

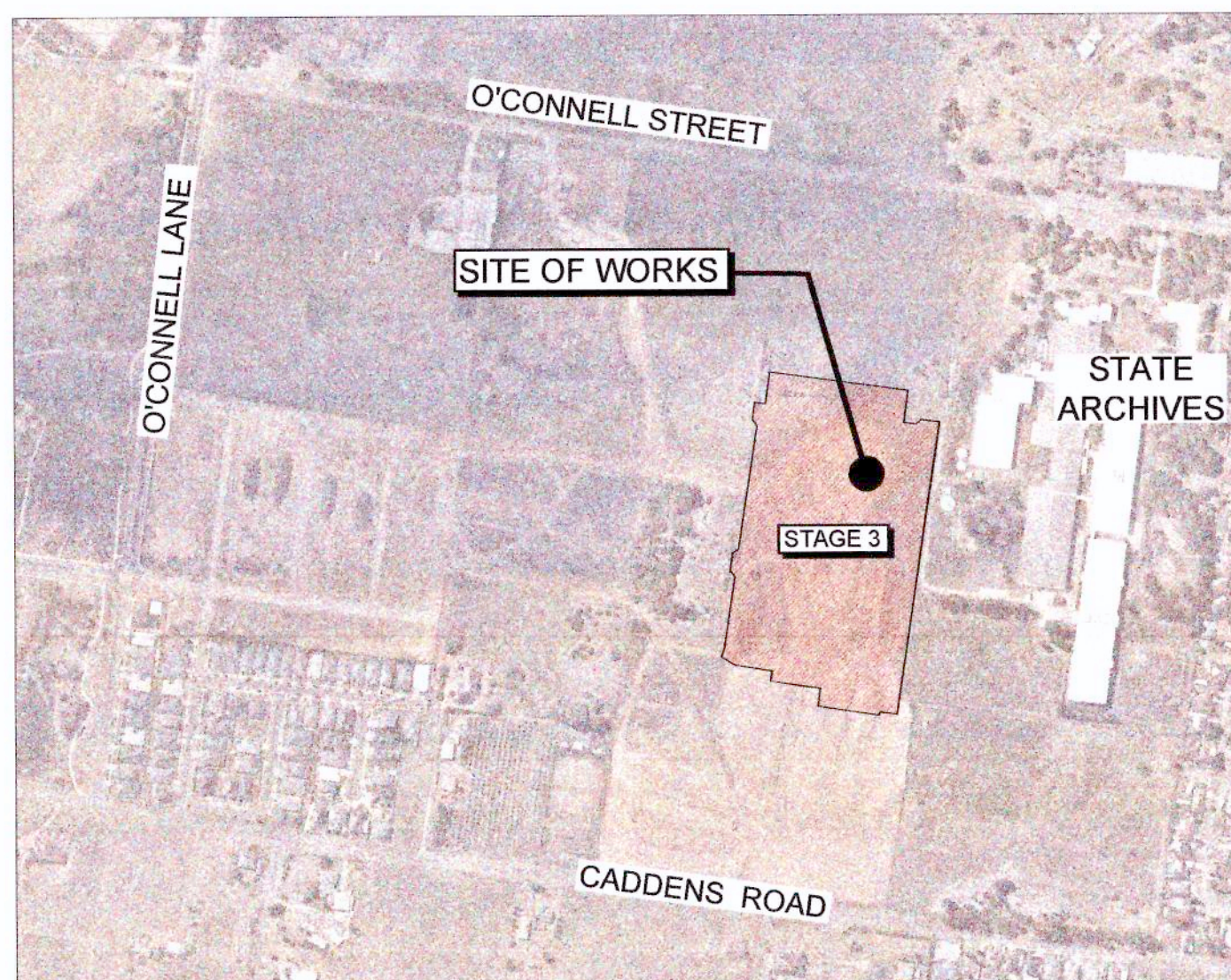


LEGACYPROPERTY

CADDENS HILL - STAGE 3 CONSTRUCTION CERTIFICATE

PROPOSED ROAD & DRAINAGE WORKS

DA 16/1166



WORKS AS EXECUTED SHOWN IN RED
SIGNATURE: *Peter Robert Warwick*
PETER ROBERT WARWICK
Registered Land Surveyor
VINCE MORGAN SURVEYORS PTY LTD
DATE: 21/3/18 REF: 20467/3

LOCALITY SKETCH

Prepared By:

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

These plans are referred to in
certificate no. **14403** approved by:
Eric Hausfeld
Accredited Certifier
Registration No: BPS 2416
Categories: B1, C1, C2, C3, C4, C6, C15 & D1
LAND DEVELOPMENT CERTIFICATES
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ISSUED FOR CONSTRUCTION APPROVAL

PLAN No.
110358/CC300 **B**
FILE No. 110358CC300

LEGEND			
DESCRIPTION	PROPOSED	EXISTING	FUTURE
EXTENT OF WORKS			
KERB & GUTTER			
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			
STAGE BOUNDARY			
STABILISED SITE ACCESS			
SEDIMENT FENCE			
STRAW BALE BARRIER			
STOCKPILE			
PROTECTIVE FENCING			
MESH AND GRAVEL INLET FILTER			
GEOTEXTILE INLET FILTER			

GENERAL NOTES:

- ALL WORKS ARE TO BE IN ACCORDANCE WITH PENRITH CITY COUNCILS "DESIGN GUIDELINES FOR ENGINEERING WORKS FOR SUBDIVISIONS AND DEVELOPMENTS" & "ENGINEERING CONSTRUCTION SPECIFICATION FOR CIVIL WORKS".
- SURVEY MARKS:-
 - STATE SURVEY MARKS LOCATIONS TO BE FIXED BY PROJECT SURVEYOR DURING WORK AS EXECUTED SURVEY OF SUBDIVISION.
 - SURVEY MARKS SHOWN THUS ▲ SHALL BE RETAINED AT ALL TIMES. WHERE RETENTION IS NOT POSSIBLE THE SUPERINTENDENT MUST BE NOTIFIED AND CONSENT RECEIVED PRIOR TO THEIR REMOVAL.
- 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.
- 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.
- EXISTING SEDIMENT BASINS SHALL BE DEWATERED AND DESILTED. LEVELS SHALL BE OBTAINED ON SOUND MATERIAL PRIOR TO FILLING.
- 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 COUNCIL'S "ENGINEERING CONSTRUCTION SPECIFICATION FOR CIVIL WORKS".
- ALL SITE REGRADING AREAS SHALL BE GRADED AT A MINIMUM 1% TO THE ENGINEERS. REQUIREMENTS.
- SURPLUS EXCAVATED MATERIAL SHALL BE PLACED WHERE DIRECTED BY THE SUPERINTENDENT.
- EASEMENT WIDTHS SHALL BE IN ACCORDANCE WITH 3.11 DRAINAGE EASEMENTS OF PENRITH CITY COUNCIL'S DESIGN GUIDELINES FOR ENGINEERING WORKS FOR SUBDIVISION AND DEVELOPMENTS.

PIPE DIA.	EASEMENT WIDTH
150Ø	1.5m
225Ø	2.0m
300Ø	2.0m
375Ø	2.5m
450Ø	2.5m
545Ø	2.5m
600Ø	2.5m
675Ø	3.0m
- 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. PIPE CLASS INDICATED ARE FOR REINFORCED CONCRETE PIPES (RCP). IF FIBRE REINFORCED CONCRETE PIPES (FRC) REFER TO PENRITH CITY COUNCIL "ENGINEERING CONSTRUCTION SPECIFICATION FOR CIVIL WORKS"
- ALL CONDUITS AND MAINS SHALL BE LAID PRIOR TO LAYING FINAL ASPHALTIC CONCRETE SEAL.
- VEHICULAR CROSSINGS SHALL BE CONSTRUCTED IN KERB AND GUTTER WHERE SHOWN IN ACCORDANCE WITH PCC STANDARD DRAWING SD1004.
- PRAM CROSSINGS SHALL BE CONSTRUCTED IN KERB AND GUTTER IN ACCORDANCE WITH COUNCIL'S STANDARD DRAWING SD1002.
- STREET NAME SIGNS SHALL BE ERECTED, WHERE SHOWN, IN ACCORDANCE WITH COUNCIL'S STANDARD SD1006/1 AND SD1006/2.
- ALL NEW WORKS SHALL MAKE A SMOOTH JUNCTION WITH EXISTING CONDITIONS.
- ALL INTERALLOTMENT DRAINAGE LINES SHALL BE LAID AT A MINIMUM GRADE OF 1% UNLESS OTHERWISE INDICATED.
- DRAINAGE LINES ON PLANS ARE DIAGRAMMATIC ONLY AND PIPE CENTRELINES SHALL ENTER AND EXIT PITS AT THE CENTRE OF THE RESPECTIVE PIT WALLS.
- 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 TO BE CARRIED OUT IN ACCORDANCE WITH THE APPROVED DRAWINGS AND COUNCIL'S STANDARD SPECIFICATIONS AND APPROVED BY PENRITH CITY COUNCIL THROUGH A S138 ROADS ACT APPROVAL.
- ALL LAND THAT HAS BEEN DISTURBED BY EARTHWORKS IS TO BE SPRAY GRASSED OR SIMILARLY TREATED TO ESTABLISH A GRASS COVER.
- NO FILL MATERIAL IS TO BE IMPORTED TO THE SITE WITHOUT THE PRIOR APPROVAL OF PCC IN ACCORDANCE WITH SYDNEY REGIONAL ENVIRONMENTAL PLAN No.20 (HAWKESBURY-NEPEAN RIVER) (No.2-1997). NO RECYCLING OF MATERIAL FOR USE OF FILL MATERIAL SHALL BE CARRIED OUT ON THE SITE WITHOUT THE PRIOR APPROVAL OF COUNCIL.
- ALL EARTHWORKS SHALL BE UNDERTAKEN IN ACCORDANCE WITH AS3798 AND PCC DESIGN GUIDELINES FOR ENGINEERING WORKS FOR SUBDIVISIONS AND DEVELOPMENTS AND ENGINEERING CONSTRUCTION SPECIFICATIONS FRO CIVIL WORKS.
- VEHICLE CROSSINGS TO BE LOCATED 1.0m CLEAR OF ANY LINTELS.
- ALL VERGE AREAS EXTEND FROM BACK OF KERB TO PROPERTY BOUNDARY TO BE TURFED.
- ALL STORMWATER PITS WITH DEPTHS GREATER THAN 1.0m TO HAVE GALVANISED OR OTHERWISE APPROVED STEP IRONS AT 300mm SPACING INSTALLED.
- KERB TYPES USED IN SITE ARE KERB AND GUTTER UNLESS OTHERWISE NOTED. FOR DETAILS REFER TO PENRITH CITY COUNCIL "ENGINEERING CONSTRUCTION SPECIFICATION FOR CIVIL WORKS" STANDARD SD1003/1 & SD1003/2.
- KERB ADAPTORS SHALL BE PROVIDED FOR ALL LOTS DRAINING TO THE STREET. FOR DETAIL REFER TO PENRITH CITY COUNCIL "ENGINEERING CONSTRUCTION SPECIFICATION FOR CIVIL WORKS"
- ALL WASTE MATERIAL STORED ON-SITE ARE TO BE CONTAINED WITHIN A DESIGNATED AREA SUCH AS A WASTE BAY OR BIN. CONTRACTOR TO ENSURE THAT NO WASTE MATERIALS ARE ALLOWED TO ENTER THE STORMWATER SYSTEM OR NEIGHBOURING PROPERTIES. THE DESIGNATED WASTE STORAGE AREAS SHALL PROVIDE AT LEAST TWO WASTE BAY/BINS SO AS TO ALLOW FOR THE SEPARATION OF WASTES, AND ARE TO BE FULLY ENCLOSED WHEN SITE IS UNATTENDED.

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.

LOT CALCULATIONS BY:

VINCE MORGAN (SURVEYORS) PTY. LTD.
CONSULTING SURVEYORS
P.O. Box 227, Penrith. 2751
Ph. (02) 4721 5293
FILE: 20467 - IL DATE: 10/08/16

SURVEY BY:

SDG LAND DEVELOPMENT SOLUTIONS
UNIT 7 1B KLEINS ROAD
NORTHMEAD 2152
Ph. (02) 9630 7955
FILE: 6072 CONTOUR ISSUE D.DWG DATE: 22/4/16

Survey By:

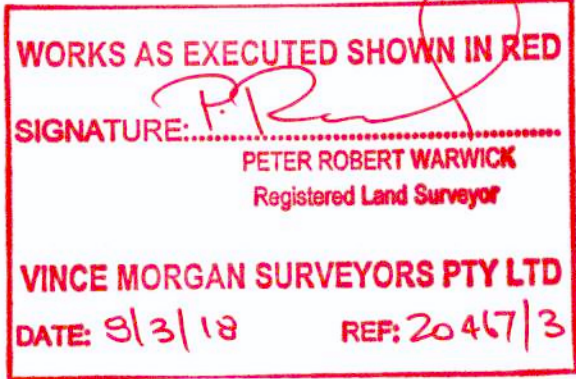
VINCE MORGAN (SURVEYORS) PTY. LTD.
CONSULTING SURVEYORS
P.O. Box 227, Penrith. 2751
Ph. (02) 4721 5293

Date: 21/09/16 File Name: 20467-L2.dwg
Date: 21/09/16 File Name: 210916topo.dxf

CUSTOM MADE PRECAST PIT NOTES:

- DESIGN DOCUMENTATION REFLECTS PRECAST DRAINAGE PITS BEING USED FOR THE SITE. UNLESS NOTED OTHERWISE.
- AUSPITS CUSTOM MADE PRECAST PITS TO BE USED.
- PITS TO COMPLY WITH THE FOLLOWING PARAMETERS:
 - ARE SPECIFICALLY MANUFACTURED FOR THE PROJECT.
 - EACH PIT IS ACCOMPANIED BY A CERTIFICATE OF STRUCTURAL ADEQUACY SIGNED BY A NPER ENGINEER (STRUCTURAL)
 - THE STRUCTURAL CERTIFICATION OF THE PITS SHOULD INCLUDE ANY ADDITIONAL PRECAST ELEMENTS REQUIRED TO BRING THE PIT UP TO FINAL LEVELS ON SITE.
 - PITS MUST BE FIRMLY BEDDED ON SOUND MATERIAL.
 - CONCRETE IS TO BE POURED AROUND THE BASE TO AID IN STABILISATION OF THE PIT.
 - PIT FLOORS ARE TO HAVE A 1% FALL TOWARDS THE OUTLET PIPE.
 - ANY PIT REQUIRING MODIFICATION AFTER IT HAS BEEN POURED IN THE FACTORY OR DAMAGED IN TRANSPORT CANNOT BE USED.
 - ALL WORK TO BE TO THE SATISFACTION OF COUNCIL'S DEVELOPMENT INSPECTORS.

IT IS THE CONTRACTORS RESPONSIBILITY TO PROVIDE DETAILED PIT DRAWINGS AND STRUCTURAL CERTIFICATION IF INSITU PITS ARE TO BE CONSTRUCTED.



UTILITIES SHOWN ARE DIAGRAMMATIC ONLY, CONTRACTORS ARE RESPONSIBLE TO LOCATE AND AVOID DAMAGE TO THEM.

NOTE: UTILITIES SHOWN MAY NOT INCLUDE ALL SERVICES WITHIN THE LIMIT OF WORKS

ISSUED FOR CONSTRUCTION APPROVAL

D	CERTIFIER COMMENTS	JT	JT	RT	MS	14/07/17
C	CERTIFIER COMMENTS	JT	JT	AM	MS	11/07/17
B	CERTIFIER COMMENTS - NOTE AMENDED	JT	JT	RT	MS	28/06/17
A	ISSUE FOR CONSTRUCTION APPROVAL	JT	NM	RT	MS	30/05/17
	AMENDMENT	DES	DRN	CKD	APR	DATE

J. WYNDHAM PRINCE CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS

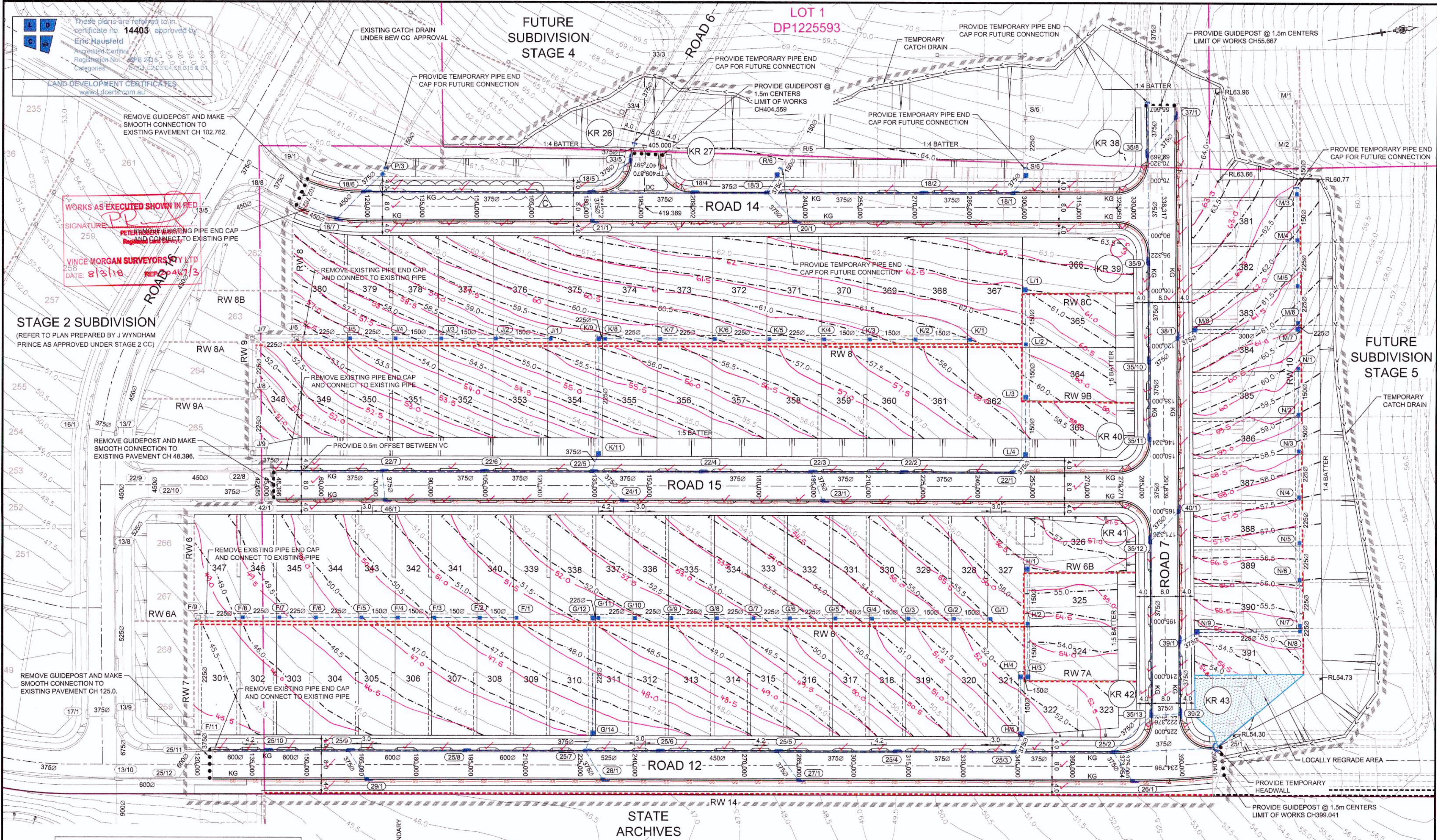
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P 02 4720 3300 F 02 4720 3399 W www.jwprince.com.au E jwp@jwprince.com.au

AZIMUTH:
MGA
DATUM:
AFD
ORIGIN:

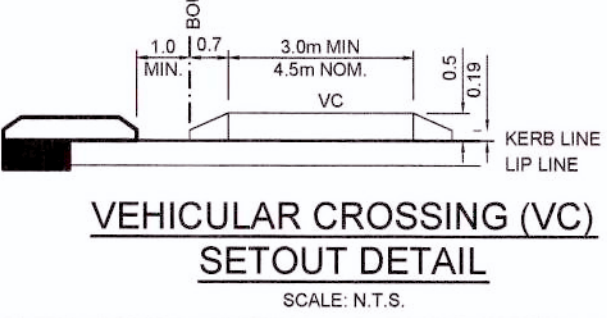


**CADDENS HILL
STAGE 3**
GENERAL NOTES, INDEX & LEGEND

PLAN No:
110358/CC301 **D**
FILE No: 110358CC301
SHEET SIZE: A1 ORIGINAL



- ALL VEHICULAR CROSSING (VC) WIDTHS ARE 4.5m WIDE UNLESS OTHERWISE NOTED ON PLAN
- VC MUST HAVE A MIN STRAIGHT OF 3m PER P.C.C. STANDARD DETAIL
- VC'S TO BE IN ACCORDANCE WITH SD1004 OF P.C.C. ENGINEERING CONSTRUCTION SPECIFICATION FOR CIVIL WORKS



PLAN
SCALE 1:500

RETAINING WALL 14 IS PART OF STAGE 3 APPROVAL

RETAINING WALL LOCATIONS ARE FOR INFORMATION ONLY AND ARE SUBJECT TO A SEPARATE APPROVAL

RETAINING WALL PLAN AND SECTIONS REFER TO PLANS CC330 - CC335

AMENDMENT	DES	DRN	CKD	APR	DATE
C	CERTIFIER COMMENTS - LAYBACK & DRAINAGE PITS REVISED	JT	JT	AM	MS 11/07/17
C	CERTIFIER COMMENTS - LOT B'DY DEFINED & RD 12 PATH EXTENDED	JT	JT	RT	MS 28/08/17
A	ISSUE FOR CONSTRUCTION APPROVAL	JT	NM	RT	MS 30/05/17

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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

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CLIENT:

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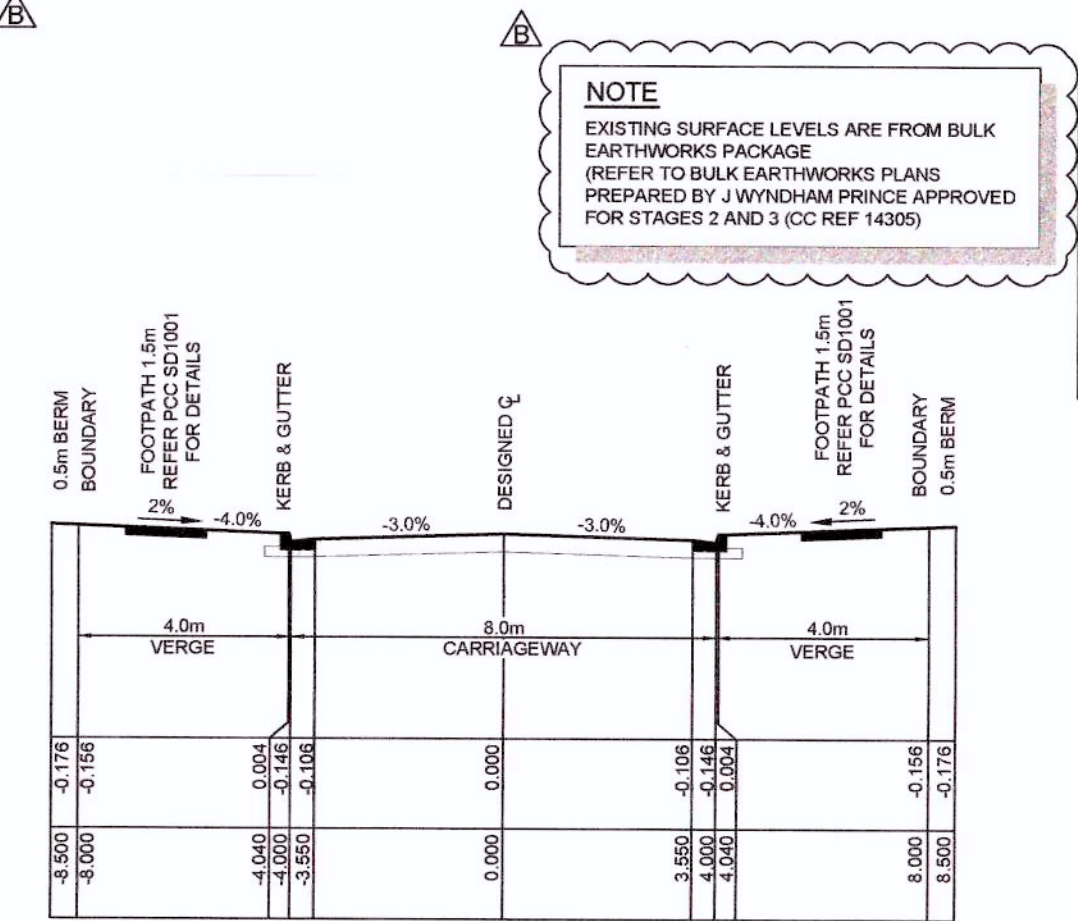
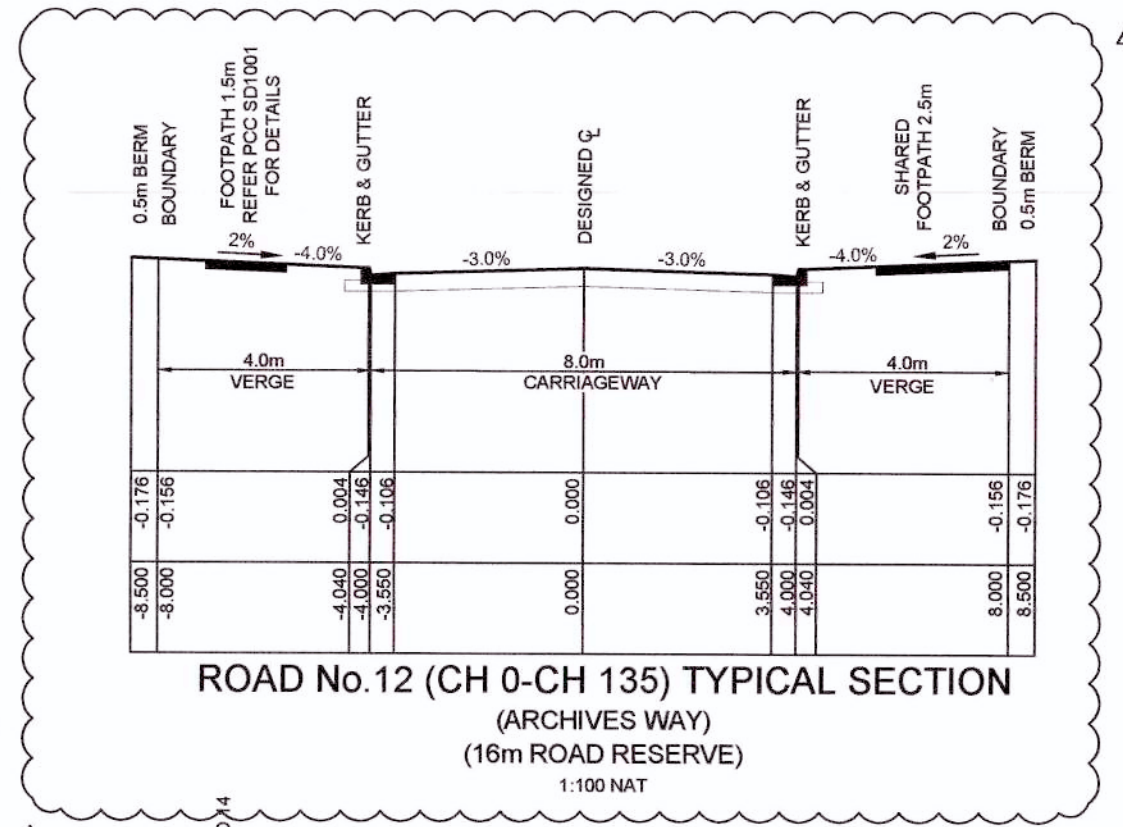
**CADDENS HILL
STAGE 3
ENGINEERING PLAN**

PLAN No:
110358/CC304

FILE No: 110358CC304

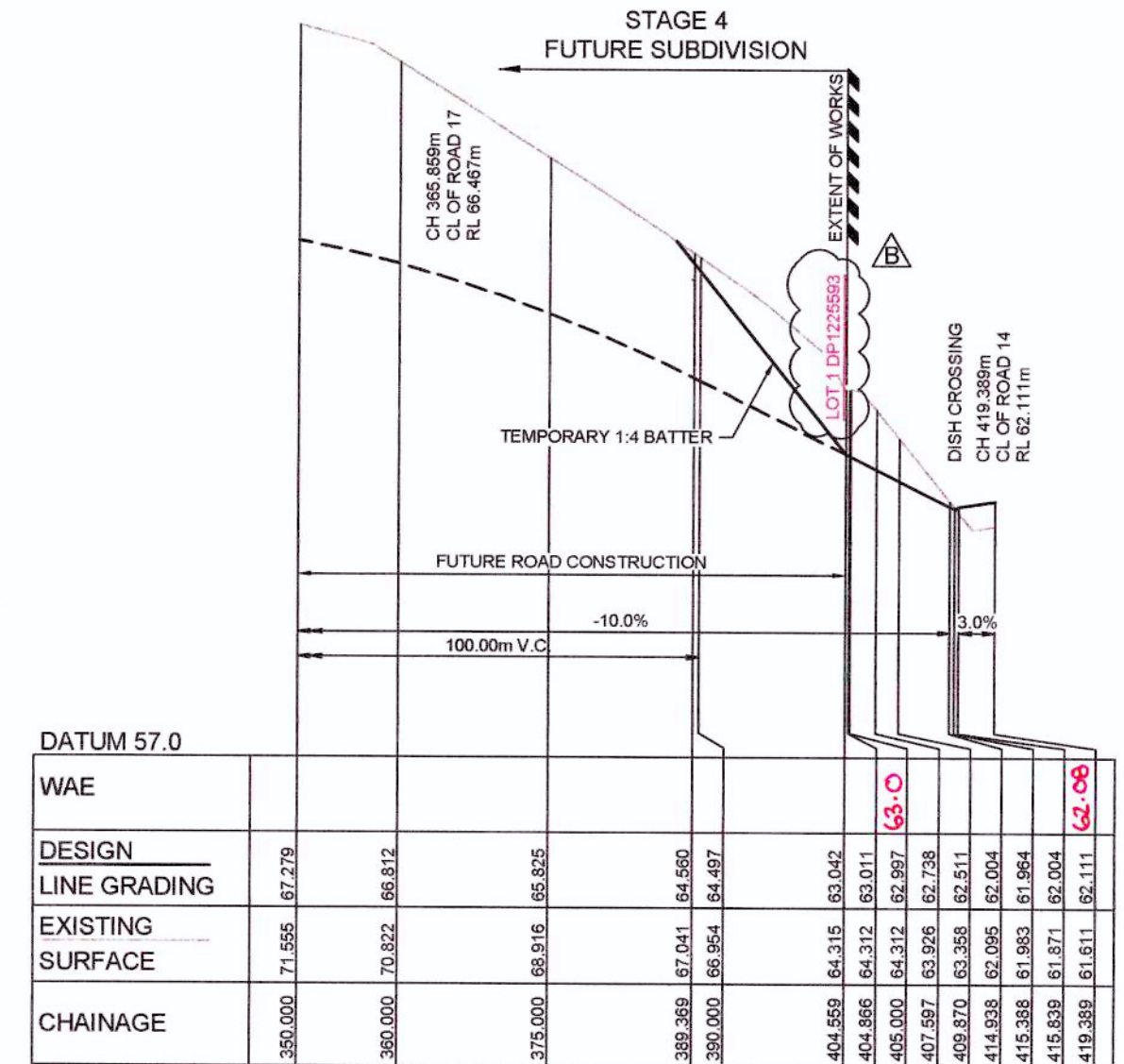
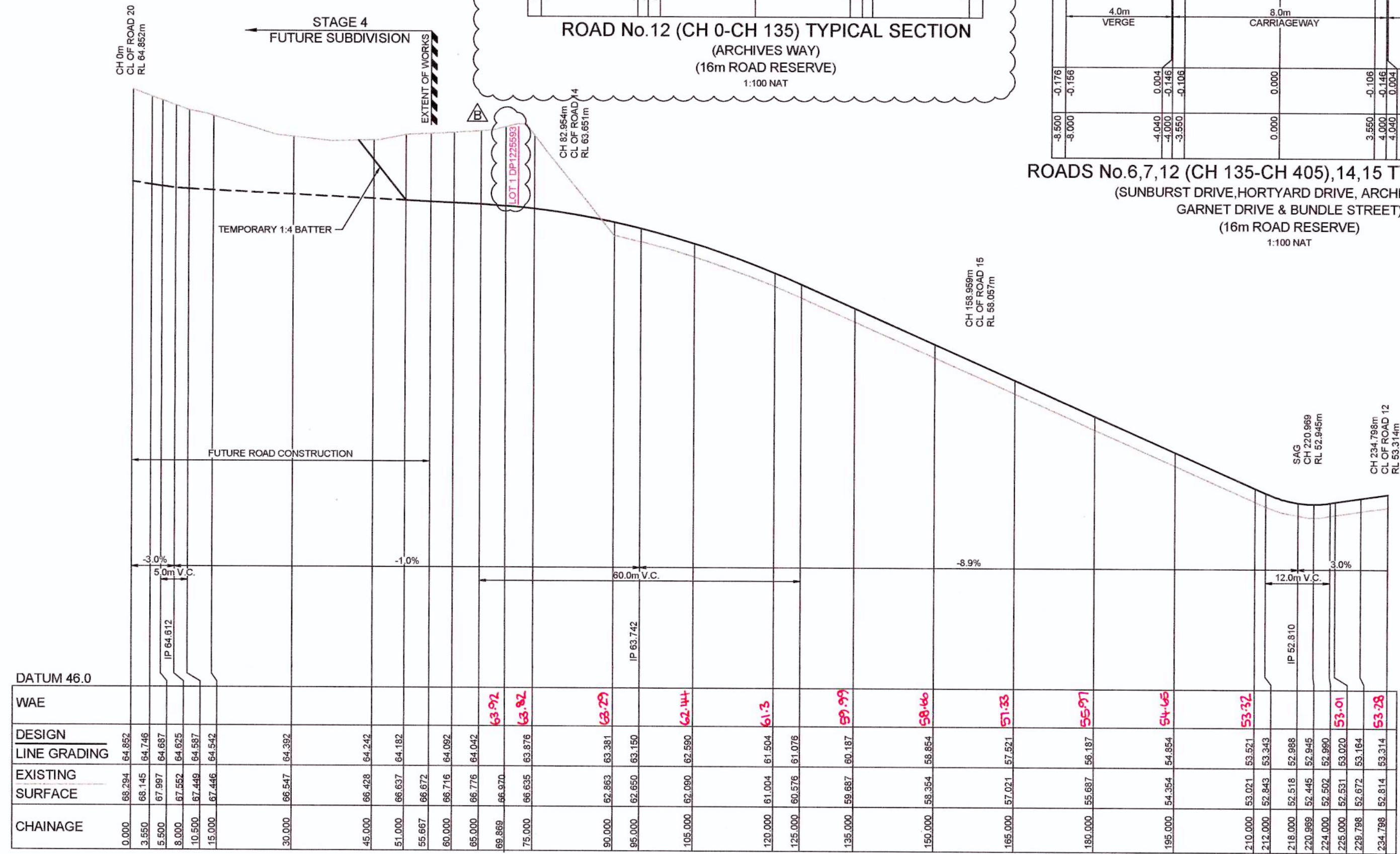
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WORKS AS EXECUTED SHOWN IN RED
SIGNATURE: P.P.
PETER ROBERT WARWICK
Registered Land Surveyor
VINCE MORGAN SURVEYORS PTY LTD
DATE: 8/3/18 REF: 20467/3

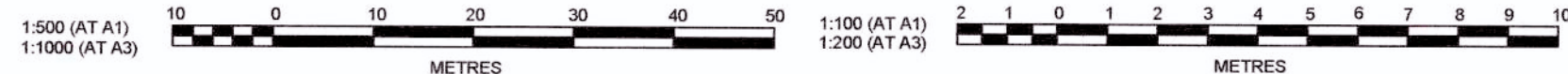


PAVEMENT NOTES ROAD No.6,7,12,14 & 15
ACCESS STREET 5x10⁴
50mm MINIMUM THICKNESS (AC10) 2 x LAYERS 25mm (AC10)
*FINAL AC LAYER TO BE DEFERRED & BONDED
SINGLE COAT FLUSH SEAL
150mm THICK BASECOURSE (DGB20)
175mm THICK SUB BASE (DGS40)
COMPACTED SUBGRADE
REFER TO REPORT BY GEOTECH TESTING PTY LTD REF 8611/1-AA-R1

NOTE
FURTHER GEOTECHNICAL TESTING SHALL BE UNDERTAKEN UPON COMPLETION OF BULK EARTHWORKS FOR STAGE 3 TO CONFIRM CBR VALUES MEET THE DESIGN CBR AS SPECIFIED IN THE PAVEMENT DESIGN INVESTIGATION PREPARED BY GEOTECH TESTING PTY LTD.
JOB No. 8011/1, DATE 25 MAY 2017



These plans are referred to in certificate no. 14403 approved by:
Eric Hausfeld
Accredited Certifier
Registration No: BPB 2416
Categories: B1,C1,C2,C3,C4,C6,C15 & D1
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J. WYNDHAM PRINCE CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS
PO Box 4366 PENRITH WESTFIELD NSW 2750
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AZIMUTH: MGA
DATUM: AHD
ORIGIN:

