Servicing For Urban Development

Lot 8, DP 816552

5 Anderson Road, Glenning Valley

LANDMARK
LAND DEVELOPMENT CONSULTANTS

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LIST OF FIGURES

APPENDICES

1.0 INTRODUCTION

ACM Landmark have been engaged to assess servicing of the subject site to permit future residential development. A concept subdivision pattern has been prepared which represents a possible urban outcome for the land.

2.0 THE SITE

Figure.1 – *Site Location Extract from Google Maps*

The land is located on the eastern side of Anderson Road approximately 30m south of the intersection of Anderson Road and Hillside Drive. The land is known as Lot 8 DP 816552 No.5 Anderson Road and has an area of 1.911ha. The site also has frontage on its south to Gordon Vaughan Road.

The land comprises gentle slopes at generally the top of the catchment rising from RL 22m AHD in the south west corner at Anderson Road, to RL 42m AHD at the north east corner. There are no structural improvements on the land other than rural fences around the east, south, and west boundaries and urban fencing abutting urban lots along the northern boundary. The site is mown grass with some remnant vegetation along the Anderson Road and Gordon Vaughan Road frontages. The site location can be seen in Figure 1.

3.0 PROPOSAL

It is proposed to rezone the subject land from its current 7(c) scenic protection small holdings zone to an urban residential 2(a) residential zone or to a R1 General residential zone within the Wyong Shire Comprehension LEP to permit the lands use for residential purposes. The proposed development of the land comprises the concept subdivision layout shown as Appendix A. The proposed layout includes two (2) internal access roads providing frontage to nineteen (19) residential lots with areas ranging from 481m² to 1719m². The bulk of the lots have an area of 500m² to 630m². There is no direct access proposed to lots from Anderson Road or Gordon Vaughn Road given the extent of remnant vegetation comprising some threatened species and the relatively large height difference from the lot boundary to Anderson Road with open drainage adjacent to Gordon Vaughn Road.

4.0 SERVICING

4.1 ROADS

The Subject site is serviced predominantly by Anderson Road although the site has frontage to both Anderson Road and Gordon Vaughan Road. No direct access is proposed to the future lots fronting Anderson Road or Gordon Vaughan Road as previously discussed.

Anderson Road is Bitumen sealed to 11m wide between kerbs immediately to the north of the site with upright kerbs and gutter. Fronting the site, the road is 6m wide, comprising two (2) 3m wide travelling lanes with 1m wide sealed and gravelled shoulders outer side.

Double barrier lines define the centreline of the road with 50kph sign posted speed signs along the road. Speed advisory signs indicate a speed environment of 45kmp given the intersection of Hill Side Drive and curve to the south in Anderson Road. There is an existing grassed swale drain fronting the site on the eastern side of Anderson Road. The road reserve width is 20.1m and variable.

Internal access is proposed via two (2) local access streets terminating in a cul-de-sac, each approximately 100m and 80m long respectively.

The roads and their general vertical alignment can be seen in Appendix B. The proposed roads are 15m and 17m wide with a 7m carriage way and 4m wide footpath reserve.

The proposed roads constitute and effective access pattern to the future subdivision. Final detail survey and detail design of the roads and drainage with future development application would refine the subdivision. Concept road gradings have previously been shown in Appendix B.

4.2 TRAFFIC

The RTA guide to traffic generating developments provides potential traffic generating rates for a range of land use activities.

Land Use	Traffic Generations
Residential (19 lots)	9 trips/dwelling per day 0.85 trips per dwelling in the typical peak hour Equates to 171 trips per day 16 in the typical peak hour or 170 Utph.

The approximate average daily traffic on Anderson Road as provided by Wyong Council has been determined at 1126vpd based upon 2002 figures with 2.5% growth per annum. It can be seen that the proposal represents an approximate increase of 9% in terms of vehicle trips/hr on the Anderson Road traffic.

Photo – *Anderson Road facing south to Gordon Vaughan Road Intersection.*

The following table, 4.1, shows the level of peak period traffic interaction that can maintain acceptable flow conditions. The subject precinct will not generate near any of those levels.

Similarly table 7.1 shows the mid block capacities fro urban roads and again the subject precinct will generate nowhere near any of those levels.

Table 4.1 — Intersection Capacity - Uninterrupted Flow Conditions

Major Road Type[1]	Major Road Flow (vph)[2]	Minor Road Flow (vph)[3]
Two-lane	400	250
	500	200
	650	100
Four-lane	1000	100
	1500	50
	2000	25

Notes:
1. Major road is through road (i.e. has priority).
2. Major road design volumes include through and turning movements.
3. Minor road design volumes include through and turning volumes.

Table 7.1 Typical Mid-block Capacities for Urban Roads with Interrupted Flow

Type of Road	One-Way Mid-block Capacity (veh/hr)
Median or inner lane	
• divided road	1,000
• undivided road	900
Outer or kerb lane	
• adjacent parking lane	900
• clearway conditions	900
• occasional parked vehicles	600
4 lane undivided	1,500
4 lane undivided - clearway conditions	1,800
4 lane divided - clearway conditions	1,900
6 lane undivided	2,400
6 lane divided - clearway conditions	2,900

Route and/or intersection capacities, when Austroads capacity limits are referenced indicate that the potential urban use of the land could proceed without adverse impact on the road network.

Anderson Road has adequate capability to accept the traffic from the proposed urban development of the subdivision.

5.0 STORMWATER AND DRAINAGE

The future development of the land for urban purposes has the potential to increase stormwater runoff from the increase in impervious areas. The accompanying Water Cycle Management Plan demonstrates the ability for the subdivision to incorporate measures to reduce stormwater flows from the site and also incorporates water quality measures.

The subdivision layout proposes a relatively standard capture and conveyance network for the roads via kerbs and gutter and piped drainage with outlets via proprietary gross pollutant traps to existing/impounded swale drains.

Roofwater capture and reuse for future dwellings incorporating additional on site storage within the BASIX commitments (tanks) will ultimately control stormwater outflow from the site. Additionally small rainwater gardens within each lot will provide additional infiltration and detention.

6.0 POWER

Overhead power exists within Anderson Road and is located along the frontage of the subject site.

Connection to the power system is possible for the subdivision upon specific application at Development Application stage.

The power reticulation to the future subdivision will be via underground supply and Appendix C shows an indicative plan of that power supply reticulation.

7.0 WATER RETICULATION

Reticulated water fronts the subject site and comprises a 150mm UPVC main. This main connects to Hillside Drive and through Anderson Road north of Hillside Drive to the carrier main within Wyong Road. The existing water reticulation can be seen in Appendix D.

Connection to the future subdivision is possible, advice from Council officers indicates that water supply up to RL 40m AHD is possible however supply above RL 40 cannot be guaranteed.

Two (2) lots within the concept subdivision, Lots 6 and 7, sit at or above RL 40. The arrangement of the concept subdivision has considered this factor with lot orientation and building envelopes at RL 40 with the benching of the rear of Lots 6 and 7 to a maximum of 1m will ensure all lots within the concept subdivision can be fully serviced with guaranteed water supply.

The reorientation of Lots 6 and 7 alters the subdivision from that originally proposed within the Water Cycle Plan and other supporting reports. This difference in concept subdivision layout does not alter the basic premise of the subdivision and final design solutions can be effected with any Development Application documentation.

A concept Water Supply Plan is shown in Appendix E.

8.0 SEWER

The subject land is not directly connected to the sewerage system. Lots immediately adjoining to the north of the site sit atop the catchment ridge and drain northerly to existing reticulation in Hillside Drive, Anderson Road (north) and Wyong road.

The existing sewer reticulation can be seen in Appendix F.

Discussions with Council officers have confirmed previous advice contained within a servicing report prepared in August 1999 for the subject into and a wider rezoning area. That advice was to require the developer to design and construct a sewer system to connect to manhole Y/2 adjacent to Heather Avenue, Glenning Valley.

