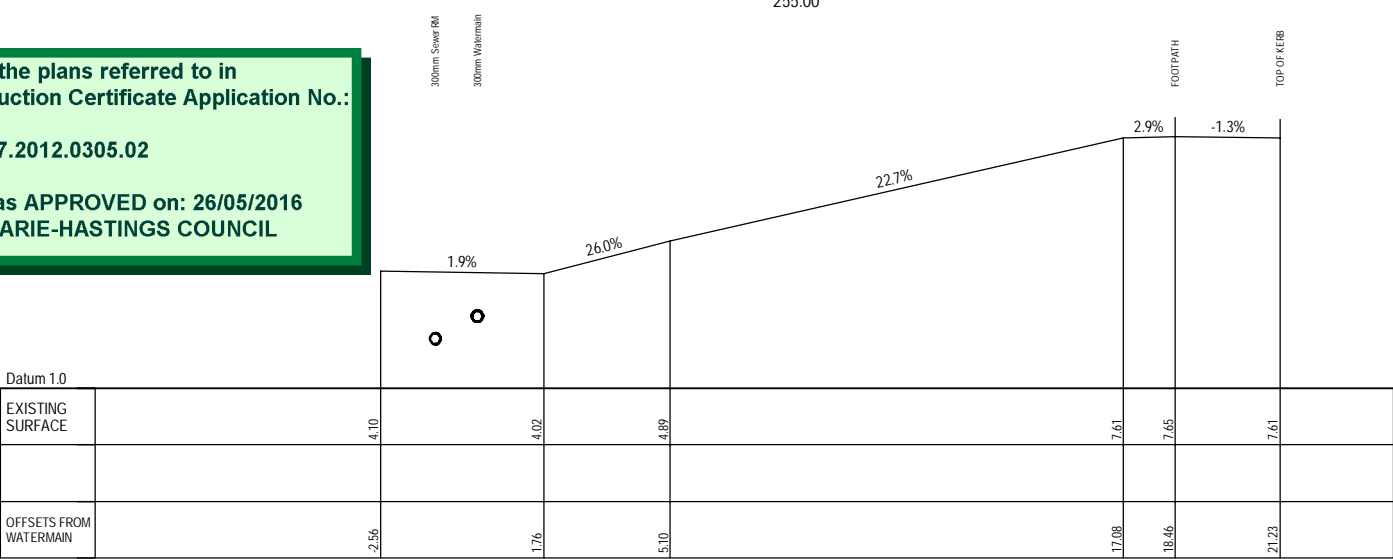
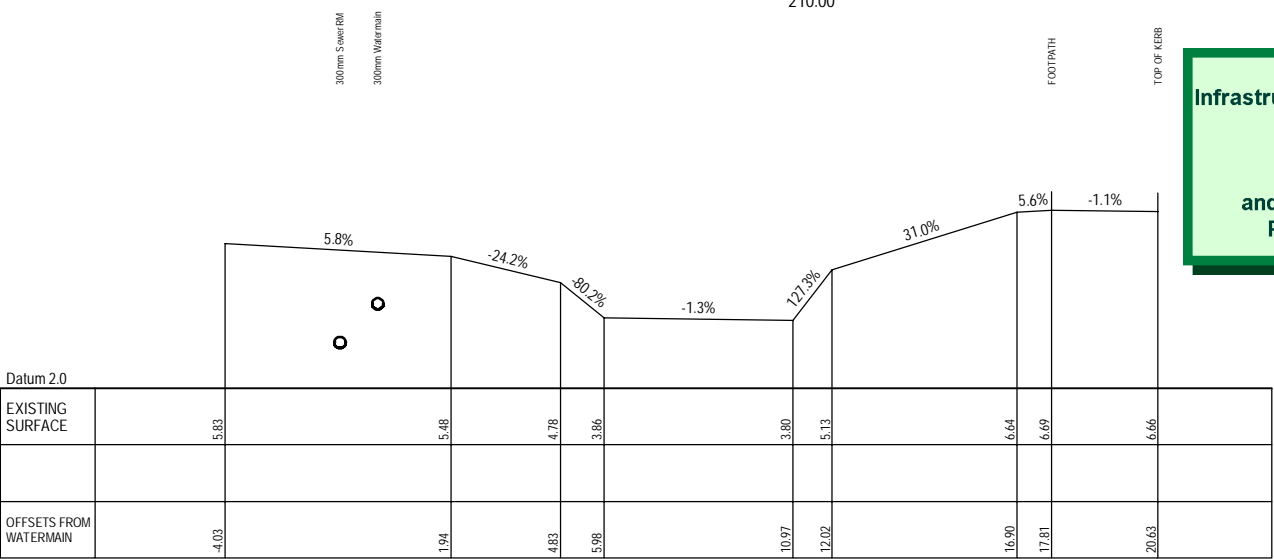
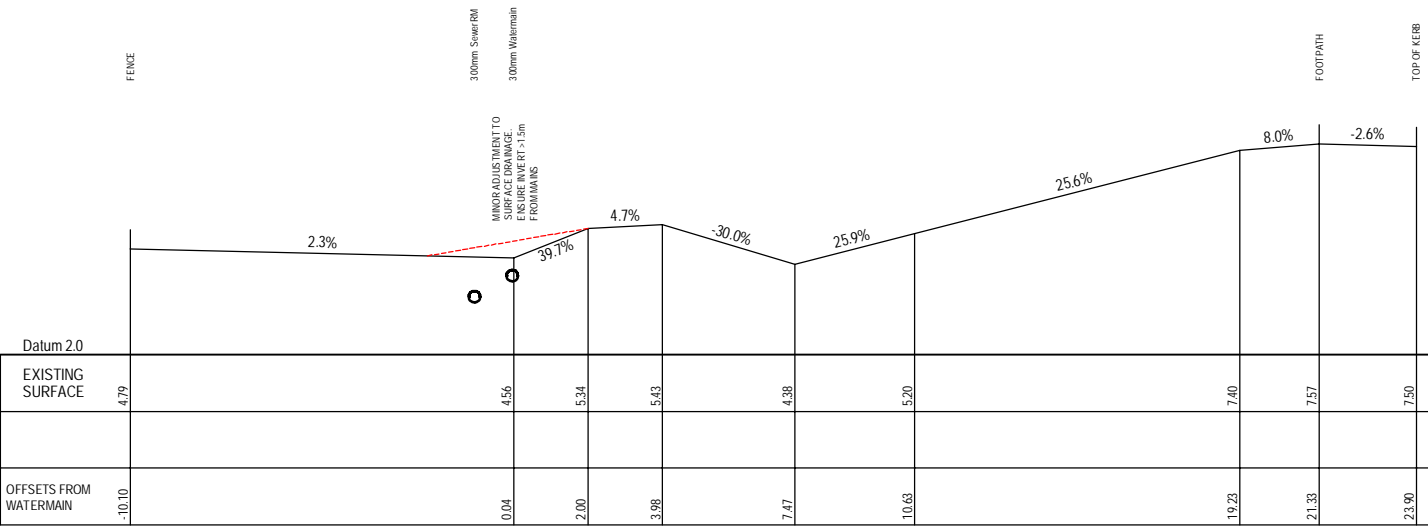
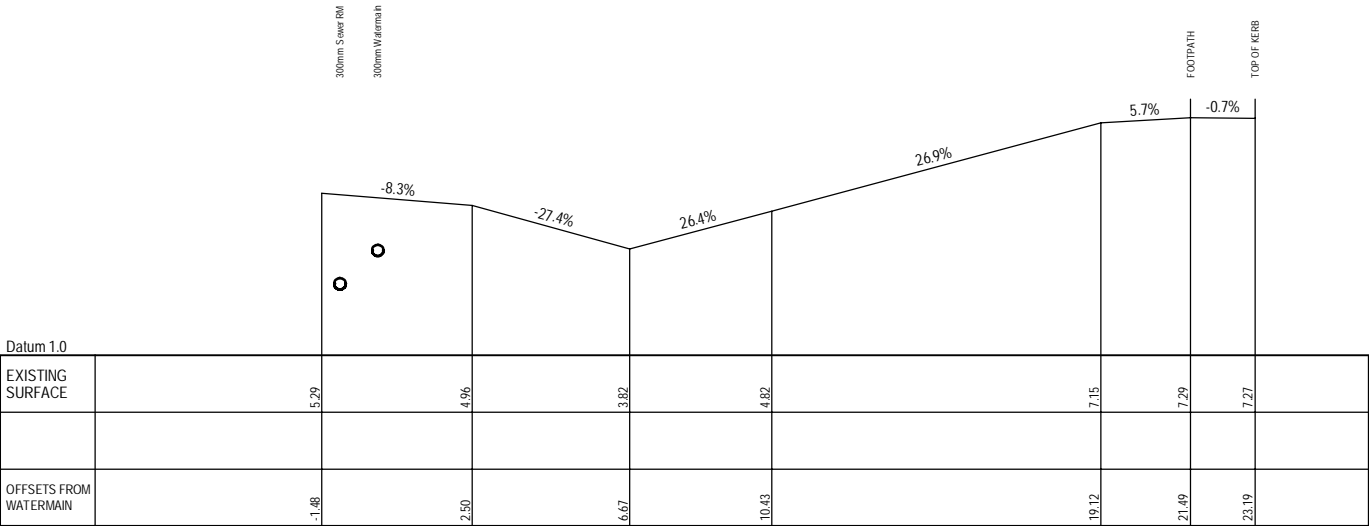
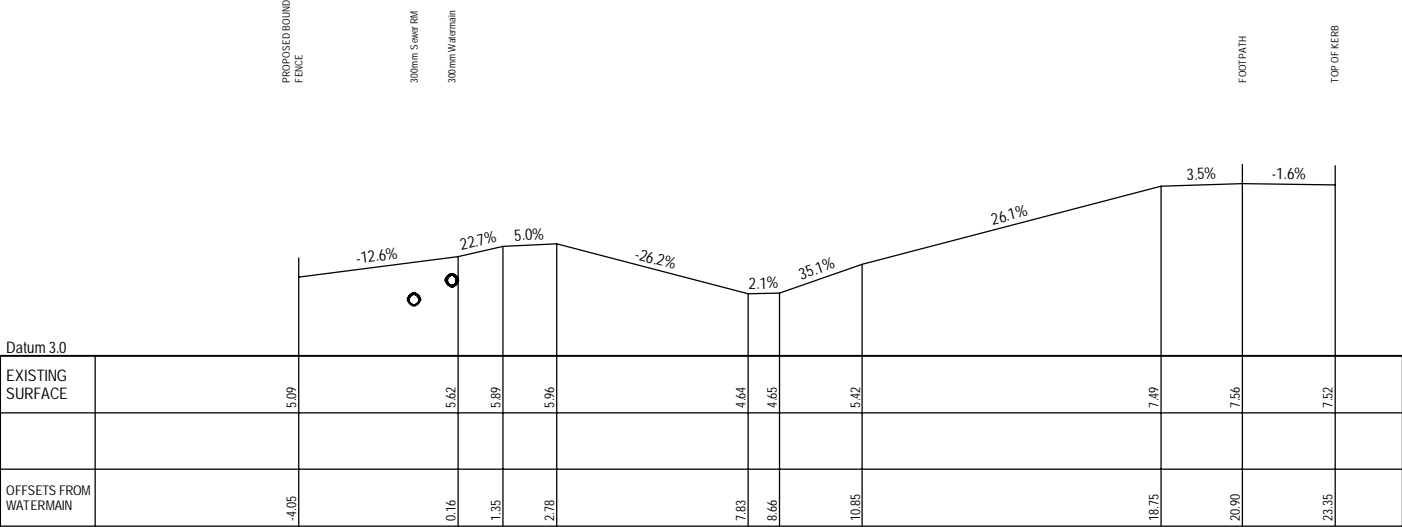
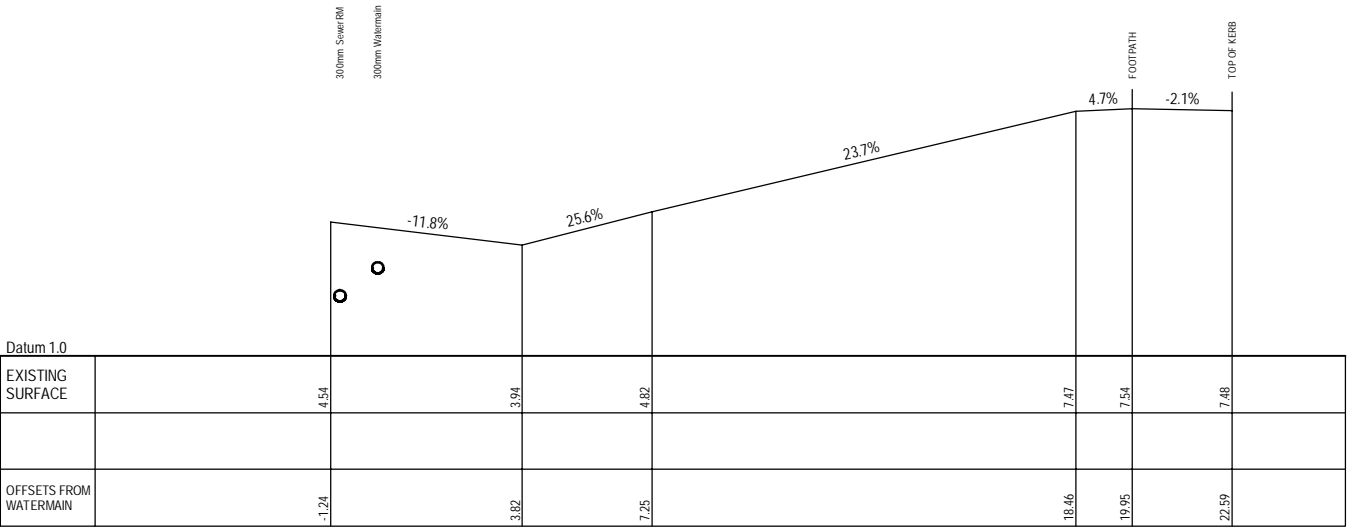
DATUM: AHD SCALE: AS SHOWN

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PROJECT NO:	5809	DRAWING TITLE:	WATERMAIN CH 911.97 - 1070.34
DA NO:	2012-305		
DESIGNED BY:	MW	PROJECT:	SANCROX EMPLOYMENT PRECINCT STAGE 1 LOT 2 DP222740 SANCROX ROAD SANCROX
DRAWN BY:	MM		
CHECKED BY:	MW	CLIENT:	EXPRESSWAY SPARES PTY LTD
DATE CREATED:	SEPT 2015		
		DRAWING NO:	5809E Plan
		SHEET:	11
		REVISION:	E

