



THE GABLES
BOX HILL
PRECINCT A

STAGE 1
PRESSURE SEWER & RECYCLED WATER




LOCALITY PLAN
(NOT TO SCALE)

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No.	REVISION DESCRIPTION	BY	DATE
11	WORK-AS-CONSTRUCTED	D.S.	22/11/17
10	PIPE SIZE CORRECTED SHEET 4	D.S.	31/1/17
09	ROAD B9 RIDER MAINS ADDED	D.S.	30/1/17
08	ROAD B1 & B9 TEMP. MAINS ADDED	D.S.	11/1/17
07	MINOR SERVICE RELOCATIONS	K.G.	20/10/16
06	COVER DETAILS UPDATED. PE100 DETAIL ADDED.	D.S.	15/10/16
05	ADDITION OF P.E. RECYCLED DISTRIBUTION MAIN	D.S.	10/9/16
04	MAIN SIZING UPDATED	D.S.	22/7/16
03	SUPERLOTS REVISED	D.S.	15/4/16
02	FLOW SYSTEMS COMMENTS ADDRESSED	D.S.	21/3/16
01	ORIGINAL ISSUE FOR FLOW SYSTEMS REVIEW	D.S.	7/3/16

SERVICE	DATE	REF.	WORK-AS-CONSTRUCTED CERTIFICATION
			DEVELOPER: CELESTINO DEVELOPMENTS Pty. Ltd.
			PROJECT SUPERVISOR: ROSE ATKINS RIMMER (INFRASTRUCTURE) Pty. Ltd.
			CONSTRUCTOR: C. J. DOYLE CONTRACTING SERVICES Pty. Ltd.
			COMPLETED: W.A.C. PREPARED: 22/11/2017

ROSE ATKINS RIMMER (Infrastructure) Pty. Ltd.

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Box Hill Water

 CELESTINO

PLAN OF PROPOSED WATER INFRASTRUCTURE SERVICES
 THE GABLES DEVELOPMENT - PRECINCT A (STAGE 1)
 BOUNDARY ROAD, BOX HILL NORTH
 L.G.A. THE HILLS

COVER SHEET				SHEET 1 OF 19	VERSION: WAC
DRAWN: D.SHEATHER	DESIGNED: D.SHEATHER	REVIEWED: V.VIKSNE	VERIFIED: K.GAO	4/23645/A1	
SCALE:	DATUM:	BASIS REFERENCED:	DATE OF ISSUE: 22/11/2017		

GENERAL NOTES

- THIS DRAWING SET SHALL BE READ IN CONJUNCTION WITH THE HILLS SHIRE COUNCIL STANDARDS, FLOW SYSTEMS SUPPLEMENTARY MANUAL TO W.S.A.A. & OTHER ASSOCIATED DRAWINGS AND TECHNICAL SPECIFICATIONS.
- ALL PRESSURE SEWER LATERALS & RECYCLED WATER PROPERTY SERVICE CONNECTIONS CROSSING CARRIAGEWAYS SHALL BE INSTALLED WITHIN INDIVIDUAL SERVICE CONDUITS.
- THE CONTRACTOR SHALL LOCATE AND IDENTIFY ALL UNDERGROUND SERVICES PRIOR TO COMMENCEMENT OF WORKS AND SHALL REPAIR ANY DAMAGE CAUSED TO SUCH SERVICES DURING THE COURSE OF WORKS. ANY SERVICE LOCATIONS ON THE FOLLOWING DRAWINGS ARE INDICATIVE ONLY.
- MAKE SMOOTH TRANSITION TO EXISTING WORKS (i.e. ROAD PAVEMENTS AND FOOTPATHS TO P.C.A. AND SUPERINTENDENTS REQUIREMENTS).
- SUITABLE PROTECTION OF EXISTING ROAD PAVEMENT, KERB AND GUTTER, FOOTPATHS AND ANY EXISTING FEATURES SHALL BE PROVIDED UNTIL THE CONSTRUCTION WORKS ARE COMPLETED.

CLEARANCES BETWEEN PIPELINES & UNDERGROUND SERVICES

Utility (Existing or proposed service)	Minimum horizontal clearance mm		Minimum vertical clearance ¹ mm
	New main size		
	≤DN200	>DN200	
Water mains ¹ > DN375	600	600	300
Water mains ² ≤ DN375	300 ⁴	600	150
Gas mains	300 ⁴	600	150
Telecommunication conduits and cables	300 ⁴	600	150
Electricity conduits and cables	500	1000	225 ⁴
Stormwater drains	300 ⁴	600	150 ⁴
Sewers - gravity	1000 ⁴ / 600	1000 ⁴ / 600	500 ⁴
Sewers - pressure and vacuum	600	600	300 ⁴
Kerbs	150	600 ⁴	150 (where possible)

- NOTES:
- Vertical clearances apply where pipelines cross other utility services, except in the case of water/sewer mains when a vertical separation shall always be maintained, even when the pressure sewer and water main are parallel. The pressure sewer should always be located below the water main to minimise the possibility of backflow contamination in the event of a pressure main break.
 - Water mains includes mains supplying both potable and recycled water.
 - For areas with existing water reticulation, clearances can be further reduced to 600mm with the approval of the water authority.
 - Clearances can be further reduced to 150mm for distances up to 2m when passing installations such as poles, pits, and small structures, providing the structures is not destabilised in the process.
 - Clearances from kerbs shall be measured from the nearest joint of the kerb. For water/sewer <DN375, clearances from kerbs can be progressively reduced until the minimum of 150mm is reached for water/sewer <DN200.
 - Where a parallel sewer is at minimum vertical clearance (lower than the water main 150mm), maintain a minimum horizontal of 100mm. This minimum clearance can be progressively reduced to 60mm as the vertical clearance is increased to 750mm.
 - For pressure sewer laterals, minimum vertical clearances may be reduced to 150mm providing there is no joint in the lateral within 500mm of either side of the service being crossed.
 - An additional clearance from high voltage electrical installations should be maintained above the conduits or cables to allow for a protective barrier and marking to be provided.
 - Water mains should always cross over sewers and stormwater drains. For cases where this is not alternative and the main must cross under the sewer, the design shall nominate an appropriate protection treatment (joint-free in the vicinity of the sewer).

⁴ SHOULD THE RECOMMENDED CLEARANCES NOT BE ACHIEVED, NOTIFICATION SHALL BE CONVEYED TO THE BOX HILL WATER REPRESENTATIVE IN WRITING.

REFER GENERAL ARRANGEMENT SHEETS FOR PIPE SCHEDULE

FLOW SYSTEMS STANDARD DRAWINGS CAN BE FOUND AT THE FOLLOWING ADDRESS:

<https://askus.flowsystems.com.au/hc/en-us/articles/210615383--Standard-Drawings>

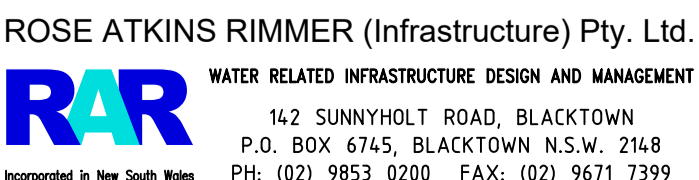
SEWER NOTES

- ALL WORKS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE DESIGN DRAWINGS, FLOW SYSTEMS SUPPLEMENTARY MANUAL TO W.S.A.A., PRESSURE SEWERAGE CODE OF AUSTRALIA WSA 07-2007 VERSION 1.1 & POLYETHYLENE PIPELINE CODE WSA 01-2004.
- ALL EQUIPMENT, MATERIALS & ACCESSORIES USED IN THIS CONTRACT SHALL BE NEW & SHALL COMPLY WITH FLOW SYSTEMS REQUIREMENTS. BUTT FUSION FITTINGS DENOTED HEREWITH HAVE BEEN DERIVED FROM THE GEORG FISCHER PIPING SYSTEMS BUTT FUSION PRODUCT RANGE. ELECTROFUSION FITTINGS DENOTED HEREWITH HAVE BEEN DERIVED FROM THE PLASSON "POLYETHYLENE PIPING SYSTEMS" PRODUCT RANGE.
- ALL SERVICES SHOWN ARE INDICATIVE ONLY. A CURRENT SERVICES SEARCH & SITE CHECK OF ALL EXISTING SERVICES WILL BE REQUIRED PRIOR TO COMMENCEMENT OF ANY WORKS. THE CONTRACTOR IS TO DETERMINE LEVELS & LOCATIONS EXISTING SERVICES IN THE VICINITY OF THE CONSTRUCTION SITE AND ANY CONSTRUCTED STRUCTURES FOR PROPOSED SERVICES, SUCH AS DUCTING FOR WATER OR ELECTRICITY WITHIN THE SUBDIVISION. THE CONTRACTOR MUST ENSURE ALL SERVICES ARE LOCATED BY THE RELEVANT AUTHORITY PRIOR TO COMMENCEMENT OF WORKS.
- PRESSURE SEWER MAINS SHALL BE BLACK POLYETHYLENE (PE100 PN16) WITH A CREAM STRIPE AS PER WSA 07-2007 & FLOW SYSTEMS SUPPLEMENTARY MANUAL TO W.S.A.A.
- ALL POLYETHYLENE MAINS ≤DN200 SHALL BE JOINED BY ELECTROFUSION TECHNIQUES IN ACCORDANCE WITH THE MANUFACTURERS REQUIREMENTS. ALL POLYETHYLENE MAINS >DN200 SHALL BE JOINED BY BUTTWELDED TECHNIQUES IN ACCORDANCE WITH THE MANUFACTURERS REQUIREMENTS
- MAIN TO BE LAID GENERALLY AS INDICATED IN SERVICE ALLOCATION DIAGRAMS. INSTRUCTION NOTES SHALL TAKE PRECEDENCE OVER DIAGRAMS WHERE PROVIDED. 600mm HORIZONTAL CLEARANCE TO BE MAINTAINED BETWEEN ALL SEWER & WATER MAINS. MINIMUM PIPE COVER SHALL BE 800mm IN FOOTWAYS & FOR ROADWAYS. MAXIMUM PIPE COVER SHALL GENERALLY BE 15m, WHERE COVER FOR A TRENCHED INSTALLATION EXCEEDS 15m, BUT LESS THAN 2.5m, THE MAIN AS A MINIMUM SHALL BE EMBEDDED IN STABILISED SAND. THE CONTRACTOR SHALL ENSURE THAT ALL PRESSURE SEWER & RECYCLED WATER MAINS HAVE SUFFICIENT VERTICAL SEPARATION AS PER THE CLEARANCE TABLE ADJACENT.
- MAINS CROSSING UNDER EXISTING DRIVEWAYS (SEALED, PAVED OR DECORATIVE) SHALL BE CONDUCTED BY UNDER BORING ONLY UNLESS PERMISSION IS GRANTED BY THE AFFECTED PROPERTY OWNER.
- MAINS WITHIN 2m OF ELECTRICITY OR POWER POLES SHALL BE CONDUCTED BY BORING TECHNOLOGY (UNLESS AGREED TO BY THE BOX HILL WATER REPRESENTATIVE).
- ALL PIPE BEDDING MATERIAL SHALL COMPLY WITH WSAA PRODUCT SPECIFICATION WSA-PS350 & WSA-PS351.
- ALL BENDS SHALL BE ELECTROFUSION OR BUTTWELDED SWEEP BENDS. FABRICATED BENDS SHALL NOT BE USED IN LIEU. KNUCKLE ELBOWS ARE NOT PERMITTED.
- MINIMUM BENDING RADIUS FOR PN16 PE100 (SDR11) SHALL BE 20 x DN (ie. DN400-R8.0m, DN250-R5.0m, DN200- R4.0m, DN160-R3.2m, DN125-R2.5m, DN90-R1.8m, DN75-R1.5m, DN63-R1.3m, DN50- R1.0m, DN40- R0.8m)
- ALL HOUSE SERVICE LATERALS SHALL BE DN40 (PE100 PN16).
- FLUSHING PITS SHALL CONFORM WITH FLOW SYSTEMS STANDARD DRAWINGS. REFER TO FLOW SYSTEMS WEBSITE FOR CURRENT VERSION. SMALL MAINS (<DN110) http://flowsystems.com.au/governance/Land_Housing/PSS-1017A-FS.pdf LARGE MAINS (>DN110) http://flowsystems.com.au/governance/Land_Housing/PSS-1017B-FS.pdf
- LOCALISED DEEPENING OF MAINS MAY BE REQUIRED TO FACILITATE AIR VALVE INSTALLATION. THE CONTRACTOR SHALL ENSURE THAT THE AIR VALVE OFFTAKE IS LOCATED AT A HIGH POINT (NATURAL OR ARTIFICIAL) IN THE MAIN (i.e. MAIN SHALL GRADE DOWNWARDS EITHER SIDE OF THE AIR VALVE).
- DETECTABLE MARKING TAPE SHALL BE LAID ON TOP OF THE PIPE EMBEDMENT MATERIAL BEFORE BACKFILLING & CONNECTED TO SURFACE VALVES.
- ALL SURFACE FITTINGS LOCATED IN TRAFFICABLE AREAS (ie ROADWAYS, PATHS etc) SHALL HAVE HEAVY DUTY SURROUNDS INSTALLED.
- DURING CONSTRUCTION, ALL OPEN ENDS OF PIPE SHALL BE CAPPED OFF TO PREVENT ENTRY OF FOREIGN MATTER.
- ALL VALVES SHALL BE RESILIENT SEATED SLUICE VALVES (CLOCKWISE CLOSING), SHALL BE RESTRAINED IN ACCORDANCE WITH WAT-1207 & SHALL COMPLY WITH FLOW SYSTEMS STANDARD DRAWING PSS-1015-FS.
- ALL MAINS SHALL BE TESTED IN ACCORDANCE WITH WSA 07-2007 Version 1.1.
- FOR LOTS WITH TANKS IN THE REAR, 1 x 25mm INSTRUMENTATION CONDUIT (ORANGE) AND 1 x 25mm ELECTRICAL CONDUIT (ORANGE) (WITH DRAW WIRES) SHALL BE INSTALLED FROM THE COLLECTION TANK TO WATER METERS. THE CONDUITS SHALL BE LAID IN A COMMON TRENCH WITH THE SEWERAGE AND MAINTAIN A MINIMUM HORIZONTAL CLEARANCE OF 400mm.
- THE CONTRACTOR SHALL PROVIDE BOX HILL WATER WITH MINIMUM OF 7 DAYS NOTICE IN WRITING OF INTENT TO CONNECT NEW MAINS TO EXISTING INFRASTRUCTURE. CONNECTIONS ARE NOT PERMITTED UNTIL COMPLIANT TEST RESULTS HAVE BEEN PROVIDED & CONFIRMATION IS PROVIDED BY THE BOX HILL WATER REPRESENTATIVE.
- UPON COMPLETION OF WORKS, ALL SURFACES MUST BE RESTORED AS CLOSE AS POSSIBLE, TO THE CONDITION THAT EXISTED PRIOR TO COMMENCEMENT OF WORK.
- PERMISSION OF ENTRY MUST BE OBTAINED BY THE CONTRACTOR FROM THE OWNER/OCCUPIER PRIOR TO COMMENCEMENT OF WORK IN PRIVATE PROPERTY.
- BURIED FITTINGS ARE NOT TO BE BACKFILLED UNTIL W.A.C. DETAILS HAVE BEEN OBTAINED & APPROVAL FOR BACKFILLING GIVEN BY THE BOX HILL WATER REPRESENTATIVE. THE CONTRACTOR SHALL PROVIDE M.G.A. COORDINATED WORK-AS-COINSTRUCTED INFORMATION REGARDING THE INSTALLATION OF ALL BURIED FITTINGS.
- THE MINIMUM NUMBER OF COMPACTION TESTS REQUIRED TO SATISFY THE PRESSURE SEWER CODE OF AUSTRALIA (CLAUSE 21.3.4) ARE:
TRAFFICABLE:
PIPE EMBEDMENT ZONE: NIL TRENCH FILL ZONE: 1 TEST / CROSSING (29 Tests)
NON-TRAFFICABLE:
PIPE EMBEDMENT ZONE: NIL TRENCH FILL ZONE: 1 TEST / 100m (44 Tests)
- BOUNDARY KITS (COMPLETE) SHALL BE NOV SUPPLIED (NOV PSS-BK4). NOV 900L COLLECTION TANK (PSS-VMS150-PRIL) SHALL BE INSTALLED WITH BOUNDARY KIT (REFER FLOW SYSTEMS STANDARD DRAWINGS PSS-1112-FS & PSS-1113-FS). PUMP TO BE INSTALLED BY OTHERS.
- ALL MAINS (UP TO THE BOUNDARY KIT) SHALL BE PRESSURE TESTED TO 1600 kPa.
- ALL MAINS SHALL BE FLUSHED WITH WATER TO REMOVE ANY DEBRIS PRIOR TO COMMISSIONING.
- SURFACE IDENTIFICATION MARKERS ARE TO BE PROVIDED TO BOX HILL WATER REQUIREMENTS.
- ROPE OFF ALL PRESSURE SEWER UNITS & FLUSHING POINTS TO LIMIT DAMAGE DURING CONSTRUCTION.
- PRESSURE TRANSMITTER TO BE MEASUREX MRB21 GENERAL PURPOSE TRANSMITTER WITH MICROSPIDER LOGGING TELEMETRY AND ALARM PER FLOW SYSTEMS REQUIREMENTS.
- WORK-AS-COINSTRUCTED DOCUMENTATION SHALL BE PROVIDED BY THE CONTRACTOR STRICTLY IN ACCORDANCE WITH THE FLOW SYSTEMS Q.A. SUBMISSION CHECKLIST.

RECYCLED WATER NOTES

WORK-AS-COINSTRUCTED

- ALL WORKS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE DESIGN DRAWINGS, FLOW SYSTEMS SUPPLEMENTARY MANUAL TO W.S.A.A. & WSA 03-2011-3.1 (SYDNEY WATER WATER EDITION - 2014).
- POTABLE WATER SHALL BE UTILISED FOR FIRE FIGHTING PURPOSES.
- ALL EQUIPMENT, MATERIALS & ACCESSORIES USED IN THIS CONTRACT SHALL BE NEW, SHALL CONFORM WITH THE APPROPRIATE CURRENT AUSTRALIAN STANDARDS & SHALL COMPLY WITH FLOW SYSTEMS REQUIREMENTS.
- ALL SERVICES SHOWN ARE INDICATIVE ONLY. A CURRENT SERVICES SEARCH & SITE CHECK OF ALL EXISTING SERVICES WILL BE REQUIRED PRIOR TO COMMENCEMENT OF ANY WORKS. THE CONTRACTOR IS TO DETERMINE LEVELS & LOCATIONS EXISTING SERVICES IN THE VICINITY OF THE CONSTRUCTION SITE AND ANY CONSTRUCTED STRUCTURES FOR PROPOSED SERVICES, SUCH AS DUCTING FOR WATER OR ELECTRICITY WITHIN THE SUBDIVISION. THE CONTRACTOR MUST ENSURE ALL SERVICES ARE LOCATED BY THE RELEVANT AUTHORITY PRIOR TO COMMENCEMENT OF WORKS.
- THE CONTRACTOR SHALL VERIFY WITH THE SITE SURVEYOR THE POSITION & LEVEL OF ALL EXISTING & PROPOSED BOUNDARIES PERTINENT TO THE INFRASTRUCTURE INSTALLATIONS.
- MAINS TO BE LAID GENERALLY AS INDICATED IN SERVICE ALLOCATION DIAGRAMS. INSTRUCTION NOTES SHALL TAKE PRECEDENCE OVER DIAGRAMS WHERE PROVIDED. 600mm HORIZONTAL CLEARANCE TO BE MAINTAINED BETWEEN ALL SEWER & WATER MAINS. MINIMUM PIPE COVER SHALL BE 600mm IN FOOTWAYS (TYPE B EMBEDMENT- WAT-1202-VI) & FOR ROADWAYS (TYPE L EMBEDMENT- WAT-1204-VI). MAXIMUM PIPE COVER SHALL GENERALLY BE 15m, WHERE COVER FOR A TRENCHED INSTALLATION EXCEEDS 15m, BUT IS LESS THAN 2.5m, THE MAIN AS A MINIMUM SHALL BE EMBEDDED IN STABILISED SAND. THE CONTRACTOR SHALL ENSURE THAT ALL RECYCLED WATER & PRESSURE SEWER MAINS HAVE SUFFICIENT VERTICAL SEPARATION AS PER THE CLEARANCE TABLE ADJACENT.
- ALL RECYCLED WATER MAINS SHALL BE LILAC mPVC (PN16). DIFFERENTIATION OF POTABLE & RECYCLED WATER SYSTEMS SHALL BE AS PER TABLE 4.1 WSA03-2011 WITH BOTH SERVICES BEING CLASSIFIED AS WATERMAINS. RECYCLED WATER MAINS SHALL ALWAYS BE LOWER THAN POTABLE MAINS. 150mm VERTICAL CLEARANCE BETWEEN POTABLE WATER & RECYCLED WATER MAINS SHALL BE PROVIDED.
- MAXIMUM JOINT DEFLECTION SHALL BE IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS.
- LOCALLY LOWER PIPEWORK IN VICINITY OF STOP VALVES TO ENSURE SUFFICIENT COVER IS MAINTAINED OVER VALVES. LOWERING OF PIPEWORK SHALL ACHIEVED OVER A NUMBER OF PIPE LENGTHS EITHER SIDE OF VALVES TO ELIMINATE ANY SHARP DEFLECTIONS.
- ALL PIPE BEDDING MATERIAL SHALL COMPLY WITH WSAA PRODUCT SPECIFICATION PS-350, 368 & 369. GEOTECHNICAL CONDITIONS SHOULD BE ASSESSED DURING CONSTRUCTION BY THE CONTRACTOR IN ASSOCIATION WITH THE BOX HILL WATER REPRESENTATIVE TO DETERMINE THE NEED TO MODIFY EMBEDMENT/TRENCHFILL TYPE & THE ROAD FOR TRENCH DRAINAGE/BULKHEADS.
- DURING CONSTRUCTION, ALL OPEN ENDS OF PIPES SHALL BE CAPPED OFF TO PREVENT ENTRY OF FOREIGN MATTER.
- HYDRANTS, STOP VALVES & ALL OTHER FITTINGS SHALL BE THE SAME SIZE AS THROUGH WATER MAIN & ANTICLOCKWISE CLOSING.
- HYDRANTS MUST NOT BE INSTALLED IN POTENTIAL DRIVEWAY LOCATIONS. HYDRANTS & WATER SERVICES SHALL BE NOMINALLY AT LEAST 5m FROM EACH BOUNDARY OR ON BOUNDARIES. WHERE POSSIBLE, FITTINGS SHALL BE LOCATED BEHIND KERB INLET PITS.
- THRUST BLOCKS SHALL BE INSTALLED IN ACCORDANCE WITH WAT-1205.
- ALL PROPERTY (MAIN TO METER) SERVICE CONNECTIONS SHALL BE CONSTRUCTED STRICTLY IN ACCORDANCE FLOW SYSTEMS REQUIREMENTS. REFER TO FLOW SYSTEMS WEBSITE FOR CURRENT VERSIONS. SINGLE SERVICE http://flowsystems.com.au/governance/Land_Housing/WAT-1854-FS.pdf DUAL SERVICE http://flowsystems.com.au/governance/Land_Housing/WAT-1855-FS.pdf
- PROPERTY SERVICE CONNECTIONS SHALL BE FLUSHED & LOCKED (BY THE BOX HILL WATER REPRESENTATIVE) FOLLOWING SUCCESSFUL PRESSURE TESTING.
- SURFACE FITTINGS LOCATED IN TRAFFICABLE AREAS (ie ROADWAYS, PATHS etc) SHALL HAVE HEAVY DUTY SURROUNDS INSTALLED.
- ALL MAINS SHALL BE TESTED IN ACCORDANCE WITH WSA 03-2011-3.1 (SYDNEY WATER EDITION - 2014).
- ALL MAINS SHALL BE FLUSHED WITH WATER TO REMOVE ANY DEBRIS PRIOR TO COMMISSIONING.
- WATER QUALITY TESTING SHALL BE IN ACCORDANCE WITH WSA 03-2011-3.1 (SYDNEY WATER EDITION - 2014- CLAUSE 19.7).
- THE CONTRACTOR SHALL PROVIDE BOX HILL WATER WITH MINIMUM OF 7 DAYS NOTICE IN WRITING OF INTENT TO CONNECT NEW MAINS TO EXISTING INFRASTRUCTURE. CONNECTIONS ARE NOT PERMITTED UNTIL COMPLIANT TEST RESULTS HAVE BEEN PROVIDED & CONFIRMATION IS PROVIDED BY THE BOX HILL WATER REPRESENTATIVE.
- UPON COMPLETION OF WORKS, ALL SURFACES MUST BE RESTORED AS CLOSE AS POSSIBLE, TO THE CONDITION THAT EXISTED PRIOR TO COMMENCEMENT OF WORK.
- PERMISSION OF ENTRY MUST BE OBTAINED BY THE CONTRACTOR FROM THE OWNER/OCCUPIER PRIOR TO COMMENCEMENT OF WORK IN PRIVATE PROPERTY.
- BURIED FITTINGS ARE NOT TO BE BACKFILLED UNTIL W.A.C. DETAILS HAVE BEEN OBTAINED & APPROVAL FOR BACKFILLING GIVEN BY THE BOX HILL WATER REPRESENTATIVE. THE CONTRACTOR SHALL PROVIDE M.G.A. COORDINATED WORK-AS-COINSTRUCTED INFORMATION REGARDING THE INSTALLATION OF ALL BURIED FITTINGS.
- THE MINIMUM NUMBER OF COMPACTION TESTS REQUIRED TO SATISFY THE WATER SUPPLY CODE OF AUSTRALIA ARE:
TRAFFICABLE:
PIPE EMBEDMENT ZONE: NIL TRENCH FILL ZONE: 1 TEST / CROSSING (30 Tests)
NON-TRAFFICABLE:
PIPE EMBEDMENT ZONE: NIL TRENCH FILL ZONE: 1 TEST / 100m (40 Tests)
TESTING SHALL BE IN ACCORDANCE WITH TABLE 16.1 & 17.1 OF THE WATER SUPPLY CODE OF AUSTRALIA
- SURFACE IDENTIFICATION MARKERS ARE TO BE PROVIDED TO BOX HILL WATER REQUIREMENTS.
- PRESSURE TRANSMITTER TO BE MEASUREX MRB21 GENERAL PURPOSE TRANSMITTER WITH MICROSPIDER LOGGING TELEMETRY AND ALARM PER FLOW SYSTEMS REQUIREMENTS.
- WORK-AS-COINSTRUCTED DOCUMENTATION SHALL BE PROVIDED BY THE CONTRACTOR STRICTLY IN ACCORDANCE WITH THE FLOW SYSTEMS Q.A. SUBMISSION CHECKLIST.

