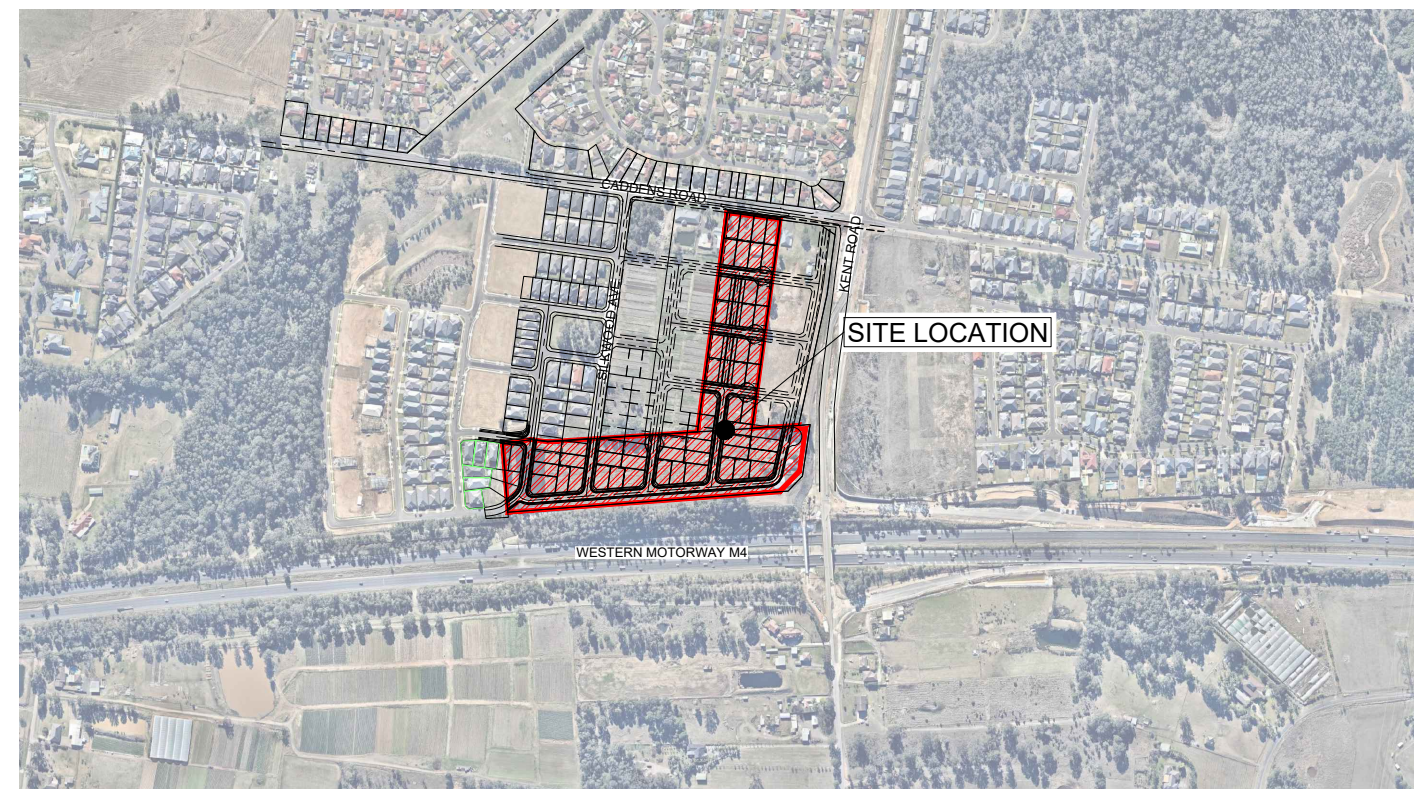




27 KENT RD, CLAREMONT MEADOWS

PROPOSED SUBDIVISION OF 27 KENT ROAD & 326-330 CADDENS ROAD LOT, ROAD AND DRAINAGE WORKS CONSTRUCTION CERTIFICATE



LOCALITY SKETCH

Prepared By:

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ISSUED FOR CONSTRUCTION APPROVAL

PLAN No.
110341/CC01 A

FILE No. 110341CC01

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LEGEND			
DESCRIPTION	PROPOSED	EXISTING	FUTURE
EXTENT OF WORKS			
STAGE BOUNDARY			
KERB & GUTTER			
ROLL KERB			
KERB ONLY			
DISH CROSSING			
PRAM RAMP			
DRAINAGE LINE, PIT & EASEMENT			
DRAINAGE LINE & PIT			
HEADWALL			
GUIDE POSTS			
EXTENT OF FILL			
EXTENT OF CUT			
CONTOURS			
CATCH DRAIN			
KERB RETURN No			
ELECTRICITY, POWER POLE			
TELECOM, BOX			
WATER, STOP VALVE, HYDRANT			
SEWER, MANHOLE			
GAS			
TREES TO BE RETAINED			
TREES TO BE REMOVED			
STREET NAME SIGNS			
SURVEY MARKS - BENCH MARKS			
STATE SURVEY MARKS			
RECOVERY PEGS			
STABILISED SITE ACCESS			
SEDIMENT FENCE			
STRAW BALE BARRIER			
STOCKPILE			
PROTECTIVE FENCING			
MESH AND GRAVEL INLET FILTER			
GEOTEXTILE INLET FILTER			
SUBSOIL DRAINAGE			

GENERAL NOTES

- ALL WORKS ARE TO BE IN ACCORDANCE WITH PENRITH CITY COUNCIL "DESIGN GUIDELINES FOR ENGINEERING WORKS FOR SUBDIVISIONS AND DEVELOPMENTS" AND PENRITH CITY COUNCIL "ENGINEERING CONSTRUCTION SPECIFICATION FOR CIVIL WORKS".
- SURVEY MARKS: -
 - SURVEY MARKS SHOWN SHALL BE RETAINED AT ALL TIMES. WHERE RETENTION IS NOT POSSIBLE THE SUPERINTENDENT MUST BE NOTIFIED AND CONSENT RECEIVED PRIOR TO THEIR REMOVAL.
- 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.
- 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.
- THE CONTRACTOR SHALL MAINTAIN SERVICES AND ALL WEATHER ACCESS AT ALL TIMES TO ADJOINING PROPERTIES.
- 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.
- TREES TO BE RETAINED ON SITE SHALL BE PROTECTED BY SUITABLE STURDY APPROVED PROTECTIVE FENCING PRIOR TO COMMENCEMENT OF SITE WORKS.
- THE CONTRACTOR SHALL CLEAR THE SITE BY REMOVING ALL RUBBISH, FENCES, OUT-HOUSES, CAR BODIES AND DEBRIS ETC.
- PUBLIC RESERVE AREAS SHALL BE CLEARED OF UNDERGROWTH, IMPROVEMENTS AND FENCES AS DIRECTED BY THE ENGINEER.
- 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.
- SITE FILL AREAS: - THE CONTRACTOR SHALL TAKE LEVELS OF EXISTING SURFACE AFTER STRIPPING TOPSOIL AND PRIOR TO COMMENCING FILL OPERATIONS.
- ALL SITE FILLING TO BE COMPACTED TO 95% STANDARD COMPACTION AND SHALL BE CONTROLLED BY A REGISTERED SOIL LABORATORY IN ACCORDANCE WITH PENRITH CITY COUNCIL'S "ENGINEERING CONSTRUCTION SPECIFICATION FOR CIVIL WORKS".
- ALL SITE REGRADING AREAS SHALL BE GRADED AT A MINIMUM 1% TO THE ENGINEER'S REQUIREMENTS.
- SURPLUS EXCAVATED MATERIAL SHALL BE PLACED WHERE DIRECTED BY THE SUPERINTENDENT.
- VEHICULAR CROSSINGS SHALL BE CONSTRUCTED IN KERB AND GUTTER WHERE SHOWN.
- PRAM CROSSINGS SHALL BE CONSTRUCTED IN KERB AND GUTTER IN ACCORDANCE WITH COUNCIL'S STANDARD DRAWING.
- ALL NEW WORKS SHALL MAKE A SMOOTH JUNCTION WITH EXISTING CONDITIONS.
- DIMENSIONS OF ANY DETAIL SHALL NOT BE SCALED - DIMENSIONS, IF IN DOUBT, SHALL BE VERIFIED BY THE SUPERINTENDENT.
- ALL CONSTRUCTION AND RESTORATION WORK ON COUNCIL'S ROAD AND FOOTPATH AREA ARE SUBJECT TO A SEPARATE SECTION 138 ROADS ACT APPLICATION AND APPROVAL BY PENRITH CITY COUNCIL. REFER TO SEPARATE ENGINEERING PLANS PREPARED BY J. WYNDHAM PRINCE FOR WORK ON COUNCIL'S ROAD AND FOOTPATH AREA (REF: 110341CC101-CC118).
- ALL BATTERS ARE 1V:5H UNLESS NOTED OTHERWISE.
- ALL DRAINAGE LINES AND PITS THROUGH LOTS SHALL BE CONTAINED WITHIN THE EASEMENTS OF WIDTHS SPECIFIED IN COUNCIL'S "DESIGN GUIDELINES FOR ENGINEERING WORKS FOR SUBDIVISIONS AND DEVELOPMENTS" FOR THE APPROPRIATE PIPE DIAMETER.
- IF ANY ARCHAEOLOGICAL RELICS ARE UNCOVERED DURING THE COURSE OF THE APPROVED WORKS, NO FURTHER WORK SHALL BE UNDERTAKEN UNTIL FURTHER DIRECTED BY PENRITH CITY COUNCIL FOR THE NSW HERITAGE OFFICE.
- SHOULD ANY "UNEXPECTED FINDS" OCCUR DURING SITE EXCAVATION AND EARTHWORKS, INCLUDING, BUT NOT LIMITED TO, THE IDENTIFICATION / FINDING OF CONTAMINATED SOILS, BURIED BUILDING MATERIALS, ASBESTOS, ODOUR AND / OR STAINING, WORKS ARE TO CEASE IMMEDIATELY AND COUNCIL NOTIFIED. ANY SUCH "UNEXPECTED FINDS" SHALL BE ADDRESSED BY AN APPROPRIATELY QUALIFIED ENVIRONMENTAL CONSULTANT.
- STANDARD GALVANISED STEEL OR SIMILAR APPROVED STORMWATER KERB OUTLET ADAPTORS AND PIPE CONNECTION TO THE INSIDE OF THE LOT ARE TO BE PROVIDED TO EACH LOT NOT SERVICED BY INTER ALLOTMENT DRAINAGE.
- UPON COMPLETION OF ALL WORKS IN THE ROAD RESERVE, ALL VERGE AREAS FRONTING AND WITHIN THE DEVELOPMENT ARE TO BE TURFED. THE TURF SHALL EXTEND FROM THE BACK OF KERB TO THE PROPERTY BOUNDARY, WITH THE EXCEPTION OF CONCRETE FOOTPATHS, SERVICE LIDS OR OTHER INFRASTRUCTURE WHICH IS NOT TO BE TURFED OVER. TURF LAID UP TO CONCRETE FOOTPATHS, SERVICE LIDS OR OTHER INFRASTRUCTURE SHALL FINISH FLUSH WITH THE EDGE.

DAM DEWATERING NOTES

- DAM WATER FROM DEWATERING OF THE DAM IS NOT TO BE DISCHARGED INTO COUNCIL'S STORMWATER SYSTEM.
- DAM WATER FROM DEWATERING OF THE DAM IS TO BE DISPOSED OF OFF-SITE TO A LAWFUL WASTE MANAGEMENT FACILITY OR USED AND CONTAINED WITHIN THE BOUNDARIES OF THE PROPERTY.
- DAM WATER IS NOT PERMITTED TO IMPACT ADJOINING PROPERTIES.

PAVEMENT NOTES

- PAVEMENT TO BE SUPPLIED AND LAID IN ACCORDANCE WITH COUNCIL SPECIFICATIONS.
- PROVIDE 100mm MINIMUM TOPSOIL & SEED TO EMBANKMENTS.
- SUBGRADE & PAVEMENT MATERIALS TO BE COMPACTED TO FOLLOWING MINIMUM DRY DENSITY RATIOS (AS 1289-5.4.1-1993):
 - BASECOURSE 98% MODIFIED
 - SUB-BASE 95% MODIFIED
 - SUBGRADE 100% STANDARD
- SUBSOIL DRAINAGE TO BE PLACED ON BOTH SIDES OF THE ROAD EXCEPT WHERE STORMWATER PIPES ARE PROPOSED.

STORMWATER NOTES

- STORMWATER DESIGN CRITERIA:
1% AEP MAJOR SYSTEM
20% AEP MINOR SYSTEM
- PIPES TO BE INSTALLED TO TYPE HS2 SUPPORT IN ACCORDANCE WITH AS 3725 (2007) IN ALL CASES BACKFILL TRENCH WITH SAND TO 300mm ABOVE PIPE. 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).
- ALL INTERNAL WORKS WITHIN PROPERTY BOUNDARIES ARE TO COMPLY WITH THE REQUIREMENTS OF AS 3500 3.1 (1998) AND AS/NZS 3500 3.2 (1998).
- CARE IS TO BE TAKEN WITH LEVELS OF STORMWATER LINES. GRADES SHOWN ARE NOT TO BE REDUCED WITHOUT APPROVAL.
- GRATES AND COVERS SHALL CONFORM TO AS 3996.
- AT ALL TIMES DURING CONSTRUCTION OF STORMWATER PITS, ADEQUATE SAFETY PROCEDURES SHALL BE TAKEN TO ENSURE AGAINST THE POSSIBILITY OF PERSONNEL FALLING DOWN PITS.
- ALL DRAINAGE LINES THROUGH LOTS SHALL BE CONTAINED WITHIN THE FOLLOWING EASEMENTS: -
 - INTERALLOTMENT DRAINS (C.D.L.) - 1.5m WIDE MINIMUM (UP TO 150mm DIAMETER), 2.0m WIDE MINIMUM (UP TO 300mm DIAMETER).
 - ALL OTHER DRAINS - REFER TO PENRITH CITY COUNCIL'S "DESIGN GUIDELINES FOR ENGINEERING WORKS FOR SUBDIVISIONS AND DEVELOPMENTS".
- 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.
- ALL STORMWATER PIPES WITHIN ROADS TO BE REINFORCED CONCRETE PIPE (RCP) CLASS 4 UNLESS NOTED OTHERWISE.
- ALL INTERALLOTMENT DRAINAGE LINES SHALL BE LAID AT A MINIMUM GRADE OF 1% UNLESS OTHERWISE INDICATED.
- ALL INTERALLOTMENT PITS ARE TO HAVE A 100mm STUB INSTALLED FOR HOUSE CONNECTION.
- DRAINAGE LINES ON PLANS ARE DIAGRAMMATIC ONLY AND PIPE CENTRE LINES SHALL ENTER AND EXIT PITS AT THE CENTRE OF THE RESPECTIVE PIT WALLS.

SURVEY SET OUT INFORMATION NOTES:

- ALL SITE SET OUT AND CONTROL POINTS ARE TO BE CERTIFIED BY A REGISTERED SURVEYOR.
- THE INFORMATION DETAILED ON THE CERTIFIED CONSTRUCTION CERTIFICATE PLANS TAKES PRECEDENCE OVER ALL ELECTRONIC INFORMATION PROVIDED. THE ORDER OF PRIORITY FOR USE OF ALL INFORMATION PROVIDED IS AS FOLLOWS:
 - CERTIFIED CONSTRUCTION CERTIFICATE DRAWINGS
 - 2D DRAFTING BASE (ELECTRONIC FILE)
 - 3D DTM (ELECTRONIC FILE)
- ANY DISCREPANCY BETWEEN ANY OF THE INFORMATION CONTAINED WITHIN THESE FILES IS TO BE BROUGHT TO THE ATTENTION OF THE SUPERINTENDENT PRIOR TO CONSTRUCTION WHO WILL SEEK CLARIFICATION AND ISSUE INSTRUCTIONS ON THE APPROPRIATE COURSE OF ACTION.

FOR ACOUSTIC WALL PLANS AND DETAILS
REFER TO:
- ACOUSTIC WALL PLAN AND SECTION,
PREPARED BY THE BATHLA GROUP, REFERENCE
AW01 AND AW02, REVISION A, DATED 25/06/2018.
- ACOUSTIC WALL STRUCTURAL DETAILS,
PREPARED BY THE BATHLA GROUP, DRAWING
NO. ST_09, REVISION 01, DATED 28/06/2019



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ISSUED FOR CONSTRUCTION APPROVAL

27 KENT ROAD CLAREMONT MEADOWS
LOT, ROAD AND DRAINAGE WORKS
LEGEND, NOTES, AND INDEX

PLAN No: 110341/CC02	D
FILE No: 110341CC02	
SHEET SIZE:	A1 ORIGINAL

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AZIMUTH:
DATUM:
ORIGIN:



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ROAD 1					
CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A.LENGTH
0	291308.48	6259709.69	131°08'55.72"		
0.62	291308.94	6259709.28	131°08'55.72"		
8.53	291315.24	6259703.78		-20	15.83
16.45	291323.57	6259704.39	85°47'29.63"		
332.91	291639.17	6259727.62	85°47'29.63"		
341.23	291648.84	6259728.33		-13	16.66
349.56	291650.92	6259737.8	12°22'04.09"		
416.99	291665.36	6259803.66			
596.2	291703.29	6259978.8			
681.39	291714.41	6260063.27	7°29'46.81"		

PANDOREA STREET					
CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A.LENGTH
0	291286.47	6259692.81	53°57'14.50"		
21.56	291303.9	6259705.5	53°57'14.50"		
32.76	291313.48	6259712.47		-27.8	22.39
43.96	291315.09	6259724.2	7°48'10.66"		
191.35	291335.1	6259870.23	7°48'10.66"		

SILKWOOD AVENUE					
CHAINAGE	EASTING	NORTHING	BEARING		
0	291396.75	6259709.78	7°48'42.13"		
407	291452.07	6260113	7°48'42.13"		

ROAD 2					
CHAINAGE	EASTING	NORTHING	BEARING		
0	291478.29	6259715.78	7°48'42.13"		
303.21	291519.5	6260016.17	7°48'42.13"		

ROAD 3					
CHAINAGE	EASTING	NORTHING	BEARING		
0	291562.19	6259721.95	7°48'42.13"		
130.35	291579.9	6259861.09	7°48'42.13"		

ROAD 4					
CHAINAGE	EASTING	NORTHING	BEARING		
0	291498.19	6259862.3	97°48'42.13"		
176.31	291672.87	6259838.34	97°48'42.13"		

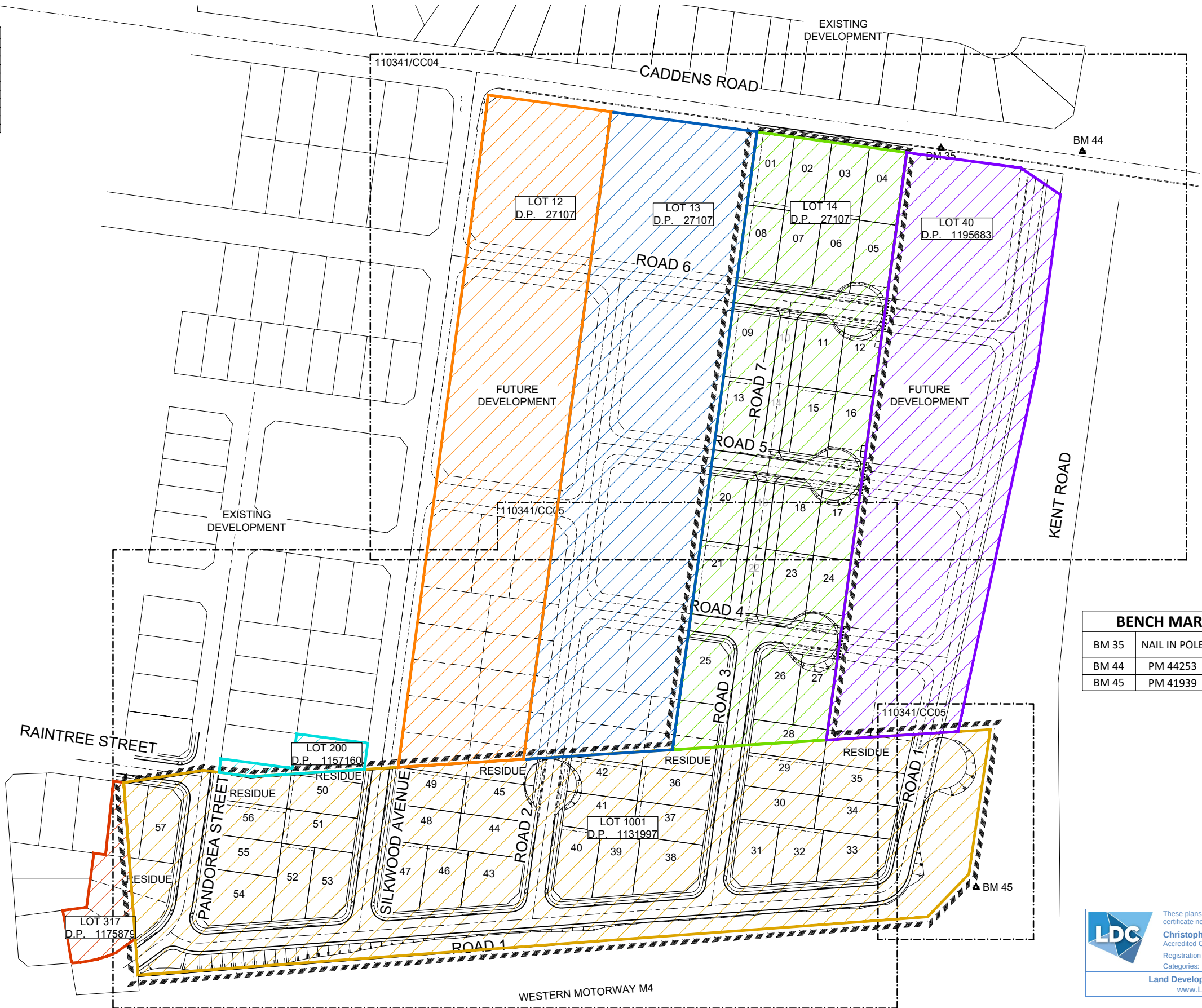
ROAD 5					
CHAINAGE	EASTING	NORTHING	BEARING		
0	291508.6	6259939.27	97°48'42.13"		
182.46	291689.36	6259914.47	97°48'42.13"		

ROAD 6					
CHAINAGE	EASTING	NORTHING	BEARING		
0	291440.28	6260027.04	97°48'42.13"		
267.06	291704.86	6259990.74	97°48'42.13"		

ROAD 7					
CHAINAGE	EASTING	NORTHING	BEARING		
0	291578.49	6259851.29	7°48'47.04"		
155.33	291599.6	6260005.18	7°48'47.04"		

RAINTREE STREET					
CHAINAGE	EASTING	NORTHING	BEARING		
0	291323.08	6259782.55	277°48'10.66"		
60	291263.64	6259790.7	277°48'10.66"		

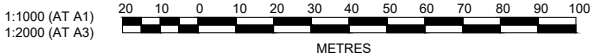
CADDENS ROAD					
CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A.LENGTH
0	290967.8	6260179	97°47'54.84"		
124.03	291090.68	6260182.17	97°47'54.84"		
135.35	291101.9	6260180.63		-2000	22.65
146.68	291113.14	6260159.22	97°08'58.40"		
195.67	291161.75	6260153.12	97°08'58.40"		
209.15	291175.13	6260151.45		2000	26.97
222.64	291188.49	6260149.59	97°55'19.61"		
265.55	291230.98	6260143.67	97°55'19.61"		
270.15	291235.55	6260143.04		5000	9.22
274.76	291240.12	6260142.4	98°01'39.93"		
337.92	291302.65	6260133.58	98°01'39.93"		
346.55	291311.2	6260132.37		-5000	17.28
355.19	291319.76	6260131.19	97°49'47.16"		
679.2	291640.75	6260087.05	97°49'47.16"		
692.09	291653.51	6260085.3		5000	25.78
704.98	291666.27	6260083.48	98°07'30.47"		
831.5	291791.53	6260065.59	98°07'30.47"		



BENCH MARK LOCATIONS		
BM 35	NAIL IN POLE	RL 47.37 (A.H.D)
BM 44	PM 44253	RL 48.43 (A.H.D)
BM 45	PM 41939	RL 56.28 (A.H.D)



These plans are referred to in certificate no. 15440 approved by:
Christopher Louis Wahbe
Accredited Certifier
Registration No: BPB 3015
Categories: B1, C1, C2, C3, C4, C6 & C15
Land Development Certificates
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CLIENT:



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ISSUED FOR CONSTRUCTION APPROVAL

27 KENT ROAD CLAREMONT MEADOWS
LOT, ROAD AND DRAINAGE WORKS
LAYOUT PLAN

PLAN No:	110341/CC03	B
FILE No:	110341CC03	
SHEET SIZE:	A1 ORIGINAL	

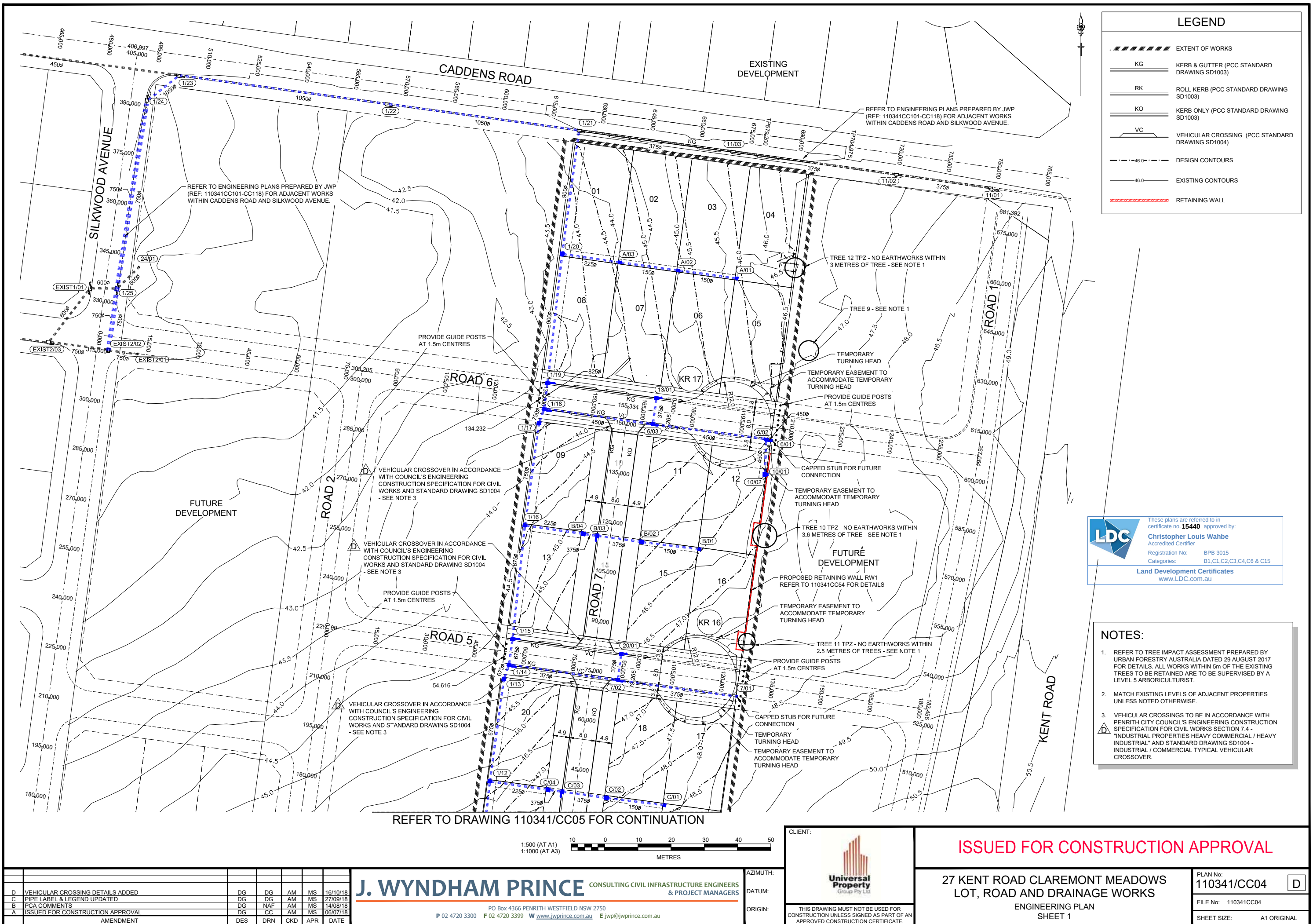
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B	EXISTING LOT DETAILS ADDED	DG	DG	AM	MS	14/08/18
A	ISSUED FOR CONSTRUCTION APPROVAL	DG	CC	AM	MS	06/07/18
	AMENDMENT	DES	DRN	CKD	APR	DATE

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Plotted: 15 October, 2018 9:26:35 AM File Name: J:\110341 - 27 Kent Rd Claremont Meadows\03 - CC04\CC110341CC04.dwg



LEGEND

- EXTENT OF WORKS
- KG KERB & GUTTER (PCC STANDARD DRAWING SD1003)
- RK ROLL KERB (PCC STANDARD DRAWING SD1003)
- KO KERB ONLY (PCC STANDARD DRAWING SD1003)
- VC VEHICULAR CROSSING (PCC STANDARD DRAWING SD1004)
- - - - - DESIGN CONTOURS
- EXISTING CONTOURS
- ===== RETAINING WALL

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NOTES:

- REFER TO TREE IMPACT ASSESSMENT PREPARED BY URBAN FORESTRY AUSTRALIA DATED 29 AUGUST 2017 FOR DETAILS. ALL WORKS WITHIN 5m OF THE EXISTING TREES TO BE RETAINED ARE TO BE SUPERVISED BY A LEVEL 5 ARBORICULTURIST.
- MATCH EXISTING LEVELS OF ADJACENT PROPERTIES UNLESS NOTED OTHERWISE.
- VEHICULAR CROSSINGS TO BE IN ACCORDANCE WITH PENRITH CITY COUNCIL'S ENGINEERING CONSTRUCTION SPECIFICATION FOR CIVIL WORKS SECTION 7.4: "INDUSTRIAL PROPERTIES HEAVY COMMERCIAL / HEAVY INDUSTRIAL" AND STANDARD DRAWING SD1004 - INDUSTRIAL / COMMERCIAL TYPICAL VEHICULAR CROSSOVER.

REFER TO DRAWING 110341/CC05 FOR CONTINUATION



D	VEHICULAR CROSSING DETAILS ADDED	DG	DG	AM	MS	16/10/18
C	PIPE LABEL & LEGEND UPDATED	DG	DG	AM	MS	27/09/18
B	PCA COMMENTS	DG	NAF	AM	MS	14/08/18
A	ISSUED FOR CONSTRUCTION APPROVAL	DG	CC	AM	MS	06/07/18
	AMENDMENT	DES	DRN	CKD	APR	DATE

J. WYNDHAM PRINCE CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS

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27 KENT ROAD CLAREMONT MEADOWS
LOT, ROAD AND DRAINAGE WORKS

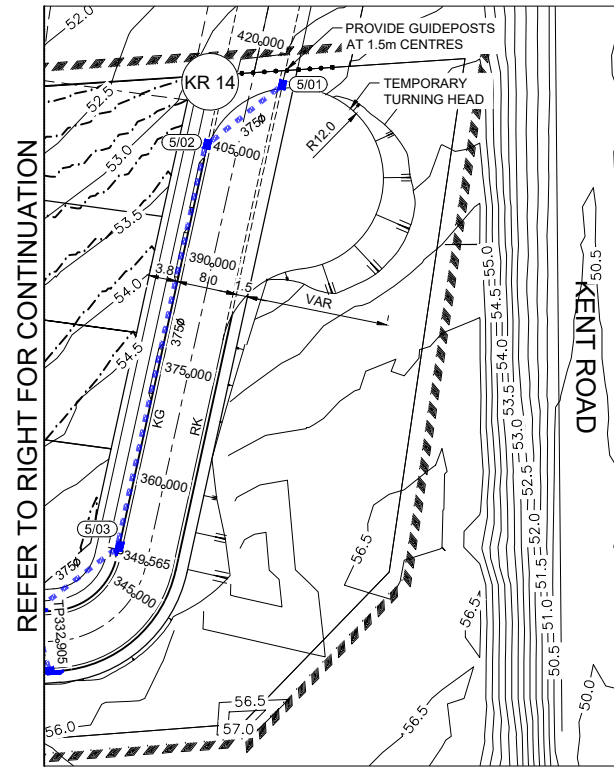
ENGINEERING PLAN
SHEET 1

PLAN No:	110341/CC04	D
FILE No:	110341CC04	
SHEET SIZE:	A1 ORIGINAL	

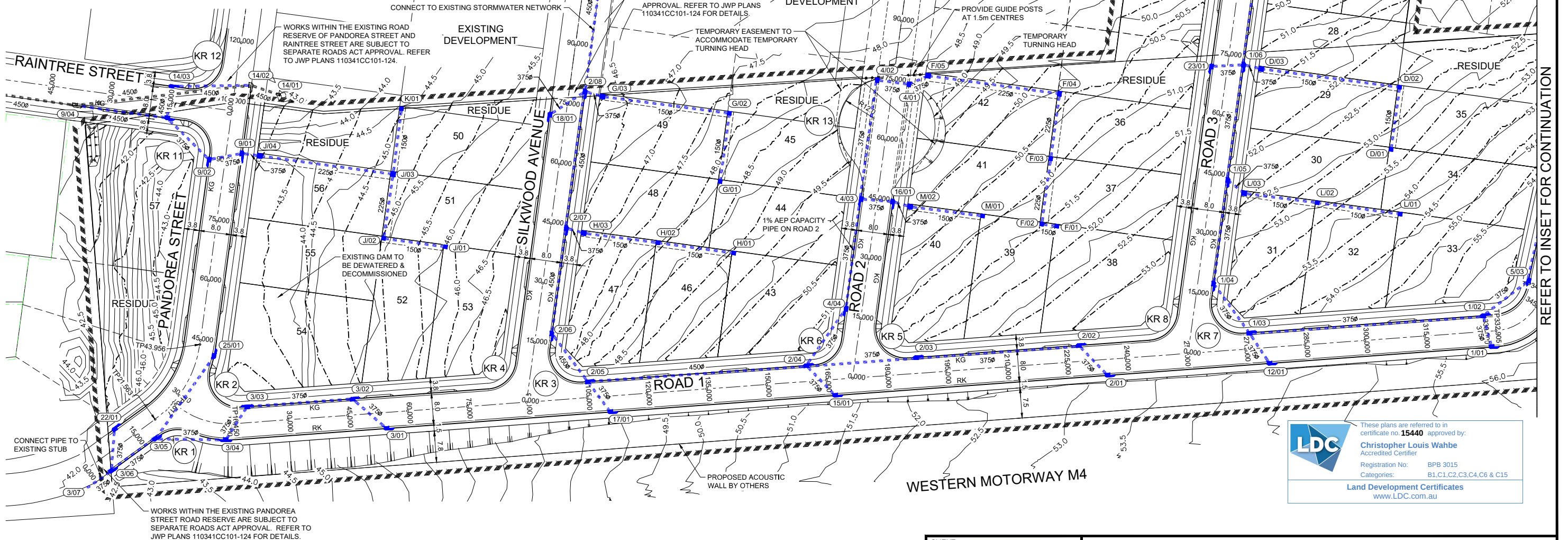
NOTES:

1. REFER TO TREE IMPACT ASSESSMENT PREPARED BY URBAN FORESTRY AUSTRALIA DATED 29 AUGUST 2017 FOR DETAILS. ALL WORKS WITHIN 5m OF THE EXISTING TREES TO BE RETAINED ARE TO BE SUPERVISED BY A LEVEL 5 ARBORICULTURIST.
2. MATCH EXISTING LEVELS OF ADJACENT PROPERTIES UNLESS NOTED OTHERWISE.
3. VEHICULAR CROSSINGS TO BE IN ACCORDANCE WITH PENRITH CITY COUNCIL'S ENGINEERING CONSTRUCTION SPECIFICATION FOR CIVIL WORKS SECTION 7.4 - "INDUSTRIAL PROPERTIES HEAVY COMMERCIAL / HEAVY INDUSTRIAL" AND STANDARD DRAWING SD1004 - INDUSTRIAL / COMMERCIAL TYPICAL VEHICULAR CROSSOVER.

REFER TO DRAWING 110341/CC04 FOR CONTINUATION



INSET
SCALE 1:500



LDC Land Development Certificates
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These plans are referred to in certificate no. 15440 approved by:
Christopher Louis Wahbe
Accredited Certifier
Registration No: BPB 3015
Categories: B1,C1,C2,C3,C4,C6 & C15

1:500 (AT A1)
1:1000 (AT A3)

10 0 10 20 30 40 50
METRES

J. WYNDHAM PRINCE CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS

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P 02 4720 3300 F 02 4720 3399 W www.jwprince.com.au E jwp@jwprince.com.au

CLIENT:



AZIMUTH:

DATUM:

ORIGIN:

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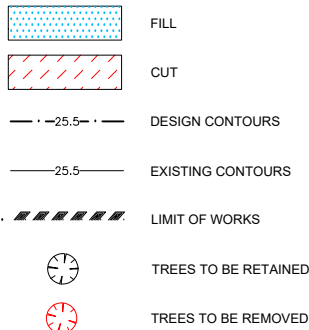
ISSUED FOR CONSTRUCTION APPROVAL

27 KENT ROAD CLAREMONT MEADOWS
LOT, ROAD AND DRAINAGE WORKS

ENGINEERING PLAN
SHEET 2

PLAN No: 110341/CC05
FILE No: 110341CC05
SHEET SIZE: A1 ORIGINAL

LEGEND



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Accredited Certifier

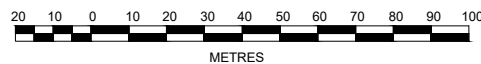
Registration No: BPB 3015
Categories: B1, C1, C2, C3, C4, C6 & C15

Land Development Certificates
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NOTES:

- REFER TO TREE IMPACT ASSESSMENT PREPARED BY URBAN FORESTRY AUSTRALIA DATED 29 AUGUST 2017 FOR DETAILS. ALL WORKS WITHIN 5m OF THE EXISTING TREES TO BE RETAINED ARE TO BE SUPERVISED BY A LEVEL 5 ARBORICULTURIST.
- NO TREES BEYOND THE BOUNDARIES OF THE SITE ARE TO BE REMOVED, RINGBARKED, CUT, TOPPED OR LOPPED OR WILFULLY DESTROYED WITHOUT THE PRIOR CONSENT OF PENRITH CITY COUNCIL.
- ANY TREES OUTSIDE THE BOUNDARIES OF THE SITE ARE TO BE RETAINED AND PROTECTED IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE ARBORICULTURAL IMPACT ASSESSMENT PREPARED BY URBAN FORESTRY AUSTRALIA, DATED 29 AUGUST 2017.

1:1000 (AT A1)
1:2000 (AT A3)



CLIENT:



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ISSUED FOR CONSTRUCTION APPROVAL

27 KENT ROAD CLAREMONT MEADOWS
LOT, ROAD AND DRAINAGE WORKS

CUT AND FILL AND
TREE REMOVAL PLAN

PLAN No:
110341/CC06

FILE No: 110341CC06

SHEET SIZE: A1 ORIGINAL

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& PROJECT MANAGERS

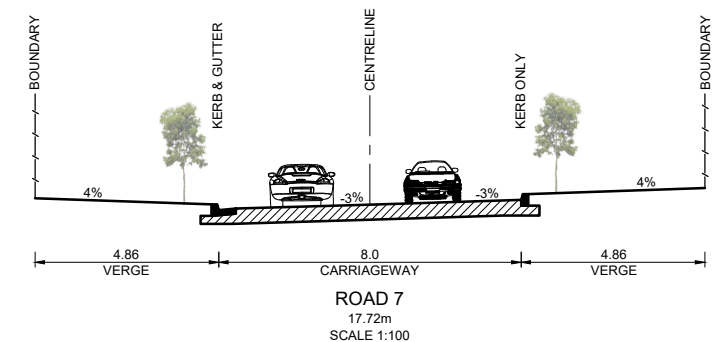
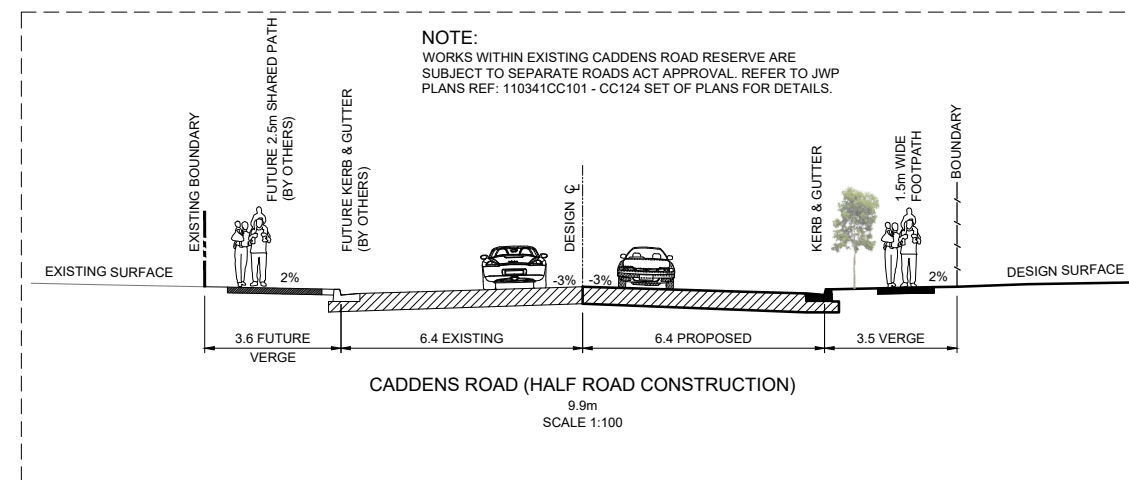
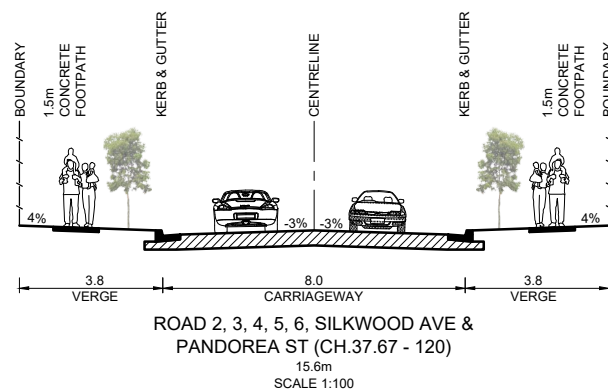
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AZIMUTH:

DATUM:

ORIGIN:

B	TREES TO BE REMOVED AMENDED, NOTES ADDED	DG	DG	AM	MS	14/08/18
A	ISSUED FOR CONSTRUCTION APPROVAL	DG	CC	AM	MS	06/07/18
	AMENDMENT	DES	DRN	CKD	APR	DATE



REFER TO PAVEMENT DESIGN REPORT PREPARED BY
GEOTESTA DATED 4 JULY 2018

Access Street 5 x 10'4 ESA
50mm MINIMUM THICKNESS
(1x25mm LAYER OF RM10, 1x25mm LAYER OF AC10)

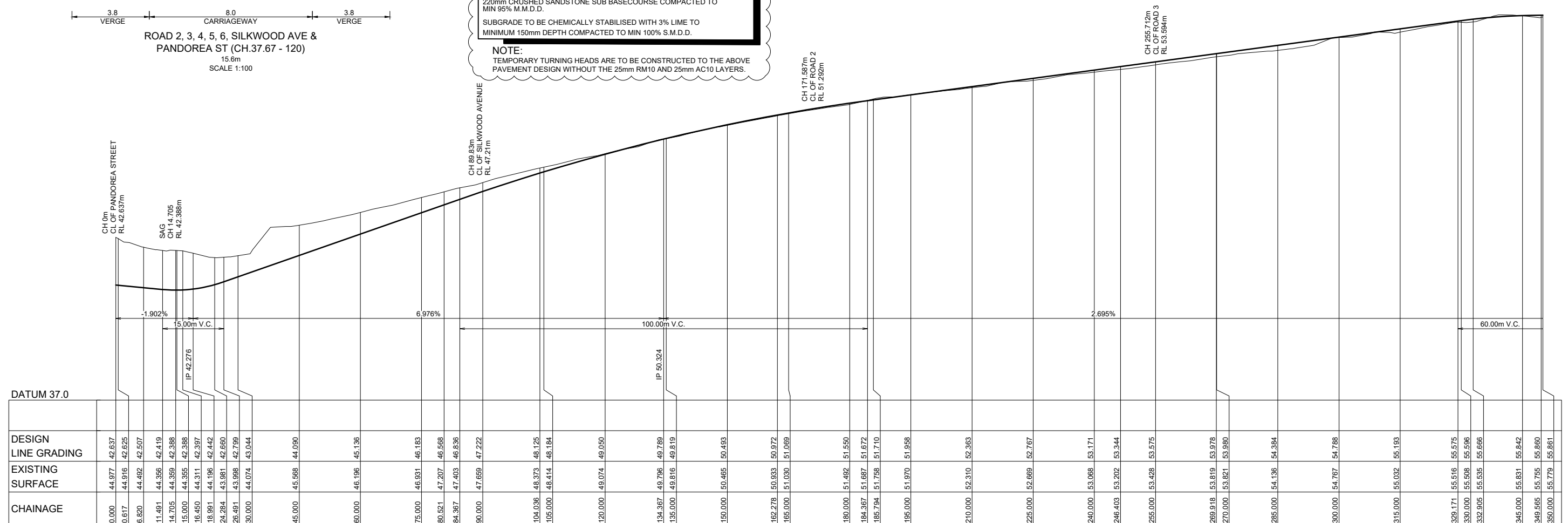
SINGLE COAT HOT BITUMEN FLUSH SEAL

150mm DGB2 BASECOURSE COMPACTED TO MIN 98% M.M.D.D.

