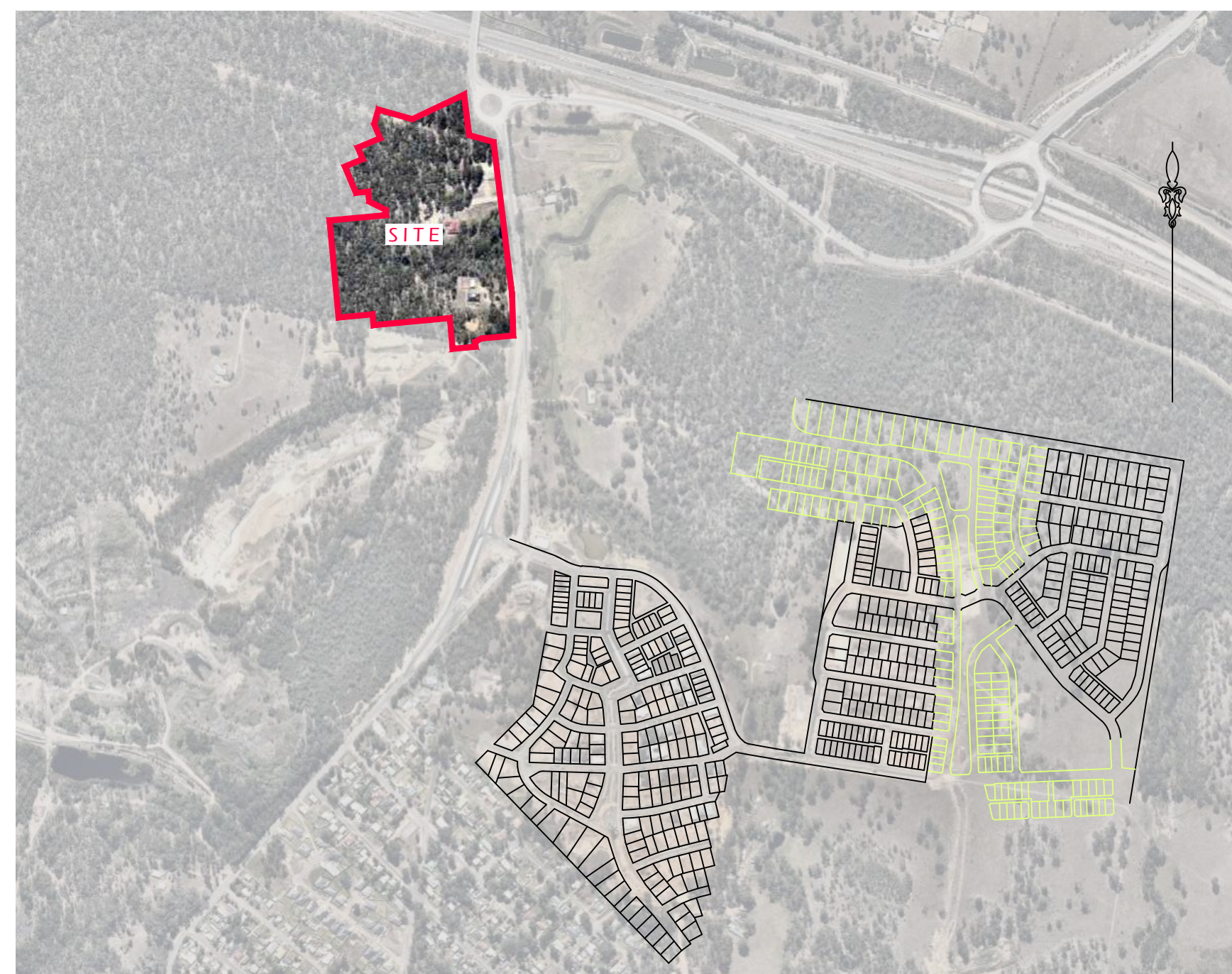


# HUNTLEE - TOWN CENTRE

## PRESSURE SEWER, POTABLE WATER & RECYCLED WATER

### STAGE 1



LOCALITY PLAN  
(NOT TO SCALE)

DRAWING LIST	
SHEET 1	COVER SHEET
SHEET 2	GENERAL NOTES
SHEET 3	PRESSURE SEWER DETAIL PLAN 1
SHEET 4	PRESSURE SEWER DETAIL PLAN 2
SHEET 5	TYPICAL ROAD CROSS SECTIONS
SHEET 6	SEWER LONG SECTION & W.C.D. CROSSINGS
SHEET 7	POTABLE WATER DETAIL PLAN 1
SHEET 8	POTABLE WATER DETAIL PLAN 2
SHEET 9	RECYCLED WATER DETAIL PLAN 1
SHEET 10	RECYCLED WATER DETAIL PLAN 2
SHEET 11	PUDDLE FLANGE & ANCHORAGE DETAILS

No.	REVISION DESCRIPTION	BY	DATE
11	WORK-AS-CONSTRUCTED	D.S.	2/11/20
10	LOTS 154-157 (NEW) SERVICES ADDED	D.S.	15/11/19
09	FLOW SYSTEMS COMMENTS ADDRESSED	D.S.	24/7/17
08	W.C.D. MAINS REALIGNED	D.S.	11/7/17
07	WATER SERVICES ADDED TO OPEN SPACE	D.S.	9/6/17
06	WATER SERVICES REMOVED & MAINS REALIGNED	D.S.	-
05	WATER SERVICE PROVISIONS ADDED	D.S.	15/12/16
04	ISSUE FOR APPROVAL	D.S.	2/12/16
03	FLOW SYSTEMS TRUNK MAINS ADDED	D.S.	7/11/16
02	ISSUE FOR APPROVAL (EXCLUDES SEWER)	D.S.	3/11/16
01	ORIGINAL ISSUE FOR TENDER PURPOSES	D.S.	28/4/16

SERVICE	DATE	REF.	WORK-AS-CONSTRUCTED CERTIFICATION	ROSE ATKINS RIMMER (Infrastructure) Pty. Ltd. WATER RELATED INFRASTRUCTURE DESIGN AND MANAGEMENT <b>RAR</b> SHOP 7 & 8 M CENTRE 4/0 STERLING ROAD, MINCHINBURY N.S.W. 2170 PH: (02) 9853 0200 FAX: (02) 9671 7399	CLIENT: <b>LWP</b> <b>Huntlee + Water</b> bringing communities to life	TITLE: PLAN OF PROPOSED WATER INFRASTRUCTURE SERVICES HUNTLEE TOWN CENTRE - STAGE 1 PROPOSED ROADS OFF WINE COUNTRY DRIVE, NORTH ROTHBURY L.G.A. CESSNOCK	COVER SHEET DRAWN: D.SHEATHER SCALE: - CHECKED: D.SHEATHER DATE: - REVIEWED: V.VIKSNE DATE OF ISSUE: 2/11/2020 VERIFIED: K.GAO	SHEET 1 OF 11 WAC 39/23357/TC1
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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 BUTTWELD 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 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 HUNTLEE WATER REPRESENTATIVE).
- ALL PIPE BEDDING MATERIAL SHALL COMPLY WITH WSAA PRODUCT SPECIFICATION WSA-PS350 & WSA-PS351.
- ALL BENDS SHALL BE ELECTROFUSION OR BUTTWELD SWEEP BENDS. FABRICATED BENDS SHALL NOT BE USED IN LIEU. KNUCKLE ELBOWS ARE NOT PERMITTED.
- MINIMUM BENDING RADIUS FOR PN16 PE100 (SDR11) SHALL BE  $20 \times DN$  (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 SERVICE LATERALS SHALL BE THE FULL SIZE OF THE CONNECTING MAIN (REFER FSI-SK05-FS) TO A POINT WITHIN THE SUBJECT LOT. TAPER LATERAL DOWN TO DN63 TO ACCOMMODATE A 50mm NOV BOUNDARY KIT.
- 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.
- 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 213.4) ARE:  
TRAFFICABLE:  
PIPE EMBEDMENT ZONE: NIL TRENCH FILL ZONE: 1 TEST / CROSSING (12 Tests)  
NON-TRAFFICABLE:  
PIPE EMBEDMENT ZONE: NIL TRENCH FILL ZONE: 1 TEST / 100m (17 Tests)
- CUSTOM 50mm BOUNDARY KITS (COMPLETE) SHALL BE NOV SUPPLIED. LOT SERVICING TO BE PROVIDED FOR BY SEPARATE APPLICATION TO HUNTLEE WATER UPON CONFIRMATION OF LOT CONFIGURATION.
- 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

- 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-V) & 800mm FOR ROADWAYS (TYPE L EMBEDMENT: WAT-1204-V). 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 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.
- 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 (12 Tests)  
NON-TRAFFICABLE:  
PIPE EMBEDMENT ZONE: NIL TRENCH FILL ZONE: 1 TEST / 100m (16 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>

WORK-AS-CONSTRUCTED

GENERAL NOTES

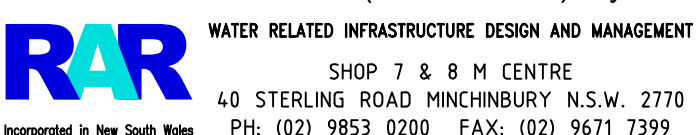
- THIS DRAWING SET SHALL BE READ IN CONJUNCTION WITH CESSNOCK CITY COUNCIL STANDARDS, FLOW SYSTEMS SUPPLEMENTARY MANUAL TO W.S.A.A. & OTHER ASSOCIATED DRAWINGS AND TECHNICAL SPECIFICATIONS.
- ALL PRESSURE SEWER LATERALS & RECYCLED WATER PROPERTY SERVICE CONNECTIONS CROSSING CARRIAGEWAYS SHALL BE INSTALLED 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 <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)

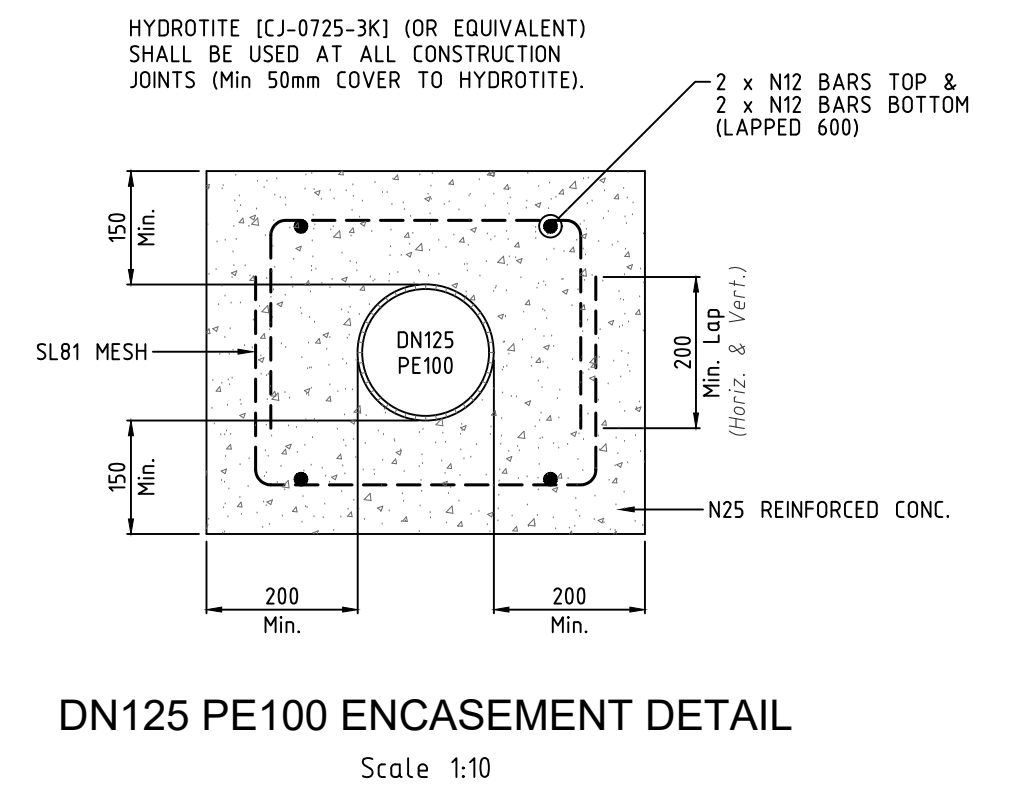
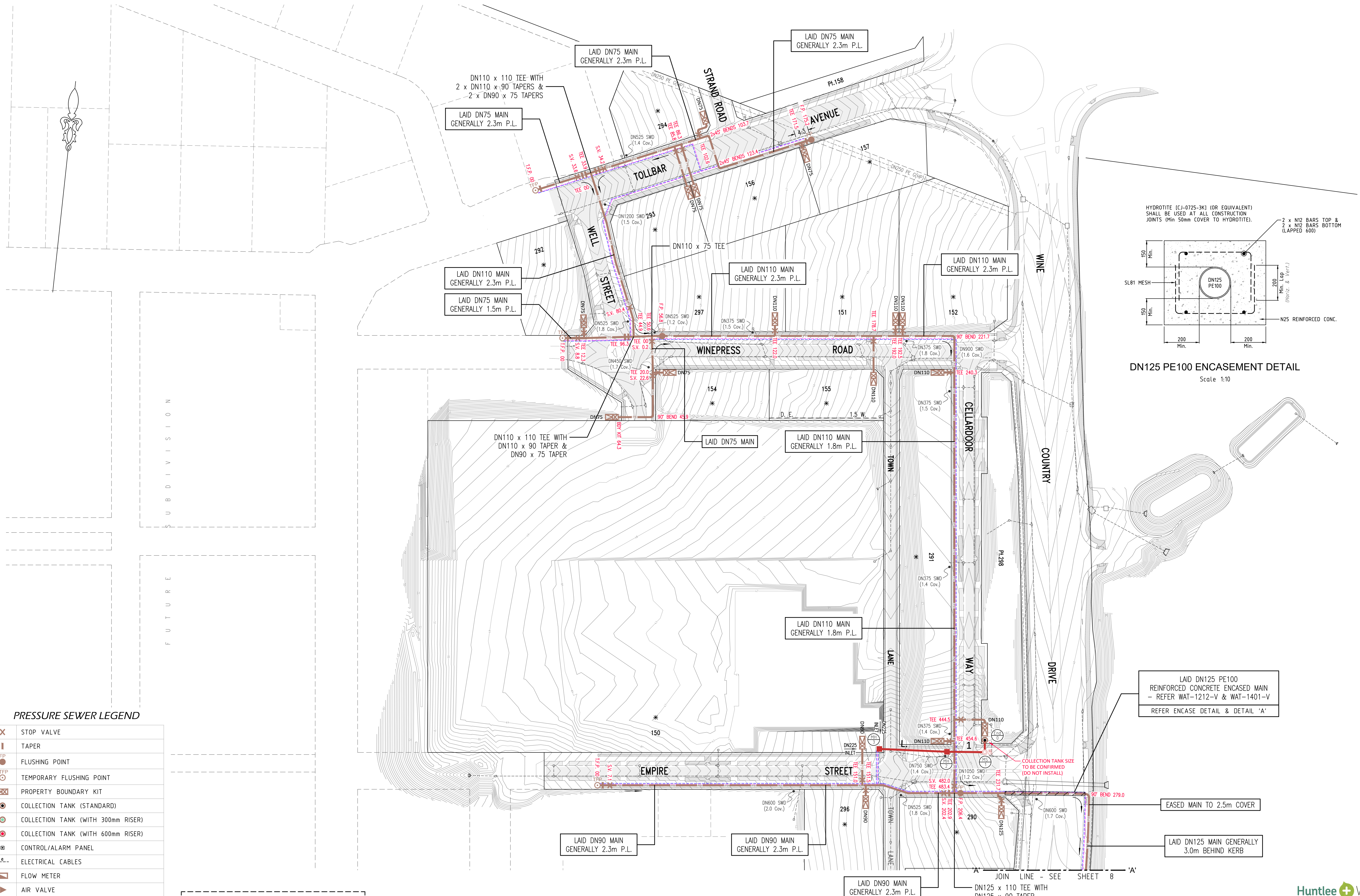
- NOTES:
- Vertical clearances apply where pipelines cross other utility services, except in the case of water/sewer mains where a vertical separation shall always be maintained, even when the pressure sewer and water main are parallel. The pressure sewer should always be located below the water main 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 (SD0mm), maintain a minimum horizontal of 1000mm. This minimum clearance can be progressively reduced to 600mm 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 sewers).