				<p>GENERAL NOTES</p>				<p>SHEET 2 OF 19</p>		<p>WAC</p>
<p>DATE:</p> <p>D.SHEATHER</p>	<p>DESIGN:</p> <p>D.SHEATHER</p>	<p>REVIEW:</p> <p>V.VIKSNE</p>	<p>ISSUED:</p> <p>K.GAO</p>	<p>SCALE:</p> <p>-</p>	<p>DATE:</p> <p>-</p>	<p>SCALE REFERRED:</p> <p>-</p>	<p>DATE OF ISSUE:</p> <p>22/11/2017</p>	<p>4/23645/A1</p>		

PRESSURE SEWER PIPE SCHEDULE

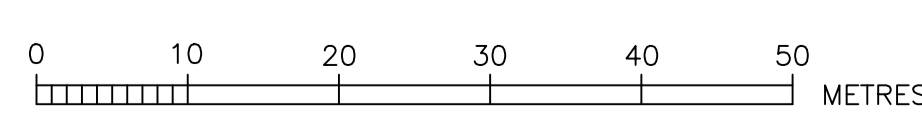
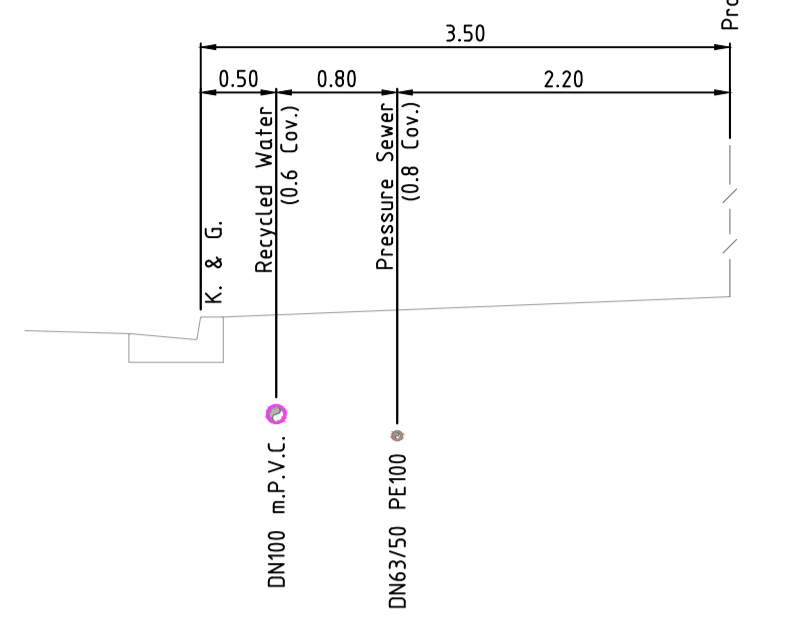
SIZE	TYPE	CLASS	LENGTH
DN400	PE100	PN16	22.5
DN250	PE100	PN16	22.2
DN200	PE100	PN16	1,457.2
DN140	PE100	PN16	153.1
DN125	PE100	PN16	236.7
DN110	PE100	PN16	65.1
DN90	PE100	PN16	303.3
DN75	PE100	PN16	307.1
DN63	PE100	PN16	282.0
DN50	PE100	PN16	2,056.1
DN40	PE100	PN16	1,665.0
TOTAL			6,570.3

Precinct A Development Stages

- Stage 1
- Stage 2
- Stage 3A
- Stage 3B
- Stage 4

TYPICAL TRENCH CONFIGURATION

SETOUT DIMENSIONS ONLY
NOT TO SCALE



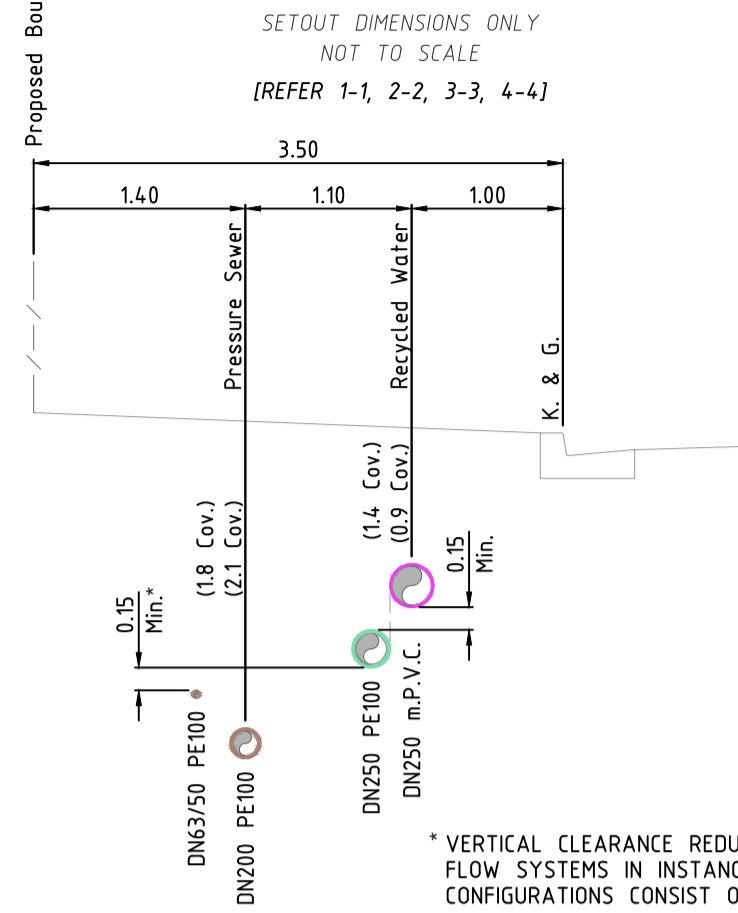
ROSE ATKINS RIMMER (Infrastructure) Pty. Ltd. RAR WATER RELATED INFRASTRUCTURE DESIGN AND MANAGEMENT 142 SUNNYHOLT ROAD, BLACKTOWN P.O. BOX 6745, BLACKTOWN N.S.W. 2148 PH: (02) 9853 0200 FAX: (02) 9671 7399			PRESSURE SEWER GENERAL ARRANGEMENT	SHEET 3 OF 19 WAC
DRAWN:	DESIGNED:	REVISED:	CHECKED:	DATE:
D.SHEATHER	D.SHEATHER	V.VIKSNE	K.GAO	22/11/2017
SCALE:	DATE:	W.A.S. REFERENCE:	DATE OF ISSUE:	22/11/2017
				4/23645/A1

PRESSURE SEWER LEGEND

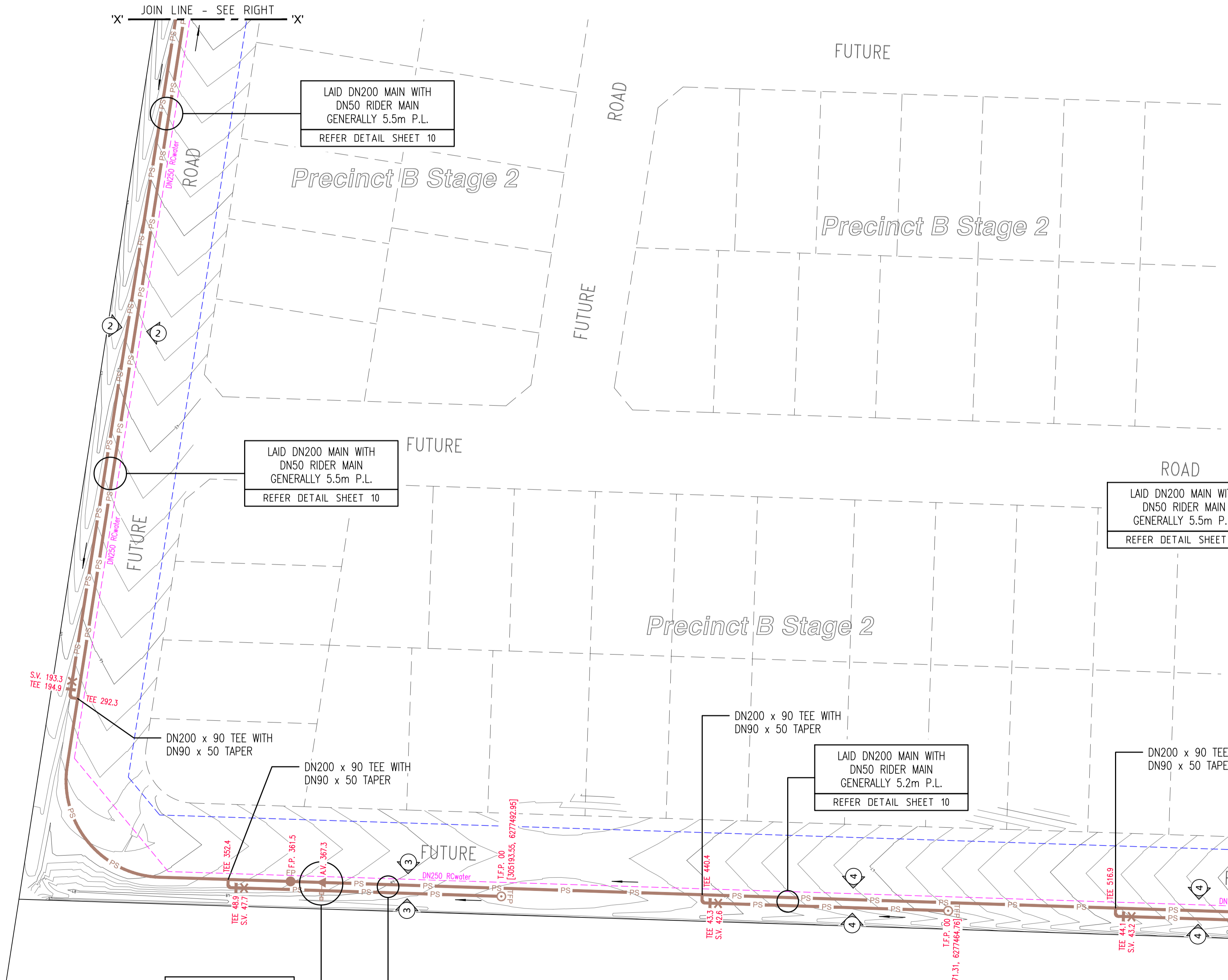
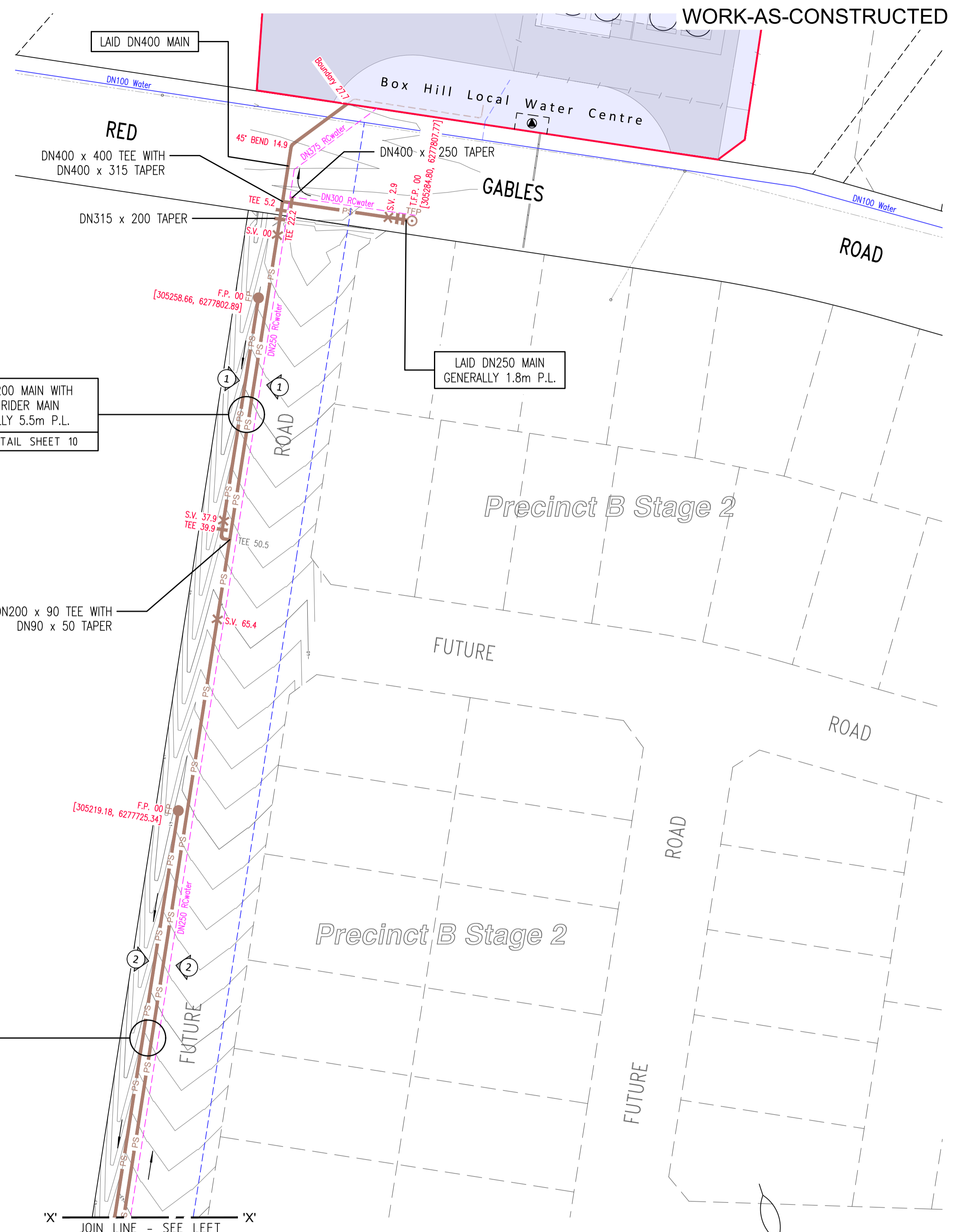
✕	STOP VALVE
⊗	STOP VALVE (NORMALLY CLOSED)
∟	TAPER
●	FLUSHING POINT
○	TEMPORARY FLUSHING POINT
⊠	PROPERTY BOUNDARY KIT
○	COLLECTION TANK (STANDARD)
○	COLLECTION TANK (WITH 300mm RISER)
○	COLLECTION TANK (WITH 2x300mm RISERS)
⊠	CONTROL/ALARM PANEL
—	ELECTRICAL CABLES
∇	FLOW METER
∇	AIR VALVE
○	PRESSURE MONITORING POINT
⊕	REMOTE MONITORED PRESSURE TRANSDUCER
∩	VERTICAL DEFLECTION

∅ DENOTES MAIN TO BE LAID OVER SERVICE (REDUCED COVER)
 ● DENOTES MAIN TO BE LAID UNDER SERVICE, WHERE COVER EXCEEDS 1.5m, BUT LESS THAN 2.5m, THE MAIN SHALL BE EMBEDDED IN STABILISED SAND.

