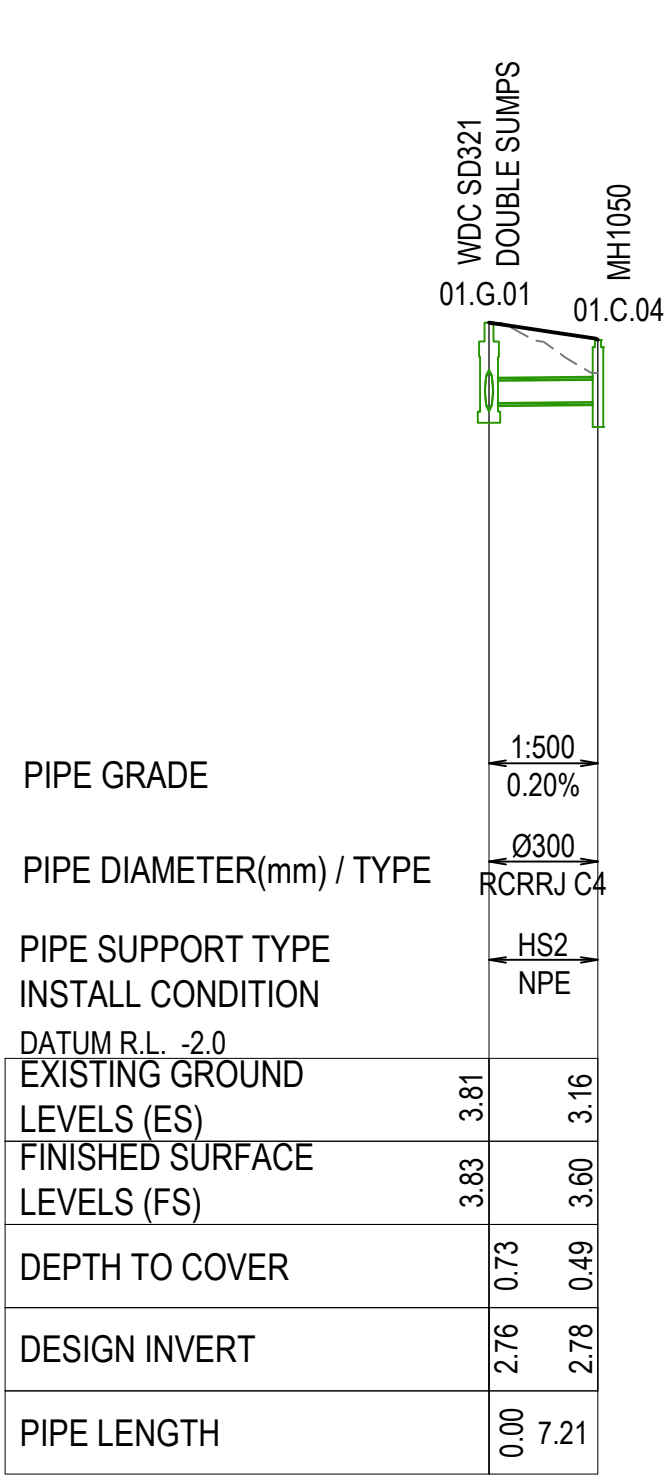
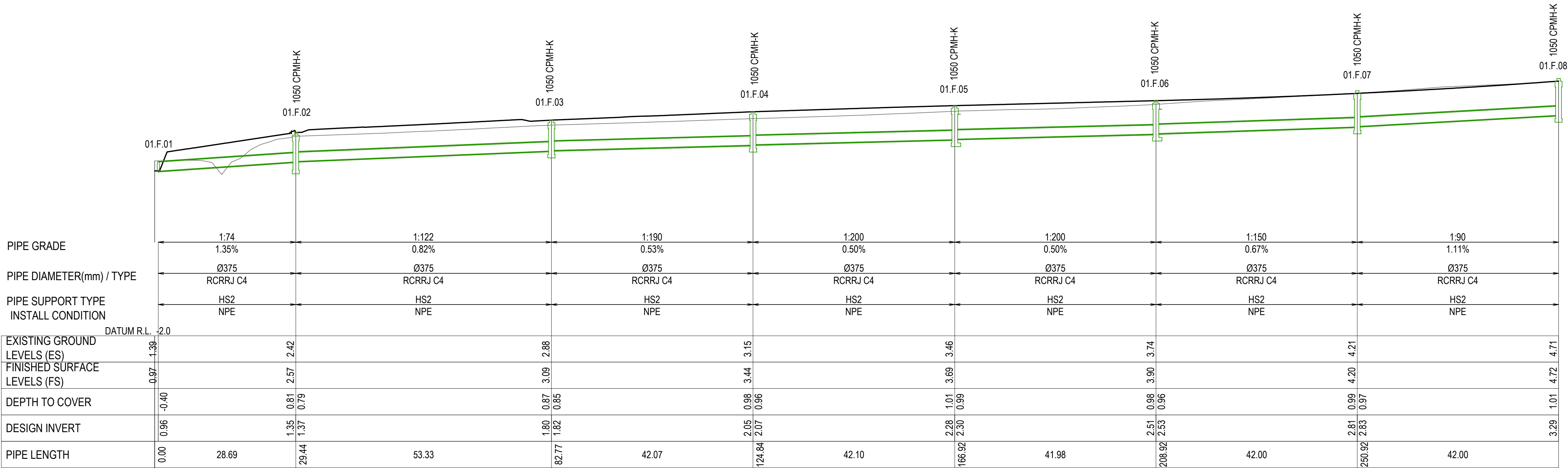
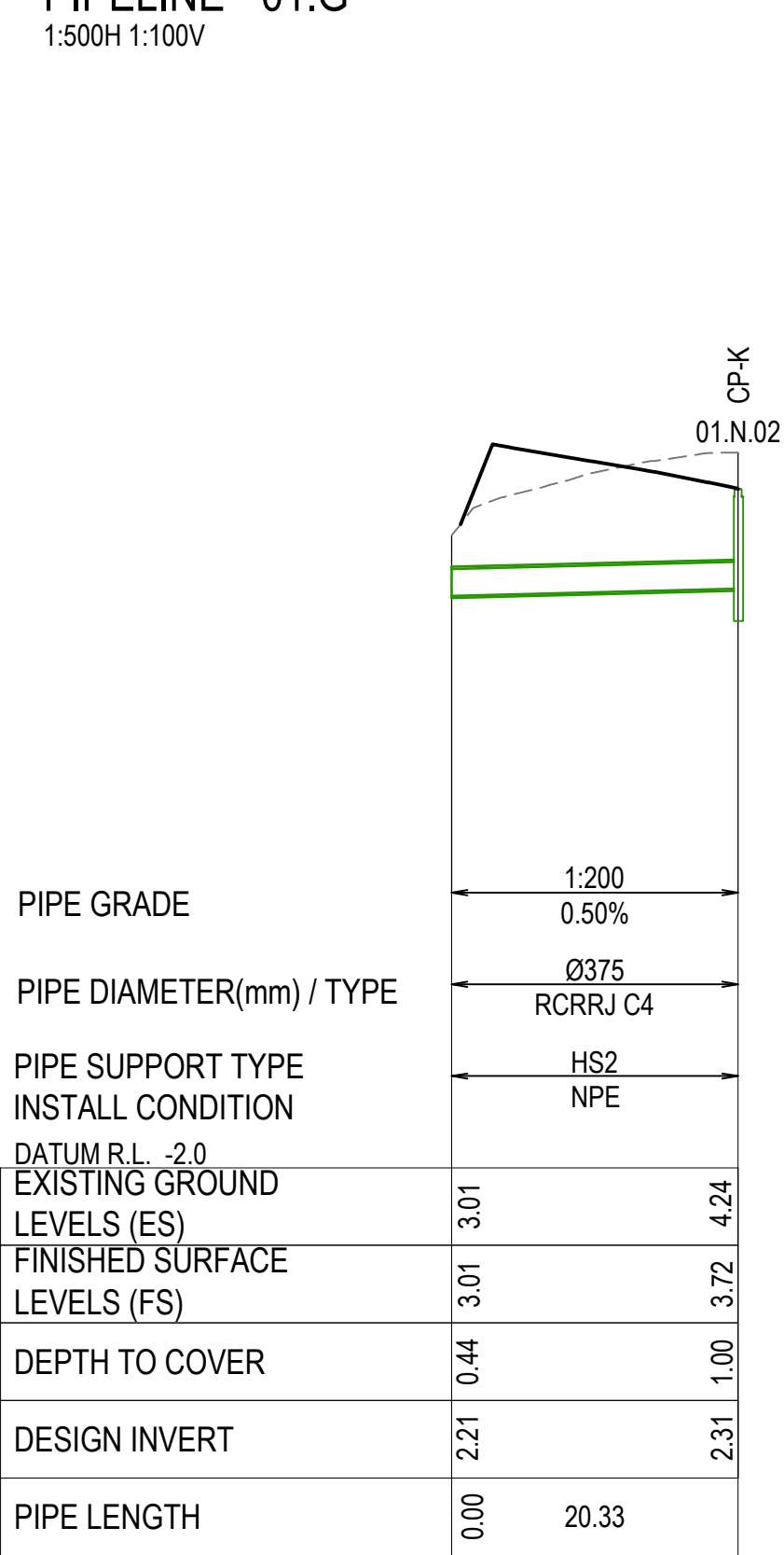
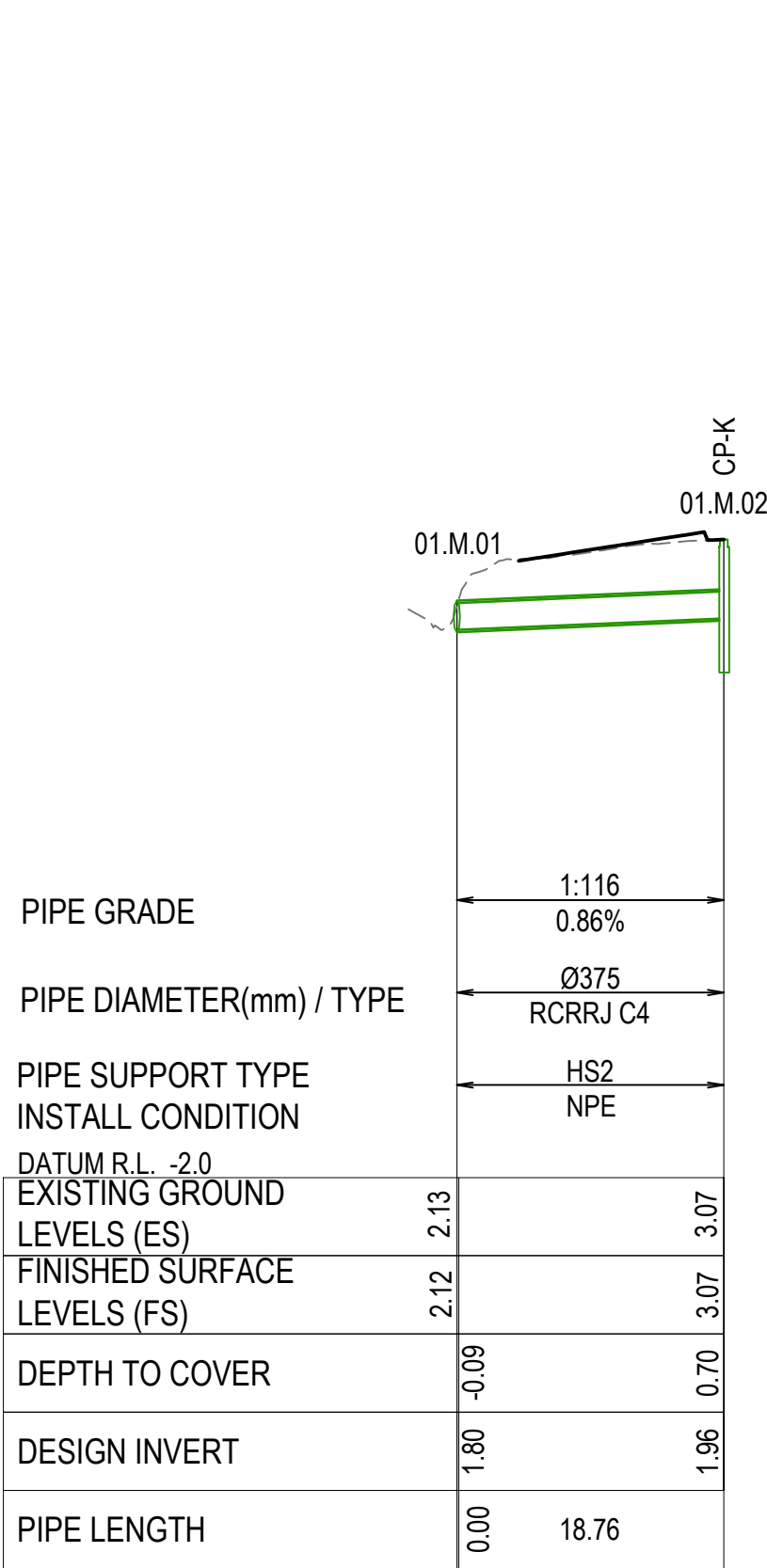
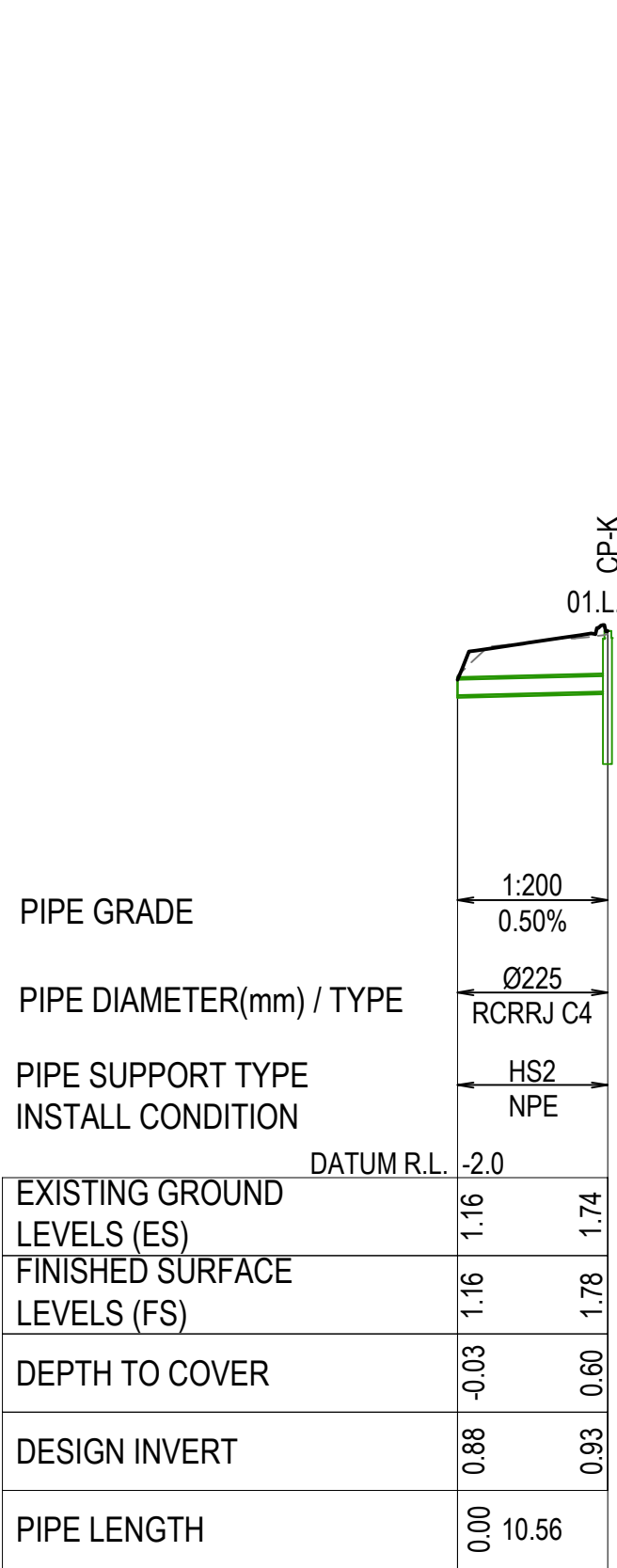
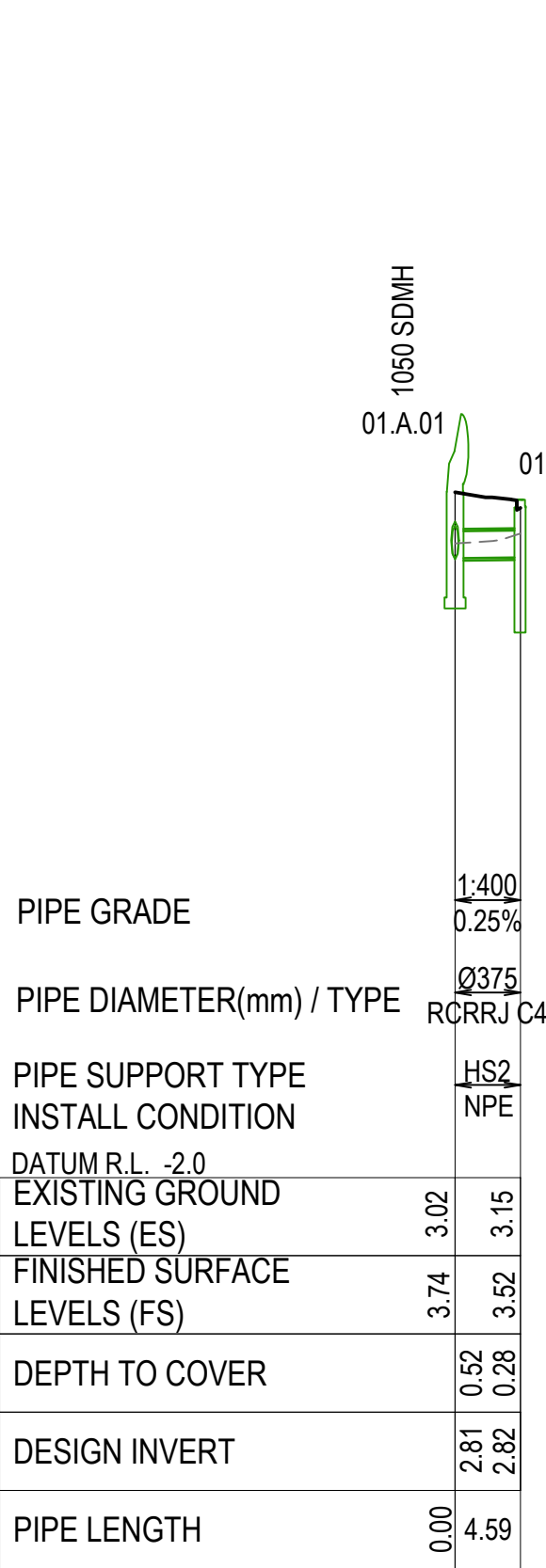
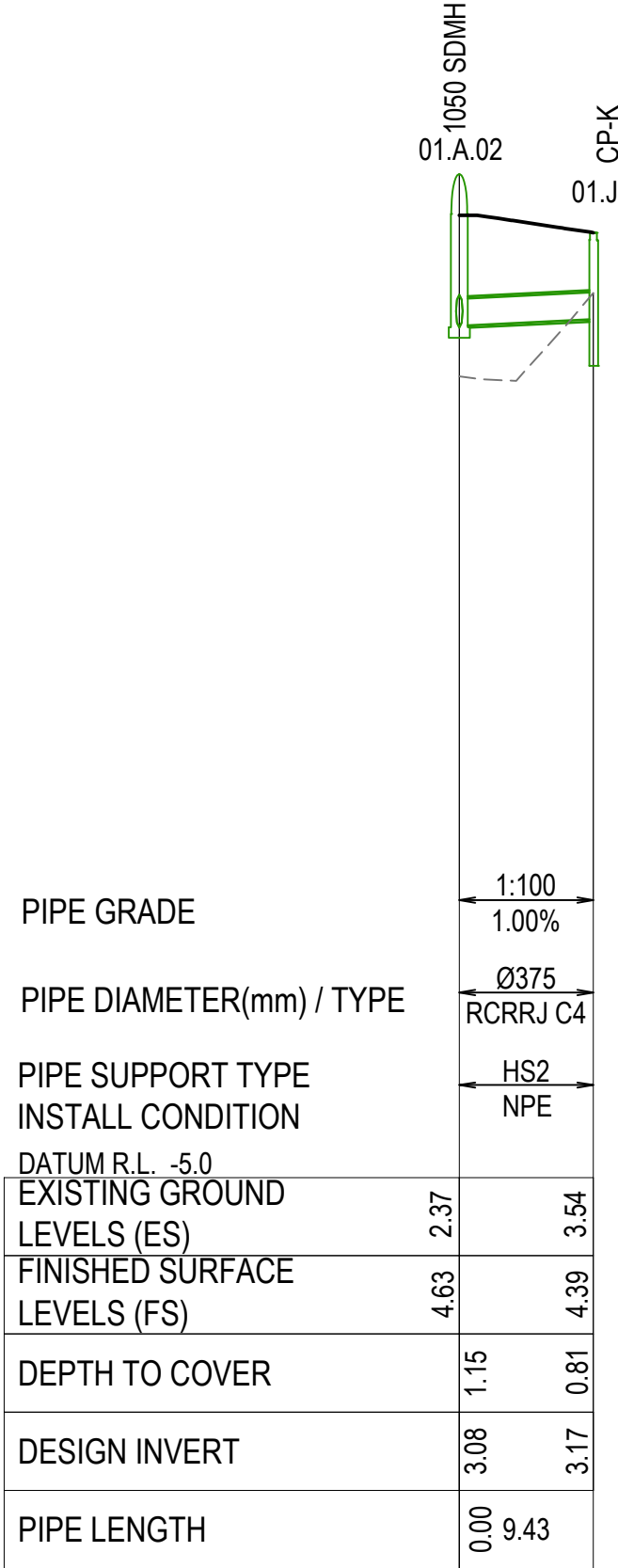
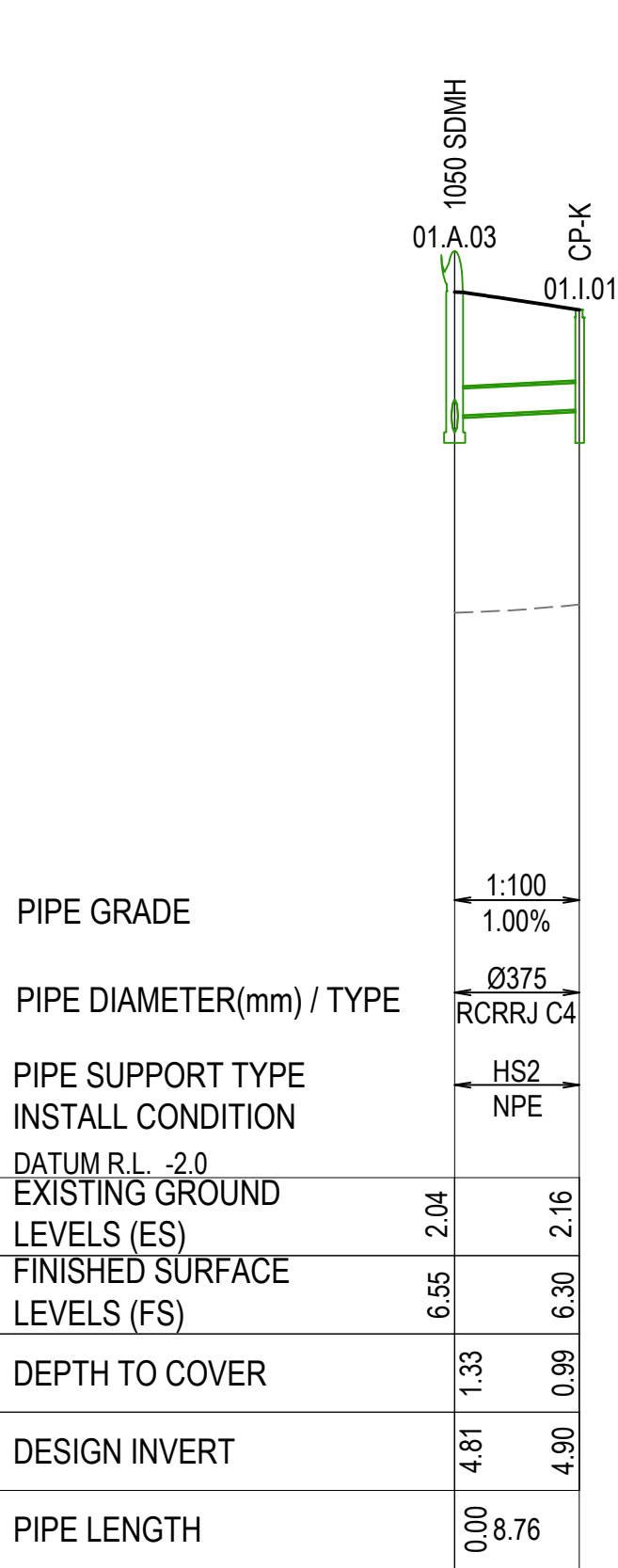
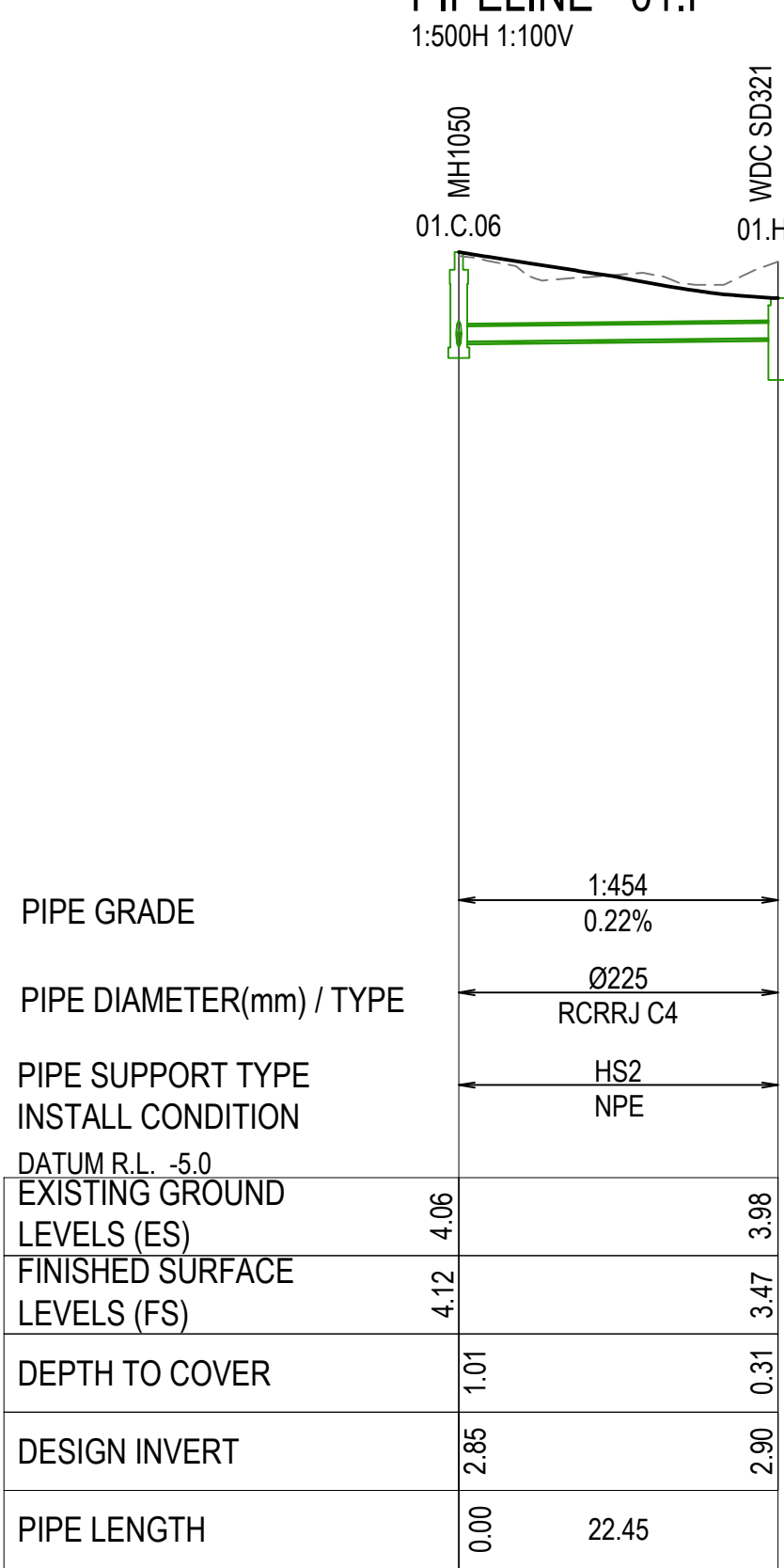