CLIENT: LEGACYPROPERTY
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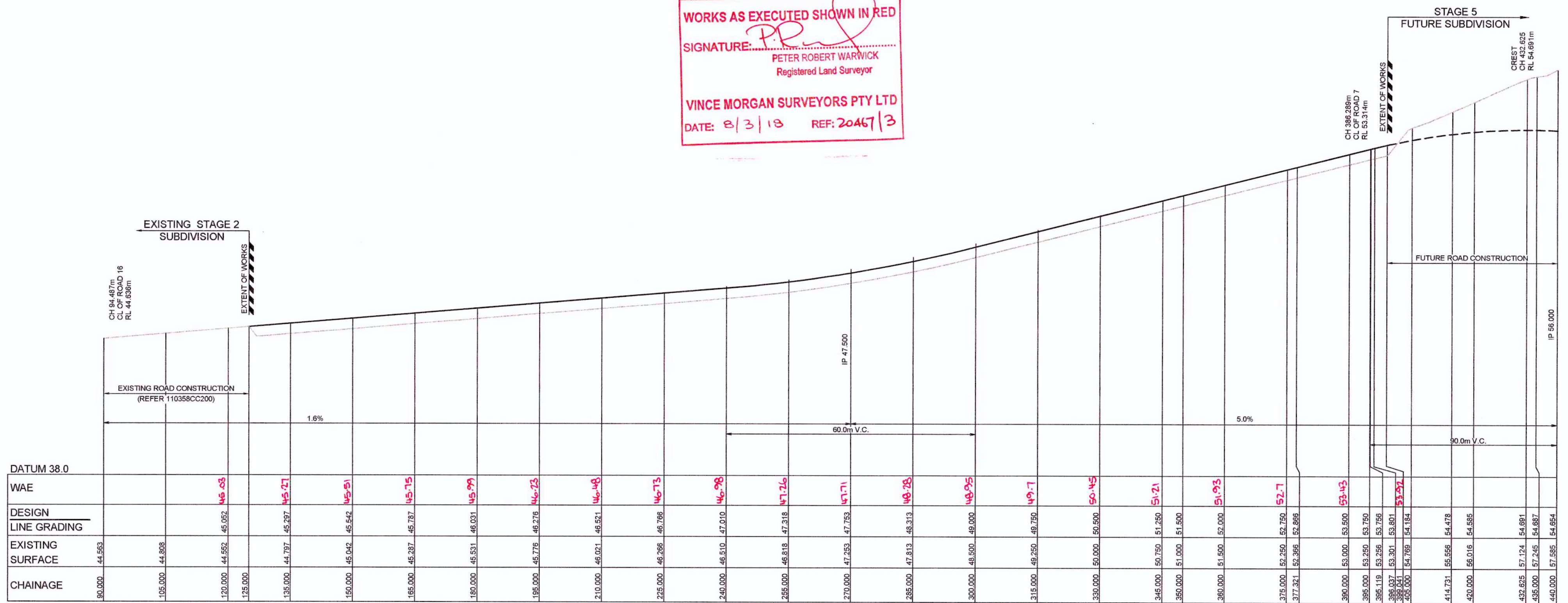
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CADDENS HILL
STAGE 3
ROAD No.7 LONGITUDINAL SECTION

PLAN No: 110358/CC305
FILE No: 110358CC305
SHEET SIZE: A1 ORIGINAL

NOTE
EXISTING SURFACE LEVELS ARE FROM BULK
EARTHWORKS PACKAGE
(REFER TO BULK EARTHWORKS PLANS
PREPARED BY J WYNDHAM PRINCE APPROVED
FOR STAGES 2 AND 3 (CC REF 14305)

WORKS AS EXECUTED SHOWN IN RED
SIGNATURE: *P. R. Warwick*
PETER ROBERT WARWICK
Registered Land Surveyor
VINCE MORGAN SURVEYORS PTY LTD
DATE: 8/3/18 REF: 20467/3

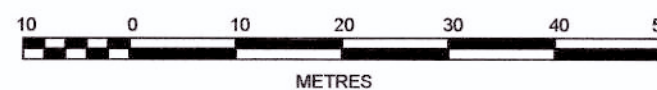


ROAD 12 LONGITUDINAL SECTION
(ARCHIVES WAY)
HORIZONTAL SCALE 1:500
VERTICAL SCALE 1:100

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



1:100 (AT A1)
1:200 (AT A3)



CLIENT:



AZIMUTH:
MGA
DATUM:
AHD
ORIGIN:

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CADDENS HILL
STAGE 3
ROAD No.12 LONGITUDINAL SECTION

PLAN No:
110358/CC306

FILE No: 110358CC306

SHEET SIZE: A1 ORIGINAL

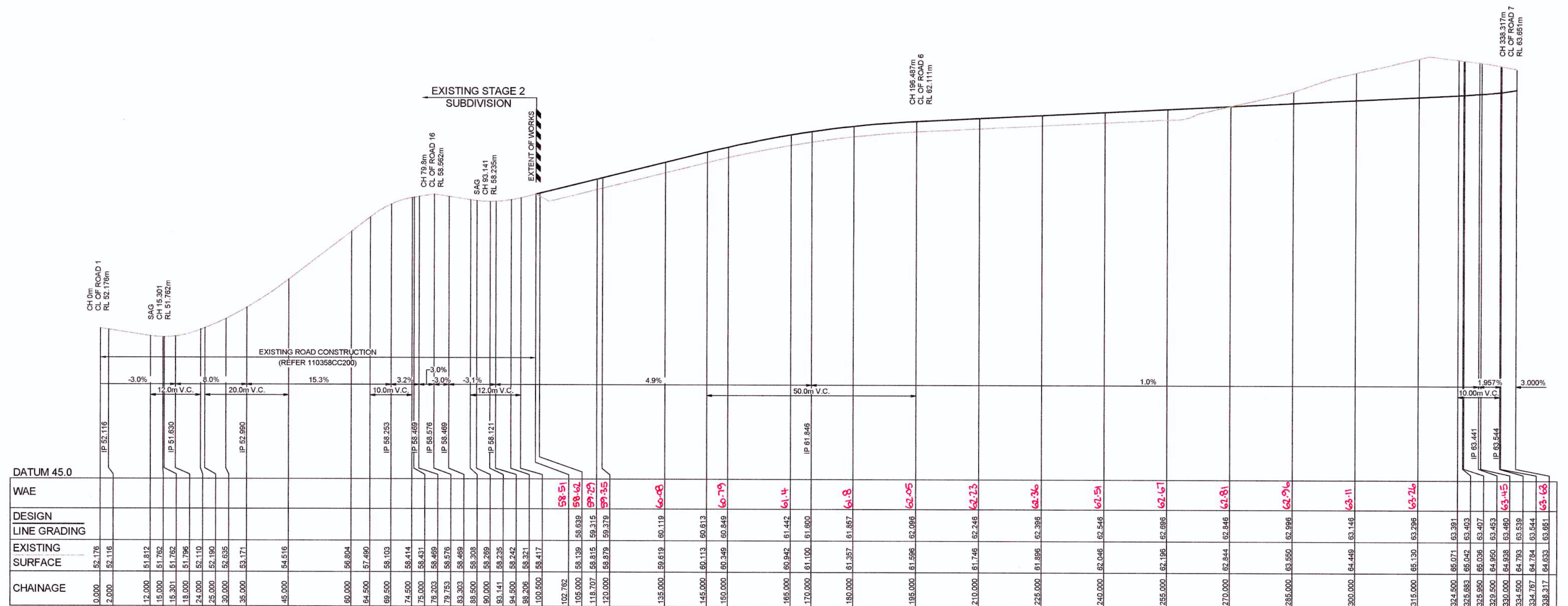
J. WYNDHAM PRINCE CONSULTING CIVIL INFRASTRUCTURE ENGINEERS
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(REFER TO BULK EARTHWORKS PLANS
PREPARED BY J WYNNDHAM PRINCE APPROVED
FOR STAGES 2 AND 3 (CC REF 14305))

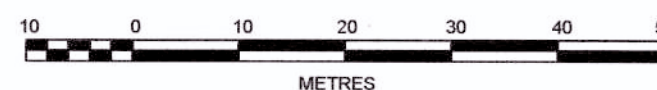
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SIGNATURE: *P.R.*
PETER ROBERT WARWICK
Registered Land Surveyor
VINCE MORGAN SURVEYORS PTY LTD
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ROAD 14 LONGITUDINAL SECTION
(GARNET DRIVE)
HORIZONTAL SCALE 1:500
VERTICAL SCALE 1:100

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



1:100 (AT A1)
1:200 (AT A3)



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CADDENS HILL
STAGE 3
ROAD No.14 LONGITUDINAL SECTION

PLAN No:
110358/CC307

FILE No: 110358CC307

SHEET SIZE: A1 ORIGINAL

J. WYNDHAM PRINCE CONSULTING CIVIL INFRASTRUCTURE ENGINEERS
& PROJECT MANAGERS

PO Box 4366 PENRITH WESTFIELD NSW 2750
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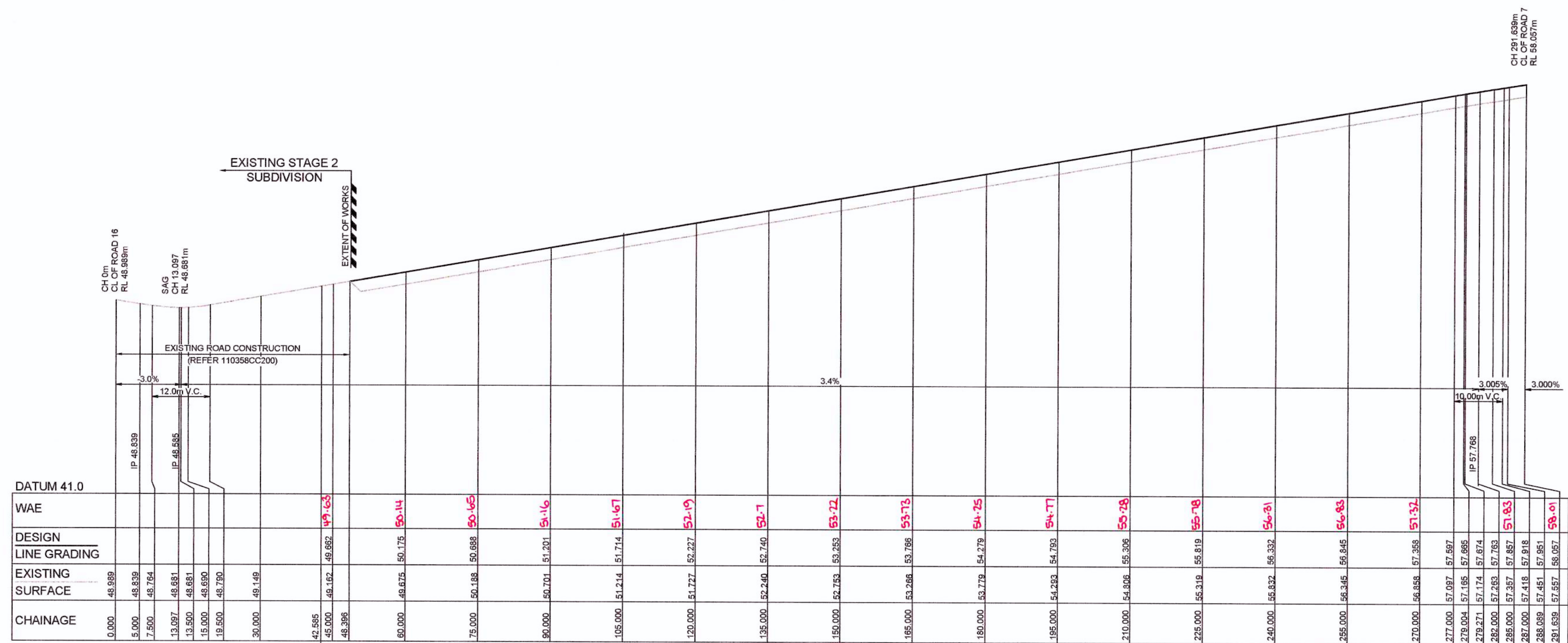
NOTE
EXISTING SURFACE LEVELS ARE FROM BULK
EARTHWORKS PACKAGE
(REFER TO BULK EARTHWORKS PLANS
PREPARED BY J WYNDHAM PRINCE APPROVED
FOR STAGES 2 AND 3 (CC REF 14305)

WORKS AS EXECUTED SHOWN IN RED

SIGNATURE: 
PETER ROBERT WARWICK
Registered Land Surveyor

VINCE MORGAN SURVEYORS PTY LTD

DATE: 8/3/18 REF: 20467/3

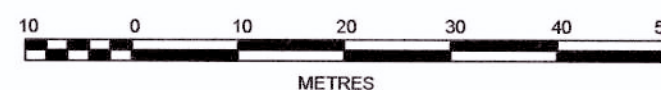


ROAD 15 LONGITUDINAL SECTION
(BUNDLE STREET)
HORIZONTAL SCALE 1:500
VERTICAL SCALE 1:100

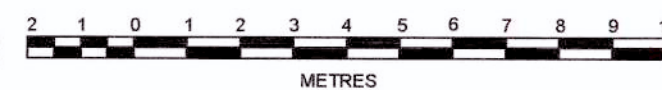
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1:1000 (AT A3)



1:100 (AT A1)
1:200 (AT A3)



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CADDENS HILL
STAGE 3
ROAD No.15 LONGITUDINAL SECTION

PLAN No:
110358/CC308

FILE No: 110358CC308

SHEET SIZE: A1 ORIGINAL

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& PROJECT MANAGERS

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AHD
ORIGIN:

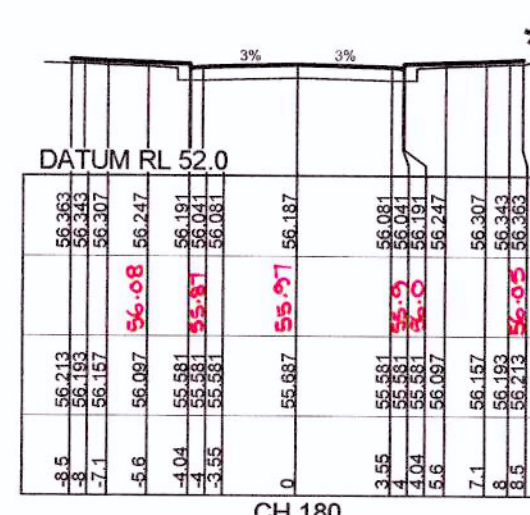
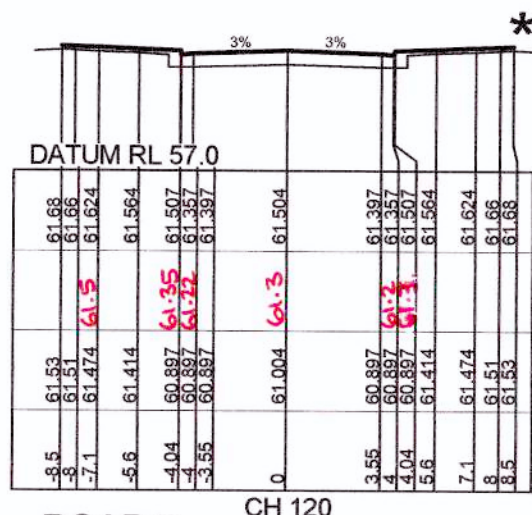
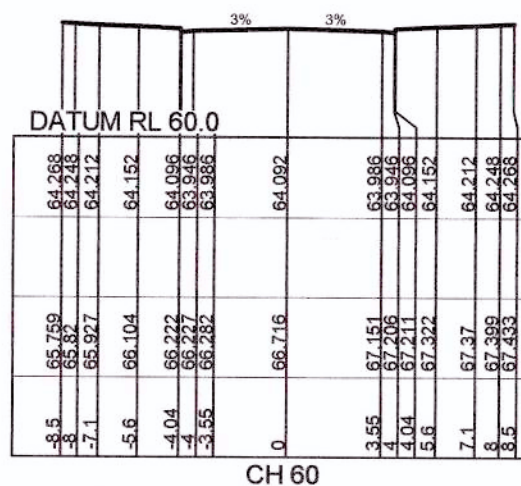
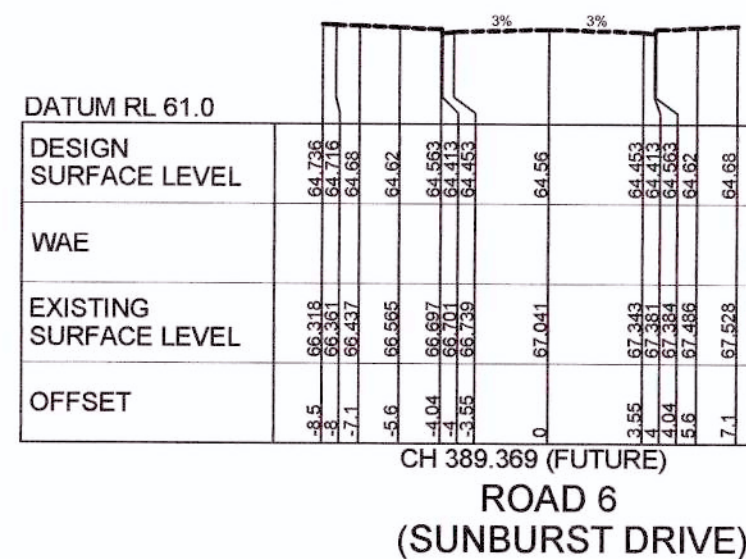
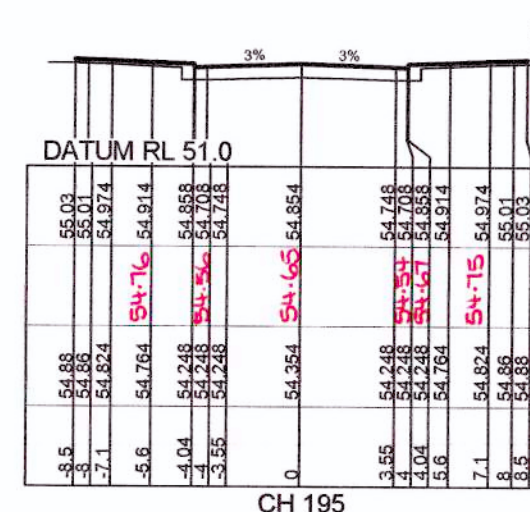
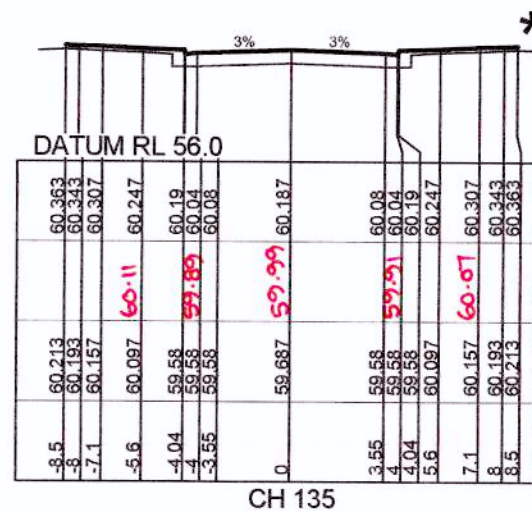
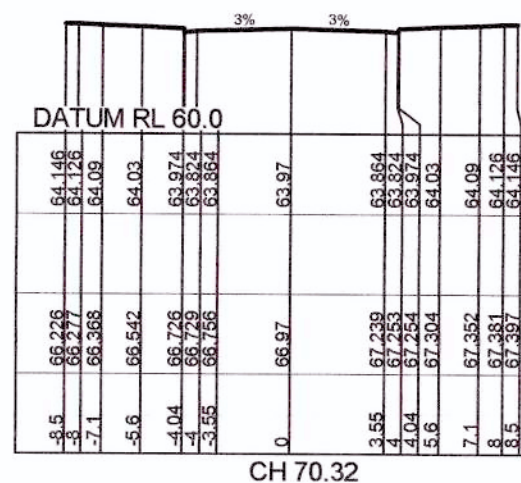
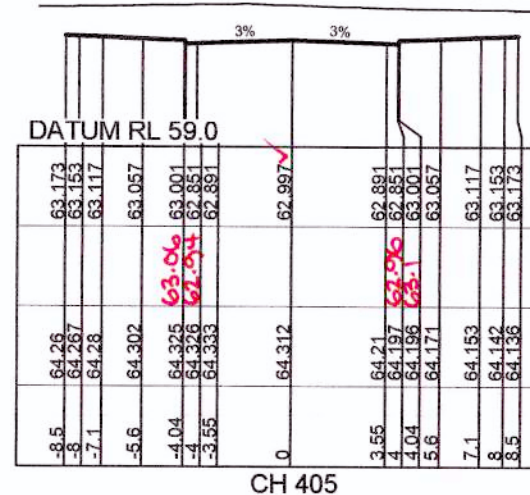
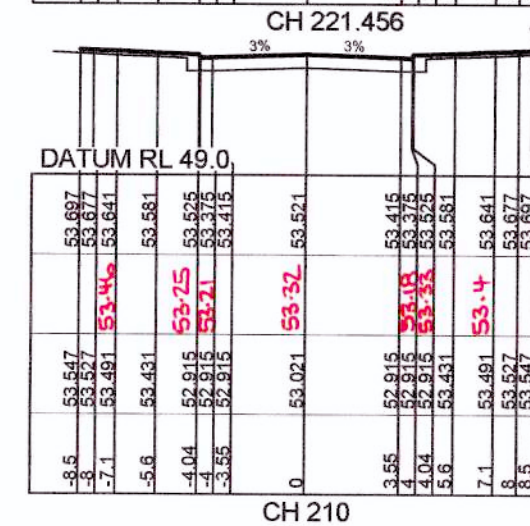
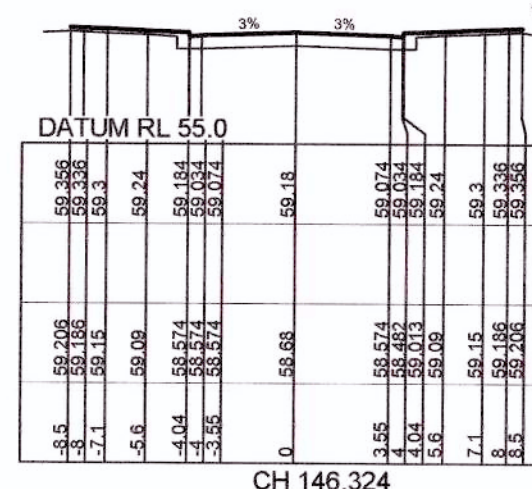
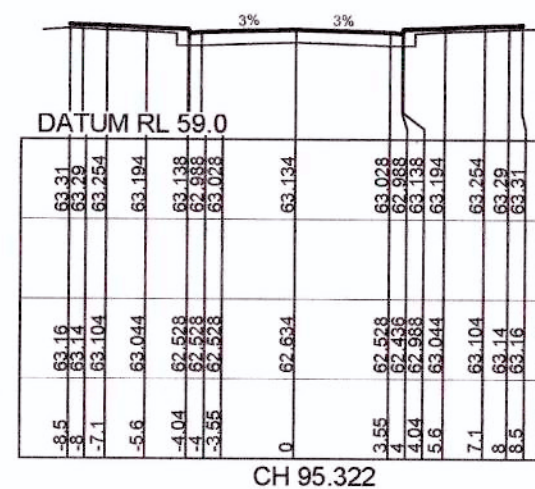
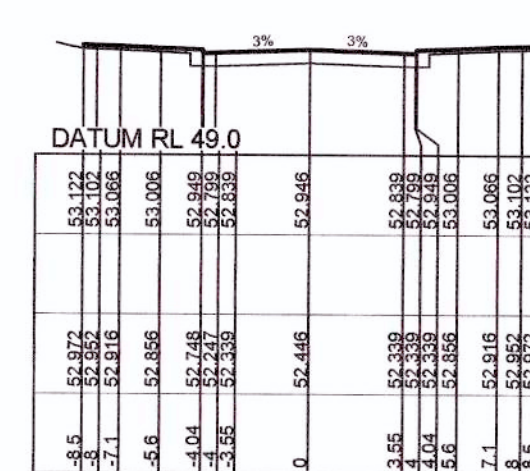
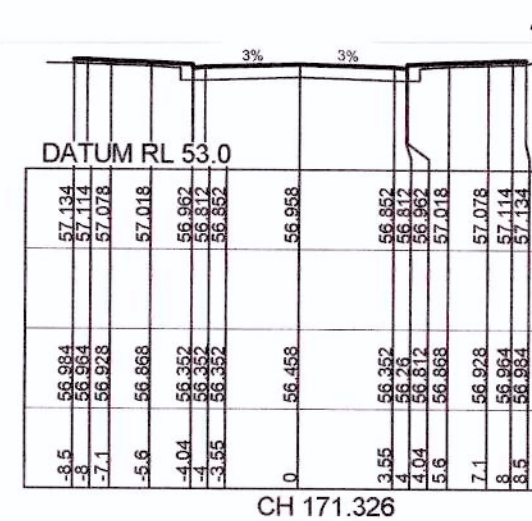
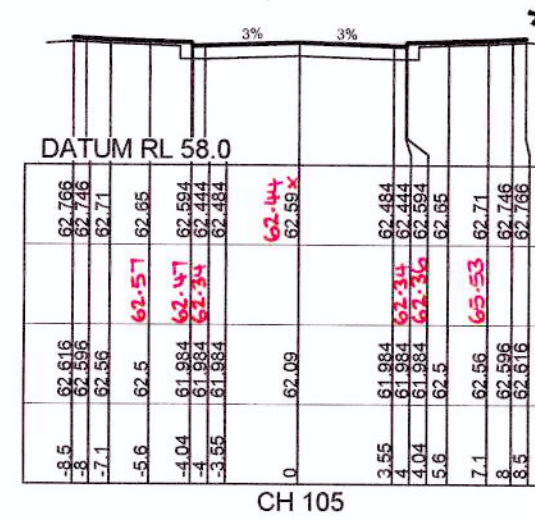
NOTE
* FOR LOT GRADING
REFER TO PLANS CC304

WORKS AS EXECUTED SHOWN IN RED

SIGNATURE: P. R.

PETER ROBERT WARWICK

VINCE MORGAN SURVEYORS PTY LTD
DATE: 8/3/18 REF: 20467/3



These plans are referred to in certificate no. **14403** approved by:

Eric Hausfeld
Accredited Certifier
Registration No: BPB 2416
Categories: B1,C1,C2,C3,C4,C6,C15 & D1

LAND DEVELOPMENT CERTIFICATES
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1:200 (AT A1)
1:400 (AT A3)

4 2 0 4 8 12 16 2

METRES

CLIENT



LEGACYPROPERTY
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ISSUED FOR CONSTRUCTION APPROVAL

CADDENS HILL
STAGE 3
ROAD 7 CROSS SECTIONS

PLAN No:	110358/CC309	B
FILE No:	110358CC309	
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

AZIMUTH:
MGA

DATUM:
AHD

ORIGIN:

DATE: 8/3/18 REF: 20467/3

PLAN No: 110358/CC310		B
FILE No: 110358CC310		
SHEET SIZE:		A1 ORIGINAL

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AZIMUTH:
MGA

DATUM:
AHD

ORIGIN:

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

4 2 0 4 8 12 16 20

METRES

ROAD 12
(ARCHIVES WAY)

B	CERTIFIER COMMENTS - NOTE AMENDED	JT	JT	RT	MS 28/06/17
A	ISSUE FOR CONSTRUCTION APPROVAL	JT	NM	RT	MS 30/05/17
	AMENDMENT	DES	DRN	CKD	APR DATE

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CADDENS HILL
STAGE 3
ROAD No.14 CROSS SECTIONS

FILE No: 110358CC311

SHEET SIZE: A1 ORIGINAL

NOTE
* FOR LOT GRADING
REFER TO PLANS CC304

WORKS AS EXECUTED SHOWN IN RED

SIGNATURE: P.R.

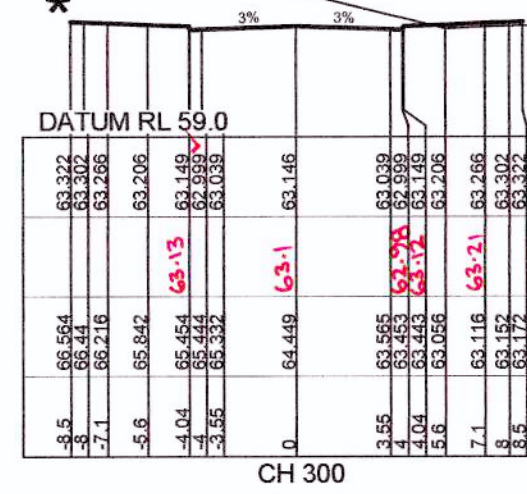
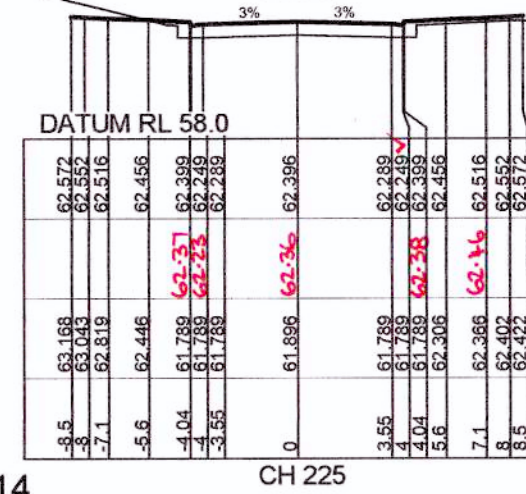
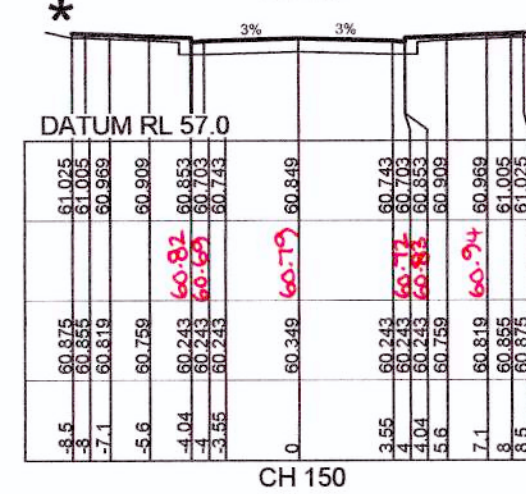
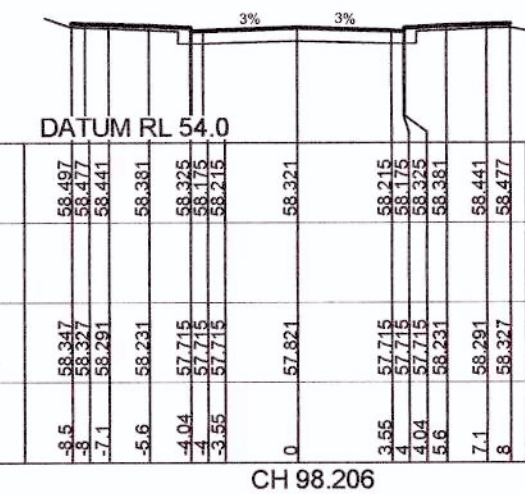
PETER ROBERT WARWICK
Registered Land Surveyor