A1





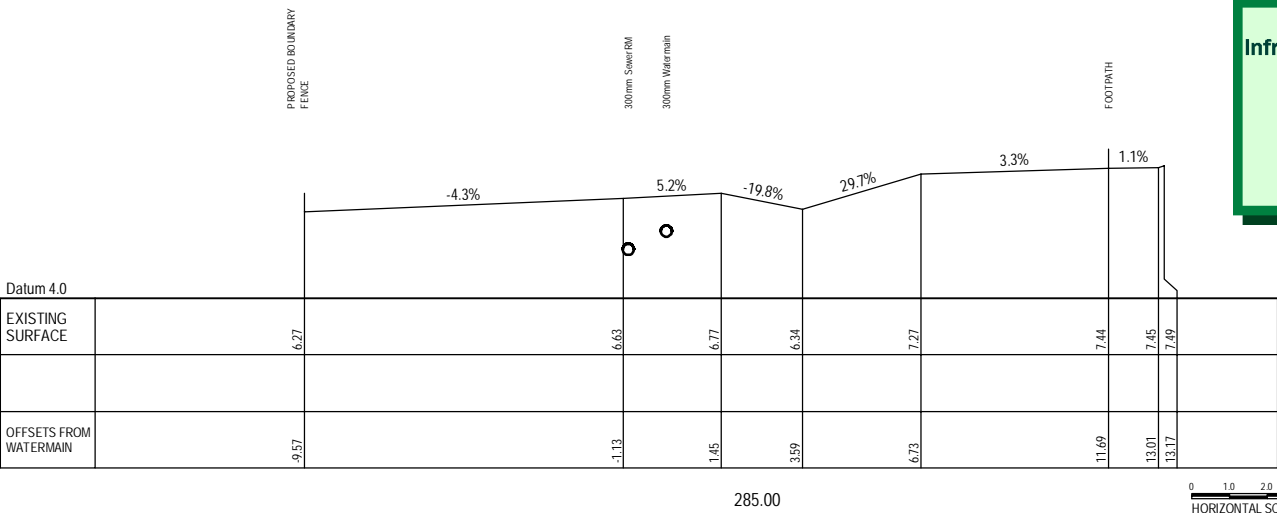
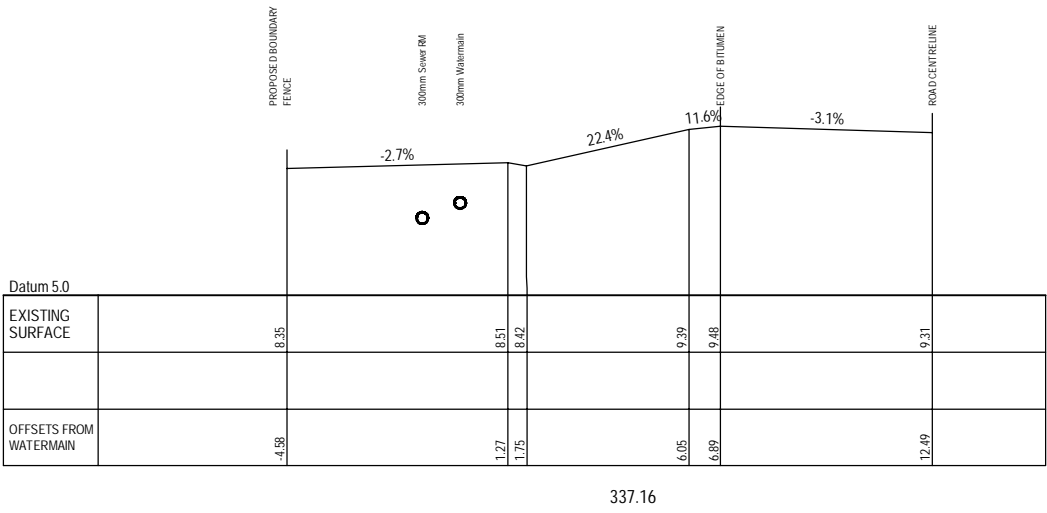
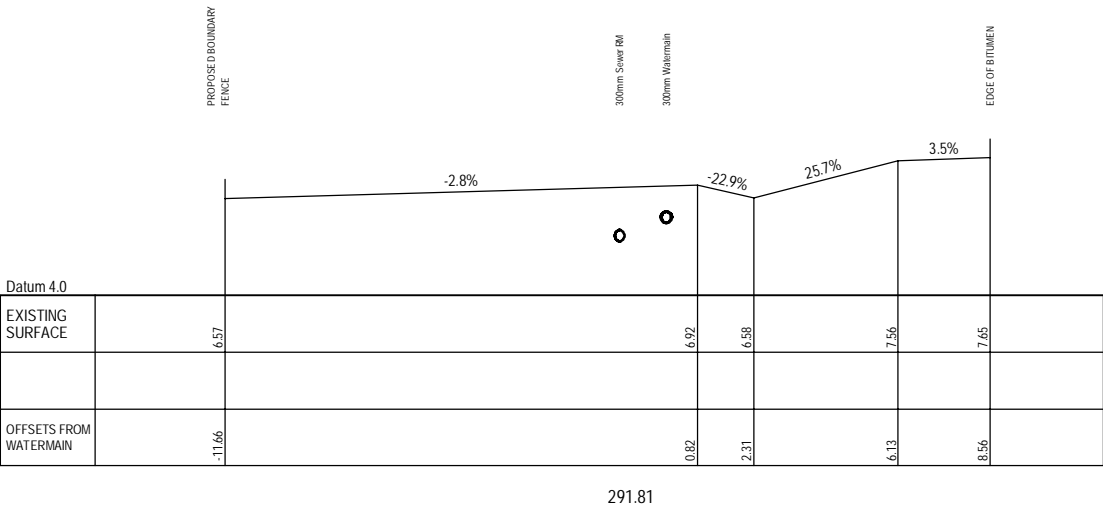
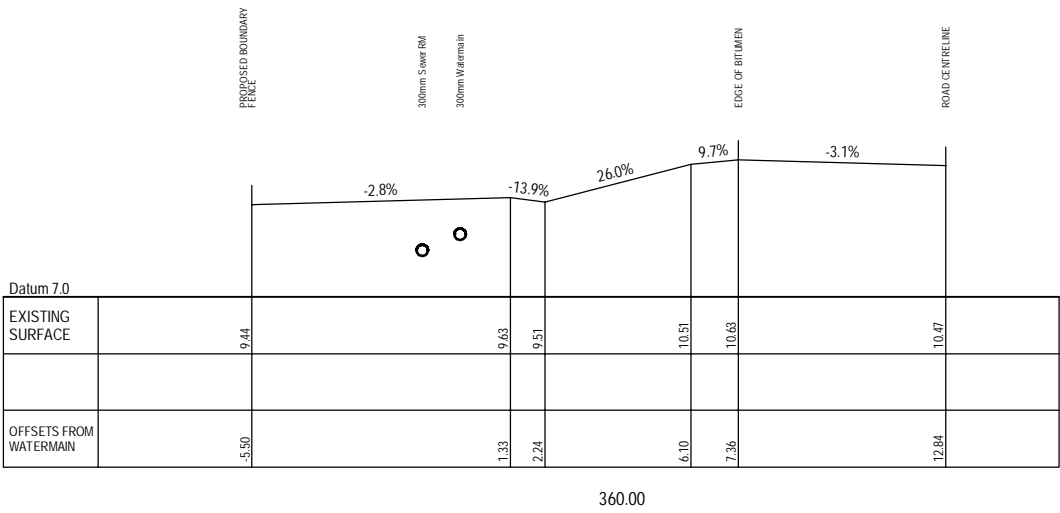
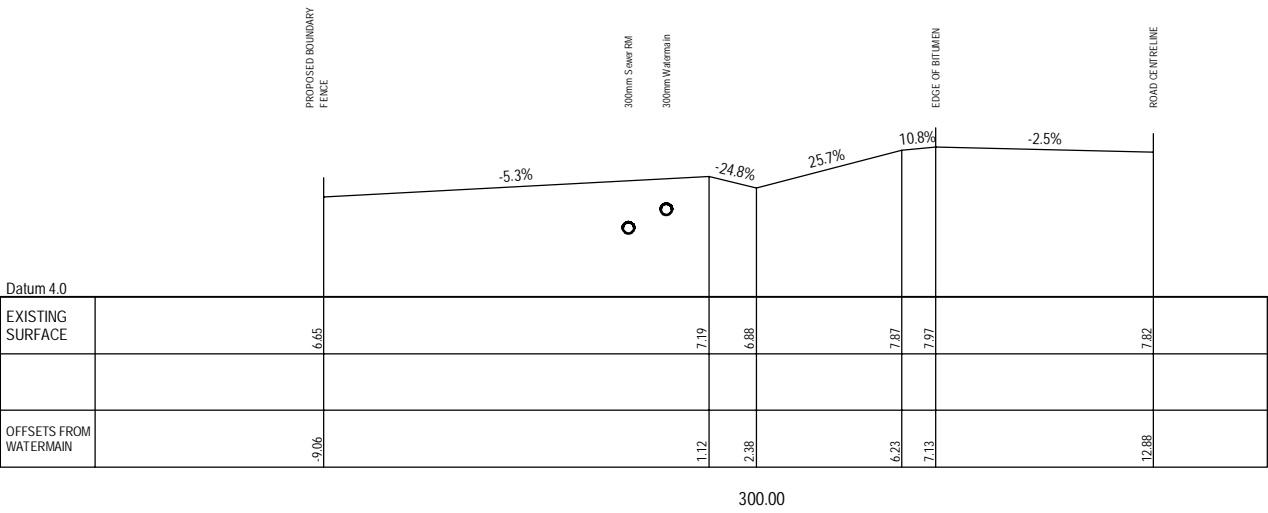
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17.2012.0305.02  
  
and determined as APPROVED on: 26/05/2016  
PORT MACQUARIE-HASTINGS COUNCIL

NOTE: CHAINAGES RELATE TO WATERMAIN  
LONGITUDINAL SECTION

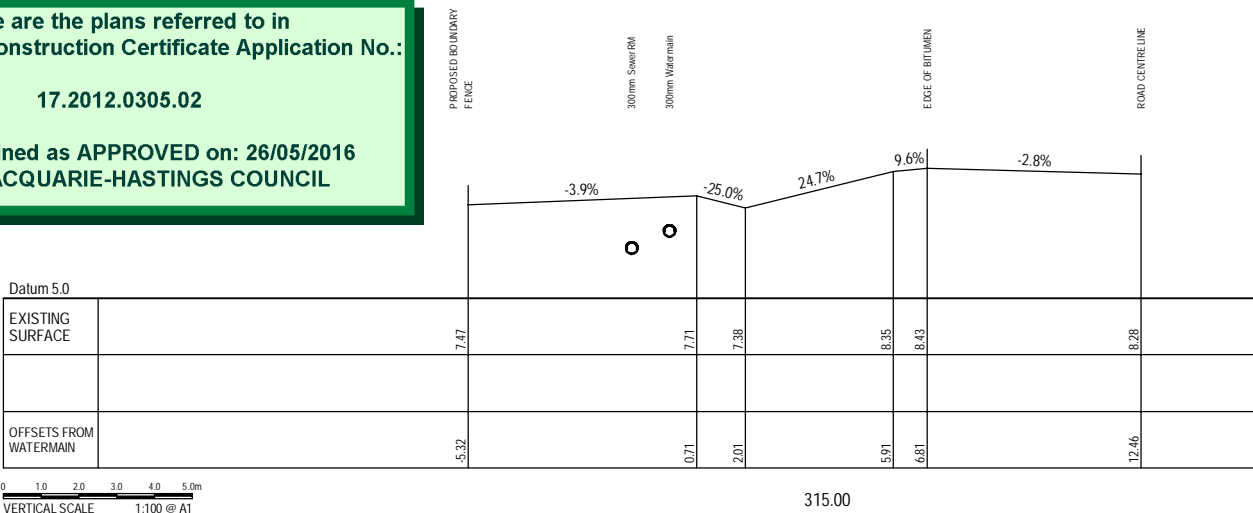
REV.	DATE	DESCRIPTION	MM	MW
A	18.04.2016	ISSUED FOR CC APPROVAL		
B	12.05.2016	ISSUED FOR CC - MINOR CHANGE TO SECTION 255		

DATUM:	AHD	SCALE:	AS SHOWN
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PROJECT NO:	5809	DRAWING TITLE:	CROSS SECTIONS - SEWER & WATERMAIN CH195 - 267.12			
DA NO:	2012-305	PROJECT:	SANCROX EMPLOYMENT PRECINCT STAGE 1 LOT 2 DP222740 SANCROX ROAD SANCROX			
DESIGNED BY:	MM	CLIENT:	EXPRESSWAY SPARES PTY LTD			
DRAWN BY:	MM	DRAWING NO:	5809E Wamburn Sections	SHEET:	12	REVISION:
CHECKED BY:	MW					B
DATE CREATED:	SEPT 2015					



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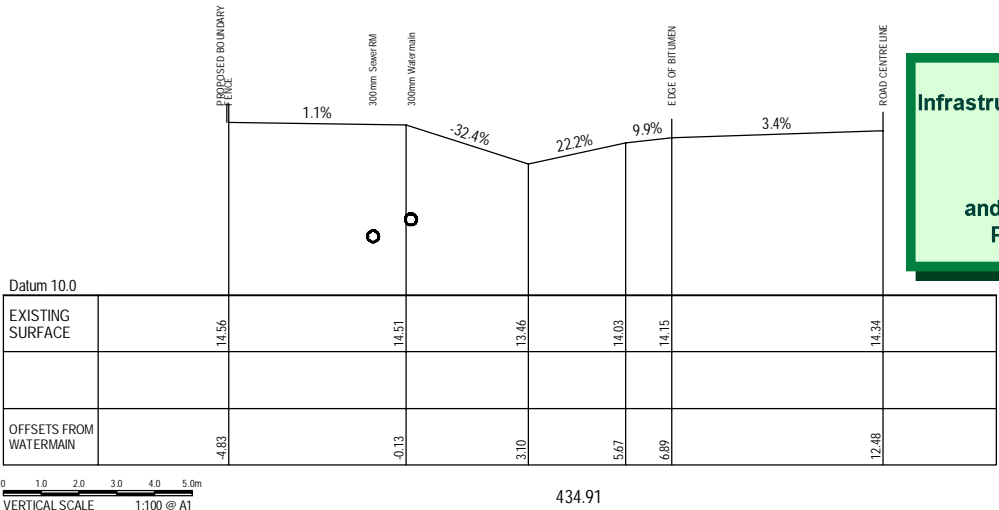
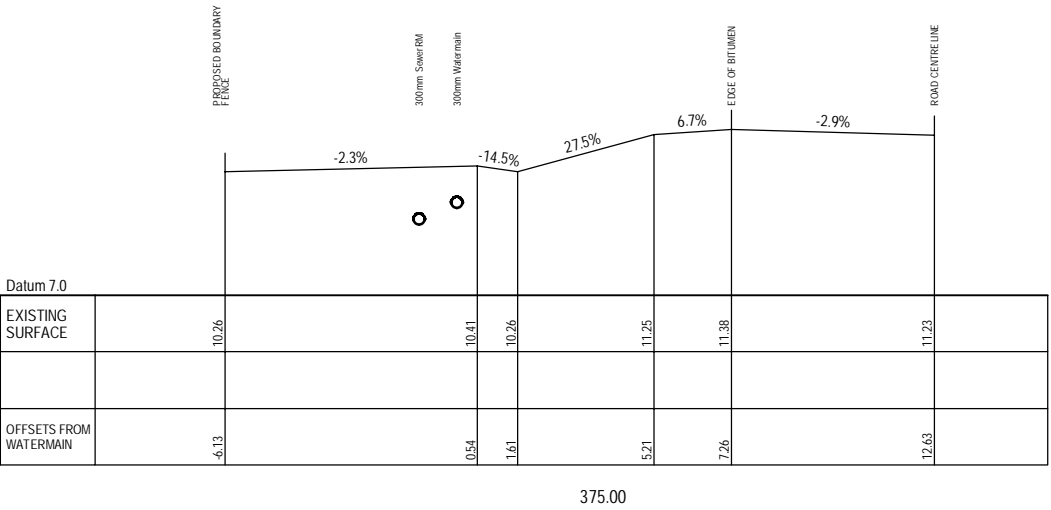
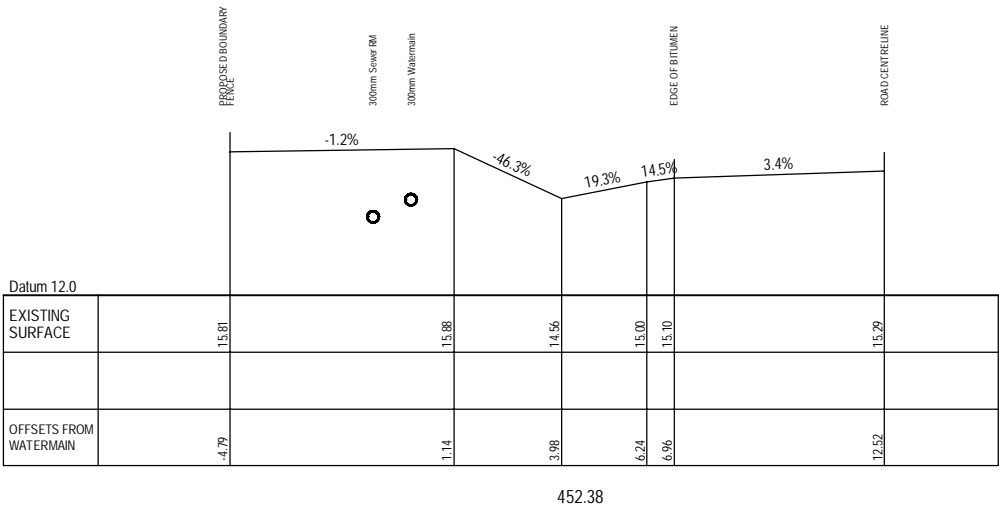
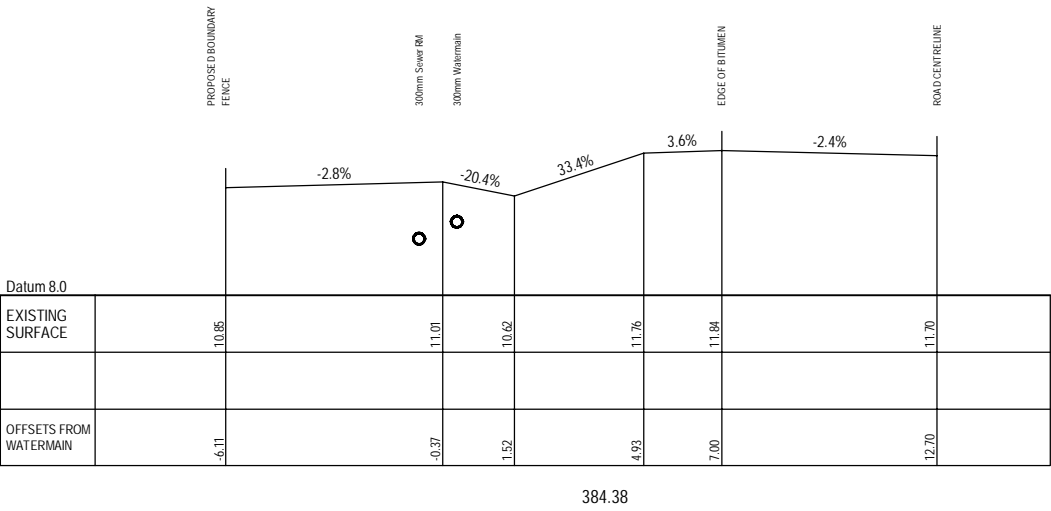
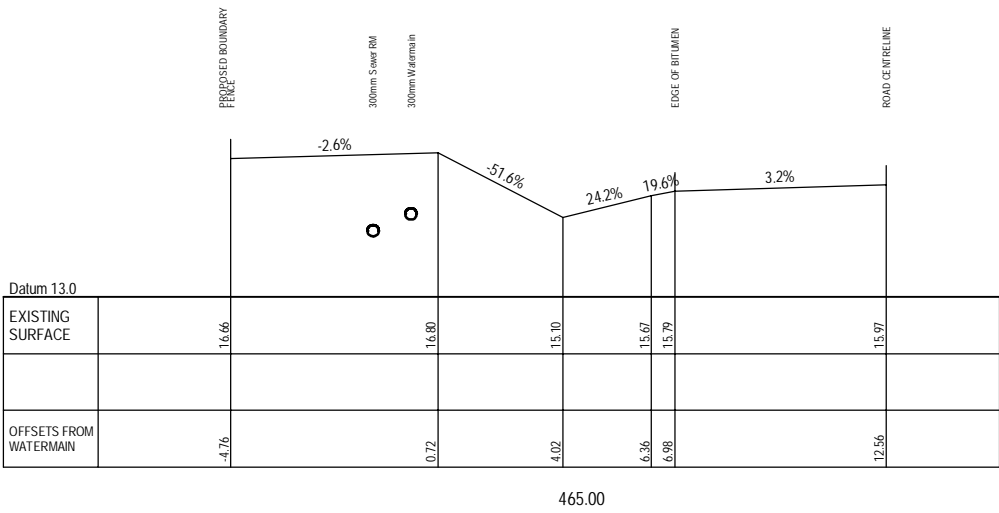
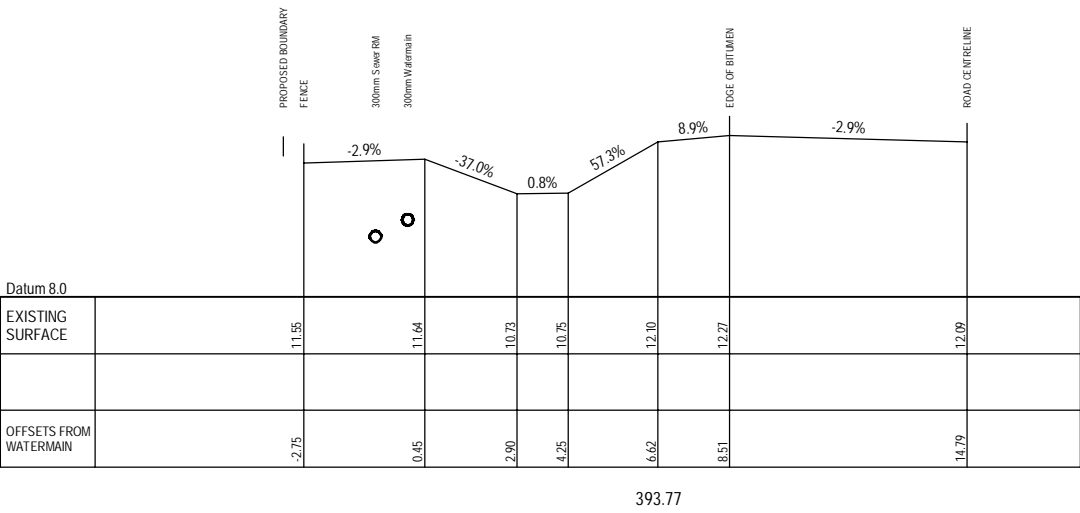
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HORIZONTAL SCALE 1:100 @ A1