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

		<p>GENERAL NOTES</p>		<p>SHEET 2 OF 11</p>		<p>VERSION: WAC</p>
<p>DRAWN: D.SHEATHER</p>	<p>DESIGNED: D.SHEATHER</p>	<p>REVISED: V.VIKSNE</p>	<p>VERIFIED: K.GAO</p>	<p>DATE: 2/11/2020</p>		
<p>39/23357/TC1</p>		<p>QUALITY ASSURED COMPANY</p>				







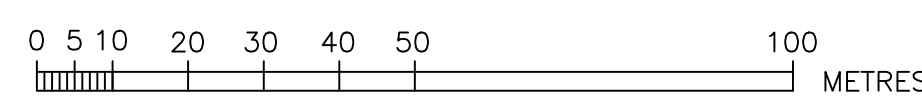
PRESSURE SEWER LEGEND

X	STOP VALVE
I	TAPER
FP	FLUSHING POINT
TFP	TEMPORARY FLUSHING POINT
⊠	PROPERTY BOUNDARY KIT
⊙	COLLECTION TANK (STANDARD)
⊙	COLLECTION TANK (WITH 300mm RISER)
⊙	COLLECTION TANK (WITH 600mm RISER)
⊠	CONTROL/ALARM PANEL
---	ELECTRICAL CABLES
▶	FLOW METER
⊙	AIR VALVE
PP	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 LOT SERVICING TO BE PROVIDED FOR BY SEPARATE APPLICATION TO HUNTLEE WATER UPON CONFIRMATION OF LOT CONFIGURATION.

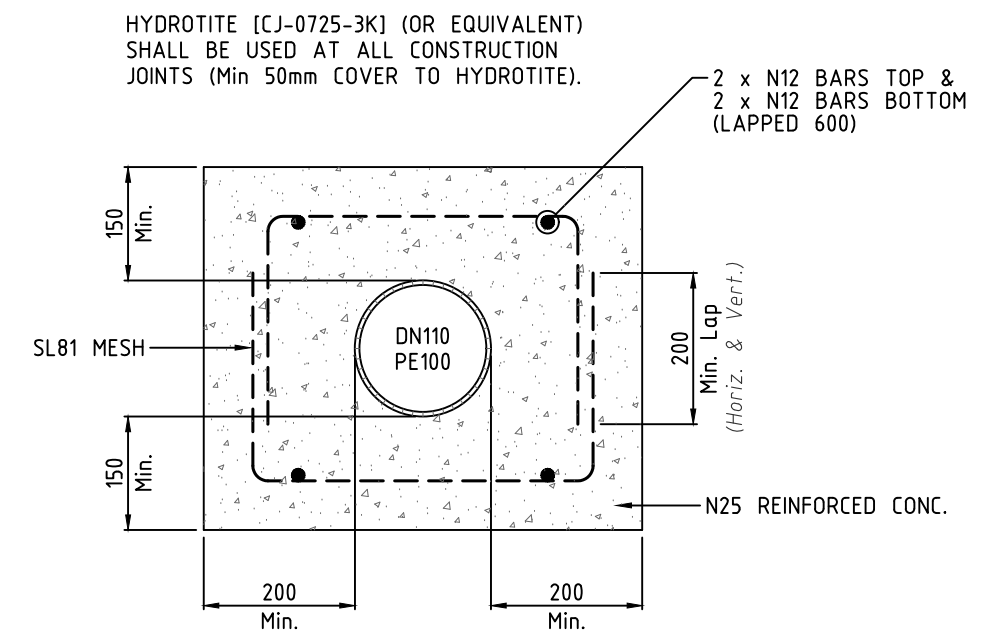


ROSE ATKINS RIMMER (Infrastructure) Pty. Ltd.  
**RAR**  
 WATER RELATED INFRASTRUCTURE DESIGN AND MANAGEMENT  
 SHOP 7 & 8 M CENTRE  
 40 STERLING ROAD MINCHINBURY N.S.W. 2770  
 PH: (02) 9853 0200 FAX: (02) 9671 7399

PRESSURE SEWER DETAIL PLAN 1			
DRAWN:	DESIGNED:	REVISED:	VERIFIED:
D.SHEATHER	D.SHEATHER	V.VIKSNE	K.GAO
SCALE:	DISTN:	DRAWN BY:	DATE OF ISSUE:
1:1000	A.H.D.	-	2/11/2020



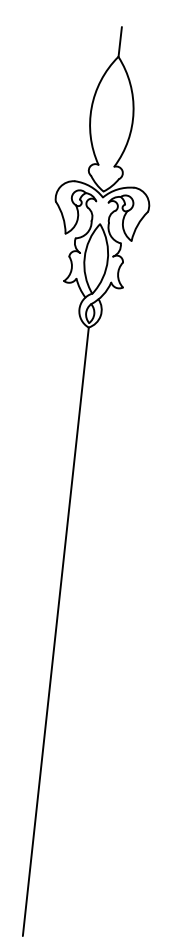




DN110 PE100 ENCASMENT DETAIL

Scale 1:10

\* CONTRACTOR SHALL INSTALL A COMPRESSIBLE MEMBRANE AROUND PLASTIC PIPES FOR THE FIRST & LAST 1m OF ENCASMENT TO PROVIDE PIPE PROTECTION (AS PER MANUFACTURERS TECHNICAL NOTE).



SEWER PIPE SCHEDULE

SIZE	TYPE	CLASS	LENGTH
DN250	PE100	PN16	38.9
DN225	u.P.V.C.	SN8	65.8
DN160	PE100	PN16	247.0
DN125	PE100	PN16	342.6
DN110	PE100	PN16	650.9
DN90	PE100	PN16	226.3
DN75	PE100	PN16	342.8
TOTAL			1,914.3

PRESSURE SEWER LEGEND

	STOP VALVE
	TAPER
	FLUSHING POINT
	TEMPORARY FLUSHING POINT
	PROPERTY BOUNDARY KIT
	COLLECTION TANK (STANDARD)
	COLLECTION TANK (WITH 300mm RISER)
	COLLECTION TANK (WITH 600mm RISER)
	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.

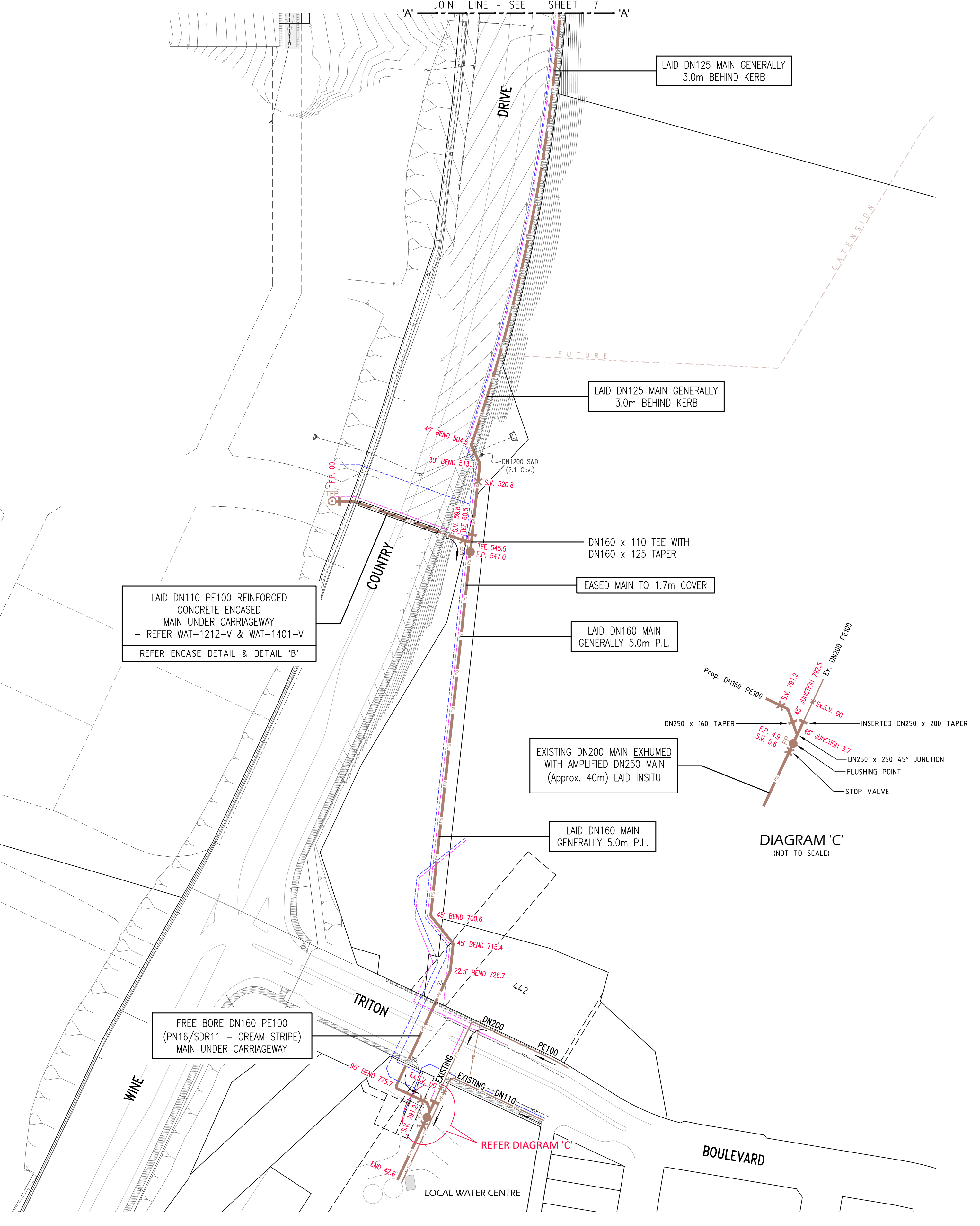
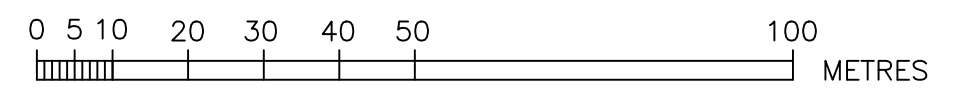


DIAGRAM 'C' (NOT TO SCALE)