PIPELINE - 01.F
1:500H 1:100V

PIPELINE - 01.G
1:500H 1:100V



PIPELINE - 01.I
1:500H 1:100V

PIPELINE - 01.I
1:500H 1:100V

PIPELINE - 01.I
1:500H 1:100V

PIPELINE - 01.I
1:500H 1:100V

PIPELINE - 01.I
1:500H 1:100V

PIPELINE - 01.I
1:500H 1:100V

PIPELINE - 01.I
1:500H 1:100V

REV	DATE	REVISION DETAILS	REV	DRAWN	DESIGNED	VERIFIED	APPROVED
A	2025-09-17	ISSUED FOR 50% DETAILED DESIGN	A	C.LACAMBRA	Y.HOOI	W.HERBERT	M.FLANNERY
B	2025-12-12	ISSUED FOR 100% DETAILED DESIGN	B	C.LACAMBRA	Y.HOOI	W.HERBERT	M.FLANNERY

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Coordinate system

Height datum

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CONSTRUCTION STATUS

NOT FOR
CONSTRUCTION

DRAWN BY
C.LACAMBRA

DESIGNED BY
Y.HOOI

STATUS
ISSUED FOR DETAILED
DESIGN

CODE
P3

DOCUMENT STATE

PUBLISHED

PROJECT

BELFAST TO PEGASUS MOTORWAY
& WOODEND BYPASS

TITLE

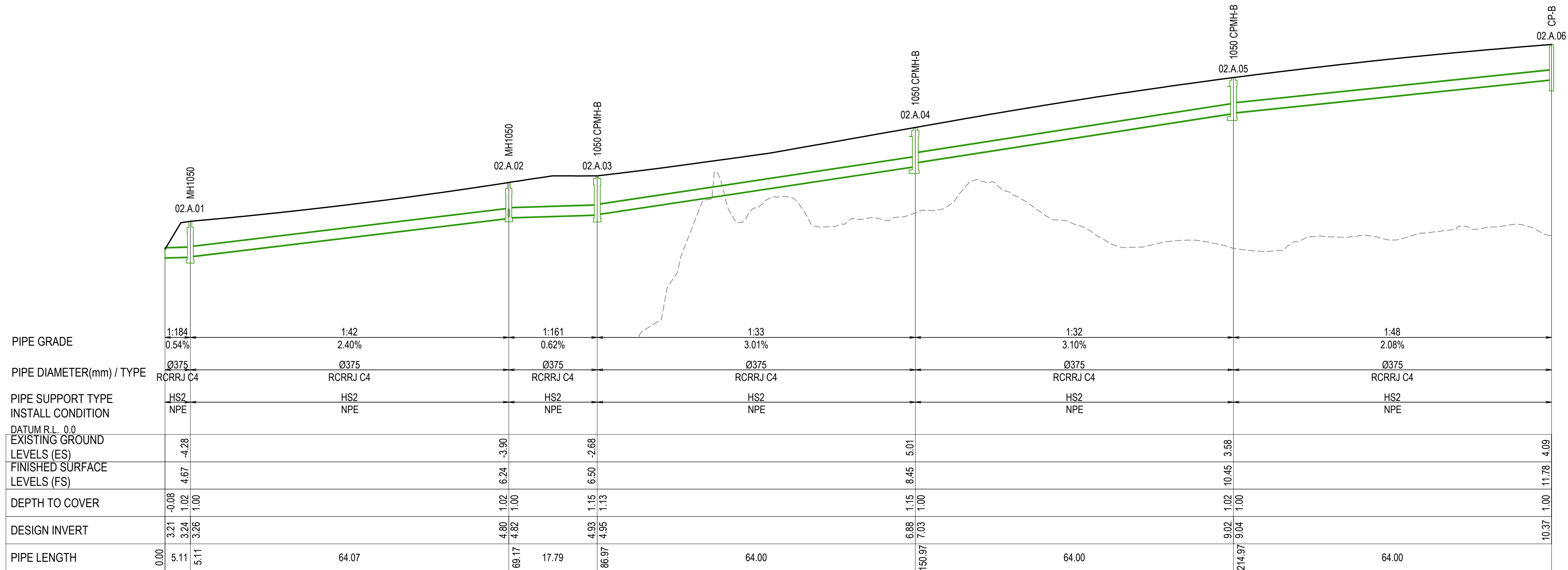
STORMWATER
LONGSECTIONS
SHEET 3

DOCUMENT CODE

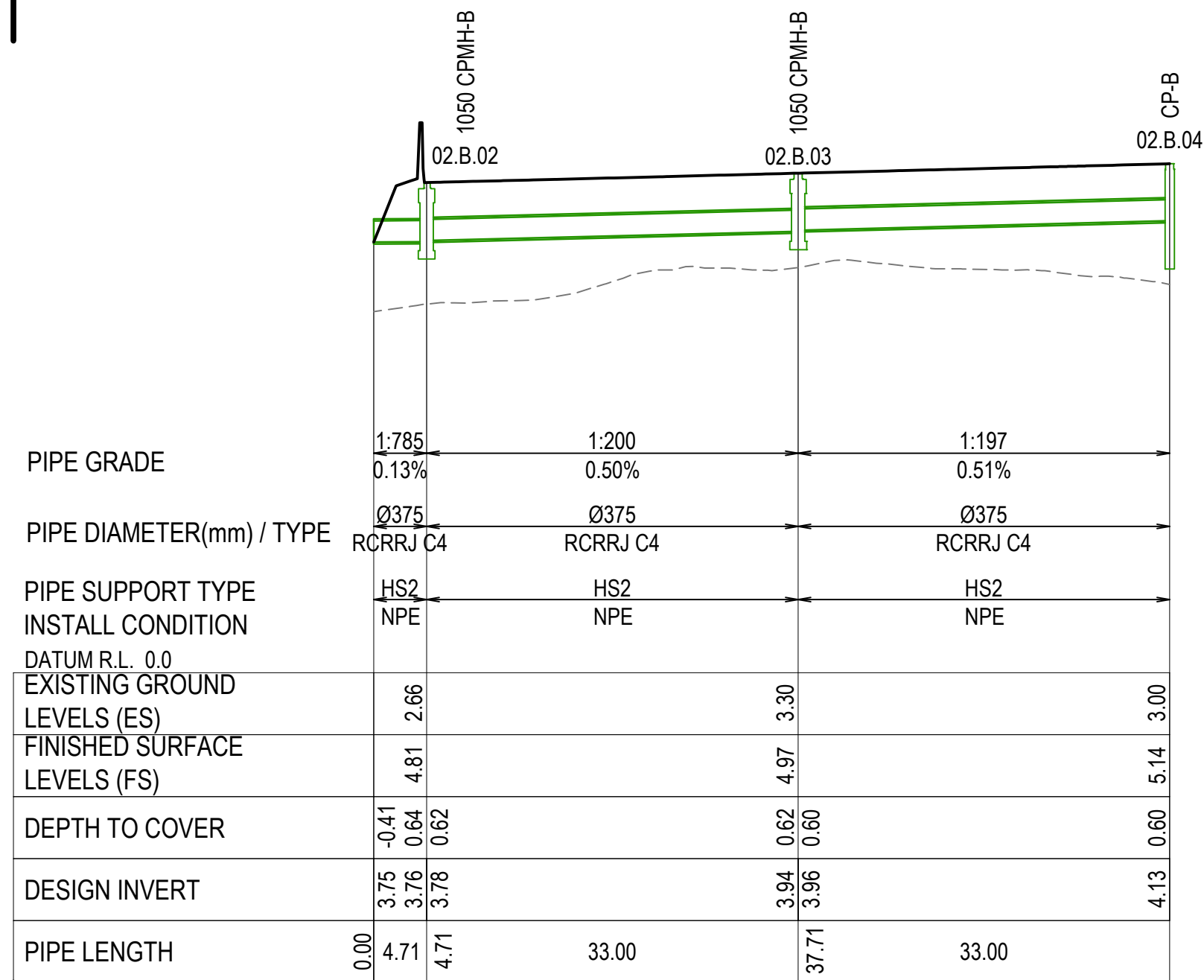
11320-AUR-0350-PWI-SW-DRG-0503

SCALE	SIZE	REFERENCE No.	REV
AS SHOWN	A1	SW-DRG-0503	B

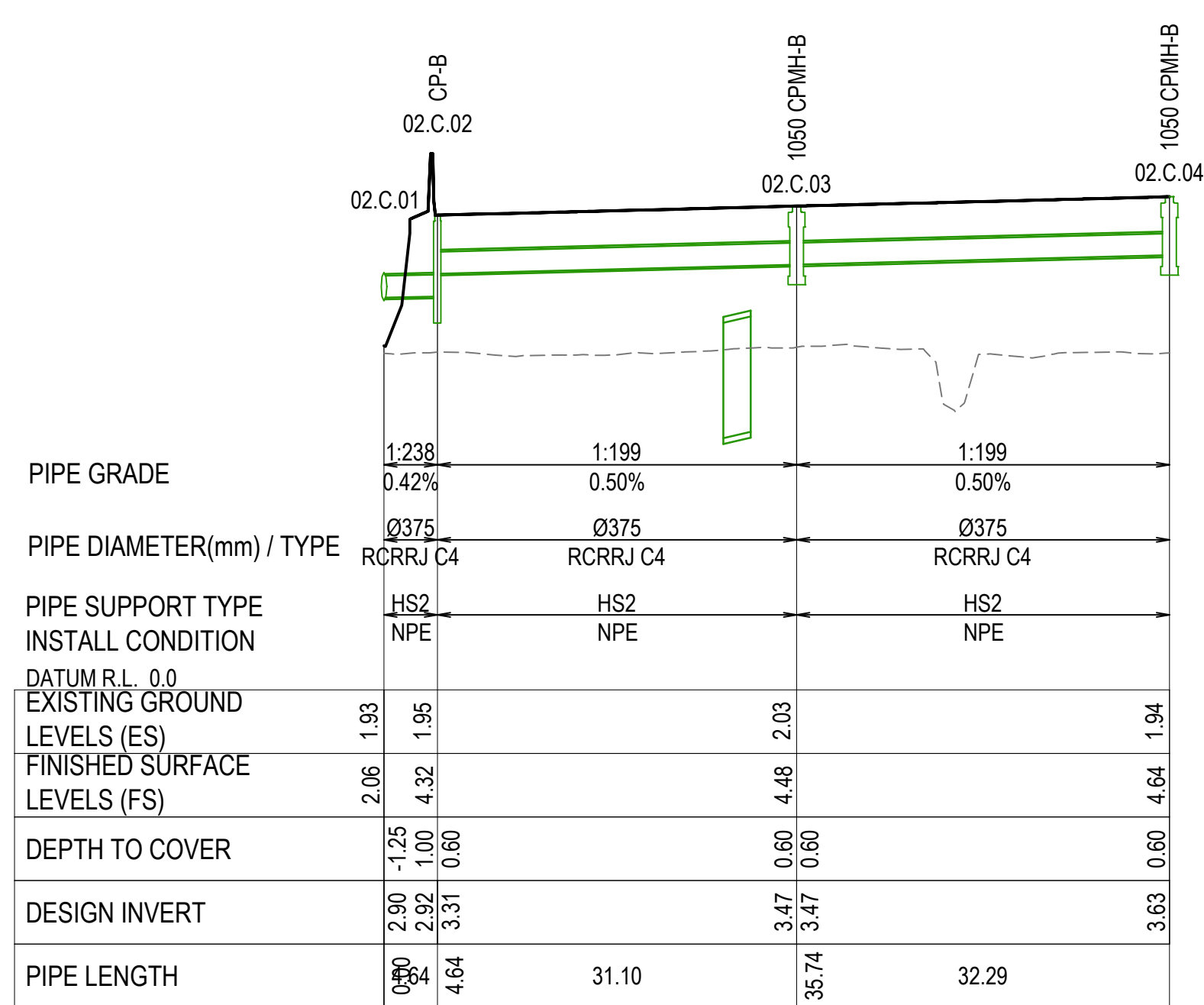
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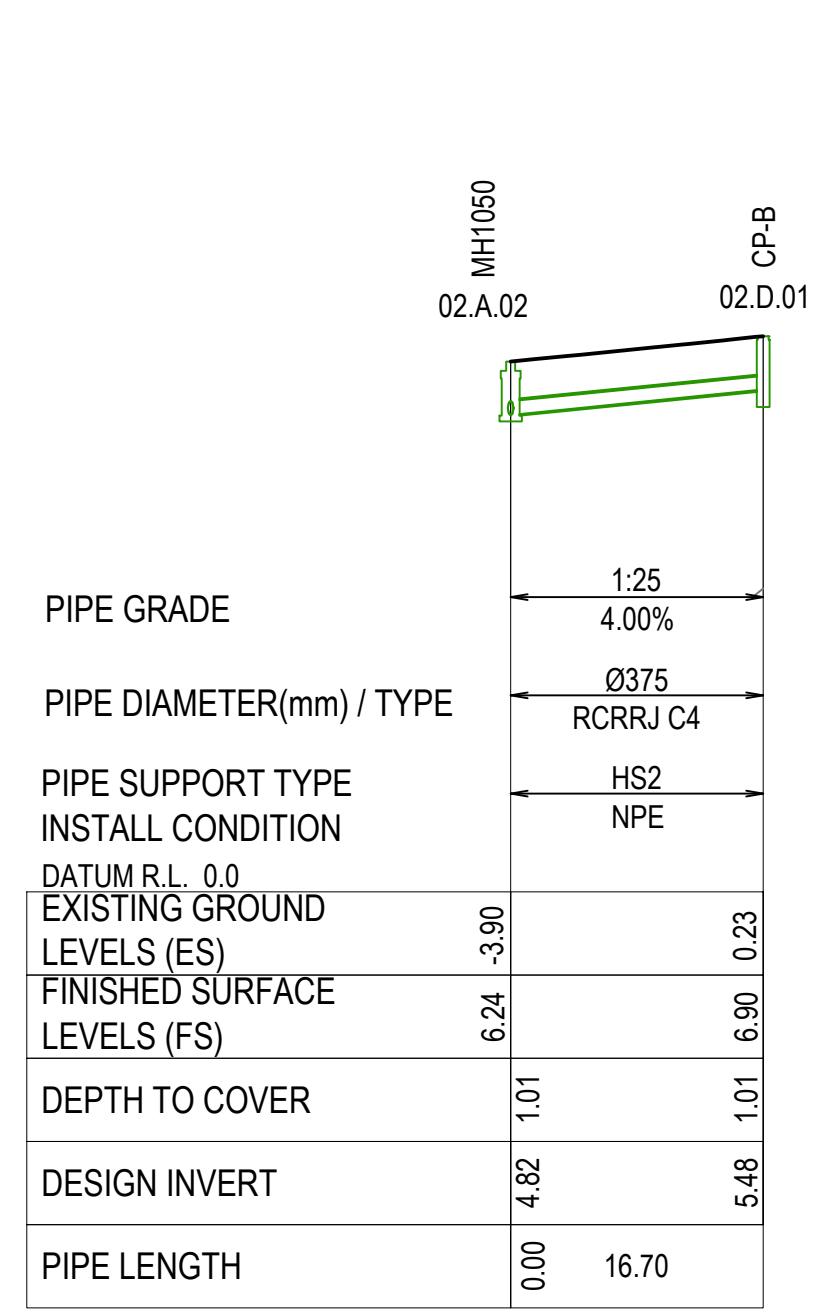
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PIPELINE - 02.B
1:500H 1:100V



PIPELINE - 02.C
1:500H 1:100V



PIPELINE - 02.D
1:500H 1:100V

REV	DATE	REVISION DETAILS	REV	DRAWN	DESIGNED	VERIFIED	APPROVED
A	2025-09-17	ISSUED FOR 50% DETAILED DESIGN	A	C.LACAMBRA	Y.HOOI	W.HERBERT	M.FLANNERY
B	2025-12-12	ISSUED FOR 100% DETAILED DESIGN	B	C.LACAMBRA	Y.HOOI	W.HERBERT	M.FLANNERY

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Coordinate system

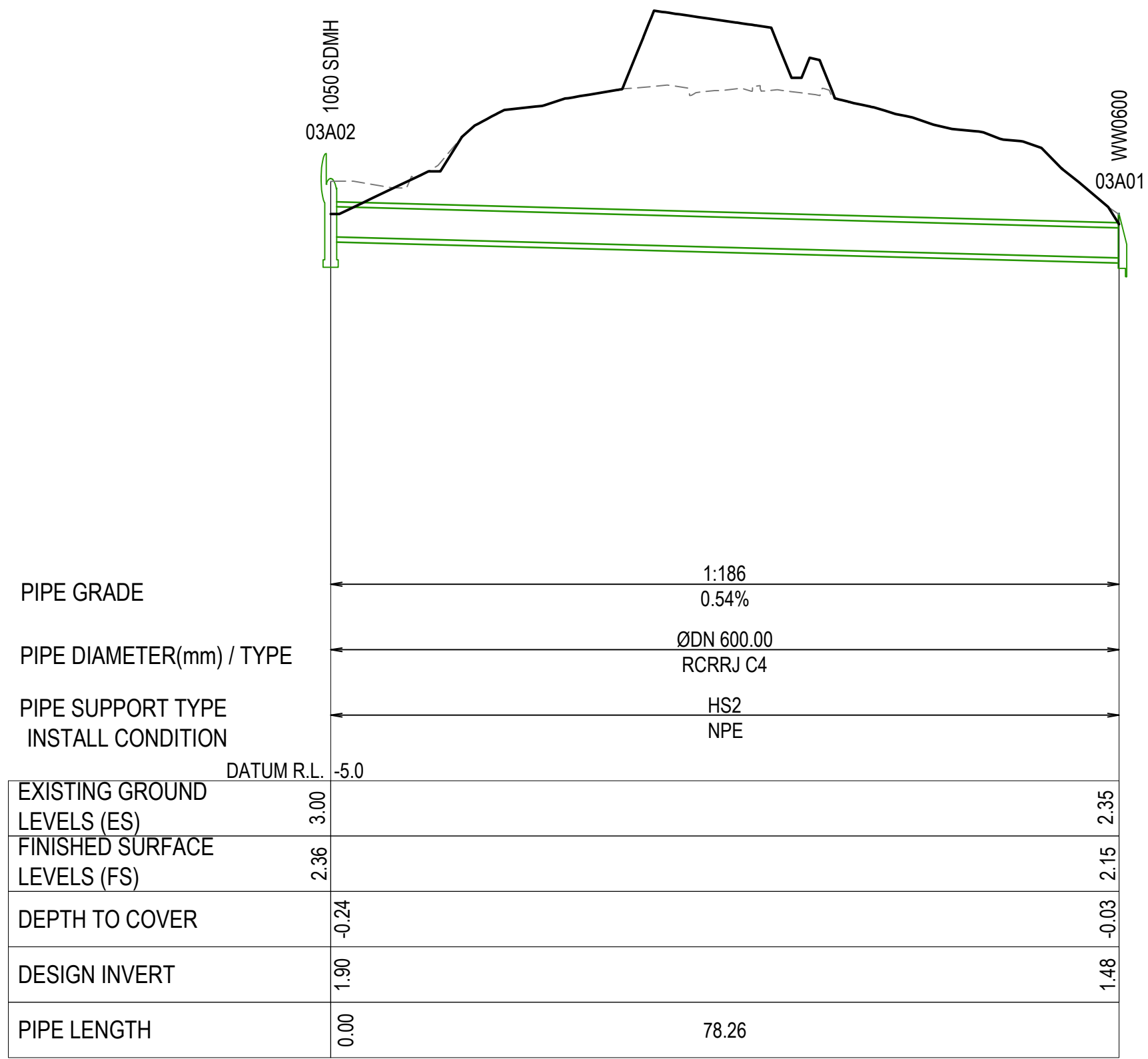
Height datum

PRINT ALL COPIES
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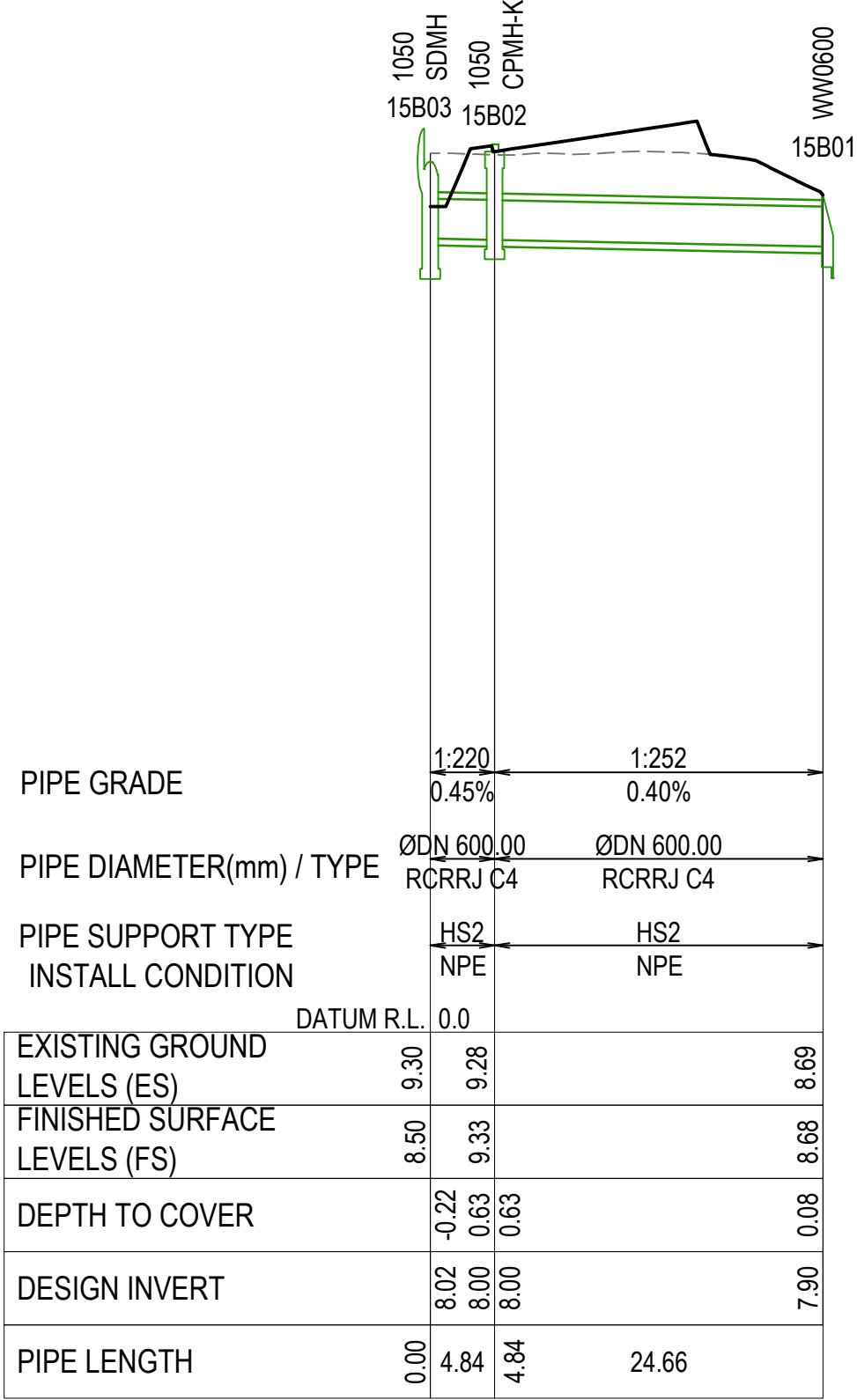
CONSTRUCTION STATUS	
NOT FOR CONSTRUCTION	
DRAWN BY	C.LACAMBRA
DESIGNED BY	Y.HOOI
STATUS	ISSUED FOR DETAILED DESIGN
CODE	P3
DOCUMENT STATE	PUBLISHED

PROJECT			
BELFAST TO PEGASUS MOTORWAY & WOODEND BYPASS			
TITLE			
STORMWATER LONGSECTIONS SHEET 4			
DOCUMENT CODE			
11320-AUR-0350-PWI-SW-DRG-0504			
SCALE	SIZE	REFERENCE No.	REV
AS SHOWN	A1	SW-DRG-0504	B

