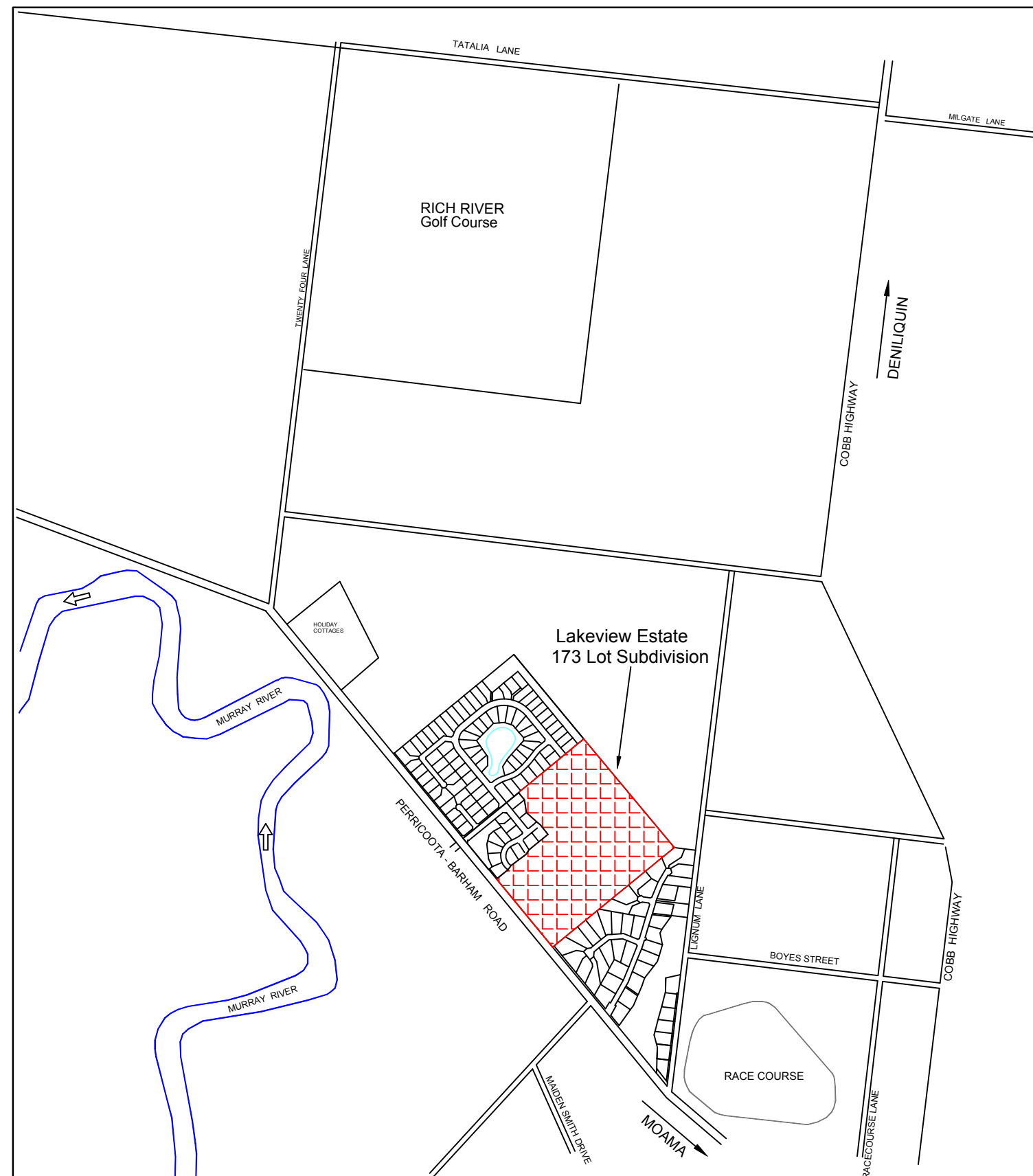




Villawood Properties Pty Ltd

Lakeview Estate - Stage 6

Drawing file: 17002 Face.dwg	LTO Ref: -	Council Ref: DA 173/11	Ref: 17002	Version 1
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LOCALITY PLAN - MOAMA

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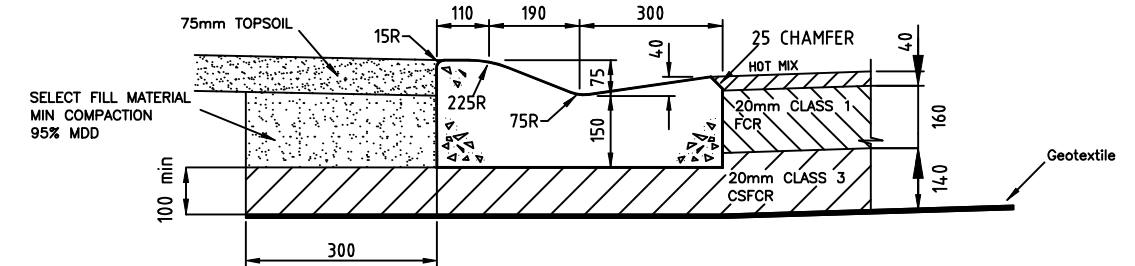


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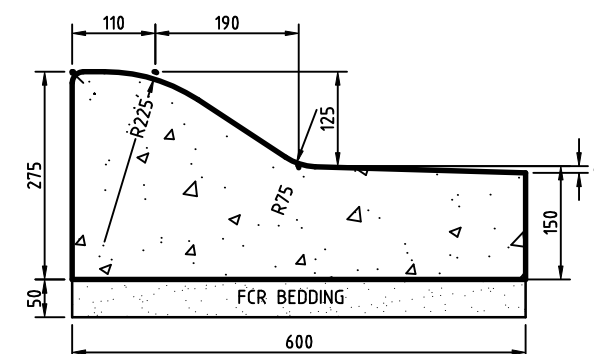
General Notes

1. Works are to comply with the current standards and specifications of the municipality. Contract is in accordance with AS2124-1992 including annexures.
2. This stage consists of Lots 121 to 135.
3. The contractor must adhere to the code of practise for "Safety Precautions in Trenching Operations" under the "Work Health and Safety Act 2011". All workers on this site must have a current WH&S General Induction for Construction Working NSW Certificate (White Card).
4. The contractor must contact all servicing authorities to arrange service locations prior to commencement of excavation for this project.
5. Easements shown on these plans are 2.0m wide drainage easements, sewer easements shown on these plans are 3.0m wide, unless indicated otherwise.
6. Drainage pipes and pits are to be at 1.0m offset to property boundaries unless shown otherwise.
7. Drainage pipes 300mm diameter and greater are to be rubber ring joint class 2 reinforced concrete unless shown otherwise. Pipes 225mm diameter and less are to be rubber ring joint uPVC.
8. Pits (including lids) are to be constructed in accordance with the current standards of the Murray River Council. Side entry pits in rollover kerb & channel are to be constructed using an approved rollover type intel. Install bullnose converted Side Entry grates to Pit 2.4 and 32.1
9. Property drainage connections (150mm diameter) are to be provided in all easement pits, and in road drainage pits where shown. Property drainage connections are to be 150mm diameter uPVC SN8 and to have 600mm minimum cover. Connections to extend into properties by a minimum of 1.0m in length. 150mm PVC pipes shown in the road reserve are for house drain connections. Property connections shall be marked with a PVC riser pipe to 600mm above ground.
10. Step irons are not to be provided in any drainage pits.
11. Pipe stubs are to consist of one full pipe length unless shown otherwise.
12. Finished levels for Side Entry Pits must be determined from kerb levels, and lids should be sloped to suit nature strips etc. The FSL's indicated in the pit schedule are not kerb levels.
13. All trenches crossing pavement areas or beneath kerb or footpath are to be backfilled with 3% cement stabilised class 3 crushed rock.
14. Fill areas are to be cleared and stripped of all organic material and topsoil prior to placement of selected fill material. Fill areas are to be inspected by the supervising Engineer prior to any fill being placed. Fill is to be placed and compacted in layers, with a minimum compaction of 95% of the maximum dry density as determined by the standard compaction test being achieved. 98% of maximum dry density must be achieved within road pavement areas.
15. All concrete must have a minimum compressive strength of 25MPa at 28 days. Kerb & Channel concrete must have an equivalent strength using not less than 280kg of cement per m3 of concrete.
16. Maximum driveway grade for any allotment is 1 in 7.
17. Minimum finished grade on any allotment is 1 in 200.
18. Raw and treated water services crossing roads to be 32mm PN8 poly (if two properties being connected) or 25mm PN8 poly (if single property connected) sleeved in 50mm Class 12 uPVC service conduits.
19. Raw and treated water tapplings including saddles, 20mm Ø copper service connections, meter stop tap (treated) and ball valve (raw) to be provided 1m inside allotments. Tapping saddles are to be gunmetal style only.
20. All sewer manhole covers are to be solid ductile iron Class D covers and frame with concrete surround.
21. 50mm diameter Class 12 uPVC service conduits are to be provided for water and gas services at the locations indicated on the plans.
22. Electricity cable conduits are to be installed as shown on the Power cable reticulation plan, in accordance with the requirements and specifications of Essential Energy.
23. NBN conduits are to be installed as shown on the NBN cable plan.
24. The location of all service conduits is to be marked 5mm into the face of both kerbs, immediately above the conduit with a uniform 50mm high letter (W,G,E,T etc.). Where conduits cross footpaths, the location is to be marked in the path (near the edge) in the same fashion.
25. Nature strips are to be topsoiled to a depth of approximately 100mm using material stockpiled from stripping, or approved imported material.
26. Pavement Testing. Tests to be completed at a frequency of 1 test per 500m2 of pavement with test locations approximately 1 metre offset from the kerb & measured at 2/3 of the layer depth. Court bowls to be tested in 3 locations & intersections in 2. Pavement material to be placed and compacted in layers with minimum compaction of 100% of the maximum dry density as determined by the modified compaction test being achieved. Testing of trenches required as well as testing behind Kerb and channel.
27. All drainage and sewer pipes are to be inspected via CCTV after installation with a hard copy required to be provided to the Murray River Council. CCTV must include grades.
28. Side entry pit throat clearance to be 100mm max.
29. All pit lids to be constructed by Terra Firma Industries or similar.

MURRAY SHIRE COUNCIL
MODIFIED SM2 K&G & PAVEMENT DETAILS



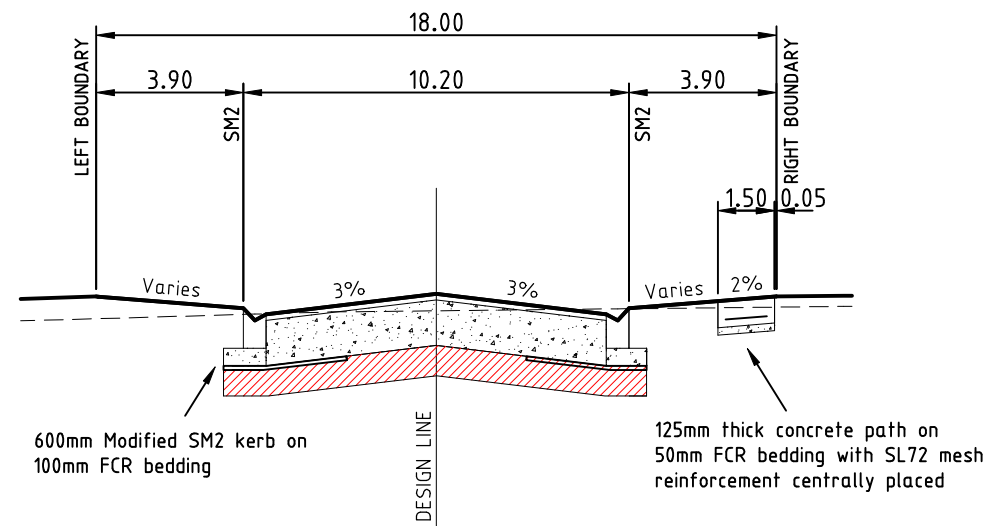
MEDIAN & ROUNDABOUT
CENTRE ISLAND DETAIL (SM3)



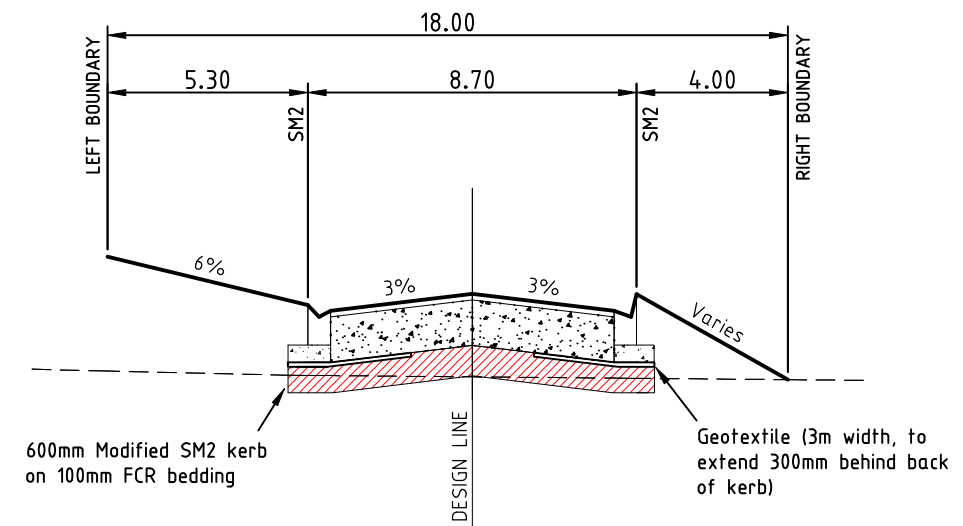
Pavement Composition & Notes

1. PAVEMENT COMPOSITION: APERA AVENUE, LAKEVIEW DRIVE, RIESLING DRIVE
 - a) 40mm DEPTH HOT MIX ASPHALT
 - b) 160mm DEPTH CONSOLIDATED 20mm CLASS 1 FCR (BASE COURSE)
 - c) 140mm DEPTH CONSOLIDATED 20mm CLASS 3 FCR (SUBBASE)
 - d) A14 BIDIM NONWOVEN GEOTEXTILE (EXTENDS 300mm BEHIND BACK OF KERB)
 - e) 300mm DEPTH IN SITU STABILISATION OF SUBGRADE MATERIAL (3% LIME & 1% CEMENT BY MASS)
2. The location of all service conduits is to be marked 5mm into the face of both kerbs, immediately above the conduit with a uniform 50mm high letter (W,G,E,T etc.). Where conduits cross footpaths, the location is to be marked in the path (near the edge) in the same fashion.
3. Nature strips are to be topsoiled to a depth of approximately 100mm using material stockpiled from stripping, or approved imported material.

