



THE GABLES
BOX HILL
PRECINCT A

STAGE 2
PRESSURE SEWER & RECYCLED WATER



LOCALITY PLAN
(NOT TO SCALE)

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No.	REVISION DESCRIPTION	BY	DATE
10	LOT 1364 SERVICES RECONFIGURED & W.A.C.	D.S.	25/5/18
09	WORK-AS-CONSTRUCTED	D.S.	26/6/17
08	COLLECTION TANK DETAIL SHEET ADDED	D.S.	9/1/17
07	MINOR SERVICE RELOCATIONS & 1369 ADDED	K.G.	20/10/16
06	ADDITION OF P.E. RECYCLED DISTRIBUTION MAIN	D.S.	14/9/16
05	MASTER PLAN REVISED	D.S.	4/7/16
04	MAIN SIZING UPDATED	D.S.	9/6/16
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	CLIENT	TITLE	DESIGNED	CHECKED	REVIEWED	VERIFIED	DATE OF ISSUE	SHEET 1 OF 13	VERSION
			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: 26/6/2017	ROSE ATKINS RIMMER (Infrastructure) Pty. Ltd. WATER RELATED INFRASTRUCTURE DESIGN AND MANAGEMENT RAR 142 SUNNYHOLT ROAD, BLACKTOWN P.O. BOX 6745, BLACKTOWN N.S.W. 2148 PH: (02) 9853 0200 FAX: (02) 9671 7399	Box Hill + Water CELESTINO	D.SHEATHER	D.SHEATHER	V.VIKSNE	K.GAO	25/5/2018	4/23645/A2	WAC

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 CONSTRUCTOR 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 1.5m. WHERE COVER FOR A TRENCHED INSTALLATION EXCEEDS 1.5m, 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 CONSTRUCTOR 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-CONSTRUCTED INFORMATION REGARDING THE INSTALLATION OF ALL BURIED FITTINGS.
- THE MINIMUM NUMBER OF COMPACTION TESTS REQUIRED TO SATISFY THE PRESSURE SEWER CODE OF AUSTRALIA (CLAUSE 213.4) ARE:
TRAFFICABLE:
PIPE EMBEDMENT ZONE: NIL TRENCH FILL ZONE: 1 TEST / CROSSING (22 Tests)
NON-TRAFFICABLE:
PIPE EMBEDMENT ZONE: NIL TRENCH FILL ZONE: 1 TEST / 100m (27 Tests)
- BOUNDARY KITS (COMPLETE) SHALL BE NOV SUPPLIED (NOV PSS-BK4). NOV 900L COLLECTION TANK (PSS-VMS150-PRILL) 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-CONSTRUCTED DOCUMENTATION SHALL BE PROVIDED BY THE CONTRACTOR STRICTLY IN ACCORDANCE WITH THE FLOW SYSTEMS Q.A. SUBMISSION CHECKLIST.

RECYCLED WATER NOTES

- 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 CONSTRUCTOR 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 CONSTRUCTOR 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-V) & FOR ROADWAYS (TYPE L EMBEDMENT: WAT-1204-V). MAXIMUM PIPE COVER SHALL GENERALLY BE 1.5m. WHERE COVER FOR A TRENCHED INSTALLATION EXCEEDS 1.5m, 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 CONSTRUCTOR 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-CONSTRUCTED 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 (22 Tests)
NON-TRAFFICABLE:
PIPE EMBEDMENT ZONE: NIL TRENCH FILL ZONE: 1 TEST / 100m (28 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-CONSTRUCTED DOCUMENTATION SHALL BE PROVIDED BY THE CONTRACTOR STRICTLY IN ACCORDANCE WITH THE FLOW SYSTEMS Q.A. SUBMISSION CHECKLIST.

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 ¹ < DN375	300*	600	150
Gas mains	300*	600	150
Telecommunication cables and cables	300*	600	150
Electricity conduits and cables	500	1000	225*
Stormwater drains	300*	600	150*
Sewers - gravity	1000* / 600	1000* / 600	500*
Sewers - pressure and vacuum	600	600	300*
Kerbs	150	600 ³	150 (where possible)

NOTES:
 1. 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.
 2. Water mains includes mains supplying both potable and recycled water.
 3. For areas with existing water reticulation, clearances can be further reduced to 600mm with the approval of the water authority.
 4. 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.
 5. Clearances from kerbs shall be measured from the nearest point 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.
 6. Where a parallel sewer is of minimum vertical clearance lower than the water main (500mm), maintain a minimum horizontal of 1000mm. This minimum clearance can be progressively reduced to 600mm as the vertical clearance is increased to 150mm.
 7. 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.
 8. 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.
 9. 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).

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

PRESSURE SEWER PIPE SCHEDULE

SIZE	TYPE	CLASS	LENGTH
DN110	PE100	PN16	608.0
DN75	PE100	PN16	254.8
DN63	PE100	PN16	445.0
DN50	PE100	PN16	1,767.1
DN40	PE100	PN16	1,852
		TOTAL	4,926.9

RECYCLED WATER PIPE SCHEDULE

SIZE	TYPE	CLASS	LENGTH
DN200	m.P.V.C.	PN16	370.5
DN200	PE100	PN16	584.8
DN150	m.P.V.C.	PN16	263.7
DN100	m.P.V.C.	PN16	2,502.5
		TOTAL	3,721.5

FLOW SYSTEMS STANDARD DRAWINGS CAN BE FOUND AT THE FOLLOWING ADDRESS:
<https://askus.flowsystems.com.au/hc/en-us/articles/210615383--Standard-Drawings>

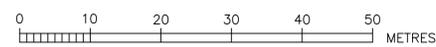
 WATER RELATED INFRASTRUCTURE DESIGN AND MANAGEMENT 142 SUNNYHOLT ROAD, BLACKTOWN P.O. BOX 6745, BLACKTOWN N.S.W. 2148 PH: (02) 9853 0200 FAX: (02) 9671 7399		GENERAL NOTES				SHEET 2 OF 13	VERSION: WAC
		DRAFTED: D.SHEATHER SCALE: -	REVISIONS: D.SHEATHER DATE: -	REVIEWED: V.VIKSNE DATE: -	VERIFIED: K.GAO DATE OF ISSUE: 25/5/2018	4/23645/A2	