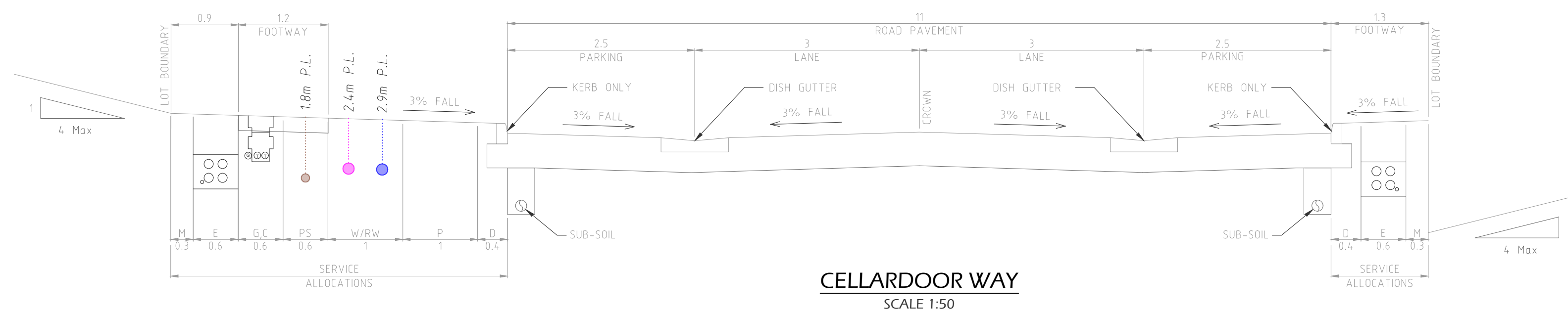
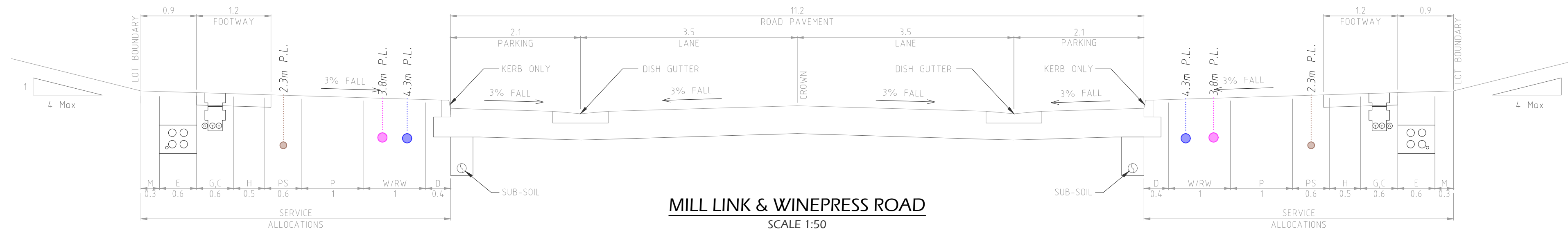
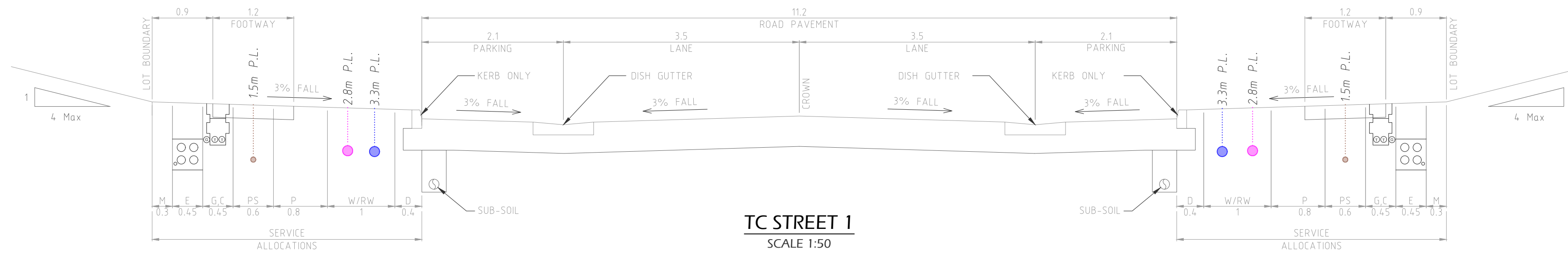
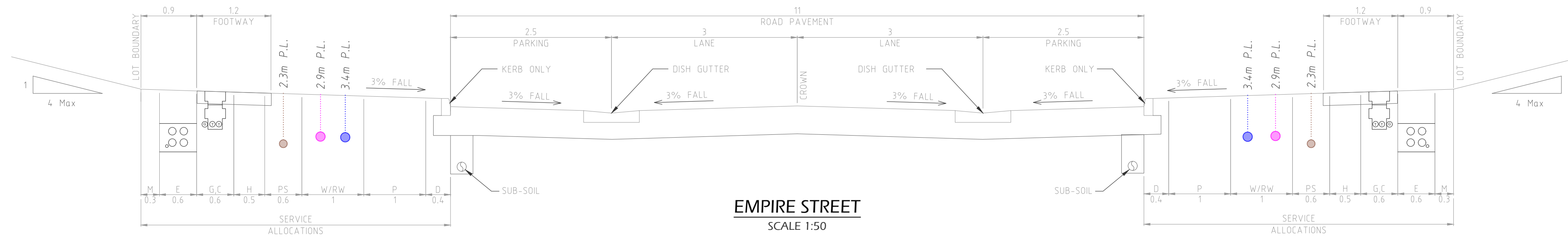
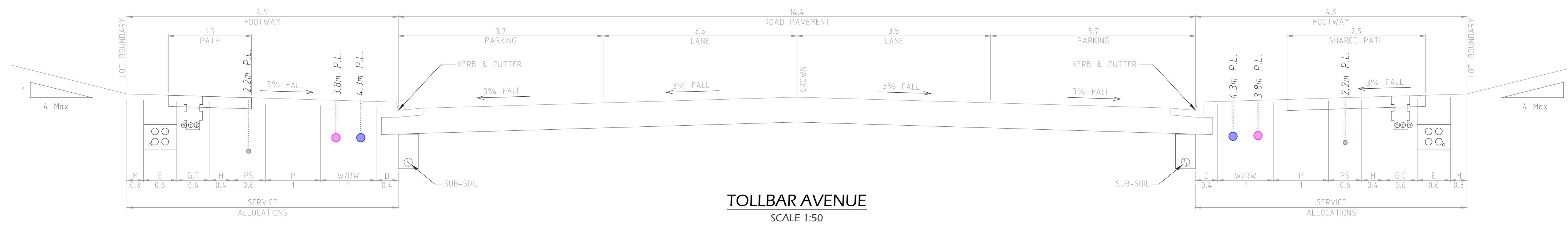
ROSE ATKINS RIMMER (Infrastructure) Pty. Ltd.  
**RAR** WATER RELATED INFRASTRUCTURE DESIGN AND MANAGEMENT  
 SHOP 7 & 8 M CENTRE  
 40 STERLING ROAD MINCHINBURY N.S.W. 2770  
 PH: (02) 9853 0200 FAX: (02) 9671 7399

**PRESSURE SEWER DETAIL PLAN 2**

DRAWN	DESIGNED	REVIEWED	VERIFIED
D.SHEATHER	D.SHEATHER	V.VIKSNE	K.GAO
SCALE: 1:1000	DRAWN: A.H.D.	DATE REVISION: -	DATE OF ISSUE: 2/11/2020

SHEET 4 OF 11  
 WAC  
 39/23357/TC1





**SERVICES LEGEND**

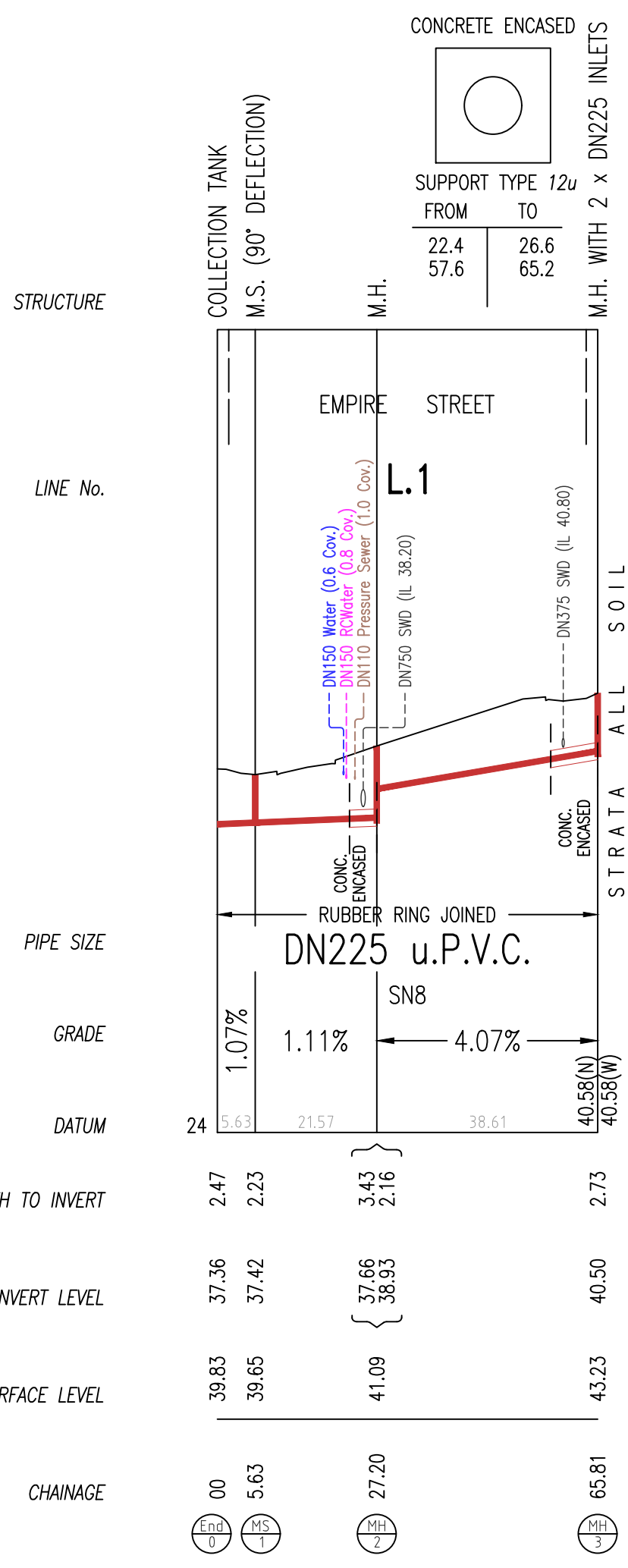
M	MISCELLANEOUS
E	ELECTRICITY
G	GAS
C	COMMUNICATIONS
P	POLES & TREES
W/RW	WATER + RECYCLED WATER
D	DRAINAGE
RW	RECYCLED WATER ONLY
H	HUNTLEE FUTURE SERVICES
PS	PRESSURE SEWER

**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.

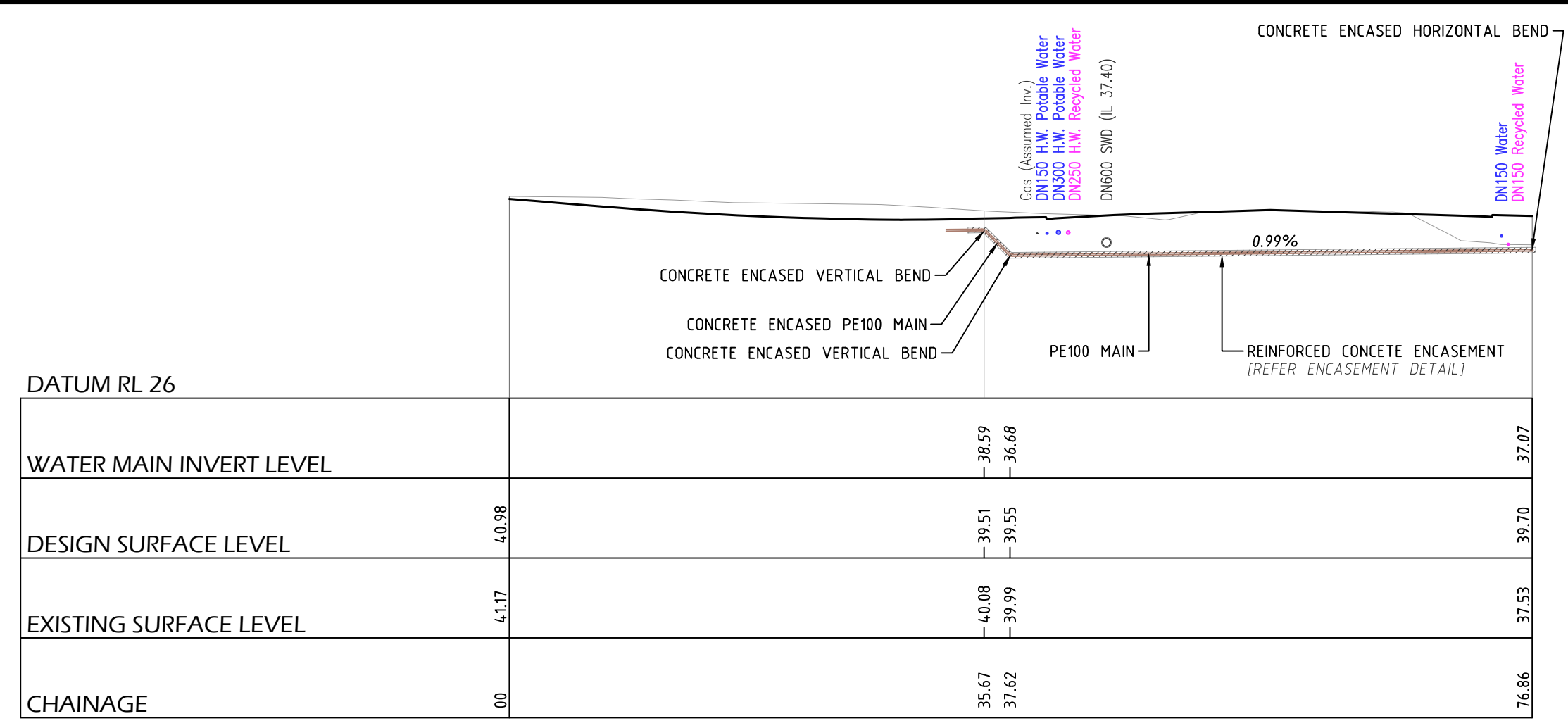
TYPICAL SECTIONS			
DRAWN	DESIGNED	REVIEWED	VERIFIED
D.SHEATHER	D.SHEATHER	V.VIKSNE	K.GAO
SCALE	DATE	DATE REVISION	DATE OF ISSUE
			2/11/2020