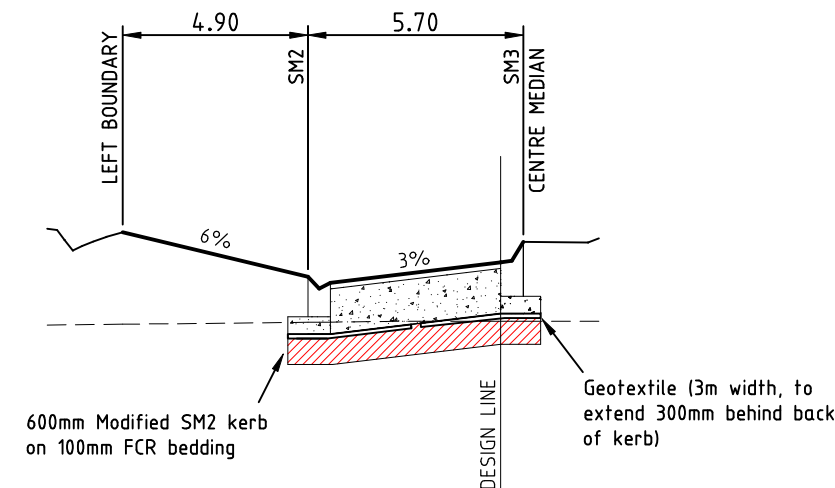
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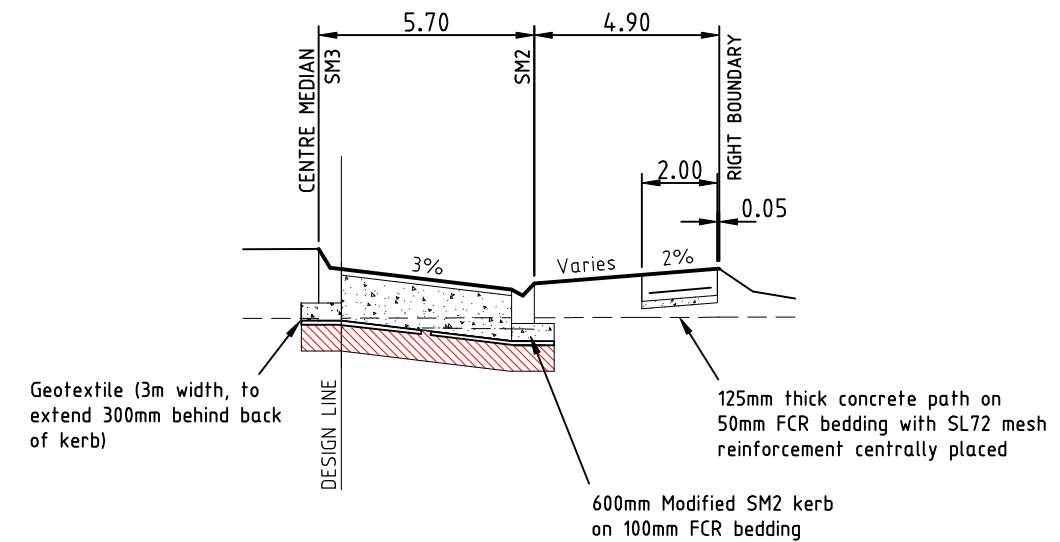
Typical Cross Section - Apera Avenue CH80-223.20



Typical Cross Section - Riesling Drive CH860-882.51

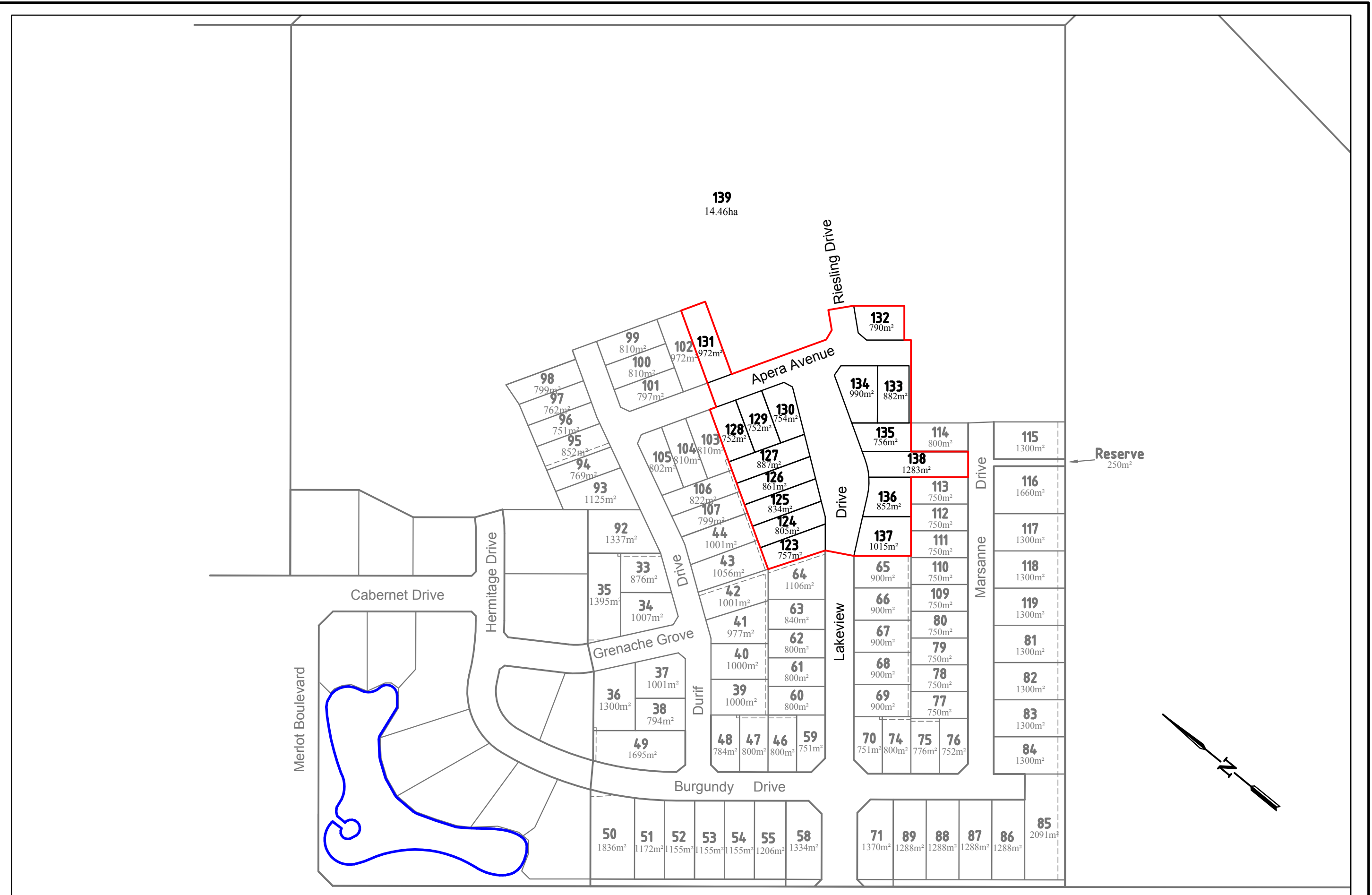


Typical Cross Section - Lakeview Drive CH250-374.36



Typical Cross Section - Lakeview Drive (East Median) CH40-141.72

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4			Lakeview Estate - Stage 6											
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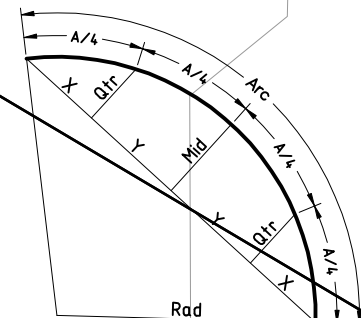


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WARNING

BEWARE OF UNDERGROUND SERVICES

THE LOCATION OF UNDERGROUND SERVICES ARE APPROXIMATE ONLY AND THEIR EXACT POSITION SHOULD BE PROVEN ON SITE. NO GUARANTEE IS GIVEN THAT ALL EXISTING SERVICES ARE SHOWN.



Curve Setout Detail

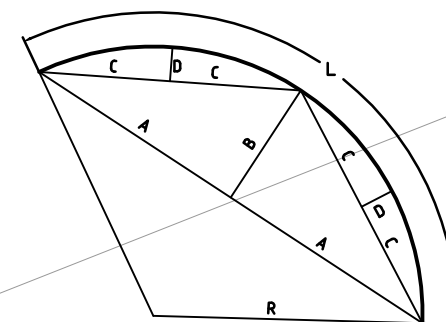
124
805m²

123
757m²

834m²

138
1283m²

136
852m²



Curve Setout Detail



R 34.90
A 4.32
B 0.27
C 2.16
D -
L 8.66

R 34.30
A 9.70
B 1.40
C 4.90
D 0.35
L 19.68

R 40.60
A 4.56
B 0.26
C 2.88
D -
L 9.16

R 40.00
A 11.32
B 1.64
C 5.72
D 0.41
L 22.96

R 80.00
A 3.06
B 0.06
C 1.53
D -
L 6.13

Lakeview Drive

MATCH EXISTING

Designed
R. Dawborn
Aug 2017

Checked
N. Bowe
Aug 2017

Approved

Notes/Legend
PLEASE NOTE THAT CONTOURS SHOWN ON PLAN INDICATE THE APPROXIMATE FINISHED SURFACE. CONTOUR INTERVAL 0.1m



Civil Engineers
Project Managers
Development Consultants

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Scale (m) 1:200 0 2 4

All lengths are in metres
and all levels are to Australian Height Datum
(Original Sheet Size is A3)

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17002 Int.dwg

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DA 173/11

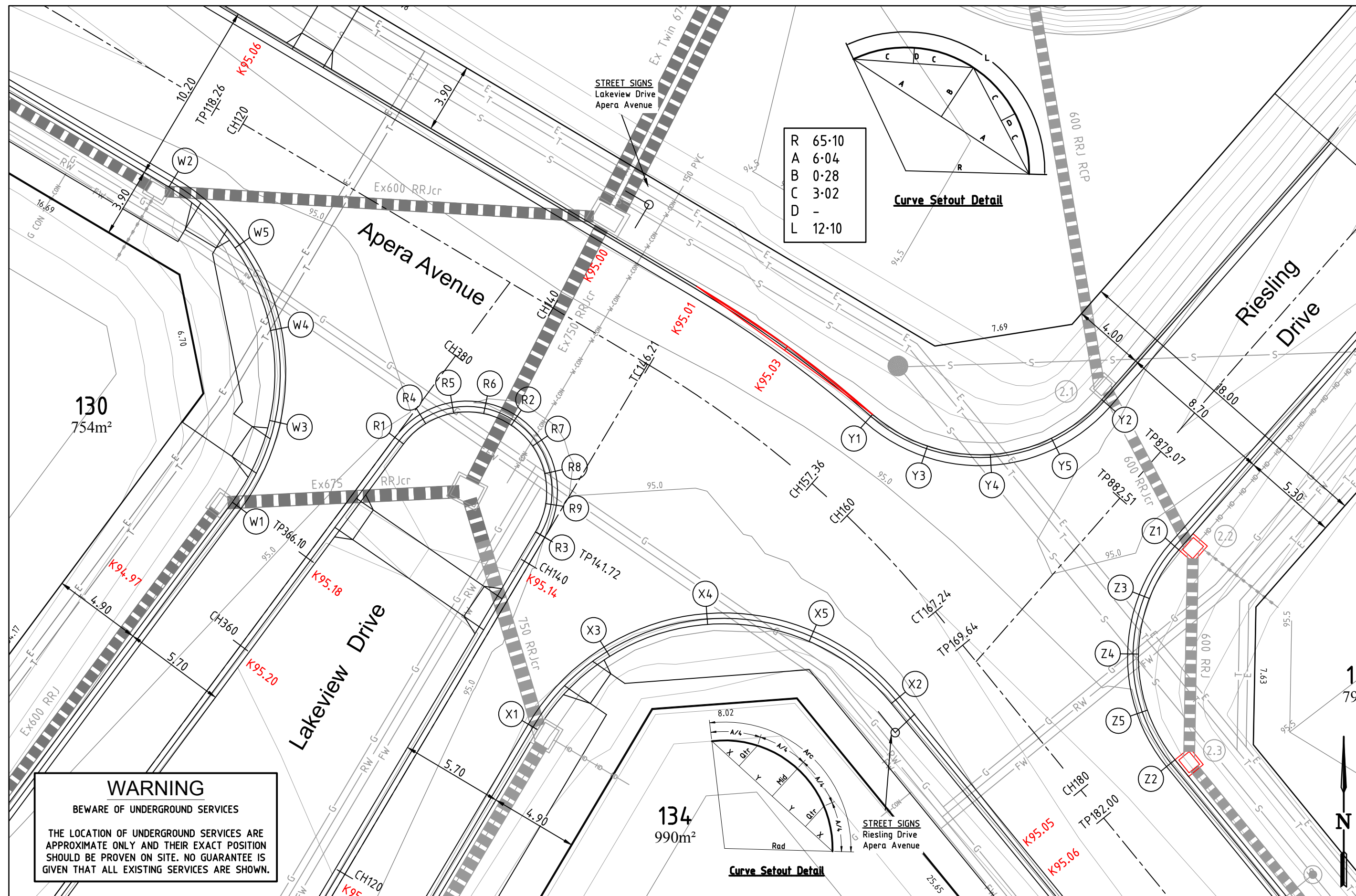
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Murray River Council - Moama
Villawood Properties Pty Ltd
Lakeview Estate - Stage 6
Island Detail

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4			Aug 2017	Aug 2017
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Ver	Revision Description	Date		

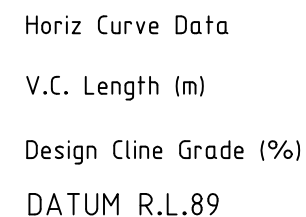
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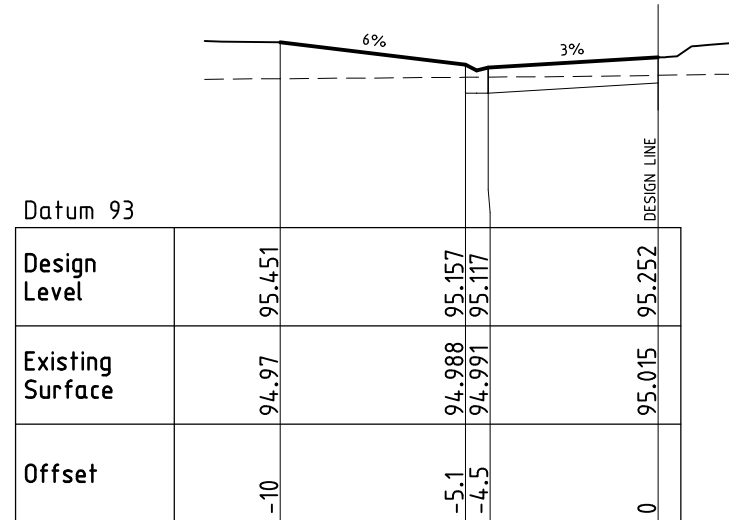
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Murray River Council - Moama
Villawood Properties Pty Ltd
Lakeview Estate - Stage 6
Intersection Detail