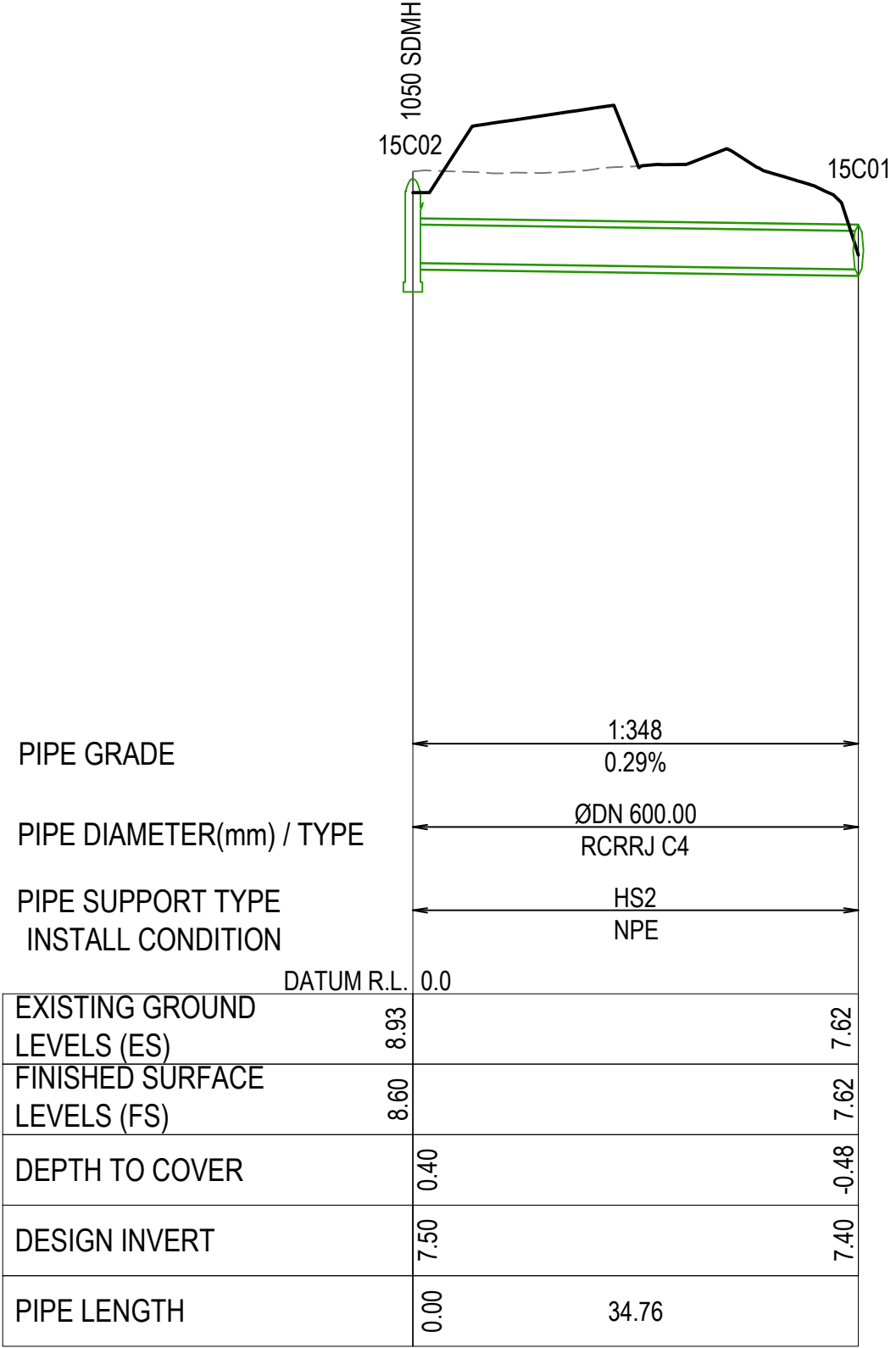
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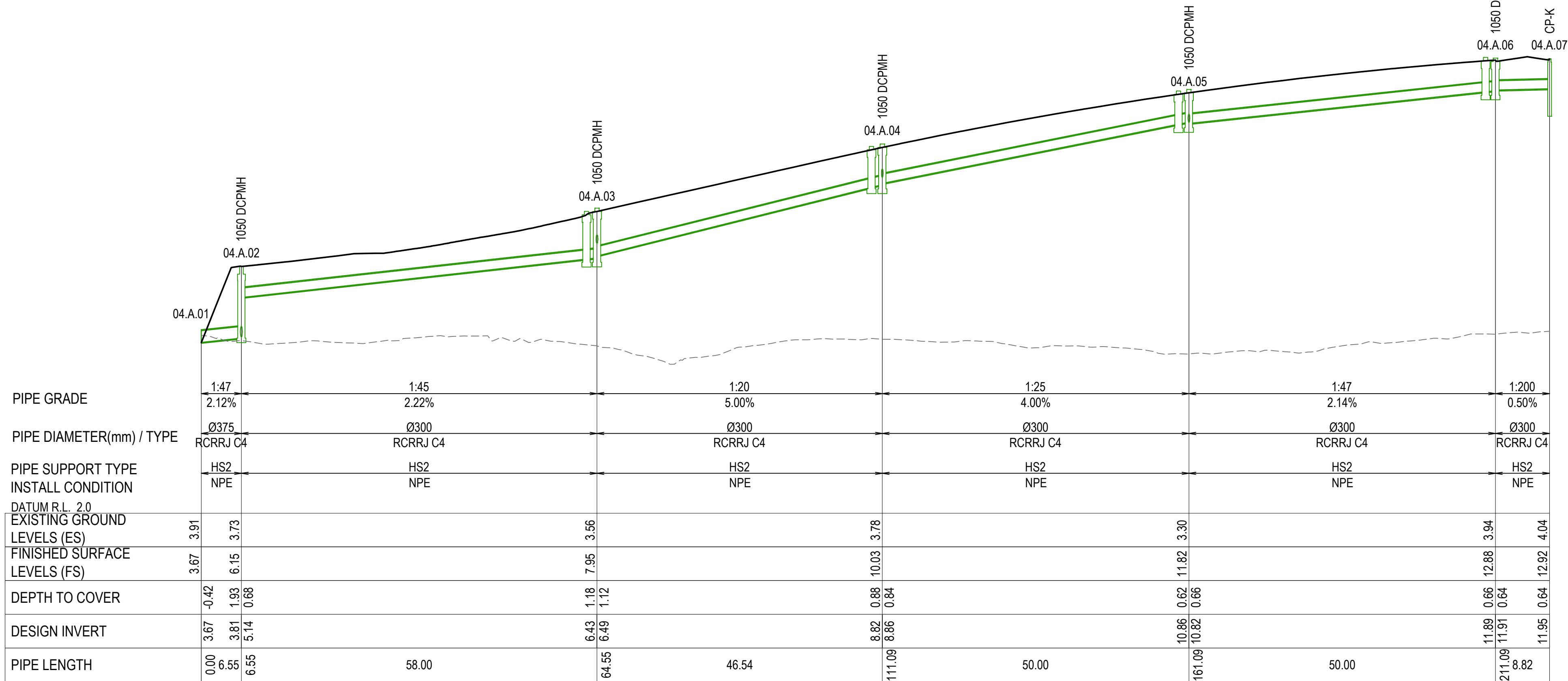
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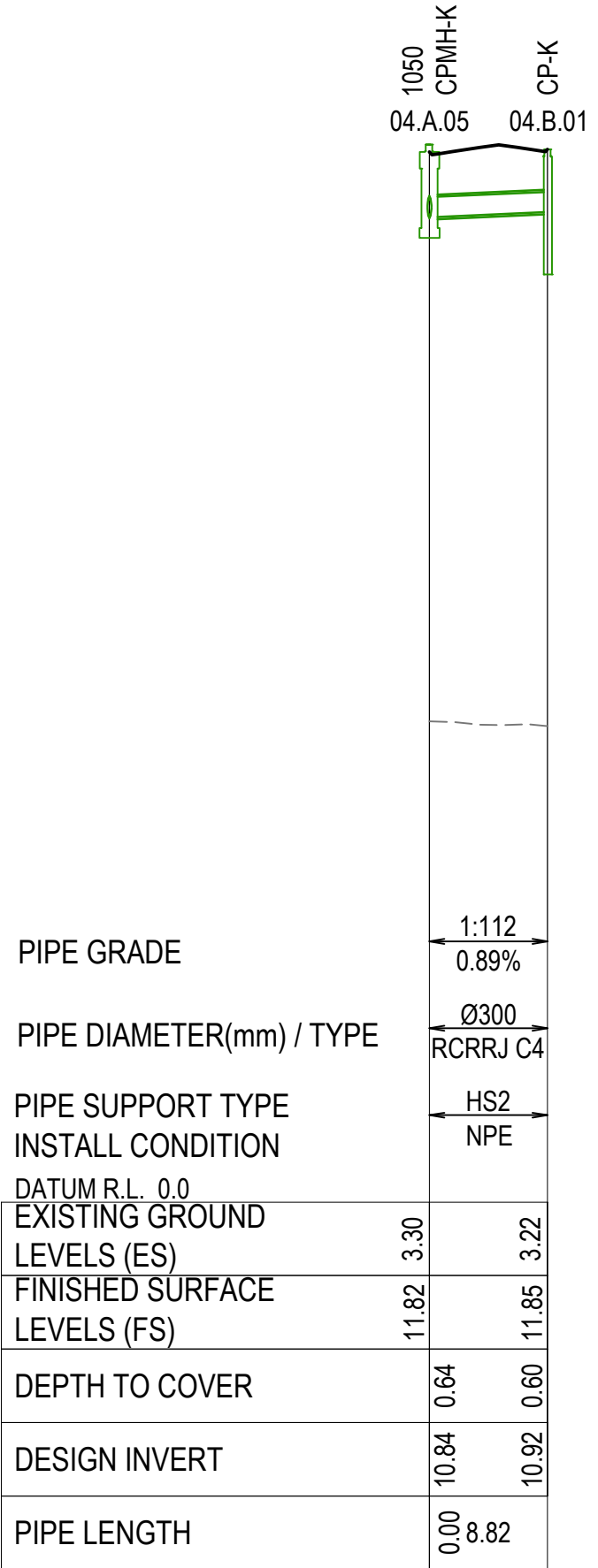
PIPELINE - 15.B
1:500H 1:100V



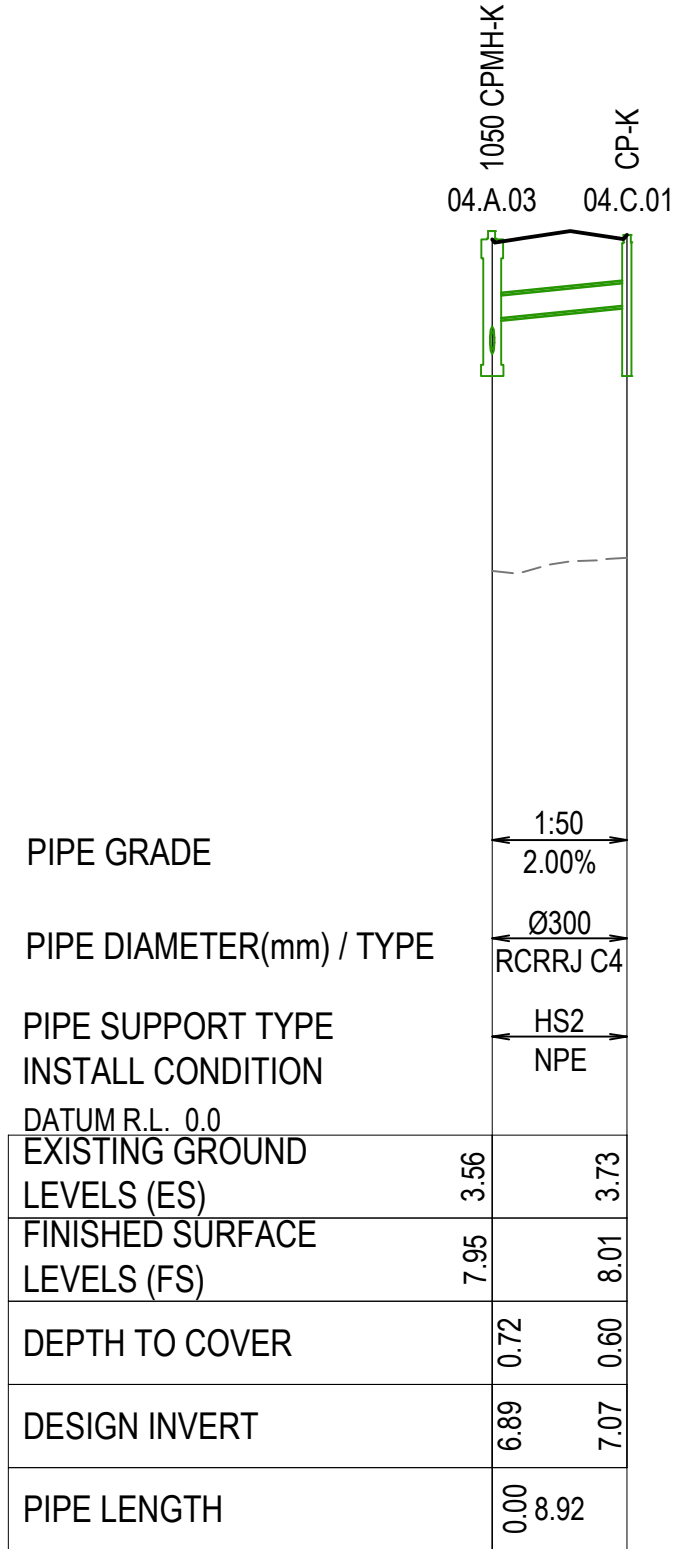
PIPELINE - 15.C
1:500H 1:100V



PIPELINE - 04.A
1:500H 1:100V



PIPELINE - 04.B
1:500H 1:100V



PIPELINE - 04.C
1:500H 1:100V

REV	DATE	REVISION DETAILS	REV	DRAWN	DESIGNED	VERIFIED	APPROVED
A	2025-09-17	ISSUED FOR 50% DETAILED DESIGN	A	C.LACAMBRA	Y.HOOI	W.HERBERT	M.FLANNERY
B	2025-12-12	ISSUED FOR 100% DETAILED DESIGN	B	C.LACAMBRA	Y.HOOI	W.HERBERT	M.FLANNERY

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CLIENT



1 0 2 4 m
1:100

5 0 10 20 m
1:500

All written dimensions take precedence over scaled dimensions.

Coordinate system

Height datum

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CONSTRUCTION STATUS
NOT FOR
CONSTRUCTION

DRAWN BY
C.LACAMBRA

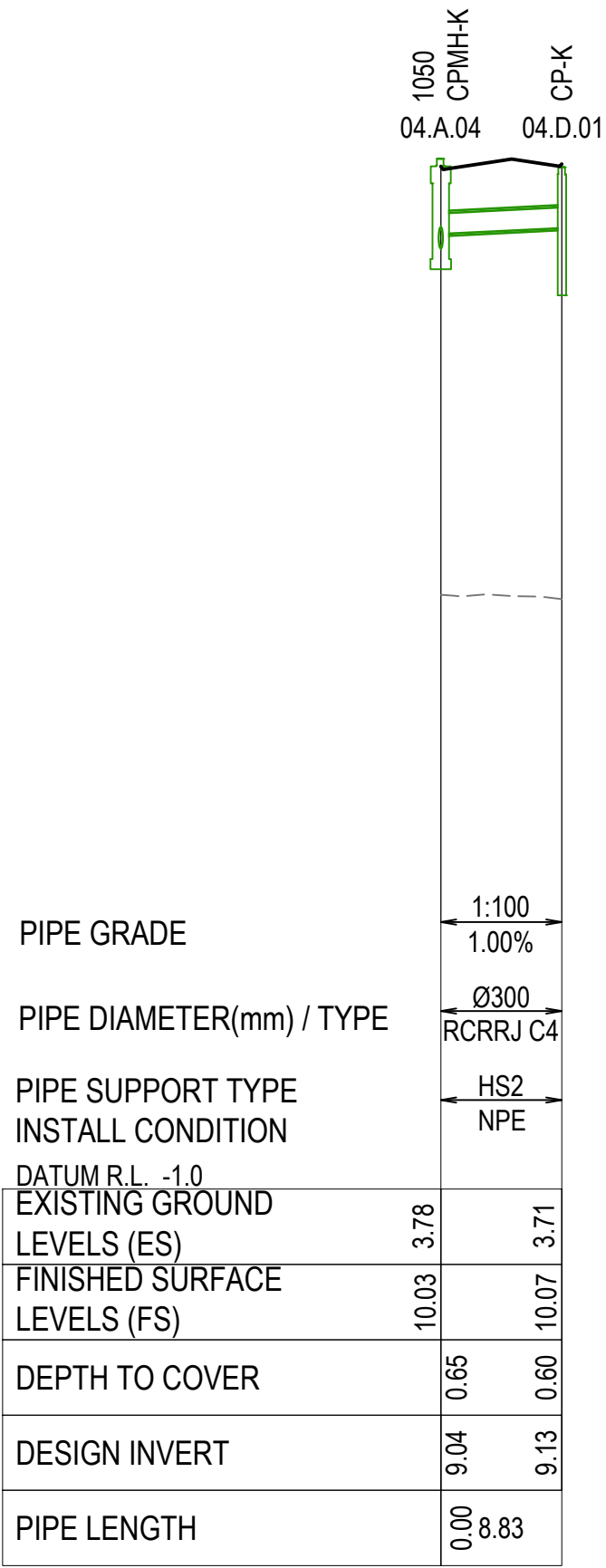
DESIGNED BY
Y.HOOI

STATUS
ISSUED FOR DETAILED
DESIGN

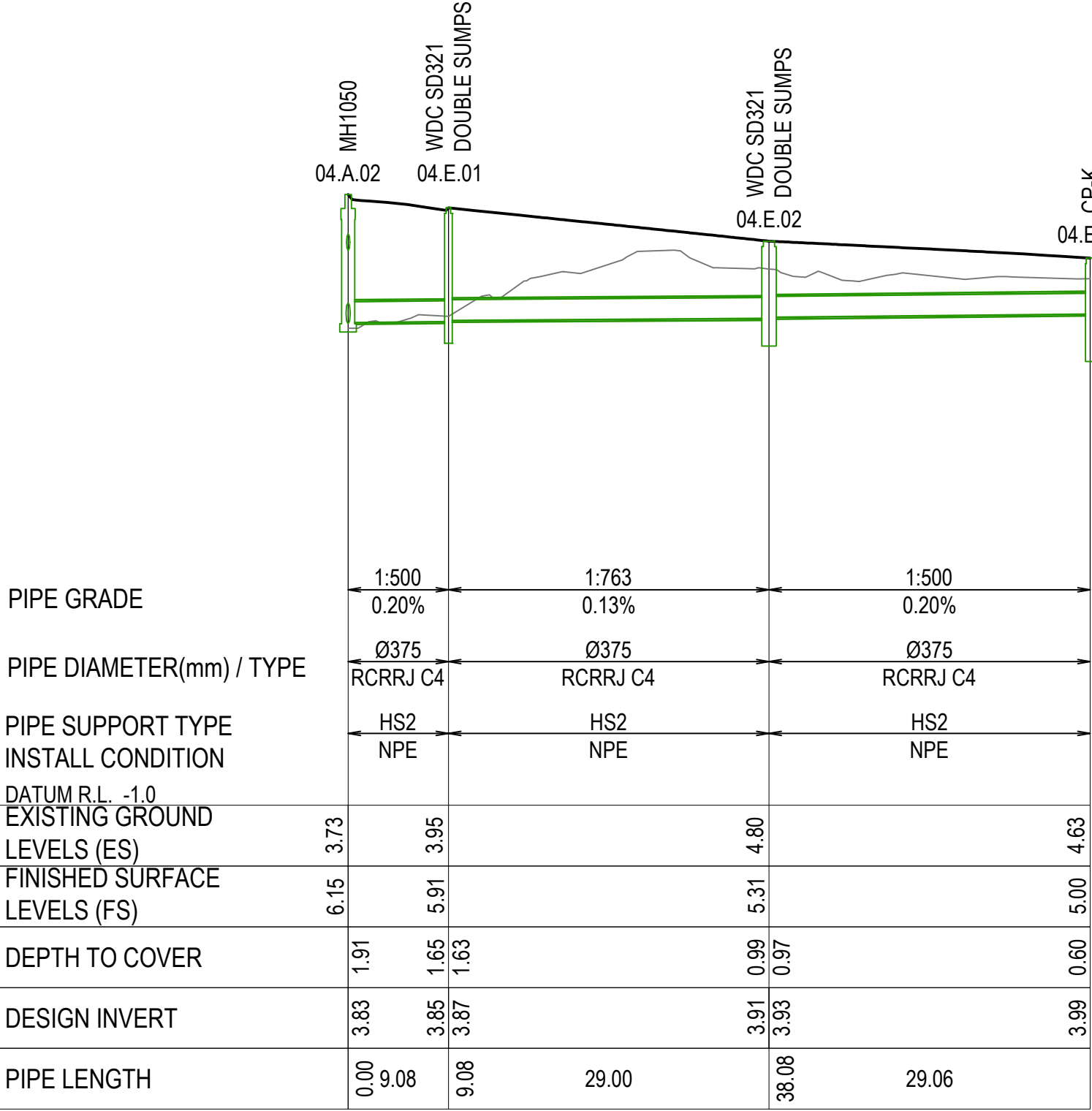
DOCUMENT STATE
PUBLISHED

PROJECT			
BELFAST TO PEGASUS MOTORWAY & WOODEND BYPASS			
TITLE			
STORMWATER LONGSECTIONS SHEET 5			
DOCUMENT CODE			
11320-AUR-0350-PWI-SW-DRG-0505			
SCALE	SIZE	REFERENCE No.	REV
AS SHOWN	A1	SW-DRG-0505	B

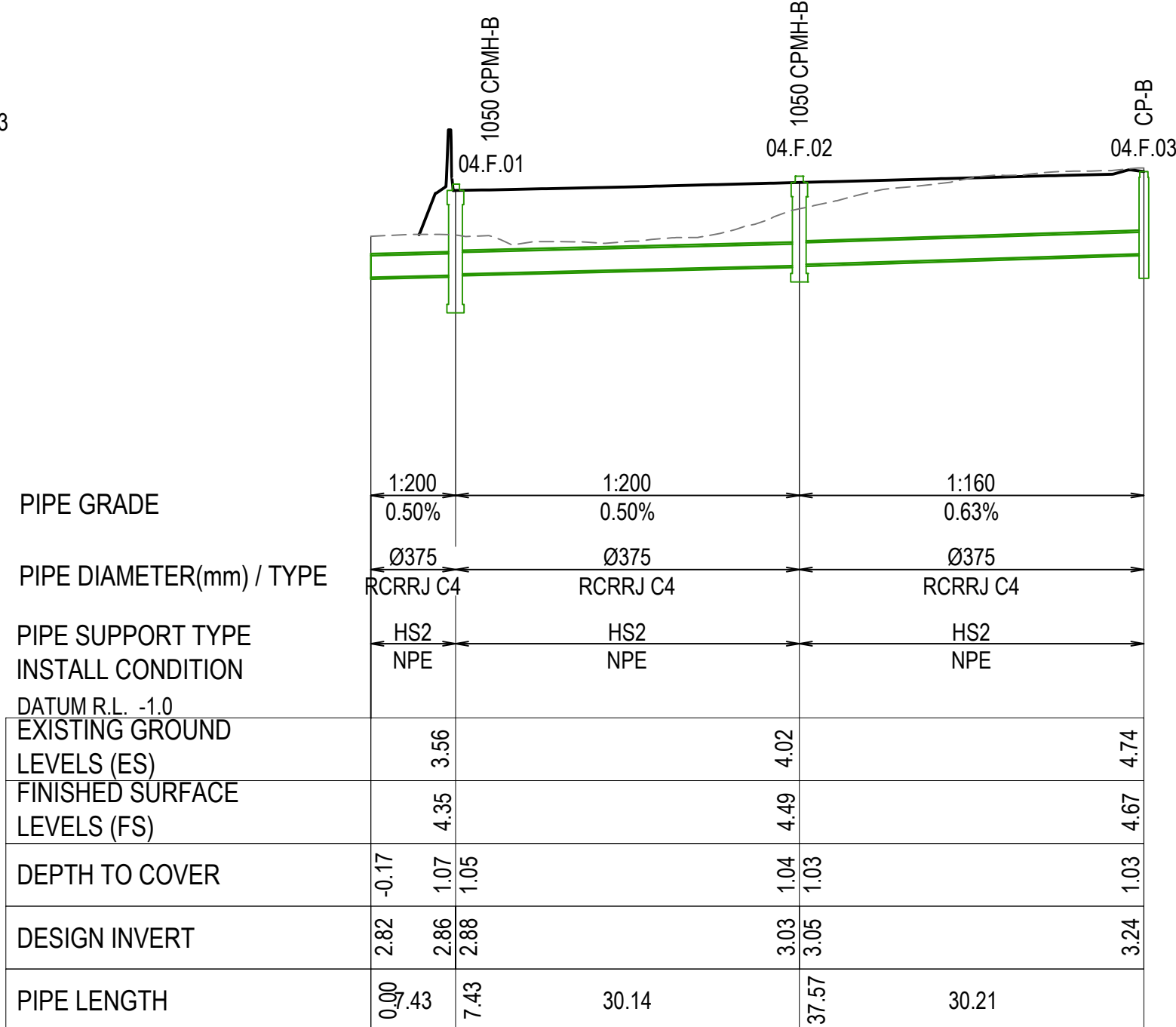
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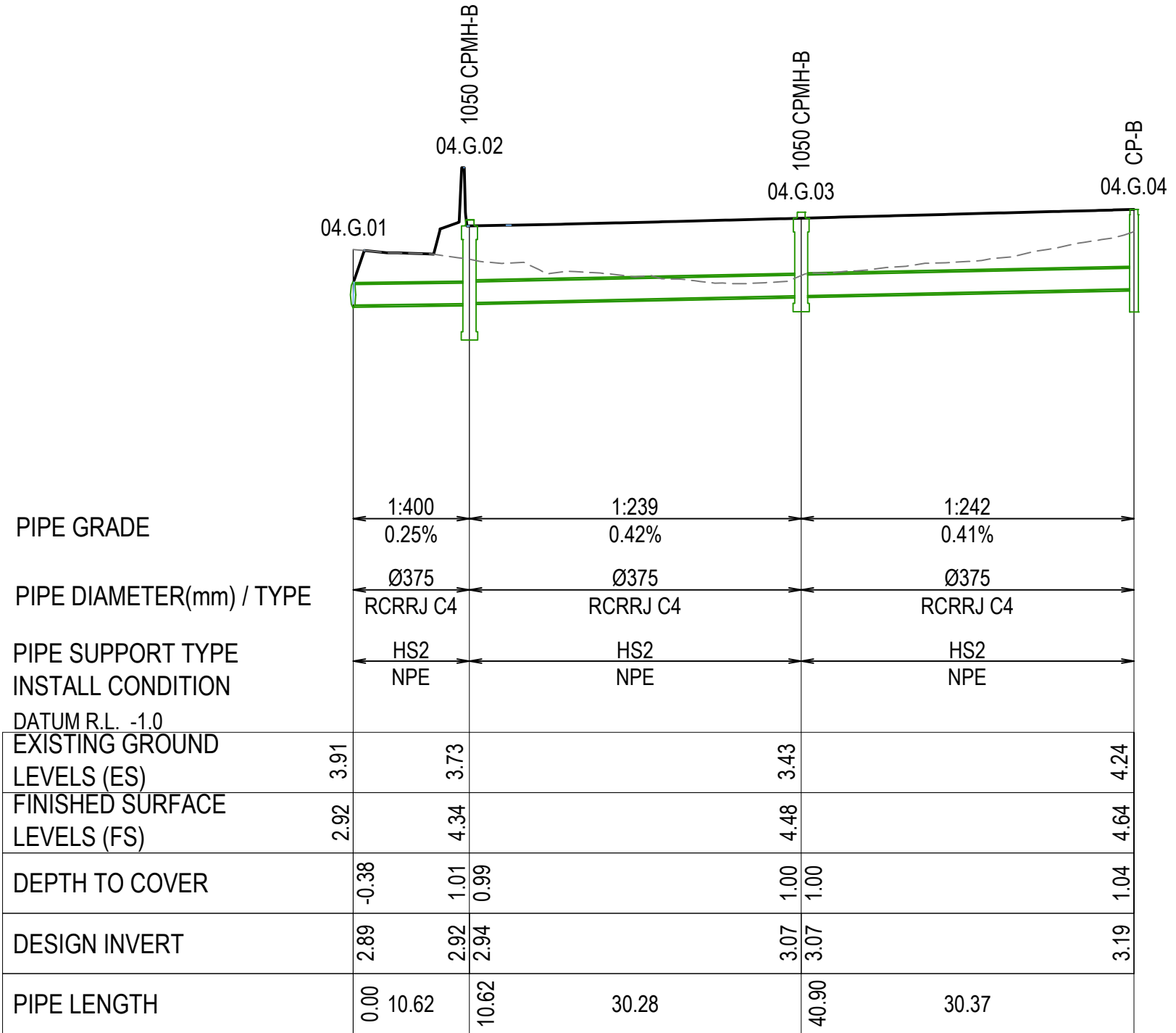
PIPELINE - 04.D
1:500H 1:100V



