

# HUNTLEE - PRECINCT 2

## PRESSURE SEWER, POTABLE WATER & RECYCLED WATER

### STAGE 10



LOCALITY PLAN  
(NOT TO SCALE)

DRAWING LIST	
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NOTE: LOT No.s CHANGED TO MATCH DP1231884 (MOD. BY ADWJ) 22-09-21 G.S.

No.	REVISION DESCRIPTION	BY	DATE
05	WORK-AS-CONSTRUCTED	D.S.	16/6/17
04	COLLECTION TANK DETAIL SHEET FINALISED	D.S.	20/12/16
03	PIPE COVER CORRECTED	D.S.	8/12/16
02	PRESSURE SEWER SIZING REVISIONS	D.S.	3/11/16
01	ISSUE FOR APPROVAL (EXCLUDES SEWER)	D.S.	31/10/16

SERVICE	DATE	REF.	WORK-AS-CONSTRUCTED CERTIFICATION	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	<b>Huntlee + Water</b> Bringing communities to life	PLAN OF PROPOSED WATER INFRASTRUCTURE SERVICES HUNTLEE DEVELOPMENT - PRECINCT 2 (STAGE 10) WINE COUNTRY DRIVE, NORTH ROTHBURY L.G.A. CESSNOCK	COVER SHEET DRAWN: D.SHEATHER CHECKED: D.SHEATHER SCALE: - DATE: - REVISIONS: V.VIKSNE DATE OF ISSUE: 16/6/2017 VERIFIED: K.GAO	SHEET 1 OF 10 WAC 39/23357/10
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GENERAL NOTES

- THIS DRAWING SET SHALL BE READ IN CONJUNCTION WITH CESSNOCK CITY COUNCIL STANDARDS, FLOW SYSTEMS SUPPLEMENTARY MANUAL TO W.S.A.A. & OTHER ASSOCIATED DRAWINGS AND TECHNICAL SPECIFICATIONS.
- 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 <sup>1</sup> mm
	New main size		
	≤DN200	>DN200	
Water mains <sup>2</sup> > DN375	600	600	300
Water mains <sup>2</sup> ≤ DN375	300*	600	150
Gas mains	300*	600	150
Telecommunication conduits 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*	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 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.
  - Where a parallel sewer is at minimum vertical clearance lower than the water main (500mm), maintain a minimum horizontal of 100mm. This minimum clearance can be progressively reduced to 600mm as the vertical clearance is increased to 750mm.
  - For pressure sewer laterals, minimum vertical clearance 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 no 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 HUNTLEE WATER REPRESENTATIVE IN WRITING.

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 & 10m 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 HUNTLEE WATER REPRESENTATIVE).
- ALL PIPE BEDDING MATERIAL SHALL COMPLY WITH WSA PRODUCT SPECIFICATION WSA-PS350 & WSA-PS351.
- ALL BENDS SHALL BE ELECTROFUSION OR BUTTWELDED SWEEP BENDS. FABRICATED BENDS SHALL NOT BE USED IN LIEU OF KNUCKLE ELBOWS ARE NOT PERMITTED.
- MINIMUM BENDING RADIUS FOR PN16 PE100 (SDR11) SHALL BE  $20 \times DN$  (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](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](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 HUNTLEE 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 HUNTLEE 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 HUNTLEE 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 21.3.4) ARE:  
TRAFFICABLE:  
PIPE EMBEDMENT ZONE: NIL TRENCH FILL ZONE: 1 TEST / CROSSING (6 Tests)  
NON-TRAFFICABLE:  
PIPE EMBEDMENT ZONE: NIL TRENCH FILL ZONE: 1 TEST / 100m (10 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 HUNTLEE 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.

WATER & RECYCLED WATER NOTES WORK-AS-CONSTRUCTED

- 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 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-VI) & 800mm FOR ROADWAYS (TYPE L EMBEDMENT: WAT-1204-VI). 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 WSA PRODUCT SPECIFICATION PS-350, 368 & 369. GEOTECHNICAL CONDITIONS SHOULD BE ASSESSED DURING CONSTRUCTION BY THE CONTRACTOR IN ASSOCIATION WITH THE HUNTLEE 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](http://flowsystems.com.au/governance/Land_Housing/WAT-1854-FS.pdf) DUAL SERVICE [http://flowsystems.com.au/governance/Land\\_Housing/WAT-1855-FS.pdf](http://flowsystems.com.au/governance/Land_Housing/WAT-1855-FS.pdf)
- PROPERTY SERVICE CONNECTIONS SHALL BE FLUSHED & LOCKED (BY THE HUNTLEE 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 HUNTLEE 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 HUNTLEE 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 HUNTLEE 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 (8 Tests)  
NON-TRAFFICABLE:  
PIPE EMBEDMENT ZONE: NIL TRENCH FILL ZONE: 1 TEST / 100m (11 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 HUNTLEE 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.

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

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

<b>ROSE ATKINS RIMMER (Infrastructure) Pty. Ltd.</b> 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			<b>GENERAL NOTES</b>				SHEET 2 OF 10	WAC
DRAWN: D.SHEATHER	DESIGNED: D.SHEATHER		REVIEWED: V.VIKSNE	VERIFIED: K.GAO	SCALE:	DATE:	DATE OF ISSUE: 16/6/2017	JOB NO. 39/23357/10

