

# INFRASTRUCTURE ANALYSIS REPORT

FOR

115-127 MAIN STREET, MERIMBULA

AUGUST 2022



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PROJECT TITLE: 115-127 Main Street, Merimbula – Infrastructure Analysis Report

PROJECT NUMBER: 8895

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Approved by:	Oliver Walsh	Date:	04/08/2022

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## 1. INTRODUCTION

Indesco Pty Limited was engaged by Garret Barry Planning Services on 23<sup>rd</sup> June 2022 to prepare a wastewater and potable water servicing assessment for Lot 122 DP 1250503, Lot 231 DP 1263284 and Lot 121 DP 1250503 (the site). The aim of the report is to identify the capacity of the existing DN150 sewer main, the DN200 uPVC watermain fronting Main Street and the DN250 uPVC water main on Bowlers Drive and the ability of the above-mentioned infrastructure to service and ultimate scenario of the proposed development of 90 apartments, a 100-room hotel and a 20% increase in capacity of the existing Sapphire Club premises.

Indesco have undertaken a review of the existing catchment being serviced by the subject sewer and potable water main with the following codes and requirements, including but not limited to:

- Advice from Bega Shire Valley Council;
- WSA 03 – 2011 Version 3.1: Water Services Association of Australia (WSAA); and
- WSA 02 – 2002-2.2 Version 4: Sewerage Code of Australia.



**Figure 1 - Development Locations (Nearmap Extract)**

## 2. PROJECT BACKGROUND

Indesco were previously engaged to complete an investigation on the sewer capacity of the DN150 sewer main fronting Main Street and whether or not it would have the capacity to service a proposed development of 40 apartments at 95-97 Main Street and a 100-room hotel development at Sapphire Club. The previous Indesco Sewer main capacity assessment report at 95-97 Main Street, Merimbula on the 1<sup>st</sup> of November 2021 found that the capacity of the sewer main was insufficient in an ultimate development scenario.

The Sapphire Club located at 115-127 Main Street is serviced by another sewer main to the west and was agreed with Bega Council on the meeting held on 12<sup>th</sup> October 2021 that considering 70% of the Sapphire Club loading for the analysis was acceptable.

Indesco have since been re-engaged to complete further analysis of the DN150 sewer main fronting Main Street with additional analysis on the DN250 uPVC and DN200 uPVC potable mains fronting Bowlers Drive and Main Street respectively.

An extract from the plan and long sections provided by Bega Valley Shire Council, showing the extent of the existing DN150 sewer, DN250 potable water main and DN200 potable water main covered by this assessment are shown on Figure 2, Figure 3 and Figure 4 overleaf.