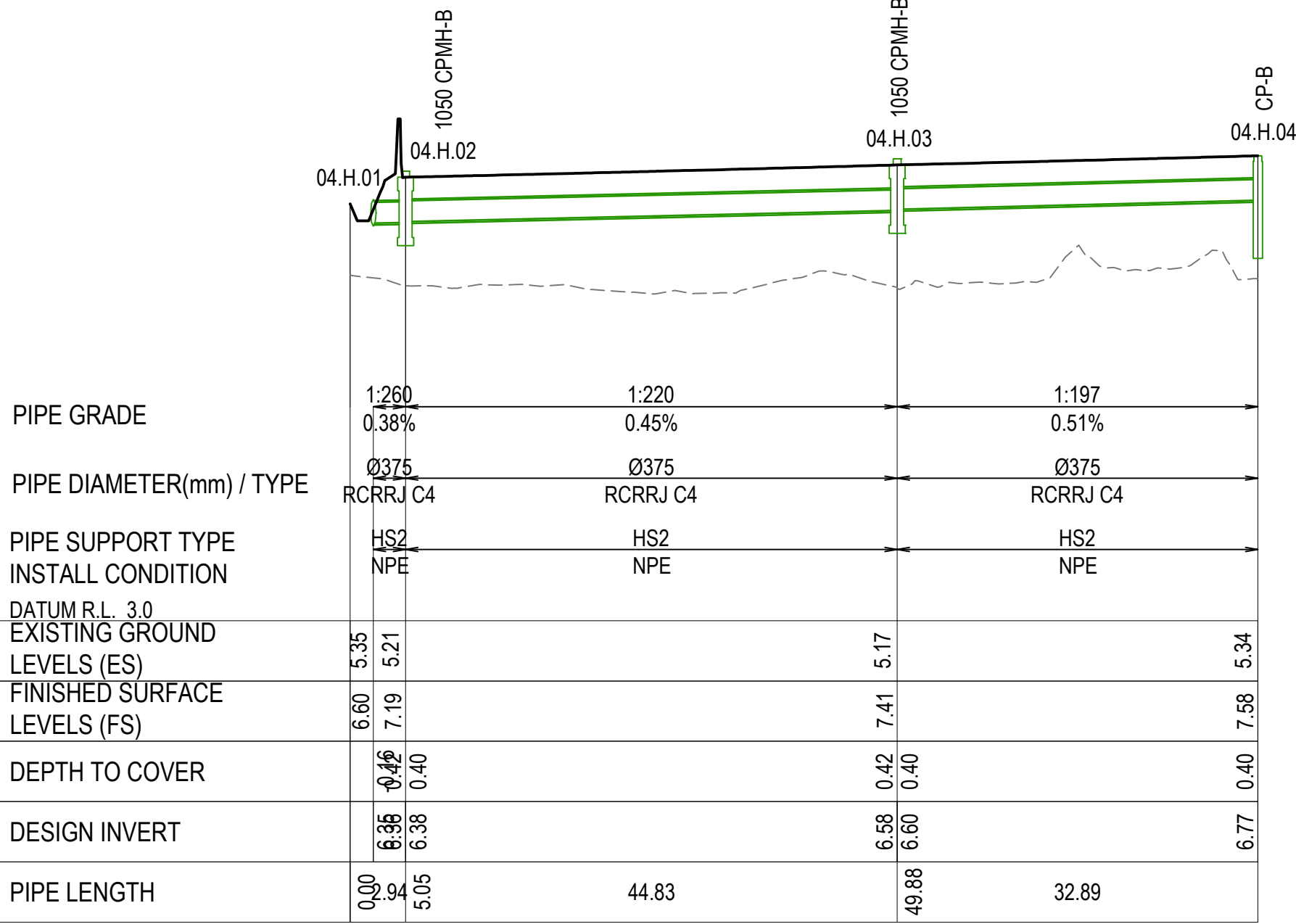
PIPELINE - 04.E
1:500H 1:100V



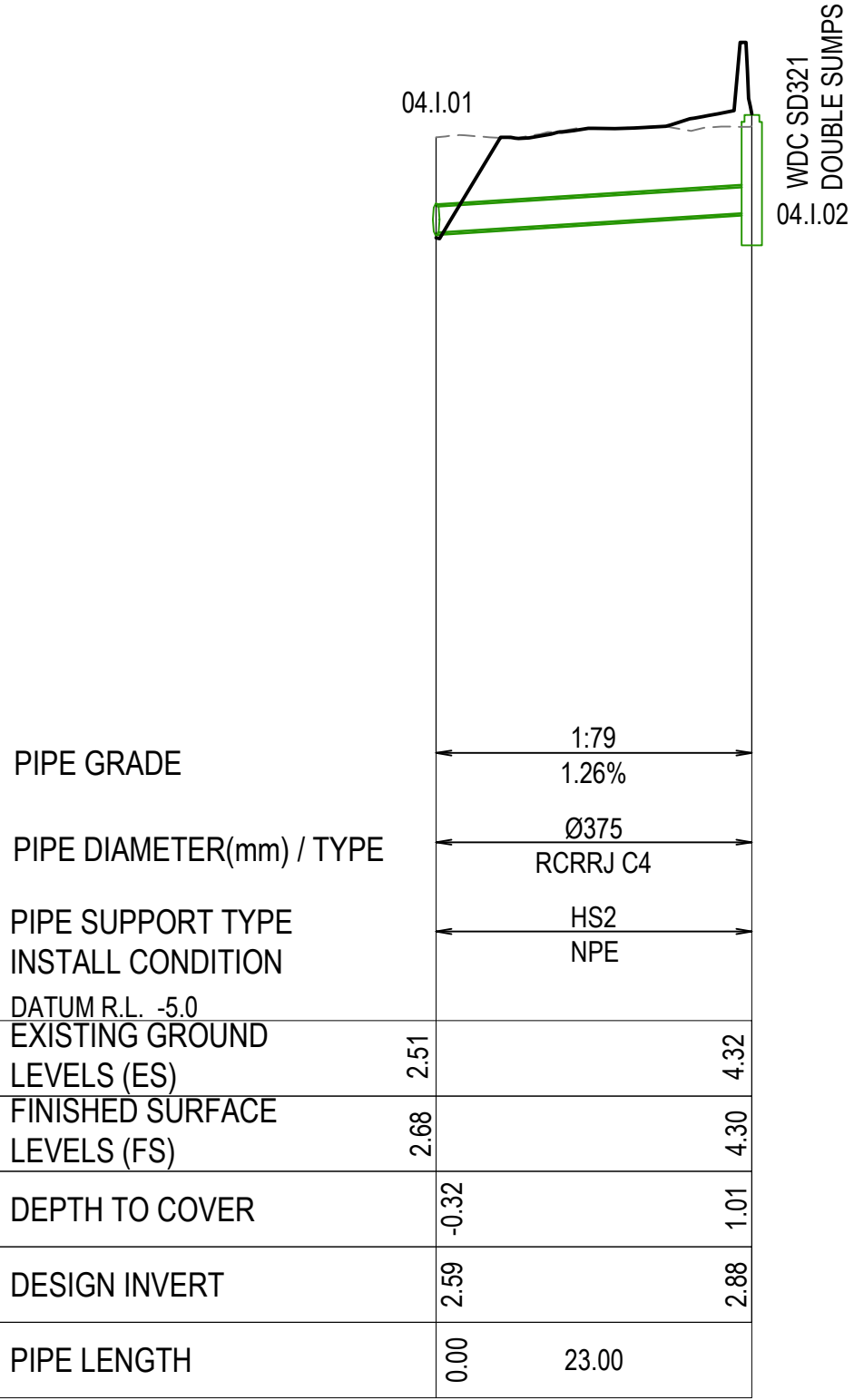
PIPELINE - 04.F
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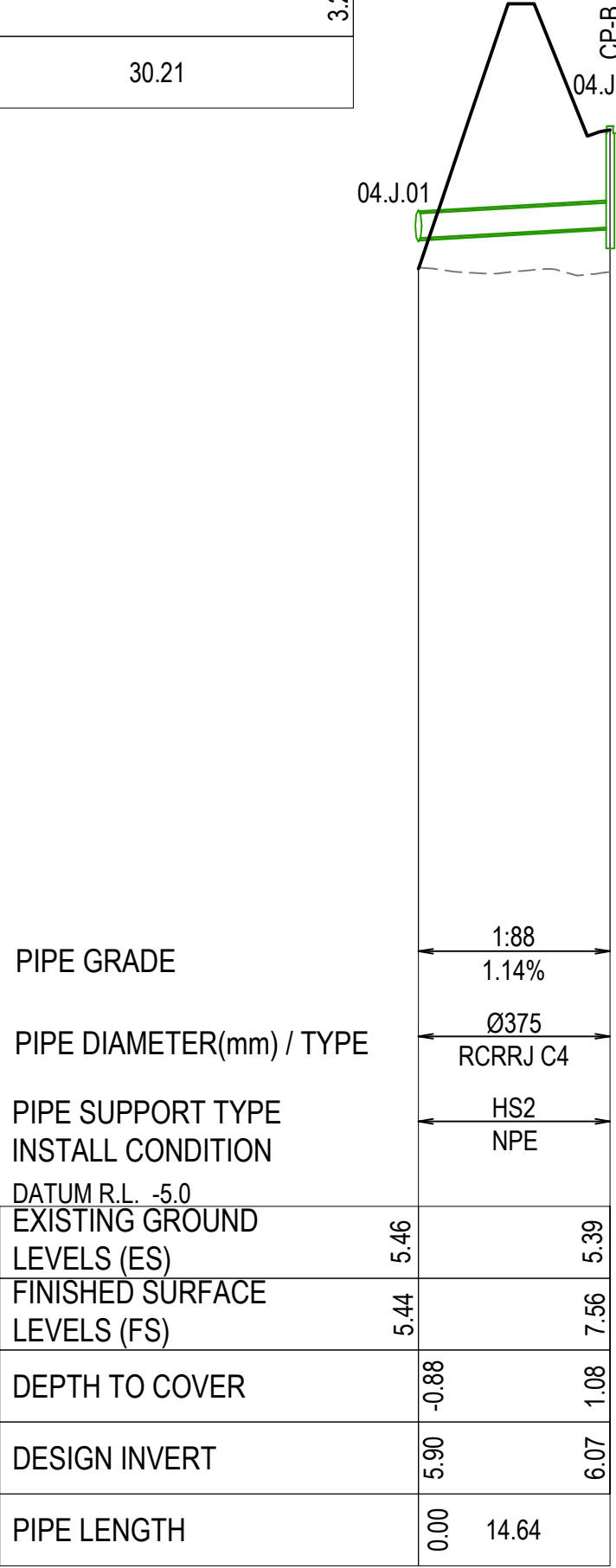
PIPELINE - 04.G
1:500H 1:100V



PIPELINE - 04.H
1:500H 1:100V



PIPELINE - 04.I
1:500H 1:100V



PIPELINE - 04.J
1:500H 1:100V

REV	DATE	REVISION DETAILS	REV	DRAWN	DESIGNED	VERIFIED	APPROVED
A	2025-09-17	ISSUED FOR 50% DETAILED DESIGN	A	C.LACAMBRA	Y.HOOI	W.HERBERT	M.FLANNERY
B	2025-12-12	ISSUED FOR 100% DETAILED DESIGN	B	C.LACAMBRA	Y.HOOI	W.HERBERT	M.FLANNERY

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Coordinate system

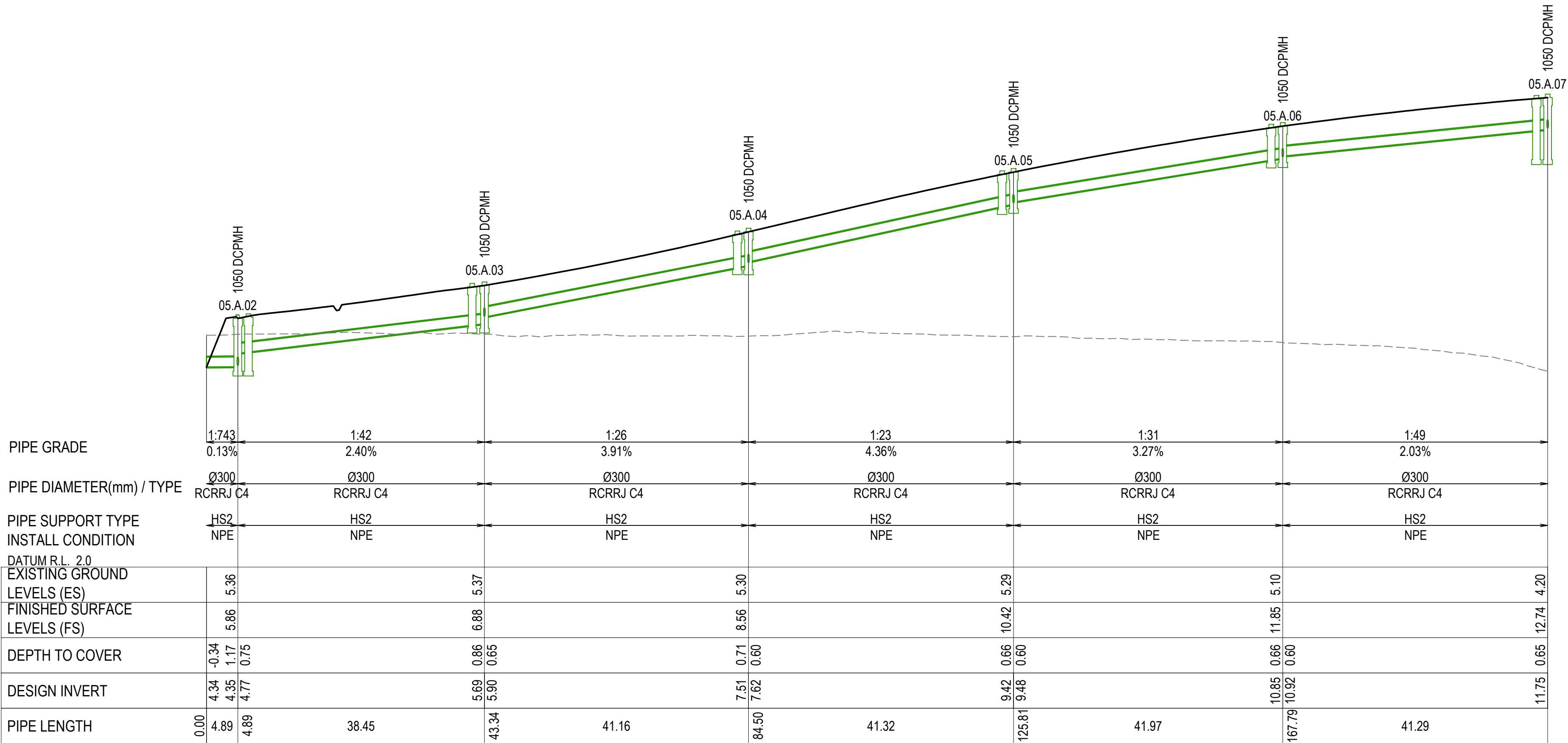
Height datum

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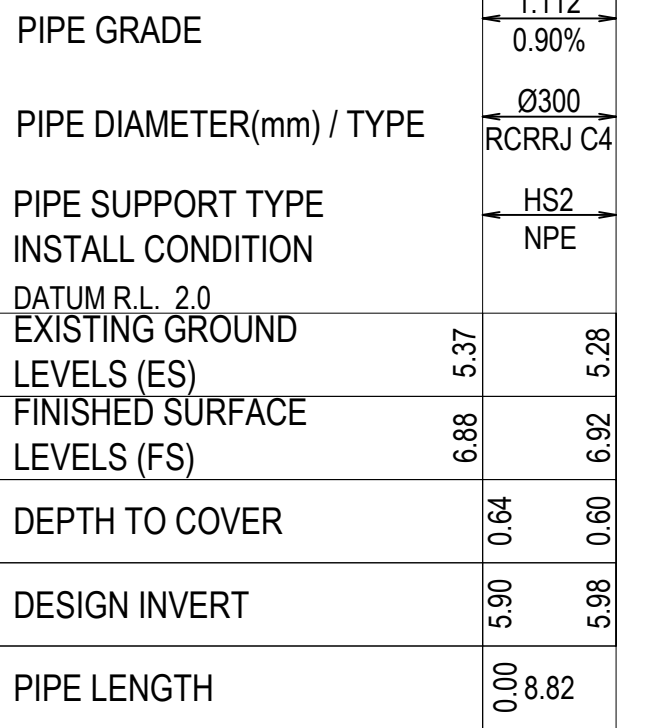


CONSTRUCTION STATUS		PROJECT			
NOT FOR CONSTRUCTION		BELFAST TO PEGASUS MOTORWAY & WOODEND BYPASS			
DRAWN BY		TITLE			
C.LACAMBRA		STORMWATER LONGSECTIONS SHEET 6			
DESIGNED BY		DOCUMENT CODE			
Y.HOOI		11320-AUR-0350-PWI-SW-DRG-0506			
STATUS		CODE		SCALE	
ISSUED FOR DETAILED DESIGN		P3		AS SHOWN	
DOCUMENT STATE		SIZE		REFERENCE No.	
PUBLISHED		A1		SW-DRG-0506	
		REV			
		B			

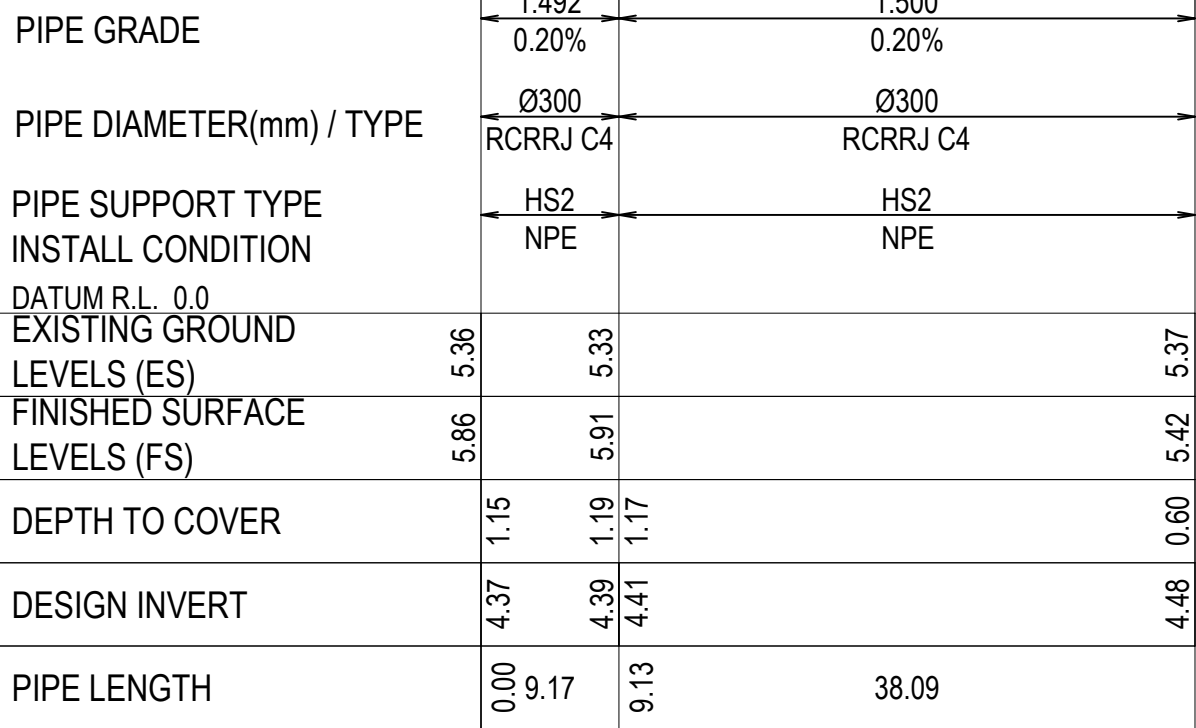
Plot Date: 2025-12-11 4:20 PM Filename: 11320-AUR-0350-PWI-SW-DRG-0507.DWG



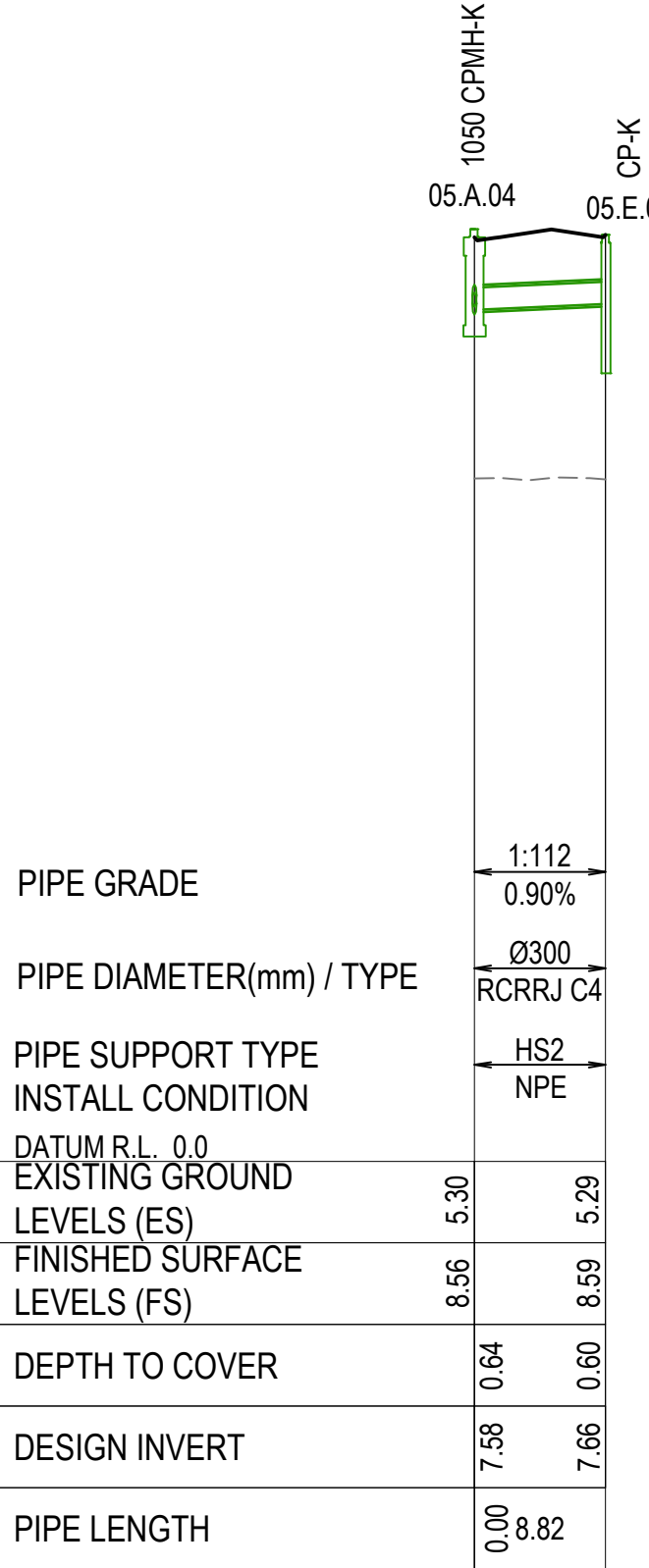
PIPELINE - 05.A
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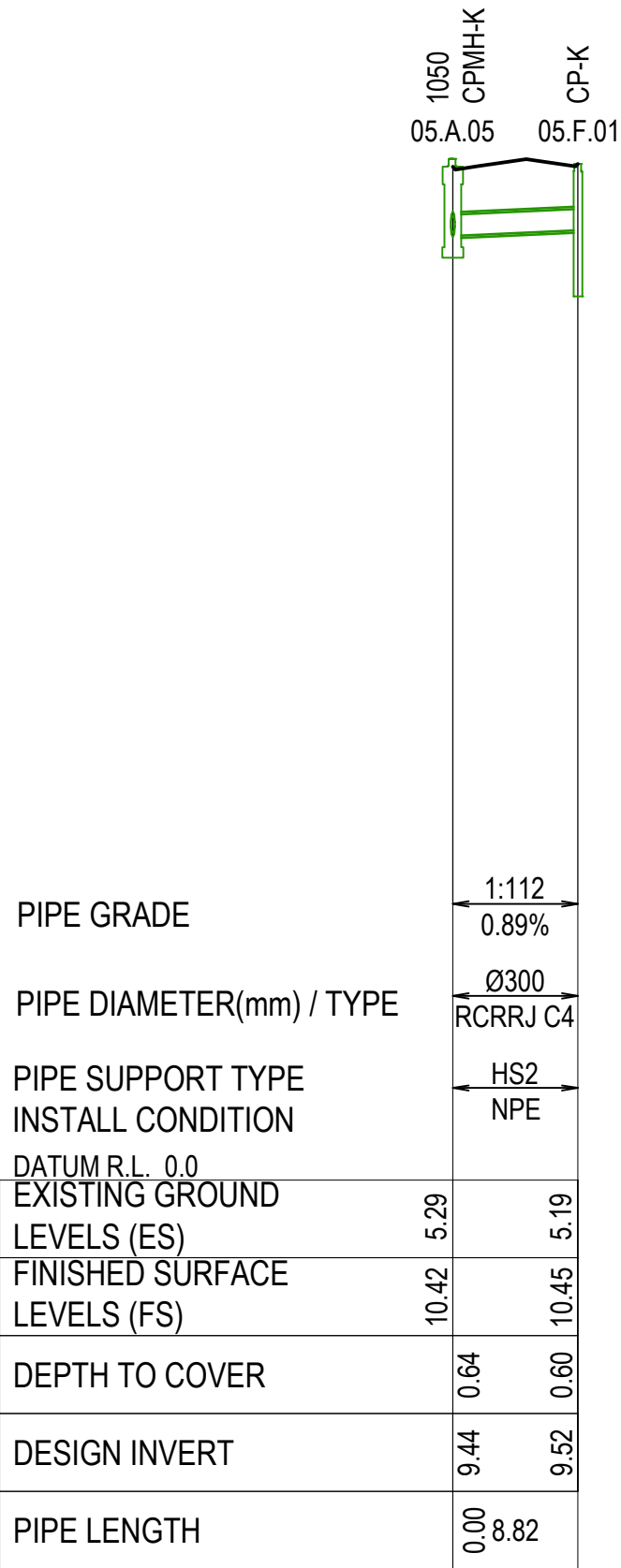
PIPELINE - 05.B
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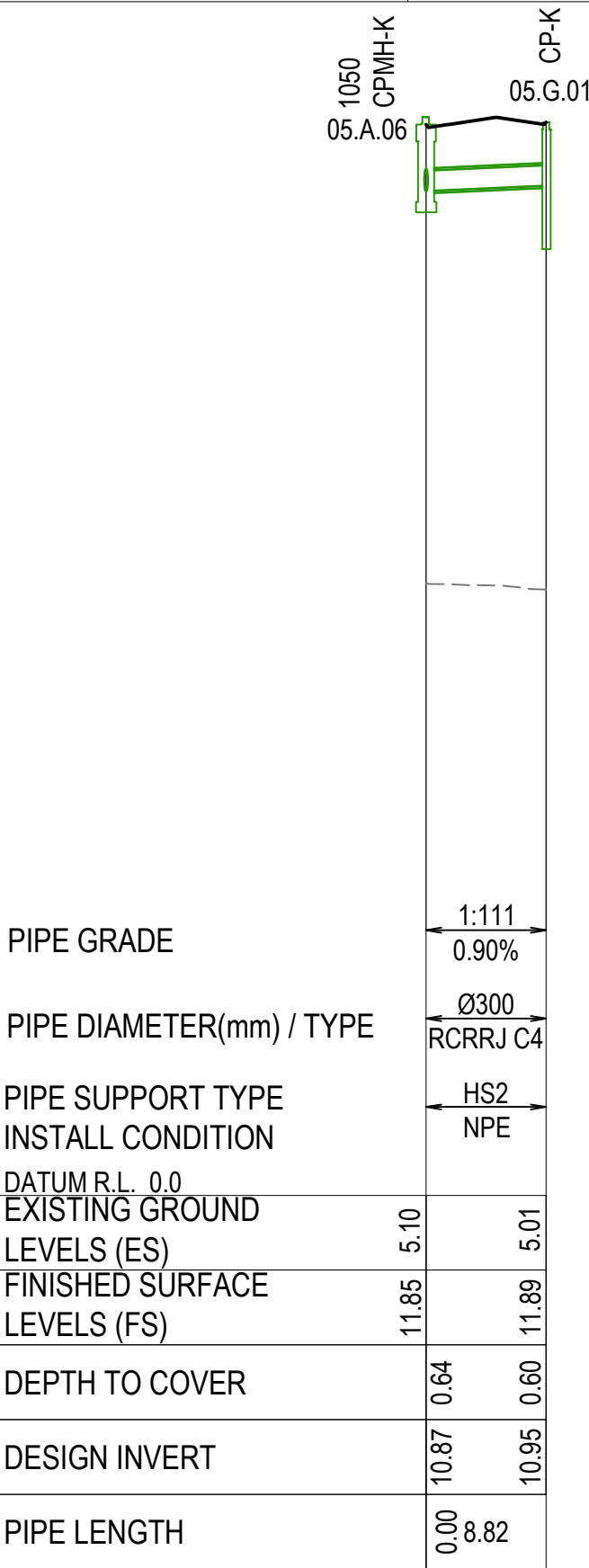
PIPELINE - 05.C
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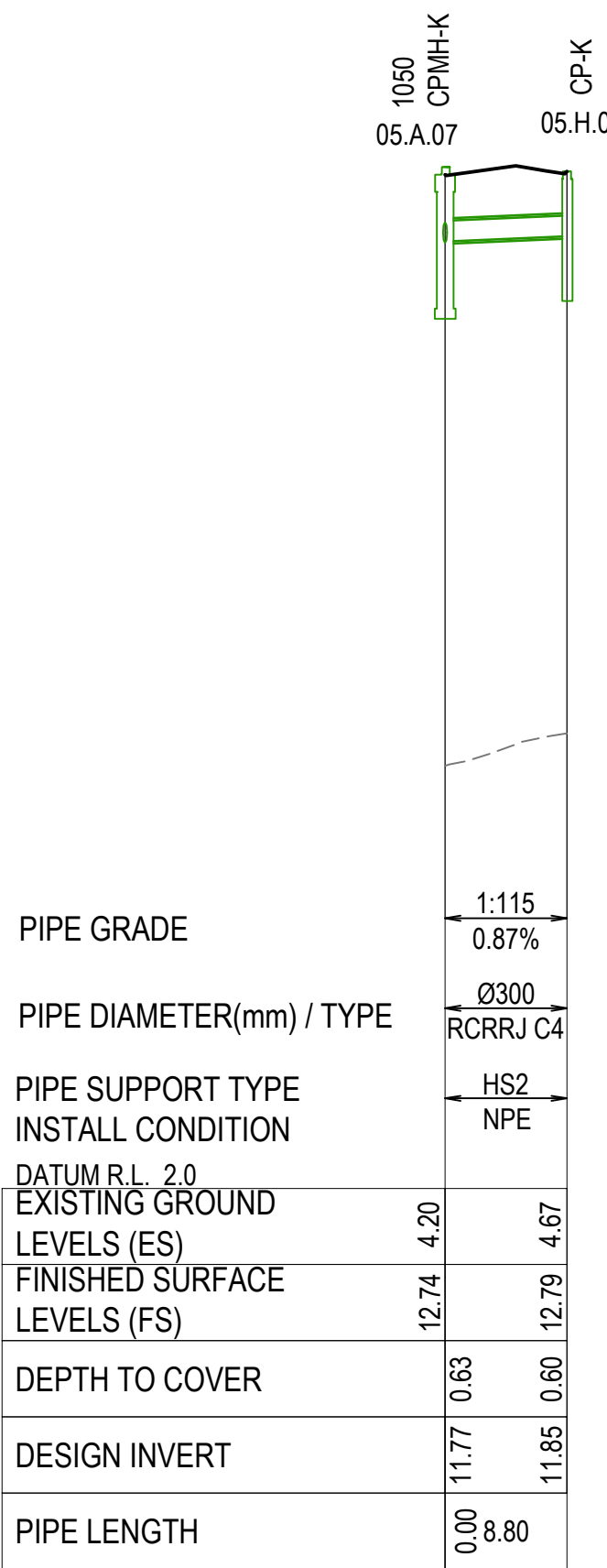
PIPELINE - 05.E
1:500H 1:100V