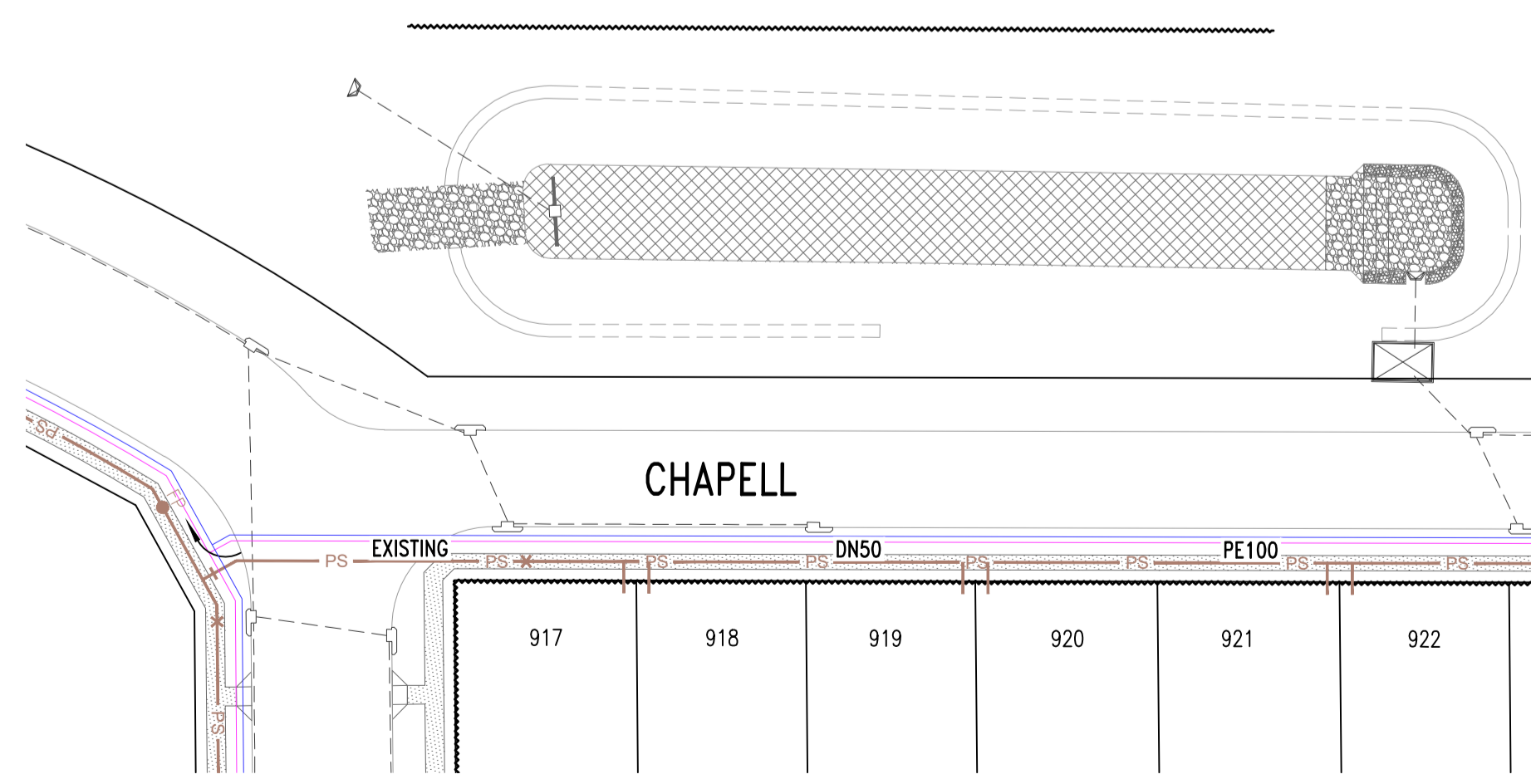
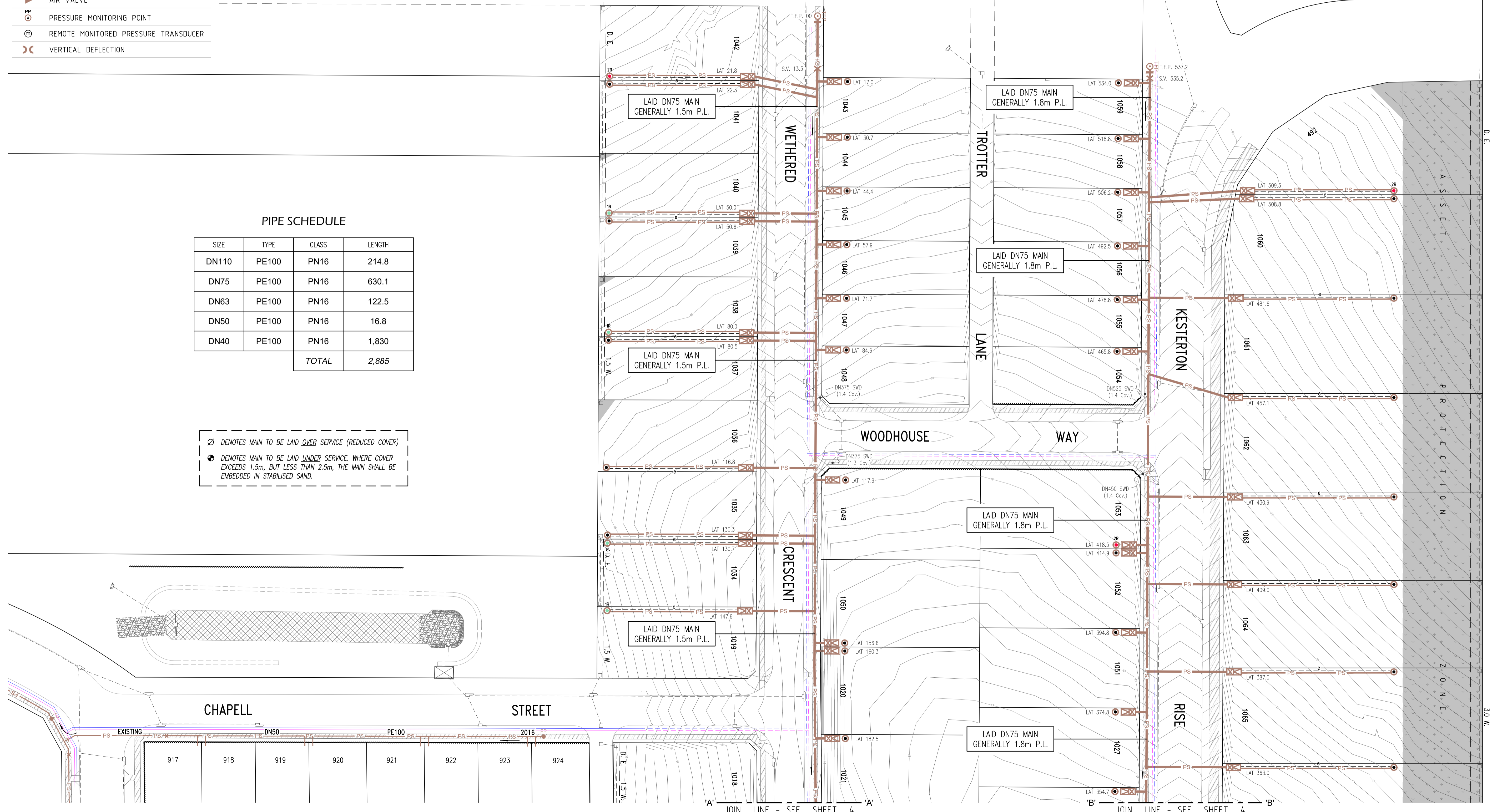
**PRESSURE SEWER LEGEND**

	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

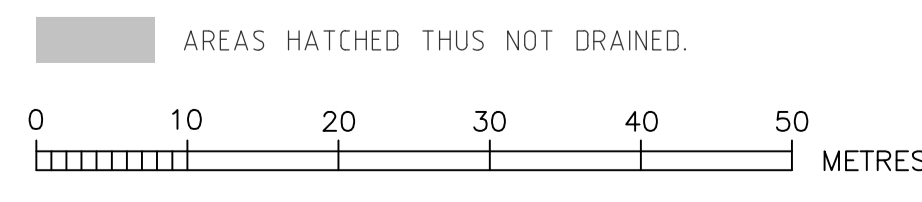
**PIPE SCHEDULE**

SIZE	TYPE	CLASS	LENGTH
DN110	PE100	PN16	214.8
DN75	PE100	PN16	630.1
DN63	PE100	PN16	122.5
DN50	PE100	PN16	16.8
DN40	PE100	PN16	1,830
<b>TOTAL</b>			<b>2,885</b>

⊙ 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 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.

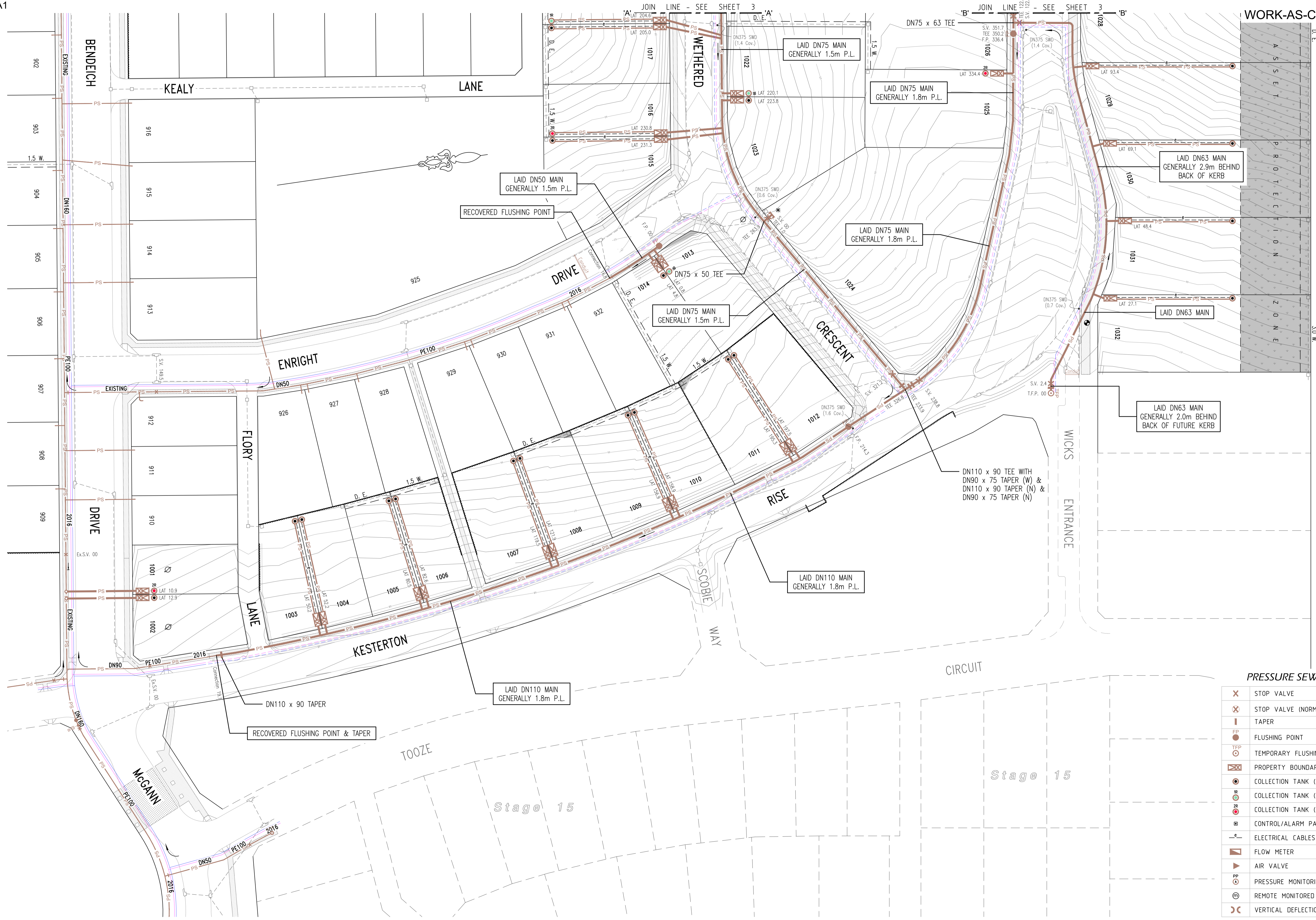


**ROSE ATKINS RIMMER (Infrastructure) Pty. Ltd.**  
 WATER RELATED INFRASTRUCTURE DESIGN AND MANAGEMENT  
 142 SUNNYHOLT ROAD, BLACKTOWN  
 P.O. BOX 6745, BLACKTOWN N.S.W. 2148  
 PH: (02) 9853 0200 FAX: (02) 9671 7399