TRENCH CONFIGURATION WITH RIDER MAINS

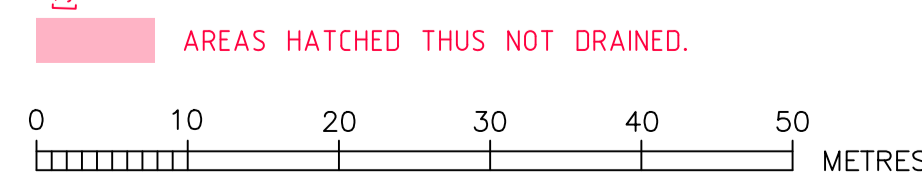


WORK-AS-CONSTRUCTED



BELOW GROUND AUTOMATIC AIR VALVE
 SEE NOTE 14 & LONG SECTION - SHEET 9
 REFER PSS-1016B-FS

LAI D N200 MAIN WITH DN50 RIDER MAIN GENERALLY 5.2m P.L.
 REFER DETAIL SHEET 10



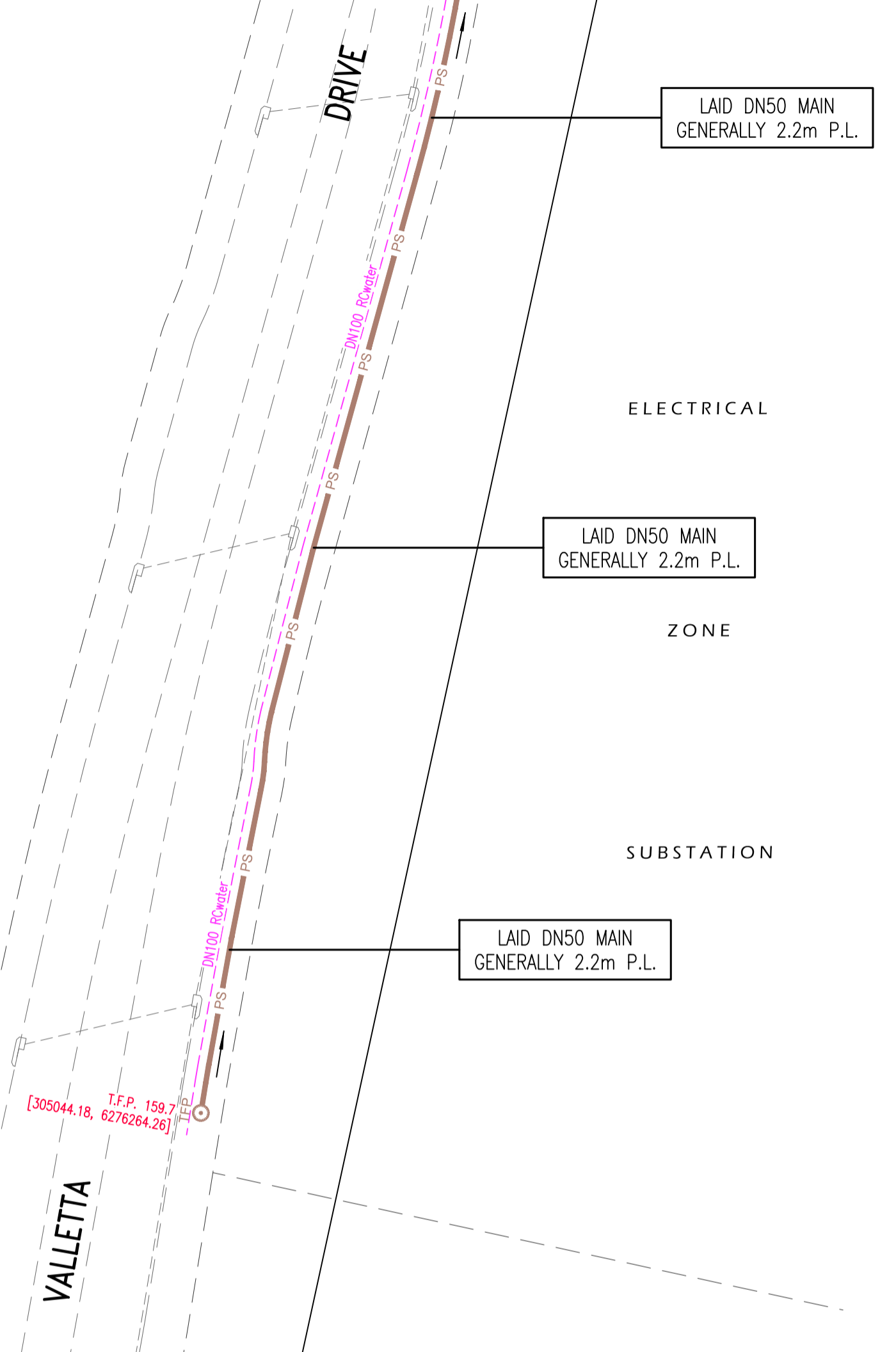
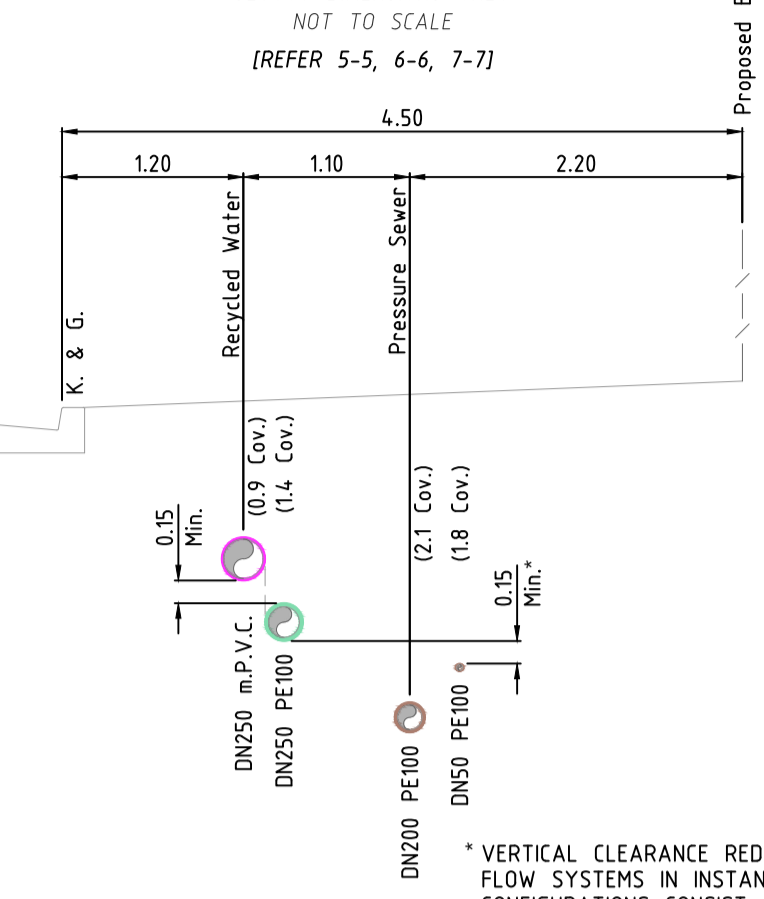
ROSE ATKINS RIMMER (Infrastructure) Pty. Ltd.
 WATER RELATED INFRASTRUCTURE DESIGN AND MANAGEMENT
 142 SUNNYHOLT ROAD, BLACKTOWN
 P.O. BOX 6745, BLACKTOWN N.S.W. 2148
 PH: (02) 9853 0200 FAX: (02) 9671 7399

PRESSURE SEWER DETAIL PLAN 1				SHEET 4 OF 19	WAC
DRAWN: D.SHEATHER	DESIGNED: D.SHEATHER	REVIEWED: V.VIKSNE	VERIFIED: K.GAO	DATE: 22/11/2017	AS No. 4/23645/A1
SCALE: 1:500	DRAWN: A.H.D.	DATE REFERENCED:	DATE OF ISSUE:		

JOIN LINE - SEE SHEET 8

JOIN LINE - SEE SHEET 5

TRENCH CONFIGURATION WITH RIDER MAINS



ELECTRICAL ZONE SUBSTATION

FUTURE

Precinct B Stage 1

FUTURE

ROAD

ROAD

FUTURE

ROAD

LAI D DN200 MAIN WITH DN50 RIDER MAIN GENERALLY 2.2m FROM FUTURE P.L. REFER DETAIL SHEET 10

DN200 x 90 TEE WITH DN90 x 63 TAPER

DN200 x 90 TEE WITH DN90 x 50 TAPER

DN200 x 90 TEE WITH DN90 x 50 TAPER

DN200 x 90 TEE WITH DN90 x 50 TAPER

DN200 x 90 TEE WITH DN90 x 50 TAPER

DN200 x 90 TEE WITH DN90 x 50 TAPER

DN200 x 90 TEE WITH DN90 x 50 TAPER

DN200 x 90 TEE WITH DN90 x 50 TAPER

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DN200 x 90 TEE WITH DN90 x 50 TAPER

DN200 x 90 TEE WITH DN90 x 50 TAPER

DN200 x 90 TEE WITH DN90 x 50 TAPER

DN200 x 90 TEE WITH DN90 x 50 TAPER

⊗ DENOTES MAIN TO BE LAID OVER SERVICE (REDUCED COVER)
⊕ DENOTES MAIN TO BE LAID UNDER SERVICE. WHERE COVER EXCEEDS 1.5m, BUT LESS THAN 2.5m, THE MAIN SHALL BE EMBEDDED IN STABILISED SAND.

PRESSURE SEWER LEGEND

✕	STOP VALVE
⊗	STOP VALVE (NORMALLY CLOSED)
▬	TAPER
●	FLUSHING POINT
○	TEMPORARY FLUSHING POINT
⊠	PROPERTY BOUNDARY KIT
○	COLLECTION TANK (STANDARD)
○	COLLECTION TANK (WITH 300mm RISER)
○	COLLECTION TANK (WITH 2x300mm RISERS)
⊠	CONTROL/ALARM PANEL
—	ELECTRICAL CABLES
▬	FLOW METER
▬	AIR VALVE
⊕	PRESSURE MONITORING POINT
⊕	REMOTE MONITORED PRESSURE TRANSDUCER
⊕	VERTICAL DEFLECTION

CATARACT

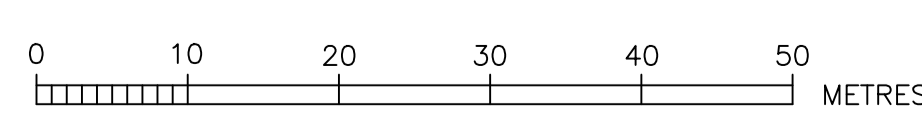
ROAD

LAI D DN63 MAIN GENERALLY 2.2m P.L.

LAI D DN50 MAIN GENERALLY 2.2m P.L.

LAI D DN200 MAIN GENERALLY 2.2m P.L.

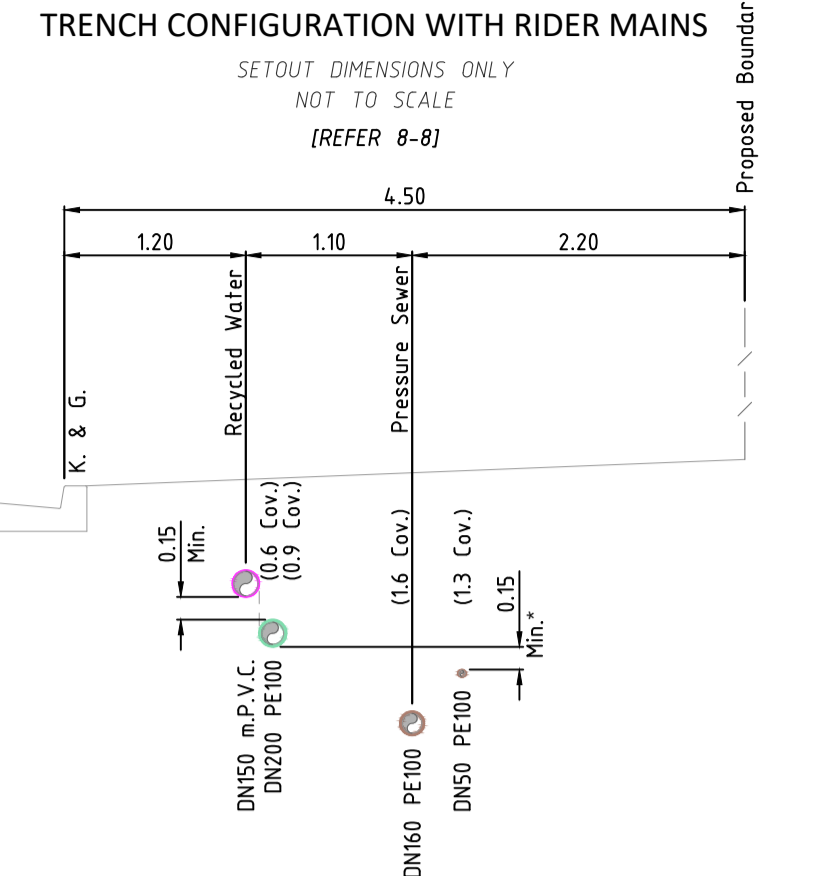
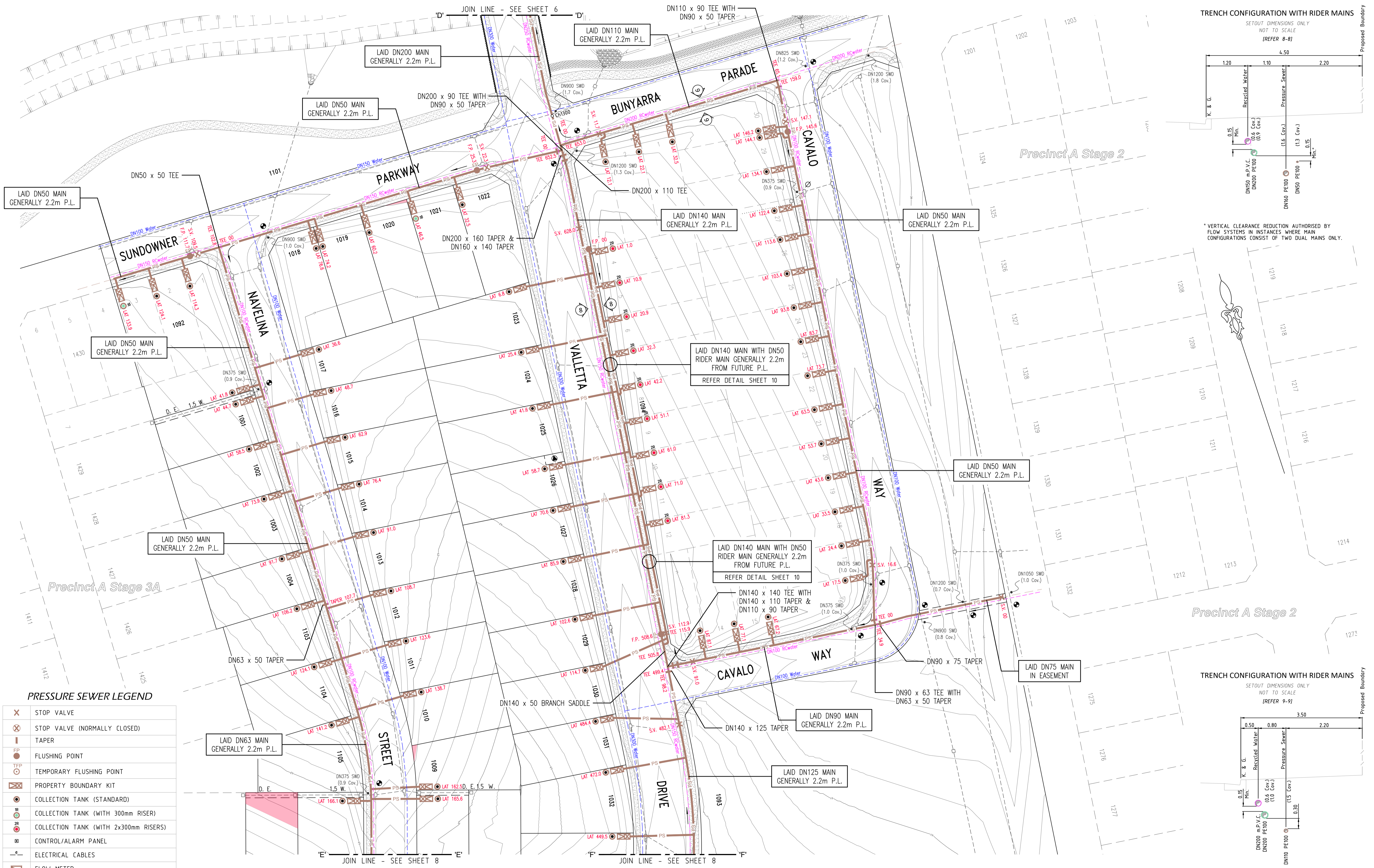
AREAS HATCHED THUS NOT DRAINED.



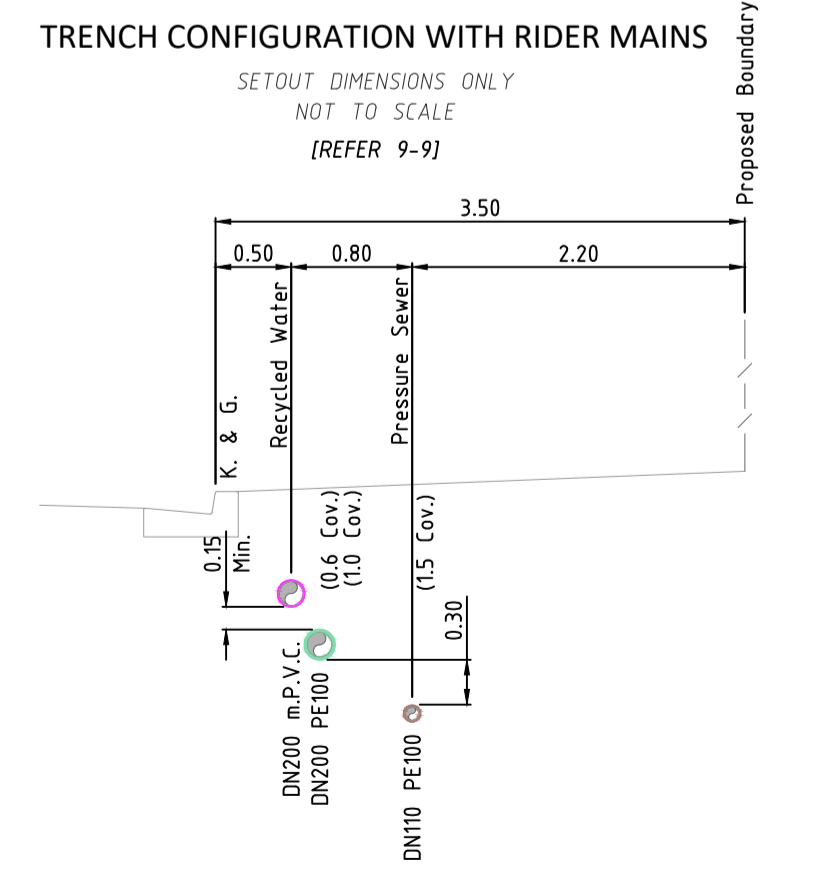
ROSE ATKINS RIMMER (Infrastructure) Pty. Ltd.
WATER RELATED INFRASTRUCTURE DESIGN AND MANAGEMENT
142 SUNNYHOLT ROAD, BLACKTOWN
P.O. BOX 6745, BLACKTOWN N.S.W. 2148
PH: (02) 9853 0200 FAX: (02) 9671 7399



PRESSURE SEWER DETAIL PLAN 3				SHEET 6 OF 19		VERSION
DESIGNED	D.SHEATHER	REVIEWED	V.VIKSNE	ISSUED	K.GAO	4/23645/A1
SCALE	1:500	DATE	A.H.D.	DATE OF ISSUE	22/11/2017	



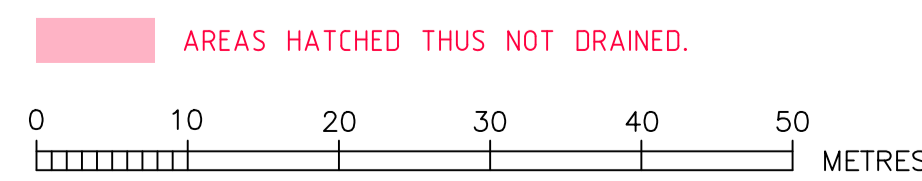
* VERTICAL CLEARANCE REDUCTION AUTHORISED BY FLOW SYSTEMS IN INSTANCES WHERE MAIN CONFIGURATIONS CONSIST OF TWO DUAL MAINS ONLY.



PRESSURE SEWER LEGEND

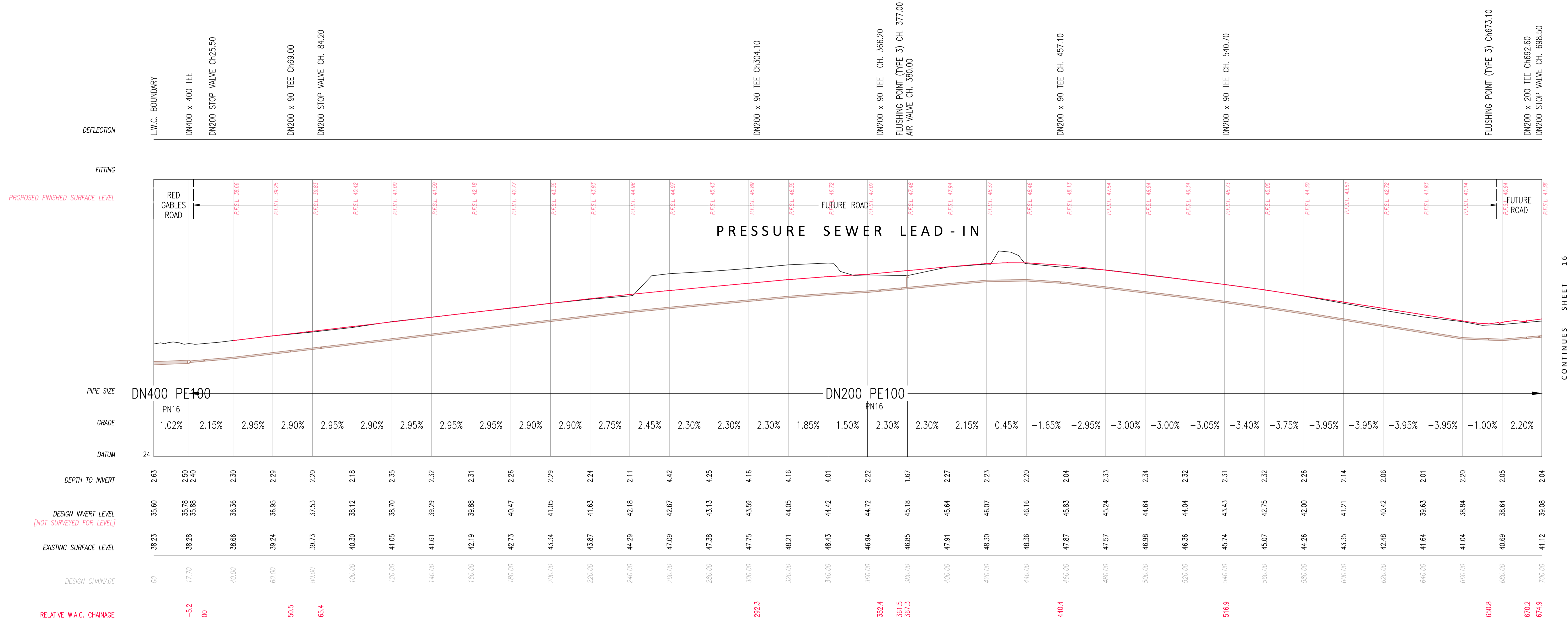
✕	STOP VALVE
⊗	STOP VALVE (NORMALLY CLOSED)
⊘	TAPER
●	FLUSHING POINT
⊕	TEMPORARY FLUSHING POINT
⊞	PROPERTY BOUNDARY KIT
⊙	COLLECTION TANK (STANDARD)
⊙	COLLECTION TANK (WITH 300mm RISER)
⊙	COLLECTION TANK (WITH 2x300mm RISERS)
⊙	CONTROL/ALARM PANEL
—	ELECTRICAL CABLES
▶	FLOW METER
⊕	AIR VALVE
⊙	PRESSURE MONITORING POINT
⊙	REMOTE MONITORED PRESSURE TRANSDUCER
⊞	VERTICAL DEFLECTION

⊞ DENOTES MAIN TO BE LAID OVER SERVICE (REDUCED COVER)
 ⊙ DENOTES MAIN TO BE LAID UNDER SERVICE. WHERE COVER EXCEEDS 1.5m, BUT LESS THAN 2.5m, THE MAIN SHALL BE EMBEDDED IN STABILISED SAND.