PIPELINE - 05.F
1:500H 1:100V



PIPELINE - 05.G
1:500H 1:100V



PIPELINE - 05.H
1:500H 1:100V

REV	DATE	REVISION DETAILS	REV	DRAWN	DESIGNED	VERIFIED	APPROVED
A	2025-09-17	ISSUED FOR 50% DETAILED DESIGN	A	C.LACAMBRA	Y.HOOI	W.HERBERT	M.FLANNERY
B	2025-12-12	ISSUED FOR 100% DETAILED DESIGN	B	C.LACAMBRA	Y.HOOI	W.HERBERT	M.FLANNERY



Coordinate system

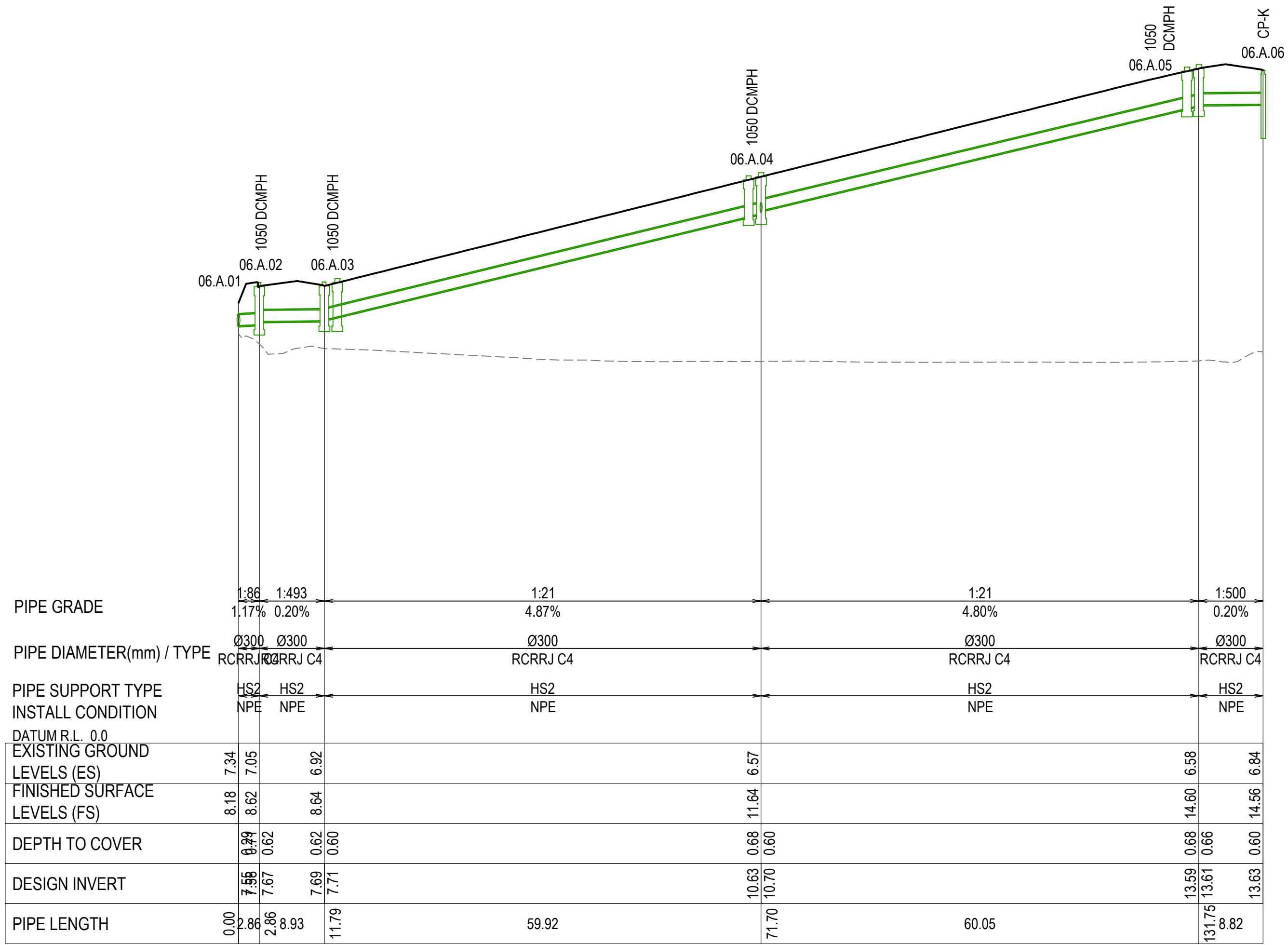
Height datum

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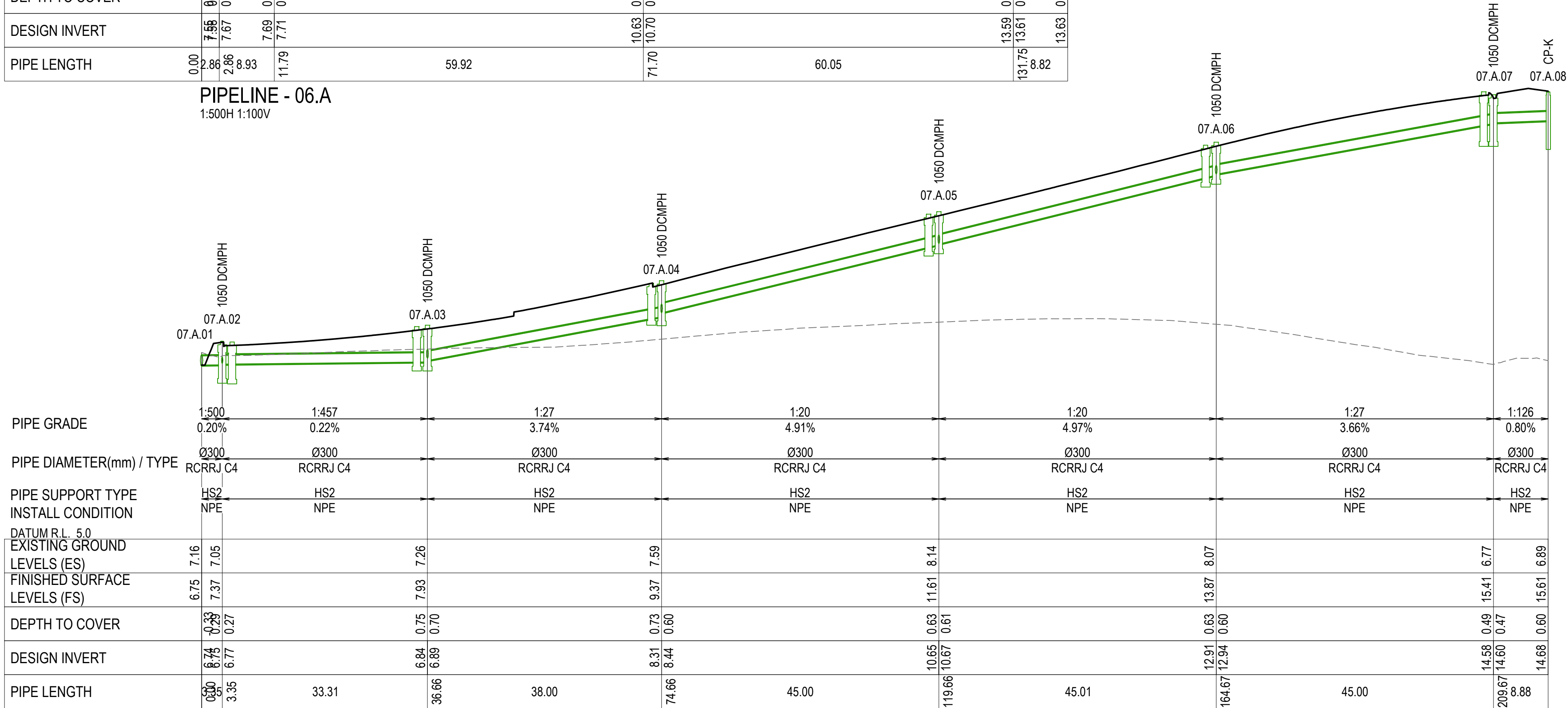
CONSTRUCTION STATUS	
NOT FOR CONSTRUCTION	
DRAWN BY	C.LACAMBRA
DESIGNED BY	Y.HOOI
STATUS	ISSUED FOR DETAILED DESIGN
DOCUMENT STATE	PUBLISHED

PROJECT			
BELFAST TO PEGASUS MOTORWAY & WOODEND BYPASS			
TITLE			
STORMWATER LONGSECTIONS SHEET 7			
DOCUMENT CODE			
11320-AUR-0350-PWI-SW-DRG-0507			
SCALE	SIZE	REFERENCE No.	REV
AS SHOWN	A1	SW-DRG-0507	B

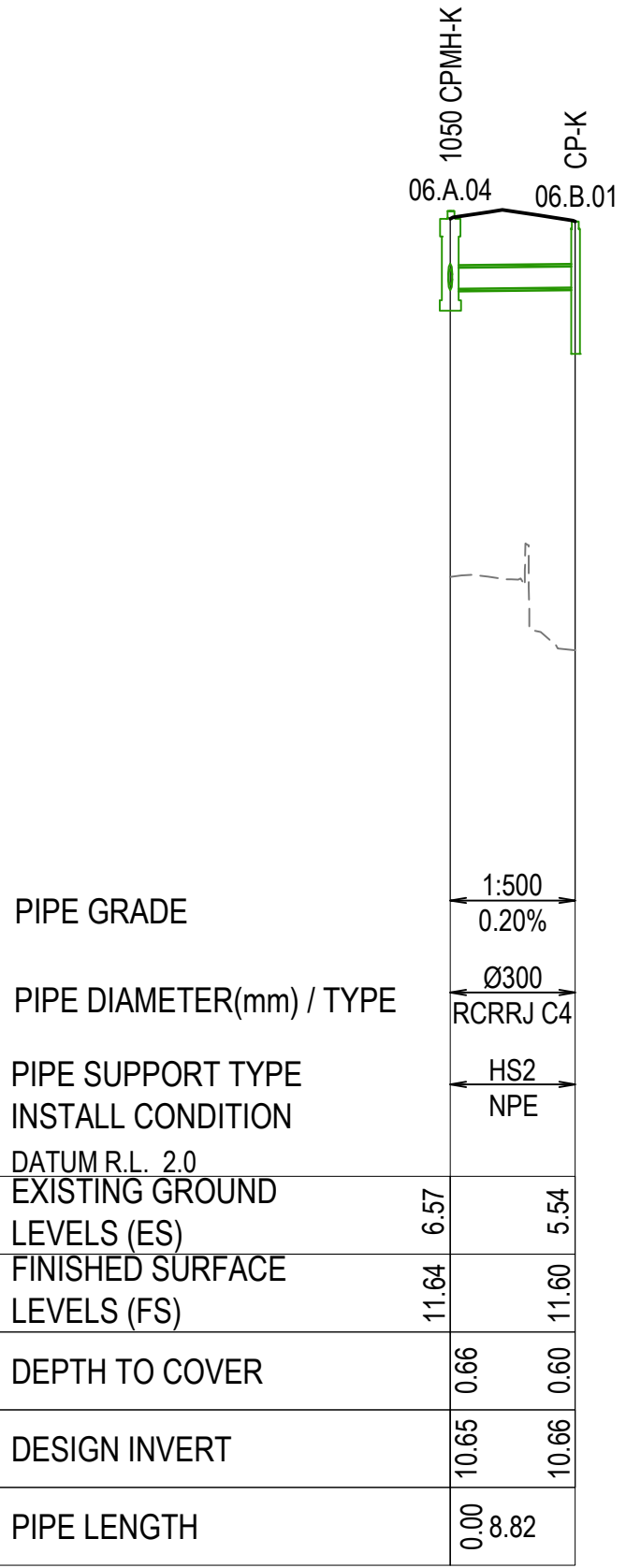
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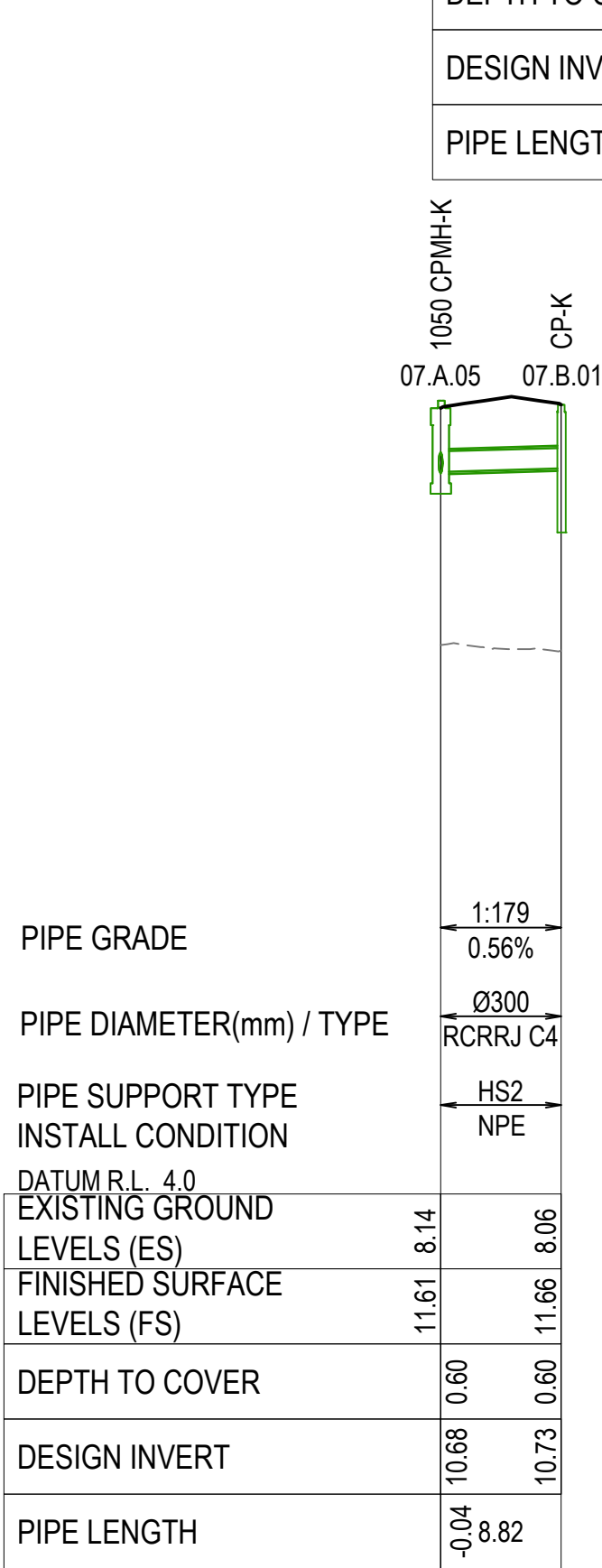
PIPELINE - 06.A
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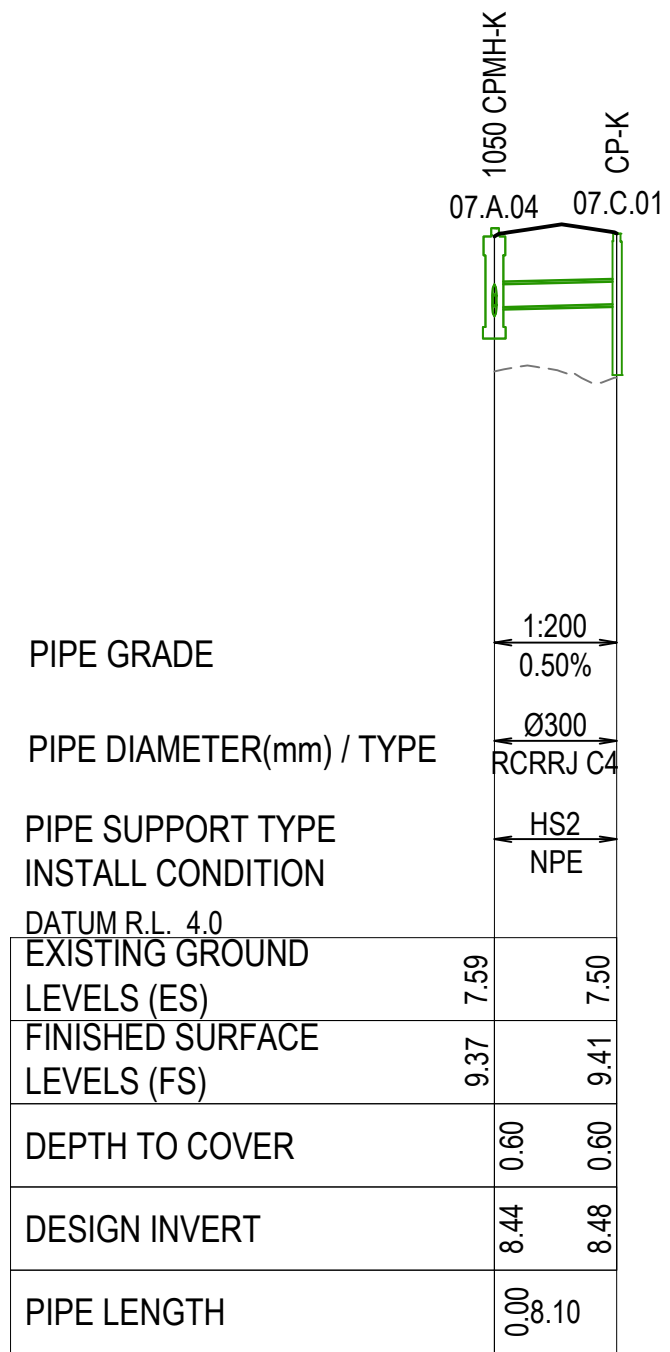
PIPELINE - 07.A
1:500H 1:100V



PIPELINE - 06.B
1:500H 1:100V



PIPELINE - 07.B
1:500H 1:100V



PIPELINE - 07.C
1:500H 1:100V

REV	DATE	REVISION DETAILS	REV	DRAWN	DESIGNED	VERIFIED	APPROVED
A	2025-09-17	ISSUED FOR 50% DETAILED DESIGN	A	C.LACAMBRA	Y.HOOI	W.HERBERT	M.FLANNERY
B	2025-12-12	ISSUED FOR 100% DETAILED DESIGN	B	C.LACAMBRA	Y.HOOI	W.HERBERT	M.FLANNERY

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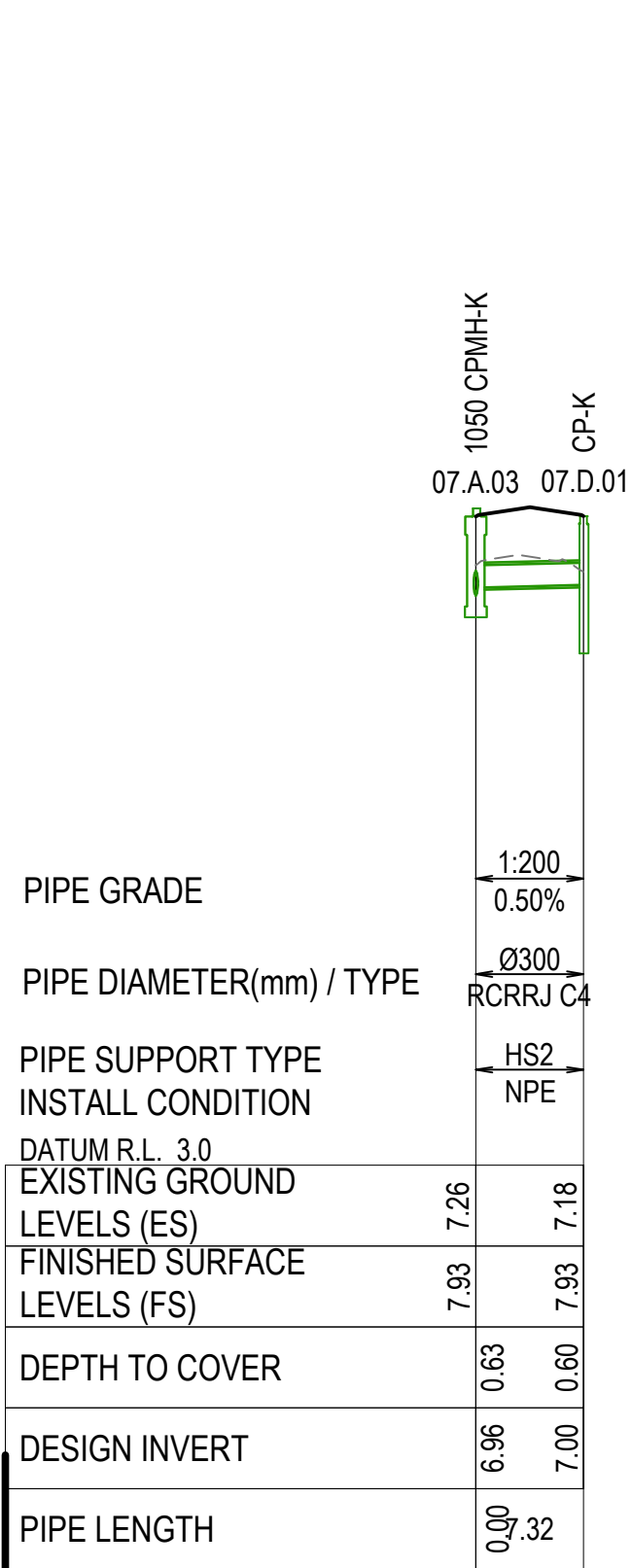
Coordinate system

Height datum

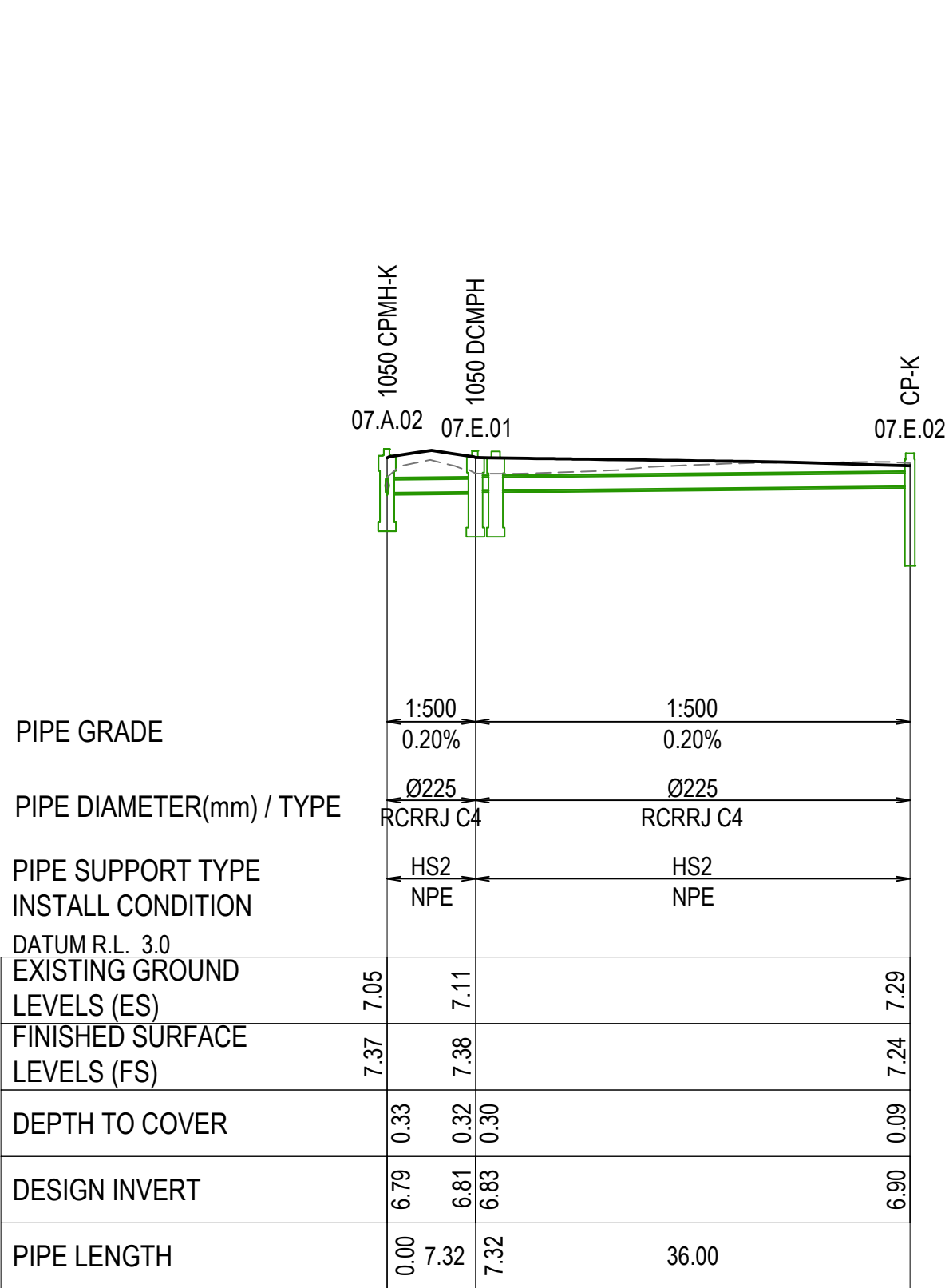
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CONSTRUCTION STATUS		PROJECT			
NOT FOR CONSTRUCTION		BELFAST TO PEGASUS MOTORWAY & WOODEND BYPASS			
DRAWN BY		TITLE			
C.LACAMBRA		STORMWATER LONGSECTIONS SHEET 8			
DESIGNED BY		DOCUMENT CODE			
Y.HOOI		11320-AUR-0350-PWI-SW-DRG-0508			
STATUS	CODE	SCALE	SIZE	REFERENCE No.	REV
ISSUED FOR DETAILED DESIGN	P3	AS SHOWN	A1	SW-DRG-0508	B
DOCUMENT STATE					
PUBLISHED					

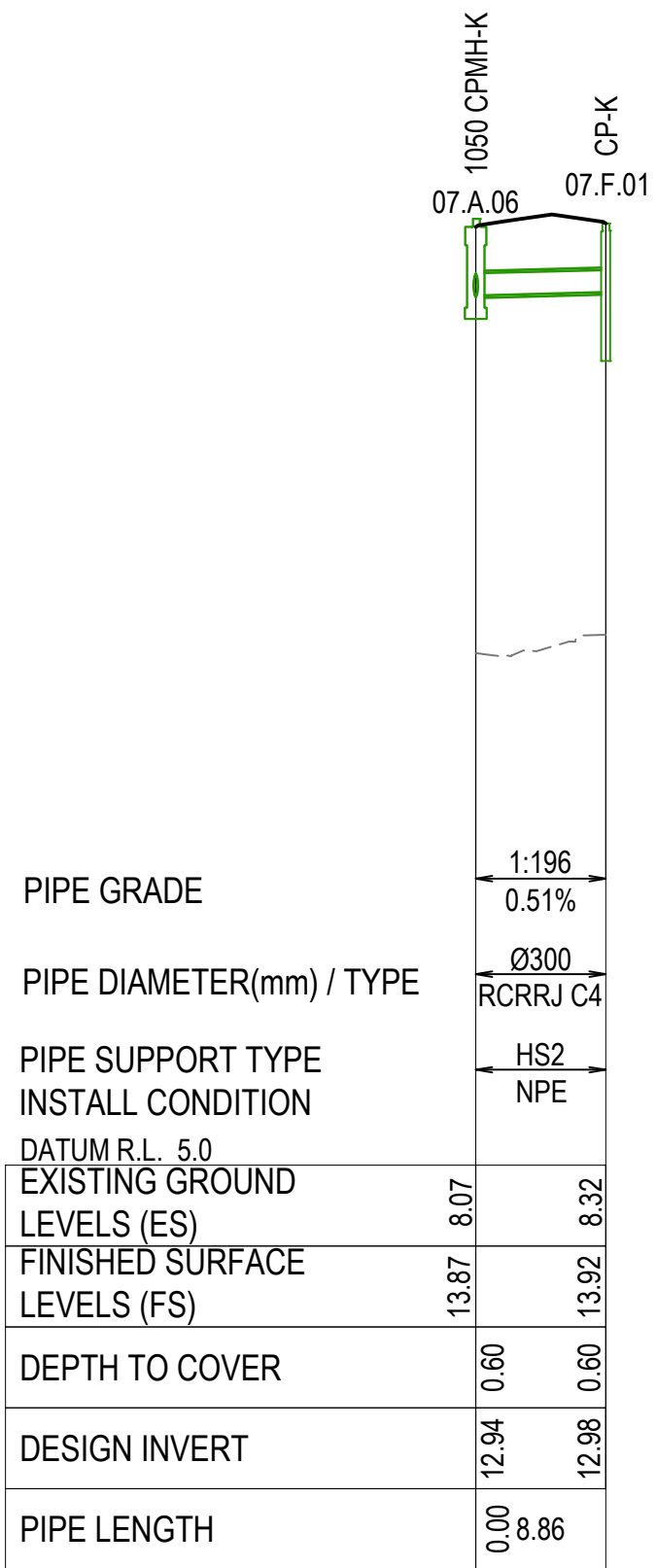
Plot Date: 2025-12-11 4:20 PM Filename: 11320-AUR-0350-PWI-SW-DRG-0509.DWG



