

Prepared by:



Prepared for:

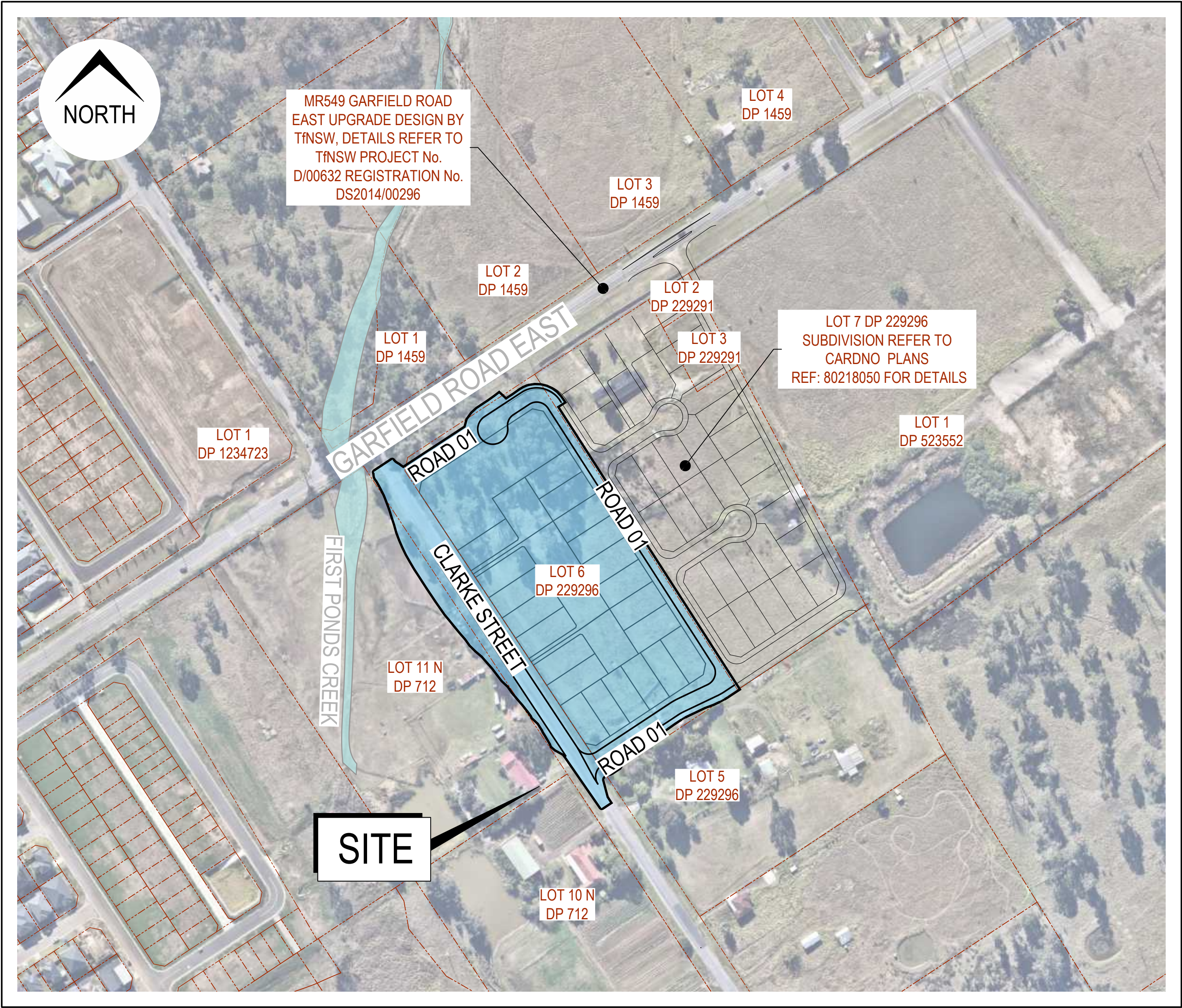


LGA:



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SITE / LOCATION (Image courtesy of Nearmap 05.06.2021)

LOT 6 DP 229296

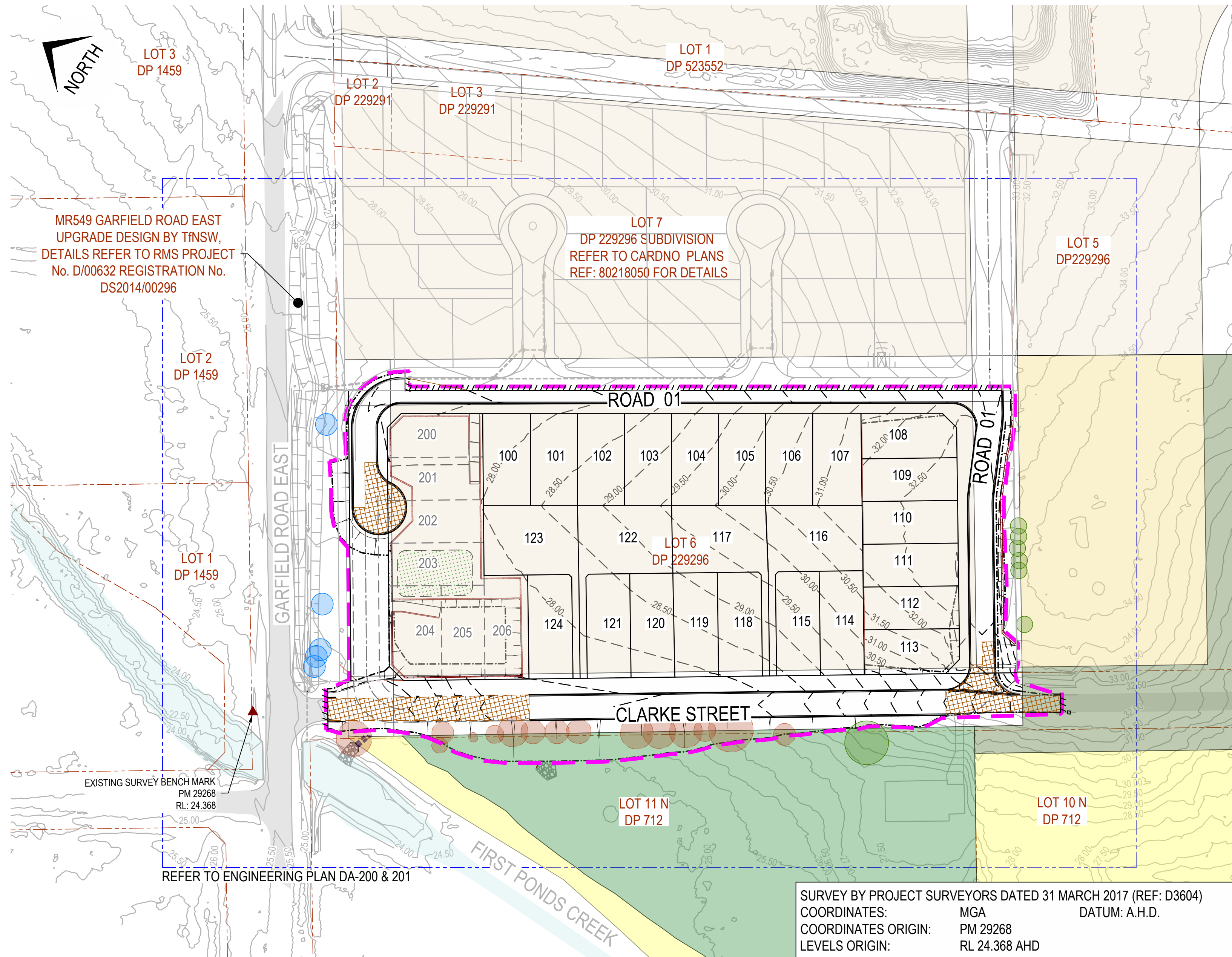
# LOT 6 GARFIELD ROAD EAST RIVERSTONE

## ROAD AND DRAINAGE DESIGN

ISSUED FOR **DEVELOPMENT APPLICATION**  
NOT FOR CONSTRUCTION



3. ALL WORK TO BE CARRIED OUT IN ACCORDANCE WITH BLACKTOWN CITY COUNCIL'S WORKS SPECIFICATION CIVIL (CURRENT EDITION) AND/OR AS DIRECTED BY THEIR REPRESENTATIVE
4. SURVEY MARKS :-
  - a. SURVEY MARKS SHOWN THUS ▲ SHALL BE RETAINED AT ALL TIMES. WHERE RETENTION IS NOT POSSIBLE THE SUPERINTENDENT MUST BE NOTIFIED AND CONSENT RECEIVED PRIOR TO THEIR REMOVAL.
5. THE CONTRACTOR SHALL LOCATE AND LEVEL ALL EXISTING SERVICES PRIOR TO COMMENCING CONSTRUCTION AND MAKE ARRANGEMENTS WITH THE RELEVANT AUTHORITY TO RELOCATE OR ADJUST IF NECESSARY AT DEVELOPERS EXPENSE.
6. THE CONTRACTOR SHALL NOT ENTER UPON NOR DO ANY WORK WITHIN ADJACENT LANDS WITHOUT THE WRITTEN PERMISSION OF THE OWNERS. TO BE PROVIDED PRIOR TO THE APPROVAL OF THE PLANS.
7. THE CONTRACTOR SHALL MAINTAIN SERVICES AND ALL WEATHER ACCESS AT ALL TIMES TO ADJOINING PROPERTIES.
8. COUNCIL'S TREE PRESERVATION ORDER MUST BE OBSERVED AND NO TREE SHALL BE FELLED, LOPPED OR REMOVED WITHOUT THE PRIOR APPROVAL OF COUNCIL'S ENGINEER.
9. TREES TO BE RETAINED ON SITE SHALL BE PROTECTED BY SUITABLE STURDY APPROVED PROTECTIVE FENCING PRIOR TO COMMENCEMENT OF SITE WORKS. NO TREES TO BE REMOVED WITHOUT COUNCIL'S WRITTEN APPROVAL.
10. THE CONTRACTOR SHALL CLEAR THE SITE BY REMOVING ALL RUBBISH, FENCES, EXISTING INFRASTRUCTURE AND DEBRIS ETC.
11. FILLING IS TO BE FROM A NOMINATED SOURCE, OF SOUND CLEAN MATERIAL, FREE FROM LARGE ROCK, STUMPS, CONTAMINATED MATTER, INDUSTRIAL AND BUILDING WASTE, ORGANIC MATTER AND OTHER DEBRIS. PLACING OF FILLING ON THE PREPARED AREAS SHALL NOT COMMENCE UNTIL THE AUTHORITY TO DO SO HAS BEEN OBTAINED FROM THE COUNCIL.
12. SITE FILL AREAS :- THE CONTRACTOR SHALL TAKE LEVELS OF EXISTING SURFACE AFTER STRIPPING TOPSOIL AND PRIOR TO COMMENCING FILL OPERATIONS.
13. ALL SITE FILLING TO BE COMPACTED TO 95% STANDARD COMPACTION AND SHALL BE CONTROLLED BY A REGISTERED SOIL LABORATORY IN ACCORDANCE WITH COUNCIL'S "WORKS SPECIFICATION".
14. ALL SITE REGRADING AREAS SHALL BE GRADED AT A MINIMUM 1% TO THE ENGINEERS REQUIREMENTS.
15. SURPLUS EXCAVATED MATERIAL SHALL BE PLACED WHERE DIRECTED BY THE SUPERINTENDENT.
16. ALL DRAINAGE LINES THROUGH LOTS SHALL BE CONTAINED WITHIN THEIR EASEMENTS AND CONFORM WITH COUNCIL'S STANDARDS.
17. DRAINAGE LINES UNDER ROADS SHALL BE BACKFILLED WITH NON-COHESIVE SAND AND HAVE 3m OF SUBSOIL DRAIN WRAPPED IN APPROVED FILTER SOCK, DISCHARGING INTO DOWN STREAM PITS.
18. VEHICULAR CROSSINGS SHALL BE CONSTRUCTED IN KERB AND GUTTER WHERE SHOWN. DRIVEWAYS & LAYBACKS ARE TO HAVE A MINIMUM 1 METRE CLEARANCE FROM POWER & LIGHT POLES & STORMWATER DRAINS AND 6 METRES CLEARANCE FROM KERB RETURN TANGENT POINTS AND TO COUNCIL STANDARD DRAWING A(BS) 102S.
19. RAMP CROSSINGS SHALL BE CONSTRUCTED IN KERB AND GUTTER IN ACCORDANCE WITH COUNCIL'S STANDARD DRAWING A(BS) 104M.
20. ALL NEW WORKS SHALL MAKE A SMOOTH JUNCTION WITH EXISTING CONDITIONS.
21. DIMENSIONS OF ANY DETAIL SHALL NOT BE SCALED - DIMENSIONS, IF IN DOUBT, SHALL BE VERIFIED BY THE SUPERINTENDENT.
22. ALL CONSTRUCTION AND RESTORATION WORK ON COUNCIL'S ROAD AND FOOTPATH AREA ARE TO BE CARRIED OUT IN ACCORDANCE WITH THE APPROVED DRAWINGS AND COUNCIL'S STANDARD SPECIFICATIONS.
23. ALL LIGHT POLES, STREET NAME POLES AND BUS SHELTERS IN THIS SUBDIVISION WILL BE BLACK POWDER COATED TO THE SATISFACTION OF BLACKTOWN CITY COUNCIL AND COMPLY TO COUNCIL'S SPECIFICATION.
24. CONDUITS TO BE PLACED WHERE REQUIRED BY RELEVANT AUTHORITIES.
25. PITS ARE TO HAVE STEP IRONS IF DEEPER THAN 1.2m, REFER TO COUNCIL'S STANDARD DWG A(BS)111S.
26. STRUCTURAL CERTIFICATION REQUIRED FOR CONSTRUCTION OF MAJOR AND NON-STANDARD STRUCTURES (PITS & RETAINING WALLS).
27. 100 YEAR FLOW PATHS TO BE FORMED AT TIME OF CONSTRUCTION.



1. EARTHWORKS ARE TO BE CARRIED OUT TO THE SATISFACTION OF THE COUNCIL. UNSUITABLE MATERIALS ARE TO BE REMOVED FROM ROADS AND LOTS PRIOR TO FILLING. THE CONTRACTOR IS TO ARRANGE AND MAKE AVAILABLE COMPACTION TESTING RESULTS FOR ALL AREAS THAT CONTAIN FILL IN EXCESS OF 250mm.
2. COMPACTION OF EARTHWORKS SHALL CONTINUE UNTIL A DRY DENSITY RATIO OF 95% FOR SITE FILLING AND 100% FOR ROAD PAVEMENT SUBGRADES HAS BEEN ACHIEVED IN ACCORDANCE WITH TEST METHOD AS1289.5.3.1 OR AS 1289.5.1.1. THE CONTROL TESTING OF EARTHWORKS SHALL BE IN ACCORDANCE WITH THE GUIDELINES IN AS3798 'GUIDELINES ON EARTHWORKS FOR COMMERCIAL AND RESIDENTIAL DEVELOPMENTS'. WHERE IT IS PROPOSED TO USE TEST METHOD AS1289.5.8.1 TO DETERMINE THE FIELD DENSITY, A SAND REPLACEMENT METHOD SHALL BE USED TO CONFIRM THE RESULTS.
3. THE SUITABLE QUALIFIED GEOTECHNICAL ENGINEER, SHALL HAVE A LEVEL 1 RESPONSIBILITY FOR ALL FILLING AS DEFINED IN APPENDIX B AS3798 'GUIDELINES ON EARTHWORKS FOR COMMERCIAL AND RESIDENTIAL DEVELOPMENTS'. AND AT THE END OF THE WORKS SHALL CONFIRM THE EARTHWORKS COMPLY WITH THE REQUIREMENTS OF THE SPECIFICATION AND DRAWINGS BY WRITTEN NOTIFICATION.
4. IN AREAS TO BE FILLED WHERE THE SLOPE OF THE NATURAL SURFACE EXCEEDS 1(V):4(H), BENCHES ARE TO BE CUT TO PREVENT SLIPPING OF THE PLACED FILL MATERIAL AS REQUIRED BY THE COUNCIL.
5. ALL BATTERS ARE TO BE SCARIFIED TO A DEPTH OF 50mm TO ASSIST WITH ADHESION OF TOP SOIL TO BATTER FACE.
6. PROVIDE MINIMUM 100mm AND MAXIMUM 250mm TOPSOIL DEPTH ON FOOTPATHS, FILLED AREAS AND ALL OTHER AREAS DISTURBED DURING CONSTRUCTION. TOPSOILED AREAS TO BE STABILISED WITH APPROVED VEGETATION A MAXIMUM OF 14 DAYS AFTER TOPSOILING AND ARE TO BE WATERED TO ENSURE GERMINATION.
7. THE CONTRACTOR SHALL CONTROL SEDIMENTATION, EROSION AND POLLUTION DURING CONSTRUCTION IN ACCORDANCE WITH THE REQUIREMENTS OF THE CURRENT EDITION OF 'MANAGING URBAN STORMWATER: SOILS AND CONSTRUCTION PRODUCED BY LANDCOM.