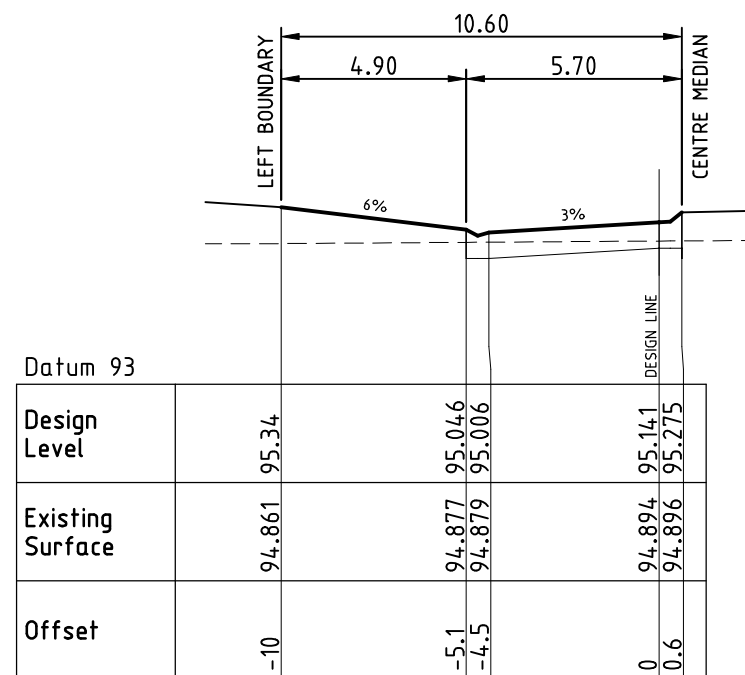
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LONGITUDINAL SECTION - Lakeview Drive

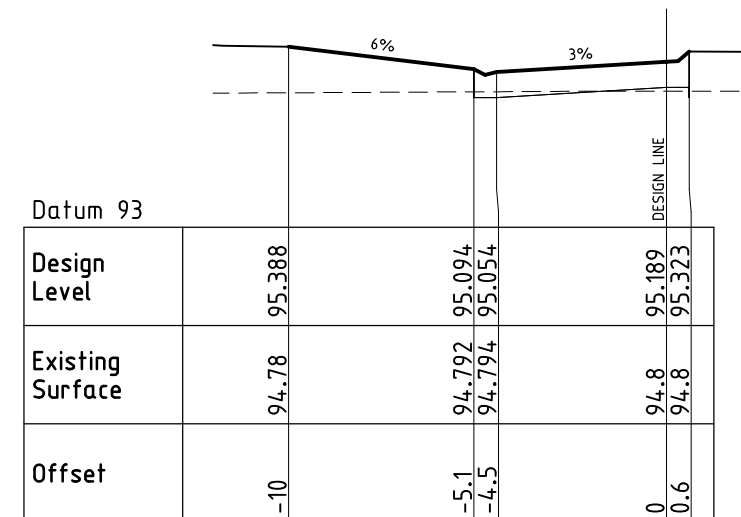
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4			Lakeview Estate - Stage 6											
3			Lakeview Drive Longitudinal Section											
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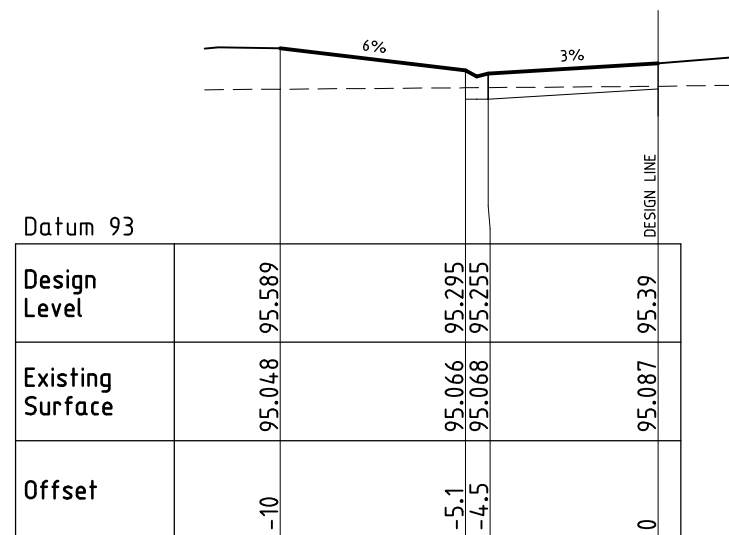
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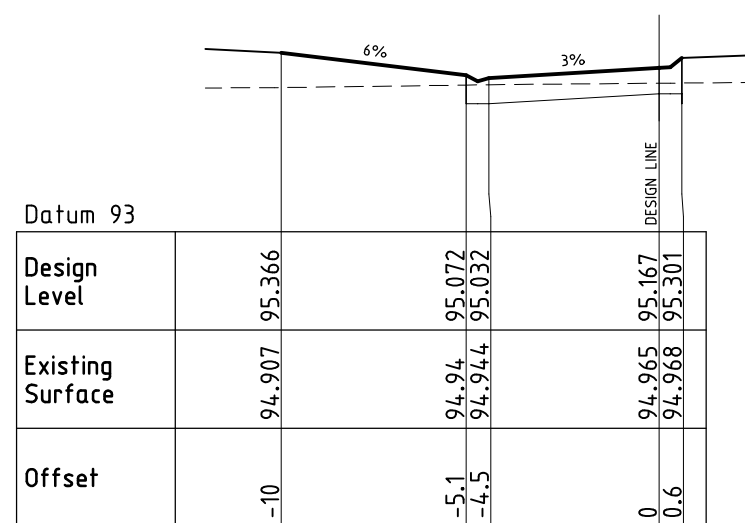
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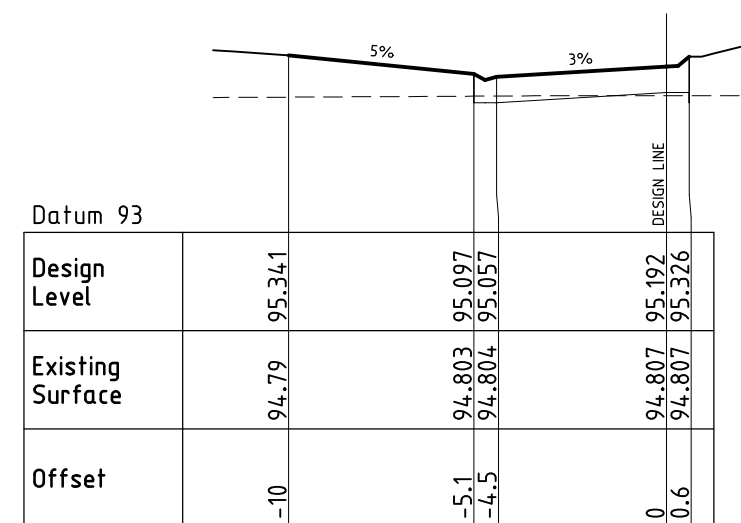
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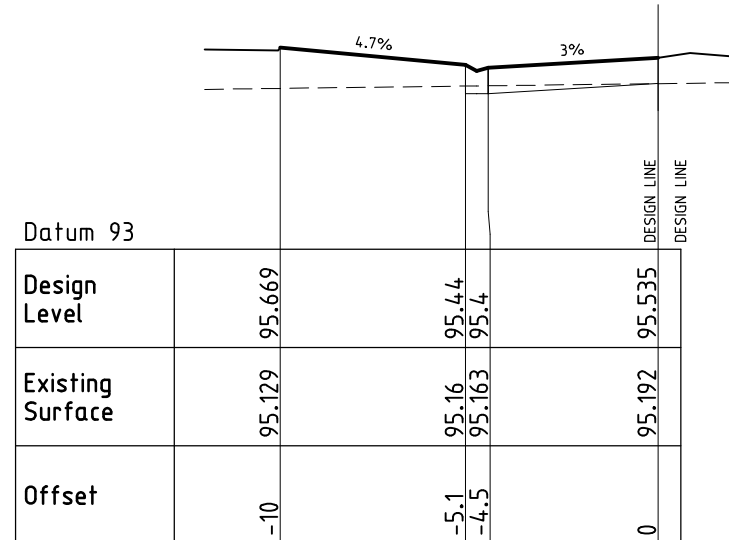
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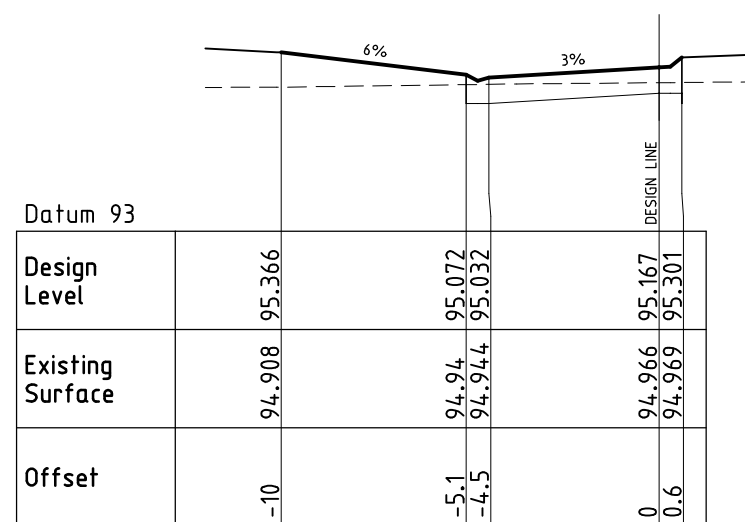
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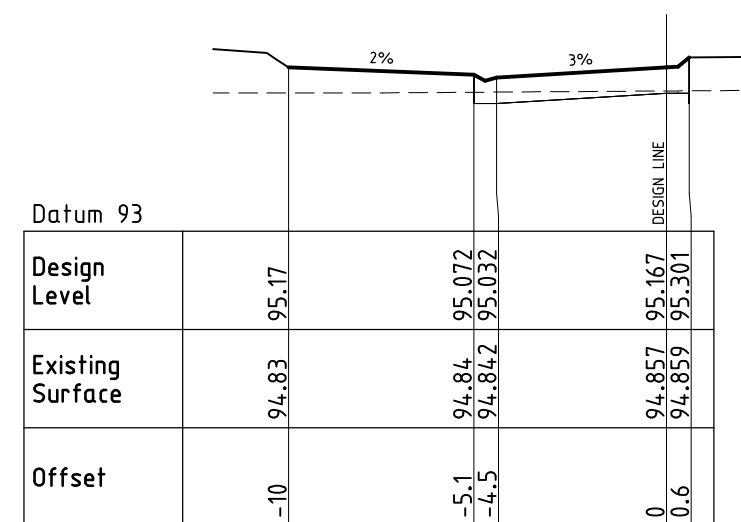
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CH 250 - MATCH EXISTING



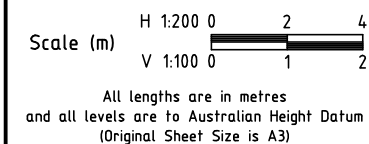
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CH 300

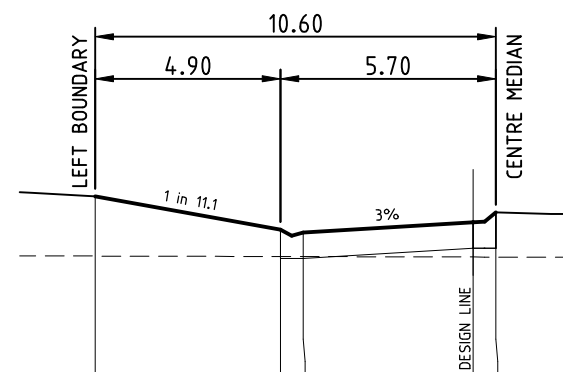
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4			Aug 2017	Aug 2017
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Ver	Revision Description	Date		

Notes/Legend



Murray River Council - Moama
Villawood Properties Pty Ltd
Lakeview Estate - Stage 6
Lakeview Drive Cross Sections

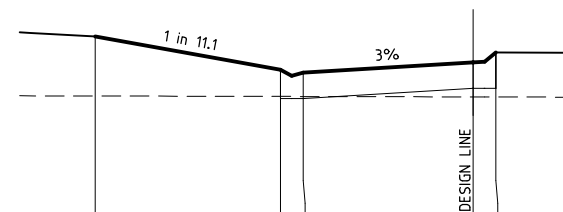
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Datum 93

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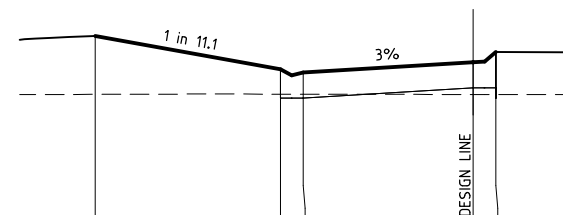
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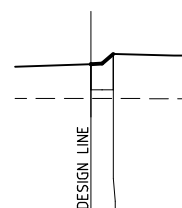
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CH 340



Datum 93

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TP 374.357

6			Designed	Checked
5			R. Dawborn	N. Bowe
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3			Approved	
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Ver	Revision Description	Date		

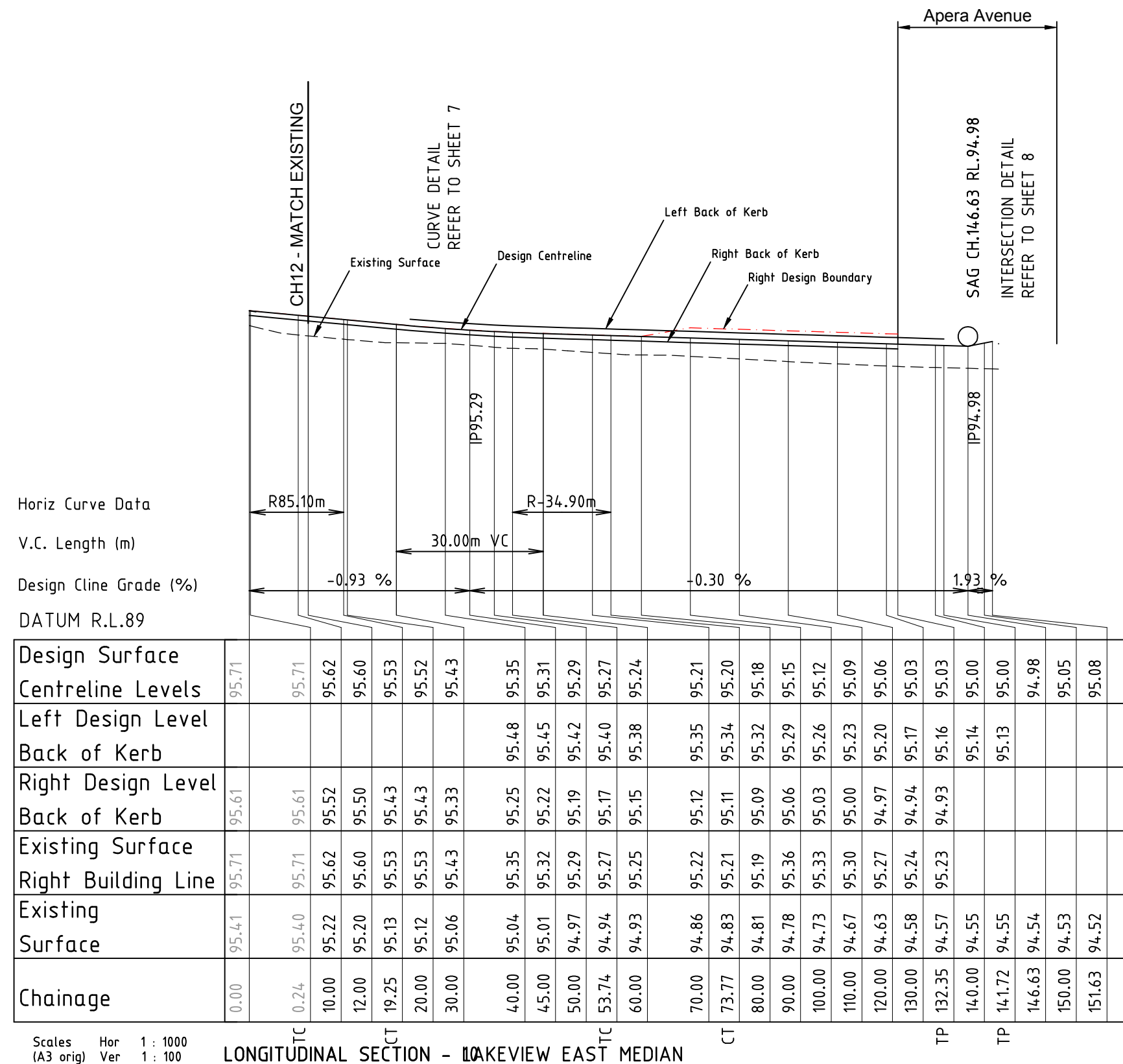
Notes/Legend



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17002 Lakeview.dwg	-

Murray River Council - Moama				
Villawood Properties Pty Ltd				
Lakeview Estate - Stage 6				
Lakeview Drive Cross Sections 2				
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LONGITUDINAL SECTION - LAKEVIEW EAST MEDIAN