This connection proposal necessitates the provision of a small on-site sewer pump station and rising main from the site via Anderson Road, along Wyong Road to Heather Avenue and to manhole Y/2 a distance of approximately 1.2km. Over this distance the rising main will possibly require oxygenation.

Within the 1999 investigation a short term connection was proposed to service 40ET within a first stage development comprising the subject Lot 8 which contributed 24ET with other included first stage lands contributing 16ET.

The short term connection was via manhole AK/5 to discharge through the Berkeley Vale east system. At the time of the 1999 investigation discussions with Councils sewer staff confirmed that manhole AK/5 and the Berkley Vale east sewer could accommodate up to 40ET.

Currently Lot 8 is proposed to have nineteen (19) residential lots contributing 19ET. Consequently the load proposed to be via manhole AK/5 is less than half of that originally considered possible (40ET) as a first stage connection during the 1999 study.

Subject to rezoning of the land for urban purposes it is recommended that the downstream system from manhole AK/5 be further investigated to confirm capacities to accept the 19ET proposed. However from initial investigations from the previous 1999 study there appears to be capacity to accept the proposal via manhole AK/5.

The proposed sewer route can be seen in Appendix G with a concept internal sewer reticulation shown in Appendix H.

9.0 NATURAL GAS

Natural gas is available to the site with reticulation within Hillside Drive and Anderson Road (north) connecting to mains in Wyong Road.

Jemena Pty Ltd advise that extension and connection to the site is possible. The route of the gas main would be within common trenching with power supply.

Appendix I shows correspondence from Jemena confirming supply availability.

10.0 TELECOMUNICATIONS

Telecommunications are available to the site and are currently located with Anderson Road fronting the site and also within Hillside Drive.

Connection to the National Broadband Network (NBN) will be necessary for any new subdivision from January 1st 2011. Supply can be made available to the proposal upon specific application with any Development Application for subdivision.

11.0 EXISTING SERVICES INFORMATION

Documentation comprising Dial Before You Dig can be seen within the rear of the report.

12.0 MINE SUBSIDENCE

Review of the Mine Subsidence Board district maps indicates that the site is not within a proclaimed Mine Subsidence District. As such there are currently no limitations from this source to urban development of the subject land.

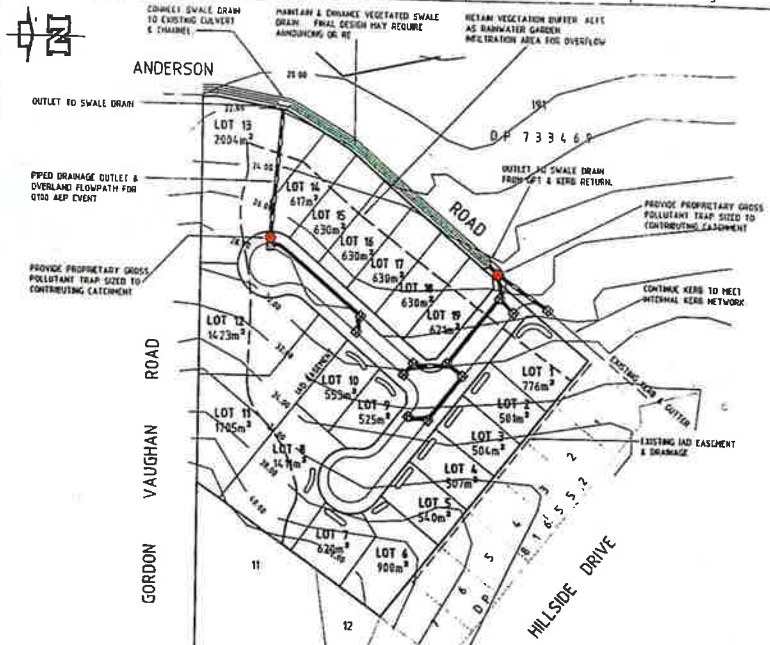
13.0 CONCLUSION

The land has the capability for urban uses. The provision of services such as road access, power, water, telecommunications, natural gas and sewer are all possible to the site.

The proposed rezoning of the land to permit urban uses should not be precluded on the basis of the provision of any services.

APPENDIX A

Concept Subdivision Layout



NOTE:

RAINWATER TANKS AND LANDSCAPING AREAS AS SHOWN ON THIS PLAN ARE ILLUSTRATIVE ONLY. NUMBER AND LOCATIONS ARE SUBJECT TO FINALISATION OF A PROPOSED DEVELOPMENT LAYOUT.

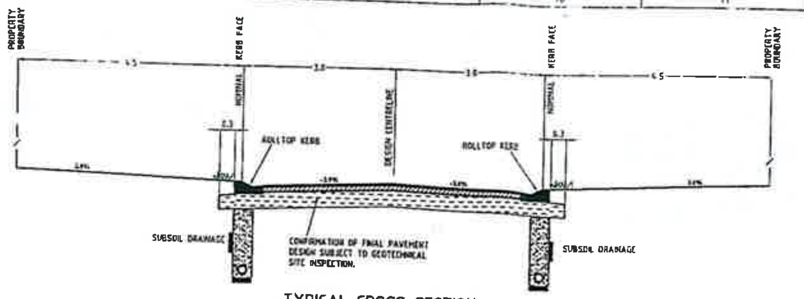
PLAN:

SCALE 1:1000 (A3)
CONTOUR INTERVAL 2.0m

LEGEND:

- SUBJECT SITE & CATCHMENT
- EXISTING & PROPOSED GRASS SWALES FOR BIO-REMEDIATION
- LANDSCAPED AREA/RAINWATER GARDENS
- PROPOSED PIPED DRAINAGE LINES & PITS
- GROSS POLLUTANT TRAP
- VEGETATION BUFFER APZ EXTENT

LAND USE	AREA (m²)
PROPOSED RESIDENTIAL AREAS	16,216
ROAD RESERVE CORRIDORS	2,980
TOTAL	19,196



TYPICAL CROSS SECTION

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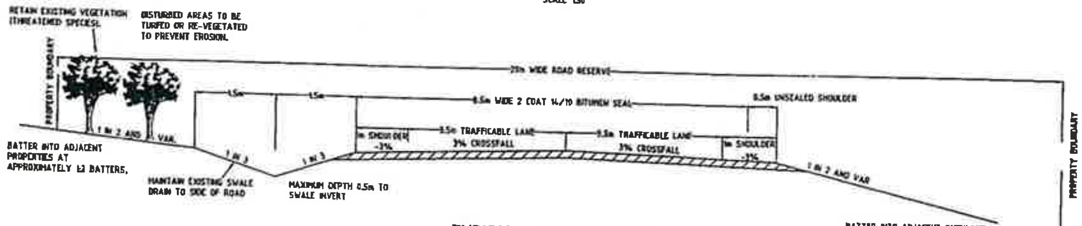
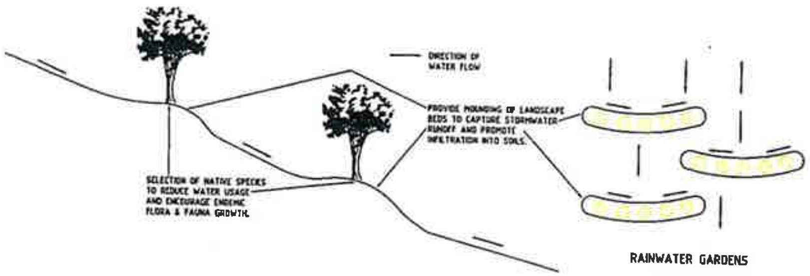


TYPICAL CROSS SECTION

ANDERSON ROAD - 20.0m WIDE (4.5-7.0-4.5)
N.T.S.