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VERTICAL SCALE 1:100 @ A1

NOTE: CHAINAGES RELATE TO WATERMAIN  
LONGITUDINAL SECTION

REV.	DATE	DESCRIPTION
A	18.04.2016	ISSUED FOR CC APPROVAL

PROJECT NO:	5809	DRAWING TITLE:	CROSS SECTIONS - SEWER & WATERMAIN CH285 - 360
DA NO:	2012-305	PROJECT:	SANCROX EMPLOYMENT PRECINCT STAGE 1 LOT 2 DP222740 SANCROX ROAD SANCROX
DESIGNED BY:	MW	CLIENT:	EXPRESSWAY SPARES PTY LTD
DRAWN BY:	MM	DRAWING NO:	5809E Wamburn Sections
CHECKED BY:	MW	SHEET:	13
DATE CREATED:	SEPT 2015	REVISION:	A



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HORIZONTAL SCALE 1:100 @ A1

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VERTICAL SCALE 1:100 @ A1

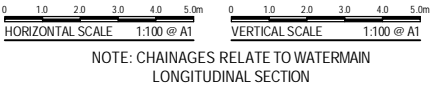
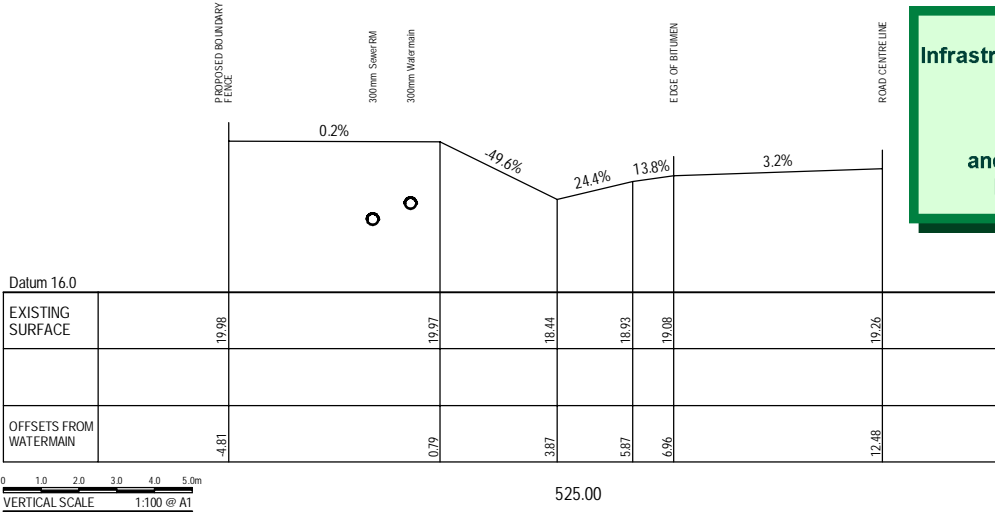
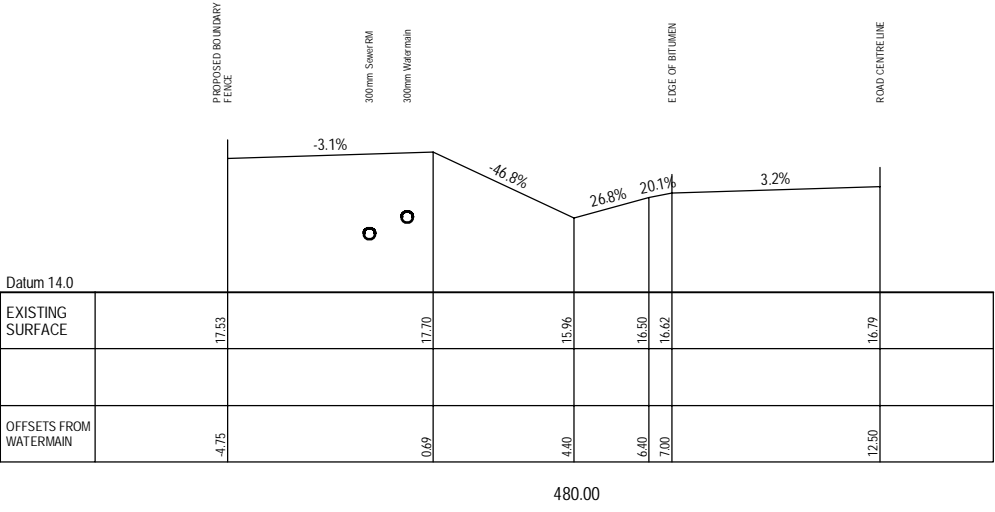
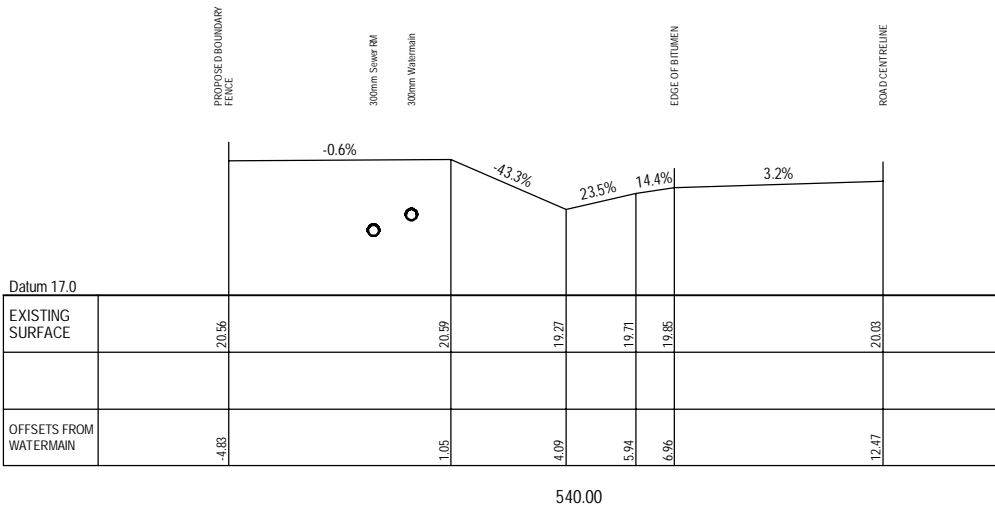
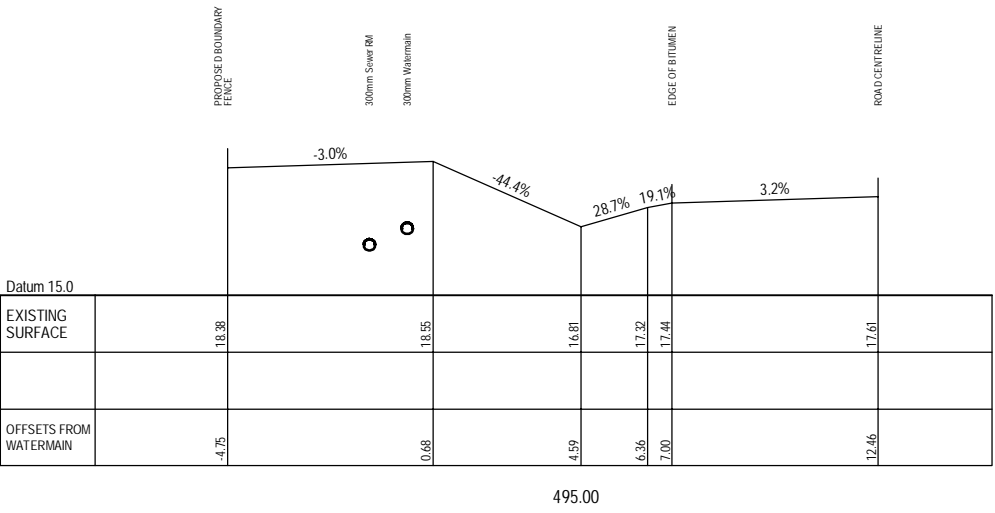
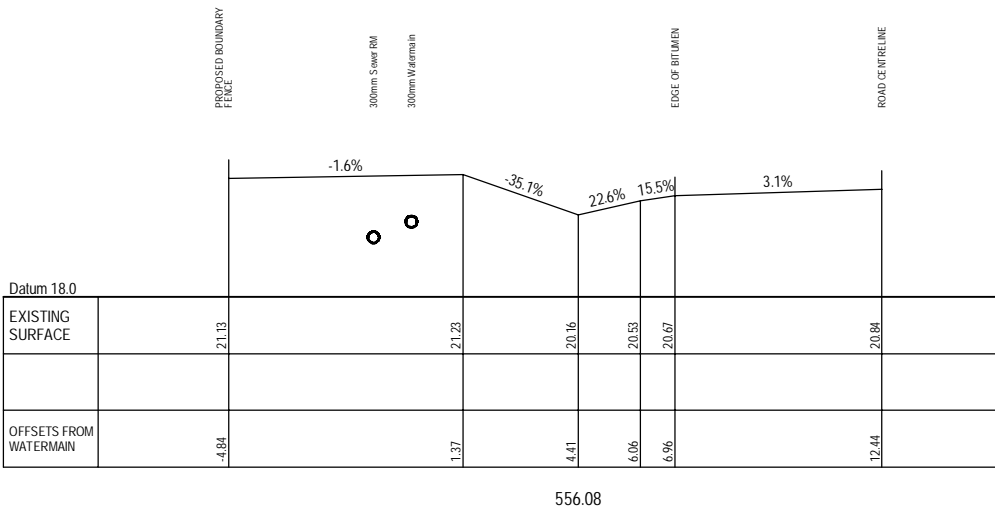
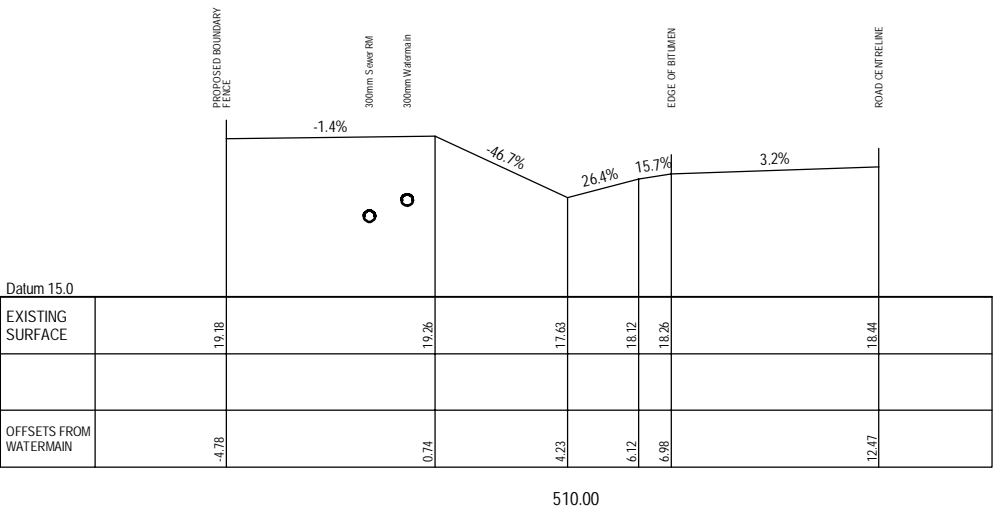
NOTE: CHAINAGES RELATE TO WATERMAIN  
LONGITUDINAL SECTION

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A	18.04.2016	ISSUED FOR CC APPROVAL	

DATUM:	AHD	SCALE:	AS SHOWN
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PROJECT NO:	5809	DRAWING TITLE:	CROSS SECTIONS - SEWER & WATERMAIN CH 375 - 465			
DA NO:	2012-305	PROJECT:	SANCROX EMPLOYMENT PRECINCT STAGE 1 LOT 2 DP222740 SANCROX ROAD SANCROX			
DESIGNED BY:	MW	CLIENT:	EXPRESSWAY SPARES PTY LTD			
DRAWN BY:	MM	DRAWING NO:	5809E Wamburn Sections	SHEET:	14	REVISION:
CHECKED BY:	MW					A
DATE CREATED:	SEPT 2015					



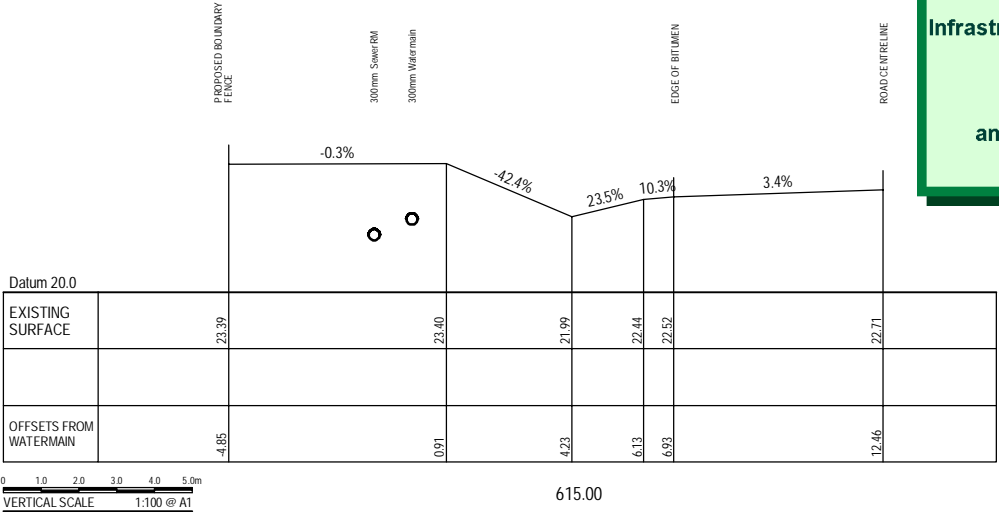
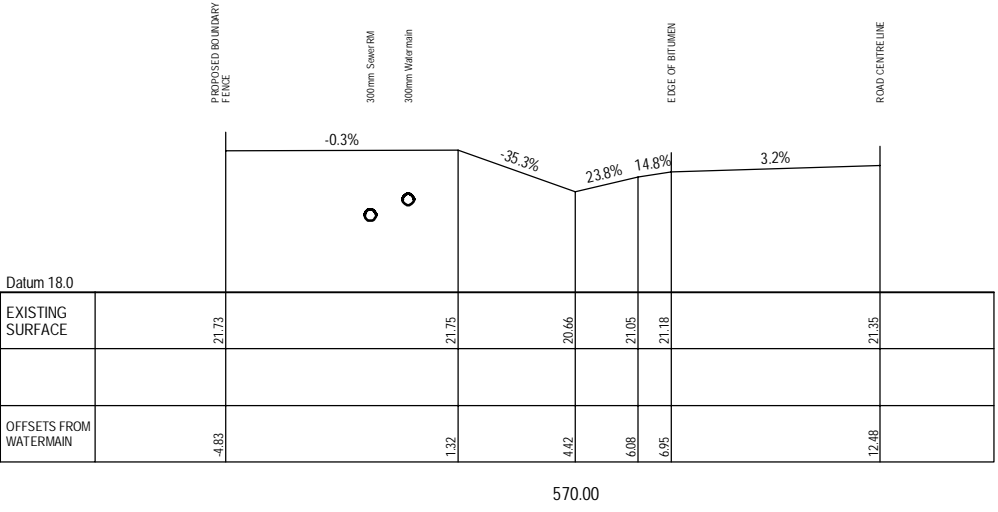
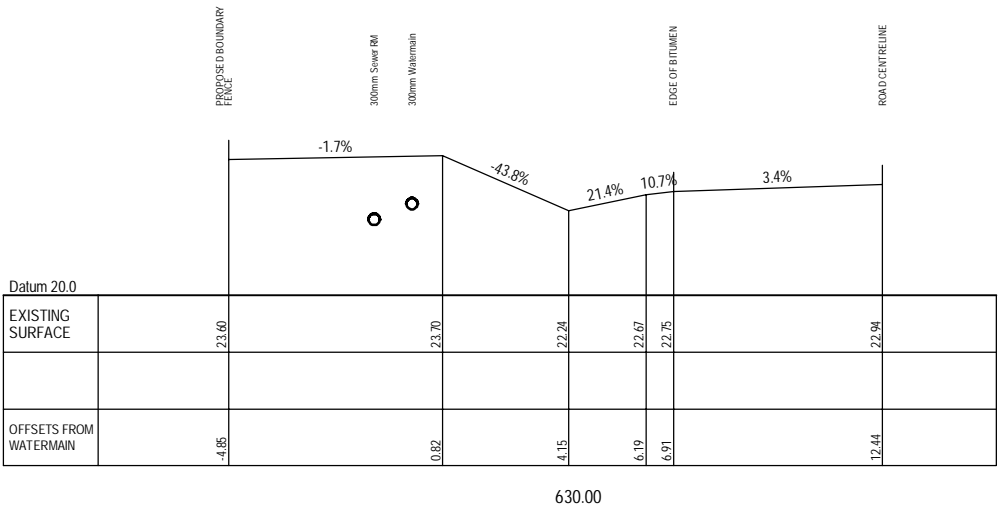
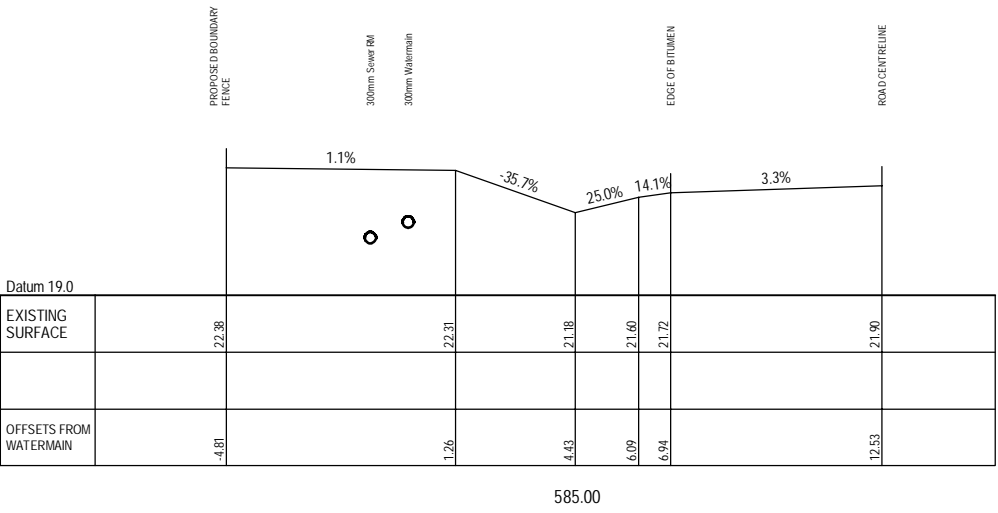
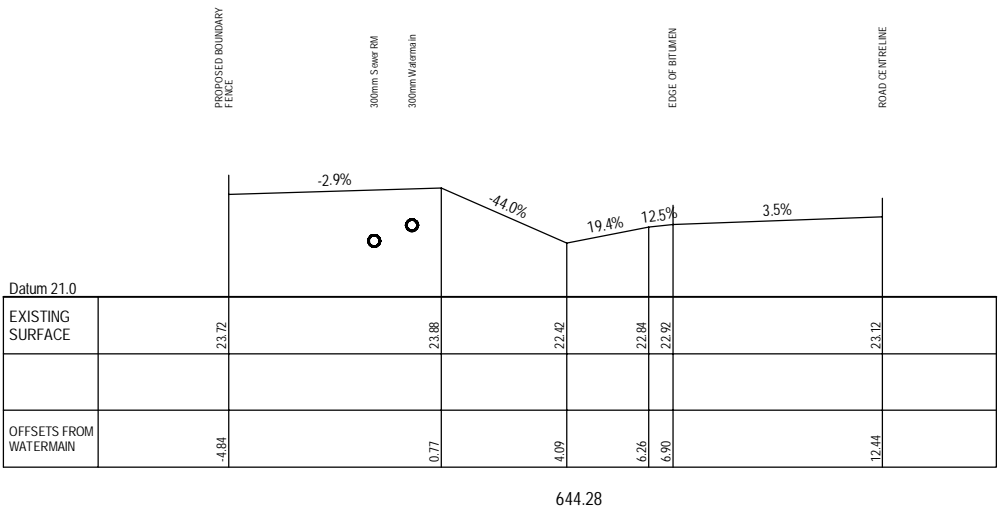
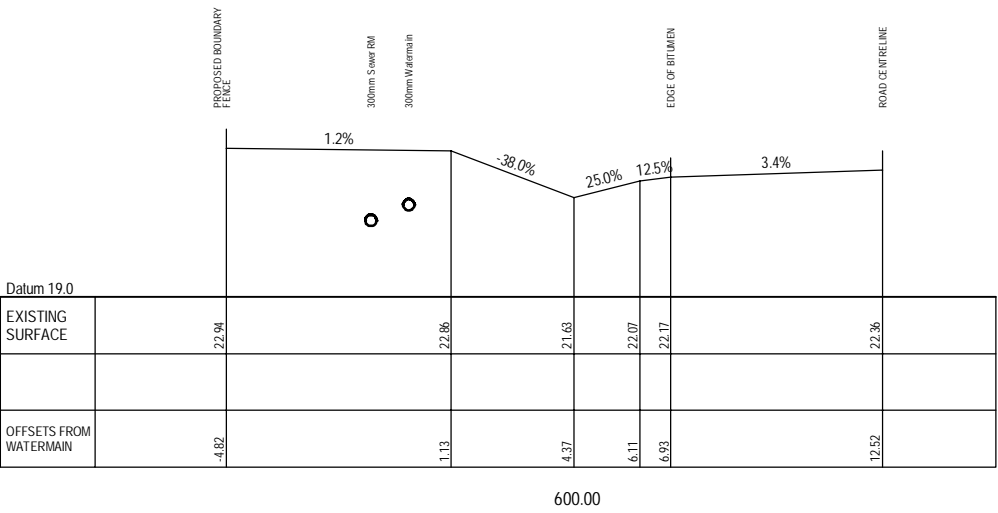
These are the plans referred to in  
Infrastructure Construction Certificate Application No.:  
  