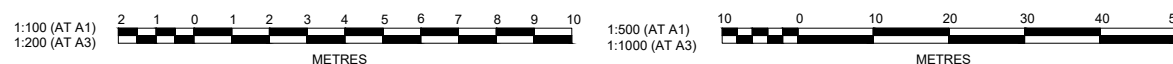
220mm CRUSHED SANDSTONE SUB BASECOURSE COMPACTED TO
MIN 95% M.M.D.D.

SUBGRADE TO BE CHEMICALLY STABILISED WITH 3% LIME TO
MINIMUM 150mm DEPTH COMPACTED TO MIN 100% S.M.D.D.

NOTE:
TEMPERARY TURNING HEADS ARE TO BE CONSTRUCTED TO THE ABOVE
PAVEMENT DESIGN WITHOUT THE 25" PM10 AND 25" AC10 LAYERS.



LONGITUDINAL SECTION ROAD 1
HORIZONTAL SCALE 1:500
VERTICAL SCALE 1:100



CLIENT:



DATUM:

ORIGIN:

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ISSUED FOR CONSTRUCTION APPROVAL

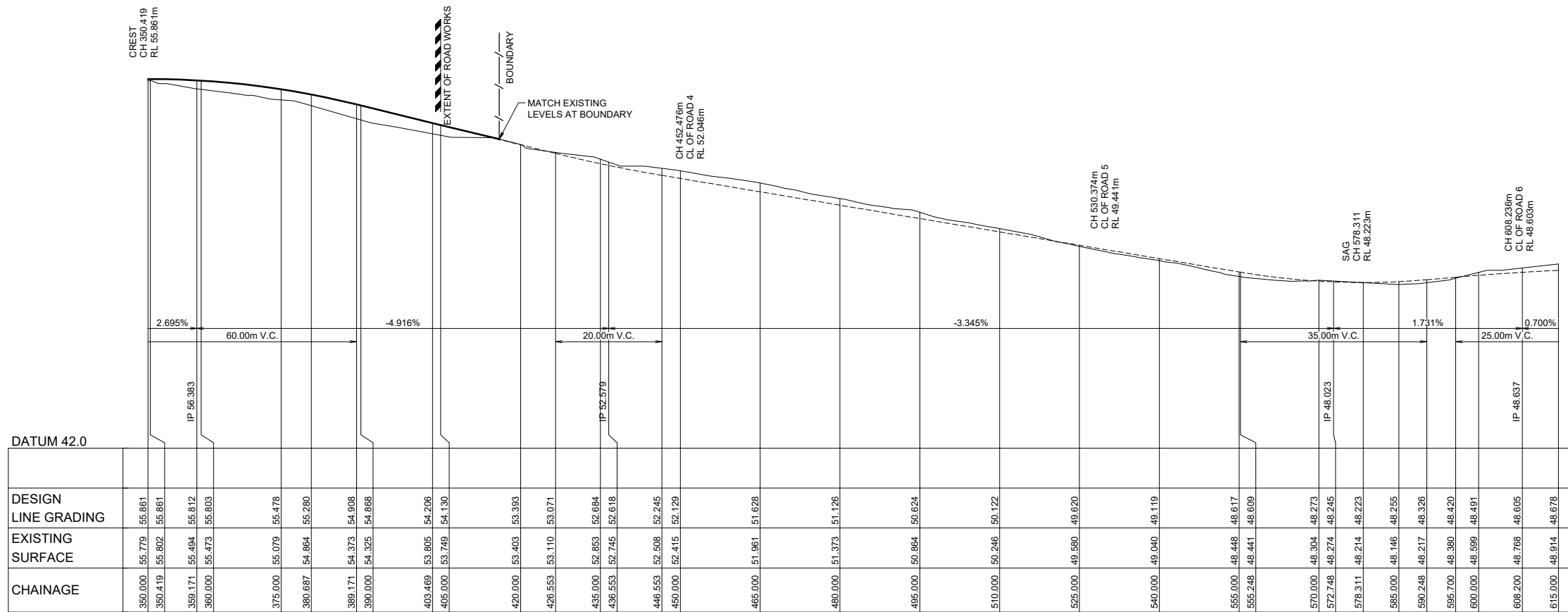
27 KENT ROAD CLAREMONT MEADOWS
LOT, ROAD AND DRAINAGE WORKS
ROAD TYPICAL AND LONGITUDINAL SECTIONS
SHEET 1

PLAN No:
110341/CC07

FILE No: 110341CC07

SHEET SIZE: A1 ORIGINAL

Plotted: 18 August, 2018 2:17:11 PM File Name: J:\110341 - 27 Kent Rd Claremont Meadows\03 - CC08\CC0110341CC08.dwg



LONGITUDINAL SECTION ROAD 1
HORIZONTAL SCALE 1:500
VERTICAL SCALE 1:100



B	ADDITIONAL NOTES ADDED	DG	NAF	AM	MS	14/08/18	
A	ISSUED FOR CONSTRUCTION APPROVAL	DG	CC	AM	MS	06/07/18	
	AMENDMENT	DES	DRN	CKD	APR	DATE	

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AZIMUTH:
DATUM:
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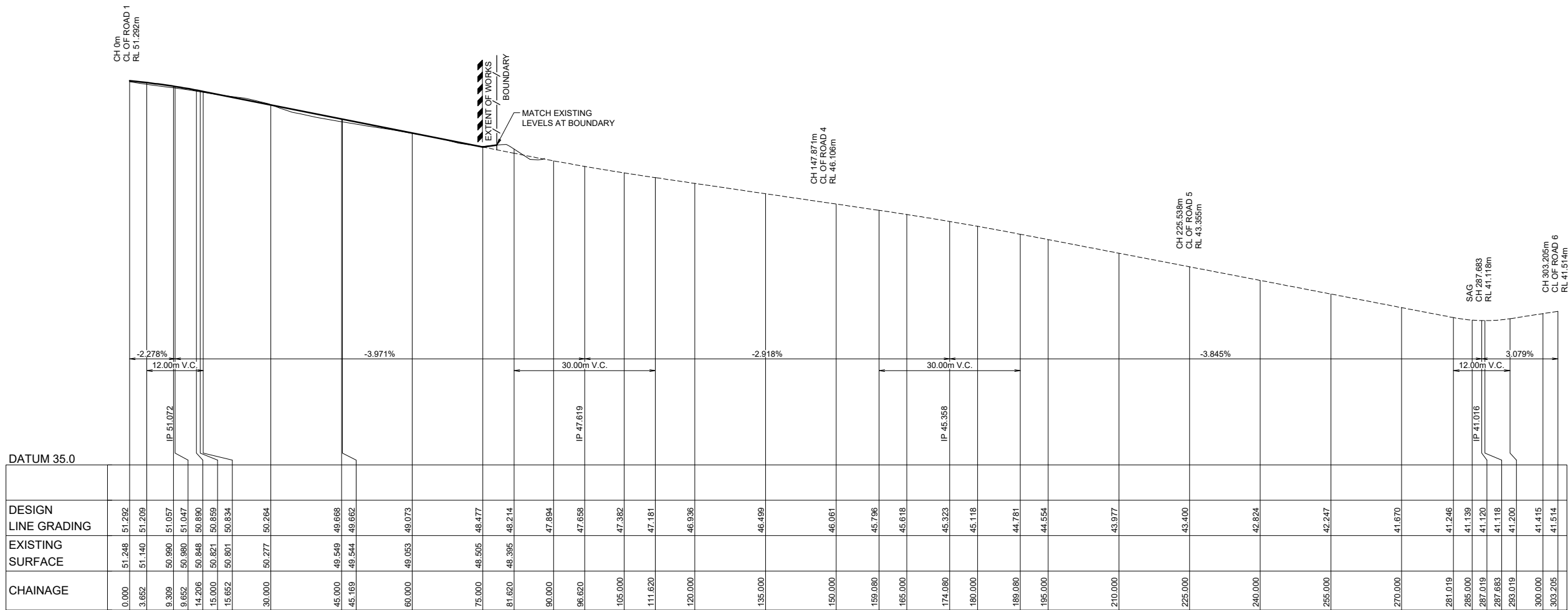
27 KENT ROAD CLAREMONT MEADOWS
LOT, ROAD AND DRAINAGE WORKS
ROAD LONGITUDINAL SECTIONS
SHEET 2



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Accredited Certifier
Registration No: BPB 3015
Categories: B1,C1,C2,C3,C4,C6 & C15
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PLAN No:	110341/CC08	B
FILE No:	110341CC08	
SHEET SIZE:	A1 ORIGINAL	

Plotted: 18 August, 2018 2:17:10 PM File Name: J:\110341 - 27 Kent Rd Claremont Meadows\03 - CC09\CC09110341CC09.dwg





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B	ADDITIONAL NOTES ADDED	DG	NAF	AM	MS	14/08/18	
A	ISSUED FOR CONSTRUCTION APPROVAL	DG	CC	AM	MS	06/07/18	
	AMENDMENT	DES	DRN	CKD	APR	DATE	

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AZIMUTH:
DATUM:
ORIGIN:

CLIENT:



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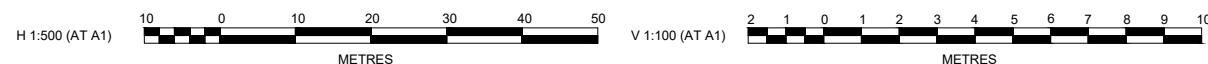
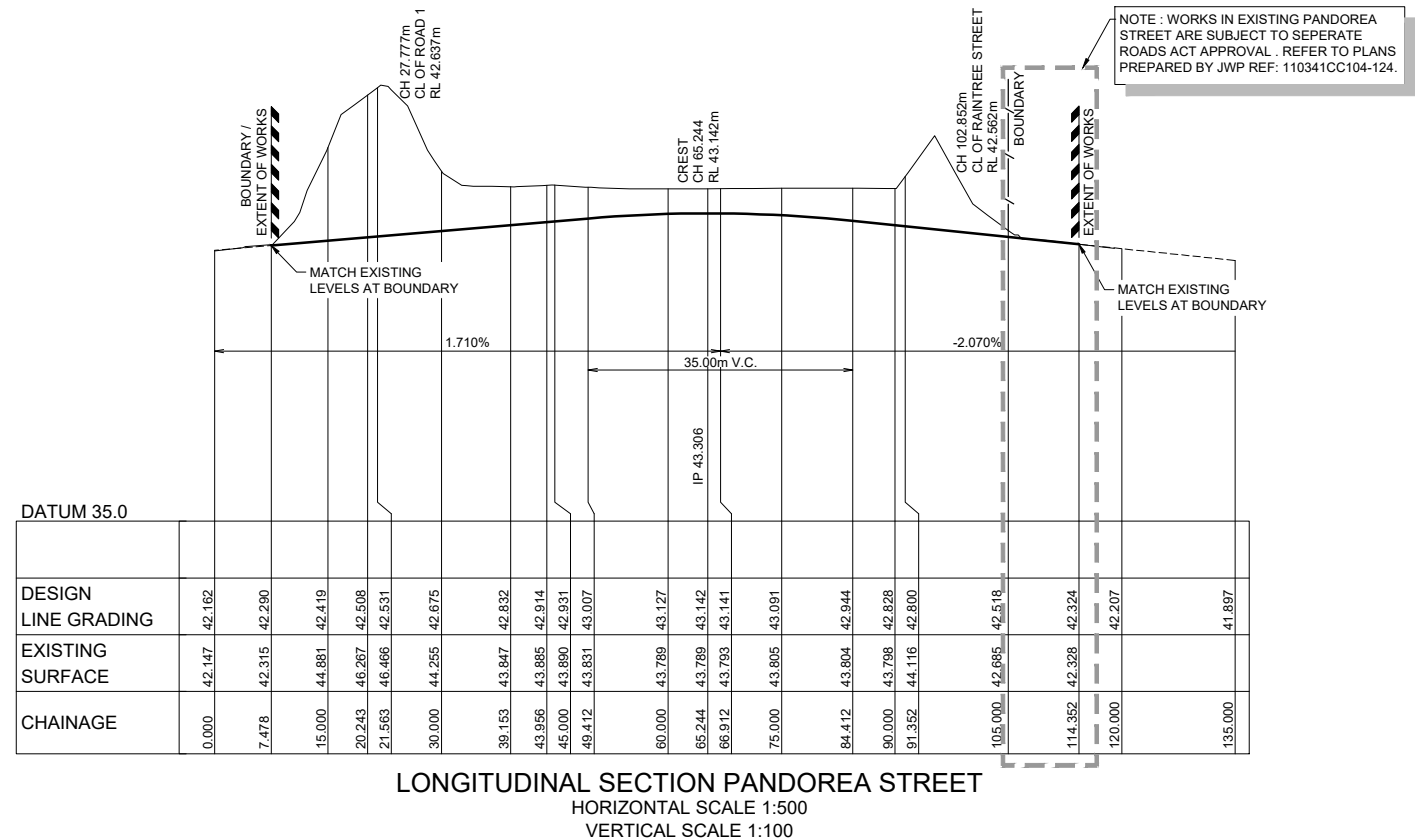
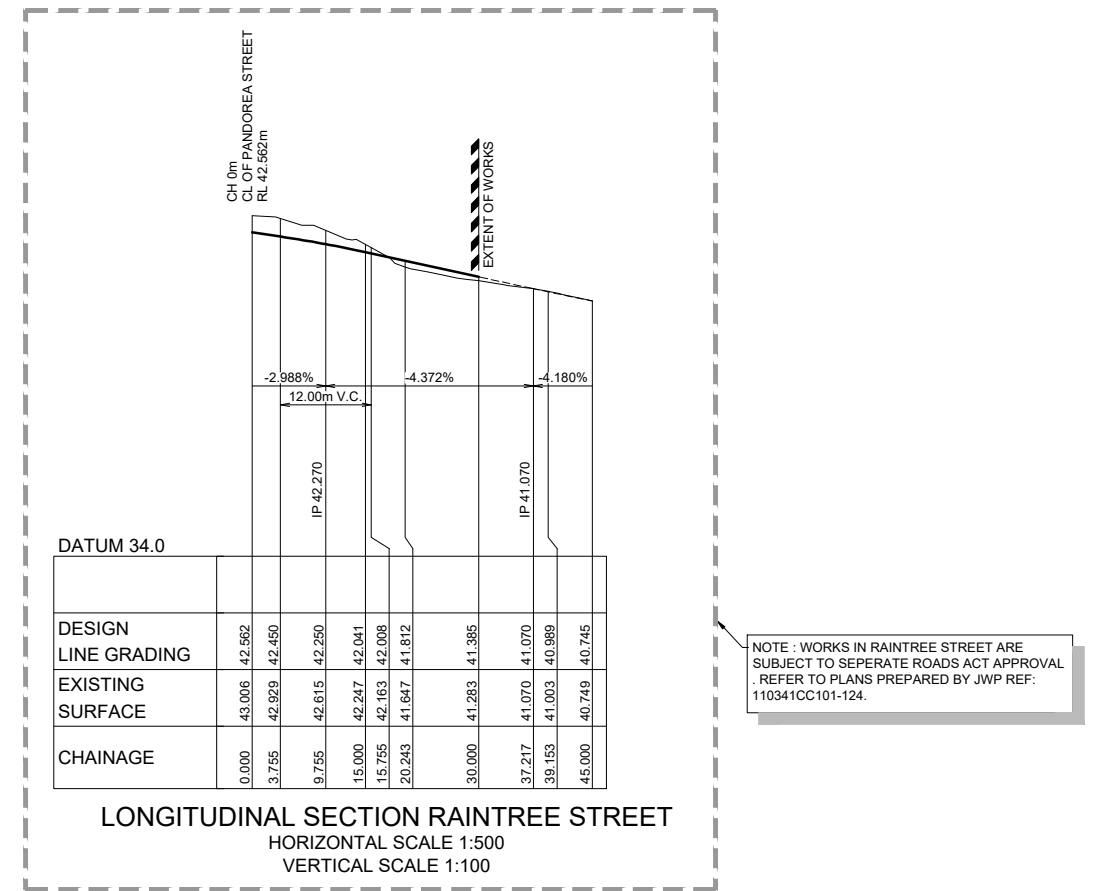
ISSUED FOR CONSTRUCTION APPROVAL

27 KENT ROAD CLAREMONT MEADOWS
LOT, ROAD AND DRAINAGE WORKS
ROAD LONGITUDINAL SECTIONS
SHEET 3

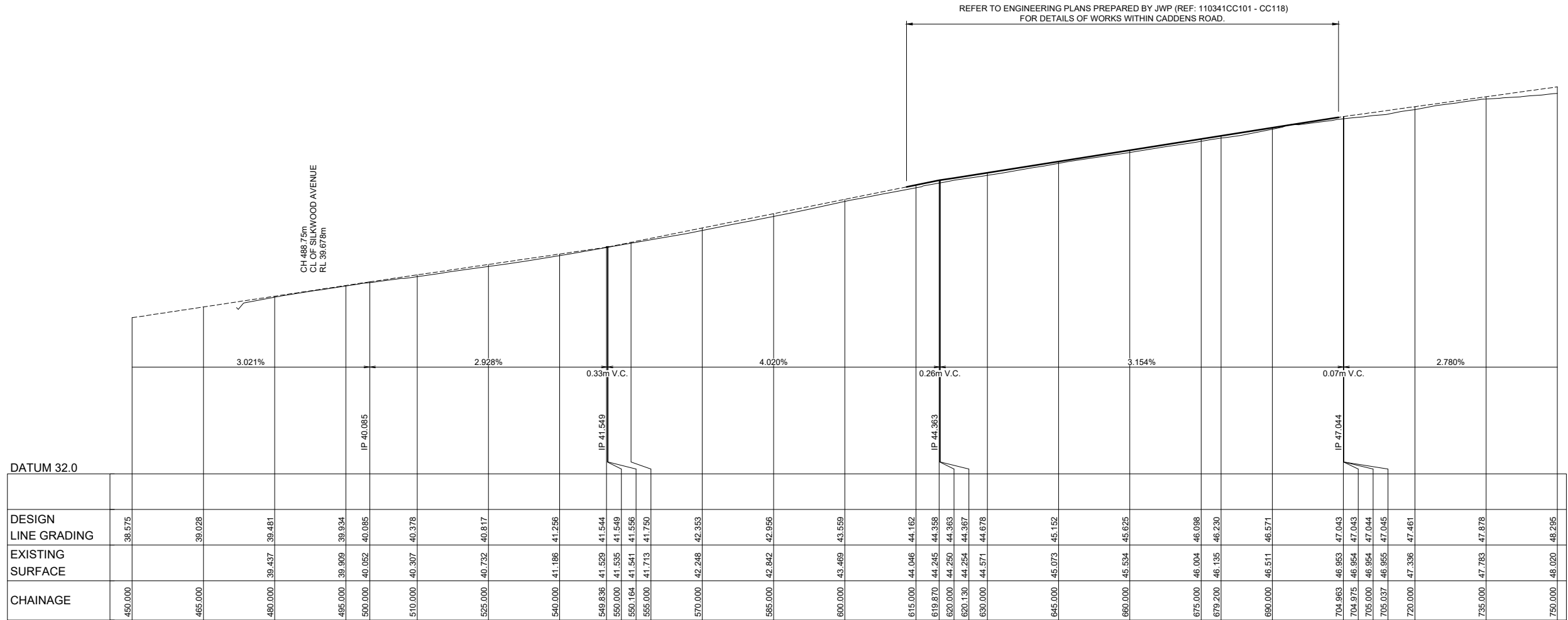
PLAN No: 110341/CC09 **B**

FILE No: 110341CC09

SHEET SIZE: A1 ORIGINAL

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LONGITUDINAL SECTION CADDENS ROAD
HORIZONTAL SCALE 1:500
VERTICAL SCALE 1:100

NOTE :
WORKS IN CADDENS ROAD ARE SUBJECT TO SEPERATE
ROADS ACT APPROVAL. PROVIDED FOR INFORMATION ONLY.



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B	NOTE ADDED	DG	NAF	AM	MS	14/08/18
A	ISSUED FOR CONSTRUCTION APPROVAL	DG	CC	AM	MS	06/07/18
	AMENDMENT	DES	DRN	CKD	APR	DATE

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AZIMUTH:
DATUM:
ORIGIN:

CLIENT:

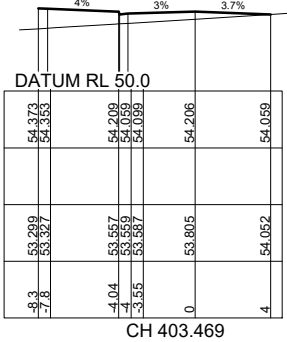
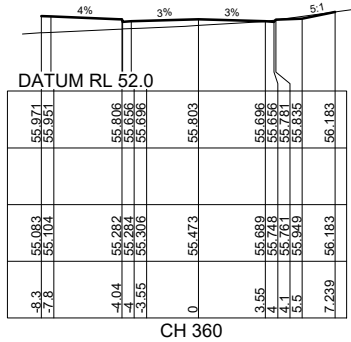
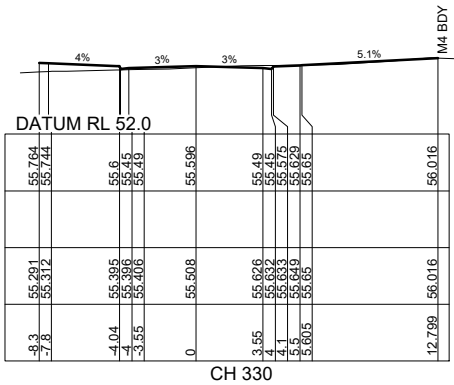
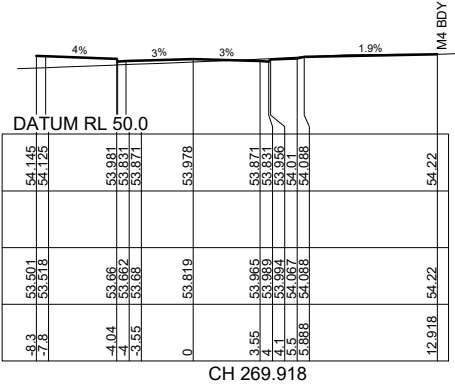
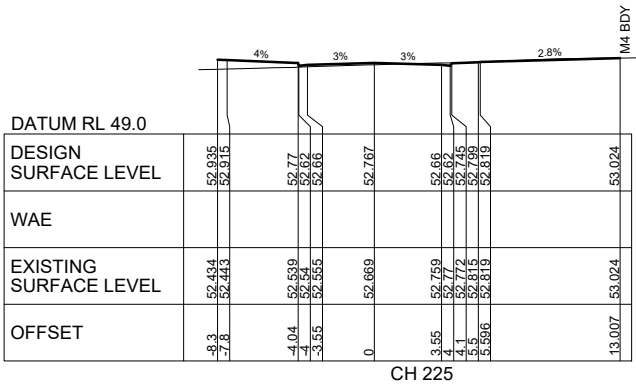
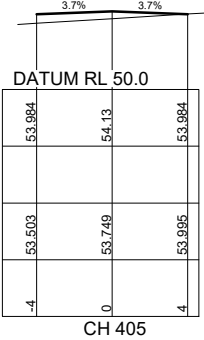
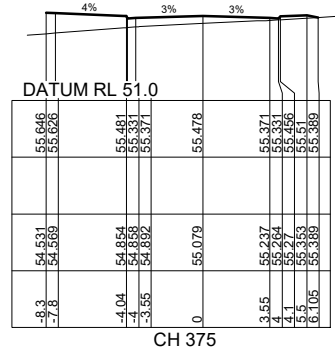
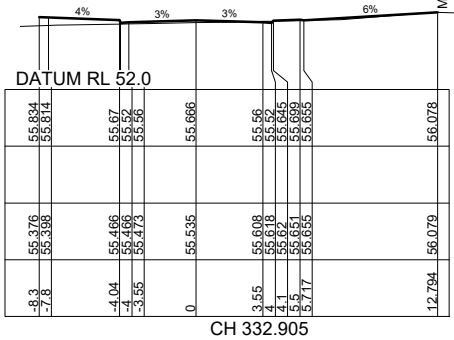
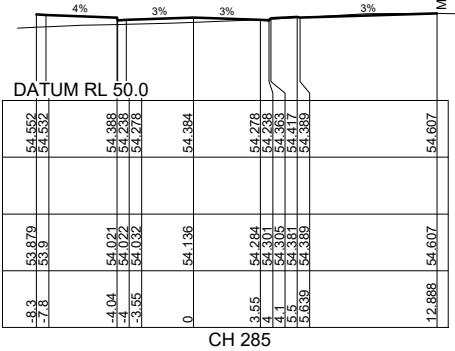
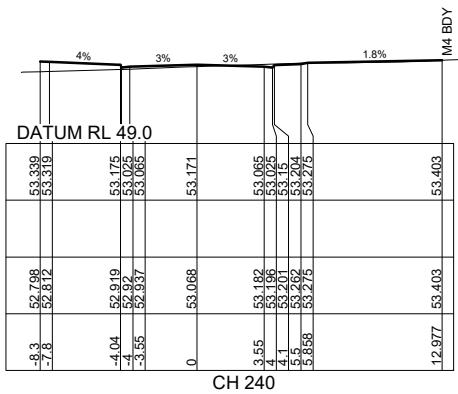
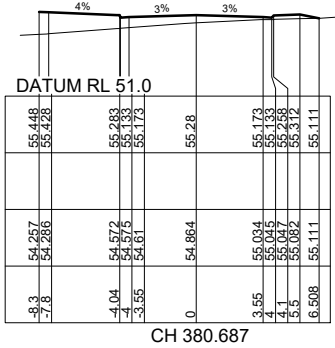
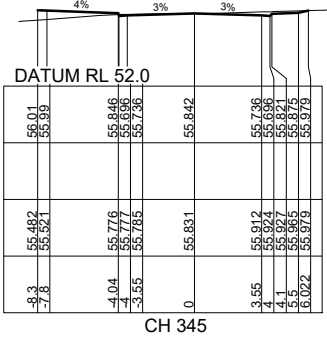
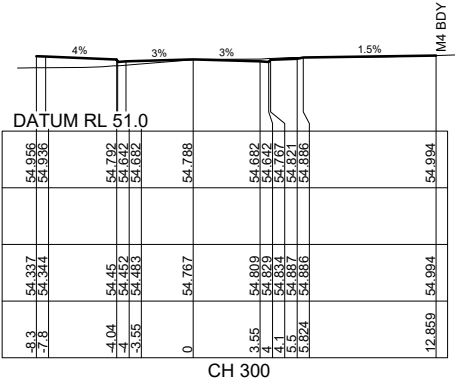
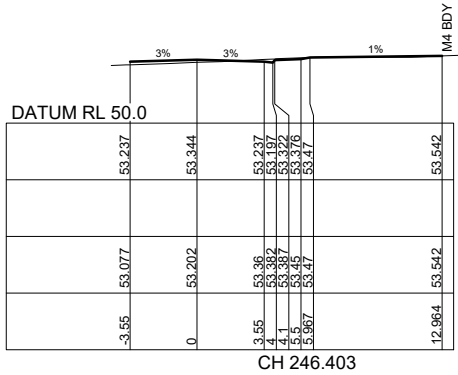
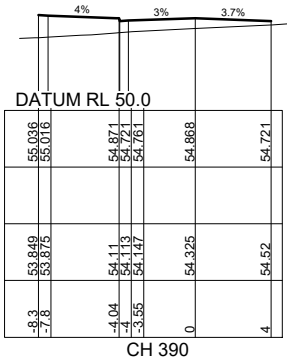
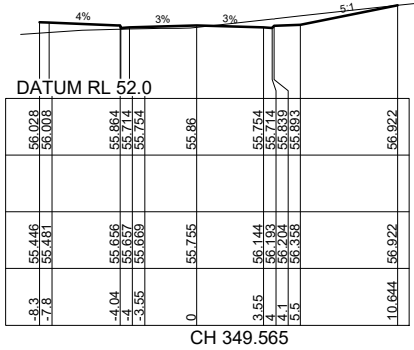
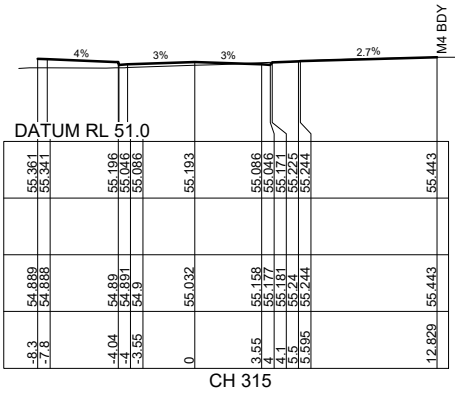
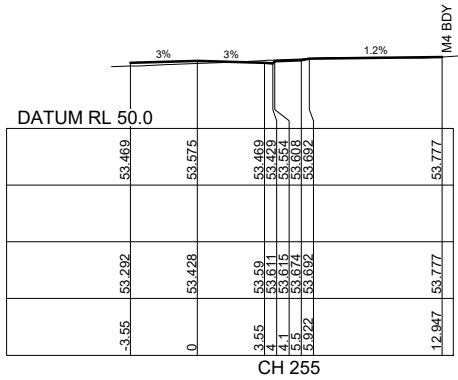


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27 KENT ROAD CLAREMONT MEADOWS
LOT, ROAD AND DRAINAGE WORKS
ROAD LONGITUDINAL SECTIONS
SHEET 7

PLAN No:	110341/CC13	B
FILE No:	110341CC13	
SHEET SIZE:	A1 ORIGINAL	



ROAD 1

B	ROAD CROSS SECTIONS UPDATED	DG	NAF	AM	MS	14/08/18			
A	ISSUED FOR CONSTRUCTION APPROVAL	DG	CC	AM	MS	06/07/18			
	AMENDMENT	DES	DRN	CKD	APR	DATE			

AZIMUTH:
DATUM:
ORIGIN:

CLIENT:



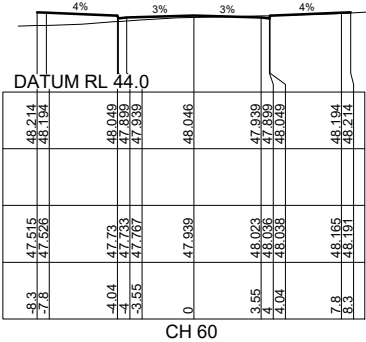
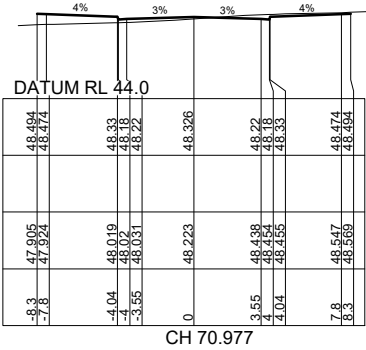
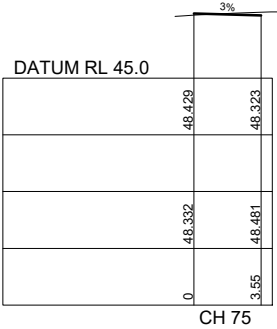
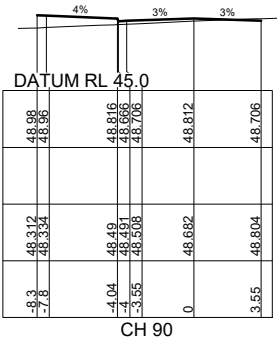
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27 KENT ROAD CLAREMONT MEADOWS
LOT, ROAD AND DRAINAGE WORKS

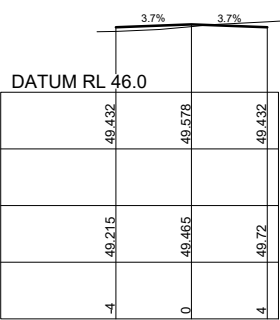
ROAD CROSS SECTIONS
SHEET 2

PLAN No:	110341/CC15	B
FILE No:	110341CC15	
SHEET SIZE:	A1 ORIGINAL	

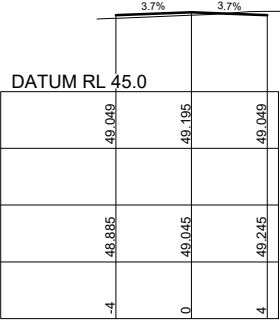


DATUM RL 44.0	
DESIGN SURFACE LEVEL	48.072 48.052
WAE	
EXISTING SURFACE LEVEL	47.418 47.437 47.628 47.663 47.889 48.022 48.046 48.048 48.247 48.274
OFFSET	-8.3 -7.8 -4.04 -3.55 0 3.55 4.04 7.8 8.3

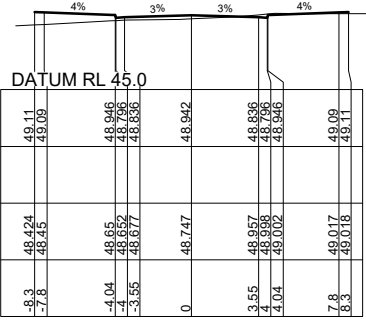
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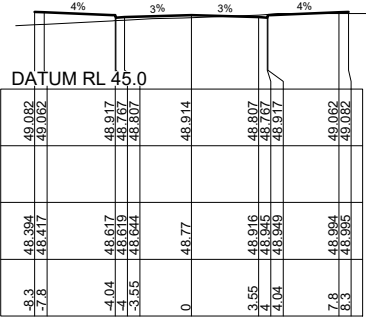
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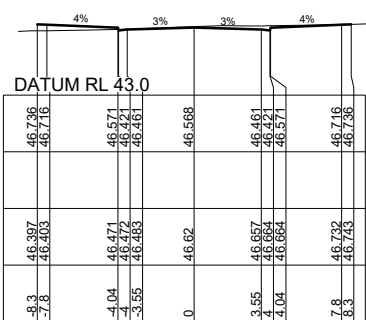
CH 105



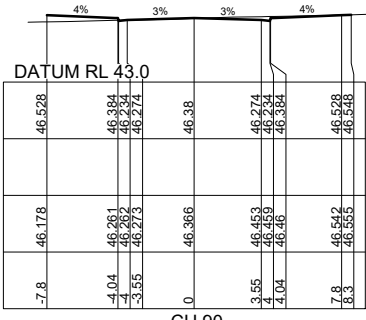
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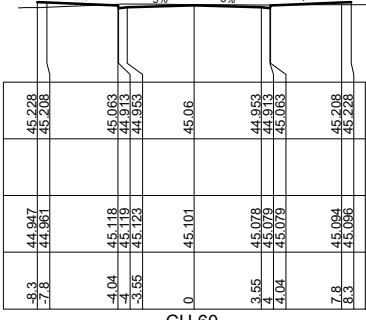
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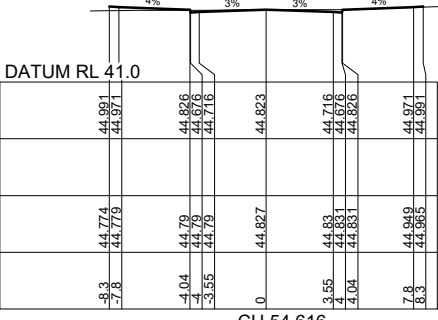
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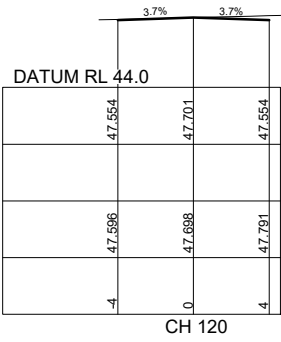
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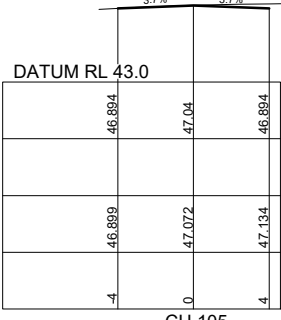
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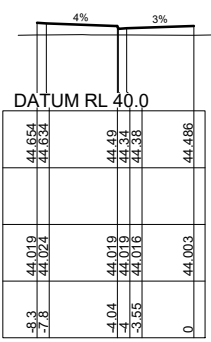
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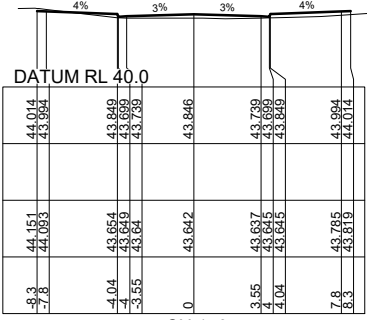
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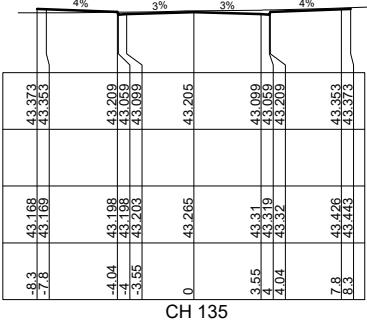
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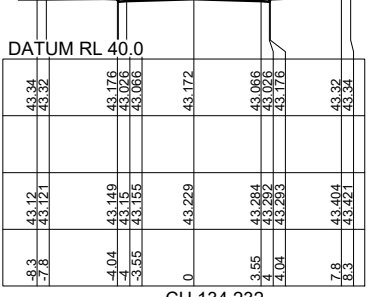
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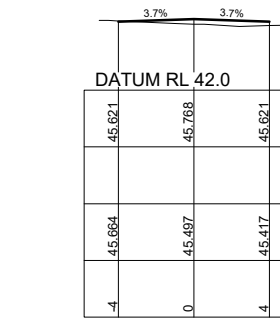
CH 150



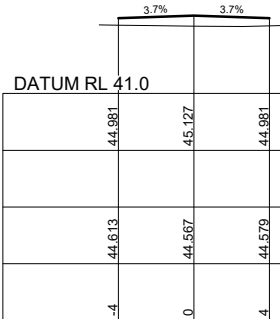
CH 135



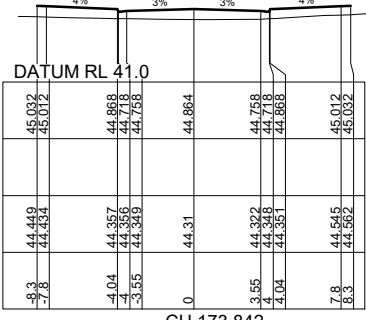
CH 134.232



CH 195



CH 180



CH 173.842

ROAD 6

ROAD 5

ROAD 4

A	ISSUED FOR CONSTRUCTION APPROVAL	DG	CC	AM	MS	06/07/18
	AMENDMENT	DES	DRN	CKD	APR	DATE

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P 02 4720 3300 F 02 4720 3399 W www.jwprince.com.au E jwp@jwprince.com.au

AZIMUTH:

DATUM:

ORIGIN:

CLIENT:



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27 KENT ROAD CLAREMONT MEADOWS LOT, ROAD AND DRAINAGE WORKS

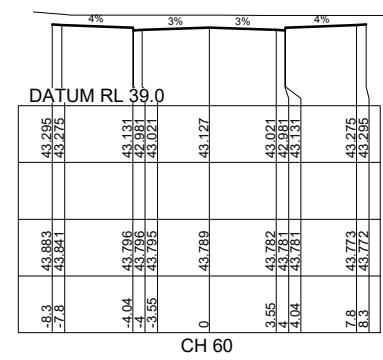
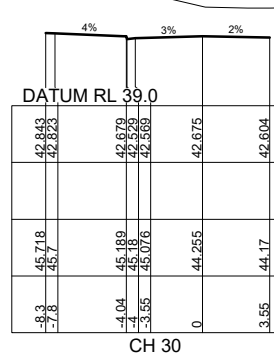
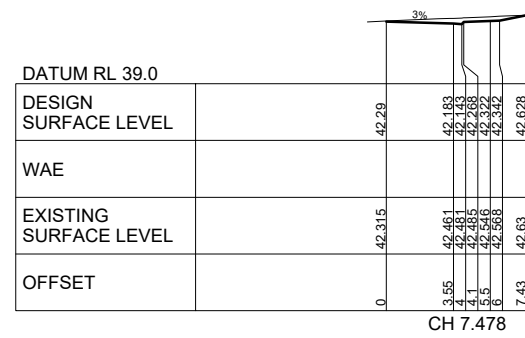
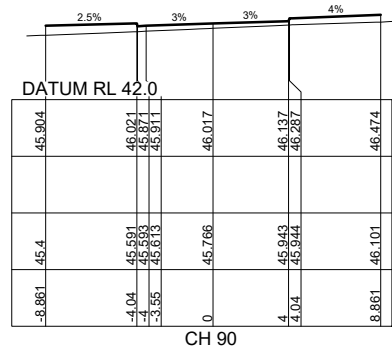
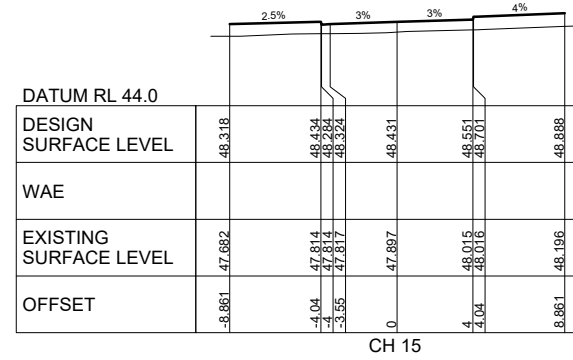
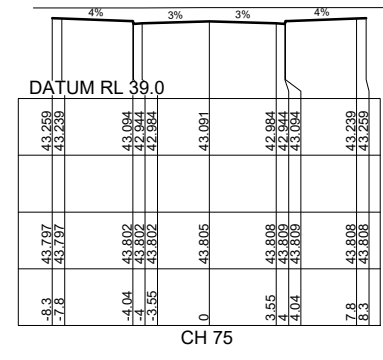
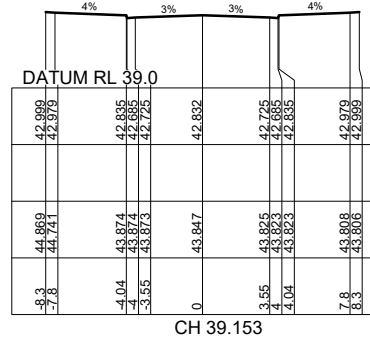
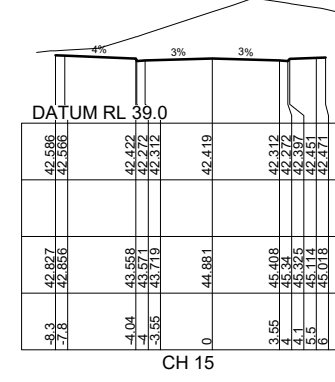
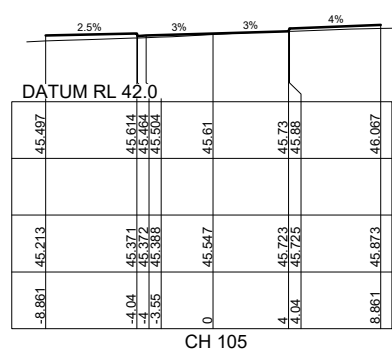
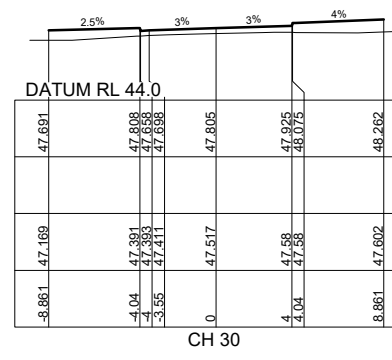
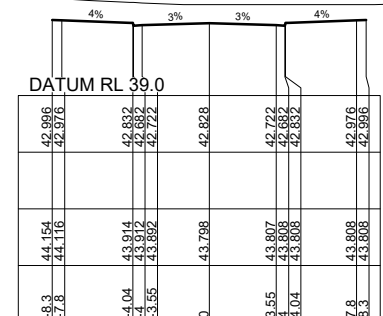
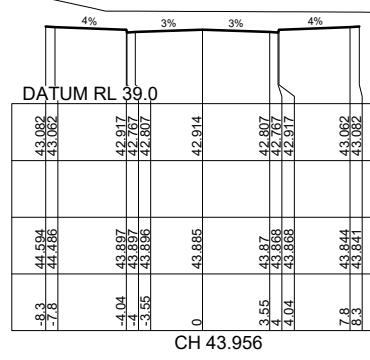
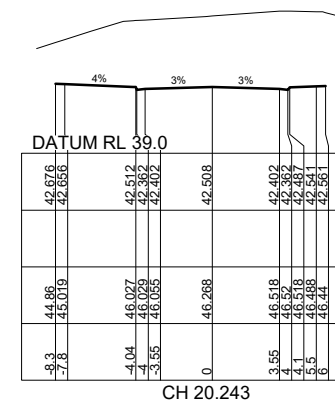
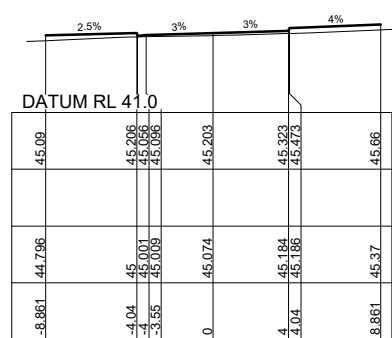
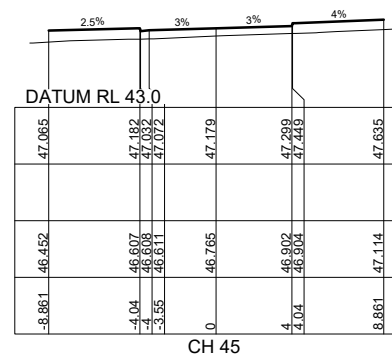
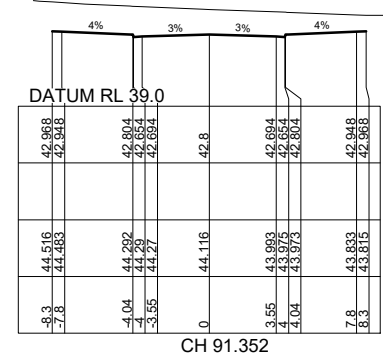
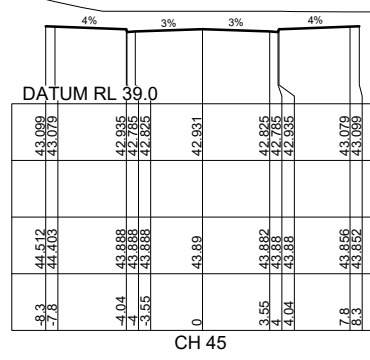
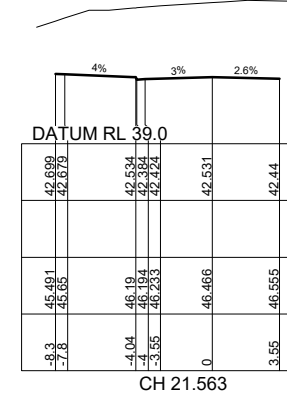
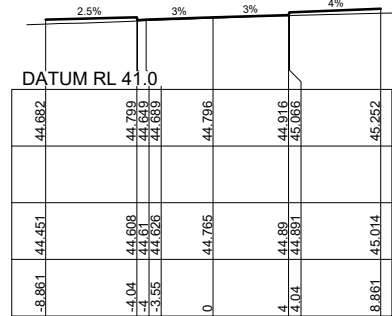
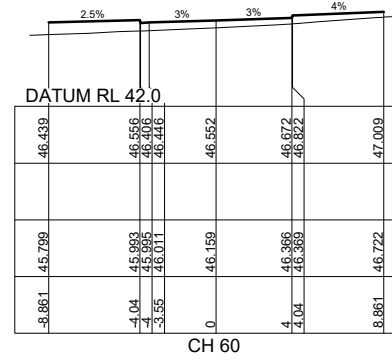
ROAD CROSS SECTIONS
SHEET 4