VINCE MORGAN SURVEYORS PTY LTD

DATE: 8/3/18 REF: 20457/3

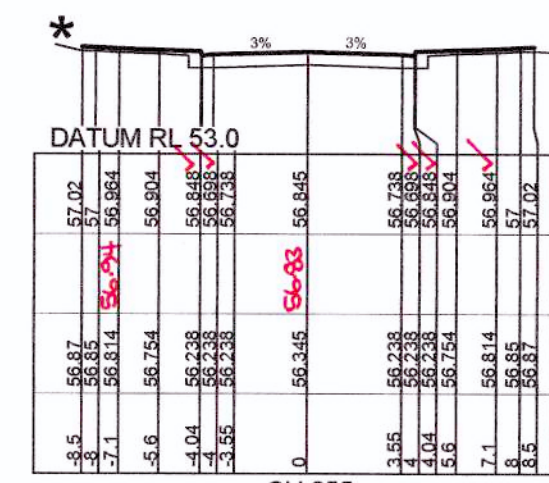
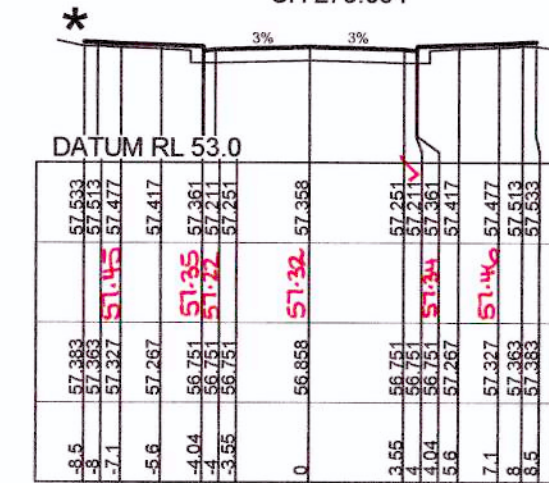
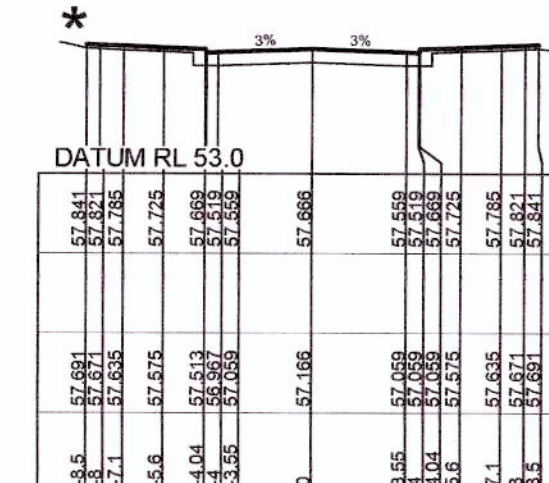
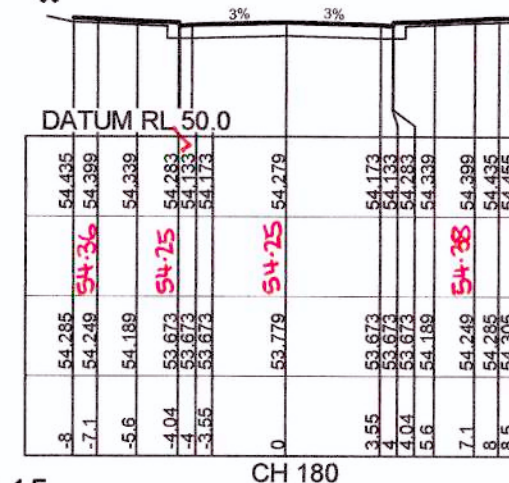
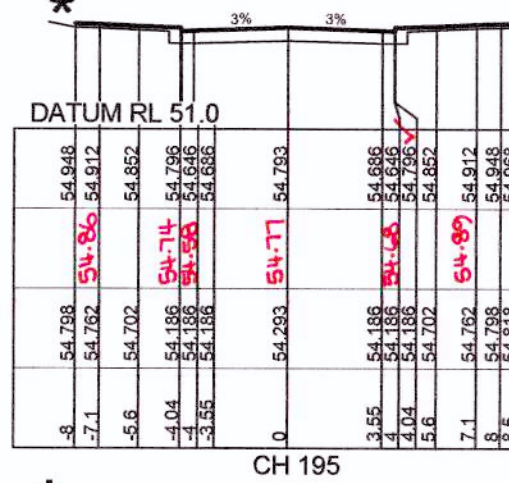
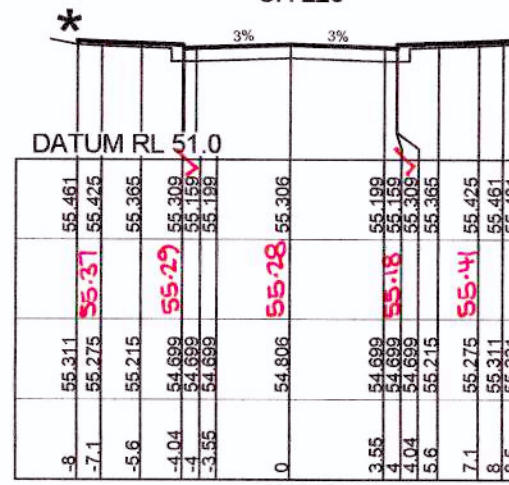
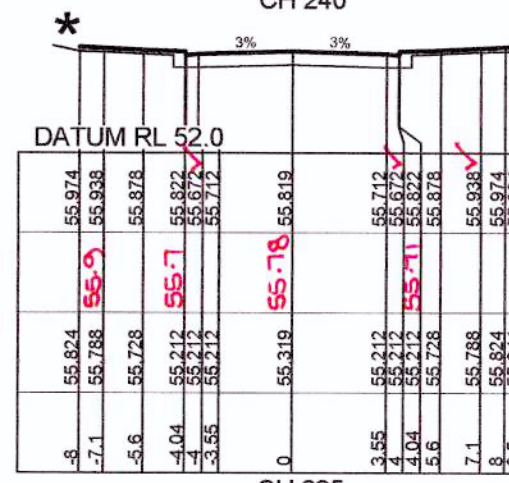
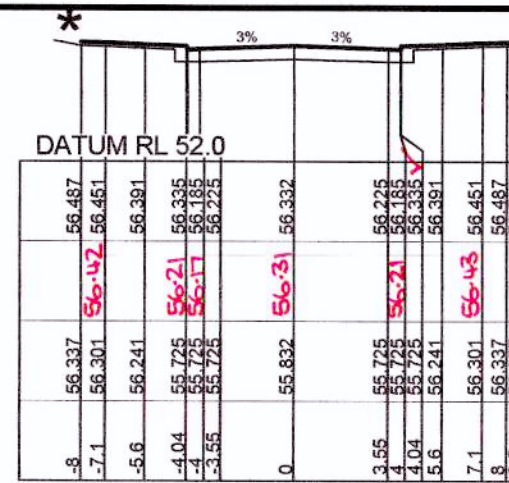
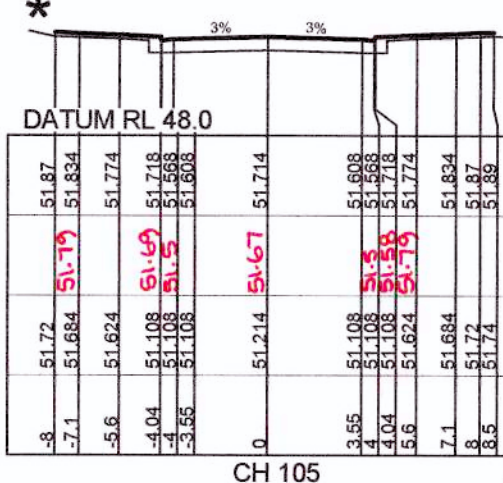
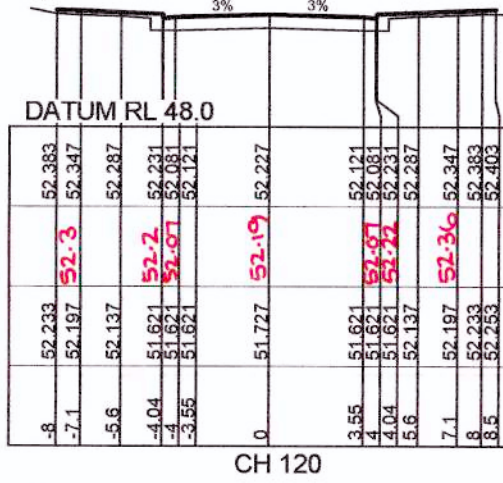
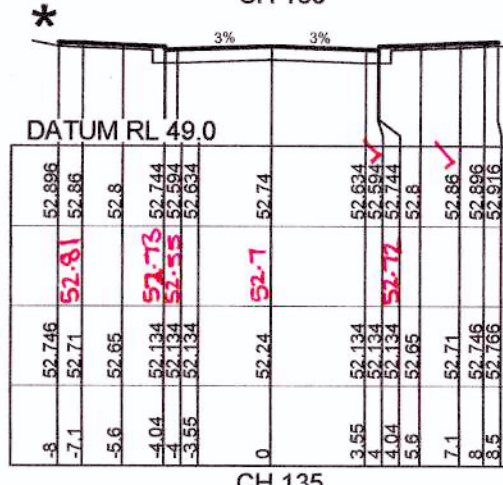
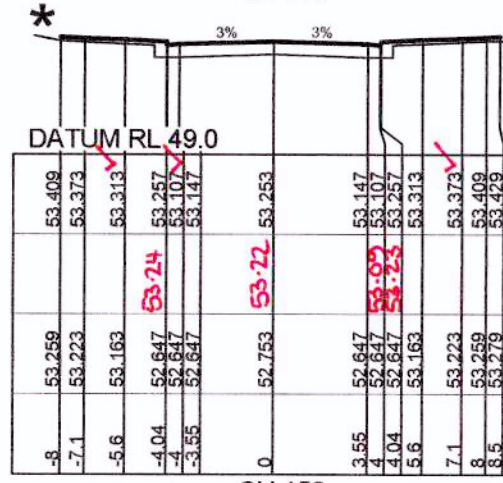
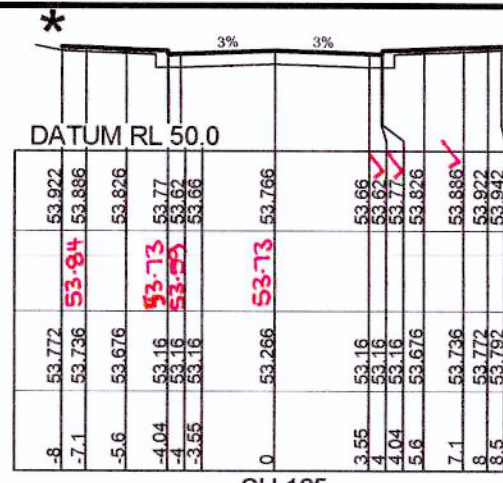
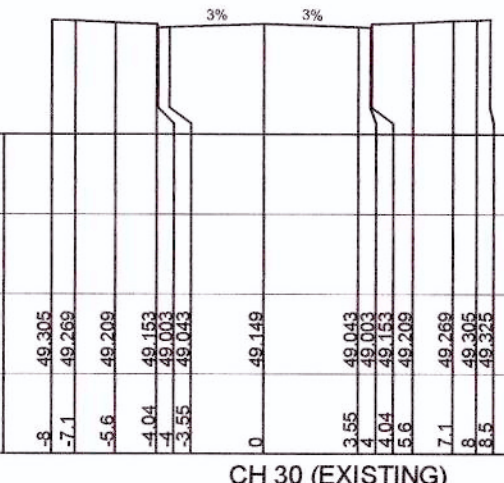
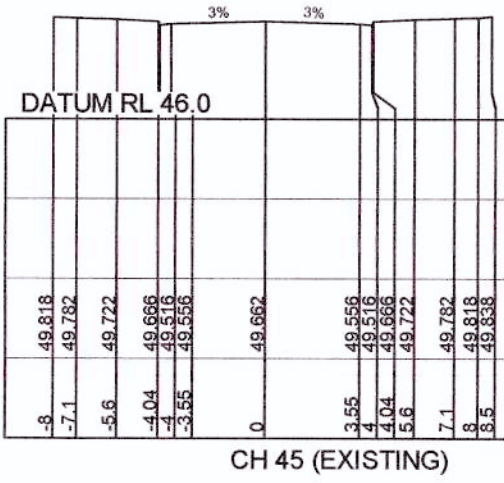
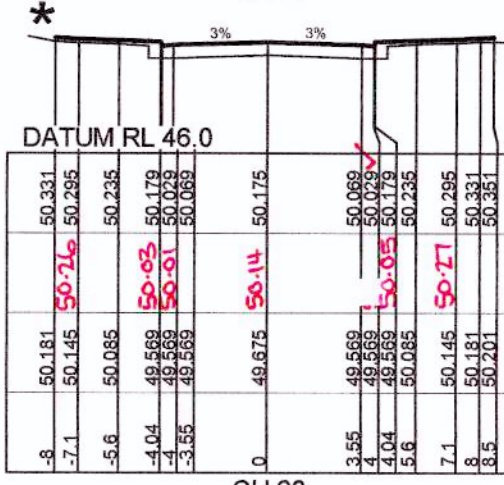
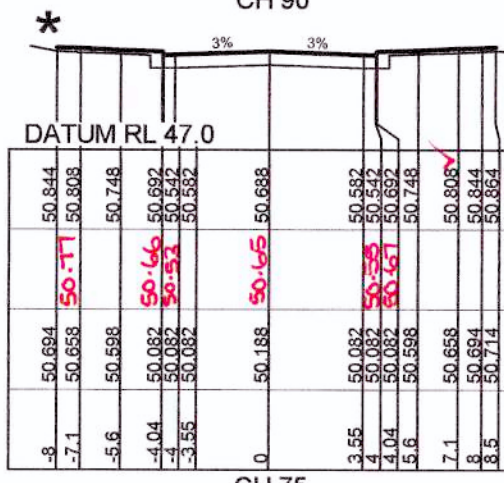
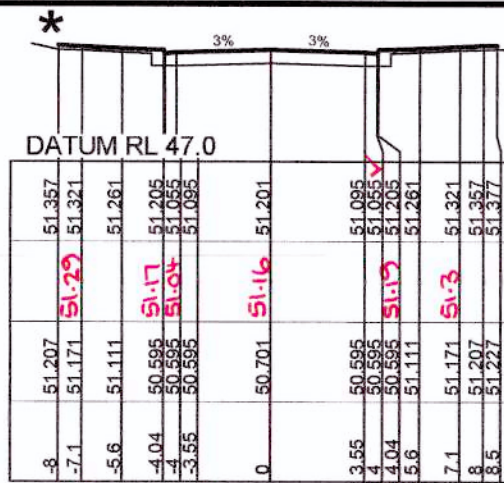
These plans are referred to in certificate no. **14403** approved by:
Eric Hausfeld
Accredited Certifier
Registration No: BPB 2416
Categories: B1,C1,C2,C3,G4,G6,C15 & D1

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ZIMUTH

DATUM RL 45.0	
DESIGN SURFACE LEVEL	
WAE	
EXISTING SURFACE LEVEL	
OFFSET	



NOTE
EXISTING SURFACE LEVELS ARE FROM BULK
EARTHWORKS PACKAGE
(REFER TO BULK EARTHWORKS PLANS
PREPARED BY J WYNDHAM PRINCE APPROVED
FOR STAGES 2 AND 3 (CC REF 14305))

NOTE
* FOR LOT GRADING
REFER TO PLANS CC304

WORKS AS EXECUTED SHOWN IN RED
SIGNATURE: *P. R. Warwick*
PETER ROBERT WARWICK
Registered Land Surveyor
VINCE MORGAN SURVEYORS PTY LTD
DATE: 8/3/18 REF: 20467/3

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Categories: B1 C1,C2,C3,C4,C6,C15 & D1
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1:200 (AT A1)
1:400 (AT A3)
4 2 0 4 8 12 16 20
METRES

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AZIMUTH:
MGA
DATUM:
AHD
ORIGIN:

LEGACYPROPERTY

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CADDENS HILL
STAGE 3
ROAD No.15 CROSS SECTIONS

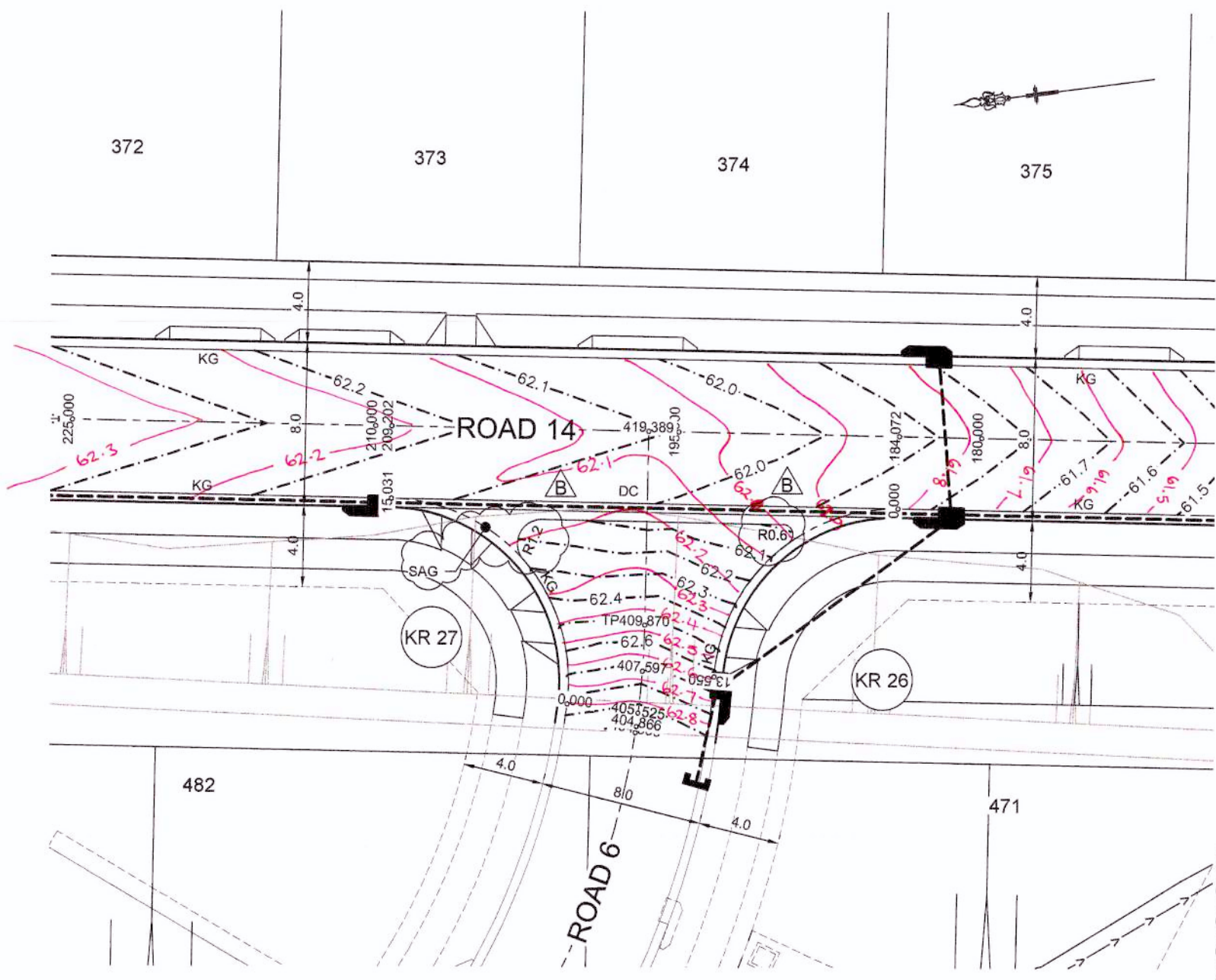
PLAN No:
110358/CC312

FILE No: 110358CC312

SHEET SIZE: A1 ORIGINAL

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JT	NM	RT	MS	30/05/17
AMENDMENT				

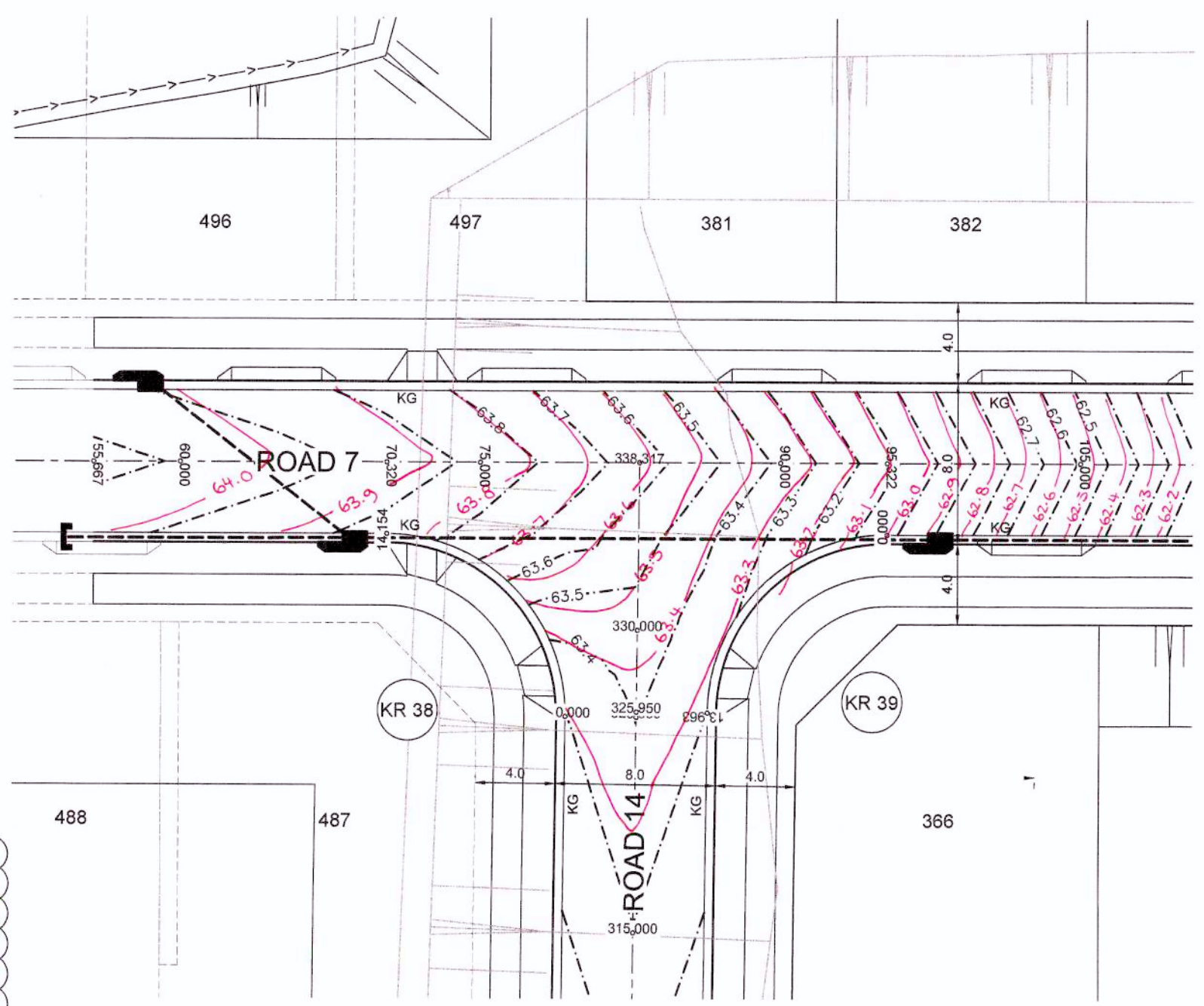
DESIGN LEVELS AND SETOUT
ARE TO LIP OF GUTTER



PLAN
SCALE 1:200

WORKS AS EXECUTED SHOWN IN RED
SIGNATURE: *PR*
PETER ROBERT WARWICK
Registered Land Surveyor
VINCE MORGAN SURVEYORS PTY LTD
DATE: 21/3/18 REF: 20467/3

DISH CROSSING TO BE IN ACCORDANCE
WITH PCC CONSTRUCTION SPECIFICATION
STANDARD DRAWING SD1003/2 UNLESS
DIRECTED OTHERWISE BY COUNCIL
ENGINEER



PLAN
SCALE 1:200

DESIGN GRADELINE
VERTICAL GEOMETRY

	IP 61.896		IP 62.293
	1.860%	5.851%	9.996%
	6.78m V.C.		
DATUM 60.0			
DESIGN	61.81	61.91	62.08
LIP GRADING	61.81	61.91	62.08
ROAD CHAINAGE	184.072	61.833	62.328
CHAINAGE	0	3.388	6.775

KR 26
HORIZONTAL SCALE 1:200
VERTICAL SCALE 1:50

CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPRAL	A LENGTH
0	290606.93	6260530.51	8°26'12.25"		
6.78	290608.17	6260538.87		-8.95	13.55
13.55	290599.69	6260540.59	281°41'30.20"		

DESIGN GRADELINE
VERTICAL GEOMETRY

	IP 61.987		
	-10.842%	2.000%	
	5.00m V.C.		
DATUM 60.0			
DESIGN	61.9	62.33	62.08
LIP GRADING	61.9	62.33	62.08
ROAD CHAINAGE	405.525	62.838	62.037
CHAINAGE	0	5.35	10.35

KR 27
HORIZONTAL SCALE 1:200
VERTICAL SCALE 1:50

CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPRAL	A LENGTH
0	290598.91	6260548.12	105°36'13.32"		
7.59	290608.68	6260545.4		-8.95	15.18
15.18	290610.17	6260555.43	8°26'12.25"		

DESIGN GRADELINE
VERTICAL GEOMETRY

	IP 63.332		IP 63.804
	1.000%	6.667%	1.699%
	7.08m V.C.		
DATUM 61.0			
DESIGN	63.26	63.382	63.568
LIP GRADING	63.26	63.382	63.568
ROAD CHAINAGE	325.702	63.296	63.76
CHAINAGE	0	3.539	7.077

KR 38
HORIZONTAL SCALE 1:200
VERTICAL SCALE 1:50

CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPRAL	A LENGTH
0	290627.7	6260670.59	8°26'12.25"		
7.08	290629.03	6260679.54		-8.95	14.15
14.15	290620.07	6260680.77	277°49'30.00"		

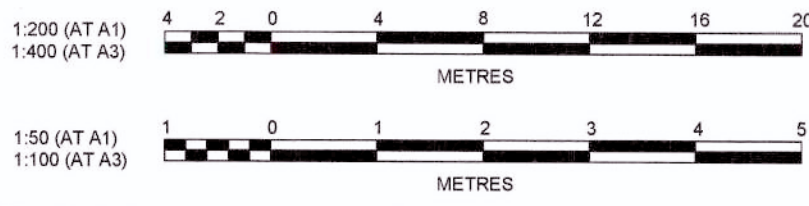
DESIGN GRADELINE
VERTICAL GEOMETRY

	IP 63.202		IP 63.334
	4.988%	1.889%	-1.000%
	6.98m V.C.		
DATUM 61.0			
DESIGN	63.028	63.175	63.25
LIP GRADING	63.028	63.175	63.25
ROAD CHAINAGE	95.323	63.268	63.311
CHAINAGE	0	3.491	6.982

KR 39
HORIZONTAL SCALE 1:200
VERTICAL SCALE 1:50

CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPRAL	A LENGTH
0	290644.84	6260677.36	277°49'30.00"		
6.98	290636.07	6260678.57		-8.95	13.96
13.96	290634.77	6260669.81	188°26'12.25"		

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Accredited Certifier
Registration No: BPB 2416
Categories: B1, C1, C2, C3, C4, C6, C15 & D1
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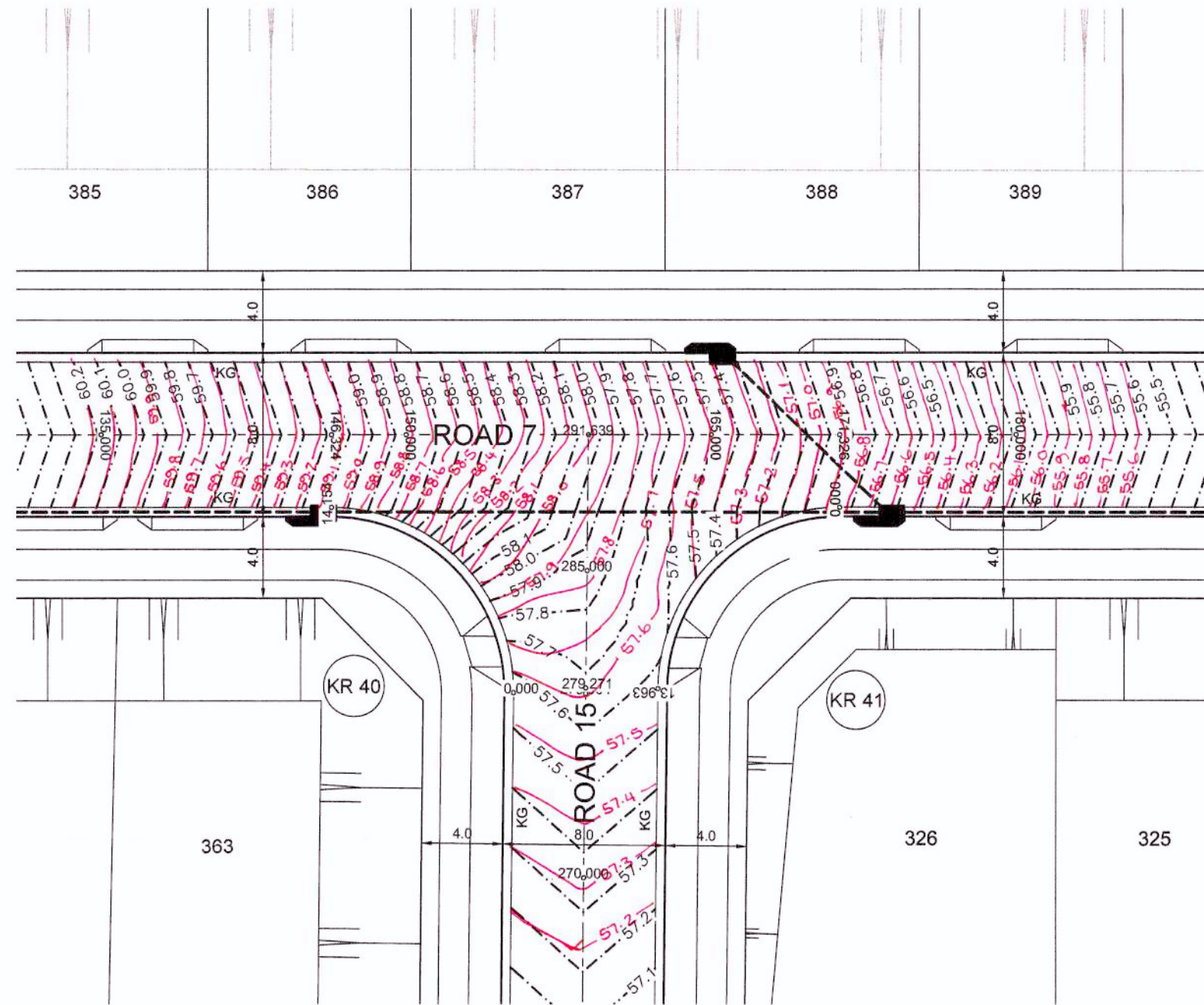
CADDENS HILL
STAGE 3
KERB RETURNS

PLAN No:
110358/CC313
FILE No: 110358CC313
SHEET SIZE: A1 ORIGINAL

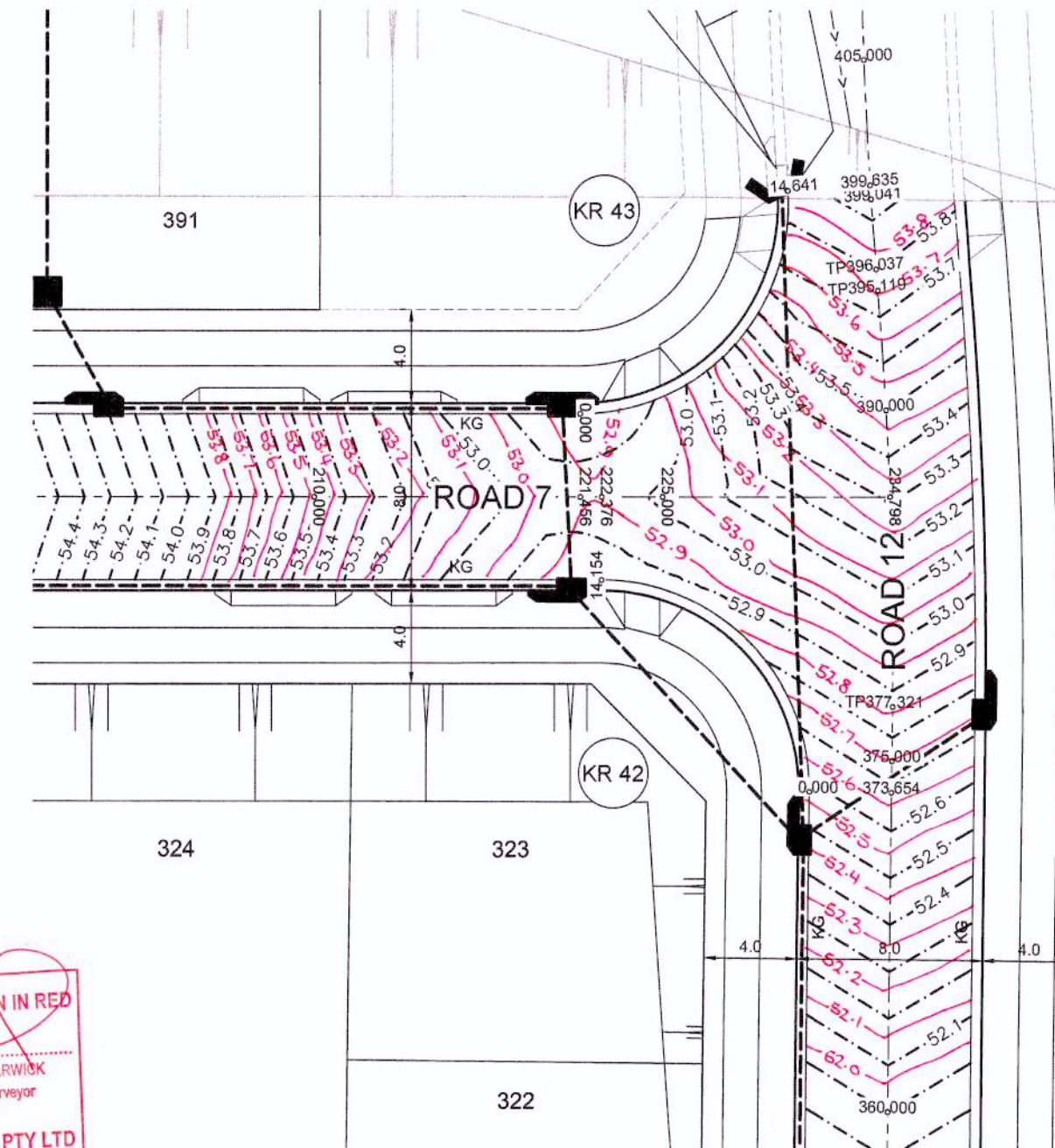
J. WYNDHAM PRINCE CONSULTING CIVIL INFRASTRUCTURE ENGINEERS
& PROJECT MANAGERS
PO Box 4366 PENRITH WESTFIELD NSW 2750
P 02 4720 3300 F 02 4720 3399 W www.jwprince.com.au E jwp@jwprince.com.au

Plotted: 28 June, 2017 9:52:58 AM File Name: J:\110358 - Caddens Hill, Caddens Hill - Stage 2\CD\CC313.dwg

DESIGN LEVELS AND SETOUT
ARE TO LIP OF GUTTER

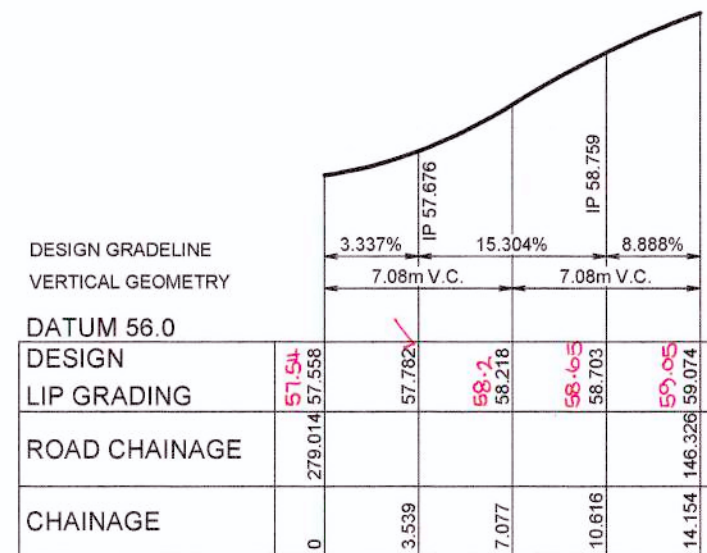


PLAN
SCALE 1:200



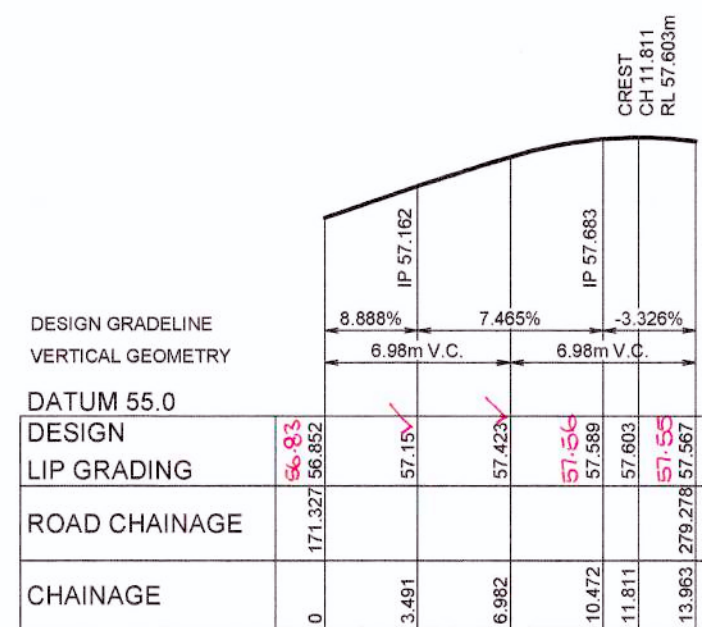
PLAN
SCALE 1:200

WORKS AS EXECUTED SHOWN IN RED
SIGNATURE: *PETER ROBERT WARWICK*
PETER ROBERT WARWICK
Registered Land Surveyor
VINCE MORGAN SURVEYORS PTY LTD
DATE: 8/3/18 REF: 2044713



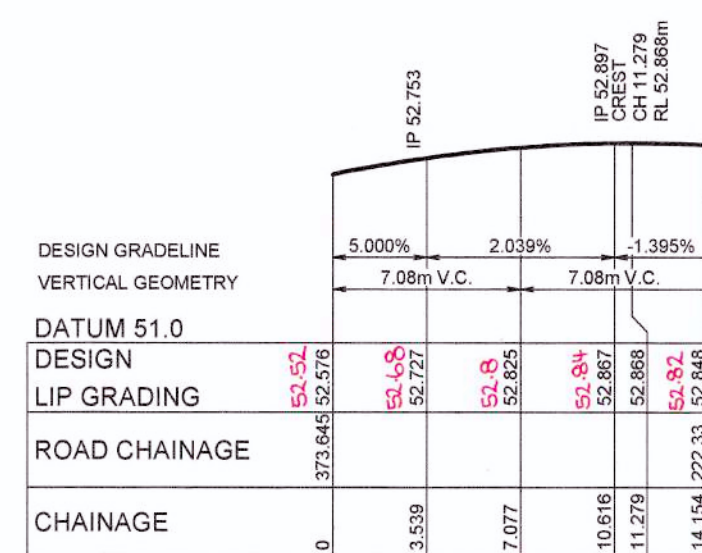
KR 40
HORIZONTAL SCALE 1:200
VERTICAL SCALE 1:50

CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A LENGTH
0	290703	6260660.24	8°26'12.14"	-8.95	14.15
7.08	290704.33	6260669.19			
14.15	290695.37	6260670.42	277°49'30.00"		



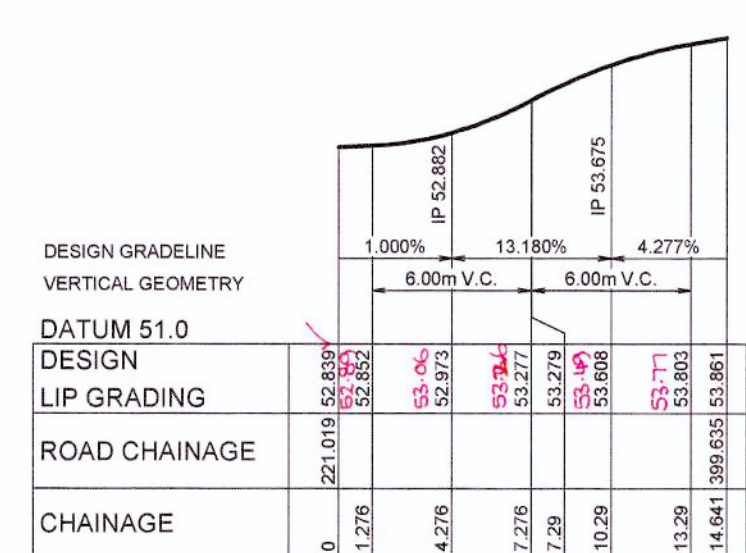
KR 41
HORIZONTAL SCALE 1:200
VERTICAL SCALE 1:50

CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A LENGTH
0	290720.13	6260667.02	277°49'30.00"	-8.95	13.96
6.98	290711.38	6260668.22			
13.96	290710.06	6260659.46	188°26'12.14"		



KR 42
HORIZONTAL SCALE 1:200
VERTICAL SCALE 1:50

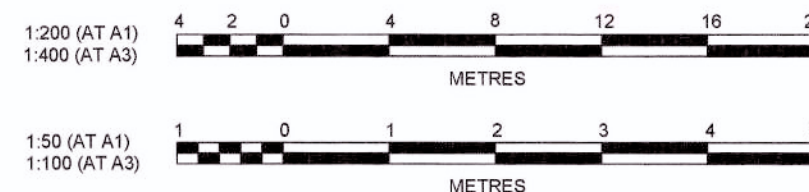
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0	290778.34	6260649.89	8°26'12.57"	-8.95	14.15
7.08	290779.67	6260658.83			
14.15	290770.71	6260660.06	277°49'30.00"		



KR 43
HORIZONTAL SCALE 1:200
VERTICAL SCALE 1:50

CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A LENGTH
0	290770.78	6260667.22	97°49'30.00"	-8.95	14.64
7.32	290780.23	6260665.92			
14.64	290780.91	6260675.45	4°05'57.69"		

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Accredited Certifier
Registration No: BPB 2416
Categories: B1, C1, C2, C3, C4, C6, C15 & D1
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MGA
DATUM:
AHD
ORIGIN:

CLIENT:
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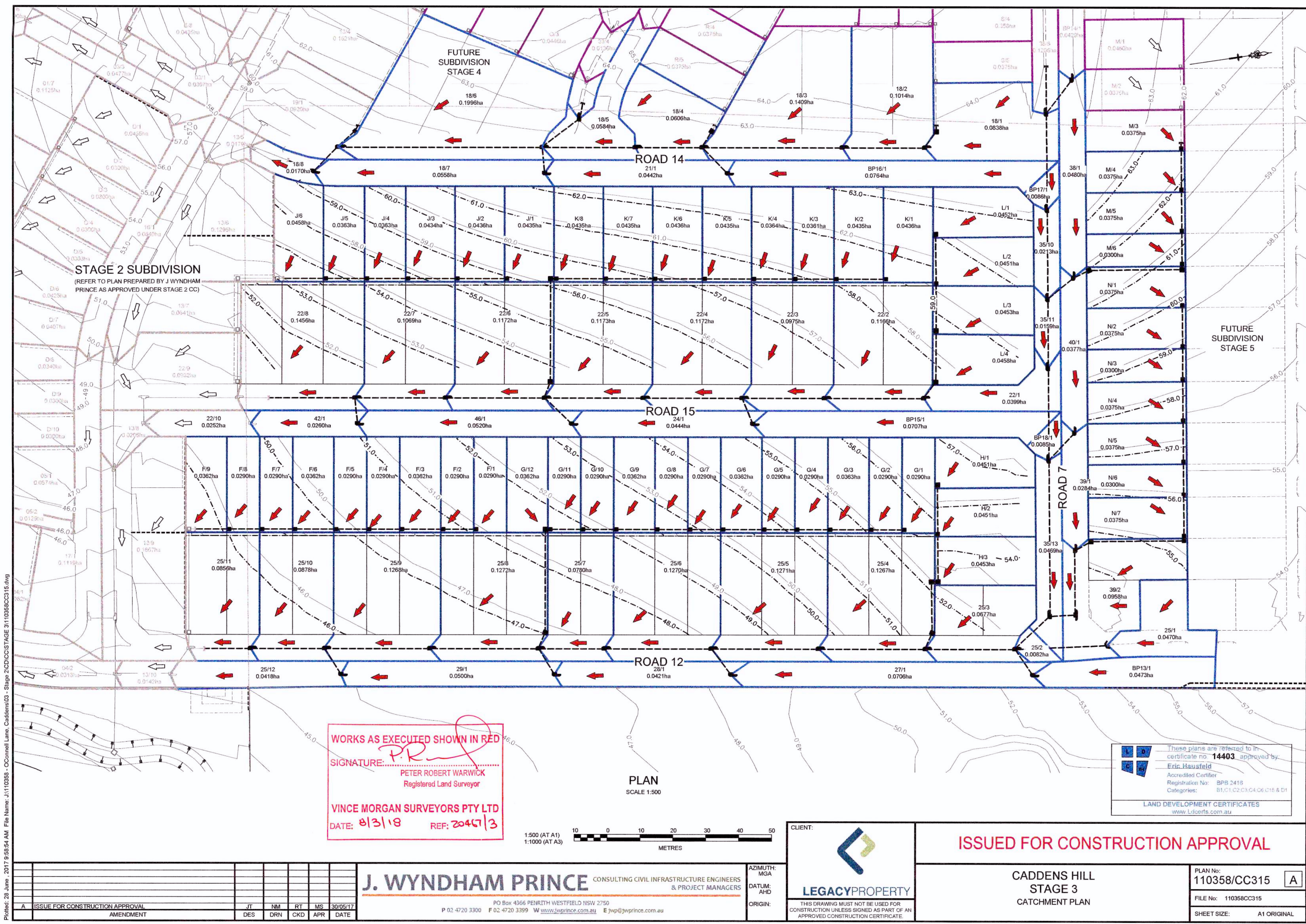
ISSUED FOR CONSTRUCTION APPROVAL

CADDENS HILL
STAGE 3
KERB RETURNS

PLAN No:
110358/CC314

FILE No: 110358CC314

SHEET SIZE: A1 ORIGINAL



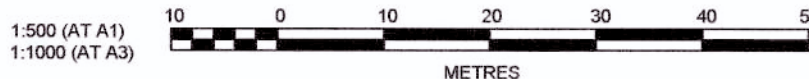
STAGE 2 SUBDIVISION
(REFER TO PLAN PREPARED BY J WYNHAM PRINCE AS APPROVED UNDER STAGE 2 CC)

FUTURE
SUBDIVISION
STAGE 4

FUTURE
SUBDIVISION
STAGE 5

WORKS AS EXECUTED SHOWN IN RED
SIGNATURE: *P.R.*
PETER ROBERT WARWICK
Registered Land Surveyor
VINCE MORGAN SURVEYORS PTY LTD
DATE: 8/3/18 REF: 2047/3

PLAN
SCALE 1:500



These plans are referred to in certificate no 14403 approved by
Eric Hausfeld
Accredited Certifier
Registration No: BPB 2418
Categories: B1, C1, C2, C3, C4, C6, C15 & D1
LAND DEVELOPMENT CERTIFICATES
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CLIENT:

LEGACYPROPERTY

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ISSUED FOR CONSTRUCTION APPROVAL

J. WYNHAM 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

CADDENS HILL
STAGE 3
CATCHMENT PLAN

PLAN No: 110358/CC315
FILE No: 110358CC315
SHEET SIZE: A1 ORIGINAL

Plotted: 28 June, 2017 9:56:54 AM File Name: J:\110358 - Caddens Hill Stage 3 CC\CC315.dwg

PIT SCHEDULE

PIT NAME (-)	PIT TYPE (-)	PIT EASTING (m)	PIT NORTHING (m)	PIT DEPTH (m)	COMMENTS
18/1	1.8 m lintel	290623.118	6260642.736	1.522	
18/2	1.8 m lintel	290619.446	6260617.978	1.552	
18/3	1.8 m lintel	290613.206	6260575.91	1.582	
18/4	1.8 m lintel	290610.238	6260555.904	1.612	
18/5	1.8 m lintel	290606.092	6260527.949	1.568	
18/6	2.4 m lintel	290596.993	6260466.601	1.587	
18/7	1.8 m lintel	290603.325	6260458.224	1.666	
18/8	1.8 m lintel	290593.052	6260440.368	1.659	EXISTING PIT
20/1	1.8 m lintel	290622.251	6260582.368	1.466	
21/1	1.8 m lintel	290614.12	6260527.543	1.45	
22/1	1.8 m lintel	290698.282	6260631.499	1.552	
22/2	1.8 m lintel	290693.862	6260601.897	1.552	
22/3	1.8 m lintel	290690.194	6260576.97	1.552	
22/4	1.8 m lintel	290685.794	6260547.3	1.552	
22/5	1.8 m lintel	290681.39	6260517.611	1.552	
22/6	1.8 m lintel	290676.991	6260487.952	1.552	
22/7	1.8 m lintel	290672.951	6260460.715	1.554	
22/8	1.8 m lintel	290667.721	6260425.455	1.686	EXISTING PIT
23/1	1.8 m lintel	290698.595	6260579.08	1.466	
24/1	1.8 m lintel	290690.523	6260524.655	1.488	
25/1	1.8 m lintel	290780.497	6260675.984	1.679	TEMPORARY HEADWALL
25/2	1.8 m lintel	290777.597	6260647.921	1.646	
25/3	1.8 m lintel	290773.606	6260621.01	1.571	
25/4	1.8 m lintel	290768.837	6260588.859	1.619	
25/5	1.8 m lintel	290764.069	6260556.712	1.702	
25/6	1.8 m lintel	290759.3	6260524.563	1.698	
25/7	1.8 m lintel	290756.365	6260504.777	1.764	
25/8	1.8 m lintel	290751.521	6260472.116	1.764	
25/9	1.8 m lintel	290746.834	6260440.513	1.764	
25/10	1.8 m lintel	290743.529	6260418.231	1.764	
25/11	1.8 m lintel	290740.789	6260399.759	1.774	EXISTING PIT
26/1	1.8 m lintel	290786.308	6260652.126	1.488	
27/1	1.8 m lintel	290772.861	6260561.461	1.485	
28/1	1.8 m lintel	290764.996	6260508.44	1.463	
29/1	1.8 m lintel	290755.481	6260444.289	1.463	
33/4	1.8 m lintel	290588.647	6260544.073	1.609	FUTURE PIT
33/5	1.8 m lintel	290599.392	6260540.23	1.503	FUTURE PIT
35/7	1.8 m lintel	290566.383	6260687.691	1.522	
35/8	1.8 m lintel	290618.436	6260680.537	1.54	
35/9	1.8 m lintel	290647.404	6260676.556	1.574	
35/10	1.8 m lintel	290674.178	6260672.877	1.824	
35/11	1.8 m lintel	290694.912	6260670.027	1.669	
35/12	1.8 m lintel	290722.608	6260666.206	1.871	
35/13	1.8 m lintel	290769.354	6260659.756	1.967	
37/1	1.8 m lintel	290609.384	6260689.856	1.471	
38/1	1.8 m lintel	290668.841	6260681.685	2.217	
39/1	1.8 m lintel	290750.705	6260670.435	1.777	
39/2	2.4 m lintel sag	290770.061	6260667.775	1.887	
40/1	1.8 m lintel	290715.449	6260675.28	1.536	
46/1	1.8 m lintel	290680.986	6260460.359	1.452	
F/1	GSIP 600x600 IAD			0.764	
F/2	GSIP 600x600 IAD			0.771	
F/3	GSIP 600x600 IAD			0.77	
F/4	GSIP 600x600 IAD			0.77	
F/5	GSIP 600x600 IAD			0.839	
F/6	GSIP 600x600 IAD			0.846	
F/7	GSIP 600x600 IAD			0.846	
F/8	GSIP 600x600 IAD			0.847	
F/9	GSIP 900x900 IAD			3.929	EXISTING PIT
G/1	GSIP 600x600 IAD			0.772	
G/2	GSIP 600x600 IAD			0.771	
G/3	GSIP 600x600 IAD			0.771	
G/4	GSIP 600x600 IAD			0.773	
G/5	GSIP 600x600 IAD			0.85	
G/6	GSIP 600x600 IAD			0.847	
G/7	GSIP 600x600 IAD			0.845	
G/8	GSIP 600x600 IAD			0.847	
G/9	GSIP 600x600 IAD			0.849	
G/10	GSIP 600x600 IAD			0.848	
G/11	GSIP 600x600 IAD			0.845	
G/12	GSIP 900x900 IAD			3.972	DROP UNDER PIT
G/14	JP			1.541	
H/1	GSIP 900x900 IAD			1.638	DROP UNDER PIT
H/2	GSIP 600x600 IAD			0.817	
H/3	GSIP 900x900 IAD			2.127	DROP UNDER PIT
H/4	JP			0.8	
H/5	JP			1.547	
J/1	GSIP 600x600 IAD			0.766	
J/2	GSIP 600x600 IAD			0.769	
J/3	GSIP 600x600 IAD			0.772	
J/4	GSIP 600x600 IAD			0.848	
J/5	GSIP 600x600 IAD			0.846	
J/6	JP			1.428	
K/1	GSIP 600x600 IAD			0.766	
K/2	GSIP 600x600 IAD			0.777	
K/3	GSIP 600x600 IAD			0.763	
K/4	GSIP 600x600 IAD			0.838	
K/5	GSIP 600x600 IAD			0.838	

PIT SCHEDULE

PIT NAME (-)	PIT TYPE (-)	PIT EASTING (m)	PIT NORTHING (m)	PIT DEPTH (m)	COMMENTS
K/6	GSIP 600x600 IAD			0.849	
K/7	GSIP 600x600 IAD			0.837	
K/8	GSIP 600x600 IAD			0.846	
K/9	JP			4.098	DROP UNDER PIT
K/11	JP			1.658	
L/1	GSIP 900x900 IAD			2.273	DROP UNDER PIT
L/2	GSIP 600x600 IAD			0.8	
L/3	GSIP 900x900 IAD			2.377	DROP UNDER PIT
L/4	JP			1.594	
M/3	GSIP 600x600 IAD			0.77	
M/4	GSIP 600x600 IAD			0.848	
M/5	GSIP 600x600 IAD			0.851	
M/6	GSIP 600x600 IAD			0.883	
M/7	JP			0.875	
M/8	JP			2.603	
N/1	GSIP 600x600 IAD			0.787	
N/2	GSIP 600x600 IAD			0.813	
N/3	GSIP 600x600 IAD			0.861	
N/4	GSIP 600x600 IAD			0.892	
N/5	GSIP 600x600 IAD			0.87	
N/6	GSIP 900x900 IAD			0.932	
N/7	GSIP 900x900 IAD			0.897	
N/8	GSIP 900x900 IAD			0.904	
N/9	JP			1.557	
P/3	JP			1.601	
R/5	GSIP 600x600 IAD			0.793	
R/6	JP			1.578	
S/6	JP			1.578	

NOTES:
ALL GRATED PIT COVERS IN ROADS ARE TO BE BICYCLE SAFE.

ALL SAG PITS TO HAVE WELDLICK GGSB 94 5D GRATES

FOR ALL PITS <2m DEEP REFER TO PENRITH CITY COUNCIL STANDARD PIT DRAWINGS SD 2002.

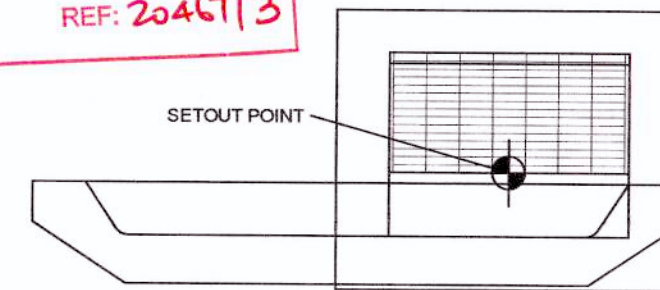
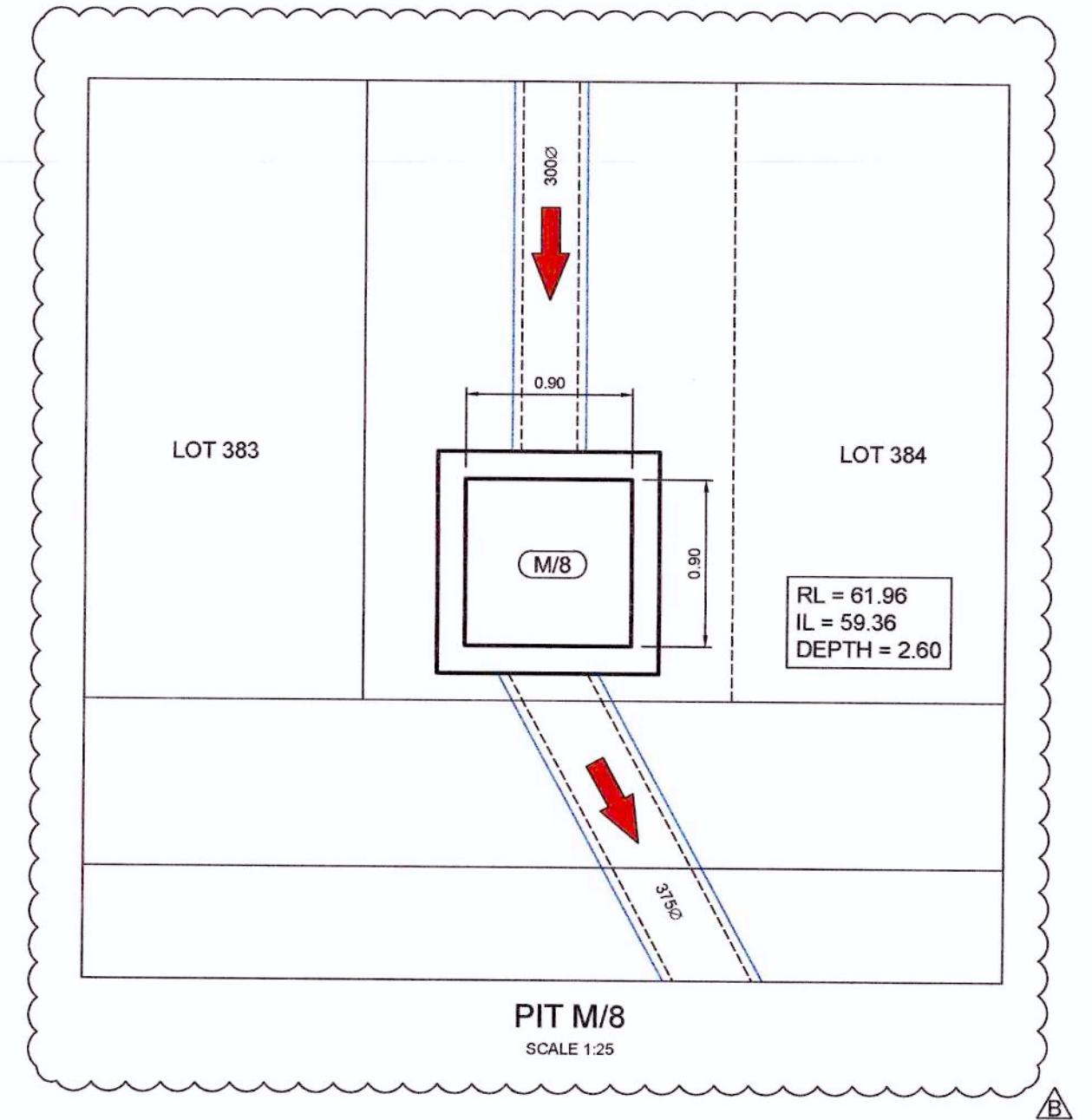
ANY INTER-ALLOTMENT PIT GREATER THAN 900mm DEEP SHALL HAVE A CONCRETE LID REFER PCC CONSTRUCTION SPEC SECTION 6.7.

ALL JUNCTION PITS SHALL HAVE A CONCRETE LID
FOR PITS >2m SHALL BE STRUCTURALLY CERTIFIED AND CERTIFIED

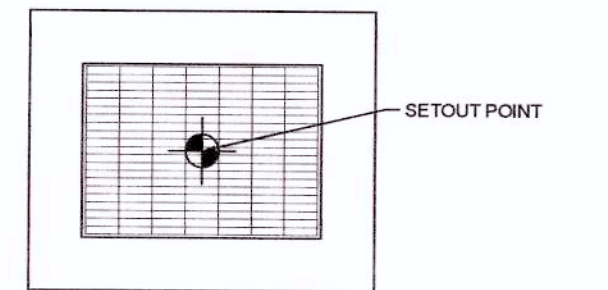
WORKS AS EXECUTED SHOWN IN RED

SIGNATURE: *Peter Robert Warwick*
PETER ROBERT WARWICK
Registered Land Surveyor

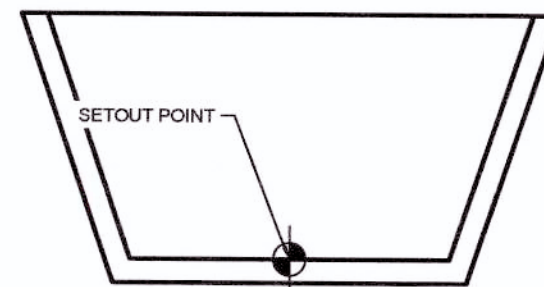
VINCE MORGAN SURVEYORS PTY LTD
DATE: 8/3/18 REF: 20467/3



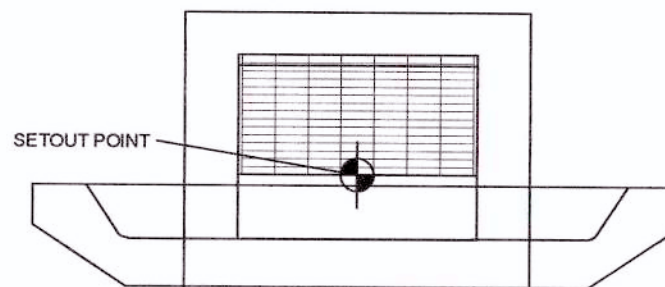
SETOUT DETAIL KERB INLET PIT (LINTEL)
SCALE 1:20



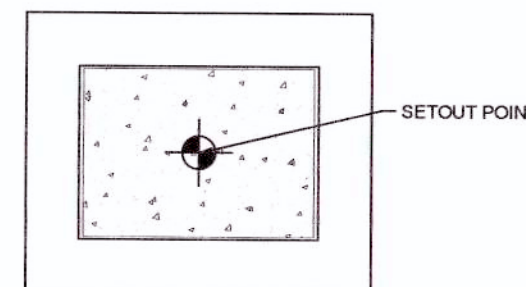
GRATED SURFACE INLET PIT (GSIP)
SCALE 1:20



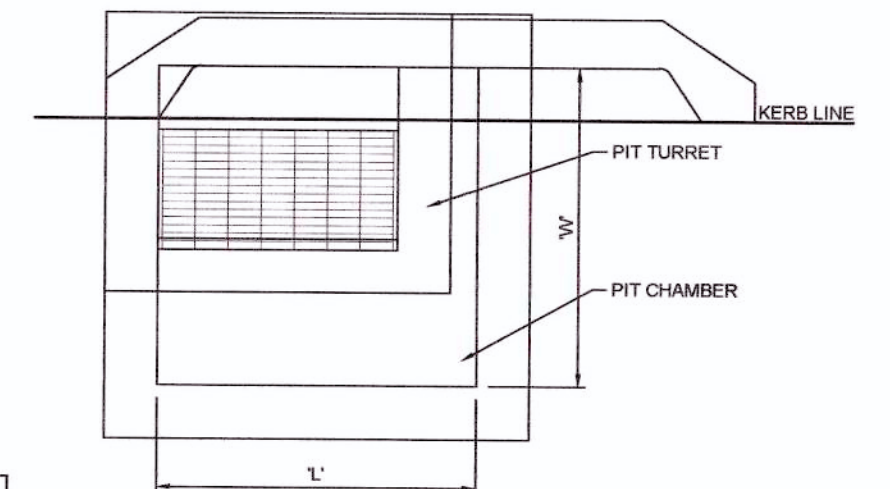
SETOUT DETAIL HEADWALL
SCALE 1:20



SETOUT DETAIL KERB INLET PIT (SAG)
(LINTEL CENTERED UNLESS NOTED ON PLAN)
SCALE 1:20



IAD - JUNCTION PIT (JP)
SCALE 1:20



PIT CHAMBER DIMENSION (TYPICAL)
SCALE 1:20

These plans are referred to in certificate no. 14403 approved by:
Eric Hausfeld
Accredited Certifier
Registration No: BPS 2416
Categories: B1, C1, C2, C3, C4, C6, C15 & D1
LAND DEVELOPMENT CERTIFICATES
www.Ldcerts.com.au

CLIENT:



AZIMUTH:
MGA:
DATUM:
AHD:
ORIGIN:

ISSUED FOR CONSTRUCTION APPROVAL

CADDENS HILL
STAGE 3
PIT DETAILS & PIT SCHEDULE

PLAN No:
110358/CC316 **B**

FILE No: 110358CC316

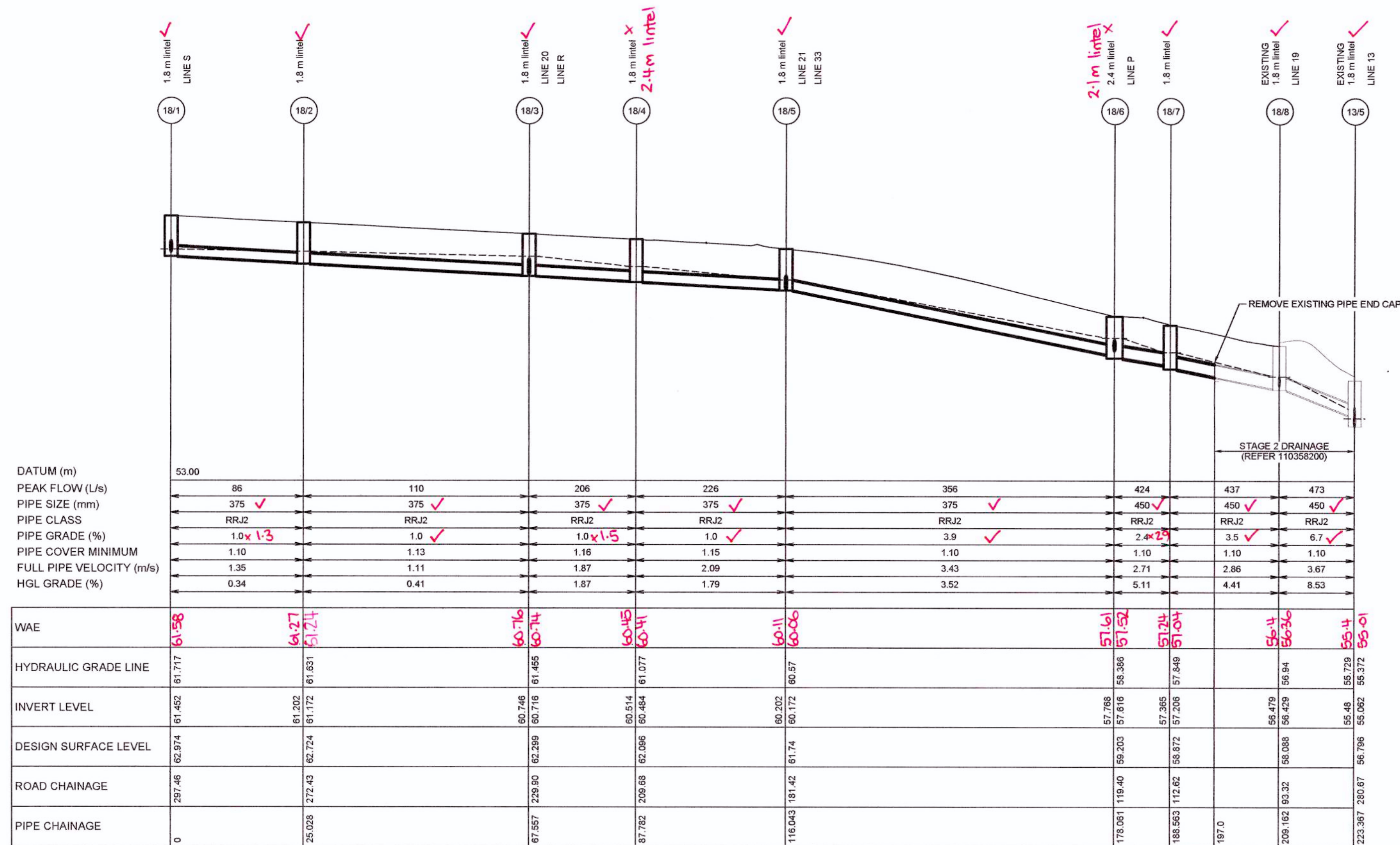
SHEET SIZE: A1 ORIGINAL

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 jwprince@jwprince.com.au

B	CERTIFIER COMMENTS - PIT M/8 DETAIL & NOTES ADDED	JT	JT	RT	MS	28/06/17
A	ISSUE FOR CONSTRUCTION APPROVAL	JT	NM	RT	MS	30/05/17
	AMENDMENT	DES	DRN	CKD	APR	DATE

DRAINAGE PIPE SYSTEM CATERES FOR 5YR ARI UNLESS OTHERWISE NOTED



WORKS AS EXECUTED SHOWN IN RED

SIGNATURE: *P.R.*

PETER ROBERT WARWICK
Registered Land Surveyor

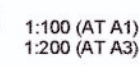
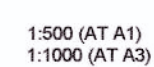
VINCE MORGAN SURVEYORS PTY LTD

DATE: 01/3/18 REF: 20467/3

These plans are referred to in certificate no: **14403** approved by:

Eric Hausfeld
Accredited Certifier
Registration No: **BPB 2416**
Categories: **B1,C1,C2,C3,C4,C6,C15 & D1**

LAND DEVELOPMENT CERTIFICATES
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CLIENT:



LEGACYPROPERTY

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ISSUED FOR CONSTRUCTION APPROVAL

CADDENS HILL
STAGE 3
DRAINAGE LONG SECTION

PLAN No:
110358/CC317

FILE No: 110358CC317

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

A	ISSUE FOR CONSTRUCTION APPROVAL	JT	NM	RT	MS 30/05/1
	AMENDMENT	DES	DRN	CKD	APR DATE

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

WAE	60.92	60.73	60.74
HYDRAULIC GRADE LINE	61.46	60.573	61.455
INVERT LEVEL	60.91	60.306	60.789
DESIGN SURFACE LEVEL	62.376	61.755	60.225
ROAD CHAINAGE	237.62	229.90	62.299
PIPE CHAINAGE	0	11.114	8.038

LINE 20

LINE 21

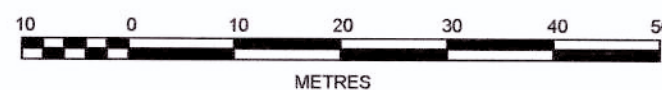
LINE 22

LINE 23

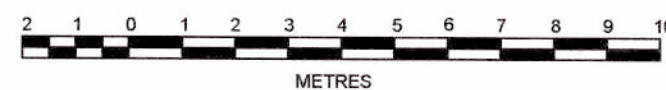
LINE 24



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



1:100 (AT A1)
1:200 (AT A3)



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:
MGA
DATUM:
AHD
ORIGIN:

CLIENT:



LEGACYPROPERTY

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ISSUED FOR CONSTRUCTION APPROVAL

CADDENS HILL
STAGE 3
DRAINAGE LONG SECTION

PLAN No:
110358/CC318 **A**

FILE No: 110358CC318

SHEET SIZE: A1 ORIGINAL

DRAINAGE PIPE SYSTEM Caters for 5yr ARI unless otherwise noted

WORKS AS EXECUTED SHOWN IN RED

SIGNATURE: *P.R.*

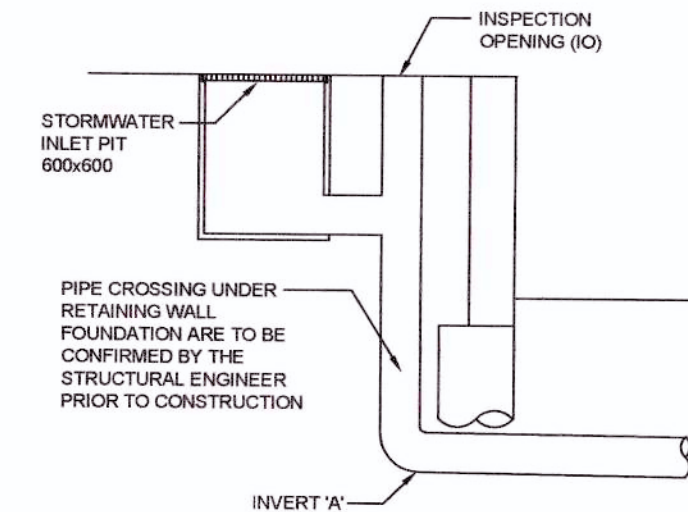
PETER ROBERT WARWICK
Registered Land Surveyor

VINCE MORGAN SURVEYORS PTY LTD

DATE: 8/3/18 REF: 20467/3

Plotted: 28 June, 2017 10:06:37 AM File Name: J:\110358 - Caddens Hill, Caddens\03 - Stage 2\CD\CC\STAGE 3\110358CC320.dwg

DRAINAGE PIPE SYSTEM Caters FOR 5YR ARI UNLESS OTHERWISE NOTED

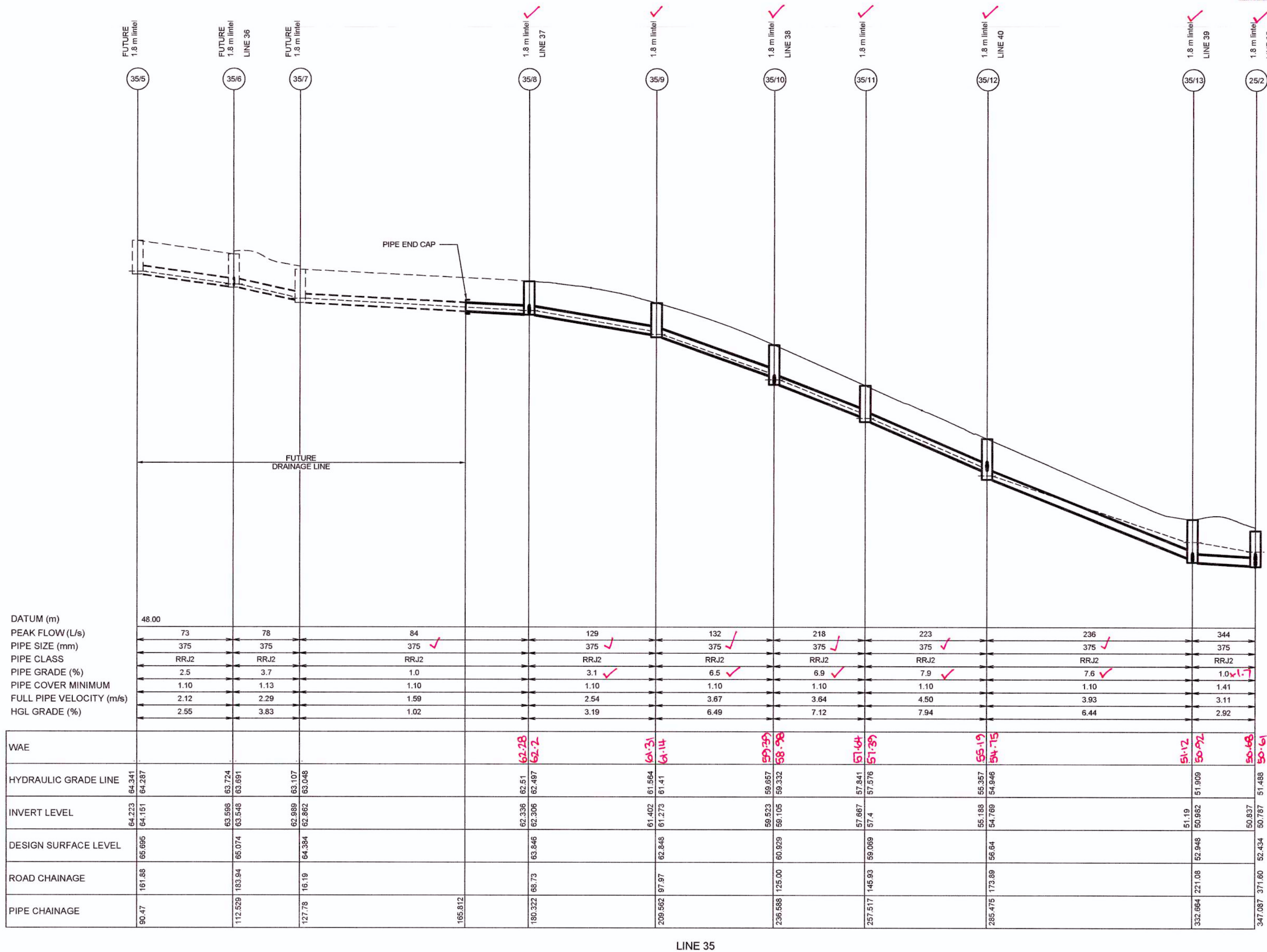


ALTERNATIVE DETAIL TO DEEP PITS OVER 2m
TYPICAL DROP UNDER RETAINING
WALL DETAIL
SUBJECT TO COUNCIL APPROVAL
NTS

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

WAE																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									</
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DRAINAGE PIPE SYSTEM CATERS FOR 5YR ARI UNLESS OTHERWISE NOTED



WORKS AS EXECUTED SHOWN IN RED

SIGNATURE: P.R.