- D1. STORMWATER DESIGN CRITERIA:  
MAJOR SYSTEM - 1:100 YEAR ARI  
MINOR SYSTEM - 1:5 YEAR ARI  
INTERALLOTMENT DRAINAGE SYSTEM - 1:20 YEAR ARI
- D2. PIPES TO BE INSTALLED TO TYPE HS2 SUPPORT IN ACCORDANCE WITH AS 3725 (1989) IN ALL CASES BACKFILL TRENCH WITH SAND TO 300mm ABOVE PIPE (UNO), WHERE PIPE IS UNDER PAVEMENTS BACKFILL REMAINDER OF TRENCH TO UNDERSIDE OF PAVEMENT WITH SAND OR APPROVED GRANULAR MATERIAL COMPACTED IN 150mm LAYERS TO MINIMUM 98% STANDARD MAXIMUM DRY DENSITY IN ACCORDANCE WITH AS 1289 5.2.1. (OR A DENSITY INDEX OF NOT LESS THAN 75)
- D3. ALL INTERNAL WORKS WITHIN PROPERTY BOUNDARIES ARE TO COMPLY WITH THE REQUIREMENTS OF AS 3500 3.1 AND ASINZS 3500 3.2 & COUNCIL'S SPECIFICATIONS.
- D4. CARE IS TO BE TAKEN WITH LEVELS OF STORMWATER LINES. GRADES SHOWN ARE NOT TO BE REDUCED WITHOUT APPROVAL.
- D5. GRATES AND COVERS SHALL CONFORM TO AS 3996.
- D6. AT ALL TIMES DURING CONSTRUCTION OF STORMWATER PITS, ADEQUATE SAFETY PROCEDURES SHALL BE TAKEN TO ENSURE AGAINST THE POSSIBILITY OF PERSONNEL FALLING DOWN PITS.
- D7. DRAINAGE LINES UNDER ROADS SHALL BE BACKFILLED WITH NON-COHESIVE SAND AND HAVE 3.0m OF SUBSOIL DRAIN WRAPPED IN APPROVED FILTER SOCK, DISCHARGING INTO DOWN STREAM PITS.
- D8. ALL STORMWATER PIPES WITHIN ROADS TO BE REINFORCED CONCRETE PIPE (RCP) CLASS 2.
- D9. ALL INTERALLOTMENT DRAINAGE LINES SHALL BE LAID AT A MINIMUM GRADE OF 1% UNLESS OTHERWISE INDICATED.
- D10. DRAINAGE LINES ON PLANS ARE DIAGRAMMATIC ONLY AND PIPE CENTRELINES SHALL ENTER AND EXIT PITS AT THE CENTRE OF THE RESPECTIVE PIT WALLS (UNO).
- D11. PRECAST KERB INLET LINTELS SHALL BE USED ON GULLY PITS. GULLY PITS SHALL BE IN ACCORDANCE WITH A(BS)106M.
- D12. PROVIDE STUB Ø100 uPVC SN4 PIPES AT INTER-ALLOTMENT DRAINAGE PITS FOR FUTURE CONNECTION.

LEGEND			
	EXISTING	PROPOSED	FUTURE
UTILITY - ELECTRICITY			
GAS			
SEWER			
WATER			
TELECOMS			
NBN			
OPTIC FIBRE			
CONTOUR LINE & LABEL			
LOT NUMBER & BOUNDARY			
APPROXIMATE LIMIT OF WORKS - INTERIM			
APPROXIMATE LIMIT OF WORKS - ULTIMATE			
INDICATIVE CREEK EXTENT			
ROAD, NUMBER, CONTROL LINE, CHAINAGE & CHAINAGE MARK			
COUNCIL STANDARD KERB & GUTTER, ROLLER KERB OR DISH CROSSING			
COUNCIL STANDARD DISH CROSSING			
COUNCIL STANDARD CONCRETE FOOTPATH & KERB RAMP			
INDICATIVE DRIVEWAY LOCATION			
PAVEMENT			
STORMWATER DRAINAGE PIPE AND STRUCTURE			
STORMWATER DRAINAGE PIPE AND STUB			
TEMPORARY STORMWATER DRAINAGE PIPE			
EASEMENT			
SUBSOIL DRAIN			
DIVERSION SWALE			
RETAINING WALL			
TEMPORARY CRASH BARRIER			
BATTER			
TREE - TO BE RETAINED			
TREE - TO BE REMOVED - STAGE 1			
TREE - TO BE REMOVED - STAGE 2			
EXISTING CADASTRAL BOUNDARY			
TEMPORARY ROAD PAVEMENT			
ILP LOW DENSITY RESIDENTIAL			
ILP LOCAL PARK			
ILP SPORTING FIELD			
ILP ENVIRONMENTAL LIVING			
ILP WATER MANAGEMENT			

IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY  
LOCATE AND AVOID DAMAGE TO THEM AS SPECIFIED BY  
EACH UTILITIES EXCAVATION GUIDE LINES/STANDARDS.



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Title:				
GENERAL LAYOUT PLAN, NOTES & LEGEND				
Project No.	Set No.	Milestone	Plan	Revision
21-0126	04	DA	001	A

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Rev	Drawn	Design	Check	Appd.	Date	Revision Description	





















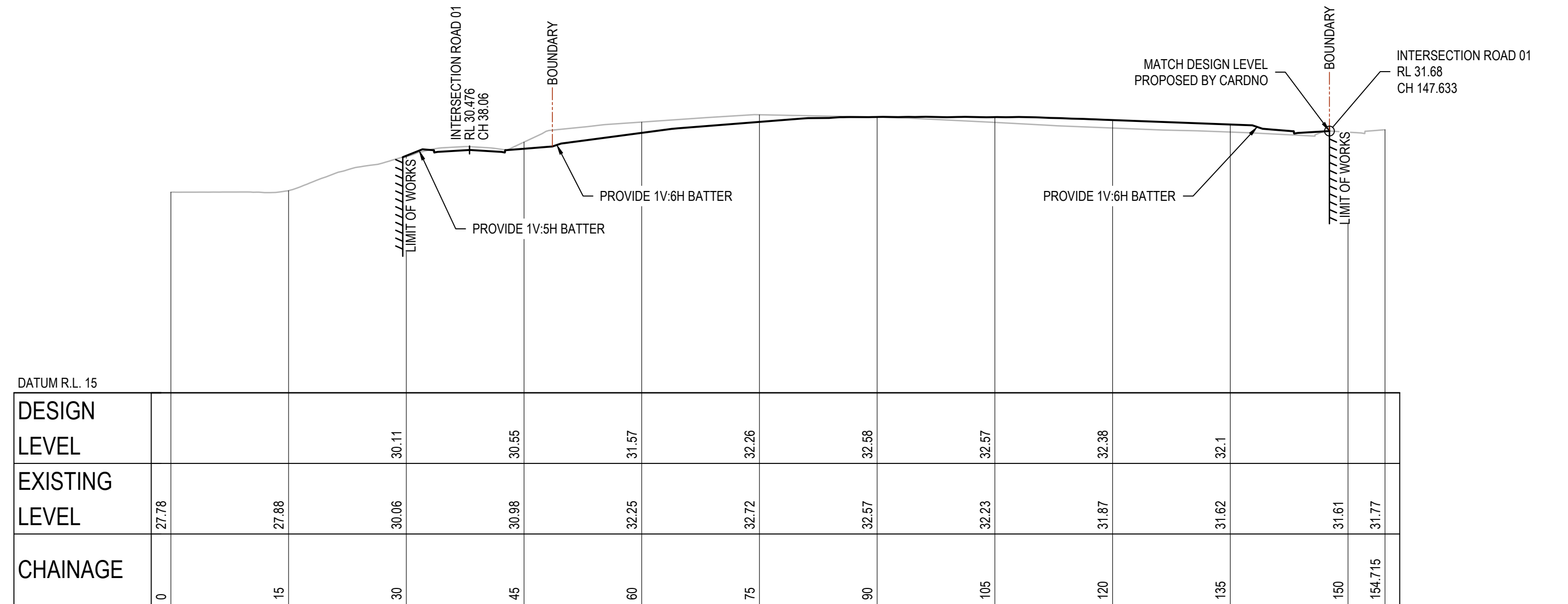
## LEGEND

DESIGN SURFACE	
EXISTING SURFACE	
FUTURE SURFACE	
LOT BOUNDARY	
TREE EXCLUSION ZONE	
PROPOSED RETAINING WALL	

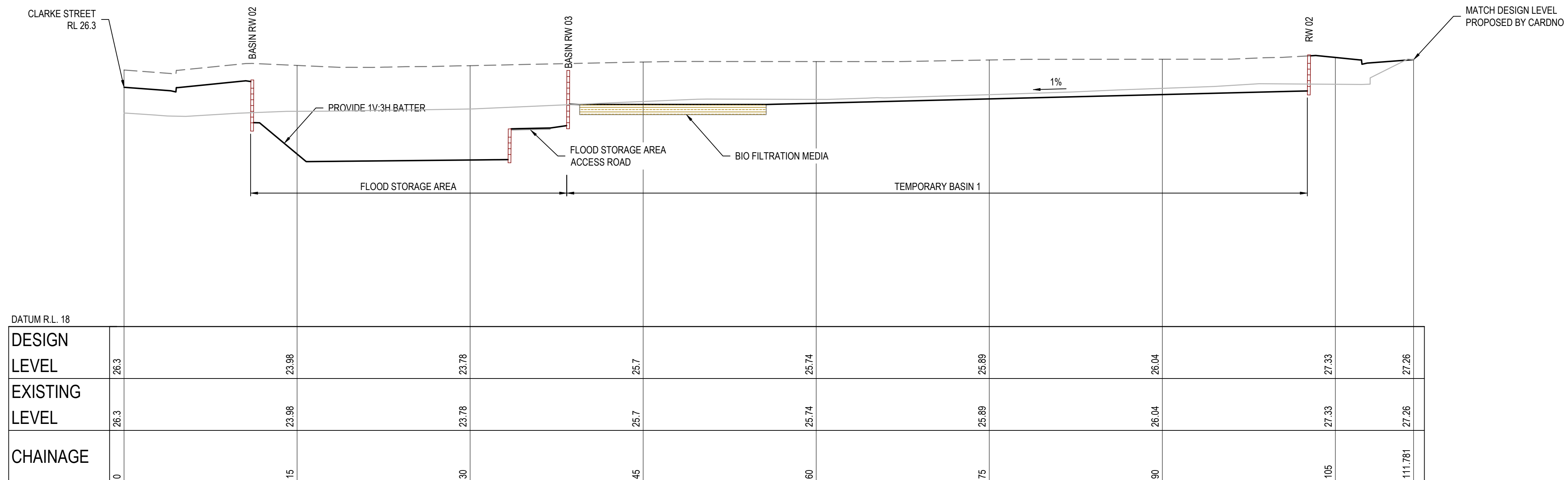


SECTION D  
003

SCALE: 1:500 (H)  
SCALE: 1:100 (V)



SECTION E  
003  
SCALE: 1:500 (H)  
SCALE: 1:100 (V)



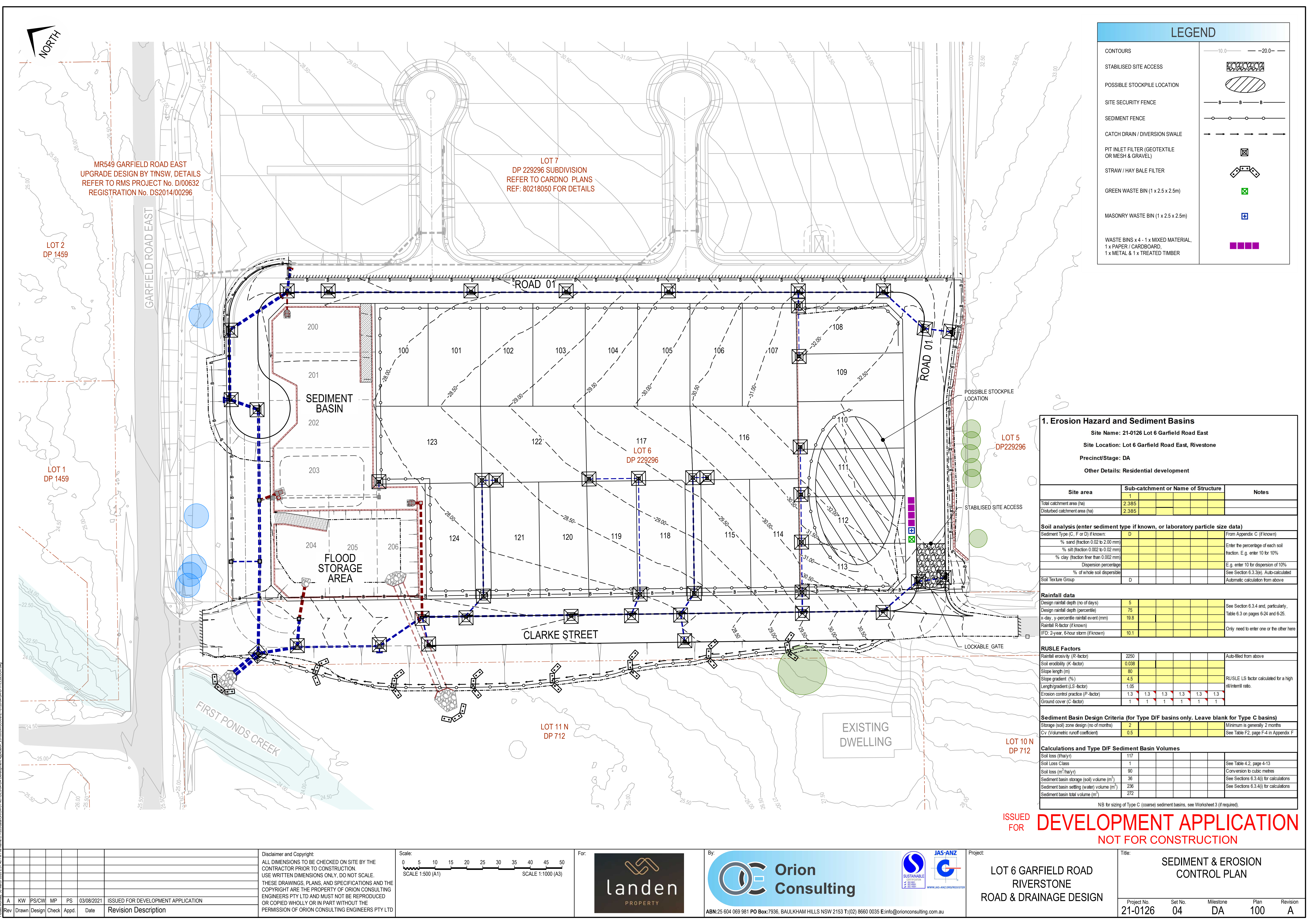
SECTION F  
003

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LEGEND	
CONTOURS	10.0 — 20.0 —
STABILISED SITE ACCESS	
POSSIBLE STOCKPILE LOCATION	
SITE SECURITY FENCE	
SEDIMENT FENCE	
CATCH DRAIN / DIVERSION SWALE	
PIT INLET FILTER (GEOTEXTILE OR MESH & GRAVEL)	
STRAW / HAY BALE FILTER	
GREEN WASTE BIN (1 x 2.5 x 2.5m)	
MASONRY WASTE BIN (1 x 2.5 x 2.5m)	
WASTE BINS x 4 - 1 x MIXED MATERIAL, 1 x PAPER / CARDBOARD, 1 x METAL & 1 x TREATED TIMBER	

1. Erosion Hazard and Sediment Basins				
Site Name: 21-0126 Lot 6 Garfield Road East				
Site Location: Lot 6 Garfield Road East, Rivestone				
Precinct/Stage: DA				
Other Details: Residential development				
Site area	Sub-catchment or Name of Structure	Notes		
Total catchment area (ha)	1	2.385		
Disturbed catchment area (ha)	2.385			
Soil analysis (enter sediment type if known, or laboratory particle size data)				
Sediment Type (C, F or D) if known:	D			From Appendix C (if known)
% sand (fraction 0.02 to 2.00 mm)				Enter the percentage of each soil fraction. E.g. enter 10 for 10%
% silt (fraction 0.002 to 0.02 mm)				
% clay (fraction finer than 0.002 mm)				
Dispersion percentage				E.g. enter 10 for dispersion of 10%
% of whole soil dispersible				See Section 6.3.3(e). Auto-calculated
Soil Texture Group	D			Automatic calculation from above
Rainfall data				
Design rainfall depth (no of days)	5			See Section 6.3.4 and, particularly, Table 6.3 on pages 6-24 and 6-25.
Design rainfall depth (percentile)	75			
x-day, y-percentile rainfall event (mm)	19.8			
Rainfall R-factor (if known)				
TFD: 2-year, 6-hour storm (if known)	10.1			Only need to enter one or the other here
RUSLE Factors				
Rainfall erosivity (R-factor)	2250			Auto-filled from above
Soil erodibility (K-factor)	0.038			
Slope length (m)	80			
Slope gradient (%)	4.5			RUSLE LS factor calculated for a high n/interill ratio.
Length/gradient (LS-factor)	1.05			
Erosion control practice (P-factor)	1.3	1.3	1.3	1.3
Ground cover (C-factor)	1	1	1	1
Sediment Basin Design Criteria (for Type D/F basins only. Leave blank for Type C basins)				
Storage (soil zone design (no of months)	2			Minimum is generally 2 months
Cv (Volumetric runoff coefficient)	0.5			See Table F2, page F-4 in Appendix F
Calculations and Type D/F Sediment Basin Volumes				
Soil loss (t/ha/yr)	117			
Soil Loss Class	1			See Table 4.2, page 4-13
Soil loss (m <sup>3</sup> /ha/yr)	90			Conversion to cubic metres
Sediment basin storage (soil) volume (m <sup>3</sup> )	36			See Sections 6.3.4(i) for calculations
Sediment basin settling (water) volume (m <sup>3</sup> )	236			See Sections 6.3.4(i) for calculations
Sediment basin total volume (m <sup>3</sup> )	272			
NB for sizing of Type C (coarse) sediment basins, see Worksheet 3 (if required).				