PLAN No: 110341/CC17

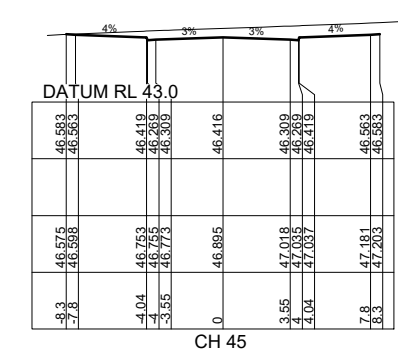
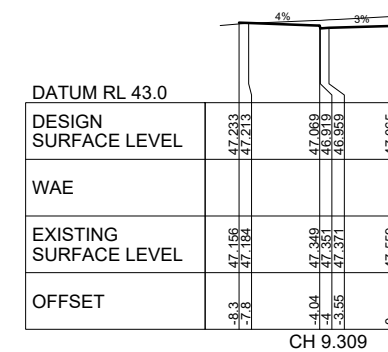
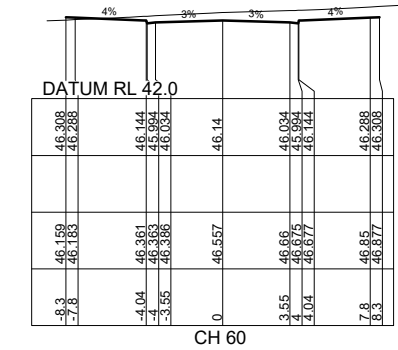
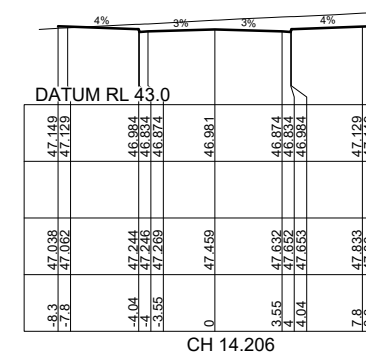
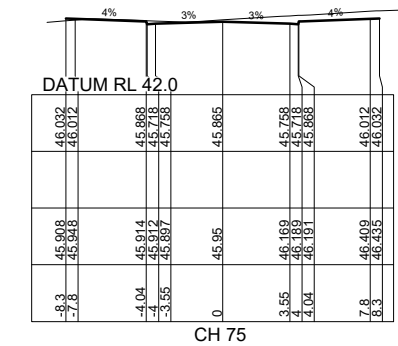
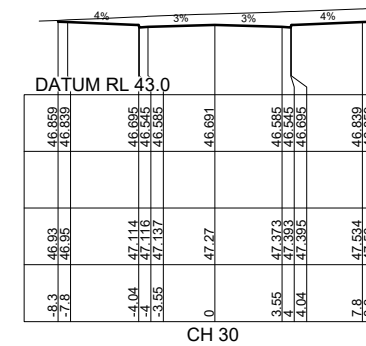
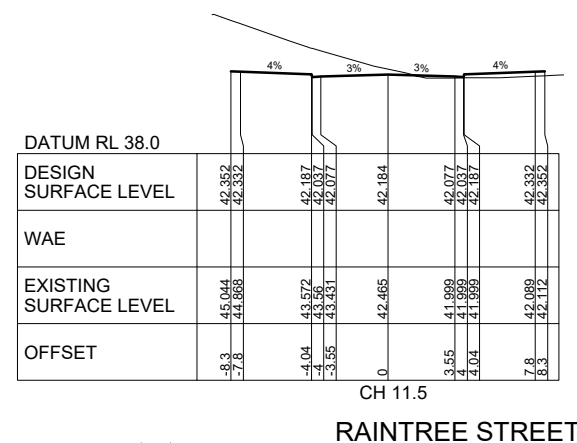
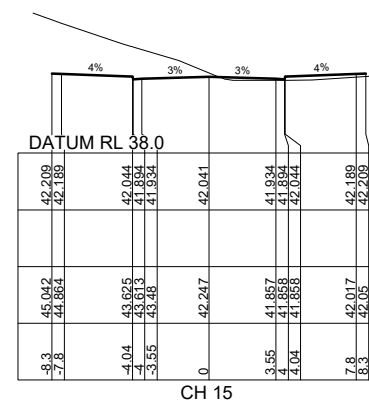
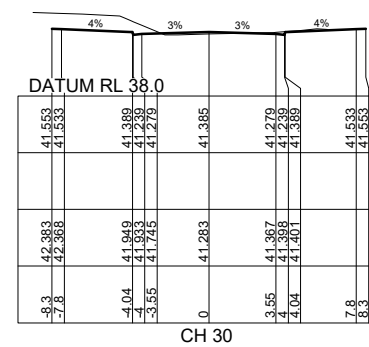
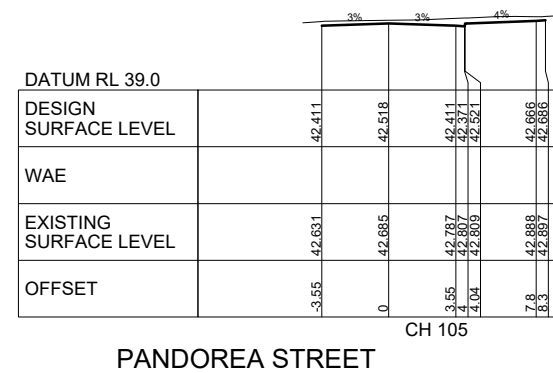
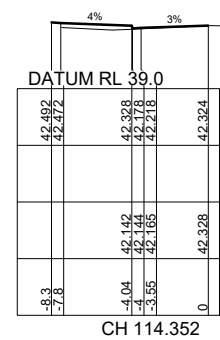
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FILE No: 110341CC17

SHEET SIZE: A1 ORIGINAL



NOTE :
WORKS IN PANDOREA & RAIN TREE STREET ARE SUBJECT TO
SPERATE ROADS ACT APPROVAL. REFER TO JWP PLANS REF :
110341CC101-124.



· SILKWOOD AVENUE

[illegible]

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AZIMUTH:
 DATUM:
 ORIGIN:



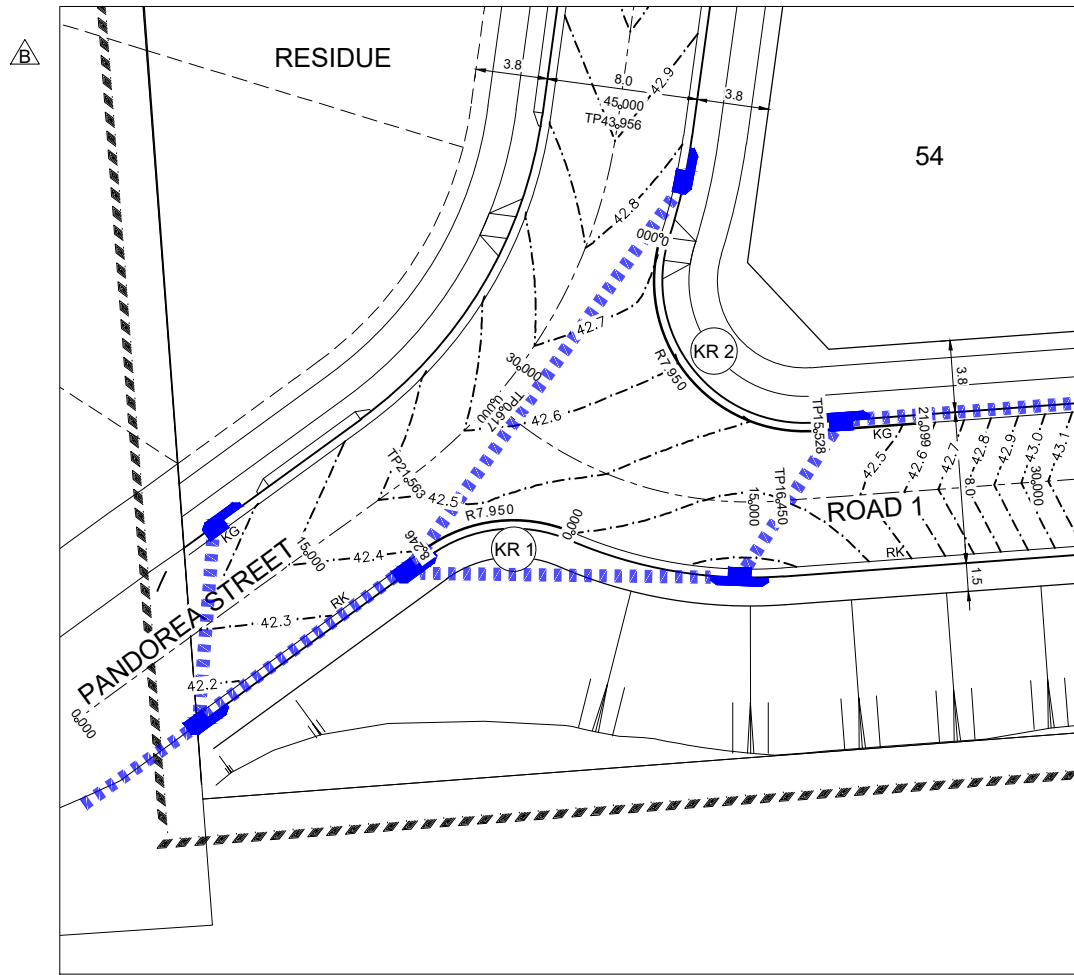
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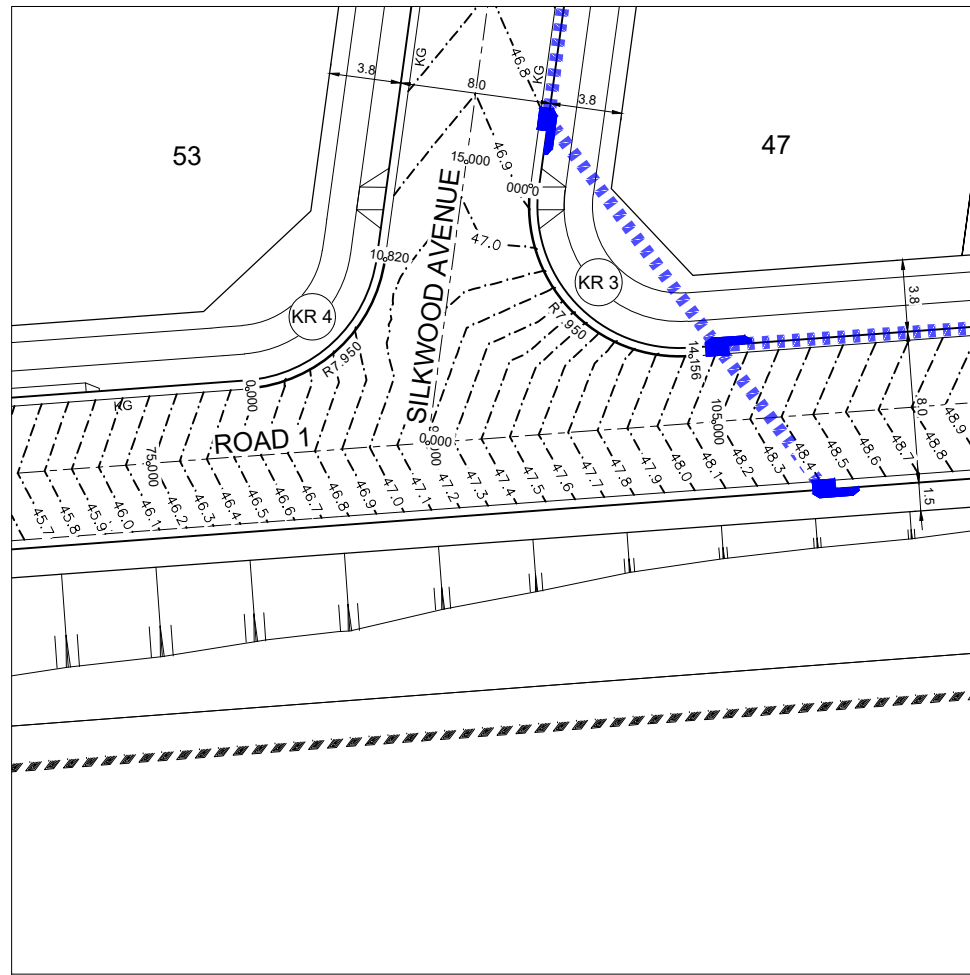
ISSUED FOR CONSTRUCTION APPROVAL

27 KENT ROAD CLAREMONT MEADOWS
LOT, ROAD AND DRAINAGE WORKS
ROAD CROSS SECTIONS
SHEET 6

PLAN No:	110341/CC19	C
FILE No:	110341CC19	
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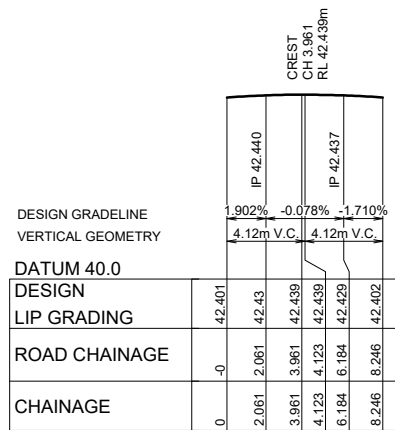


PLAN
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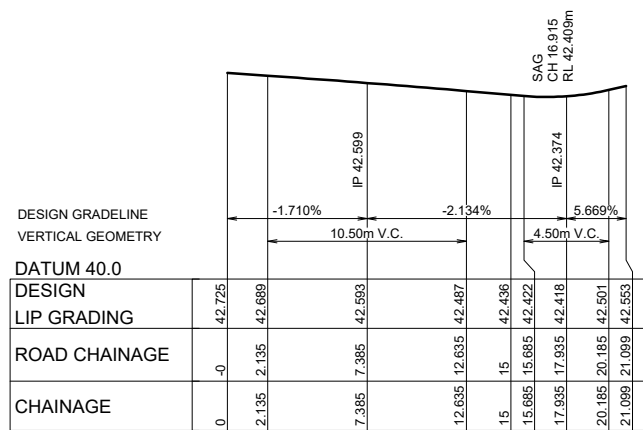
PLAN
SCALE 1:200

These plans are referred to in certificate no **15440** approved by:
Christopher Louis Wahbe
Accredited Certifier
Registration No: BPB 3015
Categories: B1,C1,C2,C3,C4,C6 & C15
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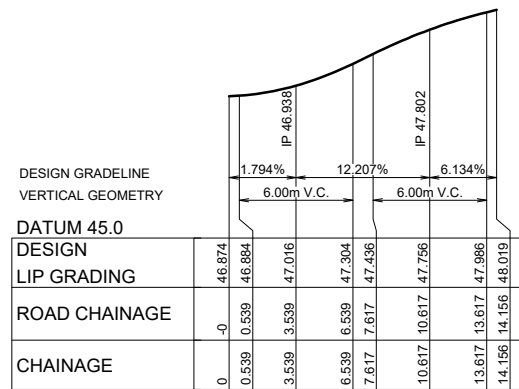
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HORIZONTAL SCALE 1:200
VERTICAL SCALE 1:50

CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A LENGTH
0	291312.76	6259702.72	293°22'51.63"	-7.95	8.25
4.12	291308.59	6259704.52	233°57'14.50"		
8.25	291304.92	6259701.85	233°57'14.50"		



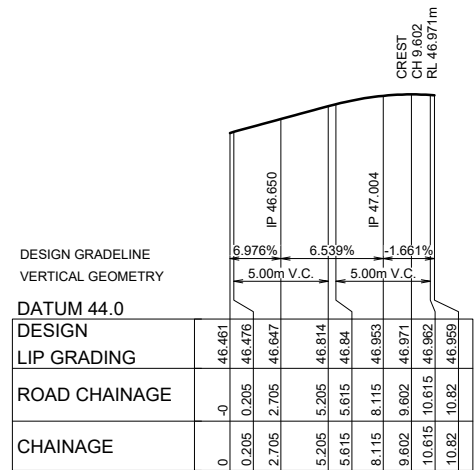
KR 2
HORIZONTAL SCALE 1:200
VERTICAL SCALE 1:50

CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A LENGTH
0	291317.41	6259718.45	197°42'09.15"	-7.95	15.53
7.76	291313.83	6259707.24	85°47'29.63"		
15.53	291325.57	6259708.1	85°47'29.63"		
21.1	291331.12	6259708.51	85°47'29.63"		



KR 3
HORIZONTAL SCALE 1:200
VERTICAL SCALE 1:50

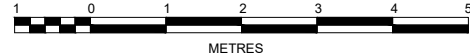
CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A LENGTH
0	291402.2	6259723.37	187°48'42.13"	-7.95	14.16
7.08	291400.87	6259713.64	85°47'29.63"		
14.16	291410.66	6259714.36	85°47'29.63"		



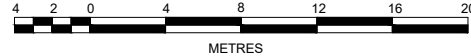
KR 4
HORIZONTAL SCALE 1:200
VERTICAL SCALE 1:50

CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A LENGTH
0	291387.21	6259712.64	85°47'29.63"	-7.95	10.82
5.41	291393.63	6259713.11	7°48'42.13"		
10.82	291394.5	6259719.48	7°48'42.13"		

1:50 (AT A1)
1:100 (AT A3)



1:200 (AT A1)
1:400 (AT A3)



CLIENT:



AZIMUTH:

DATUM:

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27 KENT ROAD CLAREMONT MEADOWS
LOT, ROAD AND DRAINAGE WORKS

KERB RETURNS No. 1 - 4

PLAN No:

110341/CC20

B

FILE No:

110341CC20

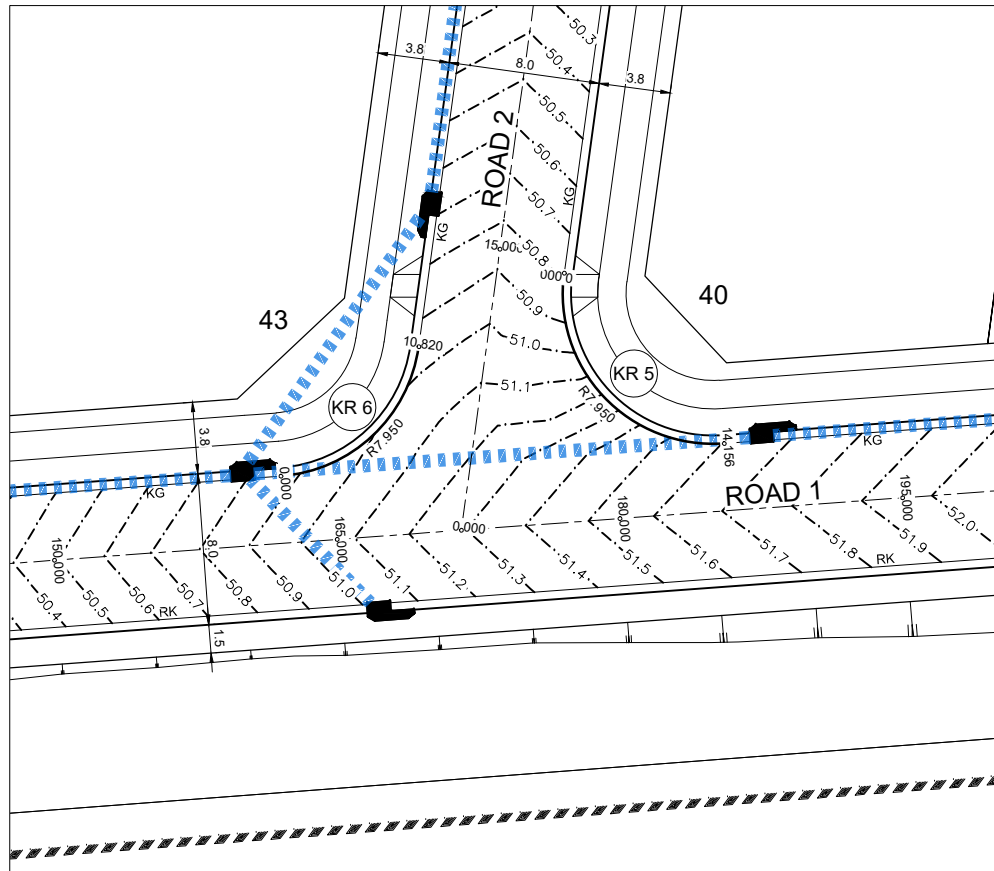
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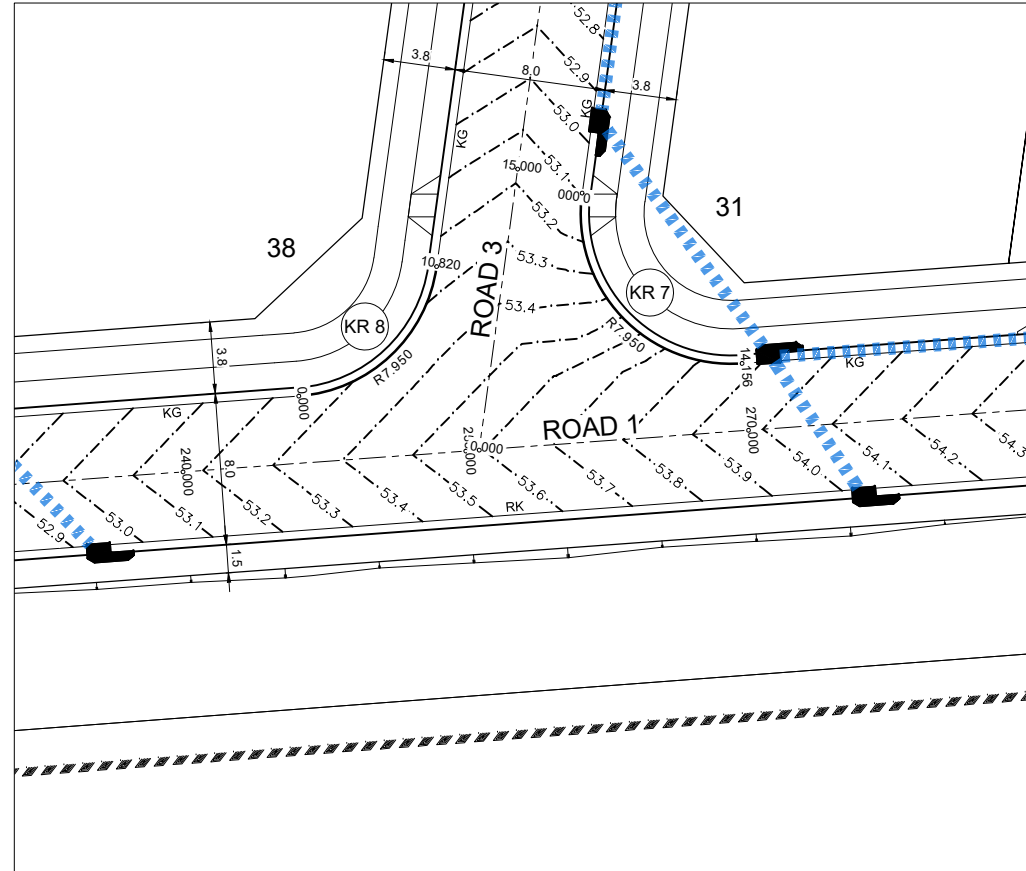
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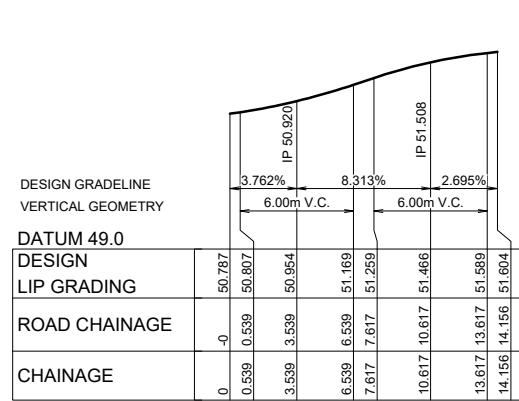
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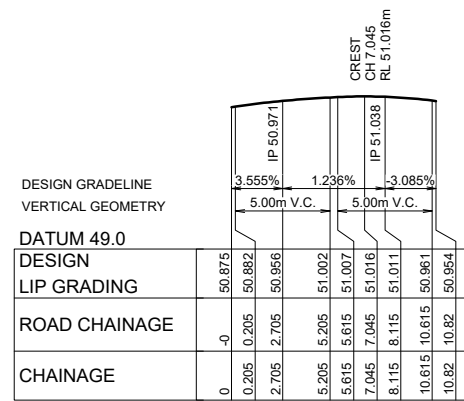


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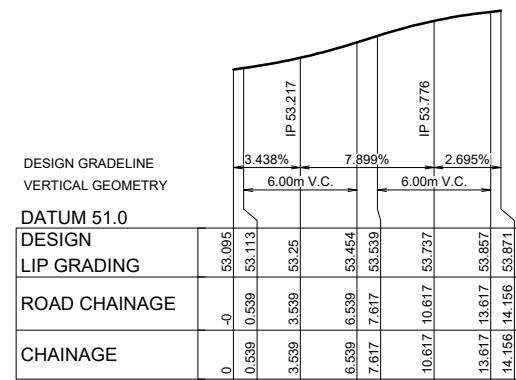
KR 5
HORIZONTAL SCALE 1:200
VERTICAL SCALE 1:50

CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPHAL	A LENGTH
0	291483.74	6259728.37	187°48'42.13"		
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14.16	291492.2	6259720.36	85°47'29.63"		



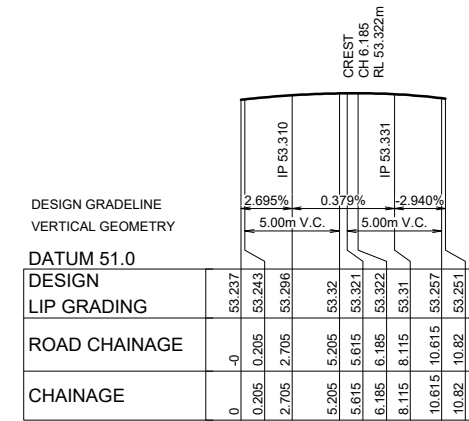
KR 6
HORIZONTAL SCALE 1:200
VERTICAL SCALE 1:50

CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPHAL	A LENGTH
0	291468.75	6259718.64	85°47'29.63"		
5.41	291475.16	6259719.11		-7.95	10.82
10.82	291476.04	6259725.48	7°48'42.13"		



KR 7
HORIZONTAL SCALE 1:200
VERTICAL SCALE 1:50

CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPHAL	A LENGTH
0	291567.64	6259735.54	187°48'42.13"		
7.08	291566.3	6259725.81		-7.95	14.16
14.16	291576.1	6259726.53	85°47'29.63"		



KR 8
HORIZONTAL SCALE 1:200
VERTICAL SCALE 1:50

CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPHAL	A LENGTH
0	291552.64	6259724.81	85°47'29.63"		
5.41	291559.06	6259725.28		-7.95	10.82
10.82	291559.94	6259731.66	7°48'42.13"		

These plans are referred to in certificate no. 15440 approved by:

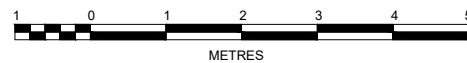
LDC

Christopher Louis Wahbe
Accredited Certifier

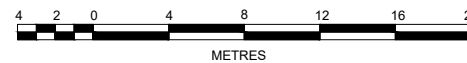
Registration No: BPB 3015
Categories: B1,C1,C2,C3,C4,C6 & C15

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1:50 (AT A1)
1:100 (AT A3)



1:200 (AT A1)
1:400 (AT A3)



CLIENT:



AZIMUTH:

DATUM:

ORIGIN:

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27 KENT ROAD CLAREMONT MEADOWS
LOT, ROAD AND DRAINAGE WORKS

KERB RETURNS No. 5 - 8

PLAN No:
110341/CC21

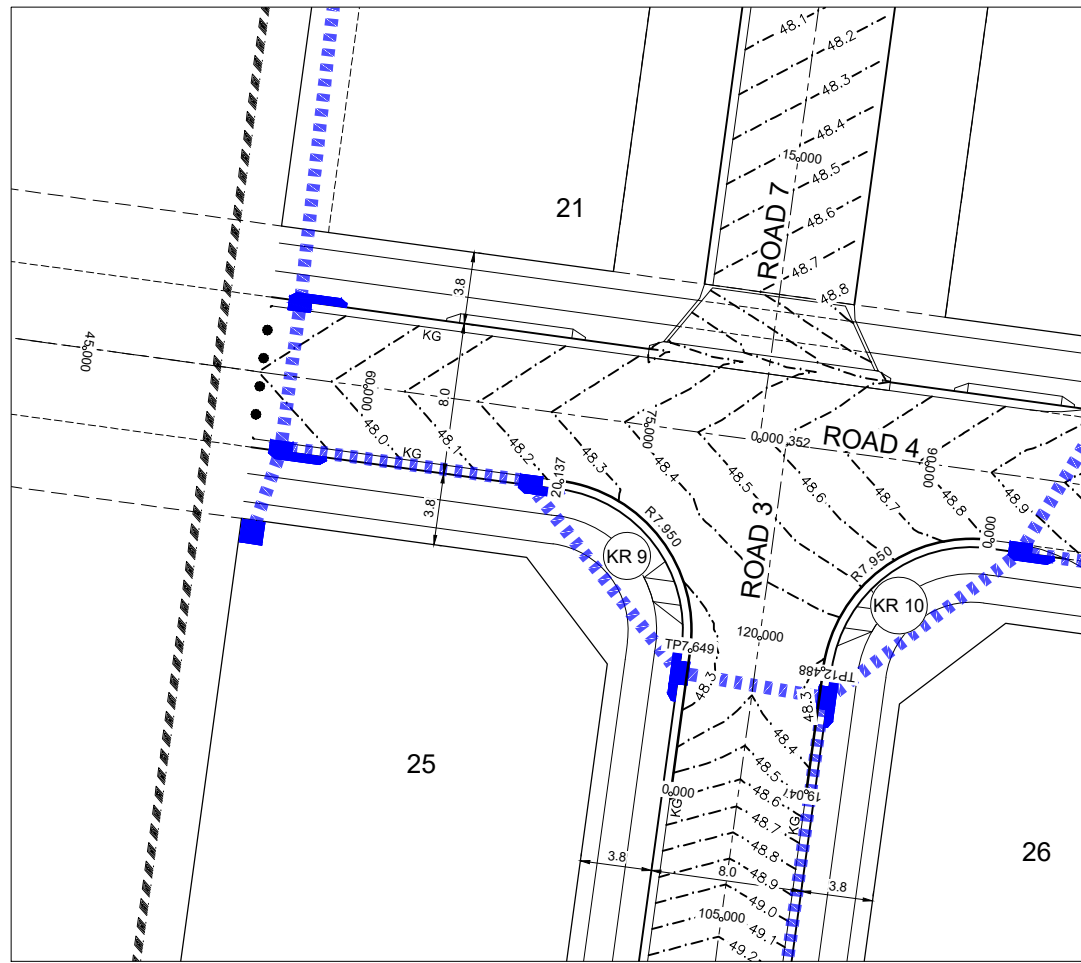
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FILE No: 110341CC21

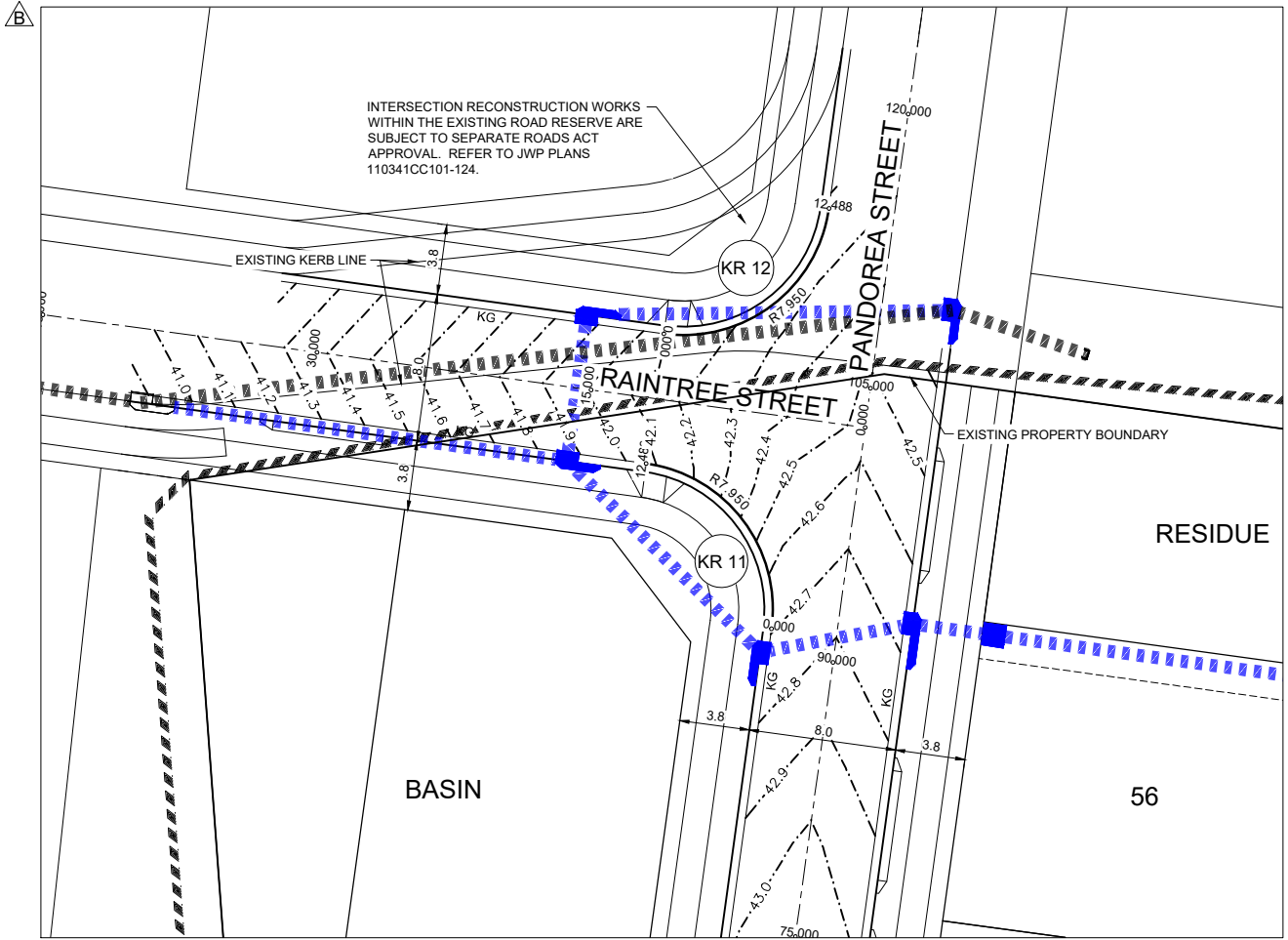
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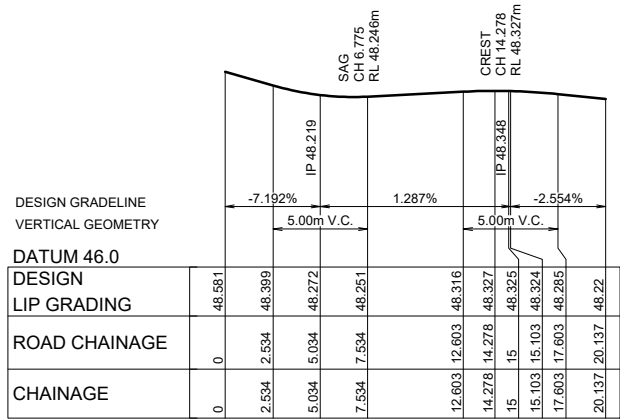


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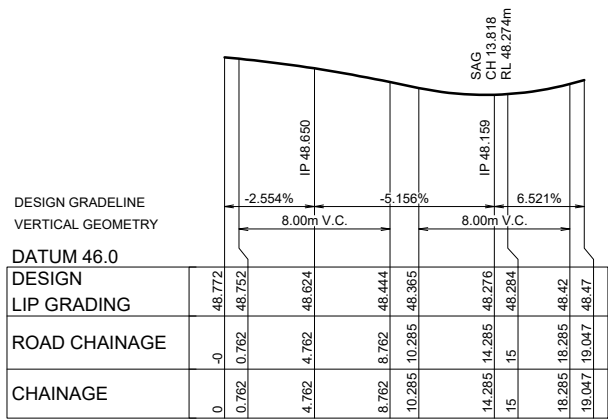


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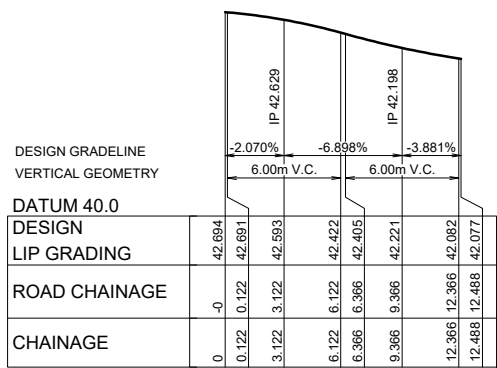
NOTE: ALL WORKS WITHIN THE EXISTING ROAD RESERVE OF PANDORA STREET AND RAIN TREE STREET ARE SUBJECT TO SEPERATE ROADS ACT APPROVAL.