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Ver	Revision Description	Date

Designed R. Dawborn Aug 2017	Checked N. Bowe Aug 2017
Approved	

Notes/Legend



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Civil Engineers
Project Managers
Development Consultants

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& Rowena Street
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Ph: 03 5442 5799
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Scale (m)

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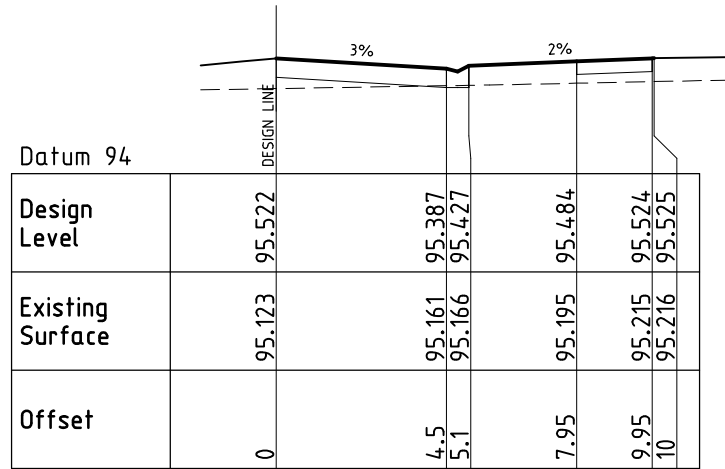
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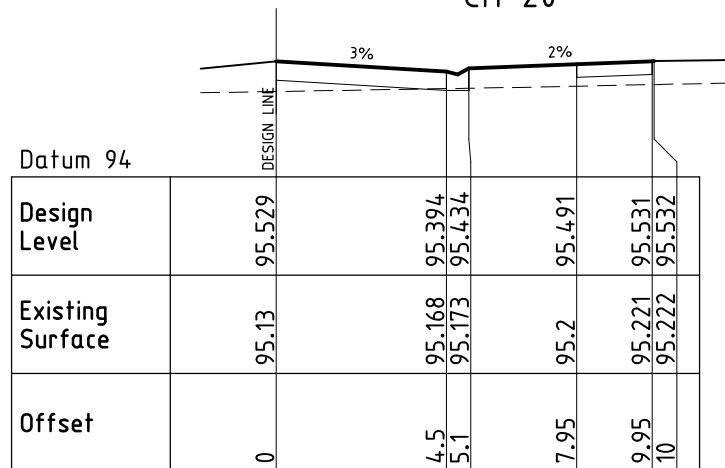
Murray River Council - Moama

Villawood Properties Pty Ltd
Lakeview Estate - Stage 6
Lakeview Drive East Median Longitudinal Section

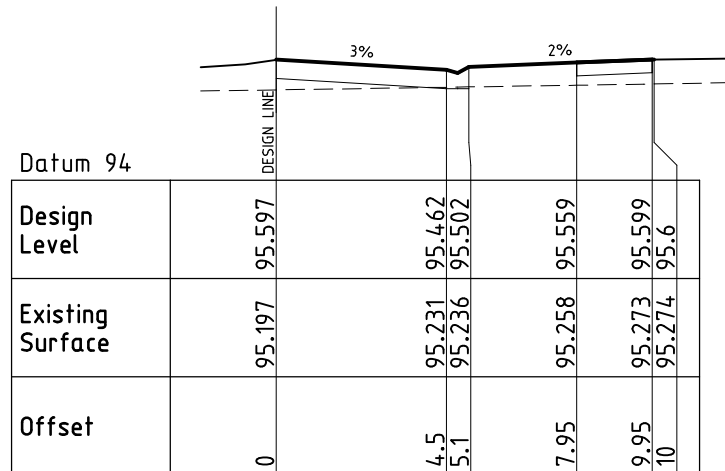
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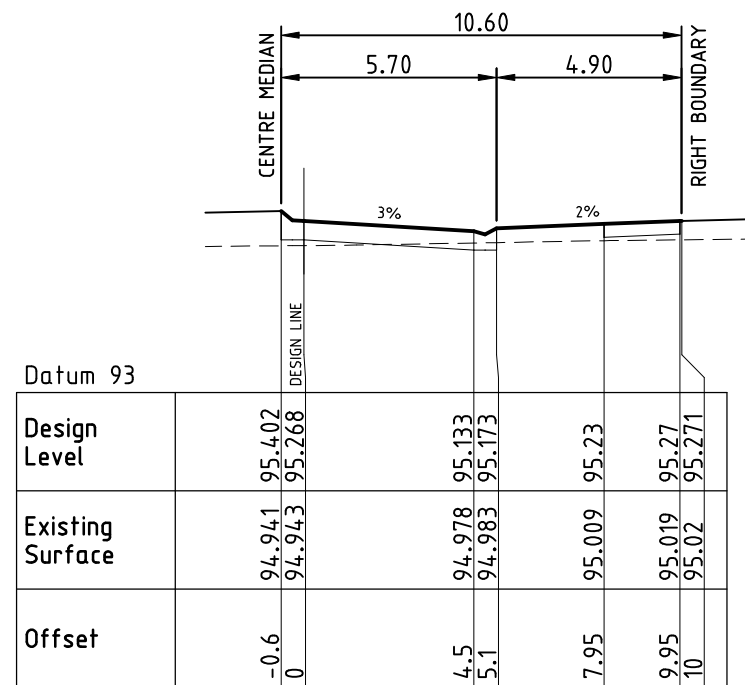
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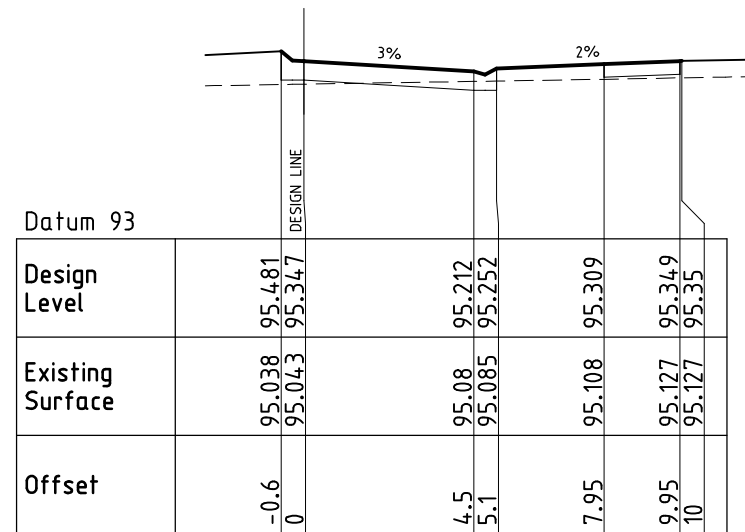
CH 40



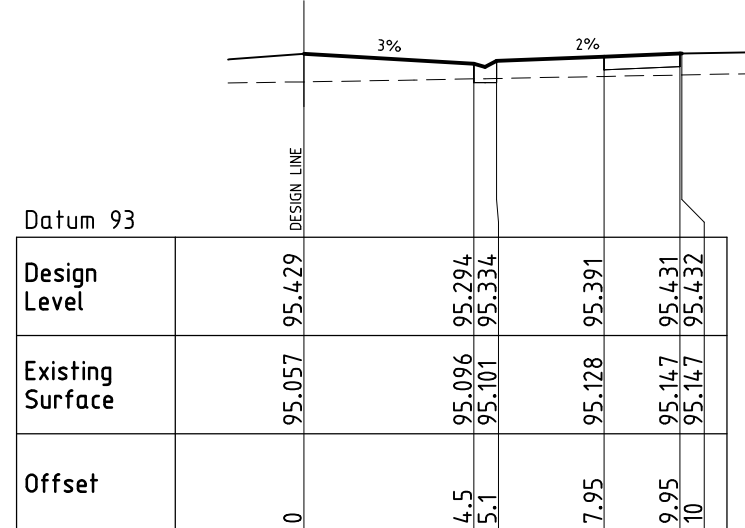
CH 60 - MATCH EXISTING



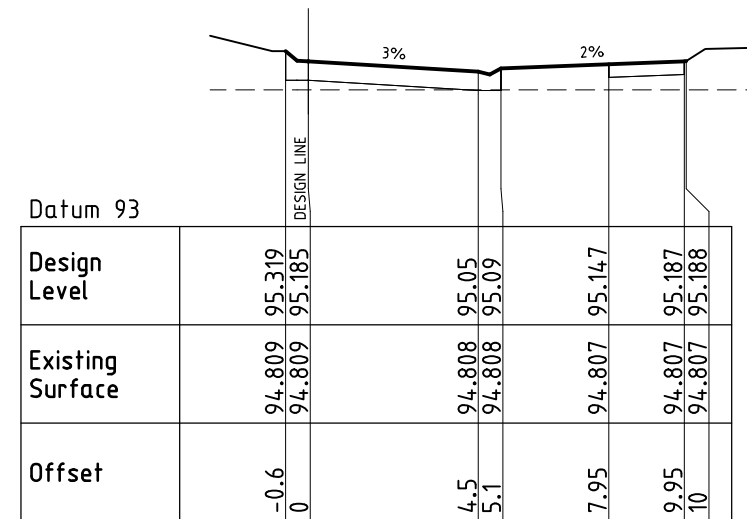
CH 80



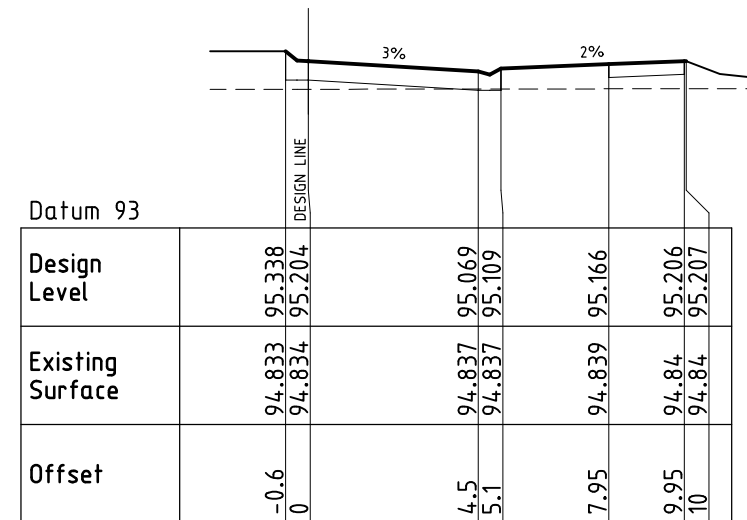
CH 100



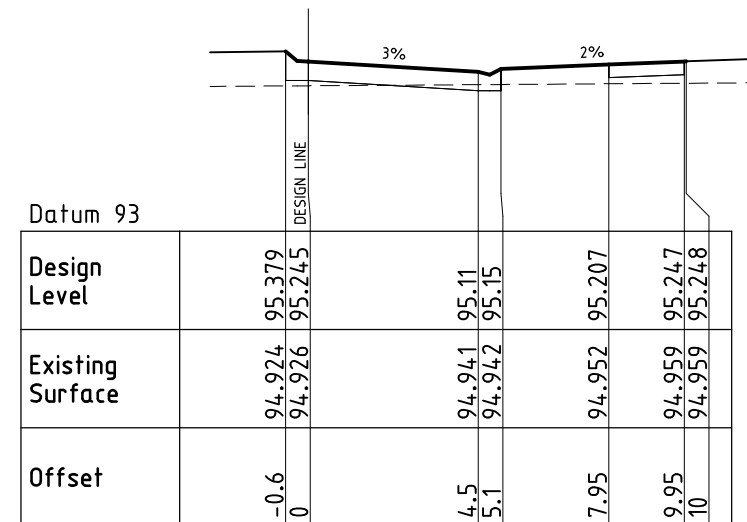
CH 120



CH 140



CH 160



CH 180

6			Designed	Checked
5			R. Dawborn	N. Bowe
4			Aug 2017	Aug 2017
3				
2			Approved	
1	Original Issue	23/8/2017		
0	Draft	25/7/2017		
Ver	Revision Description	Date		

Notes/Legend

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Civil Engineers
Project Managers
Development Consultants

Scale (m)

H 1:200 0 2 4

V 1:100 0 1 2

All lengths are in metres
 and all levels are to Australian Height Datum
 (Original Sheet Size is A3)

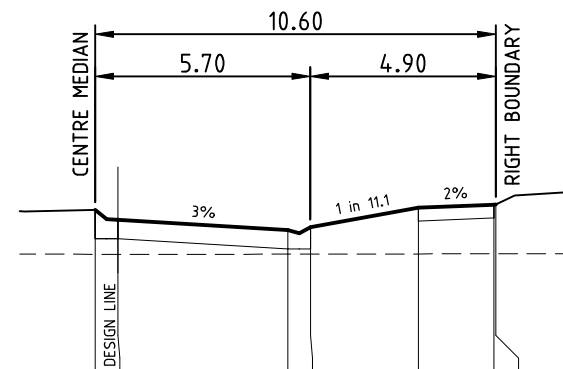
Drawing file: 17002 Lakeview.dwg

LTO Ref: -

Murray River Council - Moama

Villawood Properties Pty Ltd
Lakeview Estate - Stage 6
Lakeview Drive East Median Cross Sections

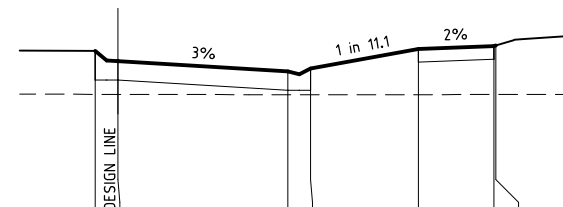
Council Ref: DA 173/11	Our Ref: 17002	Version: 1	Sheet: 14 of 28
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Datum 93

Design Level	95.162	95.028	94.893	94.933	95.189	95.229	95.234
Existing Surface	94.574	94.573	94.575	94.576	94.579	94.58	94.58
Offset	-0.6	0	4.5	5.1	7.95	9.95	10

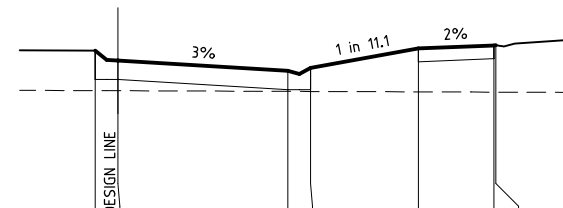
TP 132.345



Datum 93

Design Level	95.199	95.065	94.93	94.97	95.226	95.266	95.271
Existing Surface	94.627	94.626	94.622	94.623	94.623	94.623	94.623
Offset	-0.6	0	4.5	5.1	7.95	9.95	10