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	Rev	Drawn	Design	Check	Appd.	Date
	Revision Description					

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Scale:

0 5 10 15 20 25 30 35 40 45 50

SCALE 1:500 (A1)

SCALE 1:1000 (A3)

For:



By:



Orion Consulting

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Project:



LOT 6 GARFIELD ROAD RIVERSTONE ROAD & DRAINAGE DESIGN

Title:

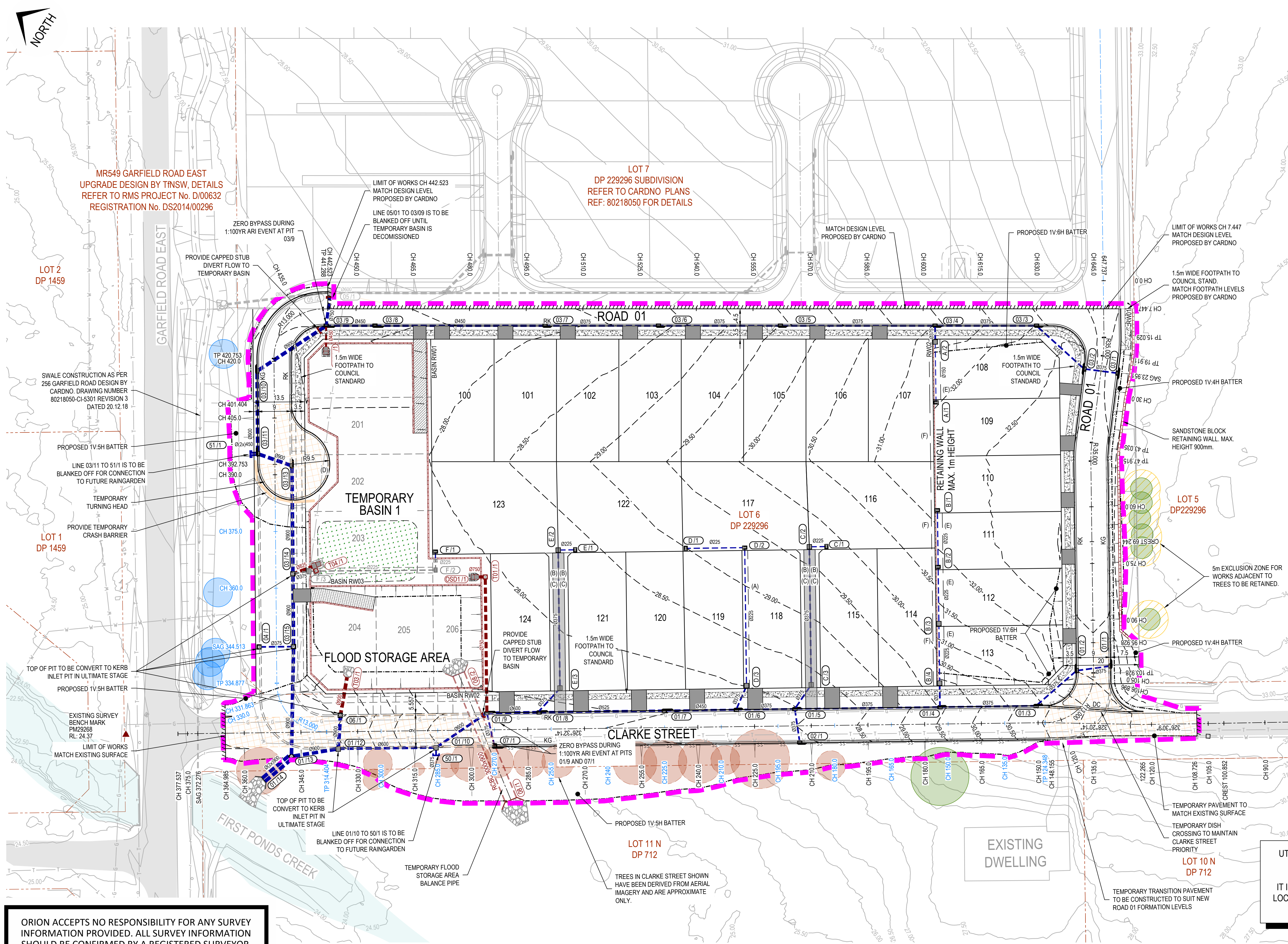
SEDIMENT & EROSION CONTROL PLAN

Project No.	Set No.	Milestone	Plan	Revision
21-0126	04	DA	100	A









LEGEND	
5m EXCLUSION ZONE FOR WORKS ADJACENT TO TREES TO BE RETAINED	
TEMPORARY PAVEMENT	
PROPOSED STAGE 1 (INTERIM) CONTROL LINE, CHAINAGE & CHAINAGE MARK	
PROPOSED STAGE 2 (ULTIMATE) CONTROL LINE, CHAINAGE & CHAINAGE MARK	

- STAGE 1 - INTERIM NOTES:
- GARFIELD ROAD EAST UPGRADE HAS NOT OCCURRED.
  - REGIONAL STORM WATER DETENTION AND WATER QUALITY BASINS HAVE NOT BEEN CONSTRUCTED.
  - PRIORITY ACCESS TO CLARKE STREET IS REQUIRED TO BE MAINTAINED.
  - TEMPORARY ON-SITE DETENTION AND WATER QUALITY DEVICES ARE REQUIRED AND CANNOT BE REMOVED UNTIL DOWNSTREAM REGIONAL DEVICES ARE OPERATIONAL.
  - COMPENSATORY FLOOD STORAGE VOLUME IS REQUIRED UNTIL GARFIELD ROAD EAST IS UPGRADED.

- NOTES:
- SERVICES SHOWN ARE INDICATIVE ONLY.
  - IN ACCORDANCE WITH ADVICE FROM DAVID YEE BCC (EMAIL DATED 02/07/2021), THE SPEED LIMIT IN CLARKE STREET IS TO BE DROPPED TO 50km/hr TO ACHIEVE ADEQUATE SIGHT DISTANCE AT THE TEMPORARY INTERSECTION OF CLARKE STREET AND ROAD 1. INTERSECTION WARNING SIGNAGE IS TO BE PROVIDED AT DETAILED DESIGN STAGE.
  - BCC HAS INSTRUCTED SPLITTER PITS WILL BE REQUIRED TO DIRECT LOW FLOWS TO REGIONAL BASINS AT THE LOCATIONS OF PITS 01/11 AND 03/11 AND PROVIDED FIXED INVERT LEVELS OF THESE PITS AS DOCUMENTED. THE LOW FLOW OUTLETS FROM THESE PITS IS TO BE BLOCKED OFF IN THE INTERIM (STAGE 1) CASE.
  - STORMWATER PITS 01/10 AND 03/11 HAVE BEEN DESIGNED AS SPLITTER PITS TO CONVEY 6 MONTH FLOWS TO FUTURE REGIONAL BASINS. THE EFFECT OF THE INTERNAL WEIRS HAS BEEN CONSIDERED IN THE HYDRAULIC DESIGN OF THE SYSTEM. REFER TO LONGITUDINAL SECTIONS FOR DETAILS.
  - PROVISION IS MADE TO CONVEY STORMWATER FROM LOT 7 DP 229296 TO THE SPLITTER PIT 03/11 IN THE ULTIMATE (STAGE 2) STATE. LINE 05/2 TO 03/9 IS TO BE BLOCKED UNTIL STAGE 2 WORKS ARE UNDERTAKEN.

EASEMENTS	
(A)	DENOTES 1.5m DRAINAGE EASEMENT
(B)	RIGHT OF CARRIAGEWAY 2.5 WIDE & VARIABLE.
(C)	EASEMENT FOR SERVICES 2.5 WIDE & VARIABLE.
(D)	RIGHT OF ACCESS VARIABLE WIDTH.
(E)	PROPOSED EASEMENT TO DRAIN WATER 2.0 WIDE
(F)	PROPOSED EASEMENT FOR MAINTENANCE AND ACCESS 0.9 WIDE



UTILITIES SHOWN ARE DIAGRAMMATIC ONLY AND MAY NOT INCLUDE ALL SERVICES WITHIN THE LIMIT OF WORKS.

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ORION ACCEPTS NO RESPONSIBILITY FOR ANY SURVEY INFORMATION PROVIDED. ALL SURVEY INFORMATION SHOULD BE CONFIRMED BY A REGISTERED SURVEYOR PRIOR TO CONSTRUCTION.

ISSUED FOR **DEVELOPMENT APPLICATION**  
NOT FOR CONSTRUCTION

Rev	Drawn	Design	Check	Appd.	Date	Revision Description
A	KW	PS/CW	MP	PS	03/08/2021	ISSUED FOR DEVELOPMENT APPLICATION

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Scale:

0 5 10 15 20 25 30 35 40 45 50

SCALE 1:500 (A1)

SCALE 1:1000 (A3)

For:

**landen** PROPERTY

By:

**Orion Consulting**

ABN:25 604 069 981 PO Box:7936, BAULKHAM HILLS NSW 2153 T:(02) 8660 0035 E:info@orionconsulting.com.au

Project:

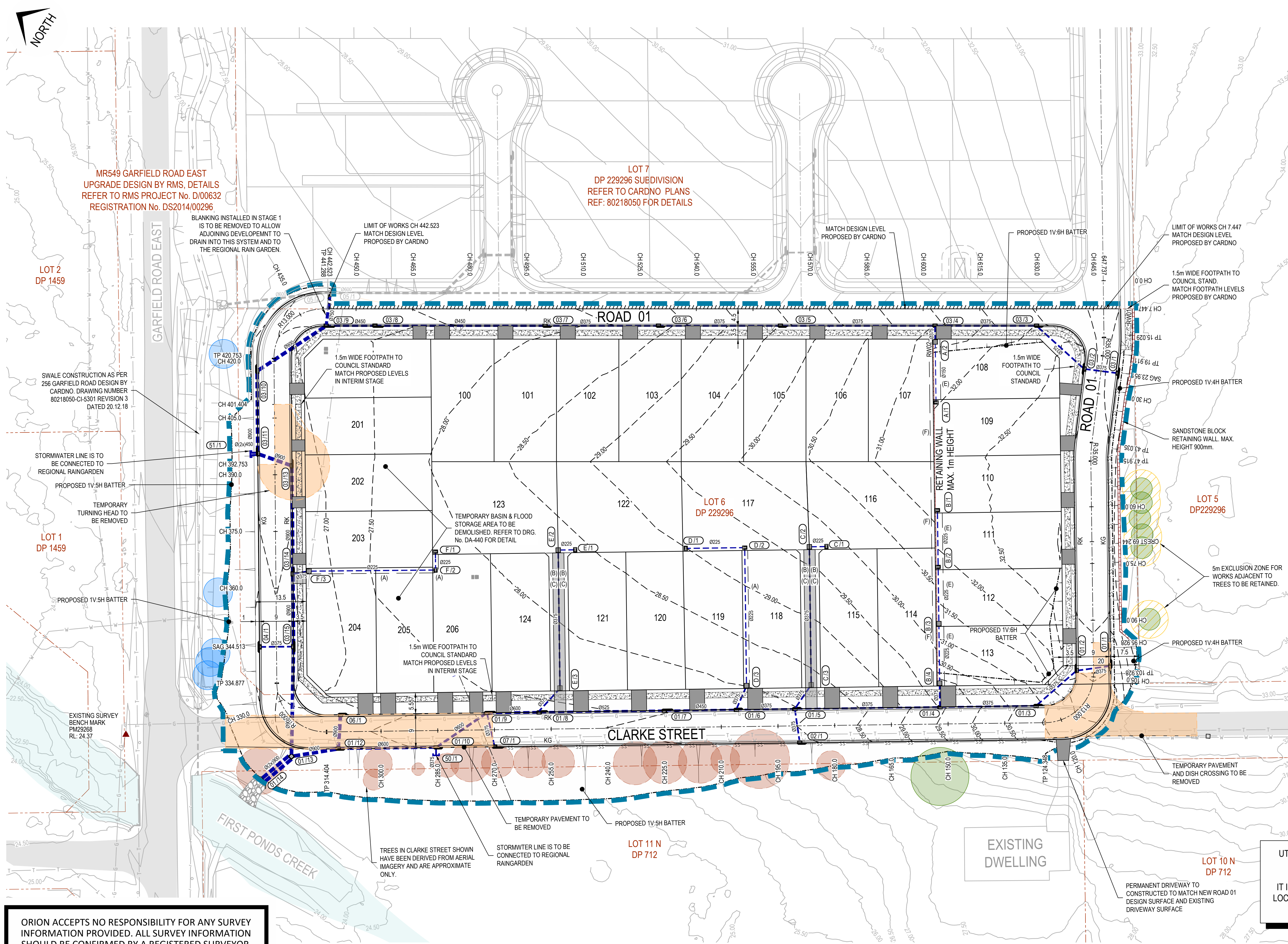
**LOT 6 GARFIELD ROAD RIVERSTONE ROAD & DRAINAGE DESIGN**

Title:

**ENGINEERING PLAN STAGE 1 - INTERIM**

Project No.	Set No.	Milestone	Plan	Revision
21-0126	04	DA	200	A





LEGEND

5m EXCLUSION ZONE FOR WORKS ADJACENT TO TREES TO BE RETAINED

TEMPORARY PAVEMENT CONSTRUCTED UNDER INTERIM STAGE TO BE REMOVED

- STAGE 2 - ULTIMATE NOTES:
- GARFIELD ROAD EAST UPGRADE HAS OCCURRED AND CLARKE STREET HAS BEEN DECOMMISSIONED.
  - REGIONAL STORM WATER DETENTION AND WATER QUALITY BASINS HAVE BEEN CONSTRUCTED.
  - TEMPORARY ON-SITE DETENTION AND WATER QUALITY DEVICES ARE TO BE REMOVED. STORMWATER DRAINAGE DRAINS ARE TO BE CONNECTED TO TO REGIONAL STORMWATER DETENTION AND WATER QUALITY BASINS. COMPENSATORY FLOOD STORAGE VOLUME IS TO BE REMOVED.