17.2012.0305.02  
  
and determined as APPROVED on: 26/05/2016  
PORT MACQUARIE-HASTINGS COUNCIL

REV.	DATE	DESCRIPTION	MM
A	18.04.2016	ISSUED FOR CC APPROVAL	

DATUM:	AHD	SCALE:	AS SHOWN
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PROJECT NO:	5809	DRAWING TITLE:	CROSS SECTIONS - SEWER & WATERMAIN CH480 - CH556.08			
DA NO:	2012-305	PROJECT:	SANCROX EMPLOYMENT PRECINCT STAGE 1 LOT 2 DP222740 SANCROX ROAD SANCROX			
DESIGNED BY:	MW	CLIENT:	EXPRESSWAY SPARES PTY LTD	DRAWING NO:	SHEET:	REVISION:
DRAWN BY:	MM			5809E Wamburn Sections	15	A
CHECKED BY:	MW					
DATE CREATED:	SEPT 2015					





0 1.0 2.0 3.0 4.0 5.0m  
HORIZONTAL SCALE 1:100 @ A1

0 1.0 2.0 3.0 4.0 5.0m  
VERTICAL SCALE 1:100 @ A1

NOTE: CHAINAGES RELATE TO WATERMAIN  
LONGITUDINAL SECTION

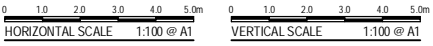
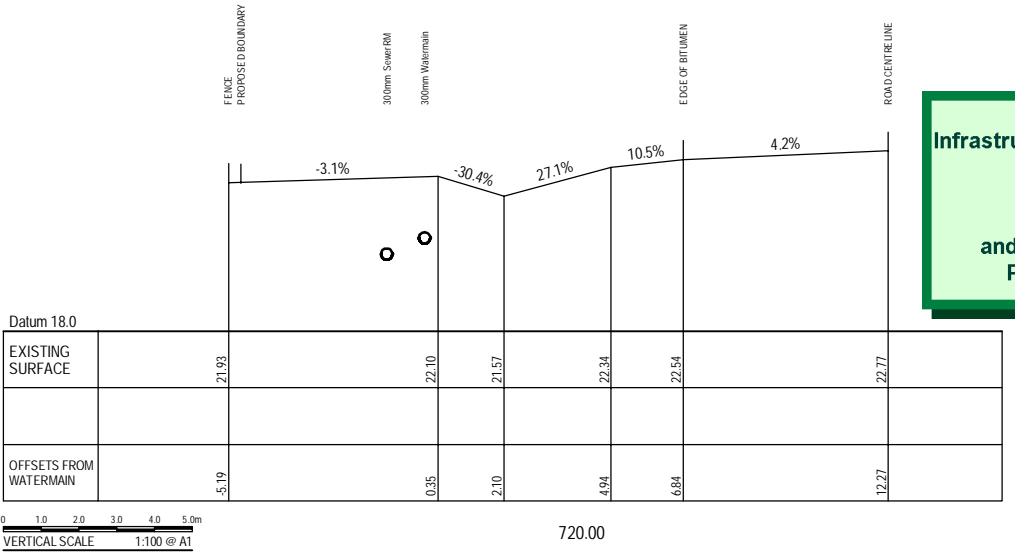
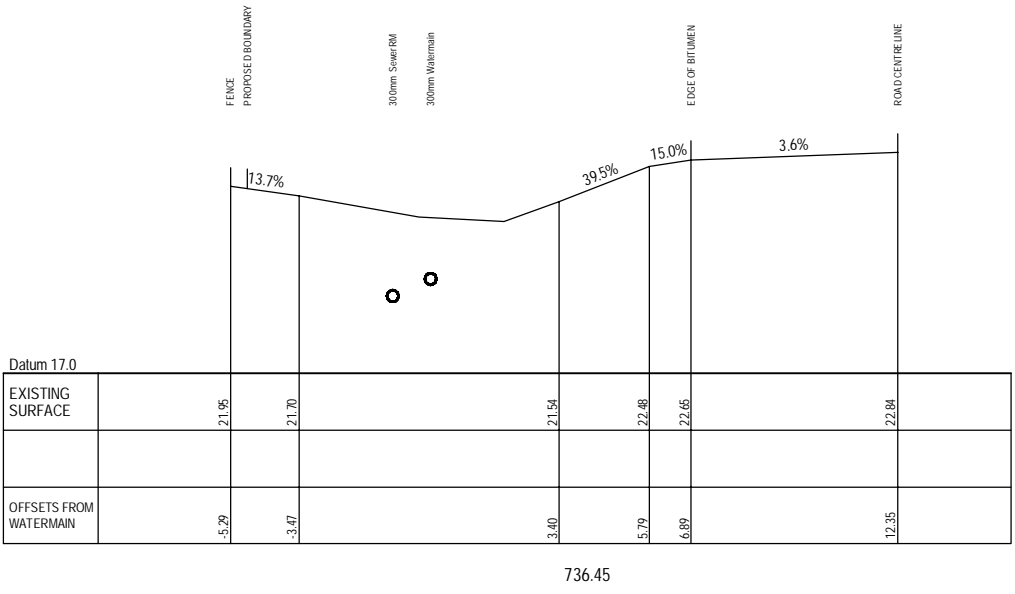
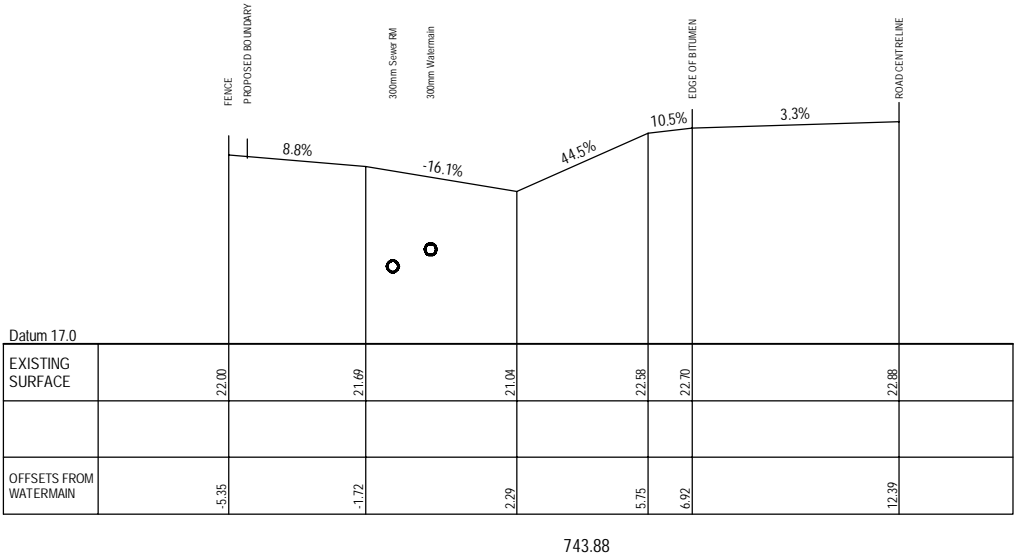
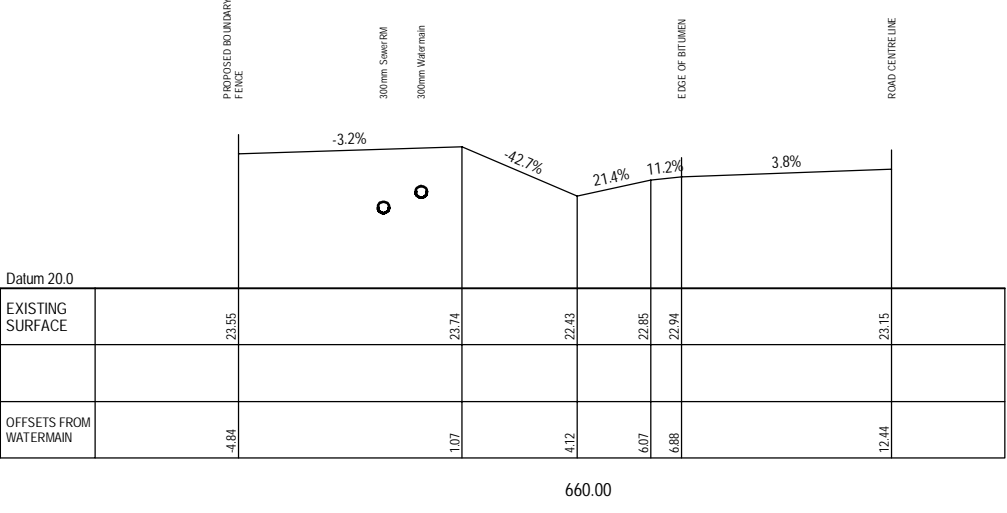
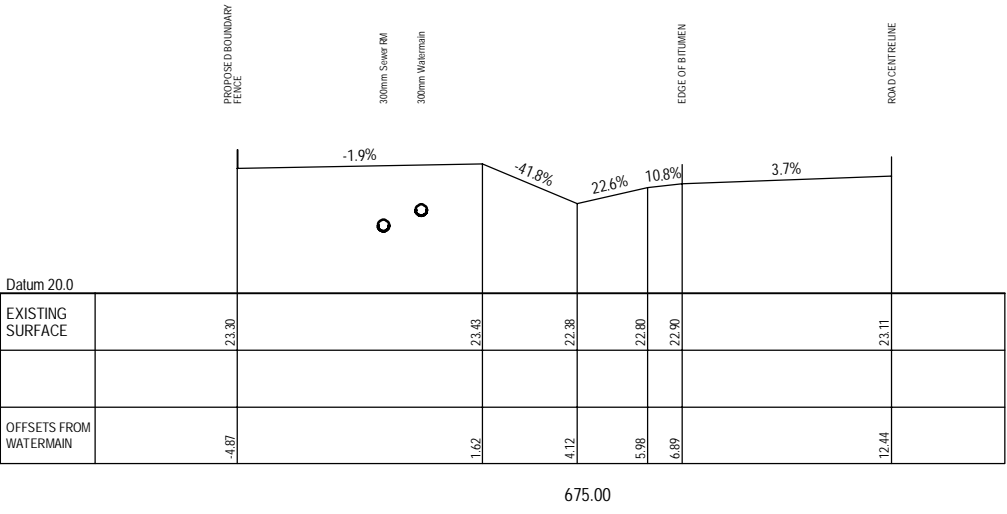
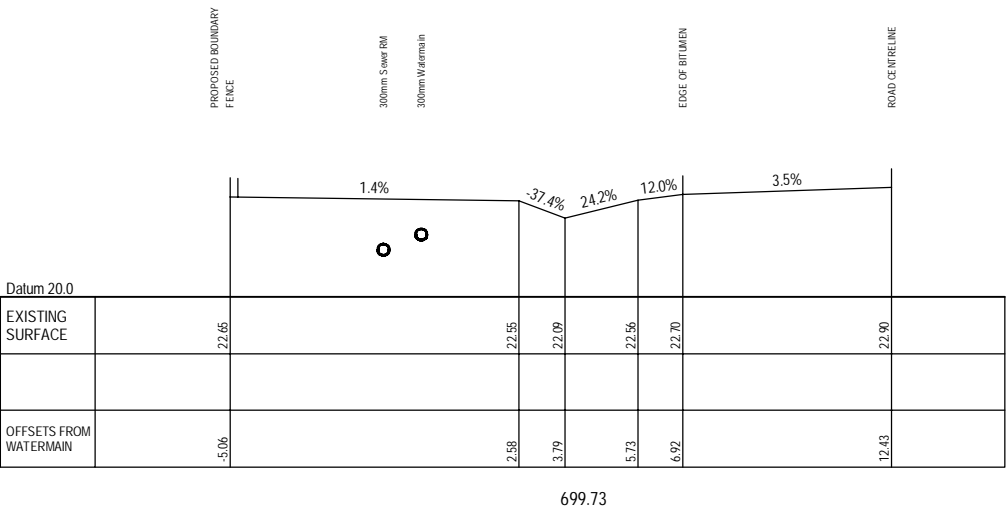
These are the plans referred to in  
Infrastructure Construction Certificate Application No.:  
  
17.2012.0305.02  
  
and determined as APPROVED on: 26/05/2016  
PORT MACQUARIE-HASTINGS COUNCIL

REV.	DATE	DESCRIPTION
A	18.04.2016	ISSUED FOR CC APPROVAL

DATUM: AHD SCALE: AS SHOWN

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PROJECT NO:	5809	DRAWING TITLE:	CROSS SECTIONS - SEWER & WATERMAIN CH570 - CH644.28
DA NO:	2012-305	PROJECT:	SANCROX EMPLOYMENT PRECINCT STAGE 1 LOT 2 DP222740 SANCROX ROAD SANCROX
DESIGNED BY:	MW	CLIENT:	EXPRESSWAY SPARES PTY LTD
DRAWN BY:	MM	DRAWING NO:	5809E Wamburn Sections
CHECKED BY:	MW	SHEET:	16
DATE CREATED:	SEPT 2015	REVISION:	A



NOTE: CHAINAGES RELATE TO WATERMAIN  
LONGITUDINAL SECTION

These are the plans referred to in  
Infrastructure Construction Certificate Application No.:

17.2012.0305.02

and determined as APPROVED on: 26/05/2016  
PORT MACQUARIE-HASTINGS COUNCIL

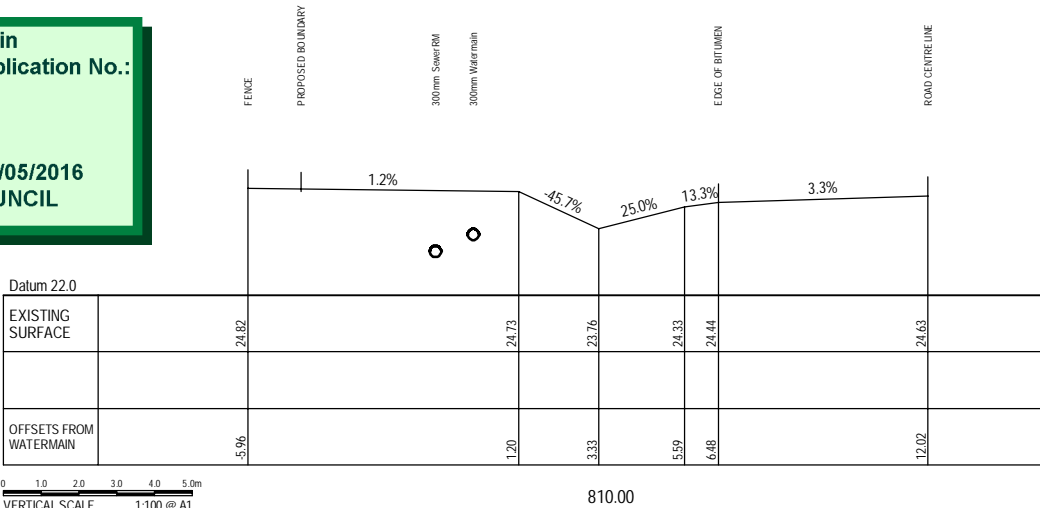
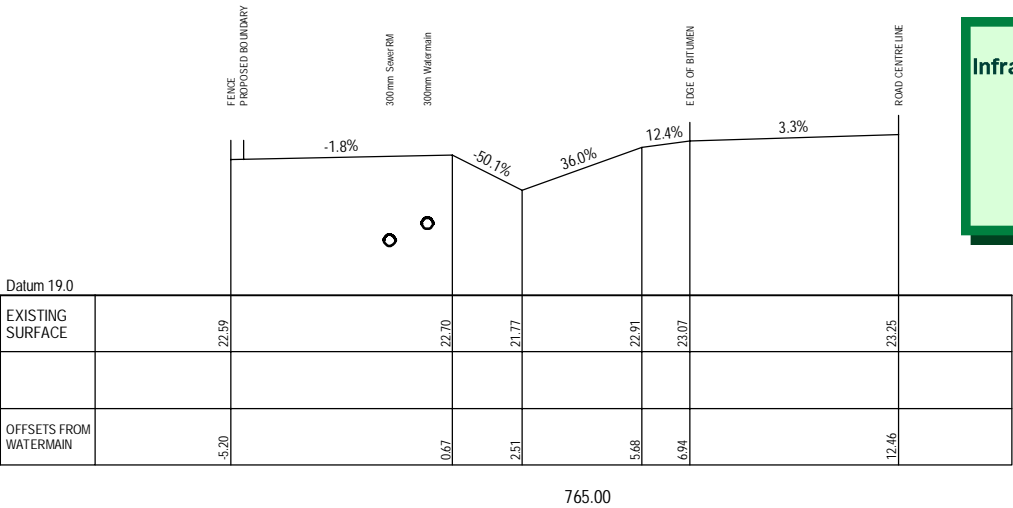
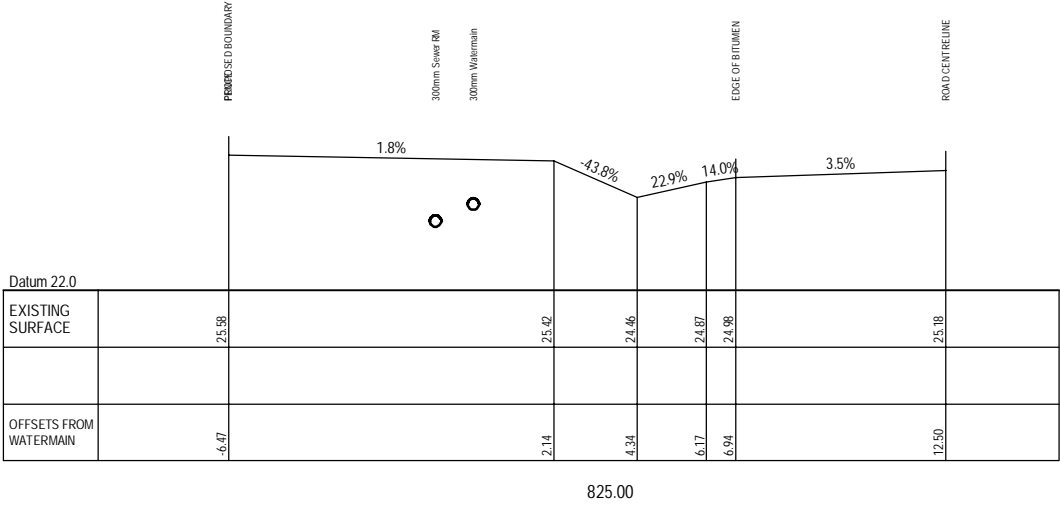
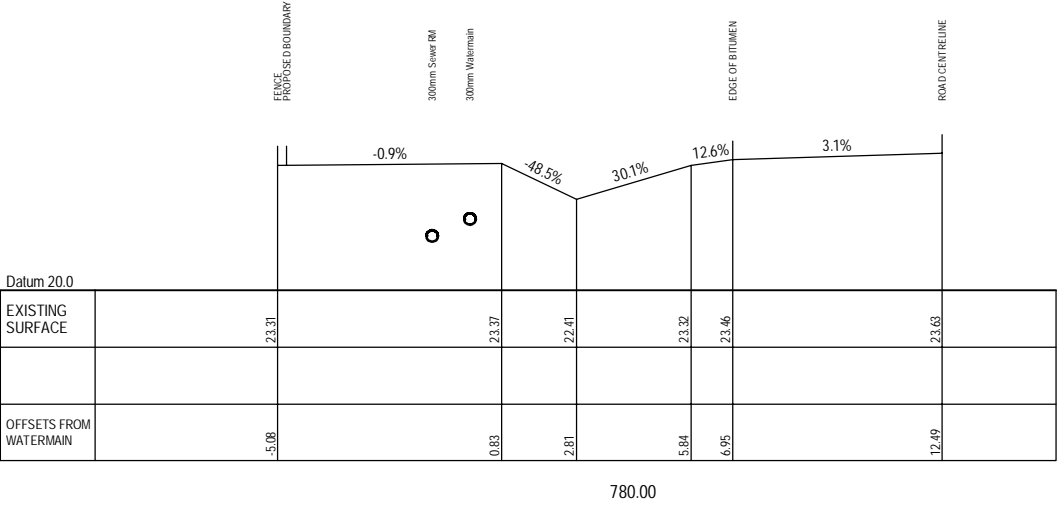
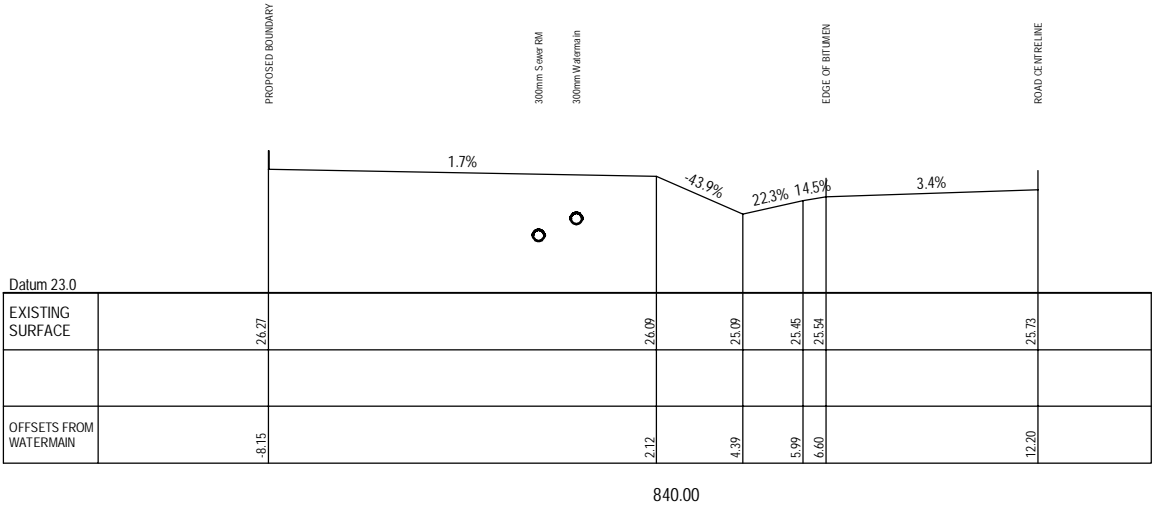
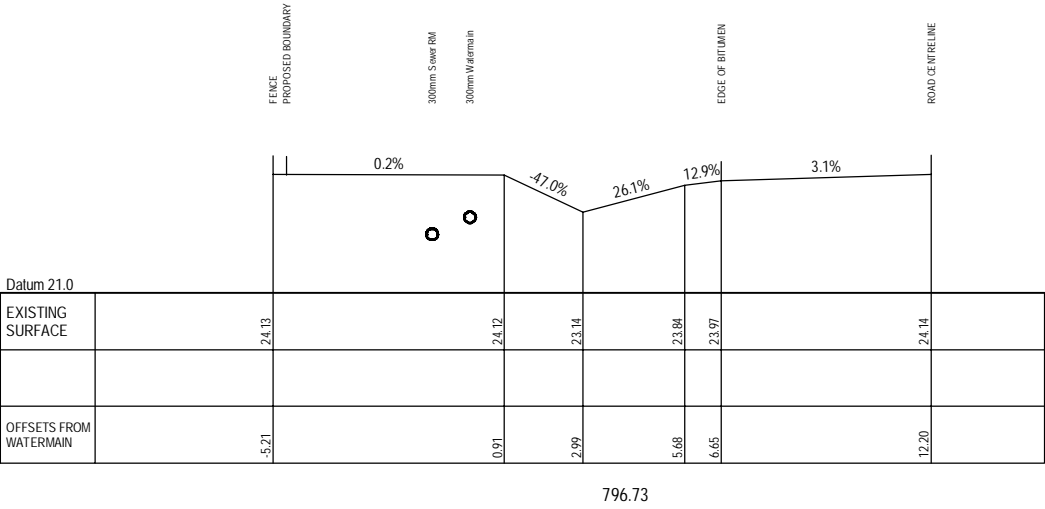
REV.	DATE	DESCRIPTION	MM
A	18.04.2016	ISSUED FOR CC APPROVAL	

DATUM: AHD

SCALE: AS SHOWN

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PROJECT NO:	5809	DRAWING TITLE:	CROSS SECTIONS - SEWER & WATERMAIN CH660 - CH743.88			
DA NO:	2012-305	PROJECT:	SANCROX EMPLOYMENT PRECINCT STAGE 1 LOT 2 DP222740 SANCROX ROAD SANCROX			
DESIGNED BY:	MW	CLIENT:	EXPRESSWAY SPARES PTY LTD			
DRAWN BY:	MM	DRAWING NO:	5809E Wamburn Sections	SHEET:	17	REVISION:
CHECKED BY:	MW					A
DATE CREATED:	SEPT 2015					



These are the plans referred to in  
Infrastructure Construction Certificate Application No.:  
  
17.2012.0305.02  
  
and determined as APPROVED on: 26/05/2016  
PORT MACQUARIE-HASTINGS COUNCIL

0 1.0 2.0 3.0 4.0 5.0m  
HORIZONTAL SCALE 1:100 @ A1  
0 1.0 2.0 3.0 4.0 5.0m  
VERTICAL SCALE 1:100 @ A1  
NOTE: CHAINAGES RELATE TO WATERMAIN  
LONGITUDINAL SECTION

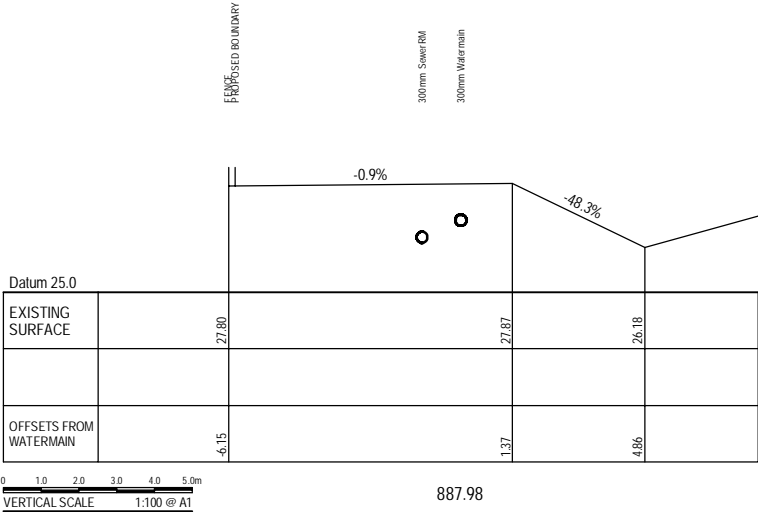
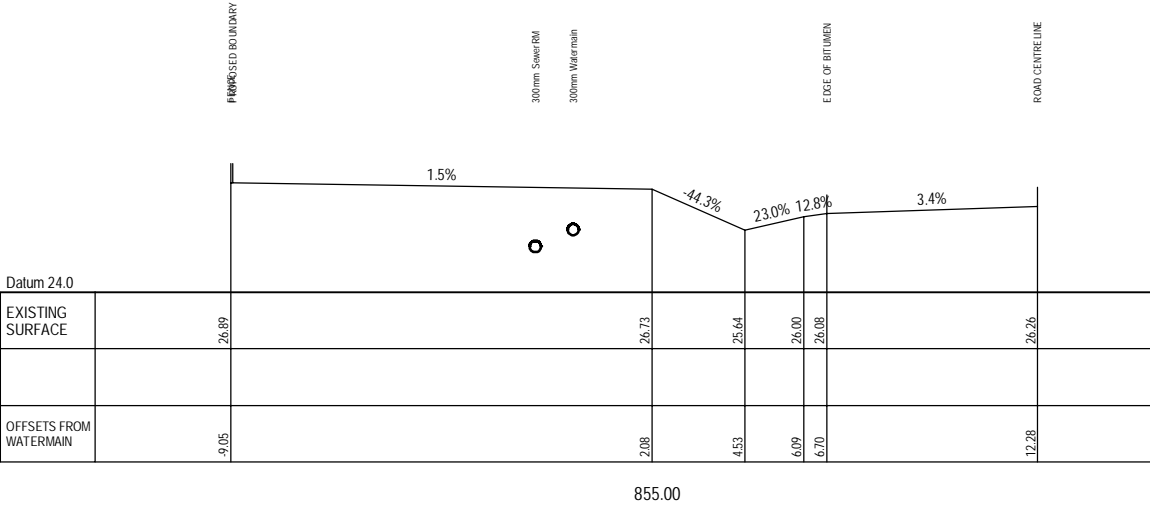
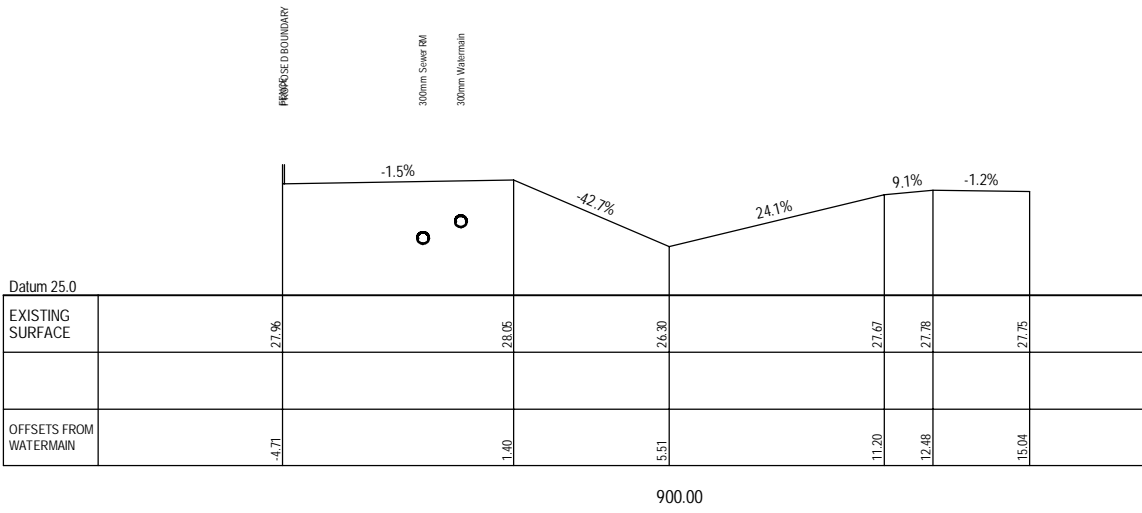
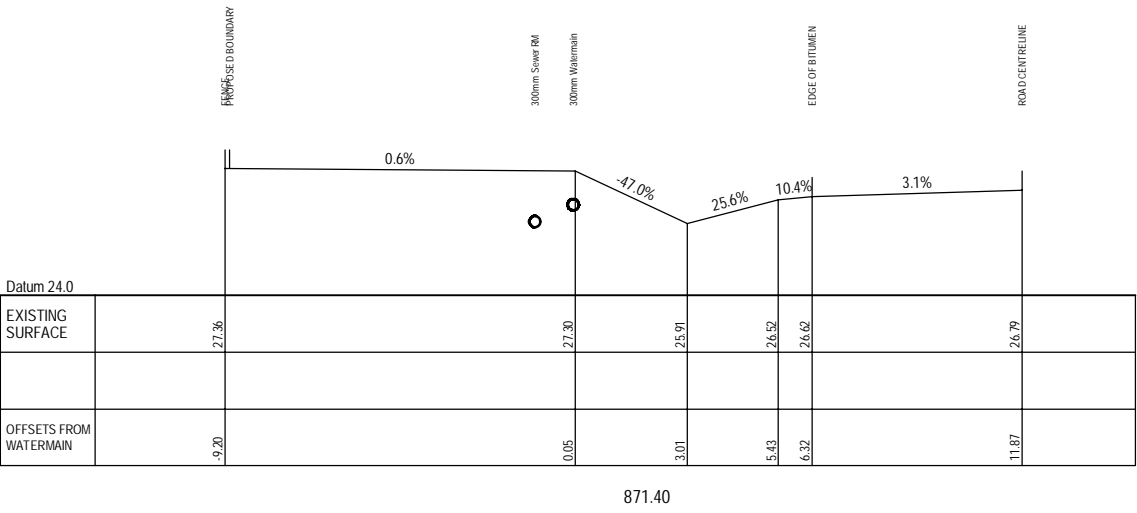
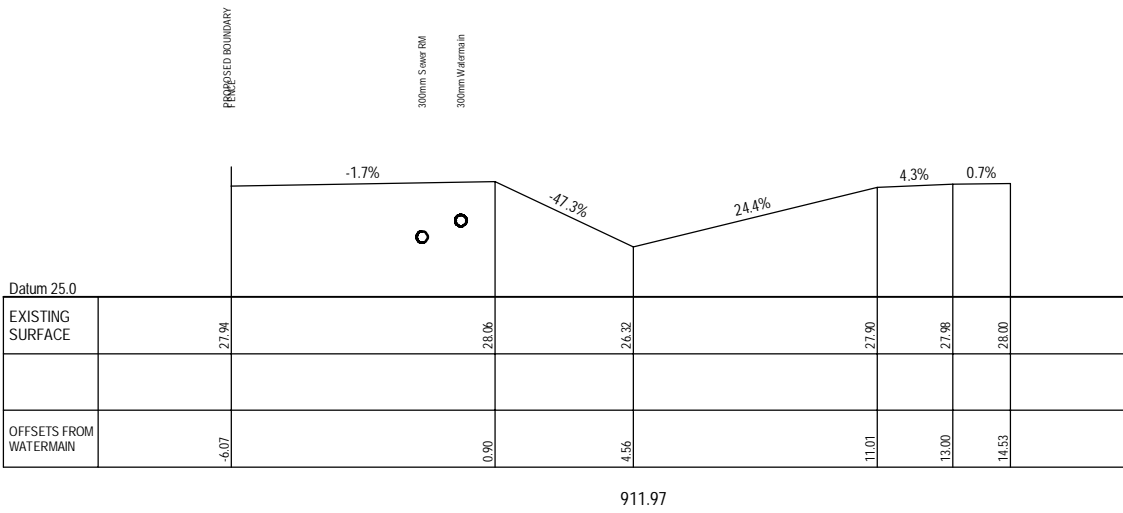
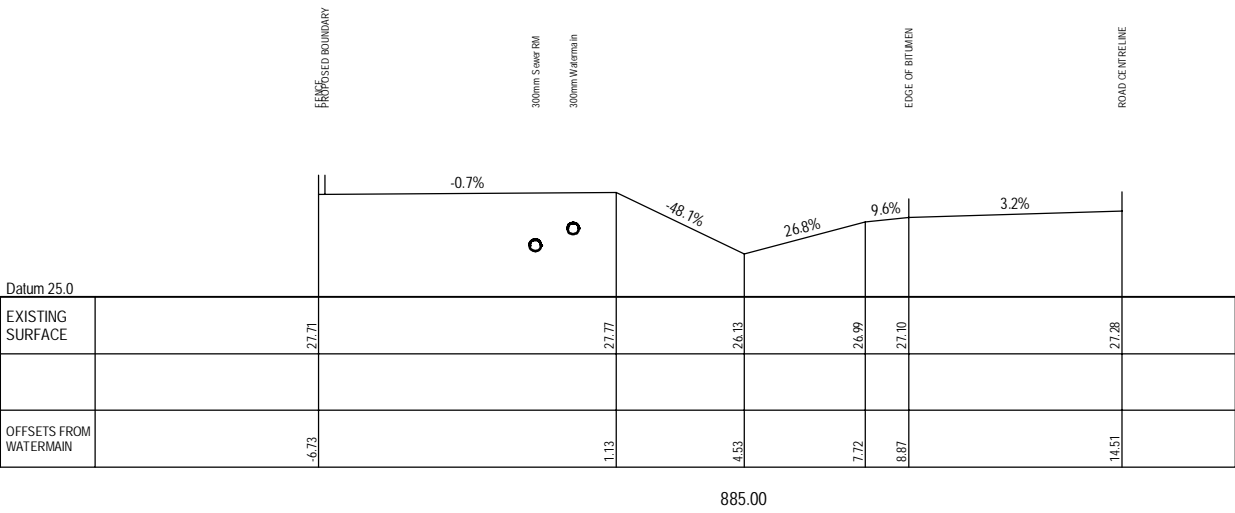
REV.	DATE	DESCRIPTION	MM
A	18.04.2016	ISSUED FOR CC APPROVAL	