Figure 2 – Extract from site plan showing sewer extent analysis in magenta

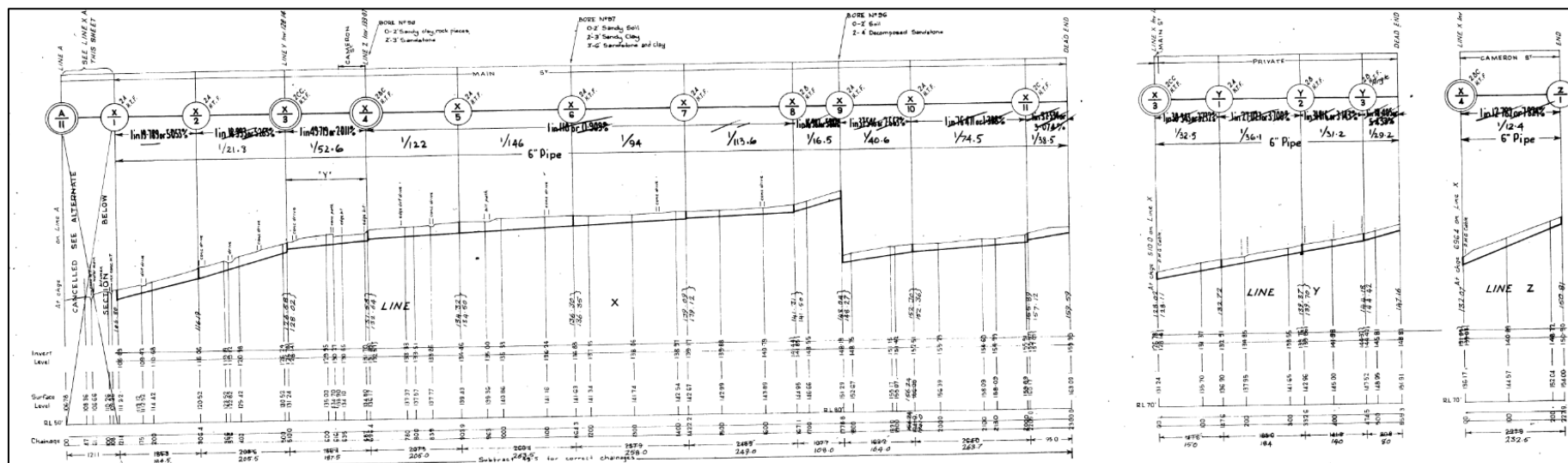


Figure 3 – Extract from sewer main long section

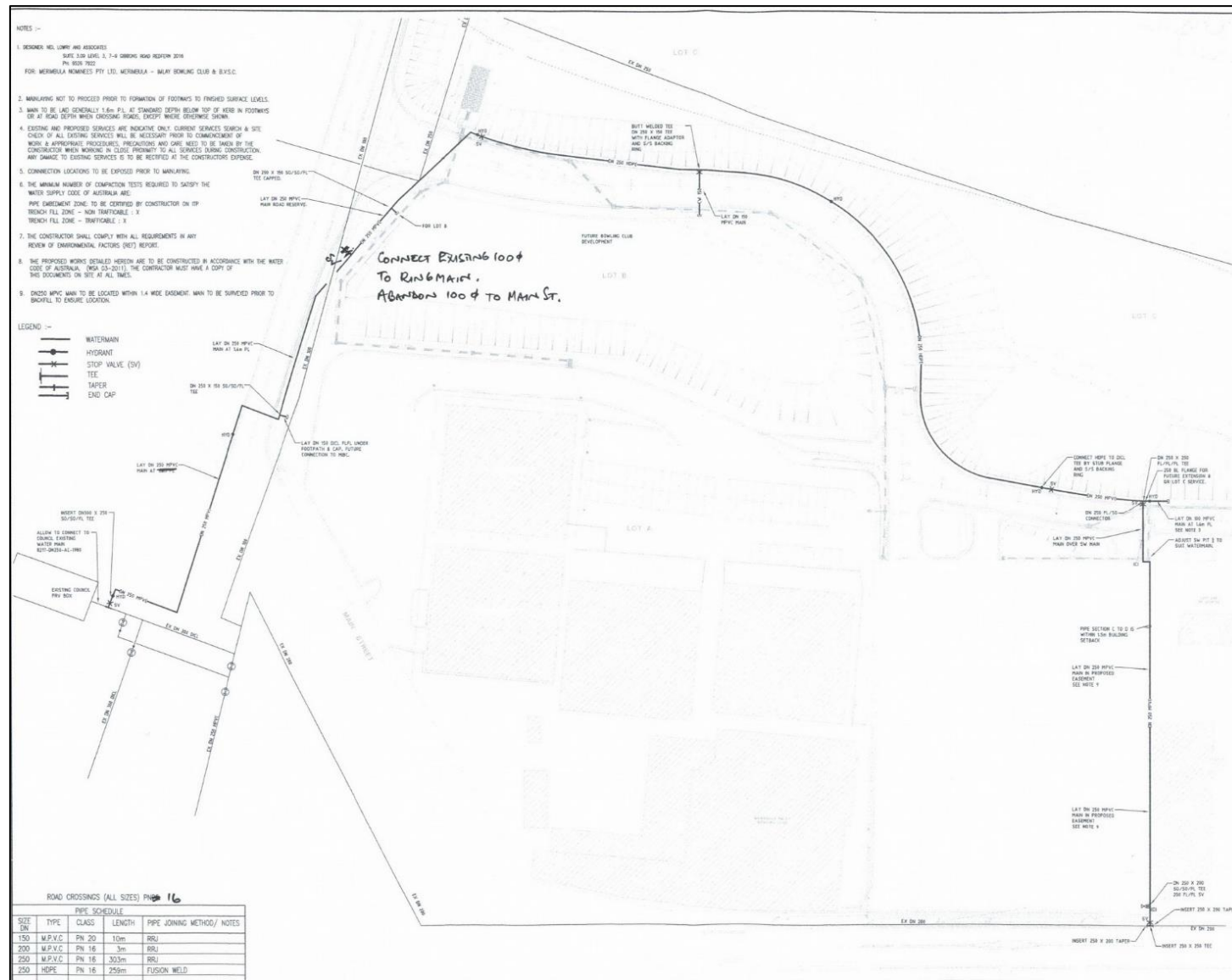


Figure 4 – Extract from Watermain Concept Plan

### 3. EXISTING WASTEWATER LOADINGS

The wastewater loadings have been calculated in accordance with the sewerage and Water supply Code of Australia (WSA Codes), based on the permitted land use. An extract showing the following Equivalent Population (EP) have been adopted, as per Table A1 of WSA 02-2002-2.2 Sydney Water Edition, included in Appendix B:

- Low density residential (R2): 3.5 EP/lot (single occupancy lots);
- Medium density Residential (R3): 120 EP/ha;
- Local Area (B2): 75 EP/ha;
- Mixed use (B4): 75 EP/ha;
- Hotels: 2.5 EP/Room (unit); and
- Apartments: 3.0 EP/dwelling unit.

Considering that the Sapphire Club located at 115-127 Main St is also serviced by another sewer main to the west, and as agreed with Bega Council on the meeting held on 12<sup>th</sup> October 2021, 70% of the Sapphire Club loading has been considered for this analysis.