POTENTIAL LANDSCAPING ARRANGEMENT

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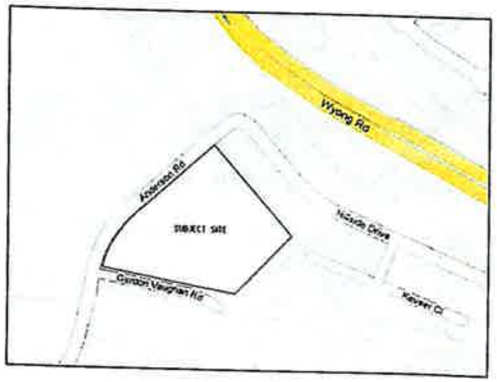

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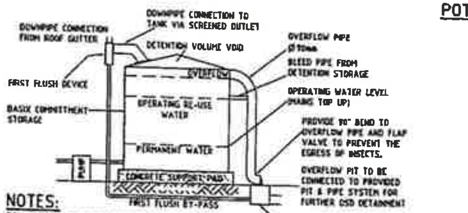

NOTES:

DOWN PIPE & OVER FLOW PIPE CONNECTIONS SHOULD BE LOCATED, WHERE POSSIBLE, AT THE SIDES OF THE TANKS OR IN ANOTHER SUITABLY CONCEALED LOCATION.

WATER TANK DETAIL

NOT TO SCALE

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B	03.02.11	AMENDED ISSUE FOR APPROVAL.	JM
A	15.12.10	ORIGINAL ISSUE FOR APPROVAL.	CP

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Geotechnical by: —	
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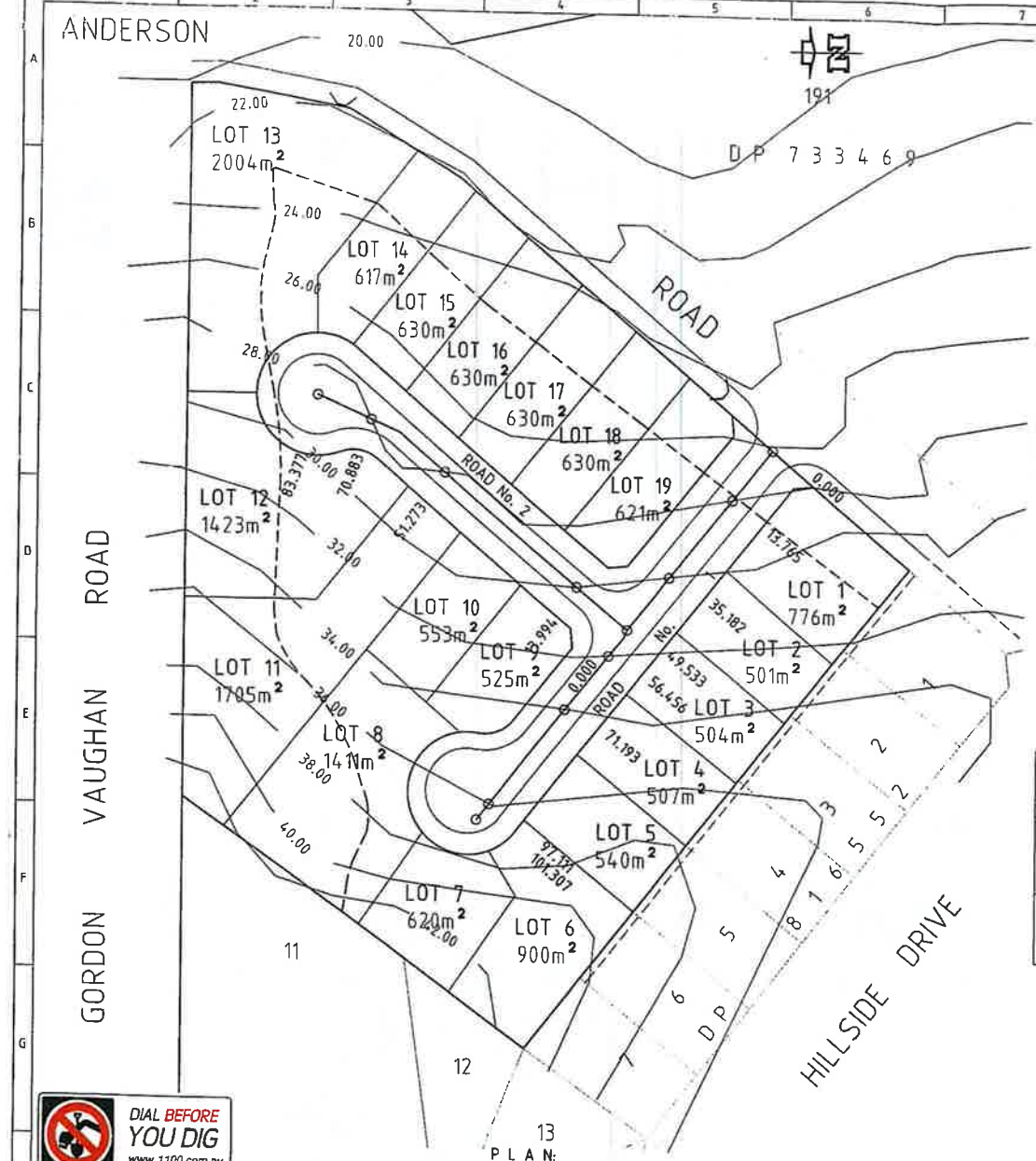
Designed: ML	Checked: ML
Drawn: JM	Approved: ML

Job Name: PROPOSED SUBDIVISION
LOT 8, DP 816552
5 ANDERSON ROAD, GLENNING VALLEY

Title: STORMWATER CATCHMENT & WATER MANAGEMENT PLAN

Scale: AS SHOWN | Drawing No. 1157-10 | Sheet No. 1 of 5 | Amdt. C



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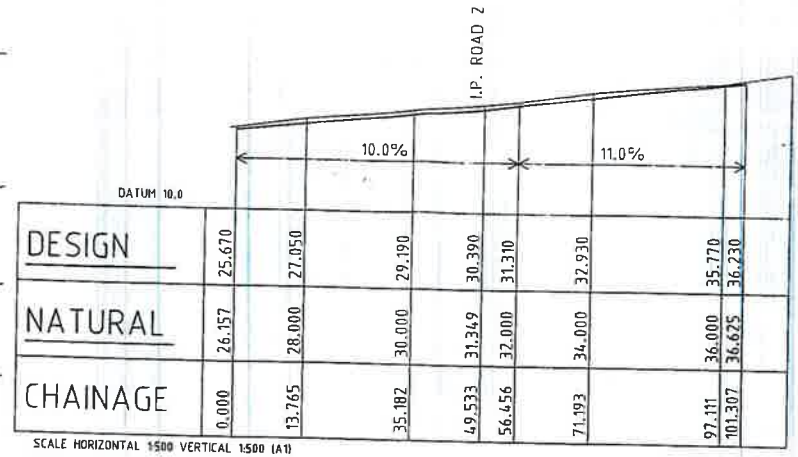

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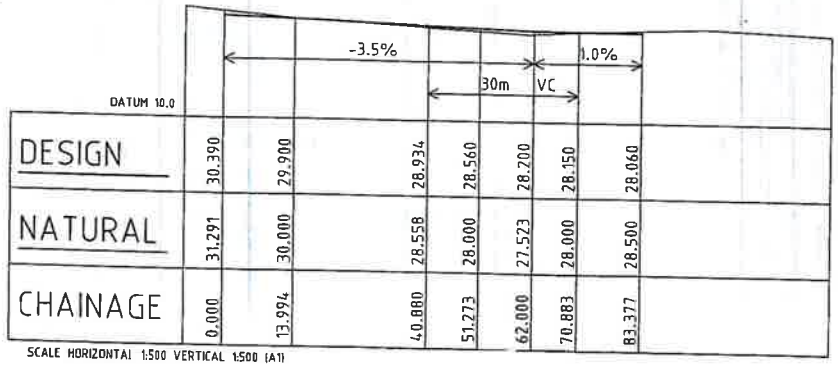