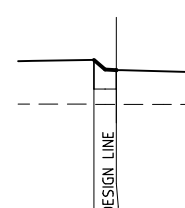
CH 120



Datum 93

Design Level	95.259	95.125	94.99	95.03	95.286	95.326	95.331
Existing Surface	94.729	94.728	94.719	94.718	94.713	94.709	94.709
Offset	-0.6	0	4.5	5.1	7.95	9.95	10

CH 100

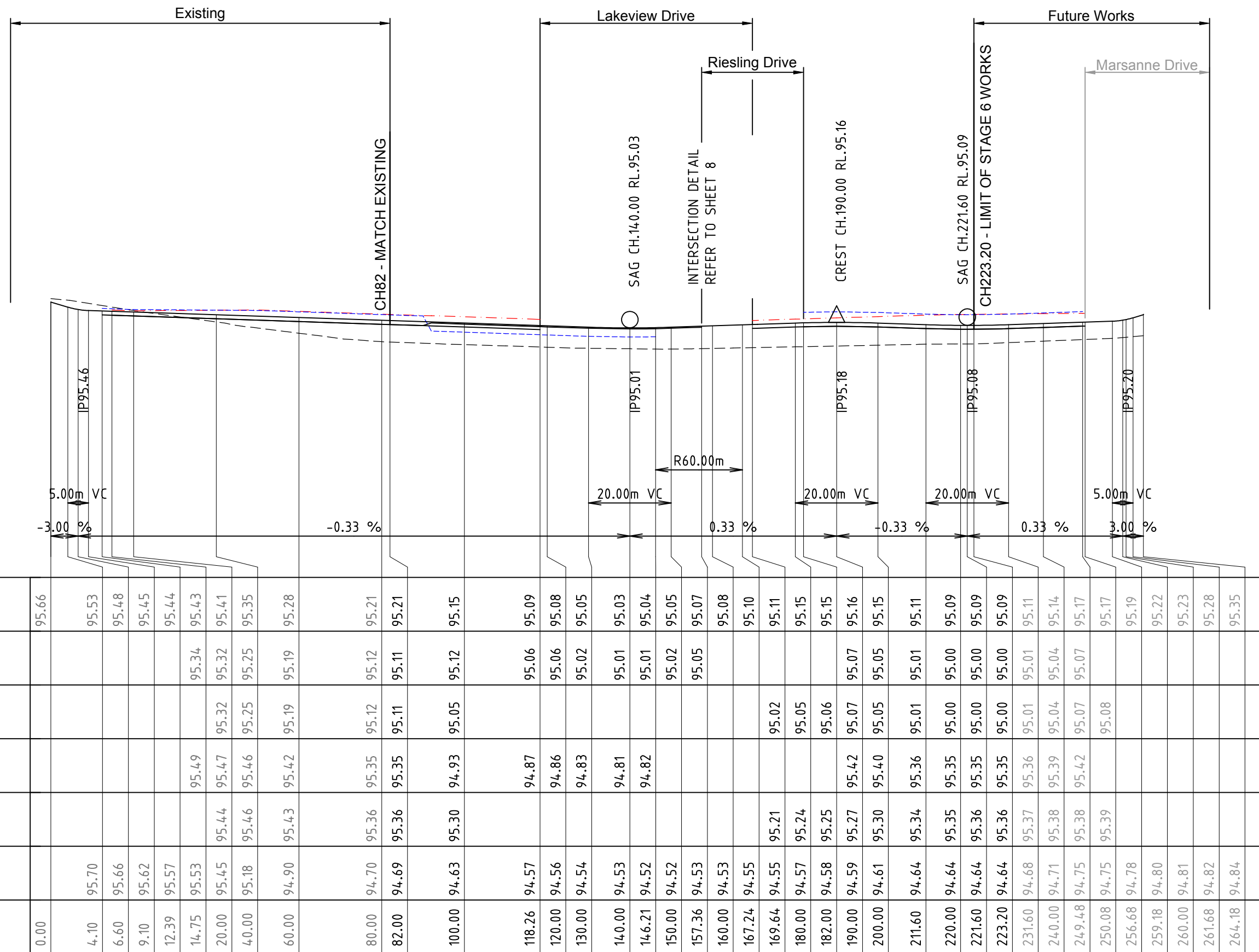


Datum 93

Design Level	95.134	95.134	95.134	95.134
Existing Surface	94.549	94.548	94.548	94.548
Offset	-0.6	0	4.5	5.1

TP 141.718

6			Designed R. Dawborn Aug 2017	Checked N. Bowe Aug 2017	Notes/Legend	<div><div>Civil Engineers Project Managers Development Consultants</div></div>	Terraco P/L ABN 12 681 695 776 Corner Jewell Court & Rowena Street Bendigo Vic 3550 Ph: 03 5442 5799 Fax: 03 5441 5506 E: info@terraco.com.au	Scale (m) H 1:200 0 2 4 V 1:100 0 1 2 All lengths are in metres and all levels are to Australian Height Datum (Original Sheet Size is A3)	Murray River Council - Moama									
5									Villawood Properties Pty Ltd									
4									Lakeview Estate - Stage 6									
3									Lakeview Drive East Median Cross Sections 2									
2			Approved															
1	Original Issue	23/8/2017																
0	Draft	25/7/2017																
Ver	Revision Description	Date										Drawing file: 17002 Lakeview.dwg	LTO Ref: -	Council Ref: DA 173/11		Our Ref: 17002	Version 1	Sheet 15 of 28



TP	TC	TP	CT	TC	TC	TC	TC
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Notes/Legend	

H 1:1000 0 10 20
V 1:100 0 1 2

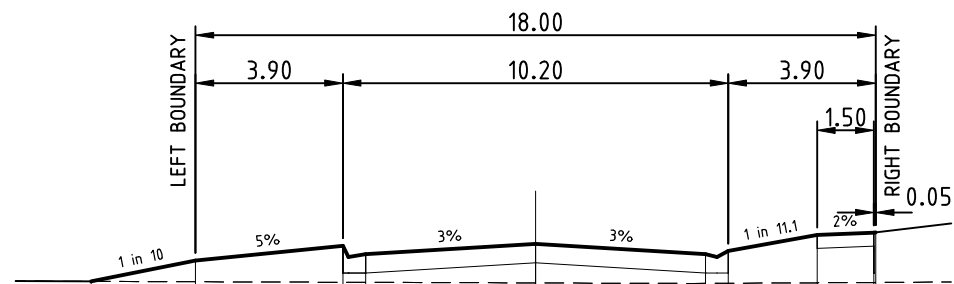
Scale (m)

All lengths are in metres
and all levels are to Australian Height Datum
(Original Sheet Size is A3)

Drawing file:
17002 Apera.dwg

LTO Ref:
-

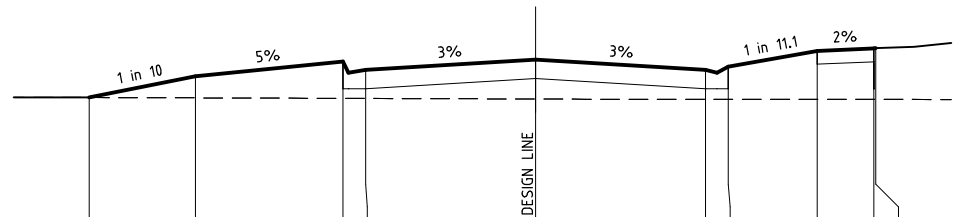
<p>Murray River Council - Moama</p> <p>Villawood Properties Pty Ltd</p> <p>Lakeview Estate - Stage 6</p> <p>Apera Avenue Longitudinal Section</p>				
Council Ref: DA 173/11		Our Ref: 17002	Version 1	Sheet 16 of 28



Datum 93

Design Level	94.591	94.866	95.061	94.951	95.086	94.951	94.991	95.203	95.233	95.237
Existing Surface	94.591	94.586	94.579	94.578	94.57	94.564	94.566	94.572	94.576	94.576
Offset	-11.757	-9	-5.1	-4.5	0	4.5	5.1	7.45	8.95	9

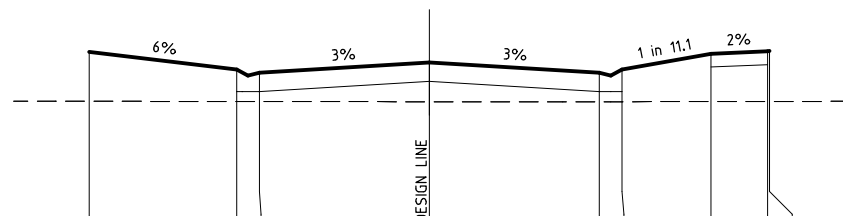
TP 118.264



Datum 93

Design Level	94.646	94.927	95.122	95.012	95.147	95.012	95.052	95.264	95.294	95.298
Existing Surface	94.646	94.641	94.635	94.634	94.626	94.623	94.622	94.621	94.621	94.621
Offset	-11.81	-9	-5.1	-4.5	0	4.5	5.1	7.45	8.95	9

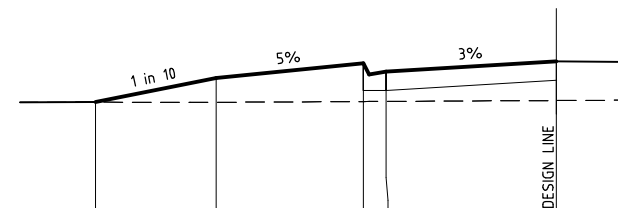
CH 100



Datum 93

Design Level	95.346	95.112	95.072	95.207	95.072	95.324	95.354	95.358
Existing Surface	94.695	94.69	94.69	94.688	94.687	94.69	94.691	94.691
Offset	-9	-5.1	-4.5	0	4.5	5.1	7.45	8.95

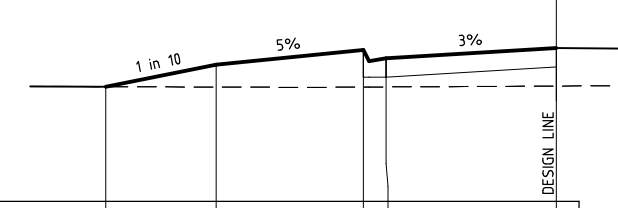
CH 82 - MATCH EXISTING



Datum 93

Design Level	94.498	94.817	95.012	94.902	95.037
Existing Surface	94.498	94.496	94.506	94.507	94.519
Offset	-12.188	-9	-5.1	-4.5	0

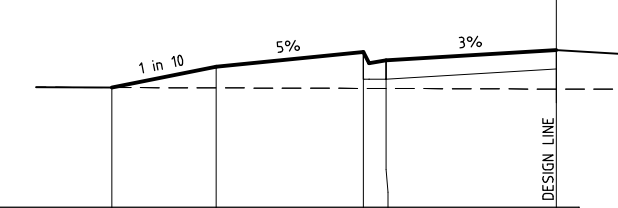
TC 146.215



Datum 93

Design Level	94.518	94.81	95.005	94.895	95.03
Existing Surface	94.518	94.513	94.513	94.515	94.526
Offset	-11.921	-9	-5.1	-4.5	0

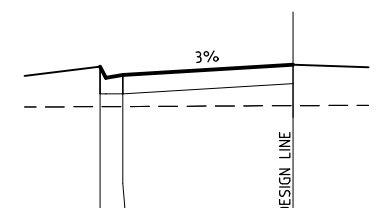
CH 140



Datum 93

Design Level	94.585	94.86	95.055	94.945	95.08
Existing Surface	94.585	94.58	94.573	94.572	94.564
Offset	-11.757	-9	-5.1	-4.5	0

CH 120



Datum 93

Design Level	95.047	94.937	95.072
Existing Surface	94.517	94.519	94.53
Offset	-5.1	-4.5	0

TP 157.364

6			Designed	Checked	
5			R. Dawborn	N. Bowe	
4			Aug 2017	Aug 2017	
3					
2			Approved		
1	Original Issue	23/8/2017			
0	Draft	25/7/2017			
Ver	Revision Description	Date			

Notes/Legend	



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Civil Engineers
 Project Managers
 Development Consultants

Scale (m)

H 1:200 0 2 4
 V 1:100 0 1 2

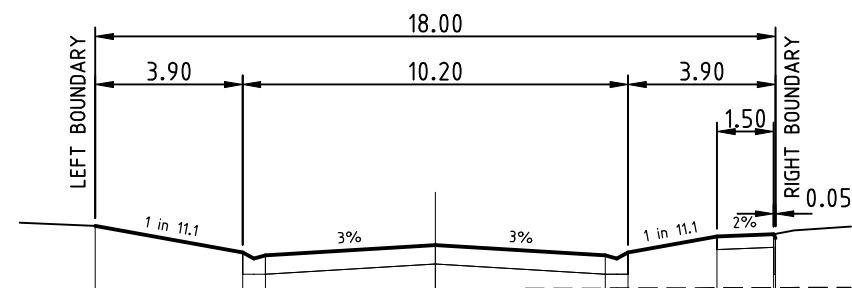
All lengths are in metres
 and all levels are to Australian Height Datum
 (Original Sheet Size is A3)

Drawing file: 17002 Apera.dwg
 LTO Ref: -

Murray River Council - Moama

Villawood Properties Pty Ltd
 Lakeview Estate - Stage 6
 Apera Avenue Cross Sections

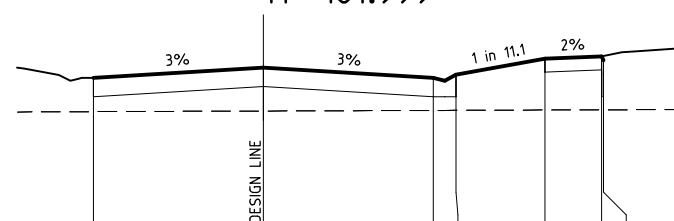
Council Ref: DA 173/11
 Our Ref: 17002
 Version: 1
 Sheet: 17 of 28



Datum 93

Design Level	95.409	95.058	95.018	95.153	95.018	95.058	95.27	95.3	95.249
Existing Surface	94.566	94.567	94.569	94.577	94.585	94.586	94.59	94.592	94.593
Offset	-9	-5.1	-4.5	0	4.5	5.1	7.45	8.95	9

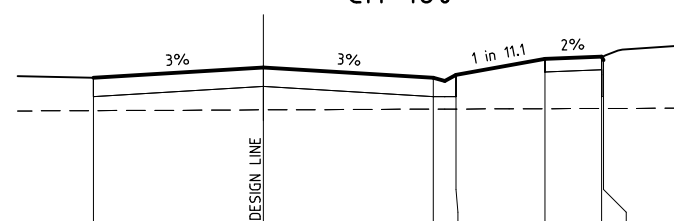
TP 181.999



Datum 93

Design Level	95.012	95.147	95.012	95.052	95.264	95.294	95.242
Existing Surface	94.565	94.573	94.581	94.582	94.587	94.589	94.589
Offset	-4.5	0	4.5	5.1	7.45	8.95	9