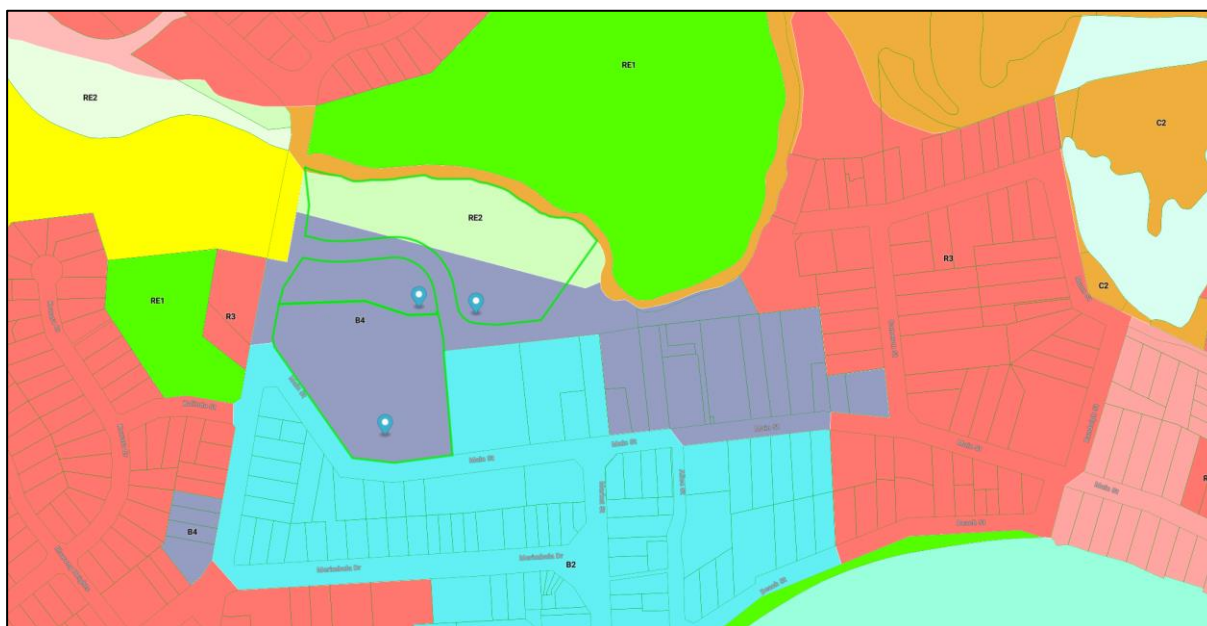


Figure 4 – Land Zoning by Bega Valley LEP 2013, extract from mecone.com.au



#### 4. WASTEWATER CAPACITY ASSESSMENT AND SCENARIOS

The purpose of this part of analysis is to assess the sewer main capacity (extent shown in Figure 1) to service the proposed developments referred to in section 1. These are: 100 room hotel, a 90 apartments development and a 20% increase in the capacity of the Club Sapphire premises.

The assessment is done considering the Peak and Dry Weather Flows (PDWF), as agreed with Bega Valley Shire Council that this would be the worst-case scenario for this area, as it is highly demanded in summer.

Based on the above, Sydney Water Sewerage Flow Schedule (Updated Jan 2016) has been used to assess the below scenarios:

- SCENARIO 1: Existing wastewater loading (Sapphire Club & future 40 apartments at 95-97 Main Street);
- SCENARIO 2: Additional 90 apartments, 100-room hotel and 20% Sapphire Club capacity increase; and
- SCENARIO 3: Additional 90 apartments, 100-room hotel and 20% Sapphire Club capacity increase and the inclusion of a grade change to the existing DN150 sewer.

## 5. EXISTING POTABLE WATER LOADINGS

The purpose of this analysis is to determine the capacity of existing DN200 uPVC potable water main fronting Main Street and the existing DN250 uPVC loop along Bowlers Drive and whether these mains have the capacity to service the proposed developments.

Preliminary advice from Bega Shire Valley Council was obtained by Indesco on the 29<sup>th</sup> of June 2022 from David Rogers where it was established that the DN200 uPVC potable water main fronting Bowlers Drive was laid for the purpose of servicing future developments along Main Street and surrounding Bowlers Drive. Bega Shire Valley Council has informed Indesco that there is no evidence that the potable water reservoir servicing the abovementioned assets cannot service the proposed developments (correspondence included in Appendix F).

## 6. RESULTS

### 6.1.1 Wastewater

Based on the assumptions, main extent and other considerations outlined on section 4, the proposed development of 90 apartments, a 100-room hotel and a 20% increase of capacity of the existing Sapphire Club, the following results have been obtained using Sydney Water Sewerage Flow Schedule:

- SCENARIO 1: Existing main has **sufficient** capacity;
- SCENARIO 2: Existing main has **insufficient** capacity; and
- SCENARIO 3: Existing main has **sufficient** capacity.

The proposed development will cause sections E to I to have **insufficient** capacity. Based on the results from Scenario 3, regrading the main between section E and I is considered a feasible option, which will increase the main capacity to service the proposed development. This option is subject to further investigations including site investigations to assess whether there are any constraints by undertaking this work.

### 6.1.2 Potable Water

Indesco have considered Table 3.5 from WSA 03 - 2011-3.1 in Figure 5 below which states the minimum pipe size for infill developments up to 8 storeys is DN150 or DN200 for all developments above 8 storeys.

Based on the Water flow and pressure test (Included in Appendix E) there is a minimum pressure of 375 kPa at a flow rate of 50 L/sec. The minimum M of head column has been measured to be 38.25m This demonstrates that with a 3m ceiling height the maximum number of storeys that can be established for this development is approximately 12 storeys.

ZONING/DEVELOPMENT	MINIMUM PIPE SIZE (DN)	
	Cast iron equivalent outside diameter series	ISO series <sup>(2)</sup>
Low and medium density residential	100 <sup>(1)</sup>	125 <sup>(1)</sup>
High density residential (≥ 4 storeys)	150	180
	If a 100 mm main currently fronts a proposed development and the hydraulic capacity is sufficient to serve the property's domestic future demand, then the existing main will be deemed acceptable until the main requires renewal. The developer might upgrade the existing pipe size for other reasons – this is subject to Water Agency agreement.	If a 125 mm main currently fronts a proposed development and the hydraulic capacity is sufficient to serve the property's domestic future demand, then the existing main will be deemed acceptable until the main requires renewal. The developer might upgrade the existing pipe size for other reasons – this is subject to Water Agency agreement.
Multiple developments of high density residential (≥ 8 storeys)	200 or 225 <sup>(2)</sup>	250 or 280 <sup>(2)</sup>
	If a 100 or 150 mm main currently fronts a proposed development and the hydraulic capacity is sufficient to serve the property's domestic future demand, then the existing main will be deemed acceptable until the main requires renewal. The developer might upgrade the existing pipe size for other reasons – this is subject to Water Agency agreement.	If a 125 or 180 mm main currently fronts a proposed development and the hydraulic capacity is sufficient to serve the property's domestic future demand, then the existing main will be deemed acceptable until the main requires renewal. The developer might upgrade the existing pipe size for other reasons – this is subject to Water Agency agreement.