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ROAD No. 2

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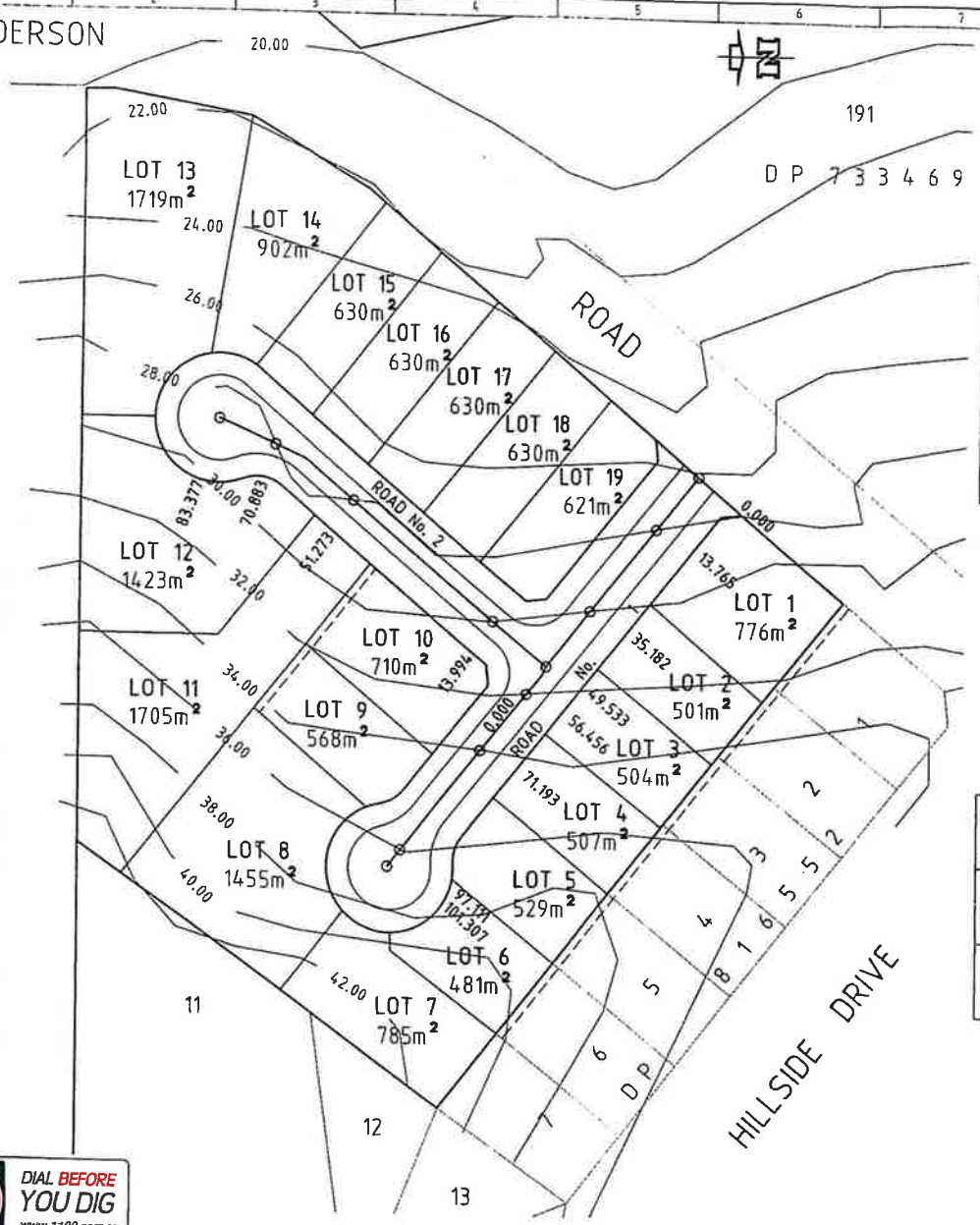
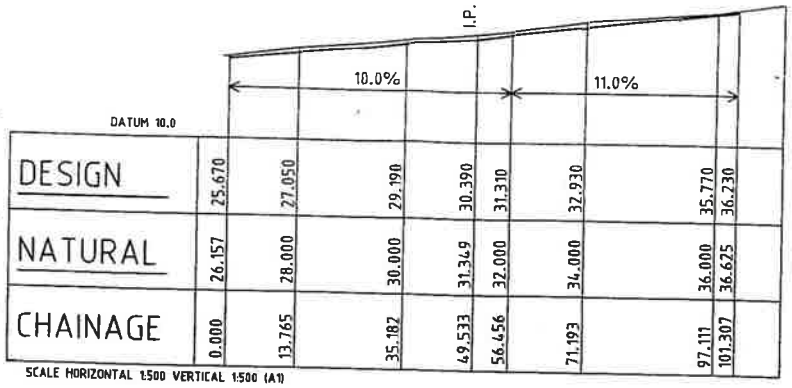
Title: CONCEPT LONGITUDINAL SECTIONS

Scale: AS SHOWN | Drawing No. 1157-10 | Sheet No. 2 of 5 | Amdt: C

APPENDIX B

Concept Longitudinal Sections





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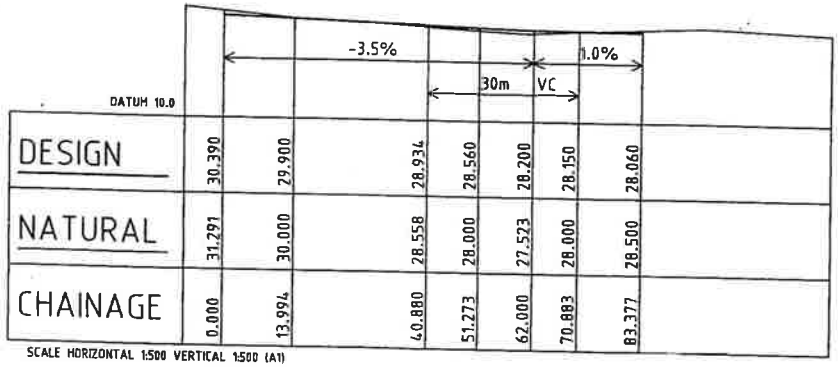

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Title: CONCEPT LONGITUDINAL SECTIONS