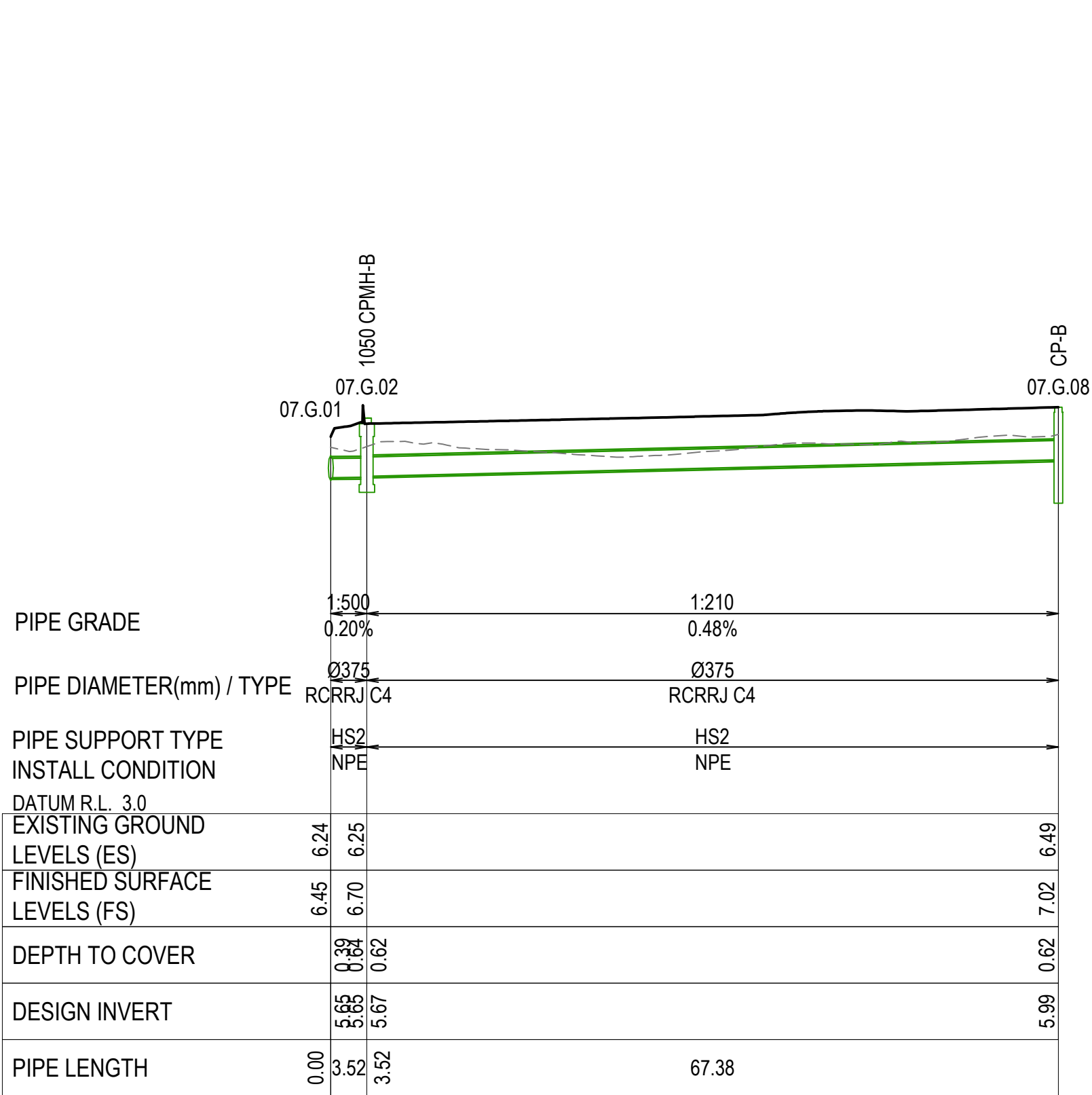
PIPELINE - 07.D
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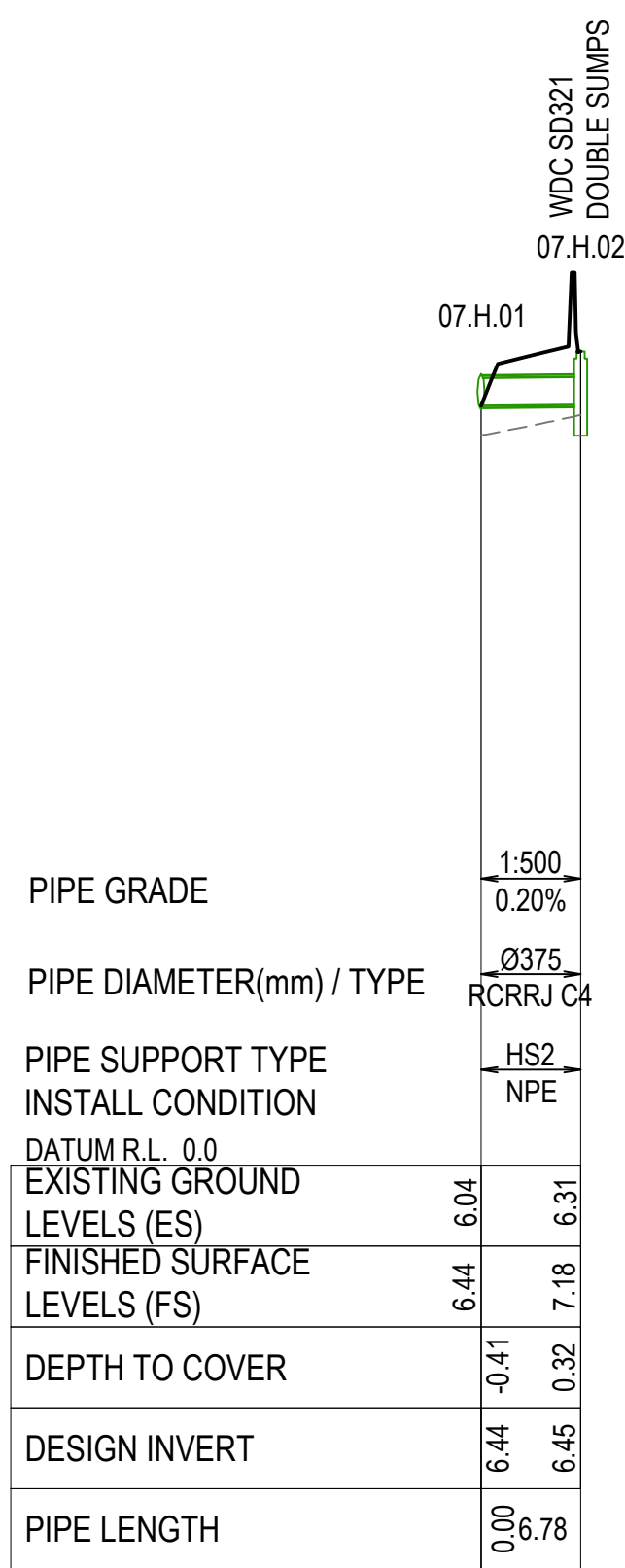
PIPELINE - 07.E
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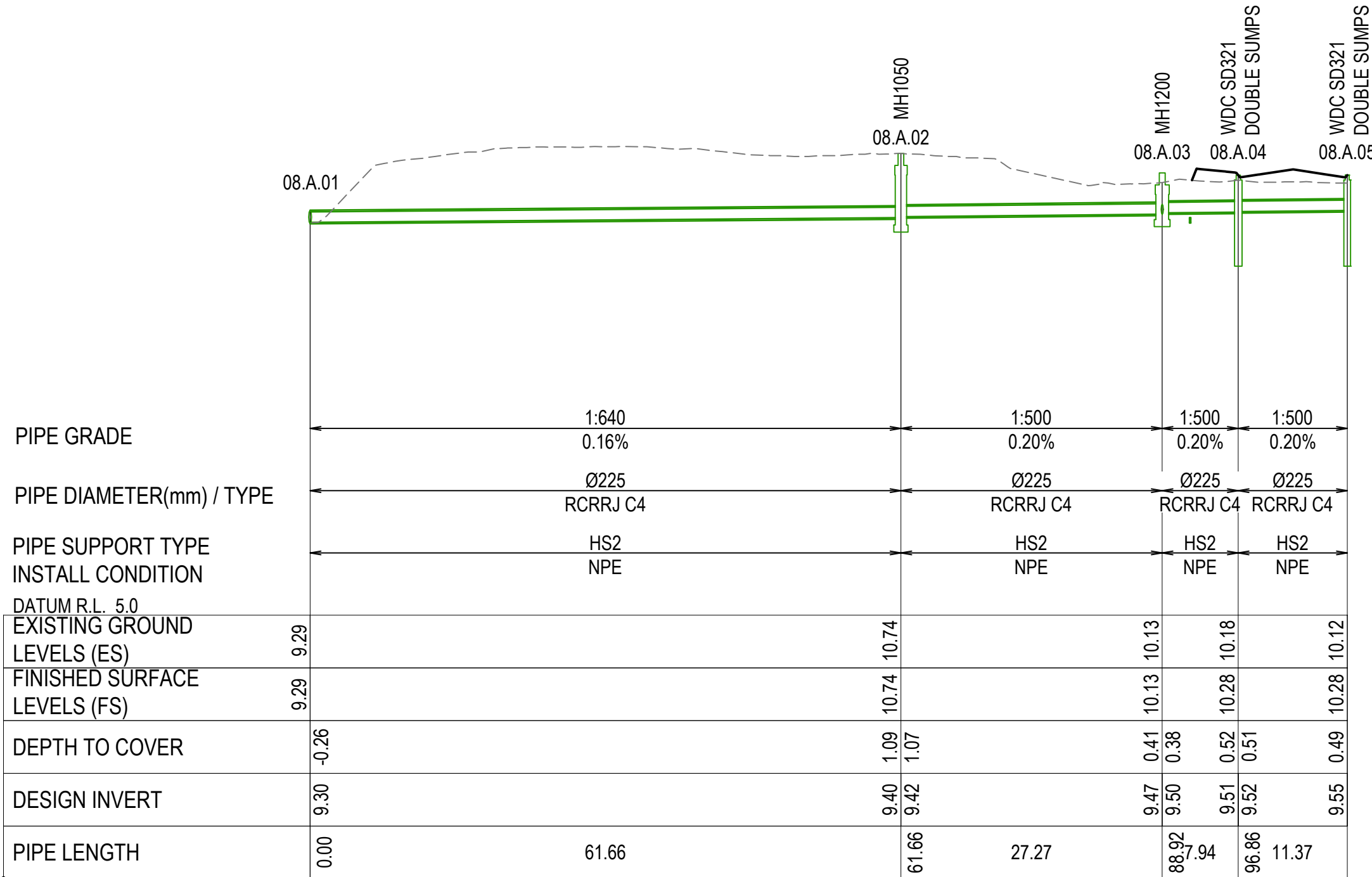
PIPELINE - F0106
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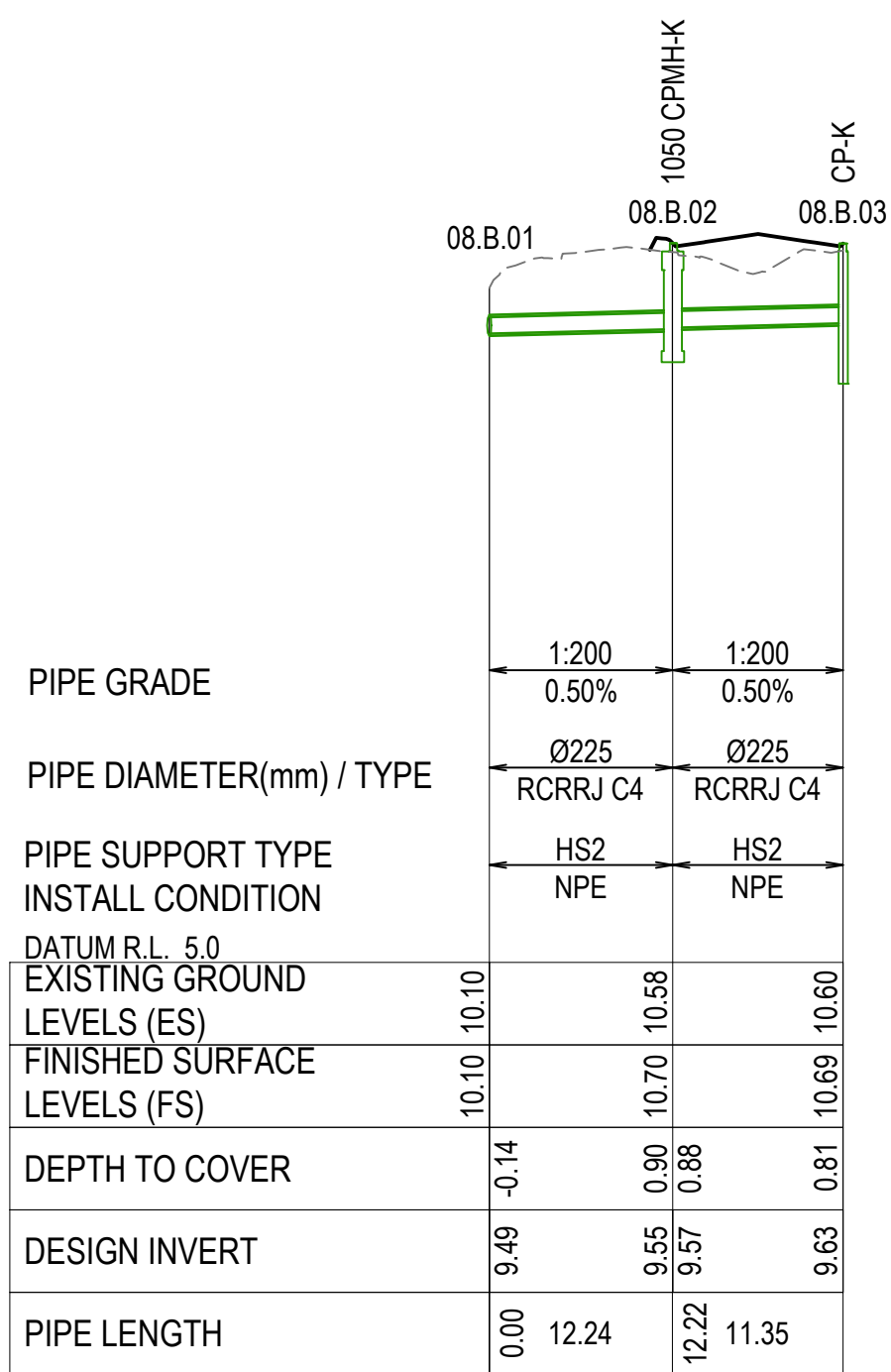
PIPELINE - 07.G
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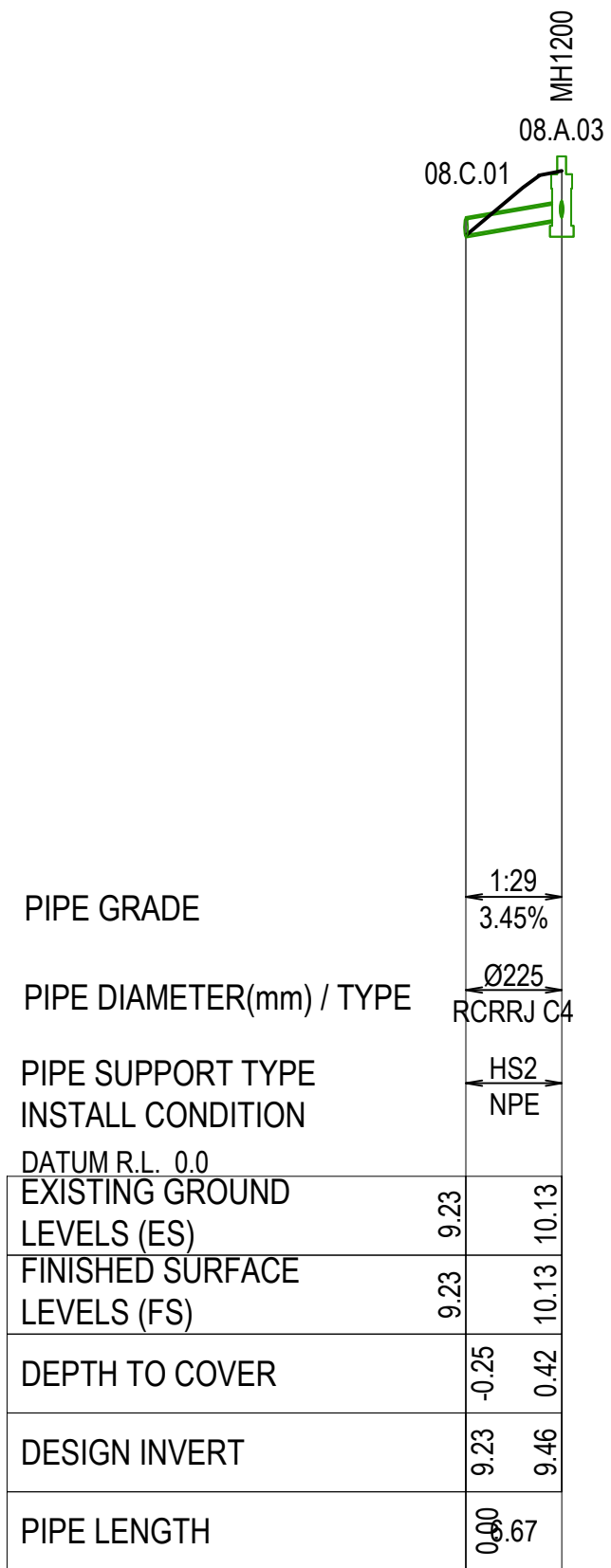
PIPELINE - 07.H
1:500H 1:100V



PIPELINE - 08.A
1:500H 1:100V



PIPELINE - 08.B
1:500H 1:100V



PIPELINE - 08.C
1:500H 1:100V

REV	DATE	REVISION DETAILS	REV	DRAWN	DESIGNED	VERIFIED	APPROVED
A	2025-09-17	ISSUED FOR 50% DETAILED DESIGN	A	C.LACAMBRA	Y.HOOI	W.HERBERT	M.FLANNERY
B	2025-12-12	ISSUED FOR 100% DETAILED DESIGN	B	C.LACAMBRA	Y.HOOI	W.HERBERT	M.FLANNERY

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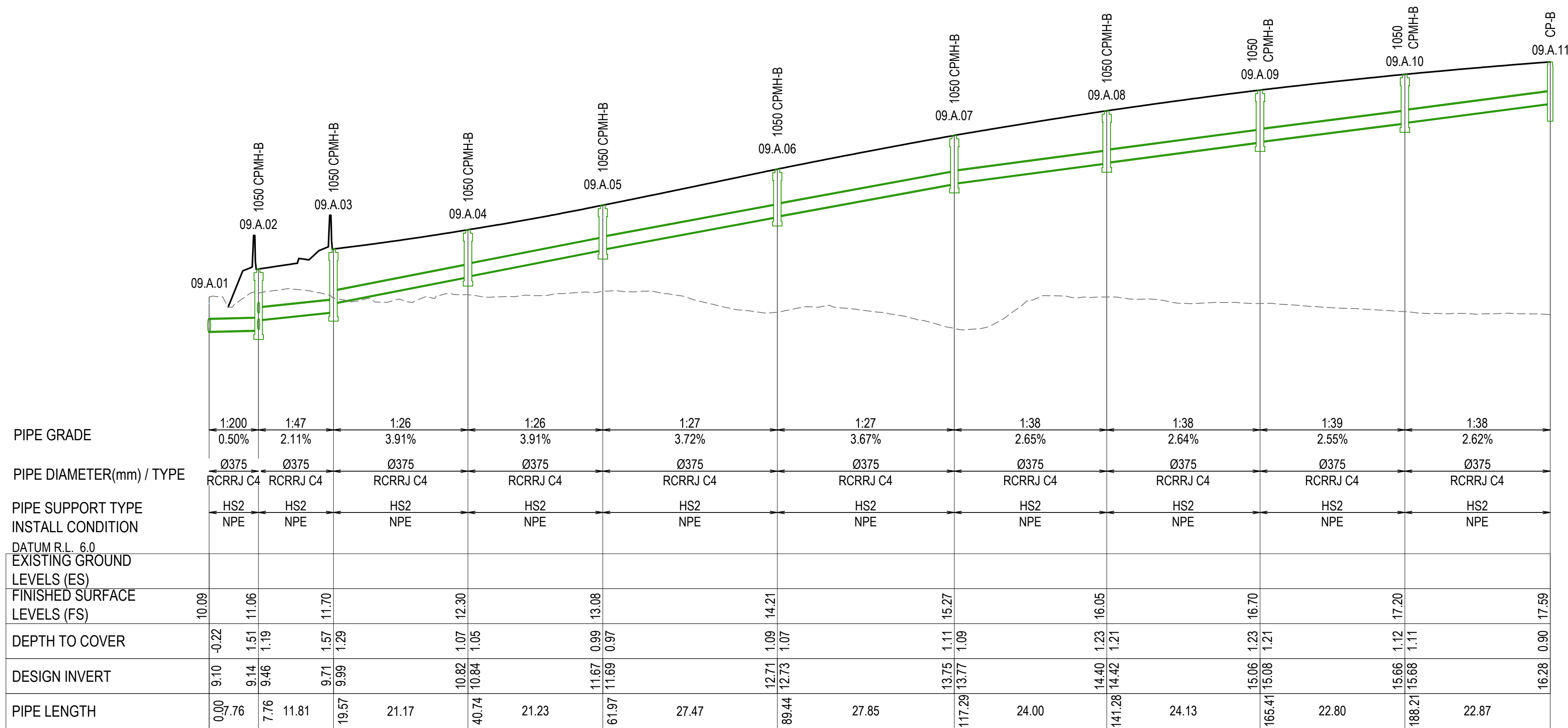
Coordinate system

Height datum

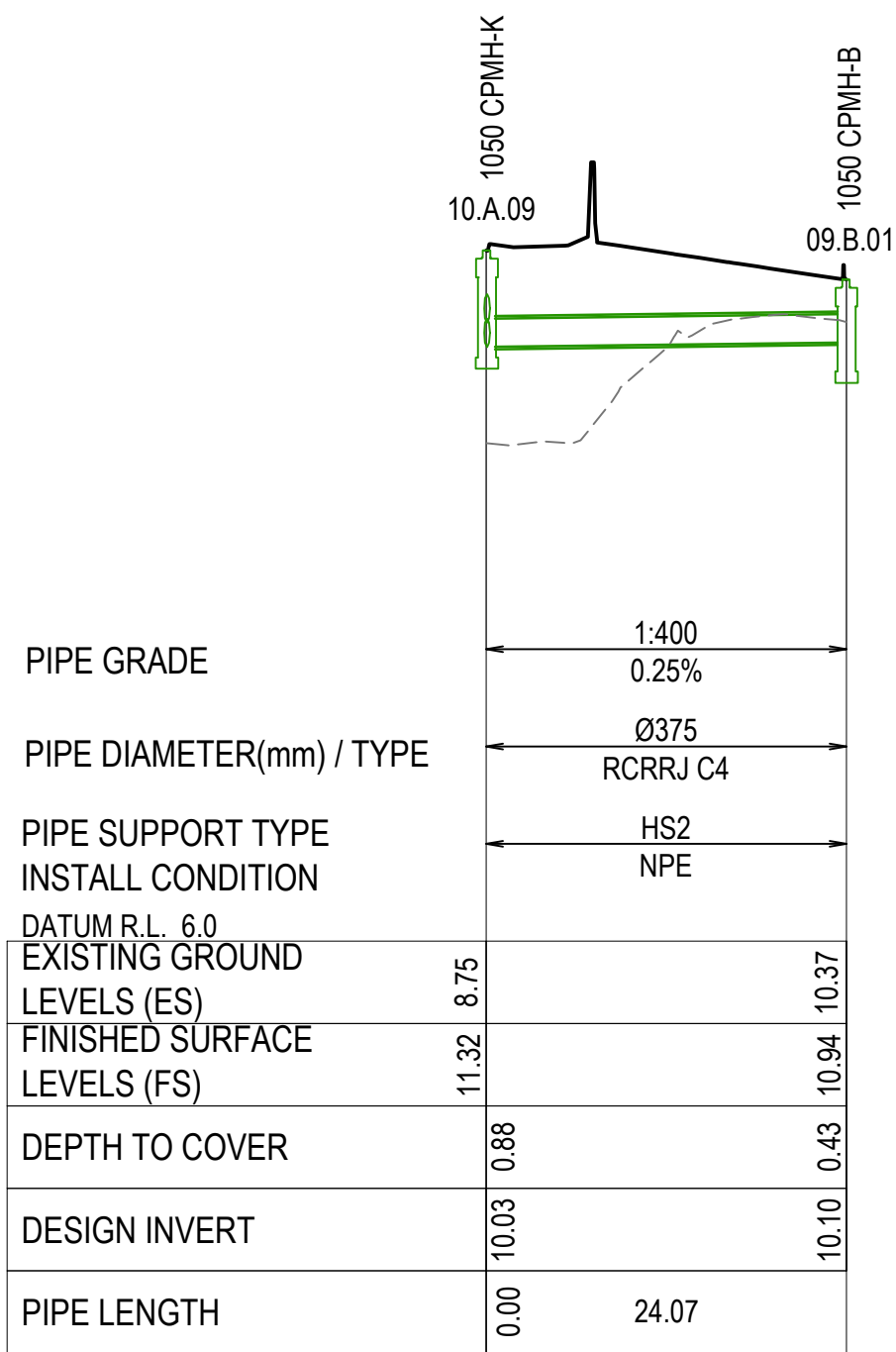
PRINT ALL COPIES
IN COLOUR

CONSTRUCTION STATUS		PROJECT			
NOT FOR CONSTRUCTION		BELFAST TO PEGASUS MOTORWAY & WOODEND BYPASS			
DRAWN BY		TITLE			
C.LACAMBRA		STORMWATER LONGSECTIONS SHEET 9			
DESIGNED BY		DOCUMENT CODE			
Y.HOOI		11320-AUR-0350-PWI-SW-DRG-0509			
STATUS	CODE	SCALE	SIZE	REFERENCE No.	REV
ISSUED FOR DETAILED DESIGN	P3	AS SHOWN	A1	SW-DRG-0509	B
DOCUMENT STATE					
PUBLISHED					