**Figure 5 – Extract from Sydney Water WSA Code**

Based on the development assumptions, flow and pressure testing, works as constructed drawings, nominal pipe diameter and advice from Bega Shire Valley Council, the above-mentioned development can be serviced by the existing potable water mains surrounding the site.

## 7. LIMITATIONS OF THIS REPORT

This report has been provided by Indesco Pty Ltd subject to the following limitations:

This assessment has been based on Sydney Sewerage Flow Schedule from January 2016. No detail modelling has been undertaken and to determine the actual flow condition.

This document has been prepared for the specific purpose of capacity check of the existing DN150 sewer main and the DN200 uPVC potable water main fronting Main Street and the existing DN250 uPVC loop along Bowlers Drive, extent mentioned in the report. No responsibility is accepted for the use of this document, in whole or in part, in other contexts or for any other purpose. If there is any change in the proposed development described in this report, then all recommendations should be reviewed. Copyright in this report is the property of Indesco Pty Ltd. We have used a degree of care, skill and diligence normally exercised by consulting engineers in similar circumstances. No other warranty expressed or implied is made or intended.

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## APPENDIX A - CATCHMENT PLANS







## APPENDIX B – EP TABLE FROM WSA 02-2002-2.2

For the industrial laundries:

From Table A2 the EP classification is “1”

From Table A3,  $N = 4$  and the corresponding EP density per BU hectare is 8400

Built up area = the floor area portion of the property = 50% of 1.2Ha = 0.6 Ha

$EP_{Industrial} = 8400 \times 0.60 = 5040$  EP

Hence the Total EP is:

$EP_{Total} = 299 + 5040 = 5339$ , say 5340 EP

**TABLE A1 EQUIVALENT POPULATIONS FOR SYNCHRONOUS\* DISCHARGES**

**\*Peaks coinciding with normal residential occupancies**

Classification	Unit	EP per Unit	Remarks
<b>Residential</b>			
<b>Single occupancy lots</b>	<b>Lot</b>	<b>3.5</b>	To be used for single occupancy lots down to 300 m <sup>2</sup>
Single lot 1000m <sup>2</sup>	Gross hectare	25	Approx 70% net which takes roads, parks etc into consideration
Single lot 500m <sup>2</sup>	Gross hectare	50	
Single lot 300m <sup>2</sup>	Gross hectare	80	
<b>Multiple occupancy lots</b>			
<b>Single occupancy medium density dwelling units</b>	<b>Dwelling unit</b>	<b>3.0</b>	To be used for multiple occupancy lots down to 300 m <sup>2</sup>
Medium density (Group housing)	Gross hectare	120	Density of 40 dwelling units/ gross ha
Medium density e.g. 3 storey walk-up flats	Gross hectare	210	Density of 70 dwelling units/gross ha
<b>Single occupancy high density dwelling units</b>	<b>Dwelling unit</b>	<b>2.5</b>	
High density multi storey apartments	Gross hectare	375–4500	Depends on locality e.g. CBD in small capital city, CBD in Sydney, strip development along Gold Coast
<b>Commercial/ Special Cases</b>			
High density commercial	Gross hectare	300-800+	Typical for capital city CBD
Local commercial	Gross hectare	75	
Educational institutions	Student	0.2	Includes teaching staff. Treat residential colleges and boarding houses as medium density dwelling units
General public entertainment facilities	Visitor	0.05	Shows, race crowds, etc
Clubs	Occupant	0.25	Use the maximum number of occupants for which the club facilities were designed
Hospitals and nursing homes	Available beds	3.4	Includes staff quarters
Caravan parks	Camper	0.5	

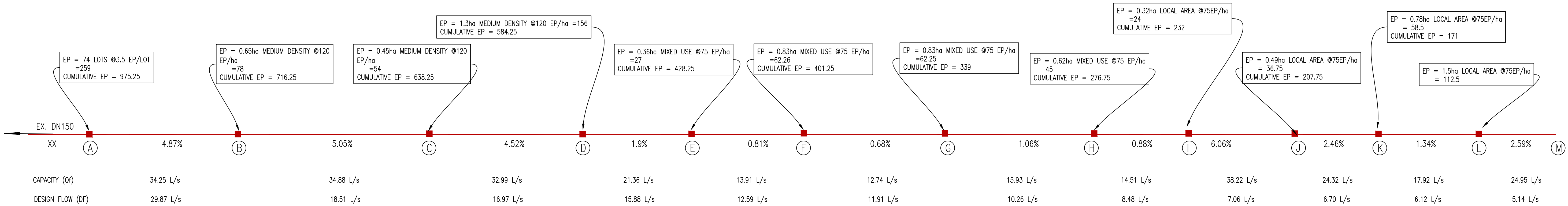
Classification	Unit	EP per Unit	Remarks
Hostels	Resident	0.4	
Parks / gardens / reserves	Gross hectare	20	
Golf courses	Gross hectare	10	Treat club houses as above
Future industrial areas	Gross hectare	150	To be used only when the future types of industry are unknown otherwise use Table A2

## APPENDIX C – FLOW SCHEDULE CALCULATIONS





CATCHMENT PLAN  
( NOT TO SCALE )



SEWERAGE FLOW DIAGRAM (EXISTING CONDITION)  
EXISTING CONDITION

( NOT TO SCALE )