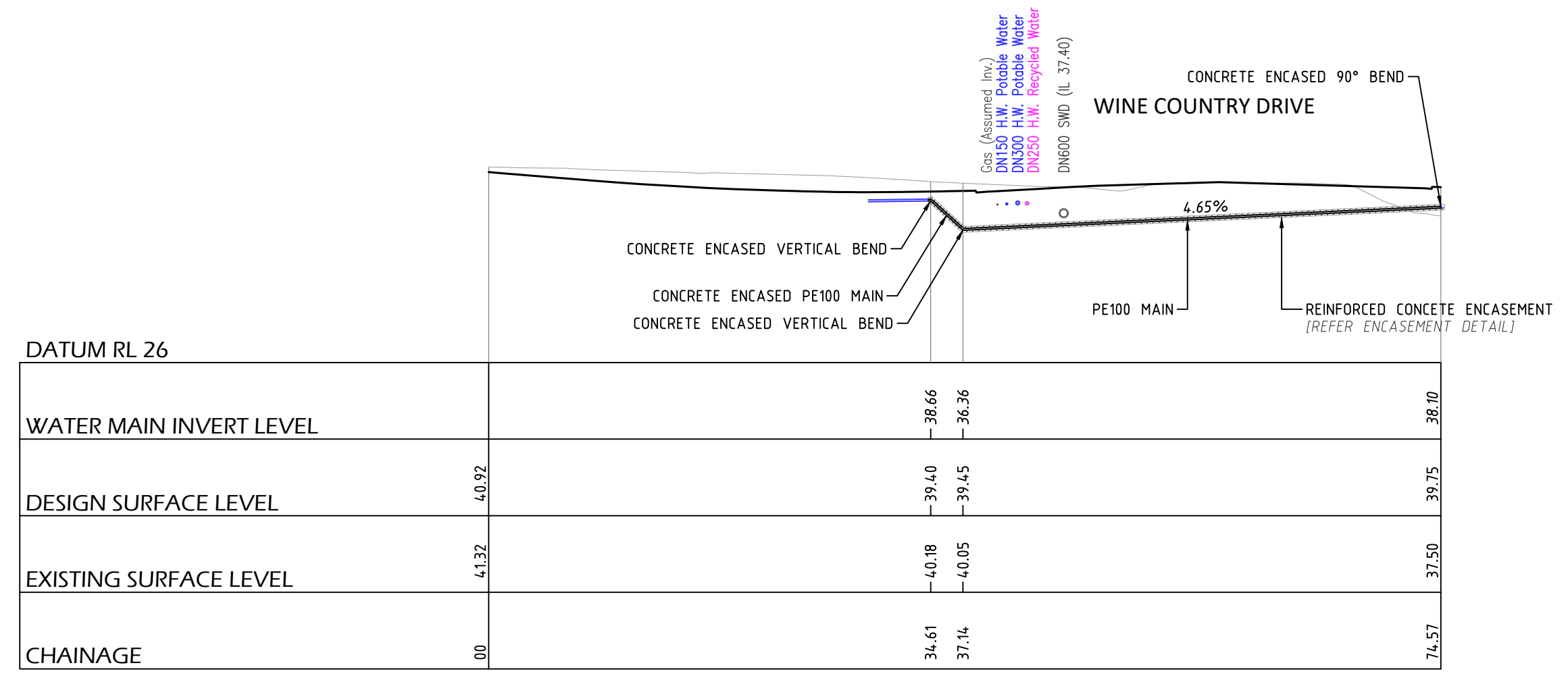


'COLES' GRAVITY SEWER LONG SECTION  
SCALE: 1:1000(H) 1:250(V)

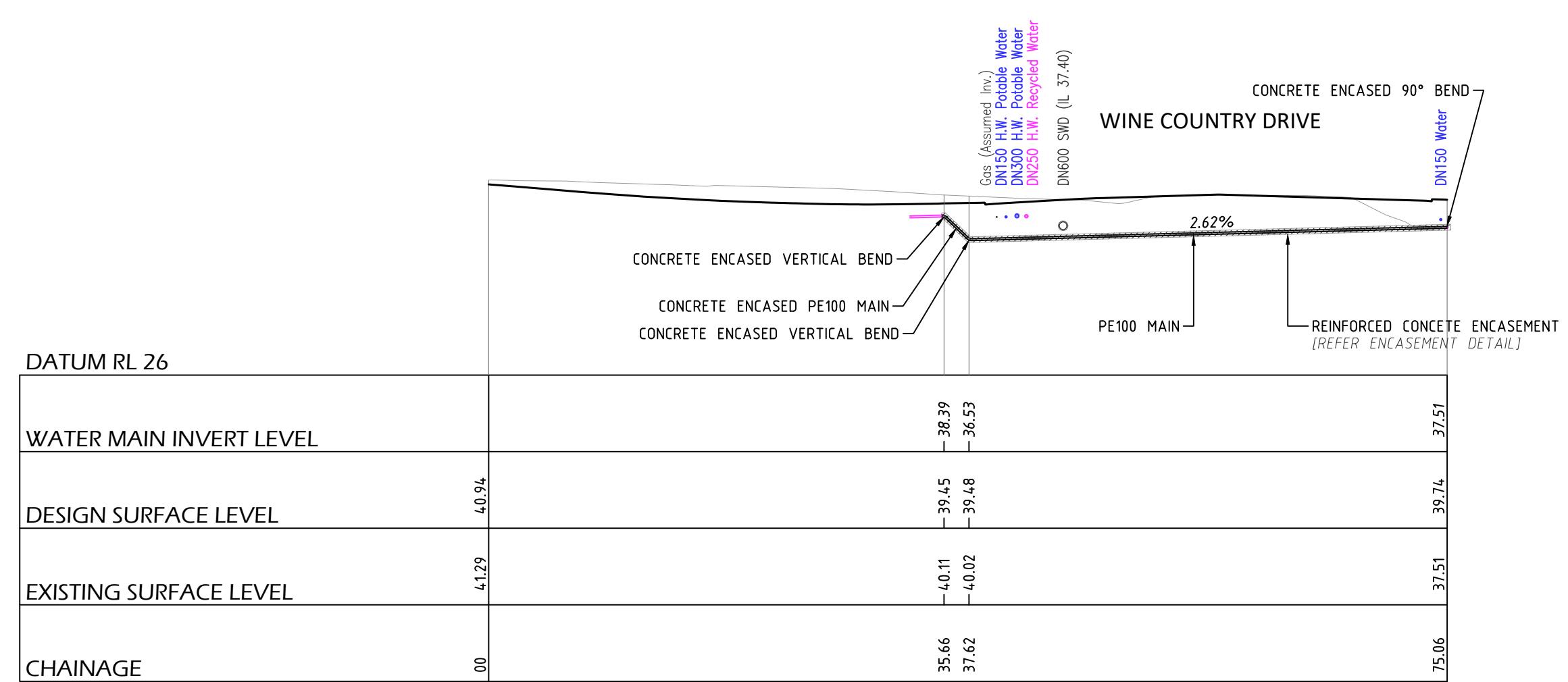
STRUCTURE	CHAINAGE	M.G.A. COORDINATE	
		EASTING	NORTHING
END 0	00	-	-
MS 1	5.63	345411.66	6384070.16
MH 2	27.20	345390.20	6384068.08
MH 3	65.81	345351.67	6384065.53



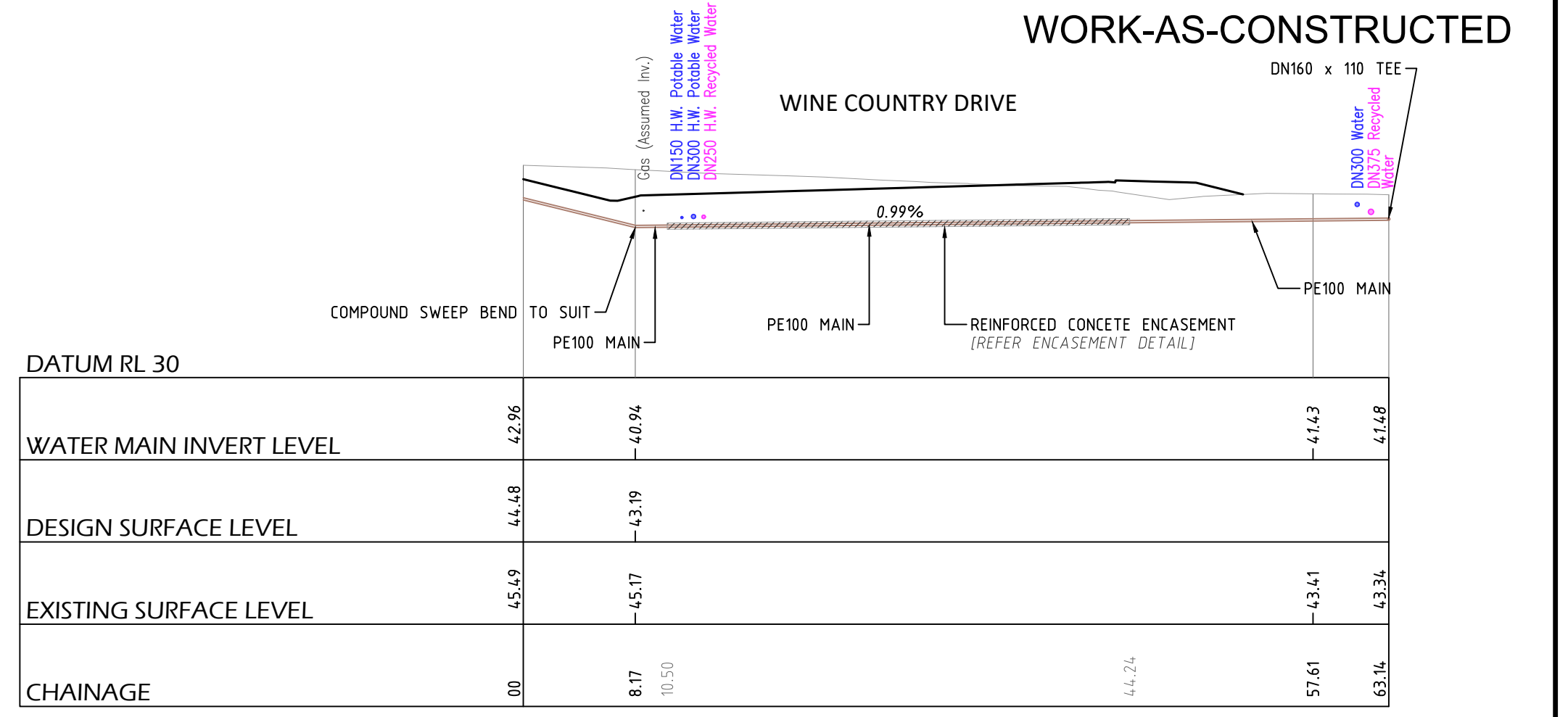
DETAIL A \*\*  
DN125 PE100 PRESSURE SEWER CROSSING  
SCALE: 1:100(H) 1:100(V)



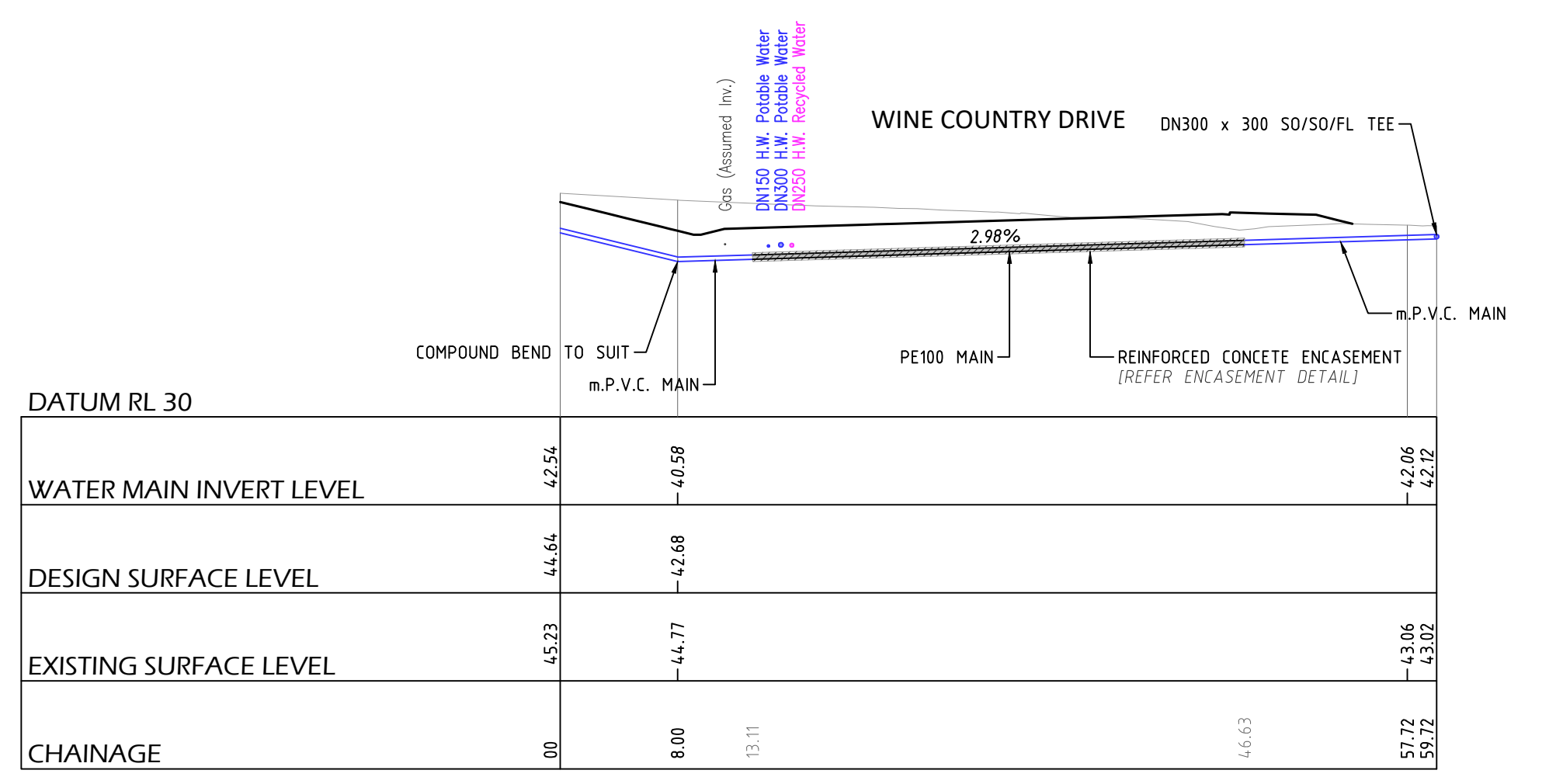
DETAIL C \*\*  
DN200 PE100 POTABLE WATER CROSSING  
SCALE: 1:100(H) 1:100(V)