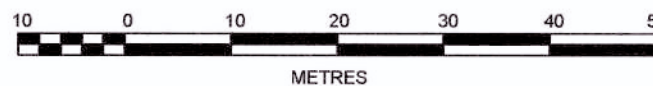
PETER ROBERT WARWICK
Registered Land Surveyor

VINCE MORGAN SURVEYORS PTY LTD
DATE: 8/3/18 REF: 204613

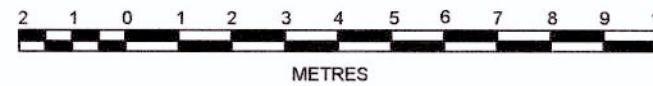
These plans are referred to in certificate no. **14403** approved by:
Eric Hausfeld
Accredited Certifier
Registration No: **BPB 2416**
Categories: **B1,C1,C2,C3,C4,C6,C15 & D1**

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



1:100 (AT A1)
1:200 (AT A3)



CLIENT:



LEGACYPROPERTY

AZIMUTH:

DATUM:
AHD

ORIGIN:

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CADDENS HILL
STAGE 3
DRAINAGE LONG SECTION

PLAN No:
110358/CC321

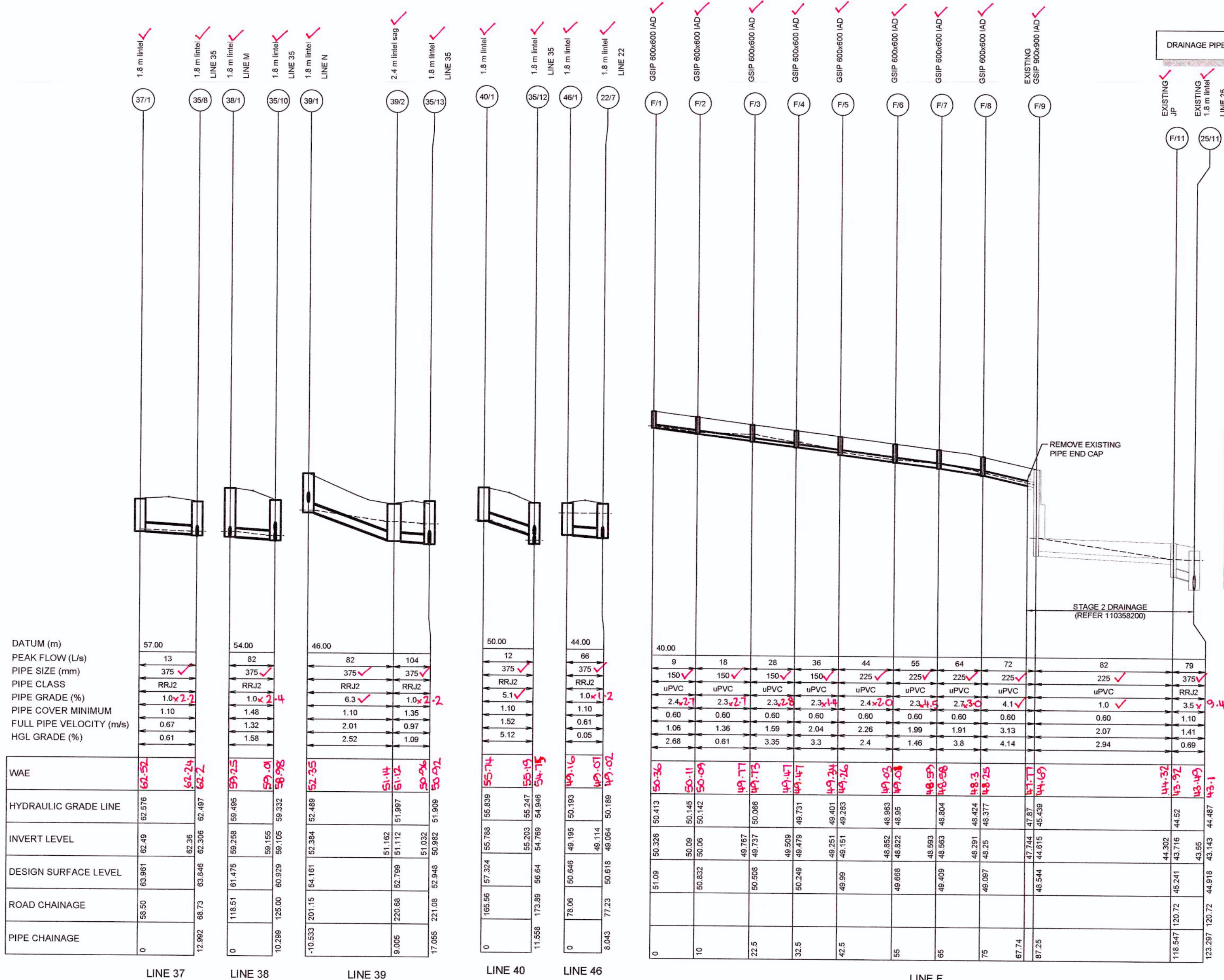
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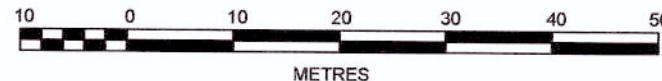
J. WYNDHAM PRINCE CONSULTING CIVIL INFRASTRUCTURE ENGINEERS
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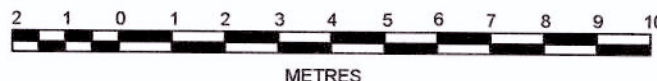
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1:1000 (AT A3)



1:100 (AT A1)
1:200 (AT A3)



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DATUM:
AHD
ORIGIN:

CLIENT:



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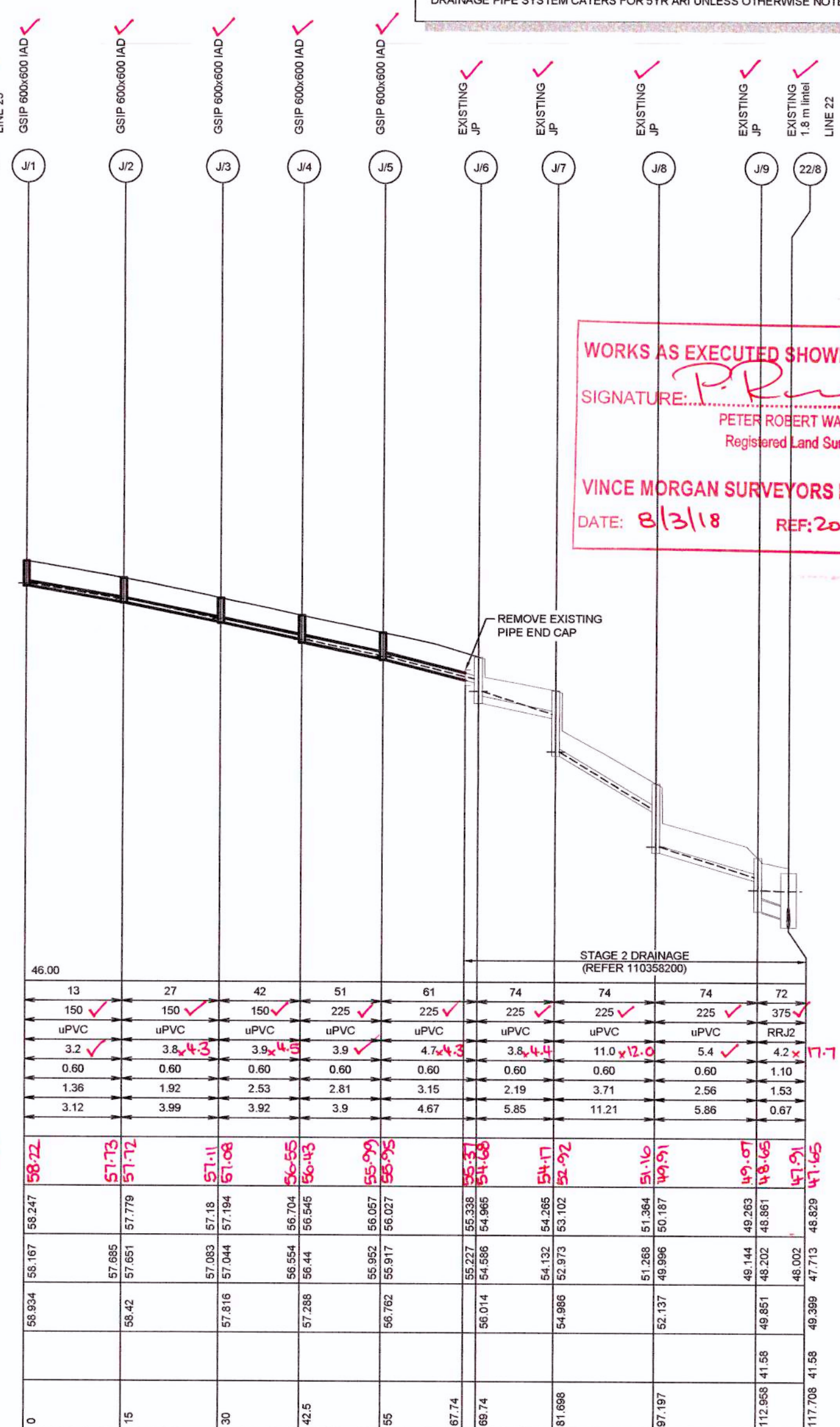
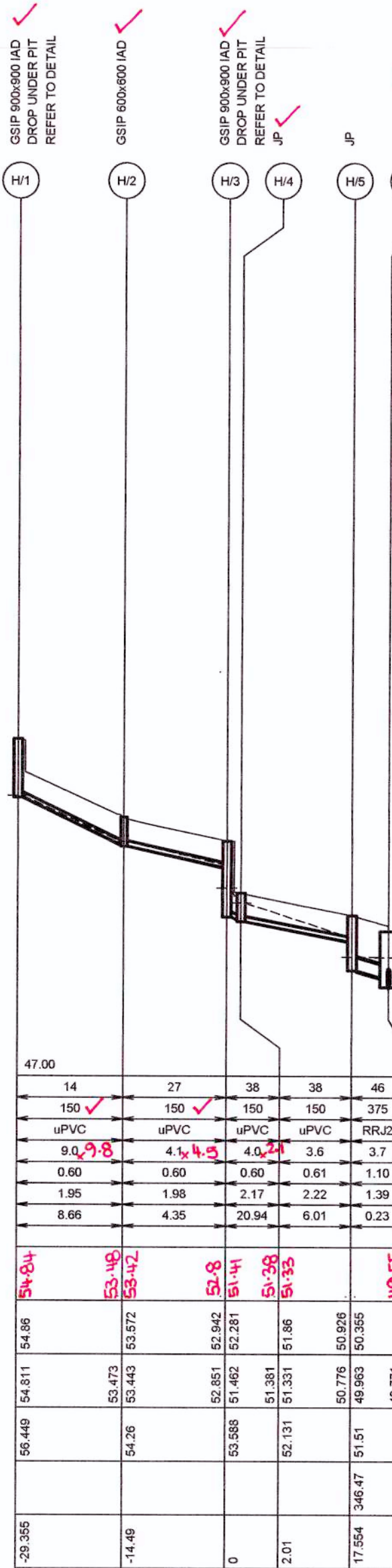
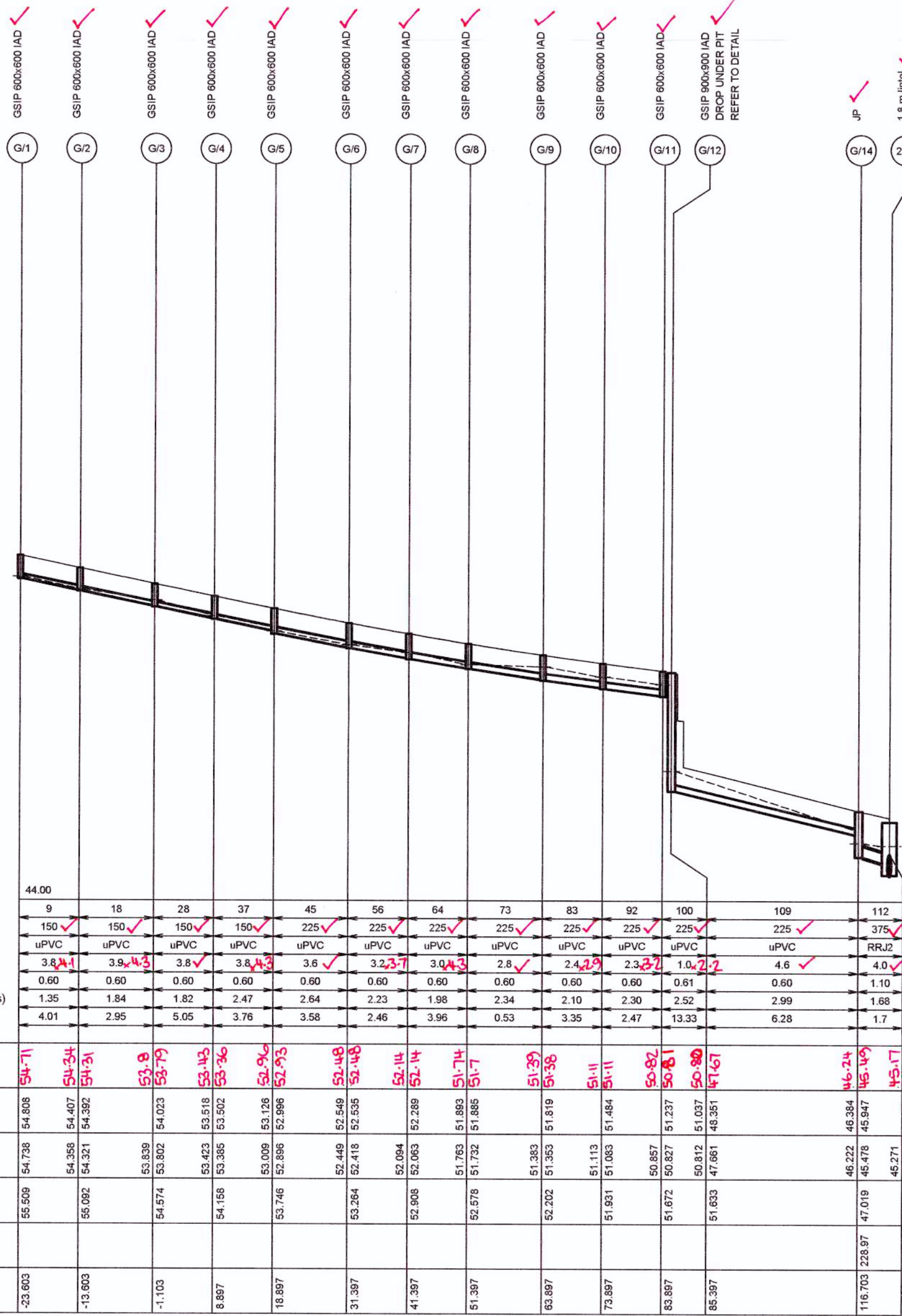
**CADDENS HILL
STAGE 3
DRAINAGE LONG SECTION**

PLAN No:
110358/CC322

FILE No: 110358CC322

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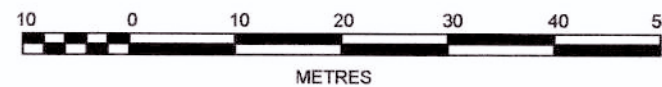


DRAINAGE PIPE SYSTEM CATERES FOR 5YR ARI UNLESS OTHERWISE NOTED

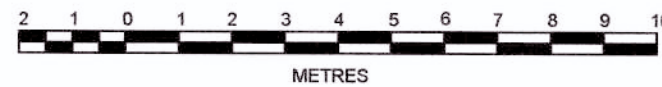
WORKS AS EXECUTED SHOWN IN RED
SIGNATURE: *P. R. Warwick*
PETER ROBERT WARWICK
Registered Land Surveyor
VINCE MORGAN SURVEYORS PTY LTD
DATE: 8/3/18 REF: 20461/3

These plans are referred to in certificate no. 14403 approved by:
Eric Hausfeld
Accredited Certifier
Registration No: BPS 2416
Categories: S1, C1, C2, C3, C4, C5, C15 & D1
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1:500 (AT A1)
1:1000 (AT A3)



1:100 (AT A1)
1:200 (AT A3)



LINE H

LINE J

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AZIMUTH:
MGA
DATUM:
AHD
ORIGIN:

CLIENT:
LEGACYPROPERTY
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ISSUED FOR CONSTRUCTION APPROVAL

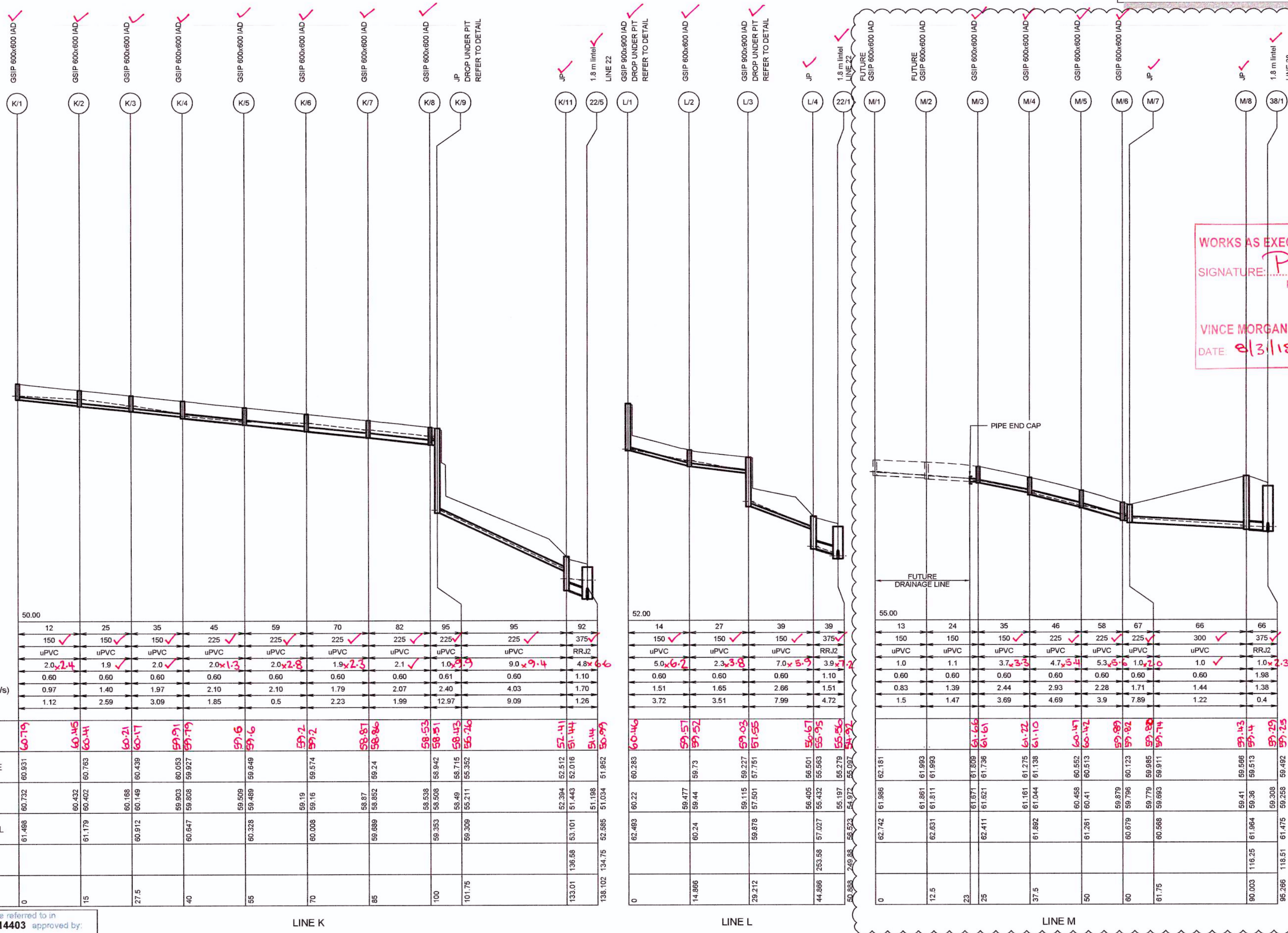
CADDENS HILL
STAGE 3
DRAINAGE LONG SECTION

PLAN No:
110358/CC323
FILE No: 110358CC323
SHEET SIZE: A1 ORIGINAL

A ISSUE FOR CONSTRUCTION APPROVAL
AMENDMENT

JT NM RT MS 30/05/17
DES DRN CKD APR DATE

DRAINAGE PIPE SYSTEM CATERES FOR 5YR ARI UNLESS OTHERWISE NOTED



WORKS AS EXECUTED SHOWN IN RED
SIGNATURE: *P.R.*
PETER ROBERT WARWICK
Registered Land Surveyor
VINCE MORGAN SURVEYORS PTY LTD
DATE: 2/3/18 REF: 20467/3

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

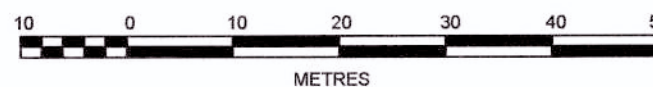
WAE		60.79	60.45	60.44	60.21	60.17	59.91	59.79	59.6	59.6	59.2	59.2	58.81	58.86	58.53	58.51	58.43	55.76	52.41	51.44	51.14	50.99
HYDRAULIC GRADE LINE	60.931		60.763		60.439		60.053	59.927	59.649		59.574		59.24		58.942	58.715	55.352	52.512	52.016	51.443	51.198	
INVERT LEVEL	60.732	60.432	60.402	60.168	60.149		59.903	59.808	59.509	59.489	59.19	59.16	58.87	58.852	58.538	58.508	55.211	52.394	52.016	51.443	51.198	
DESIGN SURFACE LEVEL	61.488		61.179		60.912	60.847			60.328		60.008		59.689		59.353	59.309	59.03	53.101	53.08	52.512	52.016	
ROAD CHAINAGE																						
PIPE CHAINAGE	0	15		27.5		40		55		70		85		100	101.75			133.01	136.58	134.75	138.102	

52.00																					
	14				27					39									39		
	150	✓			150	✓				150	✓								375	✓	
	uPVC				uPVC					uPVC									RRJ2		
	5.0	6.2			2.3	3.8				7.0	5.9								3.9	7	
	0.60				0.60					0.60									1.10		
	1.51				1.65					2.66									1.51		
	3.72				3.51					7.99									4.72		
	60.46				59.57	59.52													56.67	55.95	55.56
	60.283				59.73					59.227	57.51								58.501	55.563	55.279
	60.22				59.477	59.44				59.115	57.501								56.405	55.432	55.197
	62.483				60.24					59.678									57.027	55.98	
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55.00																					
	13	24		35	46	58	67		66											66	
	150	150		150 ✓	225 ✓	225 ✓	225 ✓		300 ✓											375 ✓	
	uPVC	uPVC		uPVC	uPVC	uPVC	uPVC		uPVC											RRJ2	
	1.0	1.1		3.7 ✓ 3.8	4.7 ✓ 5.4	5.3 ✓ 5.6	1.0 ✓ 2.0		1.0											1.0 ✓ 2	
	0.60	0.60		0.60	0.60	0.60	0.60		0.60											1.98	
	0.83	1.39		2.44	2.93	2.28	1.71		1.44											1.38	
	1.5	1.47		3.69	4.69	3.9	7.89		1.22											0.4	
																		</			

These plans are referred to in certificate no. 14403 approved by:
Eric Hausfeld
Accredited Certifier
Registration No: BPB 2416
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DATUM:
AHD
ORIGIN:



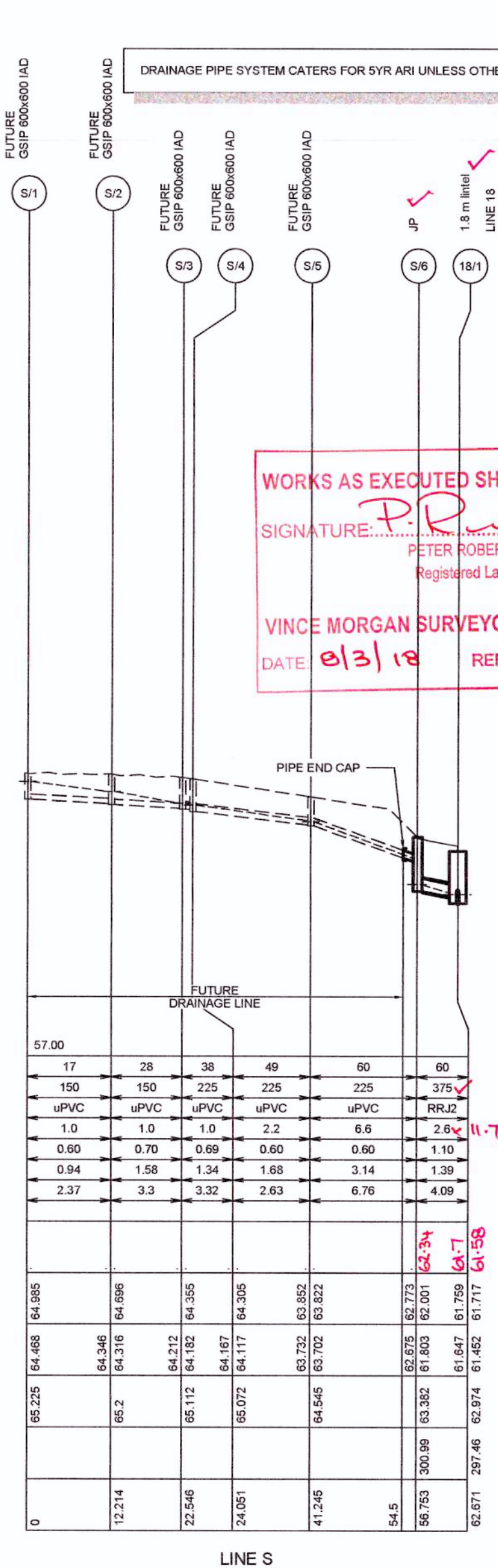
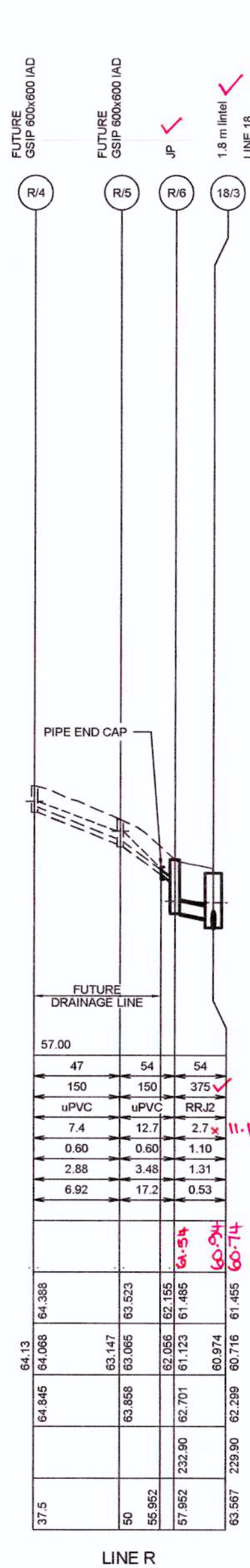
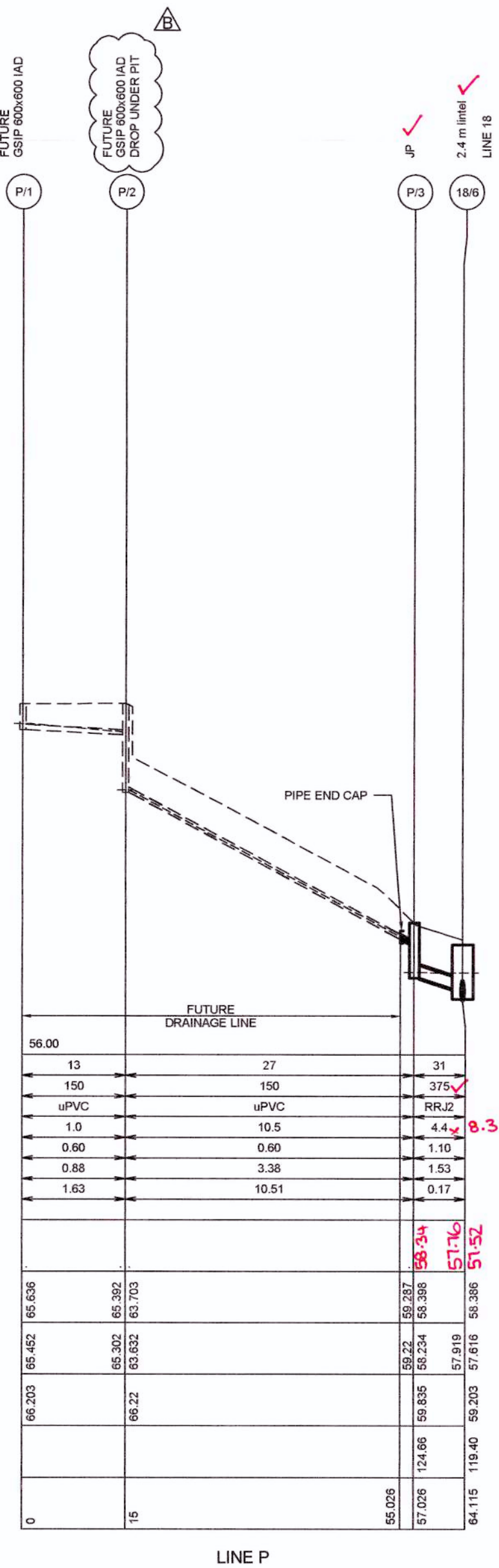
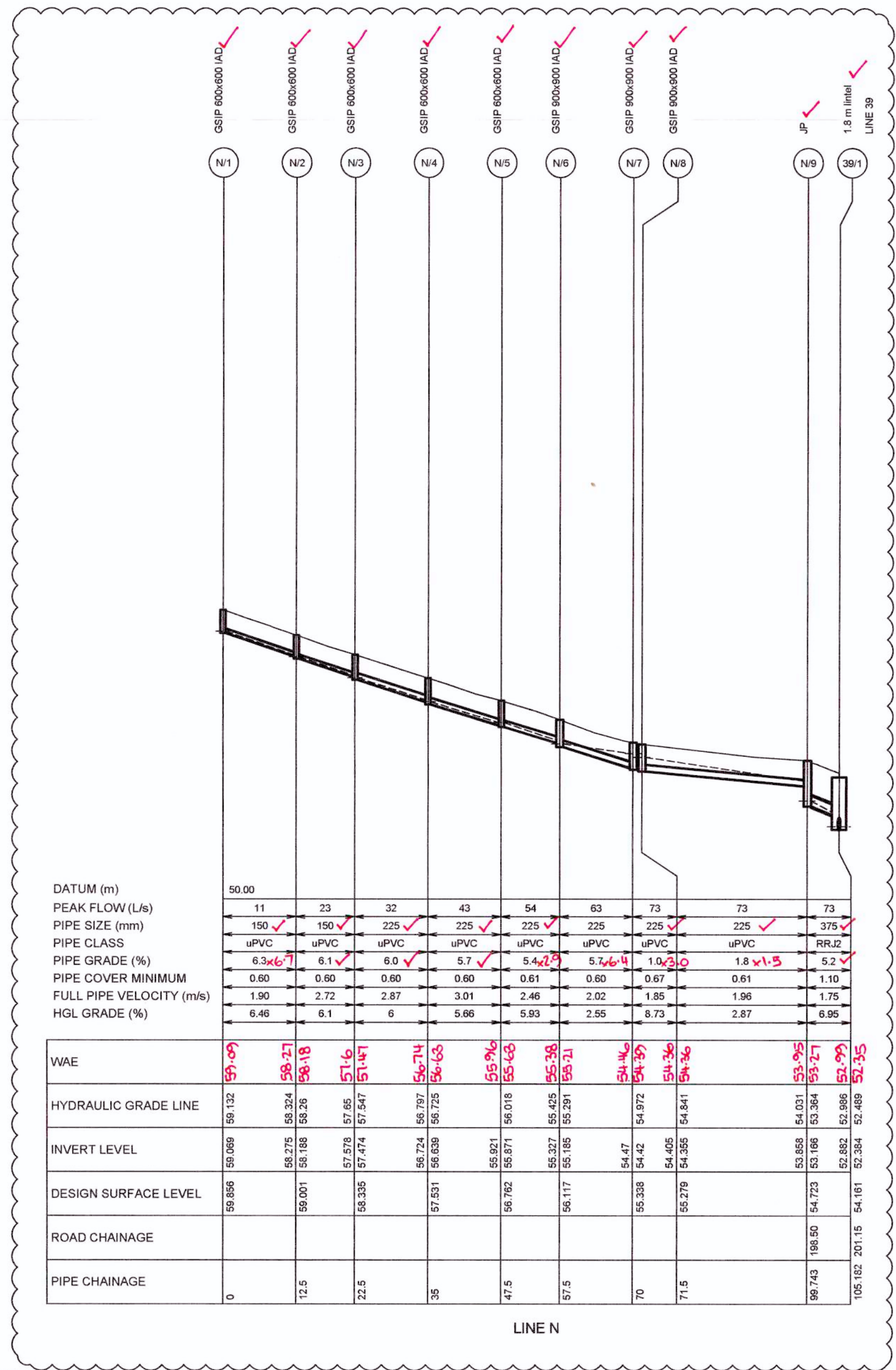
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ISSUED FOR CONSTRUCTION APPROVAL

CADDENS HILL
STAGE 3
DRAINAGE LONG SECTION

PLAN No: 110358/CC324
FILE No: 110358CC324
SHEET SIZE: A1 ORIGINAL

Plotted: 28 June, 2017 10:14:16 AM File Name: J:\110358 - Caddens Hill, Caddens03 - Stage 2\CD\CC\STAGE 3\110358CC325.dwg



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SIGNATURE: *P. R. Warwick*

PETER ROBERT WARWICK
Registered Land Surveyor

VINCE MORGAN SURVEYORS PTY LTD

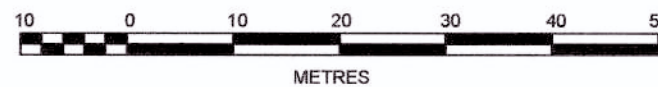
DATE: 01/3/18 REF: 20417/3

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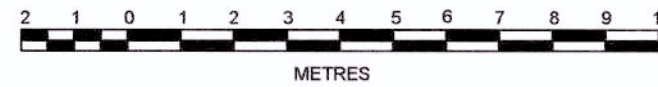
Eric Hausfeld
Accredited Certifier
Registration No: BPB 2416
Categories: B1, C1, C2, C3, C4, C6, C15 & D1

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1:1000 (AT A3)



1:100 (AT A1)
1:200 (AT A3)



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AZIMUTH:
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DATUM:
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ORIGIN:

CLIENT:

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CADDENS HILL
STAGE 3
DRAINAGE LONG SECTION

PLAN No:
110358/CC325

FILE No: 110358CC325

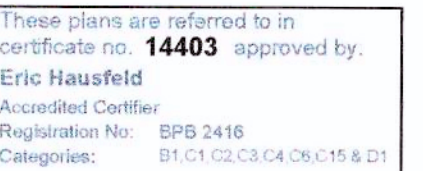
SHEET SIZE: A1 ORIGINAL

NAME	PIT TYPE	CATCHMENT AREA	PERCENT IMPERVIOUS	Tc IMP (min)	Tc PERV (min)	CRITICAL STORM	APPROACH FLOW (L/s)	CAPTURED FLOW (L/s)	UNCAPTURED FLOW (L/s)	GRATE DEPTH (mm)	ROAD GRADE (%)	ROAD CROSSFALL (%)	BYPASS PIT (-)	BYPASS CHANNEL FLOW (L/s)	U/S FLOW WIDTH (m)	U/S Vx/D (m/s^2)	D/S FLOW WIDTH (m)	D/S Vx/D (m/s^2)	COMMENTS
(-)	(-)																		(-)
18/1	1.8 m lintel	0.084	85	6	6	25	27	27	1	77	1	3	18/2	31	1.73	0.05	2.02	0.04	
18/2	1.8 m lintel	0.101	85	6	6	25	31	29	2	86	1	3	18/3	45	2.03	0.06	2.03	0.06	
18/3	1.8 m lintel	0.141	85	6	6	25	45	38	7	72	1	3	18/4	24	1.57	0.04	1.57	0.04	
18/4	1.8 m lintel	0.061	85	6	6	25	24	23	1	57	1	3	18/5	12	1.02	0.03	1.71	0.02	
18/5	1.8 m lintel	0.058	95	6	6	25	19	19	0	77	2	3	18/6	61	1.71	0.1	1.71	0.1	
18/6	2.4 m lintel	0.201	85	6	6	25	61	57	4	55	4.9	3	19/1	22	1	0.06	1	0.06	
18/7	1.8 m lintel	0.056	95	6	6	15	17	17	0	30	4.5	3.1	18/8	4	0.34	0.02	0.34	0.02	
18/8	1.8 m lintel	0.017	95	6	6	15	4	4	0	29	0.6	3	13/5	5	0.34	0.03	1.1	0.01	
20/1	1.8 m lintel		0	6	6	15	24	23	1	60	1	3	21/1	14	1.15	0.03	1.15	0.03	
21/1	1.8 m lintel	0.044	95	6	6	25	14	14	0	52	2	3	18/7	17	0.9	0.05	0.9	0.05	
22/1	1.8 m lintel	0.086	85	6	6	25	26	26	1	68	3.4	3	22/2	36	1.4	0.07	1.4	0.07	
22/2	1.8 m lintel	0.117	85	6	6	25	36	34	2	65	3.4	3	22/3	32	1.31	0.07	1.41	0.06	
22/3	1.8 m lintel	0.087	85	6	6	25	32	30	1	68	3.4	3	22/4	37	1.42	0.07	1.43	0.07	
22/4	1.8 m lintel	0.117	85	6	6	25	37	35	2	69	3.4	3	22/5	38	1.44	0.07	1.45	0.07	
22/5	1.8 m lintel	0.117	85	6	6	25	38	35	3	69	3.4	3	22/6	39	1.46	0.07	1.46	0.07	
22/6	1.8 m lintel	0.117	85	6	6	25	39	36	3	67	3.4	3	22/7	35	1.38	0.07	1.58	0.06	
22/7	1.8 m lintel	0.107	85	6	6	25	35	33	3	73	3.4	3	22/8	47	1.59	0.08	1.59	0.08	
22/8	1.8 m lintel	0.146	85	6	6	25	47	40	7	62	3.4	3	22/9	25	1.19	0.06	1.19	0.06	
23/1	1.8 m lintel		0	6	6	15	22	22	0	50	3.4	3	24/1	14	0.83	0.04	0.89	0.04	
24/1	1.8 m lintel	0.044	95	6	6	25	14	14	0	53	3.4	3	46/1	16	0.92	0.04	0.92	0.04	
25/1	1.8 m lintel	0.047	85	6	6	25	15	15	0	41	4.2	3	39/2	12	0.52	0.05	0.6	0.05	
25/2	1.8 m lintel	0.008	95	6	6	25	0	0	0	54	5	3	25/3	21	0.99	0.08	1.32	0.04	
25/3	1.8 m lintel	0.068	85	6	6	25	21	21	0	65	5	3	25/4	39	1.32	0.08	1.39	0.08	
25/4	1.8 m lintel	0.127	85	6	6	25	39	36	3	67	5	3	25/5	42	1.39	0.08	1.55	0.07	
25/5	1.8 m																		

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SIGNATURE: 
PETER ROBERT WARWICK
Registered Land Surveyor

DATE: 8/3/18 REF: 2046713



LAND DEVELOPMENT CERTIFICATES
www.Ldcerts.com.au



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

CADDENS HILL STAGE 3 DRAINAGE CALCULATIONS

FILE No: 110358CC326

SHEET SIZE: A1 ORIGINAL

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

ORIGIN:

DESIGN STORM 1:5yr ARI HYDROLOGIC RESULTS

PIT NAME	PIT TYPE	CATCHMENT AREA	PERCENT IMPERVIOUS	Tc IMP	Tc PERV	CRITICAL STORM	APPROACH FLOW	CAPTURED FLOW	UNCAPTURED FLOW	GRATE DEPTH	ROAD GRADE	ROAD CROSSFALL	BYPASS PIT	BYPASS CHANNEL FLOW	U/S FLOW WIDTH	U/S VxD	D/S FLOW WIDTH	D/S VxD	COMMENTS
(-)	(-)	(Ha)	(%)	(min)	(min)	(min)	(L/s)	(L/s)	(L/s)	(mm)	(%)	(%)	(-)	(L/s)	(m)	(m/s ²)	(m)	(m/s ²)	(-)
J/5	GSIP 600x600 IAD	0.036	75	6	6	25	11	11	0	0									
J/6	JP	0.046	75	6	6	25	14	14	0	0									
K/1	GSIP 600x600 IAD	0.044	75	6	6	25	13	13	0	0									
K/2	GSIP 600x600 IAD	0.043	75	6	6	25	13	13	0	0									
K/3	GSIP 600x600 IAD	0.036	75	6	6	25	11	11	0	0									
K/4	GSIP 600x600 IAD	0.036	75	6	6	25	11	11	0	0									
K/5	GSIP 600x600 IAD	0.043	75	6	6	25	13	13	0	0									
K/6	GSIP 600x600 IAD	0.044	75	6	6	25	13	13	0	0									
K/7	GSIP 600x600 IAD	0.043	75	6	6	25	13	13	0	0									
K/8	GSIP 600x600 IAD	0.043	75	6	6	25	13	13	0	0									
K/9	JP	0	0	6	6		0	0	0	0									
K/11	JP	0	0	6	6		0	0	0	0									
L/1	GSIP 900x900 IAD	0.045	75	6	6	25	14	14	0	0									
L/2	GSIP 600x600 IAD	0.045	75	6	6	25	14	14	0	0									
L/3	GSIP 900x900 IAD	0.045	75	6	6	25	14	14	0	0									
L/4	JP	0	0	6	6		0	0	0	0									
M/2	GSIP 600x600 IAD	0.038	75	6	6	15	11	11	0	0									
M/3	GSIP 600x600 IAD	0.038	75	6	6	15	11	11	0	0									
M/4	GSIP 600x600 IAD	0.038	75	6	6	15	11	11	0	0									
M/5	GSIP 600x600 IAD	0.038	75	6	6	15	11	11	0	0									
M/6	GSIP 600x600 IAD	0.03	75	6	6	25	9	9	0	0									
M/7	JP	0	0	6	6		0	0	0	0									
M/8	JP	0	0	6	6		0	0	0	0									
N/1	GSIP 600x600 IAD	0.038	75	6	6	15	11	11	0	0									
N/2	GSIP 600x600 IAD	0.038	75	6	6	15	11	11	0	0									
N/3	GSIP 600x600 IAD	0.03	75	6	6	25	9	9	0	0									
N/4	GSIP 600x600 IAD	0.038	75	6	6	15	11	11	0	0									
N/5	GSIP 600x600 IAD	0.038	75	6	6	15	11	11	0	0									
N/6	GSIP 900x900 IAD	0.03	75	6	6	25	9	9	0	0									
N/7	GSIP 900x900 IAD	0.038	75	6	6	15	11	11	0	0									
N/8	GSIP 900x900 IAD	0	0	6	6		0	0	0	0									
N/9	JP	0	0	6	6		0	0	0	0									
P/2	GSIP 600x600 IAD	0.045	75	6	6	25	14	14	0	0									
P/3	JP	0	0	6	6		0	0	0	0									
R/5	GSIP 600x600 IAD	0.037	75	6	6	15	11	11	0	0									
R/6	JP	0	0	6	6		0	0	0	0									
S/5	GSIP 600x600 IAD	0.038	75	6	6	15	11	11	0	0									
S/6	JP	0	0	6	6		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.
3. MAXIMUM FLOW WIDTHS OF 2m IN GUTTERS HAVE GENERALLY BEEN ADOPTED HOWEVER EXTENDED TO 2.2m IN SOME LOCATIONS TO REDUCE THE NUMBER OF PITS REQUIRED DUE TO FLAT ROAD GRADES.