SUMMARY													
SECTION	CHAINAGE	TOTAL AREA	TOTAL Grav	TOTAL Grav + Pump	PIPE SIZE (DN)	PIPE SIZE (ID)	PIPE GRADE	DESIGN FLOW (DF)	Qf (Capacity)	Actual	SELF CLEANSING	SLIME CONTROL	Capacity
A-B	00	7.81	1073	150	150	150	4.87	17.25	34.25	5.88	Self Cleansing OK	NA	OK
B-C	00	7.81	814	814	150	150	5.05	14.28	34.88	4.77	Self Cleansing OK	NA	OK
C-D	00	7.16	736	736	150	150	4.52	13.32	32.99	4.45	Self Cleansing OK	NA	OK
D-E	00	6.71	682	682	150	150	1.9	12.65	21.36	4.22	Self Cleansing OK	NA	OK
E-F	00	5.41	526	526	150	150	0.81	10.62	13.91	3.54	Self Cleansing OK	NA	OK
F-G	00	5.05	499	499	150	150	0.68	10.26	12.74	3.42	Self Cleansing OK	NA	OK
G-H	00	4.22	437	437	150	150	1.06	9.43	15.93	3.15	Self Cleansing OK	NA	OK
H-I	00	3.39	374	374	150	150	0.88	8.55	14.51	2.87	Self Cleansing OK	NA	OK
I-J	00	3.09	232	232	150	150	6.06	6.29	38.22	2.10	Self Cleansing OK	NA	OK
J-K	00	2.77	208	208	150	150	2.46	5.90	24.32	1.97	Self Cleansing OK	NA	OK
K-L	00	2.28	171	171	150	150	1.34	5.28	17.92	1.76	Self Cleansing OK	NA	OK
L-M	00	1.5	113	113	150	150	2.59	4.20	24.95	1.40	Self Cleansing OK	NA	OK

EQUIVALENT POPULATION (EP)

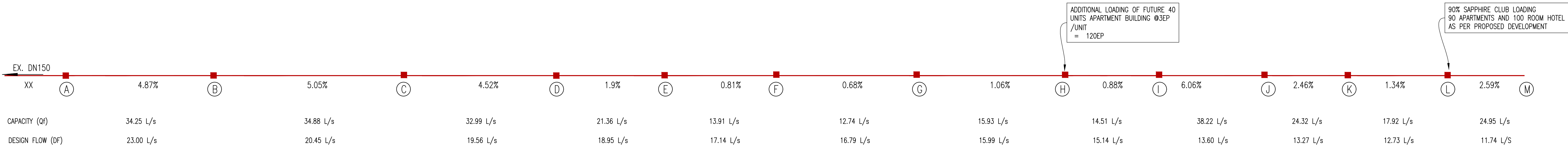
- LOW DENSITY RESIDENTIAL (R2) – 3.5 EP/LOT (SINGLE OCCUPANCY LOTS)
- MEDIUM DENSITY RESIDENTIAL (R3) – 120 EP/ha
- LOCAL AREA (B2)– 75 EP/ha
- MIXED USE (B4)– 75 EP/ha
- HOTELS – 2.5 EP/ROOM (UNIT)
- APARTMENTS – 3.0 EP/DWELLING UNIT

WORK AS CONSTRUCTED CERTIFICATION				SYDNEY WATER CORPORATION	
DEVELOPER	W.S.C.	CONSTRUCTOR	COMPLETED	<b>Sydney WATER</b>	
DESIGNER					
I CERTIFY THAT THE WORKS HAVE BEEN CONSTRUCTED IN ACCORDANCE WITH THE WORK AS CONSTRUCTED DRAWINGS				SHT	OF SHTS.
				SYDNEY WATER CORPORATION	
				FOR DETAILS OF SERVICES SEE SHEET 1	





CATCHMENT PLAN  
( NOT TO SCALE )



SEWERAGE FLOW DIAGRAM (ADDITIONAL LOADING CONDITION - 20% Club Increase, 90 Apartments @3EP/UNIT, 100 ROOM HOTEL @2.5EP/UNIT)  
WITH PROPOSED ADDITIONAL LOADING CONDITION  
( NOT TO SCALE )

SUMMARY													
SECTION	CHAINAGE	TOTAL AREA	TOTAL Grav	TOTAL Grav + Pump	PIPE SIZE (DN)	PIPE SIZE (ID)	PIPE GRADE	DESIGN FLOW (DF)	Qf (Capacity)	Actual	SELF CLEANSING	SLIME CONTROL	Capacity
	m	Ha	EP	EP	mm	mm	%	L/s	L/s	PDWF			Deficit
A-B	00	8.31	1630	1630	150	150	4.87	23.00	34.25	8.15	Self Cleansing OK	NA	OK
B-C	00	8.31	1371	1371	150	150	5.05	20.45	34.88	7.10	Self Cleansing OK	NA	OK
C-D	00	7.66	1293	1293	150	150	4.52	19.56	32.99	6.81	Self Cleansing OK	NA	OK
D-E	00	7.21	1239	1239	150	150	1.9	18.95	21.36	6.61	Self Cleansing OK	NA	OK
E-F	00	5.91	1083	1083	150	150	0.81	17.14	13.91	6.02	Self Cleansing Not OK	NA	-3.22
F-G	00	5.55	1056	1056	150	150	0.68	16.79	12.74	5.93	Self Cleansing Not OK	NA	-4.05
G-H	00	4.72	994	994	150	150	1.06	15.99	15.93	5.72	Self Cleansing Not OK	NA	-0.06
H-I	00	3.89	932	932	150	150	0.88	15.14	14.51	5.52	Self Cleansing Not OK	NA	-0.63
I-J	00	3.59	789	789	150	150	6.06	13.60	38.22	4.90	Self Cleansing OK	NA	OK
J-K	00	3.27	765	765	150	150	2.46	13.27	24.32	4.82	Self Cleansing OK	NA	OK
K-L	00	2.78	729	729	150	150	1.34	12.73	17.92	4.71	Self Cleansing OK	NA	OK
L-M	00	2	670	670	150	150	2.59	11.74	24.95	4.58	Self Cleansing OK	NA	OK