**PRESSURE SEWER DETAIL PLAN 1**

DATE: 16/6/2017	DESIGNED: D.SHEATHER	REVIEWED: V.VIKSNE	VERIFIED: K.GAO
SCALE: 1:500	DRAWN: A.H.D.	DATE OF ISSUE: 16/6/2017	

SHEET 3 OF 10  
 39/23357/10



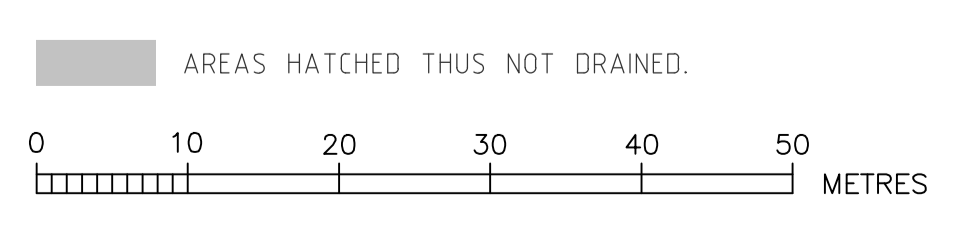
PRESSURE SEWER LEGEND

	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 DN50 MAIN WITH S.V. (END CAPPED) FOR LOT 1041 ONLY. NO BOUNDARY KIT PROVIDED. LOT SERVICING TO BE PROVIDED FOR BY SEPARATE APPLICATION TO HUNTLEE WATER UPON CONFIRMATION OF LOT CONFIGURATION.

⊖ DENOTES PROPERTY LATERAL INSTALLED ON EXISTING MAIN



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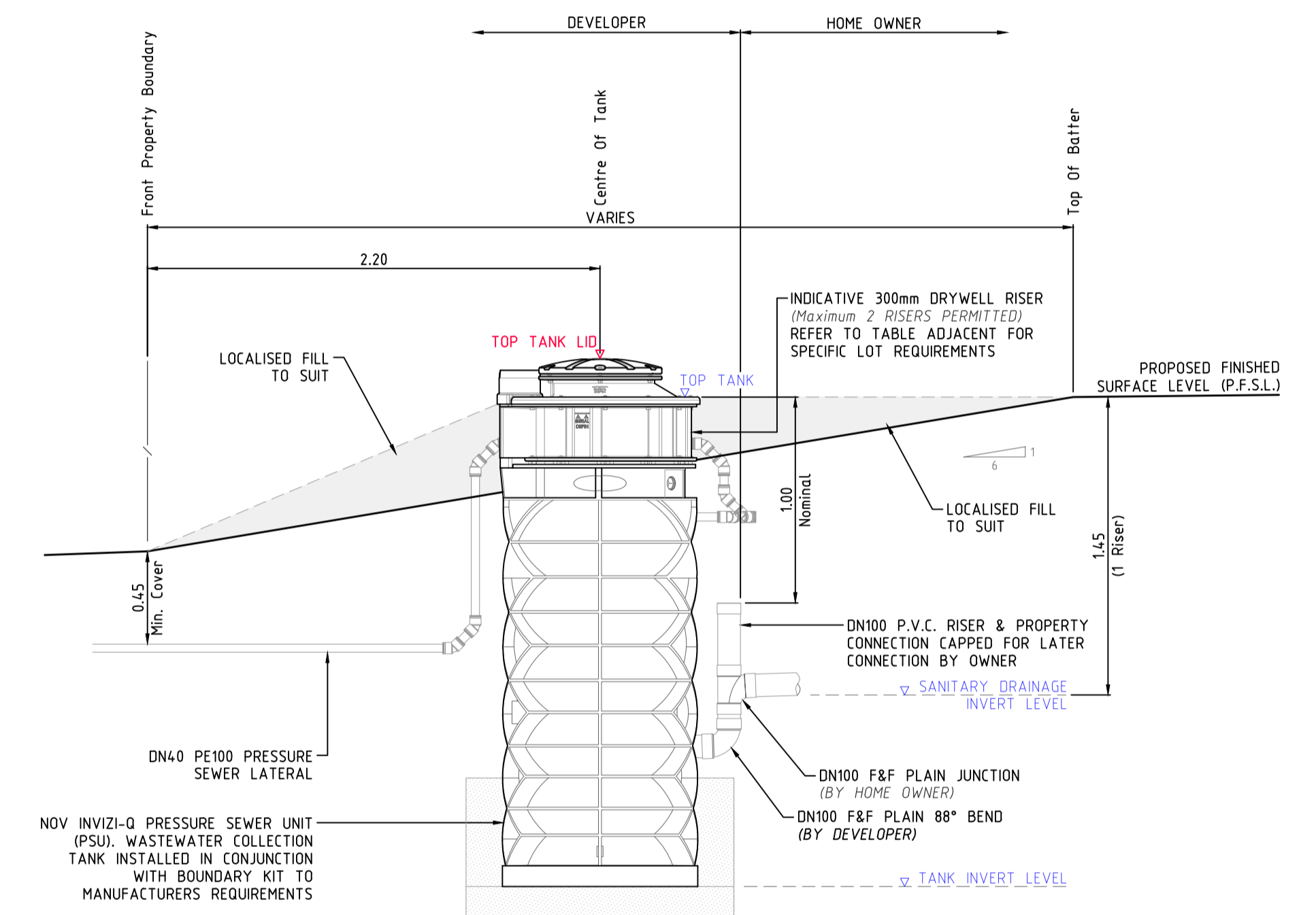
PRESSURE SEWER DETAIL PLAN 2			
DRAWN: D.SHEATHER	DESIGNED: D.SHEATHER	REVIEWED: V.VIKSNE	VERIFIED: K.GAO
SCALE: 1:500	DRAWN: A.H.D.	DATE: 16/6/2017	