Precinct A Development Stages

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

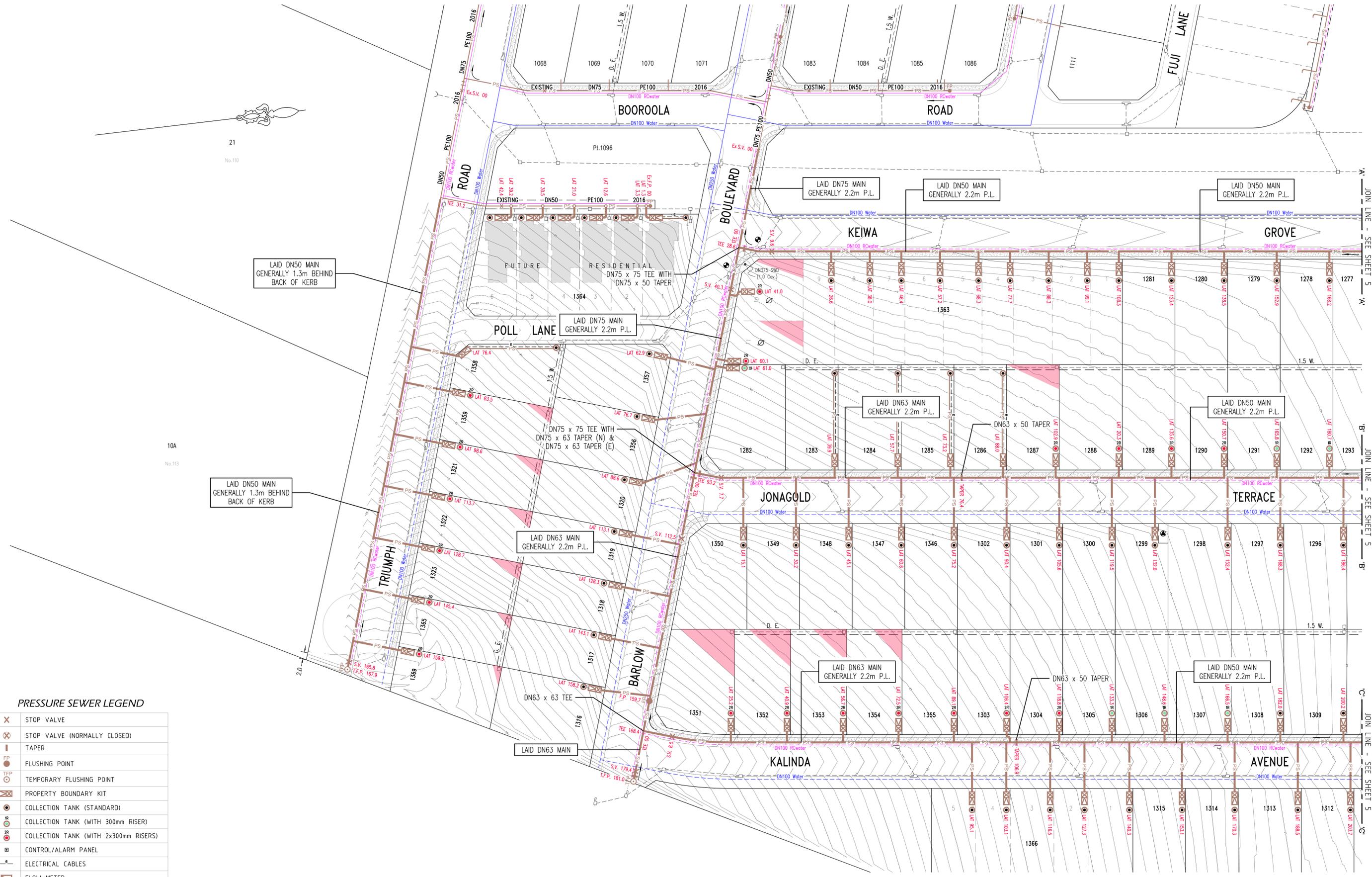


ROSE ATKINS RIMMER (Infrastructure) Pty. Ltd.
 WATER RELATED INFRASTRUCTURE DESIGN AND MANAGEMENT
RAR
 142 SUNNYHOLT ROAD, BLACKTOWN
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PRESSURE SEWER GENERAL ARRANGEMENT			
DRAWN	DESIGNED	REVIEWED	VERIFIED
D.SHEATHER	D.SHEATHER	V.VIKSNE	K.GAO
SCALE	DATUM	SCALE REFERENCE	DATE OF ISSUE
-	-	-	25/5/2018

SHEET 3 OF 13	VERSION: WAC
JOB No. 4/23645/A2	



21
No.110

10A
No.113

JOIN LINE - SEE SHEET 5

JOIN LINE - SEE SHEET 5

JOIN LINE - SEE SHEET 5

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.

DENOTES COLLECTION TANK LOCATION DICTATED BY BUILDER. SIGNIFICANT DRAINAGE LIMITS ARE IMPOSED BY REQUESTED TANK LOCATION. THE BUILDER'S PLUMBER IS RESPONSIBLE TO CONFIRM INVERT LEVELS ARE ADEQUATE FOR DWELLING DRAINAGE.

AREAS HATCHED THUS NOT DRAINED.

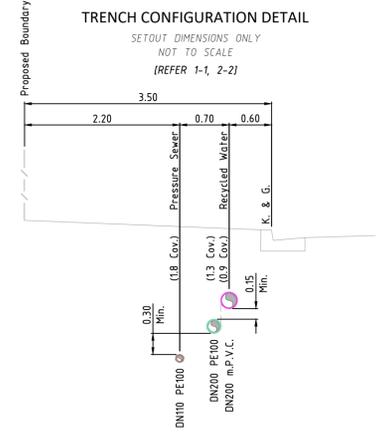
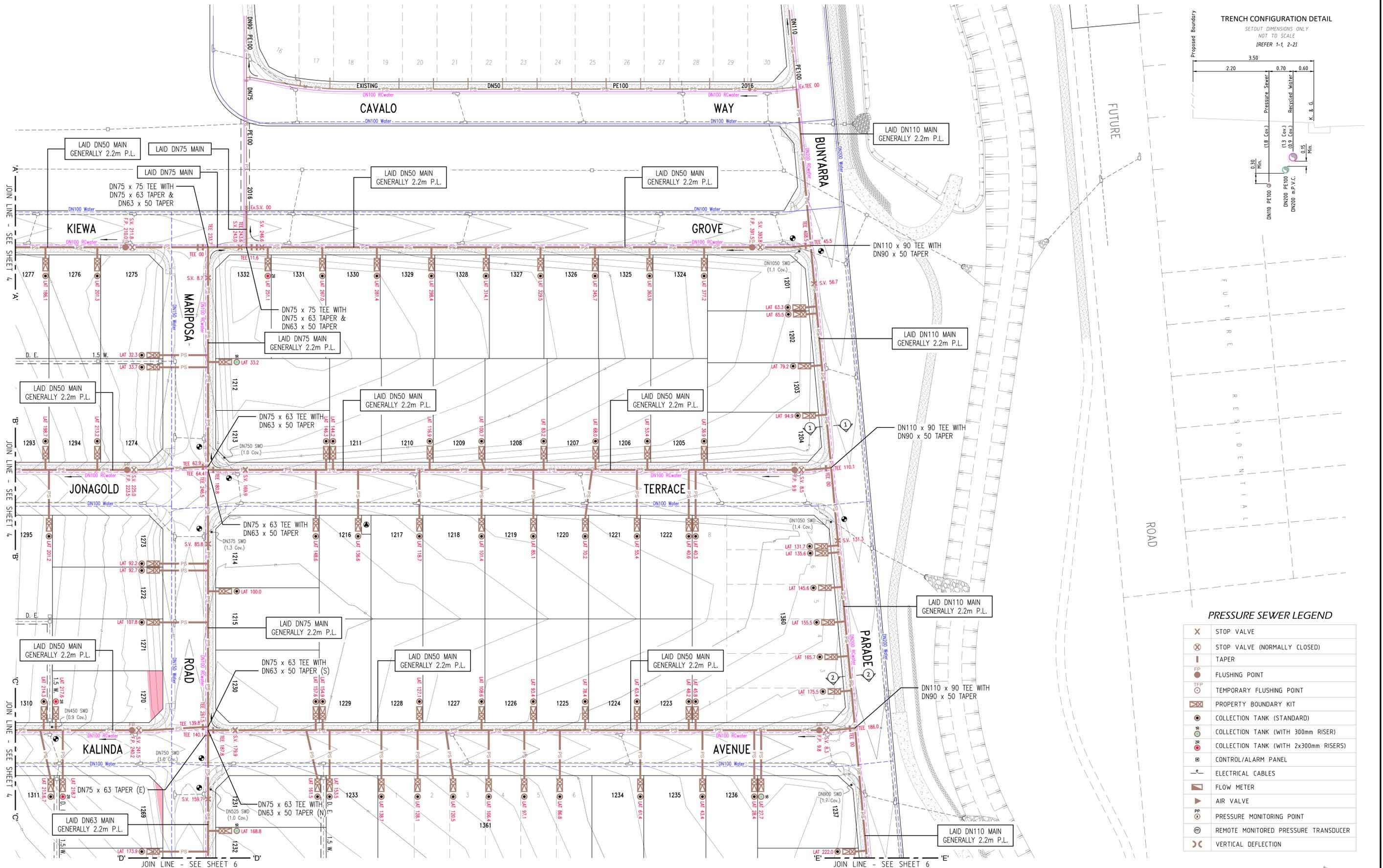


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PRESSURE SEWER DETAIL PLAN 1			
DRAWN	DESIGNED	REVIEWED	VERIFIED
D.SHEATHER	D.SHEATHER	V.VIKSNE	K.GAO
SCALE	DATUM	DATE REVISION	DATE OF ISSUE
1:500	A.H.D.		25/5/2018