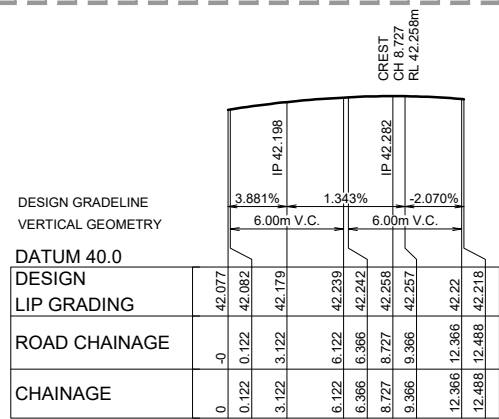
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HORIZONTAL SCALE 1:200
VERTICAL SCALE 1:50



KR 10
HORIZONTAL SCALE 1:200
VERTICAL SCALE 1:50



KR 11
HORIZONTAL SCALE 1:200
VERTICAL SCALE 1:50



KR 12
HORIZONTAL SCALE 1:200
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LDC

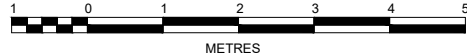
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Accredited Certifier

Registration No: BPB 3015
Categories: B1,C1,C2,C3,C4,C6 & C15

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1:50 (AT A1)
1:100 (AT A3)



1:200 (AT A1)
1:400 (AT A3)



CLIENT:



AZIMUTH:

DATUM:

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27 KENT ROAD CLAREMONT MEADOWS
LOT, ROAD AND DRAINAGE WORKS

KERB RETURNS No. 9 - 12

PLAN No:
110341/CC22

B

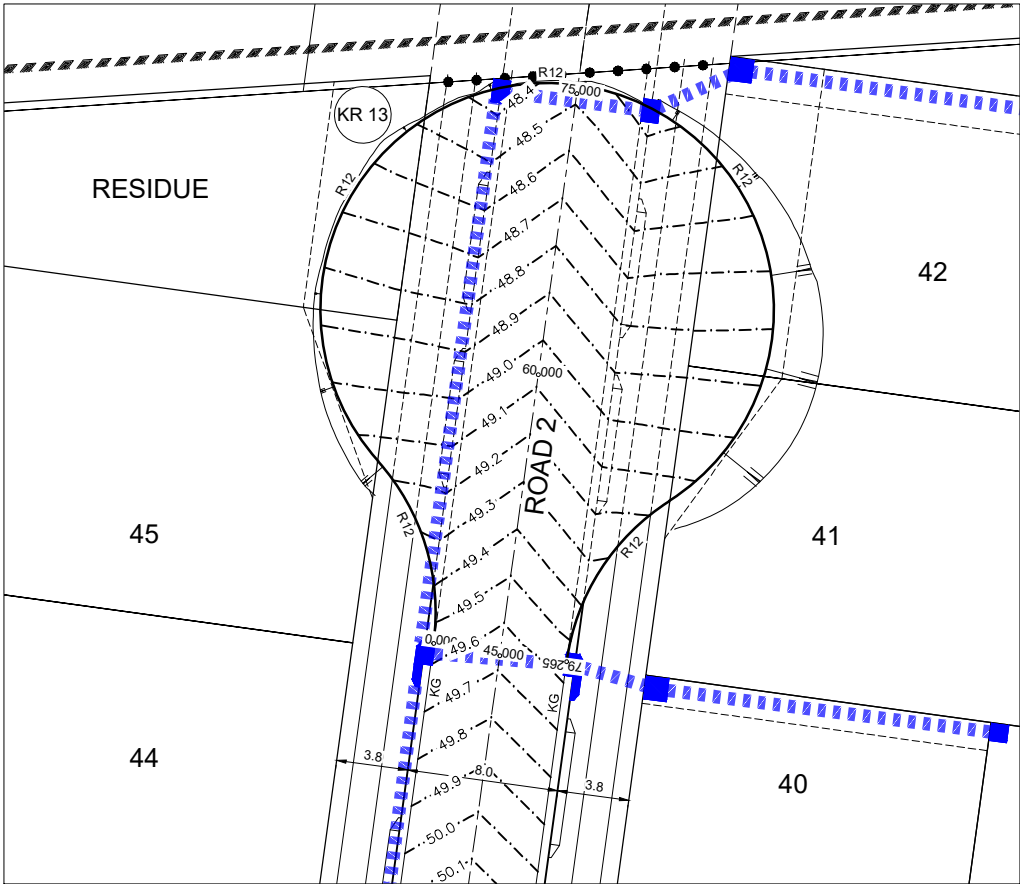
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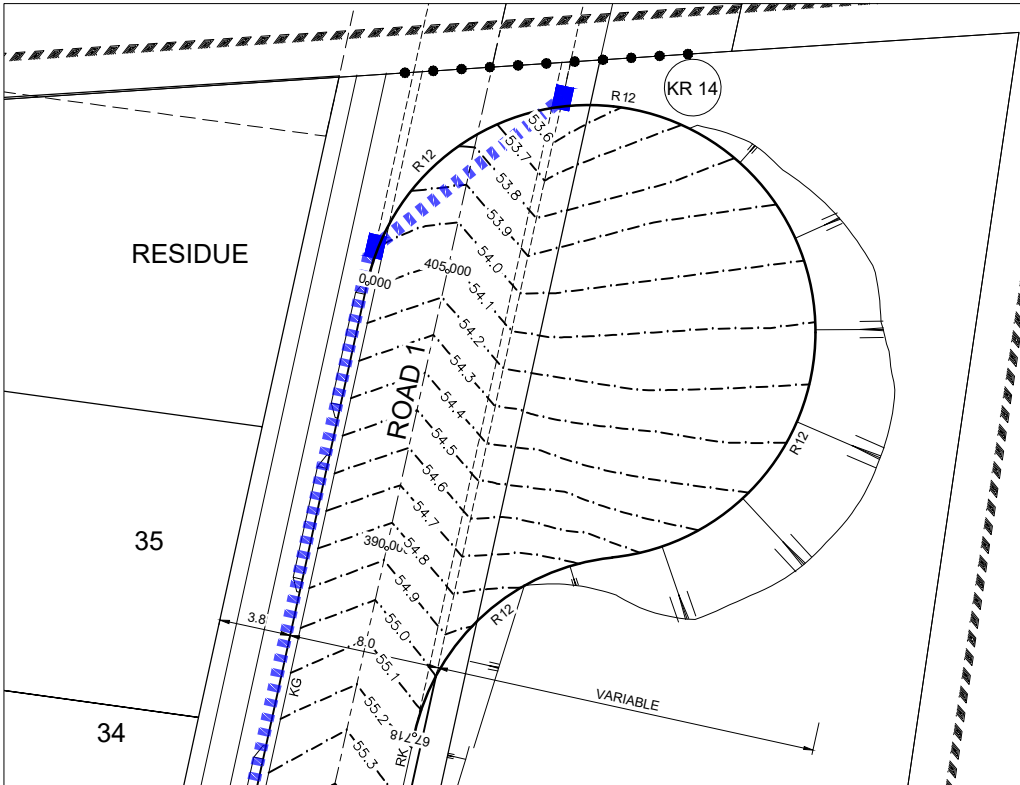
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PLAN
SCALE 1:200



PLAN
SCALE 1:200

DESIGN GRADELINE
VERTICAL GEOMETRY

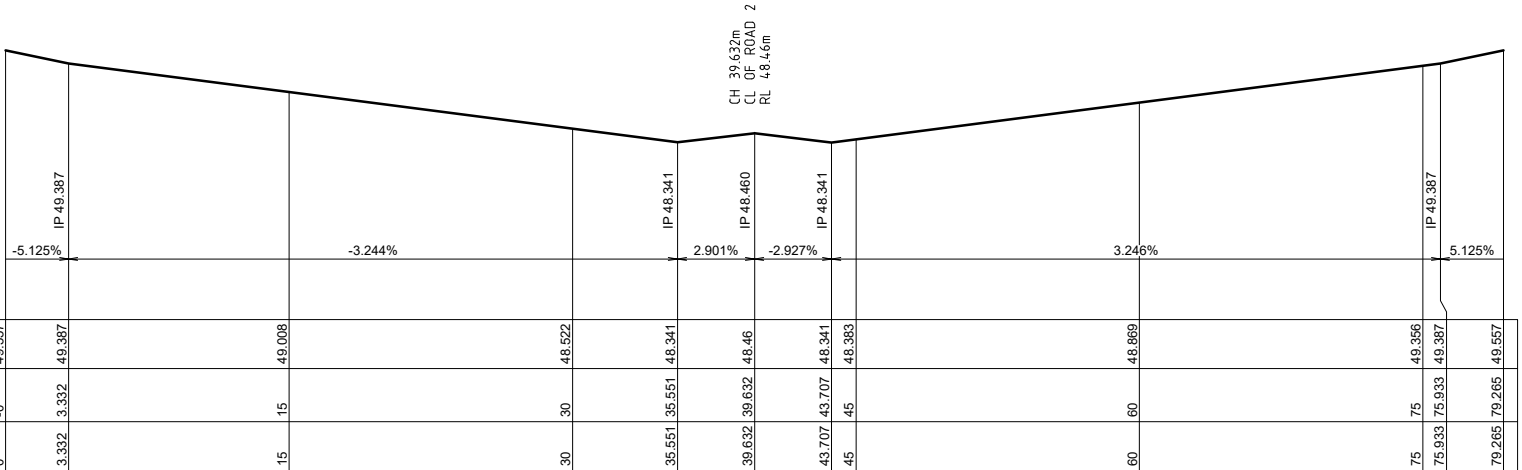
DATUM 46.0

DESIGN

LIP GRADING

ROAD CHAINAGE

CHAINAGE



KR 13
HORIZONTAL SCALE 1:200
VERTICAL SCALE 1:50

KR 13					
CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A LENGTH
0	291480.91	6259761.01	7°48'42.13"	-12	10.39
5.2	291481.67	6259766.51	318°11'47.08"	12	19.49
10.39	291477.97	6259770.84	51°16'23.78"	12	19.49
20.14	291469.53	6259780.08	144°21'00.47"	12	19.49
29.89	291479.41	6259788	237°25'37.17"	-12	10.39
39.63	291489.29	6259795.92	187°48'42.13"		
49.38	291496.67	6259785.63			
59.13	291504.05	6259775.34			
68.87	291493.37	6259768.53			
74.07	291488.7	6259765.54			
79.26	291487.95	6259760.05			

DESIGN GRADELINE
VERTICAL GEOMETRY

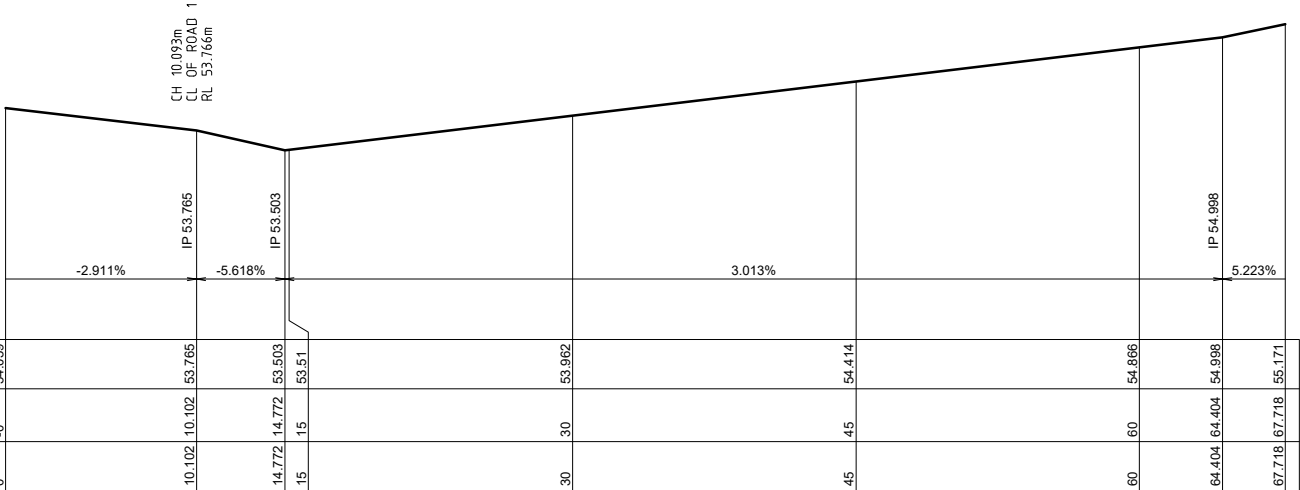
DATUM 51.0

DESIGN

LIP GRADING

ROAD CHAINAGE

CHAINAGE



KR 14
HORIZONTAL SCALE 1:200
VERTICAL SCALE 1:50

KR 14					
CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A LENGTH
0	291658.56	6259791.31	12°22'04.09"	12	17.57
8.78	291660.87	6259801.84	96°15'21.30"	12	17.57
17.57	291671.58	6259800.67	180°08'38.50"	12	17.57
26.35	291682.3	6259799.49	264°01'55.71"	-12	15.01
35.14	291682.28	6259788.71			
43.92	291682.25	6259777.92			
52.71	291671.52	6259776.8			
60.21	291662.91	6259775.9			
67.72	291661.05	6259767.44			

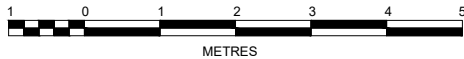
These plans are referred to in certificate no. **15440** approved by:

Christopher Louis Wahbe
Accredited Certifier

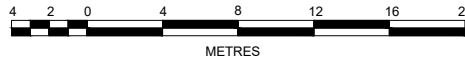
Registration No: BPB 3015
Categories: B1,C1,C2,C3,C4,C6 & C15

Land Development Certificates
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1:50 (AT A1)
1:100 (AT A3)



1:200 (AT A1)
1:400 (AT A3)



CLIENT:



AZIMUTH:

DATUM:

ORIGIN:

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ISSUED FOR CONSTRUCTION APPROVAL

27 KENT ROAD CLAREMONT MEADOWS
LOT, ROAD AND DRAINAGE WORKS
KERB RETURNS No. 13 - 14

PLAN No:
110341/CC23

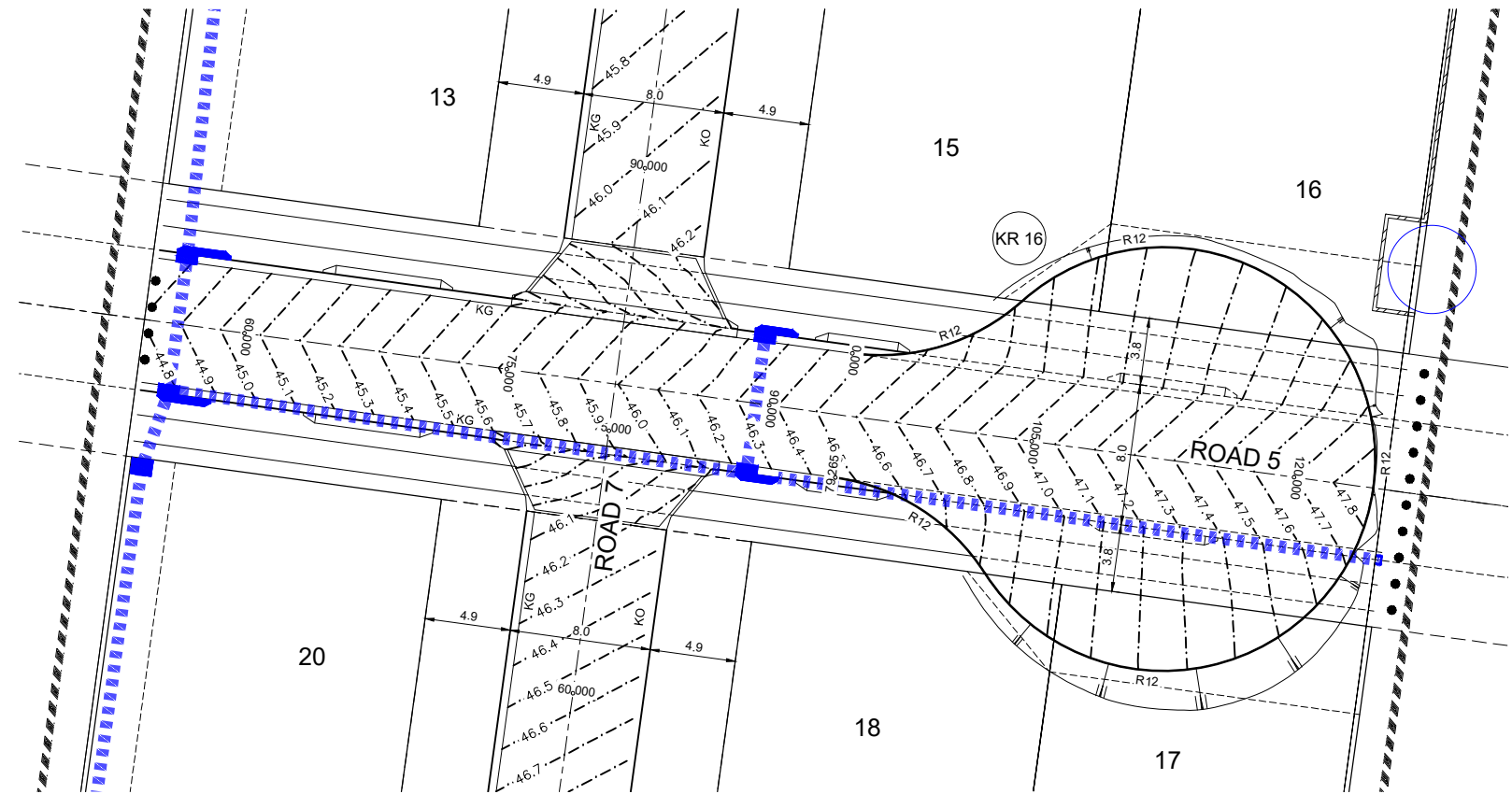
FILE No: 110341CC23

SHEET SIZE: A1 ORIGINAL

J. WYNDHAM PRINCE CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS

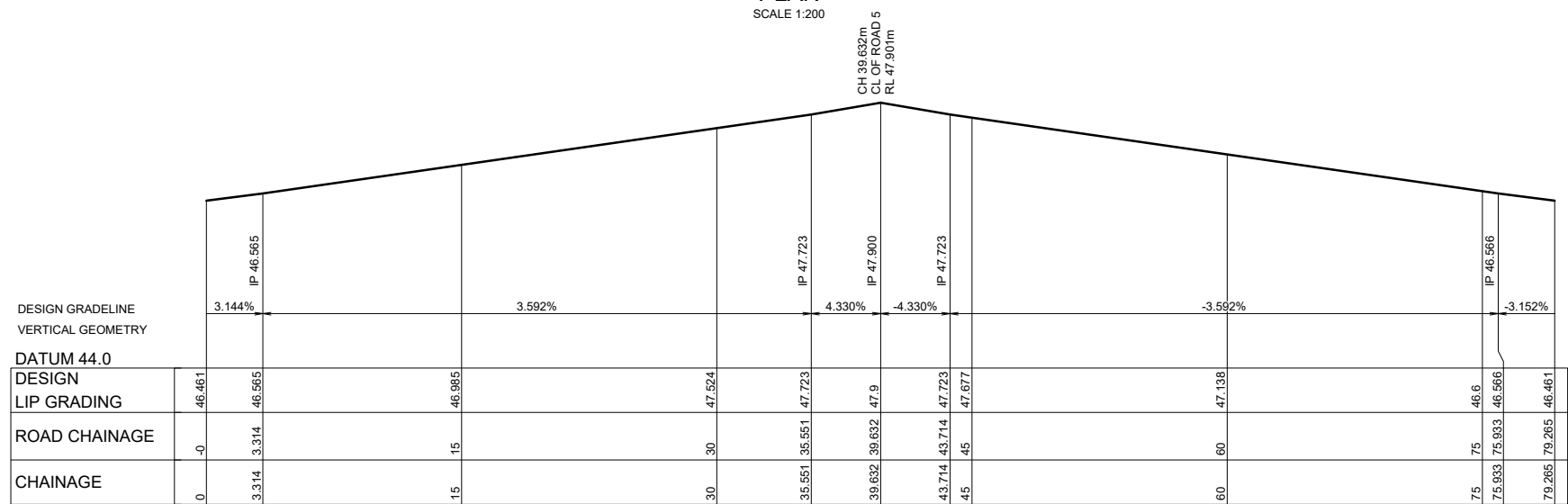
PO Box 4366 PENRITH WESTFIELD NSW 2750
P 02 4720 3300 F 02 4720 3399 W www.jwprince.com.au E jwp@jwprince.com.au

Printed: 20 August, 2018 11:08:21 AM File Name: J1110341_27 Kent Rd Claremont Meadows03 - CC(CD)C0110341/CC23.dwg



PLAN

SCALE 1:200



KR 16

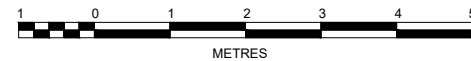
HORIZONTAL SCALE 1:200
VERTICAL SCALE 1:50

KR 16					
CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A.LENGTH
0	291602.47	6259929.98	97°48'42.13"		
5.2	291607.96	6259929.22		-12	10.39
10.39	291612.1	6259932.92	48°11'47.08"		
20.14	291621.54	6259941.36		12	19.49
29.89	291629.46	6259931.48	141°16'23.78"		
39.63	291637.38	6259921.6		12	19.49
49.38	291627.09	6259914.22	234°21'00.47"		
59.13	291616.8	6259906.84		12	19.49
68.87	291609.98	6259917.51	327°25'37.17"		
74.07	291607	6259922.19		-12	10.39
79.26	291601.5	6259922.94	277°48'42.13"		

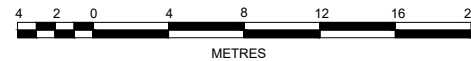


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Categories: B1,C1,C2,C3,C4,C6 & C15
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1:50 (AT A1)
1:100 (AT A3)



1:200 (AT A1)
1:400 (AT A3)



CLIENT:



AZIMUTH:

DATUM:

ORIGIN:

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27 KENT ROAD CLAREMONT MEADOWS
LOT, ROAD AND DRAINAGE WORKS

KERB RETURN No. 16

PLAN No:
110341/CC25

A

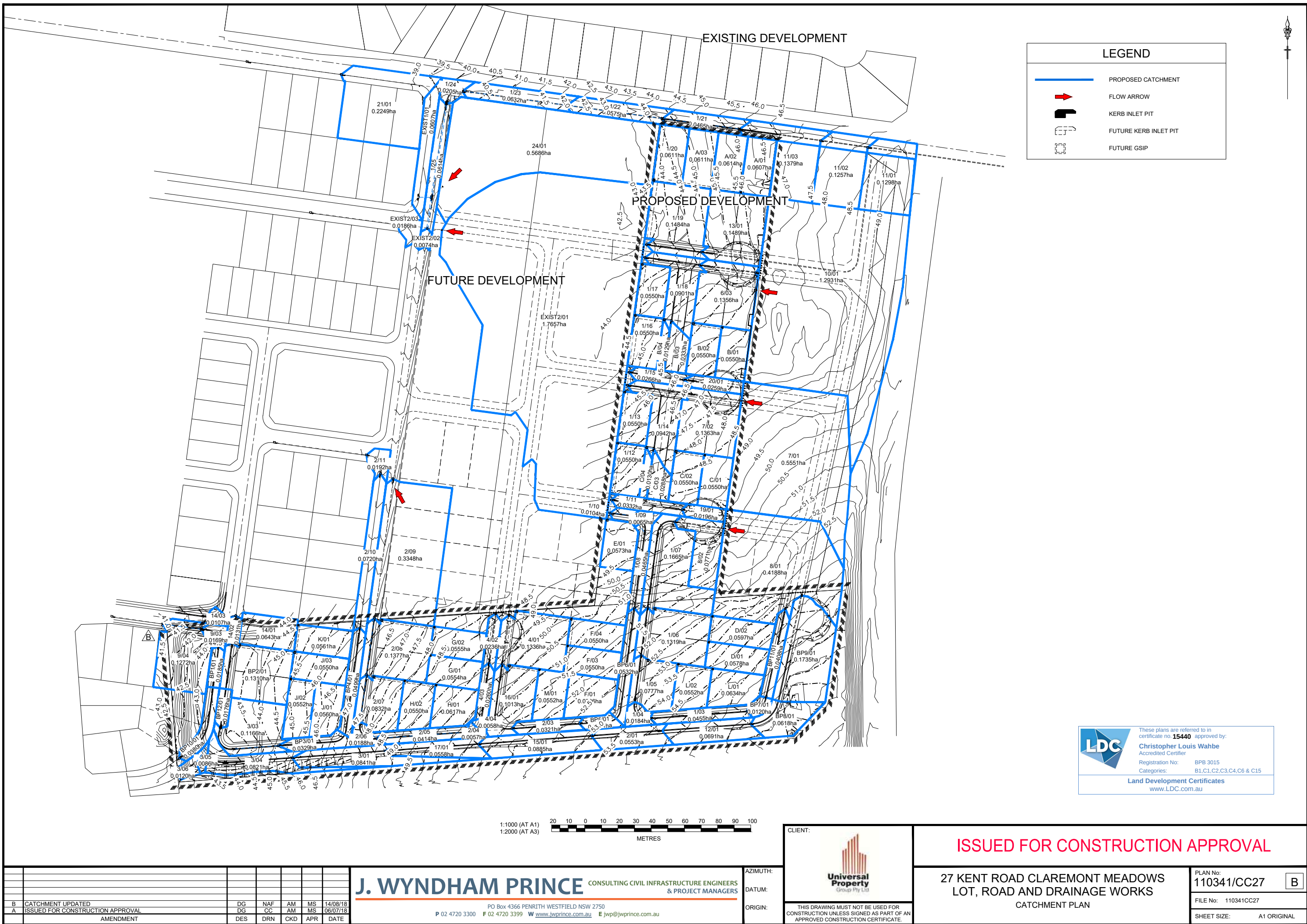
FILE No: 110341CC25

SHEET SIZE: A1 ORIGINAL

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Printed: 15 August, 2019 2:18:15 PM File Name: J:\110341 - 27 Kent Rd Claremont Meadows\03 - CC27.dwg



LEGEND

PROPOSED CATCHMENT

FLOW ARROW

KERB INLET PIT

FUTURE KERB INLET PIT

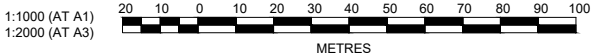
FUTURE GSIP

LDC

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Registration No: BPB 3015
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B	CATCHMENT UPDATED	DG	NAF	AM	MS	14/08/18
A	ISSUED FOR CONSTRUCTION APPROVAL	DG	CC	AM	MS	06/07/18
	AMENDMENT	DES	DRN	CKD	APR	DATE

J. WYNDHAM PRINCE

CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS

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DATUM:

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27 KENT ROAD CLAREMONT MEADOWS
LOT, ROAD AND DRAINAGE WORKS
CATCHMENT PLAN

PLAN No: 110341/CC27

FILE No: 110341CC27

SHEET SIZE: A1 ORIGINAL

B

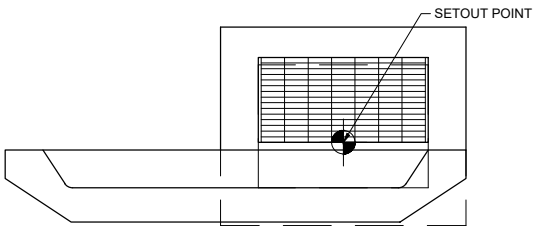
PIT SCHEDULE					
PIT	PIT	PIT	PIT	PIT	COMMENTS
NAME	TYPE	EASTING	NORTHING	DEPTH	
(-)	(-)	(m)	(m)	(m)	
1/01	1.8 m lintel	291638.086	6259723.567	1.456	
1/02	1.8 m lintel	291635.982	6259731.392	4.295	
1/03	1.8 m lintel	291577.214	6259727.068	3.346	
1/04	1.8 m lintel	291568.612	6259739.350	2.6	
1/05	1.8 m lintel	291572.162	6259765.228	1.953	
1/06	1.8 m lintel	291576.115	6259794.038	1.702	
1/07	2.4 m lintel sag	291582.100	6259837.665	1.672	
1/08	2.4 m lintel sag	291574.212	6259839.024	1.857	
1/09	1.8 m lintel	291566.364	6259848.914	1.961	
1/10	2.4 m lintel	291553.148	6259850.727	1.834	
1/11	2.4 m lintel	291554.206	6259858.657	2.043	
1/12	GSIP 900x900 IAD			2.051	
1/13	GSIP 900x900 IAD			1.935	
1/14	2.4 m lintel	291563.720	6259927.671	1.751	
1/15	2.4 m lintel	291564.824	6259935.594	1.961	
1/16	GSIP 900x900 IAD			2.372	
1/17	GSIP 900x900 IAD			2.021	
1/18	2.4 m lintel	291574.270	6260004.618	1.907	
1/19	2.4 m lintel	291575.341	6260012.546	2.116	
1/20	GSIP 900x900 IAD			3.119	
1/21	1.8 m lintel	291584.828	6260088.282	4.147	
1/22	1.8 m lintel	291527.021	6260096.231	2.446	CONSTRUCT AS GSIP
1/23	1.8 m lintel	291465.443	6260104.699	2.167	NEW PIT OVER EXISTING LINE
1/24	1.8 m lintel	291454.658	6260096.515	1.968	
1/25	3.0 m lintel sag	291445.801	6260040.896	1.679	EXISTING PIT
2/01	1.8 m lintel	291542.073	6259716.461	1.476	
2/02	1.8 m lintel	291534.853	6259723.951	1.555	
2/03	1.8 m lintel	291494.162	6259720.957	1.543	
2/04	1.8 m lintel	291466.693	6259718.936	4.882	
2/05	1.8 m lintel	291412.059	6259714.915	2.795	
2/06	1.8 m lintel	291403.136	6259726.879	1.697	
2/07	1.8 m lintel	291406.753	6259753.241	1.532	
2/08	1.8 m lintel	291411.435	6259787.371	1.64	
2/09	GSIP 600x900	291422.630	6259871.328	1.414	EXISTING PIT
2/10	1.8 m lintel	291414.988	6259874.492	1.913	EXISTING PIT
2/11	1.2 m lintel	291406.523	6259885.729	1.489	EXISTING PIT
2/12	2.4 m lintel	291351.022	6259893.269	2.333	EXISTING PIT
3/01	1.8 m lintel	291361.789	6259703.195	1.518	
3/02	1.8 m lintel	291353.235	6259710.587	1.448	
3/03	2.4 m lintel sag	291326.918	6259708.650	1.047	
3/04	2.4 m lintel sag	291321.549	6259700.346	1.07	
3/05	1.8 m lintel	291303.945	6259700.585	1.456	
3/06	1.8 m lintel	291292.924	6259692.564	1.292	NEW PIT ON EXISTING STUB
4/01	GSIP 900x900	291492.394	6259789.157	1.468	
4/02	GSIP 900x900	291484.462	6259790.197	1.601	
4/03	1.8 m lintel	291480.391	6259760.524	3.118	
4/04	1.8 m lintel	291476.627	6259733.084	4.545	
5/01	GSIP 900x900	291668.897	6259801.117	1.36	
5/02	GSIP 900x900	291658.984	6259793.260	2.018	
5/03	1.8 m lintel	291647.333	6259740.125	4.364	
6/01	CAPPED STUB	291642.954	6259995.196	2.136	
6/02	1.8 m lintel	291641.136	6259995.445	1.644	CONSTRUCT AS GSIP
6/03	1.8 m lintel	291607.025	6260000.125	1.658	
7/01	CAPPED STUB	291632.396	6259918.249	1.764	
7/02	1.8 m lintel	291596.467	6259923.178	1.725	
8/01	CAPPED STUB	291621.837	6259841.303	1.78	
8/02	1.8 m lintel	291592.280	6259845.358	1.781	
9/01	2.4 m lintel	291325.661	6259771.903	1.43	
9/02	1.8 m lintel	291317.376	6259770.365	1.704	
9/03	1.8 m lintel	291306.913	6259780.734	1.659	
9/04	1.8 m lintel	291283.828	6259783.897	1.416	EXISTING PIT
9/05	2.4m lintel	291253.093	6259788.462	2.052	EXISTING PIT
10/01	CAPPED STUB	291641.553	6259984.983	0.463	900x400mm OPENING IN WALL
10/02	JP - 900 x 900mm	291640.758	6259985.073	1.606	TEMPORARY PIT 900mm x 900mm
11/01	2.4 m lintel	291708.644	6260070.962	1.554	FUTURE PIT
11/02	1.8 m lintel	291680.241	6260075.017	1.608	FUTURE PIT
11/03	2.4 m lintel	291631.115	6260081.917	1.558	

12/01	1.8 m lintel	291582.564	6259719.440	1.469	
13/01	1.8 m lintel	291608.094	6260008.053	1.447	
14/01	CAPPED STUB	291335.141	6259786.485	0.375	EXISTING HEADWALL
14/02	1.8 m lintel	291327.837	6259788.908	1.296	EXISTING PIT
14/03	1.8 m lintel	291308.000	6259788.659	1.529	
15/01	1.8 m lintel	291473.948	6259711.448	1.482	
16/01	1.8 m lintel	291488.374	6259759.848	1.445	
17/01	1.8 m lintel	291417.727	6259707.311	1.491	
18/01	1.8 m lintel	291402.567	6259781.590	1.471	
19/01	1.8 m lintel	291596.761	6259852.818	1.481	CONSTRUCT AS GSIP
20/01	1.8 m lintel	291597.554	6259931.104	1.447	
21/01	2.4 m lintel	291391.312	6260114.926	1.528	EXISTING PIT
22/01	1.8 m lintel	291293.744	6259703.055	1.169	
23/01	1.8 m lintel	291567.984	6259793.631	1.457	
24/01	EXISTING HEADWALL	291452.527	6260047.419	1.223	EXISTING HEADWALL
25/01	1.8 m lintel	291318.625	6259721.254	1.487	
A/01	GSIP 600x600 IAD			0.767	
A/02	GSIP 600x600 IAD			0.769	
A/03	GSIP 600x600 IAD			0.846	
B/01	GSIP 600x600 IAD			0.769	
B/02	GSIP 900x900 IAD			1.644	
B/03	1.8 m lintel	291590.272	6259966.607	1.588	
B/04	GSIP 900x900 IAD			1.71	IAD PIT FOR FUTURE LOT
C/01	GSIP 600x600 IAD			0.763	
C/02	GSIP 900x900 IAD			1.636	
C/03	1.8 m lintel	291579.713	6259889.661	1.588	
C/04	GSIP 900x900 IAD			1.709	IAD PIT FOR FUTURE LOT
D/01	GSIP 600x600 IAD			0.771	
D/02	GSIP 600x600 IAD			0.817	
D/03	GSIP 900x900 IAD			1.536	
E/01	GSIP 900x900 IAD			1.552	
EXIST2/01	CAPPED STUB	291452.116	6260021.216	1.6	EXISTING GSIP
F/01	GSIP 600x600 IAD			0.772	
F/02	GSIP 600x600 IAD			0.881	
F/03	GSIP 600x600 IAD			0.878	
F/04	GSIP 600x900 IAD			0.947	
F/05	GSIP 900x900 IAD			1.516	
G/01	GSIP 600x600 IAD			0.762	
G/02	GSIP 600x600 IAD			0.836	
G/03	GSIP 900x900 IAD			1.482	
H/01	GSIP 600x600 IAD			0.779	
H/02	GSIP 600x600 IAD			0.779	
H/03	GSIP 900x900 IAD			1.543	
J/01	GSIP 600x600 IAD			0.776	
J/02	GSIP 600x600 IAD			0.834	
J/03	GSIP 900x900 IAD			1.217	
J/04	GSIP 900x900 IAD			1.539	
K/01	GSIP 600x600 IAD			0.759	
L/01	GSIP 600x600 IAD			0.769	
L/02	GSIP 600x600 IAD			0.771	
L/03	GSIP 900x900 IAD			1.543	
M/01	GSIP 600x600 IAD			0.769	
M/02	GSIP 900x900 IAD			1.54	

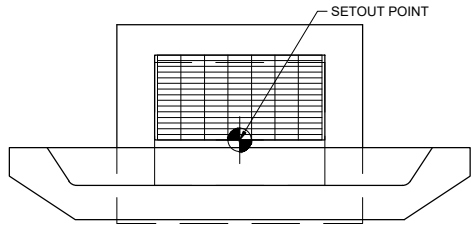


NOTE:
INTERALLOTMENT DRAINAGE PITS ARE TO BE SET OUT WITH RESPECT TO LOT BOUNDARIES.

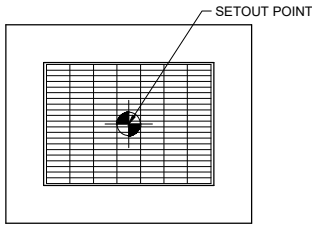
ANY INTERALLOTMENT DRAINAGE PIT GREATER THAN 900mm DEEP SHALL HAVE A CONCRETE LID.



SETOUT DETAIL KERB INLET PIT (LINTEL)
SCALE 1:20



SETOUT DETAIL KERB INLET PIT (SAG)
SCALE 1:20



GRATED SURFACE INLET PIT (GSIP) / JUNCTION PIT (JP)
SCALE 1:20

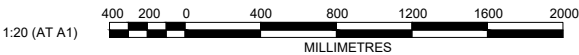


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Categories: B1,C1,C2,C3,C4,C6 & C15

Land Development Certificates
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C	NOTES AMENDED	DG	DG	AM	MS	27/09/18	
B	PIT SCHEDULE UPDATED	DG	NAF	AM	MS	14/08/18	
A	ISSUED FOR CONSTRUCTION APPROVAL	DG	CC	AM	MS	06/07/18	
	AMENDMENT	DES	DRN	CKD	APR	DATE	

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AZIMUTH:

DATUM:

ORIGIN:

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27 KENT ROAD CLAREMONT MEADOWS
LOT, ROAD AND DRAINAGE WORKS

PIT SCHEDULE

PLAN No:

110341/CC28

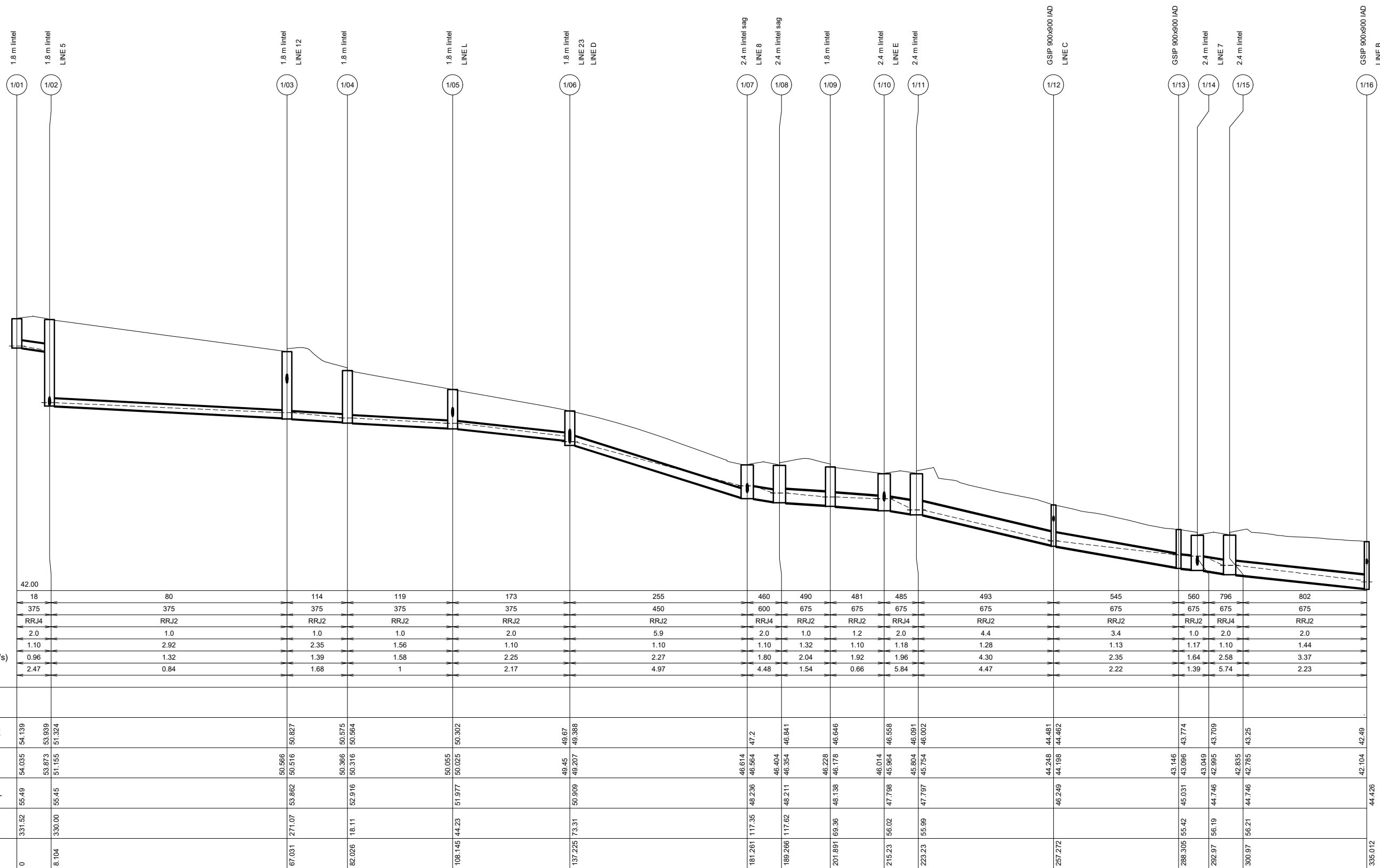
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FILE No:

110341CC28

SHEET SIZE:

A1 ORIGINAL



5 YR ARI HGL SHOWN

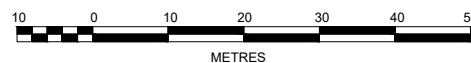
DATUM (m)
PEAK FLOW (L/s)
PIPE SIZE (mm)
PIPE CLASS
PIPE GRADE (%)
PIPE COVER MINIMUM
FULL PIPE VELOCITY (m/s)
HGL GRADE (%)

[illegible]

LINE 1



H 1:500 (AT A1)



V 1:100 (AT A1)

[illegible]

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& PROJECT MANAGERS

PO Box 4366 PENRITH WESTFIELD NSW 2750
P 02 4720 3300 F 02 4720 3399 W www.jwprince.com.au E jwp@jwprince.com.au

AZIMUTH:

DATUM:

ORIGIN:



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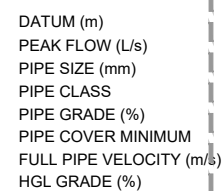
27 KENT ROAD CLAREMONT MEADOWS
LOT, ROAD AND DRAINAGE WORKS

DRAINAGE LONGITUDINAL SECTION
SHEET 1

PLAN No:
110341/CC29

FILE No: 110341CC29

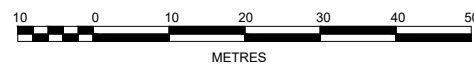
SHEET SIZE: A1 ORIGINAL



LINE 2



NOTE :
WORKS WITHIN EXISTING PANDOREA STREET ROAD RESERVE ARE
SUBJECT TO SEPERATE ROADS ACT APPROVAL.



V 1:100 (AT A1)



CLIENT:



DATUM:

ORIGIN:

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27 KENT ROAD CLAREMONT MEADOWS
LOT, ROAD AND DRAINAGE WORKS
DRAINAGE LONGITUDINAL SECTIONS
SHEET 4

PLAN No:
110341/CC32

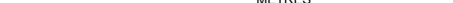
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Document Set ID: 9942230
Version: 1, Version Date: 11/03/2022



V 1:100 (AT A1)



METRES

NOTE :
WORKS WITHIN EXISTING RAINTREE ROAD RESERVE ARE
SUBJECT TO SEPERATE ROADS ACT APPROVAL.

27 KENT ROAD CLAREMONT MEADOWS
LOT, ROAD AND DRAINAGE WORKS
DRAINAGE LONGITUDINAL SECTIONS
SHEET 5

PLAN No: 110341/CC33		C
FILE No: 110341CC33		
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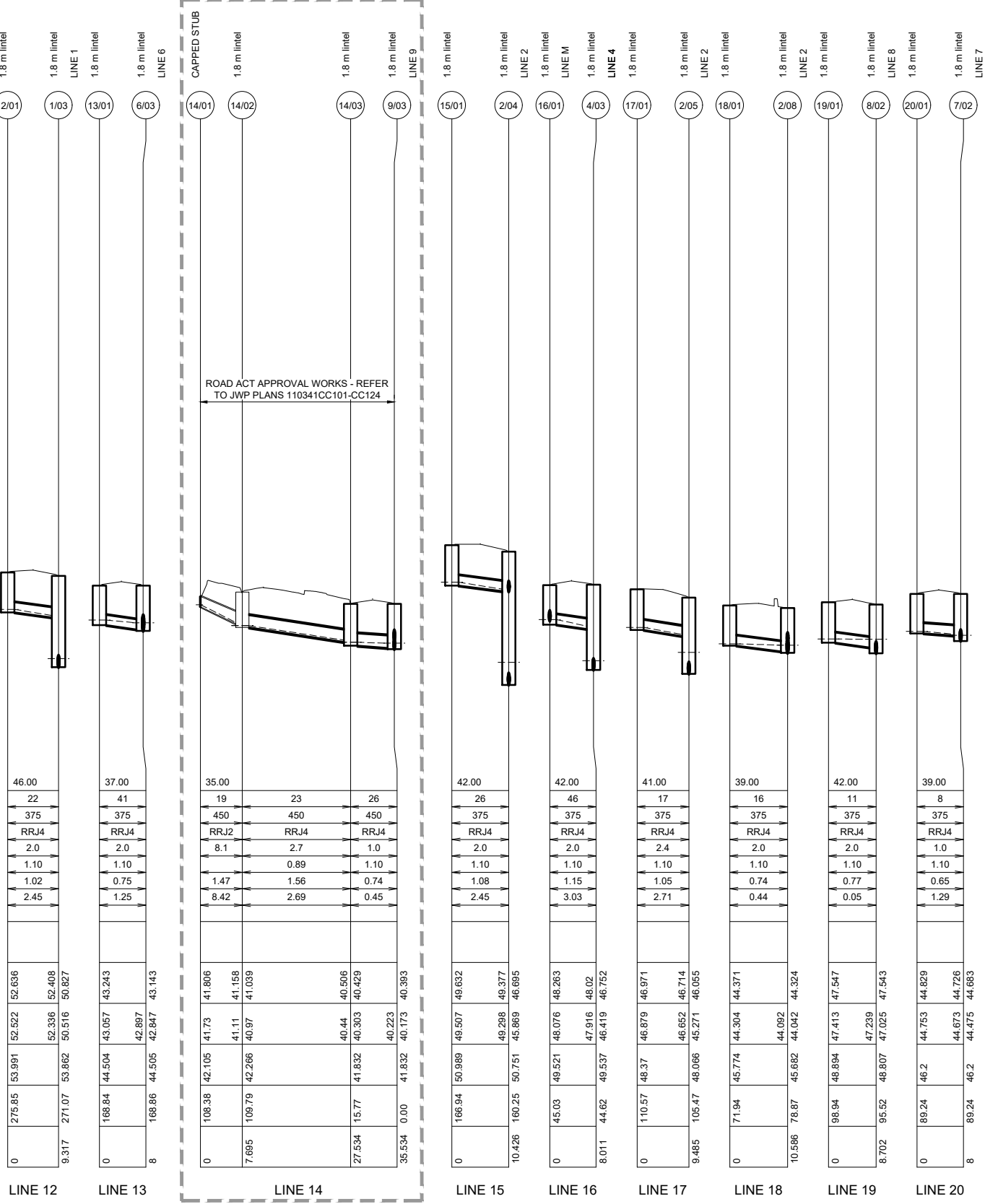
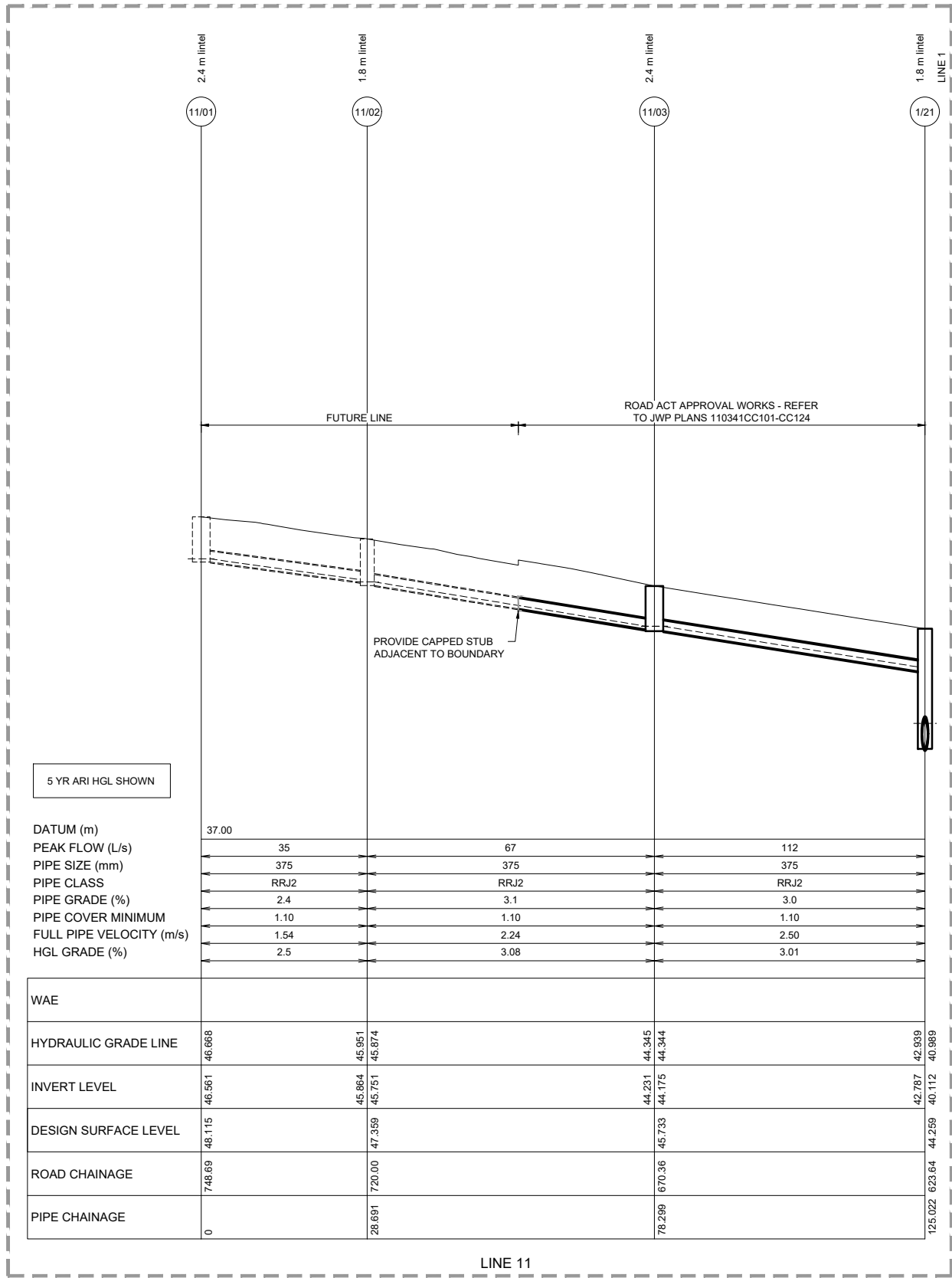
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C	LINE 9 AMENDED	DG	DG	AM	MS 16/10/18
B	DRAINAGE LONG SECTIONS UPDATED & NOTES ADDED	DG	NAF	AM	MS 14/08/18
A	ISSUED FOR CONSTRUCTION APPROVAL	DG	CC	AM	MS 06/07/18
	AMENDMENT	DES	DRN	CKD	APR DATE

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ORIGIN:

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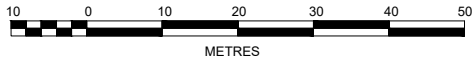


NOTE :
WORKS WITHIN EXISTING CADDENS ROAD RESERVE ARE
SUBJECT TO SEPERATE ROADS ACT APPROVAL.