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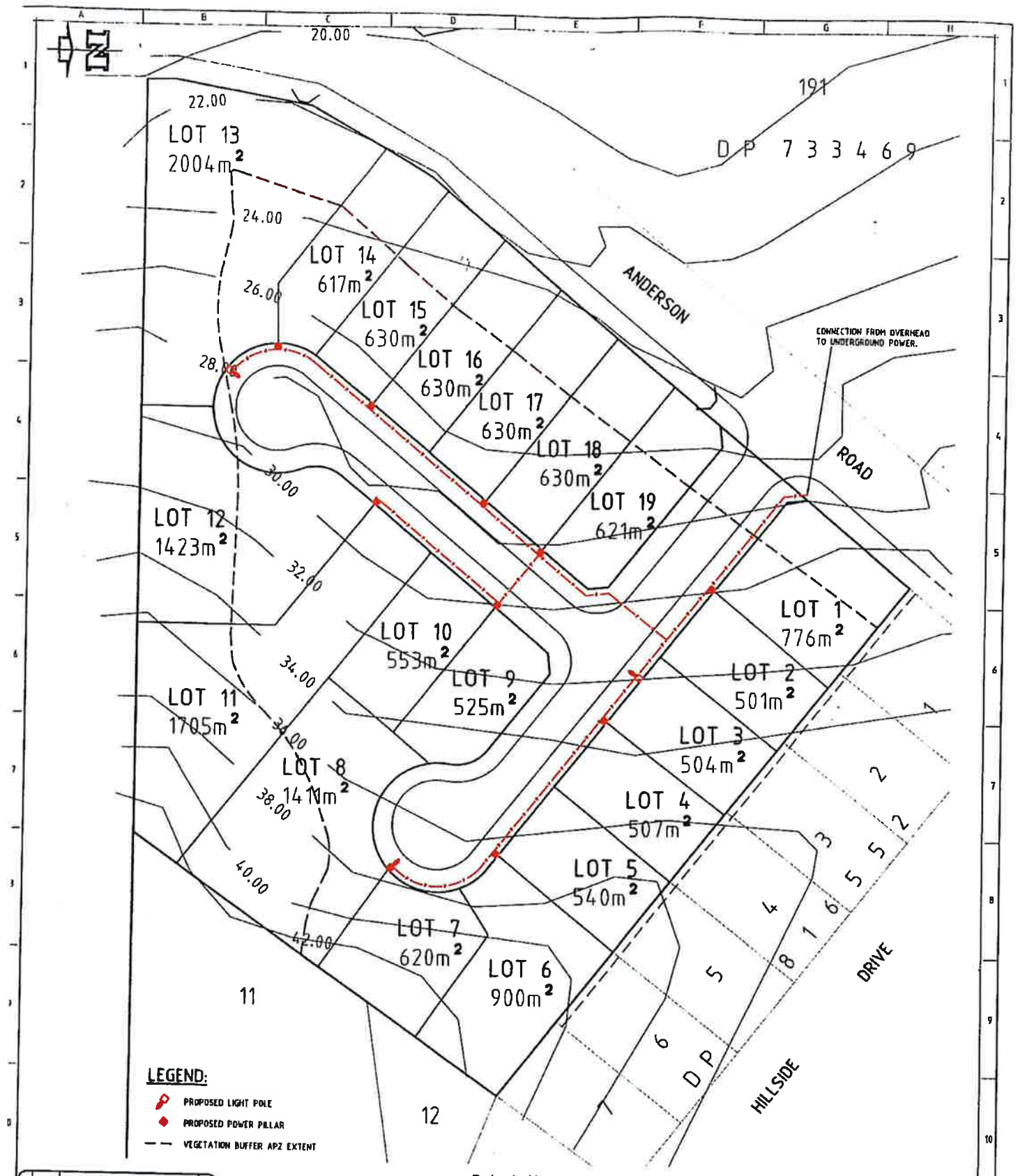
APPENDIX C

Concept Power Supply Plan



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Scale: AS SHOWN | Drawing No. 1157-1004 | Sheet No. 4 of 5 | Amdt. C

Title: CONCEPT POWER SUPPLY PLAN

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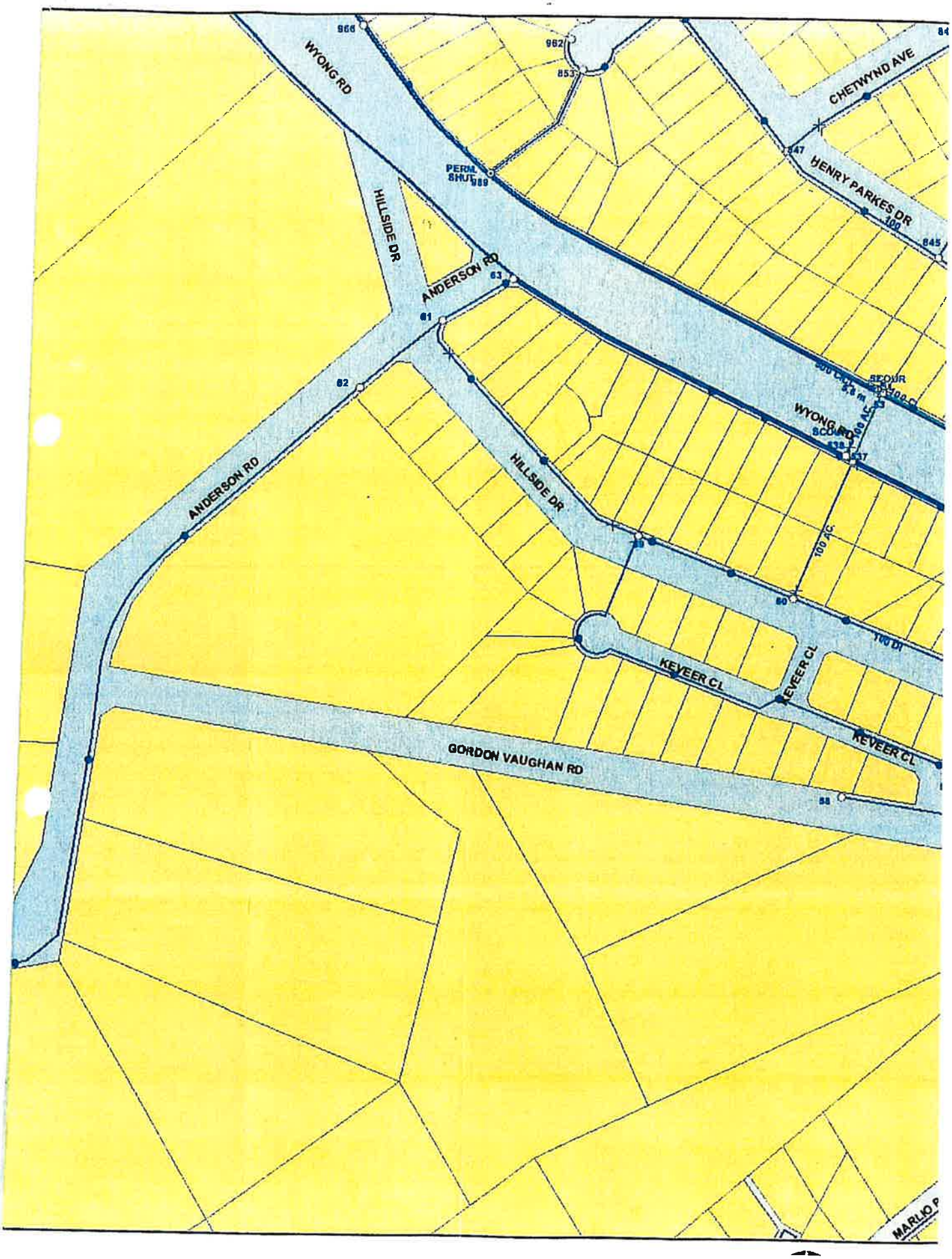
"WARNING"
The location of existing public utilities shown on these drawings is approximate only and in some cases may be inaccurate or incomplete. No responsibility is assumed for not to any guarantee made as to the availability of the locations shown that have been plotted from information provided by the relevant public utility authorities. The attention of the user of these drawings is directed to the possible existence of underground public utilities and private services that are not shown or in locations different from those shown on these drawings.
It is the responsibility of those persons using these drawings to confirm the existence of all public utilities and private services within the vicinity of the works in conjunction with the relevant public utility authority and/or by physical location.