EQUIVALENT POPULATION (EP)

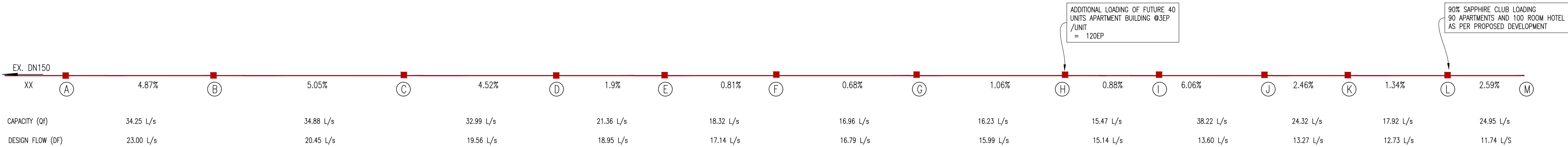
- LOW DENSITY RESIDENTIAL (R2) - 3.5 EP/LOT (SINGLE OCCUPANCY LOTS)
- MEDIUM DENSITY RESIDENTIAL (R3) - 120 EP/ha
- LOCAL AREA (B2)- 75 EP/ha
- MIXED USE (B4)- 75 EP/ha  
HOTELS - 2.5 EP/ROOM (UNIT)  
APARTMENTS - 3.0 EP/DWELLING UNIT

WORK AS CONSTRUCTED CERTIFICATION		SYDNEY WATER CORPORATION		
DEVELOPER	W.S.C.	Sydney WATER	SHT OF SHTS.	
CONSTRUCTOR	COMPLETED			
W.A.C. PREPARED	DESIGNER	SYDNEY WATER CORPORATION		
I CERTIFY THAT THE WORKS HAVE BEEN CONSTRUCTED IN ACCORDANCE WITH THE WORK AS CONSTRUCTED DRAWINGS		FOR DETAILS OF SERVICES SEE SHEET 1		





CATCHMENT PLAN  
( NOT TO SCALE )



SEWERAGE FLOW DIAGRAM (ADDITIONAL LOADING CONDITION - 20% Club Increase, 90 Apartments @3EP/UNIT, 100 ROOM HOTEL @2.5EP/UNIT)  
WITH PROPOSED ADDITIONAL LOADING CONDITION AND GRADE CHANGE  
( NOT TO SCALE)

SUMMARY													
SECTION	CHAINAGE	TOTAL AREA	TOTAL Grav	TOTAL Grav + Pump	PIPE SIZE (DN)	PIPE SIZE (ID)	PIPE GRADE	DESIGN FLOW (DF)	Qf (Capacity)	Actual	SELF CLEANSING	SLIME CONTROL	Capacity
	m	Ha	EP	EP	mm	mm	%	L/s	L/s	PDWF			Deficit
A-B	00	8.31	1630	1630	150	150	4.87	23.00	34.25	8.15	Self Cleansing OK	NA	OK
B-C	00	8.31	1371	1371	150	150	5.05	20.45	34.88	7.10	Self Cleansing OK	NA	OK
C-D	00	7.66	1293	1293	150	150	4.52	19.56	32.99	6.81	Self Cleansing OK	NA	OK
D-E	00	7.21	1239	1239	150	150	1.9	18.95	21.36	6.61	Self Cleansing OK	NA	OK
E-F	00	5.91	1083	1083	150	150	1.4	17.14	18.32	6.02	Self Cleansing OK	NA	OK
F-G	00	5.55	1056	1056	150	150	1.2	16.79	16.96	5.93	Self Cleansing OK	NA	OK
G-H	00	4.72	994	994	150	150	1.1	15.99	16.23	5.72	Self Cleansing OK	NA	OK
H-I	00	3.89	932	932	150	150	1	15.14	15.47	5.52	Self Cleansing OK	NA	OK
I-J	00	3.59	789	789	150	150	6.06	13.60	38.22	4.90	Self Cleansing OK	NA	OK
J-K	00	3.27	765	765	150	150	2.46	13.27	24.32	4.82	Self Cleansing OK	NA	OK
K-L	00	2.78	729	729	150	150	1.34	12.73	17.92	4.71	Self Cleansing OK	NA	OK
L-M	00	2	670	670	150	150	2.59	11.74	24.95	4.58	Self Cleansing OK	NA	OK

EQUIVALENT POPULATION (EP)

- LOW DENSITY RESIDENTIAL (R2) - 3.5 EP/LOT (SINGLE OCCUPANCY LOTS)
- MEDIUM DENSITY RESIDENTIAL (R3) - 120 EP/ha
- LOCAL AREA (B2) - 75 EP/ha
- MIXED USE (B4) - 75 EP/ha  
HOTELS - 2.5 EP/ROOM (UNIT)  
APARTMENTS - 3.0 EP/DWELLING UNIT

WORK AS CONSTRUCTED CERTIFICATION		SYDNEY WATER CORPORATION	
DEVELOPER	W.S.C.	<b>Sydney WATER</b>	
CONSTRUCTOR	COMPLETED		
DESIGNER	I CERTIFY THAT THE WORKS HAVE BEEN CONSTRUCTED IN ACCORDANCE WITH THE WORK AS CONSTRUCTED DRAWINGS		SYDNEY WATER CORPORATION
		FOR DETAILS OF SERVICES SEE SHEET 1	