**PRESSURE SEWER COLLECTION TANK LEVEL DETAILS**  
**HUNTLEE DEVELOPMENT - STAGE 10**

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 *	CALCULATED SANITARY DRAINAGE INVERT LEVEL
							[Work-As-Constructed]	[Work-As-Constructed]
1001	FRONT	900L	67.15	2	67.20	65.45	67.50	65.56
1002	FRONT	900L	67.22		67.30	66.15	67.58	66.24
1003	REAR	900L	66.68		66.76	65.61	67.84	66.50
1004	REAR	900L	66.68		66.76	65.61	67.84	66.50
1005	REAR	900L	66.51		66.59	65.44	67.62	66.28
1006	REAR	900L	66.48		66.56	65.41	67.22	65.88
1007	REAR	900L	65.98		66.06	64.91	67.40	66.06
1008	REAR	900L	65.96		66.04	64.89	66.98	65.64
1009	REAR	900L	65.29		65.37	64.22	66.57	65.23
1010	REAR	900L	65.20		65.28	64.13	66.40	65.06
1011	REAR	900L	66.27		66.35	65.20	66.61	65.27
1012	REAR	900L	66.30		66.38	65.23	66.66	65.32
1013	FRONT	900L	62.64	1	63.10	61.65	63.34	61.70
1014	FRONT	900L	62.68		63.10	61.95	63.37	62.03
1015	REAR	900L	60.08		60.16	59.01	60.21	58.87
1016	REAR	900L	59.97	2	60.05	58.30	60.26	58.32
1017	REAR	900L	58.19		58.27	57.12	58.67	57.33
1018	REAR	900L	58.11	1	58.19	56.74	58.70	57.06
1019	REAR	900L	58.30	1	58.38	56.93	58.63	56.99
1020	REAR	900L	58.69	1	58.77	57.32	59.02	57.38
1034	REAR	900L	58.77		58.85	57.70	59.10	57.76
1035	REAR	900L	58.78		58.86	57.71	59.12	57.78
1036	REAR	900L	57.78		57.86	56.71	58.13	56.79
1037	REAR	900L	57.78		57.86	56.71	58.13	56.79
1038	REAR	900L	57.69	1	57.77	56.32	58.06	56.42
1039	REAR	900L	56.46		56.54	55.39	56.89	55.55
1040	REAR	900L	56.38	1	56.46	55.01	56.71	55.07
1041	REAR	900L	54.91		54.99	53.84	55.25	53.91
1042	REAR	900L	54.85	2	54.93	53.18	55.13	53.19
1043	FRONT	900L	56.41		56.50	55.35	56.75	55.41
1044	FRONT	900L	56.93		56.90	55.75	57.13	55.79
1045	FRONT	900L	57.48		57.50	56.35	57.73	56.39
1046	FRONT	900L	58.12		58.20	57.05	58.47	57.13
1047	FRONT	900L	58.77		58.80	57.65	59.04	57.70
1048	FRONT	900L	59.30		59.30	58.15	59.54	58.20
1049	FRONT	900L	60.61		60.60	59.45	60.87	59.53
1050	FRONT	900L	61.93		61.90	60.75	61.57	60.23
1051	FRONT	900L	61.97		61.90	60.75	61.57	60.23
1052	FRONT	900L	61.99		61.90	60.75	61.56	60.22
1053	FRONT	900L	61.42	1	61.60	60.15	61.84	60.20
1054	FRONT	900L	61.41		61.60	60.45	61.82	60.48
1055	FRONT	900L	64.10	2	64.20	62.45	64.49	62.55
1056	FRONT	900L	63.26		63.30	62.15	63.56	62.22
1057	FRONT	900L	62.47		62.50	61.35	62.73	61.39
1058	FRONT	900L	61.50		61.60	60.45	61.81	60.47
1059	FRONT	900L	60.80		60.80	59.65	61.02	59.68
1060	FRONT	900L	60.72	2	60.80	59.05	61.05	59.11
1061	FRONT	900L	58.89		58.90	57.75	59.13	57.79
1062	FRONT	900L	58.52		58.60	57.45	58.73	57.39
1063	FRONT	900L	58.11		58.20	57.05	58.46	57.12
1064	FRONT	900L	57.68		57.70	56.55	57.97	56.63
1065	FRONT	900L	57.08		57.10	55.95	57.34	56.00
1066	FRONT	900L	56.52		56.50	55.35	56.75	55.41
1067	REAR	900L	55.12	2	55.20	53.45	55.41	53.47
1068	REAR	900L	55.18		55.26	54.11	55.44	54.10
1069	REAR	900L	55.83		55.91	54.76	56.09	54.75
1070	REAR	900L	56.53		56.61	55.46	56.77	55.43
1071	REAR	900L	57.46		57.54	56.39	57.62	56.28
1072	REAR	900L	58.26		58.34	57.19	58.58	57.24
1073	REAR	900L	59.24		59.32	58.17	59.55	58.21
1074	REAR	900L	60.57		60.65	59.50	60.95	59.61
1075	REAR	900L	61.96		62.04	60.89	62.30	60.96
1076	REAR	900L	63.79		63.87	62.72	64.10	62.76
1077	REAR	900L	64.96		65.04	63.89	65.31	63.97
1078	REAR	900L	66.03		66.11	64.96	66.37	65.03

RISER QUANTITY MODIFIED ON SITE BY CONTRACTOR.  
R.A.R. ACCEPT NO RESPONSIBILITY FOR DRAINAGE COMPLIANCE ON LOTS 1013, 1014, 1036, 1037 & 1038.

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

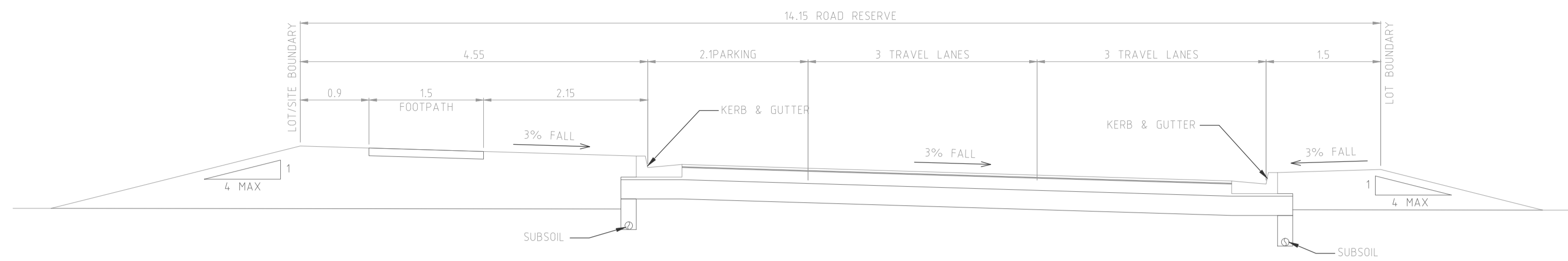


COLLECTION TANK SECTIONAL ELEVATION

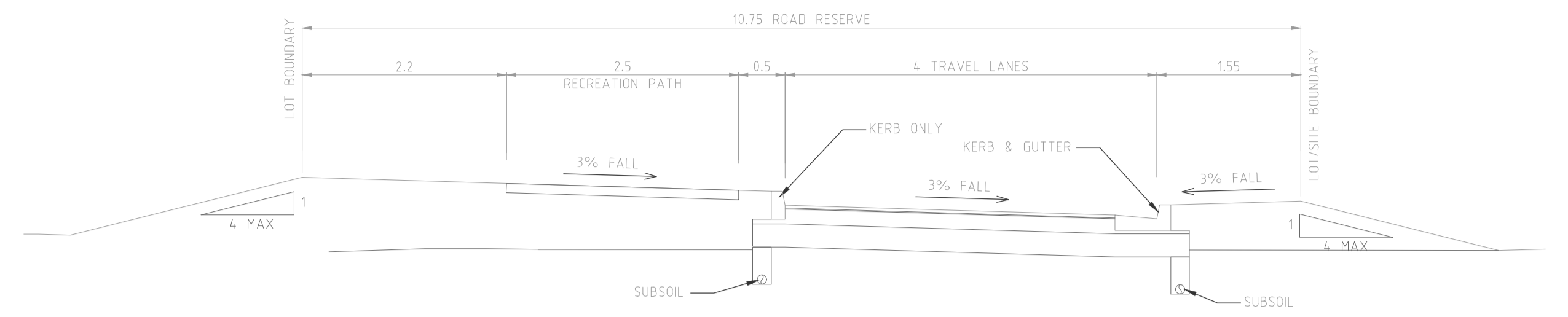
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COLLECTION TANK NOTES

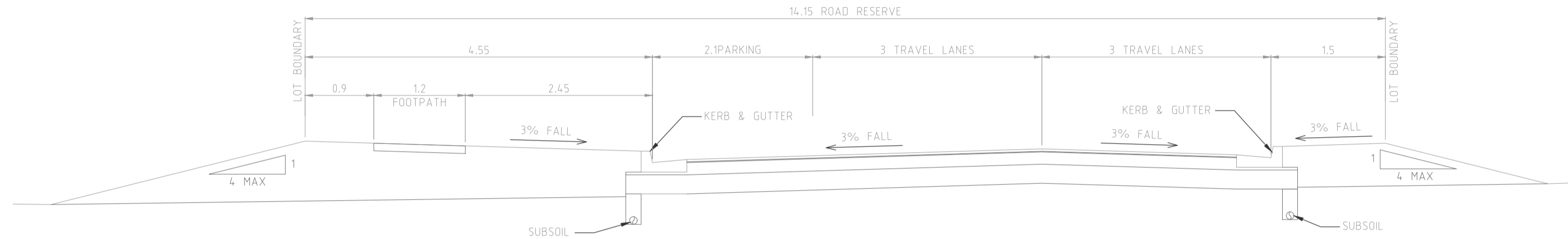
- DESIGN SURFACE LEVELS WERE ELECTRONICALLY EXTRACTED FROM DIGITAL DATA SUPPLIED BY NORTHROP CONSULTING ENGINEERS 1/11/2016 (ACAD-NL150007\_STAGE 10 BASE.dwg).
- DESIGN LEVELS CAN ONLY BE ASSUMED AS CURRENT AT TIME OF EXTRACTION ALL LEVELS SHALL BE CONFIRMED WITH THE SITE SUPERINTENDENT PRIOR TO INSTALLATION 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.