DATUM: AHD SCALE: AS SHOWN

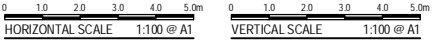
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PROJECT NO:	5809
DA NO:	2012-305
DESIGNED BY:	MW
DRAWN BY:	MM
CHECKED BY:	MW
DATE CREATED:	SEPT 2015

DRAWING TITLE:	CROSS SECTIONS - SEWER & WATERMAIN CH765 - CH840
PROJECT:	SANCROX EMPLOYMENT PRECINCT STAGE 1 LOT 2 DP222740 SANCROX ROAD SANCROX
CLIENT:	EXPRESSWAY SPARES PTY LTD
DRAWING NO:	5809E Wamburn Sections
SHEET:	18
REVISION:	A



These are the plans referred to in  
Infrastructure Construction Certificate Application No.:  
  
17.2012.0305.02  
  
and determined as APPROVED on: 26/05/2016  
PORT MACQUARIE-HASTINGS COUNCIL



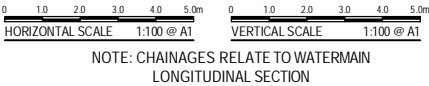
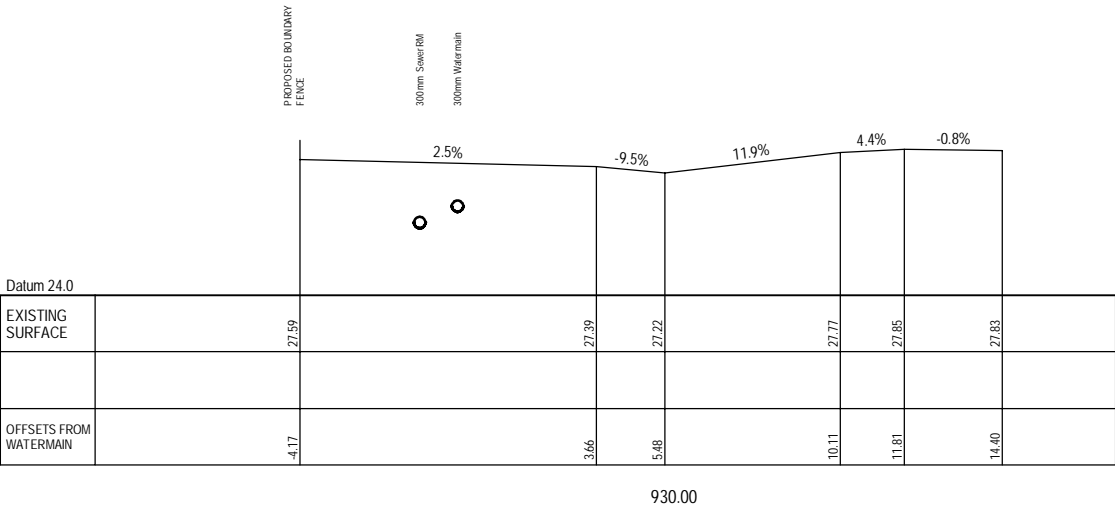
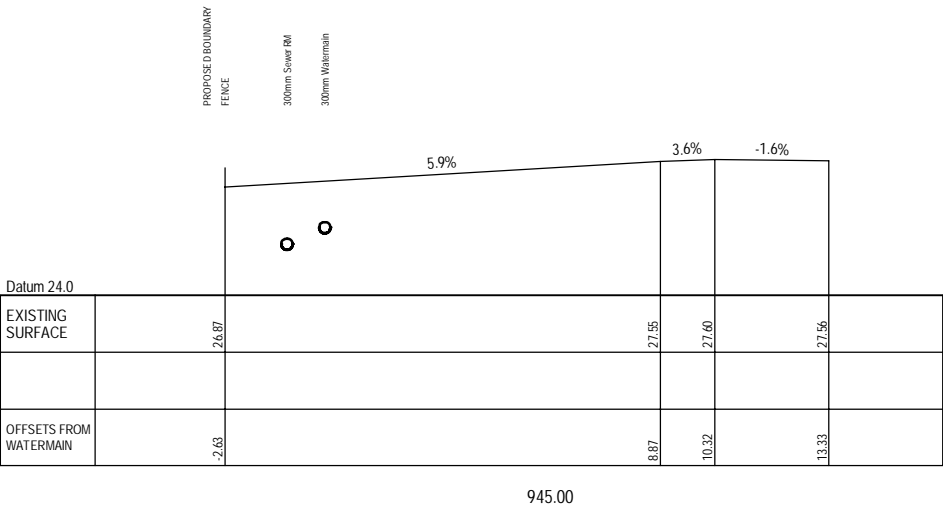
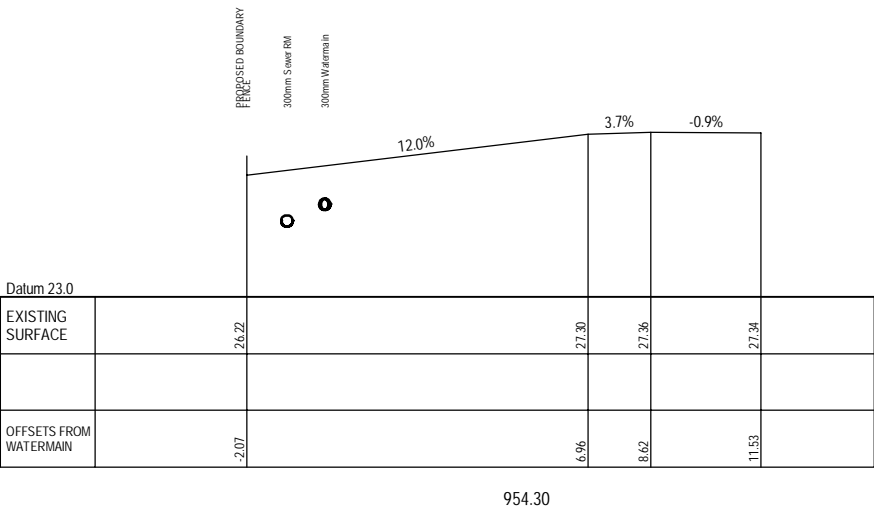
NOTE: CHAINAGES RELATE TO WATERMAIN  
LONGITUDINAL SECTION

REV.	DATE	DESCRIPTION
A	18.04.2016	ISSUED FOR CC APPROVAL

DATUM: AHD  
SCALE: AS SHOWN  
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PROJECT NO:	5809	DRAWING TITLE:	CROSS SECTIONS - SEWER & WATERMAIN CH855 - CH911.97
DA NO:	2012-305	PROJECT:	SANCROX EMPLOYMENT PRECINCT STAGE 1 LOT 2 DP222740 SANCROX ROAD SANCROX
DESIGNED BY:	MW	CLIENT:	EXPRESSWAY SPARES PTY LTD
DRAWN BY:	MM	DRAWING NO:	5809E Wamburn Sections
CHECKED BY:	MW	SHEET:	19
DATE CREATED:	SEPT 2015	REVISION:	A





These are the plans referred to in  
Infrastructure Construction Certificate Application No.:  
  
17.2012.0305.02  
  
and determined as APPROVED on: 26/05/2016  
PORT MACQUARIE-HASTINGS COUNCIL

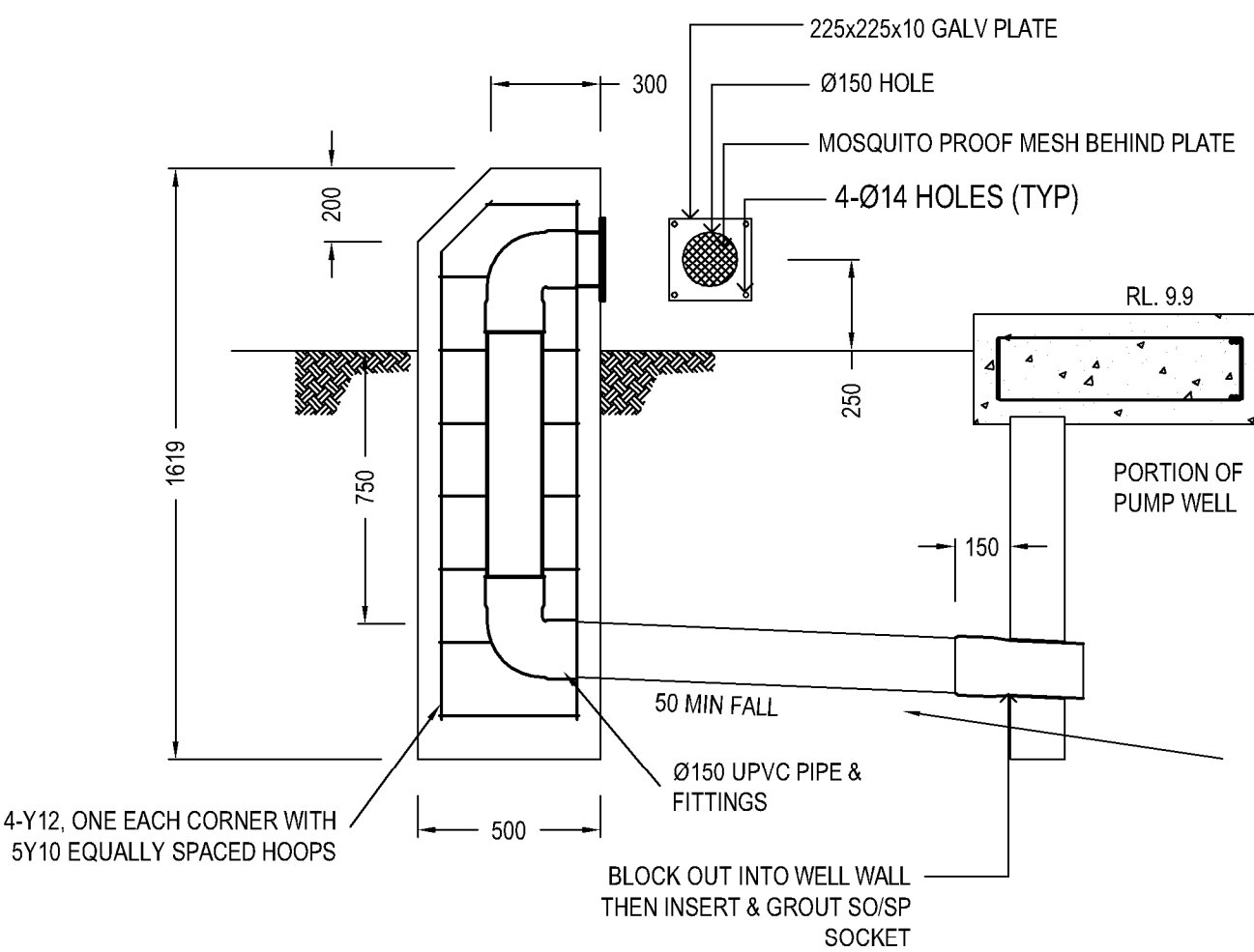
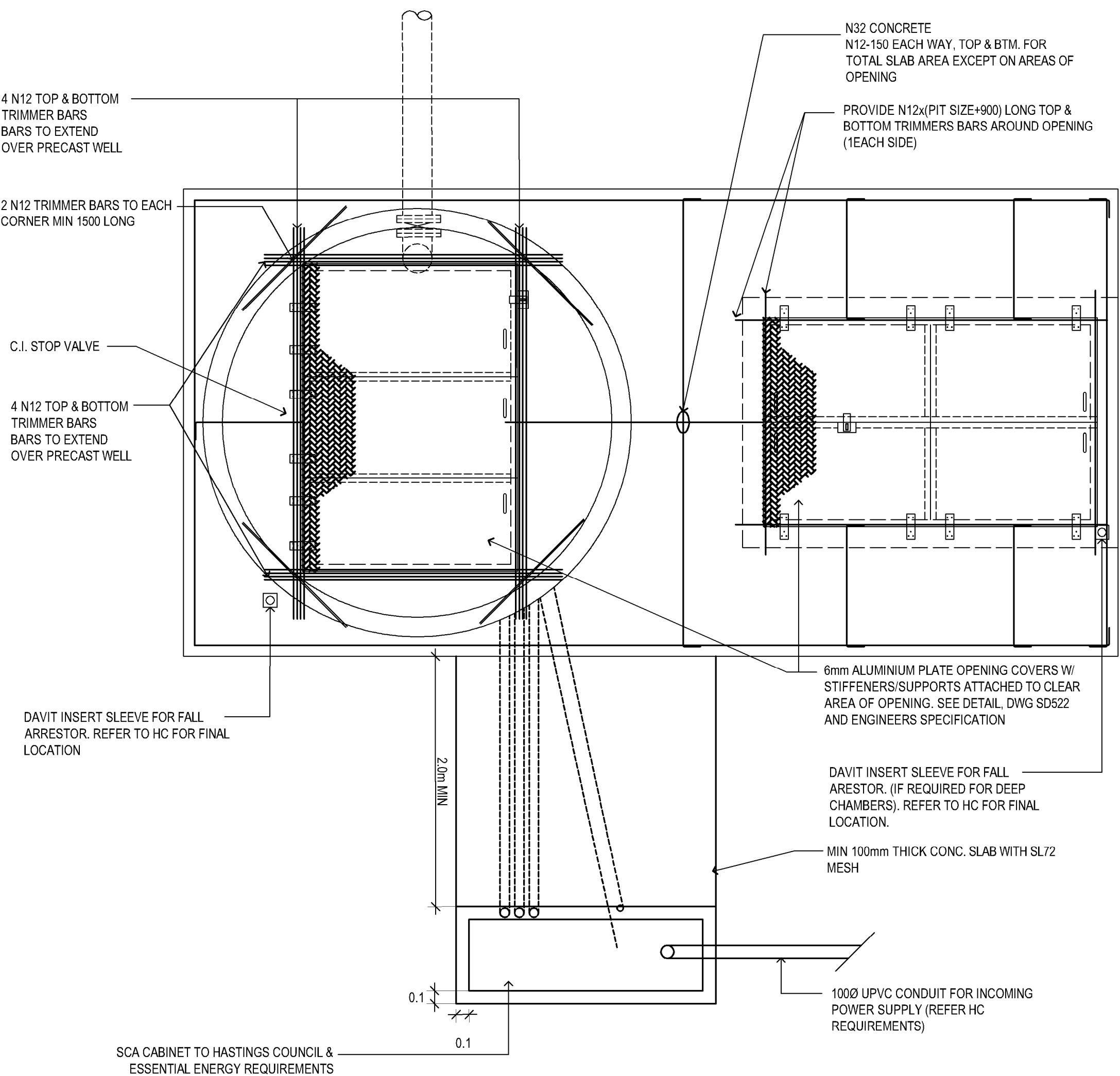
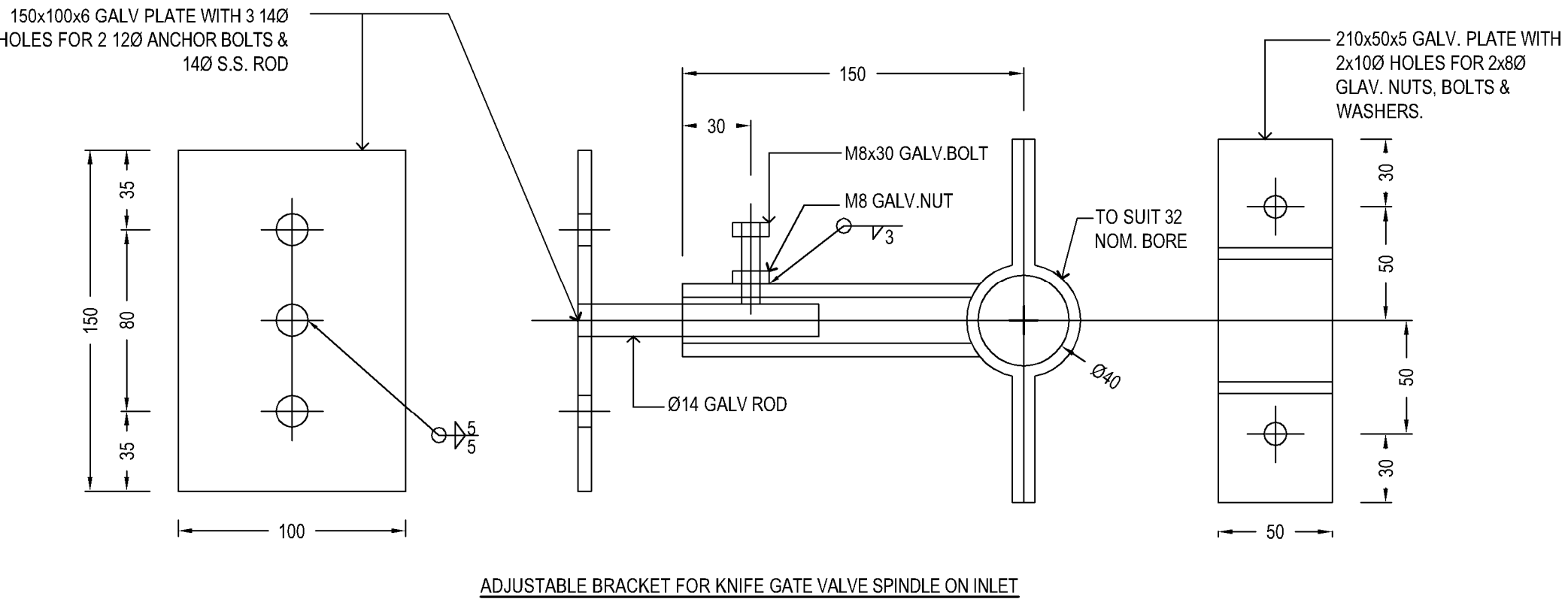
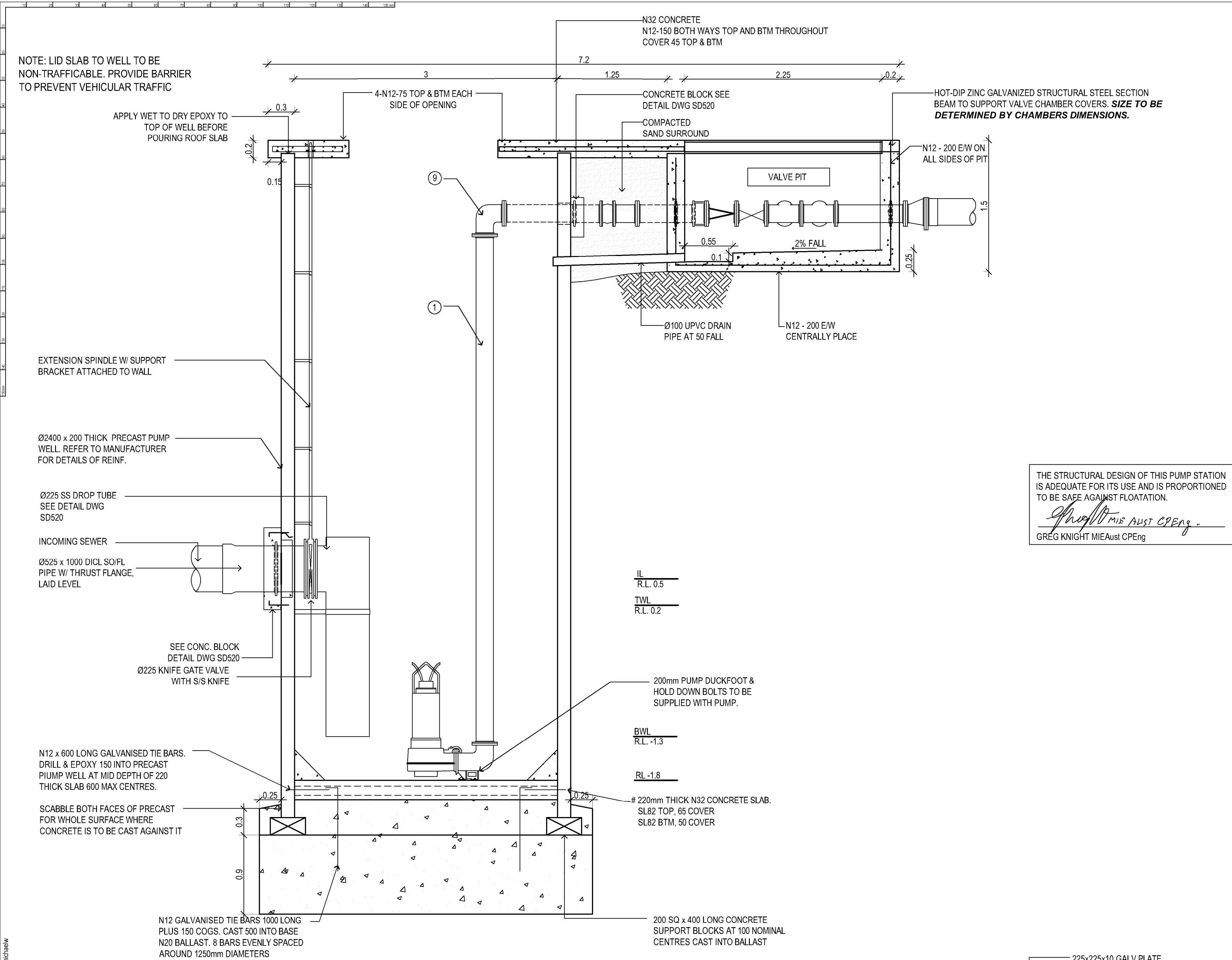
REV.	DATE	DESCRIPTION
A	18.04.2016	ISSUED FOR CC APPROVAL