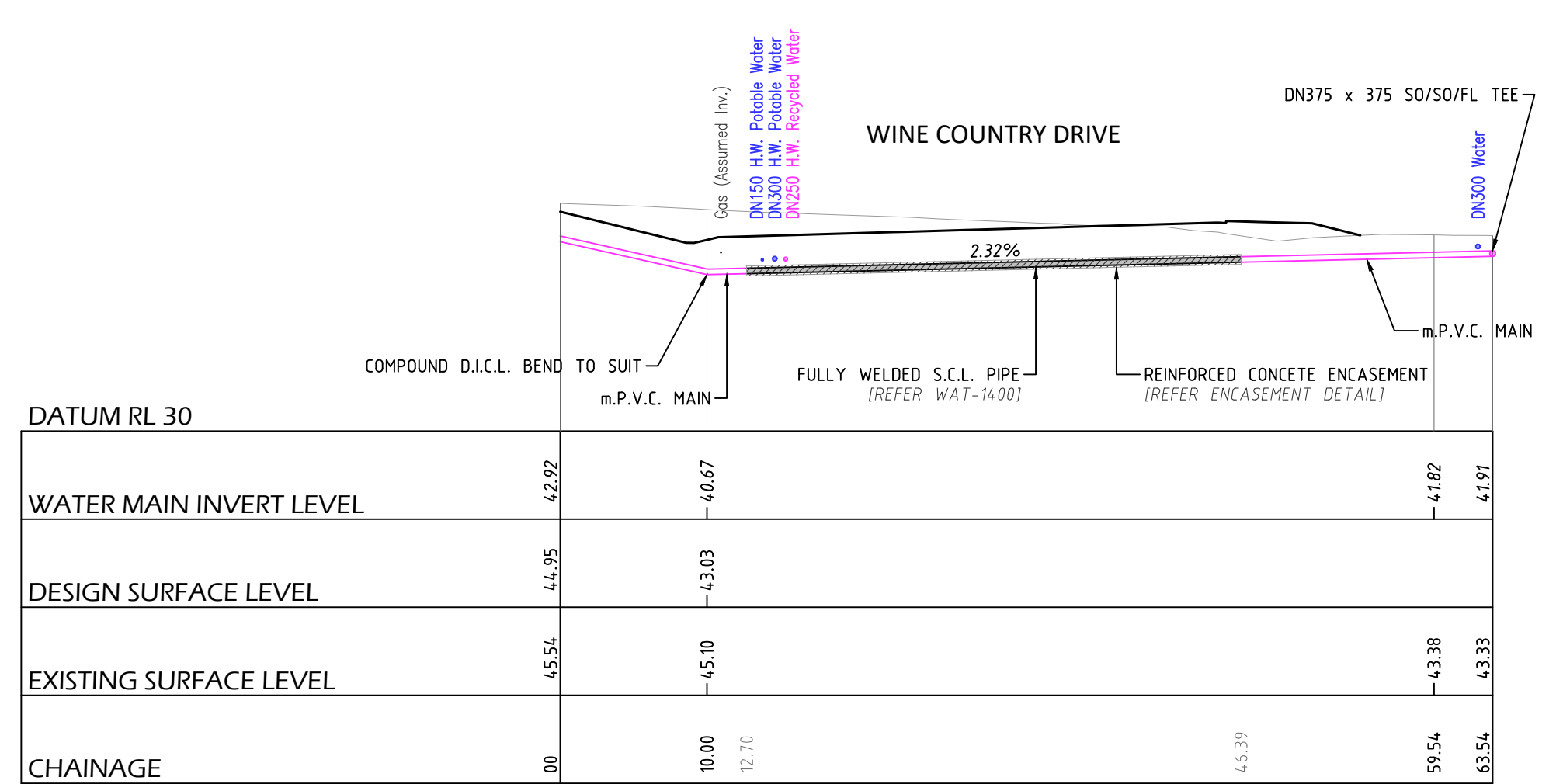
DETAIL E \*\*  
DN200 PE100 RECYCLED WATER CROSSING  
SCALE: 1:100(H) 1:100(V)



DETAIL B \*\*  
DN75 PE100 PRESSURE SEWER CROSSING  
SCALE: 1:100(H) 1:100(V)



DETAIL D \*\*  
DN400 PE100 POTABLE WATER CROSSING  
SCALE: 1:100(H) 1:100(V)

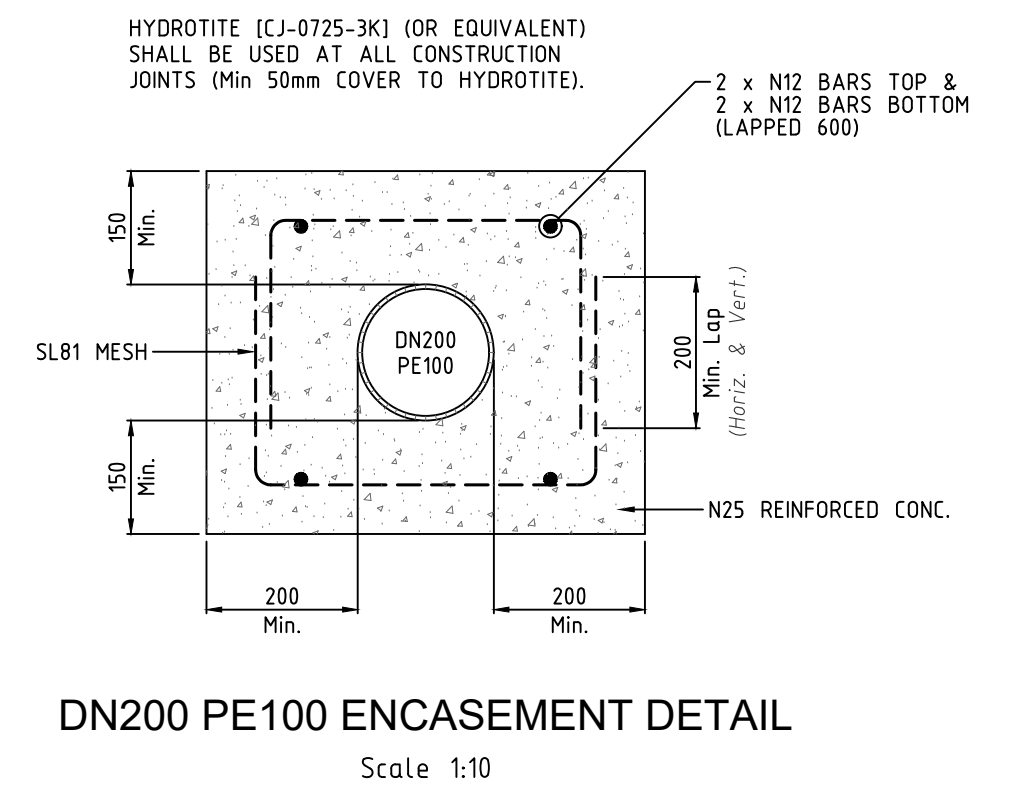
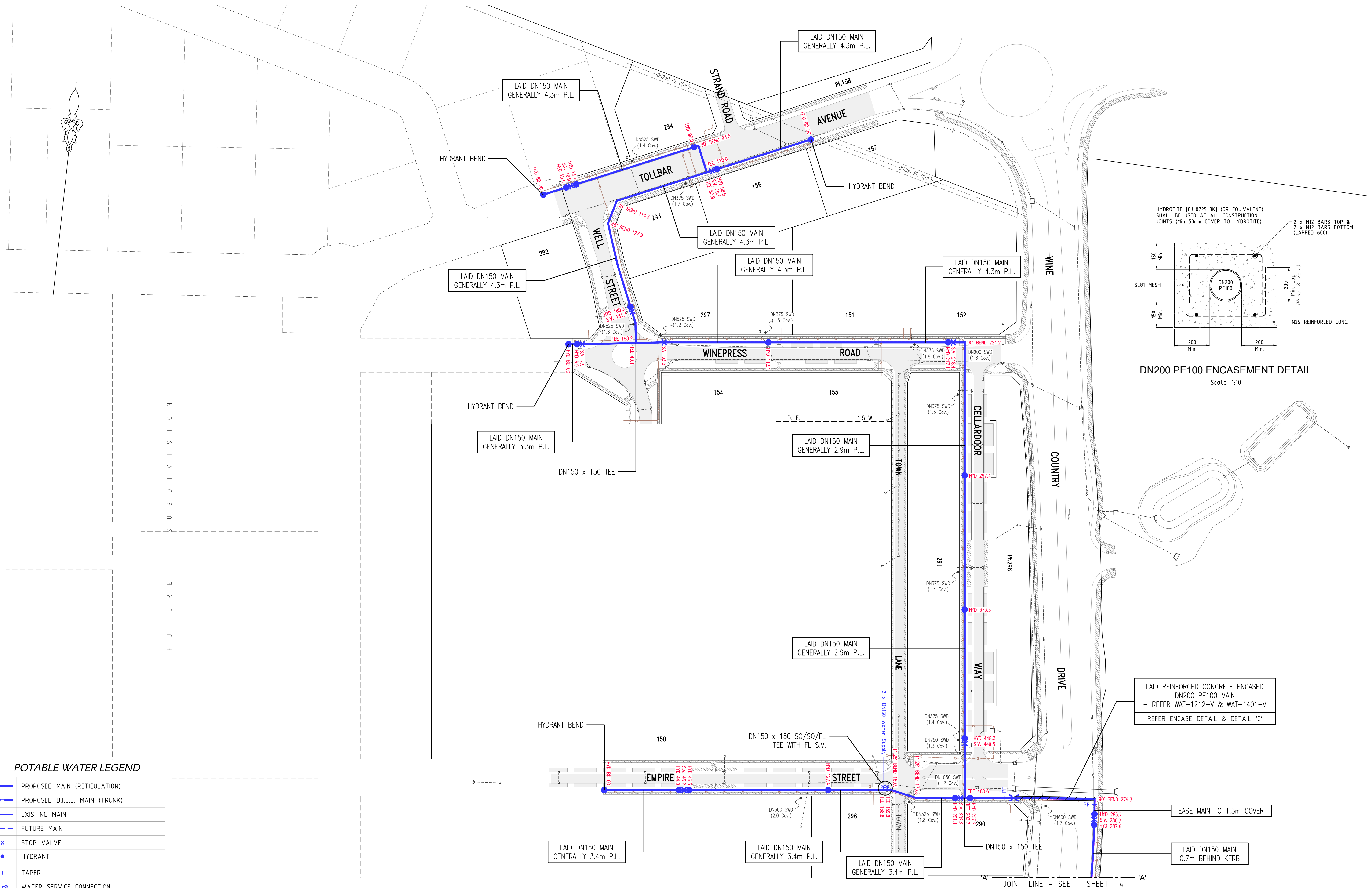


DETAIL F \*\*  
DN500 PE100 RECYCLED WATER CROSSING  
SCALE: 1:100(H) 1:100(V)

\*\* DETAIL SURVEY NOT PROVIDED BY CONTRACTOR. CHAINAGES AND LEVELS ARE DESIGN LEVELS ONLY. \*\*





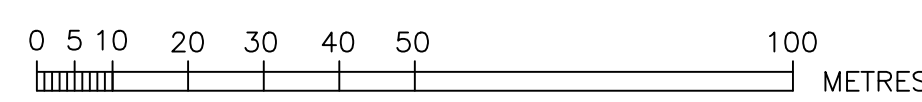


POTABLE WATER LEGEND

	PROPOSED MAIN (RETICULATION)
	PROPOSED D.I.C.L. MAIN (TRUNK)
	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.



PF DENOTES PUDDLE FLANGE - REFER SHEET 11

**ROSE ATKINS RIMMER (Infrastructure) Pty. Ltd.**  
 WATER RELATED INFRASTRUCTURE DESIGN AND MANAGEMENT  
 SHOP 7 & 8 M CENTRE  
 40 STERLING ROAD MINCHINBURY N.S.W. 2770  
 PH: (02) 9853 0200 FAX: (02) 9671 7399

POTABLE WATER DETAIL PLAN 1			
DRAWN	DESIGNED	REVIEWED	VERIFIED
D.SHEATHER	D.SHEATHER	V.VIKSNE	K.GAO
SCALE	DATUM	DATE REVISION	DATE OF ISSUE
1:1000			2/11/2020

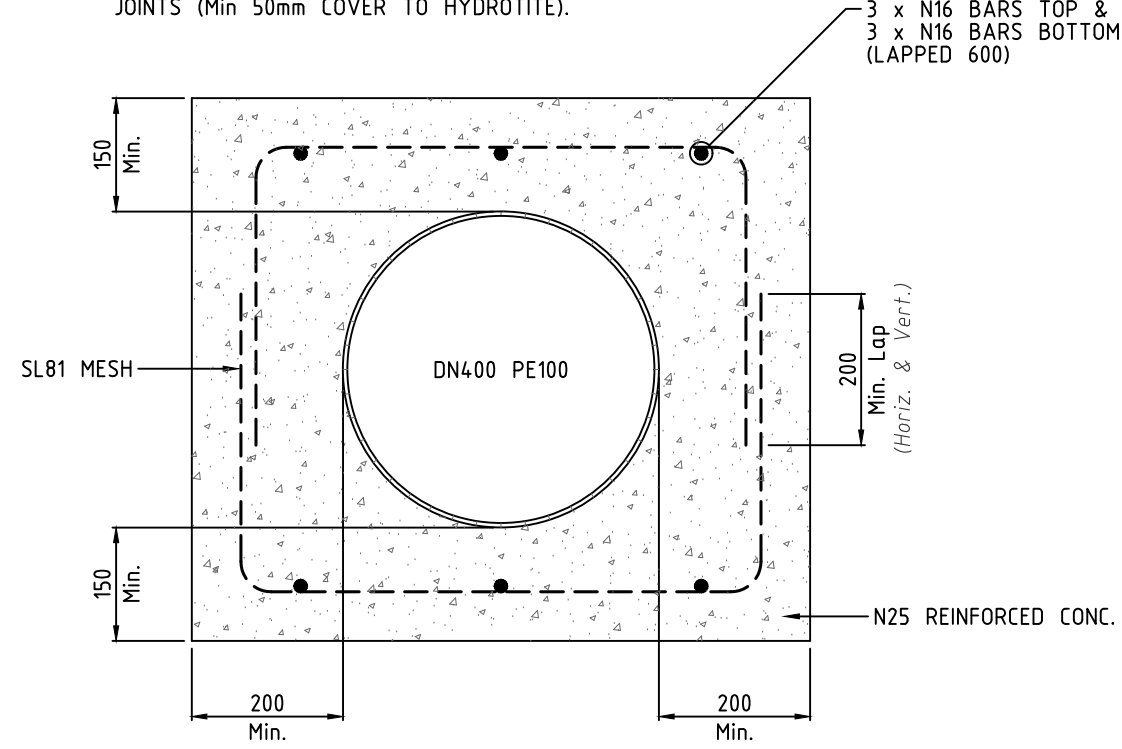
SHEET 7 OF 11

WAC

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HYDROTITE (CJ-0725-3K) (OR EQUIVALENT) SHALL BE USED AT ALL CONSTRUCTION JOINTS (Min 50mm COVER TO HYDROTITE).