## APPENDIX D – SYDNEY WATER DEMAND TABLE

# Average daily water use

By property development type

Water Supply Code of Australia



MWH/PB Flow Study Report



Water usage survey



Development Type	Development Sub-Type	Key Metric	Metric Unit	Average Demand (L/Metric unit/Day)
Residential	Single Lot Torrens	Dwelling	Each dwelling	623.00
	Flats Torrens	Net floor area	Square metre	2.36
	High Rise Units	Net floor area	Square metre	3.34
	Single Lot Community	Dwelling	Each dwelling	623.00
Mixed	Residential / Commercial	Combined floor area	Each dwelling / Square metre	Use separate rates for each component
	Commercial / Industrial	Combined floor area	Square metre	Use separate rates for each component
Commercial	Aged Accom - Self Care	Net floor area	Square metre	2.50
	Aged Accom - Hostel	Bed	Each bed	271.00
	Aged Accom - Full Care	Bed	Each bed	271.00
	Childcare	Net floor area	Square metre	3.60
	Hotel / motel / serviced apartments	Room	Each room	359.94
	Office	Net floor area	Square metre	2.27
	Shopping Centre	Net floor area	Square metre	3.00
	Laundry / Dry Cleaner	Net floor area	Square metre	10.50
	Café / Fast Food / Butcher / Deli	Net floor area	Square metre	2.48
	Retail Units	Net floor area	Square metre	2.48
	Medical / Veterinary	Net floor area	Square metre	2.48
	Mechanical Repair	Net floor area	Square metre	2.48
	Car / Boat Sales	Net floor area	Square metre	2.48
	Car Wash	Net floor area	Square metre	9.40
	Club	Net floor area	Square metre	3.77
Industrial	Heavy Process	As required		
	Chemical Manufacturing	As required		



Special Uses	Printing Manufacturing	As required		
	Beverage Manufacturing	As required		
	Light Factory Unit	Developed floor area	Square metre	2.82
	Warehousing	Developed floor area	Square metre	2.82
	Transport / Bus depot	Site area	Square metre	0.91
	University	Student	Each student	20.00
	School	Student	Each student	20.00
	Hospital	Bed	Each bed	271.00
	Religious assemblies	Developed floor area	Square metre	1.30
	Government depot	Site area	Square metre	0.91
	Community Centre / Library	Floor area	Square metre	1.84
	Sports Fields with amenities	As required		
	Parks & Reserves	As required		
	Services: Police, Ambulance, etc	Floor area	Square metre	1.40

## APPENDIX E – WATER FLOW AND PRESSURE TEST



PO Box 492, Bega NSW 2550  
P. (02) 6499 2222  
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E. [council@begavalley.nsw.gov.au](mailto:council@begavalley.nsw.gov.au)  
[www.begavalley.nsw.gov.au](http://www.begavalley.nsw.gov.au)  
ABN. 26 987 935 332  
DX. 4904 Bega

9/6/2022

Tony Barnett  
Level 4  
204 Clarence Street  
Sydney NSW 2000

Tony,

***Water flow and pressure test – Club Sapphire 119 Main Street Merimbula 2548***

Further to your application for water flow and pressure test received on the 1<sup>st</sup> of June 2022, I enclose the following information: -

**Pressure and flow test carried out at the Hydrant located on the 200mm UPVC main in Main Street as indicated on the map.**

Flow in Litres per second	Residual pressure in Kpa @7.00 am 9/6/2022
0 (Static)	500 kpa
5	450 kpa
10	425 kpa
15	425 kpa
20	400 kpa
25	400 kpa
30	400 kpa
35	425 kpa
40	400 kpa
45	400 kpa
50	375 kpa
55	450 kpa
60	400 kpa
86 (maximum)	425 kpa

The above pressure information was obtained by field pressure testing. The recorded pressure may fluctuate from time to time depending on the system demand, time of day, reservoirs etc. This data should not be used as available water for any development requirements!

It should be noted that a qualified hydraulic consultant should be engaged to assess internal firefighting requirements.

If you need any further information about this matter, please contact me on 0447 361 880

Ian Jolliffe **W&SS QA Officer**

## APPENDIX F – BEGA SHIRE VALLEY COUNCIL CORRESPONDENCE

**From:** Rodgers, David <DRodgers@begavalley.nsw.gov.au>  
**Sent:** Monday, 18 July 2022 8:36 AM  
**To:** Harry Frederick  
**Cc:** Garret; Luis Llorente  
**Subject:** RE: 8895 - Main Street Club, Merimbula - Sewer and PW Main Capacity  
**Attachments:** [2178-001 PW 872150-1x.tif](#); [2178-002 PW 872150-2x.tif](#); [2178-003 PW 872150-3x.tif](#); [2178-004 PW 872150-4Ax.tif](#); [4955.PDF](#)

Good Morning Harry,

Please see attached the plans as requested. I will get one of our QA assurance officers to send through the flow and pressure test results.

Plans 2178 are the existing 200 mm from the reservoir and along main street. 4955 is the main in Bowlers Drive. There is no indication to suggest that the reservoir would not have sufficient capacity for these developments.

Regards,



**David Rodgers**

*Water and Sewerage Assets Development Engineer*

PO Box 492, Bega NSW 2550

M.0457 313 194

E. [drodgers@begavalley.nsw.gov.au](mailto:drodgers@begavalley.nsw.gov.au)

[www.begavalley.nsw.gov.au](http://www.begavalley.nsw.gov.au)

We wish to acknowledge the Traditional Custodians of the lands and waters of the Shire - the people of the Yuin nation and show our respect to elders past and present.