DESIGN STORM 1:100yr ARI HYDROLOGIC RESULTS

PIT NAME (-)	PIT TYPE (-)	CATCHMENT AREA (Ha)	PERCENT IMPERVIOUS (%)	Tc IMP (min)	Tc PERV (min)	CRITICAL STORM (min)	APPROACH FLOW (L/s)	CAPTURED FLOW (L/s)	UNCAPTURED FLOW (L/s)	GRATE DEPTH (mm)	ROAD GRADE (%)	ROAD CROSSFALL (%)	BYPASS PIT (-)	BYPASS CHANNEL FLOW (L/s)	U/S FLOW WIDTH (m)	U/S Vx/D (m/s^2)	D/S FLOW WIDTH (m)	D/S Vx/D (m/s^2)	COMMENTS (-)
18/1	1.8 m Intel	0.084	85	6	6	15	63	42	21	99	1	3	18/2	71	2.45	0.07	2.81	0.06	
18/2	1.8 m Intel	0.101	85	6	6	15	71	43	28	110	1	3	18/3	100	2.81	0.09	3.9	0.09	
18/3	1.8 m Intel	0.141	85	6	6	15	100	48	207	142	1	3	18/4	230	3.9	0.14	3.9	0.14	
18/4	1.8 m Intel	0.061	85	6	6	15	230	59	59	135	1	3	18/5	218	3.66	0.14	3.66	0.14	
18/5	1.8 m Intel	0.058	95	6	6	15	229	80	107	118	2	3	18/6	254	3.08	0.2	3.2	0.2	
18/6	2.4 m Intel	0.201	85	6	6	15	254	104	89	121	4.9	3	19/1	297	3.2	0.23	5.46	0.12	
18/7	1.8 m Intel	0.056	95	6	6	15	94	58	36	69	4.5	3.1	18/8	41	1.45	0.08	2.34	0.07	
18/8	1.8 m Intel	0.017	95	6	6	5	309	135	160	96	0.6	3	13/5	177	2.34	0.19	2.34	0.19	
20/1	1.8 m Intel		0	6	6	15	40	28	12	79	1	3	21/1	35	1.79	0.05	2.06	0.05	
21/1	1.8 m Intel	0.044	95	6	6	15	35	23	74	87	2	3	18/7	94	2.07	0.12	2.07	0.12	
22/1	1.8 m Intel	0.086	85	6	6	15	46	34	13	83	3.4	3	22/2	72	1.91	0.1	1.94	0.1	
22/2	1.8 m Intel	0.117	85	6	6	15	72	47	25	84	3.4	3	22/3	75	1.94	0.1	2.06	0.09	
22/3	1.8 m Intel	0.097	85	6	6	15	75	49	26	87	3.4	3	22/4	86	2.06	0.11	2.12	0.11	
22/4	1.8 m Intel	0.117	85	6	6	15	86	54	32	89	3.4	3	22/5	92	2.13	0.11	3.09	0.11	
22/5	1.8 m Intel	0.117	85	6	6	15	92	47	176	118	3.4	3	22/6	233	3.09	0.19	3.42	0.17	
22/6	1.8 m Intel	0.117	85	6	6	15	233	58	38	127	3.4	3	22/7	301	3.42	0.21	3.48	0.21	
22/7	1.8 m Intel	0.107	85	6	6	15	301	61	249	129	3.4	3	22/8	316	3.48	0.22	3.92	0.2	
22/8	1.8 m Intel	0.146	85	6	6	15	316	76	93	142	3.4	3	22/9	405	3.92	0.25	6.04	0.14	
23/1	1.8 m Intel		0	6	6	15	37	27	10	65	3.4	3	24/1	32	1.32	0.07	1.36	0.06	
24/1	1.8 m Intel	0.044	95	6	6	15	32	25	8	66	3.4	3	46/1	34	1.36	0.07	2.04	0.07	
25/1	1.8 m Intel	0.047	85	6	6	15	24	19	5	55	4.2	3	39/2	26	1	0.07	6.37	0.04	
25/2	1.8 m Intel	0.008	95	6	6	15	158	59	37	106	5	3	25/3	203	2.71	0.19	3.01	0.17	
25/3	1.8 m Intel	0.068	85	6	6	15	203	30	11	115	5	3	25/4	265	3.01	0.22	3.36	0.19	
25/4	1.8 m Intel	0.127	85	6	6	15	265	45	28	126	5	3	25/5	336	3.37	0.24	3.65	0.23	
25/5	1.8 m Intel	0.127	85	6	6	15	336	94	141	134	4	3	25/6	330	3.65	0.22	3.96	0.21	
25/6	1.8 m Intel	0.127	85	6	6	15	330	97	119	143	2.1	3	25/7	311	3.96	0.19	4.11	0.18	
25/7	1.8 m Intel	0.078	85	6	6	15	311	53	32	148	1.6	3	25/8	335	4.11	0.19	4.23	0.19	
25/8	1.8 m Intel	0.127	85	6	6	15	335	52	43	152	1.6	3	25/9	363	4.23	0.2	4.46	0.19	
25/9	1.8 m Intel	0.127	85	6	6	15	363	52	263	161	1.6	3	25/10	440	4.46	0.23	4.46	0.23	
25/10	1.8 m Intel	0.088	85	6	6	15	440	74	61	161	1.6	3	25/11	437	4.45	0.23	4.45	0.23	
25/11	1.8 m Intel	0.086	85	6	6	15	437	140	298	134	1.6	3	13/9	319	3.64	0.21	8	0.11	
26/1	1.8 m Intel		0	6	6	15	25	19	5	67	4.9	3	27/1	42	1.38	0.08	1.4	0.08	
27/1	1.8 m Intel	0.071	95	6	6	15	42	30	11	68	4.3	3	28/1	32	1.41	0.06	1.59	0.05	
28/1	1.8 m Intel	0.042	95	6	6	15	32	24	9	73	1.6	3	29/1	33	1.59	0.06	1.83	0.06	
29/1	1.8 m Intel	0.05	95	6	6	15	33	24	9	81	1.6	3	25/12	45	1.83	0.07	1.83	0.07	
33/4	1.8 m Intel	0.014	95	6	6	15	16	13	3	33	9.1	3.2	33/5	8	0.39	0.04	0.61	0.03	
33/5	1.8 m Intel	0.009	95	6	6	15	8	6	2	44	9.1	3.3	18/5	13	0.61	0.05	3.08	0.01	
35/7	1.8 m Intel	0.019	95	6	6	15	12	10	2	95	1.1	3	35/8	63	2.33	0.07	2.33	0.07	
35/8	1.8 m Intel	0.121	85	6	6	15	63	42	21	86	1.3	3	18/1	63	2.02	0.08	2.45	0.07	
35/9	1.8 m Intel		0	6	6	15	4	4	1	41	5.3	3	35/10	12	0.51	0.05	0.51	0.05	
35/10	1.8 m Intel	0.021	95	6	6	5	12	10	2	37	8.6	3	35/11	11	0.45	0.05	1.38	0.02	
35/11	1.8 m Intel	0.016	95	6	6	15	11	8	2	67	8.9	3	22/1	46	1.39	0.09	1.91	0.06	
35/12	1.8 m Intel		0	6	6	15	4	4	1	51	8.9	3	35/13	22	0.85	0.07	2.12	0.07	
35/13	1.8 m Intel	0.047	95	6	6	5	77	47	30	89	0.9	3	25/2	42	2.17	0.16	2.17	0.16	
37/1	1.8 m Intel		0	6	6	15	22	18	5	62	1	3	38/1	29	1.2	0.07	1.2	0.07	
38/1	1.8 m Intel	0.048	95	6	6	15	29	23	6	52	7.9	3	40/1	25	0.91	0.07	0.91	0.07	
39/1	1.8 m Intel	0.028	95	6	6	15	20	16	4	59	8.9	3	39/2	32	1.1	0.08	6.37	0.04	
39/2	2.4 m Intel sag	0.096	85	6	6	5	66	160	0	237	3.4	3	35/13	57	8.07	0.02	7.93	0.02	
40/1	1.8 m Intel	0.038	95	6	6	15	25	20	5	48	8.9	3	39/1	20	0.73	0.07	1.1	0.05	
49/1	1.8 m Intel	0.052	95	6	6	15	34	23	77	87	3.4	3	42/1	85	2.05	0.11	2.05	0.11	

Plotted: 28 June, 2017 10:18:03 AM File Name: J:\110358 - Caddens03 - Stage 2 CD CC-STAGE 3\110358CC328.dwg

DESIGN STORM 1:5yr ARI HYDRAULIC RESULTS

PIPE NAME	PIPE DIAMETER	PIPE TYPE	PIPE LENGTH	PIPE GRADE	CRITICAL STORM	PEAK FLOW	CAPACITY RATIO	PEAK VELOCITY	PIPE U/S IL	PIPE D/S IL	PIPE D/S DROP	U/S PIT Ku	D/S PIT Kw	PIT LOSS (Ku.Vhead)	WSE LOSS (Kw.Vhead)	U/S PIPE HGL	D/S PIPE HGL	HGL GRADE	MINIMUM COVER	MINIMUM FREEBOARD	COMMENTS
(-)	(mm)	(-)	(m)	(%)	(min)	(L/s)	(-)	(m/s)	(m)	(m)	(m)	(-)	(-)	(m)	(m)	(m)	(m)	(%)	(m)	(m)	
18/1 to 18/2	375	RRJ2	25.03	1	25	86	0.45	1.35	61.452	61.202	0.03	1.9	2.03	0.17	0.19	61.717	61.63	0.35	1.1	1.257	
18/2 to 18/3	375	RRJ2	42.53	1	25	110	0.58	1.11	61.172	60.746	0.03	7	7	0.1	0.1	61.63	61.455	0.41	1.13	1.093	
18/3 to 18/4	375	RRJ2	20.23	1	25	206	1.08	1.87	60.716	60.514	0.03	1.29	1.29	0.15	0.15	61.455	61.076	1.87	1.16	0.844	
18/4 to 18/5	375	RRJ2	28.26	1	25	226	1.19	2.09	60.484	60.202	0.03	0.85	0.65	0.13	0.13	61.076	60.569	1.79	1.15	1.02	
18/5 to 18/6	375	RRJ2	62.02	3.88	25	356	0.95	3.43	60.172	57.768	0.152	0.58	0.58	0.3	0.3	60.569	58.386	3.52	1.1	1.17	
18/6 to 18/7	450	RRJ2	10.5	2.39	25	424	0.89	2.71	57.616	57.365	0.16	9.29	9.29	0.36	0.36	58.386	57.849	5.11	1.1	0.817	
18/7 to 18/8	450	RRJ2	20.6	3.53	25	437	0.75	2.86	57.206	56.479	0.05	1.57	1.7	0.55	0.59	57.849	56.94	4.41	1.1	1.023	
18/8 to 13/5	450	RRJ2	14.21	6.68	25	473	0.59	3.68	56.429	55.48	0.417	0.57	0.57	0.39	0.39	56.94	55.729	8.53	1.1	1.148	
20/1 to 18/3	375	RRJ2	11.11	1	25	30	0.16	0.67	60.91	60.799	0.082	4.5	4.5	0.1	0.1	61.461	61.455	0.05	1.1	0.915	
21/1 to 18/5	375	RRJ2	8.04	1	25	18	0.09	0.44	60.306	60.225	0.054	4.5	4.5	0.05	0.05	60.572	60.569	0.04	1.1	1.183	
22/1 to 22/2	375	RRJ2	30.13	3.14	25	64	0.19	2.15	54.972	54.024	0.083	2.11	2.23	0.49	0.52	55.097	54.135	3.19	1.1	1.426	
22/2 to 22/3	375	RRJ2	25	3.09	25	97	0.29	2.32	53.941	53.169	0.083	1.65	1.65	0.44	0.44	54.107	53.308	3.2	1.1	1.386	
22/3 to 22/4	375	RRJ2	29.99	3.14	25	148	0.44	2.66	53.086	52.143	0.083	1.2	1.2	0.42	0.42	53.29	52.318	3.24	1.1	1.348	
22/4 to 22/5	375	RRJ2	30.01	3.14	15	184	0.55	2.72	52.06	51.117	0.083	7	7	0.42	0.42	52.29	51.946	1.15	1.1	1.322	
22/5 to 22/6	375	RRJ2	29.98	3.14	120	299	0.89	2.89	51.034	50.091	0.083	6.97	6.97	0.39	0.39	51.946	51.08	2.89	1.1	0.639	
22/6 to 22/7	375	RRJ2	27.53	3.12	120	332	0.99	3.08	50.008	49.15	0.085	7	7	0.4	0.4	51.08	50.178	3.28	1.1	0.48	
22/7 to 22/8	375	RRJ2	35.65	3.18	25	348	1.03	3.15	49.064	47.931	0.217	7	7	0.42	0.42	50.178	48.822	3.8	1.1	0.44	
22/8 to 22/9	450	RRJ2	28.46	2.87	25	439	0.84	2.76	47.713	46.898	0.05	7	7	0.34	0.34	48.822	48.061	2.67	1.1	0.577	
23/1 to 22/3	375	RRJ2	8.66	1	25	21	0.11	0.78	53.285	53.199	0.113	4.5	4.5	0.14	0.14	53.422	53.29	1.52	1.1	1.329	
24/1 to 22/5	375	RRJ2	11.53	1.94	25	42	0.16	0.83	51.381	51.157	0.123	4.5	4.5	0.16	0.16	51.951	51.946	0.04	1.1	0.919	
25/1 to 25/2	375	RRJ2	28.21	4.15	25	15	0.04	1.51	52.165	50.994	0.207	4.5	4.5	0.52	0.52	52.214	51.645	2.02	1.1	1.629	
25/2 to 25/3	375	RRJ2	27.21	4.28	15	380	0.97	3.5	50.787	49.624	0.121	0.56	0.56	0.35	0.35	51.645	50.454	4.38	1.1	0.789	
25/3 to 25/4	375	RRJ2	32.5	4.63	10	398	0.97	3.91	49.503	47.999	0.17	7	7	0.37	0.37	50.454	48.846	4.95	1.1	0.619	
25/4 to 25/5	375	RRJ2	32.5	4.3	25	421	1.07	3.82	47.829	46.432	0.19	7	7	0.58	0.58	48.846	46.999	5.68	1.1	0.602	
25/5 to 25/6	450	RRJ2	32.5	2.71	20	507	1	3.24	46.242	45.36	0.066	7	7	0.37	0.37	46.999	46.099	2.77	1.1	0.944	
25/6 to 25/7	525	RRJ2	20	1.48	25	546	0.96	2.93	45.294	44.997	0.111	7	7	0.2	0.2	46.099	45.881	1.09	1.1	0.893	
25/7 to 25/8	600	RRJ2	33.02	1.51	20	669	0.82	2.79	44.886	44.387	0.04	0.48	0.48	0.17	0.17	45.881	45.518	1.1	1.1	0.769	
25/8 to 25/9	600	RRJ2	31.95	1.51	15	640	0.78	2.73	44.347	43.866	0.04	7	7	0.21	0.21	45.518	45.135	1.2	1.1	0.593	
25/9 to 25/10	600	RRJ2	22.53	1.46	25	681	0.85	2.59	43.826	43.498	0.04	7	7	0.19	0.19	45.135	44.8	1.49	1.1	0.455	
25/10 to 25/11	600	RRJ2	18.67	1.42	25	702	0.89	2.48	43.459	43.193	0.05	7	7	0.16	0.16	44.8	44.496	1.63	1.1	0.423	
25/11 to 25/12	600	RRJ2	9.73	1	25	783	1.18	2.77	43.143	43.046	0.05	1.01	1.05	0.34	0.36	44.496	44.018	4.91	1.18	0.421	
26/1 to 25/2	375	RRJ2	9.67	2.1	25	28	0.1	0.96	51.218	51.014	0.227	4.5	4.5	0.21	0.21	51.648	51.645	0.03	1.1	1.058	
27/1 to 25/5	375	RRJ2	9.99	1.82	20	33	0.13	0.97	46.698	46.516	0.275	4.5	4.5	0.22	0.22	47.005	46.999	0.06	1.1	1.178	
28/1 to 25/7	375	RRJ2	9.38	1	25	-39	-0.2	0.76	45.267	45.173	0.287	4.5	4.5	0.13	0.13	45.885	45.881	0.04	1.1	0.845	
29/1 to 25/9	375	RRJ2	9.44	1	20	-70	-0.37	0.82	44.208	44.114	0.288	4.5	4.5	0.15	0.15	45.138	45.135	0.03	1.1	0.533	
33/4 to 33/5	375	RRJ2	11.41	7.19	25	113	0.22	3.25	62.061	61.241	0.115	0.67	0.67	0.36	0.36	62.206	61.361	7.4	1.1	1.465	
33/5 to 18/5	375	RRJ2	13.99	5.69	25	124	0.27	3.26	61.126	60.33	0.159	0.67	0.67	0.35	0.35	61.275	60.569	5.05	1.1	1.354	
35/7 to 35/8	375	RRJ2	52.54	1	25	101	0.53	1.67	62.862	62.336	0.03	0.76	0.76	0.11	0.11	63.071	62.531	1.03	1.1	1.313	
35/8 to 35/9	375	RRJ2	29.24	3.09	25	147	0.44	2.62	62.306	61.402	0.129	5.9	5.9	0.44	0.44	62.512	61.576	3.2	1.1	1.334	
35/9 to 35/10	375	RRJ2	27.03	6.48	25	149	0.31	3.79	61.273	59.523	0.418	7	7	0.21	0.21	61.42	59.666	6.49	1.1	1.428	
35/10 to 35/11	375	RRJ2	20.93	6.87	25	235	0.47	3.64	59.105	57.667	0.267	1.31	1.39	0.85	0.91	59.349	57.848	7.17	1.1	1.581	
35/11 to 35/12	375	RRJ2	27.96	7.91	25	240	0.45	4.57	57.4	55.188	0.419	0.31	0.31	0.32	0.32	57.585	55.364	7.94	1.1	1.484	
35/12 to 35/13	375	RRJ2	47.19	7.59	25	253	0.48	3.96	54.769	51.19	0.208	1.57	1.7	1.25	1.36	54.953	52.083	6.08	1.1	1.687	
35/13 to 25/2	375	RRJ2	14.42	1	25	353	1.86	3.2	50.982	50.837	0.05	9.7	9.7	0.13	0.13	52.083	51.645	3.04	1.41	0.865	
37/1 to 35/8	375	RRJ2	12.99	1	25	13	0.07	0.65	62.49	62.36	0.054	4.5	4.5	0.1	0.1	62.576	62.512	0.49	1.1	1.385	
38/1 to 35/10	375	RRJ2	10.3	1	25	81	0.43	1.29	59.258	59.155	0.05	9.7	9.7	0.1	0.1	59.492	59.349	1.39	1.48	1.982	
39/1 to 39/2	375	RRJ2	19.54	6.25	25	82	0.17	2.01	52.384	51.162	0.05	2.16	2.66	0.44	0.55	52.489	52.16	1.68	1.1	1.672	
39/2 to 35/13	375	RRJ2	8.05	1	25	101	0.53	0.96	51.112	51.032	0.05	9.7	9.7	0.15	0.15	52.16	52.083	0.96	1.35	0.639	
40/1 to 35/12	375	RRJ2	11.56	5.06	15	12	0.03	1.53	55.788	55.203	0.434	4.5	4.5	0.55	0.55	55.839	55.247	5.12	1.1	1.485	
46/1 to 22/7	375	RRJ2	8.04	1	25	65	0.34	0.61	49.195	49.114	0.05	4.5	4.5	0.09	0.09	50.182	50.178	0.05	1.1	0.464	
BP13/1 to BP13/2	2	No Flow	5.09	8.94	10	0	0	0	52.672	52.216		0	0	0	0	52.672	52.216	8.96	0.6	0.482	
BP14/1 to BP14/2	2	No Flow	5.24	1	10	0	0	0	63.631	63.578		0	0	0	0	63.631	63.578	1.01	0.6	0.448	
BP15/1 to BP15/2	2	No Flow	5.14	1	10	0	0	0	54.622	54.57		0	0	0	0	54.622	54.57	1.01	0.6	0.447	
BP16/1 to BP16/2	2	No Flow	5.37	1	10	0	0	0	62.019	61.966		0	0	0	0	62.019	61.966	0.99	0.6	0.448	
BP17/1 to BP17/2	2	No Flow	4.87	1	10	0	0	0	62.719	62.671		0	0	0	0	62.719	62.671	0.98	0.6	0.448	
BP18/1 to BP18/2	2	No Flow	5.01	1	10	0	0	0	56.762	56.712		0	0	0	0	56.762	56.712	1	0.6	0.448	
F1 to F/2	150	uPVC	10	2.36	25	9	0.29	1.06	50.326	50.09	0.03	4.5	4.5	0.26	0.26	50.413	50.145	2.68	0.6	0.677	
F2 to F/3	150	uPVC	12.5	2.34	25	18	0.58	1.36	50.06	49.767	0.03	0	0	0	0	50.142	50.066	0.61	0.6	0.69	
F3 to F/4	150	uPVC	10	2.28	25	28	0.92	1.59	49.737	49.509	0.03	9.7	9.7	0.22	0.22	50.066	49.731	3.35	0.6	0.441	
F4 to F/5	150	uPVC	10	2.29	25	36	1.2	2.04	49.479	49.251	0.099	0									

DESIGN STORM 1:5yr ARI HYDRAULIC RESULTS

PIPE NAME	PIPE DIAMETER	PIPE TYPE	PIPE LENGTH	PIPE GRADE	CRITICAL STORM	PEAK FLOW	CAPACITY RATIO	PEAK VELOCITY	PIPE U/S IL	PIPE D/S IL	PIPE D/S DROP	U/S PIT Ku	D/S PIT Kw	PIT LOSS (Ku,Vhead)	WSE LOSS (Kw,Vhead)	U/S PIPE HGL	D/S PIPE HGL	HGL GRADE	MINIMUM COVER	MINIMUM FREEBOARD	COMMENTS
K/5 to K/6	225	uPVC	15	2	25	59	0.71	2.1	59.489	59.19	0.03	0	0	0	0	59.649	59.574	0.5	0.6	0.679	
K/6 to K/7	225	uPVC	15	1.93	25	70	0.87	1.79	59.16	58.87	0.018	9.7	9.7	0.2	0.2	59.574	59.24	2.23	0.6	0.434	
K/7 to K/8	225	uPVC	15	2.1	25	82	0.97	2.07	58.852	58.538	0.03	0	0	0	0	59.24	58.942	1.99	0.6	0.449	
K/8 to K/9	225	uPVC	1.75	1	25	95	1.63	2.4	58.508	58.49	5.784	0.79	0.79	0.18	0.18	58.942	58.715	12.97	0.61	0.412	
K/9 to K/11	225	uPVC	31.26	1	25	94	1.61	2.36	52.706	52.394	0.951	1.88	2.61	0.43	0.54	53.858	52.619	3.96	0.6	5.451	
K/11 to 22/5	375	RRJ2	5.09	4.8	25	91	0.22	1.7	51.443	51.198	0.165	2.09	3.24	0.31	0.48	52.015	51.946	1.36	1.1	1.086	
L/1 to L/2	150	uPVC	14.87	5	25	14	0.31	1.51	60.22	59.477	0.037	4.5	4.5	0.52	0.52	60.283	59.73	3.72	0.6	2.21	
L/2 to L/3	150	uPVC	14.35	2.26	25	27	0.91	1.65	59.44	59.115	1.614	2.52	2.52	0.23	0.23	59.73	59.227	3.51	0.6	0.51	
L/3 to L/4	150	uPVC	15.65	7	25	39	0.74	2.66	57.501	56.405	0.973	2.02	2.43	0.62	0.77	57.751	56.501	7.99	0.6	2.127	
L/4 to 22/1	375	RRJ2	6.02	3.9	25	39	0.1	1.51	55.432	55.197	0.226	2.09	3.24	0.24	0.38	55.563	55.279	4.72	1.1	1.464	
M/2 to M/3	150	uPVC	12.5	1.12	25	24	1.16	1.39	61.811	61.671	0.05	0	0	0	0	61.993	61.809	1.47	0.6	0.638	
M/3 to M/4	150	uPVC	12.5	3.68	25	35	0.93	2.44	61.621	61.161	0.117	0	0	0	0	61.736	61.275	3.69	0.6	0.676	
M/4 to M/5	225	uPVC	12.5	4.69	25	46	0.37	2.93	61.044	60.458	0.048	7	7	0.24	0.24	61.138	60.552	4.69	0.6	0.754	
M/5 to M/6	225	uPVC	10	5.31	25	58	0.43	2.28	60.41	59.879	0.082	0	0	0	0	60.513	60.123	3.9	0.6	0.748	
M/6 to M/7	225	uPVC	1.75	1	25	67	1.15	1.71	59.796	59.779	0.086	0.81	0.81	0.11	0.11	60.123	59.985	7.89	0.6	0.555	
M/7 to M/8	300	uPVC	28.25	1	25	66	0.53	1.44	59.693	59.41	0.05	2.09	2.76	0.22	0.29	59.911	59.566	1.22	0.6	0.656	
M/8 to 38/1	375	RRJ2	5.26	1	25	66	0.35	1.38	59.36	59.308	0.05	0	0	0	0	59.513	59.492	0.4	1.98	2.45	
N/1 to N/2	150	uPVC	12.5	6.35	25	11	0.23	1.9	59.069	58.275	0.087	4.5	4.5	0.83	0.83	59.132	58.324	6.46	0.6	0.724	
N/2 to N/3	150	uPVC	10	6.1	25	23	0.46	2.72	58.188	57.578	0.105	0	0	0	0	58.26	57.65	6.1	0.6	0.741	
N/3 to N/4	225	uPVC	12.5	6	25	32	0.22	2.87	57.474	56.724	0.085	7	7	0.23	0.23	57.547	56.797	6	0.6	0.788	
N/4 to N/5	225	uPVC	12.5	5.74	25	43	0.31	3.01	56.639	55.921	0.05	0	0	0	0	56.725	56.018	5.66	0.6	0.806	
N/5 to N/6	225	uPVC	10	5.45	25	54	0.4	2.46	55.871	55.327	0.142	1.15	1.15	0.35	0.35	56.018	55.425	5.93	0.61	0.744	
N/6 to N/7	225	uPVC	12.5	5.71	25	63	0.45	2.02	55.185	54.47	0.05	0	0	0	0	55.291	54.972	2.55	0.6	0.826	
N/7 to N/8	225	uPVC	1.5	1	25	73	1.26	1.85	54.42	54.405	0.05	0.89	0.89	0.11	0.11	54.972	54.841	8.73	0.67	0.366	
N/8 to N/9	225	uPVC	28.24	1.76	25	73	0.94	1.96	54.355	53.858	0.692	2.08	2.63	0.31	0.38	54.841	54.031	2.87	0.61	0.438	
N/9 to 39/1	375	RRJ2	5.44	5.21	25	73	0.17	1.75	53.166	52.882	0.498	2.09	3.24	0.32	0.5	53.364	52.986	6.95	1.1	1.359	
P/2 to P/3	150	uPVC	42.03	10.5	25	27	0.42	3.38	63.632	59.22	0.986	2.96	2.97	1.12	1.28	63.703	59.287	10.51	0.6	2.517	
P/3 to 18/6	375	RRJ2	7.09	4.44	20	31	0.08	1.53	58.234	57.919	0.303	2.09	3.24	0.25	0.39	58.398	58.386	0.17	1.1	1.437	
R/5 to R/6	150	uPVC	7.95	12.68	25	54	0.77	3.48	63.065	62.056	0.933	9.67	9.67	0.65	0.65	63.523	62.155	17.2	0.6	0.335	
R/6 to 18/3	375	RRJ2	5.62	2.65	25	54	0.17	1.31	61.123	60.974	0.258	2.09	3.24	0.18	0.28	61.484	61.455	0.52	1.1	1.217	
S/5 to S/6	225	uPVC	15.51	6.63	25	60	0.4	3.13	63.702	62.675	0.871	1.08	1.08	0.52	0.52	63.822	62.773	6.76	0.6	0.724	
S/6 to 18/1	375	RRJ2	5.92	2.64	25	60	0.19	1.39	61.803	61.647	0.195	2.09	3.24	0.21	0.32	62.001	61.759	4.09	1.1	1.381	

WORKS AS EXECUTED SHOWN IN RED

SIGNATURE

PETER ROBERT WARWICKS

Registered Land Surveyor

VINCE MORGAN SURVEYORS PTY LTD

DATE 8/3/18

REF 2046713

DESIGN STORM 1:100yr ARI HYDRAULIC RESULTS

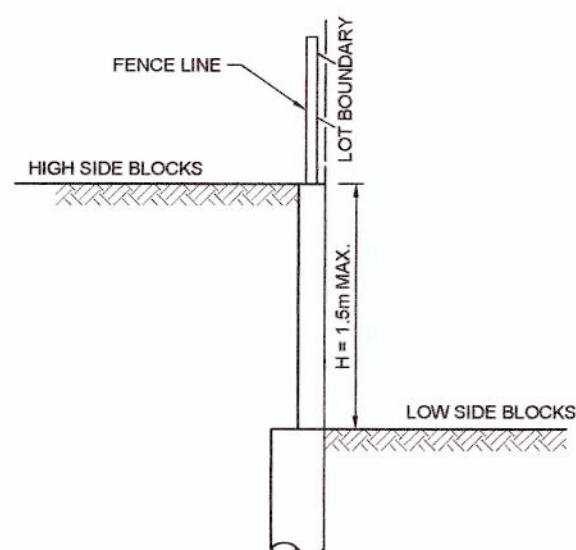
PIPE NAME	PIPE DIAMETER	PIPE TYPE	PIPE LENGTH	PIPE GRADE	CRITICAL STORM	PEAK FLOW	CAPACITY RATIO	PEAK VELOCITY	PIPE U/S IL	PIPE D/S IL	PIPE D/S DROP	U/S PIT Ku	D/S PIT Kw	PIT LOSS (Ku Vhead)	WSE LOSS (Kw Vhead)	U/S PIPE HGL	D/S PIPE HGL	HGL GRADE	MINIMUM COVER	MINIMUM FREEBOARD	COMMENTS
(-)	(mm)	(-)	(m)	(%)	(min)	(L/s)	(-)	(m/s)	(m)	(m)	(m)	(-)	(Kw)	(m)	(m)	(m)	(m)	(%)	(m)	(m)	
18/1 to 18/2	375	RRJ2	25.03	1	25	129	0.68	1.4	61.452	61.202	0.03	1.93	2.06	0.19	0.21	63.057	62.833	0.89	1.1	0.001	
18/2 to 18/3	375	RRJ2	42.53	1	15	161	0.85	1.46	61.172	60.746	0.03	7	7	0.1	0.1	62.833	62.44	0.92	1.13	-0.11	
18/3 to 18/4	375	RRJ2	20.23	1	5	221	1.16	2	60.716	60.514	0.03	1.13	1.13	0.16	0.16	62.44	62.231	1.03	1.16	-0.142	
18/4 to 18/5	375	RRJ2	28.26	1	5	260	1.37	2.36	60.484	60.202	0.03	0.93	0.93	0.17	0.17	62.231	61.857	1.32	1.15	-0.135	
18/5 to 18/6	375	RRJ2	62.02	3.88	45	384	1.03	3.48	60.172	57.768	0.152	0.95	0.95	0.48	0.48	61.857	59.324	4.08	1.1	-0.118	
18/6 to 18/7	450	RRJ2	10.5	2.39	45	480	1.01	3.02	57.616	57.365	0.16	1.13	1.13	0.49	0.49	59.324	58.904	4	1.1	-0.121	
18/7 to 18/8	450	RRJ2	20.6	3.53	120	528	0.91	3.32	57.206	56.479	0.05	1.58	1.71	0.69	0.71	58.904	58.184	3.5	1.1	0.005	
18/8 to 13/5	450	RRJ2	14.21	6.68	60	753	0.94	4.75	56.429	55.48	0.417	1.1	1.1	0.78	0.78	58.184	56.881	9.17	1.1	-0.096	
20/1 to 18/3	375	RRJ2	11.11	1	5	46	0.24	0.68	60.91	60.799	0.082	4.5	4.5	0.11	0.11	62.455	62.44	0.13	1.1	-0.079	
21/1 to 18/5	375	RRJ2	8.04	1	10	54	0.28	0.49	60.306	60.225	0.054	4.5	4.5	0.05	0.05	61.843	61.857	-0.17	1.1	-0.087	
22/1 to 22/2	375	RRJ2	30.13	3.14	15	94	0.28	2.33	54.972	54.024	0.083	2.06	2.18	0.55	0.58	55.131	54.159	3.23	1.1	1.392	
22/2 to 22/3	375	RRJ2	25	3.09	20	164	0.49	2.42	53.941	53.169	0.083	1.69	1.69	0.48	0.48	54.158	53.883	1.1	1.1	1.335	
22/3 to 22/4	375	RRJ2	29.99	3.14	5	230	0.68	2.71	53.086	52.143	0.083	1.34	1.34	0.48	0.48	53.883	53.395	1.63	1.1	0.755	
22/4 to 22/5	375	RRJ2	30.01	3.14	20	249	0.74	2.68	52.06	51.117	0.083	7	7	0.53	0.53	53.395	52.703	2.31	1.1	0.217	
22/5 to 22/6	375	RRJ2	29.98	3.14	10	313	0.93	2.9	51.034	50.091	0.083	1.23	1.23	0.41	0.41	52.703	51.687	3.39	1.1	-0.118	
22/6 to 22/7	375	RRJ2	27.53	3.12	45	333	0.99	3.08	50.008	49.15	0.085	7	7	0.43	0.43	51.687	50.747	3.41	1.1	-0.127	
22/7 to 22/8	375	RRJ2	35.65	3.18	60	351	1.04	3.18	49.064	47.931	0.217	7	7	0.49	0.49	50.747	49.541	3.38	1.1	-0.129	
22/8 to 22/9	450	RRJ2	28.46	2.87	90	463	0.88	2.91	47.713	46.898	0.05	1.49	1.49	0.37	0.37	49.541	48.758	2.75	1.1	-0.142	
23/1 to 22/3	375	RRJ2	8.66	1	25	32	0.17	0.81	53.285	53.199	0.113	4.5	4.5	0.15	0.15	53.895	53.883	0.14	1.1	0.856	
24/1 to 22/5	375	RRJ2	11.53	1.94	5	70	0.26	0.99	51.381	51.157	0.123	4.5	4.5	0.23	0.23	52.755	52.703	0.45	1.1	0.114	
25/1 to 25/2	375	RRJ2	28.21	4.15	15	-56	-0.15	1.62	52.165	50.994	0.207	4.5	4.5	0.6	0.6	52.661	52.54	0.43	1.1	1.182	
25/2 to 25/3	375	RRJ2	27.21	4.28	60	382	0.97	3.51	50.787	49.624	0.121	1.17	1.17	0.53	0.53	52.54	51.189	4.97	1.1	-0.106	
25/3 to 25/4	375	RRJ2	32.5	4.63	5	410	1	3.87	49.503	47.999	0.17	7	7	0.45	0.45	51.189	49.574	4.97	1.1	-0.115	
25/4 to 25/5	375	RRJ2	32.5	4.3	5	437	1.11	3.96	47.829	46.432	0.19	7	7	0.75	0.75	49.574	48.077	4.61	1.1	-0.126	
25/5 to 25/6	450	RRJ2	32.5	2.71	10	508	1	3.29	46.242	45.36	0.066	7	7	0.45	0.45	48.077	47.135	2.9	1.1	-0.134	
25/6 to 25/7	525	RRJ2	20	1.48	10	561	0.99	2.9	45.294	44.997	0.111	7	7	0.23	0.23	47.135	46.798	1.68	1.1	-0.143	
25/7 to 25/8	600	RRJ2	33.02	1.51	10	715	0.87	2.76	44.886	44.387	0.04	0.8	0.8	0.22	0.22	46.798	46.263	1.62	1.1	-0.148	
25/8 to 25/9	600	RRJ2	31.95	1.51	10	732	0.9	2.73	44.347	43.866	0.04	7	7	0.23	0.23	46.263	45.751	1.6	1.1	-0.152	
25/9 to 25/10	600	RRJ2	22.53	1.46	10	769	0.96	2.72	43.826	43.498	0.04	7	7	0.23	0.23	45.751	45.383	1.63	1.1	-0.161	
25/10 to 25/11	600	RRJ2	18.67	1.42	10	811	1.02	2.87	43.459	43.193	0.05	7	7	0.22	0.22	45.383	44.983	2.14	1.1	-0.161	
25/11 to 25/12	600	RRJ2	9.73	1	15	926	1.39	3.27	43.143	43.046	0.05	1.08	1.09	0.56	0.56	44.983	44.26	7.43	1.18	0.005	
26/1 to 25/2	375	RRJ2	9.67	2.1	10	55	0.2	1	51.218	51.014	0.227	4.5	4.5	0.23	0.23	52.549	52.54	0.09	1.1	0.157	
27/1 to 25/5	375	RRJ2	9.99	1.82	10	38	0.15	1.04	46.698	46.516	0.275	4.5	4.5	0.25	0.25	48.092	48.077	0.15	1.1	0.091	
28/1 to 25/7	375	RRJ2	9.38	1	5	-82	-0.43	0.81	45.267	45.173	0.287	4.5	4.5	0.15	0.15	46.802	46.798	0.04	1.1	-0.072	
29/1 to 25/9	375	RRJ2	9.44	1	5	-103	-0.54	1	44.208	44.114	0.288	4.5	4.5	0.16	0.16	45.752	45.751	0.01	1.1	-0.081	
33/4 to 33/5	375	RRJ2	11.41	7.19	15	240	0.47	3.72	62.061	61.241	0.115	0.89	0.89	0.55	0.55	62.275	62.049	1.98	1.1	1.395	
33/5 to 18/5	375	RRJ2	13.99	5.69	5	178	0.39	3.46	61.126	60.33	0.159	0.71	0.71	0.42	0.42	62.049	61.857	1.37	1.1	0.58	
35/7 to 35/8	375	RRJ2	52.54	1	15	113	0.59	1.69	62.862	62.336	0.03	6.97	6.97	0.13	0.13	63.09	62.544	1.04	1.1	1.293	
35/8 to 35/9	375	RRJ2	29.24	3.09	15	171	0.51	2.65	62.306	61.402	0.129	7	7	0.64	0.64	62.542	61.592	3.25	1.1	1.304	
35/9 to 35/10	375	RRJ2	27.03	6.48	15	174	0.36	3.93	61.273	59.523	0.418	6.92	6.92	0.26	0.26	61.434	59.679	6.49	1.1	1.413	
35/10 to 35/11	375	RRJ2	20.93	6.87	15	309	0.62	3.66	59.105	57.667	0.267	1.27	1.34	0.84	0.89	59.438	57.881	7.44	1.1	1.491	
35/11 to 35/12	375	RRJ2	27.96	7.91	15	317	0.59	4.79	57.4	55.188	0.419	0.35	0.35	0.38	0.38	57.626	55.396	7.98	1.1	1.443	
35/12 to 35/13	375	RRJ2	47.19	7.59	15	339	0.65	3.93	54.769	51.19	0.208	1.59	1.74	1.24	1.36	55.04	52.922	4.49	1.1	1.6	
35/13 to 25/2	375	RRJ2	14.42	1	5	392	2.06	3.55	50.982	50.837	0.05	9.7	9.7	0.16	0.16	52.922	52.54	2.65	1.41	0.027	
37/1 to 35/8	375	RRJ2	12.99	1	15	17	0.09	0.71	62.49	62.36	0.054	4.5	4.5	0.12	0.12	62.6	62.542	0.45	1.1	1.36	
38/1 to 35/10	375	RRJ2	10.3	1	15	128	0.67	1.4	59.258	59.155	0.05	1.11	1.11	0.11	0.11	59.593	59.438	1.5	1.48	1.881	
39/1 to 39/2	375	RRJ2	19.54	6.25	15	105	0.22	2.26	52.384	51.162	0.05	2.16	2.66	0.55	0.68	53.163	53.036	0.65	1.1	0.998	
39/2 to 35/13	375	RRJ2	8.05	1	20	195	1.03	1.76	51.112	51.032	0.05	9.7	9.7	0.28	0.3	53.036	52.922	1.42	1.35	-0.237	
40/1 to 35/12	375	RRJ2	11.56	5.06	15	20	0.05	1.64	55.788	55.203	0.434	4.5	4.5	0.61	0.61	55.859	55.258	5.2	1.1	1.465	
46/1 to 22/7	375	RRJ2	8.04	1	5	93	0.49	0.84	49.195	49.114	0.05	4.5	4.5	0.16	0.16	50.733	50.747	-0.17	1.1	-0.087	