APPENDIX D

Existing Water Reticulation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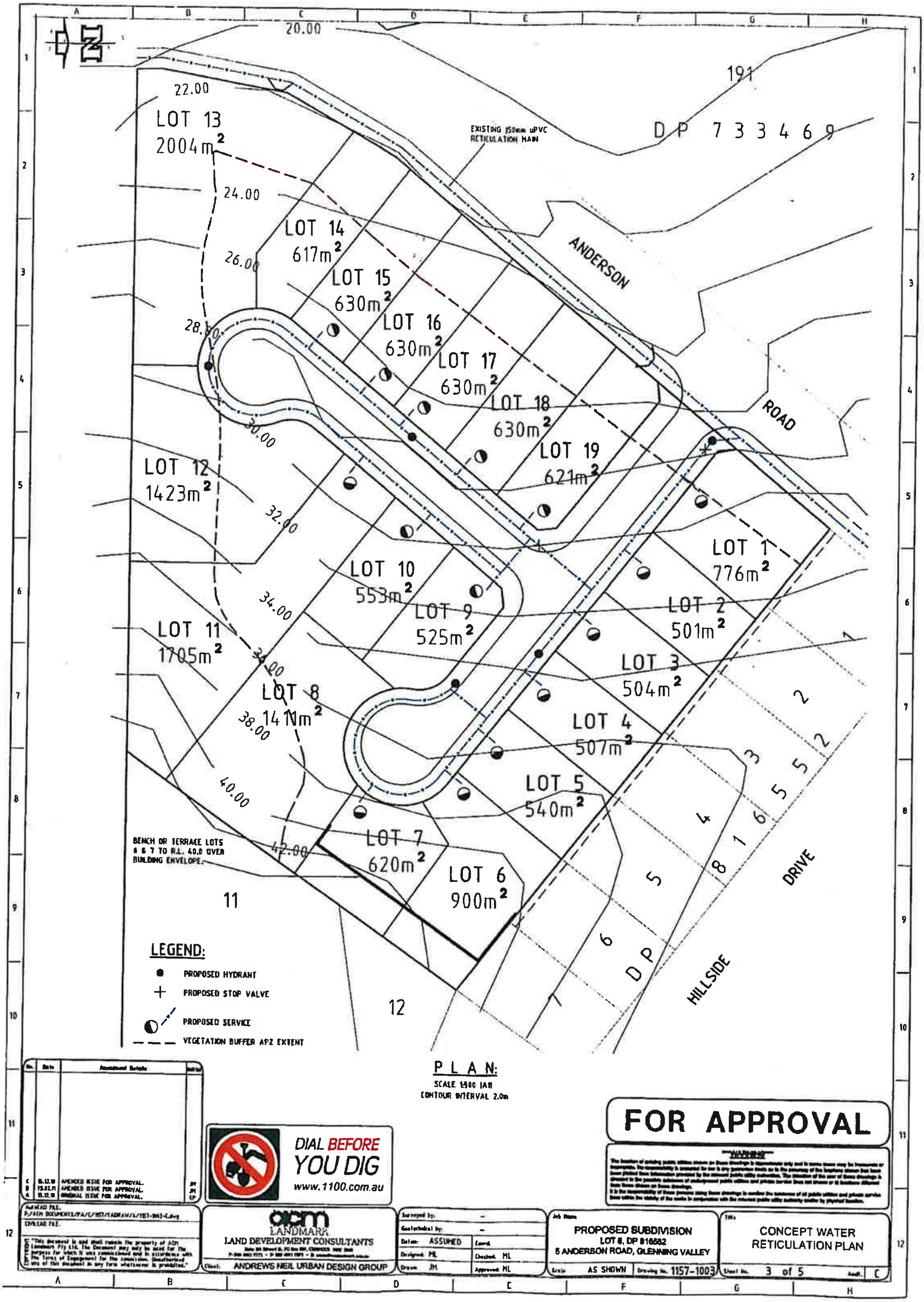
GORDON VAUGHAN RD
100 AC.
100 DI

APPENDIX E

Water Supply Plan



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ANDERSON
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ROAD
30.00
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LOT 1
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LOT 10
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525m²
LOT 2
501m²
LOT 11
1705m²
36.00
LOT 3
504m²
LOT 8
1411m²
38.00
LOT 4
507m²
40.00
LOT 5
540m²
BENCH OR TERRACE LOTS 6 & 7 TO R.L. 40.0 OVER BUILDING ENVELOPE.
42.00
LOT 7
620m²
LOT 6
900m²
DRIVE
11
DP 816552
HILLSIDE
12
LEGEND:
PROPOSED HYDRANT
PROPOSED STOP VALVE
PROPOSED SERVICE
VEGETATION BUFFER APZ EXTENT
PLAN:
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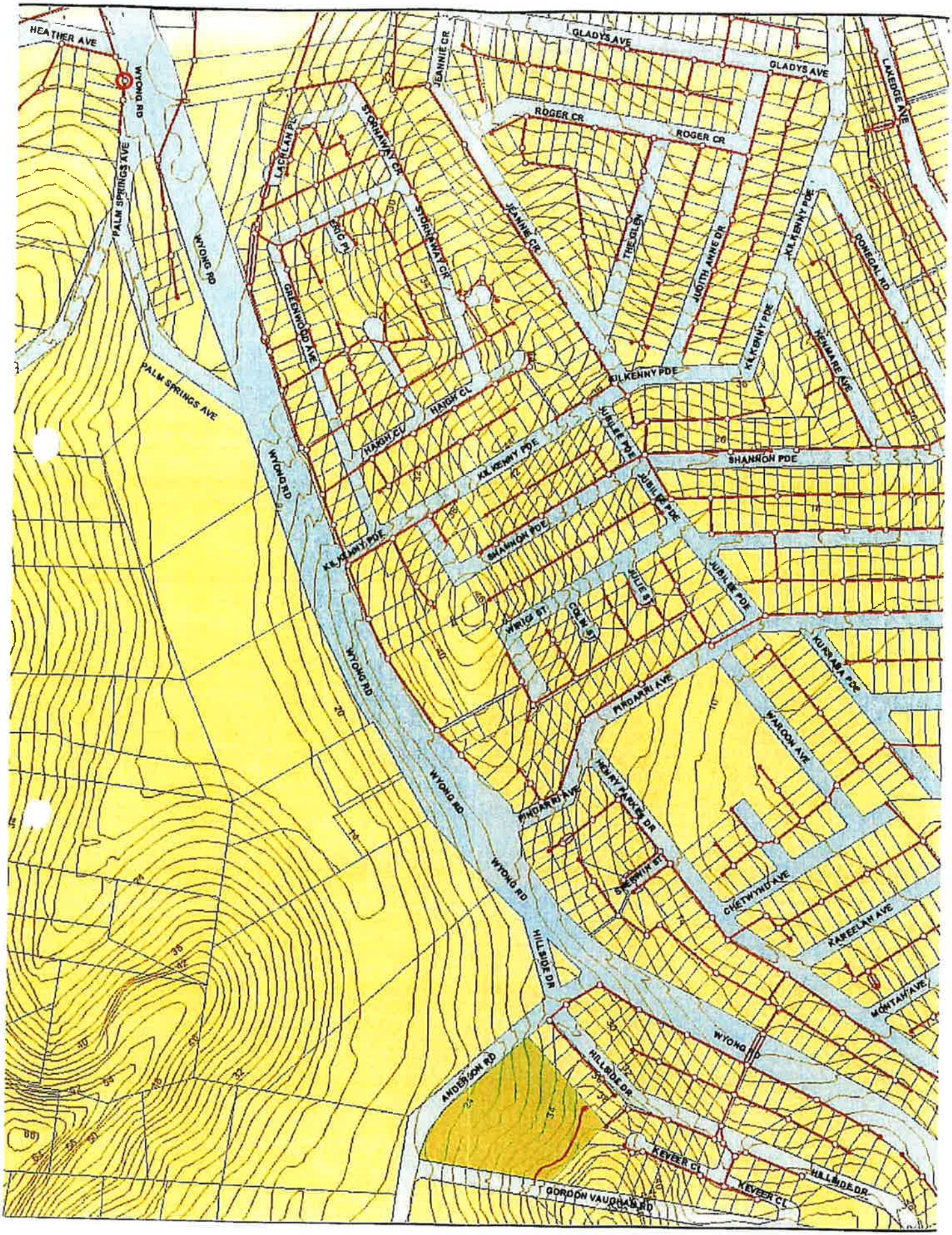
APPENDIX F