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**From:** Harry Frederick <[Harry.Frederick@indesco.com.au](mailto:Harry.Frederick@indesco.com.au)>  
**Sent:** Friday, 8 July 2022 1:36 PM  
**To:** Rodgers, David <[DRodgers@begavalley.nsw.gov.au](mailto:DRodgers@begavalley.nsw.gov.au)>  
**Cc:** Garret <[garret@gbps.com.au](mailto:garret@gbps.com.au)>; Luis Llorente <[luis.llorente@indesco.com.au](mailto:luis.llorente@indesco.com.au)>  
**Subject:** RE: 8895 - Main Street Club, Merimbula - Sewer and PW Main Capacity

Hi David,

Just a follow up on the below.

Can you please provide the following:

1. Existing DN200 PVC watermain along Main Street – **David to provide drawings;**
2. Existing DN200 PVC watermain main in Bowlers Drive – **David to provide drawings;**
3. Pressure and flow tests had recently been undertaken by Council – **David to provide results;**
4. PW reservoir capacity will be reviewed by Council – **David to confirm**

Kind Regards,

**Harry Frederick**  
Undergraduate Engineer



## APPENDIX G - POTABLE WATER CONCEPT DESIGN DRAWINGS



NOTES :-

1. DESIGNER: NEIL LOWRY AND ASSOCIATES  
SUITE 3.09 LEVEL 3, 7-9 GIBBONS ROAD REDFERN 2016  
PH: 9526 7922  
FOR: MERIMBULA NOMINEES PTY LTD, MERIMBULA - IMLAY BOWLING CLUB & B.V.S.C.

2. MAINLAYING NOT TO PROCEED PRIOR TO FORMATION OF FOOTWAYS TO FINISHED SURFACE LEVELS.
3. MAIN TO BE LAID GENERALLY 1.6m P.L. AT STANDARD DEPTH BELOW TOP OF KERB IN FOOTWAYS OR AT ROAD DEPTH WHEN CROSSING ROADS, EXCEPT WHERE OTHERWISE SHOWN.
4. EXISTING AND PROPOSED SERVICES ARE INDICATIVE ONLY. CURRENT SERVICES SEARCH & SITE CHECK OF ALL EXISTING SERVICES WILL BE NECESSARY PRIOR TO COMMENCEMENT OF WORK & APPROPRIATE PROCEDURES, PRECAUTIONS AND CARE NEED TO BE TAKEN BY THE CONSTRUCTOR WHEN WORKING IN CLOSE PROXIMITY TO ALL SERVICES DURING CONSTRUCTION. ANY DAMAGE TO EXISTING SERVICES IS TO BE RECTIFIED AT THE CONSTRUCTORS EXPENSE.
5. CONNECTION LOCATIONS TO BE EXPOSED PRIOR TO MAINLAYING.
6. THE MINIMUM NUMBER OF COMPACTION TESTS REQUIRED TO SATISFY THE WATER SUPPLY CODE OF AUSTRALIA ARE:  
PIPE EMBEDMENT ZONE: TO BE CERTIFIED BY CONSTRUCTOR ON ITP  
TRENCH FILL ZONE - NON TRAFFICABLE : X  
TRENCH FILL ZONE - TRAFFICABLE : X
7. THE CONSTRUCTOR SHALL COMPLY WITH ALL REQUIREMENTS IN ANY REVIEW OF ENVIRONMENTAL FACTORS (REF) REPORT.
8. THE PROPOSED WORKS DETAILED HEREON ARE TO BE CONSTRUCTED IN ACCORDANCE WITH THE WATER CODE OF AUSTRALIA (NSW 03-2011). THE CONTRACTOR MUST HAVE A COPY OF THIS DOCUMENTS ON SITE AT ALL TIMES.
9. DN250 MPVC MAIN TO BE LOCATED WITHIN 1.4 WIDE EASEMENT. MAIN TO BE SURVEYED PRIOR TO BACKFILL TO ENSURE LOCATION.

LEGEND :-



A1 SHEET



ROAD CROSSINGS (ALL SIZES) PN 16

PIPE SCHEDULE				
SIZE DN	TYPE	CLASS	LENGTH	PIPE JOINING METHOD/ NOTES
150	M.P.V.C	PN 20	10m	RRJ
200	M.P.V.C	PN 16	3m	RRJ
250	M.P.V.C	PN 16	303m	RRJ
250	HDPE	PN 16	259m	FUSION WELD



APPLICATION

No.	REVISION/ISSUE	DATE	BY	CHECKED
E	TENDER ISSUE	26.04.18	NL	NL
D	TENDER ISSUE	16.04.18	NL	NL
C	TENDER ISSUE	22.03.18	NL	NL
B	TENDER ISSUE	26.02.18	NL	NL

CLIENT

ARCHITECT

HYDRAULIC CONSULTANT  
**Neil Lowry & Associates Pty Ltd**  
 hydraulic & fire services consultants  
 Suite 3.09, Level 3, 7-9 Gibbons Street, Redfern NSW 2016  
 Tel: 02 9526 7922  
 Email: admin@nlaapl.com.au  
 Neil Lowry & Associates Pty Ltd ABN 72 101 672 584

PROJECT  
**RINGMAIN CONNECTION  
 SERVICE ROAD  
 TO MAIN STREET**

DRAWING  
**WATERMAIN CONCEPT  
 SITE PLAN**

DRAWN	DESIGNED	CHECKED	DATE	SCALE
KJ	NL		FEB-18	500@A1
PROJECT	DWG No.	REV	STATUS	
XXX	WAT02	E	TENDER	