RETAINING WALL PROFILES SHOWN ARE INDICATIVE ONLY.

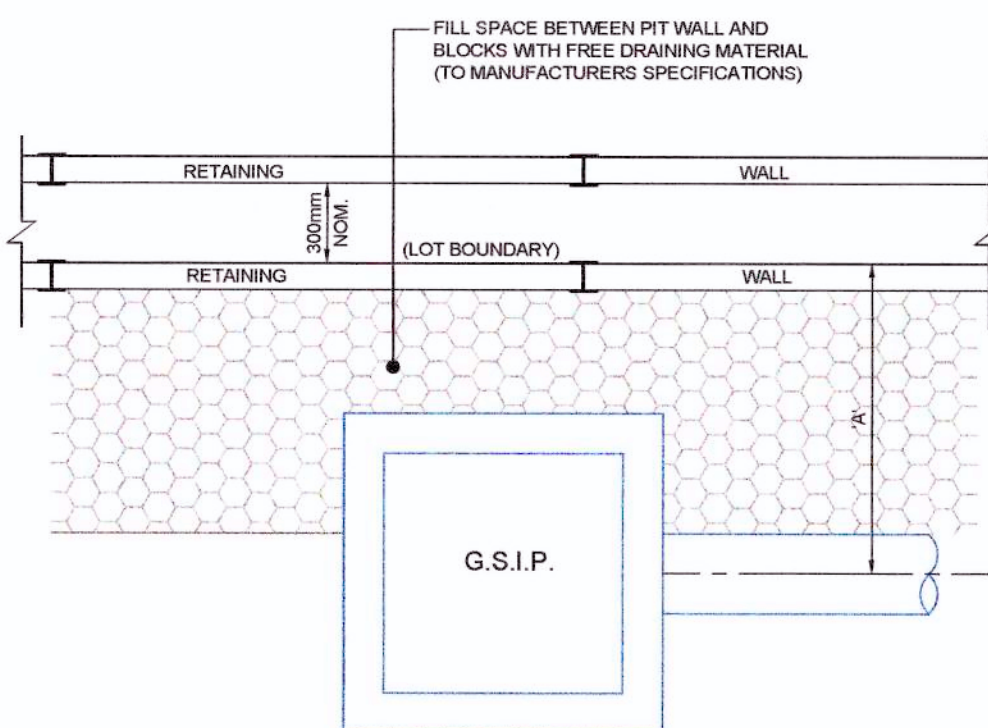
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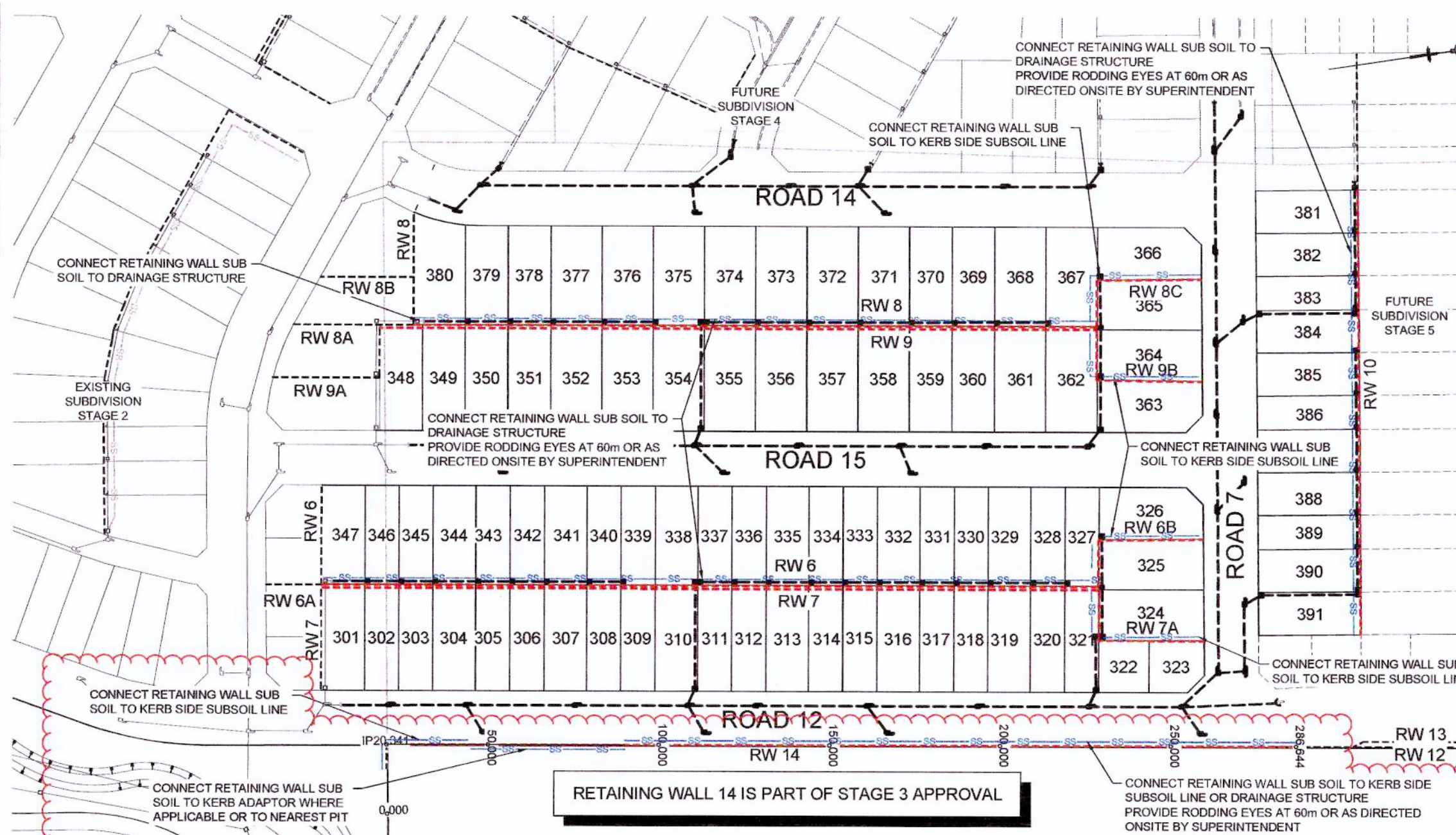


TYPICAL DETAIL
CONCRIB RETAINING WALL
SCALE 1:20



	WALL HEIGHT "H" < 800mm	WALL HEIGHT "H" > 800mm - 1500mm
OFFSET "A"	900mm	1000mm

TYPICAL INTERALLOTMENT PIT SETBACK
SCALE 1:20

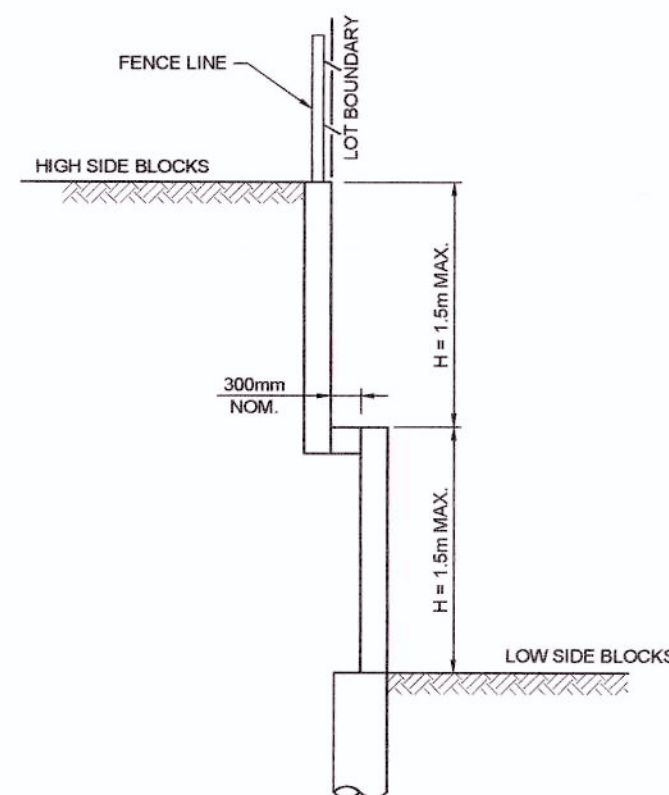


PLAN
SCALE 1:1000

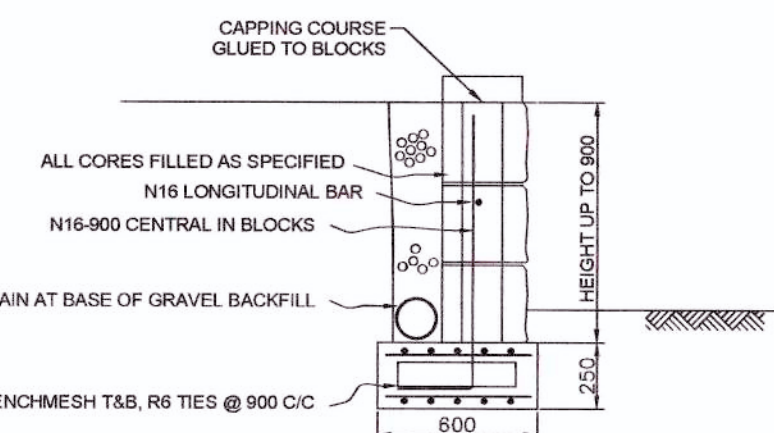
THE LOCATION OF THE RETAINING WALL IS TO BE
CONFIRMED ONSITE IN CONSULTATION WITH THE PCA

NOTE:

- TOW LEVELS SHOWN ARE TO UNDERSIDE OF CAPPING
- WALL TYPE IS FLUSH FACE KEYSTONE CHARCOAL COLOUR (SUBJECTED TO CLIENT CONFIRMATION).
- WALL CONSTRUCTION IS SUBJECTED TO MANUFACTURER'S CONSTRUCTION GUIDELINES AND SPECIFICATION

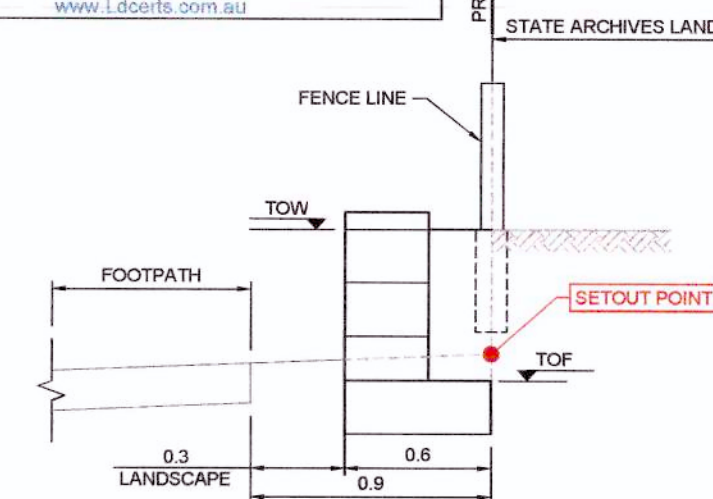


TYPICAL DETAIL
CONCRIB RETAINING WALL
SCALE 1:20



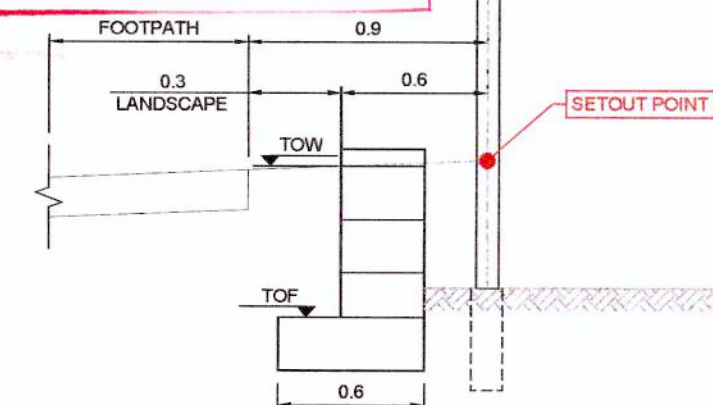
DETAIL- RETAINING WALL UP TO 0.9m HIGH

These plans are referred to in
certificate no. 14403 approved by:
Eric Hausfeld
Accredited Certifier
Registration No: BPB 2416
Categories: B1, C1, C2, C3, C4, C6, C15 & D1
LAND DEVELOPMENT CERTIFICATES
www.ldcerts.com.au



TYPICAL DETAIL
RETAINING WALL (CUT) LOCATION
SCALE 1:20

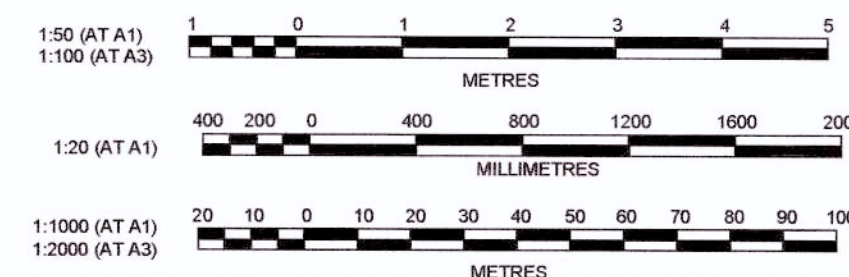
WORKS AS EXECUTED SHOWN IN RED
SIGNATURE: *P. R. Warwick*
PETER ROBERT WARWICK
Registered Land Surveyor
VINCE MORGAN SURVEYORS PTY LTD
DATE: 8/3/18 REF 20467/3



TYPICAL DETAIL
RETAINING WALL (FILL) LOCATION
SCALE 1:20

RETAINING WALL NOTES

- FOOTING CONCRETE TO BE 25MPa PLACED AT 80mm SLUMP AND THOROUGHLY COMPACTED USING VIBRATOR.
- GROUT TO BE 35MPa PLACED AT 110mm SLUMP AND MAXIMUM 10mm AGGREGATE, COMPACTED USING VIBRATOR.
- SUBSOIL DRAINS MUST FALL TO AN ATMOSPHERIC OUTLET OR INTO A SEALED DRAINAGE SYSTEM AT 50m INTERVALS ALONG WALL.
- BACKFILL TO BE CAREFULLY PLACED AND COMPACTED TO 95% STANDARD DENSITY. MAX PARTICLE SIZE 75mm.
- REFER TO PLANS AND ELEVATIONS FOR LEVELS, STEP LOCATIONS AND POSITION OF WALLS ETC.
- ENTIRE WIDTH OF FOOTING MUST BEAR ON STIFF NATURAL UNDISTURBED GROUND HAVING AT LEAST 200kPa SAFE BEARING CAPACITY.
- AND POSITION TO FOLLOW ROCK BEARING AS NECESSARY.
- WHERE THE REQUIRED BEARING IS NOT AVAILABLE, PROVIDE 600mm DIAMETER MASS CONCRETE PIERS AT 2.0m MAXIMUM CENTRES. PIER REQUIREMENTS TO BE SET OUT ON SITE AFTER EXCAVATION OF BASE SLAB.



CLIENT:



LEGACYPROPERTY

AZIMUTH:
MGA:
DATUM:
AHD
ORIGIN:

ISSUED FOR CONSTRUCTION APPROVAL

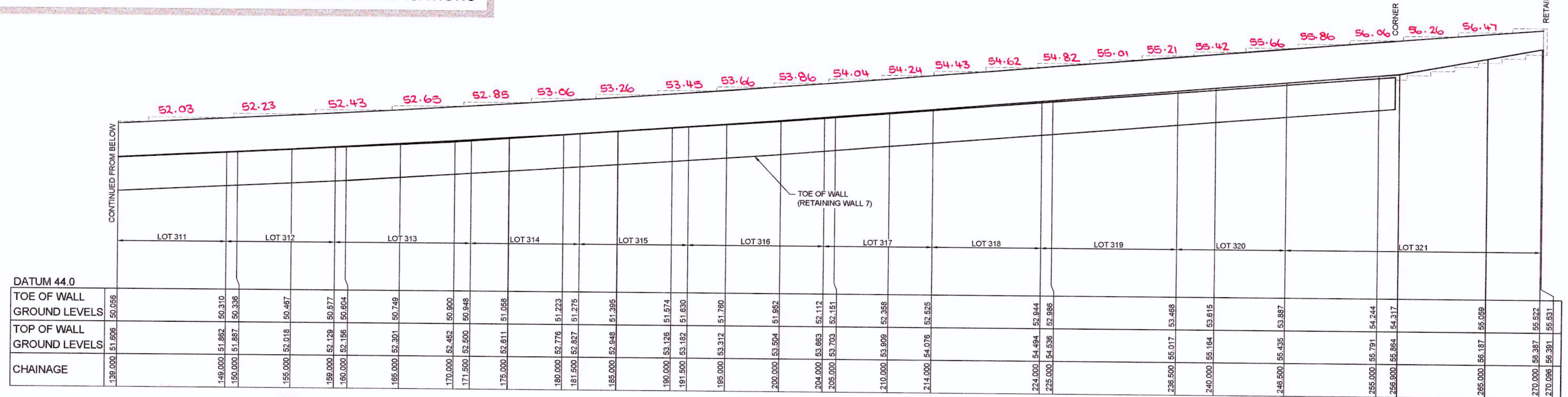
CADDENS HILL
STAGE 3
RETAINING WALL PLAN & DETAILS

PLAN No:
110358/CC330
FILE No: 110358CC330
SHEET SIZE: A1 ORIGINAL

J. WYNDHAM PRINCE CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS

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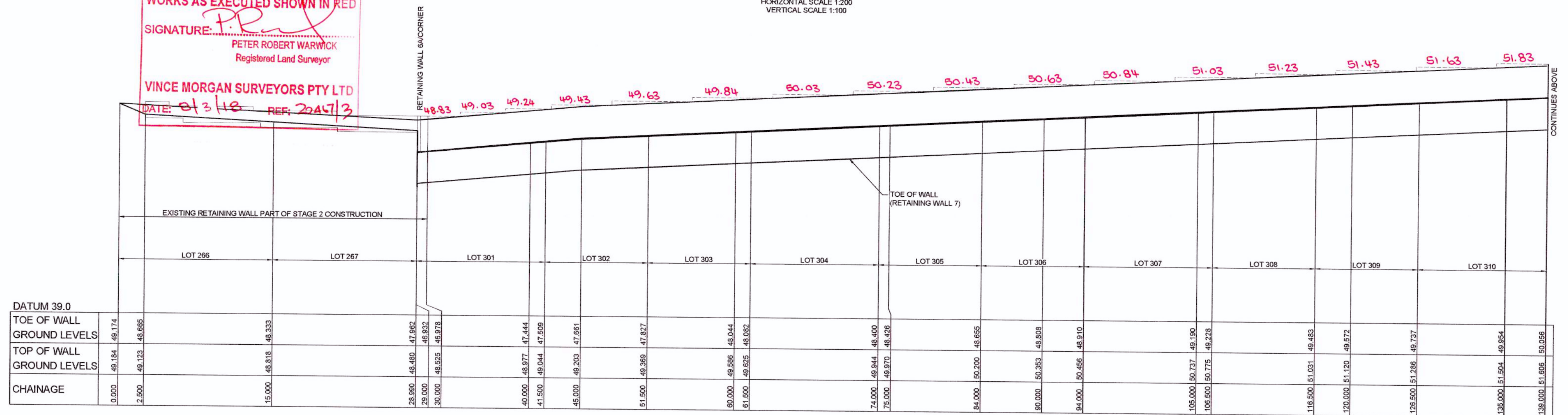
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SUBJECT TO SEPARATE STRUCTURAL PLANS & CERTIFICATIONS



LONGITUDINAL SECTION - RETAINING WALL 6

HORIZONTAL SCALE 1:200
VERTICAL SCALE 1:100

WORKS AS EXECUTED SHOWN IN RED
SIGNATURE: *P. R. Warwick*
PETER ROBERT WARWICK
Registered Land Surveyor
VINCE MORGAN SURVEYORS PTY LTD
DATE: 01/3/18 REF: 2247/3

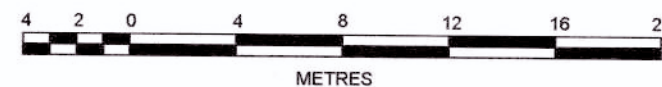


LONGITUDINAL SECTION - RETAINING WALL 6

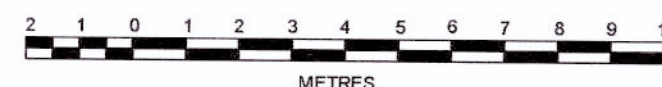
HORIZONTAL SCALE 1:200
VERTICAL SCALE 1:100

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



1:100 (AT A1)
1:200 (AT A3)



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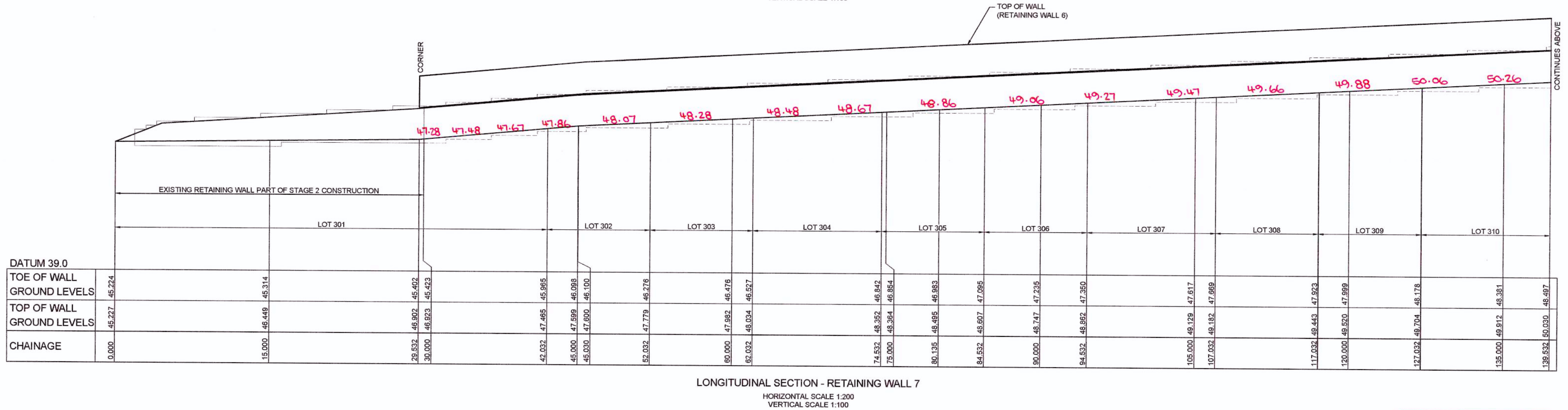
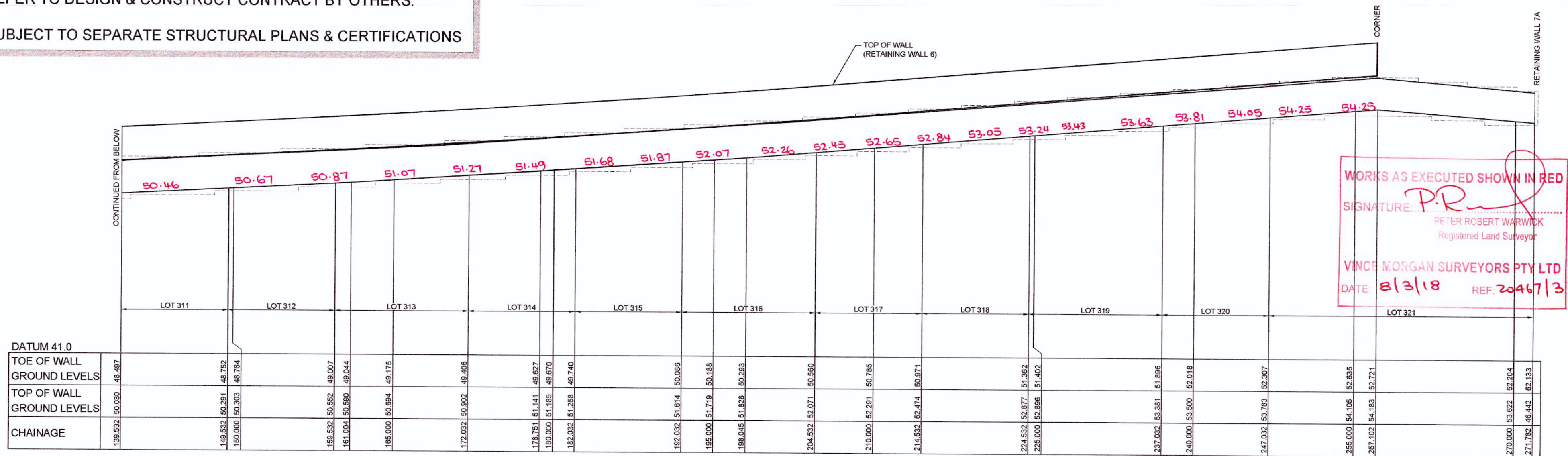
CADDENS HILL
STAGE 3
RETAINING WALL SECTION

PLAN No:
110358/CC331 **A**

FILE No: 110358CC331

SHEET SIZE: A1 ORIGINAL

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



1:100 (AT A1)
1:200 (AT A3)



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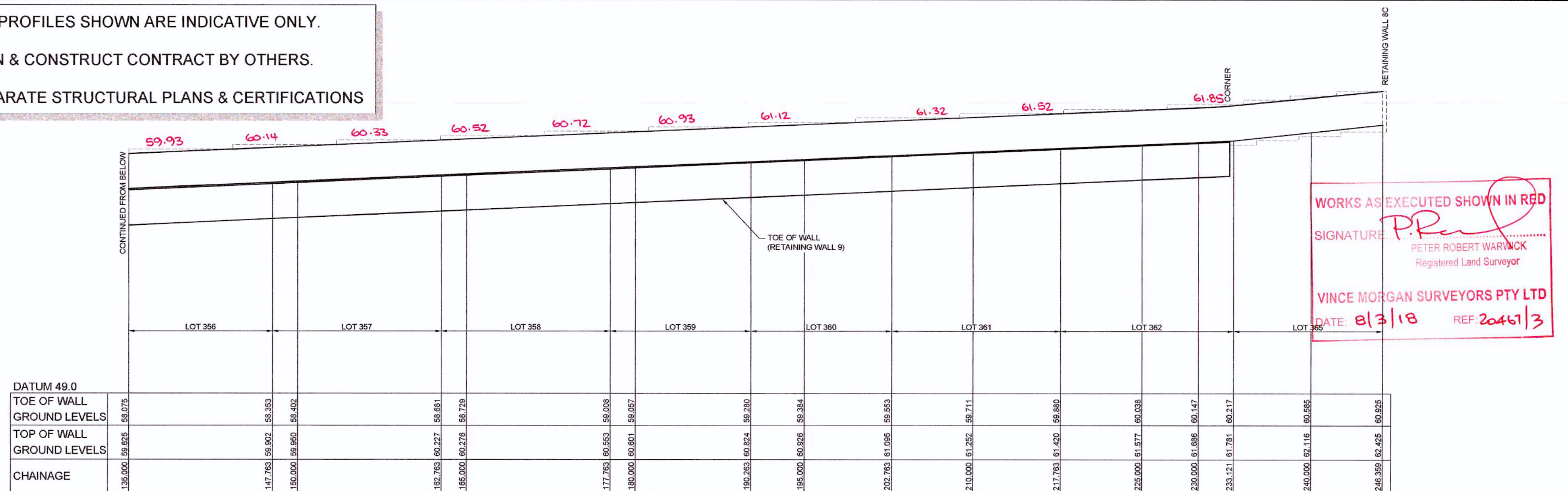
CADDENS HILL
STAGE 3
RETAINING WALL SECTION

PLAN No:
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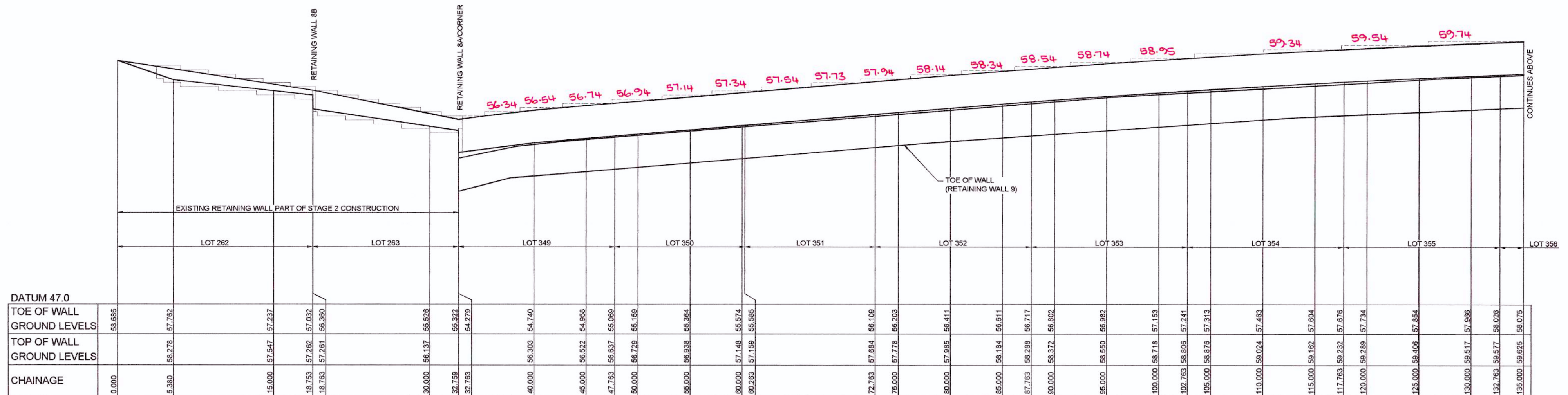
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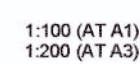
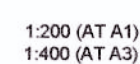


LONGITUDINAL SECTION - RETAINING WALL 8
HORIZONTAL SCALE 1:200
VERTICAL SCALE 1:100



LONGITUDINAL SECTION - RETAINING WALL 8
HORIZONTAL SCALE 1:200
VERTICAL SCALE 1:100

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CADDENS HILL
STAGE 3
RETAINING WALL SECTION

PLAN No:
110358/CC333

FILE No: 110358CC333

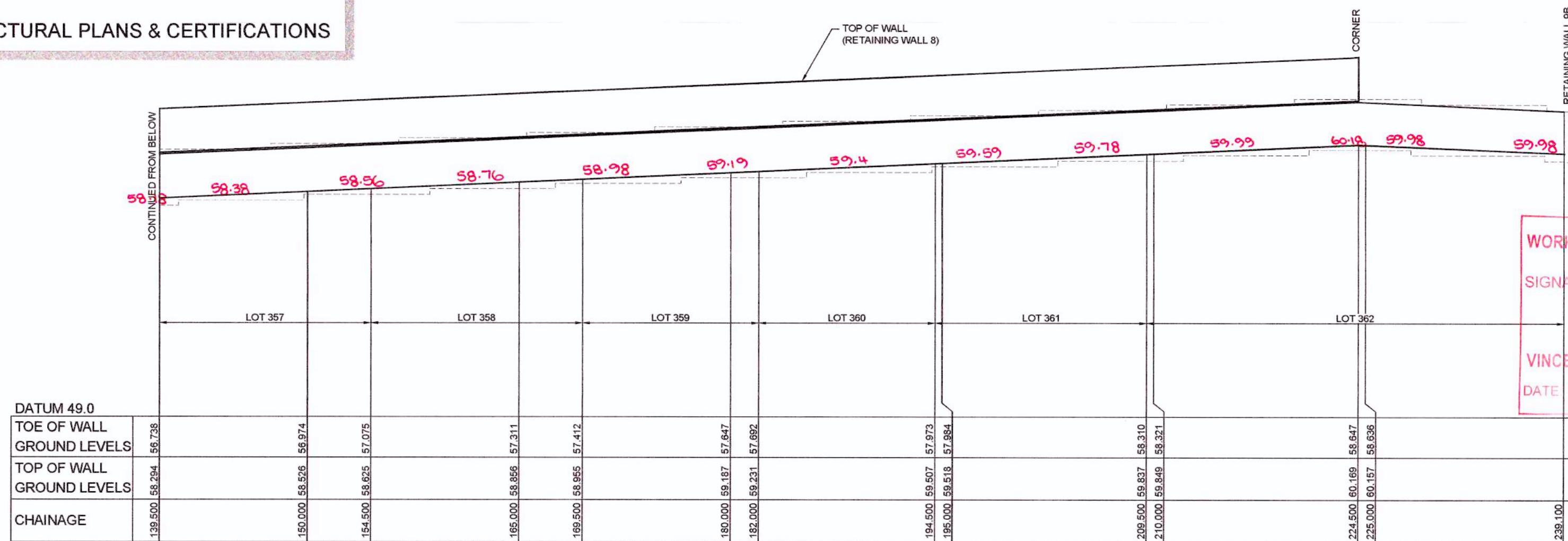
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A	ISSUE FOR CONSTRUCTION APPROVAL AMENDMENT	JT DES	NM DRN	RT CKD	MS APR 30/05/17 DATE