EASEMENTS	
(A)	DENOTES 1.5m DRAINAGE EASEMENT
(B)	RIGHT OF CARRIAGEWAY 2.5 WIDE & VARIABLE.
(C)	EASEMENT FOR SERVICES 2.5 WIDE & VARIABLE.
(D)	RIGHT OF ACCESS VARIABLE WIDTH.
(E)	PROPOSED EASEMENT TO DRAIN WATER 2.0 WIDE
(F)	PROPOSED EASEMENT FOR MAINTENANCE AND ACCESS 0.9 WIDE



UTILITIES SHOWN ARE DIAGRAMMATIC ONLY AND MAY NOT INCLUDE ALL SERVICES WITHIN THE LIMIT OF WORKS.

IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY, LOCATE AND AVOID DAMAGE TO THEM AS SPECIFIED BY EACH UTILITIES EXCAVATION GUIDE LINES/STANDARDS.

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NOT FOR CONSTRUCTION

Rev	Drawn	Design	Check	Appd.	Date	Revision Description
A	KW	PS/CW	MP	PS	03/08/2021	ISSUED FOR DEVELOPMENT APPLICATION

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Scale:

0 5 10 15 20 25 30 35 40 45 50

SCALE 1:500 (A1)

SCALE 1:1000 (A3)

For:

By:

ABN:25 604 069 981 PO Box:7936, BAULKHAM HILLS NSW 2153 T:(02) 8660 0035 E:info@orionconsulting.com.au

Project:

LOT 6 GARFIELD ROAD RIVERSTONE ROAD & DRAINAGE DESIGN

Title:

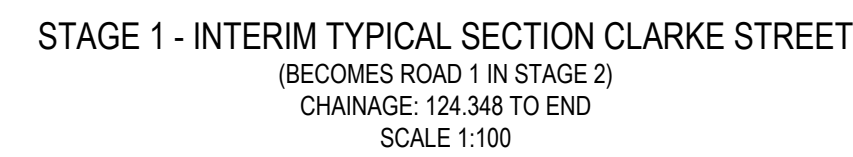
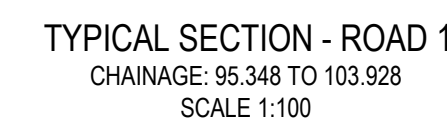
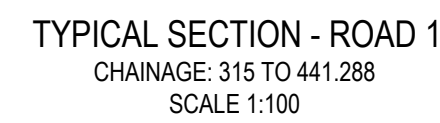
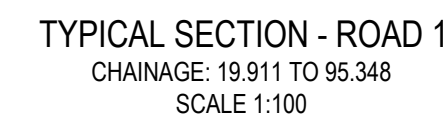
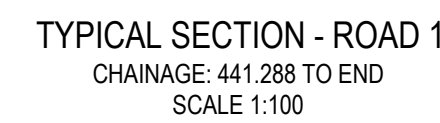
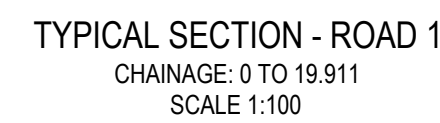
ENGINEERIN PLAN STAGE 2 - ULTIMATE

Project No.	Set No.	Milestone	Plan	Revision
21-0126	04	DA	201	A




- FOOTPATH & KERBS TO BE CONSTRUCTED TO BLACKTOWN CITY COUNCIL STANDARDS.

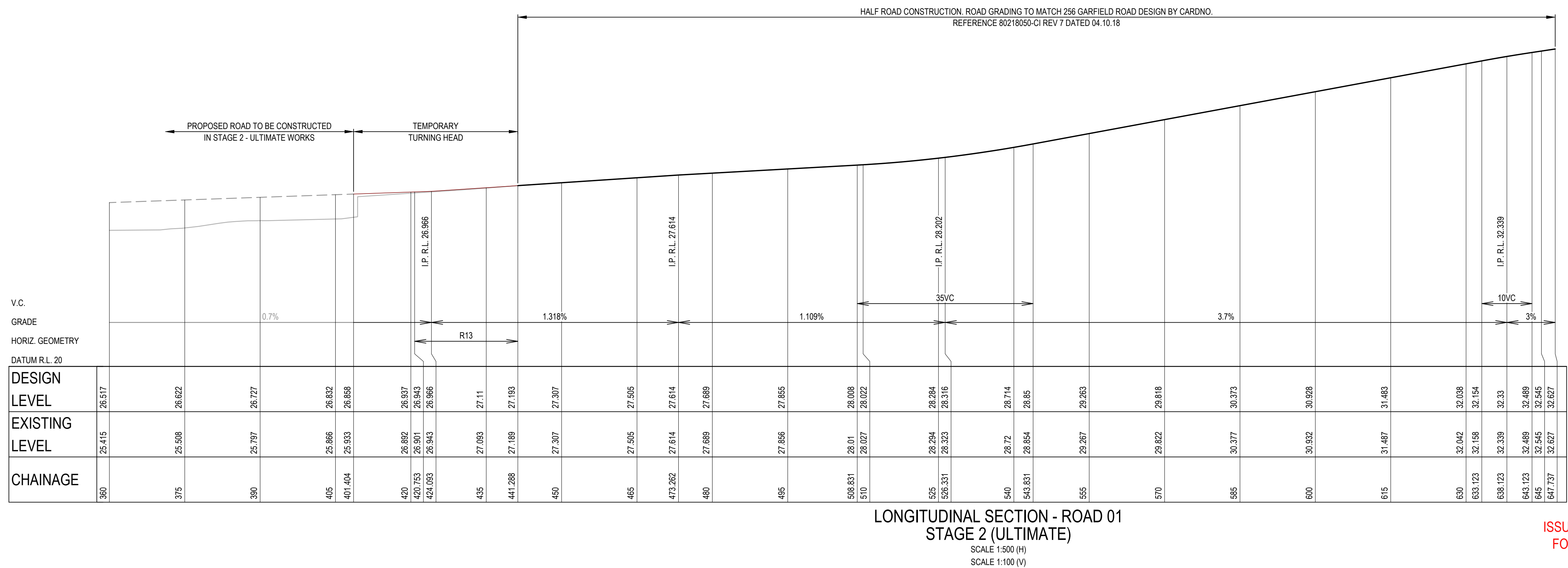
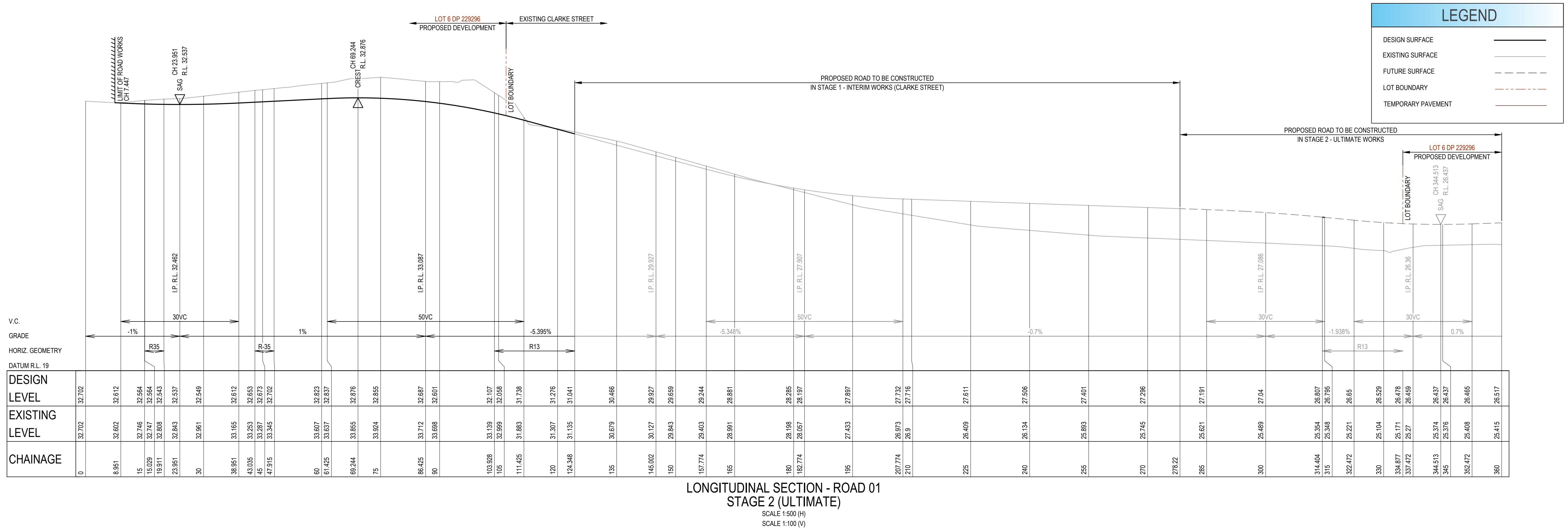
* SUBGRADE TO EXTEND 300mm BEHIND BACK OF KERB
# SUBSOIL DRAIN TO BE LAID BELOW ALL KERBS WHERE NO STORMWATER PIPE IS BELOW



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Rev A										Drawn KW										Design PS/CW										Check MP										Appd PS										Date 03/08/2021										ISSUED FOR DEVELOPMENT APPLICATION										Revision Description									





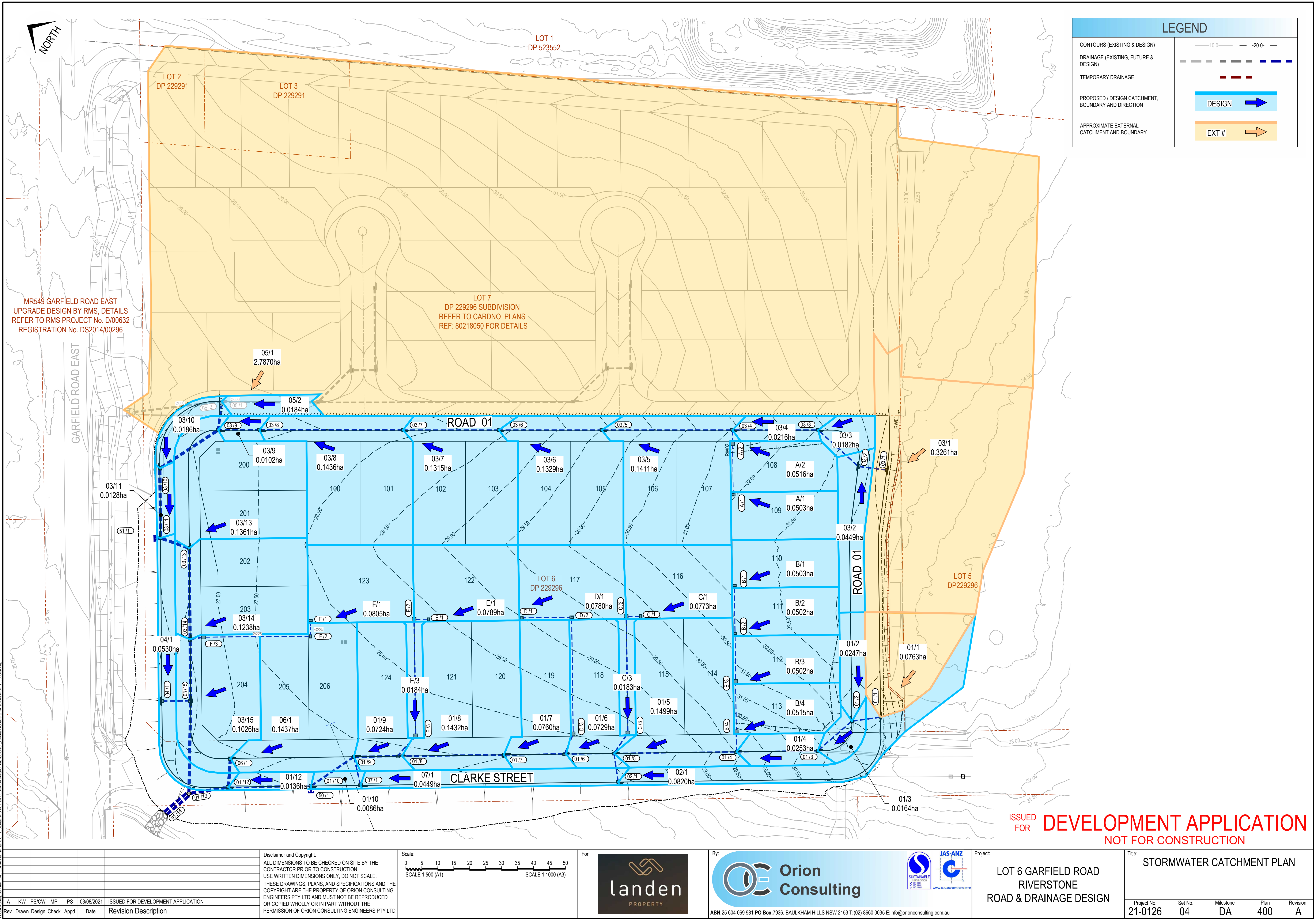
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NOT FOR CONSTRUCTION

<p>Printed: 06:50 Mon 20 Mar 2024 2:57:46 PM AEST</p>										<p>Disclaimers and Copyright: ALL DIMENSIONS TO BE CHECKED ON SITE BY THE CONTRACTOR PRIOR TO CONSTRUCTION. USE WRITTEN DIMENSIONS ONLY, DO NOT SCALE. THESE DRAWINGS, PLANS, AND SPECIFICATIONS AND THE COPYRIGHT ARE THE PROPERTY OF ORION CONSULTING ENGINEERS PTY LTD AND MUST NOT BE REPRODUCED OR COPIED WHOLLY OR IN PART WITHOUT THE PERMISSION OF ORION CONSULTING ENGINEERS PTY LTD</p>										<p>Scale:</p>										<p>For:</p>										<p>By:</p> <p>ABN:25 604 069 981 PO Box:7936, BAULKHAM HILLS NSW 2153 T:(02) 8636 0035 E:info@orionconsulting.com.au</p>										<p>Project:</p> <p>LOT 6 GARFIELD ROAD RIVERSTONE ROAD &amp; DRAINAGE DESIGN</p>										<p>Title:</p> <p>ROAD LONGITUDINAL SECTIONS SHEET 1 OF 2</p>									
<p>Rev Drawn Design Check Appd. Date</p>										<p>Revision Description</p>										<p>Project No. 21-0126</p>										<p>Set No. 04</p>										<p>Milestone DA</p>										<p>Plan 310</p>										<p>Revision A</p>									









LEGEND

CONTOURS (EXISTING & DESIGN)

DRAINAGE (EXISTING, FUTURE & DESIGN)

TEMPORARY DRAINAGE

PROPOSED / DESIGN CATCHMENT, BOUNDARY AND DIRECTION

APPROXIMATE EXTERNAL CATCHMENT AND BOUNDARY

10.0

20.0

DESIGN

EXT #

Project: 21-0126, 30 Mar 2023 2:57 PM, File Name: C:\21-0126\21-0126-04-DA-LOT6-LOCK.dwg, Plot Date: 30 Mar 2023 2:57 PM, Plot Path: C:\21-0126\21-0126-04-DA-LOT6-LOCK.dwg

Rev	Drawn	Design	Check	Appd.	Date	Revision Description
A	KW	PS/CW	MP	PS	03/08/2021	ISSUED FOR DEVELOPMENT APPLICATION

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Scale:

0 5 10 15 20 25 30 35 40 45 50

SCALE 1:500 (A1)

SCALE 1:1000 (A3)

For:

landen  
PROPERTY

By:

Orion Consulting

ABN:25 604 069 981 PO Box:7936, BAULKHAM HILLS NSW 2153 T:(02) 8660 0035 E:info@orionconsulting.com.au

SUSTAINABLE  
CONSTRUCTION  
PRACTICES

JAS-ANZ  
REGISTERED

Project:

LOT 6 GARFIELD ROAD  
RIVERSTONE  
ROAD & DRAINAGE DESIGN

Title:

STORMWATER CATCHMENT PLAN

Project No.

21-0126

Set No.