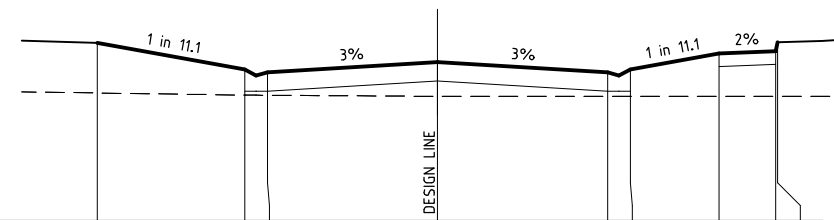
CH 180



Datum 93

Design Level	94.978	95.113	94.978	95.018	95.229	95.259	95.211
Existing Surface	94.544	94.554	94.564	94.565	94.57	94.572	94.573
Offset	-4.5	0	4.5	5.1	7.45	8.95	9

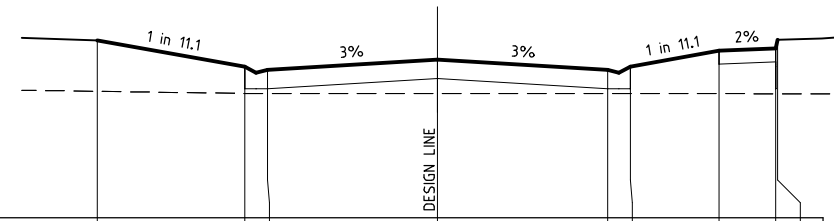
TP 169.638



Datum 93

Design Level	95.35	94.999	94.959	95.094	94.959	95.211	95.241	95.358
Existing Surface	94.687	94.659	94.657	94.644	94.644	94.644	94.643	94.643
Offset	-9	-5.1	-4.5	0	4.5	5.1	7.45	8.95

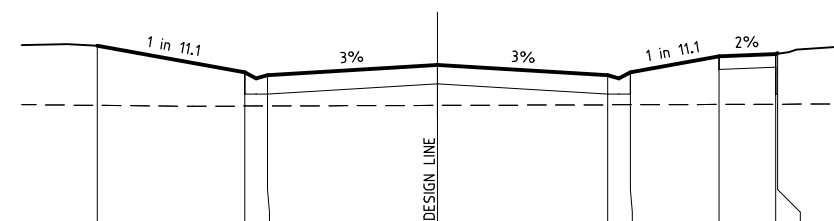
CH 223.20 - LIMIT OF STAGE 6 WORKS



Datum 93

Design Level	95.348	94.997	94.957	95.092	94.957	95.209	95.239	95.355
Existing Surface	94.673	94.645	94.644	94.642	94.642	94.642	94.641	94.641
Offset	-9	-5.1	-4.5	0	4.5	5.1	7.45	8.95

CH 220

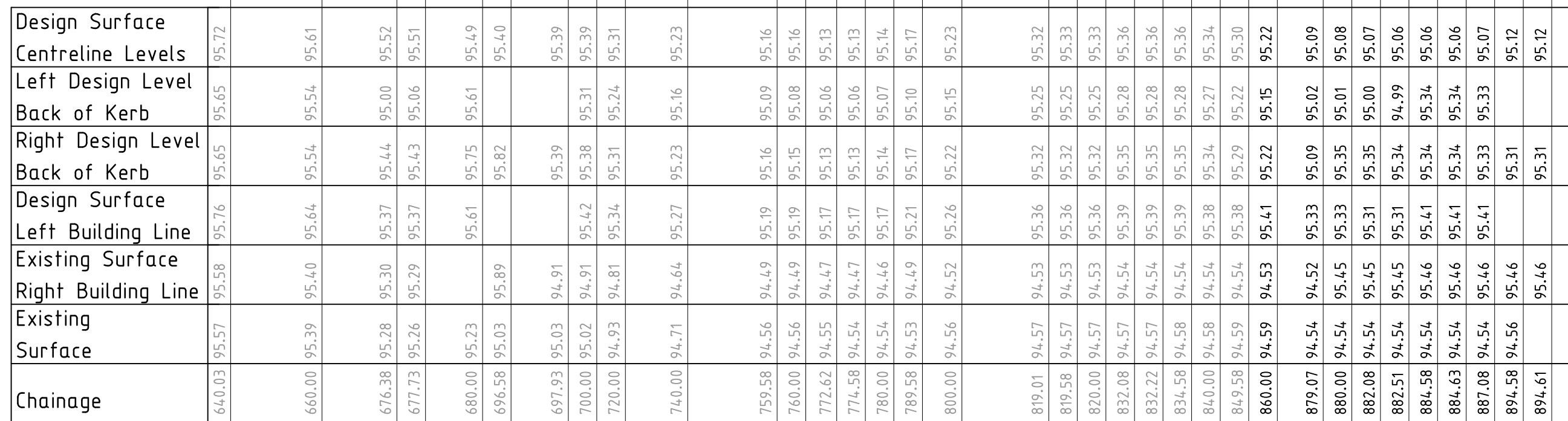


Datum 93

Design Level	95.403	95.052	95.012	95.147	95.012	95.264	95.294	95.304
Existing Surface	94.614	94.604	94.605	94.613	94.621	94.622	94.626	94.628
Offset	-9	-5.1	-4.5	0	4.5	5.1	7.45	8.95

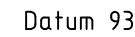
CH 200

6			Designed R. Dawborn Aug 2017	Checked N. Bowe Aug 2017	Notes/Legend	<div><div>Terraco P/L ABN 12 681 695 776 Corner Jewell Court & Rowena Street Bendigo Vic 3550 Ph: 03 5442 5799 Fax: 03 5441 5506 E: info@terraco.com.au</div><div>Civil Engineers Project Managers Development Consultants</div></div>	<div><div>Scale (m)</div><div><div>H 1:200 0 2 4</div><div>V 1:100 0 1 2</div></div><div>All lengths are in metres and all levels are to Australian Height Datum (Original Sheet Size is A3)</div></div>	Murray River Council - Moama					
5								Villawood Properties Pty Ltd					
4								Lakeview Estate - Stage 6					
3								Apera Avenue Cross Sections 2					
2			Approved				Drawing file:	LTO Ref:	Council Ref:		Our Ref:	Version	Sheet
1	Original Issue	23/8/2017					17002 Apera.dwg	-	DA 173/11		17002	1	18 of 28
0	Draft	25/7/2017											
Ver	Revision Description	Date											



LONGITUDINAL SECTION - 3

6			Designed R. Dawborn Aug 2017	Checked N. Bowe Aug 2017	Notes/Legend	<div><p>TERRACO Civil Engineers Project Managers Development Consultants</p></div>	<div><p>Terraco P/L</p><p>ABN 12 681 695 776</p><p>Corner Jewell Court & Rowena Street Bendigo Vic 3550 Ph: 03 5442 5799 Fax: 03 5441 5506 E: info@terraco.com.au</p></div>	<div><p>Scale (m)</p><div><div>H 1:1000 01020</div><div>V 1:100 012</div></div><p>All lengths are in metres and all levels are to Australian Height Datum (Original Sheet Size is A3)</p></div>	Murray River Council - Moama									
5									Villawood Properties Pty Ltd									
4			Lakeview Estate - Stage 6															
3			Riesling Drive Longitudinal Section															
2																		
1	Original Issue	23/8/2017	Approved						<div><p>Drawing file: 17002 Riesling.dwg</p><p>LTO Ref: -</p></div>			Council Ref: DA 173/11		Our Ref: 17002	Version 1	Sheet 19 of 28		
0	Draft	25/7/2017																
Ver	Revision Description	Date																

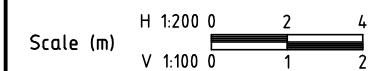


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5				
4				
3				
2				
1	Original Issue	23/8/2017	Approved	
0	Draft	25/7/2017		
Ver	Revision Description	Date		

Notes/Legend



Terraco P/L
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Corner Jewell Court
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Bendigo Vic 3550
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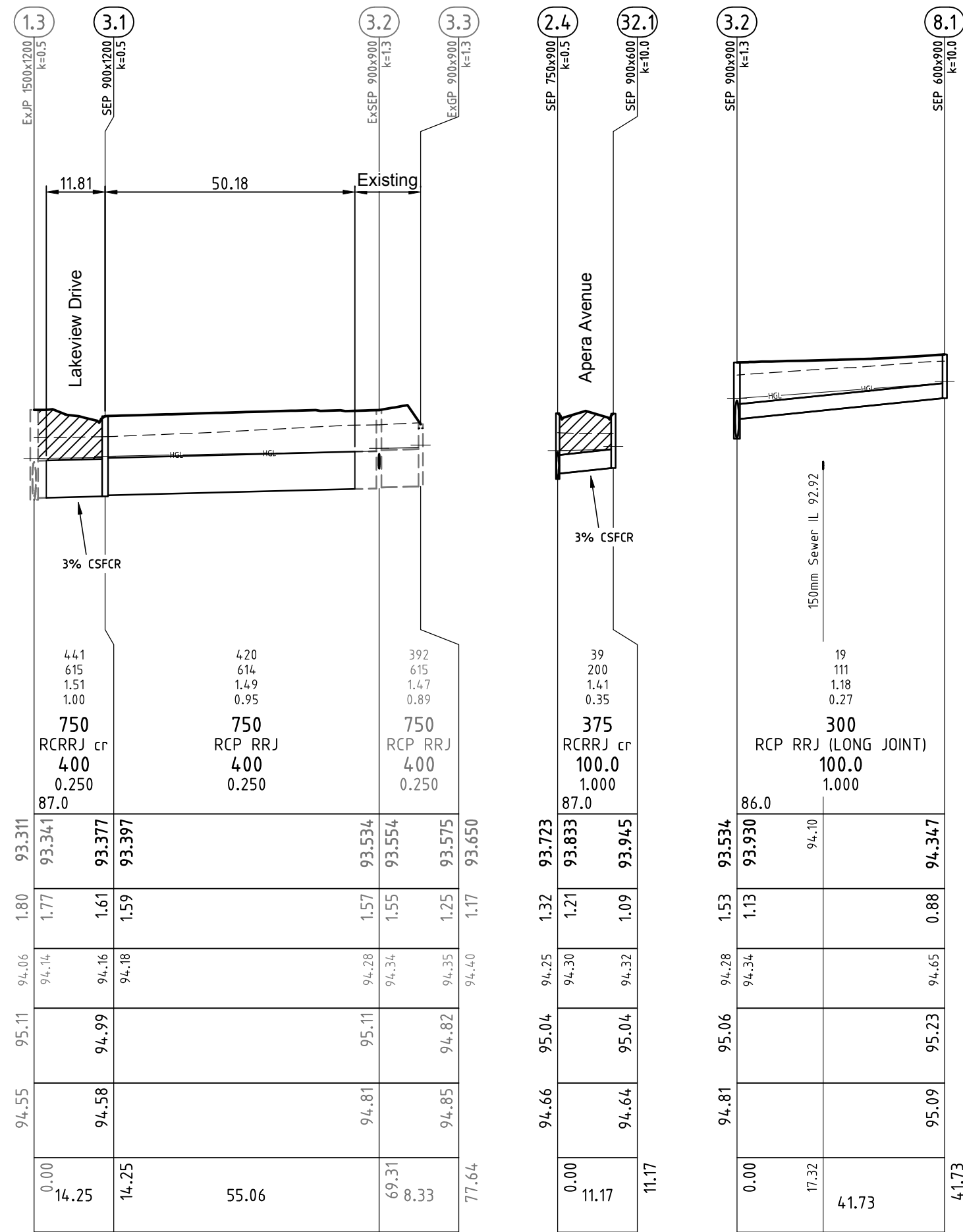
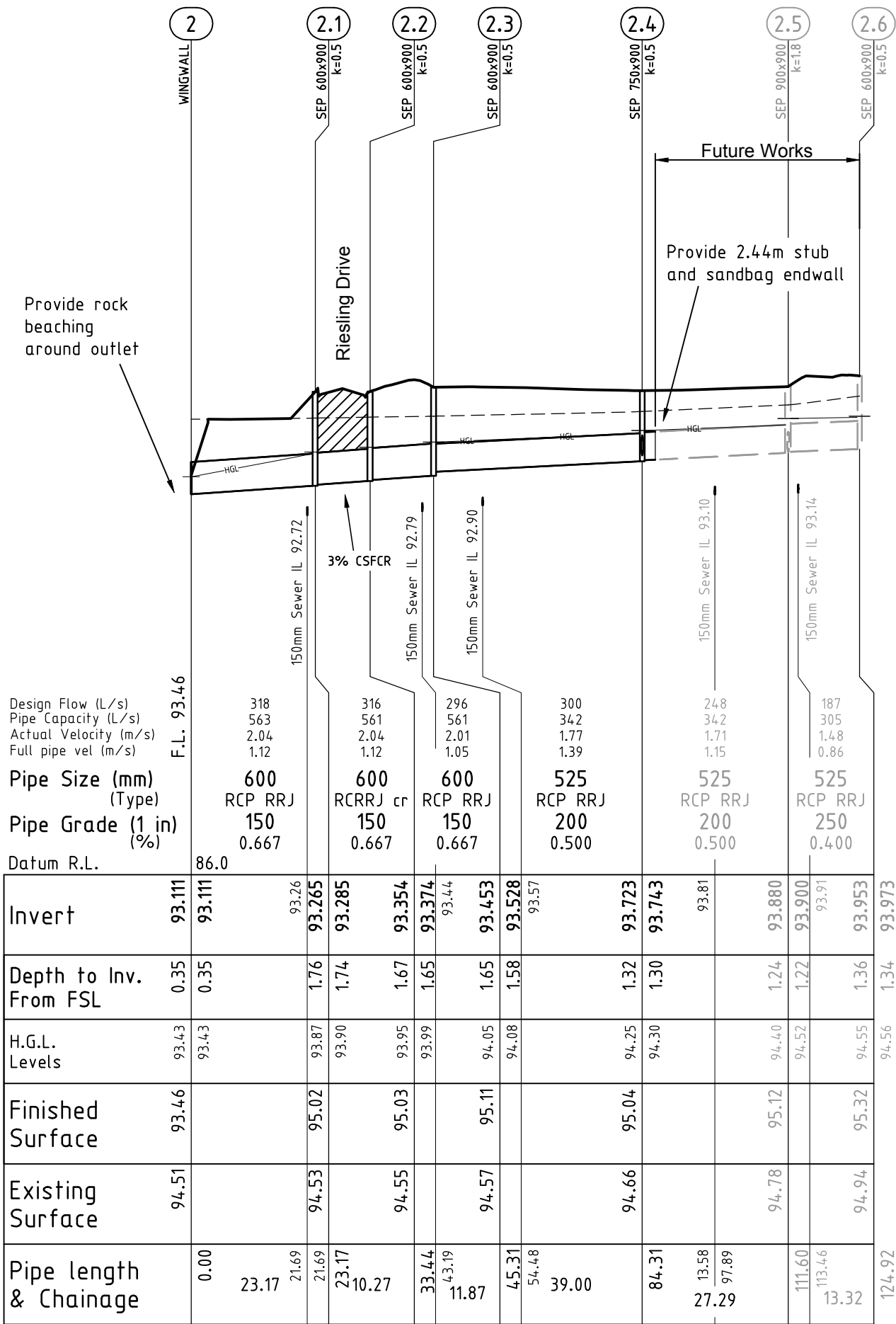


All lengths are in metres
and all levels are to Australian Height Datum
(Original Sheet Size is A3)

Drawing file: 17002 Riesling.dwg	LTO Ref: -
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Murray River Council - Moama
Villawood Properties Pty Ltd
Lakeview Estate - Stage 6
Riesling Drive Cross Sections