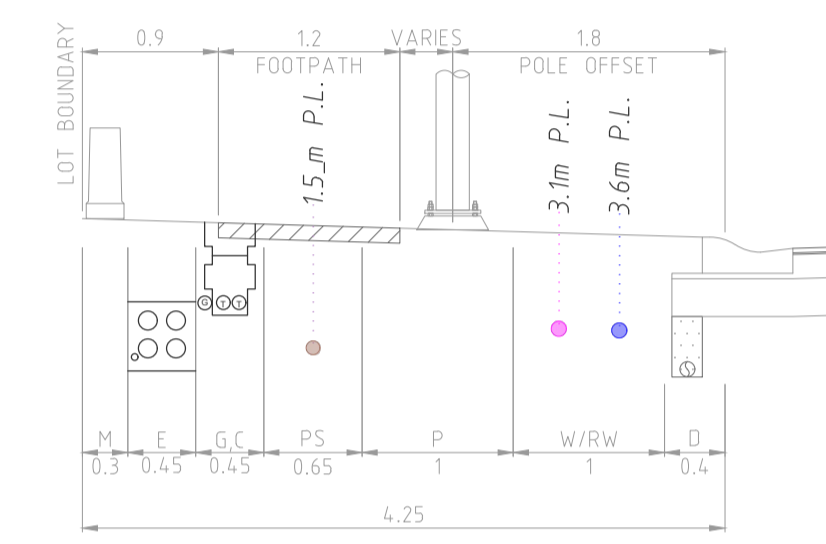
**TYPICAL CROSS SECTION - KESTERTON RISE**  
SCALE 1:50  
CH.380.00-440.00



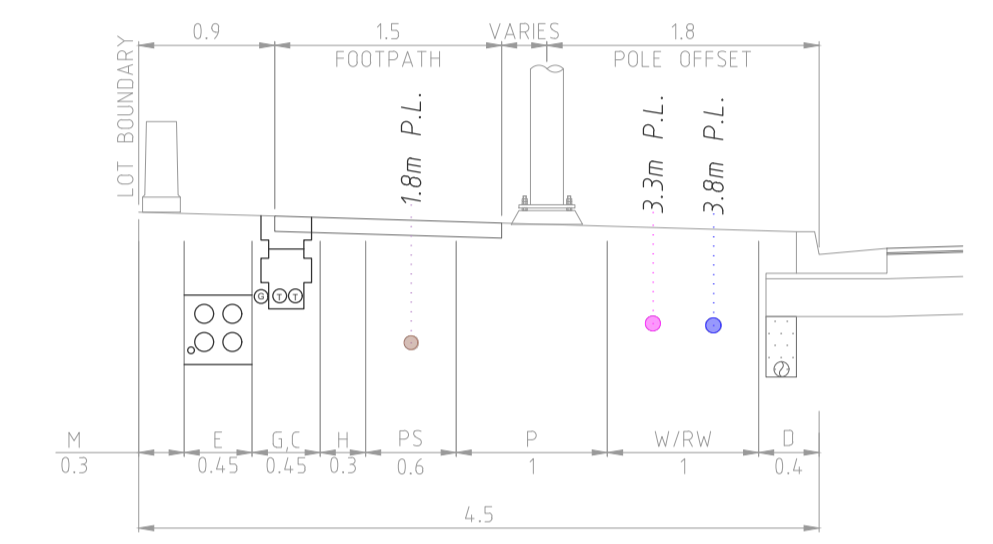
**TYPICAL CROSS SECTION - WICKS ENTRANCE**  
SCALE 1:50



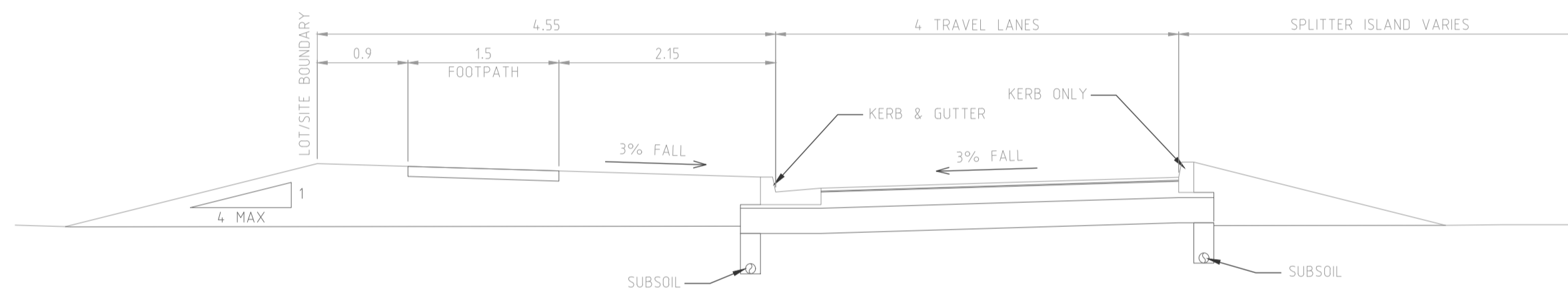
**TYPICAL CROSS SECTION - KESTERTON RISE**  
SCALE 1:50  
CH.440.00-603.00



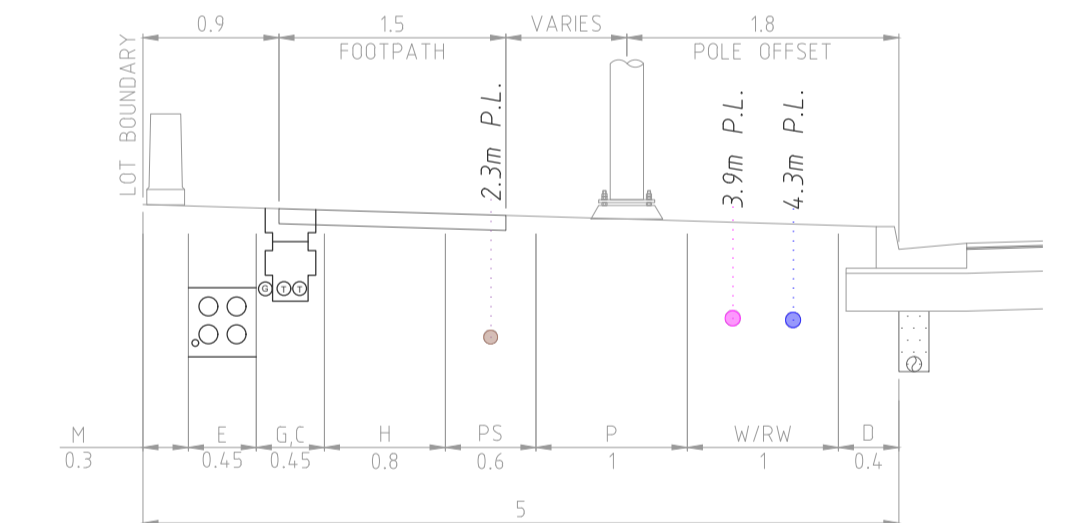
**4.25m VERGE**



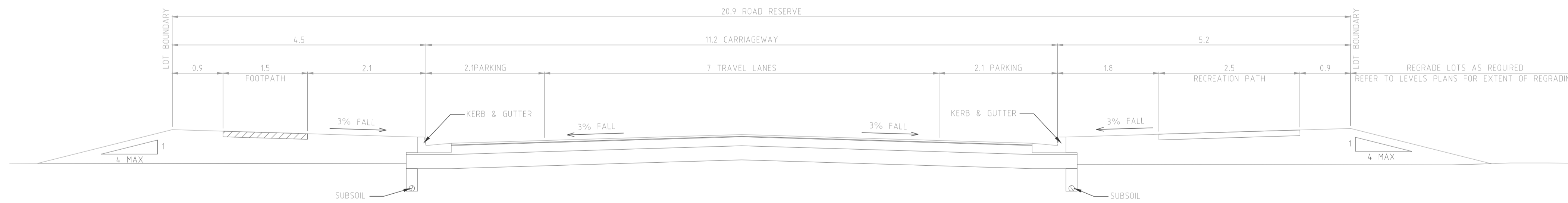
**4.5m VERGE (1.5m FOOTPATH)  
TYPICAL SERVICE ALLOCATION**