04

Milestone

DA

Plan

400

Revision

A





MR549 GARFIELD ROAD EAST  
UPGRADE DESIGN BY TNSW, DETAILS  
REFER TO RMS PROJECT No. D/00632  
REGISTRATION No. DS2014/00296

LOT 7  
DP 229296 SUBDIVISION  
REFER TO CARDNO PLANS  
REF: 80218050 FOR DETAILS

WATER QUALITY SUMMARY			
PROJECT REF :	21-0126		
PROJECT TYPE :	RESIDENTIAL DEVELOPMENT		
LOCATION :	LOT 6 GARFIELD ROAD, EAST RIVERSTONE		
DESIGNED BY :	Catherine Wang		
MUSIC MODEL - WATER QUALITY			
POLLUTANT	Target / Objective (%)	Achieved (%)	
Gross Pollutant	90	99.1	
Total Suspended Solids (TSS)	85	85.4	
Total Phosphorus	65	67.9	
Total Nitrogen	45	60.8	

LEGEND	
1. RESIDENTIAL AREA =1.478 ha	
2. ROAD AREA = 0.355 ha	
3. ROAD BYPASS AREA = 0.124 ha	
4. TEMPORARY AREA =1.478 ha	
5. FLOOD STORAGE BYPASS AREA = 0.136 ha	
6. REVEGETATEDLAND BYPASS AREA = 0.085 ha	

GARFIELD ROAD EAST

ROAD 01

TEMPORARY  
BASIN 1

FLOOD  
STORAGE  
AREA

CLARKE STREET

ROAD 01

FIRST PONDS CREEK

EXISTING  
DWELLING

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LOT 6 GARFIELD ROAD  
RIVERSTONE  
ROAD & DRAINAGE DESIGN

WATER QUALITY (MUSIC MODEL)  
CATCHMENT PLAN

Project No.	Set No.	Milestone	Plan	Revision
21-0126	04	DA	401	A

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SCALE 1:1000 (A3)

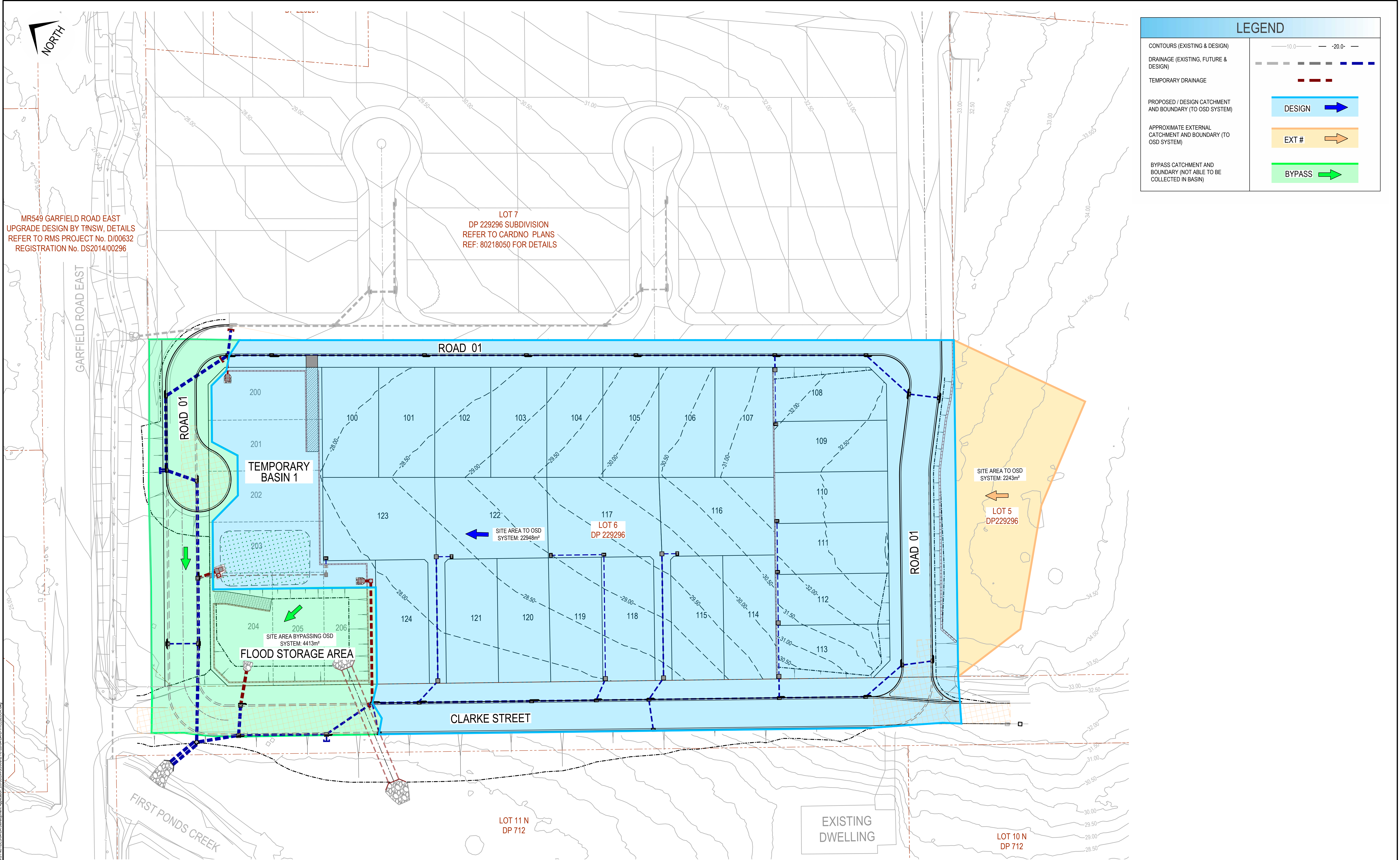


Project:  
LOT 6 GARFIELD ROAD  
RIVERSTONE  
ROAD & DRAINAGE DESIGN

Title:  
WATER QUALITY (MUSIC MODEL)  
CATCHMENT PLAN

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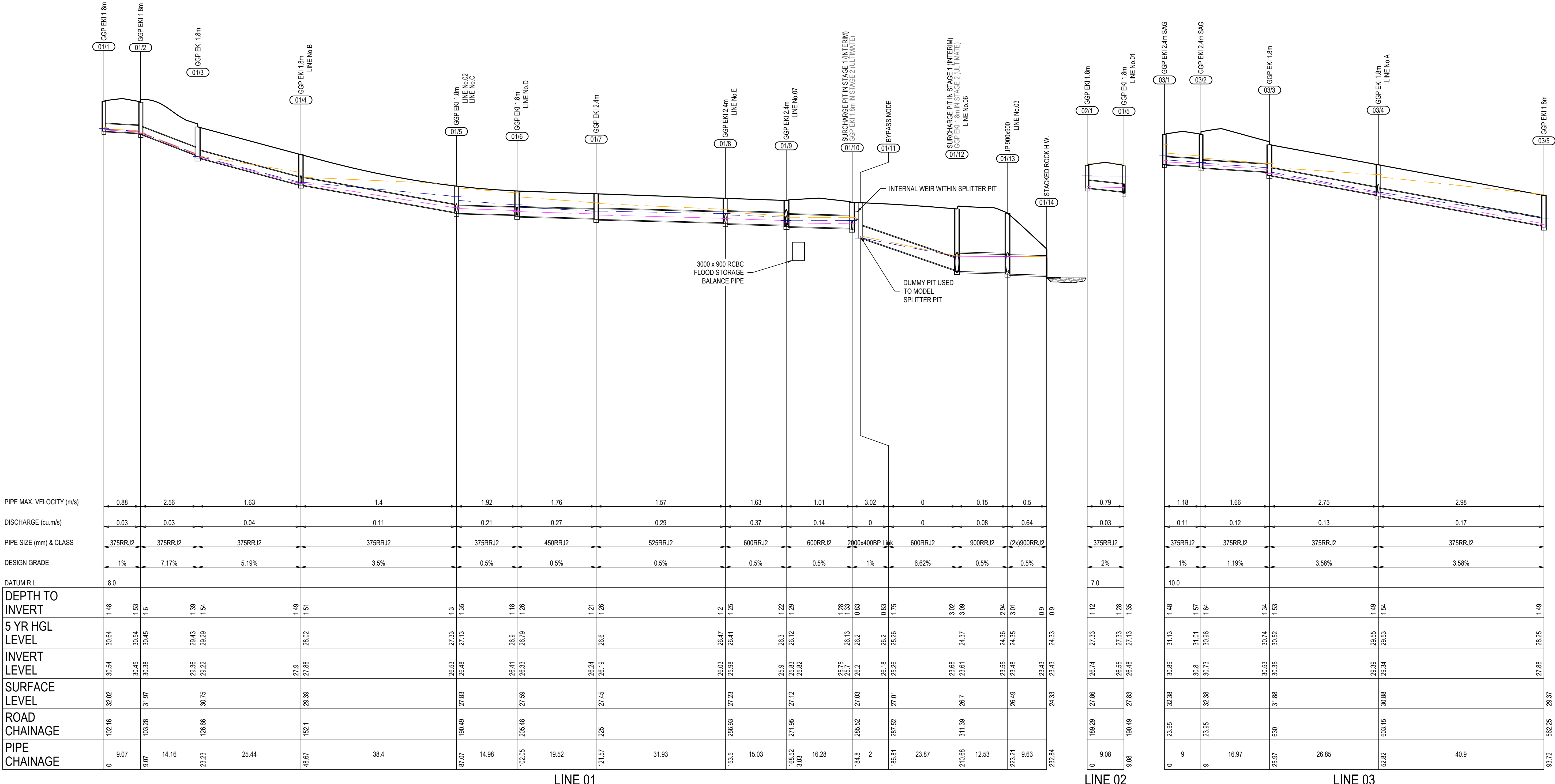
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A	KW	PS/CW	MP	PS	03/08/2021	ISSUED FOR DEVELOPMENT APPLICATION												Project No. 21-0126		Set No. 04		Milestone DA		Plan 400		Revision A	
Rev	Drawn	Design	Check	Appd.	Date	Revision Description																					



## LEGEND

DESIGN SURFACE	
FUTURE SURFACE	
1:100 YEAR ARI HGL	
1.5 YEAR ARI HGL	
1: 6 MONTH ARI HGL	
EXISTING PIPE AND PIT	
DESIGN PIPE AND PIT	
DESIGN TEMPORARY PIPE AND PIT	
DESIGN RETAINING WALL	



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NOT FOR CONSTRUCTION

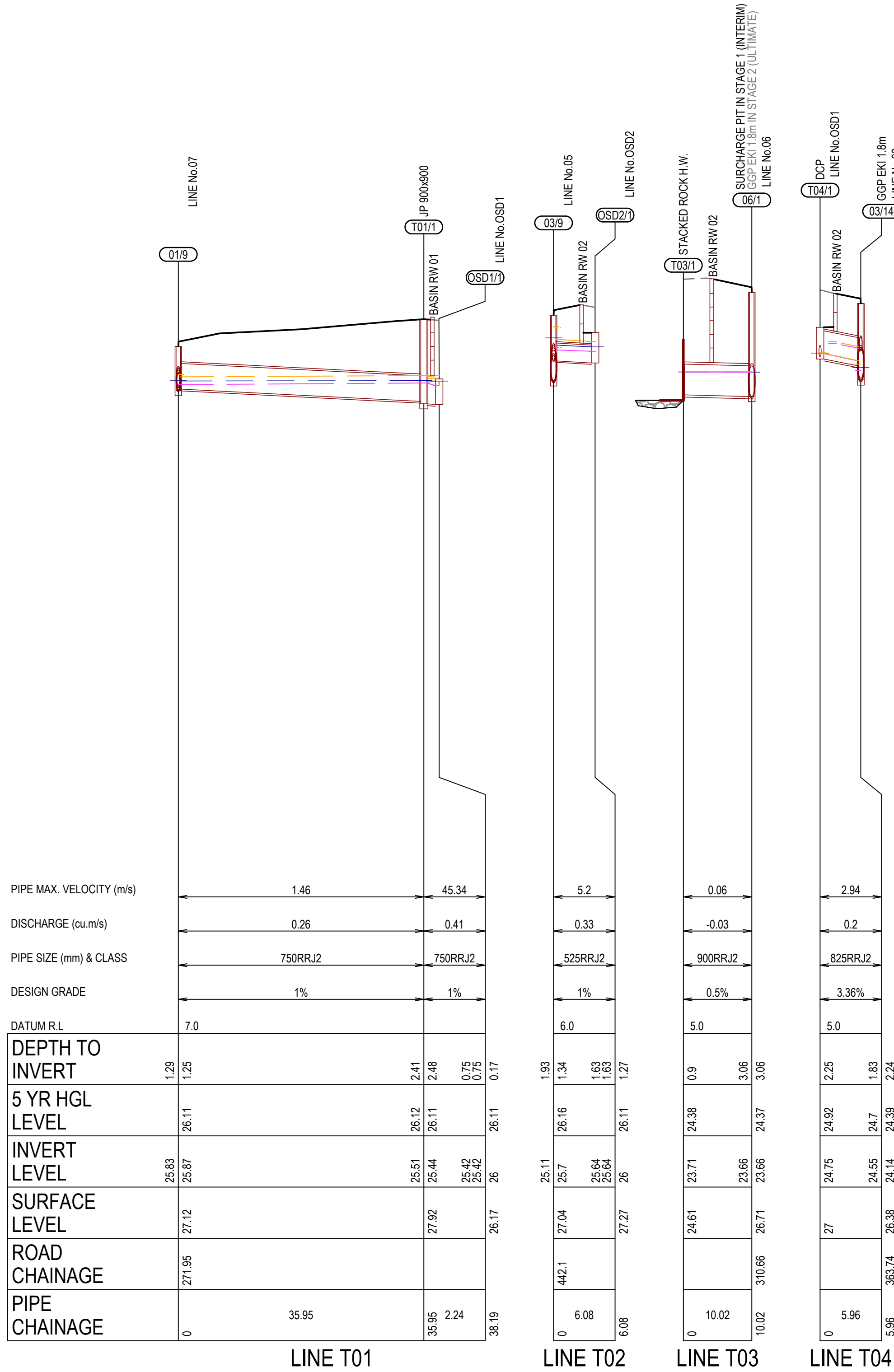
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LEGEND	
DESIGN SURFACE	
FUTURE SURFACE	
1:100 YEAR ARI HGL	
1:5 YEAR ARI HGL	
1: 6 MONTH ARI HGL	
EXISTING PIPE AND PIT	
DESIGN PIPE AND PIT	
DESIGN TEMPORARY PIPE AND PIT	
DESIGN RETAINING WALL	