Our Ref:	Version	Sheet
17002	1	20 of 28



PIT SCHEDULE

Pit Name	TYPE			EASTING	NORTHING	INTERNAL WD	INLET		OUTLET		PIT		RL	DEPTH	REMARKS	
							LEN	DIA	INV	LEV	DIA	INV	LEV	SETOUT		
32.1	Side	Entry	Pit	296418.881	6003077.472	0.600	0.900				375	93.945	95.037		1.092	
8.1	Side	Entry	Pit	296307.047	6003043.713	0.600	0.900				300	94.347	95.225		0.878	
3.2	Side	Entry	Pit	296339.084	6003068.908	0.900	0.900	750	93.554	750		93.534	95.064		1.530	
3.2	Side	Entry	Pit	296339.084	6003068.908	0.900	0.900	300	93.930							
3.1	Side	Entry	Pit	296367.263	6003116.211	0.900	1.200	750	93.397	750		93.377	94.987		1.611	
2.4	Side	Entry	Pit	296427.538	6003084.538	0.750	0.900	525	93.743	525		93.723	95.044		1.321	PROVIDE STUB
2.4	Side	Entry	Pit	296427.538	6003084.538	0.750	0.900	375	93.833							
2.3	Side	Entry	Pit	296402.879	6003114.748	0.600	0.900	525	93.528	600		93.453	95.106		1.653	
2.2	Side	Entry	Pit	296403.096	6003126.618	0.600	0.900	600	93.374	600		93.354	95.028		1.674	
2.1	Side	Entry	Pit	296398.097	6003135.585	0.600	0.900	600	93.285	600		93.265	95.023		1.757	
2	Concrete	Endwall		296394.038	6003158.401	0.150	0.150	600	93.111				93.711		0.600	PROVIDE ROCK BEACHING
1.3	Junction	Pit		296362.861	6003129.763	1.500	1.200	750	93.341				95.114		1.802	

NOTE :

1. xy setout to pit centre
2. setout level to pit cover level

6			Designed R. Dawborn Aug 2017	Checked N. Bowe Aug 2017	Notes/Legend	<div><p>Civil Engineers Project Managers Development Consultants</p></div> <div><p>Terraco P/L</p><p>ABN 12 681 695 776</p><p>Corner Jewell Court & Rowena Street Bendigo Vic 3550 Ph: 03 5442 5799 Fax: 03 5441 5506 E: info@terraco.com.au</p></div>	No Scale		Murray River Council - Moama Villawood Properties Pty Ltd Lakeview Estate - Stage 6 Pit Schedule						
3			Approved					All lengths are in metres and all levels are to Australian Height Datum (Original Sheet Size is A3)							
2															
1	Original Issue	23/8/2017													
0	Draft	25/7/2017													
Ver	Revision Description	Date							Drawing file: 17002 Drains.dwg	LTO Ref: -	Council Ref: DA 173/11		Our Ref: 17002	Version 1	Sheet 22 of 28

GENERAL NOTES

- 1. All works are to be carried out in accordance with Murray River Council and current Water Services Association of Australia standards and specifications.
- 2. Contract is in accordance with AS2124-1992.
- 3. The contractor must locate all services prior to commencement of any works.
- 4. Sewers are to be 150mm Ø uPVC RRJ class SN8 (SEH grade) unless shown otherwise.
- 5. Sewer Jump Up levels shown refer to the required level at the property connection point 1.0m inside the property boundary. All Jump Ups to be brought up a minimum of 1.0m above the surface.
- 6. All sewer manhole covers to be solid ductile iron Class D cover and frame with concrete surround.
- 7. The level of all existing outfall sewers must be checked by the contractor prior to work commencing.
- 8. The contractor must adhere to the code of practise as "Excavation Work Code of Practice" under section 274 of the Work Health and Safety Act 2011. All workers on this site must have a current WH&S General Induction for Construction Work in NSW Certificate (White Card).
- 9. The contractor is not permitted to break into an existing live pipeline, enter a live manhole, or remove the cover of an existing live manhole unless given permission by the Supervising Engineer.
- 10. All properties are to be fully reinstated to the satisfaction of the Supervising Engineer.
- 11. All new sewers must be pressure tested. Where the contractor does not have a Quality Assurance system in place, all pipes must be inspected by the Supervising Engineer.
- 12. Confined Space Entry must be in accordance with Work Health and Safety requirements. Contractor must not enter a Confined Space until all required information has been submitted to Terraco.
- 13. All hatched areas on longitudinal sections indicate 20mm Class 3 FCR backfill.
- 14. All future stub end to be capped.
- 15. All sewer pipes are to be inspected by CCTV after installation, with a Hard and Electronic copy to be provided to the Murray River Council.

Asset Recording Requirements

The contractor must record all construction details including invert levels and locations of manholes, sewer ends and oblique branches, and testing details, using appropriate "line sheets".

The information is to be provided to the supervising engineer in a suitable form to enable detailed "as constructed" plans to be produced. Line sheets are available from Terraco, or the contractor may use their own if approved by Terraco prior to works commencing.

The information is to be provided within 1 week of the completion of the works. Claims for payment for construction may be delayed until the line sheets have been received by the supervising engineer.

The following standard backfill requirements apply to all trenching works.

For PVC pipes:

- a) Minimum bedding sand under pipe – 75mm
- b) Minimum sand backfill above pipe – 100mm
- c) Minimum sand backfill either side of pipe – 100mm

For concrete pipes:

- a) Minimum bedding sand under pipe – 75mm
- b) Minimum sand backfill to string line.
- c) Minimum sand backfill either side of pipe – 100mm

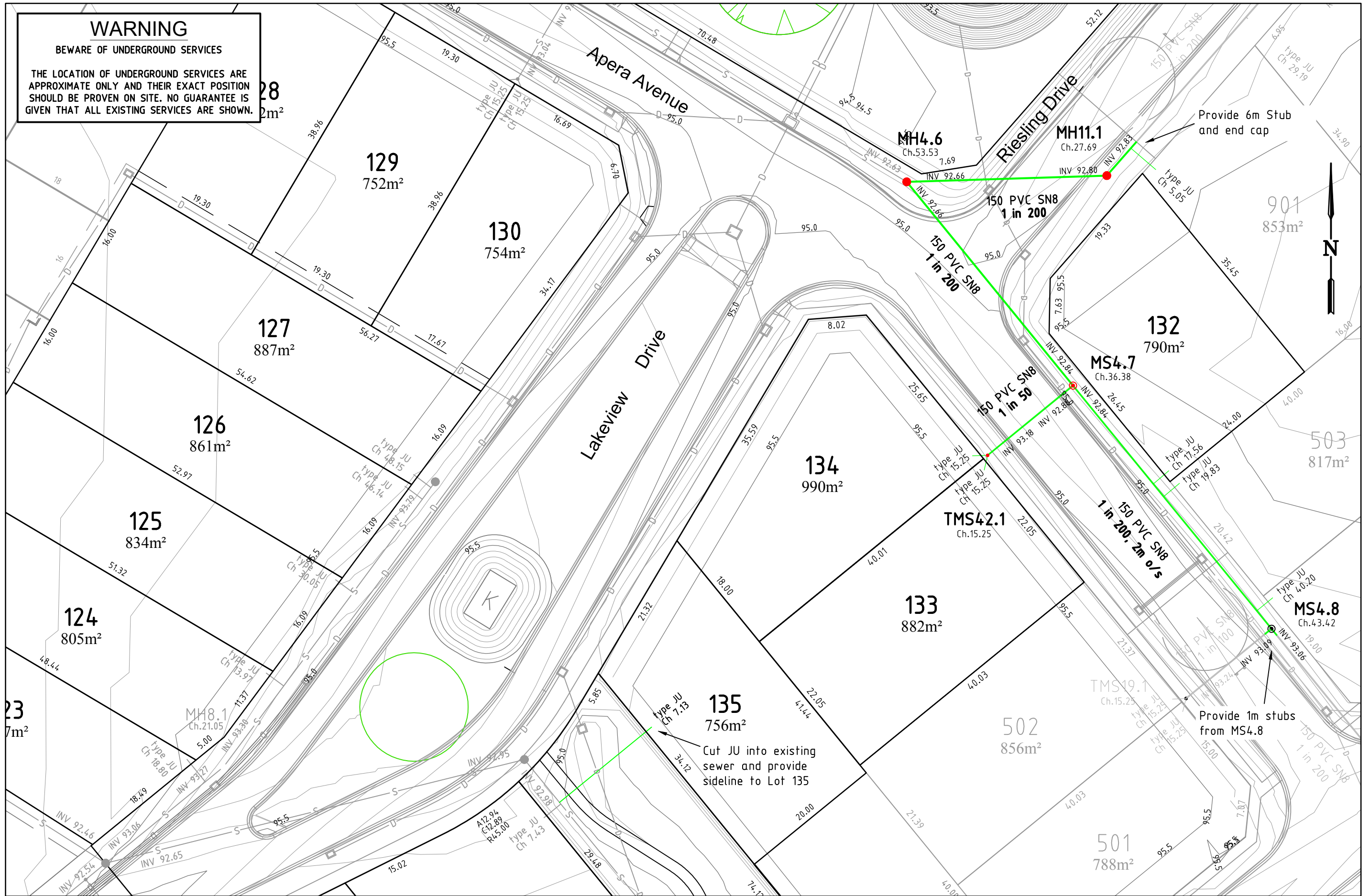
Select backfill to 100mm above the pipe. Should the excavated material be unsuitable, sand backfill to be provided a minimum 100mm above the pipe.

6			Designed R. Dawborn Aug 2017	Checked N. Bowe Aug 2017	Notes/Legend	<div><div><div><div>TERRACO</div><div>Civil Engineers Project Managers Development Consultants</div></div><div><div>Terraco P/L</div><div>ABN 12 681 695 776</div><div>Corner Jewell Court & Rowena Street Bendigo Vic 3550 Ph: 03 5442 5799 Fax: 03 5441 5506 E: info@terraco.com.au</div></div></div></div>	No Scale		Murray River Council - Moama Villawood Properties Pty Ltd Lakeview Estate - Stage 6 Sewer Notes						
5															
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WARNING

BEWARE OF UNDERGROUND SERVICES

THE LOCATION OF UNDERGROUND SERVICES ARE APPROXIMATE ONLY AND THEIR EXACT POSITION SHOULD BE PROVEN ON SITE. NO GUARANTEE IS GIVEN THAT ALL EXISTING SERVICES ARE SHOWN.



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0	Draft	25/7/2017
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Designed	Checked
R. Dawborn	N. Bowe
Aug 2017	Aug 2017
Approved	

Notes/Legend
PLEASE NOTE THAT CONTOURS SHOWN ON PLAN INDICATE THE APPROXIMATE FINISHED SURFACE. CONTOUR INTERVAL 0.1m
MH's SHOWN IN RED HAVE CLASS D LIDS



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Development Consultants

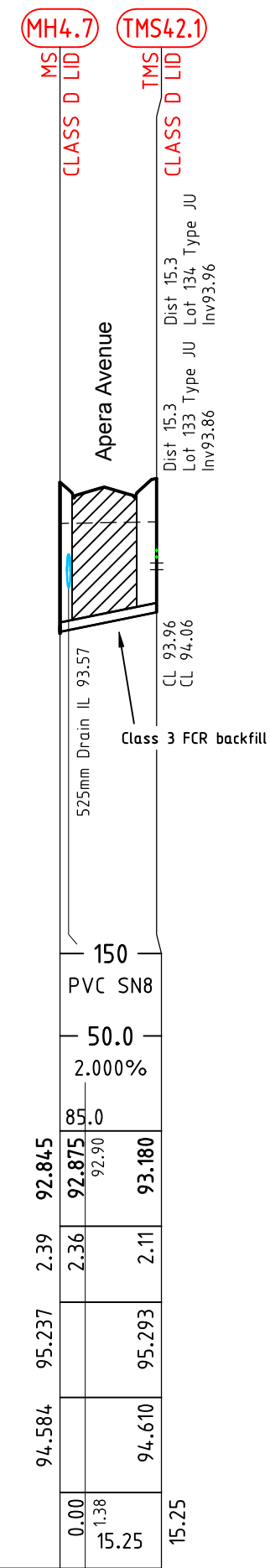
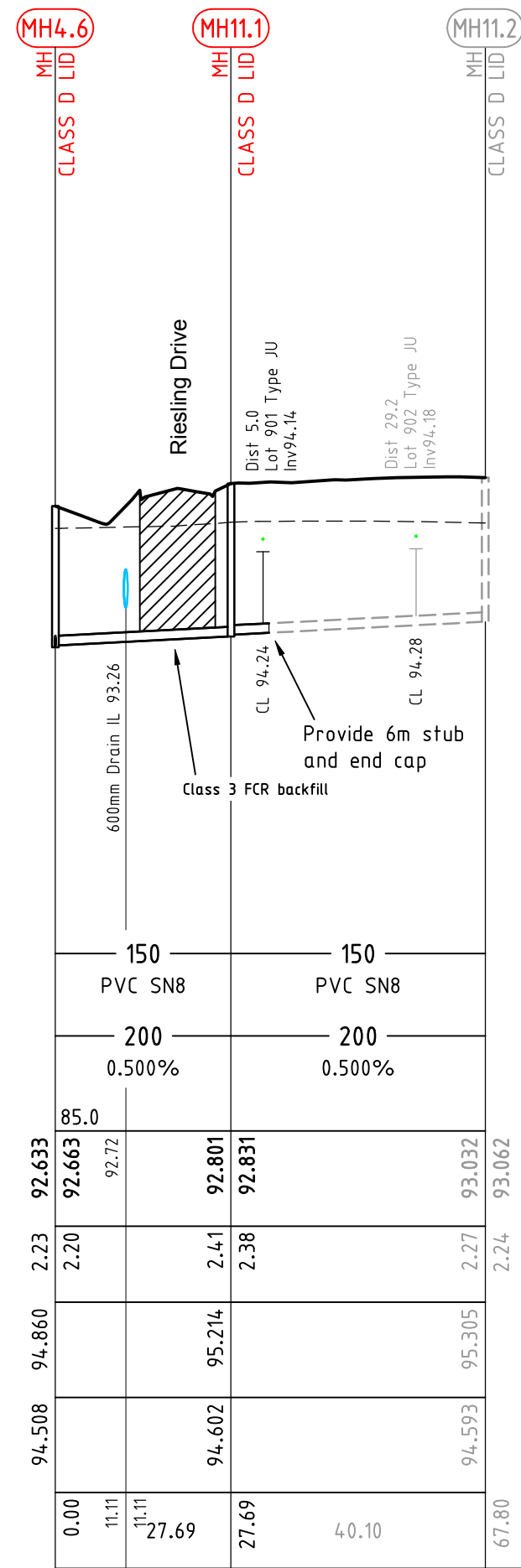
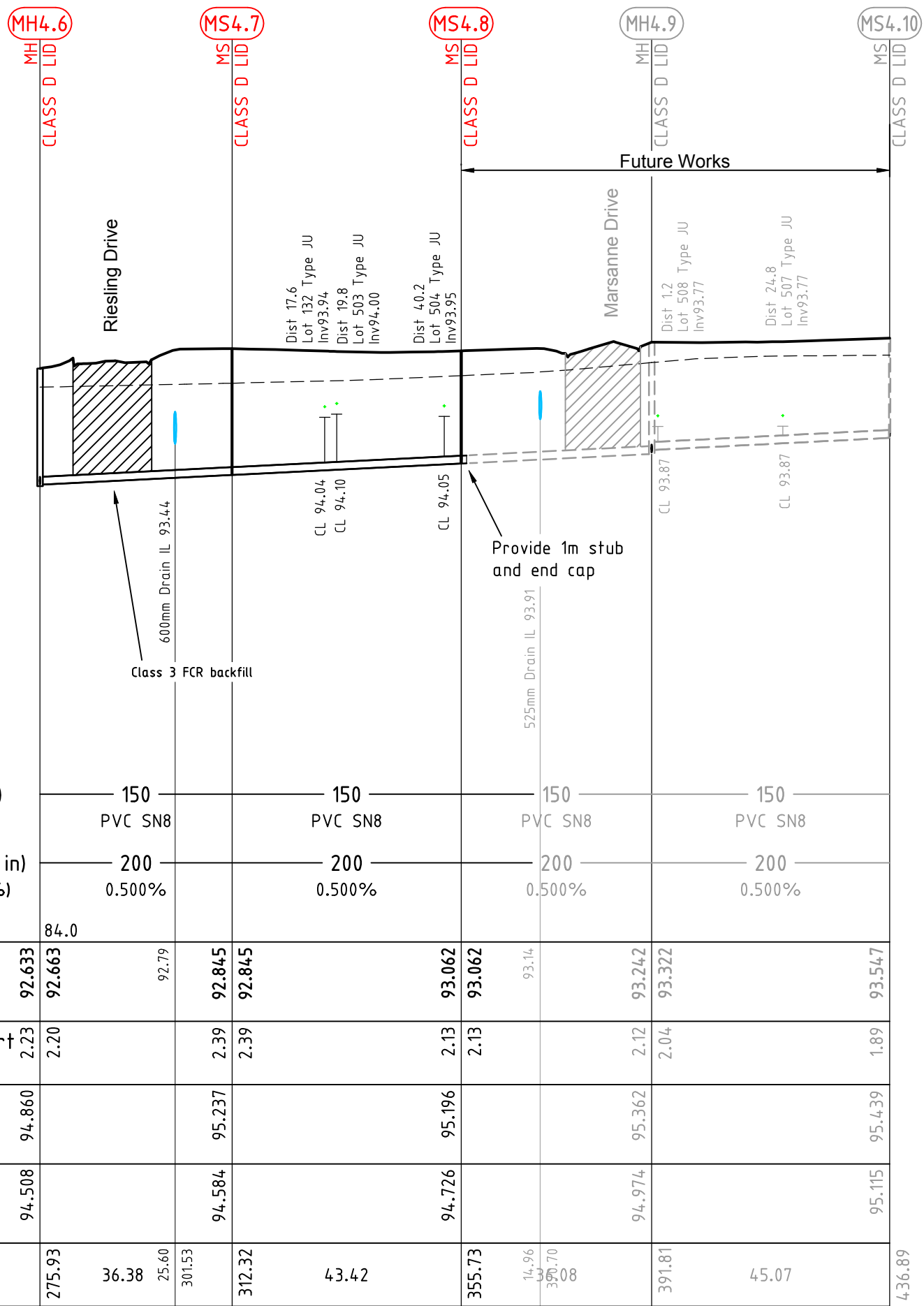
Scale (m) H 1:500 0 5 10