ROSE ATKINS RIMMER (Infrastructure) Pty. Ltd.
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PRESSURE SEWER DETAIL PLAN 4				SHEET 7 OF 19		WAC
DESIGNED BY	D.SHEATHER	REVIEWED BY	V.VIKSNE	VERIFIED BY	K.GAO	DATE
SCALE	1:500	DRAWN BY	A.H.D.	DATE OF ISSUE	22/11/2017	NO. 4/23645/A1



CONTINUES SHEET 16

ROSE ATKINS RIMMER (Infrastructure) Pty. Ltd. WATER RELATED INFRASTRUCTURE DESIGN AND MANAGEMENT 142 SUNNYHOLT ROAD, BLACKTOWN P.O. BOX 6745, BLACKTOWN N.S.W. 2148 PH: (02) 9853 0200 FAX: (02) 9671 7399		QUALITY ASSURED COMPANY		PRESSURE SEWER LONG SECTION 1		SHEET 9 OF 19		WAC	
DRAWN: D.SHEATHER SCALE: 1:1000(h) 1:250(v)	DESIGNED: D.SHEATHER DATE: A.H.D.	REVIEWED: V.VIKSNE DATE REFERRED: -	VERIFIED: K.GAO DATE OF ISSUE: 22/11/2017	4/23645/A1		28 No.		16	

DEFLECTION

FITTING

PROPOSED FINISHED SURFACE LEVEL

CONTINUED FROM SHEET 15

PIPE SIZE

GRADE

DATUM

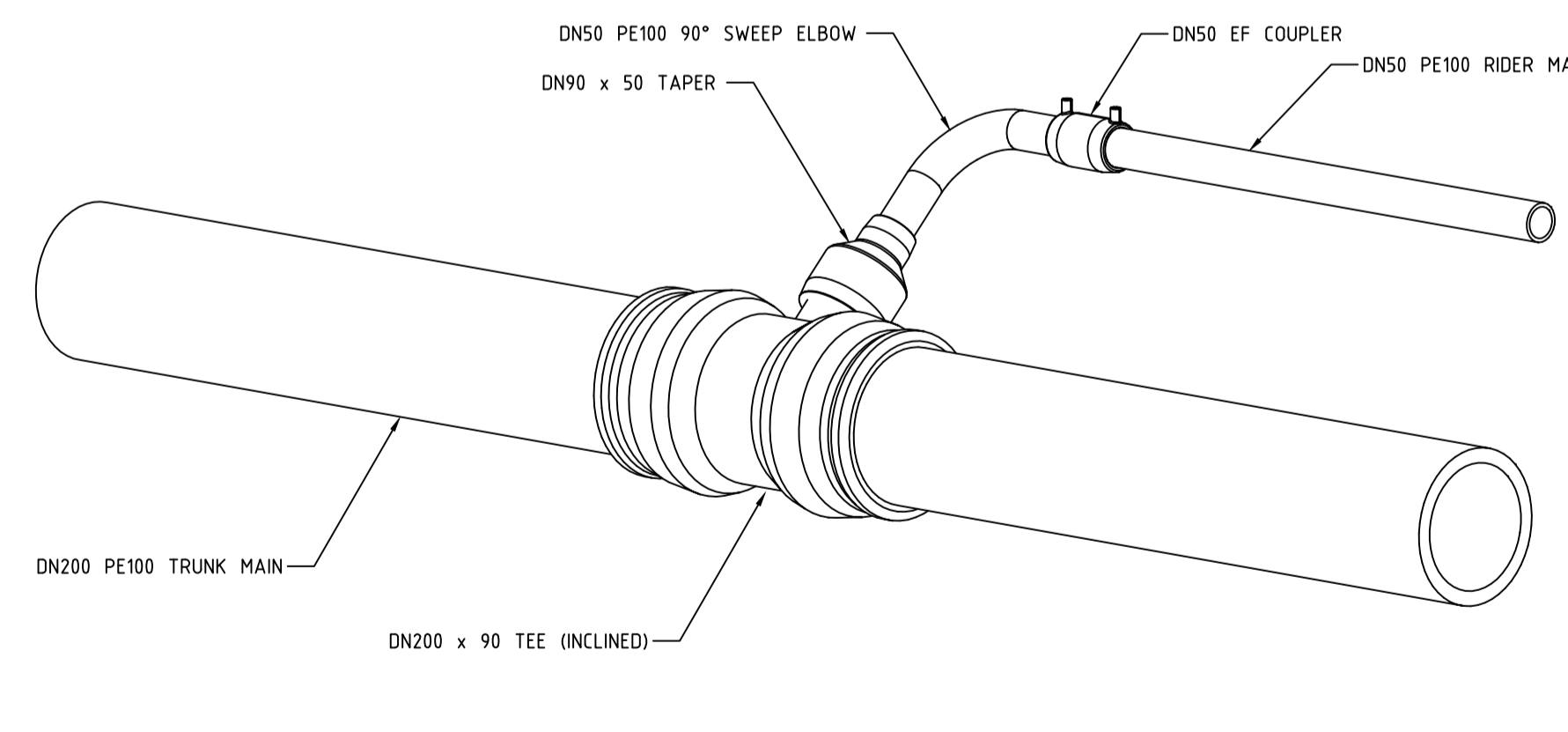
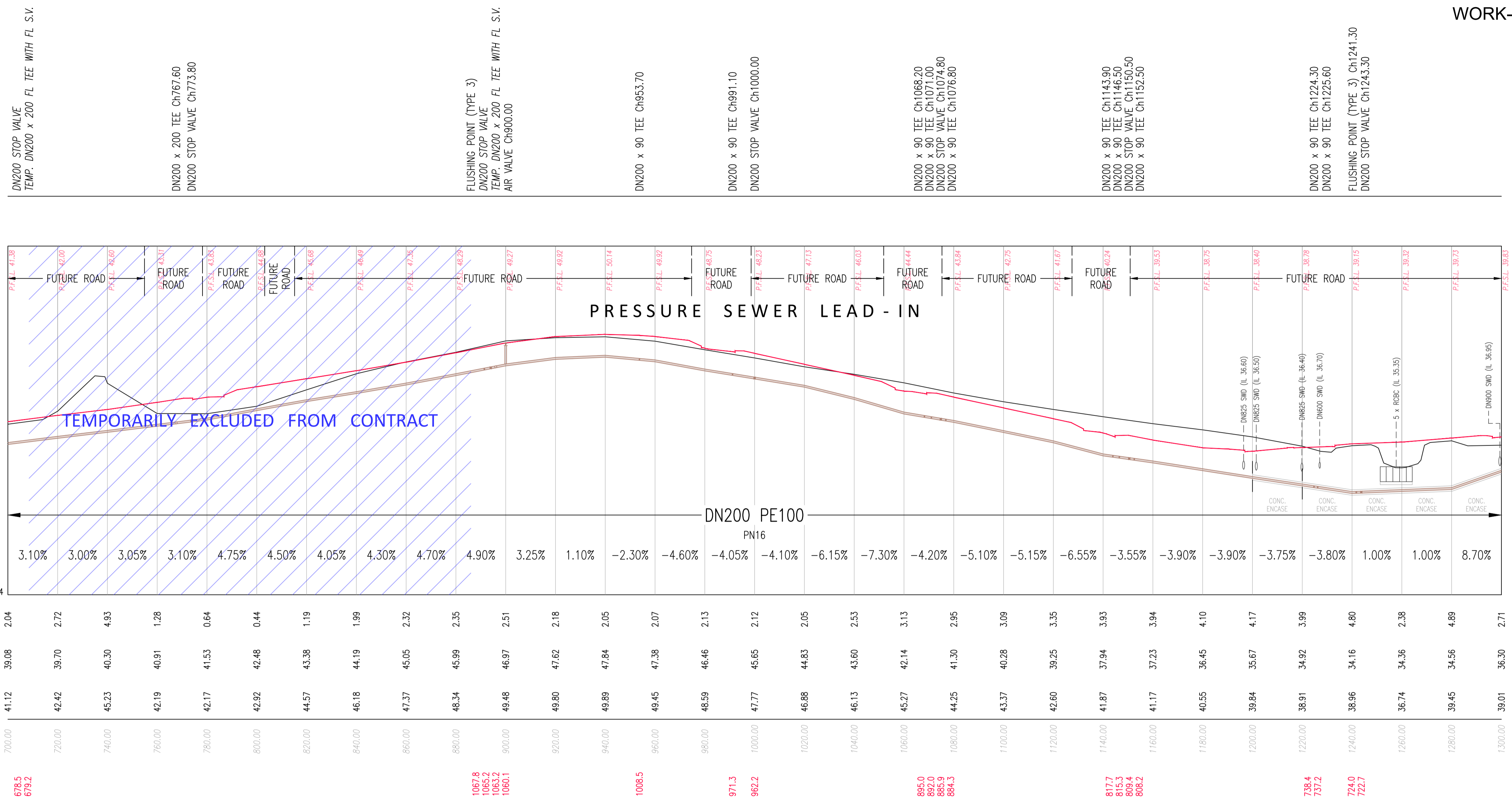
DEPTH TO INVERT

DESIGN INVERT LEVEL
(NOT SURVEYED FOR LEVEL)

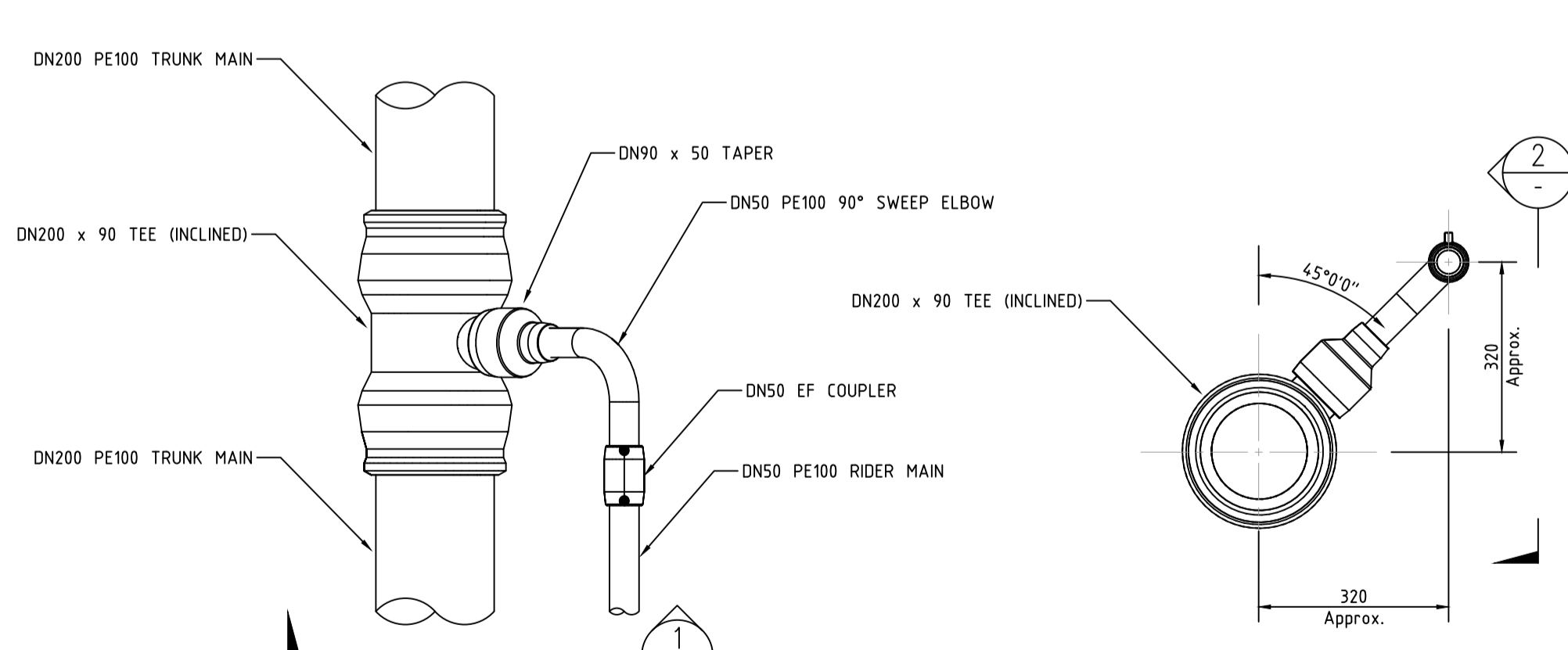
EXISTING SURFACE LEVEL

DESIGN CHAINAGE

RELATIVE W.A.C. CHAINAGE

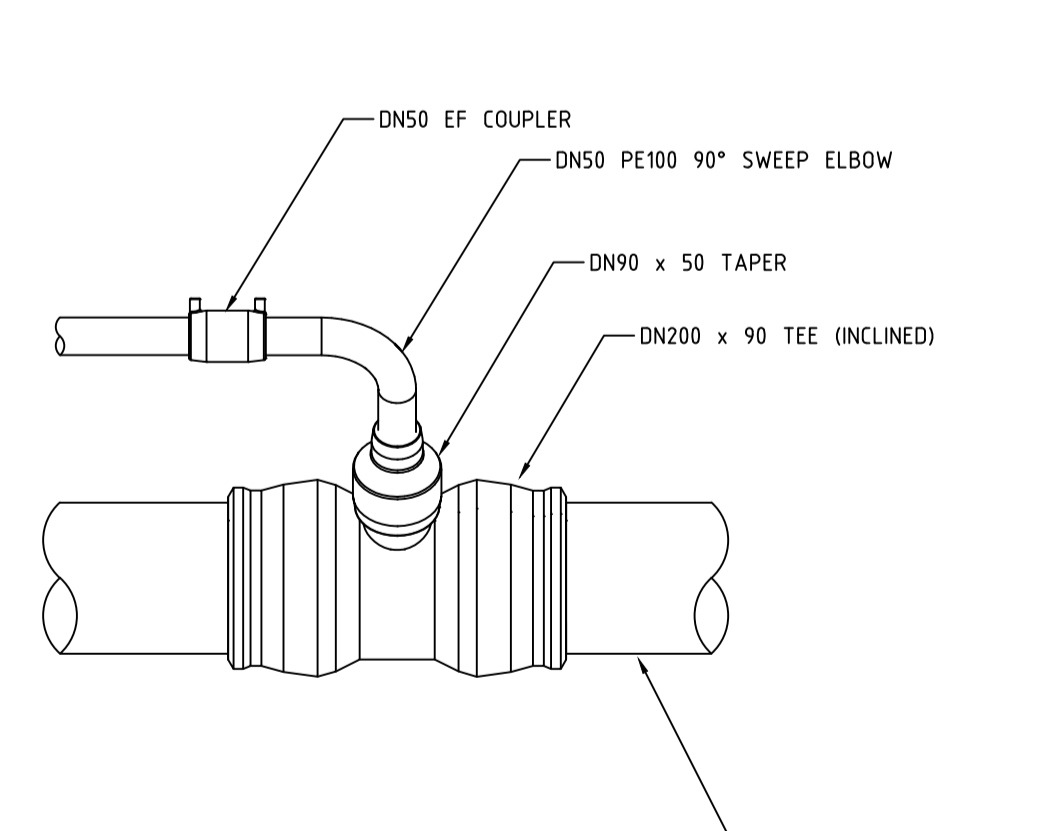


PERSPECTIVE DETAIL FOR RIDER MAIN OFFTAKE
NOT TO SCALE

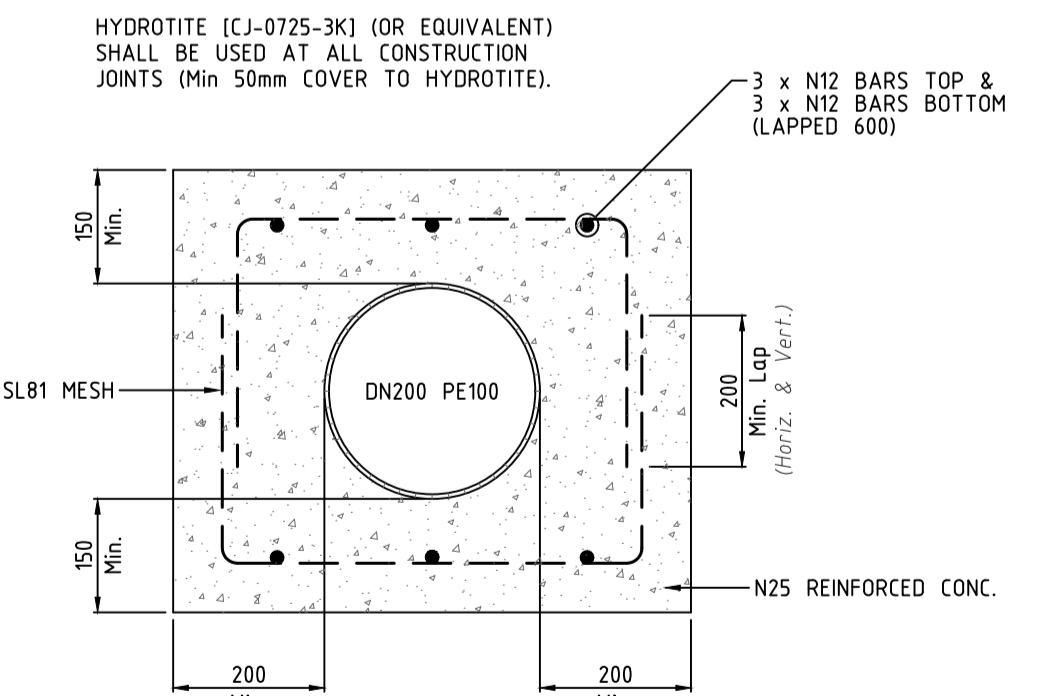


DETAIL FOR RIDER MAIN OFFTAKE
SCALE 1:10

SECTION 1
SCALE 1:10



SECTION 2
SCALE 1:10



DN200 PE100 ENCASEMENT DETAIL
Scale 1:10

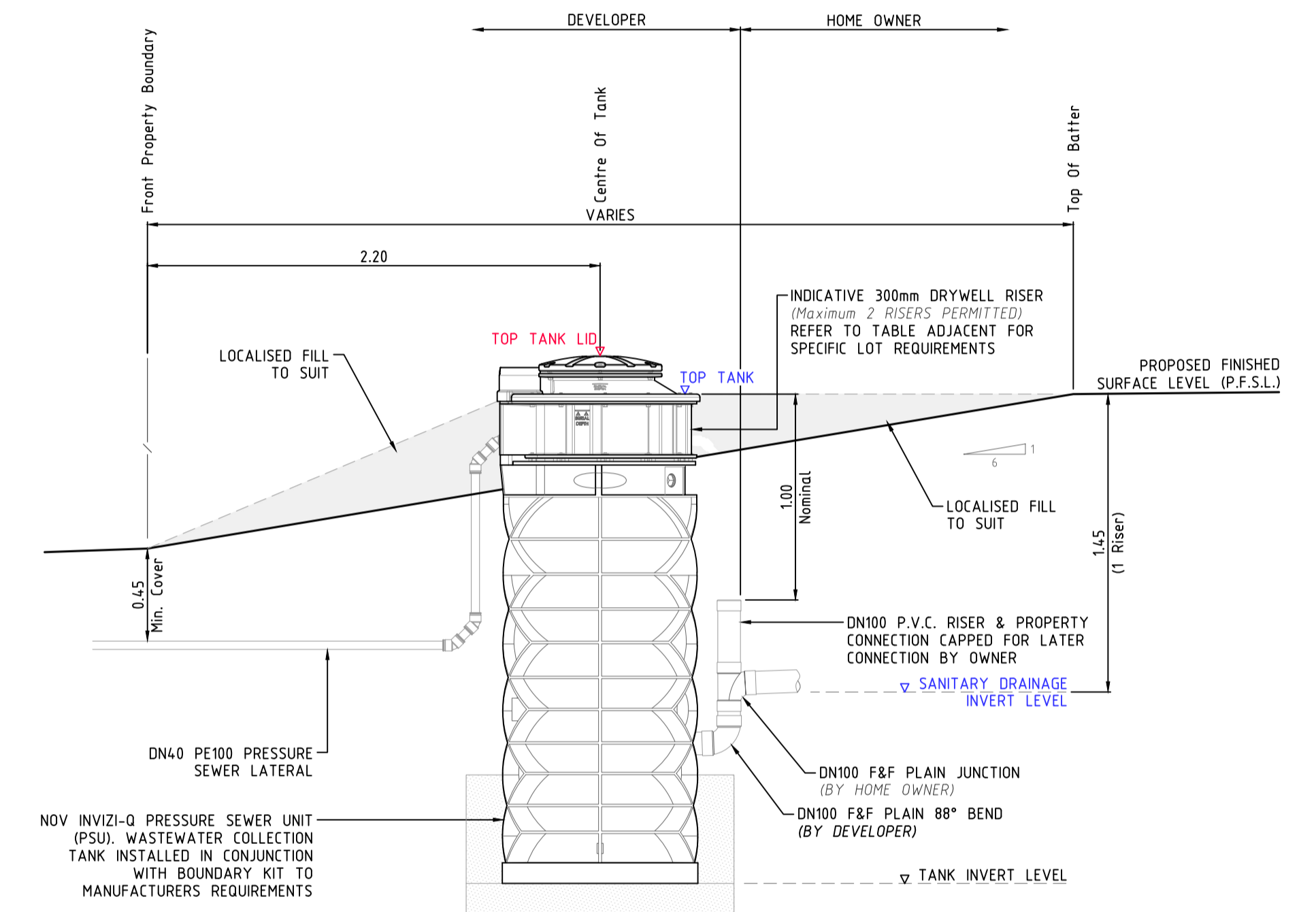
ROSE ATKINS RIMMER (Infrastructure) Pty. Ltd. WATER RELATED INFRASTRUCTURE DESIGN AND MANAGEMENT 142 SUNNYHOLT ROAD, BLACKTOWN P.O. BOX 6745, BLACKTOWN N.S.W. 2148 PH: (02) 9853 0200 FAX: (02) 9671 7399				QUALITY ENGINEERING COMPANY	
PRESSURE SEWER LONG SECTION 2					
DRAWN: D.SHEATHER SCALE: 1:1000(h) 1:250(v)	DESIGNED: D.SHEATHER DATE: A.H.D.	REVIEWED: V.VIKSNE DATE: -	VERIFIED: K.GAO DATE OF ISSUE: 22/11/2017	SHEET 10 OF 19 WAC	JOB No. 4/23645/A1

PRESSURE SEWER COLLECTION TANK LEVEL DETAILS

BOX HILL DEVELOPMENT - PRECINCT A [STAGE 1]