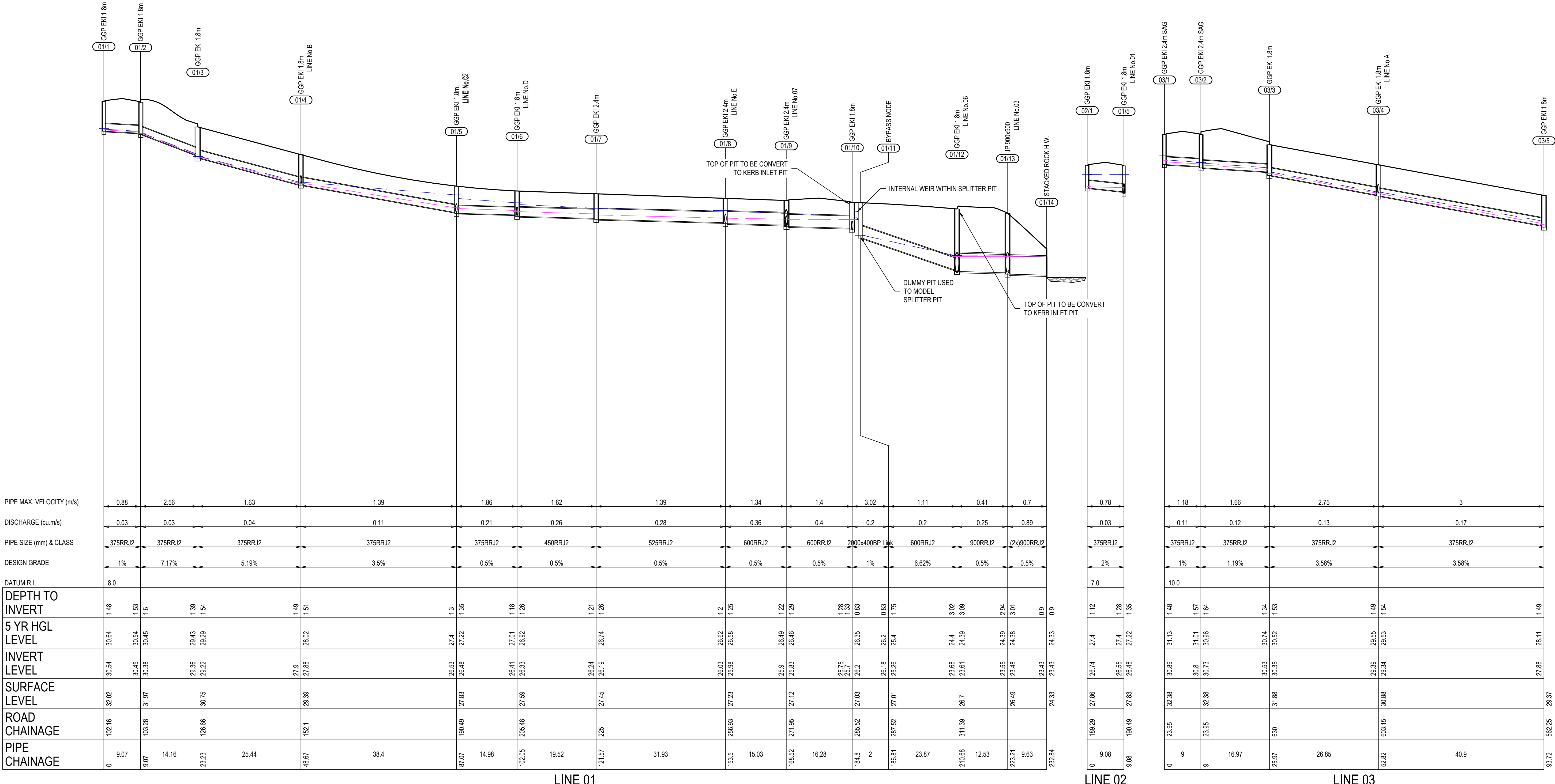
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						03/08/2021	ISSUED FOR DEVELOPMENT APPLICATION	Disclaimer and Copyright: ALL DIMENSIONS TO BE CHECKED ON SITE BY THE CONTRACTOR PRIOR TO CONSTRUCTION. USE WRITTEN DIMENSIONS ONLY. DO NOT SCALE. THESE DRAWINGS, PLANS, AND SPECIFICATIONS AND THE COPYRIGHT ARE THE PROPERTY OF ORION CONSULTING ENGINEERS PTY LTD AND MUST NOT BE REPRODUCED OR COPIED WHOLLY OR IN PART WITHOUT THE PERMISSION OF ORION CONSULTING ENGINEERS PTY LTD	Scale: <div>0 5 10 15 20 25 30 35 40 45 50 SCALE 1:500 (A1)</div> <div>0 1 2 3 4 5 6 7 8 9 10 SCALE 1:100 (A1)</div> <div>SCALE 1:1000 (A3)</div> <div>SCALE 1:200 (A3)</div>	For: <div></div>	By: <div> ABN:25 604 069 981 PO Box:7936, BAULKHAM HILLS NSW 2153 T:(02) 8660 0035 E:info@orionconsulting.com.au</div>	<div> SUSTAINABLE CERTIFIED www.jas-anz.org/registered</div> <div> JAS-ANZ www.jas-anz.org/registered</div>	Project: <div>LOT 6 GARFIELD ROAD RIVERSTONE ROAD &amp; DRAINAGE DESIGN</div>	Title: STORMWATER LONGITUDINAL SECTIONS - STAGE 1 (INTERIM) 1:5 YEAR ARI SHEET 3 OF 3
Rev	A	KW	PS/CW	MP	PS									



## LEGEND

DESIGN SURFACE	
FUTURE SURFACE	
1:100 YEAR ARI HGL	
1.5 YEAR ARI HGL	
1: 6 MONTH ARI HGL	
EXISTING PIPE AND PIT	
DESIGN PIPE AND PIT	
DESIGN TEMPORARY PIPE AND PIT	
DESIGN RETAINING WALL	

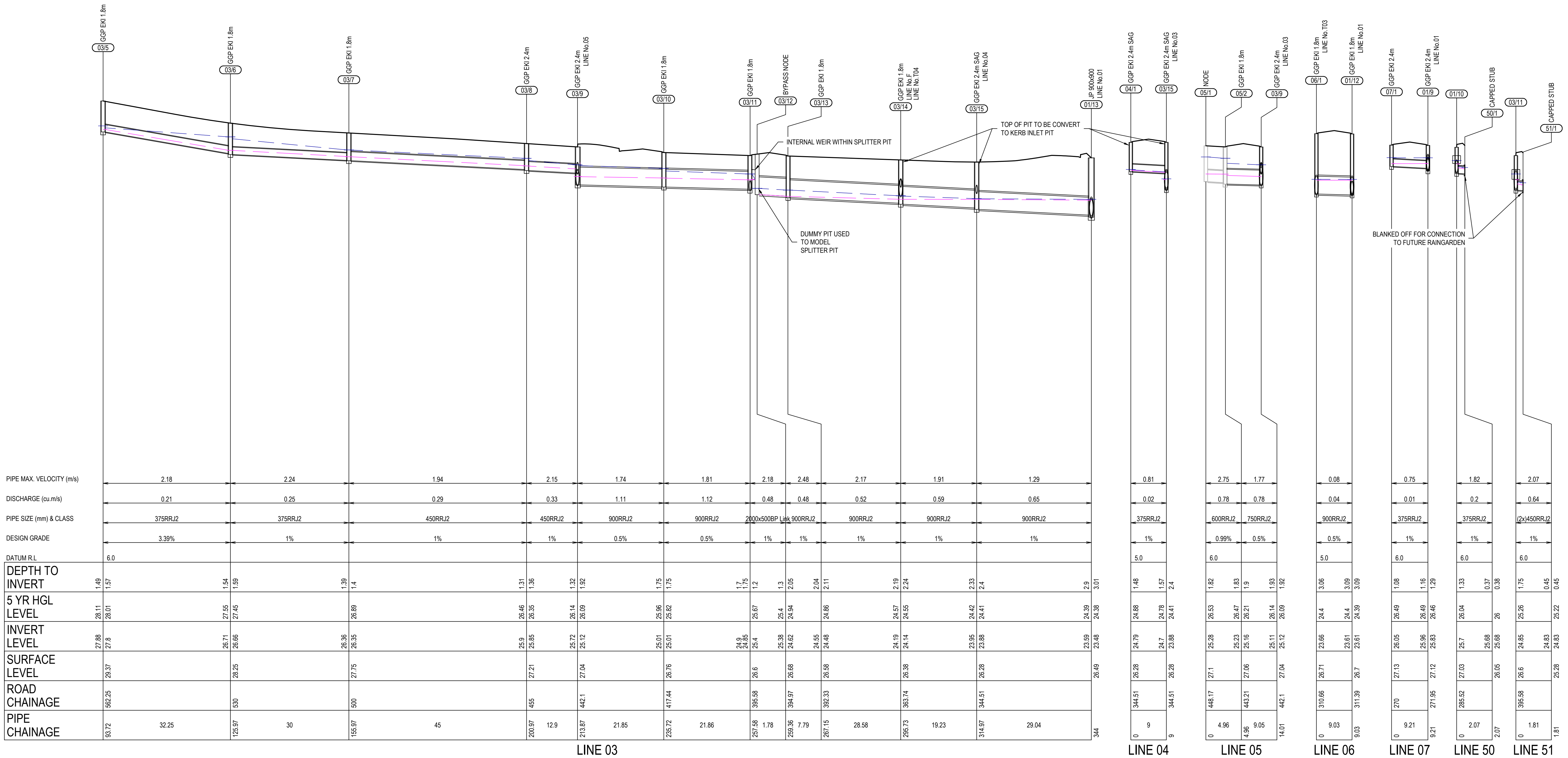


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[illegible]



LEGEND	
DESIGN SURFACE	
FUTURE SURFACE	
1:100 YEAR ARI HGL	
1:5 YEAR ARI HGL	
1: 6 MONTH ARI HGL	
EXISTING PIPE AND PIT	
DESIGN PIPE AND PIT	
DESIGN TEMPORARY PIPE AND PIT	
DESIGN RETAINING WALL	

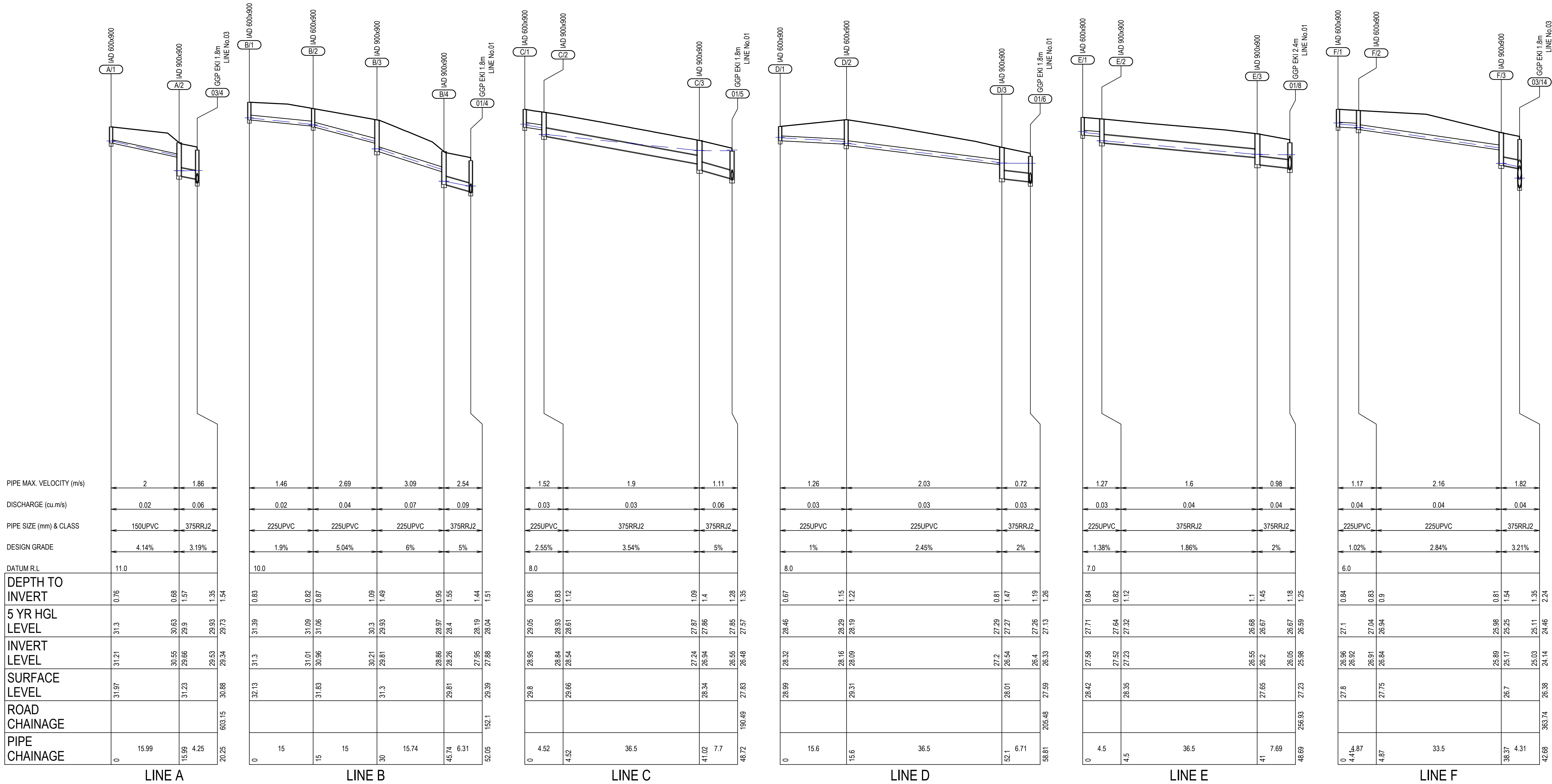


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A		KW	PS/CW	MP	PS	03/08/2021	ISSUED FOR DEVELOPMENT APPLICATION	Disclaimer and Copyright: ALL DIMENSIONS TO BE CHECKED ON SITE BY THE CONTRACTOR PRIOR TO CONSTRUCTION. USE WRITTEN DIMENSIONS ONLY. DO NOT SCALE. THESE DRAWINGS, PLANS, AND SPECIFICATIONS AND THE COPYRIGHT ARE THE PROPERTY OF ORION CONSULTING ENGINEERS PTY LTD AND MUST NOT BE REPRODUCED OR COPIED WHOLLY OR IN PART WITHOUT THE PERMISSION OF ORION CONSULTING ENGINEERS PTY LTD		Scale: 0 5 10 15 20 25 30 35 40 45 50 SCALE 1:500 (A1) 0 1 2 3 4 5 6 7 8 9 10 SCALE 1:100 (A1) SCALE 1:200 (A3)		For: 		By:  ABN:25 604 069 981 PO Box:7936, BAULKHAM HILLS NSW 2153 T:(02) 8660 0035 E:info@orionconsulting.com.au		Project: LOT 6 GARFIELD ROAD RIVERSTONE ROAD & DRAINAGE DESIGN		Title: STORMWATER LONGITUDINAL SECTIONS -STAGE 2 (ULTIMATE) 1:5 YEAR ARI SHEET 2 OF 2		Project No. 21-0126		Set No. 04		Milestone DA		Plan 414		Revision A	
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LEGEND	
DESIGN SURFACE	
FUTURE SURFACE	
1:20 YEAR ARI HGL	
DESIGN PIPE AND PIT	
DESIGN TEMPORARY PIPE AND PIT	



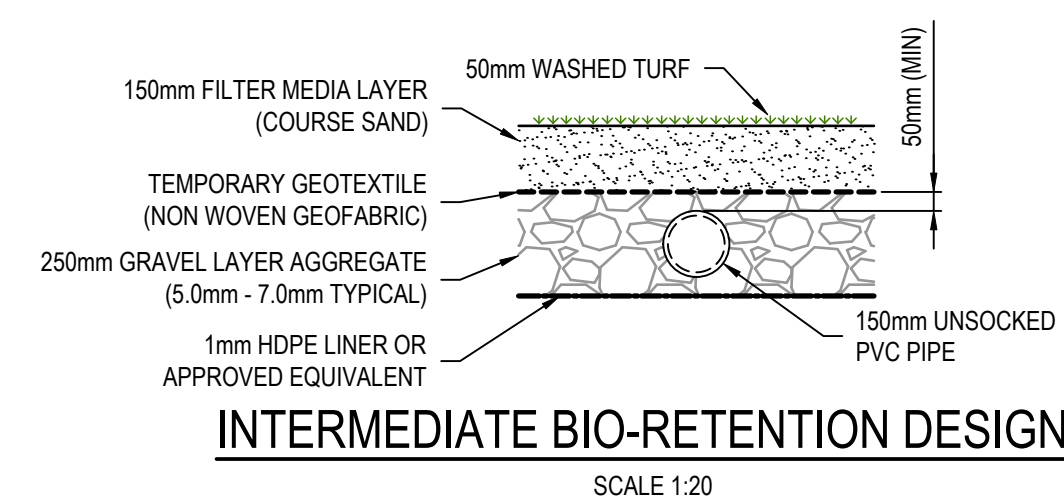
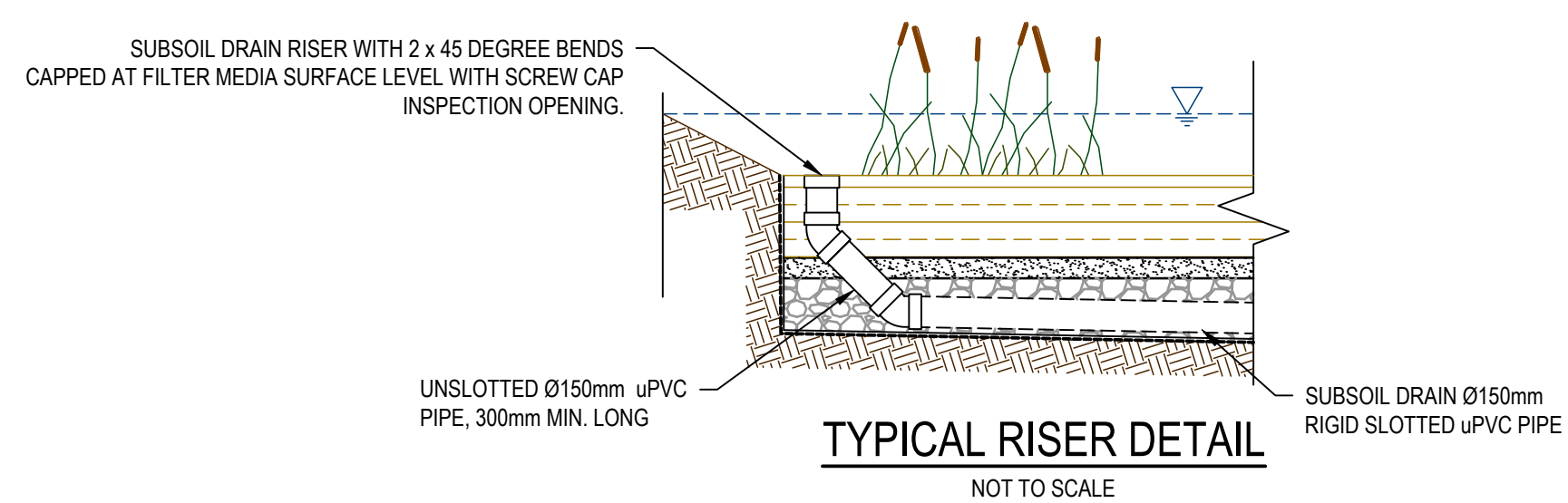
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Rev	Drawn	Design	Check	Appd.	Date														Revision Description	Project No. 21-0126	Set No. 04	Milestone DA	Plan 415	Revision A