Existing Sewer Reticulation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PALM SPRINGS AVE
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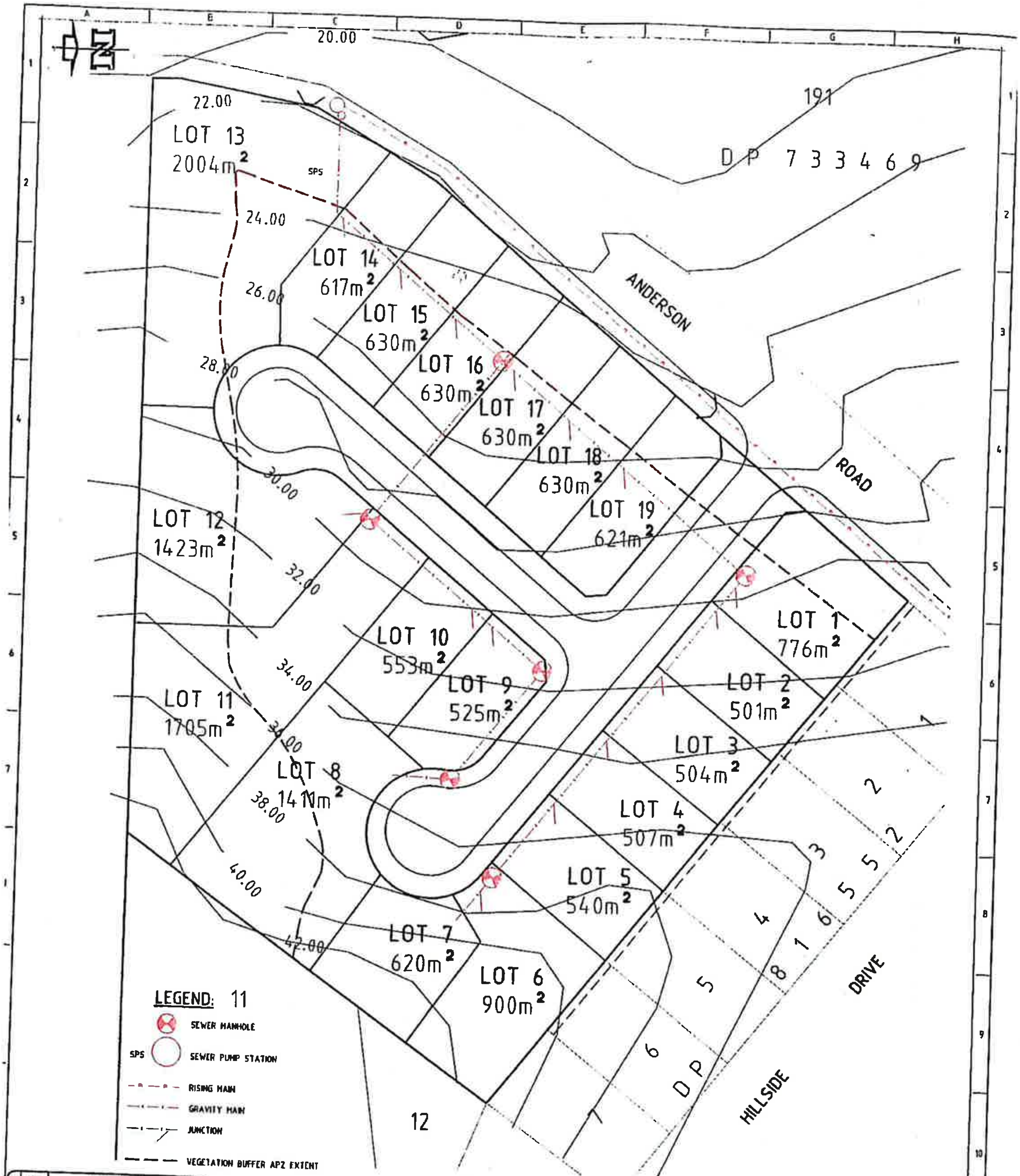
GLADYS AVE
ROGER CR
LAKEDGE AVE
LACHLAN PL
STORMWAY CR
ERIC PL
GREENWOOD AVE
THE GLEN
JUDITH ANNE DR
KILKENNY PDE
PONEGAL RD
KENMARE AVE
HAIGH CL
JUBILEE PDE
SHANNON PDE
JULIE ST
WRIGHT ST
COLM ST
KURRAJA PDE
PINDARRI AVE
WAROON AVE
HENRY PARKES DR
CHETWYND AVE
KAREELAH AVE
MONTAH AVE
HILLSIDE DR
ANDERSON RD
KEVEER CL
GORDON VAUGHAN RD

APPENDIX G

Proposed Sewer Route



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WARNING

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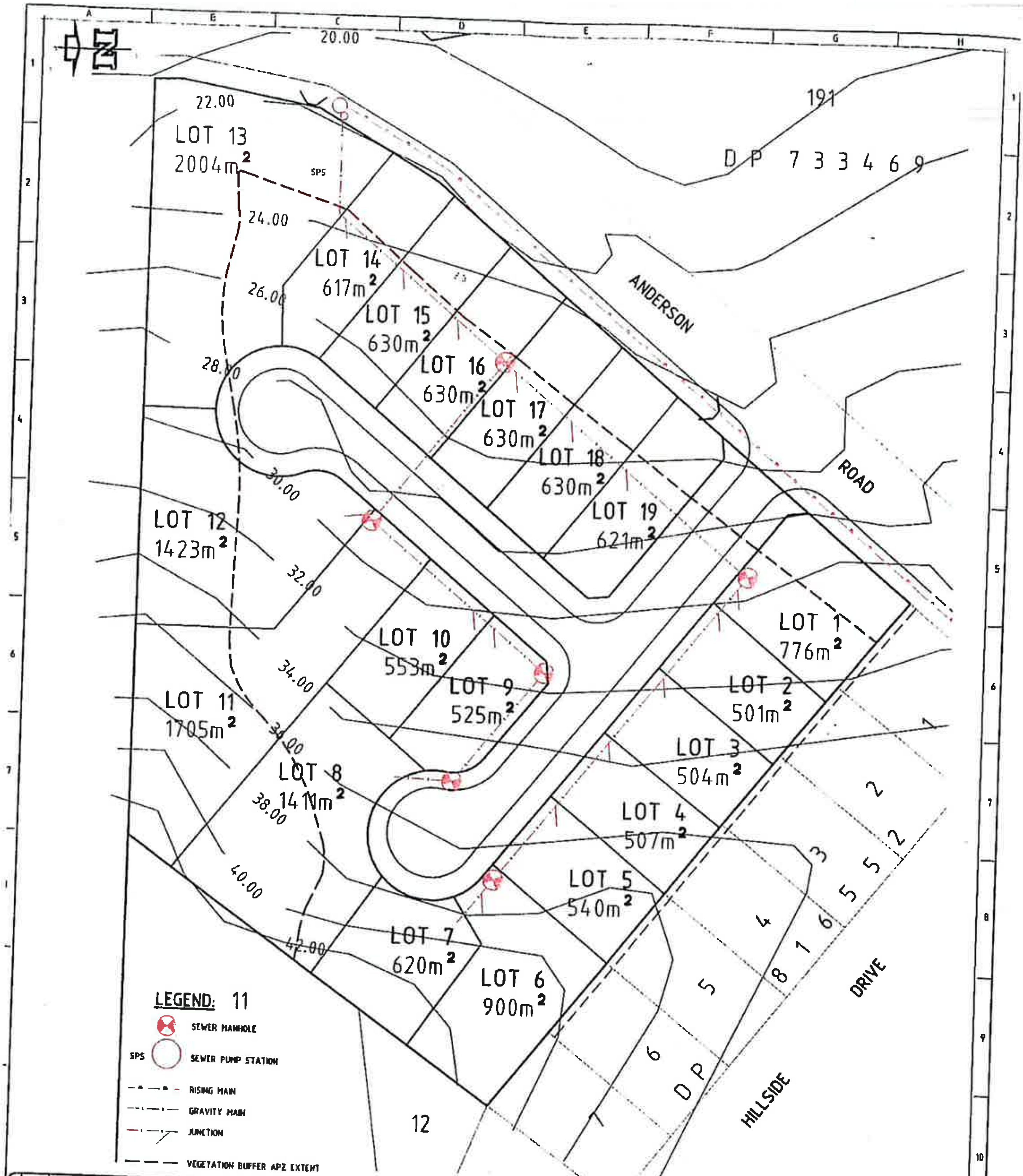
Title: CONCEPT SEWER SUPPLY PLAN

Scale: AS SHOWN | Drawing No. 1157-1005 | Sheet No. 5 of 5 | Amdt. C

APPENDIX H

Internal Sewer Reticulation Concept



PLAN:
SCALE 1:500 (A1)
CONTOUR INTERVAL 2.0m

No.	Date	Amendment Details	Initial
C	16.12.10	AMENDED ISSUE FOR APPROVAL.	JM
B	03.02.11	AMENDED ISSUE FOR APPROVAL.	JM
A	16.12.10	ORIGINAL ISSUE FOR APPROVAL.	CP

AutoCAD FILE.
F:/ACM DOCUMENTS/PA/C/1157/CADRAW/1/1157-1005-C.dwg
CIVILCAD FILE.