LOT NUMBER	COLLECTION TANK LOCATION	TANK SIZE	PFSL AT TANK LOCATION	QUANTITY OF DRYWELL RISERS REQUIRED	TOP OF COLLECTION TANK	DESIGN SANITARY DRAINAGE INVERT LEVEL	TOP OF COLLECTION TANK LID*	CALCULATED SANITARY DRAINAGE INVERT LEVEL
							[Work-As-Constructed]	[Work-As-Constructed]
1001	FRONT	900L	40.83		41.00	39.85	41.29	39.95
1002	FRONT	900L	40.93		41.20	40.05	41.38	40.04
1003	FRONT	900L	41.04		41.30	40.15	41.53	40.19
1004	FRONT	900L	41.18		41.40	40.25	41.64	40.30
1005	FRONT	900L	44.35	2	44.30	42.55	44.53	42.59
1006	FRONT	900L	42.73		42.73	41.58	43.05	41.71
1007	FRONT	900L	42.59		42.59	41.44	42.73	41.39
1008	FRONT	900L	43.13		43.10	41.95	43.29	41.95
1009	FRONT	900L	42.50		42.60	41.45	42.73	41.39
1010	FRONT	900L	41.81		42.00	40.85	42.22	40.88
1011	FRONT	900L	41.45		41.70	40.55	41.89	40.55
1012	FRONT	900L	41.31		41.60	40.45	41.76	40.42
1013	FRONT	900L	41.17		41.40	40.25	41.65	40.31
1014	FRONT	900L	41.07		41.30	40.15	41.53	40.19
1015	FRONT	900L	40.96		41.20	40.05	41.42	40.08
1016	FRONT	900L	40.86		41.10	39.95	41.33	39.99
1017	FRONT	900L	40.76		41.00	39.85	41.23	39.89
1018	FRONT	900L	40.62		40.80	39.65	41.12	39.78
1019	FRONT	900L	40.60		40.80	39.65	41.12	39.78
1020	FRONT	900L	40.47		40.70	39.55	40.94	39.60
1021	FRONT	900L	40.34	1	40.60	39.15	40.85	39.21
1022	FRONT	900L	40.21		40.40	39.25	40.72	39.38
1023	FRONT	900L	40.89		40.90	39.75	41.14	39.80
1024	FRONT	900L	41.05		41.10	39.95	41.39	40.05
1025	FRONT	900L	41.21		41.30	40.15	41.49	40.15
1026	FRONT	900L	41.37		41.50	40.35	41.71	40.37
1027	FRONT	900L	41.49		41.70	40.55	41.88	40.54
1028	FRONT	900L	41.62		41.80	40.65	42.06	40.72
1029	FRONT	900L	41.75		42.00	40.85	42.21	40.87
1030	FRONT	900L	41.86		42.10	40.95	42.31	40.97
1031	FRONT	900L	41.97		42.20	41.05	42.42	41.08
1032	FRONT	900L	42.09		42.30	41.15	42.56	41.22
1033	FRONT	900L	42.23		42.50	41.35	42.68	41.34
1034	FRONT	900L	42.68	1	42.90	41.45	43.19	41.55
1035	FRONT	900L	42.71		43.00	41.85	43.16	41.82
1036	FRONT	900L	43.26		43.50	42.35	43.65	42.31
1037	FRONT	900L	44.64	1	44.60	43.15	44.82	43.18
1038	FRONT	900L	45.30	2	45.30	43.55	45.59	43.65
1039	FRONT	900L	45.71	2	45.60	43.85	45.97	44.03
1040	REAR	900L	45.43		45.51	44.36	45.70	44.36
1041	FRONT	900L	46.68		47.00	45.85	46.95	45.61
1042	FRONT	900L	46.34		46.60	45.45	46.59	45.25
1043	FRONT	900L	45.95		46.20	45.05	46.20	44.86
1044	FRONT	900L	45.08		45.40	44.25	45.36	44.02
1045	FRONT	900L	44.93	1	45.20	43.75	45.23	43.59
1046	FRONT	900L	46.18		46.20	45.05	46.30	44.96
1047	FRONT	900L	47.22		47.30	46.15	47.43	46.09
1048	REAR	900L	47.13		47.21	46.06	47.38	46.04
1049	REAR	900L	47.86		47.94	46.79	48.09	46.75
1050	REAR	900L	48.24		48.32	47.17	48.40	47.06
1051	REAR	900L	48.50		48.58	47.43	48.70	47.36
1052	FRONT	900L	49.77		49.77	48.62	49.88	48.54
1053	FRONT	900L	49.47		49.70	48.55	50.21	48.87
1054	FRONT	900L	49.01		49.20	48.05	49.68	48.34
1055	FRONT	900L	48.96		48.96	47.81	49.49	48.15
1056	FRONT	900L	50.41		50.50	49.35	50.77	49.43
1057	REAR	900L	52.52	1	52.60	51.15	52.72	51.08
1058	REAR	900L	51.84		51.92	50.77	51.77	50.43
1059	FRONT	900L	51.35		51.40	50.25	51.63	50.29
1060	REAR	900L	48.43		48.51	47.36	48.67	47.33
1061	REAR	900L	49.40		49.48	48.33	49.66	48.32
1062	FRONT	900L	48.66	2	48.60	46.85	48.81	46.87
1063	FRONT	900L	47.72	1	47.70	46.25	47.92	46.28
1064	FRONT	900L	46.91	1	46.80	45.35	47.09	45.45
1065	FRONT	900L	46.84	2	46.80	45.05	47.01	45.07
1066	FRONT	900L	46.51	2	46.40	44.65	46.70	44.76
1067	FRONT	900L	46.35	2	46.30	44.55	46.52	44.58
1068	FRONT	900L	45.16		45.20	44.05	45.31	43.97
1069	FRONT	900L	44.62		44.70	43.55	44.78	43.44
1070	FRONT	900L	44.06		44.20	43.05	44.21	42.87
1071	FRONT	900L	44.33	2	44.60	42.85	44.55	42.61
1072	FRONT	900L	44.68		44.90	43.75	45.12	43.78
1073	FRONT	900L	45.03		45.20	44.05	45.51	44.17
1074	FRONT	900L	45.74	1	46.00	44.55	46.24	44.60
1075	FRONT	900L	46.37	1	46.60	45.15	46.82	45.18
1076	FRONT	900L	47.12	2	47.40	45.65	47.64	45.70
1077	FRONT	900L	47.28		47.50	46.35	47.81	46.47
1078	FRONT	900L	46.86	2	46.80	45.05	47.02	45.08
1079	REAR	900L	45.23	1	45.31	43.86	45.45	43.81
1080	FRONT	900L	45.61	2	45.50	43.75	45.85	43.91

* COLLECTION TANK LEVEL PROVIDED TO G.P.S. ACCURACY ONLY. THE BUILDER IS REQUIRED TO CONFIRM DRAINAGE CONSTRAINTS PRIOR TO MAKING CONNECTION TO TANK.



COLLECTION TANK SECTIONAL ELEVATION

SCALE 1:25

COLLECTION TANK NOTES

- DESIGN SURFACE LEVELS WERE ELECTRONICALLY EXTRACTED FROM DIGITAL DATA SUPPLIED BY J. WYNDHAM PRINCE CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS (160608 Precinct A Design Surface Stage 1 2 and 3A.12daz).
- DESIGN LEVELS CAN ONLY BE ASSUMED AS CURRENT AT TIME OF EXTRACTION. ALL LEVELS SHALL BE CONFIRMED WITH THE SITE SUPERINTENDENT PRIOR TO INSTALLATION OF TANKS. SHOULD THE PROPOSED FINISHED SURFACE LEVEL (P.F.S.L.) DIFFER FROM DESIGN BY MORE THAN 100mm, THE CONSTRUCTOR SHALL CONTACT THE DESIGNER IMMEDIATELY.
- COLLECTION TANK SETOUT SHALL BE COMPLIANT WITH FSI-1000-FS & FSI-SK03A-FS. COLLECTION TANK INSTALLATION LEVELS DOCUMENTED ADJACENT SHALL SUPERSEDE ANY LEVELS ADVISED ON DRAWING FSI-SK03A-FS.
- R.A.R. ACCEPT NO RESPONSIBILITY FOR INCONSISTENCIES IN EXTRACTED LEVELS RESULTING FROM CHANGES TO THE MODEL (SURFACE LEVEL) INFORMATION POST DATA EXTRACTION DATE.

ROSE ATKINS RIMMER (Infrastructure) Pty. Ltd. WATER RELATED INFRASTRUCTURE DESIGN AND MANAGEMENT 142 SUNNYHOLT ROAD, BLACKTOWN P.O. BOX 6745, BLACKTOWN N.S.W. 2148 PH: (02) 9853 0200 FAX: (02) 9671 7399		COLLECTION TANK LEVEL DETAILS 1		SHEET 11 OF 19		VERSION WAC
DRAWN D.SHEATHER	DESIGNED D.SHEATHER	REVIEWED V.VIKSNE	VERIFIED K.GAO	DATE 22/11/2017	4/23645/A1	

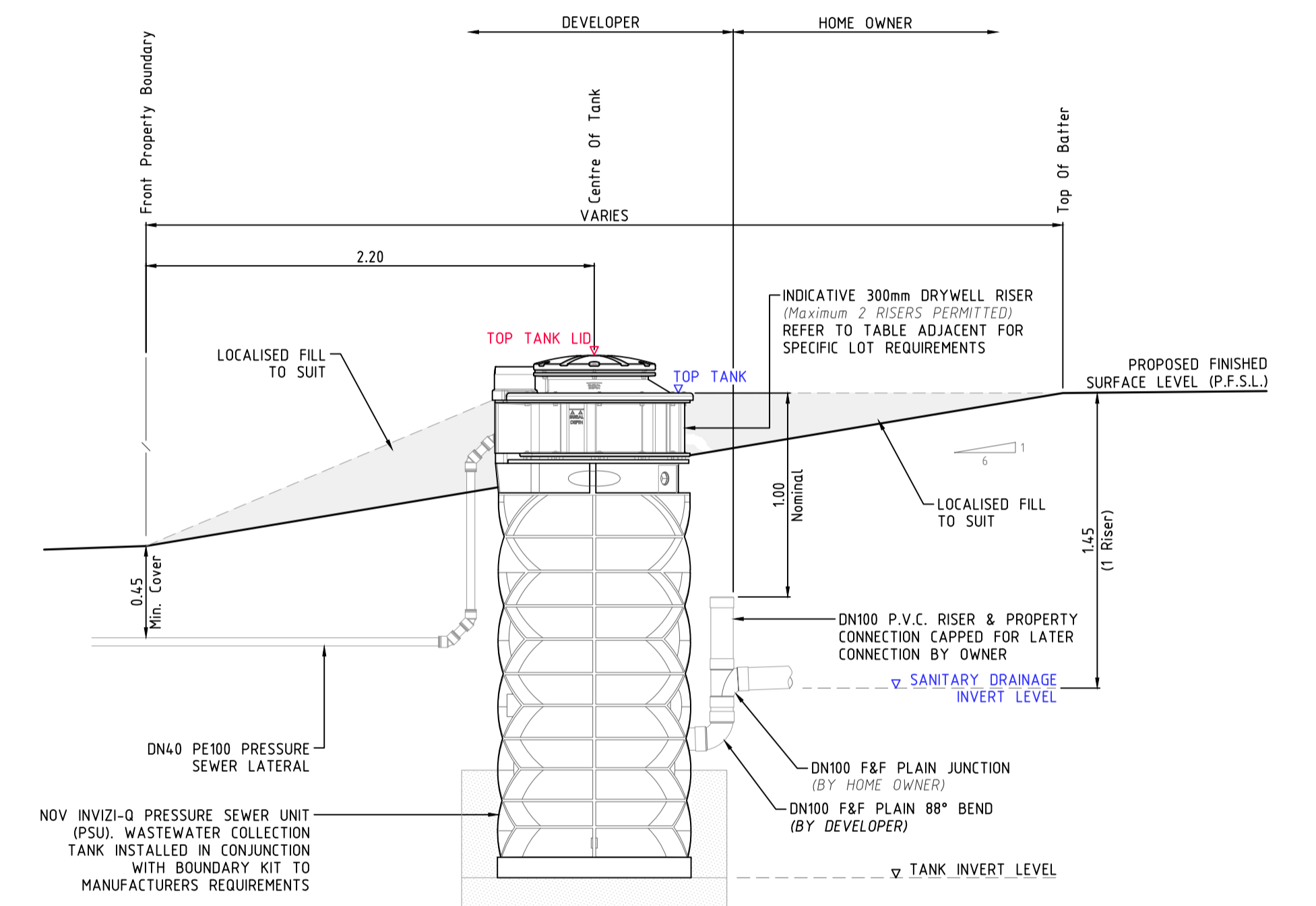
PRESSURE SEWER COLLECTION TANK LEVEL DETAILS

BOX HILL DEVELOPMENT - PRECINCT A [STAGE 1]

LOT NUMBER	COLLECTION TANK LOCATION	TANK SIZE	PFSL AT TANK LOCATION	QUANTITY OF DRYWELL RISERS REQUIRED	TOP OF COLLECTION TANK	DESIGN SANITARY DRAINAGE INVERT LEVEL	TOP OF COLLECTION TANK LID*	CALCULATED SANITARY DRAINAGE INVERT LEVEL
							[Work-As-Constructed]	[Work-As-Constructed]
	[FRONT / REAR]	[900L / 2200L]			[Design R.L.]	[Design R.L.]		
1081	FRONT	900L	45.00	2	44.90	43.15	45.22	43.28
1082	FRONT	900L	44.56	2	44.50	42.75	44.73	42.79
1083	FRONT	900L	43.31		43.40	42.25	43.40	42.06
1084	FRONT	900L	43.16		43.20	42.05	43.26	41.92
1085	FRONT	900L	42.97		43.00	41.85	43.10	41.76
1086	FRONT	900L	42.94	1	43.00	41.55	43.04	41.40
1087	FRONT	900L	43.52	1	43.80	42.35	44.00	42.36
1088	FRONT	900L	43.65		43.90	42.75	44.09	42.75
1089	FRONT	900L	43.75		44.00	42.85	44.20	42.86
1090	REAR	900L	44.78	2	44.86	43.11	45.05	43.11
1091	FRONT	900L	45.85	2	45.80	44.05	45.97	44.03
1092(1)	FRONT	900L	40.80		40.80	39.65	41.00	39.66
1092(2)	FRONT	900L	40.94		41.00	39.85	41.23	39.89
1092(3)	FRONT	900L	41.08	1	41.20	39.75	41.42	39.78
1092(8)	FRONT	900L	40.80		41.00	39.85	41.31	39.97
1094(1)	FRONT	900L	39.94		40.30	39.15	40.38	39.04
1094(2)	FRONT	900L	40.01		40.30	39.15	40.41	39.07
1094(3)	FRONT	900L	40.08		40.30	39.15	40.50	39.16
1094(4)	FRONT	900L	41.02	2	41.20	39.45	41.46	39.52
1094(5)	FRONT	900L	41.10	2	41.40	39.65	41.56	39.62
1094(6)	FRONT	900L	41.17	2	41.40	39.65	41.66	39.72
1094(7)	FRONT	900L	41.25	2	41.50	39.75	41.73	39.79
1094(8)	FRONT	900L	41.32	2	41.60	39.85	41.73	39.79
1094(9)	FRONT	900L	41.39	2	41.60	39.85	41.82	39.88
1094(10)	FRONT	900L	41.47	2	41.70	39.95	41.88	39.94
1094(11)	FRONT	900L	41.54	2	41.80	40.05	42.00	40.06
1094(12)	FRONT	900L	41.62	2	41.80	40.05	42.04	40.10
1094(13)	FRONT	900L	41.40		41.60	40.45	41.81	40.47
1094(14)	FRONT	900L	41.10		41.40	40.25	41.53	40.19
1094(15)	FRONT	900L	40.82		41.00	39.85	41.27	39.93
1094(16)	FRONT	900L	40.37		40.60	39.45	40.79	39.45
1094(17)	FRONT	900L	40.31		40.60	39.45	40.71	39.37
1094(18)	FRONT	900L	40.24		40.50	39.35	40.65	39.31
1094(19)	FRONT	900L	40.17		40.40	39.25	40.59	39.25
1094(20)	FRONT	900L	40.09		40.40	39.25	40.50	39.16
1094(21)	FRONT	900L	40.02		40.20	39.05	40.46	39.12
1094(22)	FRONT	900L	39.94		40.10	38.95	40.38	39.04
1094(23)	FRONT	900L	39.86		40.10	38.95	40.33	38.99
1094(24)	FRONT	900L	39.79		40.00	38.85	40.19	38.85
1094(25)	FRONT	900L	39.71		39.90	38.75	40.11	38.77
1094(26)	FRONT	900L	39.63		39.90	38.75	40.06	38.72
1094(27)	FRONT	900L	39.56		39.80	38.65	39.99	38.65
1094(28)	FRONT	900L	39.48		39.80	38.65	39.88	38.54
1094(29)	FRONT	900L	39.41		39.60	38.45	39.82	38.48
1094(30)	FRONT	900L	39.39		39.60	38.45	39.79	38.45
1095(1)	FRONT	900L	43.39		43.60	42.45	43.89	42.55
1095(2)	FRONT	900L	43.59		43.80	42.65	44.13	42.79
1095(3)	FRONT	900L	43.79		44.00	42.85	44.30	42.96
1095(4)	FRONT	900L	43.99		44.20	43.05	44.54	43.20
1095(5)	FRONT	900L	44.19		44.40	43.25	44.72	43.38
1095(6)	FRONT	900L	44.38		44.60	43.45	44.85	43.51
1103	FRONT	900L	41.29		41.60	40.45	41.74	40.40
1104	FRONT	900L	41.45		41.70	40.55	41.90	40.56
1105	FRONT	900L	41.88		41.90	40.75	42.30	40.96
1106	FRONT	900L	42.76		42.76	41.61	42.88	41.54
1107	REAR	900L	42.40		42.48	41.33	42.98	41.64
1108	REAR	900L	42.29		42.37	41.22	42.76	41.42
1109	REAR	900L	42.18		42.26	41.11	42.70	41.36
1110	REAR	900L	42.07		42.15	41.00	42.42	41.08
1111	FRONT	900L	42.64	2	42.60	40.85	42.78	40.84
1112(1)	FRONT	900L	42.20		42.20	41.05		
1112(2)	FRONT	900L	42.12		42.10	40.95		
1112(3)	FRONT	900L	42.05		42.10	40.95		
1112(4)	FRONT	900L	41.99		42.00	40.85		
1112(5)	FRONT	900L	41.92		41.90	40.75		
1112(6)	FRONT	900L	41.85		41.90	40.75		
1112(7)	FRONT	900L	41.78		41.80	40.65		
1112(8)	FRONT	900L	41.72		41.70	40.55		
1112(9)	FRONT	900L	41.65		41.70	40.55		
1112(10)	FRONT	900L	41.61		41.70	40.55		

NO BOUNDARY KIT OR COLLECTION TANK INSTALLED ON LOTS DENOTED THUS. DEVELOPER TO INSTALL ON THESE LOTS IN THE FUTURE.

* COLLECTION TANK LEVEL PROVIDED TO G.P.S. ACCURACY ONLY. THE BUILDER IS REQUIRED TO CONFIRM DRAINAGE CONSTRAINTS PRIOR TO MAKING CONNECTION TO TANK.



COLLECTION TANK SECTIONAL ELEVATION

SCALE 1:25

COLLECTION TANK NOTES

- DESIGN SURFACE LEVELS WERE ELECTRONICALLY EXTRACTED FROM DIGITAL DATA SUPPLIED BY J. WYNHAM PRINCE CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS (160608 Precinct A Design Surface Stage 1 2 and 3A.12daz).
- DESIGN LEVELS CAN ONLY BE ASSUMED AS CURRENT AT TIME OF EXTRACTION. ALL LEVELS SHALL BE CONFIRMED WITH THE SITE SUPERINTENDENT PRIOR TO INSTALLATION OF TANKS. SHOULD THE PROPOSED FINISHED SURFACE LEVEL (P.F.S.L.) DIFFER FROM DESIGN BY MORE THAN 100mm, THE CONSTRUCTOR SHALL CONTACT THE DESIGNER IMMEDIATELY.
- COLLECTION TANK SETOUT SHALL BE COMPLIANT WITH FSI-1000-FS & FSI-SK03A-FS. COLLECTION TANK INSTALLATION LEVELS DOCUMENTED ADJACENT SHALL SUPERSEDE ANY LEVELS ADVISED ON DRAWING FSI-SK03A-FS.
- R.A.R. ACCEPT NO RESPONSIBILITY FOR INCONSISTENCIES IN EXTRACTED LEVELS RESULTING FROM CHANGES TO THE MODEL (SURFACE LEVEL) INFORMATION POST DATA EXTRACTION DATE.