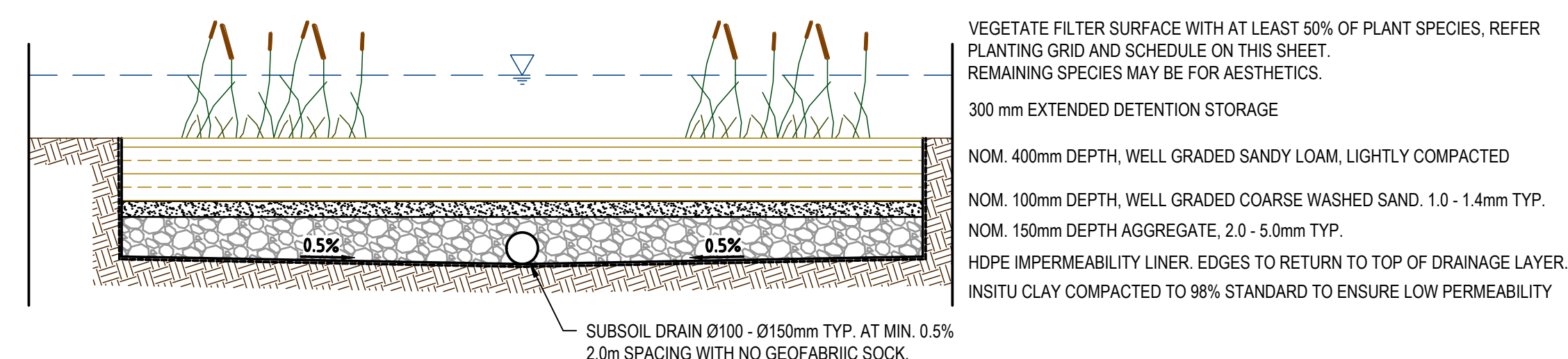
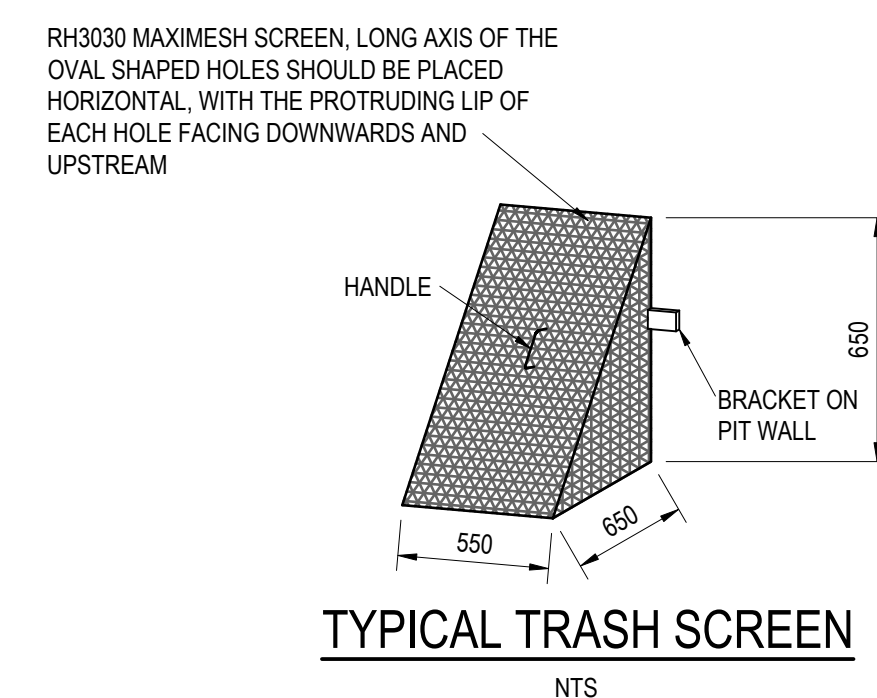




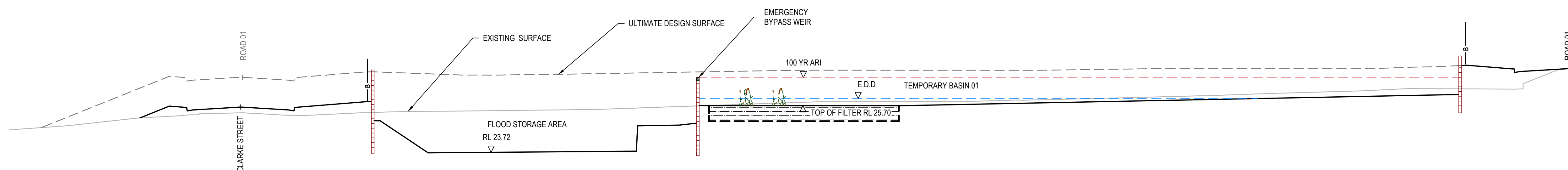




**NOTE:**  
THE FINAL FILTER MEDIA IS NOT TO BE INSTALLED AND AN INTERMEDIATE BIO-RETENTION ARRANGEMENT IS TO BE ADOPTED UNTIL A MINIMUM OF 90% OF THE UPSTREAM CATCHMENT DRAINING TO THE BASIN IS FULLY DEVELOPED INCLUDING LANDSCAPING.



RAINGARDEN MEDIA BED  
TYPICAL DETAIL  
NTS



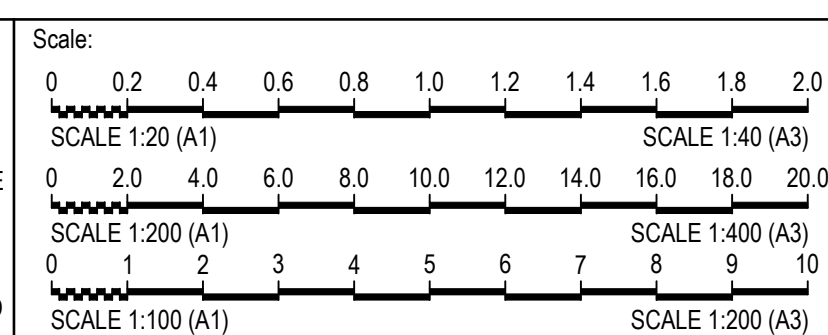
### TEMPORARY BASIN 01 AND STORAGE AREA SECTION

SCALE (H) 1:200  
SCALE (V) 1:100

01  
430

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For:	
------	--



By:



ABN:25 604 069 981 PO Box:7936, BAULKHAM HILLS NSW 2153 T:(02) 8660 0035 E:info@orionconsulting.com.au



Project:
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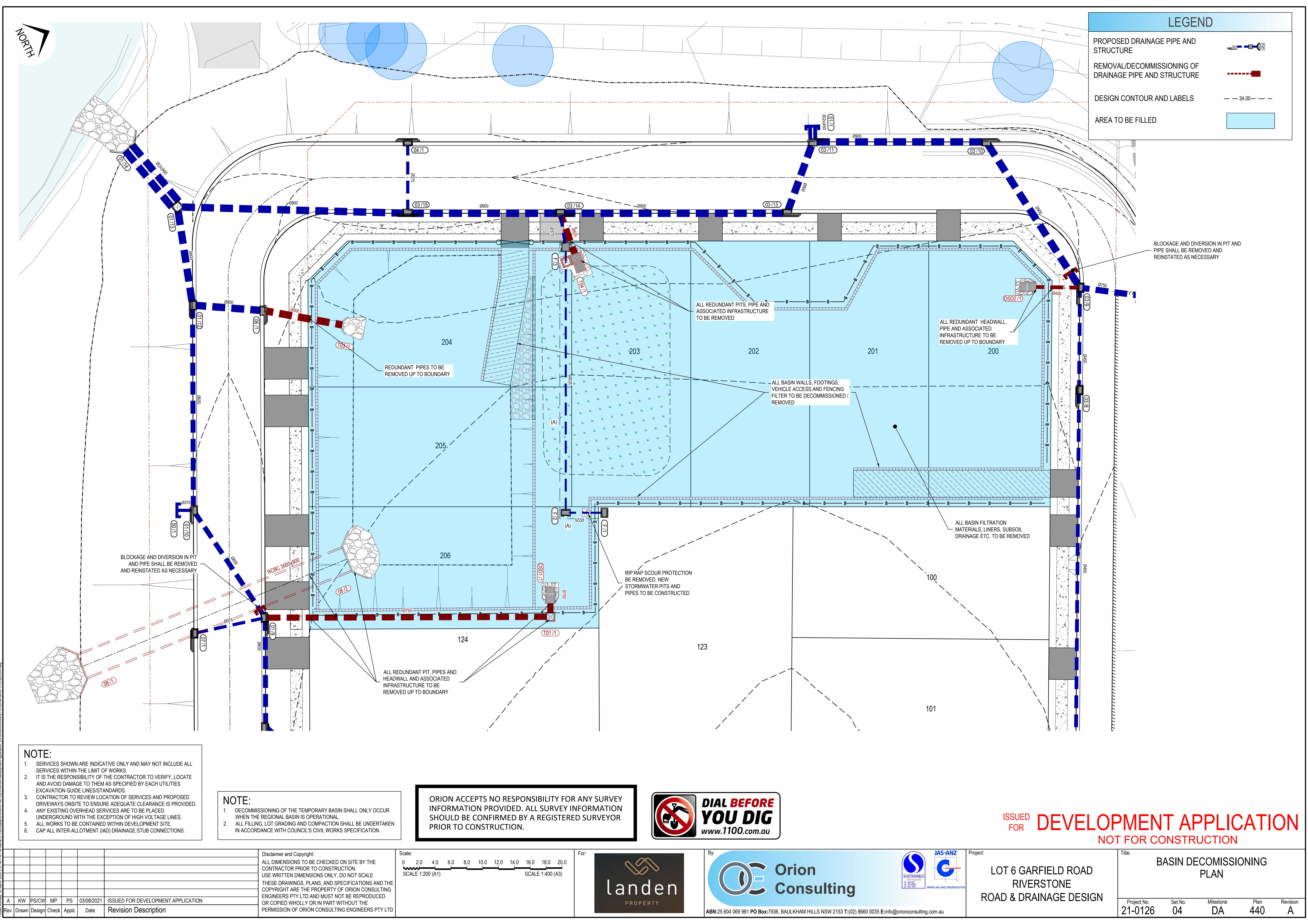
LOT 6 GARFIELD ROAD  
RIVERSTONE  
ROAD & DRAINAGE DESIGN

Title:	
--------	--

INTERIM BASIN PLAN  
AND DETAILS  
SHEET 2 OF 2

Project No.	Set No.	Milestone	Plan	Revision
21-0126	04	DA	431	A





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- CONTRACTOR TO REVIEW LOCATION OF SERVICES AND PROPOSED DRIVEWAYS ON SITE TO ENSURE ADEQUATE CLEARANCE IS PROVIDED.
- ANY EXISTING OVERHEAD SERVICES ARE TO BE PLACED UNDERGROUND WITH THE EXCEPTION OF HIGH VOLTAGE LINES.
- ALL WORKS TO BE CONTAINED WITHIN DEVELOPMENT SITE.
- CAP ALL INTER-ALLOTMENT (IAD) DRAINAGE STUB CONNECTIONS.

**NOTE:**

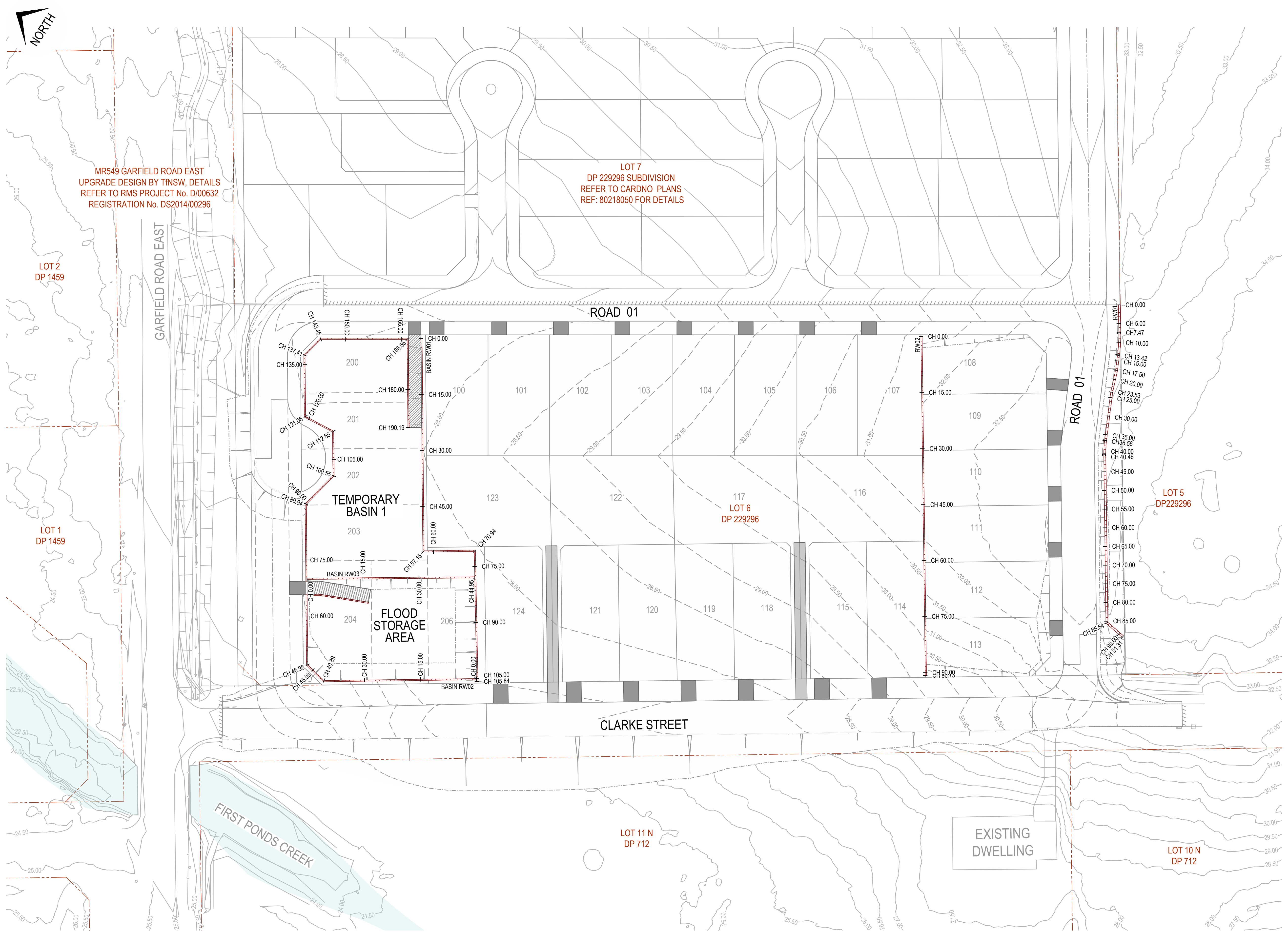
- DECOMMISSIONING OF THE TEMPORARY BASIN SHALL ONLY OCCUR WHEN THE REGIONAL BASIN IS OPERATIONAL.
- ALL FILLING, LOT GRADING AND COMPACTION SHALL BE UNDERTAKEN IN ACCORDANCE WITH COUNCIL'S CIVIL WORKS SPECIFICATION.