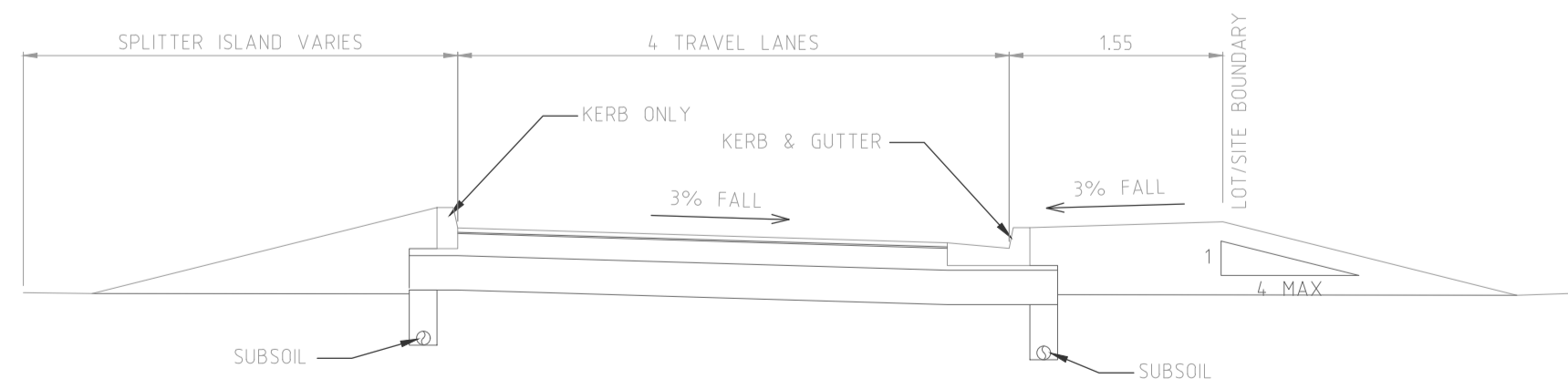
**TYPICAL CROSS SECTION - KESTERTON RISE**  
SCALE 1:50  
CH.603.00-715.24



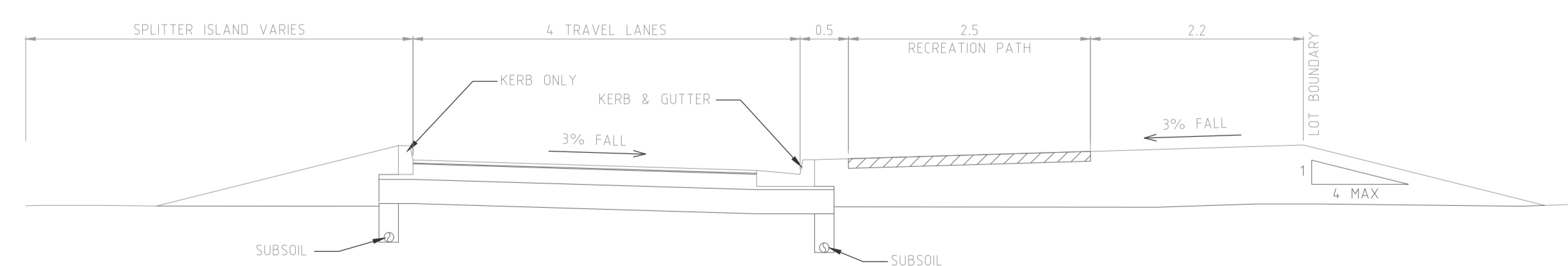
**5.0m VERGE (1.5m FOOTPATH)**



**TYPICAL CROSS SECTION - KESTERTON RISE**  
SCALE 1:50  
CH.715.24-965.98



**TYPICAL CROSS SECTION - KESTERTON RISE SPLITTER LANE**  
SCALE 1:50  
CH.00-42.00



**TYPICAL CROSS SECTION - KESTERTON RISE SPLITTER LANE**  
SCALE 1:50  
CH.42.00-128.64

**SERVICES LEGEND**

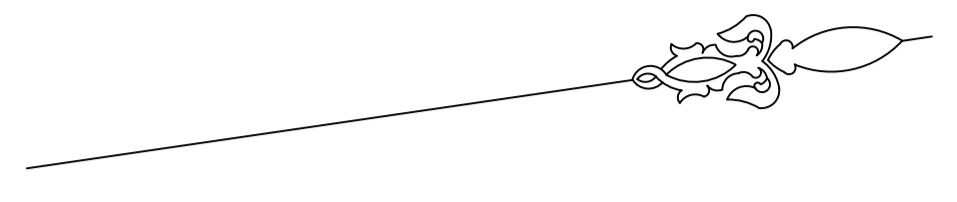
M	MISCELLANEOUS
E	ELECTRICITY
G	GAS
C	COMMUNICATIONS
P	POLES & TREES
W/RW	WATER + RECYCLED WATER
D	DRAINAGE
RW	RECYCLED WATER ONLY
H	HUNTLEE FUTURE SERVICES
PS	PRESSURE SEWER

- NOTES**
- TRENCHES TO BE EXCAVATED, BEDDED, BACKFILLED AND RESTORED IN ACCORDANCE WITH SERVICE AUTHORITY AND COUNCIL REQUIREMENTS.
  - COVER AND CLEARANCE IS TO BE PROVIDED IN ACCORDANCE WITH THE SERVICE AUTHORITY REQUIREMENTS.
  - MANHOLES, PITS, VALVE COVERS ETC ARE TO BE SET AT THE CORRECT LEVELS FOR PATHS AND ACCESSES AND SHALL FINISH NEATLY, FLUSH AND FREE OF TRIP HAZARDS.
  - MARKER TAPE AND/OR MECHANICAL PROTECTION TILES ARE TO BE PROVIDED IN ACCORDANCE WITH THE REQUIREMENTS OF THE SERVICE AUTHORITY.

<b>ROSE ATKINS RIMMER (Infrastructure) Pty. Ltd.</b> 142 SUNNYHOLT ROAD, BLACKTOWN P.O. BOX 6745, BLACKTOWN N.S.W. 2148 PH: (02) 9853 0200 FAX: (02) 9671 7399			<b>TYPICAL ROAD SECTIONS</b> DRAWN: D.SHEATHER CHECKED: D.SHEATHER DATE: 16/6/2017	SHEET 6 OF 10 WAC 39/23357/10
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POTABLE WATER LEGEND

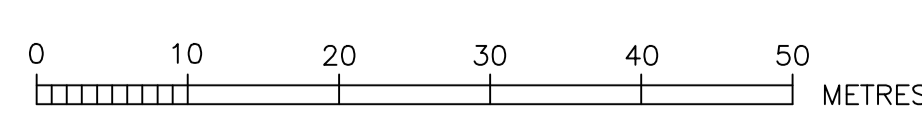
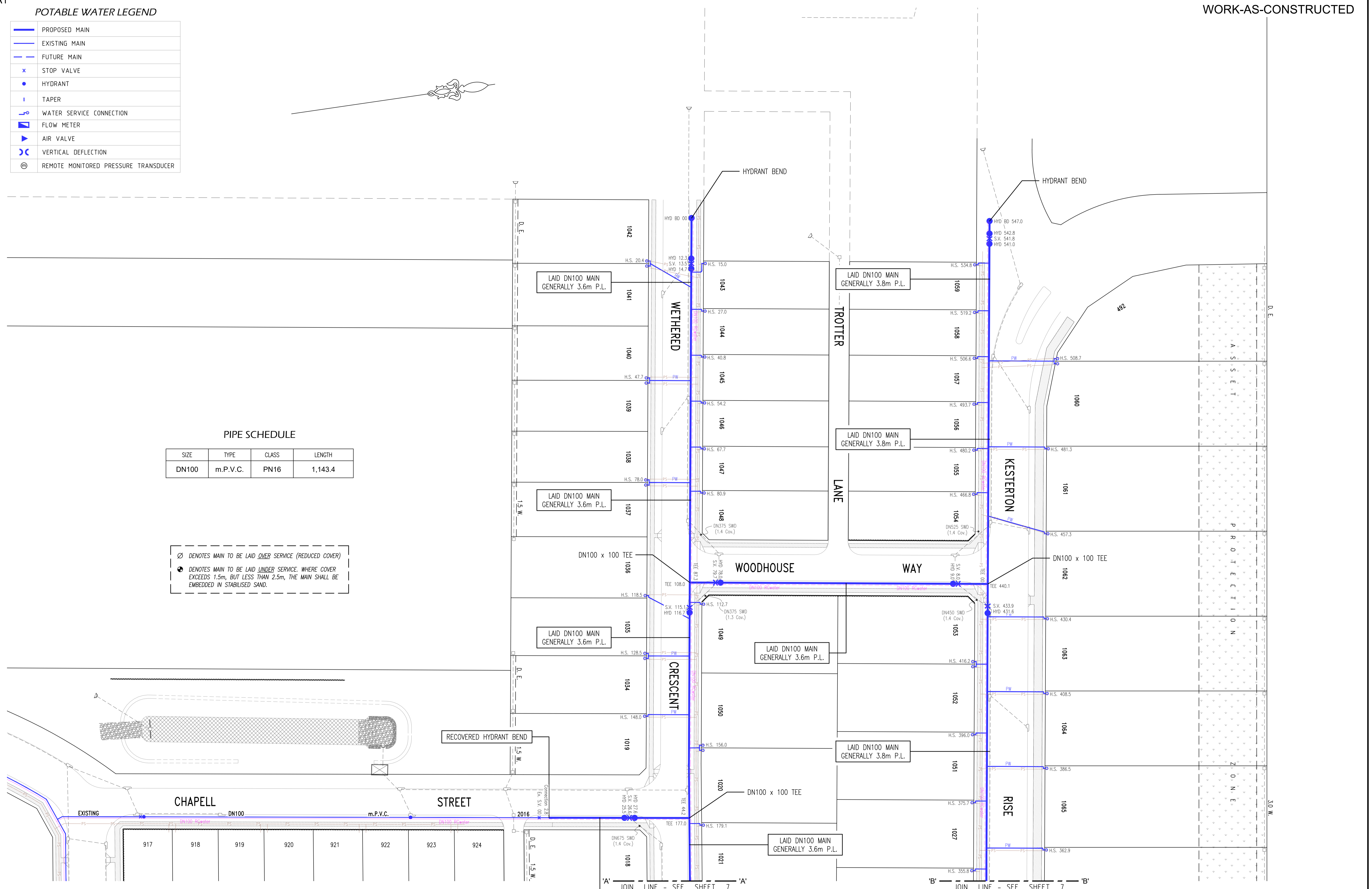
	PROPOSED MAIN
	EXISTING MAIN
	FUTURE MAIN
	STOP VALVE
	HYDRANT
	TAPER
	WATER SERVICE CONNECTION
	FLOW METER
	AIR VALVE
	VERTICAL DEFLECTION
	REMOTE MONITORED PRESSURE TRANSDUCER