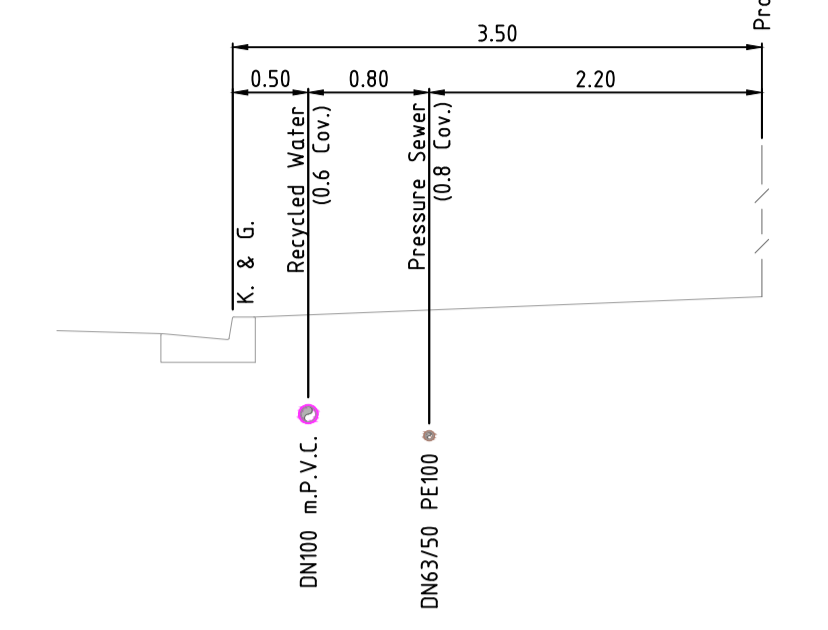
ROSE ATKINS RIMMER (Infrastructure) Pty. Ltd.		COLLECTION TANK LEVEL DETAILS 2		SHEET 12 OF 19	VERSION: WAC
142 SUNNYHOLT ROAD, BLACKTOWN P.O. BOX 6745, BLACKTOWN N.S.W. 2148 PH: (02) 9853 0200 FAX: (02) 9671 7399		DESIGNED: D.SHEATHER	REVIEWED: V.VIKSNE	DATE: 22/11/2017	4/23645/A1

RECYCLED WATER PIPE SCHEDULE

SIZE	TYPE	CLASS	LENGTH
DN375	m.P.V.C.	PN16	38.8
DN300	m.P.V.C.	PN16	16.8
DN250	m.P.V.C.	PN16	1,077.6
DN250	PE100	PN16	1,109.8
DN200	m.P.V.C.	PN16	89.2
DN200	PE100	PN16	402.4
DN150	m.P.V.C.	PN16	576.9
DN100	m.P.V.C.	PN16	2,075.9
TOTAL			5,387.4

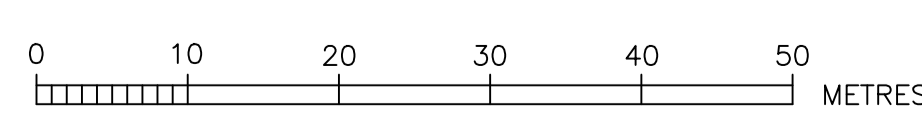
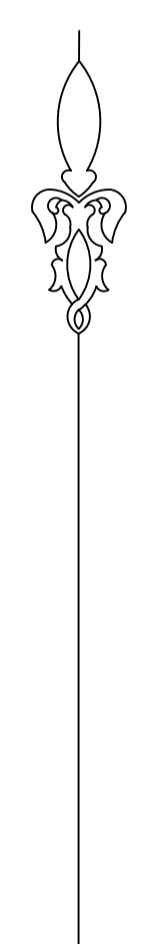
TYPICAL TRENCH CONFIGURATION

SETOUT DIMENSIONS ONLY
NOT TO SCALE



Precinct A Development Stages

- Stage 1
- Stage 2
- Stage 3A
- Stage 3B
- Stage 4



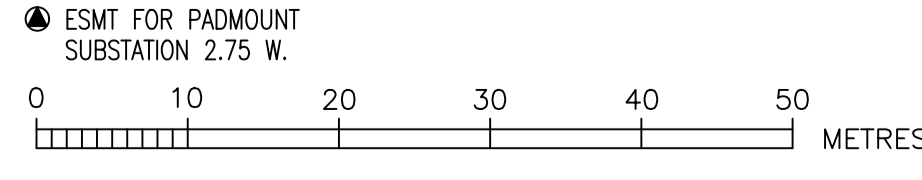
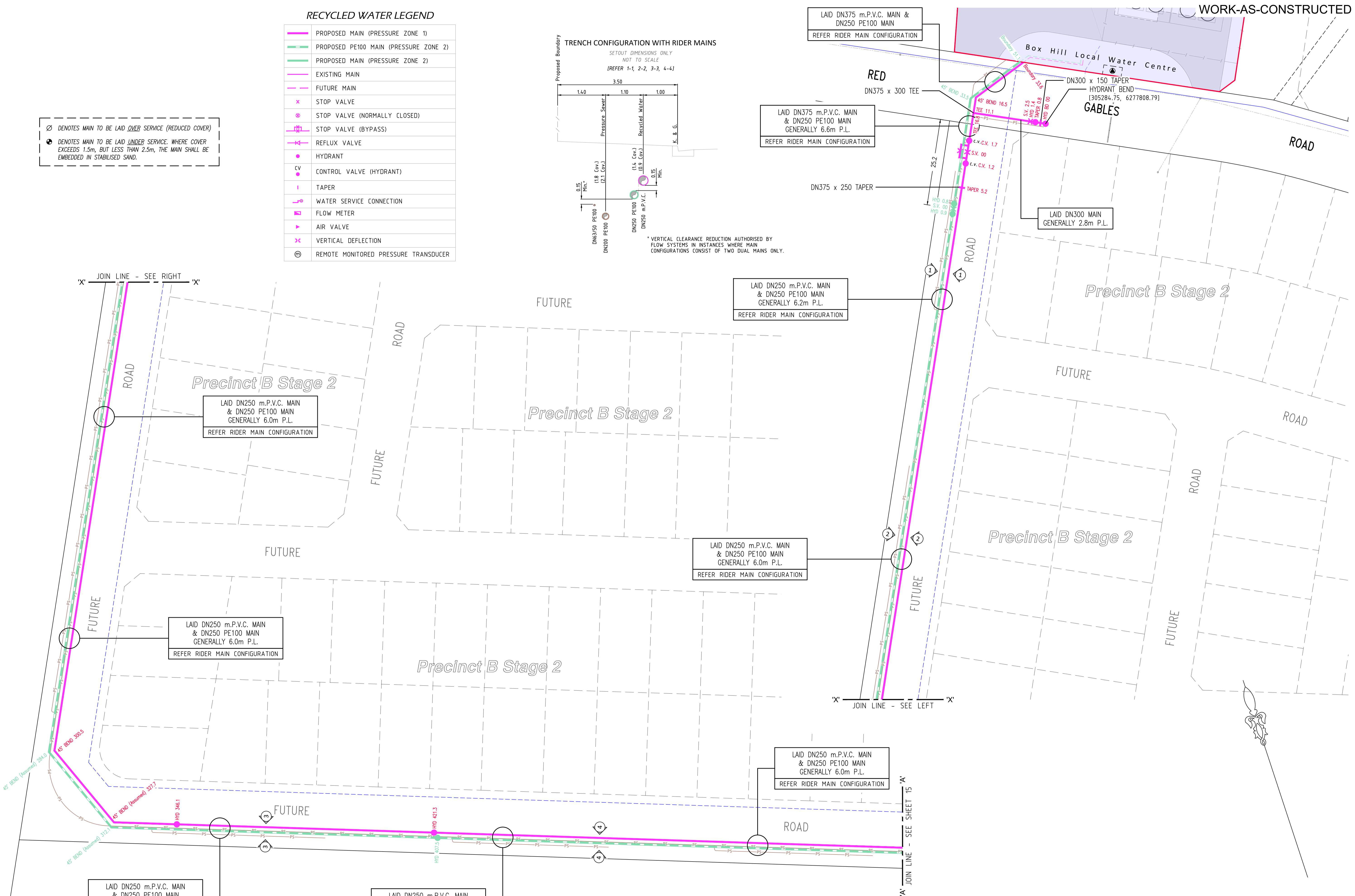
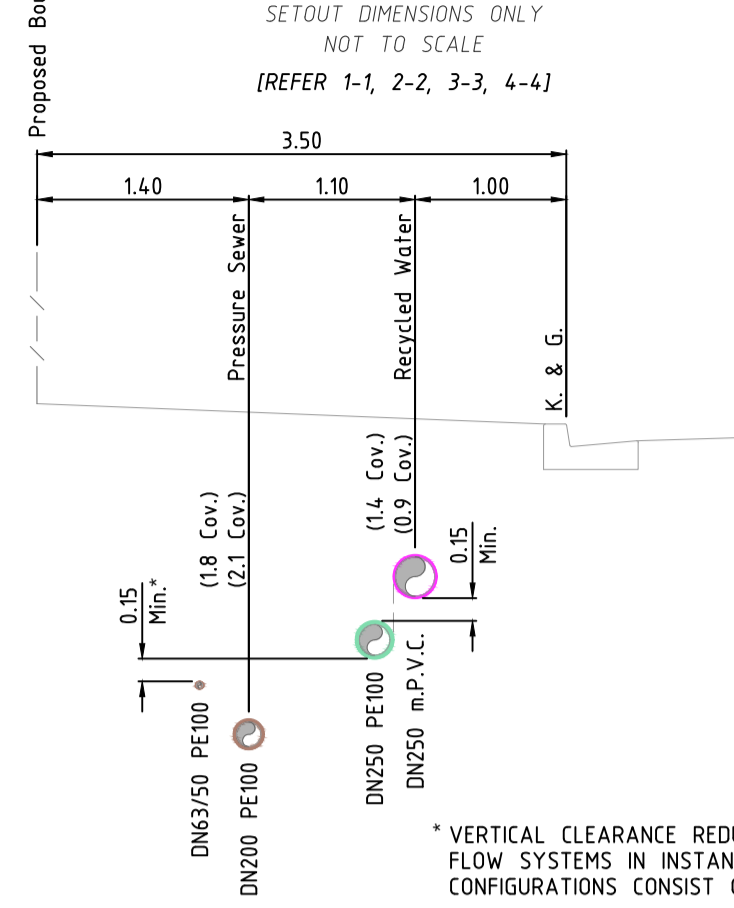
ROSE ATKINS RIMMER (Infrastructure) Pty. Ltd. WATER RELATED INFRASTRUCTURE DESIGN AND MANAGEMENT 142 SUNNYHOLT ROAD, BLACKTOWN P.O. BOX 6745, BLACKTOWN N.S.W. 2148 PH: (02) 9853 0200 FAX: (02) 9671 7399			RECYCLED WATER GENERAL ARRANGEMENT	SHEET 13 OF 19	WAC
DRAWN:	DESIGN:	REVISED:	CHECKED:	DATE:	JOB No.
D.SHEATHER	D.SHEATHER	V.VIKSNE	K.GAO	22/11/2017	4/23645/A1
SCALE:	DATE:	WAL. REFERENCE:	DATE OF ISSUE:		
-	-	-	-		

RECYCLED WATER LEGEND

	PROPOSED MAIN (PRESSURE ZONE 1)
	PROPOSED PE100 MAIN (PRESSURE ZONE 2)
	PROPOSED MAIN (PRESSURE ZONE 2)
	EXISTING MAIN
	FUTURE MAIN
	STOP VALVE
	STOP VALVE (NORMALLY CLOSED)
	STOP VALVE (BYPASS)
	REFLUX VALVE
	HYDRANT
	CONTROL VALVE (HYDRANT)
	TAPER
	WATER SERVICE CONNECTION
	FLOW METER
	AIR VALVE
	VERTICAL DEFLECTION
	REMOTE MONITORED PRESSURE TRANSDUCER

⊘ DENOTES MAIN TO BE LAID OVER SERVICE (REDUCED COVER)
 ⊙ DENOTES MAIN TO BE LAID UNDER SERVICE, WHERE COVER EXCEEDS 1.5m, BUT LESS THAN 2.5m, THE MAIN SHALL BE EMBEDDED IN STABILISED SAND.

TRENCH CONFIGURATION WITH RIDER MAINS



ROSE ATKINS RIMMER (Infrastructure) Pty. Ltd.
 WATER RELATED INFRASTRUCTURE DESIGN AND MANAGEMENT
 142 SUNNYHOLT ROAD, BLACKTOWN
 P.O. BOX 6745, BLACKTOWN N.S.W. 2148
 PH: (02) 9853 0200 FAX: (02) 9671 7399

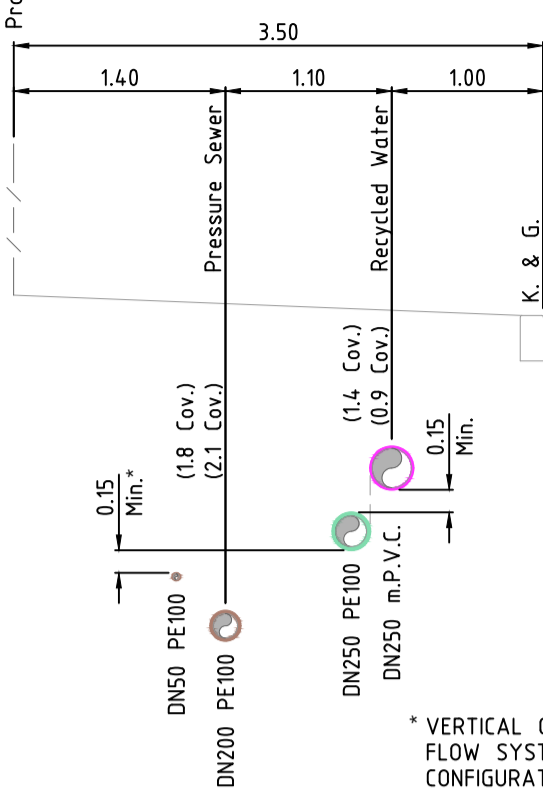
RECYCLED WATER DETAIL PLAN 1				SHEET 14 OF 19		WAC
DESIGNED BY D.SHEATHER	DRAWN BY D.SHEATHER	CHECKED BY V.VIKSNE	VERIFIED BY K.GAO	DATE OF ISSUE 22/11/2017	JOB No. 4/23645/A1	
SCALE 1:500						

RECYCLED WATER LEGEND

	PROPOSED MAIN (PRESSURE ZONE 1)
	PROPOSED PE100 MAIN (PRESSURE ZONE 2)
	PROPOSED MAIN (PRESSURE ZONE 2)
	EXISTING MAIN
	FUTURE MAIN
	STOP VALVE
	STOP VALVE (NORMALLY CLOSED)
	STOP VALVE (BYPASS)
	REFLUX VALVE
	HYDRANT
	CONTROL VALVE (HYDRANT)
	TAPER
	WATER SERVICE CONNECTION
	FLOW METER
	AIR VALVE
	VERTICAL DEFLECTION
	REMOTE MONITORED PRESSURE TRANSDUCER

TRENCH CONFIGURATION WITH RIDER MAINS

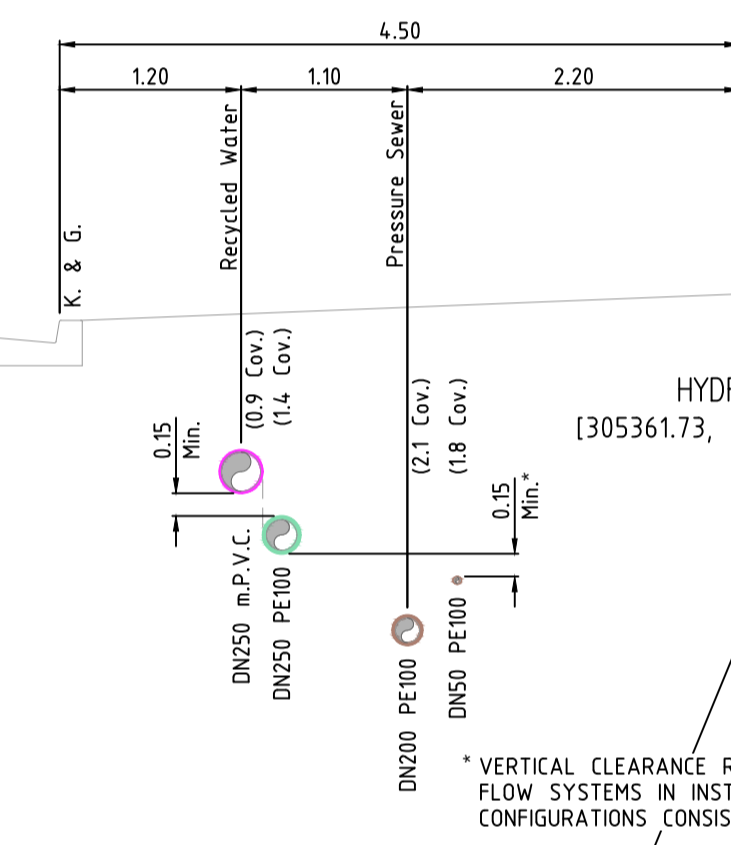
SETOUT DIMENSIONS ONLY
NOT TO SCALE
[REFER 4-4]



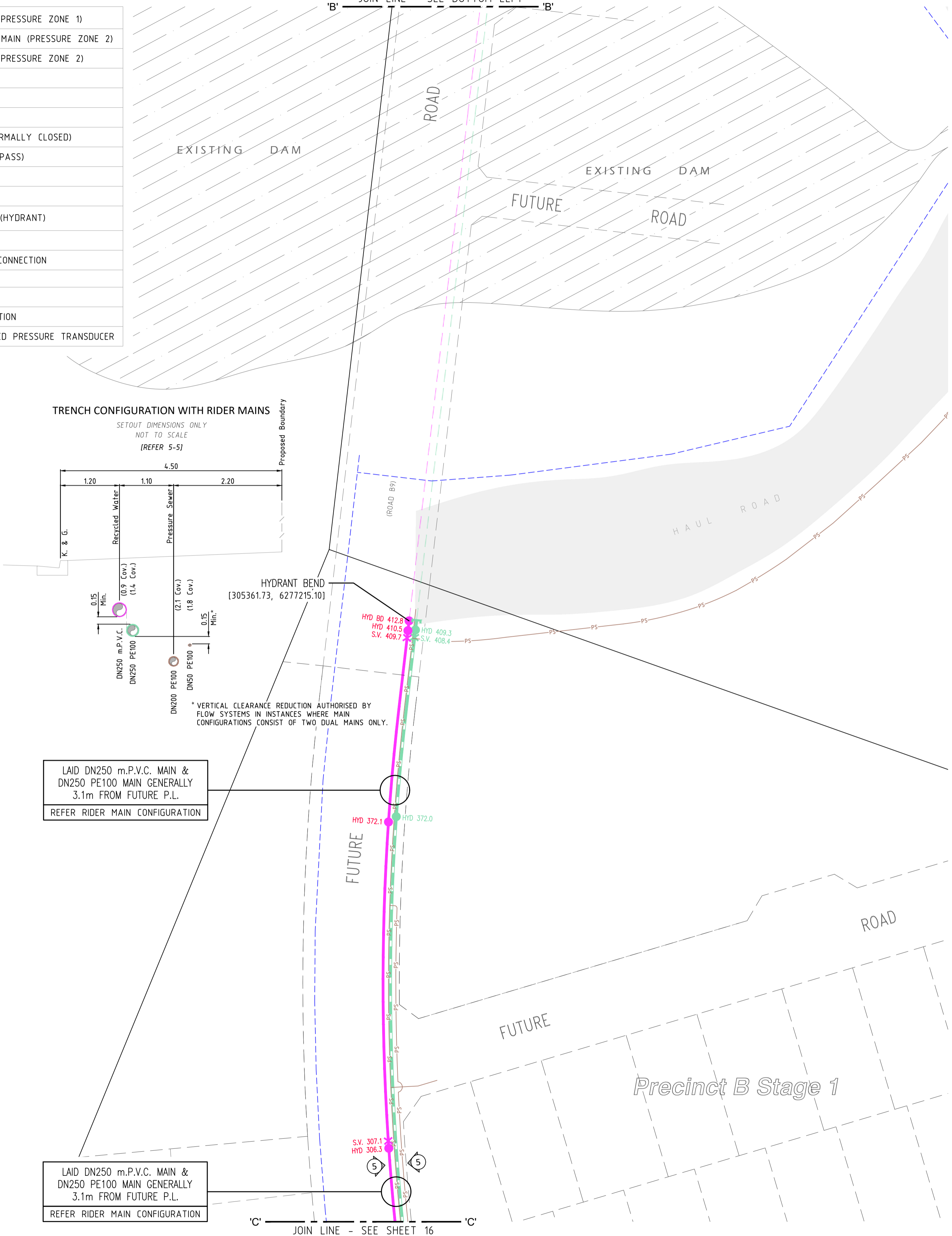
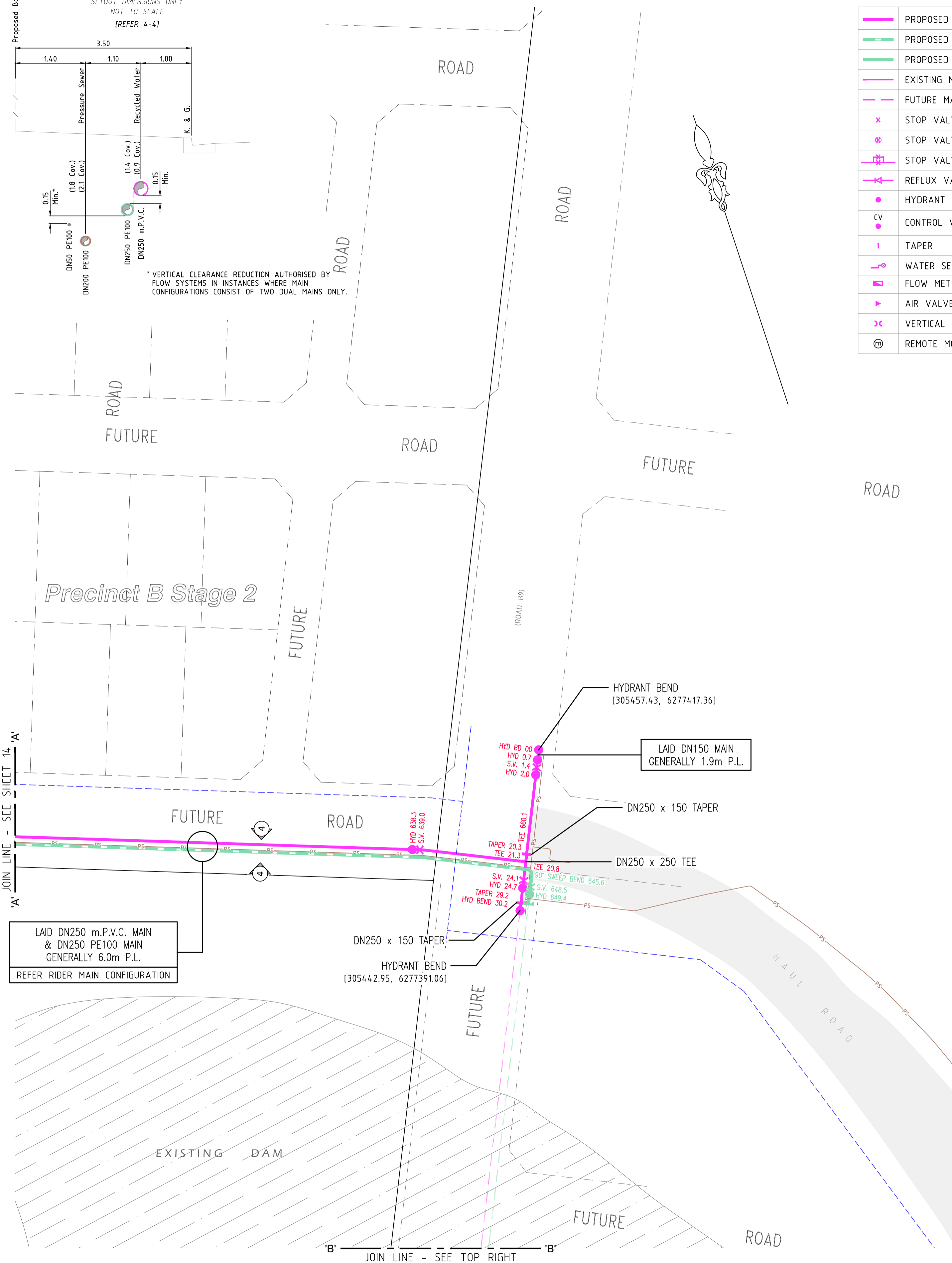
* VERTICAL CLEARANCE REDUCTION AUTHORISED BY FLOW SYSTEMS IN INSTANCES WHERE MAIN CONFIGURATIONS CONSIST OF TWO DUAL MAINS ONLY.