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acm LANDMARK
LAND DEVELOPMENT CONSULTANTS

Client: ANDREWS NEIL URBAN DESIGN GROUP

Surveyed by:	-		
Geotechnical by:	-		
Datum:	ASSUMED	Council:	
Designed:	ML	Checked:	ML
Drawn:	JH	Approved:	ML

FOR APPROVAL

WARNING

Job Name: PROPOSED SUBDIVISION
LOT 8, DP 816552
5 ANDERSON ROAD, GLENNING VALLEY

Title: CONCEPT SEWER SUPPLY PLAN

Scale: AS SHOWN | Drawing No. 1157-1005 | Sheet No. 5 of 5 | Amdt. C

APPENDIX I

Jemena Pty Ltd

Corrospondence

Network Protection

In reply to your enquiry, there are gas mains at the location of your intended work as per the attached map. For an explanation of the map, please see the key below. The following excavation guidelines apply:

Excavation Guidelines:

If you are going to excavate/bore within 0.4m of the gas main location as indicated on the map you must excavate carefully by hand. If you can't locate the gas main, contact the local depot.

Sydney North (02) 9397 9290

KEY

MAXIMUM ALLOWABLE OPERATING PRESSURE		
—T—	TRUNK MAIN	7000 kPa
—P—	PRIMARY MAIN	3500 kPa
—S—	SECONDARY MAIN	1050 kPa
		300 kPa
		210 kPa
		7 kPa
—400—		400 kPa
—100—		100 kPa
—30—		30 kPa
		2 kPa
←— — →	PROPOSED MAINS	

⋈	VALVE
▭	SYSTEM PRESSURE REGULATOR
S	SIPHON
6NB	6 INCH CAST IRON MAIN
150MM	150MM STEEL MAIN
110MM PE/NY	110MM POLYETHYLENE / NYLON MAIN
⑥ NB 50MM NY	50MM NYLON INSERTED INTO 6 INCH CAST IRON MAIN
1.2MBL	DISTANCE IN METRES OF MAIN FROM BUILDING LINE (TOLERANCE OF 0.4M)
23	HOUSE NUMBERS
	NETWORK BOUNDARY
123	NETWORK NODES

Warning: The enclosed plans show the position of Jemena Gas Networks (NSW) Ltd's underground gas mains and installations in public gazetted roads only. **Individual customers' services and services belonging to other third parties are not included** on these plans. These plans have been prepared solely for the use of Jemena Gas Networks (NSW) Ltd and Jemena Asset Management Pty Ltd (together "**Jemena**") and any reliance placed on these plans by you is entirely at your own risk. The plans may show the position of underground mains and installations relative to fences, buildings etc., as they existed at the time the mains etc were installed. The plans may not have been updated to take account of any subsequent change in the location or style of those features since the time at which the plans were initially prepared. Jemena makes no warranty as to the accuracy or completeness of the enclosed plans and does not assume any duty of care to you nor any responsibility for the accuracy, adequacy, suitability or completeness of the plans or for any error, omission, lack of detail, transmission failure or corruption in the information provided. Jemena does not accept any responsibility for any loss that you or anyone else may suffer in connection with the provision of these plans, however that loss may arise (including whether or not arising from the negligence of Jemena, its employees, agents, officers or contractors). The recipient of these plans must use their own care and diligence in carrying out their works and must carry out further surveys to locate services at their work site. Persons excavating or carrying out other earthworks will be held responsible for any damage caused to Jemena's underground mains and equipment.

In case of Emergency Phone 131 909 (24 hours)

Mario
02 939 79109

Jemena Asset Management Pty Ltd ABN 53 086 013 461
for and on behalf of Jemena Gas Networks (NSW) Ltd ABN 87 003 004 322


TUGGERAH LAKE
SHANNON
ELAINE AVE
KERRY CRES
JEAN
PDE
ERIN
COLLEEN ST
EMERALD PL
LAKEDGE AVE
GREGORY ST
LUCAS CRES
SHAMROCK DR
LAGUNA PDE
CULWULLA ST
FIBAN AVE
TUMBI CREEK RD
HENRY PARKES DR
RAMONA ST
WYONG RD
ADELAIDE ST
MINEMOA AVE
SCALE 1:2000
THIS MAP UPDATED ON 19/08/05
THIS PLAN IS DIAGRAMATIC ONLY. DISTANCES SCALED FROM THIS PLAN MAY NOT BE ACCURATE.
DATE ALTERED:________ BY.______
BV5A
BV5B
BV6A
BV5C
BV5D
BV6C
BV8A
BV8B
BV9A
ADJOINING MAPS
340
341
NETWORK AREA
WYONG
MUNICIPALITY AREA
Jemena
KEY
MAX ALLOWABLE OPERATING PRESSURE
TRUNK MAIN 7000 kPa
PRIMARY MAIN 3500 kPa
SECONDARY MAIN 1050 kPa
300 kPa
210 kPa
7 kPa
400 kPa
100 kPa
2 kPa
PROPOSED MAINS
STEEL MAIN PROJECT NUMBER
PRESSURE MONITORING STATION
VALVE
SYSTEM PRESSURE REGULATOR
SIPHON
NETWORK NODES
ITEM DETAIL SKETCH AVAILABLE
VALVE NUMBER (OLD NUMBERING)
6NB 6 INCH CAST IRON MAIN
150MM 150MM STEEL MAIN
110MM PE/NY 110MM POLYETHYLENE/NYLON MAIN
50MM NYLON INSERTED INTO 6NB MAIN CAST IRON MAIN
1.2MBL DISTANCE IN METRES OF MAIN FROM BUILDING LINE (TOLERANCE OF 0.4M)
1957 YEAR LAID
MUNICIPALITY BOUNDARY
NETWORK BOUNDARY
HOUSE NUMBER

SCALE 1:2000

50 0 50 100 150 200

THIS MAP UPDATED ON 30/05/59
THIS PLAN IS DIAGRAMATIC ONLY DISTANCES SCALED FROM THIS PLAN MAY NOT BE ACCURATE

DATE ALTERED BY

BV4G	BV5F	BV5G
BV7B	BV8A	BV8B

ADJOINING MAPS

NETWORK AREA

MUNICIPALITY AREA WYONG

Jemena

KEY

MAX ALLOWABLE OPERATING PRESSURE

	TRUNK MAIN	7000 kPa
	PRIMARY MAIN	3500 kPa
	SECONDARY MAIN	1050 kPa
		300 kPa
		210 kPa
		7 kPa
400		400 kPa
100		100 kPa
		2 kPa
	PROPOSED MAINS	
	STEEL MAIN PROJECT NUMBER	
	PRESSURE MONITORING STATION	
	VALVE	
	SYSTEM PRESSURE REGULATOR	
	SIPHON	
	NETWORK NODES	
	ITEM DETAIL SKETCH AVAILABLE	
	VALVE NUMBER (OLD NUMBERING)	
6NB	6 INCH CAST IRON MAIN	
150MM	150MM STEEL MAIN	
80MM PE/NY	80MM POLYETHYLENE/NYLON MAIN	
(6)NB 50MM NY	50MM NYLON INSERTED INTO 6NB MAIN CAST IRON MAIN	
12MBL	DISTANCE IN METRES OF MAIN FROM BUILDING LINE (TOLERANCE OF 0.4M)	
1957	YEAR LAID	
	MUNICIPALITY BOUNDARY	
	NETWORK BOUNDARY	
	HOUSE NUMBER	

Dial Before You Dig

Existing Services Information