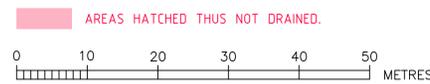
SHEET 4 OF 13
 WAC
 4/23645/A2



PRESSURE SEWER LEGEND

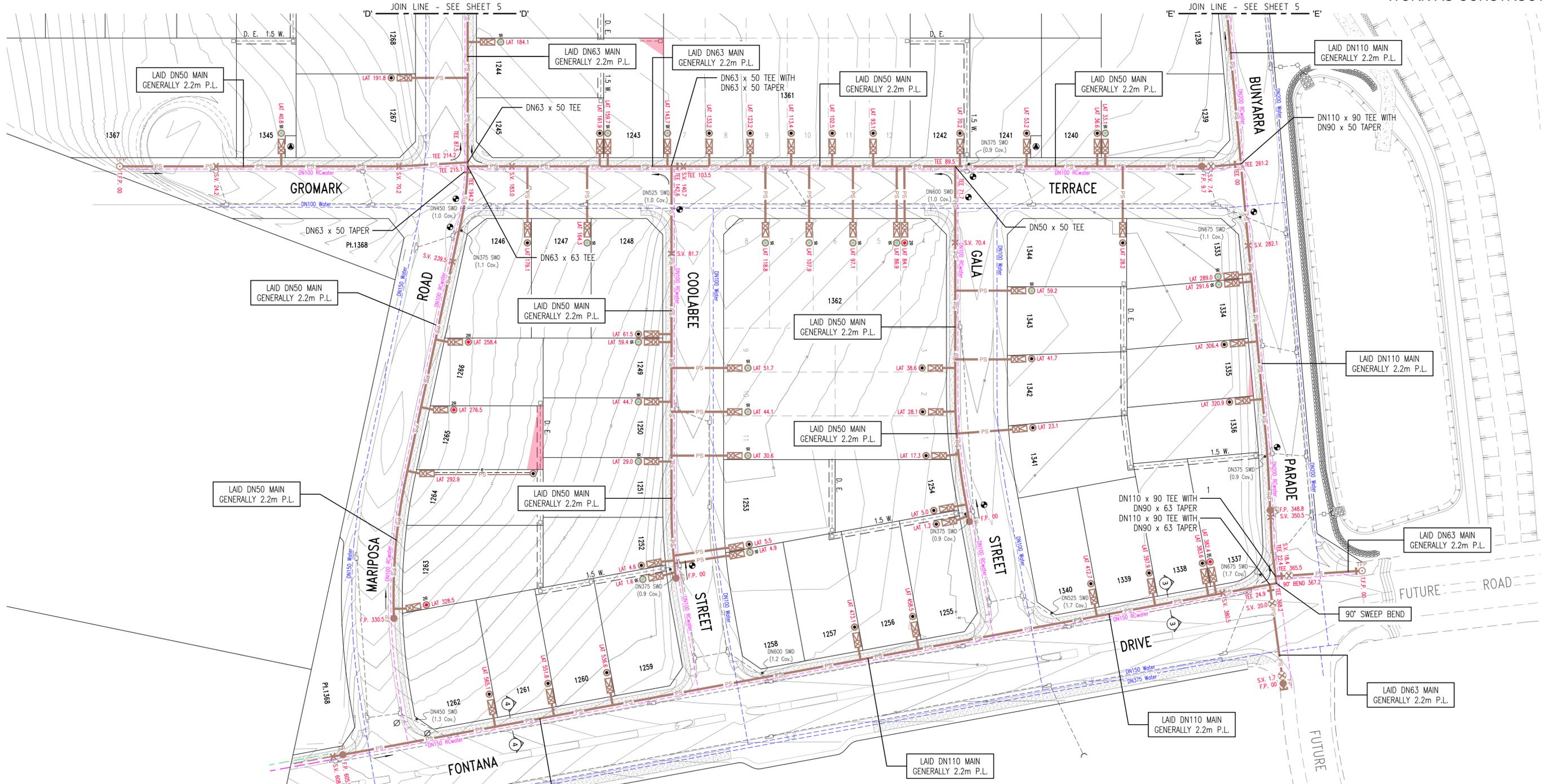
✕	STOP VALVE
✕	STOP VALVE (NORMALLY CLOSED)
∕	TAPER
FP	FLUSHING POINT
TFP	TEMPORARY FLUSHING POINT
PK	PROPERTY BOUNDARY KIT
CT	COLLECTION TANK (STANDARD)
CTR	COLLECTION TANK (WITH 300mm RISER)
CT2R	COLLECTION TANK (WITH 2x300mm RISERS)
CP	CONTROL/ALARM PANEL
EC	ELECTRICAL CABLES
FM	FLOW METER
AV	AIR VALVE
PM	PRESSURE MONITORING POINT
RP	REMOTE MONITORED PRESSURE TRANSDUCER
VD	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.
 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

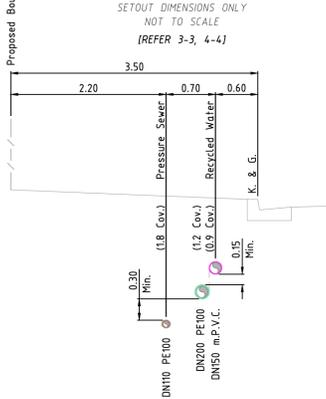
PRESSURE SEWER DETAIL PLAN 2				SHEET 5 OF 13		WAC
DATE	DESIGNED	REVIEWED	VERSION	DATE	BY	
D.SHEATHER	D.SHEATHER	V.VIKSNE	K.GAO			
SCALE	DRAWN	DATE	DATE OF ISSUE			
1:500	A.H.D.		25/5/2018	4/23645/A2		



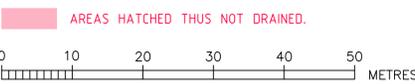
PRESSURE SEWER LEGEND

✕	STOP VALVE
⊗	STOP VALVE (NORMALLY CLOSED)
— —	TAPER
●	FLUSHING POINT
TFP	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

TRENCH CONFIGURATION DETAIL



⊙ 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.



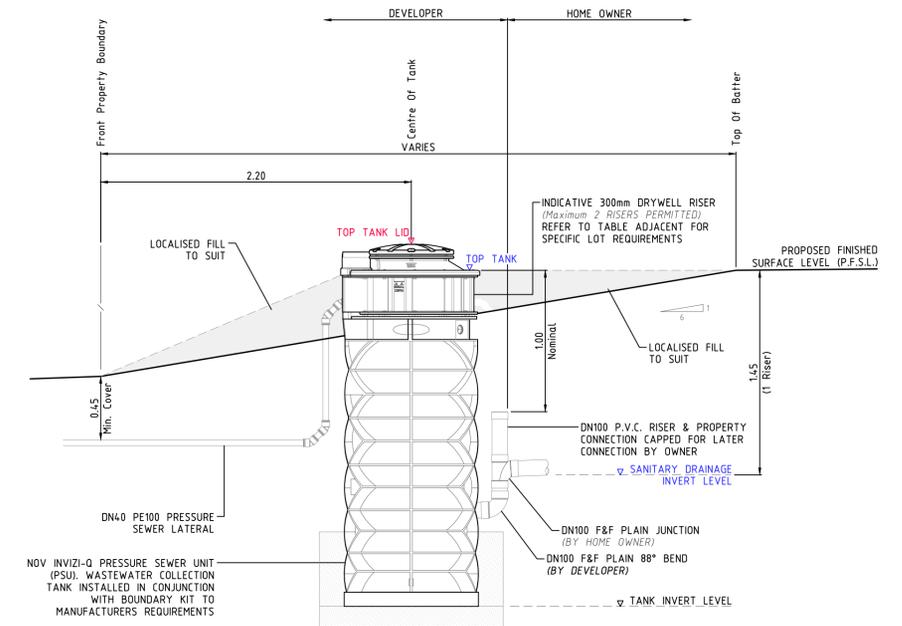
ROSE ATKINS RIMMER (Infrastructure) Pty. Ltd.
 WATER RELATED INFRASTRUCTURE DESIGN AND MANAGEMENT
 142 SUNNYHOLT ROAD, BLACKTOWN
 P.O. BOX 6745, BLACKTOWN N.S.W. 2148
 PH: (02) 9853 0200 FAX: (02) 9671 7399

PRESSURE SEWER DETAIL PLAN 3				SHEET 6 OF 13		WAC
DATE	DESIGNED	REVIEWED	VERIFIED	DATE	DATE	DATE
D.SHEATHER	D.SHEATHER	V.VIKSNE	K.GAO	25/5/2018		
SCALE	DRAWN	DATE	DATE			
1:500	A.H.D.					