PIPE SCHEDULE

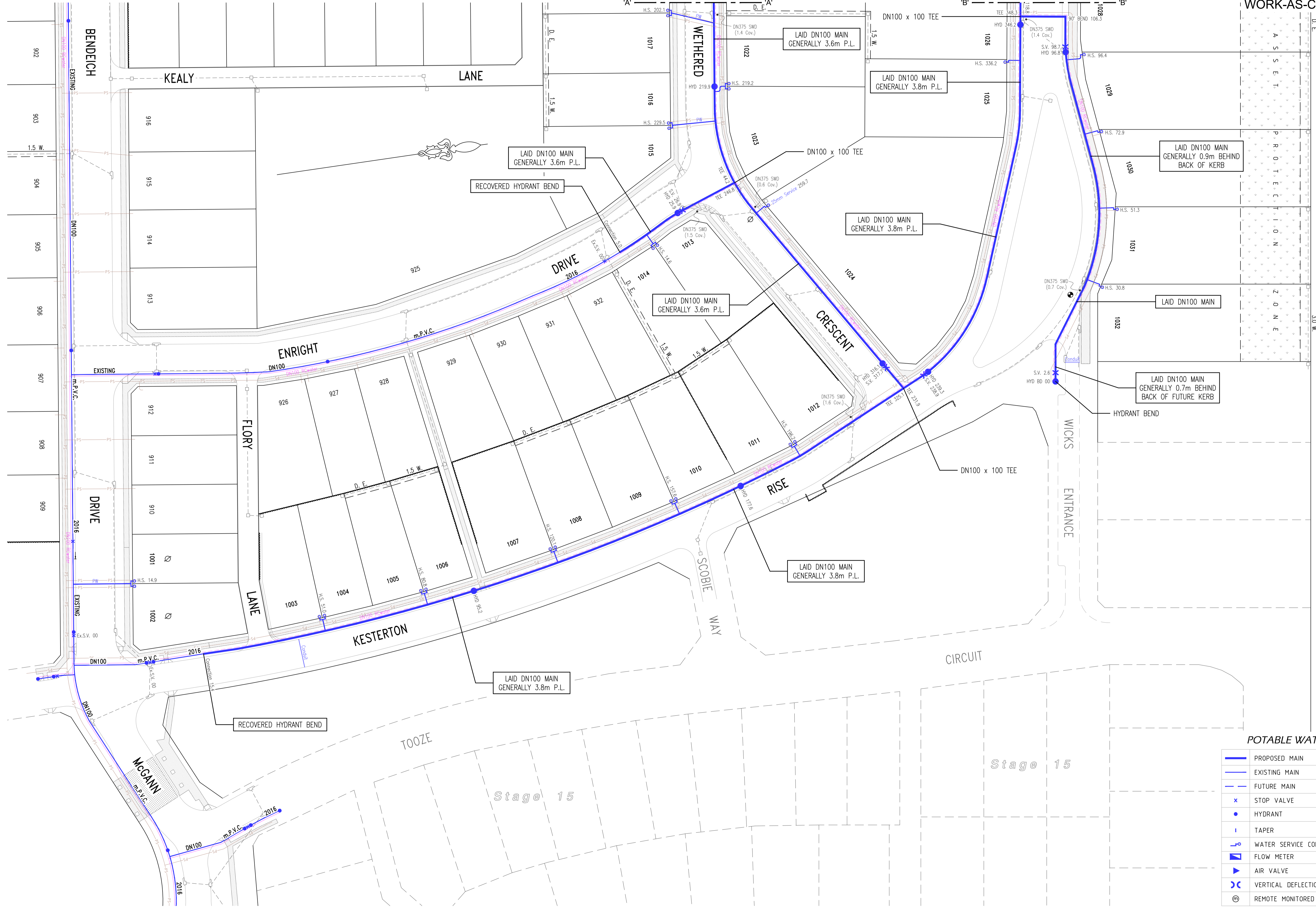
SIZE	TYPE	CLASS	LENGTH
DN100	m.P.V.C.	PN16	1,143.4

⊘ 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.



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 WATER RELATED INFRASTRUCTURE DESIGN AND MANAGEMENT  
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 PH: (02) 9853 0200 FAX: (02) 9671 7399

POTABLE WATER DETAIL PLAN 1				SHEET 7 OF 10	VERSION
DESIGNED BY	D.SHEATHER	DESIGNED BY	D.SHEATHER	REVIEWED BY	V.VIKSNE
SCALE	1:500	DATE		DATE OF ISSUE	16/6/2017
JOB No.					39/23357/10

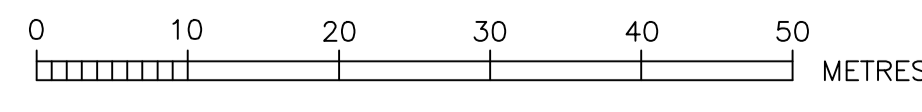


POTABLE WATER LEGEND

	PROPOSED MAIN
	EXISTING MAIN
	FUTURE MAIN
	STOP 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.

⊙ DENOTES PROPERTY SERVICE CONNECTION INSTALLED ON EXISTING MAIN



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

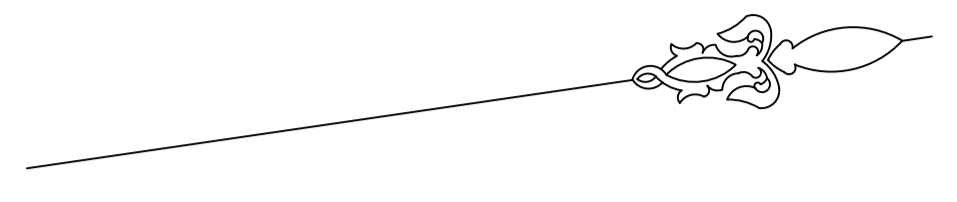


POTABLE WATER DETAIL PLAN 2			
DRAWN	DESIGNED	REVIEWED	VERIFIED
D.SHEATHER	D.SHEATHER	V.VIKSNE	K.GAO
SCALE: 1:500	DATE:	DATE REVIEWED:	DATE OF ISSUE: 16/6/2017