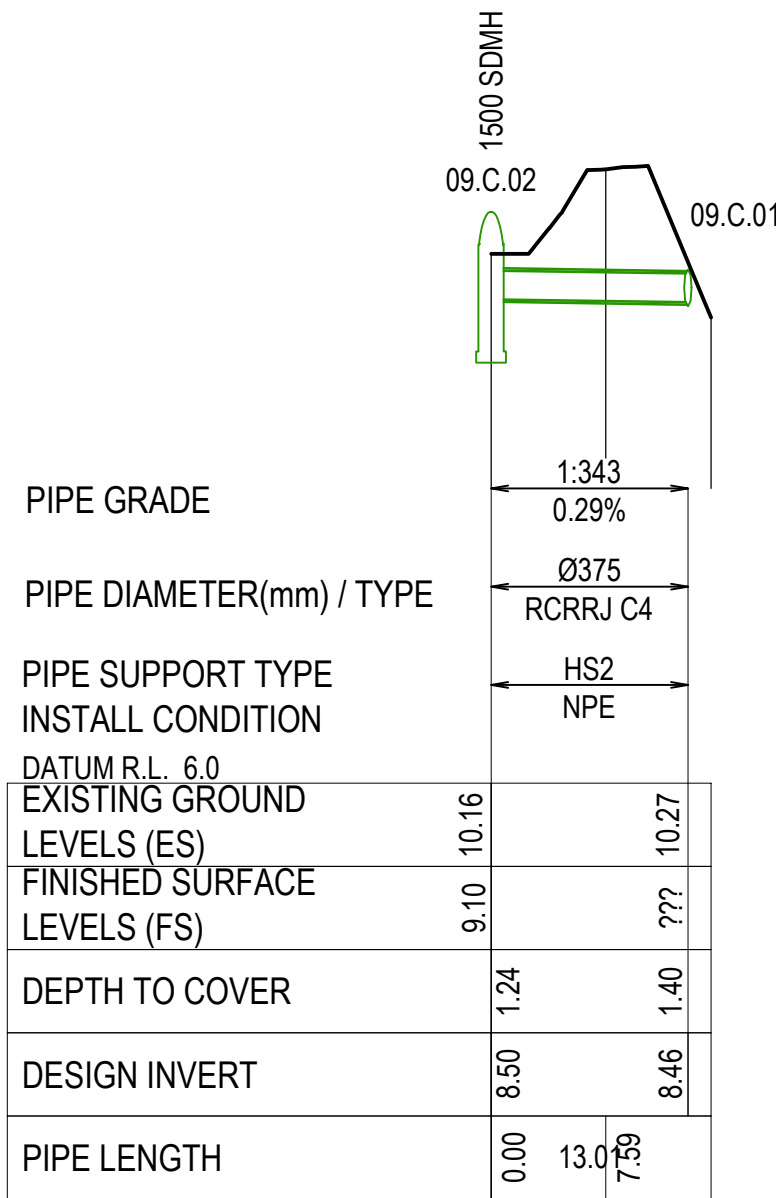
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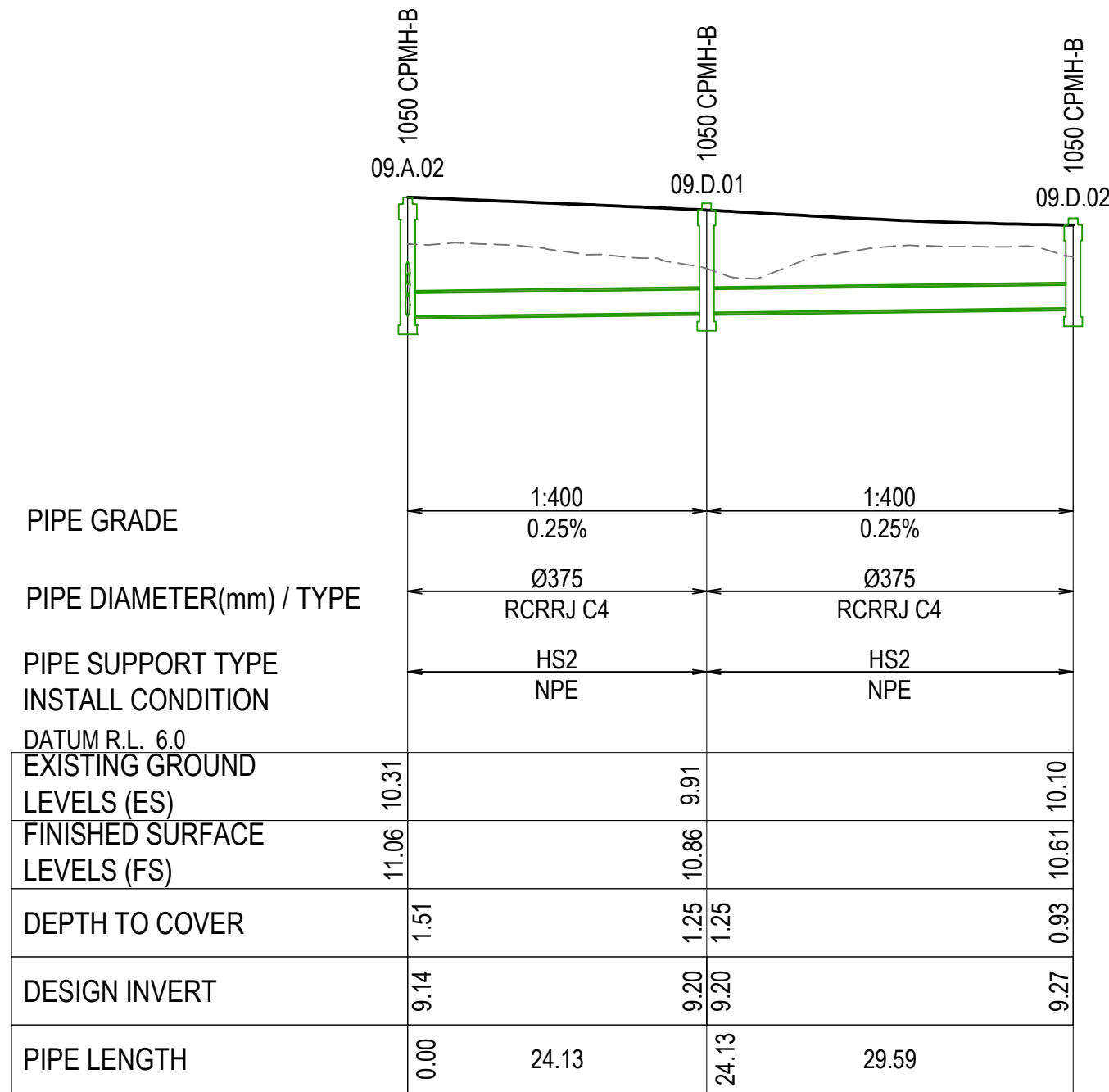
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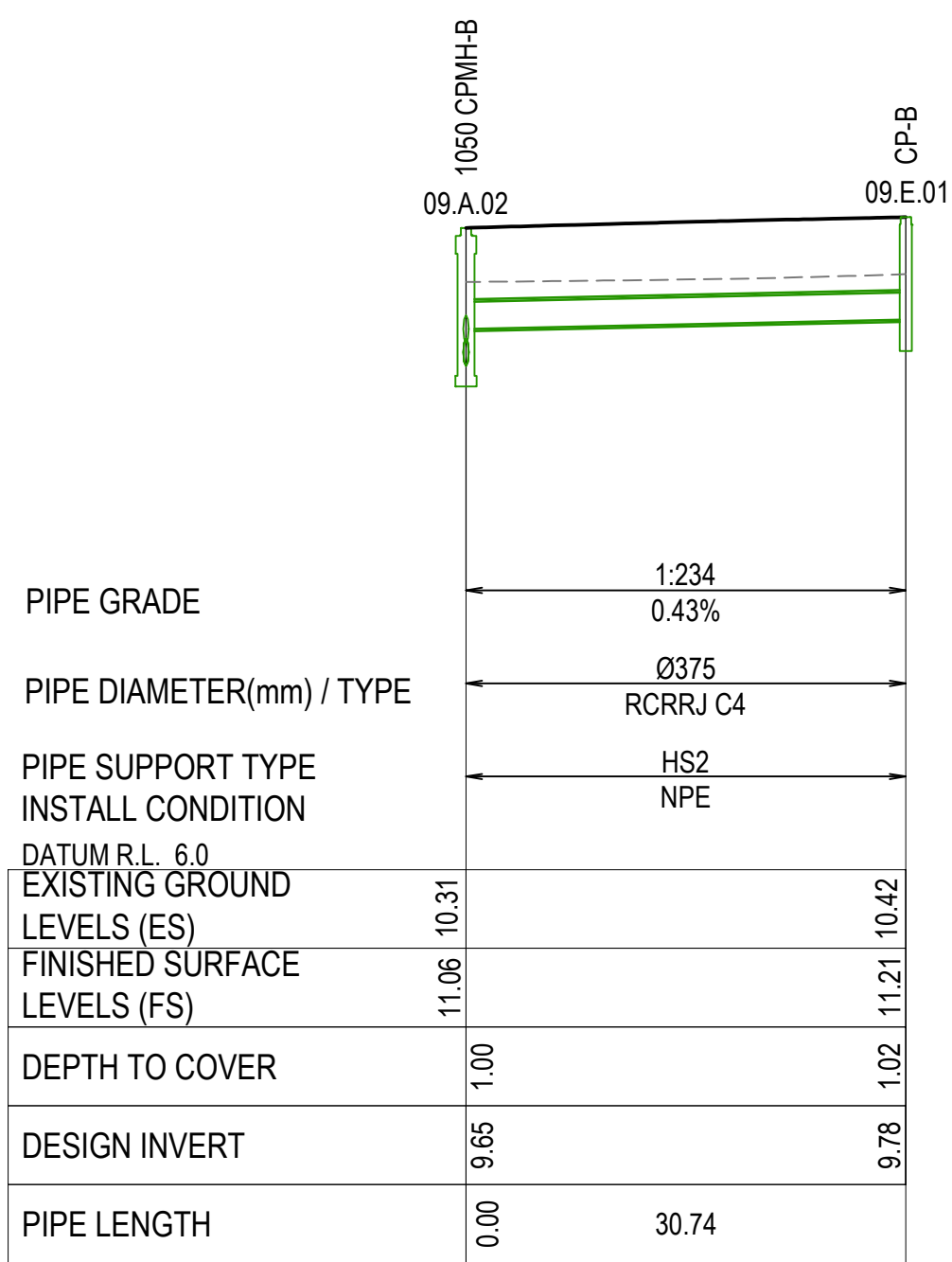
PIPELINE - 09.B
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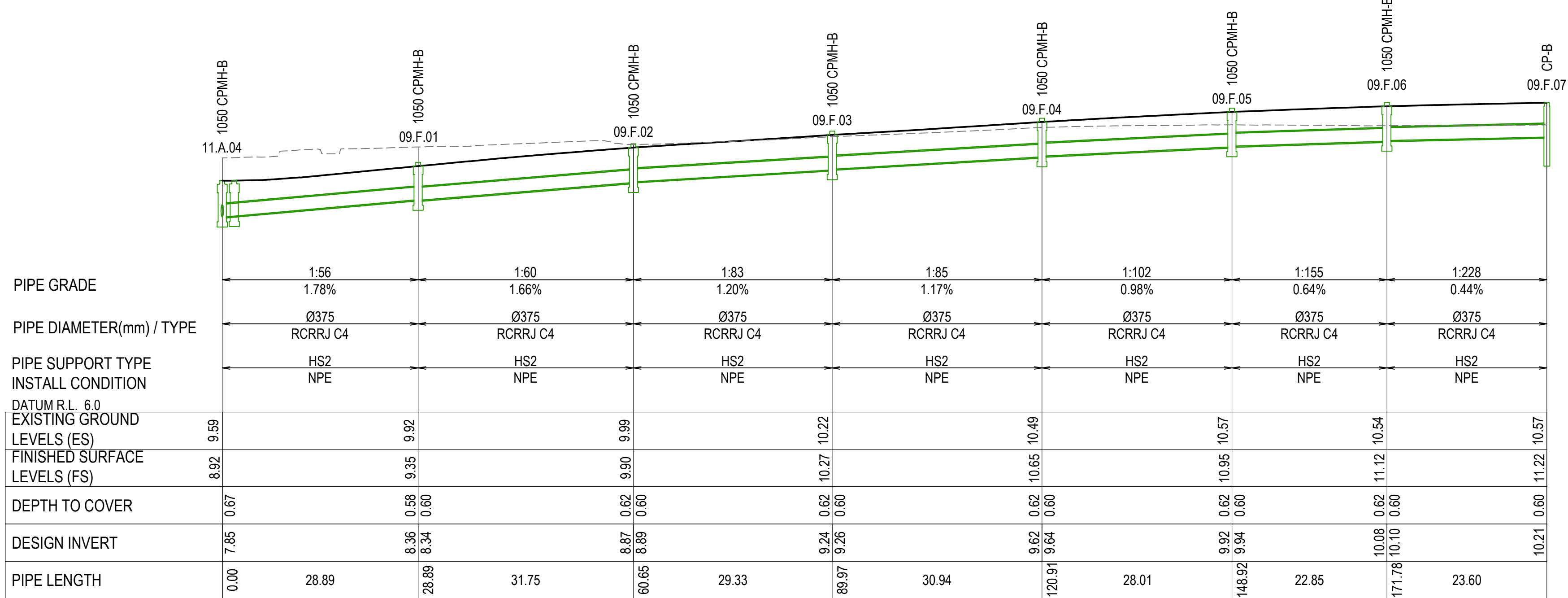
PIPELINE - 09.C
1:500H 1:100V



PIPELINE - 09.D
1:500H 1:100V



PIPELINE - 09.E.01
1:500H 1:100V



PIPELINE - 09.F
1:500H 1:100V

REV	DATE	REVISION DETAILS	REV	DRAWN	DESIGNED	VERIFIED	APPROVED
A	2025-09-17	ISSUED FOR 50% DETAILED DESIGN	A	C.LACAMBRA	Y.HOOI	W.HERBERT	M.FLANNERY
B	2025-12-12	ISSUED FOR 100% DETAILED DESIGN	B	C.LACAMBRA	Y.HOOI	W.HERBERT	M.FLANNERY

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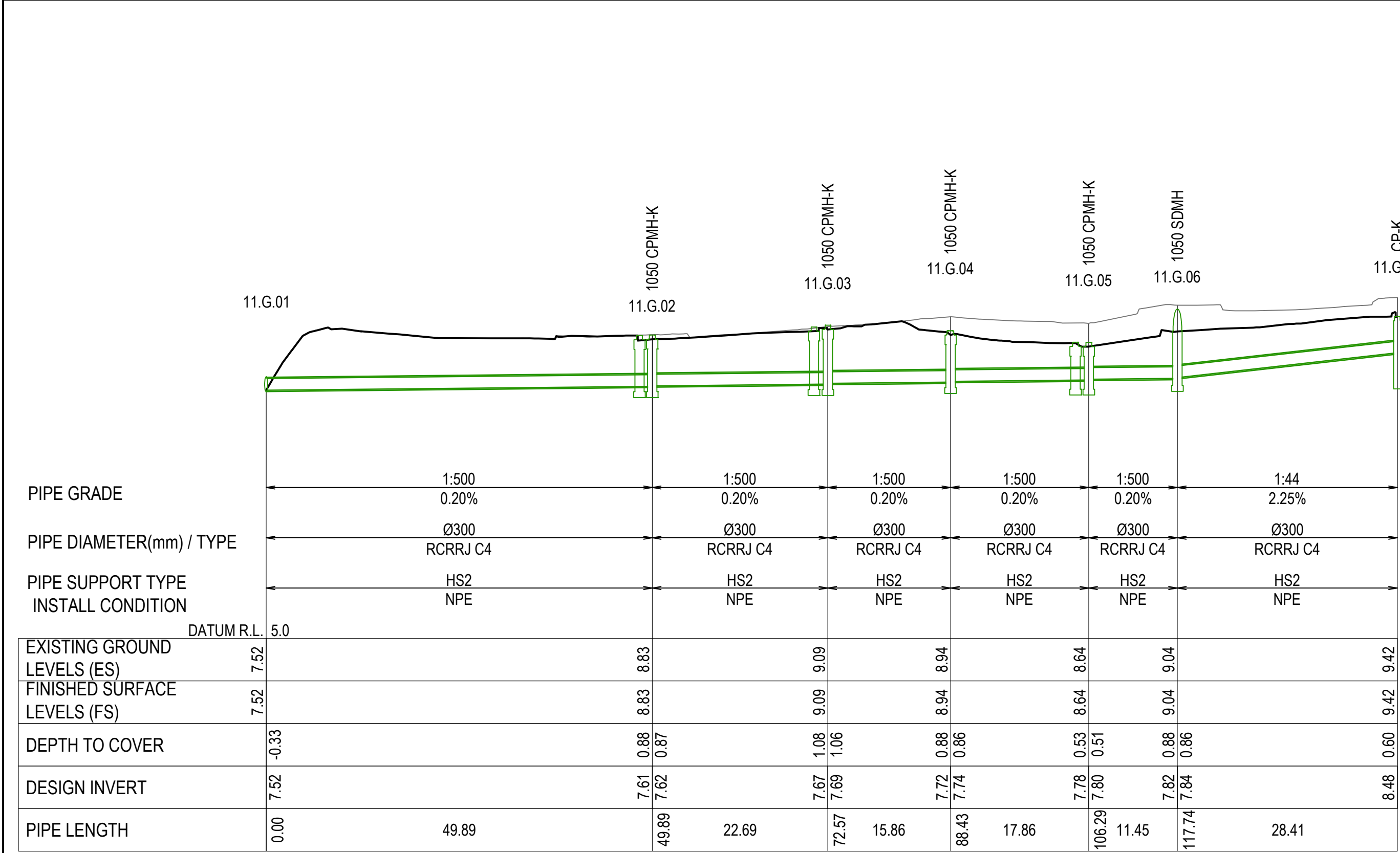
Coordinate system

Height datum

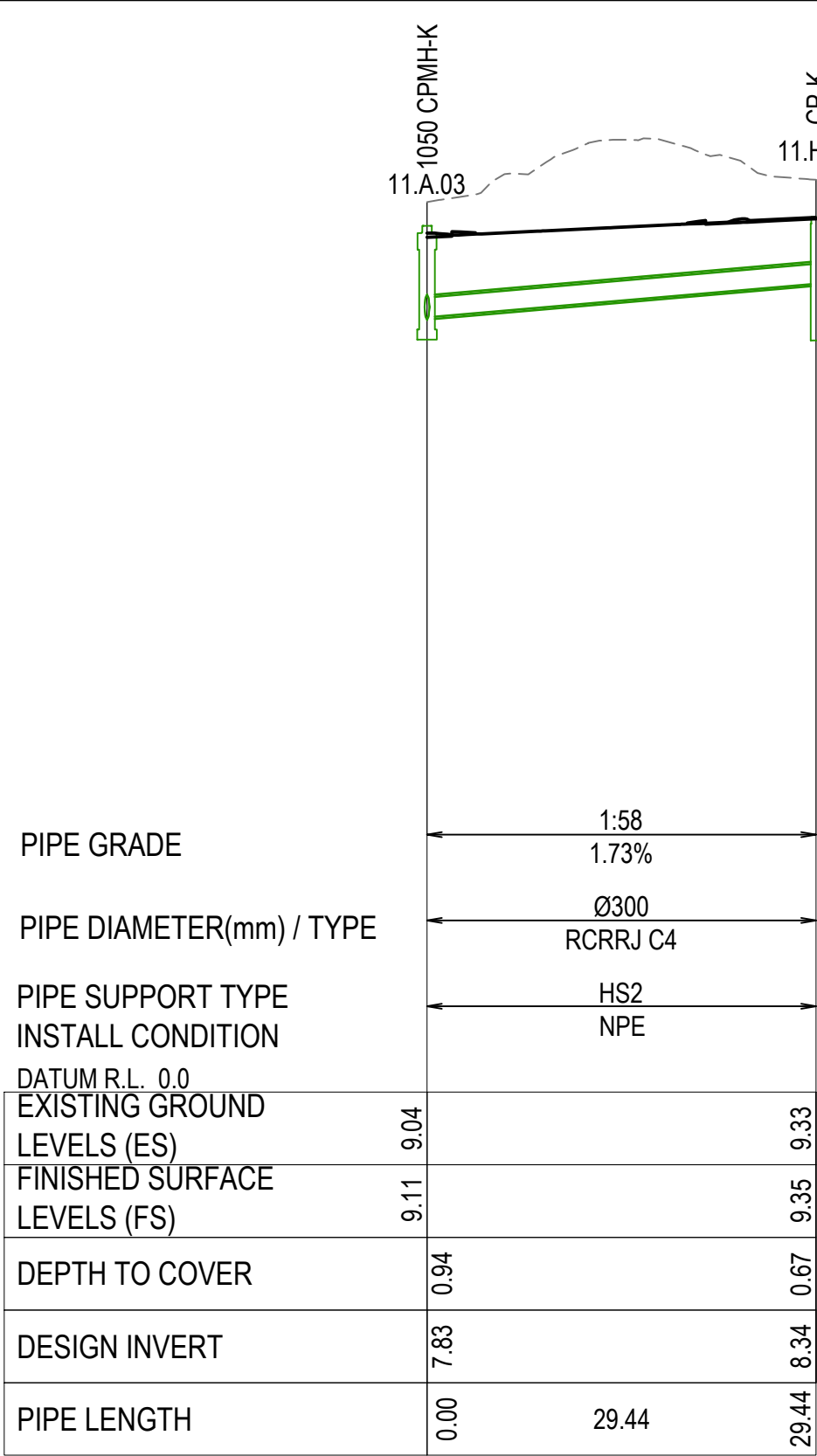
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IN COLOUR

CONSTRUCTION STATUS		PROJECT			
NOT FOR CONSTRUCTION		BELFAST TO PEGASUS MOTORWAY & WOODEND BYPASS			
DRAWN BY		TITLE			
C.LACAMBRA		STORMWATER LONGSECTION SHEET 10			
DESIGNED BY		DOCUMENT CODE			
Y.HOOI		11320-AUR-0350-PWI-SW-DRG-0510			
STATUS		CODE		SCALE	
ISSUED FOR DETAILED DESIGN		P3		AS SHOWN	
DOCUMENT STATE		SIZE		REFERENCE No.	
PUBLISHED		A1		SW-DRG-0510	
				REV	
				B	

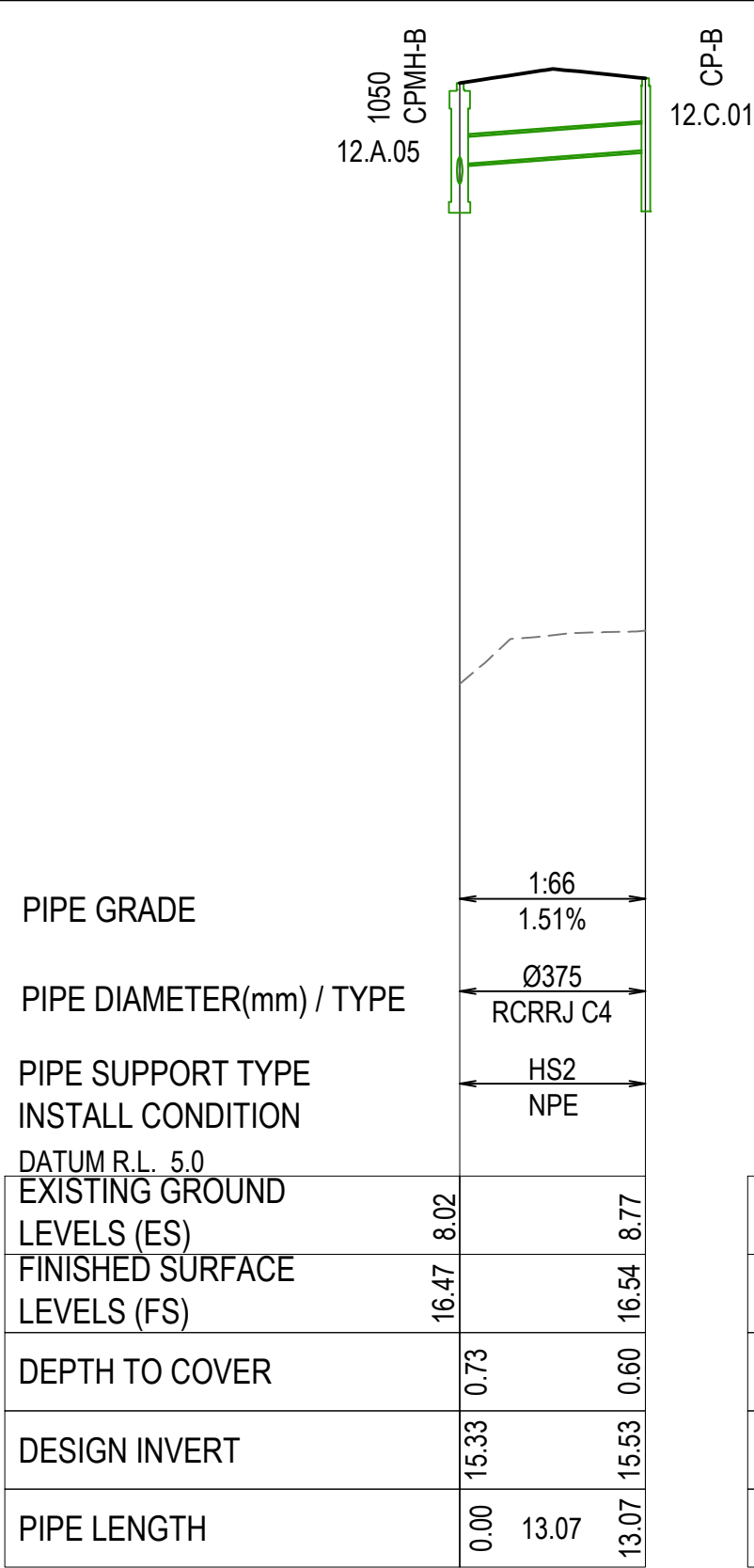
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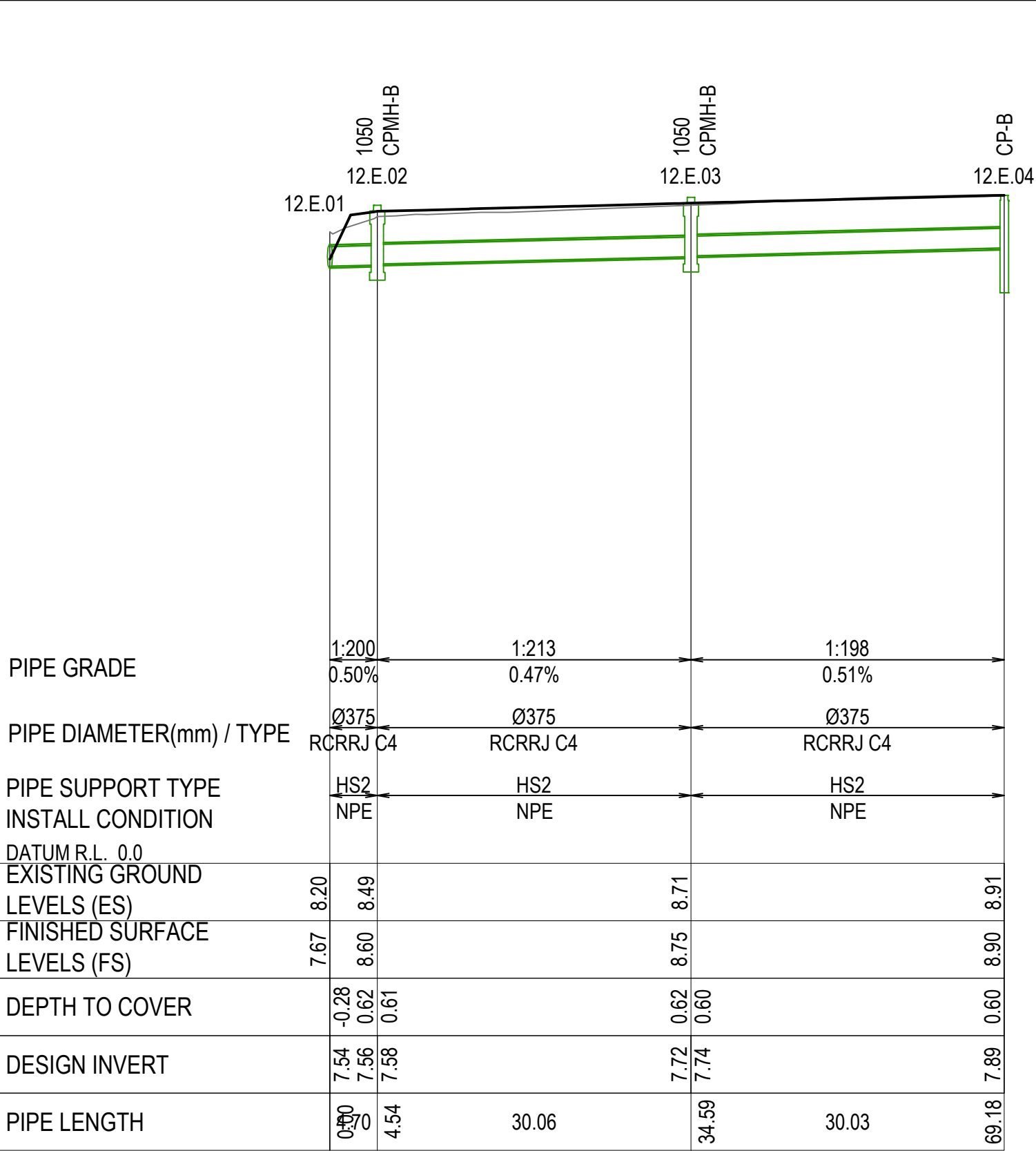
PIPELINE - 11.G
1:500H 1:100V