DATUM: AHD	SCALE: AS SHOWN
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PROJECT NO:	5809	DRAWING TITLE:	CROSS SECTIONS - SEWER & WATERMAIN CH930 - CH954.30			
DA NO:	2012-305	PROJECT:	SANCROX EMPLOYMENT PRECINCT STAGE 1 LOT 2 DP222740 SANCROX ROAD SANCROX			
DESIGNED BY:	MW	CLIENT:	EXPRESSWAY SPARES PTY LTD			
DRAWN BY:	MM	DRAWING NO:	5809E Wamburn Sections	SHEET:	20	REVISION:
CHECKED BY:	MW					A
DATE CREATED:	SEPT 2015					







SECTION 2  
SCALE 1: 20 1

K:\C-REF-03509-ExpresswaySpares-SanctuaryNorth\22\_Engineering\SanctuaryNorth\22\_PumpStation\3809E\_PumpStation\_ASD.dwg A (L) ASD519, 13 May 2016, mclaw

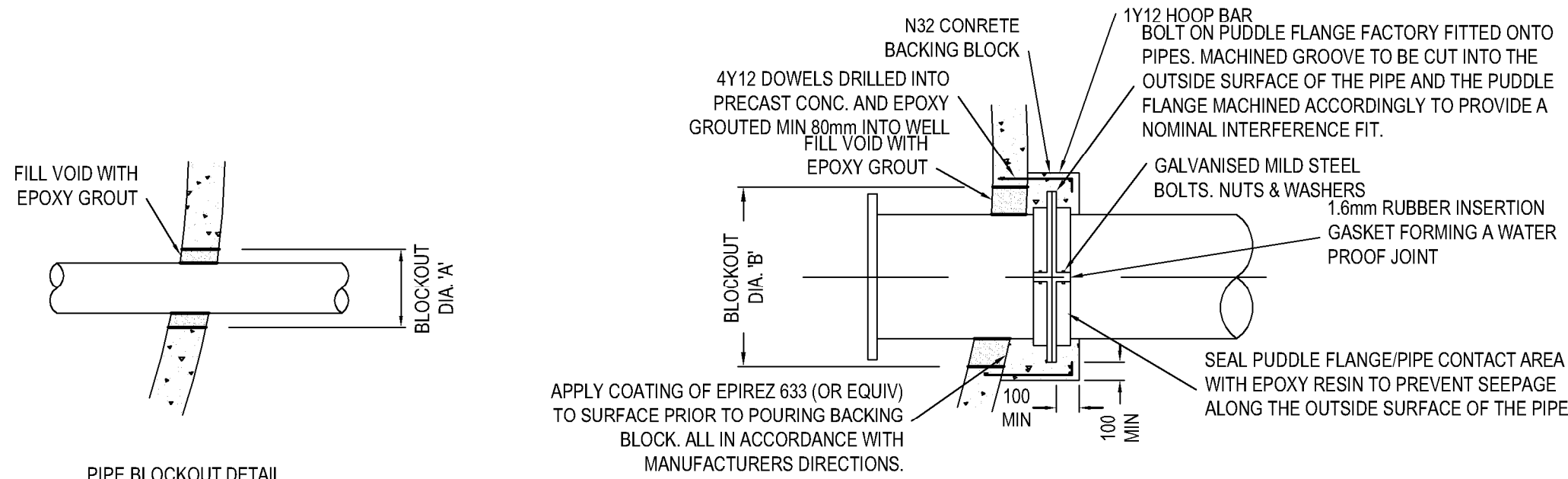
SCHEDULE OF PIPEWORK					TO BE SUPPLIED BY CONTRACTOR PRIOR TO CONSTRUCTION COMMENCING
MARK No.	No. OF	DESCRIPTION	LENGTH	MATERIAL	REMARKS
1	2	Ø200 FL. & FL. PIPE		DICL	
2	2	Ø200 FL. & FL. PIPE W/ THRUST FL.		DICL	
3	2	Ø200 FL. & FL. PIPE (LENGTH TO SUIT)		DICL	
4	2	Ø200 FL. & FL. PIPE W/ THRUST FL.		DICL	
5	2	Ø200 FL. & FL. REFLUX VALVE		DICL	
6	2	Ø200 FLEXIBLE JOINT		DICL	
7	2	Ø200 FL. & FL. STOP VALVE		DICL	
8	2	Ø200 FL. & FL. PIPE W/ THRUST FL.		DICL	
9	3	Ø200 FL. & FL. 90° BEND		DICL	
10	2	Ø200 FL. & FL. THRUST DISMANTLING JOINT		DICL	
11	1	Ø200 FL. & FL. PIPE		DICL	
12	1	Ø200 FL. & FL. BRANCH TEE		DICL	
13	1	Ø200 FL. & FL. BRANCH TEE		DICL	
14	2	Ø200x200 FL. & FL. CONCENTRIC TAPER		DICL	
15	2	Ø200 FL. & FL. STOP VALVE		DICL	

REV.	DATE	DESCRIPTION
A	13.05.2015	ISSUED FOR INFORMATION
B	25.09.2015	CALCULATIONS AMENDED
C	23.11.2015	PIPE SIZE AMENDED

DATUM:	AHD	SCALE:	1:30 @ A1 (1:60 @ A3)
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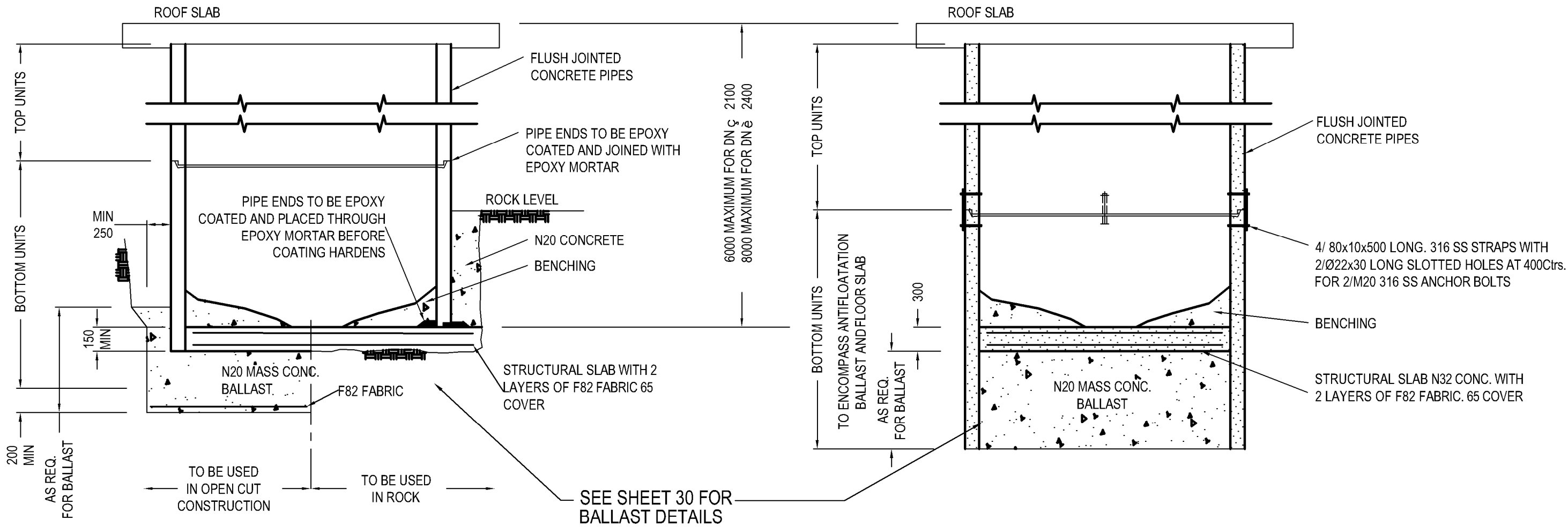
PROJECT NO:	5809	DRAWING TITLE:	PUMPSTATION DETAILS - ASD519
DA NO.:	2012-305	PROJECT:	SANCRUX EMPLOYMENT PRECINCT STAGE 1 LOT 2 DP222740 SANCRUX ROAD SANCRUX
DESIGNED BY:	MM	CLIENT:	EXPRESSWAY SPARES PTY LTD
DRAWN BY:	MM	DRAWING NO:	5809E_PumpStation_ASD
CHECKED BY:	MM	SHEET:	03
DATE CREATED:	SEPT 2015	REVISION:	C





PIPE DIAMETER	BLOCKOUT DIAMETER 'A'	BLOCKOUT DIAMETER 'B'
DN 100 UPVC SWV	175	200
DN 150	180	210
DN 200	240	350
DN 225 UPVC	290	400
DN 250	300	450
DN 300	330	450
DN 375	400	520
DN 450	490	620
DN 500	570	710
DN 600	620	770
DN 750	750	890
DN 900	900	1060

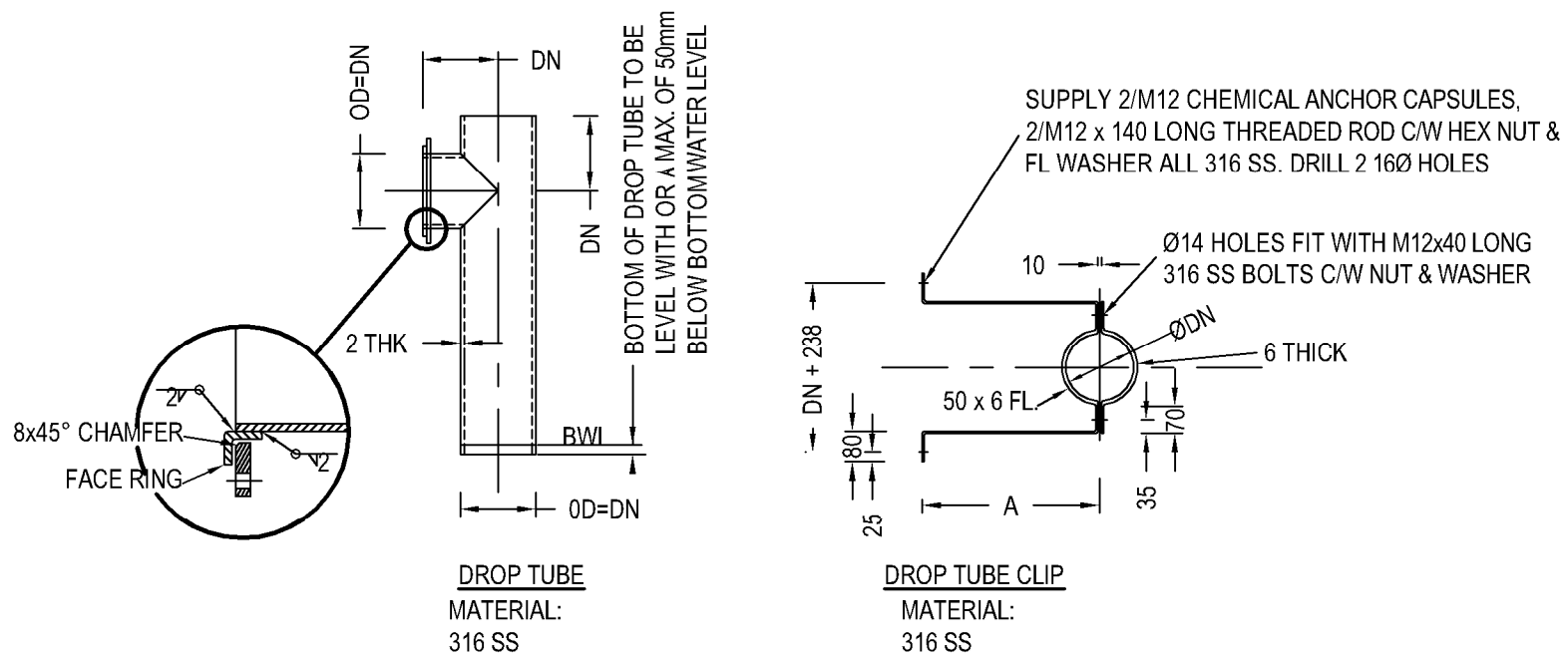
NOTES:  
REPAIR OF BLOCKOUTS:  
1. CLEAN CONCRETE AND PIPE SURFACES AND APPLY COATING OF EPIREZ 633  
2. FILL VOID WITH EPOXY GROUT EPIREZ 633 MIXED WITH QUARTZ SAND. APPLY TO MANUFACTURERS SPECIFICATION.