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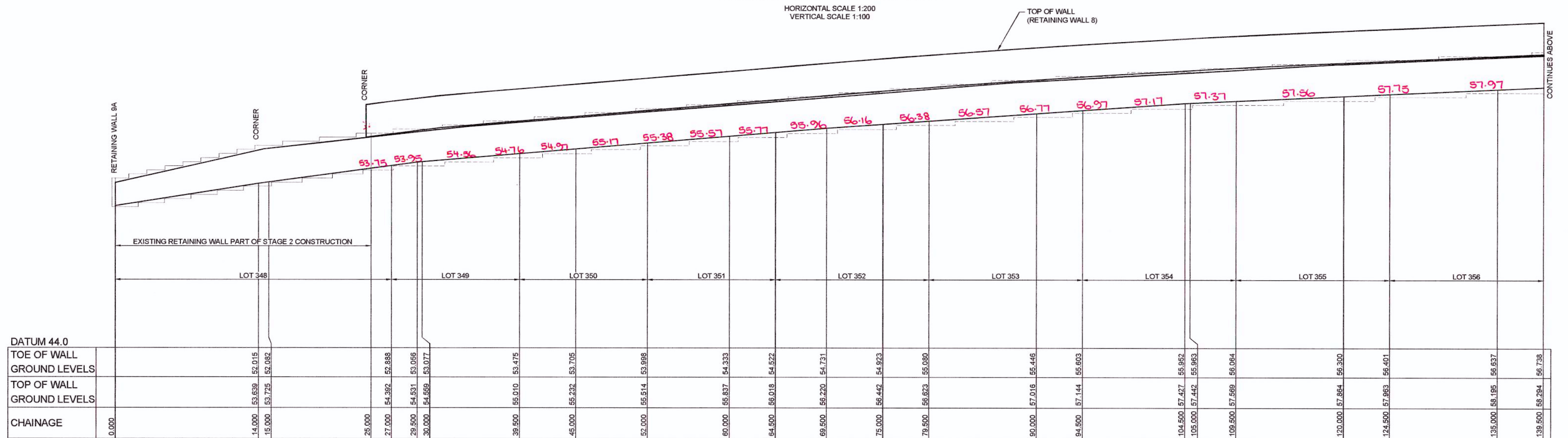
PETER ROBERT WARWICK
Registered Land Surveyor

VINCE MORGAN SURVEYORS PTY LTD

DATE: 8/3/18 REF: 20467/3

LONGITUDINAL SECTION - RETAINING WALL 9

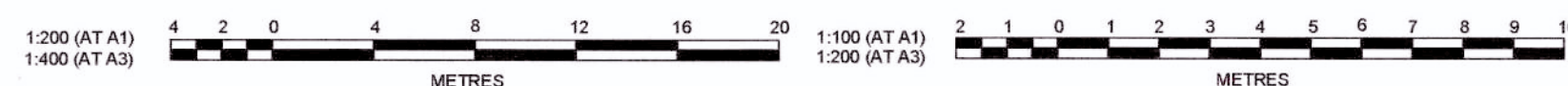
HORIZONTAL SCALE 1:200
VERTICAL SCALE 1:100



LONGITUDINAL SECTION - RETAINING WALL 9

HORIZONTAL SCALE 1:200
VERTICAL SCALE 1:100

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A	ISSUE FOR CONSTRUCTION APPROVAL	JT	NM	RT	MS	30/05/1
	AMENDMENT	DES	DRN	CKD	APR	DATE

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CADDENS HILL
STAGE 3
RETAINING WALL SECTION

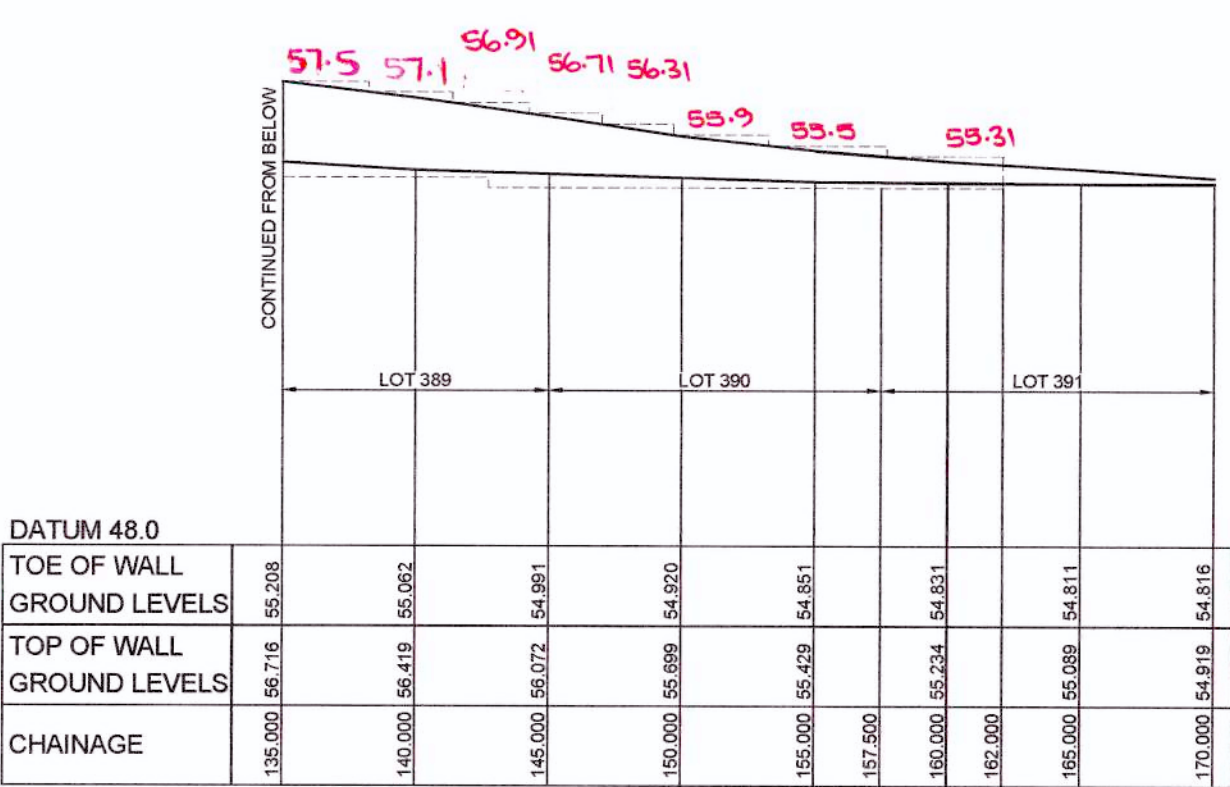
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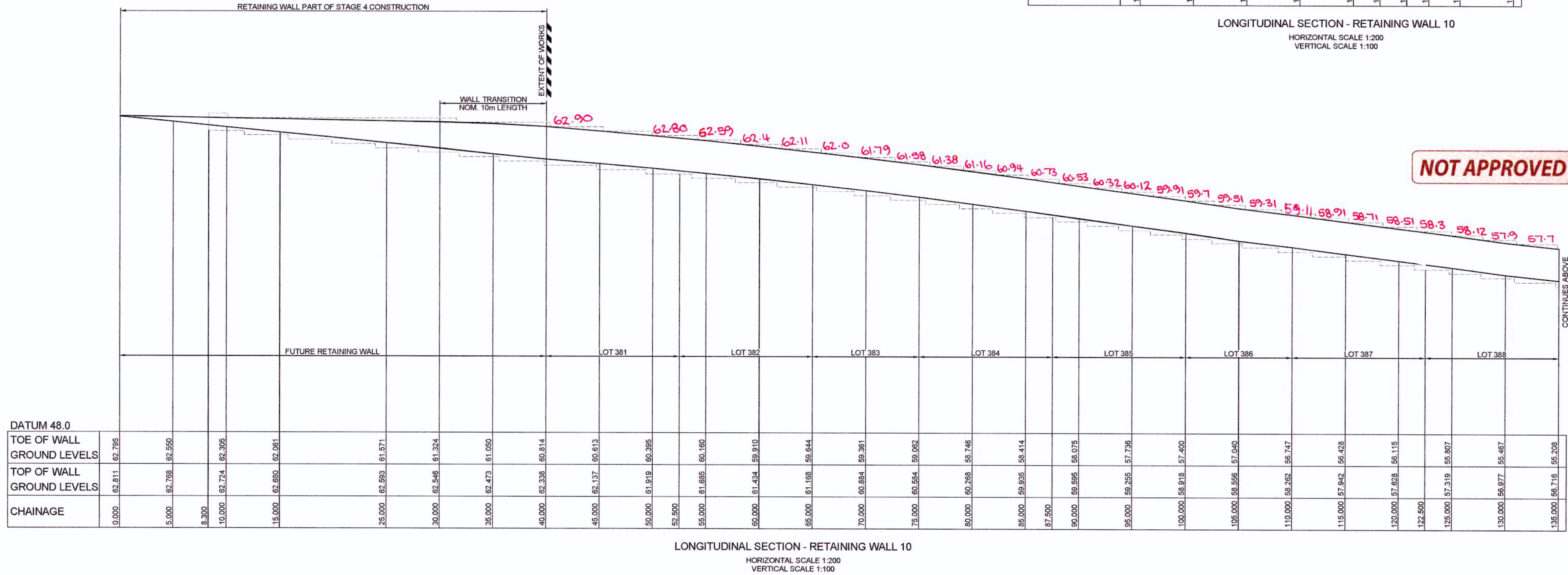
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SIGNATURE: *P.R.*
PETER ROBERT WARWICK
Registered Land Surveyor
VINCE MORGAN SURVEYORS PTY LTD
DATE: 8/3/18 REF: 20467/3

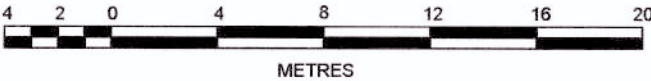


LONGITUDINAL SECTION - RETAINING WALL 10
HORIZONTAL SCALE 1:200
VERTICAL SCALE 1:100

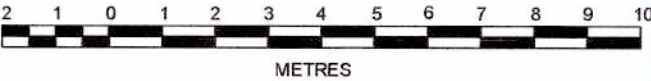


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1:200 (AT A1)
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1:100 (AT A1)
1:200 (AT A3)



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CADDENS HILL
STAGE 3
RETAINING WALL SECTION

PLAN No:
110358/CC335

FILE No: 110358CC335

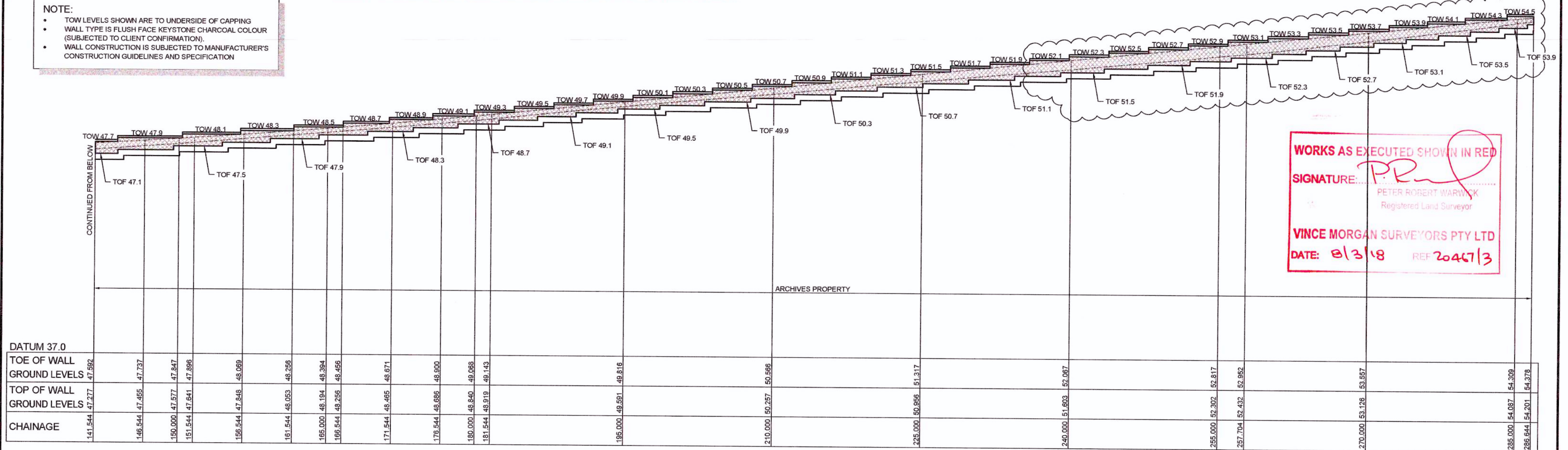
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RETAINING WALL 14 IS PART OF STAGE 3 APPROVAL

EXTENT & TYPE OF RETAINING WALL TO BE CONFIRMED

NOTE:

- TOW LEVELS SHOWN ARE TO UNDERSIDE OF CAPPING
- WALL TYPE IS FLUSH FACE KEYSTONE CHARCOAL COLOUR (SUBJECT TO CLIENT CONFIRMATION)
- WALL CONSTRUCTION IS SUBJECT TO MANUFACTURER'S CONSTRUCTION GUIDELINES AND SPECIFICATION

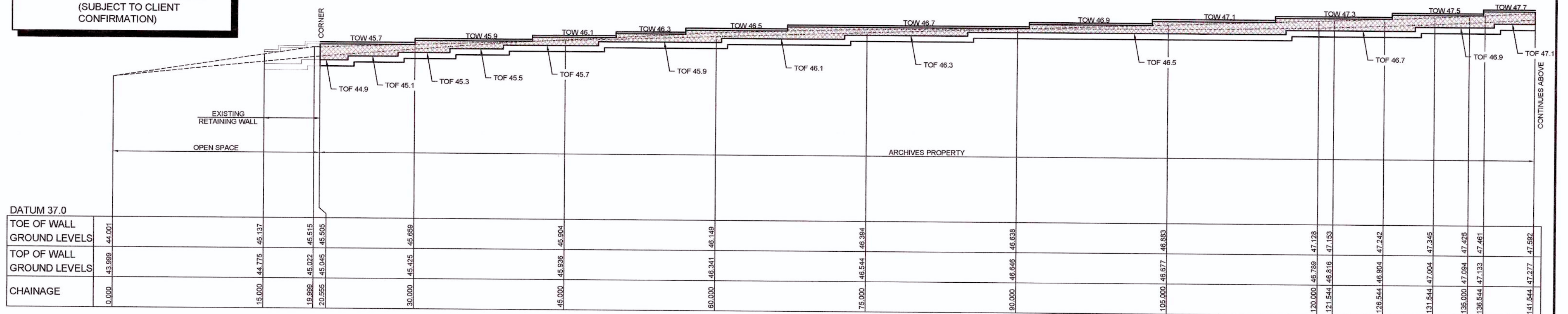


WORKS AS EXECUTED SHOWN IN RED
SIGNATURE: *P.R.*
PETER ROBERT WARWICK
Registered Land Surveyor
VINCE MORGAN SURVEYORS PTY LTD
DATE: 8/3/18 REF: 2047/13

LEGEND

TYPE 1 - BORAL FLUSHFACE
KEYSTONE CHARCOAL
COLOUR RETAINING WALL
(SUBJECT TO CLIENT
CONFIRMATION)

NOTE: T.O.W LEVELS SHOWN
ARE TO UNDERSIDE OF CAPPING

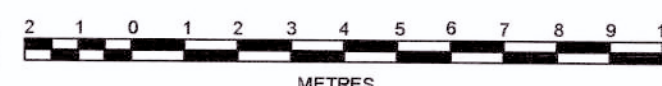


These plans are referred to in
certificate no. **14403** approved by:
Eric Hausfeld
Accredited Certifier
Registration No: BPS 2416
Categories: B1, C1, C2, C3, C4, C5, C15 & D1
LAND DEVELOPMENT CERTIFICATES
www.ldcerts.com.au

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



1:100 (AT A1)
1:200 (AT A3)



AMENDMENT	DES	DRN	CKD	APR	DATE
C					11/07/17
B					28/06/17
A					30/05/17

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:
MGA
DATUM:
AHD
ORIGIN:

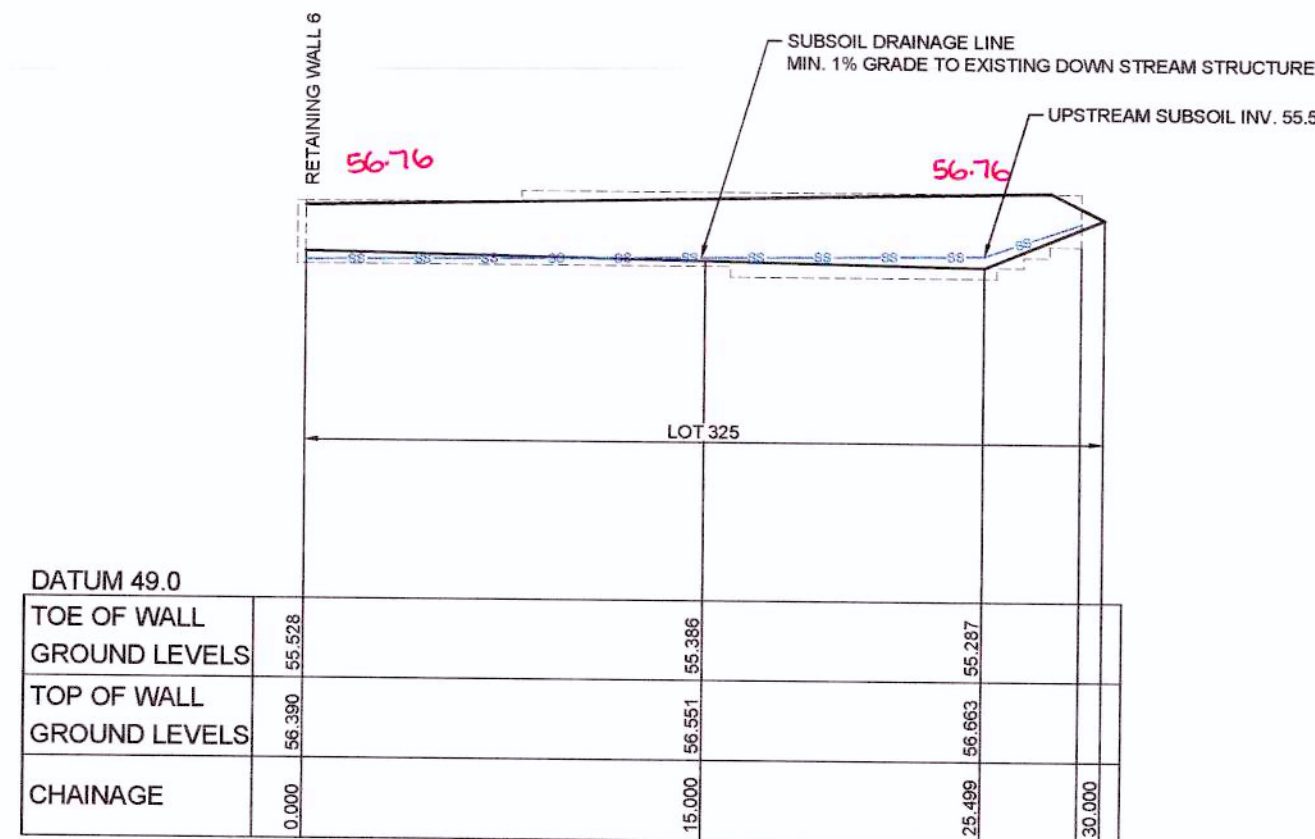
CLIENT:
LEGACYPROPERTY
THIS DRAWING MUST NOT BE USED FOR
CONSTRUCTION UNLESS SIGNED AS PART OF AN
APPROVED CONSTRUCTION CERTIFICATE.

ISSUED FOR CONSTRUCTION APPROVAL

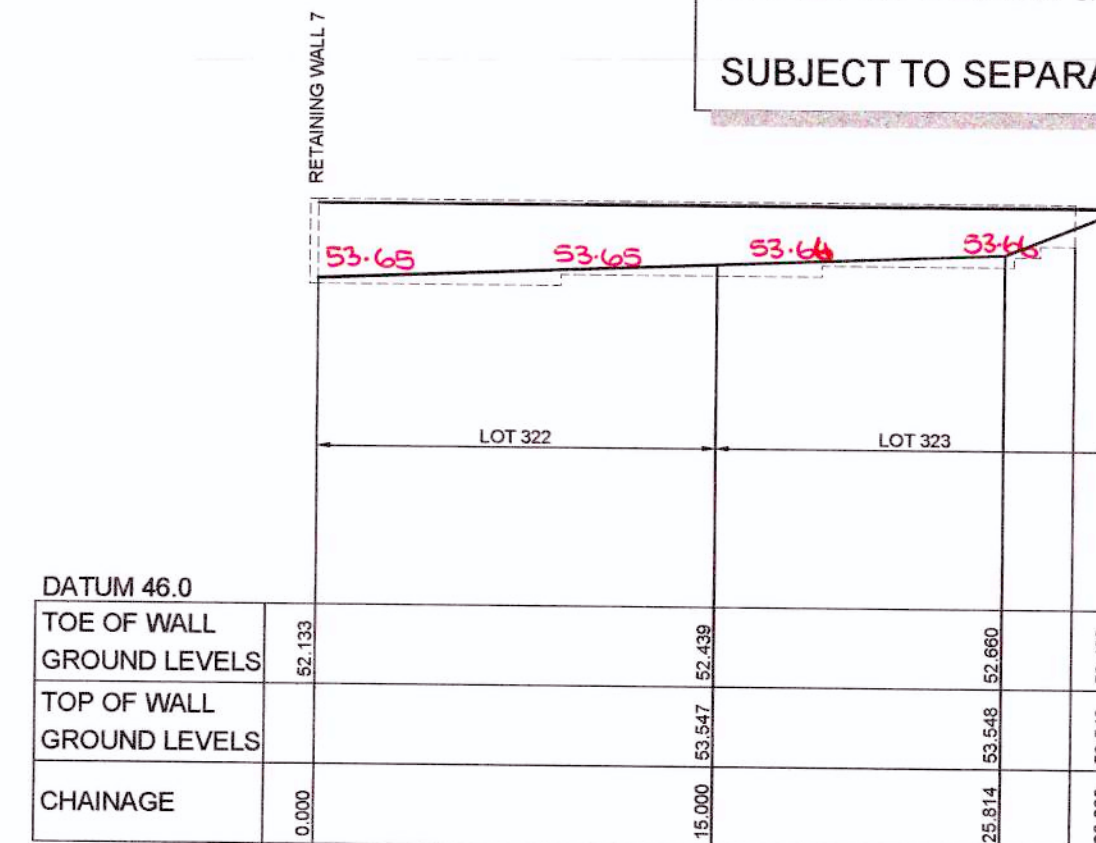
CADDENS HILL
STAGE 3
RETAINING WALL SECTION

PLAN No:
110358/CC336
FILE No: 110358CC336
SHEET SIZE: A1 ORIGINAL

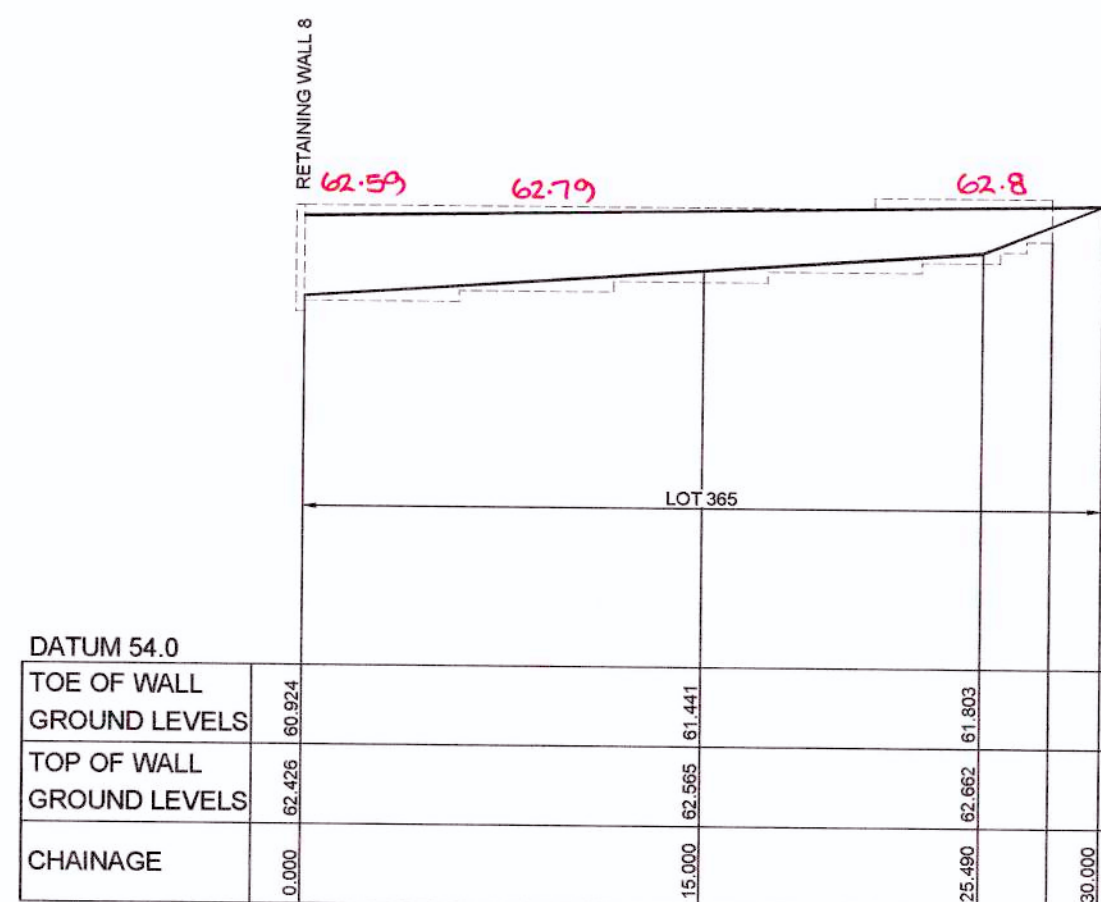
RETAINING WALL PROFILES SHOWN ARE INDICATIVE ONLY.
REFER TO DESIGN & CONSTRUCT CONTRACT BY OTHERS.
SUBJECT TO SEPARATE STRUCTURAL PLANS & CERTIFICATIONS



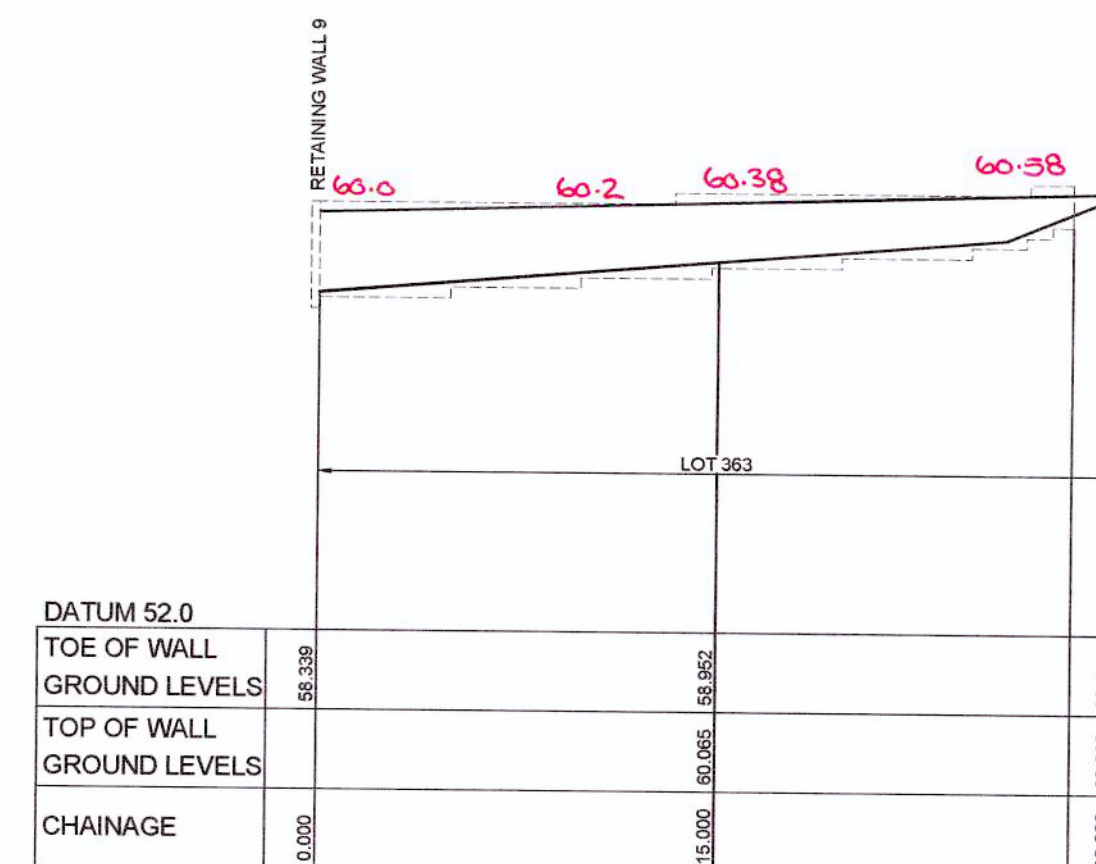
LONGITUDINAL SECTION - RETAINING WALL 6B
HORIZONTAL SCALE 1:200
VERTICAL SCALE 1:100



LONGITUDINAL SECTION - RETAINING WALL 7A
HORIZONTAL SCALE 1:200
VERTICAL SCALE 1:100



LONGITUDINAL SECTION - RETAINING WALL 8C
HORIZONTAL SCALE 1:200
VERTICAL SCALE 1:100



LONGITUDINAL SECTION - RETAINING WALL 9B
HORIZONTAL SCALE 1:200
VERTICAL SCALE 1:100

WORKS AS EXECUTED SHOWN IN RED

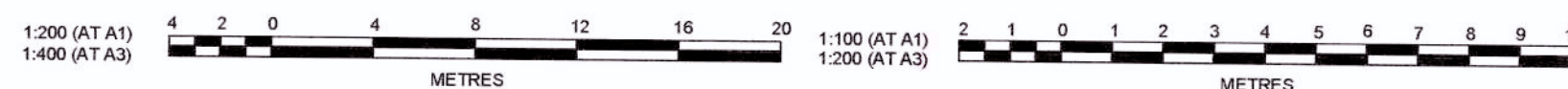
SIGNATURE: *P.R.*

PER: ROBERT WARWICK
Registered Land Surveyor

VINCE MORGAN SURVEYORS PTY LTD

DATE: 20/3/18 REF: 20467/3

NOT APPROVED



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& PROJECT MANAGERS

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AZIMUTH:
MGA

DATUM:
AHD

ORIGIN:

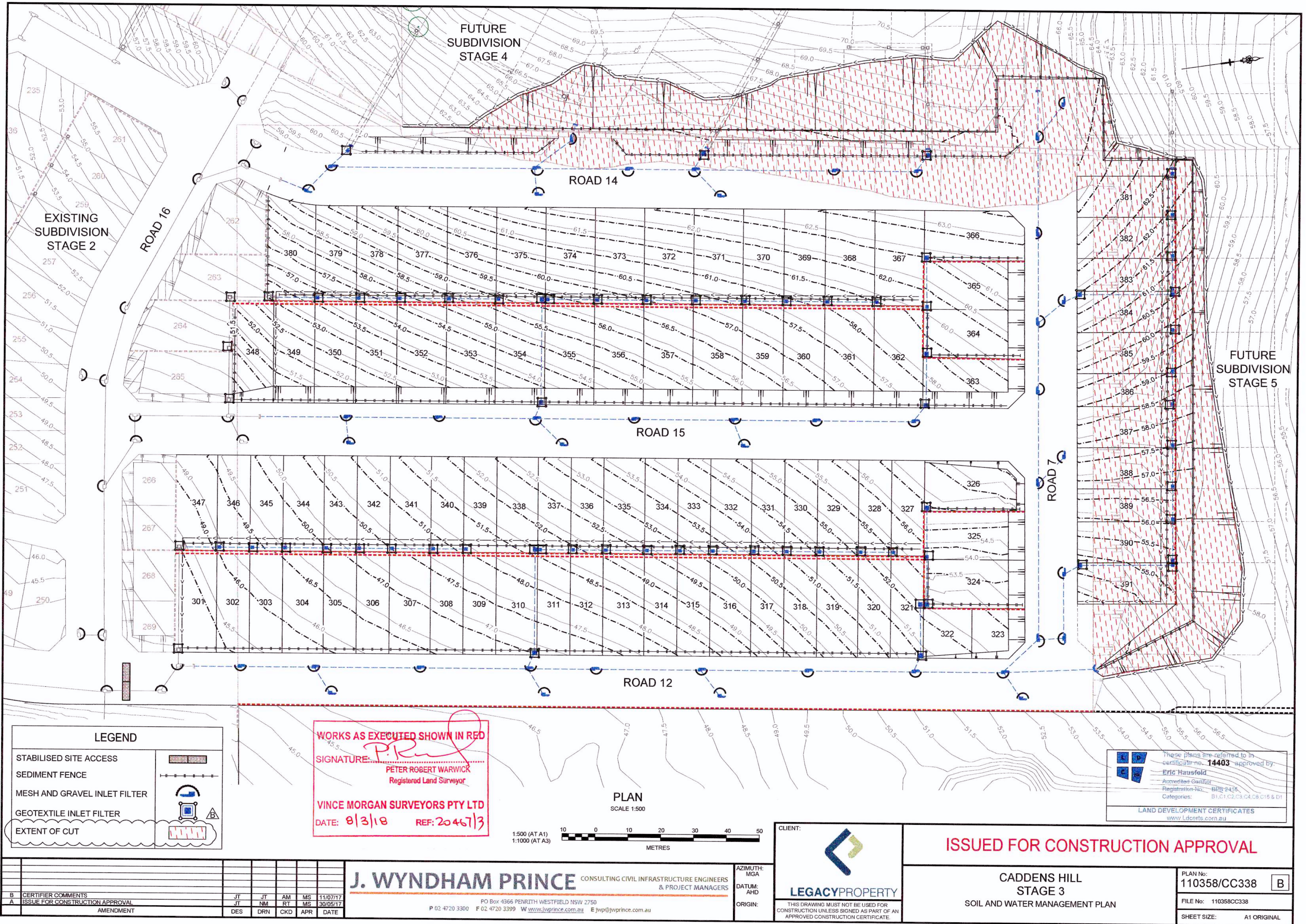


ISSUED FOR CONSTRUCTION APPROVAL

CADDENS HILL
STAGE 3
RETAINING WALL SECTION

PLAN No: 110358/CC337		A
FILE No: 110358CC337		
SHEET SIZE:		A1 ORIGINAL

Plotted: 11 July, 2017 3:50:08 PM File Name: J:\110358 - O'Connell Lane, Caddens\03 - Stage 2\CD\CC338.dwg



LEGEND

STABILISED SITE ACCESS	
SEDIMENT FENCE	
MESH AND GRAVEL INLET FILTER	
GEOTEXTILE INLET FILTER	
EXTENT OF CUT	

WORKS AS EXECUTED SHOWN IN RED

SIGNATURE:

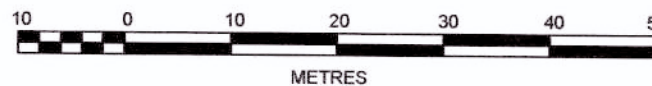
PETER ROBERT WARWICK
Registered Land Surveyor

VINCE MORGAN SURVEYORS PTY LTD

DATE: 8/3/18 REF: 20467/3

PLAN
SCALE 1:500

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



CLIENT:



AZIMUTH:
MGA
DATUM:
AHD
ORIGIN:

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

ISSUED FOR CONSTRUCTION APPROVAL

**CADDENS HILL
STAGE 3**
SOIL AND WATER MANAGEMENT PLAN

These plans are referred to in
certificate no. **14403** approved by
Eric Hausfeld
Accredited Geologist
Registration No. **BRG 2476**
Categories: **B1, C1, C2, C3, C4, C6, C15 & D1**

LAND DEVELOPMENT CERTIFICATES
www.ldcerts.com.au

B		CERTIFIER COMMENTS	JT	JT	AM	MS	11/07/17
A		ISSUE FOR CONSTRUCTION APPROVAL	JT	NM	RT	MS	30/05/17
		AMENDMENT	DES	DRN	CKD	APR	DATE

J. WYNDHAM PRINCE CONSULTING CIVIL INFRASTRUCTURE ENGINEERS
& PROJECT MANAGERS

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PLAN No:
110358/CC338 **B**

FILE No: 110358CC338

SHEET SIZE: A1 ORIGINAL