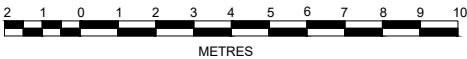
NOTE :
WORKS WITHIN PANDOREA STREET & RAINTREE STREET
ARE SUBJECT TO SEPERATE ROADS ACT APPROVAL.

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Accredited Certifier
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Categories: B1,C1,C2,C3,C4,C6 & C15
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H 1:500 (AT A1)



V 1:100 (AT A1)



B	DRAINAGE LONG SECTIONS UPDATED & NOTES ADDED	DG	NAF	AM	MS	14/08/18
A	ISSUED FOR CONSTRUCTION APPROVAL	DG	CC	AM	MS	06/07/18
	AMENDMENT	DES	DRN	CKD	APR	DATE

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27 KENT ROAD CLAREMONT MEADOWS
LOT, ROAD AND DRAINAGE WORKS
DRAINAGE LONGITUDINAL SECTIONS
SHEET 6

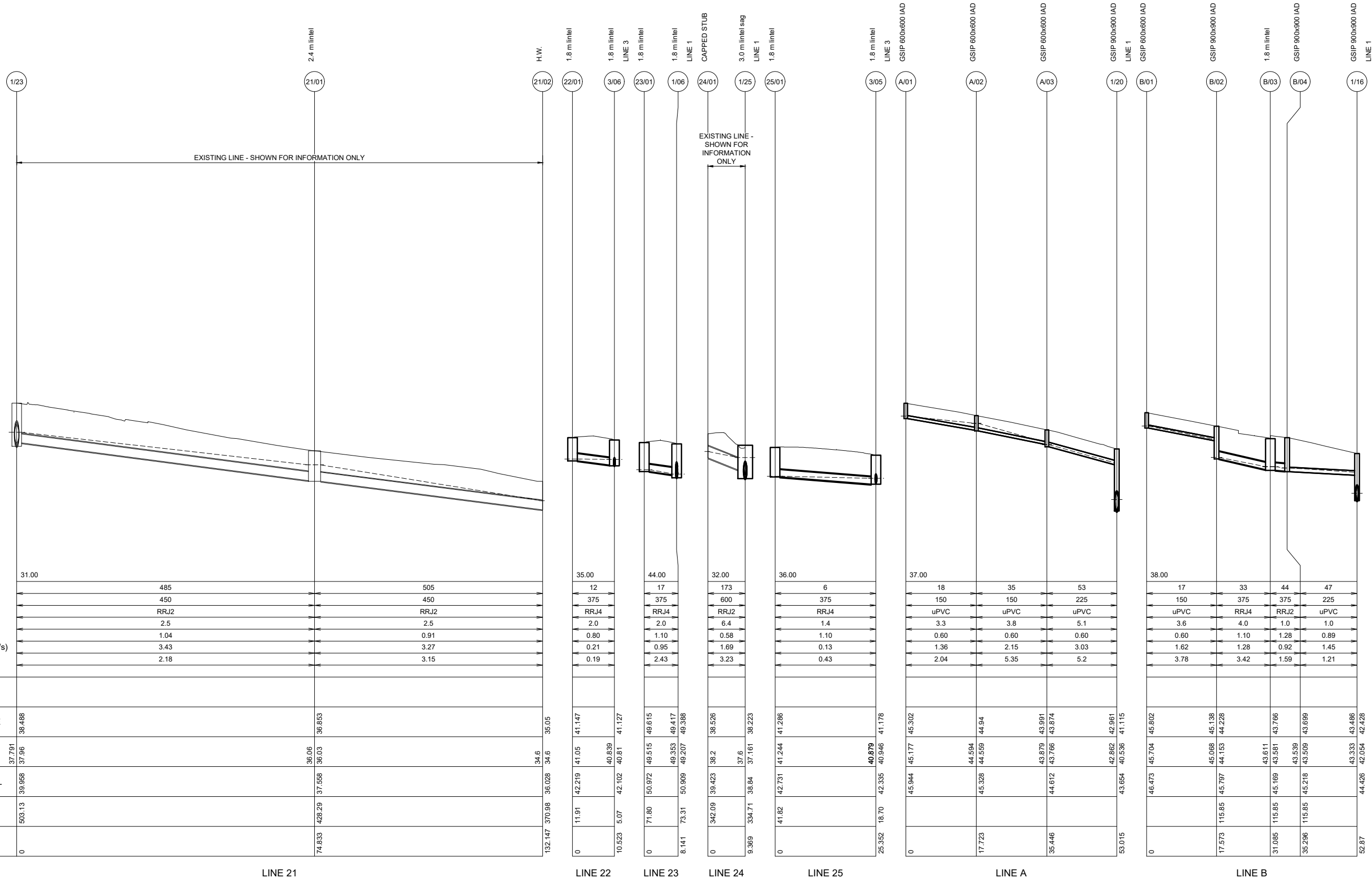
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110341/CC34

B

FILE No: 110341CC34

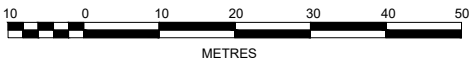
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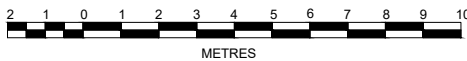


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H 1:500 (AT A1)



V 1:100 (AT A1)



B	DRAINAGE LONG SECTIONS UPDATED	DG	NAF	AM	MS	14/08/18
A	ISSUED FOR CONSTRUCTION APPROVAL	DG	CC	AM	MS	06/07/18
	AMENDMENT	DES	DRN	CKD	APR	DATE

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27 KENT ROAD CLAREMONT MEADOWS
LOT, ROAD AND DRAINAGE WORKS
DRAINAGE LONGITUDINAL SECTIONS
SHEET 7

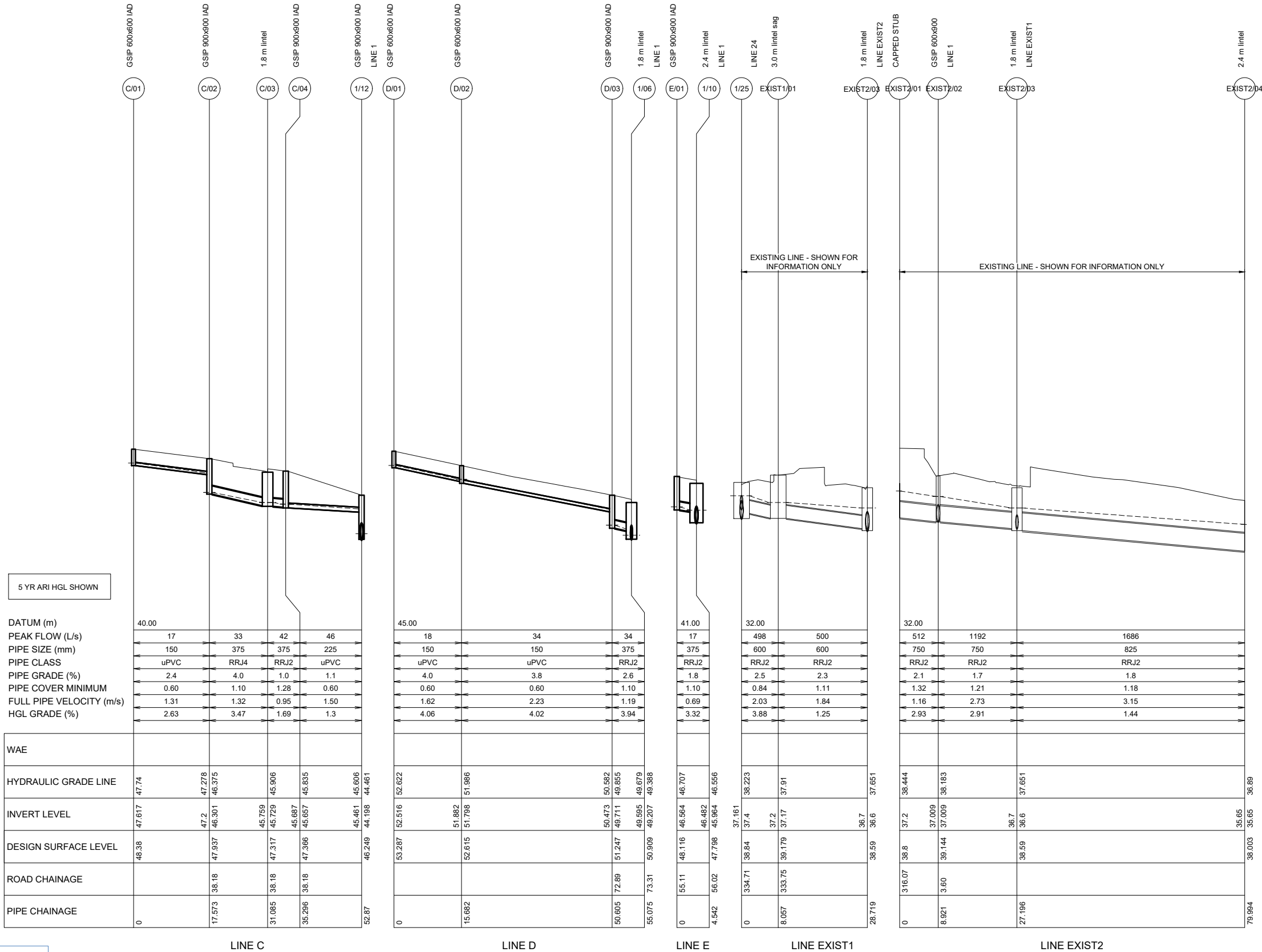
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110341/CC35

B

FILE No: 110341CC35

SHEET SIZE: A1 ORIGINAL

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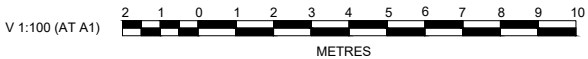
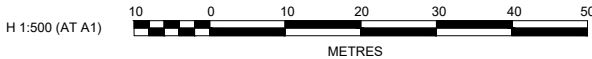
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B	DRAINAGE LONG SECTIONS UPDATED	DG	NAF	AM	MS	14/08/18			
A	ISSUED FOR CONSTRUCTION APPROVAL	DG	CC	AM	MS	06/07/18			
	AMENDMENT	DES	DRN	CKD	APR	DATE			

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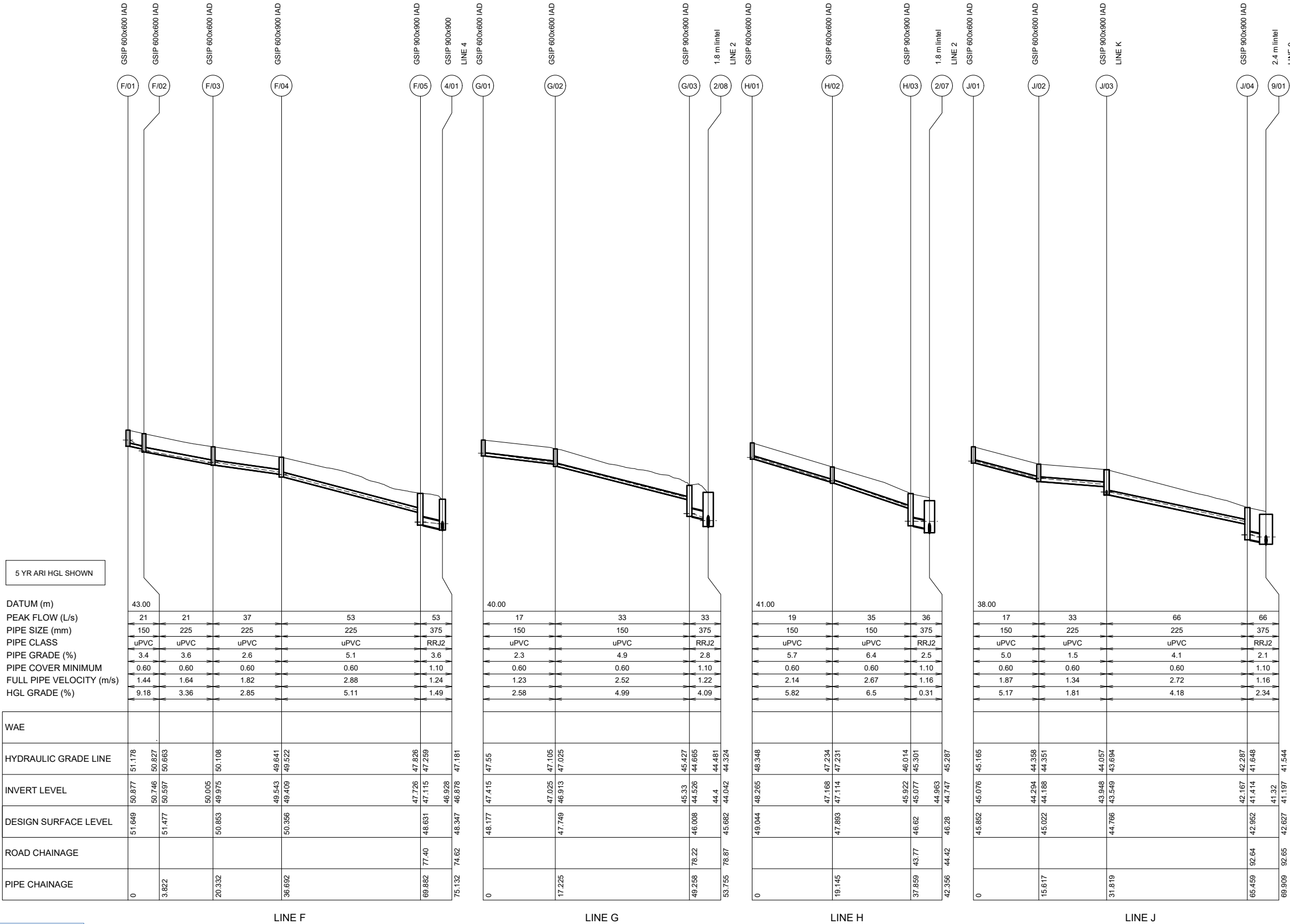
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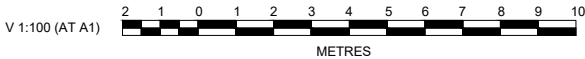
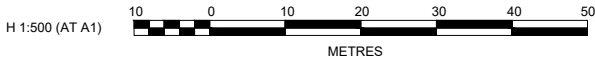
27 KENT ROAD CLAREMONT MEADOWS
LOT, ROAD AND DRAINAGE WORKS
DRAINAGE LONGITUDINAL SECTIONS
SHEET 8

PLAN No:	110341/CC36	B
FILE No:	110341CC36	
SHEET SIZE:	A1 ORIGINAL	

Printed: 18 August, 2018 2:18:32 PM File Name: J:\110341 - 27 Kent Rd Claremont Meadows\03 - COC\DOC\110341CC37.dwg



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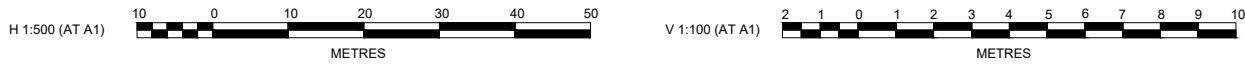
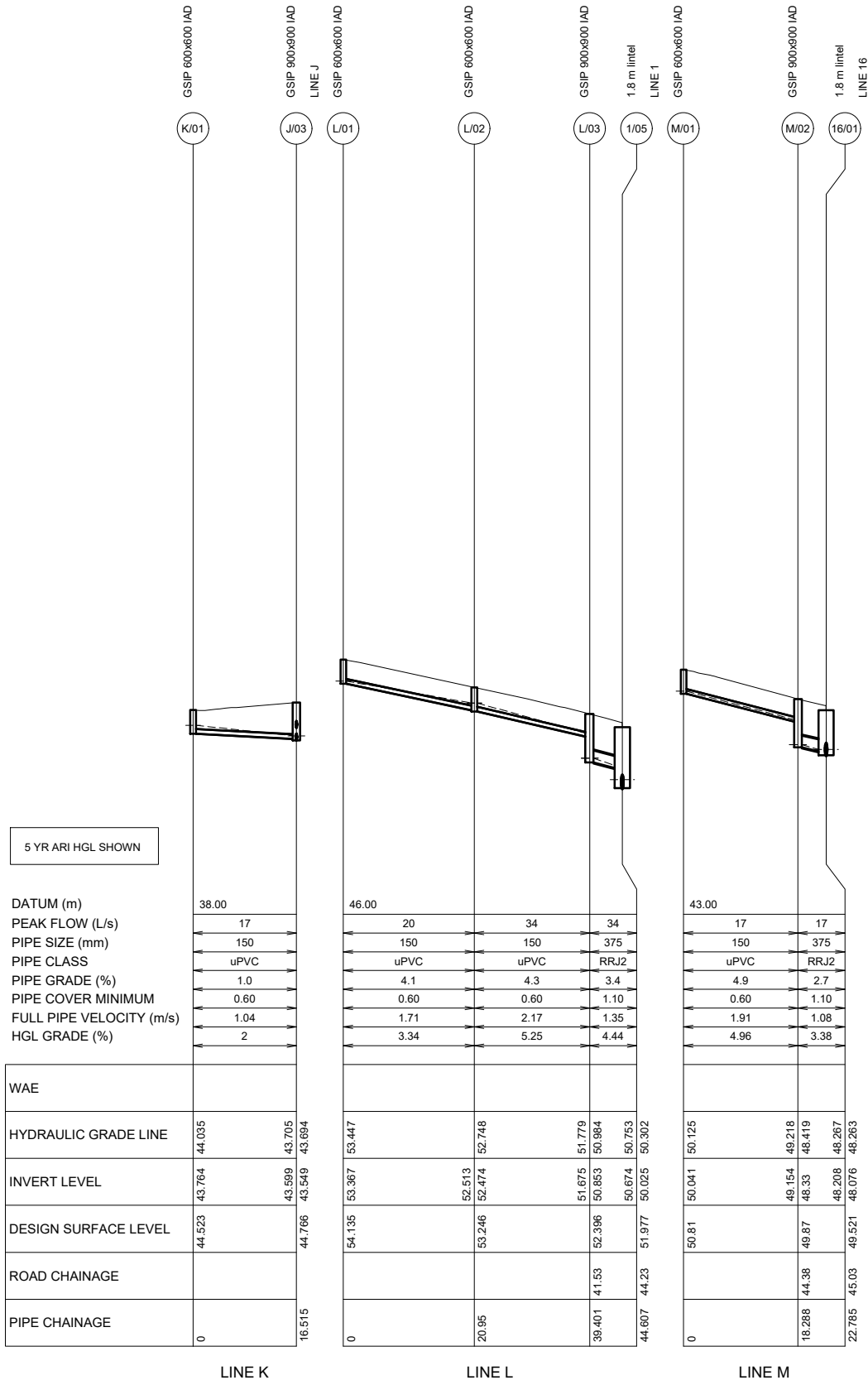
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27 KENT ROAD CLAREMONT MEADOWS
LOT, ROAD AND DRAINAGE WORKS
DRAINAGE LONGITUDINAL SECTIONS
SHEET 9

PLAN No: 110341/CC37
FILE No: 110341CC37
SHEET SIZE: A1 ORIGINAL

B

Plotted: 18 August, 2018 2:18:53 PM File Name: J:\110341 - 27 Kent Rd Claremont Meadows\03 - CC\CD\CC\110341CC38.dwg





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B	DRAINAGE LONG SECTIONS UPDATED	DG	NAF	AM	MS	14/08/18
A	ISSUED FOR CONSTRUCTION APPROVAL	DG	CC	AM	MS	06/07/18
	AMENDMENT	DES	DRN	CKD	APR	DATE

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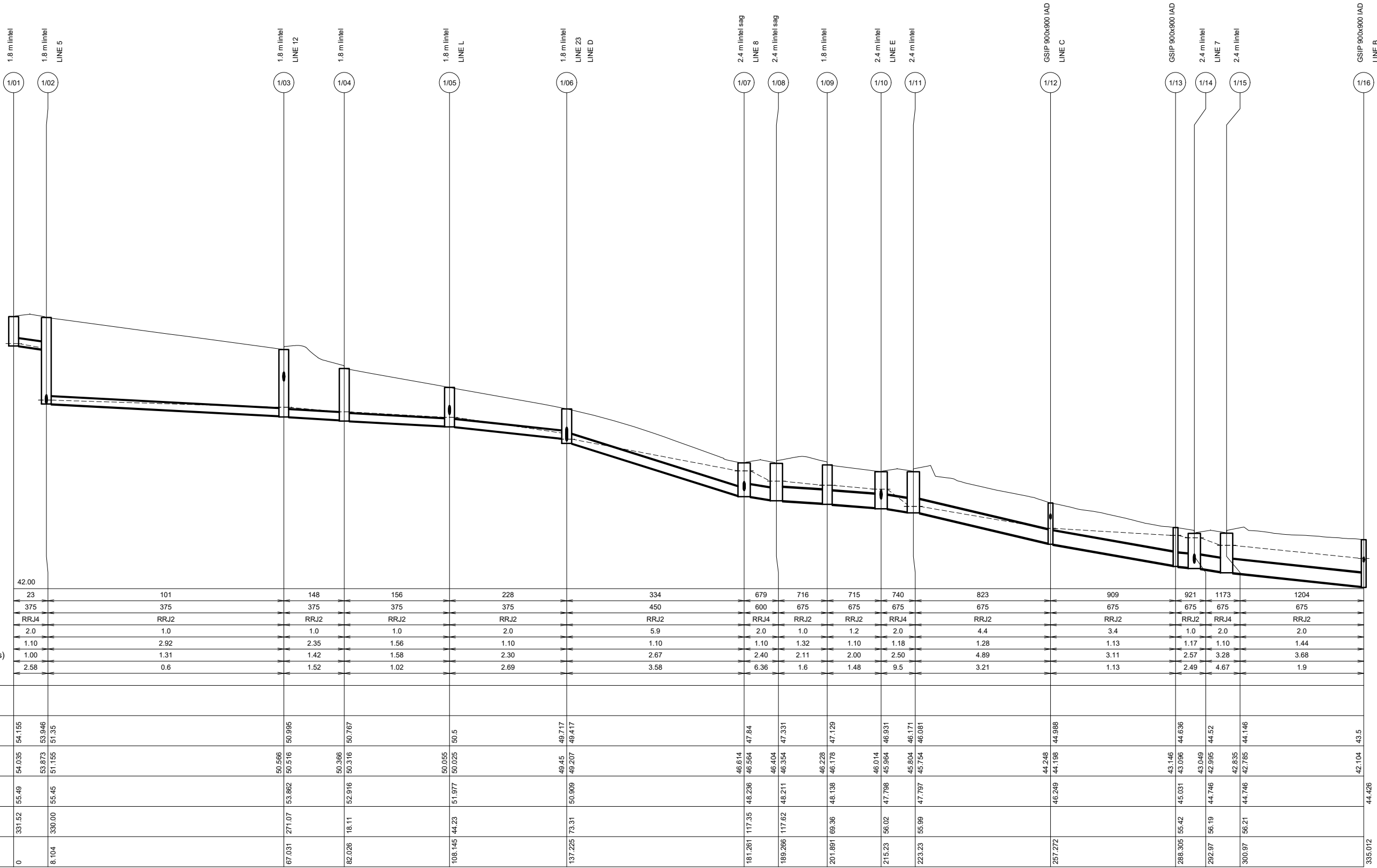
ISSUED FOR CONSTRUCTION APPROVAL

27 KENT ROAD CLAREMONT MEADOWS
LOT, ROAD AND DRAINAGE WORKS
DRAINAGE LONGITUDINAL SECTIONS
SHEET 10

PLAN No: 110341/CC38
FILE No: 110341CC38
SHEET SIZE: A1 ORIGINAL

B

Plotted: 18 August, 2018 2:18:52 PM File Name: J:\110341 - 27 Kent Rd Claremont Meadows\03 - COCCDCC\110341CC39.dwg





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B	DRAINAGE LONG SECTIONS UPDATED	DG	NAF	AM	MS	14/08/18
A	ISSUED FOR CONSTRUCTION APPROVAL	DG	CC	AM	MS	06/07/18
	AMENDMENT	DES	DRN	CKD	APR	DATE

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27 KENT ROAD CLAREMONT MEADOWS
LOT, ROAD AND DRAINAGE WORKS
DRAINAGE LONGITUDINAL SECTIONS
SHEET 11

PLAN No:
110341/CC39

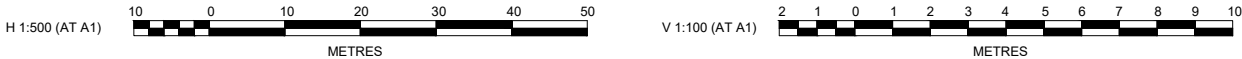
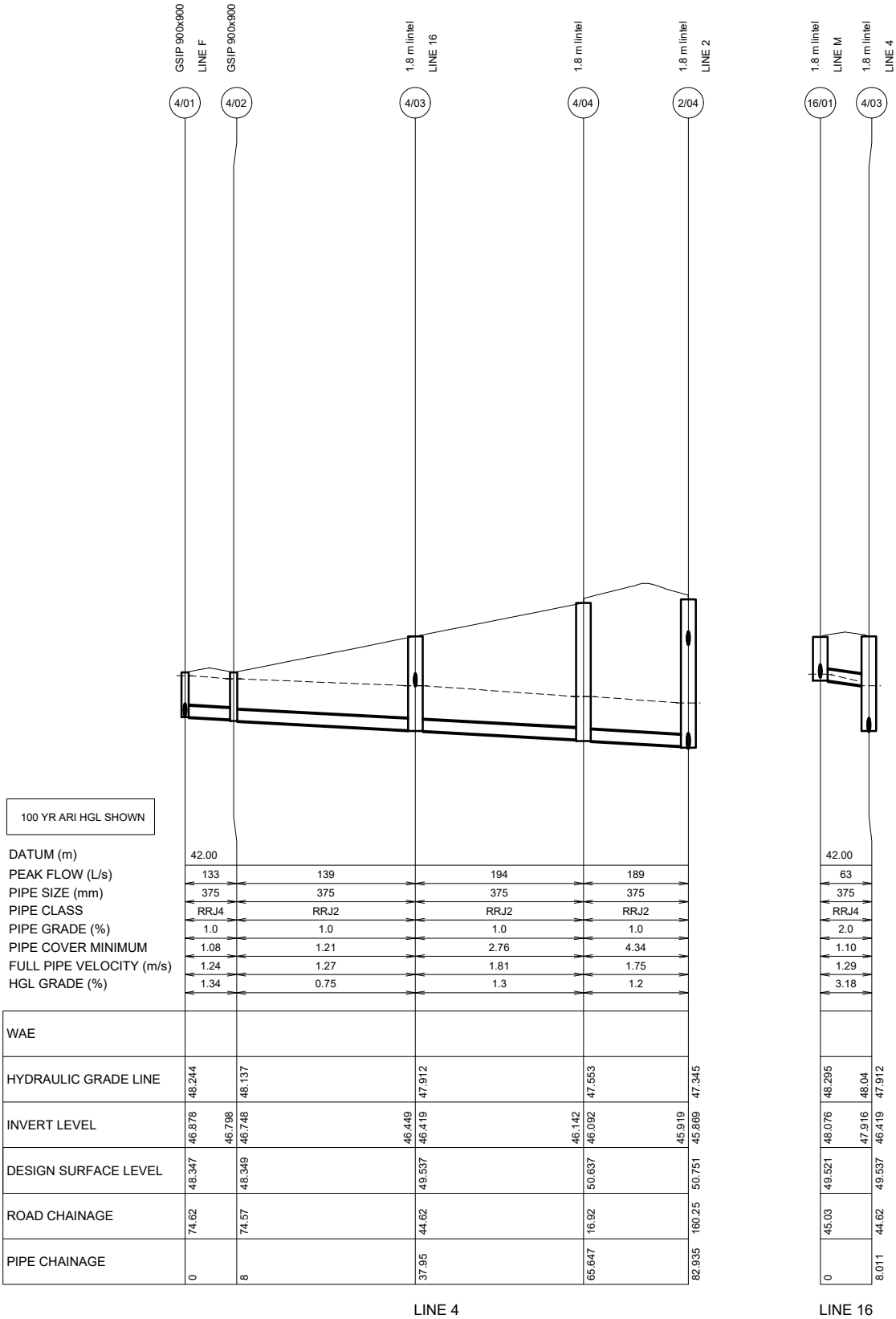
FILE No: 110341CC39

SHEET SIZE: A1 ORIGINAL

B



Plotted: 2 October, 2019 8:06:15 AM File Name: J:\110341 - 27 Kent Rd Claremont Meadows\03 - CC\CD\CC\110341CC40A.dwg





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B	DRAINAGE LINE 16 ADDED	DG	DG	AM	MS	27/09/18	
A	ISSUED FOR CONSTRUCTION APPROVAL	DG	NAF	AM	MS	06/07/18	
	AMENDMENT	DES	DRN	CKD	APR	DATE	

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28 KENT ROAD CLAREMONT MEADOWS
LOT, ROAD AND DRAINAGE WORKS
DRAINAGE LONGITUDINAL SECTIONS
SHEET 13

PLAN No: 110341/C40A **B**

FILE No: 110341CC40A

SHEET SIZE: A1 ORIGINAL

DESIGN STORM 1:5yr ARI HYDROLOGIC RESULTS

PIT	PIT	CATCHMENT	PERCENT	Tc	Tc	CRITICAL	APPROACH	CAPTURED	UNCAPTURED	GRATE	ROAD	ROAD	BYPASS	BYPASS CHANNEL					COMMENTS
NAME	TYPE	AREA	IMPERVIOUS	IMP	PERV	STORM	FLOW	FLOW	FLOW	DEPTH	GRADE	CROSSFALL	PIT	FLOW	U/S FLOW WIDTH	U/S VxD	D/S FLOW WIDTH	D/S VxD	
(-)	(-)	(Ha)	(%)	(min)	(min)	(min)	(L/s)	(L/s)	(L/s)	(mm)	(%)	(%)	(-)	(L/s)	(m)	(m/s^2)	(m)	(m/s^2)	(-)
10/01	CAPPED STUB	1.293	80	5	10	25	392	392	0	0		4	10/02	0					900x400mm OPENING IN WALL
10/02	JP	10/01	0	5	10		0	0	0	0			6/02	0					TEMPORARY PIT 900mm x 900mm
11/01	2.4 m lintel	0.13	80	5	10	25	39	36	4	73	2.2	-2.4	11/02	41	1.58	0.07	1.62	0.07	FUTURE PIT
11/02	1.8 m lintel	0.126	80	5	10	25	41	33	9	74	1.6	-0.9	11/03	48	1.62	0.08	1.62	0.08	FUTURE PIT
11/03	2.4 m lintel	0.138	80	5	10	15	48	46	2	54	3.2	3	1/21	16	0.93	0.05	0.93	0.05	
12/01	1.8 m lintel	0.072	90	5	10	25	22	22	0	55	2.7	3	2/01	16	0.98	0.04	1.28	0.03	
13/01	1.8 m lintel	0.149	80	5	10	25	45	42	4	71	4.3	3	1/19	48	1.54	0.08	1.54	0.08	
14/01	CAPPED STUB	0.064	80	5	10	25	19	19	0	143			14/02	0					EXISTING HEADWALL
14/02	1.8 m lintel	0.013	95	5	10	25	4	4	0	0	2.1	3.3	LOST	0					EXISTING PIT
14/03	1.8 m lintel	0.009	95	5	10	5	3	3	0	0	4	3	LOST	0					
15/01	1.8 m lintel	0.089	90	5	10	25	27	26	1	52	3.4	3	17/01	17	0.9	0.05	0.99	0.05	
16/01	1.8 m lintel	0.101	80	5	10	25	30	29	1	68	4	3	4/01	40	1.44	0.08	1.44	0.08	
17/01	1.8 m lintel	0.056	90	5	10	25	17	17	0	56	5.8	3	3/01	26	0.99	0.07	0.99	0.07	
18/01	1.8 m lintel	BP4/01	0	5	10	25	16	16	0	61	1.8	3	2/10	22	1.19	0.05	1.19	0.05	
19/01	1.8 m lintel	0.02	95	5	10	15	6	6	0	48	2.7	3.7	1/11	11	0.76	0.04	1.63	0.02	CONSTRUCT AS GSIP
20/01	1.8 m lintel	0.026	95	5	10	15	9	9	0	39	4.4	3	1/15	9	0.48	0.04	1.47	0.02	
21/01	2.4 m lintel	0.225	80	5	10	25	68	52	16	63	3	1.1	LOST	15	1.25	0.03	1.25	0.03	EXISTING PIT
22/01	1.8 m lintel	BP10/01	0	5	10	25	12	12	0	0	1.7	3	LOST	0					
23/01	1.8 m lintel	BP6/01	0	5	10	15	17	17	0	43	4.2	3	1/08	12	0.55	0.05	0.55	0.05	
24/01	EXISTING HEADWALL	0.569	80	5	10	25	172	172	0	22		-1.9	1/25	2	0.25	0.02	0.49	0.01	EXISTING HEADWALL
25/01	1.8 m lintel	BP12/01	0	5	10	15	6	6	0	58	1.5	3	3/03	16	1.06	0.04	1.06	0.04	
A/01	GSIP 600x600 IAD	0.061	80	5	10	15	18	18	0	0									
A/02	GSIP 600x600 IAD	0.061	80	5	10	25	19	19	0	0									
A/03	GSIP 600x600 IAD	0.061	80	5	10	15	18	18	0	0									
B/01	GSIP 600x600 IAD	0.055	80	5	10	25	17	17	0	0									
B/02	GSIP 900x900 IAD	0.055	80	5	10	25	17	17	0	0									
B/03	1.8 m lintel	0.033	95	5	10	15	11	11	0	0									
B/04	GSIP 900x900 IAD	0.013	80	5	10	15	4	4	0	0									IAD PIT FOR FUTURE LOT
BP1/01	BYPASS NODE	0.019	95	5	10	15	6	0	0	44	0	3	9/02	6	0.59	0.02	0.59	0.02	
BP10/01	BYPASS NODE	0.038	95	5	10	15	12	0	0	55	0.3	3	22/01	12	0.97	0.03	0.97	0.03	
BP11/01	BYPASS NODE	0.041	95	5	10	25	13	0	0	50	0.3	3	5/02	13	0.82	0.04	1.56	0.02	
BP12/01	BYPASS NODE	0.018	95	5	10	15	6	0	0	44	0	3	25/01	6	0.6	0.02	1.06	0.01	
BP2/01	BYPASS NODE	0.131	80	5	10	25	40	0	0	79	0.1	3	9/01	39	1.78	0.06	1.78	0.06	
BP3/01	BYPASS NODE	0.033	95	5	10	15	11	0	0	39		4.1	3/02	11	0.47	0.05	0.9	0.03	
BP4/01	BYPASS NODE	0.05	95	5	10	15	16	0	0	58	1.7	3.7	18/01	16	1.09	0.04	1.19	0.04	
BP5/01	BYPASS NODE	0.018	95	5	10	15	6	0	0	38		2.9	2/02	6	0.45	0.03	0.7	0.02	
BP6/01	BYPASS NODE	0.053	95	5	10	15	17	0	0	54		3.3	23/01	17	0.96	0.05	0.96	0.05	
BP7/01	BYPASS NODE	0.012	95	5	10	15	4	0	0	34	-0.3	3	1/02	4	0.41	0.02	0.92	0.01	
BP8/01	BYPASS NODE	0.062	80	5	10	25	19	0	0	67	-0.2	3	1/01	18	1.38	0.04	1.38	0.04	
BP9/01	BYPASS NODE	0.174	80	5	10	25	53	0	0	75	-0.1	3	5/01	51	1.64	0.08	1.64	0.08	
C/01	GSIP 600x600 IAD	0.055	80	5	10	25	17	17	0	0									
C/02	GSIP 900x900 IAD	0.055	80	5	10	25	17	17	0	0									
C/03	1.8 m lintel	0.029	95	5	10	15	9	9	0	0									
C/04	GSIP 900x900 IAD	0.013	80	5	10	15	4	4	0	0									IAD PIT FOR FUTURE LOT
D/01	GSIP 600x600 IAD	0.058	80	5	10	15	17	17	0	0									
D/02	GSIP 600x600 IAD	0.06	80	5	10	25	18	18	0	0									
D/03	GSIP 900x900 IAD	JUNCTION	0	5	10		0	0	0	0									
E/01	GSIP 900x900 IAD	0.057	80	5	10	15	17	17	0	0									
EXIST2/01	CAPPED STUB	1.766	80	5	10	5	513	513	0	18		-0.5	EXIST2/02	0	0.3	0.02	0.3	0.02	EXISTING GSIP
F/01	GSIP 600x600 IAD	0.071	80	5	10	25	21	21	0	0									
F/02	GSIP 600x600 IAD	JUNCTION	0	5	10		0	0	0	0									
F/03	GSIP 600x600 IAD	0.055	80	5	10	25	17	17	0	0									
F/04	GSIP 600x900 IAD	0.055	80	5	10	25	17	17	0	0									
F/05	GSIP 900x900 IAD	JUNCTION	0	5	10		0	0	0	0									
G/01	GSIP 600x600 IAD	0.055	80	5	10	25	17	17	0	0									
G/02	GSIP 600x600 IAD	0.055	80	5	10	25	17	17	0	0									
G/03	GSIP 900x900 IAD	JUNCTION	0	5	10		0	0	0	0									
H/01	GSIP 600x600 IAD	0.062	80	5	10	25	19	19	0	0									
H/02	GSIP 600x600 IAD	0.055	80	5	10	25	17	17	0	0									
H/03	GSIP 900x900 IAD	JUNCTION	0	5	10		0	0	0	0									
J/01	GSIP 600x600 IAD	0.056	80	5	10	25	17	17	0	0									
J/02	GSIP 600x600 IAD	0.055	80	5	10	25	17	17	0	0									
J/03	GSIP 900x900 IAD	0.055	80	5	10	25	17	17	0	0									
J/04	GSIP 900x900 IAD	JUNCTION	0	5	10		0	0	0	0									
K/01	GSIP 600x600 IAD	0.056	80	5	10	25	17	17	0	0									
L/01	GSIP 600x600 IAD	0.063	80	5	10	25	19	19	0	0									
L/02	GSIP 600x600 IAD	0.055	80	5	10	25	17	17	0	0									
L/03	GSIP 900x900 IAD	JUNCTION	0	5	10		0	0	0	0									
M/01	GSIP 600x600 IAD	0.055	80	5	10	25	17	17	0	0									
M/02	GSIP 900x900 IAD	JUNCTION	0	5	10		0	0	0	0									

HYDROLOGY NOTES:
1. STORMWATER SYSTEM DESIGNED USING 12D DYNAMIC (ILSAX) SYSTEM.
2. BP LINES ARE DUMMY PITS AND ARE USED TO MORE ACCURATELY DETERMINE APPROACH FLOWS AT UPSTREAM PITS AND SAG LOCATIONS. RESULTS ON THESE DUMMY LINES MAY NOT BE VALID/RELEVANT.



These plans are referred to in certificate no. **15440** approved by:
Christopher Louis Wahbe
Accredited Certifier
Registration No: BPB 3015
Categories: B1,C1,C2,C3,C4,C6 & C15
Land Development Certificates
www.LDC.com.au

CLIENT:



AZIMUTH:

DATUM:

ORIGIN:

THIS DRAWING MUST NOT BE USED FOR CONSTRUCTION UNLESS SIGNED AS PART OF AN APPROVED CONSTRUCTION CERTIFICATE.