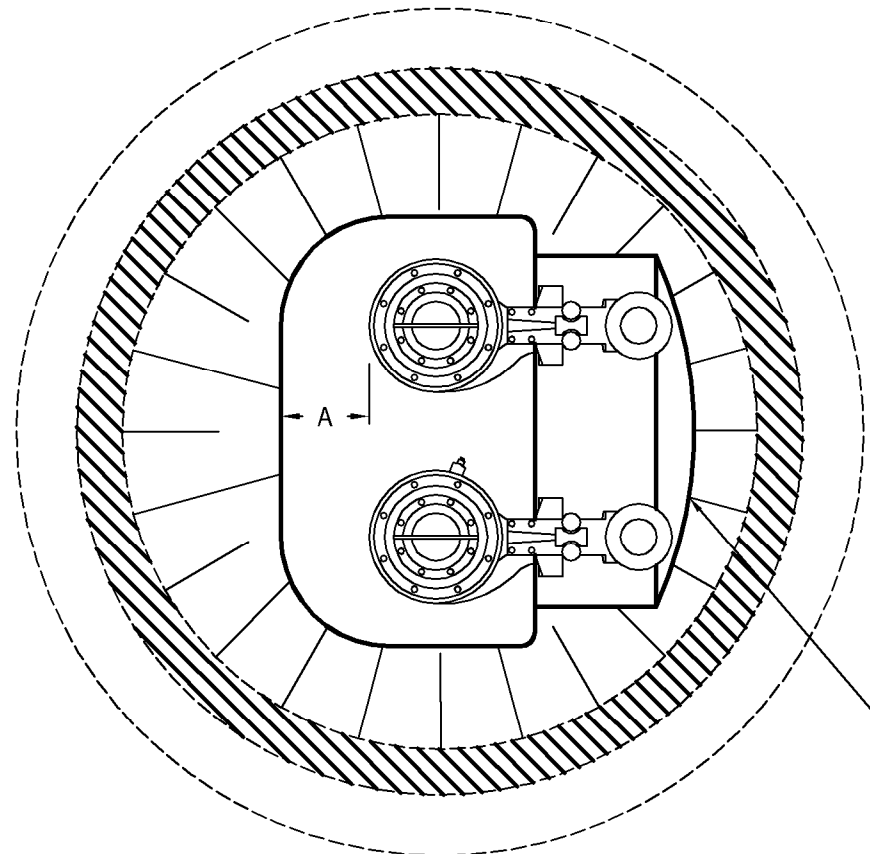
SECTIONAL ELEVATION ON PUMPING STATION  
TO BE USED IN ROCK FOUNDATIONS AND OPEN CUT CONSTRUCTION

SECTIONAL ELEVATION ON PUMPING STATION  
TO BE USED WHEN PRECAST UNITS ARE TO BE SUNK AS CAISSON

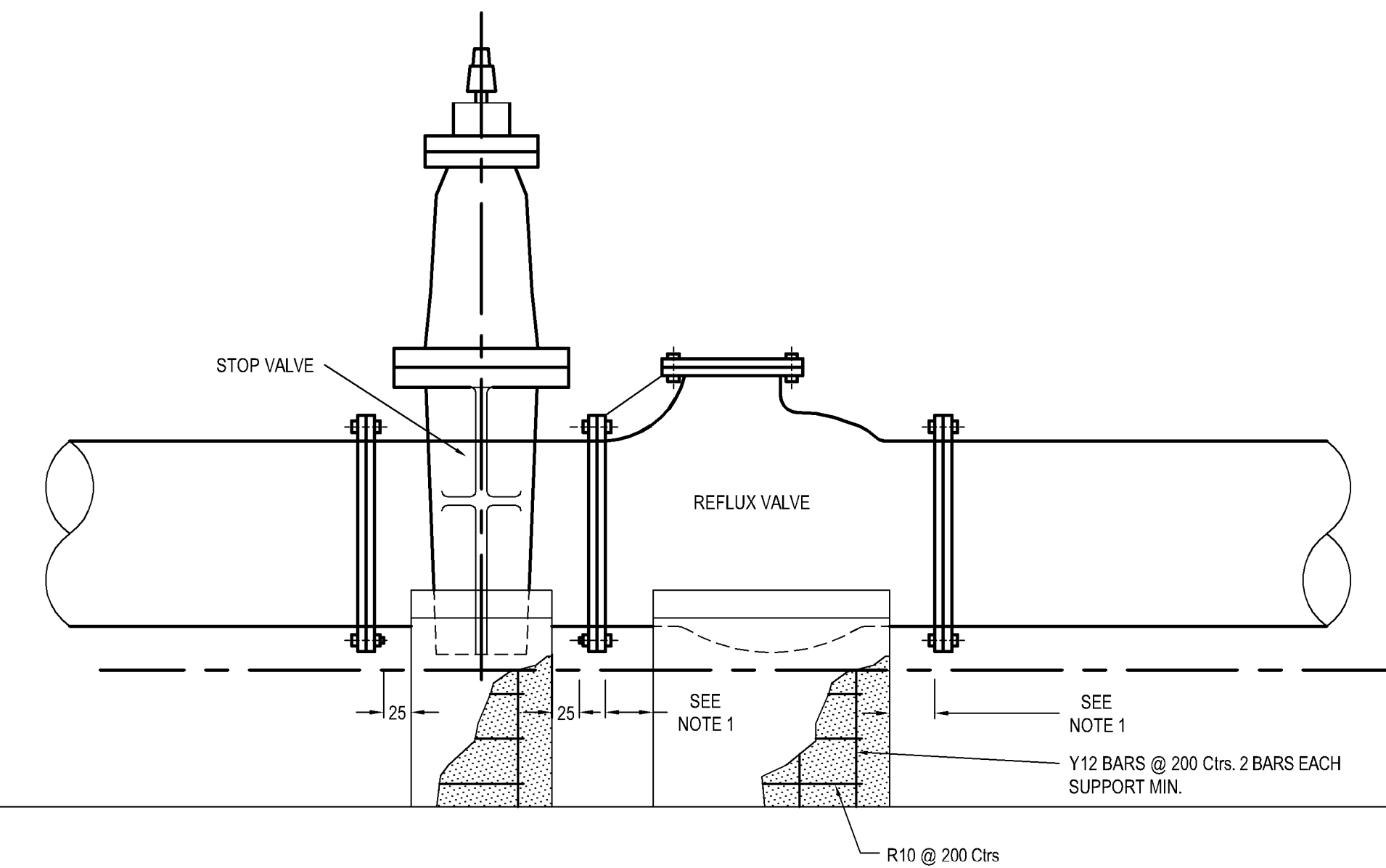
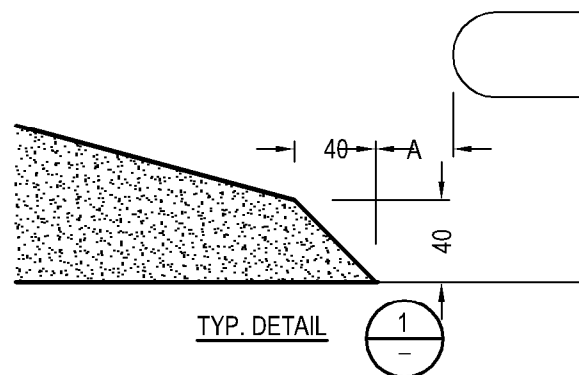
CHOICE OF CONSTRUCTION TECHNIQUE TO BE MADE DEPENDANT  
ON SOIL CONDITION - CONFIRM WITH SITE SUPERINTENDENT  
PRIOR TO CONSTRUCTION COMMENCING.



DROP TUBE		PIPE CLIP
INCOMING SEWER Ø	FACE RING	DIM'N A
150	25x25x3L	340
200	30x30x5L	415
250	30x30x5L	470
300	30x30x5L	555
375	38x38x4.75L	610
450	38x38x4.75L	690
500	38x38x4.75L	800
600	38x38x4.75L	900



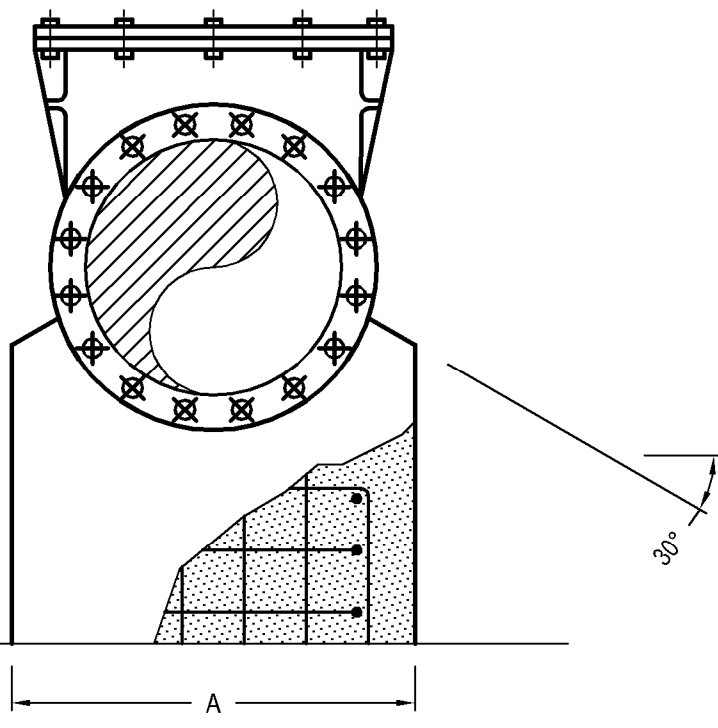
NOTES:  
1) DIMENSION A=PUMP DISCHARGE DIAMETER  
2) DIMENSION D=DROP TUBE DIAMETER  
3) BOTTOM OF DROP TUBE TO BE LEVEL WITH B.W.L. OR A MAXIMUM OF 50 BELOW B.W.L.



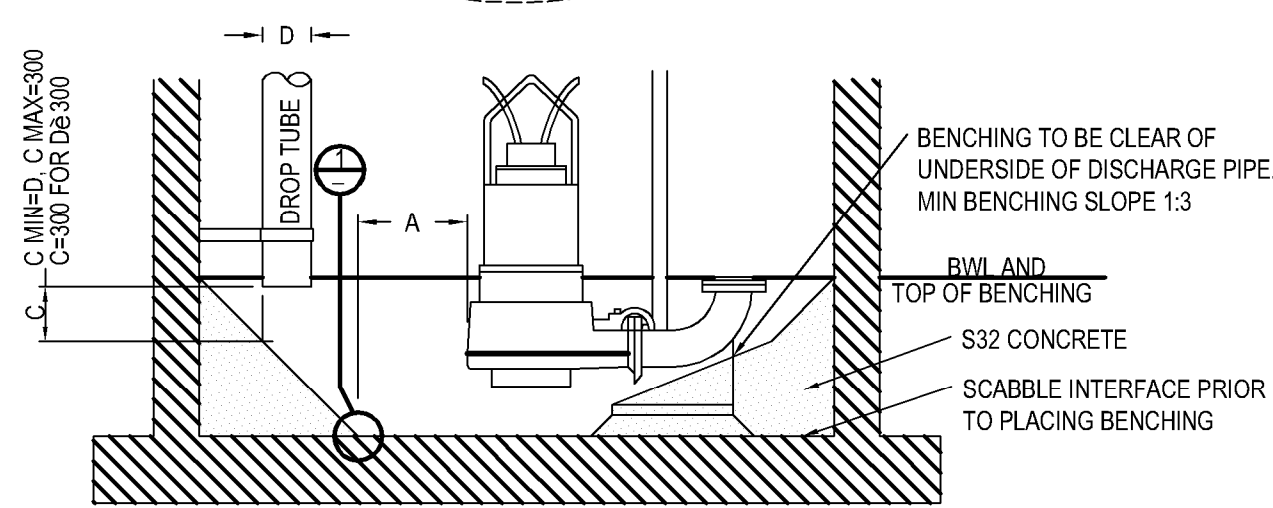
ELEVATION OF CONC. SUPPORTS FOR STOP & REFLUX VALVES

VALVE NOMINAL Ø	DN 100	DN 150	DN 200	DN 250	DN 300	DN 375
A	300	370	430	480	550	620

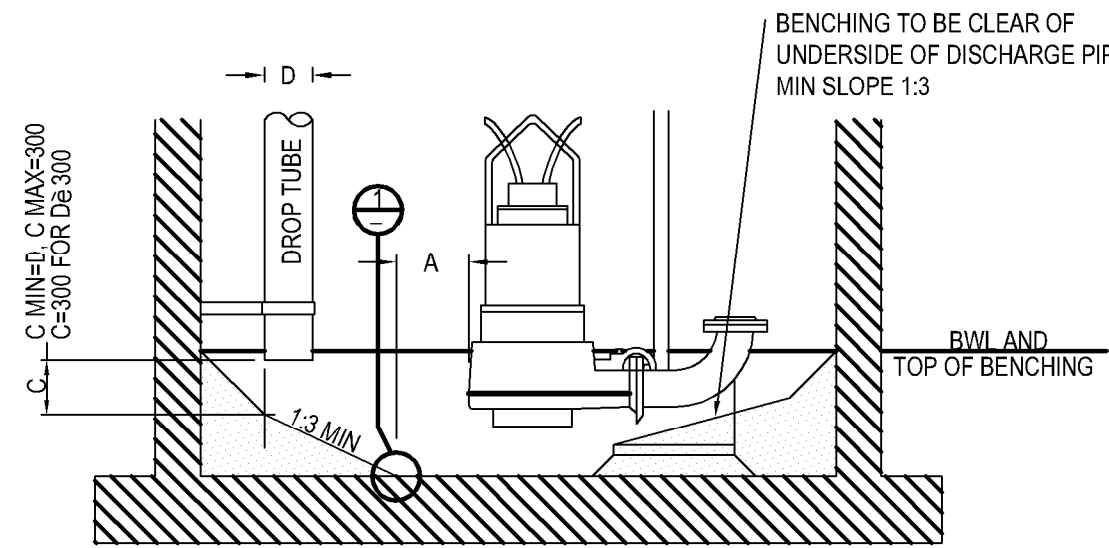
NOTES:  
1. CLEARANCE DIMENSION TO BE FLANGE BOLT LENGTH + 10mm.  
2. CONCRETE TO BE N32 TO AS3600  
i) SLUMP 75mm MAX  
ii) AGGREGATE SIZE 20mm MAX  
3) MINIMUM COVER TO REINFORCEMENT TO BE 65mm.



END ELEVATION



PREFERRED BENCHING ARRANGEMENT



ALTERNATE BENCHING ARRANGEMENT  
FOR DETAILS NOT SHOWN SEE PREFERRED ARRANGEMENT



Sewer Pump Station Calculations

Catchment ET's

Stage A						Stage B						Stage C					
		Area (ha)	Workers	Loading	ET's			Area (ha)	Workers	Loading	ET's			Area (ha)	Workers	Loading	ET's
Sancrox 1		2.18		15	33	Hastings Estate		20		10	200	HF Hand		6.55	50	0.1	5
Sancrox 2		9.04		15	136	Fernbank Creek		9		15	135	Expressway 100 Acres		39.44		15	592
Sancrox 3		42.4		15	636	McMullen		5.7		15	86						
Sancrox 4		7.19		15	108												
Expressway Spares		9.38	150	0.1	15												
					927						421						597
Cumulative					927						1348						1944

Well storage Volume					Well storage Volume					Well storage Volume				
r=	2.32		SA=	53.7747	r=	2.21		SA=	78.1637	r=	2.11		SA=	112.7665
ADWF=	10.20		L/s		ADWF=	14.82		L/s		ADWF=	21.39		L/s	
PDWF=	23.66		L/s		PDWF=	32.73		L/s		PDWF=	45.11		L/s	
PWFF=	77.43		L/s		PWFF=	110.90		L/s		PWFF=	157.87		L/s	
Control Volume (WV)=	Starts per hr 6969.10		10		Control Volume (WV)=	Starts per hr 9980.77		10		Control Volume (WV)=	Starts per hr 9472.38		15	
	6.97		L			9.98		L			9.47		L	
			m³					m³					m³	
Control Depth					Control Depth					Control Depth				
Well Dia	Area			Depth	Well Dia	Area			Depth	Well Dia	Area			Depth
2.4	4.52			1.54	2.4	4.52			2.21	2.4	4.52			2.09
3	7.07			0.99	3	7.07			1.41	3	7.07			1.34
3.6	10.18			0.68	3.6	10.18			0.98	3.6	10.18			0.93

Sewer Pump Station Calculations

Catchment ET's

Stage A						Stage B						Stage C					
		Area (ha)	Workers	Loading	ET's			Area (ha)	Workers	Loading	ET's			Area (ha)	Workers	Loading	ET's
Sancrox 1		2.18		15	33	Hastings Estate		20		10	200	HF Hand		6.55		15	98
Sancrox 2		9.04		15	136	Fernbank Creek		9		15	135	Expressway 100 Acres		39.44		15	592
Sancrox 3		42.4		15	636	McMullen		5.7		15	86						
Sancrox 4		7.19		15	108												
Expressway Spares		9.38		15	141												
					1053						421						690
Cumulative					1053						1473						2163

Well storage Volume					Well storage Volume					Well storage Volume				
r=	2.28		SA=	61.0653	r=	2.18		SA=	85.4543	r=	2.08		SA=	125.4656
ADWF=	11.58		L/s		ADWF=	16.21		L/s		ADWF=	23.80		L/s	
PDWF=	26.41		L/s		PDWF=	35.38		L/s		PDWF=	49.54		L/s	
PWFF=	87.48		L/s		PWFF=	120.84		L/s		PWFF=	175.01		L/s	
Control Volume (WV)=	Starts per hr 7873.04		10		Control Volume (WV)=	Starts per hr 10875.21		10		Control Volume (WV)=	Starts per hr 10500.55		15	
	7.87		L			10.88		L			10.50		L	
			m³					m³					m³	
Control Depth					Control Depth					Control Depth				
Well Dia	Area			Depth	Well Dia	Area			Depth	Well Dia	Area			Depth
2.4	4.52			1.74	2.4	4.52			2.40	2.4	4.52			2.32
3	7.07			1.11	3	7.07			1.54	3	7.07			1.49
3.6	10.18			0.77	3.6	10.18			1.07	3.6	10.18			1.03