RECYCLED WATER LEGEND

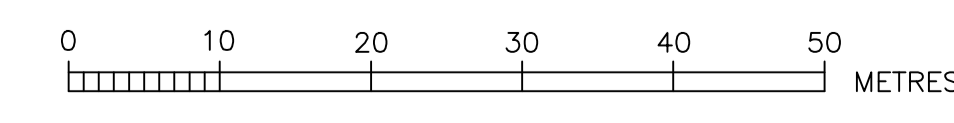
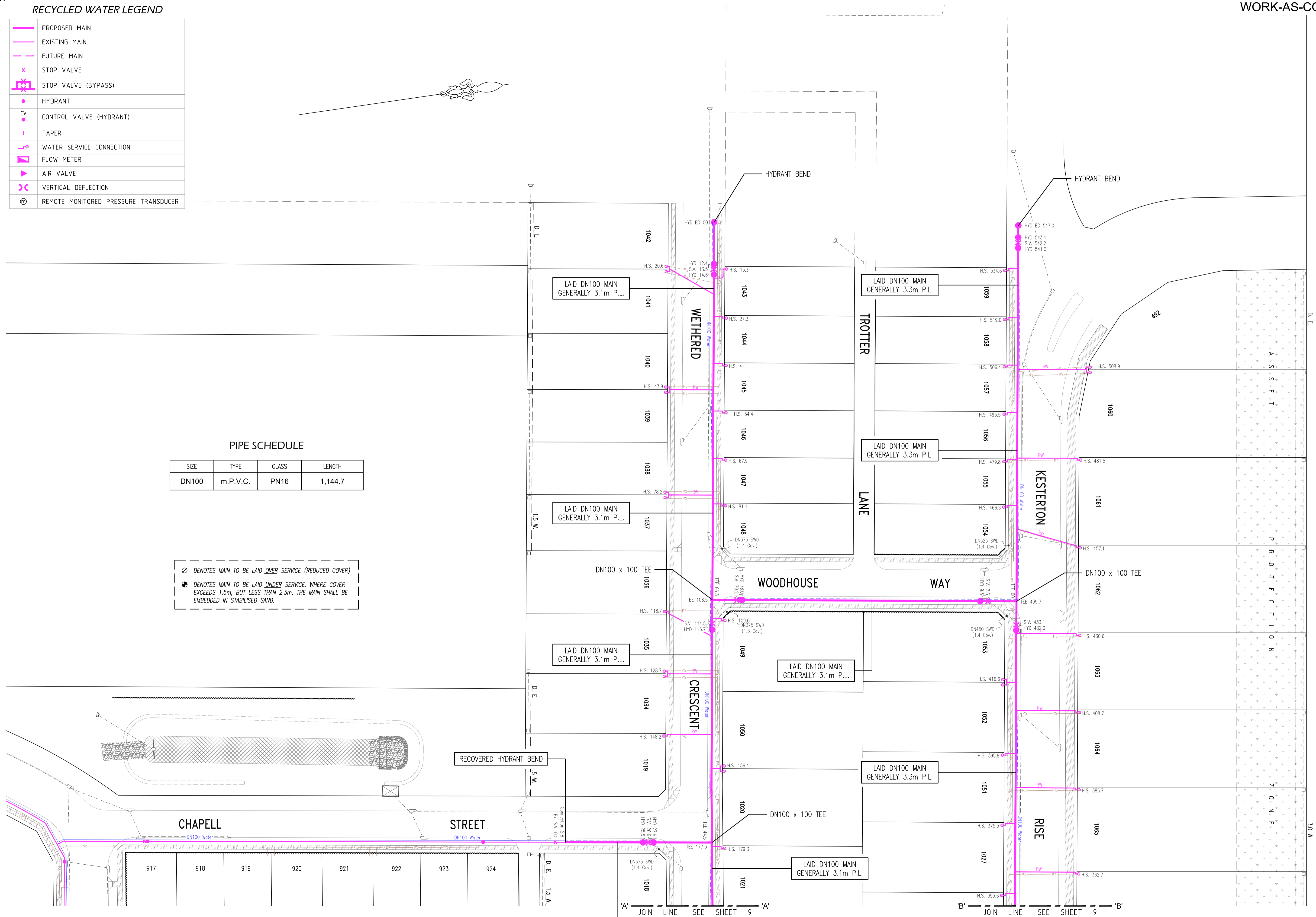
	PROPOSED MAIN
	EXISTING MAIN
	FUTURE MAIN
	STOP VALVE
	STOP VALVE (BYPASS)
	HYDRANT
	CONTROL VALVE (HYDRANT)
	TAPER
	WATER SERVICE CONNECTION
	FLOW METER
	AIR VALVE
	VERTICAL DEFLECTION
	REMOTE MONITORED PRESSURE TRANSDUCER



PIPE SCHEDULE

SIZE	TYPE	CLASS	LENGTH
DN100	m.P.V.C.	PN16	1,144.7

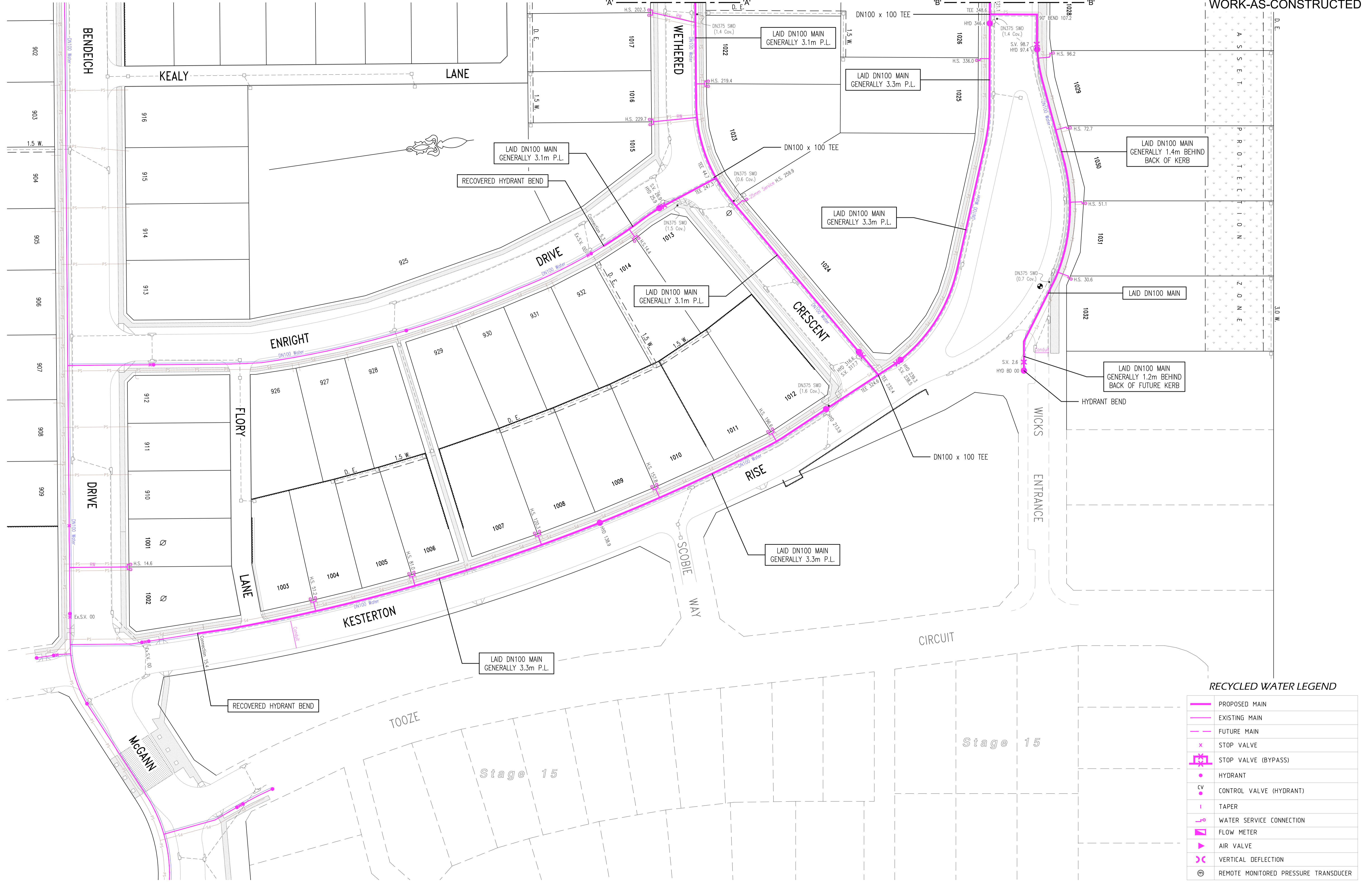
⊘ DENOTES MAIN TO BE LAID OVER SERVICE (REDUCED COVER)  
 ⊙ DENOTES MAIN TO BE LAID UNDER SERVICE, WHERE COVER EXCEEDS 1.5m, BUT LESS THAN 2.5m, THE MAIN SHALL BE EMBEDDED IN STABILISED SAND.



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

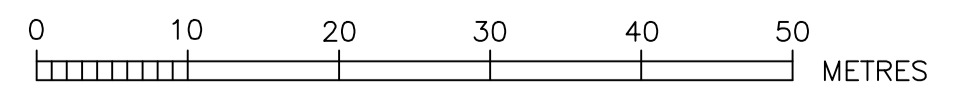
RECYCLED WATER DETAIL PLAN 1			
DRAWN	DESIGNED	REVIEWED	VERIFIED
D.SHEATHER	D.SHEATHER	V.VIKSNE	K.GAO
SCALE	DATUM	DATE REVISION	DATE OF ISSUE
1:500			16/6/2017

SHEET 9 OF 10  
 WAC  
 39/23357/10



⊘ 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 PROPERTY SERVICE CONNECTION INSTALLED ON EXISTING MAIN



**RECYCLED WATER LEGEND**

	PROPOSED MAIN
	EXISTING MAIN
	FUTURE MAIN
	STOP VALVE
	STOP VALVE (BYPASS)
	HYDRANT
	CONTROL VALVE (HYDRANT)
	TAPER
	WATER SERVICE CONNECTION
	FLOW METER
	AIR VALVE
	VERTICAL DEFLECTION
	REMOTE MONITORED PRESSURE TRANSDUCER

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 P.O. BOX 6745, BLACKTOWN N.S.W. 2148  
 PH: (02) 9853 0200 FAX: (02) 9671 7399



**RECYCLED WATER DETAIL PLAN 2**

DESIGNED BY	D.SHEATHER	REVIEWED BY	V.VIKSNE	DATE OF ISSUE	16/6/2017
DRAWN BY	D.SHEATHER	DATE			

SHEET 10 OF 10	VERSION	WAC
JOB No. 39/23357/10		