ISSUED FOR CONSTRUCTION APPROVAL

27 KENT ROAD CLAREMONT MEADOWS
LOT, ROAD AND DRAINAGE WORKS

DRAINAGE CALCULATIONS
SHEET 2

PLAN No:
110341/CC42

B

FILE No: 110341CC42

SHEET SIZE: A1 ORIGINAL

J. WYNDHAM PRINCE CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS

PO Box 4366 PENRITH WESTFIELD NSW 2750
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B	DRAINAGE CALCULATIONS UPDATED			DG	NAF	AM	MS	14/08/18											
A	ISSUED FOR CONSTRUCTION APPROVAL			DG	CC	AM	MS	06/07/18											
	AMENDMENT			DES	DRN	CKD	APR	DATE											

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DESIGN STORM 1:5yr ARI HYDRAULIC RESULTS																					
PIPE	PIPE	PIPE	PIPE	PIPE	CRITICAL	PEAK	CAPACITY	PEAK	PIPE	PIPE	PIPE	U/S PIT	D/S PIT	PIT LOSS	WSE LOSS	U/S PIPE	D/S PIPE	HGL	MINIMUM	MINIMUM	COMMENTS
NAME	DIAMETER	TYPE	LENGTH	GRADE	STORM	FLOW	RATIO	VELOCITY	U/S IL	D/S IL	D/S DROP	Ku	Kw	(Ku.V^head)	(Kw.V^head)	HGL	HGL	GRADE	COVER	FREEBOARD	
(-)	(mm)	(-)	(m)	(%)	(min)	(L/s)	(-)	(m/s)		(m)	(m)	(-)	(-)	(m)	(m)	(m)	(m)	(%)	(m)	(m)	
1/01 to 1/02	375	RRJ4	8.1	2	25	18	0.07	0.96	54.035	53.873	2.717	4.5	4.5	0.21	0.21	54.139	53.939	2.47	1.1	1.352	
1/02 to 1/03	375	RRJ2	58.93	1	25	80	0.42	1.32	51.155	50.566	0.05	1.7	1.9	0.15	0.17	51.324	50.827	0.84	2.92	4.126	
1/03 to 1/04	375	RRJ2	14.99	1	25	114	0.6	1.39	50.516	50.366	0.05	9.42	1.85	0.16	0.18	50.827	50.575	1.68	2.35	3.035	
1/04 to 1/05	375	RRJ2	26.12	1	25	119	0.62	1.58	50.316	50.055	0.03	0.83	0.83	0.1	0.1	50.564	50.302	1	1.56	2.351	
1/05 to 1/06	375	RRJ2	29.08	1.98	25	173	0.65	2.25	50.025	49.45	0.243	1.71	2.21	0.3	0.33	50.302	49.67	2.17	1.1	1.675	
1/06 to 1/07	450	RRJ2	44.04	5.89	25	255	0.34	2.24	49.207	46.614	0.05	7	7	0.5	0.51	49.388	47.367	4.59	1.1	1.521	
1/07 to 1/08	600	RRJ4	8	2	25	460	0.49	1.8	46.564	46.404	0.05	1.76	2.05	0.29	0.33	47.2	46.841	4.48	1.1	1.036	
1/08 to 1/09	675	RRJ2	12.62	1	25	523	0.57	2.49	46.354	46.228	0.05	9.7	9.7	0.08	0.08	46.742	46.648	0.74	1.32	1.47	
1/09 to 1/10	675	RRJ2	13.34	1.23	25	482	0.48	1.92	46.178	46.014	0.05	0.57	0.57	0.11	0.11	46.648	46.556	0.69	1.1	1.491	
1/10 to 1/11	675	RRJ4	8	2	25	483	0.37	1.96	45.964	45.804	0.05	2.04	2.56	0.4	0.5	46.556	46.09	5.82	1.18	1.241	
1/11 to 1/12	675	RRJ2	34.04	4.42	25	489	0.26	4.29	45.754	44.248	0.05	9.7	9.7	0.36	0.36	46.001	44.48	4.47	1.28	1.796	
1/12 to 1/13	675	RRJ2	31.03	3.39	25	539	0.32	2.36	44.198	43.146	0.05	9.7	9.67	0.38	0.38	44.461	43.769	2.23	1.13	1.788	
1/13 to 1/14	675	RRJ2	4.66	1	25	557	0.61	1.63	43.096	43.049	0.054	9.7	9.7	0.08	0.08	43.769	43.703	1.42	1.17	1.262	
1/14 to 1/15	675	RRJ4	8	2	25	790	0.61	2.56	42.995	42.835	0.05	1.64	1.94	0.2	0.22	43.703	43.247	5.7	1.1	1.042	
1/15 to 1/16	675	RRJ2	34.04	2	25	796	0.62	3.37	42.785	42.104	0.05	0.27	0.27	0.15	0.15	43.247	42.488	2.23	1.44	1.499	
1/16 to 1/17	750	RRJ2	31.03	2.04	25	856	0.5	2.54	42.054	41.42	0.05	9.7	9.7	0.23	0.23	42.428	42.155	0.88	1.2	1.999	
1/17 to 1/18	750	RRJ2	4.66	1	25	874	0.72	1.98	41.37	41.323	0.137	9.7	9.7	0.08	0.08	42.155	42.067	1.89	1.16	1.235	
1/18 to 1/19	825	RRJ4	8	2	25	1351	0.61	2.82	41.186	41.026	0.05	1.26	1.37	0.24	0.25	42.067	41.587	6	1.1	1.026	
1/19 to 1/20	900	RRJ2	39.02	1	25	1396	0.71	3.19	40.976	40.586	0.05	9.7	9.7	0.14	0.14	41.587	41.147	1.13	1.3	1.505	
1/20 to 1/21	900	RRJ2	37.31	1	25	1462	0.75	2.75	40.536	40.162	0.05	9.7	9.7	0.14	0.14	41.115	40.989	0.34	2.16	2.539	
1/21 to 1/22	1050	RRJ2	58.35	1	25	1581	0.53	2.53	40.112	39.529	0.03	2.09	2.67	0.68	0.87	40.989	40.075	1.57	1.34	3.27	
1/22 to 1/23	1050	RRJ2	62.16	2.49	25	1595	0.34	4.55	39.499	37.952	0.161	0.26	0.26	0.27	0.27	39.922	38.488	2.31	0.92	2.023	
1/23 to 1/24	1050	RRJ2	13.54	1	25	1161	0.39	2.32	37.791	37.655	0.05	9.7	9.7	0.16	0.16	38.488	38.402	0.64	0.86	1.47	
1/24 to 1/25	(2x)750	RRJ2	56.32	0.7	25	1108	0.55	1.47	37.605	37.211	0.05	0.7	0.7	0.07	0.07	38.402	38.223	0.32	0.87	1.171	
1/25 to EXIST2/02	(2x)750	RRJ2	18.74	0.7	25	762	0.38	1.08	37.161	37.03	0.021	9.7	9.7	0.07	0.07	38.223	38.183	0.21	0.81	0.617	
2/01 to 2/02	375	RRJ4	10.4	2	15	16	0.06	0.99	51.42	51.212	0.05	4.5	4.5	0.23	0.23	51.512	51.275	2.28	1.1	1.385	
2/02 to 2/03	375	RRJ2	40.8	2.5	25	22	0.07	1.54	51.162	50.14	0.065	7	7	0.23	0.23	51.233	50.209	2.51	1.1	1.484	
2/03 to 2/04	375	RRJ4	27.54	2.87	25	32	0.1	1.77	50.075	49.285	3.417	7	7	0.3	0.3	50.159	49.365	2.88	1.1	1.458	
2/04 to 2/05	450	RRJ2	54.78	1	25	209	0.68	1.59	45.869	45.321	0.05	1.56	1.69	0.2	0.22	46.176	45.746	0.78	2.33	4.574	
2/05 to 2/06	450	RRJ2	14.92	1.08	25	237	0.74	1.69	45.271	45.11	0.05	1.34	1.44	0.19	0.21	45.746	45.406	2.28	1.36	2.32	
2/06 to 2/07	450	RRJ2	26.61	1.32	25	240	0.68	2.06	45.06	44.71	0.045	0.73	0.73	0.15	0.15	45.406	44.999	1.53	1.1	1.363	
2/07 to 2/08	450	RRJ2	34.45	1.71	25	291	0.72	2.49	44.665	44.075	0.033	1.38	1.38	0.22	0.22	44.999	44.378	1.8	1.1	1.281	
2/08 to 2/09	450	RRJ2	84.7	2.41	25	364	0.76	2.5	44.042	42	0.05	6.96	6.96	0.27	0.27	44.378	43.067	1.55	0.9	1.304	
2/09 to 2/10	450	RRJ2	8.27	3.14	25	437	0.8	2.75	41.95	41.69	0.04	9.7	9.7	0.53	0.59	43.067	42.367	8.46	0.96	0.297	EXISTING PIPE
2/10 to 2/11	450	RRJ2	14.07	2.99	25	458	0.86	3.16	41.65	41.23	0.03	0.81	0.81	0.28	0.28	42.367	41.551	5.8	1.04	1.196	EXISTING PIPE
2/11 to 2/12	450	RRJ2	56.01	4.82	25	463	0.68	3.19	41.2	38.5	0.05	0.66	0.66	0.33	0.33	41.525	40.059	2.62	0.9	1.164	EXISTING PIPE
3/01 to 3/02	375	RRJ4	11.31	3.87	15	25	0.07	1.47	43.087	42.65	0.05	4.5	4.5	0.5	0.5	43.18	42.717	4.1	1.1	1.424	
3/02 to 3/03	375	RRJ4	26.39	4.76	25	36	0.09	1.34	42.6	41.343	0.022	7	7	0.46	0.46	42.674	41.57	4.18	0.62	1.373	
3/03 to 3/04	375	RRJ4	9.89	1	25	67	0.35	1.02	41.321	41.222	0.05	9.7	9.7	0.22	0.22	41.57	41.45	1.21	0.68	0.799	
3/04 to 3/05	375	RRJ4	17.61	1	25	98	0.52	1.35	41.172	40.996	0.05	1.93	2.12	0.18	0.2	41.45	41.188	1.49	0.75	0.792	
3/05 to 3/06	375	RRJ2	13.63	1	25	104	0.54	1.2	40.946	40.81	0	0.46	0.46	0.03	0.03	41.178	41.127	0.37	0.9	1.157	
4/01 to 4/02	375	RRJ4	8	1	25	91	0.48	1.18	46.878	46.798	0.05	2.09	2.09	0.15	0.15	47.181	46.994	2.34	1.08	1.165	
4/02 to 4/03	375	RRJ2	29.95	1	25	98	0.52	1.2	46.748	46.449	0.03	2.12	2.65	0.15	0.19	46.994	46.752	0.81	1.21	1.355	
4/03 to 4/04	375	RRJ2	27.7	1	25	149	0.78	1.61	46.419	46.142	0.05	1.22	1.29	0.16	0.17	46.752	46.397	1.28	2.76	2.785	
4/04 to 2/04	375	RRJ2	17.29	1	25	151	0.8	1.7	46.092	45.919	0.05	9.7	9.7	0.09	0.09	46.397	46.176	1.28	4.34	4.24	
5/01 to 5/02	375	RRJ4	12.65	1	25	47	0.25	0.97	52.119	51.992	0.05	4.5	4.5	0.21	0.21	52.331	52.119	1.68	1	1.148	
5/02 to 5/03	375	RRJ2	54.4	1	25	59	0.31	1.43	51.942	51.398	0.05	1.51	1.51	0.15	0.15	52.1	51.543	1.02	1.64	1.861	
5/03 to 1/02	375	RRJ2	14.32	1	25	59	0.31	1.37	51.348	51.205	0.05	0.52	0.52	0.05	0.05	51.513	51.348	1.15	4.03	4.199	
6/01 to 6/02	450	RRJ2	1.83	1	5	-4	-0.01	0.25	44.379	44.361	0.03	2.02	2.52	0.01	0.01	44.732	44.731	0.05	1.43	1.784	FOR FUTURE CONNECTION
6/02 to 6/03	450	RRJ2	34.43	3.97	25	385	0.63	3.13	44.331	42.964	0.117	1.92	2.39	0.94	1.15	44.731	43.222	4.38	1.1	1.245	
6/03 to 1/18	450	RRJ4	33.06	3.88	25	463	0.76	3.72	42.847	41.566	0.38	0.66	0.66	0.43	0.43	43.143	42.067	3.25	1.1	1.362	
7/01 to 7/02	375	RRJ2	36.27	4.92	25	168	0.4	2.79	46.291	44.505	0.03	7	7	2.02	2.02	46.515	44.683	5.05	1.1	1.54	
7/02 to 1/14	375	RRJ2	33.05	3.55	25	212	0.59	2.93	44.475	43.303	0.308	1.07	1.07	0.46	0.46	44.683	43.703	2.96	1.1	1.518	
8/01 to 8/02	375	RRJ2	29.83	3.32	15	125	0.36	1.7	48.065	47.075	0.05	7	7	1.02	1.02	48.274	47.543	2.45	1.1	1.57	
8/02 to 1/07	375	RRJ2	12.76	1	25	146	0.77	1.44	47.025	46.898	0.334	1.2	1.2	0.12	0.12	47.543	47.367	1.38	1.12	1.263	
9/01 to 9/02	375	RRJ4	8.43	2	25	101	0.38	1.27	41.197	41.028	0.05	4.5	4.5	0.37	0.37	41.544	41.188	4.22	1.1	1.083	
9/02 to 9/03	375	RRJ2	14.73	3.28	25	107	0.31	2.24	40.978	40.496	0.322	1.2	1.26	0.3	0.32	41.169	40.639	3.6	1.14	1.513	
9/03 to 9/04	450	RRJ2	23.3	2.89	2																

DESIGN STORM 1:5yr ARI HYDRAULIC RESULTS

PIPE	PIPE	PIPE	PIPE	PIPE	CRITICAL	PEAK	CAPACITY	PEAK	PIPE	PIPE	PIPE	U/S PIT	D/S PIT	PIT LOSS	WSE LOSS	U/S PIPE	D/S PIPE	HGL	MINIMUM	MINIMUM	COMMENTS
NAME	DIAMETER	TYPE	LENGTH	GRADE	STORM	FLOW	RATIO	VELOCITY	U/S IL	D/S IL	D/S DROP	Ku	Kw	(Ku.V/head)	(Kw.V/head)	HGL	HGL	GRADE	COVER	FREEBOARD	
(-)	(mm)	(-)	(m)	(%)	(min)	(L/s)	(-)	(m/s)	(m)	(m)	(m)	(-)	(-)	(m)	(m)	(m)	(m)	(%)	(m)	(m)	
12/01 to 1/03	375	RRJ4	9.32	2	25	22	0.08	1.02	52.522	52.336	1.82	4.5	4.5	0.24	0.24	52.636	52.408	2.45	1.1	1.355	
13/01 to 6/03	375	RRJ4	8	2	25	41	0.15	0.75	43.057	42.897	0.05	4.5	4.5	0.13	0.13	43.243	43.143	1.25	1.1	1.261	
14/01 to 14/02	450	RRJ2	7.7	8.06	25	19	0.02	1.47	41.73	41.11	0.14	9.7	9.7	1.07	1.07	41.806	41.158	8.42		0.299	EXISTING PIPE
14/02 to 14/03	450	RRJ4	19.84	2.67	25	23	0.05	1.56	40.97	40.44	0.137	1.13	1.13	0.14	0.14	41.039	40.506	2.69	0.89	1.227	
14/03 to 9/03	450	RRJ4	8	1	25	26	0.08	0.74	40.303	40.223	0.05	9.7	2.42	0.06	0.07	40.429	40.393	0.45	1.1	1.403	
15/01 to 2/04	375	RRJ4	10.43	2	25	26	0.1	1.08	49.507	49.298	3.43	4.5	4.5	0.27	0.27	49.632	49.377	2.45	1.1	1.358	
16/01 to 4/03	375	RRJ4	8.01	2	25	46	0.17	1.15	48.076	47.916	1.497	4.99	4.99	0.28	0.28	48.263	48.02	3.03	1.1	1.258	
17/01 to 2/05	375	RRJ4	9.48	2.39	25	17	0.06	1.05	46.879	46.652	1.381	4.5	4.5	0.25	0.25	46.971	46.714	2.71	1.1	1.399	
18/01 to 2/08	375	RRJ4	10.59	2	15	16	0.06	0.74	44.304	44.092	0.05	4.5	4.5	0.12	0.12	44.371	44.324	0.44	1.1	1.403	
19/01 to 8/02	375	RRJ4	8.7	2	25	11	0.04	0.77	47.413	47.239	0.214	4.5	4.5	0.14	0.14	47.547	47.543	0.05	1.1	1.347	
20/01 to 7/02	375	RRJ4	8	1	15	8	0.04	0.65	44.753	44.673	0.198	4.5	4.5	0.1	0.1	44.829	44.726	1.29	1.1	1.371	
21/01 to 21/02	450	RRJ2	57.31	2.5	25	505	1.04	3.27	36.03	34.6		0.94	0.94	0.41	0.41	36.853	35.05	3.15	0.91	0.706	EXISTING PIPE
22/01 to 3/06	375	RRJ4	10.52	2	15	12	0.04	0.21	41.05	40.839	0.029	4.5	4.5	0.01	0.01	41.147	41.127	0.19	0.8	1.072	
23/01 to 1/06	375	RRJ4	8.14	2	15	17	0.06	0.95	49.515	49.353	0.146	4.5	4.5	0.21	0.21	49.615	49.417	2.43	1.1	1.358	
24/01 to 1/25	600	RRJ2	9.37	6.4	25	173	0.1	1.69	38.2	37.6	0.439	9.7	9.7	1.42	1.42	38.526	38.223	3.23	0.58	0.896	EXISTING PIPE
25/01 to 3/05	375	RRJ4	25.35	1.44	25	6	0.02	0.13	41.244	40.879	-0.067	9.7	9.7	0.01	0.01	41.286	41.178	0.43	1.1	1.446	
A/01 to A/02	150	uPVC	17.72	3.29	25	18	0.49	1.36	45.177	44.594	0.035	7	7	0.61	0.61	45.302	44.94	2.04	0.6	0.643	
A/02 to A/03	150	uPVC	17.72	3.83	25	35	0.91	2.15	44.559	43.879	0.113	2.84	2.84	0.44	0.44	44.94	43.991	5.35	0.6	0.388	
A/03 to 1/20	225	uPVC	17.57	5.15	25	53	0.4	3.03	43.766	42.862	2.326	6.81	6.81	0.35	0.35	43.874	42.961	5.2	0.6	0.738	
B/01 to B/02	150	uPVC	17.57	3.61	25	17	0.44	1.62	45.704	45.068	0.915	7	7	0.67	0.67	45.802	45.138	3.78	0.6	0.671	
B/02 to B/03	375	RRJ4	13.51	4.01	25	33	0.09	1.28	44.153	43.611	0.03	3.11	3.69	0.25	0.3	44.228	43.766	3.42	1.1	1.569	
B/03 to B/04	375	RRJ2	4.21	1	25	44	0.23	0.92	43.581	43.539	0.03	9.7	9.7	0.08	0.08	43.766	43.699	1.59	1.28	1.403	
B/04 to 1/16	225	uPVC	17.57	1	25	47	0.81	1.45	43.509	43.333	1.279	7	7	0.07	0.07	43.699	43.486	1.21	0.89	1.52	
C/01 to C/02	150	uPVC	17.57	2.37	25	17	0.54	1.31	47.617	47.2	0.899	7	7	0.44	0.44	47.74	47.278	2.63	0.6	0.64	
C/02 to C/03	375	RRJ4	13.51	4.01	25	33	0.09	1.32	46.301	45.759	0.03	3.06	3.64	0.26	0.31	46.375	45.906	3.47	1.1	1.561	
C/03 to C/04	375	RRJ2	4.21	1	25	42	0.22	0.95	45.729	45.687	0.03	9.7	9.7	0.07	0.07	45.906	45.835	1.69	1.28	1.41	
C/04 to 1/12	225	uPVC	17.57	1.11	25	46	0.74	1.5	45.657	45.461	1.264	7	7	0.08	0.08	45.835	45.606	1.3	0.6	1.532	
D/01 to D/02	150	uPVC	15.68	4.04	25	18	0.46	1.62	52.516	51.882	0.084	9.7	9.7	0.81	0.81	52.622	51.986	4.06	0.6	0.665	
D/02 to D/03	150	uPVC	34.92	3.79	25	34	0.88	2.23	51.798	50.473	0.762	3.02	3.1	0.51	0.57	51.986	50.582	4.02	0.6	0.629	
D/03 to 1/06	375	RRJ2	4.47	2.6	25	34	0.11	1.19	49.711	49.595	0.388	2.09	3.24	0.15	0.23	49.855	49.679	3.94	1.1	1.392	
E/01 to 1/10	375	RRJ2	4.54	1.81	25	17	0.07	0.69	46.564	46.482	0.518	9.7	9.7	0.23	0.23	46.707	46.556	3.32	1.1	1.409	
EXIST2/01 to EXIST2/02	750	RRJ2	8.92	2.15	25	512	0.29	1.16	37.2	37.009	0	7	7	0.42	0.42	38.444	38.183	2.93	1.32	0.356	EXISTING PIPE
F/01 to F/02	150	uPVC	3.82	3.43	25	21	0.57	1.44	50.877	50.746	0.149	7	7	0.3	0.3	51.178	50.827	9.18	0.6	0.471	
F/02 to F/03	225	uPVC	16.51	3.59	25	21	0.19	1.64	50.597	50.005	0.03	2.09	2.96	0.29	0.4	50.663	50.108	3.36	0.6	0.814	
F/03 to F/04	225	uPVC	16.36	2.64	25	37	0.39	1.82	49.975	49.543	0.134	9.64	9.64	0.36	0.36	50.108	49.641	2.85	0.6	0.745	
F/04 to F/05	225	uPVC	33.19	5.07	25	53	0.41	2.88	49.409	47.726	0.611	2.16	2.59	0.84	1.03	49.522	47.826	5.11	0.6	0.834	
F/05 to 4/01	375	RRJ2	5.25	3.56	25	53	0.15	1.24	47.115	46.928	0.05	2.09	3.24	0.16	0.25	47.259	47.181	1.49	1.1	1.372	
G/01 to G/02	150	uPVC	17.22	2.26	25	17	0.56	1.23	47.415	47.025	0.112	9.37	9.37	0.47	0.47	47.55	47.105	2.58	0.6	0.627	
G/02 to G/03	150	uPVC	32.03	4.94	25	33	0.75	2.52	46.913	45.33	0.804	2.98	3.02	0.61	0.69	47.025	45.427	4.99	0.6	0.724	
G/03 to 2/08	375	RRJ2	4.5	2.8	25	33	0.1	1.22	44.526	44.4	0.358	2.09	3.24	0.16	0.24	44.665	44.481	4.09	1.1	1.342	
H/01 to H/02	150	uPVC	19.15	5.73	25	19	0.39	2.14	48.265	47.168	0.054	7	7	1.08	1.08	48.348	47.234	5.82	0.6	0.696	
H/02 to H/03	150	uPVC	18.71	6.37	25	35	0.7	2.67	47.114	45.922	0.845	2.12	2.12	0.58	0.58	47.231	46.014	6.5	0.6	0.663	
H/03 to 2/07	375	RRJ2	4.5	2.52	25	36	0.12	1.16	45.077	44.963	0.216	2.09	3.24	0.14	0.22	45.301	45.287	0.31	1.1	1.318	
I/01 to I/02	150	uPVC	15.62	5.01	25	17	0.38	1.87	45.076	44.294	0.106	7	7	0.88	0.88	45.165	44.358	5.17	0.6	0.687	
I/02 to I/03	225	uPVC	16.2	1.48	25	33	0.47	1.34	44.188	43.948	0.399	2.79	3.29	0.22	0.26	44.351	44.057	1.81	0.6	0.672	
I/03 to I/04	225	uPVC	33.64	4.11	25	66	0.56	2.72	43.549	42.167	0.754	2.01	2.46	0.7	0.86	43.694	42.287	4.18	0.6	1.072	
I/04 to 9/01	375	RRJ2	4.45	2.09	25	66	0.24	1.16	41.414	41.32	0.124	2.09	3.24	0.14	0.22	41.648	41.544	2.34	1.1	1.304	
K/01 to I/03	150	uPVC	16.51	1	25	17	0.84	1.04	43.764	43.599	0.05	9.7	9.7	0.23	0.23	44.035	43.705	2	0.6	0.488	
L/01 to L/02	150	uPVC	20.95	4.07	15	20	0.49	1.71	53.367	52.513	0.039	7	7	0.81	0.81	53.447	52.748	3.34	0.6	0.688	
L/02 to L/03	150	uPVC	18.45	4.33	25	34	0.83	2.17	52.474	51.675	0.822	2.29	2.29	0.43	0.43	52.748	51.779	5.25	0.6	0.497	
L/03 to 1/05	375	RRJ2	5.21	3.44	25	34	0.1	1.35	50.853	50.674	0.649	2.09	3.24	0.19	0.3	50.984	50.753	4.44	1.1	1.412	
M/01 to M/02	150	uPVC	18.29	4.85	25	17	0.38	1.91	50.041	49.154	0.824	7	7	0.91	0.91	50.125	49.218	4.96	0.6	0.685	
M/02 to 16/01	375	RRJ2	4.5	2.7	25	17	0.05	1.08	48.33	48.208	0.132	2.09	3.24	0.12	0.19	48.419	48.267	3.38	1.1	1.451	



These plans are referred to in certificate no. **15440** approved by:

Christopher Louis Wahbe

Accredited Certifier

Registration No: BPB 3015

Categories: B1,C1,C2,C3,C4,C6 & C15

Land Development Certificates

www.LDC.com.au

B	DRAINAGE CALCULATIONS UPDATED	DG	NAF	AM	MS	14/08/18	
A	ISSUED FOR CONSTRUCTION APPROVAL	DG	CC	AM	MS	06/07/18	
	AMENDMENT	DES	DRN	CKD	APR	DATE	

J. WYNDHAM PRINCE CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS

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AZIMUTH:
DATUM:
ORIGIN:

CLIENT:



THIS DRAWING MUST NOT BE USED FOR CONSTRUCTION UNLESS SIGNED AS PART OF AN APPROVED CONSTRUCTION CERTIFICATE.

ISSUED FOR CONSTRUCTION APPROVAL

27 KENT ROAD CLAREMONT MEADOWS
LOT, ROAD AND DRAINAGE WORKS
DRAINAGE CALCULATIONS
SHEET 4

PLAN No:	110341/CC44	B
FILE No:	110341CC44	
SHEET SIZE:	A1 ORIGINAL	

PIT	PIT	CATCHMENT	PERCENT	Tc	Tc	CRITICAL	APPROACH	CAPTURED	UNCAPTURED	GRATE	ROAD	ROAD	BYPASS	BYPASS CHANNEL					COMMENTS
NAME	TYPE	AREA	IMPERVIOUS	IMP	PERV	STORM	FLOW	FLOW	FLOW	DEPTH	GRADE	CROSSFALL	PIT	FLOW	U/S FLOW WIDTH	U/S VxD	D/S FLOW WIDTH	D/S VxD	
(-)	(-)	(Ha)	(%)	(min)	(min)	(min)	(L/s)	(L/s)	(L/s)	(mm)	(%)	(%)	(-)	(L/s)	(m)	(m/s^2)	(m)	(m/s^2)	(-)
1/01	1.8 m lintel	BP8/01	0	5	10	15	31	23	8	74	2.4	3	12/01	44	1.62	0.07	1.62	0.07	
1/02	1.8 m lintel	BP7/01	0	5	10	5	6	5	1	63	2.4	3	1/03	25	1.24	0.05	1.24	0.05	
1/03	1.8 m lintel	0.046	95	5	10	5	25	20	5	49	2.7	3	1/04	15	0.77	0.05	1.48	0.03	
1/04	1.8 m lintel	0.019	95	5	10	15	15	12	3	70	3.6	3	1/05	41	1.5	0.07	1.94	0.06	
1/05	1.8 m lintel	0.077	80	5	10	15	41	29	12	84	3.6	3	1/06	78	1.95	0.1	1.95	0.1	
1/06	1.8 m lintel	0.132	80	5	10	15	78	50	28	81	4.2	3	1/07	90	1.86	0.13	3.84	0.08	
1/07	2.4 m lintel sag	0.167	80	5	10	5	141	125	12	140	3.9	3.8	1/08	15	3.82	0.01	8.15		
1/08	2.4 m lintel sag	0.046	95	5	10	5	41	39	0	70	1.5	3.9	1/09	0					
1/09	1.8 m lintel	0.006	95	5	10	15	0	0	0	37	2.6	3	1/10	5	0.43	0.03	2.11	0.01	
1/10	2.4 m lintel	0.01	95	5	10	15	5	4	1	89	2.6	3	EXIST2/01	105	2.12	0.13	6.01	0.12	
1/11	2.4 m lintel	0.033	95	5	10	15	19	16	4	88	2.6	3	EXIST2/01	106	2.12	0.13	6.01	0.12	
1/12	GSIP 900x900 IAD	0.055	80	5	10	15	28	22	6	86			EXIST2/01	94	2.02	0.12	6.01	0.12	
1/13	GSIP 900x900 IAD	0.055	80	5	10	15	28	22	6	84		-4	EXIST2/01	84	1.95	0.11	6.01	0.11	
1/14	2.4 m lintel	0.094	80	5	10	15	107	63	43	93	4.4	3	EXIST2/01	118	2.26	0.13	6.01	0.13	
1/15	2.4 m lintel	0.027	95	5	10	15	17	13	3	82	4.4	3	EXIST2/01	78	1.89	0.11	6.01	0.1	
1/16	GSIP 900x900 IAD	0.055	80	5	10	15	28	22	6	80			EXIST2/01	74	1.82	0.11	6.01	0.1	
1/17	GSIP 900x900 IAD	0.055	80	5	10	15	28	22	6	81		-4	EXIST2/01	72	1.87	0.1	6.01	0.1	
1/18	2.4 m lintel	0.09	80	5	10	15	148	78	69	97	4.3	3	EXIST2/01	124	2.39	0.13	6.01	0.11	
1/19	2.4 m lintel	0.148	80	5	10	15	111	65	46	92	4.3	3	EXIST2/01	105	2.23	0.12	6.01	0.11	
1/20	GSIP 900x900 IAD	0.061	80	5	10	15	31	25	6	83			EXIST2/01	76	1.92	0.1	6.01	0.1	
1/21	1.8 m lintel	0.047	95	5	10	15	64	40	24	74	3.2	3	1/22	52	1.6	0.09	1.6	0.09	
1/22	1.8 m lintel	0.057	95	5	10	15	52	37	15	73	4	3	1/23	46	1.59	0.08	1.59	0.08	CONSTRUCT AS GSIP
1/23	1.8 m lintel	0.063	95	5	10	5	46	31	15	63	2.9	3	1/24	24	1.23	0.05	1.51	0.04	NEW PIT OVER EXISTING LINE
1/24	1.8 m lintel	0.02	95	5	10	15	24	18	6	71	3.7	1.5	1/25	26	1.54	0.05	7.8	0.02	
1/25	3.0 m lintel sag	0.061	95	5	10	15	90	394	543	297	0.7	3	EXIST1/01	0					EXISTING PIT
2/01	1.8 m lintel	0.053	90	5	10	15	38	28	10	78	2.7	3	15/01	54	1.76	0.08	1.76	0.08	
2/02	1.8 m lintel		0	5	10	5	10	8	2	58	2.7	3	2/03	19	1.06	0.05	1.58	0.03	
2/03	1.8 m lintel	0.032	95	5	10	15	19	15	4	73	2.7	3	16/01	54	1.58	0.09	1.98	0.07	
2/04	1.8 m lintel	0.006	95	5	10	5	3	2	1	56	3.7	3	2/05	23	1	0.06	1	0.06	
2/05	1.8 m lintel	0.041	95	5	10	15	23	18	5	45	6	3	2/06	15	0.65	0.05	1.75	0.02	
2/06	1.8 m lintel	0.02	95	5	10	15	15	12	3	78	1.8	3	2/07	43	1.75	0.07	2.3	0.05	
2/07	1.8 m lintel	0.082	80	5	10	15	43	32	12	94	1.8	3	2/08	80	2.3	0.09	2.3	0.09	
2/08	1.8 m lintel	0.138	80	5	10	15	80	50	29	87	1.8	3	2/09	76	2.05	0.1	3.81	0.09	
2/09	GSIP 600x900	0.335	80	5	10	15	222	102	85	139	2.7	3	LOST	217	3.81	0.14	3.81	0.14	EXISTING PIT
2/10	1.8 m lintel	0.072	95	5	10	5	42	31	11	52	2.7	3	2/11	20	0.93	0.06	2.31	0.02	EXISTING PIT
2/11	1.2 m lintel	0.019	95	5	10	15	20	16	4	95	3	3	2/12	113	2.31	0.13	4.48	0.1	EXISTING PIT
2/12	2.4 m lintel	0.219	80	5	10	15	113	-225	348	161	3	3	LOST	347	4.48	0.18	4.48	0.18	EXISTING PIT
3/01	1.8 m lintel	0.084	90	5	10	15	54	37	17	69	7	3	3/04	50	1.45	0.09	5.75	0.07	
3/02	1.8 m lintel	BP3/01	0	5	10	15	17	14	3	63	7	3	3/03	39	1.25	0.08	2.08	0.08	
3/03	2.4 m lintel sag	0.117	95	5	10	15	67	26	102	88	2.7	2.4	3/04	167	8.81	0.03	21.11	0.01	
3/04	2.4 m lintel sag	0.082	90	5	10	15	188	139	0	213	0.5	2.4	3/05	5	0.98	0.01	0.58	0.02	
3/05	1.8 m lintel	0.009	90	5	10	5	5	4	1	42	1.7	3	3/06	6	0.51	0.03	0.97	0.02	
3/06	1.8 m lintel	0.012	90	5	10	25	6	2	10	55	1.7	3	LOST	10	0.97	0.03	0.97	0.03	NEW PIT ON EXISTING STUB
4/01	GSIP 900x900	0.134	80	5	10	15	84	58	27	84	4	3.7	2/09	87	1.94	0.12	3.81	0.11	
4/02	GSIP 900x900	0.024	95	5	10	15	15	12	3	75	3.9	3.7	2/09	60	1.63	0.1	3.81	0.09	
4/03	1.8 m lintel	0.022	95	5	10	15	13	10	3	50	4	3	4/02	15	0.85	0.05	1.63	0.02	
4/04	1.8 m lintel	0.01	95	5	10	15	5	4	1	48	4	3	4/03	13	0.73	0.04	0.82	0.04	
5/01	GSIP 900x900	BP9/01	0	5	10	15	87	59	28	91	4.9	3.9	8/01	130	2.19	0.15	2.18	0.15	
5/02	GSIP 900x900	BP11/01	0	5	10	15	22	17	4	85	4.9	3	8/01	109	2	0.14	2.02	0.14	
5/03	1.8 m lintel	CREST	0	5	10	15	0	0	0	71	0	3	BP11/01	22	1.53	0.04	1.53	0.04	
6/01	CAPPED STUB	10/01	0	5	10	25	0	0	0	0	4.3	2.9	6/02	0					
6/02	1.8 m lintel	10/01	0	5	10	15	258	114	143	110	4.3	3	6/03	206	2.81	0.18	2.81	0.18	CONSTRUCT AS GSIP
6/03	1.8 m lintel	0.136	80	5	10	15	206	99	108	99	4.3	3	1/18	148	2.46	0.15	2.46	0.15	
7/01	CAPPED STUB	0.555	80	5	10	15	281	225	56	92	4.4	-2.1	7/02	125	2.21	0.15	2.21	0.15	
7/02	1.8 m lintel	0.136	80	5	10	15	125	64	61	90	4.4	3	1/14	107	2.14	0.13	2.26	0.12	
8/01	CAPPED STUB	0.419	80	5	10	15	239	191	48	86	2.5	-1.3	8/02	83	2.03	0.11	2.03	0.11	
8/02	1.8 m lintel	0.077	80	5	10	15	83	52	31	73	2.6	3.2	1/07	51	1.58	0.09	3.84	0.03	
9/01	2.4 m lintel	BP2/01	0	5	10	5	66	45	21	65	2.1	3	14/02	25	1.32	0.05	1.32	0.05	
9/02	1.8 m lintel	BP1/01	0	5	10	5	10	8	2	42	2.1	3	9/03	11	0.53	0.04	1.75	0.02	
9/03	1.8 m lintel	0.017	95	5	10	15	11	9	2	78	4	3	9/04	66	1.75	0.1	1.75	0.1	
9/04	1.8 m lintel	0.127	80	5	10	25	66	42	24	72	4.2	3	LOST	24	1.54	0.04	1.54	0.04	EXISTING PIT



DESIGN STORM 1:100yr ARI HYDROLOGIC RESULTS

PIT	PIT	CATCHMENT	PERCENT	Tc	Tc	CRITICAL	APPROACH	CAPTURED	UNCAPTURED	GRATE	ROAD	ROAD	BYPASS	BYPASS CHANNEL					COMMENTS
NAME	TYPE	AREA	IMPERVIOUS	IMP	PERV	STORM	FLOW	FLOW	FLOW	DEPTH	GRADE	CROSSFALL	PIT	FLOW	U/S FLOW WIDTH	U/S VxD	D/S FLOW WIDTH	D/S VxD	
(-)	(-)	(Ha)	(%)	(min)	(min)	(min)	(L/s)	(L/s)	(L/s)	(mm)	(%)	(%)	(-)	(L/s)	(m)	(m/s^2)	(m)	(m/s^2)	(-)
10/01	CAPPED STUB	1.293	80	5	10	15	655	518	132	119		4	10/02	166	3.14	0.25	2.95	0.16	900x400mm OPENING IN WALL
10/02	JP	10/01	0	5	10		166	0	259	114			6/02	258	2.95	0.22	2.95	0.22	TEMPORARY PIT 900mm x 900mm
11/01	2.4 m lintel	0.13	80	5	10	15	66	41	25	91	2.2	-2.4	11/02	88	2.19	0.1	2.33	0.1	FUTURE PIT
11/02	1.8 m lintel	0.126	80	5	10	15	88	43	45	95	1.6	-0.9	11/03	113	2.32	0.12	2.32	0.12	FUTURE PIT
11/03	2.4 m lintel	0.138	80	5	10	15	113	72	42	81	3.2	3	1/21	64	1.85	0.09	1.85	0.09	
12/01	1.8 m lintel	0.072	90	5	10	15	44	32	12	71	2.7	3	2/01	38	1.54	0.07	1.76	0.06	
13/01	1.8 m lintel	0.149	80	5	10	15	75	49	26	91	4.3	3	1/19	111	2.19	0.13	2.23	0.13	
14/01	CAPPED STUB	0.064	80	5	10	15	33	26	7	217			14/02	8	5.86	0.13	0.99		EXISTING HEADWALL
14/02	1.8 m lintel	0.013	95	5	10	25	33	22	11	56	2.1	3.3	LOST	10	0.99	0.03	0.99	0.03	EXISTING PIT
14/03	1.8 m lintel	0.009	95	5	10	5	5	4	1	23	4	3	LOST	1	0.26		0.26		
15/01	1.8 m lintel	0.089	90	5	10	15	54	36	19	70	3.4	3	17/01	46	1.49	0.08	1.49	0.08	
16/01	1.8 m lintel	0.101	80	5	10	15	54	35	18	85	4	3	4/01	84	1.98	0.11	1.98	0.11	
17/01	1.8 m lintel	0.056	90	5	10	15	46	35	12	69	5.8	3	3/01	54	1.46	0.1	1.46	0.1	
18/01	1.8 m lintel	BP4/01	0	5	10	15	26	20	6	75	1.8	3	2/10	42	1.64	0.07	1.64	0.07	
19/01	1.8 m lintel	0.02	95	5	10	5	11	8	2	59	2.7	3.7	1/11	19	1.11	0.05	2.1	0.03	CONSTRUCT AS GSIP
20/01	1.8 m lintel	0.026	95	5	10	15	14	11	3	51	4.4	3	1/15	17	0.89	0.05	1.89	0.02	
21/01	2.4 m lintel	0.225	80	5	10	15	114	58	55	92	3	1.1	LOST	55	2.2	0.06	2.2	0.06	EXISTING PIT
22/01	1.8 m lintel	BP10/01	0	5	10	25	20	16	4	38	1.7	3	LOST	4	0.45	0.02	0.45	0.02	
23/01	1.8 m lintel	BP6/01	0	5	10	5	28	22	6	57	4.2	3	1/08	26	1.03	0.07	1.48	0.07	
24/01	EXISTING HEADWALL	0.569	80	5	10	15	288	230	58	72		-1.9	1/25	61	1.56	0.11	7.8	0.07	EXISTING HEADWALL
25/01	1.8 m lintel	BP12/01	0	5	10	15	9	7	2	68	1.5	3	3/03	28	1.43	0.05	2.08	0.05	
A/01	GSIP 600x600 IAD	0.061	80	5	10	15	31	31	0	0									
A/02	GSIP 600x600 IAD	0.061	80	5	10	15	31	31	0	0									
A/03	GSIP 600x600 IAD	0.061	80	5	10	15	31	31	0	0									
B/01	GSIP 600x600 IAD	0.055	80	5	10	15	28	28	0	0									
B/02	GSIP 900x900 IAD	0.055	80	5	10	15	28	28	0	0									
B/03	1.8 m lintel	0.033	95	5	10	15	18	18	0	0									
B/04	GSIP 900x900 IAD	0.013	80	5	10	15	7	7	0	0									IAD PIT FOR FUTURE LOT
BP1/01	BYPASS NODE	0.019	95	5	10	5	10	0	0	53	0	3	9/02	10	0.95	0.03	0.95	0.03	
BP10/01	BYPASS NODE	0.038	95	5	10	5	20	0	0	63	0.3	3	22/01	20	1.26	0.04	1.26	0.04	
BP11/01	BYPASS NODE	0.041	95	5	10	25	22	0	0	58	0.3	3	5/02	22	1.09	0.05	1.99	0.03	
BP12/01	BYPASS NODE	0.018	95	5	10	5	9	0	0	53	0	3	25/01	9	0.96	0.03	1.42	0.02	
BP2/01	BYPASS NODE	0.131	80	5	10	15	66	0	0	92	0.1	3	9/01	66	2.22	0.08	2.22	0.08	
BP3/01	BYPASS NODE	0.033	95	5	10	15	18	0	0	48		4.1	3/02	17	0.76	0.06	1.25	0.04	
BP4/01	BYPASS NODE	0.05	95	5	10	15	27	0	0	67	1.7	3.7	18/01	26	1.4	0.05	1.64	0.04	
BP5/01	BYPASS NODE	0.018	95	5	10	15	10	0	0	47		2.9	2/02	10	0.69	0.03	1.06	0.02	
BP6/01	BYPASS NODE	0.053	95	5	10	15	29	0	0	63		3.3	23/01	28	1.23	0.06	1.23	0.06	
BP7/01	BYPASS NODE	0.012	95	5	10	5	6	0	0	42	-0.3	3	1/02	6	0.54	0.03	1.24	0.01	
BP8/01	BYPASS NODE	0.062	80	5	10	15	31	0	0	78	-0.2	3	1/01	31	1.74	0.05	1.74	0.05	
BP9/01	BYPASS NODE	0.174	80	5	10	15	88	0	0	87	-0.1	3	5/01	87	2.07	0.11	2.19	0.1	
C/01	GSIP 600x600 IAD	0.055	80	5	10	15	28	28	0	0									
C/02	GSIP 900x900 IAD	0.055	80	5	10	15	28	28	0	0									
C/03	1.8 m lintel	0.029	95	5	10	5	15	15	0	0									
C/04	GSIP 900x900 IAD	0.013	80	5	10	15	7	7	0	0									IAD PIT FOR FUTURE LOT
D/01	GSIP 600x600 IAD	0.058	80	5	10	15	29	29	0	0									
D/02	GSIP 600x600 IAD	0.06	80	5	10	15	30	30	0	0									
D/03	GSIP 900x900 IAD	JUNCTION	0	5	10		0	0	0	0									
E/01	GSIP 900x900 IAD	0.057	80	5	10	15	29	29	0	0									
EXIST2/01	CAPPED STUB	1.766	80	5	10	5	1029	674	168	223		-0.5	EXIST2/02	0	6.01	0.13	0.36	0.02	EXISTING GSIP
F/01	GSIP 600x600 IAD	0.071	80	5	10	15	36	36	0	0									
F/02	GSIP 600x600 IAD	JUNCTION	0	5	10		0	0	0	0									
F/03	GSIP 600x600 IAD	0.055	80	5	10	15	28	28	0	0									
F/04	GSIP 600x900 IAD	0.055	80	5	10	15	28	28	0	0									
F/05	GSIP 900x900 IAD	JUNCTION	0	5	10		0	0	0	0									
G/01	GSIP 600x600 IAD	0.055	80	5	10	15	28	28	0	0									
G/02	GSIP 600x600 IAD	0.055	80	5	10	15	28	28	0	0									
G/03	GSIP 900x900 IAD	JUNCTION	0	5	10		0	0	0	0									
H/01	GSIP 600x600 IAD	0.062	80	5	10	15	31	31	0	0									
H/02	GSIP 600x600 IAD	0.055	80	5	10	15	28	28	0	0									
H/03	GSIP 900x900 IAD	JUNCTION	0	5	10		0	0	0	0									
J/01	GSIP 600x600 IAD	0.056	80	5	10	15	28	28	0	0									
J/02	GSIP 600x600 IAD	0.055	80	5	10	15	28	28	0	0									
J/03	GSIP 900x900 IAD	0.055	80	5	10	15	28	28	0	0									
J/04	GSIP 900x900 IAD	JUNCTION	0	5	10		0	0	0	0									
K/01	GSIP 600x600 IAD	0.056	80	5	10	15	28	28	0	0									
L/01	GSIP 600x600 IAD	0.063	80	5	10	15	32	32	0	0									
L/02	GSIP 600x600 IAD	0.055	80	5	10	15	28	28	0	0									
L/03	GSIP 900x900 IAD	JUNCTION	0	5	10	25	0	0	0	0									
M/01	GSIP 600x600 IAD	0.055	80	5	10	15	28	28	0	0									
M/02	GSIP 900x900 IAD	JUNCTION	0	5	10		0	0	0	0									

- HYDROLOGY NOTES:
1. STORMWATER SYSTEM DESIGNED USING 12D DYNAMIC (LSAX) SYSTEM.
 2. BP LINES ARE DUMMY PITS AND ARE USED TO MORE ACCURATELY DETERMINE APPROACH FLOWS AT UPSTREAM PITS AND SAG LOCATIONS. RESULTS ON THESE DUMMY LINES MAY NOT BE VALID/RELEVANT.



These plans are referred to in certificate no. **15440** approved by:
Christopher Louis Wahbe
Accredited Certifier
Registration No: BPB 3015
Categories: B1,C1,C2,C3,C4,C6 & C15
Land Development Certificates
www.LDC.com.au

B	DRAINAGE CALCULATIONS UPDATED			DG	NAF	AM	MS	14/08/18											
A	ISSUED FOR CONSTRUCTION APPROVAL			DG	CC	AM	MS	06/07/18											
	AMENDMENT			DES	DRN	CKD	APR	DATE											

J. WYNDHAM PRINCE CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS

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AZIMUTH:

DATUM:

ORIGIN:

CLIENT:



THIS DRAWING MUST NOT BE USED FOR CONSTRUCTION UNLESS SIGNED AS PART OF AN APPROVED CONSTRUCTION CERTIFICATE.