PRESSURE SEWER COLLECTION TANK LEVEL DETAILS

BOX HILL DEVELOPMENT - PRECINCT A [STAGE 2]

LOT NUMBER	COLLECTION TANK LOCATION [FRONT / REAR]	TANK SIZE [900L / 2200L]	PFSL AT TANK LOCATION	QUANTITY OF DRYWELL RISERS REQUIRED	TOP OF COLLECTION TANK [Design R.L.]	DESIGN SANITARY DRAINAGE INVERT LEVEL [Design R.L.]	TOP OF COLLECTION TANK LID* [Work-As-Constructed]	CALCULATED SANITARY DRAINAGE INVERT LEVEL [Work-As-Constructed]
1201	FRONT	900L	39.19		39.30	38.15	39.30	37.96
1202	FRONT	900L	39.18		39.30	38.15	39.25	37.91
1203	FRONT	900L	39.07		39.20	38.05	39.25	37.91
1204	FRONT	900L	38.97		39.00	37.85	39.15	37.81
1205	FRONT	900L	38.98		39.20	38.05	39.43	38.09
1206	FRONT	900L	39.13		39.40	38.25	39.59	38.25
1207	FRONT	900L	39.26		39.40	38.25	39.77	38.43
1208	FRONT	900L	39.40		39.60	38.45	39.87	38.53
1209	FRONT	900L	39.56		39.80	38.65	39.96	38.62
1210	FRONT	900L	39.70		40.00	38.85	40.17	38.83
1211	FRONT	900L	39.95		40.20	39.05	40.43	39.09
1212	FRONT	900L	40.34	1	40.60	39.15	40.93	39.29
1213	FRONT	900L	39.90		39.90	38.75	40.40	39.06
1214	FRONT	900L	39.83		39.83	38.68	40.03	38.69
1215	FRONT	900L	40.05		40.05	38.90	40.23	38.89
1216	FRONT	900L	39.69		39.70	38.55	39.91	38.57
1217	FRONT	900L	39.56		39.60	38.45	39.78	38.44
1218	FRONT	900L	39.39		39.40	38.25	39.59	38.25
1219	FRONT	900L	39.27		39.40	38.25	39.45	38.11
1220	FRONT	900L	39.21		39.30	38.15	39.45	38.11
1221	FRONT	900L	39.15		39.10	37.95	39.30	37.96
1222	FRONT	900L	39.02		39.10	37.95	39.30	37.96
1223	FRONT	900L	38.61		38.70	37.55	38.88	37.54
1224	FRONT	900L	38.81		38.90	37.75	39.01	37.67
1225	FRONT	900L	38.98		39.00	37.85	39.19	37.85
1226	FRONT	900L	39.19		39.20	38.05	39.38	38.04
1227	FRONT	900L	39.39		39.40	38.25	39.57	38.23
1228	FRONT	900L	39.64		39.60	38.45	39.88	38.54
1229	FRONT	900L	40.01		40.10	38.95	40.26	38.92
1230	FRONT	900L	40.04		40.04	38.89	40.26	38.92
1231	FRONT	900L	40.06		40.06	38.91	40.18	38.84
1232	FRONT	900L	40.58	1	40.60	39.15	40.79	39.15
1233	FRONT	900L	40.01		40.10	38.95	40.19	38.85
1234	FRONT	900L	38.76		38.80	37.65	38.90	37.56
1235	FRONT	900L	38.52		38.60	37.45	38.67	37.33
1236	FRONT	900L	38.32		38.40	37.25	38.47	37.13
1237	FRONT	900L	38.33	1	38.40	36.95	38.56	36.92
1238	FRONT	900L	38.05		38.20	37.05	38.35	37.01
1239	FRONT	900L	38.08	1	38.08	36.63	38.25	36.61
1240	FRONT	900L	38.11		38.20	37.05	38.28	36.94
1241	FRONT	900L	38.47		38.50	37.35	38.67	37.33
1242	FRONT	900L	38.82		38.80	37.65	39.02	37.68
1243	FRONT	900L	40.72	1	40.70	39.25	40.93	39.29
1244	FRONT	900L	40.84	1	40.80	39.35	41.05	39.41
1245	FRONT	900L	40.76		40.76	39.61	40.96	39.62
1246	FRONT	900L	41.18		41.10	39.95	41.38	40.04
1247	FRONT	900L	40.82	1	40.80	39.35	41.08	39.44
1248	FRONT	900L	39.70		39.70	38.55	40.11	38.77
1249	FRONT	900L	39.67	1	39.90	38.45	40.14	38.50
1250	FRONT	900L	39.47	1	39.70	38.25	39.89	38.25
1251	FRONT	900L	39.26	1	39.50	38.05	39.66	38.02
1252	FRONT	900L	38.91		39.20	38.05	39.33	37.99
1253	FRONT	900L	38.77		38.80	37.65	38.92	37.58
1254	FRONT	900L	38.04		38.20	37.05	38.24	36.90
1255	FRONT	900L	38.01		38.01	36.86	38.18	36.84
1256	FRONT	900L	38.20		38.20	37.05	38.39	37.05
1257	FRONT	900L	38.35		38.40	37.25	38.54	37.20
1258	FRONT	900L	38.73	1	38.73	37.28	38.98	37.34
1259	FRONT	900L	38.86	1	38.86	37.41	39.30	37.66
1260	FRONT	900L	38.87		39.00	37.85	39.05	37.71
1261	FRONT	900L	39.09		39.10	37.95	39.32	37.98
1262	FRONT	900L	39.37		39.50	38.35	39.55	38.21
1263	FRONT	900L	40.65	2	40.60	38.85	40.85	38.91
1264	REAR	900L	40.63		40.71	39.56	40.82	39.48
1265	FRONT	900L	41.71	2	41.50	39.75	41.95	40.01
1266	FRONT	900L	41.58	2	41.40	39.65	41.73	39.79
1267	FRONT	900L	41.22		41.40	40.25	41.70	40.36
1268	FRONT	900L	40.89		41.20	40.05	41.37	40.03
1269	FRONT	900L	41.29	2	41.29	39.54	41.49	39.55
1270	FRONT	900L	41.32	2	41.32	39.57	41.53	39.59
1271	FRONT	900L	40.31		40.60	39.45	40.80	39.46
1272	FRONT	900L	40.20		40.40	39.25	40.67	39.33
1273	FRONT	900L	40.18		40.50	39.35	40.65	39.31
1274	FRONT	900L	40.26		40.26	39.11	40.69	39.35
1275	FRONT	900L	40.29		40.29	39.14	40.77	39.43
1276	FRONT	900L	40.82		40.80	39.65	41.03	39.69
1277	FRONT	900L	41.00		41.00	39.85	41.20	39.86
1278	FRONT	900L	41.32		41.50	40.35	41.64	40.30
1279	FRONT	900L	41.46		41.70	40.55	41.92	40.58
1280	FRONT	900L	41.59		41.80	40.65	42.08	40.74
1281	FRONT	900L	41.73		42.10	40.95	42.18	40.84
1282	FRONT	900L	45.82	1	45.82	44.37	46.07	44.43
1283	REAR	900L	44.86		44.94	43.79	45.14	43.80
1284	REAR	900L	44.40		44.48	43.33	44.66	43.32
1285	REAR	900L	44.09		44.17	43.02	44.37	43.03



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.