TRENCH CONFIGURATION WITH RIDER MAINS

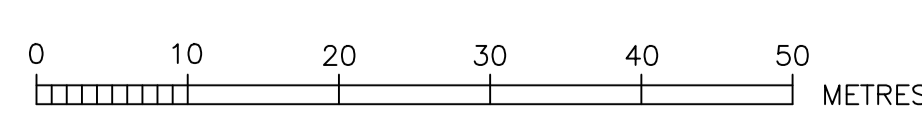
SETOUT DIMENSIONS ONLY
NOT TO SCALE
[REFER 5-5]



* VERTICAL CLEARANCE REDUCTION AUTHORISED BY FLOW SYSTEMS IN INSTANCES WHERE MAIN CONFIGURATIONS CONSIST OF TWO DUAL MAINS ONLY.



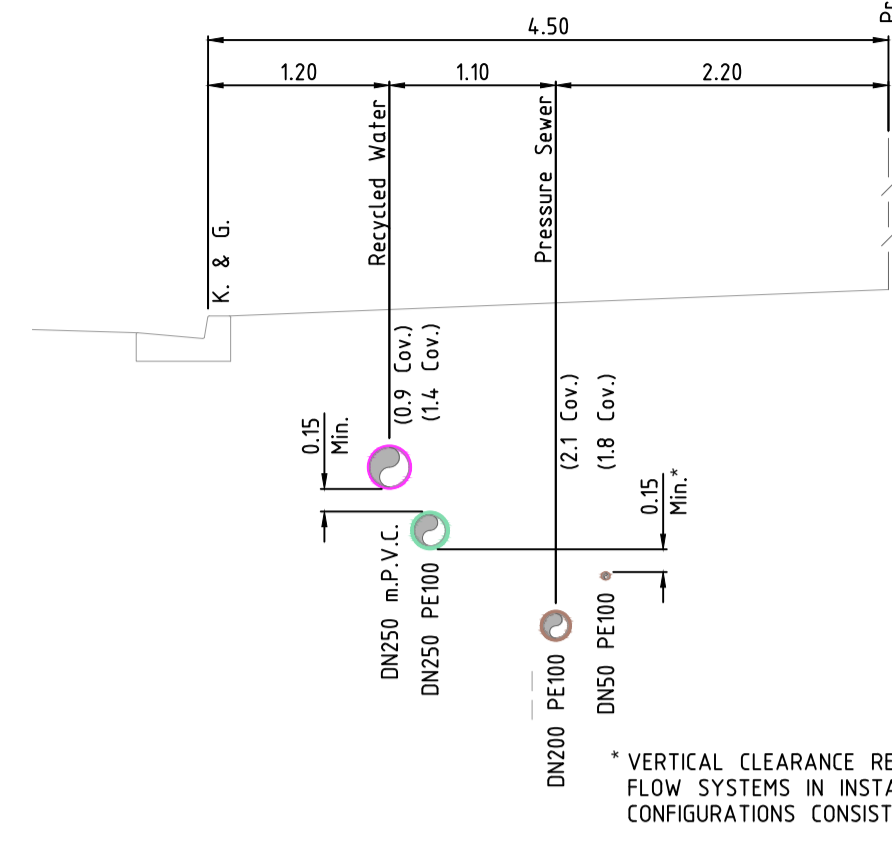
⊙ DENOTES MAIN TO BE LAID OVER SERVICE (REDUCED COVER)
 ⊙ DENOTES MAIN TO BE LAID UNDER SERVICE. WHERE COVER EXCEEDS 1.5m, BUT LESS THAN 2.5m, THE MAIN SHALL BE EMBEDDED IN STABILISED SAND.



ROSE ATKINS RIMMER (Infrastructure) Pty. Ltd.
RAR WATER RELATED INFRASTRUCTURE DESIGN AND MANAGEMENT
 142 SUNNYHOLT ROAD, BLACKTOWN
 P.O. BOX 6745, BLACKTOWN N.S.W. 2148
 PH: (02) 9853 0200 FAX: (02) 9671 7399

RECYCLED WATER DETAIL PLAN 2				SHEET 15 OF 19	WAC		
DESIGNED BY	D.SHEATHER	DESIGNED BY	D.SHEATHER	REVIEWED BY	V.VIKSNE	VERIFIED BY	K.GAO
SCALE	1:500	DATE	-	DATE OF ISSUE	-	DATE OF ISSUE	22/11/2017
				AS No.	4/23645/A1		

TRENCH CONFIGURATION WITH RIDER MAINS
 SETOUT DIMENSIONS ONLY
 NOT TO SCALE
 (REFER 5-5, 6-6, 7-7)



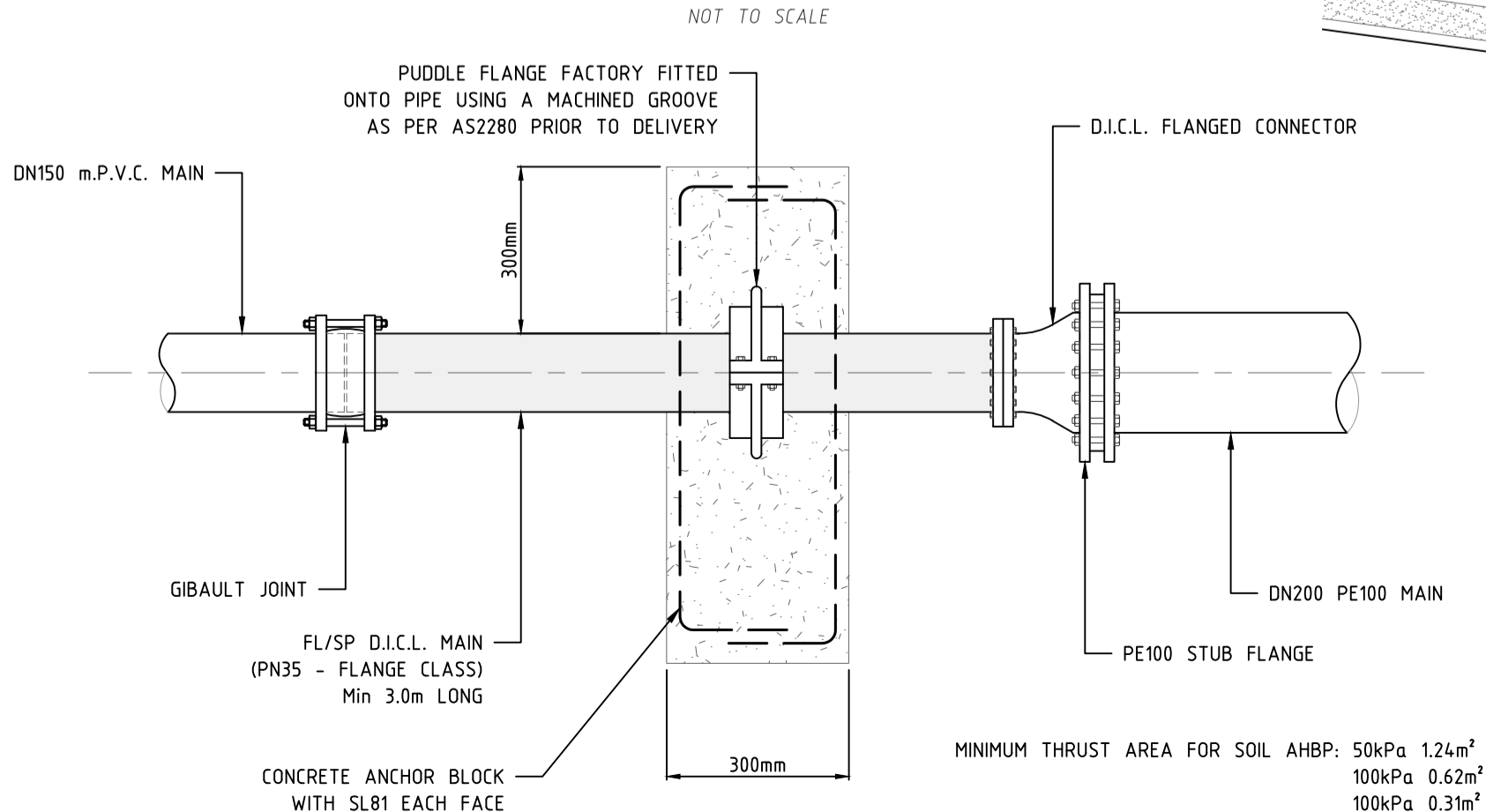
* VERTICAL CLEARANCE REDUCTION AUTHORISED BY FLOW SYSTEMS IN INSTANCES WHERE MAIN CONFIGURATIONS CONSIST OF TWO DUAL MAINS ONLY.

RECYCLED WATER LEGEND

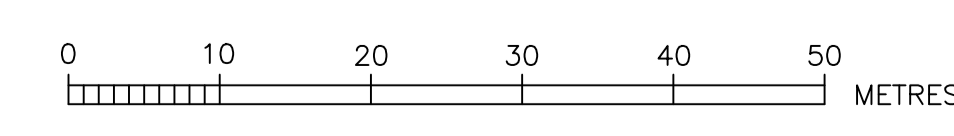
	PROPOSED MAIN (PRESSURE ZONE 1)
	PROPOSED PE100 MAIN (PRESSURE ZONE 2)
	PROPOSED MAIN (PRESSURE ZONE 2)
	EXISTING MAIN
	FUTURE MAIN
	STOP VALVE
	STOP VALVE (NORMALLY CLOSED)
	STOP VALVE (BYPASS)
	REFLUX VALVE
	HYDRANT
	CONTROL VALVE (HYDRANT)
	TAPER
	WATER SERVICE CONNECTION
	FLOW METER
	AIR VALVE
	VERTICAL DEFLECTION
	REMOTE MONITORED PRESSURE TRANSDUCER

⊙ DENOTES MAIN TO BE LAID OVER SERVICE (REDUCED COVER)
 ⊙ DENOTES MAIN TO BE LAID UNDER SERVICE. WHERE COVER EXCEEDS 1.5m, BUT LESS THAN 2.5m, THE MAIN SHALL BE EMBEDDED IN STABILISED SAND.

PE100 / m.P.V.C. TRANSITION DETAIL
 NOT TO SCALE

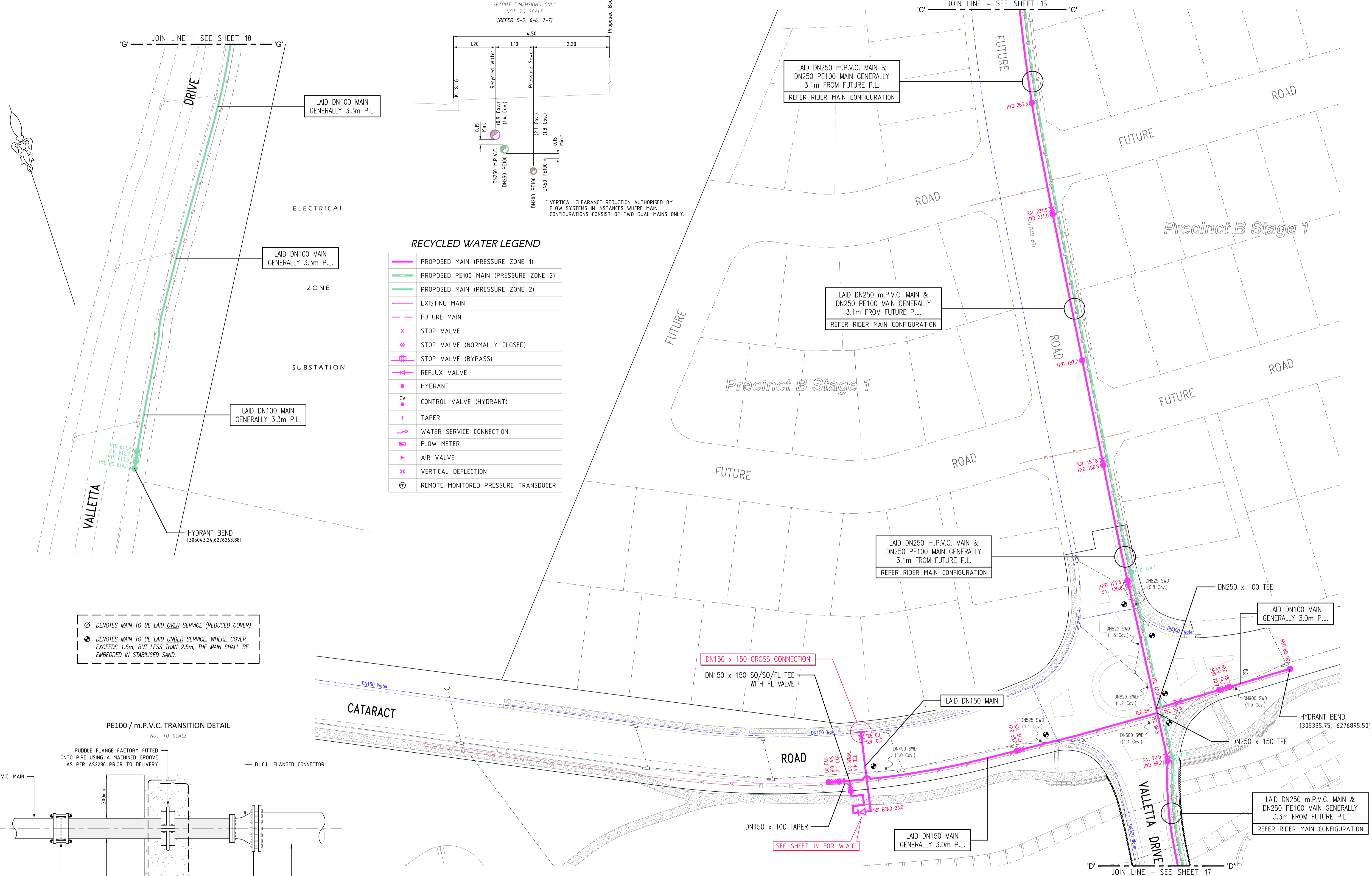


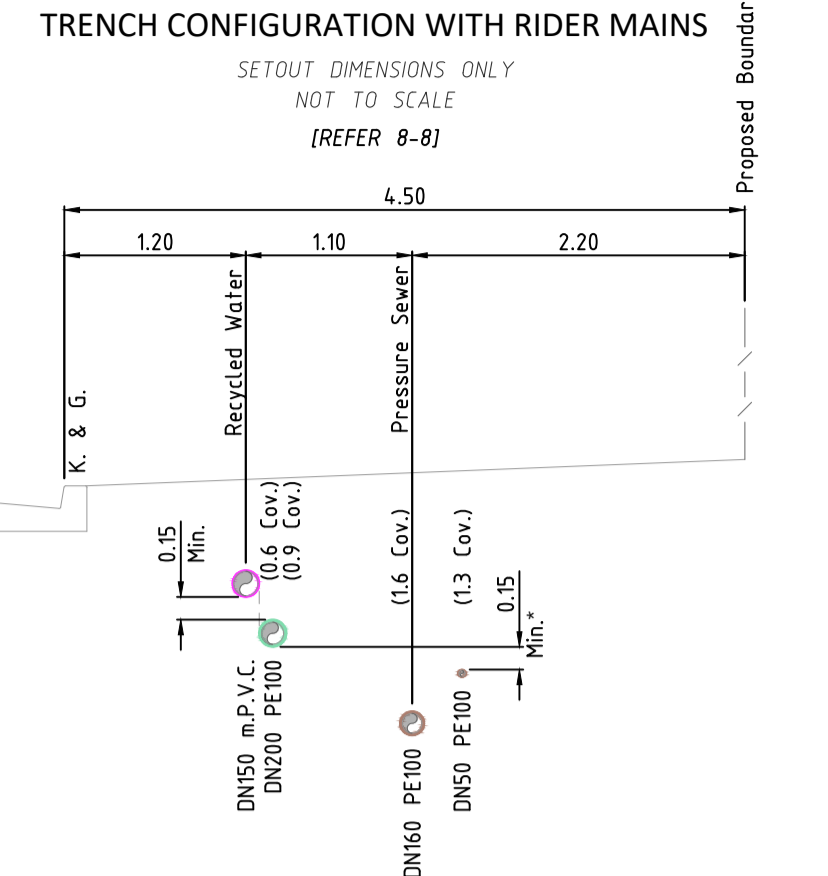
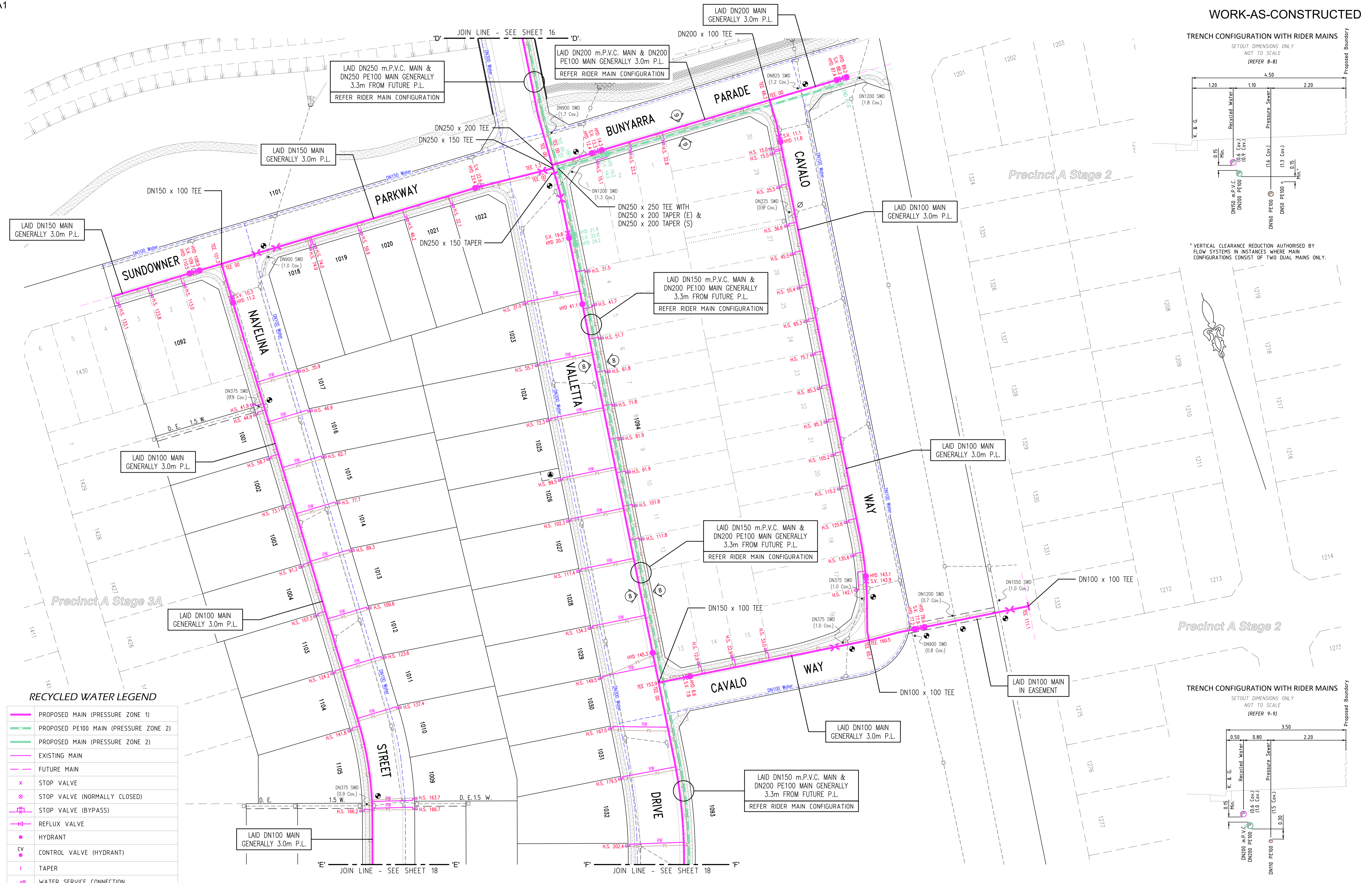
MINIMUM THRUST AREA FOR SOIL AHP: 50kPa 1.24m²
 100kPa 0.62m²
 100kPa 0.31m²



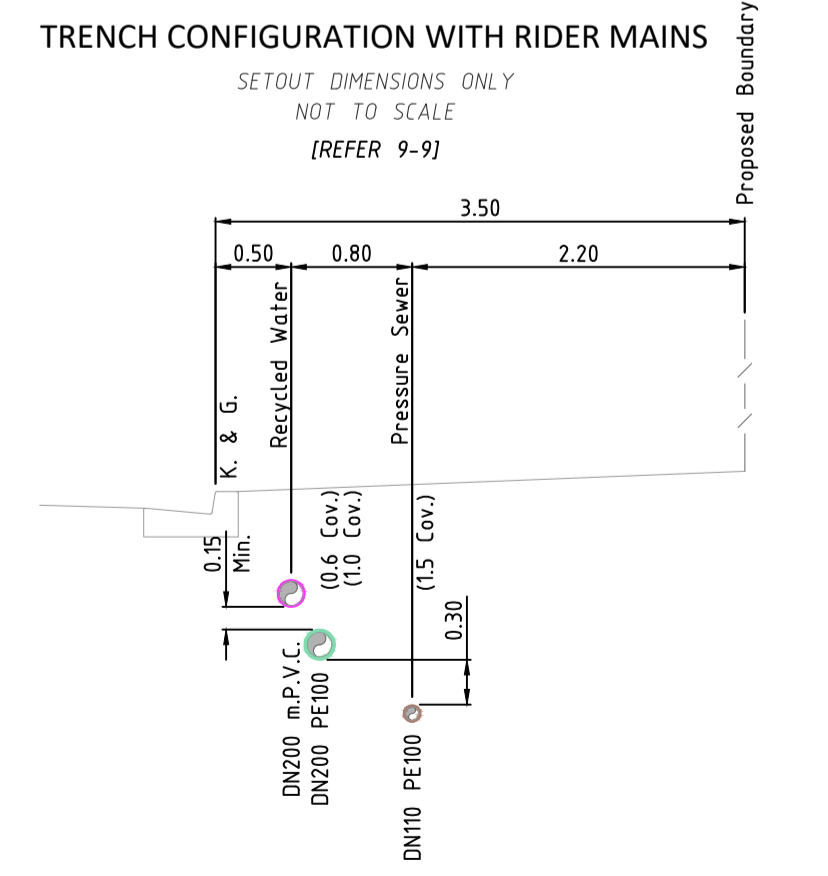
ROSE ATKINS RIMMER (Infrastructure) Pty. Ltd.
RAR
 WATER RELATED INFRASTRUCTURE DESIGN AND MANAGEMENT
 142 SUNNYHOLT ROAD, BLACKTOWN
 P.O. BOX 6745, BLACKTOWN N.S.W. 2148
 PH: (02) 9853 0200 FAX: (02) 9671 7399

RECYCLED WATER DETAIL PLAN 3				SHEET 16 OF 19		WAC
DESIGNED	D.SHEATHER	REVIEWED	V.VIKSNE	VERIFIED	K.GAO	DATE
SCALE	1:500	DATE	22/11/2017	DATE OF ISSUE		
4/23645/A1						





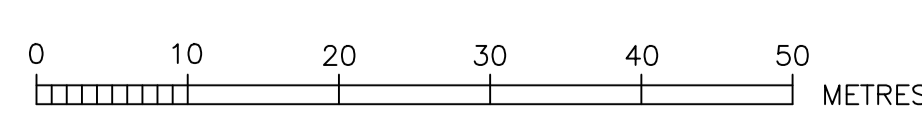
* VERTICAL CLEARANCE REDUCTION AUTHORISED BY FLOW SYSTEMS IN INSTANCES WHERE MAIN CONFIGURATIONS CONSIST OF TWO DUAL MAINS ONLY.