ISSUED FOR CONSTRUCTION APPROVAL

27 KENT ROAD CLAREMONT MEADOWS
LOT, ROAD AND DRAINAGE WORKS

DRAINAGE CALCULATIONS
SHEET 6

PLAN No:
110341/CC46

B

FILE No: 110341CC46

SHEET SIZE: A1 ORIGINAL

DESIGN STORM 1:100yr ARI HYDRAULIC RESULTS

PIPE	PIPE	PIPE	PIPE	PIPE	CRITICAL	PEAK	CAPACITY	PEAK	PIPE	PIPE	PIPE	U/S PIT	D/S PIT	PIT LOSS	WSE LOSS	U/S PIPE	D/S PIPE	HGL	MINIMUM	MINIMUM	COMMENTS
NAME	DIAMETER	TYPE	LENGTH	GRADE	STORM	FLOW	RATIO	VELOCITY	U/S IL	D/S IL	D/S DROP	Ku	Kw	(Ku.Vhead)	(Kw.Vhead)	HGL	HGL	GRADE	COVER	FREEBOARD	
(-)	(mm)	(-)	(m)	(%)	(min)	(L/s)	(-)	(m/s)	(m)	(m)	(m)	(-)	(-)	(m)	(m)	(m)	(m)	(%)	(m)	(m)	
1/01 to 1/02	375	RRJ4	8.1	2	15	23	0.08	1	54.035	53.873	2.717	4.5	4.5	0.23	0.23	54.155	53.946	2.58	1.1	1.335	
1/02 to 1/03	375	RRJ2	58.93	1	15	101	0.53	1.31	51.155	50.566	0.05	1.78	2.05	0.15	0.18	51.35	50.995	0.6	2.92	4.1	
1/03 to 1/04	375	RRJ2	14.99	1	15	148	0.78	1.42	50.516	50.366	0.05	1.71	1.91	0.17	0.19	50.995	50.767	1.52	2.35	2.867	
1/04 to 1/05	375	RRJ2	26.12	1	15	156	0.82	1.58	50.316	50.055	0.03	0.96	0.96	0.1	0.1	50.767	50.5	1.02	1.56	2.149	
1/05 to 1/06	375	RRJ2	29.08	1.98	15	228	0.85	2.3	50.025	49.45	0.243	1.77	2.66	0.33	0.38	50.5	49.717	2.69	1.1	1.477	
1/06 to 1/07	450	RRJ2	44.04	5.89	15	334	0.44	2.67	49.207	46.614	0.05	1.96	2.08	0.59	0.62	49.417	48.042	3.12	1.1	1.492	
1/07 to 1/08	600	RRJ4	8	2	25	679	0.72	2.4	46.564	46.404	0.05	1.67	1.86	0.43	0.47	47.84	47.331	6.36	1.1	0.396	
1/08 to 1/09	675	RRJ2	12.62	1	25	713	0.78	2.57	46.354	46.228	0.05	9.7	9.7	0.08	0.08	47.209	47.123	0.68	1.32	1.002	
1/09 to 1/10	675	RRJ2	13.34	1.23	25	712	0.7	1.99	46.178	46.014	0.05	0.57	0.57	0.12	0.12	47.123	46.926	1.48	1.1	1.015	
1/10 to 1/11	675	RRJ4	8	2	25	737	0.57	2.49	45.964	45.804	0.05	2.02	2.49	0.6	0.7	46.926	46.17	9.45	1.18	0.872	
1/11 to 1/12	675	RRJ2	34.04	4.42	20	820	0.43	4.87	45.754	44.248	0.05	9.7	9.7	0.45	0.45	46.081	44.954	3.31	1.28	1.716	
1/12 to 1/13	675	RRJ2	31.03	3.39	25	908	0.54	3.1	44.198	43.146	0.05	9.7	9.66	0.42	0.42	44.954	44.635	1.03	1.13	1.295	
1/13 to 1/14	675	RRJ2	4.66	1	25	920	1.01	2.57	43.096	43.049	0.054	9.67	9.67	0.09	0.09	44.635	44.518	2.51	1.17	0.396	
1/14 to 1/15	675	RRJ4	8	2	25	1172	0.91	3.28	42.995	42.835	0.05	0.77	0.77	0.33	0.33	44.518	44.143	4.69	1.1	0.227	
1/15 to 1/16	675	RRJ2	34.04	2	25	1203	0.93	3.69	42.785	42.104	0.05	0.28	0.28	0.17	0.17	44.143	43.497	1.9	1.44	0.603	
1/16 to 1/17	750	RRJ2	31.03	2.04	25	1253	0.73	3.15	42.054	41.42	0.05	9.7	9.7	0.26	0.26	43.497	43.116	1.23	1.2	0.929	
1/17 to 1/18	750	RRJ2	4.66	1	120	1289	1.07	2.92	41.37	41.323	0.137	0.3	0.3	0.13	0.13	43.116	42.953	3.5	1.16	0.274	
1/18 to 1/19	825	RRJ4	8	2	25	1897	0.86	3.55	41.186	41.026	0.05	0.63	0.63	0.38	0.38	42.953	42.468	6.06	1.1	0.139	
1/19 to 1/20	900	RRJ2	39.02	1	25	1954	1	3.32	40.976	40.586	0.05	9.7	9.7	0.21	0.21	42.468	42.064	1.04	1.3	0.624	
1/20 to 1/21	900	RRJ2	37.31	1	25	2043	1.04	3.21	40.536	40.162	0.05	9.7	9.7	0.14	0.14	42.064	41.52	1.46	2.16	1.59	
1/21 to 1/22	1050	RRJ2	58.35	1	25	2220	0.75	2.91	40.112	39.529	0.03	2.07	2.61	0.85	1.03	41.52	40.208	2.25	1.34	2.74	
1/22 to 1/23	1050	RRJ2	62.16	2.49	25	2253	0.48	4.69	39.499	37.952	0.161	0.28	0.28	0.31	0.31	40.013	39.728	0.46	0.92	1.932	
1/23 to 1/24	1050	RRJ2	13.54	1	25	1745	0.59	2.09	37.791	37.655	0.05	0.65	0.65	0.14	0.14	39.728	39.568	1.18	0.86	0.231	
1/24 to 1/25	(2x)750	RRJ2	56.32	0.7	25	1762	0.87	1.99	37.605	37.211	0.05	0.64	0.64	0.13	0.13	39.568	39.137	0.77	0.67	0.009	
1/25 to EXIST2/02	(2x)750	RRJ2	18.74	0.7	10	1013	0.5	1.15	37.161	37.03	0.021	3.96	3.96	0.23	0.23	39.137	38.907	1.23	0.81	-0.297	
2/01 to 2/02	375	RRJ4	10.4	2	15	28	0.11	1.09	51.42	51.212	0.05	4.5	4.5	0.27	0.27	51.551	51.294	2.47	1.1	1.345	
2/02 to 2/03	375	RRJ2	40.8	2.5	15	36	0.12	1.76	51.162	50.14	0.065	7	7	0.26	0.26	51.253	50.228	2.51	1.1	1.464	
2/03 to 2/04	375	RRJ4	27.54	2.87	15	50	0.16	2	50.075	49.285	3.417	7	7	0.33	0.33	50.183	49.385	2.9	1.1	1.434	
2/04 to 2/05	450	RRJ2	54.78	1	25	253	0.82	1.66	45.869	45.321	0.05	1.56	1.69	0.22	0.24	47.345	46.84	0.92	2.33	3.406	
2/05 to 2/06	450	RRJ2	14.92	1.08	10	298	0.93	1.94	45.271	45.11	0.05	1.36	1.45	0.25	0.26	46.84	46.535	2.04	1.36	1.226	
2/06 to 2/07	450	RRJ2	26.61	1.32	25	301	0.85	2.07	45.06	44.71	0.045	0.77	0.77	0.16	0.16	46.535	46.174	1.36	1.1	0.233	
2/07 to 2/08	450	RRJ2	34.45	1.71	5	368	0.91	2.48	44.665	44.075	0.033	1.81	2.22	0.25	0.26	46.174	45.582	1.72	1.1	0.105	
2/08 to 2/09	450	RRJ2	84.7	2.41	20	460	0.96	2.9	44.042	42	0.05	2.31	2.31	0.31	0.31	45.582	43.503	2.45	0.9	0.101	
2/09 to 2/10	450	RRJ2	8.27	3.14	20	431	0.79	2.71	41.95	41.69	0.04	9.7	1.72	0.55	0.6	43.503	42.899	7.3	0.96	-0.139	EXISTING PIPE
2/10 to 2/11	450	RRJ2	14.07	2.99	10	442	0.83	3.04	41.65	41.23	0.03	0.71	0.71	0.27	0.27	42.899	42.403	3.53	1.04	0.664	EXISTING PIPE
2/11 to 2/12	450	RRJ2	56.01	4.82	25	449	0.66	2.82	41.2	38.5	0.05	0.7	0.7	0.28	0.28	42.403	40.944	2.6	0.9	0.287	EXISTING PIPE
3/01 to 3/02	375	RRJ4	11.31	3.87	15	37	0.1	1.53	43.087	42.65	0.05	4.5	4.5	0.54	0.54	43.21	42.729	4.25	1.1	1.394	
3/02 to 3/03	375	RRJ4	26.39	4.76	15	50	0.12	0.7	42.6	41.343	0.022	1.77	1.78	0.04	0.04	42.688	42.456	0.88	0.62	1.36	
3/03 to 3/04	375	RRJ4	9.89	1	5	76	0.4	0.69	41.321	41.222	0.05	1.51	1.53	0.04	0.04	42.456	42.455	0.01	0.68	-0.088	
3/04 to 3/05	375	RRJ4	17.61	1	20	115	0.61	1.04	41.172	40.996	0.05	2.77	2.77	0.14	0.14	42.455	42.249	1.17	0.75	-0.213	
3/05 to 3/06	375	RRJ2	13.63	1	20	123	0.65	1.12	40.946	40.81	0	0.55	0.55	0.04	0.04	42.249	42.157	0.67	0.9	0.086	
4/01 to 4/02	375	RRJ4	8	1	15	133	0.7	1.24	46.878	46.798	0.05	2.05	2.05	0.16	0.16	48.244	48.137	1.34	1.08	0.103	
4/02 to 4/03	375	RRJ2	29.95	1	15	139	0.73	1.27	46.748	46.449	0.03	2.13	2.65	0.17	0.22	48.137	47.912	0.75	1.21	0.212	
4/03 to 4/04	375	RRJ2	27.7	1	5	194	1.02	1.81	46.419	46.142	0.05	1.24	1.31	0.18	0.19	47.912	47.553	1.3	2.76	1.625	
4/04 to 2/04	375	RRJ2	17.29	1	5	189	0.99	1.75	46.092	45.919	0.05	9.7	9.7	0.1	0.1	47.553	47.345	1.2	4.34	3.084	
5/01 to 5/02	375	RRJ4	12.65	1	15	59	0.31	1.01	52.119	51.992	0.05	4.5	4.5	0.23	0.23	52.368	52.136	1.83	1	1.111	
5/02 to 5/03	375	RRJ2	54.4	1	15	75	0.4	1.51	51.942	51.398	0.05	1.6	1.6	0.17	0.17	52.125	51.562	1.03	1.64	1.836	
5/03 to 1/02	375	RRJ2	14.32	1	15	74	0.39	1.44	51.348	51.205	0.05	0.52	0.52	0.05	0.05	51.541	51.368	1.21	4.03	4.172	
6/01 to 6/02	450	RRJ2	1.83	1	25	-19	-0.06	0.31	44.379	44.361	0.03	2.04	2.58	0.01	0.01	46.069	46.066	0.16	1.43	0.446	FOR FUTURE CONNECTION
6/02 to 6/03	450	RRJ2	34.43	3.97	120	544	0.88	3.46	44.331	42.964	0.117	2.07	2.55	0.97	1.17	46.066	44.604	4.25	1.1	0.002	
6/03 to 1/18	450	RRJ4	33.06	3.88	25	605	0.99	3.8	42.847	41.566	0.38	0.77	0.77	0.48	0.48	44.604	42.953	4.99	1.1	-0.099	
7/01 to 7/02	375	RRJ2	36.27	4.92	15	226	0.54	2.84	46.291	44.505	0.03	7	7	1.98	1.98	46.542	45.293	3.44	1.1	1.513	
7/02 to 1/14	375	RRJ2	33.05	3.55	5	277	0.77	2.97	44.475	43.303	0.308	1.39	1.39	0.56	0.56	45.293	44.518	2.34	1.1	0.907	
8/01 to 8/02	375	RRJ2	29.83	3.32	15	188	0.54	1.71	48.065	47.075	0.05	7	7	1.03	1.03	49.056	48.447	2.04	1.1	0.788	
8/02 to 1/07	375	RRJ2	12.76	1	20	227	1.2	2.06	47.025	46.898	0.334	1.52	1.53	0.24	0.24	48.447	48.042	3.17	1.12	0.359	
9/01 to 9/02	375	RRJ4	8.43	2	25	144	0.53	1.59	41.197	41.028	0.05	4.5	4.5	0.58	0.58	41.801	41.223	6.86	1.1	0.826	
9/02 to 9/03	375	RRJ2	14.73	3.28	15	167	0.49	2.47	40.978	40.496	0.322	1.2	1.27	0.35	0.37	41.22	40.805	2.82	1.14	1.462	
9/03 to 9/04	450	RRJ2	23.3	2.89	25	205	0.63	1.85	40.173	39.5	0.07	1.42	1.51	0.22	0.23	40.805	40.317	2.09	0.99	1.028	
9/04 to 9/05	450	RRJ2	31.07	4.02	25	2															

DESIGN STORM 1:100yr ARI HYDRAULIC RESULTS

PIPE	PIPE	PIPE	PIPE	PIPE	CRITICAL	PEAK	CAPACITY	PEAK	PIPE	PIPE	PIPE	U/S PIT	D/S PIT	PIT LOSS	WSE LOSS	U/S PIPE	D/S PIPE	HGL	MINIMUM	MINIMUM	COMMENTS
NAME	DIAME TER	TYPE	LENGTH	GRADE	STORM	FLOW	RATIO	VELOCITY	U/S IL	D/S IL	D/S DROP	Ku	Kw	(Ku.V/head)	(Kw.V/head)	HGL	HGL	GRADE	COVER	FREEBOARD	
(-)	(mm)	(-)	(m)	(%)	(min)	(L/s)	(-)	(m/s)	(m)	(m)	(m)	(-)	(-)	(m)	(m)	(m)	(m)	(%)	(m)	(m)	
10/01 to 10/02	900x400	Box Culvert	0.8	1	20	537	0.67	2.19	46.08	46.072	1.17	0	0	0	0	46.622	46.622	0		-0.079	900x400mm OPENING IN WALL
10/02 to 6/02	450	RRJ2	10.38	4.26	20	494	0.77	3.11	44.902	44.459	0.128	1.73	1.93	0.75	0.95	46.622	46.066	5.36	1.1	-0.114	TEMPORARY LINE
11/01 to 11/02	375	RRJ2	28.69	2.43	15	40	0.14	1.58	46.561	45.864	0.113	4.5	4.5	0.57	0.57	46.679	45.957	2.52	1.1	1.437	FUTURE PIPE
11/02 to 11/03	375	RRJ2	49.61	3.07	15	83	0.25	2.24	45.751	44.231	0.056	7	7	0.67	0.67	45.881	44.387	3.01	1.1	1.478	FUTURE PIPE
11/03 to 1/21	375	RRJ2	46.72	2.97	15	153	0.47	2.62	44.175	42.787	2.675	2.01	2.01	0.69	0.69	44.387	42.968	3.04	1.1	1.346	
12/01 to 1/03	375	RRJ4	9.32	2	15	32	0.12	1.09	52.522	52.336	1.82	4.5	4.5	0.27	0.27	52.667	52.423	2.62	1.1	1.324	
13/01 to 6/03	375	RRJ4	8	2	25	75	0.28	0.76	43.057	42.897	0.05	4.5	4.5	0.13	0.13	44.595	44.604	-0.11	1.1	-0.091	
14/01 to 14/02	450	RRJ2	7.7	8.06	15	26	0.03	1.59	41.73	41.11	0.14	9.7	9.7	1.24	1.24	41.826	41.163	8.62		0.279	EXISTING PIPE
14/02 to 14/03	450	RRJ4	19.84	2.67	25	48	0.09	1.72	40.97	40.44	0.137	3.34	3.34	0.3	0.3	41.068	40.815	1.28	0.89	1.198	
14/03 to 9/03	450	RRJ4	8	1	25	54	0.17	0.85	40.303	40.223	0.05	9.65	2.38	0.07	0.09	40.815	40.805	0.12	1.1	1.017	
15/01 to 2/04	375	RRJ4	10.43	2	15	36	0.13	1.14	49.507	49.298	3.43	4.5	4.5	0.3	0.3	49.659	49.391	2.57	1.1	1.33	
16/01 to 4/03	375	RRJ4	8.01	2	15	63	0.24	1.29	48.076	47.916	1.497	3.91	3.91	0.27	0.27	48.295	48.04	3.18	1.1	1.226	
17/01 to 2/05	375	RRJ4	9.48	2.39	15	37	0.13	1.18	46.879	46.652	1.381	4.5	4.5	0.32	0.32	47.316	47.302	0.15	1.1	1.054	
18/01 to 2/08	375	RRJ4	10.59	2	20	-38	-0.14	0.69	44.304	44.092	0.05	4.5	4.5	0.11	0.11	45.179	45.174	0.05	1.1	0.595	
19/01 to 8/02	375	RRJ4	8.7	2	25	34	0.12	0.76	47.413	47.239	0.214	4.5	4.5	0.13	0.13	48.449	48.447	0.02	1.1	0.445	
20/01 to 7/02	375	RRJ4	8	1	15	26	0.14	0.69	44.753	44.673	0.198	4.5	4.5	0.11	0.11	45.296	45.293	0.04	1.1	0.904	
21/01 to 21/02	450	RRJ2	57.31	2.5	20	588	1.21	3.7	36.03	34.6		0.77	0.77	0.33	0.33	37.431	35.05	4.15	0.91	0.127	EXISTING PIPE
22/01 to 3/06	375	RRJ4	10.52	2	15	16	0.06	0.14	41.05	40.839	0.029	4.5	4.5	0	0	42.162	42.157	0.05	0.8	0.058	
23/01 to 1/06	375	RRJ4	8.14	2	15	21	0.08	0.99	49.515	49.353	0.146	4.5	4.5	0.23	0.23	49.631	49.424	2.54	1.1	1.341	
24/01 to 1/25	600	RRJ2	9.37	6.4	20	232	0.14	1.72	38.2	37.6	0.439	9.7	9.7	1.45	1.45	39.343	39.137	2.2	0.58	0.08	EXISTING PIPE
25/01 to 3/05	375	RRJ4	25.35	1.44	5	9	0.04	0.08	41.244	40.879	-0.067	4.74	4.74	0	0	42.249	42.249	0	1.1	0.481	
A/01 to A/02	150	uPVC	17.72	3.29	15	29	0.8	1.62	45.177	44.594	0.035	7	7	0.61	0.61	45.946	45.33	3.48	0.6	-0.002	
A/02 to A/03	150	uPVC	17.72	3.83	5	45	1.16	2.54	44.559	43.879	0.113	3.6	3.6	0.5	0.5	45.33	44.029	7.34	0.6	-0.002	
A/03 to 1/20	225	uPVC	17.57	5.15	15	74	0.56	3.26	43.766	42.862	2.326	7	7	0.49	0.49	43.918	42.982	5.33	0.6	0.694	
B/01 to B/02	150	uPVC	17.57	3.61	15	27	0.72	1.76	45.704	45.068	0.915	7	7	0.67	0.67	45.958	45.163	4.52	0.6	0.514	
B/02 to B/03	375	RRJ4	13.51	4.01	25	55	0.14	1.38	44.153	43.611	0.03	3.5	4.02	0.35	0.41	44.249	43.949	2.22	1.1	1.548	
B/03 to B/04	375	RRJ2	4.21	1	15	69	0.36	0.92	43.581	43.539	0.03	9.7	9.7	0.09	0.09	43.949	43.92	0.69	1.28	1.22	
B/04 to 1/16	225	uPVC	17.57	1	15	75	1.29	1.9	43.509	43.333	1.279	6.95	6.95	0.09	0.09	43.92	43.545	2.13	0.89	1.299	
C/01 to C/02	150	uPVC	17.57	2.37	15	27	0.89	1.67	47.617	47.2	0.899	7	7	0.44	0.44	48.004	47.31	3.95	0.6	0.376	
C/02 to C/03	375	RRJ4	13.51	4.01	25	55	0.14	1.38	46.301	45.759	0.03	3.84	4.31	0.36	0.41	46.397	46.058	2.51	1.1	1.54	
C/03 to C/04	375	RRJ2	4.21	1	15	67	0.35	0.95	45.729	45.687	0.03	9.7	9.7	0.08	0.08	46.058	46.032	0.62	1.28	1.258	
C/04 to 1/12	225	uPVC	17.57	1.11	15	73	1.19	1.86	45.657	45.461	1.264	7	7	0.1	0.1	46.032	45.672	2.05	0.6	1.334	
D/01 to D/02	150	uPVC	15.68	4.04	15	28	0.71	1.64	52.516	51.882	0.084	9.7	9.7	0.81	0.81	53.196	52.617	3.69	0.6	0.091	
D/02 to D/03	150	uPVC	34.92	3.79	5	42	1.09	2.38	51.798	50.473	0.762	3.77	4.02	0.59	0.63	52.617	50.623	5.71	0.6	-0.002	
D/03 to 1/06	375	RRJ2	4.47	2.6	5	42	0.14	1.24	49.711	49.595	0.388	2.09	3.24	0.16	0.25	49.877	49.689	4.21	1.1	1.37	
E/01 to 1/10	375	RRJ2	4.54	1.81	15	31	0.12	0.75	46.564	46.482	0.518	9.7	9.7	0.27	0.27	46.946	46.926	0.44	1.1	1.17	
EXIST2/01 to EXIST2/02	750	RRJ2	8.92	2.15	5	663	0.37	1.5	37.2	37.009	0	5.58	5.58	0.46	0.46	38.995	38.907	0.99	1.32	-0.195	EXISTING PIPE
F/01 to F/02	150	uPVC	3.82	3.43	15	35	0.96	2.12	50.877	50.746	0.149	2.09	2.09	0.43	0.43	51.441	50.864	15.1	0.6	0.207	
F/02 to F/03	225	uPVC	16.51	3.59	15	35	0.32	1.64	50.597	50.005	0.03	2.09	2.96	0.29	0.41	50.684	50.219	2.82	0.6	0.793	
F/03 to F/04	225	uPVC	16.36	2.64	15	62	0.65	1.86	49.975	49.543	0.134	9.7	9.7	0.44	0.44	50.219	49.675	3.33	0.6	0.633	
F/04 to F/05	225	uPVC	33.19	5.07	25	102	0.78	3.09	49.409	47.726	0.611	2.01	2.43	0.84	1.03	49.578	48.275	3.93	0.6	0.778	
F/05 to 4/01	375	RRJ2	5.25	3.56	25	86	0.24	1.29	47.115	46.928	0.05	2.09	3.24	0.18	0.27	48.275	48.244	0.59	1.1	0.356	
G/01 to G/02	150	uPVC	17.22	2.26	5	24	0.8	1.37	47.415	47.025	0.112	9.7	9.7	0.47	0.47	48.179	47.751	2.48	0.6	-0.002	
G/02 to G/03	150	uPVC	32.03	4.94	15	47	1.06	2.63	46.913	45.33	0.804	3.62	3.88	0.7	0.75	47.751	45.48	7.09	0.6	-0.002	
G/03 to 2/08	375	RRJ2	4.5	2.8	20	51	0.16	1.28	44.526	44.4	0.358	2.09	3.24	0.18	0.27	45.192	45.174	0.4	1.1	0.815	
H/01 to H/02	150	uPVC	19.15	5.73	15	30	0.64	2.17	48.265	47.168	0.054	7	7	1.08	1.08	48.66	47.895	4	0.6	0.384	
H/02 to H/03	150	uPVC	18.71	6.37	15	52	1.04	2.97	47.114	45.922	0.845	6.91	6.91	0.63	0.63	47.895	46.287	8.59	0.6	-0.002	
H/03 to 2/07	375	RRJ2	4.5	2.52	15	49	0.16	1.24	45.077	44.963	0.216	2.09	3.24	0.16	0.25	46.287	46.275	0.27	1.1	0.333	
J/01 to J/02	150	uPVC	15.62	5.01	25	29	0.65	1.9	45.076	44.294	0.106	7	7	0.88	0.88	45.2	44.525	4.32	0.6	0.652	
J/02 to J/03	225	uPVC	16.2	1.48	15	58	0.82	1.57	44.188	43.948	0.399	3	3.48	0.25	0.29	44.525	44.16	2.25	0.6	0.497	
J/03 to J/04	225	uPVC	33.64	4.11	15	103	0.87	2.83	43.549	42.167	0.754	2	2.45	0.7	0.86	44.16	42.33	5.44	0.6	0.606	
J/04 to 9/01	375	RRJ2	4.45	2.09	25	103	0.37	1.21	41.414	41.32	0.124	2.09	3.24	0.16	0.24	41.899	41.801	2.2	1.1	1.053	
K/01 to J/03	150	uPVC	16.51	1	25	26	1.29	1.45	43.764	43.599	0.05	9.7	9.7	0.23	0.23	44.525	44.16	2.21	0.6	-0.002	
L/01 to L/02	150	uPVC	20.95	4.07	15	31	0.77	1.75	53.367	52.513	0.039	7	7	0.81	0.81	54.045	53.248	3.8	0.6	0.09	
L/02 to L/03	150	uPVC	18.45	4.33	25	47	1.13	2.63	52.474	51.675	0.822	2.86	2.86	0.5	0.5	53.248	51.825	7.71	0.6	-0.002	
L/03 to 1/05	375	RRJ2	5.21	3.44	25	47	0.13	1.41	50.853	50.674	0.649	2.09	3.24	0.21	0.33	51.015	50.766	4.78	1.1	1.381	
M/01 to M/02	150	uPVC	18.29	4.85	15	28	0.64	2.04	50.041	49.154	0.824	7	7	0.91	0.91	50.172	49.241	5.09	0.6	0.638	
M/02 to 16/01	375	RRJ2	4.5	2.7	15	28	0.09	1.14	48.33	48.208	0.132	2.09	3.24	0.14	0.22	48.451	48.295	3.47	1.1	1.419	



These plans are referred to in certificate no. **15440** approved by:

Christopher Louis Wahbe
Accredited Certifier

Registration No: BPB 3015
Categories: B1,C1,C2,C3,C4,C6 & C15

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LEGEND

STRAW BALES

FILTER ROLLS (AT KERB INLET PIT)

SURFACE INLET SEDIMENT TRAP

TEMPORARY CATCHDRAIN

SEDIMENT FENCE

TOPSOIL STOCKPILE / BUND

STABILISED SITE ACCESS

LIMIT OF WORKS



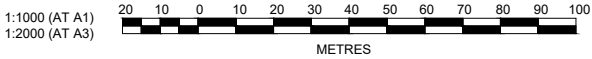
△ PROVIDE EMERGENCY OVERLAND FLOW BUND TO BOUNDARY. REFER TO 110341CC51 FOR DETAILS.

TEMPORARY SEDIMENT BASIN 2. REFER TO 110341CC51 FOR DETAILS.

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C	OVERLAND FLOW BUND ADDED	DG	DG	AM	MS	27/09/18			
B	EMERGENCY O/LAND FLOW PATHS, CATCH DRAIN & SED FENCE ADDED	DG	DG	AM	MS	14/08/18			
A	ISSUED FOR CONSTRUCTION APPROVAL	DG	CC	AM	MS	06/07/18			
	AMENDMENT	DES	DRN	CKD	APR	DATE			

J. WYNDHAM PRINCE

CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS

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AZIMUTH:
DATUM:
ORIGIN:

CLIENT:

THIS DRAWING MUST NOT BE USED FOR CONSTRUCTION UNLESS SIGNED AS PART OF AN APPROVED CONSTRUCTION CERTIFICATE.

ISSUED FOR CONSTRUCTION APPROVAL

27 KENT ROAD CLAREMONT MEADOWS
LOT, ROAD AND DRAINAGE WORKS
SOIL AND WATER MANAGEMENT PLAN

PLAN No: 110341/CC49 **C**
FILE No: 110341CC49
SHEET SIZE: A1 ORIGINAL

SOIL AND WATER MANAGEMENT NOTES

GENERAL NOTES:

1. ALL EROSION AND SEDIMENT CONTROL MEASURES, INCLUDING REVEGETATION AND STORAGE OF SOIL AND TOPSOIL, SHALL BE IMPLEMENTED TO THE REQUIREMENTS OF THE " SOILS AND CONSTRUCTION - VOLUME 1, 4TH EDITION, MARCH 2004 ".
2. TOPSOIL FROM ALL AREAS TO BE DISTURBED SHALL BE STOCKPILED AND LATER RESPREAD TO AID REVEGETATION IN THOSE AREAS.
3. ALL DRAINAGE WORKS SHALL BE CONSTRUCTED AND STABILISED AS EARLY AS POSSIBLE DURING DEVELOPMENT.
4. ALL TAIL-OUT DRAINS SHALL BE COUCH GRASSED AND TRAPEZOIDAL IN SECTION. STRAW BALES SHALL BE PLACED AS A SEDIMENT CONTROL DEVICE WHERE REQUIRED.
5. VEHICULAR TRAFFIC SHALL BE CONTROLLED DURING DEVELOPMENT CONFINING ACCESS WHERE POSSIBLE TO PROPOSED OR EXISTING ROAD ALIGNMENTS. AREAS TO BE LEFT UNDISTURBED SHALL BE MARKED OFF.
6. ROADS SHALL BE PAVED AS EARLY AS POSSIBLE AFTER FORMATION.
7. DISTURBANCE OF VEGETATION SHALL BE LIMITED TO FILL AREAS, ROADWAYS AND DRAINAGE LINES. NO LOT GRADING SHALL BE CARRIED OUT IN UNDISTURBED AREAS WITHOUT CONSULTATION WITH COUNCIL'S ENGINEER.
8. ALL DISTURBED AREAS SHALL BE REVEGETATED AS SOON AS THE RELEVANT WORKS ARE COMPLETED.
9. ALL SEDIMENT BASINS AND TRAPS SHALL BE CLEANED WHEN THE STRUCTURES ARE A MAXIMUM 60% FULL OF SOLID MATERIALS, INCLUDING DURING THE MAINTENANCE PERIOD.
10. THE SOIL AND WATER MANAGEMENT PLAN IS TO BE READ IN CONJUNCTION WITH THE ENGINEERING PLANS, AND COUNCIL'S WRITTEN GUIDELINES FOR THE DEVELOPMENT OF LAND.
11. CONTRACTORS SHALL ENSURE THAT ALL SOIL AND WATER MANAGEMENT WORKS ARE UNDERTAKEN AS SPECIFIED ON THE PLAN AND IN ACCORDANCE WITH THE GUIDELINES SHOWN IN "MANAGING URBAN STORMWATER - SOILS AND CONSTRUCTION 4TH EDITION" ("THE BLUE BOOK").
12. ALL CONTRACTORS AND SUBCONTRACTORS ARE RESPONSIBLE FOR REDUCING THE SOIL EROSION AND POLLUTION OF DOWNSLOPE AREAS.
13. THE SOIL EROSION HAZARD ON THE SITE IS TO BE KEPT AS LOW AS POSSIBLE AND GENERALLY IN ACCORDANCE WITH THE FOLLOWING SCHEDULE:

LAND USE	LIMITATION	COMMENTS
CONSTRUCTION AREAS	DISTURBANCE TO BE NO FURTHER THAN 5m (PREF 2m) FROM THE EDGE OF ANY ESSENTIAL ENGINEERING ACTIVITY AS SHOWN ON THESE PLANS	ALL SITE WORKERS WILL CLEARLY RECOGNISE THESE ZONES - WHERE APPROPRIATE THE CONSTRUCTION AREAS ARE TO BE IDENTIFIED WITH BARRIER FENCING (DOWNSLOPE) OR SIMILAR MATERIAL.
ACCESS AREAS	LIMITED TO A MAXIMUM WIDTH OF 10m	THE SITE MANAGER SHALL DETERMINE AND MARK THE LOCATION OF THESE ZONES ONSITE. THEY CAN VARY IN POSITION TO BEST CONSERVE THE EXISTING VEGETATION AND PROTECT DOWNSTREAM AREAS WHILE BEING CONSIDERATE OF THE NEEDS OF EFFICIENT WORKS ACTIVITIES. ALL SITE WORKERS SHALL CLEARLY RECOGNISE THEIR BOUNDARIES. WHERE APPROPRIATE THE ACCESS AREAS ARE TO BE MARKED WITH BARRIER MESH, SEDIMENT FENCING OR SIMILAR MATERIALS.
REMAINING LANDS	ENTRY PROHIBITED EXCEPT FOR ESSENTIAL THINNING OF PLANT GROWTH	THINNING OF GROWTH MAY BE REQUIRED FOR FIRE HAZARD REDUCTION.

NOTE:
WORKS WITHIN WATERWAYS AND CREEKS SHALL BE RESTRICTED AS DIRECTED - ALL LANDS WITHIN CREEKS AND WATERWAYS SHALL HAVE A GROUNDCOVER MORE THAN 70%, USING MATERIALS THAT CAN CATER FOR CONCENTRATED FLOWS.

14. WORKS ARE TO BE UNDERTAKEN IN THE FOLLOWING SEQUENCE. EACH SUBSEQUENT STAGE IS NOT TO COMMENCE UNTIL THE PREVIOUS ONE IS COMPLETE:-
- a. INSTALL ALL BARRIER AND SEDIMENT FENCING WHERE SHOWN ON THE PLAN AND TO DETAIL(SD) 6-8.

b. CONSTRUCT STABILISED SITE ACCESS AS SHOWN ON THE PLAN AND TO DETAIL (SD) 6-14.

c. CONSTRUCT LOW FLOW EARTH BANKS WHERE SHOWN ON THE PLAN AND TO DETAIL (SD) 5-5.

d. PROVIDE TEMP. ACCESS TO THE SEDIMENT BASIN(S)AND PROTECT THIS WITH SEDIMENT FENCING (SD) 6-8 OR BARRIER FENCING AND EARTH BANKS (SD) 5-5.

e. PLACE SEDIMENT FENCING (SD) 6-8 DOWNSLOPE OF LANDS TO BE DISTURBED FOR CONSTRUCTION OF THE SEDIMENT BASINS.

f. CONSTRUCT SEDIMENT BASIN(S) GENERALLY IN ACCORDANCE WITH (SD) 6-4

g. STABILISE LAND SURFACES DISTURBED BY CONSTRUCTION OF THE SEDIMENT BASIN(S) AS SOON AS FINAL LEVELS ARE ESTABLISHED

h. CLEAR THE SITE AND STRIP AND STOCKPILE THE TOPSOIL IN THE LOCATIONS SHOWN ON THE PLAN OR AS DIRECTED BY THE SITE SUPERINTENDENT TO DETAIL (SD) 4-1.

i. UNDERTAKE ALL ESSENTIAL CONSTRUCTION WORKS.

j. GRADE LOT AREAS TO FINAL GRADES AND APPLY PERMANENT STABILISATION (LANDSCAPING) WITHIN 14 DAYS OF COMPLETION OF CONSTRUCTION WORKS.

k. REMOVE TEMPORARY EROSION CONTROL MEASURES AFTER THE PERMANENT LANDSCAPING HAS BEEN COMPLETED.
15. CLEARLY VISIBLE BARRIER FENCING SHALL BE INSTALLED WHERE DIRECTED BY THE SITE SUPERINTENDENT TO CONTROL AND PROHIBIT UNNECESSARY SITE DISTURBANCE
16. EARTH BATTERS SHALL BE CONSTRUCTED WITH AS LOW A GRADIENT AS PRACTICABLE BUT NO STEEPER THAN:-
- a. 2(h) - 1(v) WHERE SLOPE LENGTH IS LESS THAN 7m

b. 2.5(h) - 1(v) WHERE SLOPE LENGTH IS BETWEEN 7m AND 10m

c. 3(h) - 1(v) WHERE SLOPE LENGTH IS BETWEEN 10m AND 12m

d. 4(h) - 1(v) WHERE SLOPE LENGTH IS BETWEEN 12m AND 18m

e. 5(h) - 1(v) WHERE SLOPE LENGTH IS BETWEEN 18m AND 27m

f. 6(h) - 1(v) WHERE SLOPE LENGTH IS GREATER THAN 27m

SLOPE LENGTHS CAN BE SHORTENED BY USING LOW FLOW EARTH BANKS AS CATCH DRAINS ABOVE THE EARTH BATTER AREA.

17. PROTECTION FROM EROSION FORCES SHALL BE UNDERTAKEN ON ALL LANDS. GROUND COVER TO BE IN PLACE WITHIN 10 WORKING DAYS FROM COMPLETION OF FORMATION AND BEFORE THEY ARE ALLOWED TO CARRY ANY CONCENTRATED FLOWS.
18. TEMPORARY GROUND COVER SHOULD BE MINIMUM 70%. FOOT AND VEHICULAR TRAFFIC SHALL BE KEPT AWAY FROM REHABILITATED AREAS.
19. WHERE POSSIBLE THE CONSTRUCTION PROGRAM IS TO SCHEDULE WORKS SUCH THAT LAND DISTURBANCE ACTIVITIES ARE COMPLETED IN LESS THAN 6 MONTHS. REVEGETATION WORKS MUST BE CARRIED OUT AS STIPULATED IN THE RELEVANT COUNCIL GUIDELINES / SPECIFICATIONS SUCH THAT A SATISFACTORY GROUND COVER IS PROVIDED TO AT LEAST 60% OF THE DISTURBED AREA WITHIN 10 DAYS AND AT LEAST 70% OF THE DISTURBED AREA WITHIN A FURTHER 60 DAYS..
20. SEDIMENT FENCES (SD) 6-8 SHALL:-
- a. BE INSTALLED WHERE SHOWN ON THE PLAN AND AS DIRECTED AT THE DISCRETION OF THE SITE SUPERINTENDENT DURING THE COURSE OF CONSTRUCTION TO CONTAIN THE COARSER SEDIMENT FRACTIONS AS NEAR AS POSSIBLE TO THEIR SOURCE.

b. HAVE A CATCHMENT AREA NOT EXCEEDING 720sq.m, AND A STORAGE DEPTH OF AT LEAST 0.6m.

c. PROVIDE AN UPSLOPE RETURN OF 1m AT INTERVALS ALONG THE FENCE WHERE THE CATCHMENT AREA EXCEEDS 720sq.m. TO LIMIT THE DISCHARGE REACHING EACH SECTION TO 50litres/sec IN A MAX. 10yr Tc DISCHARGE.
21. STOCKPILES (SD) 4-1 SHALL BE LOCATED AS SHOWN ON THE PLANS AND AT THE DISCRETION OF THE SITE SUPERINTENDENT.
22. DURING WINDY WEATHER LARGE UNPROTECTED AREAS ARE TO BE KEPT MOIST (NOT WET) BY SPRINKLING WITH WATER TO KEEP DUST UNDER CONTROL. IN THE EVENT WATER IS NOT AVAILABLE IN SUFFICIENT QUANTITIES SOIL BINDERS AND/OR DUST RETARDANTS SHALL BE USED OR THE SURFACE SHALL BE LEFT IN A CLODDY STATE THAT RESISTS REMOVAL BY WIND.
23. STOCKPILES SHALL NOT BE LOCATED WITHIN 5m OF HAZARD AREAS, INCLUDING LIKELY AREAS OF HIGH VELOCITY FLOWS SUCH AS WATERWAYS, PAVED AREAS OR DRIVEWAYS.
24. THE SEDIMENT RETENTION BASINS (SD) 6-4 SHALL:-
- a. BE CONSTRUCTED WHERE SHOWN ON THE PLANS.

b. BE FLOCCULATED (APPENDIX E MANAGING URBAN STORMWATER SOILS & CONSTRUCTION 4TH ED.) BEFORE DISCHARGE OCCURS (UNLESS THE DESIGN STORM EVENT IS EXCEEDED)

c. HAVE ONE OR MORE PEGS PLACED ON THE FLOOR TO CLEARLY INDICATE THE LEVEL AT WHICH DESIGN CAPACITY OCCURS AND WHEN SEDIMENT SHALL BE REMOVED.
25. STORED CONTENTS OF THE BASINS SHALL BE TREATED WITH GYPSUM (APPENDIX E MANAGING URBAN STORMWATER SOILS & CONSTRUCTION 4TH ED.) OR OTHER FLOCCULATING AGENTS WHERE THEY CONTAIN MORE THAN 50mg/litre OF SUSPENDED SOLIDS. TREATMENT SHALL BE AS FOLLOWS:-
- a. LOWER SUSPENDED SOLIDS TO LESS THAN 50mg/litre WITHIN 24hrs OF FILLING

b. THE BASINS SHALL THEN BE ALLOWED TO STAND 36 TO 48hrs FOR FLOCCULATED PARTICLES TO SETTLE

c. THE BASINS SHALL THEN BE DRAINED SO THAT FULL STORAGE CAPACITY IS REGAINED WITHOUT DISCHARGING SEDIMENT FROM THE SITE.
26. SEDIMENT REMOVED FROM ANY TRAPPING DEVICE SHALL BE DISPOSED IN LOCATIONS WHERE FURTHER EROSION AND CONSEQUENT POLLUTION TO DOWNSLOPE LANDS AND WATERWAYS SHALL NOT OCCUR.
27. WATER SHALL BE PREVENTED FROM DIRECTLY ENTERING THE PERMANENT DRAINAGE SYSTEM UNLESS IT IS RELATIVELY SEDIMENT FREE (ie THE CATCHMENT HAS BEEN LANDSCAPED AND/OR ANY LIKELY SEDIMENT HAS BEEN TREATED IN AN APPROVED DEVICE) NEVERTHELESS STORMWATER INLETS SHALL BE PROTECTED (SD) 6-11 & 6-12.
28. TEMPORARY SOIL AND WATER MANAGEMENT STRUCTURES SHALL BE REMOVED ONLY AFTER THE LANDS THEY ARE PROTECTING ARE STABILISED.
29. ACCEPTABLE BINS SHALL BE PROVIDED FOR ANY CONCRETE AND MORTAR SLURRIES, PAINTS, ACID WASHINGS, LIGHTWEIGHT WASTE MATERIALS AND LITTER. CLEARANCE SERVICES SHALL BE PROVIDED AT LEAST ONCE A WEEK.

STOCKPILE NOTES:

1. SPOIL AND TOPSOIL STOCKPILES SHALL BE LOCATED AWAY FROM DRAINAGE LINES AND AREAS WHERE WATER MAY CONCENTRATE.
2. IF STOCKPILES ARE TO BE IN PLACE FOR LONGER THAN 14 DAYS THEN THEY SHALL BE STABILIZED BY COVERING WITH A MULCH OR WITH TEMPORARY VEGETATION.
3. FOLLOWING CONSTRUCTION, TOPSOIL SHALL BE RESPREAD TO A MINIMUM DEPTH OF 100mm ON THE BARE SOIL SURFACES AND REVEGETATED.