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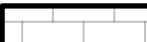



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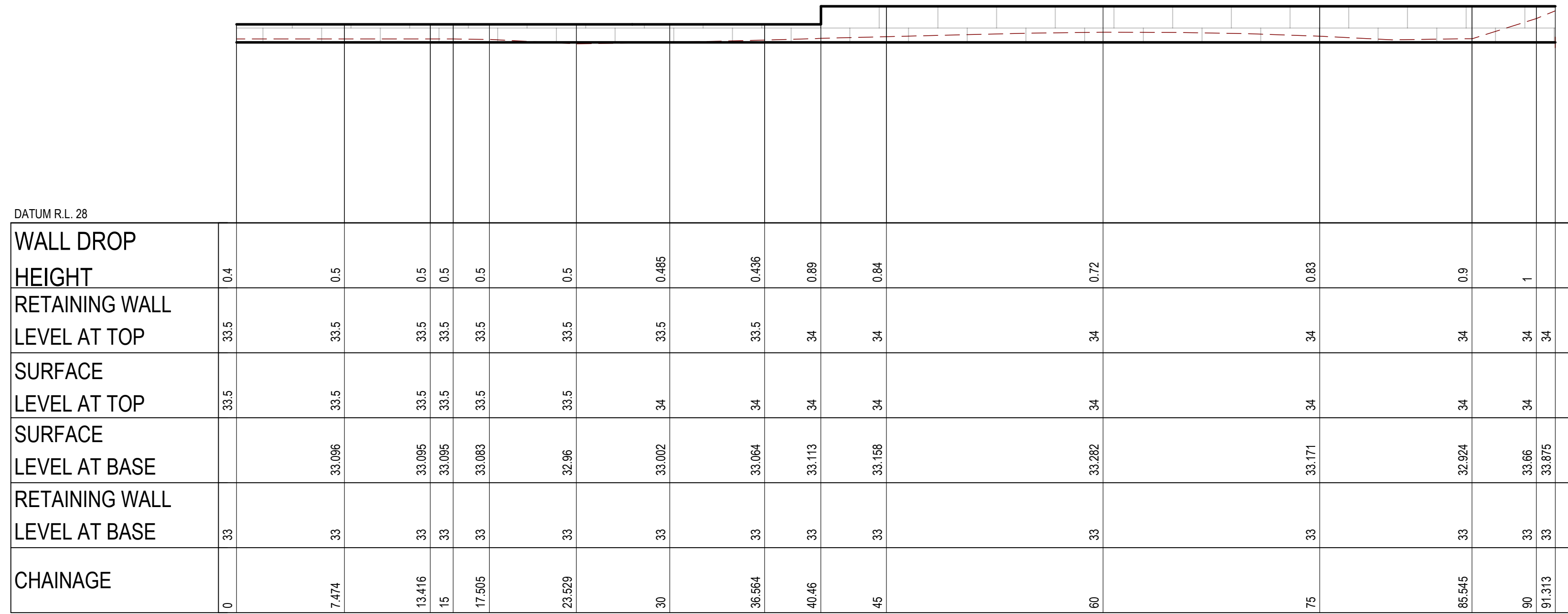
							Disclaimer and Copyright: ALL DIMENSIONS TO BE CHECKED ON SITE BY THE CONTRACTOR PRIOR TO CONSTRUCTION. USE WRITTEN DIMENSIONS ONLY. DO NOT SCALE. THESE DRAWINGS, PLANS, AND SPECIFICATIONS AND THE COPYRIGHT ARE THE PROPERTY OF ORION CONSULTING ENGINEERS PTY LTD AND MUST NOT BE REPRODUCED OR COPIED WHOLLY OR IN PART WITHOUT THE PERMISSION OF ORION CONSULTING ENGINEERS PTY LTD	Scale: 	For: 	By:  ABN:25 604 069 981 PO Box:7936, BAULKHAM HILLS NSW 2153 T:(02) 8660 0035 E:info@orionconsulting.com.au	 	Project: LOT 6 GARFIELD ROAD RIVERSTONE ROAD & DRAINAGE DESIGN	Title: RETAINING WALL PLAN				
A	KW	PS/CW	MP	PS	03/08/2021	ISSUED FOR DEVELOPMENT APPLICATION											
Rev	Drawn	Design	Check	Appd.	Date	Revision Description											

Printed: Monday, 30 May 2022 2:57:46 PM File Name: C:\2556garfield\ORION\SYNTHESIS\21-0126-04-DA-5-TITLEBLOCK.dwg



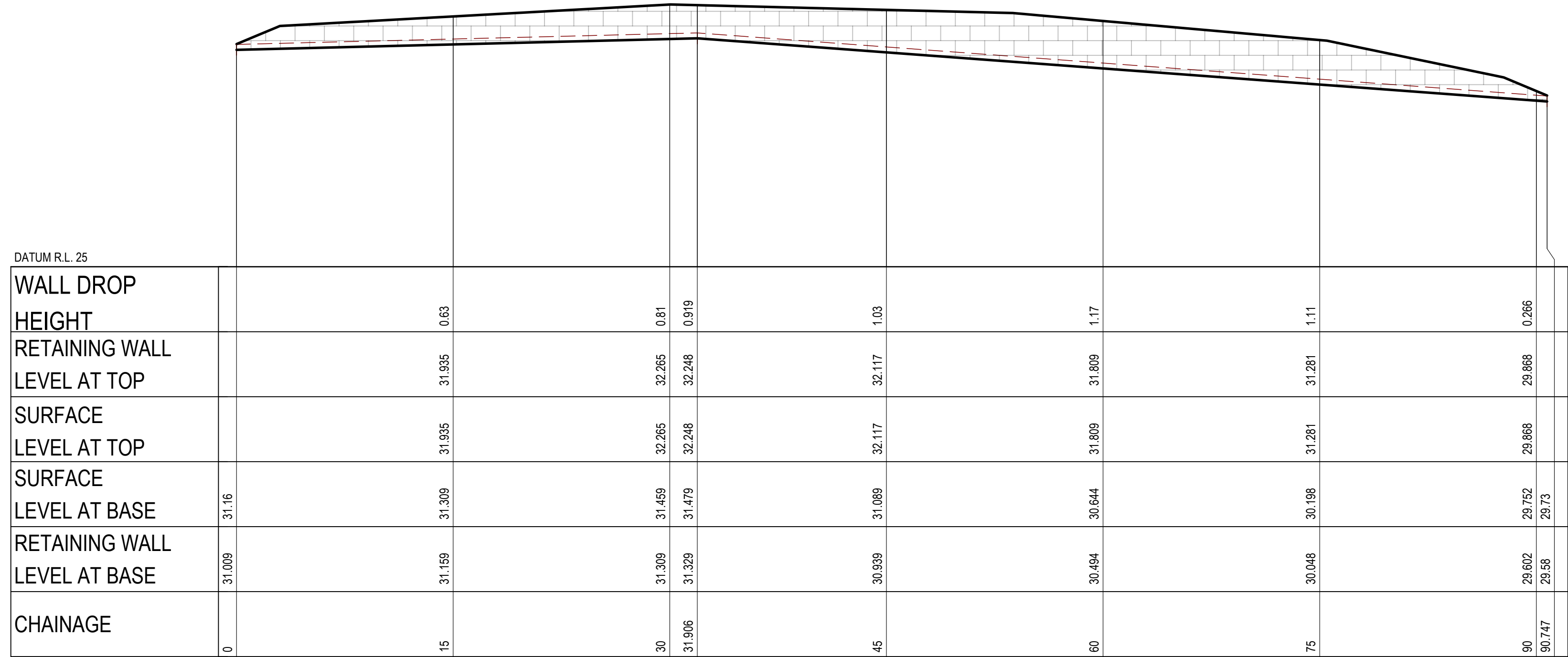
## LEGEND

RETAINING WALL PANEL	
SURFACE LEVEL IN FRONT OF RETAINING WALL AT BASE	
SURFACE LEVEL BEHIND RETAINING WALL AT TOP	
RETAINING WALL SIDE VIEW	



## RETAINING WALL SECTION - RW01

SCALE 1:250 (H)  
SCALE 1:100 (V)



## RETAINING WALL SECTION - RW02

SCALE 1:250 (H)  
SCALE 1:100 (V)

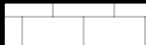



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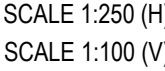




## LEGEND

RETAINING WALL PANEL	
SURFACE LEVEL IN FRONT OF RETAINING WALL AT BASE	
SURFACE LEVEL BEHIND RETAINING WALL AT TOP	
RETAINING WALL SIDE VIEW	

SCALE 1:250 (H)  
SCALE 1:100 (V)

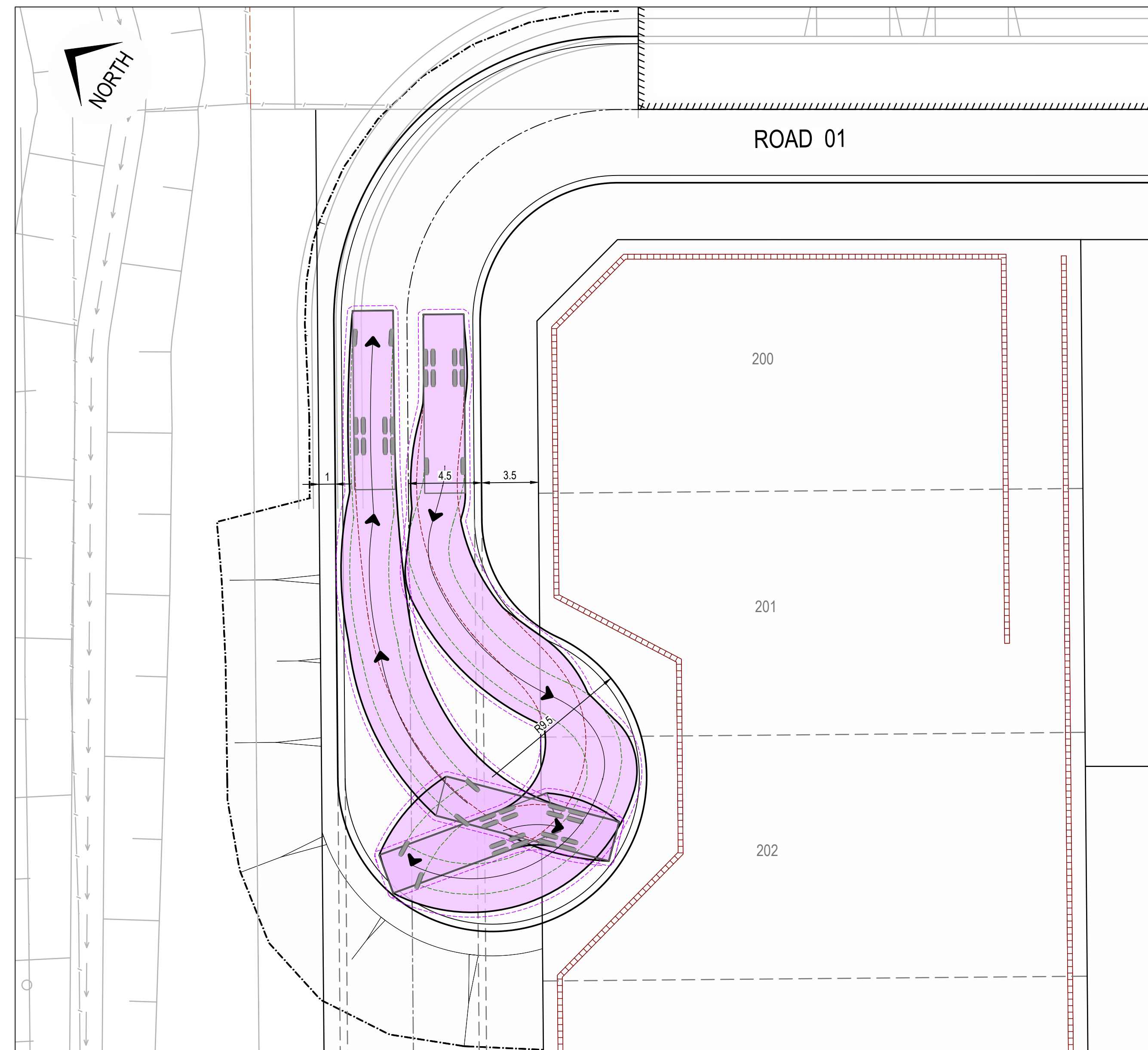







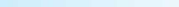


DATUM R.L. 19					
WALL DROP HEIGHT	2.4		2.25	2.4	2.4
RETAINING WALL LEVEL AT TOP	27		26.88	27	27
SURFACE LEVEL AT TOP	25.733		25.71	25.741	25.572
SURFACE LEVEL AT BASE	24.6		24.6	24.6	24.6
RETAINING WALL LEVEL AT BASE	24.3		24.3	24.3	24.3
CHAINAGE	0		15	30	44.954

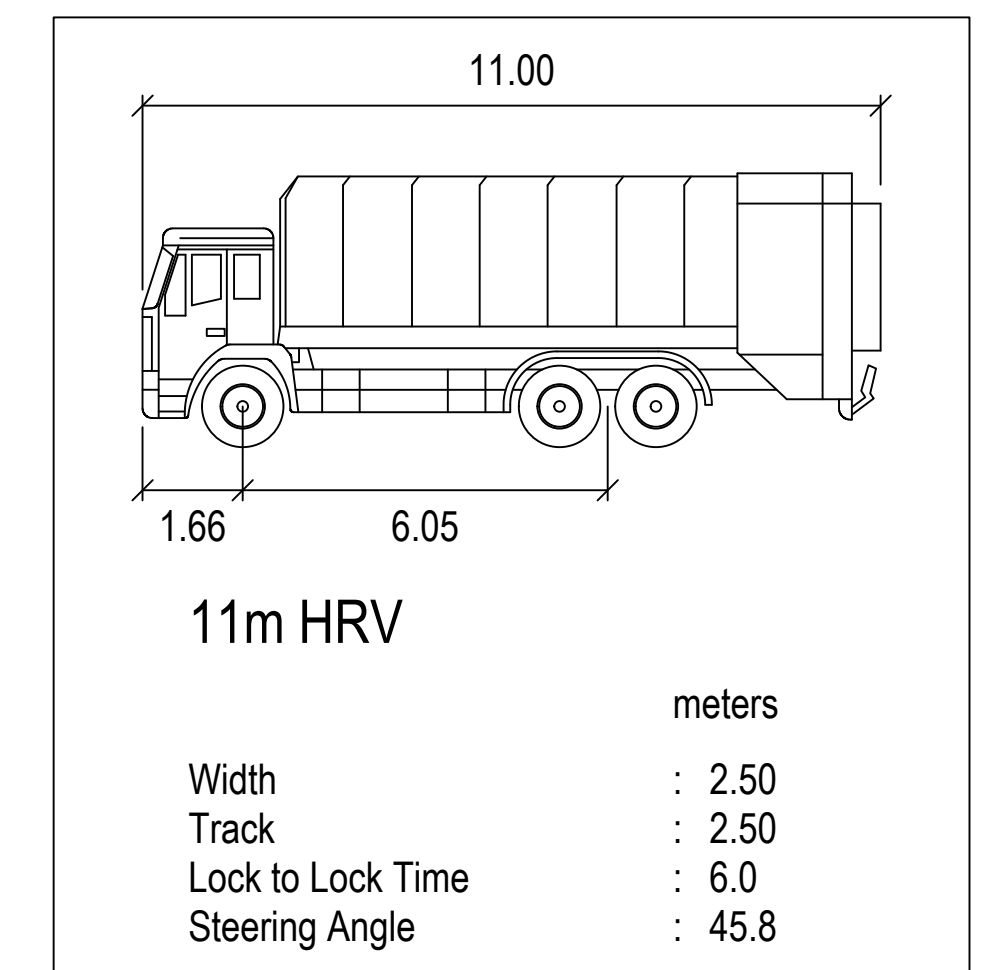
SCALE 1:250 (H)  
SCALE 1:100 (V)

[illegible]





LEGEND	
<p>    DENOTES FRONT WHEEL TRACK </p>	
<p>    DENOTES REAR WHEEL TRACK </p>	
<p>    DENOTES VEHICLE BODY CLEARANCE </p>	
<p>    DENOTES VEHICLE BODY </p>	

[illegible]