All lengths are in metres
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Murray River Council - Moama
Villawood Properties Pty Ltd
Lakeview Estate - Stage 6
Sewer Layout Plan

Council Ref: DA 173/11	Our Ref: 17002	Version: 1	Sheet: 24 of 28
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Scale (m)

H 1:1000 0 10 20

V 1:100 0 1 2

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Murray River Council - Moama

Villawood Properties Pty Ltd
 Lakeview Estate - Stage 6
 Sewer Longitudinal Sections

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WATER MAIN NOTES

1. Water Main offset to be 1.65m (Filtered) and 2.10m (Raw) unless shown otherwise.
2. All works are to be carried out in accordance with the current standard's of Murray River Council.
3. Contract is in accordance with AS2124-1992.
4. The Contractor must locate all services prior to works commencing.
5. All water service road crossings to be 32mm PN8 poly (if two properties being connected) or 25mm PN8 poly (if single property connected). Each service to be sleeved in 50mm Class 12 uPVC.
6. The Contractor must supply all assemblies, cast iron covers, surrounds and indicator posts for stop valves (SV) and hydrants (HYD).
7. All water mains to be RRJ PVC-M Series 1 Class 9 except under road pavement where Series 1 Class 12 is to be used.
8. Water tapplings (Treated and Raw) including tapping saddles and 20mm dia. copper service connections, meter stop tap (treated) and ball valve quick action (raw) to be provided 1.0m within each lot. Tapping saddles are to be gunmetal style only. See Standard Drawing.
9. Water meter stop taps are to be installed on filtered water connections.
10. Ball valves quick action are to be installed on raw water connections
11. All stop valves are to be Anti Clockwise Closing (ACC).
12. All services to be installed to provide minimum cover to finished surface.
13. All trenches crossing pavement areas or beneath kerb or footpath are to be backfilled with 3% cement stabilised class 3 crushed rock.
14. All road crossings for services to be backfilled with 3% stabilised FCR.

Asset Recording Requirements

The contractor must record all construction details including offsets of mains and locations of fittings such as valves, tees fire plugs etc, and testing details, using appropriate "line sheets".

The information is to be provided to the supervising engineer in a suitable form to enable detailed "as constructed" plans to be produced. Line sheets are available from Terraco, or the contractor may use their own if approved by Terraco prior to works commencing.

The information is to be provided within 1 week of the completion of the works. Claims for payment for construction may be delayed until the line sheets have been received by the supervising engineer.

TOTAL WORK

SIZE	TYPE	CLASS	LENGTH (m)
150mm	PVC-M	9	123
150mm	PVC-M	12	62
100mm	PVC-M	9	364
100mm	PVC-M	12	115

The following standard backfill requirements apply to all trenching works.

For PVC pipes:

- Minimum bedding sand under pipe - 75mm
- Minimum sand backfill above pipe - 100mm
- Minimum sand backfill either side of pipe - 100mm

For concrete pipes:

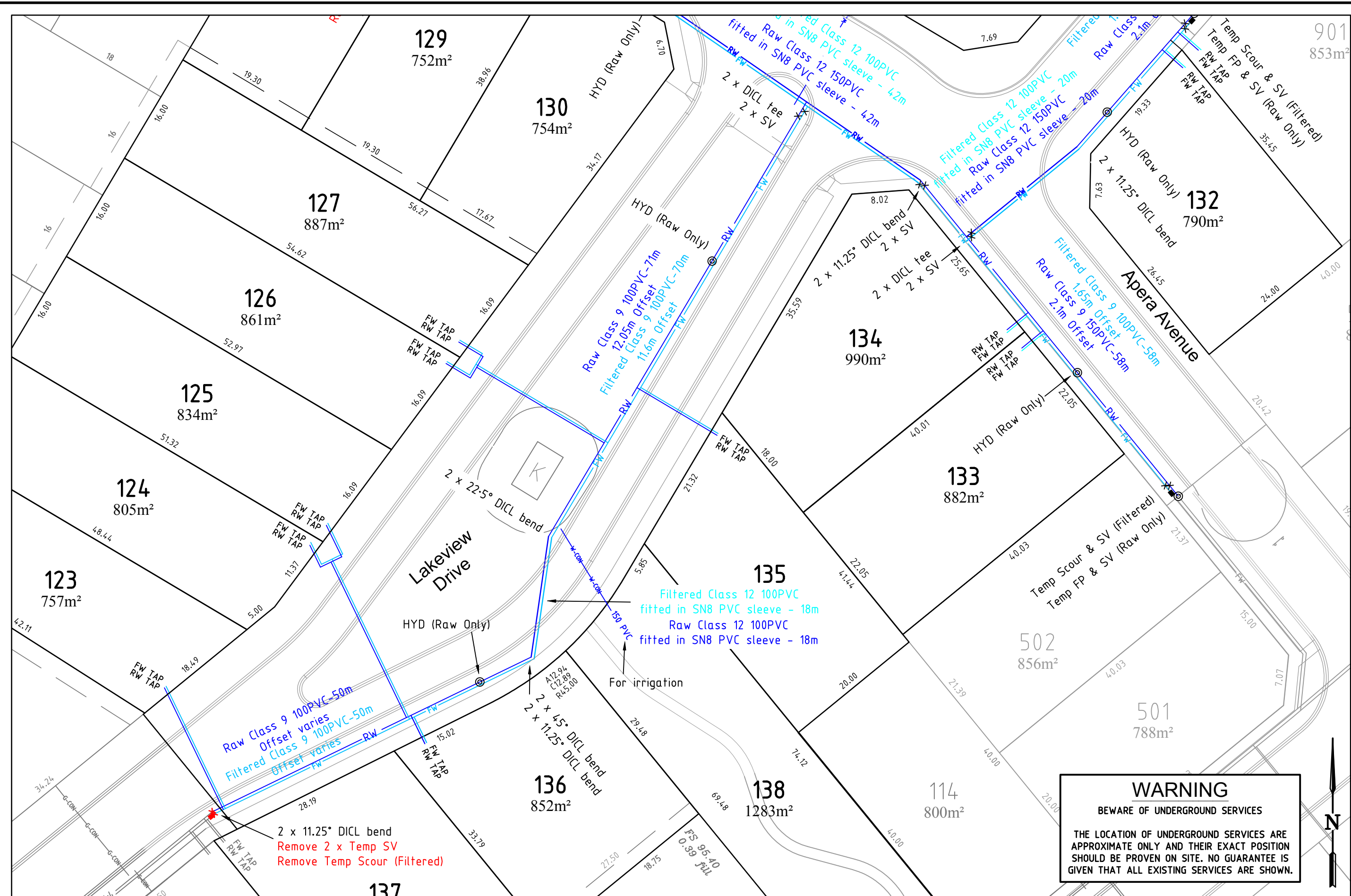
- Minimum bedding sand under pipe - 75mm
- Minimum sand backfill to string line.
- Minimum sand backfill either side of pipe - 100mm

Select backfill to 100mm above the pipe. Should the excavated material be unsuitable, sand backfill to be provided a minimum 100mm above the pipe.

Street	Back of Kerb	Filt. Water	Raw Water	Gas	Power	NBN	Sewer
Riesling Drive	5.30	1.65 E	2.10 E	2.50 E	0.40 E	0.90 E	3.50 E
Apera Avenue	3.90	1.65 S	2.10 S	2.50 S	0.40 N	0.90 N	2.00 N
Lakeview Drive	4.90	Varies	Varies	Varies	0.40 W	0.90 W	Varies

Service Offsets

6			Designed	Checked	Notes/Legend	<div><p>TERRACO Civil Engineers Project Managers Development Consultants</p></div> <div><p>Terraco P/L ABN 12 681 695 776 Corner Jewell Court & Rowena Street Bendigo Vic 3550 Ph: 03 5442 5799 Fax: 03 5441 5506 E: info@terraco.com.au</p></div>	No Scale All lengths are in metres and all levels are to Australian Height Datum (Original Sheet Size is A3)		Murray River Council - Moama Villawood Properties Pty Ltd Lakeview Estate - Stage 6 Water Notes													
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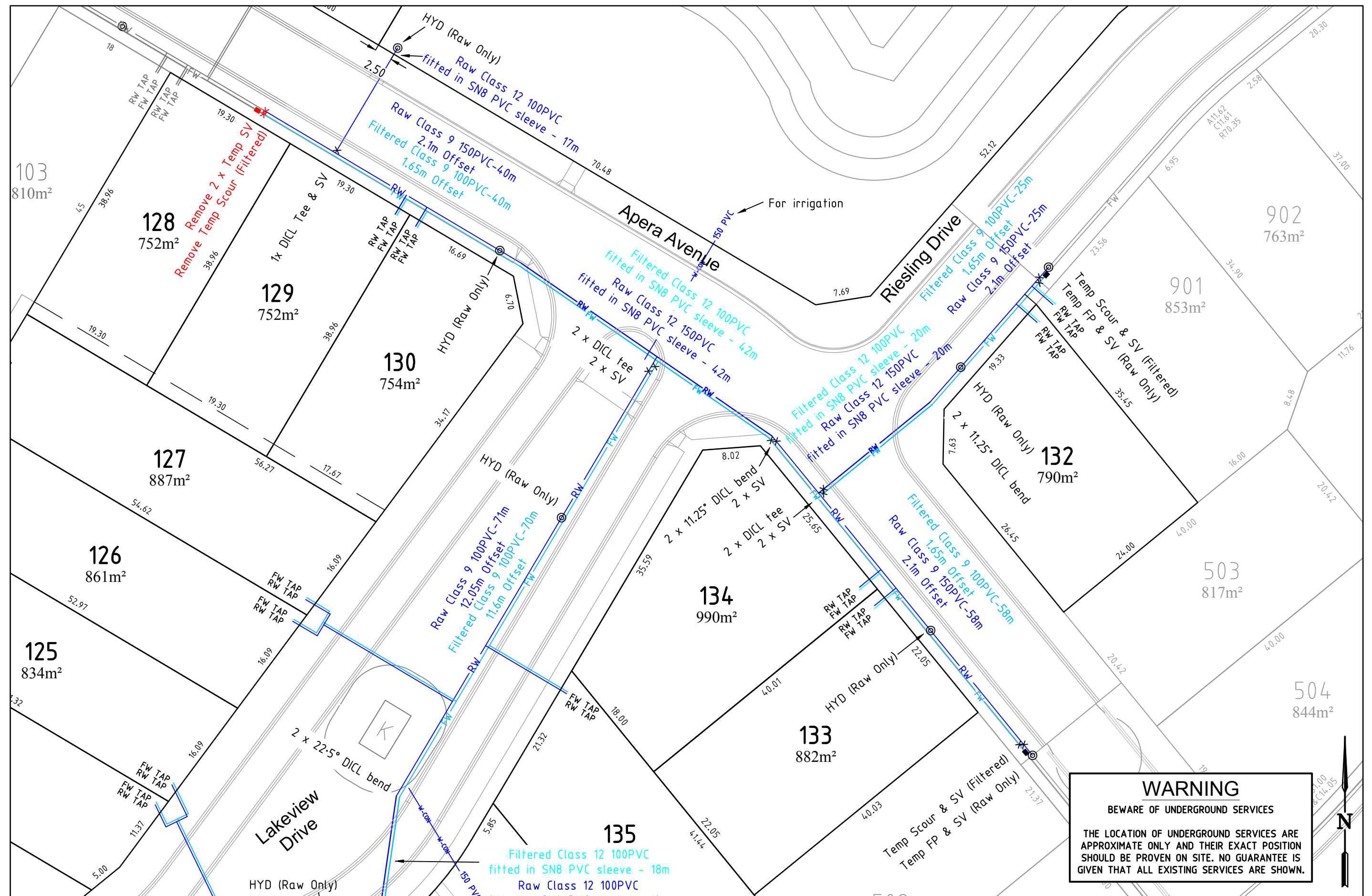
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Murray River Council - Moama

Villawood Properties Pty Ltd
Lakeview Estate - Stage 6

Water Plan

Council Ref: DA 173/11	Our Ref: 17002	Version: 1	Sheet: 27 of 28
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Murray River Council - Moama					
Villawood Properties Pty Ltd					
Lakeview Estate - Stage 6					
Water Plan 2					
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