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

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 PH: (02) 9853 0200 FAX: (02) 9671 7399

COLLECTION TANK LEVEL DETAILS 1				SHEET 7 OF 13	VERSION: WAC
DRAWN: D.SHEATHER	DESIGNED: D.SHEATHER	REVIEWED: V.VIKSNE	VERIFIED: K.GAO	JOB No. 4/23645/A2	
SCALE:	DATAN:	DRAWN REVIEWED:	DATE OF ISSUE:	25/5/2018	

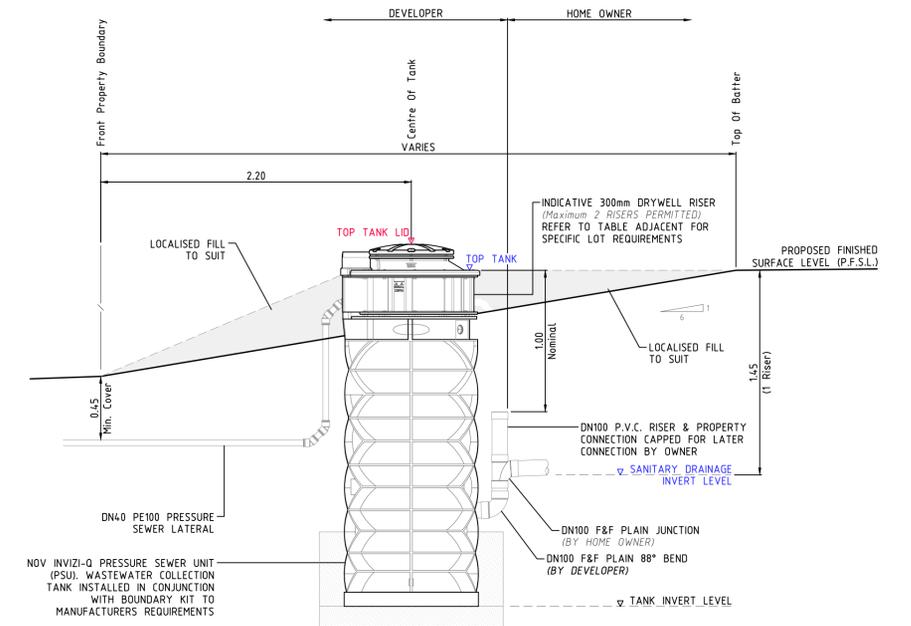


PRESSURE SEWER COLLECTION TANK LEVEL DETAILS

BOX HILL DEVELOPMENT - PRECINCT A [STAGE 2]

LOT NUMBER	COLLECTION TANK LOCATION [FRONT / REAR]	TANK SIZE [900L / 2200L]	PFSL AT TANK LOCATION	QUANTITY OF DRYWELL RISERS REQUIRED	TOP OF COLLECTION TANK [Design R.L.]	DESIGN SANITARY DRAINAGE INVERT LEVEL [Design R.L.]	TOP OF COLLECTION TANK LID* [Work-As-Constructed]	CALCULATED SANITARY DRAINAGE INVERT LEVEL [Work-As-Constructed]
1286	REAR	900L	43.79		43.87	42.72	44.10	42.76
1287	FRONT	900L	44.54	2	44.40	42.65	44.78	42.84
1288	FRONT	900L	43.98	2	43.80	42.05	44.25	42.31
1289	FRONT	900L	43.52	2	43.50	41.75	43.68	41.74
1290	FRONT	900L	43.06	2	43.00	41.25	43.27	41.33
1291	FRONT	900L	42.60	1	42.50	41.05	42.82	41.18
1292	FRONT	900L	42.13	1	42.10	40.65	42.31	40.67
1293	FRONT	900L	41.57		41.50	40.35	41.73	40.39
1294	FRONT	900L	41.10		41.10	39.95	41.33	39.99
1295	FRONT	900L	41.55		41.50	40.35	41.76	40.42
1296	FRONT	900L	42.03		42.00	40.85	42.22	40.88
1297	FRONT	900L	42.61		42.60	41.45	42.85	41.51
1298	FRONT	900L	43.09		43.20	42.05	43.36	42.02
1299	FRONT	900L	43.91		44.00	42.85	44.16	42.82
1300	FRONT	900L	44.29		44.50	43.35	44.63	43.29
1301	FRONT	900L	44.76		45.00	43.85	45.16	43.82
1302	FRONT	900L	45.24		45.40	44.25	45.64	44.30
1303	FRONT	900L	47.00	2	47.00	45.25	47.20	45.26
1304	FRONT	900L	46.23	2	46.20	44.45	46.44	44.50
1305	FRONT	900L	45.45	1	45.40	43.95	45.64	44.00
1306	FRONT	900L	44.67	1	44.60	43.15	44.90	43.26
1307	FRONT	900L	43.74	1	43.70	42.25	43.99	42.35
1308	FRONT	900L	42.97		43.00	41.85	43.18	41.84
1309	FRONT	900L	42.04		42.00	40.85	42.22	40.88
1310	FRONT	900L	41.44		41.40	40.25	41.65	40.31
1311	FRONT	900L	41.41		41.50	40.35	41.60	40.26
1312	FRONT	900L	41.97		42.00	40.85	42.19	40.85
1313	FRONT	900L	42.74		42.80	41.65	42.94	41.60
1314	FRONT	900L	43.66		43.70	42.55	43.84	42.50
1315	FRONT	900L	44.46		44.50	43.35	44.62	43.28
1316	FRONT	900L	51.72		52.00	50.85	52.17	50.83
1317	FRONT	900L	50.84		51.10	49.95	51.30	49.96
1318	FRONT	900L	49.96		50.20	49.05	50.41	49.07
1319	FRONT	900L	49.08		49.30	48.15	49.50	48.16
1320	FRONT	900L	48.20		48.40	47.25	48.70	47.36
1321	FRONT	900L	50.49	2	50.40	48.65	50.69	48.75
1322	FRONT	900L	51.46	2	51.30	49.55	51.65	49.71
1323	FRONT	900L	52.44	2	52.30	50.55	52.57	50.63
1324	FRONT	900L	39.44		39.60	38.45	39.89	38.55
1325	FRONT	900L	39.58		39.80	38.65	40.06	38.72
1326	FRONT	900L	39.72		40.00	38.85	40.18	38.84
1327	FRONT	900L	39.87		40.10	38.95	40.28	38.94
1328	FRONT	900L	40.01		40.20	39.05	40.44	39.10
1329	FRONT	900L	40.15		40.40	39.25	40.62	39.28
1330	FRONT	900L	40.29		40.60	39.45	40.70	39.36
1331	FRONT	900L	40.44		40.60	39.45	40.88	39.54
1332	FRONT	900L	40.58	2	40.80	39.05	41.04	39.10
1333	FRONT	900L	37.69	1	38.00	36.55	38.17	36.53
1334	FRONT	900L	37.67	1	38.00	36.55	38.15	36.51
1335	FRONT	900L	37.57		37.80	36.65	38.04	36.70
1336	FRONT	900L	37.46		37.60	36.45	37.93	36.59
1337	FRONT	900L	37.69	2	37.70	35.95	37.90	35.96
1338	FRONT	900L	37.71		37.70	36.55	37.94	36.60
1339	FRONT	900L	37.80		37.80	36.65	38.01	36.67
1340	FRONT	900L	37.89		37.90	36.75	38.00	36.66
1341	FRONT	900L	38.11		38.10	36.95	38.27	36.93
1342	FRONT	900L	38.24		38.30	37.15	38.41	37.07
1343	FRONT	900L	38.34	1	38.30	36.85	38.51	36.87
1344	FRONT	900L	37.98		37.98	36.83	38.20	36.86
1345	FRONT	900L	42.55	1	42.60	41.15	42.72	41.08
1346	FRONT	900L	45.71		46.00	44.85	46.16	44.82
1347	FRONT	900L	46.18		46.40	45.25	46.65	45.31
1348	FRONT	900L	46.65		47.00	45.85	47.08	45.74
1349	FRONT	900L	47.12		47.40	46.25	47.56	46.22
1350	FRONT	900L	47.60		47.90	46.75	48.04	46.70
1351	FRONT	900L	51.04	2	50.90	49.15	51.28	49.34
1352	FRONT	900L	50.22	2	50.00	48.25	50.44	48.50
1353	FRONT	900L	49.40	2	49.20	47.45	49.62	47.68
1354	FRONT	900L	48.58	2	48.50	46.75	48.80	46.86
1355	FRONT	900L	47.77	2	47.60	45.85	48.00	46.06
1356	FRONT	900L	47.13		47.40	46.25	47.60	46.26
1357	FRONT	900L	45.71		46.00	44.85	46.37	45.03
1358	REAR	900L	47.35		47.43	46.28	47.30	45.96
1359	FRONT	900L	49.52	2	49.40	47.65	49.75	47.81
1360(1)	FRONT	900L	38.58		38.70	37.55	38.87	37.53
1360(2)	FRONT	900L	38.37		38.40	37.25	38.67	37.33
1360(3)	FRONT	900L	38.44		38.50	37.35	38.78	37.44
1360(4)	FRONT	900L	38.51		38.60	37.45	38.84	37.50
1360(5)	FRONT	900L	38.58		38.60	37.45	38.87	37.53
1360(6)	FRONT	900L	38.65		38.80	37.65	38.99	37.65
1360(7)	FRONT	900L	38.67		38.80	37.65	38.96	37.62
1360(8)	FRONT	900L	39.00		39.10	37.95	39.31	37.97