RECYCLED WATER LEGEND

- PROPOSED MAIN (PRESSURE ZONE 1)
- PROPOSED PE100 MAIN (PRESSURE ZONE 2)
- PROPOSED MAIN (PRESSURE ZONE 2)
- EXISTING MAIN
- FUTURE MAIN
- ⊗ STOP VALVE
- ⊗ STOP VALVE (NORMALLY CLOSED)
- ⊗ STOP VALVE (BYPASS)
- ↔ REFLUX VALVE
- HYDRANT
- CONTROL VALVE (HYDRANT)
- TAPER
- ↗ WATER SERVICE CONNECTION
- ▶ FLOW METER
- ⊥ AIR VALVE
- ⊥ VERTICAL DEFLECTION
- ⊙ REMOTE MONITORED PRESSURE TRANSDUCER

⊗ DENOTES MAIN TO BE LAID OVER SERVICE (REDUCED COVER)
 ● DENOTES MAIN TO BE LAID UNDER SERVICE. WHERE COVER EXCEEDS 1.5m, BUT LESS THAN 2.5m, THE MAIN SHALL BE EMBEDDED IN STABILISED SAND.



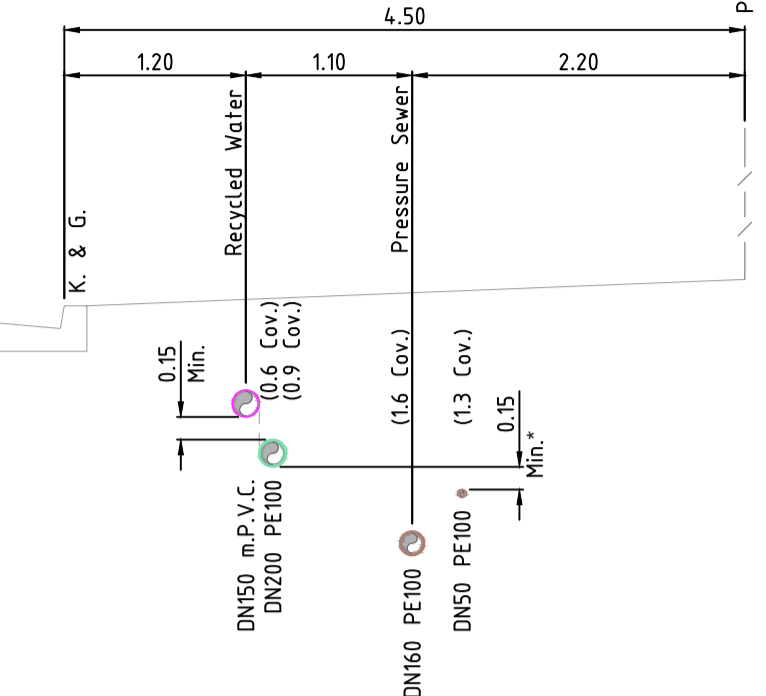
ROSE ATKINS RIMMER (Infrastructure) Pty. Ltd.
 WATER RELATED INFRASTRUCTURE DESIGN AND MANAGEMENT
 142 SUNNYHOLT ROAD, BLACKTOWN
 P.O. BOX 6745, BLACKTOWN N.S.W. 2148
 PH: (02) 9853 0200 FAX: (02) 9671 7399

RECYCLED WATER DETAIL PLAN 4				SHEET 17 OF 19	
DATE	BY	REVISED	BY	DATE	DESCRIPTION
15/01/2017	D.SHEATHER		D.SHEATHER	22/11/2017	ISSUED FOR PERMIT
			V.VIKSNE		
			K.GAO		

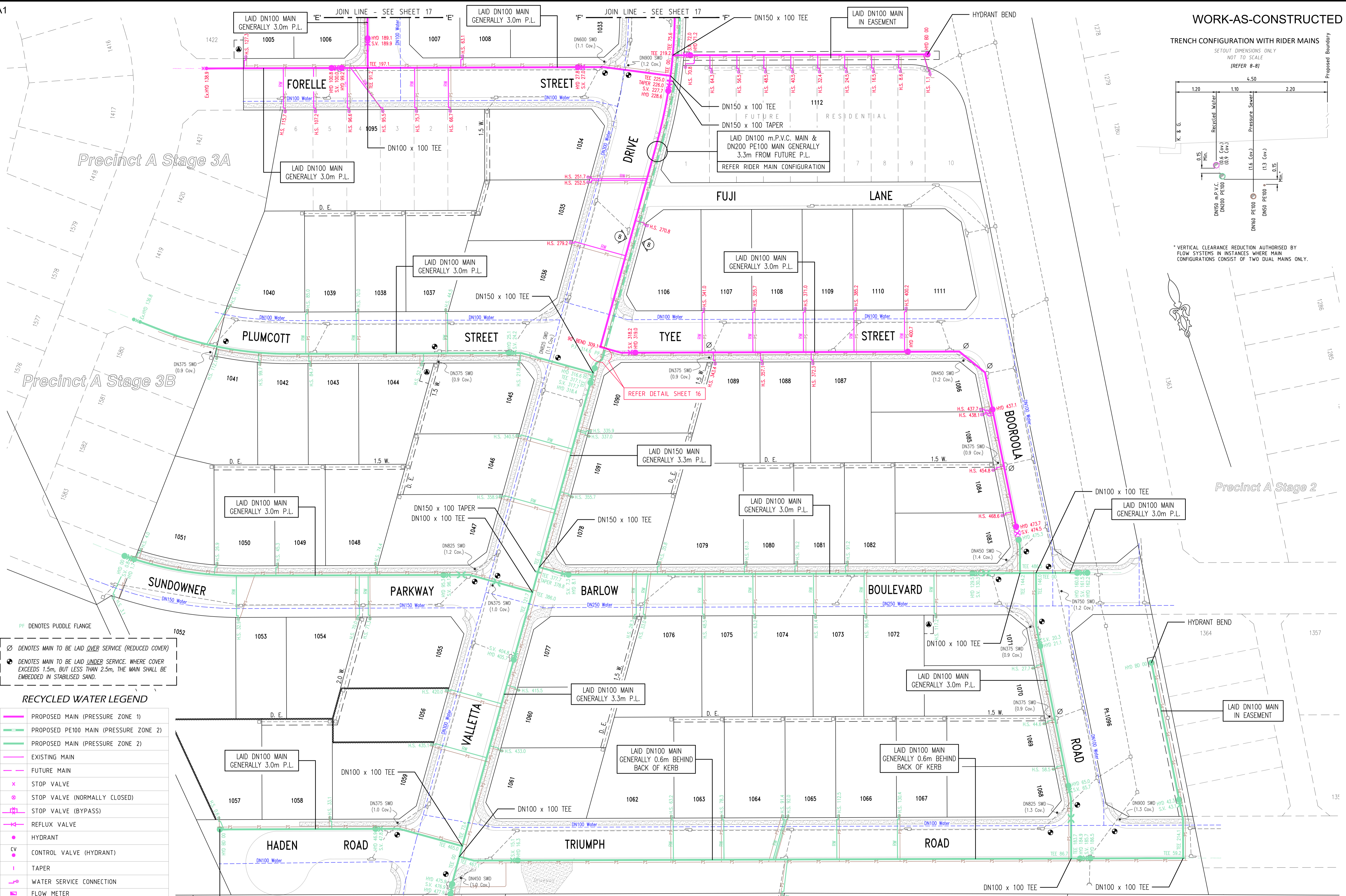
4/23645/A1

TRENCH CONFIGURATION WITH RIDER MAINS

SETOUT DIMENSIONS ONLY
NOT TO SCALE
(REFER 8-8)



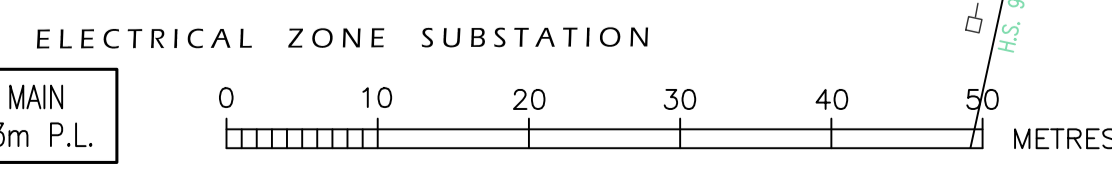
* VERTICAL CLEARANCE REDUCTION AUTHORISED BY FLOW SYSTEMS IN INSTANCES WHERE MAIN CONFIGURATIONS CONSIST OF TWO DUAL MAINS ONLY.



- PF DENOTES PUDDLE FLANGE
- ⊙ DENOTES MAIN TO BE LAID OVER SERVICE (REDUCED COVER)
- ⊙ DENOTES MAIN TO BE LAID UNDER SERVICE, WHERE COVER EXCEEDS 1.5m, BUT LESS THAN 2.5m, THE MAIN SHALL BE EMBEDDED IN STABILISED SAND.

RECYCLED WATER LEGEND

	PROPOSED MAIN (PRESSURE ZONE 1)
	PROPOSED PE100 MAIN (PRESSURE ZONE 2)
	PROPOSED MAIN (PRESSURE ZONE 2)
	EXISTING MAIN
	FUTURE MAIN
	STOP VALVE
	STOP VALVE (NORMALLY CLOSED)
	STOP VALVE (BYPASS)
	REFLUX VALVE
	HYDRANT
	CONTROL VALVE (HYDRANT)
	TAPER
	WATER SERVICE CONNECTION
	FLOW METER
	AIR VALVE
	VERTICAL DEFLECTION
	REMOTE MONITORED PRESSURE TRANSDUCER

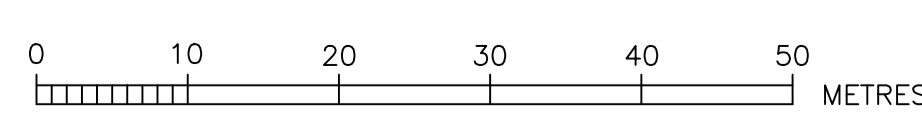
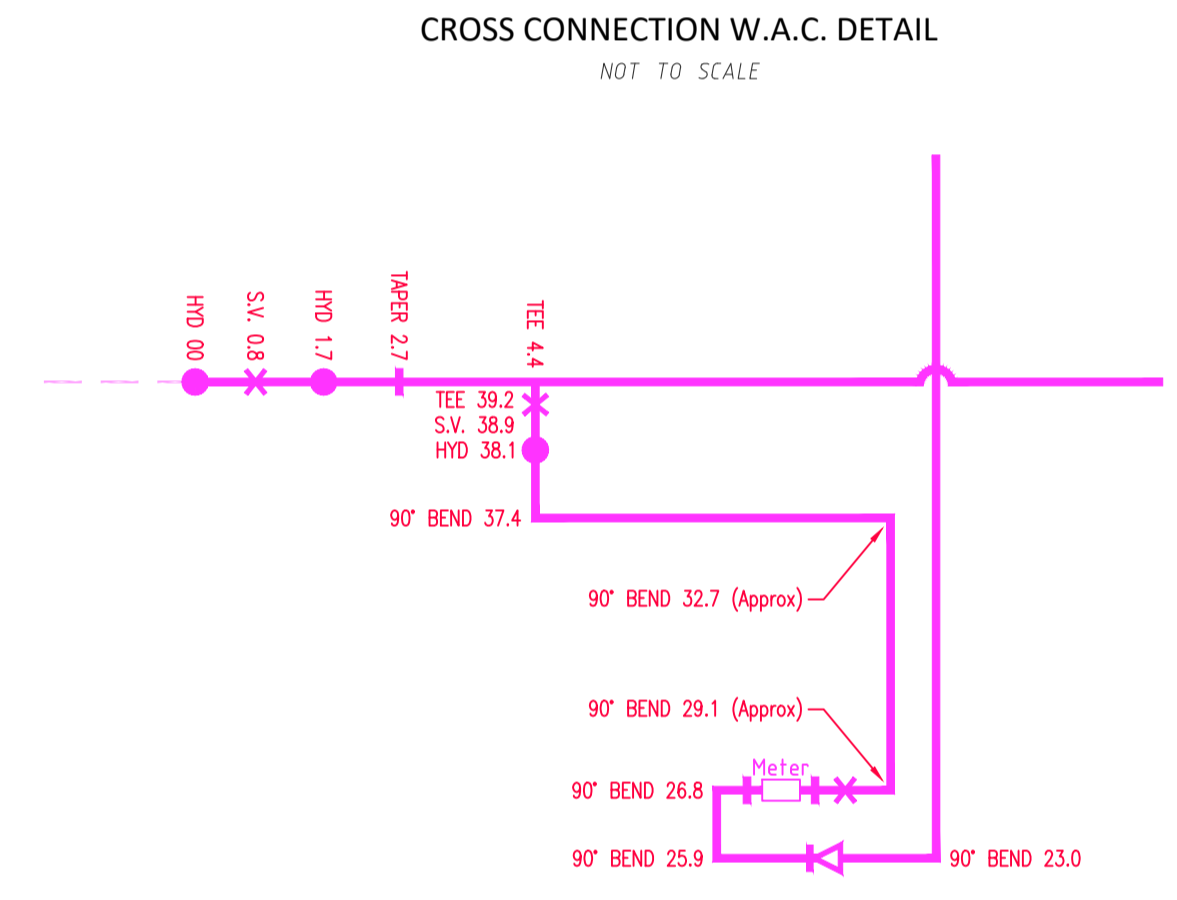
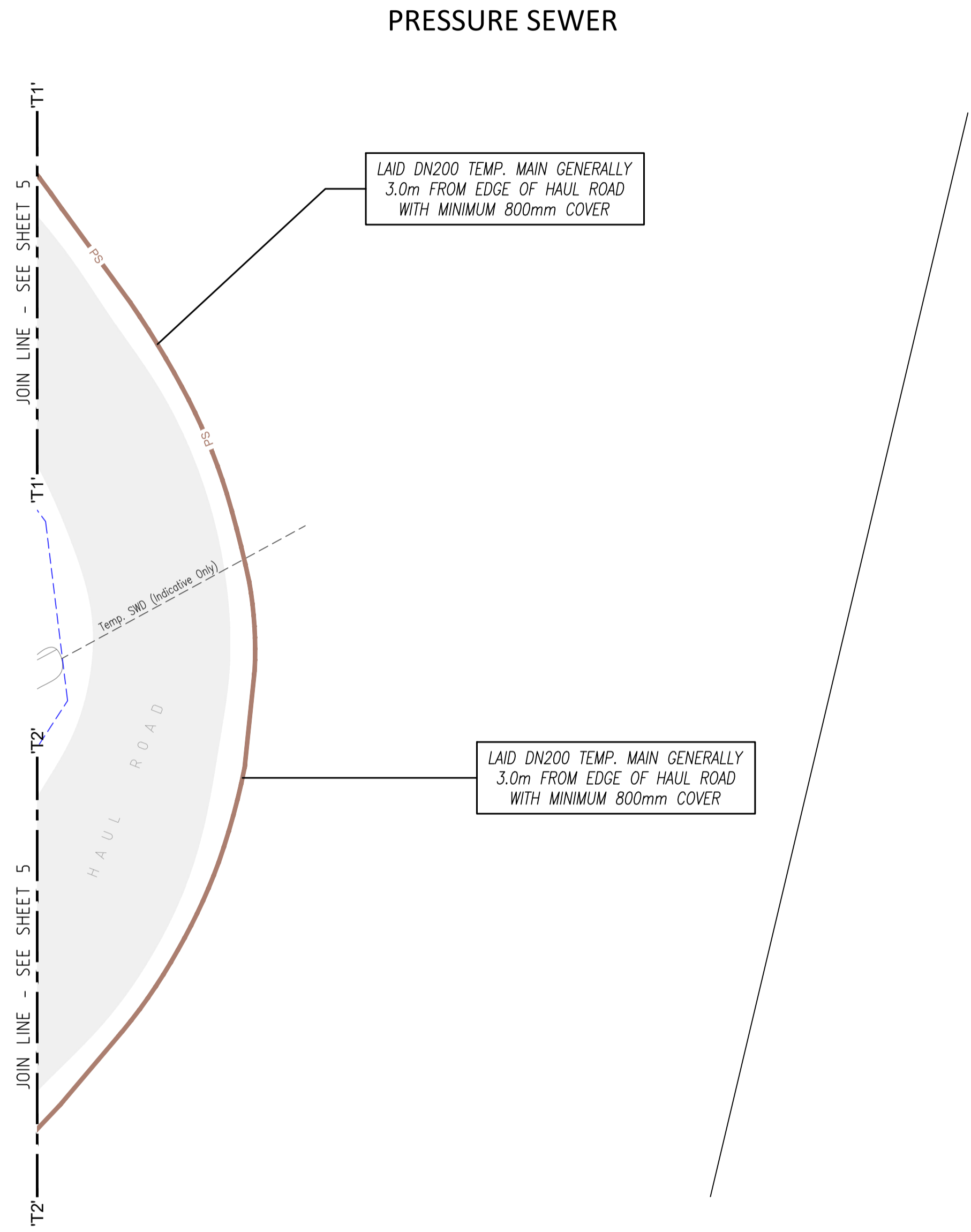
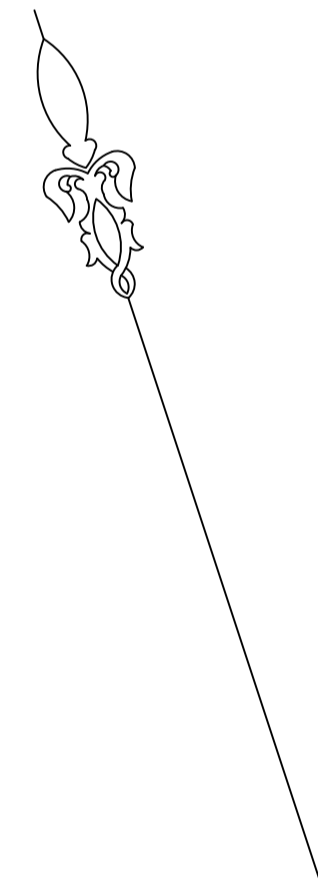


ROSE ATKINS RIMMER (Infrastructure) Pty. Ltd.
RAR
 WATER RELATED INFRASTRUCTURE DESIGN AND MANAGEMENT
 142 SUNNYHOLT ROAD, BLACKTOWN
 P.O. BOX 6745, BLACKTOWN N.S.W. 2148
 PH: (02) 9853 0200 FAX: (02) 9671 7399

RECYCLED WATER DETAIL PLAN 5				SHEET 18 OF 19		WAC
DESIGNED BY	D.SHEATHER	REVIEWED BY	V.VIKSNE	DATE	22/11/2017	4/23645/A1
SCALE	1:500	DATE				

PRESSURE SEWER LEGEND

	STOP VALVE
	STOP VALVE (NORMALLY CLOSED)
	TAPER
	FLUSHING POINT
	TEMPORARY FLUSHING POINT
	PROPERTY BOUNDARY KIT
	COLLECTION TANK (STANDARD)
	COLLECTION TANK (WITH 300mm RISER)
	COLLECTION TANK (WITH 2x300mm RISERS)
	CONTROL/ALARM PANEL
	ELECTRICAL CABLES
	FLOW METER
	AIR VALVE
	PRESSURE MONITORING POINT
	REMOTE MONITORED PRESSURE TRANSDUCER
	VERTICAL DEFLECTION



ROSE ATKINS RIMMER (Infrastructure) Pty. Ltd. WATER RELATED INFRASTRUCTURE DESIGN AND MANAGEMENT 142 SUNNYHOLT ROAD, BLACKTOWN P.O. BOX 6745, BLACKTOWN N.S.W. 2148 PH: (02) 9853 0200 FAX: (02) 9671 7399		Quality Endorsed Company	TEMP. SEWER & RECYCLED DETAIL PLAN	SHEET 19 OF 19	WAC
DRAWN:	DESIGN:	REVIEW:	CHECK:	DATE:	JOB No.
D.SHEATHER	D.SHEATHER	V.VIKSNE	K.GAO	22/11/2017	4/23645/A1
SCALE:	DATE:	DATE REFERRED:	DATE OF ISSUE:		
1:500	-	-	22/11/2017		