DN400 PE100 ENCASEMENT DETAIL

Scale 1:10

\* CONTRACTOR SHALL INSTALL A COMPRESSIBLE MEMBRANE AROUND PLASTIC PIPES FOR THE FIRST & LAST 1m OF ENCASEMENT TO PROVIDE PIPE PROTECTION (AS PER MANUFACTURERS TECHNICAL NOTE).

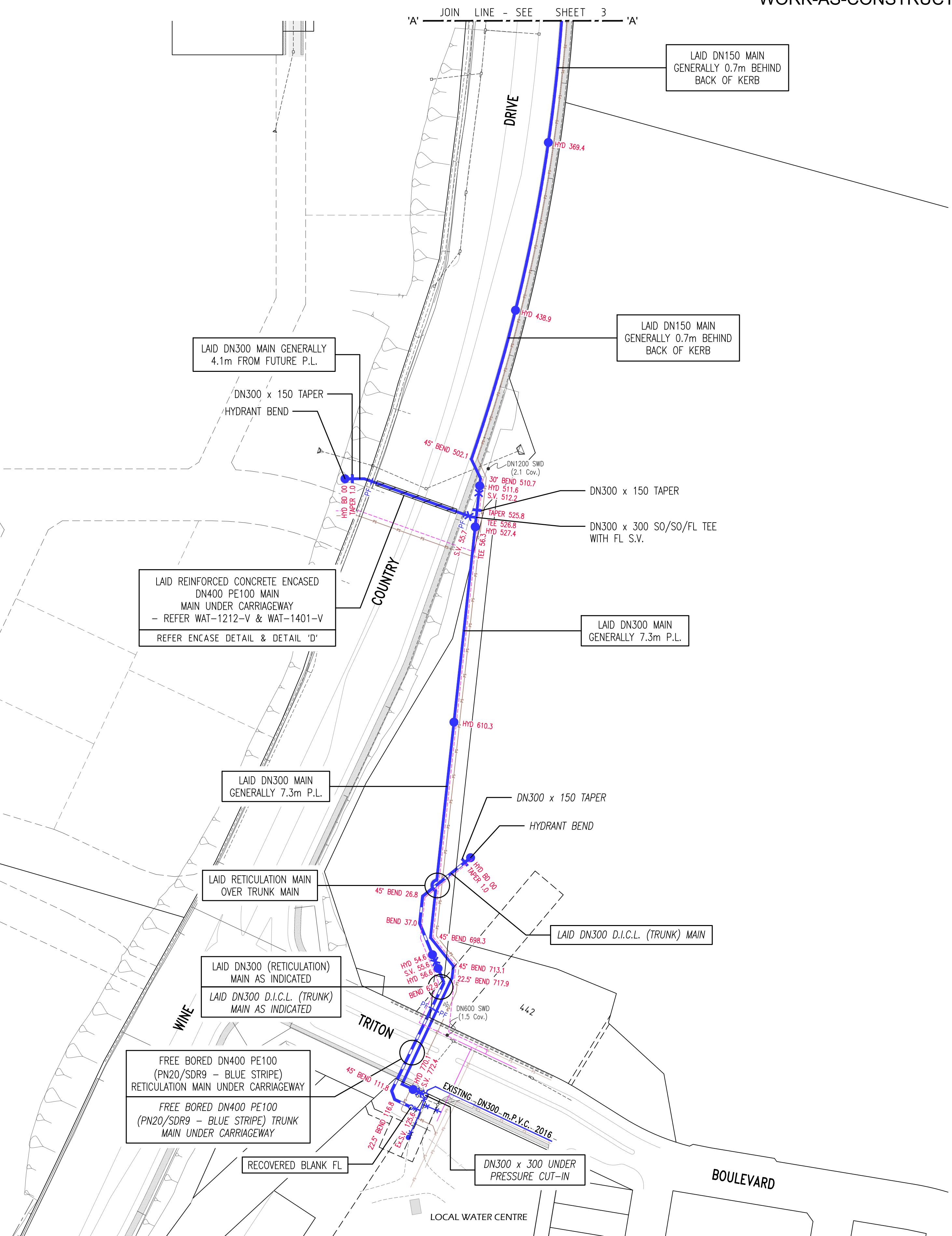
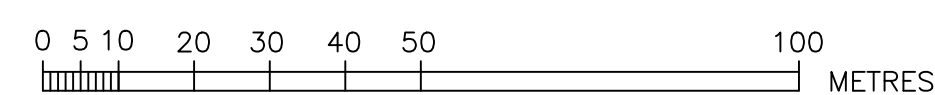
POTABLE WATER PIPE SCHEDULE

SIZE	TYPE	CLASS	LENGTH
DN400	PE100	PN20/SDR9	71.0
DN400	PE100	PN16/SDR11	40.0
DN300	D.I.C.L.	PN35	71.2
DN300	m.P.V.C.	PN16	224.2
DN200	PE100	PN16/SDR11	45.6
DN150	m.P.V.C.	PN16	1,269.0
		TOTAL	1,721.0

POTABLE WATER LEGEND

	PROPOSED MAIN (RETICULATION)
	PROPOSED D.I.C.L. MAIN (TRUNK)
	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.



PF DENOTES PUDDLE FLANGE - REFER SHEET 11

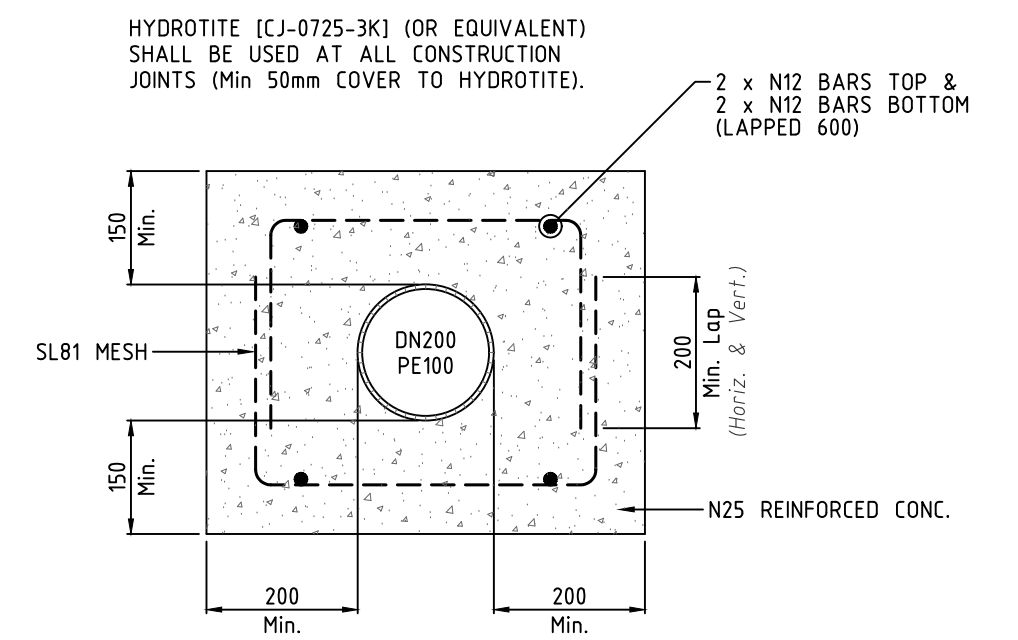
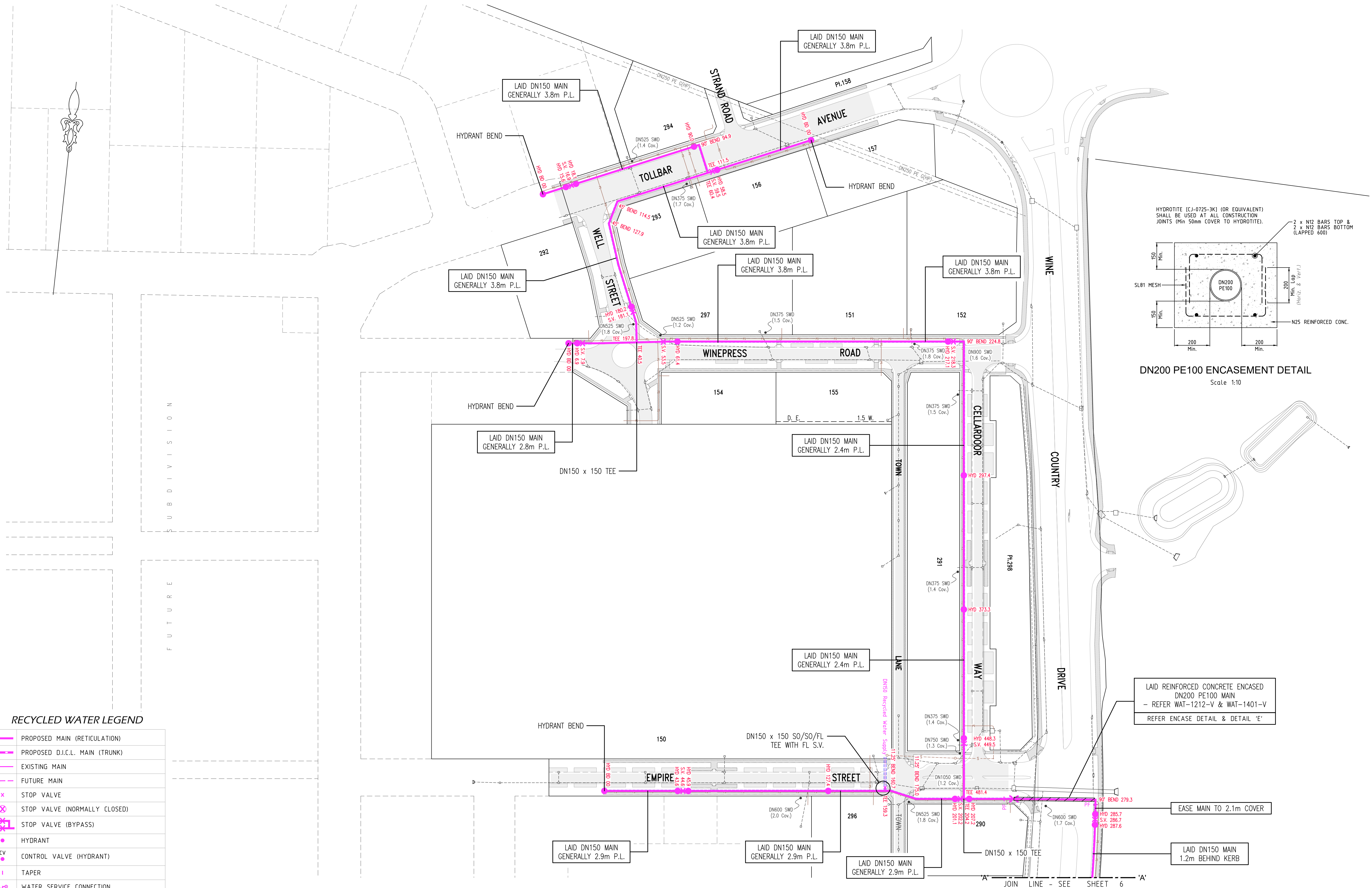
ROSE ATKINS RIMMER (Infrastructure) Pty. Ltd.  
 WATER RELATED INFRASTRUCTURE DESIGN AND MANAGEMENT  
  
 SHOP 7 & 8 M CENTRE  
 40 STERLING ROAD MINCHINBURY N.S.W. 2770  
 PH: (02) 9853 0200 FAX: (02) 9671 7399



POTABLE WATER DETAIL PLAN 2			
DRAWN	DESIGNED	REVIEWED	VERIFIED
D.SHEATHER	D.SHEATHER	V.VIKSNE	K.GAO
SCALE	DATE	DRAWN BY	DATE OF ISSUE
1:1000			2/11/2020

SHEET 8 OF 11  
 WAC  
 39/23357/TC1



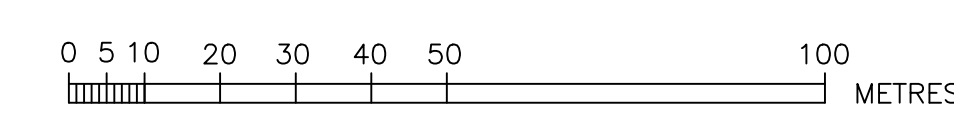


DN200 PE100 ENCASUREMENT DETAIL  
Scale 1:10

**RECYCLED WATER LEGEND**

	PROPOSED MAIN (RETICULATION)
	PROPOSED D.I.C.L. MAIN (TRUNK)
	EXISTING MAIN
	FUTURE MAIN
	STOP VALVE
	STOP VALVE (NORMALLY CLOSED)
	STOP VALVE (BYPASS)
	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.