* 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

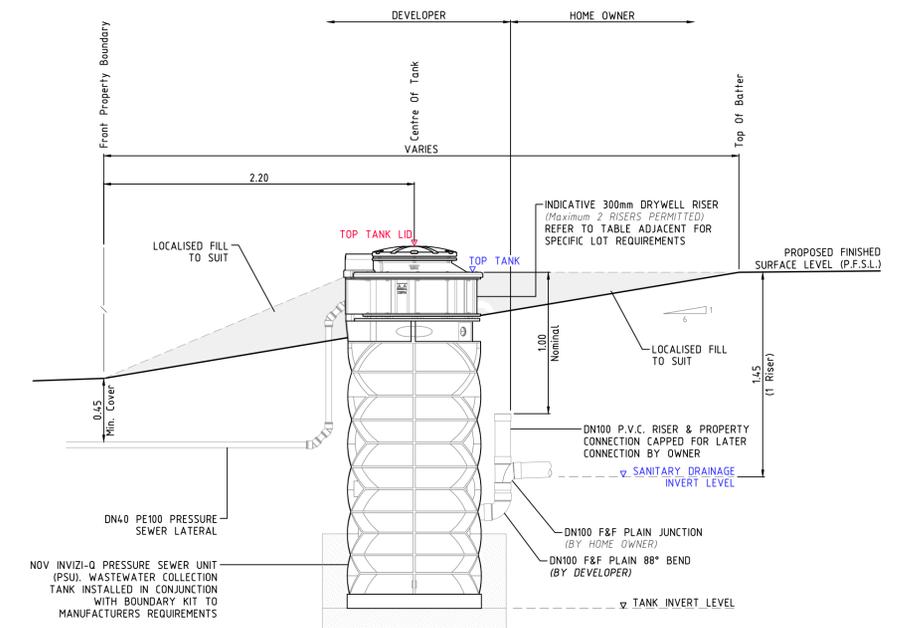
- DESIGN SURFACE LEVELS WERE ELECTRONICALLY EXTRACTED FROM DIGITAL DATA SUPPLIED BY J. WYNHAM PRINCE CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS (160608 Precinct A Design Surface Stage 1 2 and 3A.12daz).
- DESIGN LEVELS CAN ONLY BE ASSUMED AS CURRENT AT TIME OF EXTRACTION. ALL LEVELS 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.

PRESSURE SEWER COLLECTION TANK LEVEL DETAILS
BOX HILL DEVELOPMENT - PRECINCT A [STAGE 2]

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
	[FRONT / REAR]	[900L / 2200L]			[Design R.L.]	[Design R.L.]	[Work-As-Constructed]	[Work-As-Constructed]
1361(1)	FRONT	900L	39.81		39.90	38.75	39.94	38.60
1361(2)	FRONT	900L	39.66		39.70	38.55	39.79	38.45
1361(3)	FRONT	900L	39.52		39.60	38.45	39.66	38.32
1361(4)	FRONT	900L	39.38		39.50	38.35	39.56	38.22
1361(5)	FRONT	900L	39.24		39.30	38.15	39.41	38.07
1361(6)	FRONT	900L	39.08		39.10	37.95	39.24	37.90
1361(7)	FRONT	900L	40.41	1	40.40	38.95	40.59	38.95
1361(8)	FRONT	900L	40.18		40.20	39.05	40.35	39.01
1361(9)	FRONT	900L	39.96		39.96	38.81	40.16	38.82
1361(10)	FRONT	900L	39.74		39.74	38.59	39.92	38.58
1361(11)	FRONT	900L	39.51		39.51	38.36	39.67	38.33
1361(12)	FRONT	900L	39.29		39.29	38.14	39.48	38.14
1362(1)	FRONT	900L	38.13		38.20	37.05	38.30	36.96
1362(2)	FRONT	900L	38.19		38.30	37.15	38.40	37.06
1362(3)	FRONT	900L	38.27		38.30	37.15	38.45	37.11
1362(4)	FRONT	900L	39.05	2	39.00	37.25	39.24	37.30
1362(5)	FRONT	900L	39.09	1	39.00	37.55	39.27	37.63
1362(6)	FRONT	900L	39.37	1	39.30	37.85	39.54	37.90
1362(7)	FRONT	900L	39.60	1	39.50	38.05	39.79	38.15
1362(8)	FRONT	900L	39.83	1	39.70	38.25	40.02	38.38
1362(9)	FRONT	900L	39.36	1	39.30	37.85	39.60	37.96
1362(10)	FRONT	900L	39.21	1	39.10	37.65	39.44	37.80
1362(11)	FRONT	900L	39.09	1	39.10	37.65	39.32	37.68
1363(1)	FRONT	900L	41.86		42.00	40.85	42.42	41.08
1363(2)	FRONT	900L	41.94		42.20	41.05	42.44	41.10
1363(3)	FRONT	900L	42.04		42.30	41.15	42.59	41.25
1363(4)	FRONT	900L	42.14		42.50	41.35	42.74	41.40
1363(5)	FRONT	900L	42.22		42.60	41.45	42.79	41.45
1363(6)	FRONT	900L	42.32		42.80	41.65	42.85	41.51
1363(7)	FRONT	900L	42.42		42.90	41.75	42.99	41.65
1363(8)	FRONT	900L	42.54		43.00	41.85	43.13	41.79
1363(9)	FRONT	900L	42.84		43.20	42.05	43.38	42.04
1363(10)	FRONT	900L	44.46	2	44.46	42.71	44.81	42.87
1363(11)	FRONT	900L	45.67	2	45.50	43.75	46.01	44.07
1364(1)	FRONT	900L	44.35 **		44.35	43.20	44.53	43.19
1364(2)	FRONT	900L	44.67 **		44.67	43.52	44.88	43.54
1364(3)	FRONT	900L	45.17 **		45.17	44.02	45.37	44.03
1364(4)	FRONT	900L	45.40 **		45.40	44.25	45.60	44.26
1364(5)	FRONT	900L	45.90 **		45.90	44.75	46.10	44.76
1364(6)	FRONT	900L	46.40 **		46.40	45.25	46.56	45.22
1365	FRONT	900L	53.66	2	53.66	51.91	53.60	51.66
1366(1)	FRONT	900L	45.24		45.30	44.15	45.41	44.07
1366(2)	FRONT	900L	45.91		46.00	44.85	46.08	44.74
1366(3)	FRONT	900L	46.42		46.50	45.35	46.61	45.27
1366(4)	FRONT	900L	47.07		47.10	45.95	47.26	45.92
1366(5)	FRONT	900L	47.58		47.60	46.45	47.81	46.47
1369	FRONT	900L	54.30	2	54.30	52.55	54.38	52.44

** COLLECTION TANK LEVELS WERE PROVIDED BY THE CIVIL ENGINEERS. CONTRACTOR WAS TO LIAISE WITH HEAD CONTRACTOR RE: FINAL LEVEL CONFIRMATION DUE TO PROXIMITY OF ADJACENT PITS.

* 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

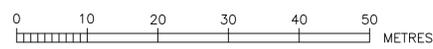
COLLECTION TANK NOTES

- 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.12a2).
- 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.