SEDIMENTATION CONTROL DEVICES:

1. ALL STRAW BALES SHALL BE BOUND WITH WIRE. STRAW BALES SHALL BE PLACED END TO END IN A SINGLE ROW AND EMBEDDED INTO THE SOIL TO A DEPTH OF 100mm. EACH BALE SHALL BE SECURELY ANCHORED WITH TWO STEEL STAKES DRIVEN 600mm INTO THE GROUND AND LOCKED ON THE BALE CENTRELINE.
2. SILT FENCES SHALL BE CONSTRUCTED BY STRETCHING A FILTER FABRIC (PROPEX OR SIMILAR) BETWEEN POSTS AT 2.5m CENTRES. FABRIC SHALL BE BURIED 150mm ALONG IT'S LOWER EDGE.
3. PROVIDE STRIP OF TURF MIN. 300mm WIDE BEHIND KERB + 1m WIDE AROUND ALL SURFACE INLET PITS

SITE INSPECTION AND MAINTENANCE:

1. A SELF-AUDITING PROGRAM SHALL BE ESTABLISHED BASED ON A INSPECTION TEST PLAN (ITP) OR LOG BOOK. A SITE INSPECTION USING THE ITP SHALL BE MADE BY THE SITE MANAGER:-
- a. AT LEAST WEEKLY

b. IMMEDIATELY BEFORE SITE CLOSURE

c. IMMEDIATELY FOLLOWING RAINFALL EVENTS IN EXCESS OF 5mm IN ANY 24hr PERIOD.
- THE SELF AUDIT SHALL INCLUDE:-
- a. RECORDING THE CONDITION OF EVERY 'BEST MANAGEMENT PRACTICE' EMPLOYED

b. RECORDING MAINTENANCE REQUIREMENTS (IF ANY) FOR EACH 'BEST MANAGEMENT PRACTICE'

c. RECORDING THE VOLUMES OF SEDIMENT REMOVED FROM SEDIMENT RETENTION SYSTEMS WHERE APPLICABLE

d. RECORDING THE SITE WHERE SEDIMENT IS DISPOSED

e. FORWARDING A SIGNED DUPLICATE OF THE COMPLETED CHECK SHEET TO THE PROJECT MANAGER/DEVELOPER FOR THEIR INFORMATION.
2. IN ADDITION A SUITABLY QUALIFIED PERSON SHALL BE RESPONSIBLE FOR OVERSEEING THE INSTALLATION AND MAINTENANCE OF ALL SOIL AND WATER MANAGEMENT WORKS ON THE SITE. THE PERSON SHALL BE REQUIRED TO SPEND A MINIMUM OF:-
- a. 2hrs ONSITE EACH FORTNIGHT UP UNTIL COMPLETION OF ROAD AND DRAINAGE WORKS AND/OR THE COMMISSIONING OF SEDIMENT BASIN(S)/WATER QUALITY CONTROL FACILITIES, AND DURING THE DECOMMISSIONING OF SAME AND/OR FINAL SITE STABILISATION. TO PROVIDE A SHORT MONTHLY WRITTEN REPORT.

b. ONE HOUR ONSITE EACH 2 MONTHS DURING THAT PHASE WHERE THE DEVELOPERS RESPONSIBILITIES ARE LIMITED TO MAINTENANCE OF THE SDS DEVICES AND/OR SEDIMENT BASINS (ie DURING THE STAGE WHEN BUILDING WORKS CAN BE UNDERTAKEN) TO PROVIDE A SHORT WRITTEN REPORT EACH 4 MONTHS
- THE RESPONSIBLE PERSON SHALL ENSURE THAT:-
- a. THIS PLAN IS BEING IMPLEMENTED CORRECTLY

b. REPAIRS ARE BEING UNDERTAKEN AS REQUIRED

c. ESSENTIAL MODIFICATIONS TO THIS PLAN ARE BEING MADE IF AND WHEN NECESSARY. EACH REPORT SHALL CERTIFY THAT WORKS HAVE BEEN CARRIED OUT ACCORDING TO THE APPROVED PLANS.
3. WASTE BINS SHALL BE EMPTIED AS NECESSARY, DISPOSAL OF WASTE SHALL BE IN A MANNER APPROVED BY THE SITE SUPERINTENDENT
4. PROPER DRAINAGE OF THE SITE SHALL BE MAINTAINED. DRAINS (INCLUDING INLET AND OUTLET WORKS) SHALL BE CHECKED TO ENSURE THAT THEY ARE OPERATING AS INTENDED,ESPECIALLY THAT:-
- a. NO LOW POINTS EXIST WHICH CAN OVERTOP IN A LARGE STORM EVENT.

b. AREAS OF EROSION ARE REPAIRED (e.g LINED WITH SUITABLE MATERIAL) AND/OR VELOCITY OF FLOW IS REDUCED APPROPRIATELY THROUGH CONSTRUCTION OF SMALL CHECK DAMS OR INSTALLING ADDITIONAL DIVERSIONS UPSLOPE

c. BLOCKAGES ARE CLEARED (THESE MIGHT OCCUR BECAUSE OF SEDIMENT POLLUTION, SAND/SOIL/SPOIL BEING DEPOSITED IN OR TOO CLOSE TO THEM, BREACHED BY VEHICLE WHEELS etc)
5. SAND/SOIL/SPOIL MATERIALS PLACED CLOSER THAN 2m FROM HAZARD AREAS SHALL BE REMOVED SUCH HAZARD AREAS INCLUDE ANY AREAS OF HIGH VELOCITY WATER FLOWS (eg WATERWAYS AND GUTTERS) PAVED AREAS AND DRIVEWAYS.
6. RECENTLY STABILISED LANDS SHALL BE CHECKED TO ENSURE THAT THE EROSION HAZARD HAS BEEN EFFECTIVELY REDUCED. ANY REPAIRS SHALL BE INITIATED AS APPROPRIATE.
7. EXCESSIVE VEGETATIVE GROWTH SHALL BE CONTROLLED THROUGH MOWING OR SLASHING.
8. ALL SEDIMENT DETENTION SYSTEMS SHALL BE KEPT IN GOOD WORKING CONDITION. IN PARTICULAR ATTENTION SHALL BE GIVEN TO:-
- a. RECENT WORKS TO ENSURE THAT THEY HAVE NOT RESULTED IN DIVERSION OF SEDIMENT LADEN WATER AWAY FROM THEM.

b. DEGRADABLE PRODUCTS TO ENSURE THAT THEY ARE REPLACED AS REQUIRED

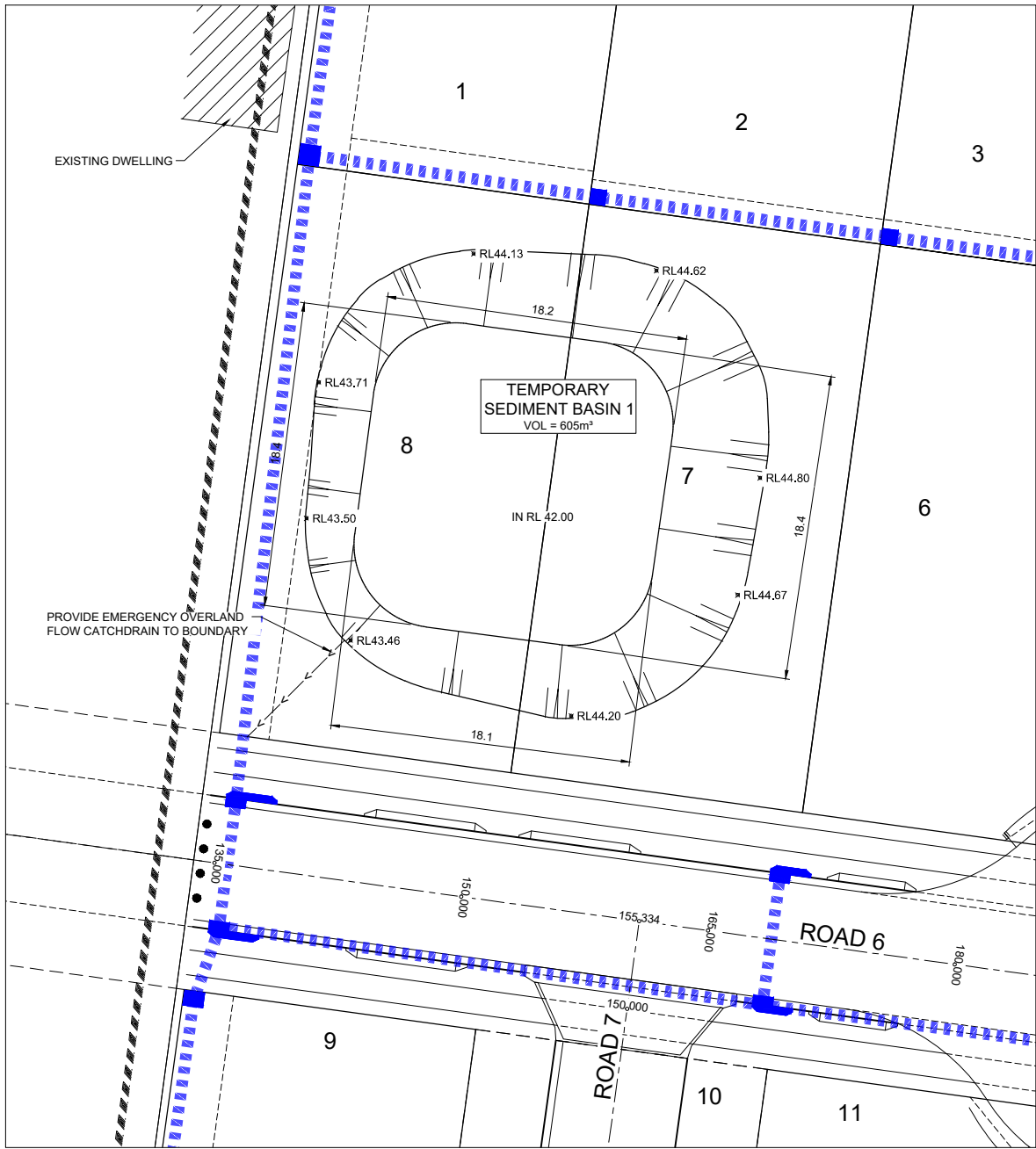
c. SEDIMENT REMOVAL TO ENSURE THE DESIGN CAPACITY OR LESS REMAINS IN THE SETTLLING ZONE.
9. ADDITIONAL EROSION AND/OR SEDIMENT CONTROL WORKS SHALL BE CONSTRUCTED AS MIGHT BECOME NECESSARY TO ENSURE THE DESIRED PROTECTION IS GIVEN TO DOWNSLOPE LANDS AND WATERWAYS (ie MAKE ONGOING CHANGES TO THIS PLAN WHERE IT PROVES INADEQUATE IN PRACTICE OR IS SUBJECTED TO CHANGES IN CONDITIONS AT THE WORKS SITE OR ELSEWHERE IN THE CATCHMENT.
10. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE MAINTAINED IN A FUNCTIONING CONDITION UNTIL ALL EARTHWORKS ACTIVITIES ARE COMPLETED AND THE SITE STABILISED.
11. WATERS IN SEDIMENT RETENTION BASIN(S) THAT OCCUPY MORE THAN 1/4 OF THE DESIGN CAPACITY DURING THAT STAGE OF THE WORKS UP UNTIL COMMISSIONING OF THE BASIN(s) SHALL BE:-
- a. TREATED WITH A FLOCCULATING AGENT (APPENDIX E MANAGING URBAN STORMWATER SOILS & CONSTRUCTION 4TH ED.)

b. DISCHARGED WITHIN 5 days FROM THE CONCLUSION OF ANY STORM EVENT LARGE ENOUGH TO FILL THE BASIN TO THAT LEVEL.
12. LITTER, DEBRIS AND COARSE SEDIMENT SHALL BE REMOVED FROM THE GROSS POLLUTANT TRAPS AND TRASH RACKS AS REQUIRED.

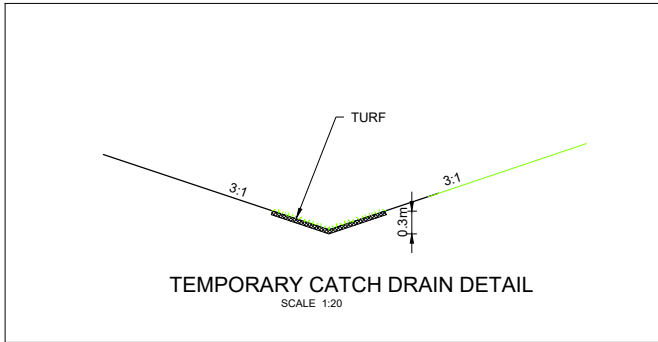


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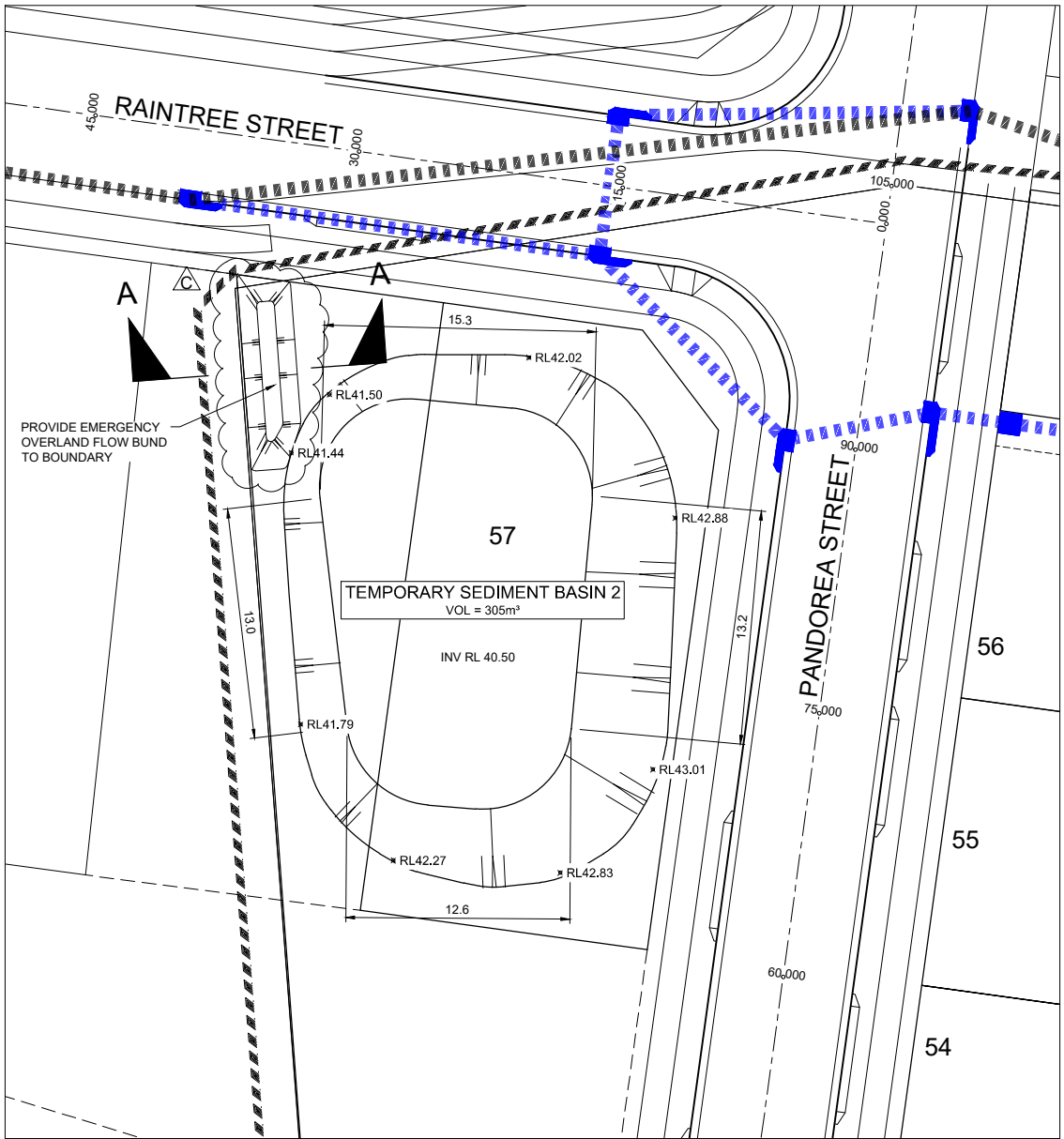


TEMPORARY SEDIMENT BASIN 1
SCALE 1:200

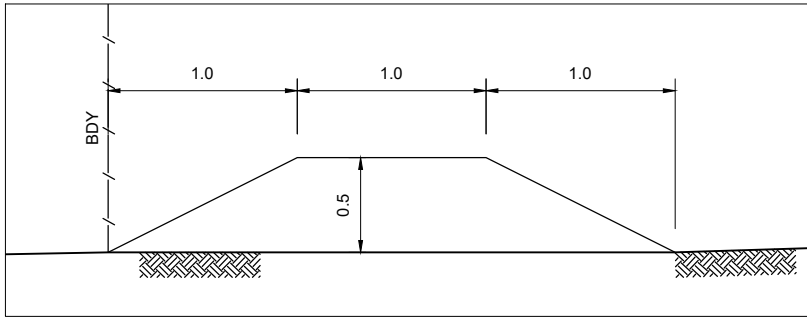


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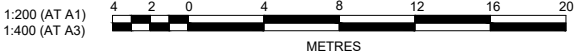
SEDIMENT BASIN AREAS ARE TO BE TURFED.
SEDIMENT BASINS TO BE DECOMMISSIONED ONCE THE SUBDIVISION CIVIL WORKS ARE COMPLETE AND THE SITE HAS BEEN STABILISED.



TEMPORARY SEDIMENT BASIN 2
SCALE 1:200



FLOW CALCULATIONS
100 YEAR FLOW = 1m³/sec
SLOPE = 5%
MANNINGS 'n' = 0.05
FLOW DEPTH = 0.2m
VELOCITY = 0.9m/s



C	OVERLAND FLOW BUND, CATCH DRAIN DETAIL ADDED	DG	DG	AM	MS	27/09/18
B	DETAILS AND NOTED ADDED	DG	DG	AM	MS	14/08/18
A	ISSUED FOR CONSTRUCTION APPROVAL	DG	CC	AM	MS	06/07/18
	AMENDMENT	DES	DRN	CKD	APR	DATE

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27 KENT ROAD CLAREMONT MEADOWS
LOT, ROAD AND DRAINAGE WORKS
TEMPORARY SEDIMENT BASIN
DETAIL PLAN

PLAN No: 110341/CC51
FILE No: 110341CC51
SHEET SIZE: A1 ORIGINAL

Note: These "Detailed Calculation" spreadsheets relate only to high erosion hazard lands as identified in figure 4.6 or where the designer chooses to use the RUSLE to size sediment basins. The "Standard Calculation" spreadsheets should be used on low erosion hazard lands as identified by figure 4.6 and where the designer chooses not to run the RUSLE in calculations.

1. Site Data Sheet

Site Name:	27 Kent Road & 326 Caddens Road, Claremont Meadows
Site Location:	Claremont Meadows South Western Precinct
Precinct:	N/A
Description of Site:	Temporary Basin for Residential Subdivision

Site area	Sub-catchments					Remarks
	North	West				
Total catchment area (ha)	5.16	2.45				
Disturbed catchment area (ha)	2.95	2.45				

Soil analysis (enter sediment type if known, or laboratory particle size data)

Sediment Type (C, F or D, if known)	D	D					From Appendix C
% sand (fraction 0.02 to 2.00 mm)	10	10					Soil texture should be assessed through mechanical dispersion only. Dispersion agents (e.g. Calgon) should not be used.
% silt (fraction 0.002 to 0.02 mm)	30	30					
% clay (fraction finer than 0.002 mm)	80	80					E.g. enter 10 for dispersion of 10%
Dispersion percentage	100.0	100.0					
% of whole soil dispersible	75	75					See Section 6.3.3(e). Auto-calculated
Soil Texture Group	D	D					Automatic calculation from above

Rainfall data

Design rainfall depth (days)	5	5					See Sections 6.3.4 (d) and (e)
Design rainfall depth (percentile)	75	75					See Sections 6.3.4 (f) and (g)
x-day, y-percentile rainfall event	218	218					See Section 6.3.4 (h)
Rainfall R-factor (if known)	2500	2500					See Appendix B
IFD 2-year, 6-hour storm (if known)	102	102					See IFD chart for the site

RUSLE Factors

Rainfall erosivity (R-factor)	2500	2500					Auto-filled from above
Soil erodibility (K-factor)	0.038	0.038					
Slope length (m)	80	80					
Slope gradient (%)	4	4					RUSLE LS factor calculated for a high n/intermitt. ratio.
Length/gradient (LS-factor)	0.91	0.91					
Erosion control practice (P-factor)	1.3	1.3	1.3	1.3	1.3	1.3	
Ground cover (C-factor)	1	1	1	1	1	1	

Calculations

Soil loss (t/ha/yr)	113	113					
Soil Loss Class	1	1					See Section 4.4.2(b)
Soil loss (m ³ /ha/yr)	87	87					
Sediment basin storage volume, m ³	43	36					See Sections 6.3.4(f) and 6.3.5 (e)

2. Storm Flow Calculations

Peak flow is given by the Rational Formula:

$$Q_y = 0.00278 \times C_{10} \times F_y \times I_{y,tc} \times A$$

where:	Q_y	is peak flow rate (m ³ /sec) of average recurrence interval (ARI) of "Y" year
	C_{10}	is the runoff coefficient (dimensionless) for ARI of 10 years. Rural runoff coefficients are given in Volume 2, Figure 5 of Pilgrim (1998), while urban runoff coefficients are given in Volume 1, Book VIII, Figure 1.13 of Pilgrim (1998) and construction runoff coefficients are given in Appendix F
	F_y	is a frequency factor for "Y" years. Rural values are given in Volume 1, Book IV, Table 1.1 of Pilgrim (1998) while urban coefficients are given in Volume 1, Book VIII, Table 1.6 of Pilgrim (1998)
	A	is the catchment area in hectares (ha)
	$I_{y,tc}$	is the average rainfall intensity (mm/hr) for an ARI of "Y" years and a design duration of "tc" (minutes or hours)

$$\text{Time of concentration (t}_c\text{)} = 0.76 \times (A/100)^{0.38} \text{ hrs (Volume 1, Book IV of Pilgrim, 1998)}$$

Note: For urban catchments the time of concentration should be determined by more precise calculations or reduced by a factor of 50 per cent.

To automatically halve the calculated time of concentration, place an "x" in this box: ☒

Peak flow calculations, 1

Site	A (ha)	tc (mins)	Rainfall intensity, I, mm/hr						C _u
			1 yr, 1h	5 yr, 1h	10 yr, 1h	20 yr, 1h	50 yr, 1h	100 yr, 1h	
North	5.16	8	82.5	105	120	140	165	184	0.9
West	2.45	6	89.8	118	134	155	184	206	0.9

Peak flow calculations, 2

ARI (yrs)	Frequency factor (F _y)	Peak flows					Comment
		North (m ³ /s)	West (m ³ /s)	(m ³ /s)	(m ³ /s)	(m ³ /s)	
1 yr/1h	0.8	0.646	0.342				
5 yr/1h	0.95	1.300	0.687				
10 yr/1h	1	1.549	0.821				
20 yr/1h	1.05	1.888	1.004				
50 yr/1h	1.15	2.460	1.297				
100 yr/1h	1.2	2.861	1.515				

4. Volume of Sediment Basins, Type D and Type F Soils

$$\text{Basin volume} = \text{settling zone volume} + \text{sediment storage zone volume}$$

Settling Zone Volume

The settling zone volume for Type F and Type D soils is calculated to provide capacity to contain all runoff expected from up to the y-percentile rainfall event. The volume of the basin's settling zone (V) can be determined as a function of the basin's surface area and depth to allow for particles to settle and can be determined by the following equation:

$$V = 10 \times C_v \times A \times R_{x\text{-day}, y\text{-}\%ile} \text{ (m}^3\text{)}$$

where:

10 = a unit conversion factor

C_v = the volumetric runoff coefficient defined as that portion of rainfall that runs off as stormwater over the x-day period

$R_{x\text{-day}, y\text{-}\%ile}$ = is the x-day total rainfall depth (mm) that is not exceeded in y percent of rainfall events. (See Sections 6.3.4(d), (e), (f), (g) and (h)).

A = total catchment area (ha)

Sediment Storage Zone Volume

In the detailed calculation on Soil Loss Classes 1 to 4 lands, the sediment storage zone can be taken as 50 percent of the settling zone capacity. Alternately designers can design the zone to store the 2-month soil loss as calculated by the RUSLE (Section 6.3.4(i)(ii)). However, on Soil Loss Classes 5, 6 and 7 lands, the zone must contain the 2-month soil loss as calculated by the RUSLE (Section 6.3.4(i)(iii)).

Place an "X" in the box below to show the sediment storage zone design parameters used here:

☒	50% of settling zone capacity,
☒	2 months soil loss calculated by RUSLE

Total Basin Volume

Site	C_v	$R_{x\text{-day}, y\text{-}\%ile}$	Total catchment area (ha)	Settling zone volume (m ³)	Sediment storage volume (m ³)	Total basin volume (m ³)
North	0.50	218	5.16	582.44	43	625.44
West	0.50	218	2.45	267.06	36	303.06



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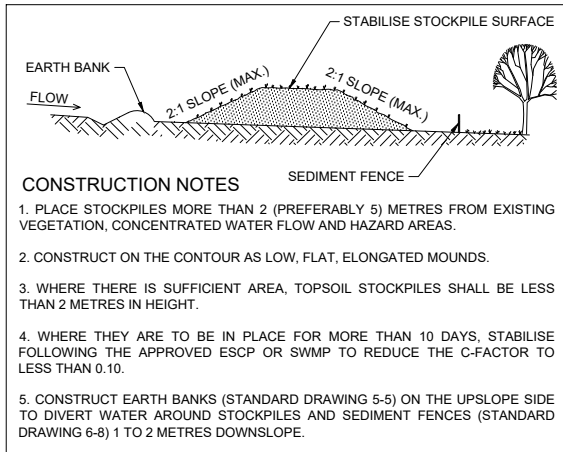
27 KENT ROAD CLAREMONT MEADOWS
LOT, ROAD AND DRAINAGE WORKS

TEMPORARY SEDIMENT BASIN
DETAIL SECTION AND NOTES

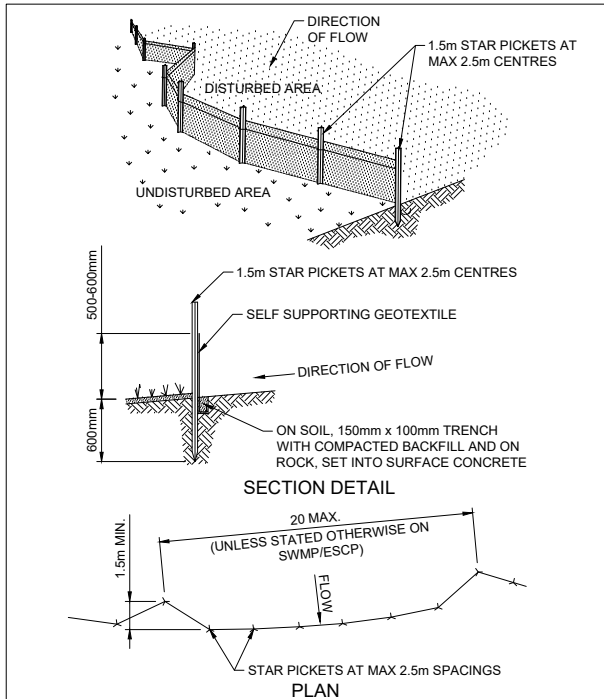
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110341/CC52

FILE No: 110341CC52

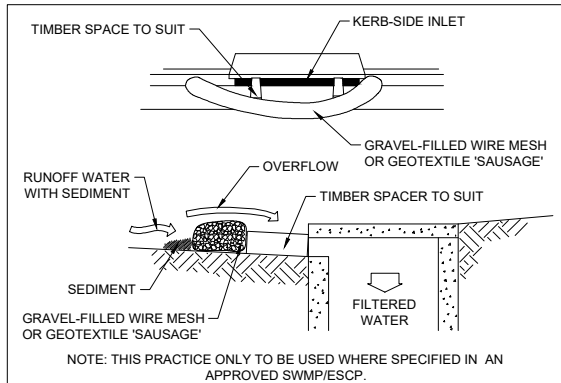
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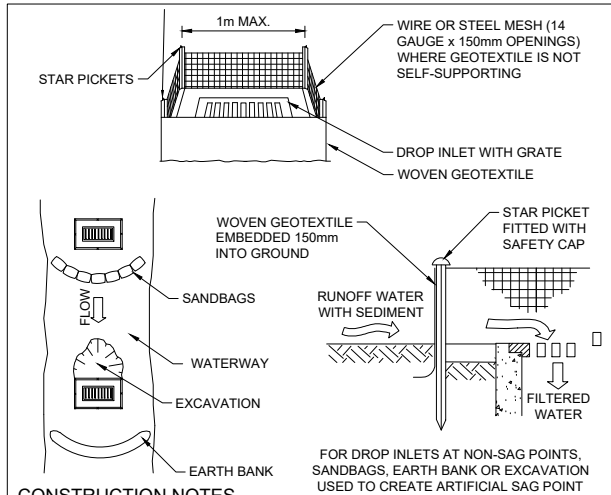
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N.T.S.



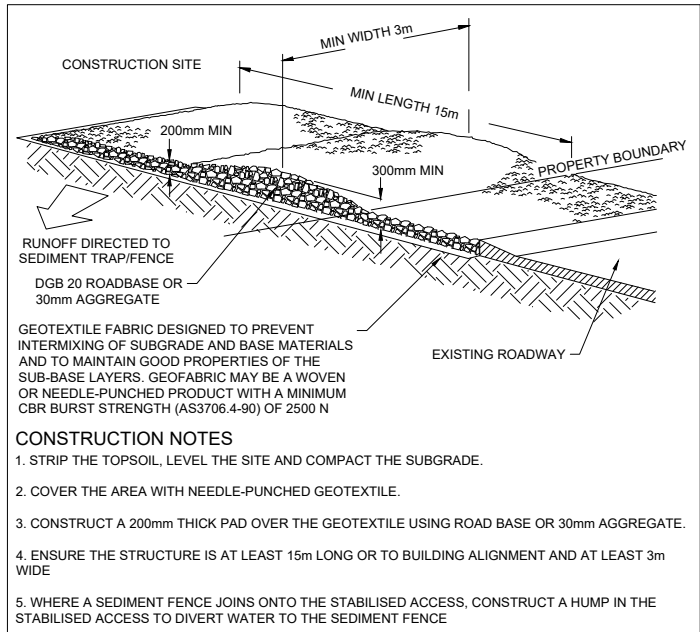
SEDIMENT FENCE SD6-8
N.T.S.



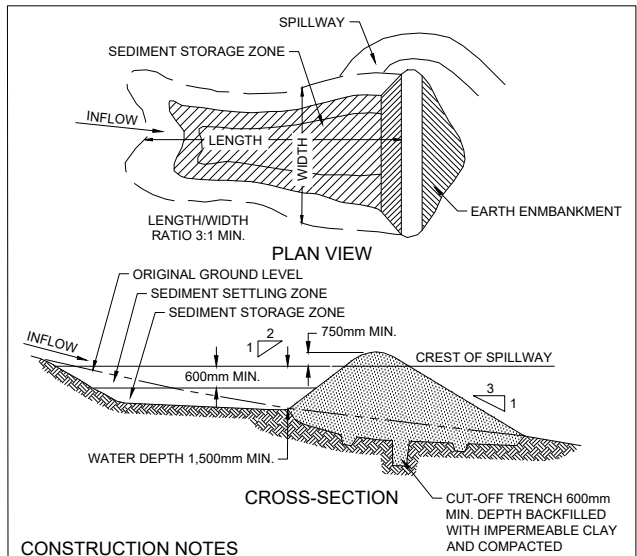
MESH & GRAVEL INLET FILTER SD6-11
N.T.S.



GEOTEXTILE INLET FILTER SD6-12
N.T.S.



STABILISED SITE ACCESS SD6-14
N.T.S.



EARTH BASIN - WET SD6-4
(APPLIES TO 'TYPE D' AND 'TYPE F' SOILS ONLY)
SCALE N.T.S.

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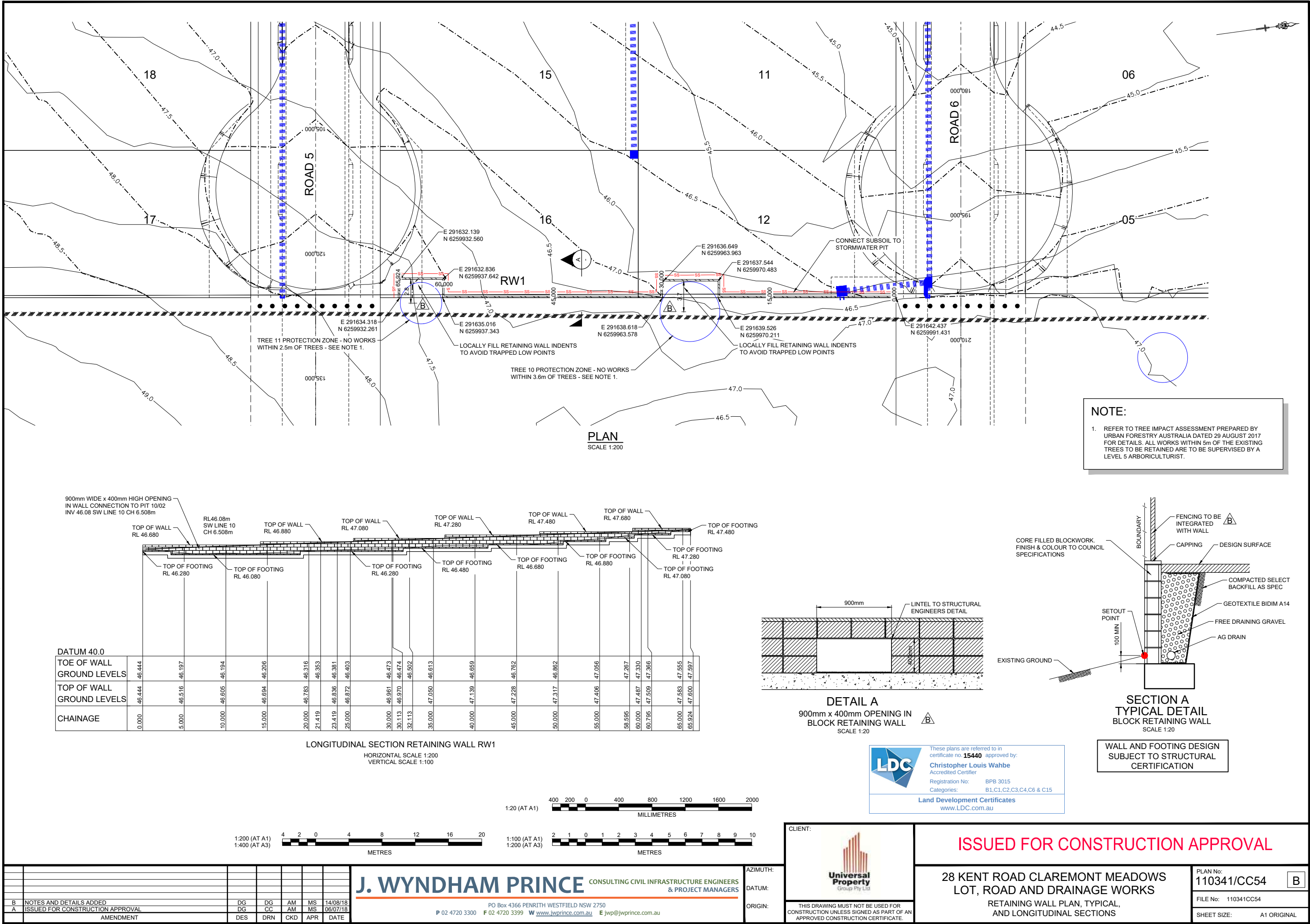


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27 KENT ROAD CLAREMONT MEADOWS
LOT, ROAD AND DRAINAGE WORKS
SOIL AND WATER MANAGEMENT DETAILS

PLAN No: 110341/CC53
FILE No: 110341CC53
SHEET SIZE: A1 ORIGINAL



PAVEMENT MARKING SCHEDULE

CODE	USE	STYLE	COLOUR & TYPE
BB	Barrier line where sight is restricted in both directions or approach to median island		Reflectorised white type 'YY' pavement markers bi-directional reflective yellow
TBB	Give way line on Path		Reflectorised white
TB	Give way line (Used with Signs)		Reflectorised white
TB1	Give way line (Used on right side of side)		Reflectorised white

NOTES

- ALL PAVEMENT MARKINGS, CHEVRONS AND REFLECTORS ARE TO BE IN ACCORDANCE WITH R.T.A. STANDARD DRAWINGS MD.R60 AND AUSTRALIAN STANDARDS.
- ALL SIGNS TO BE IN ACCORDANCE WITH CURRENT AUSTRALIAN STANDARD, AS 1743 - ROAD SIGNS AND PENRITH CITY COUNCIL'S LOCAL TRAFFIC COMMITTEE SPECIFICATION UNLESS OTHERWISE SHOWN.
- ROAD SIGNS ARE SIZE 'A', UNLESS OTHERWISE SHOWN. LOCATE OUTSIDE OF CLEAR ZONES.
- ALL NEW PAVEMENT MARKINGS ARE TO BE INSTALLED IN WHITE, REFLECTIVE, THERMOPLASTIC PAINT.
- KERBSIDE LANE WIDTHS INCLUDE THE WIDTH OF THE GUTTER.
- RE-MARK EXISTING PAVEMENT MARKINGS AS DIRECTED BY THE PROJECT MANAGER.
- THE SLOPED FACE OF BARRIER MEDIAN KERB ARE TO BE PAINTED WHITE (E6 LINE) IN LIEU OF AN E3 EDGE LINE. YELLOW REFLECTIVE PAVEMENT MARKERS TO BE PLACED ON PAVEMENT @ 6 METRE SPACINGS ADJACENT TO THE BARRIER KERB.
- PAVEMENT MARKINGS THAT FORM NO PART OF THE FINAL WORKS ARE TO BE REMOVED BY SAND BLASTING OR OTHER METHOD AS APPROVED BY THE PROJECT MANAGER.
- ALL MEASUREMENTS ARE IN METERS UNLESS OTHERWISE SHOWN.

THIS CERTIFICATE DOES NOT APPROVE SIGNAGE AND LINEMARKING WHICH ARE SUBJECT TO THE SEPARATE APPROVAL OF PENRITH CITY COUNCIL IN CONJUNCTION WITH THE RECOMMENDATIONS OF THE LOCAL TRAFFIC COMMITTEE.



REFER TO DRAWING 110341/CC56 FOR CONTINUATION



B	RSA & RFS REQUIREMENTS ADDED	DG	DG	AM	MS	14/08/18
A	ISSUED FOR CONSTRUCTION APPROVAL	DG	CC	AM	MS	06/07/18
	AMENDMENT	DES	DRN	CKD	APR	DATE

J. WYNDHAM PRINCE CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS

PO Box 4366 PENRITH WESTFIELD NSW 2750
P 02 4720 3300 F 02 4720 3399 W www.jwprince.com.au E jwp@jwprince.com.au

AZIMUTH:
DATUM:
ORIGIN:

CLIENT:

THIS DRAWING MUST NOT BE USED FOR CONSTRUCTION UNLESS SIGNED AS PART OF AN APPROVED CONSTRUCTION CERTIFICATE.

ISSUED FOR CONSTRUCTION APPROVAL

29 KENT ROAD CLAREMONT MEADOWS LOT, ROAD AND DRAINAGE WORKS
SIGNAGE AND LINEMARKING PLAN
SHEET 1

PLAN No: 110341/CC55
FILE No: 110341CC55
SHEET SIZE: A1 ORIGINAL

B

PAVEMENT MARKING SCHEDULE

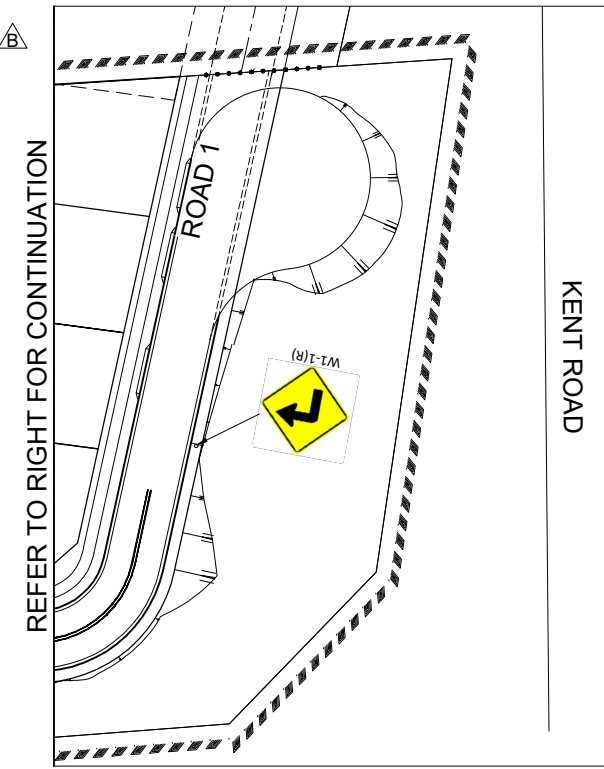
CODE	USE	STYLE	COLOUR & TYPE
BB	Barrier line where sight is restricted in both directions or approach to median island		Reflectorised white type 'YY' pavement markers bi-directional reflective yellow
TBB	Give way line on Path		Reflectorised white
TB	Give way line (Used with Signs)		Reflectorised white
TB1	Give way line (Used on right side of side)		Reflectorised white
TF	Stop line (Used with Signs)		Reflectorised white

NOTES

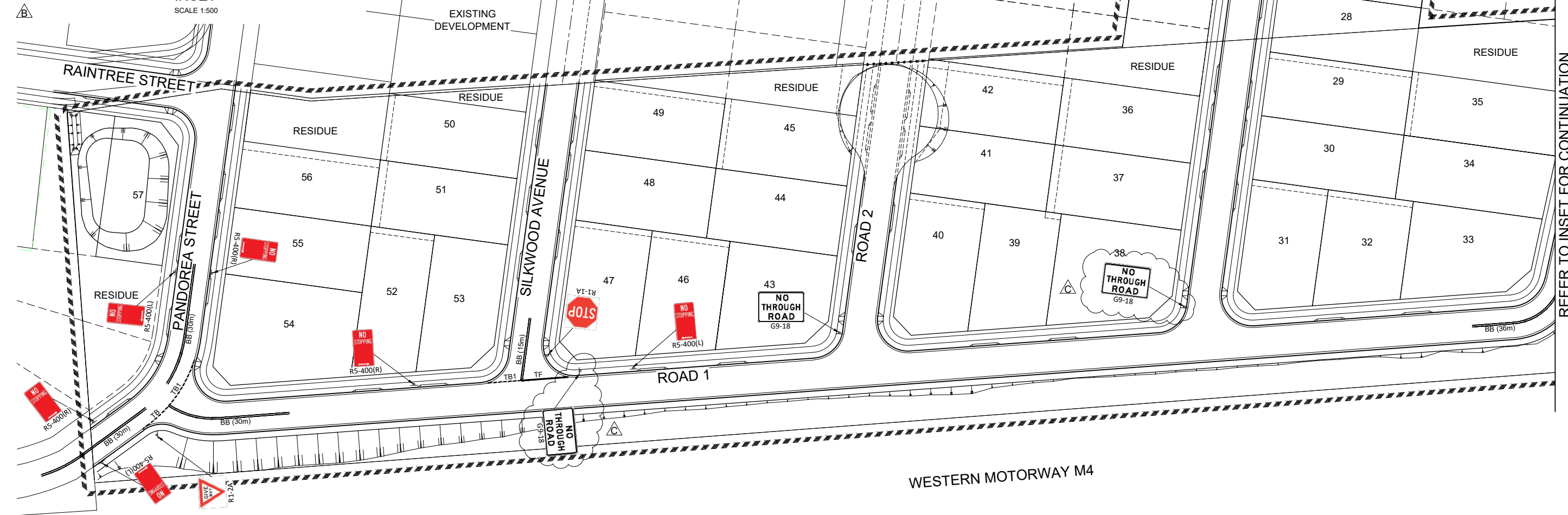
1. ALL PAVEMENT MARKINGS, CHEVRONS AND REFLECTORS ARE TO BE IN ACCORDANCE WITH R.T.A. STANDARD DRAWINGS MD.R60 AND AUSTRALIAN STANDARDS.
2. ALL SIGNS TO BE IN ACCORDANCE WITH CURRENT AUSTRALIAN STANDARD; AS 1743 - ROAD SIGNS AND PENRITH CITY COUNCIL'S SPECIFICATION UNLESS OTHERWISE SHOWN.
3. ROAD SIGNS ARE SIZE 'A', UNLESS OTHERWISE SHOWN. LOCATE OUTSIDE OF CLEAR ZONES.
4. ALL NEW PAVEMENT MARKINGS ARE TO BE INSTALLED IN WHITE, REFLECTIVE, THERMOPLASTIC PAINT.
5. KERBSIDE LANE WIDTHS INCLUDE THE WIDTH OF THE GUTTER.
6. RE-MARK EXISTING PAVEMENT MARKINGS AS DIRECTED BY THE PROJECT MANAGER.
7. THE SLOPED FACE OF BARRIER MEDIAN KERB ARE TO BE PAINTED WHITE (E6 LINE) IN LIEU OF AN E3 EDGE LINE. YELLOW REFLECTIVE PAVEMENT MARKERS TO BE PLACED ON PAVEMENT @ 6 METRE SPACINGS ADJACENT TO THE BARRIER KERB.
8. PAVEMENT MARKINGS THAT FORM NO PART OF THE FINAL WORKS ARE TO BE REMOVED BY SAND BLASTING OR OTHER METHOD AS APPROVED BY THE PROJECT MANAGER.
9. ALL MEASUREMENTS ARE IN METERS UNLESS OTHERWISE SHOWN.

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REFER TO DRAWING 110341/CC55 FOR CONTINUATION

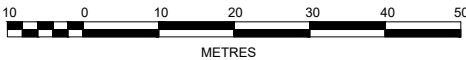


INSET
SCALE 1:500



REFER TO INSET FOR CONTINUATION

1:500 (AT A1)
1:1000 (AT A3)



WESTERN MOTORWAY M4

CLIENT:



AZIMUTH:

DATUM:

ORIGIN:

THIS DRAWING MUST NOT BE USED FOR CONSTRUCTION UNLESS SIGNED AS PART OF AN APPROVED CONSTRUCTION CERTIFICATE.

ISSUED FOR CONSTRUCTION APPROVAL

30 KENT ROAD CLAREMONT MEADOWS
LOT, ROAD AND DRAINAGE WORKS
SIGNAGE AND LINEMARKING PLAN
SHEET 2

PLAN No:
110341/CC56

C

FILE No: 110341CC56

SHEET SIZE: A1 ORIGINAL

J. WYNDHAM PRINCE CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS

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C	NO THROUGH ROAD SIGNS ADDED	DG	DG	AM	MS	27/09/18
B	RSA & RFS REQUIREMENTS ADDED	DG	DG	AM	MS	14/08/18
A	ISSUED FOR CONSTRUCTION APPROVAL	DG	CC	AM	MS	06/07/18
	AMENDMENT	DES	DRN	CKD	APR	DATE