PF DENOTES PUDDLE FLANGE - REFER SHEET 11

**ROSE ATKINS RIMMER (Infrastructure) Pty. Ltd.**  
 WATER RELATED INFRASTRUCTURE DESIGN AND MANAGEMENT  
 SHOP 7 & 8 M CENTRE  
 40 STERLING ROAD MINCHINBURY N.S.W. 2770  
 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
1:1000			2/11/2020

SHEET 9 OF 11  
 WAC  
 39/23357/TC1

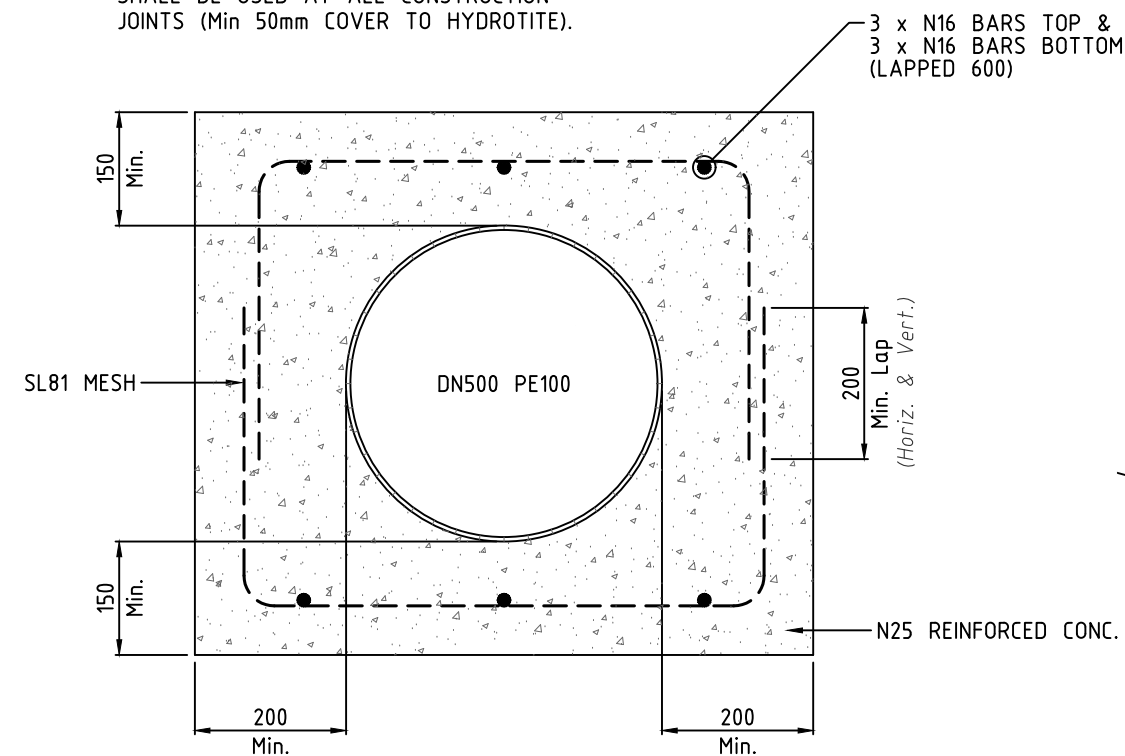


RECYCLED WATER LEGEND

	PROPOSED MAIN (RETICULATION)
	PROPOSED D.I.C.L. MAIN (TRUNK)
	EXISTING MAIN
	FUTURE MAIN
	STOP VALVE
	STOP VALVE (NORMALLY CLOSED)
	STOP VALVE (BYPASS)
	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.

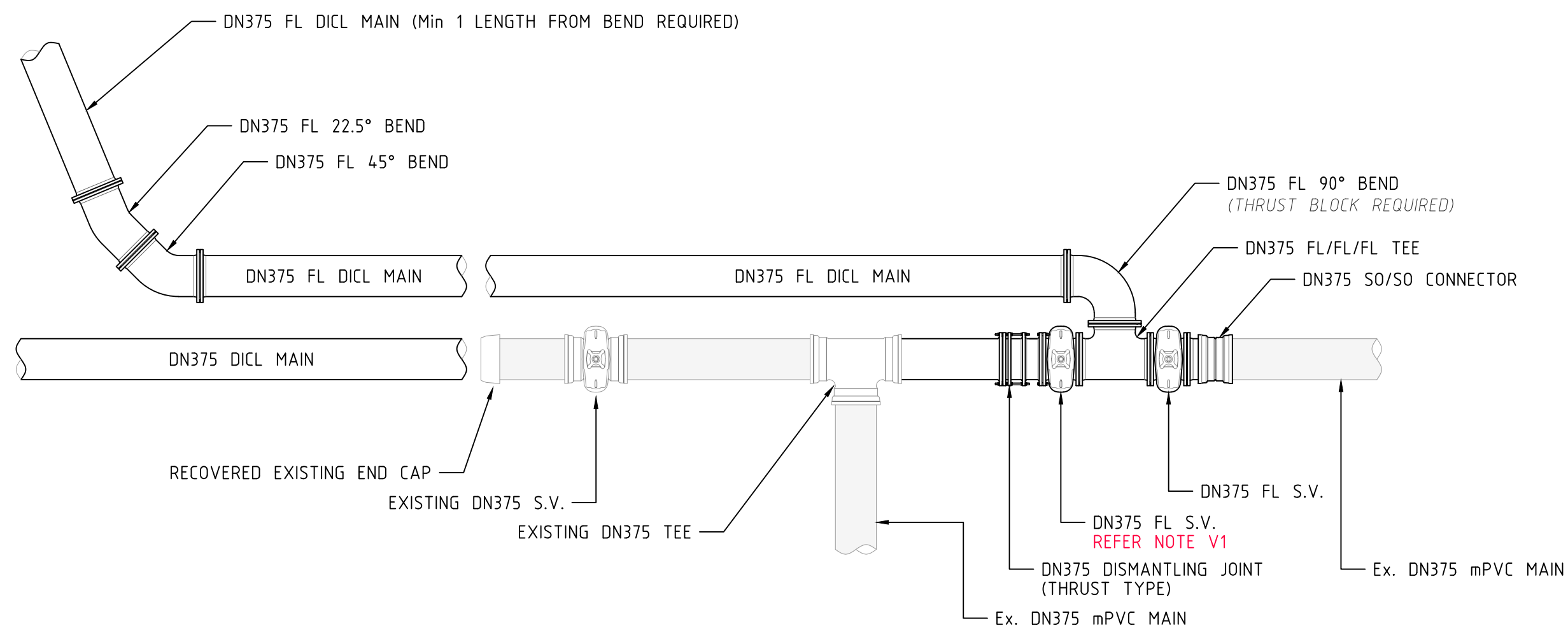
HYDROTITE [CJ-0725-3K] (OR EQUIVALENT) SHALL BE USED AT ALL CONSTRUCTION JOINTS (Min 50mm COVER TO HYDROTITE).



DN500 PE100 ENCASEMENT DETAIL

Scale 1:10

\* CONTRACTOR SHALL INSTALL A COMPRESSIBLE MEMBRANE AROUND PLASTIC PIPES FOR THE FIRST & LAST 1m OF ENCASEMENT TO PROVIDE PIPE PROTECTION (AS PER MANUFACTURERS TECHNICAL NOTE).

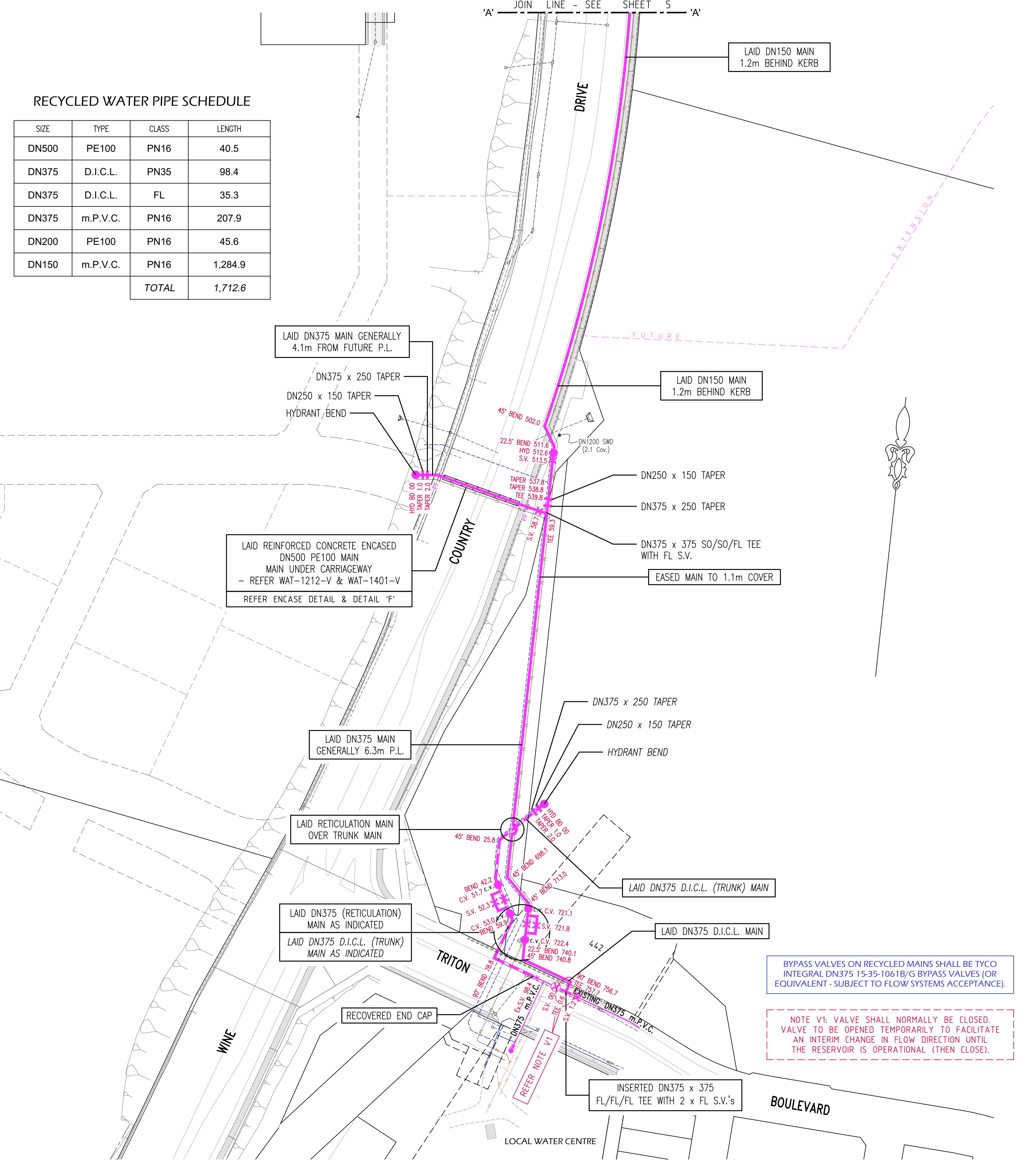


DN375 CONNECTION DETAILS

NOT TO SCALE

RECYCLED WATER PIPE SCHEDULE

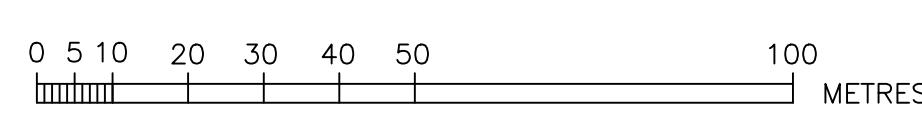
SIZE	TYPE	CLASS	LENGTH
DN500	PE100	PN16	40.5
DN375	D.I.C.L.	PN35	98.4
DN375	D.I.C.L.	FL	35.3
DN375	m.P.V.C.	PN16	207.9
DN200	PE100	PN16	45.6
DN150	m.P.V.C.	PN16	1,284.9
TOTAL			1,712.6



PF DENOTES PUDDLE FLANGE - REFER SHEET 11

BYPASS VALVES ON RECYCLED MAINS SHALL BE TYCO INTEGRAL DN375 15-35-106 1B/G BYPASS VALVES (OR EQUIVALENT - SUBJECT TO FLOW SYSTEMS ACCEPTANCE).

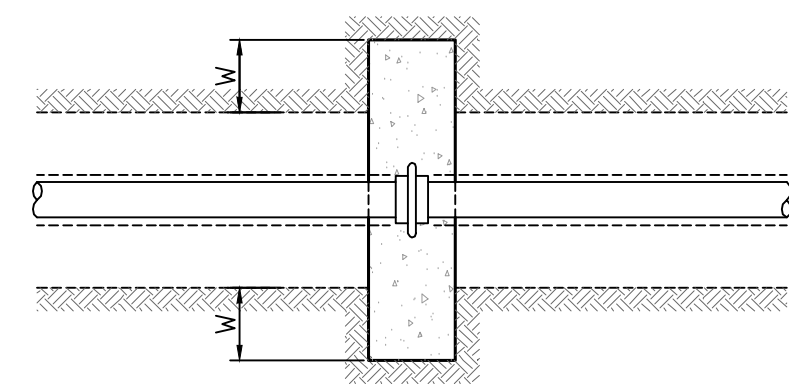
NOTE V1: VALVE SHALL NORMALLY BE CLOSED. VALVE TO BE OPENED TEMPORARILY TO FACILITATE AN INTERIM CHANGE IN FLOW DIRECTION UNTIL THE RESERVOIR IS OPERATIONAL (THEN CLOSE).