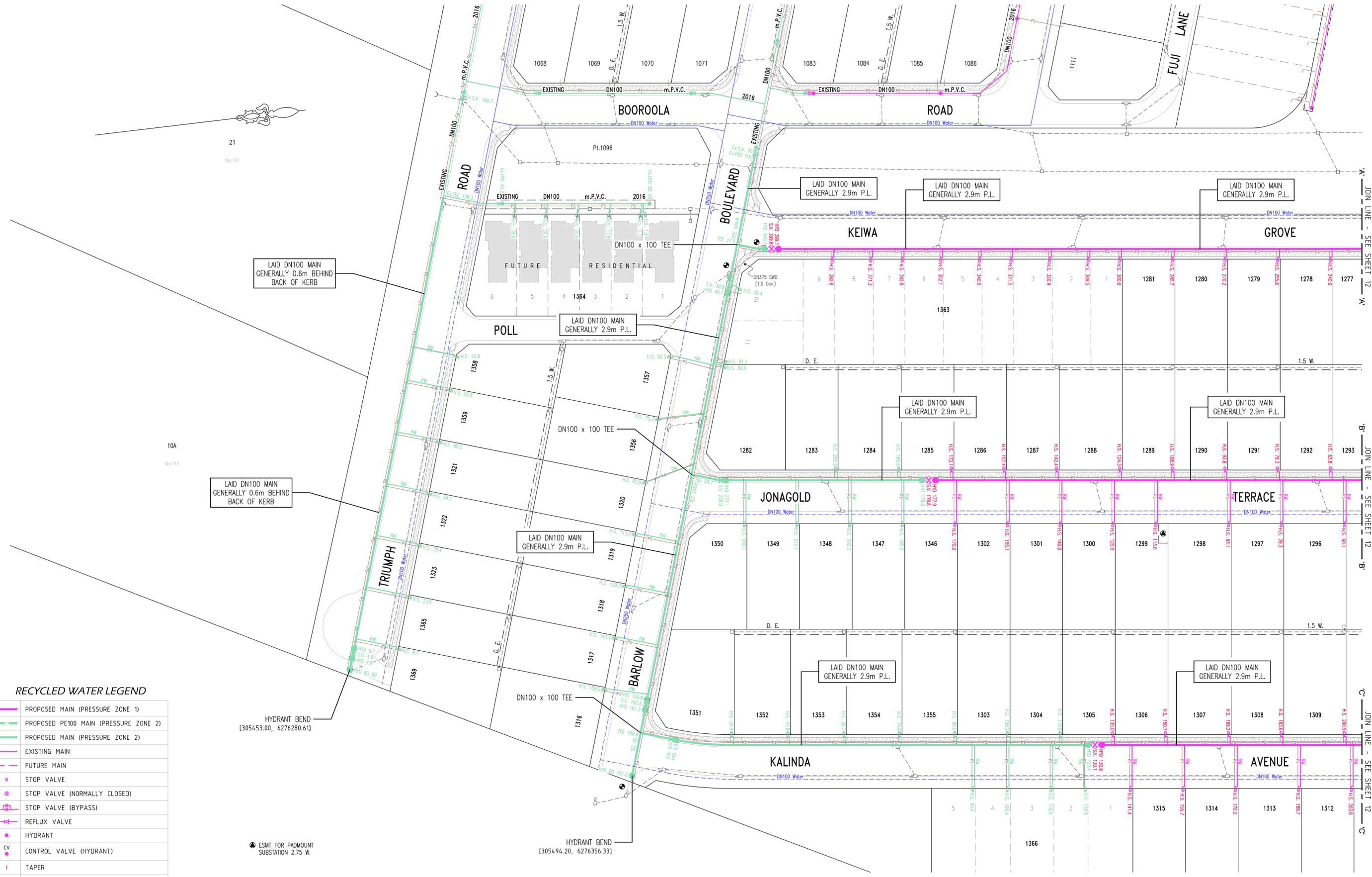


Precinct A Development Stages

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



ROSE ATKINS RIMMER (Infrastructure) Pty. Ltd. <small>WATER RELATED INFRASTRUCTURE DESIGN AND MANAGEMENT</small> RAR 142 SUNNYHOLT ROAD, BLACKTOWN <small>P.O. BOX 6745, BLACKTOWN N.S.W. 2148</small> <small>PH: (02) 9853 0200 FAX: (02) 9671 7399</small>		 <small>Quality Endorsed Company</small>	RECYCLED WATER GENERAL ARRANGEMENT <small>VERSION: WAC</small>	SHEET 10 OF 13 4/23645/A2
DRAWN: D.SHEATHER SCALE: -	DESIGNED: D.SHEATHER DATE: -	REVIEWED: V.VIKSNE DATE REFERENCE: -	VERIFIED: K.GAO DATE OF ISSUE: 25/5/2018	AS No. 4/23645/A2



21
No.110

10A
No.113

LAI D N100 MAIN
GENERALLY 0.6m BEHIND
BACK OF KERB

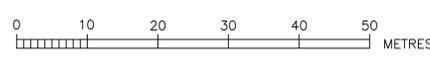
LAI D N100 MAIN
GENERALLY 0.6m BEHIND
BACK OF KERB

HYDRANT BEND
(305453.00, 6276280.61)

HYDRANT BEND
(305494.20, 6276356.33)

ESMT FOR PADMOUNT
SUBSTATION 2.75 W.

⊘ 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.



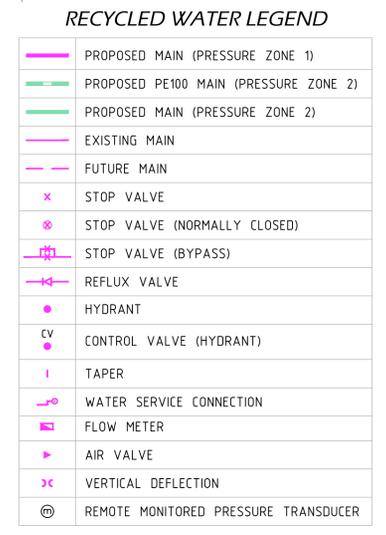
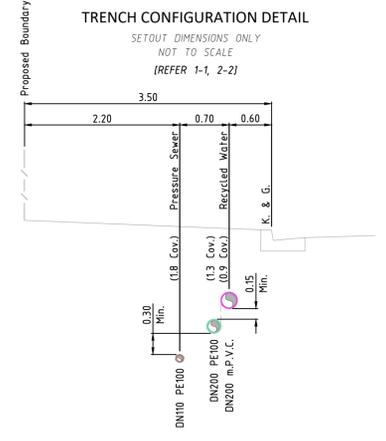
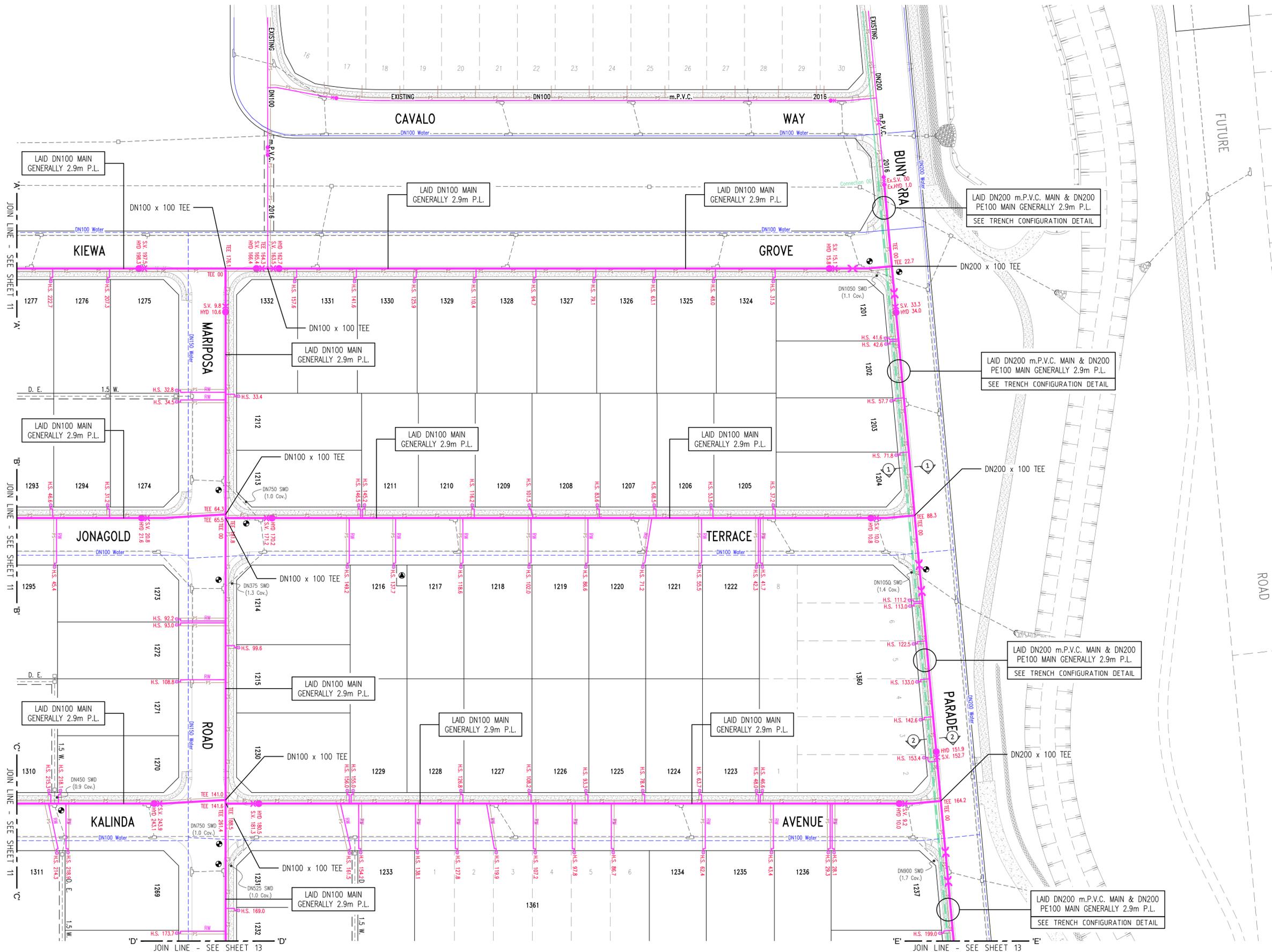
RECYCLED WATER LEGEND

	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

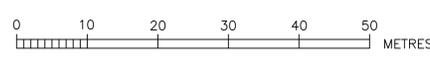
ROSE ATKINS RIMMER (Infrastructure) Pty. Ltd.
 WATER RELATED INFRASTRUCTURE DESIGN AND MANAGEMENT
 142 SUNNYHOLT ROAD, BLACKTOWN
 P.O. BOX 6745, BLACKTOWN N.S.W. 2148
 PH: (02) 9853 0200 FAX: (02) 9671 7399

RECYCLED WATER DETAIL PLAN 1			
DRAWN	DESIGNED	REVIEWED	VERIFIED
D.SHEATHER	D.SHEATHER	V.VIKSNE	K.GAO
SCALE	DATE	DATE REVISION	DATE OF ISSUE
1:500			25/5/2018

Box Hill Water
 SHEET 11 OF 13 WAC
 4/23645/A2

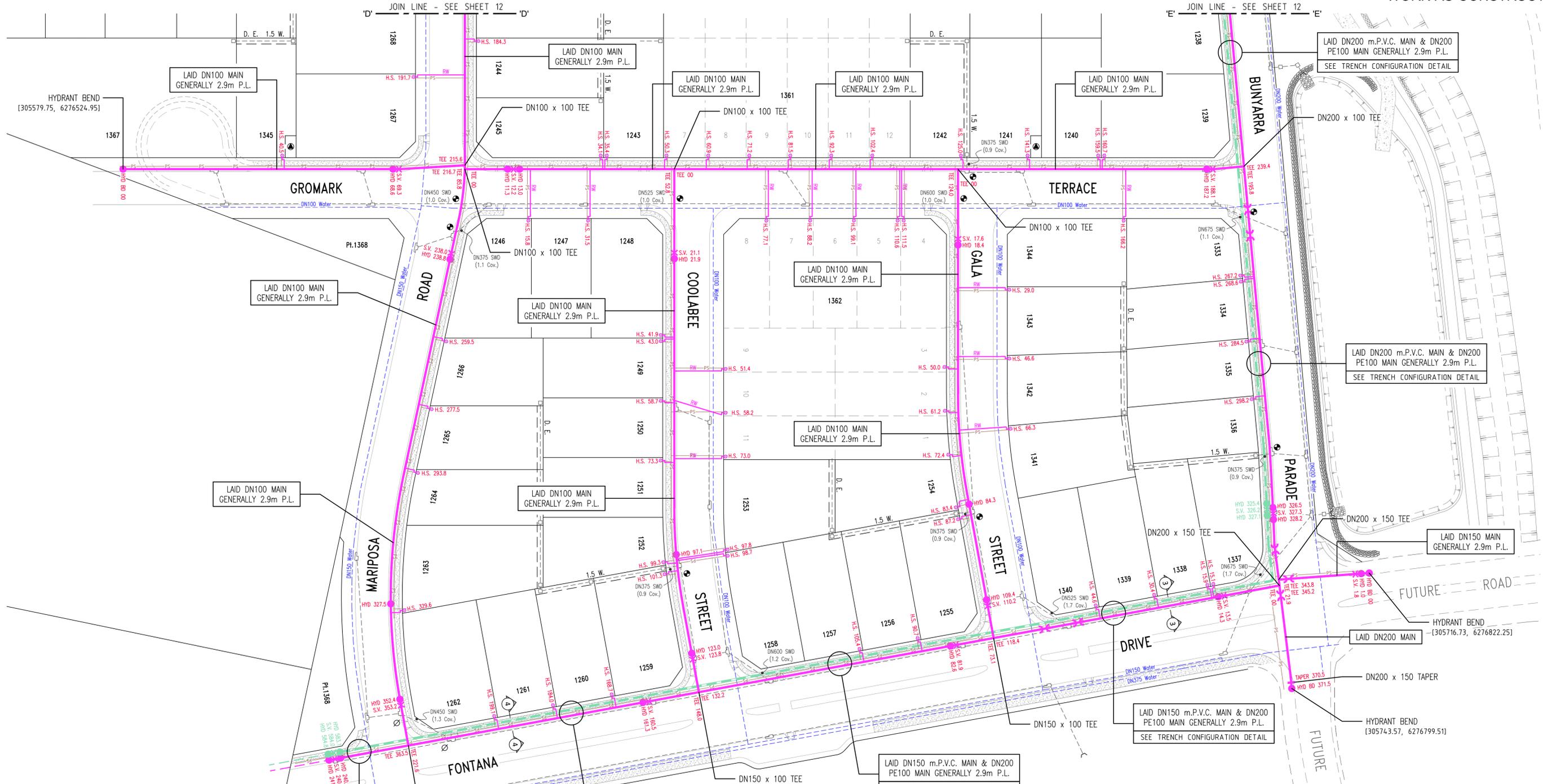


⊘ DENOTES MAIN TO BE LAID OVER SERVICE (REDUCED COVER)
 ⊙ DENOTES MAIN TO BE LAID UNDER SERVICE, WHERE COVER EXCEEDS 1.5m, BUT LESS THAN 2.5m, THE MAIN SHALL BE EMBEDDED IN STABILISED SAND.



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

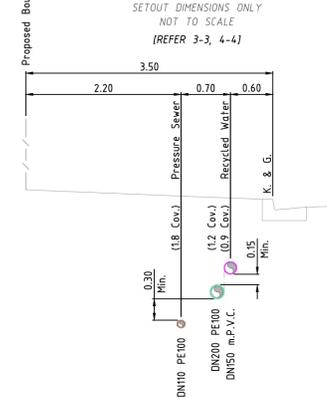
RECYCLED WATER DETAIL PLAN 2				SHEET 12 OF 13		WAC
DATE:	DESIGNED:	REVISED:	VERIFIED:	DATE:	DATE:	NO.:
D.SHEATHER	D.SHEATHER	V.VIKSNE	K.GAO	25/5/2018		4/23645/A2
SCALE:	DATE:	DATE:	DATE:	DATE:		
1:500						



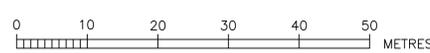
RECYCLED WATER LEGEND

	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 DETAIL



⊙ 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 3				SHEET 13 OF 13		WAC
DATE: 25/5/2018	DESIGNED: D.SHEATHER	REVIEWED: V.VIKSNE	VERIFIED: K.GAO	AS NO.	4/23645/A2	
SCALE: 1:500	DRAWN:	DATE:	DATE OF ISSUE:			