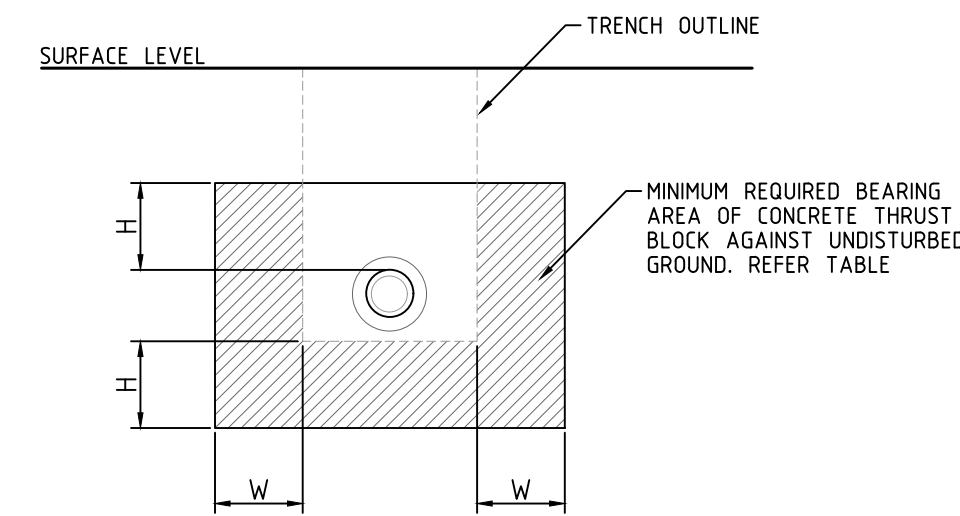
ROSE ATKINS RIMMER (Infrastructure) Pty. Ltd.  
 WATER RELATED INFRASTRUCTURE DESIGN AND MANAGEMENT  
 SHOP 7 & 8 M CENTRE  
 40 STERLING ROAD MINCHINBURY N.S.W. 2770  
 PH: (02) 9853 0200 FAX: (02) 9671 7399

RECYCLED WATER DETAIL PLAN 2				SHEET 10 OF 11	VISION WAC
DRAWN: D.SHEATHER	DESIGNED: D.SHEATHER	REVIEWED: V.VIKSNE	VERIFIED: K.GAO	JOB No. 39/23357/TC1	
SCALE: 1:1000	DATE: -	DATE REVISION: -	DATE OF ISSUE: 2/11/2020		

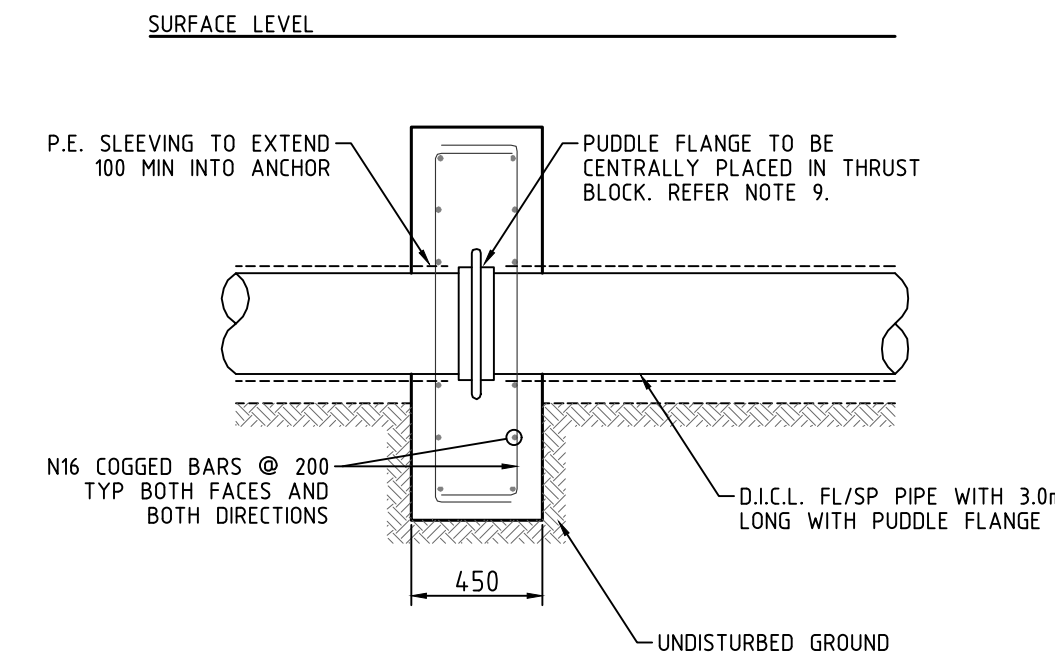




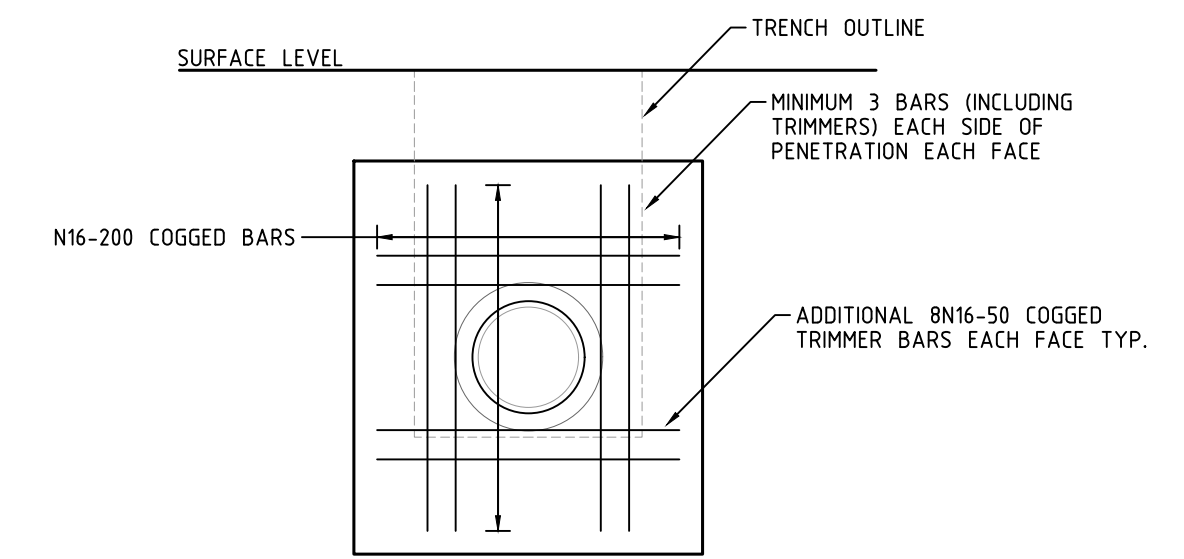
AREAS TO BE CAST AGAINST UNDISTURBED GROUND  
PLAN  
NOT TO SCALE



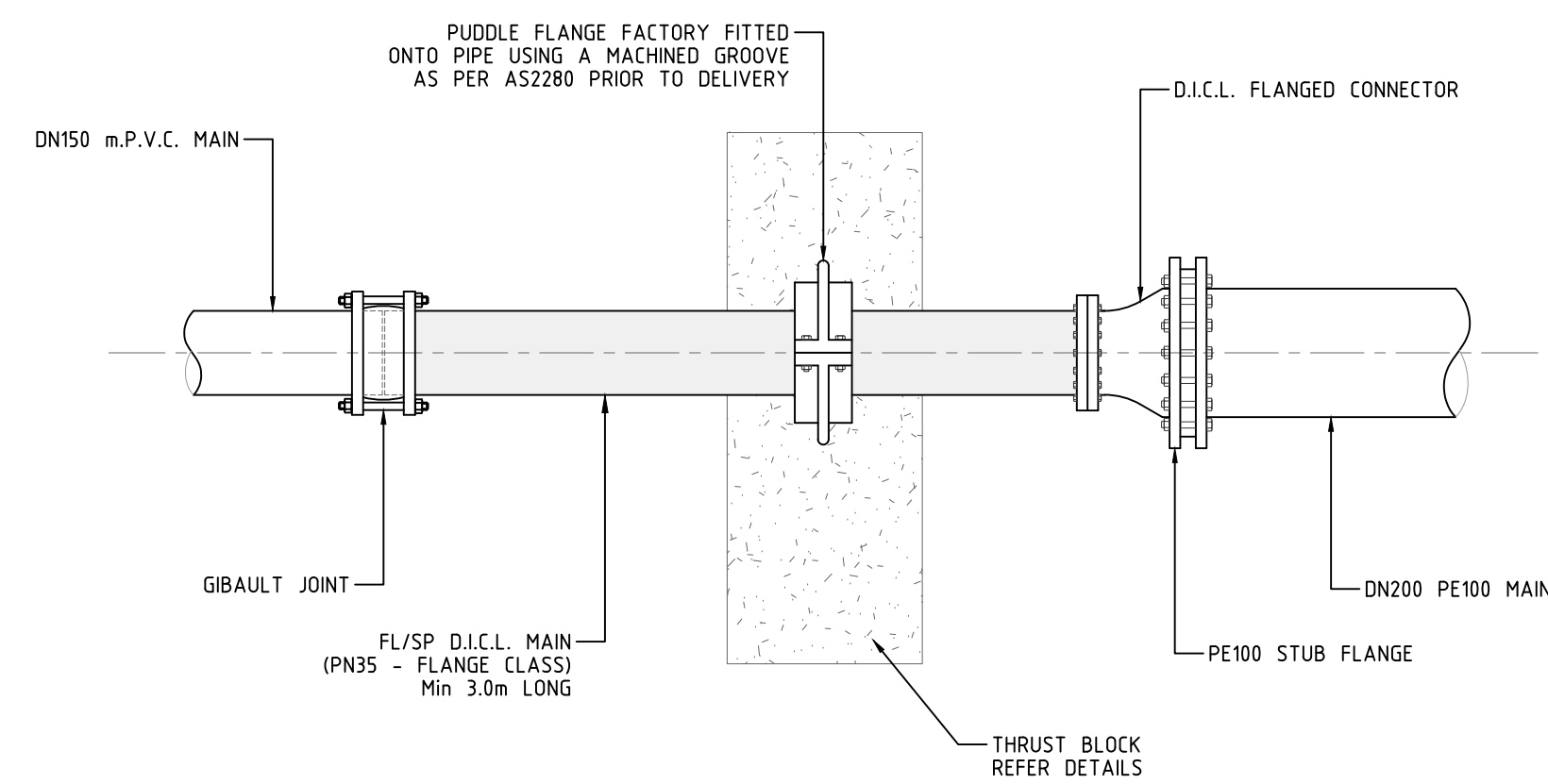
AREAS TO BE CAST AGAINST UNDISTURBED GROUND  
ELEVATION  
NOT TO SCALE



THRUST BLOCK DETAIL  
NOT TO SCALE



THRUST BLOCK REINFORCEMENT DETAIL  
NOT TO SCALE



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

THRUST BLOCK AREAS & DIMENSIONS FOR PUDDLE FLANGE

DN	OD	DESIGN PRESSURE HEAD	TEST PRESSURE HEAD	THRUST T	SOIL AHP	REQUIRED BEARING AREA	NUMBER ANCHORS	H	W	MIN TRENCH WIDTH
(mm)	(mm)	(m)	(m)	(kN)	(kPa)	(sq.m)		(m)	(m)	(m)
200	200	120	150	46.2	200	0.231	1	0.2	0.15	0.45
200	200	120	150	46.2	100	0.462	1	0.4	0.15	0.45
200	200	120	150	46.2	50	0.924	2	0.4	0.15	0.45

THRUST BLOCK NOTES:

- ALL DIMENSIONS IN MILLIMETRES UNLESS NOTED OTHERWISE.
- THRUST BLOCK DESIGNED TO WITHSTAND A DESIGN PRESSURE OF 120m AND A TEST PRESSURE OF 150m HEAD OF WATER.
- CAST THE THRUST AREA OF ALL THRUST BLOCKS AGAINST A CLEAN FACE OF UNDISTURBED NATURAL SOIL. THRUST BLOCKS SHOULD NOT INTERFERE WITH ADJACENT SERVICES WHERE POSSIBLE.
- DO NOT USE THRUST BLOCKS AS SPECIFIED IN THIS DRAWING WHERE AHP < 100kPa.
- ALL D.I.C.L. FITTINGS AND PIPES SHALL BE WRAPPED IN POLYETHYLENE SLEEVING. TAPE 700 LONG P.E. SLEEVING TO END OF D.I.C.L. PIPE TO BE ENCASED 150 FROM SOCKET FACE TO OVERLAP P.E. SLEEVED D.I.C.L. PIPE. WHEN CONNECTING TO P.V.C. PIPE (WITHOUT P.E. SLEEVING), TAPE 700 LONG P.E. SLEEVE TO P.V.C. PIPE.
- ALL D.I.C.L. PIPES SHALL BE TO FLANGE CLASS U.N.O. & ALL D.I.C.L. FITTINGS SHALL BE MINIMUM CLASS PN16.
- D.I.C.L. FLANGES SHALL BE TO AS4087 CLASS 16. BOLTS & WASHERS SHALL BE GRADE 316SS.
- PUDDLE FLANGE SHALL BE FACTORY FITTED BOLT ON FULL THRUST RESTRAINT TYPE IN ACCORDANCE WITH AS2280.
- CONCRETE SHALL BE CLASS N25 TO PS-357.SW. SLUMP SHALL BE IN THE RANGE 80mm - 120mm. MAXIMUM NOMINAL AGGREGATE SIZE SHALL BE 20mm.
- THRUST BLOCK DESIGNS SHOWN ON THIS DRAWING ARE NOT SUITABLE FOR USE IN AGGRESSIVE OR CONTAMINATED SOILS.
- ALL REINFORCEMENT SHALL BE TO AS4671 SHAPED-D. STRENGTH GRATE = 500MPa, DUCTILITY CLASS-N.
- MINIMUM CLEAR COVER TO REINFORCEMENT SHALL BE 70mm.
- CONCRETE SHALL ACHIEVE A MINIMUM COMPRESSIVE STRENGTH OF 25MPa OR BE CURED FOR A MINIMUM OF 14 DAYS PRIOR TO APPLICATION OF THRUST LOADS.