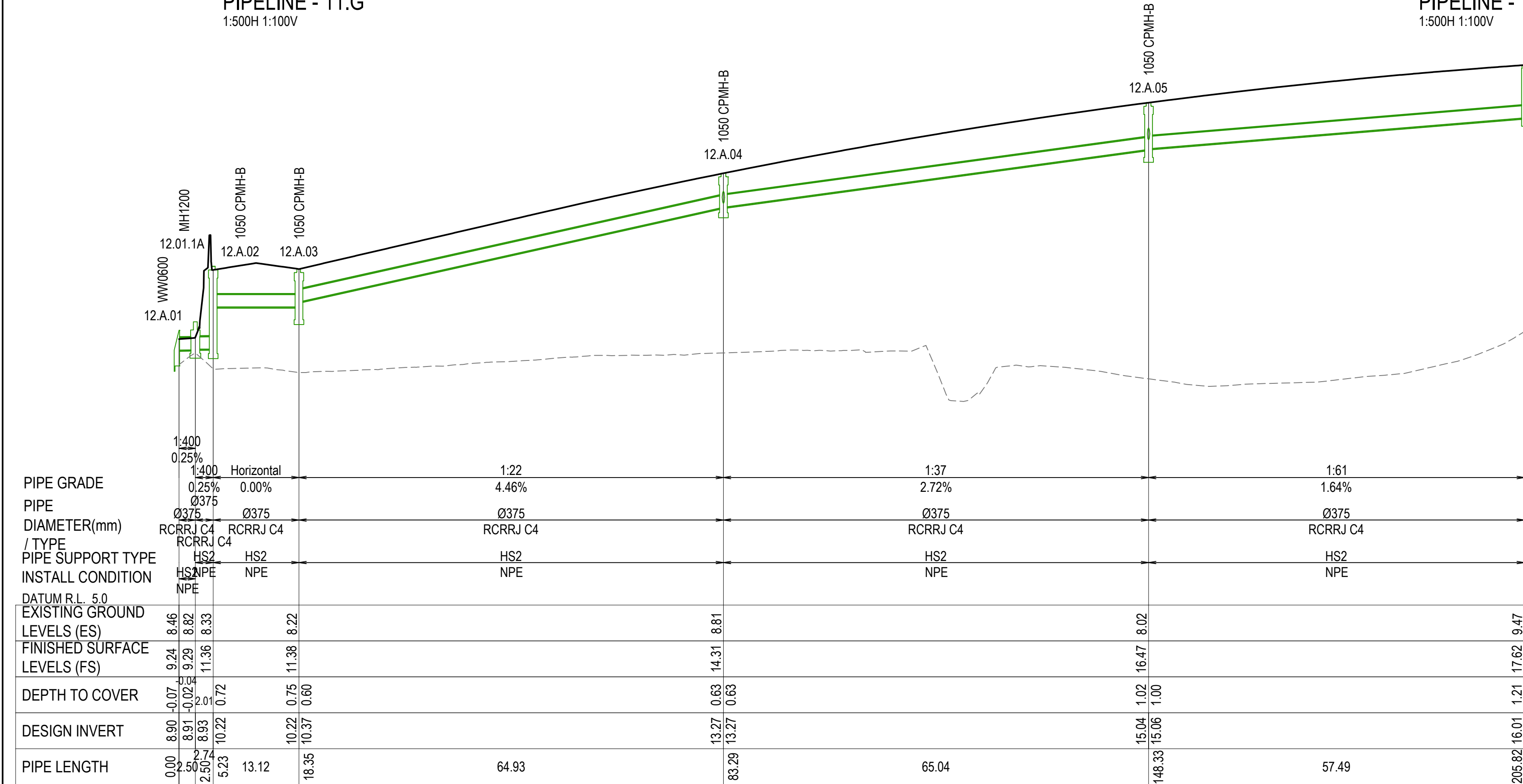
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1:500H 1:100V



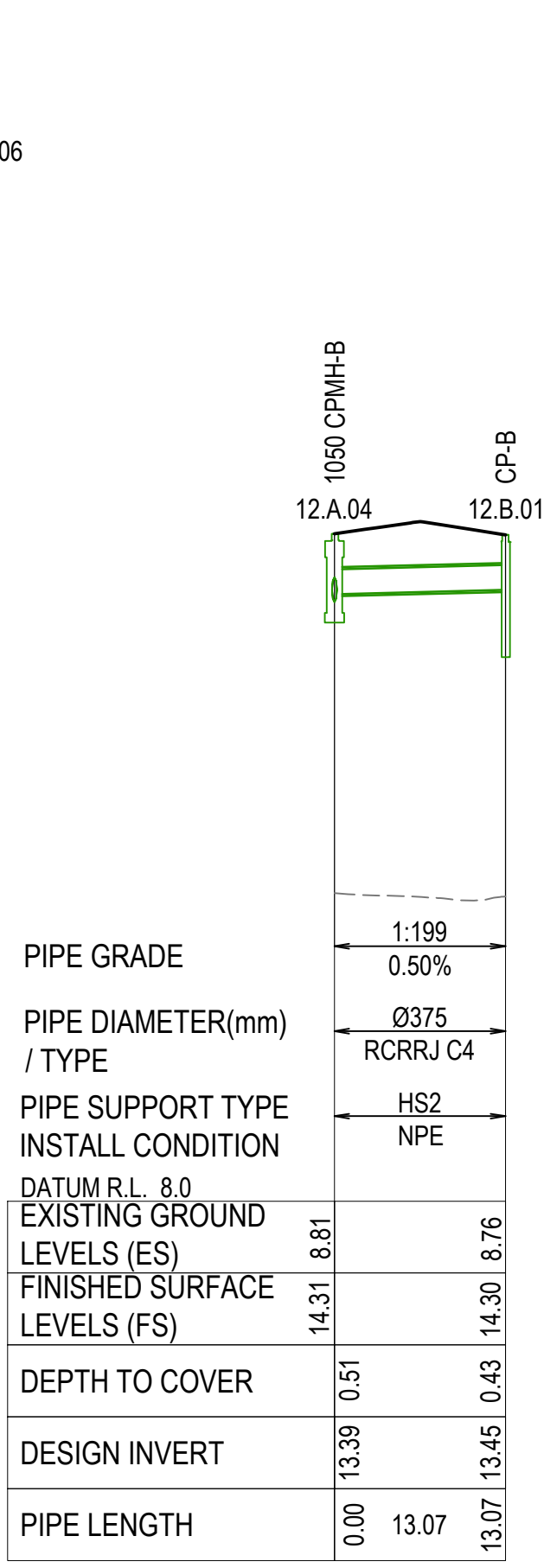
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1:500H 1:100V



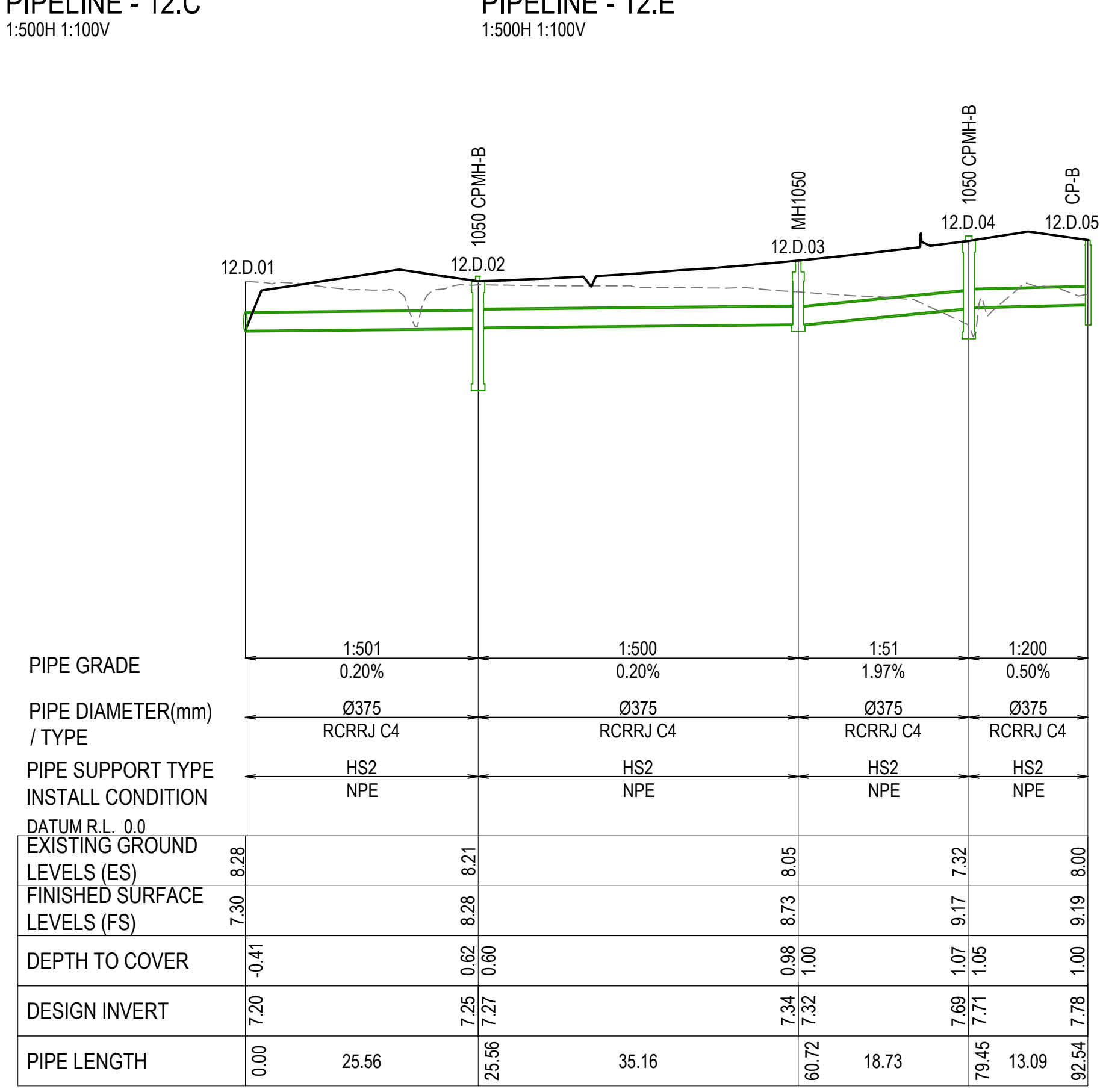
PIPELINE - 12.E
1:500H 1:100V



PIPELINE - 12.A
1:500H 1:100V



PIPELINE - 12.B
1:500H 1:100V



PIPELINE - 12.D
1:500H 1:100V

REV	DATE	REVISION DETAILS	REV	DRAWN	DESIGNED	VERIFIED	APPROVED
A	2025-09-17	ISSUED FOR 50% DETAILED DESIGN	A	C.LACAMBRA	Y.HOOI	W.HERBERT	M.FLANNERY
B	2025-12-12	ISSUED FOR 100% DETAILED DESIGN	B	C.LACAMBRA	Y.HOOI	W.HERBERT	M.FLANNERY

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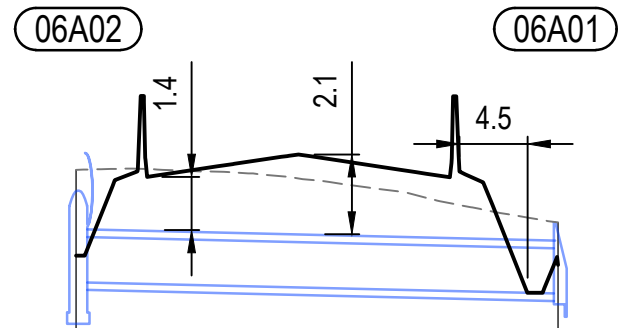
Coordinate system

Height datum

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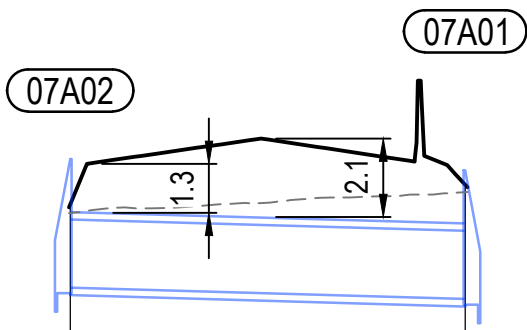
CONSTRUCTION STATUS		PROJECT			
NOT FOR CONSTRUCTION		BELFAST TO PEGASUS MOTORWAY & WOODEND BYPASS			
DRAWN BY		TITLE			
C.LACAMBRA		STORMWATER LONGSECTIONS SHEET 12			
DESIGNED BY		DOCUMENT CODE			
Y.HOOI		11320-AUR-0350-PWI-SW-DRG-0512			
STATUS	CODE	SCALE	SIZE	REFERENCE No.	REV
ISSUED FOR DETAILED DESIGN	P3	AS SHOWN	A1	SW-DRG-0512	B
DOCUMENT STATE					
PUBLISHED					

Plot Date: 2025-12-11 4:23 PM Filename: 11320-AUR-0350-PWI-SW-DRG-0551.DWG



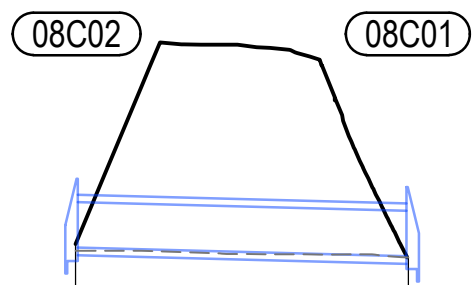
DATUM R.L.	0.0	
CULVERT GRADE	1:210	0.48%
CULVERT SIZE(mm) / TYPE	ØDN 600.00 RCRRJ C4	
EXISTING GROUND LEVELS (ES)	4.74	4.05
FINISHED SURFACE LEVELS (FS)	3.60	3.63
DEPTH TO COVER	-0.35	-0.27
DESIGN INVERT	3.25	3.10
CULVERT CHAINAGE	0.00 31.55	31.55

PIPELINE - DES CULVERT 06.A
1:500H 1:100V



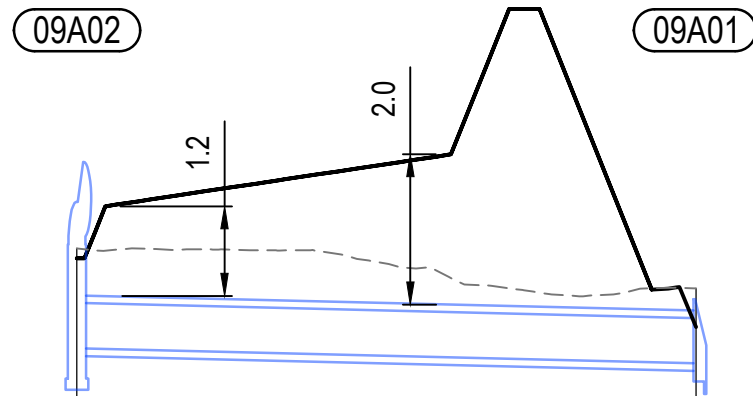
DATUM R.L.	-5.0	
CULVERT GRADE	1:174	0.57%
CULVERT SIZE(mm) / TYPE	TWIN ØDN 900.00 RCRRJ C4	
EXISTING GROUND LEVELS (ES)	3.64	3.91
FINISHED SURFACE LEVELS (FS)	3.75	4.01
DEPTH TO COVER	0.10	0.51
DESIGN INVERT	2.65	2.50
CULVERT CHAINAGE	0.00 26.12	26.12

PIPELINE - DES CULVERT 07.A
1:500H 1:100V



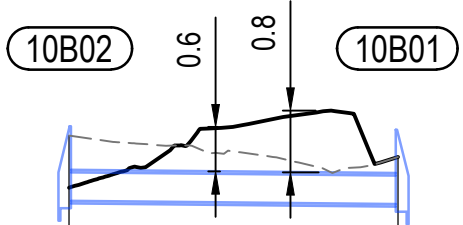
DATUM R.L.	-5.0	
CULVERT GRADE	1:189	0.53%
CULVERT SIZE(mm) / TYPE	ØDN 600.00 RCRRJ C4	
EXISTING GROUND LEVELS (ES)	3.73	3.64
FINISHED SURFACE LEVELS (FS)	3.86	3.70
DEPTH TO COVER	-0.61	-0.40
DESIGN INVERT	3.78	3.66
CULVERT CHAINAGE	0.00 21.89	21.89

PIPELINE - DES CULVERT 08.C
1:500H 1:100V



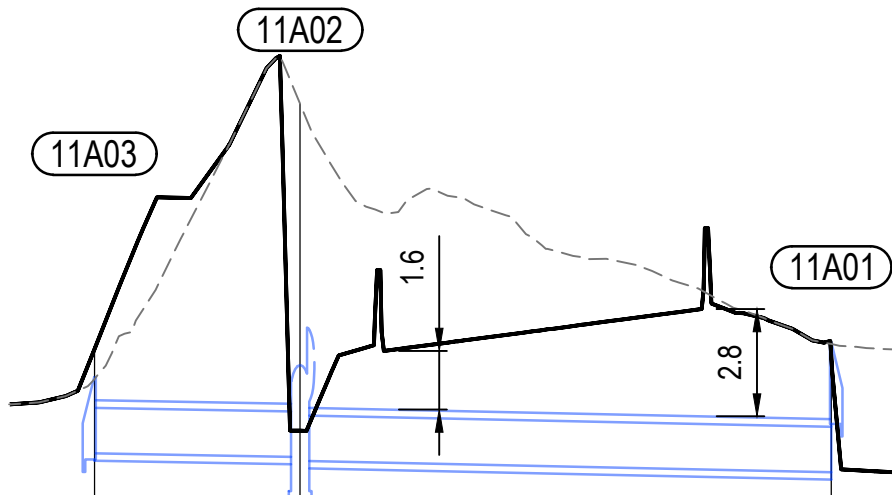
DATUM R.L.	3.0	
CULVERT GRADE	1:204	0.49%
CULVERT SIZE(mm) / TYPE	ØDN 600.00 RCRRJ C4	
EXISTING GROUND LEVELS (ES)	6.02	5.49
FINISHED SURFACE LEVELS (FS)	5.89	5.02
DEPTH TO COVER	0.49	-0.18
DESIGN INVERT	4.70	4.50
CULVERT CHAINAGE	0.00 40.86	40.86

PIPELINE - DES CULVERT 09.A
1:500H 1:100V



DATUM R.L.	0.0	
CULVERT GRADE	1:500	0.20%
CULVERT SIZE(mm) / TYPE	Ø375 RCRRJ C4	
EXISTING GROUND LEVELS (ES)	7.12	6.83
FINISHED SURFACE LEVELS (FS)	6.43	6.83
DEPTH TO COVER	-0.23	0.21
DESIGN INVERT	6.25	6.21
CULVERT CHAINAGE	0.00 21.66	21.66

PIPELINE - DES CULVERT 10.B
1:500H 1:100V



DATUM R.L. 0.0				
CULVERT GRADE		1:272 0.37%	1:234 0.43%	
CULVERT SIZE(mm) / TYPE		ØDN 600.00 RCRRJ C4	ØDN 600.00 RCRRJ C4	
EXISTING GROUND LEVELS (ES)	6.98	10.62		7.44
FINISHED SURFACE LEVELS (FS)	7.38	6.30		7.28
DEPTH TO COVER	0.68	-0.35 -0.30		0.83
DESIGN INVERT	6.00	5.95 5.90		5.75
CULVERT CHAINAGE	0.00 13.61	13.60 35.12		48.73

PIPELINE - DES CULVERT 11.A
1:500H 1:100V

REV	DATE	REVISION DETAILS	REV	DRAWN	DESIGNED	VERIFIED	APPROVED
A	2025-09-17	ISSUED FOR 50% DETAILED DESIGN	A	C.LACAMBRA	Y.HOOI	W.HERBERT	M.FLANNERY
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Significance

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take precedence over
scaled dimensions.

Coordinate system

Height datum

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CONSTRUCTION STATUS

NOT FOR
CONSTRUCTION

DRAWN BY

C.LACAMBRA

DESIGNED BY

Y.HOOI

STATUS

ISSUED FOR DETAILED
DESIGN

DOCUMENT STATE

PUBLISHED

PROJECT

BELFAST TO PEGASUS MOTORWAY
& WOODEND BYPASS

TITLE

STORMWATER
CULVERT LONGSECTIONS
SHEET 1

DOCUMENT CODE

11320-AUR-0350-PWI-SW-DRG-0551

SCALE

AS SHOWN

SIZE

A1

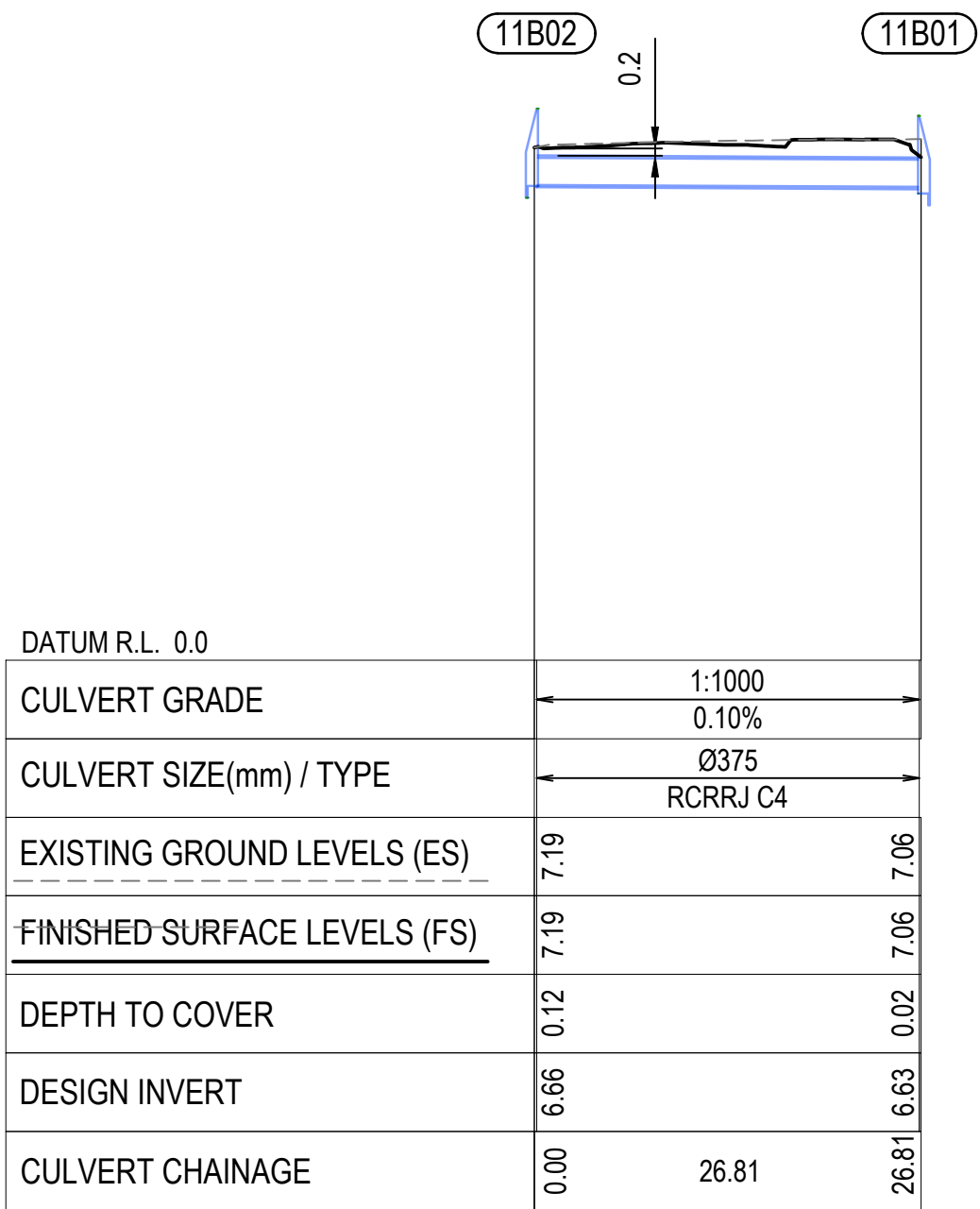
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SW-DRG-0551

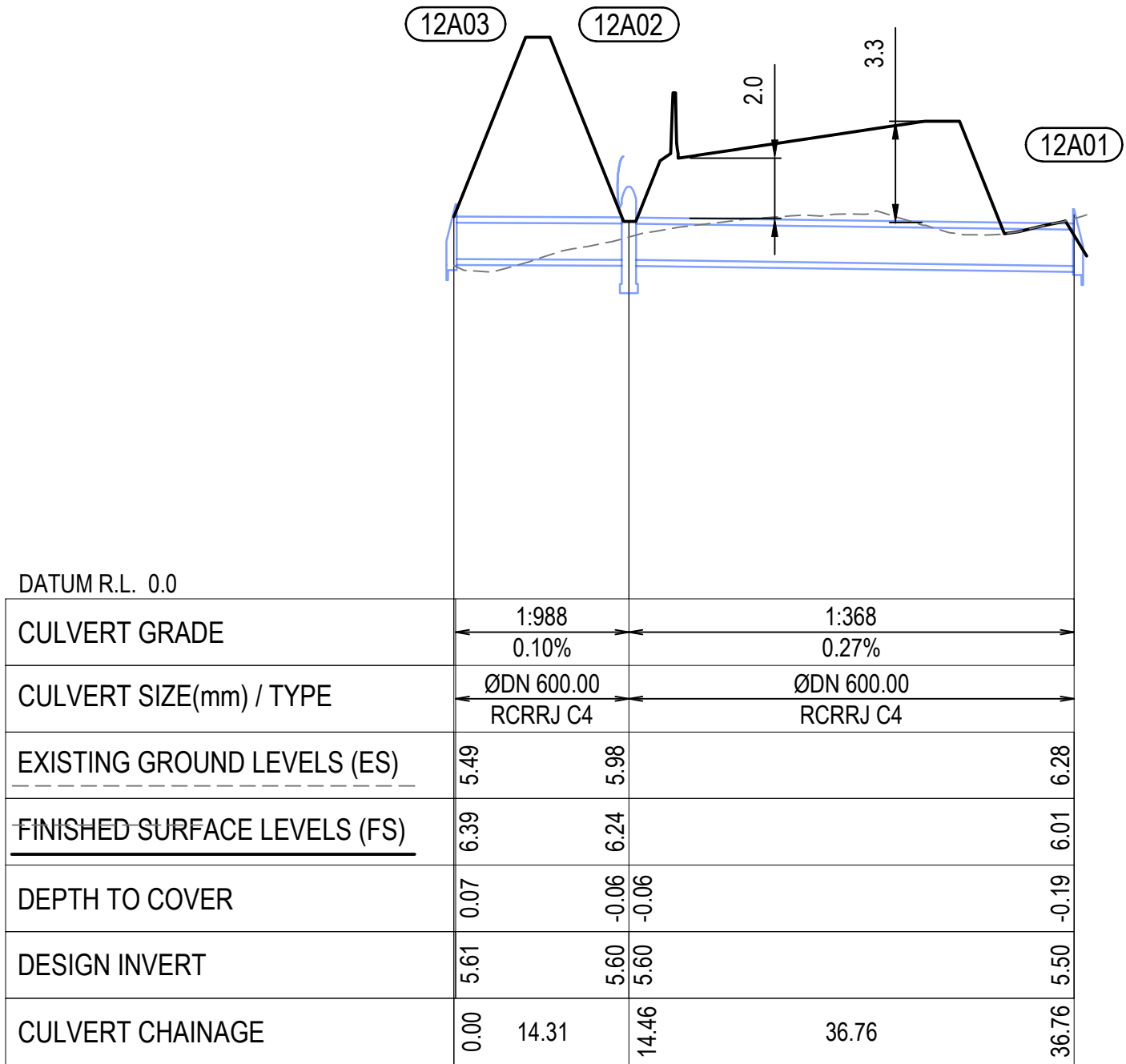
REV

B

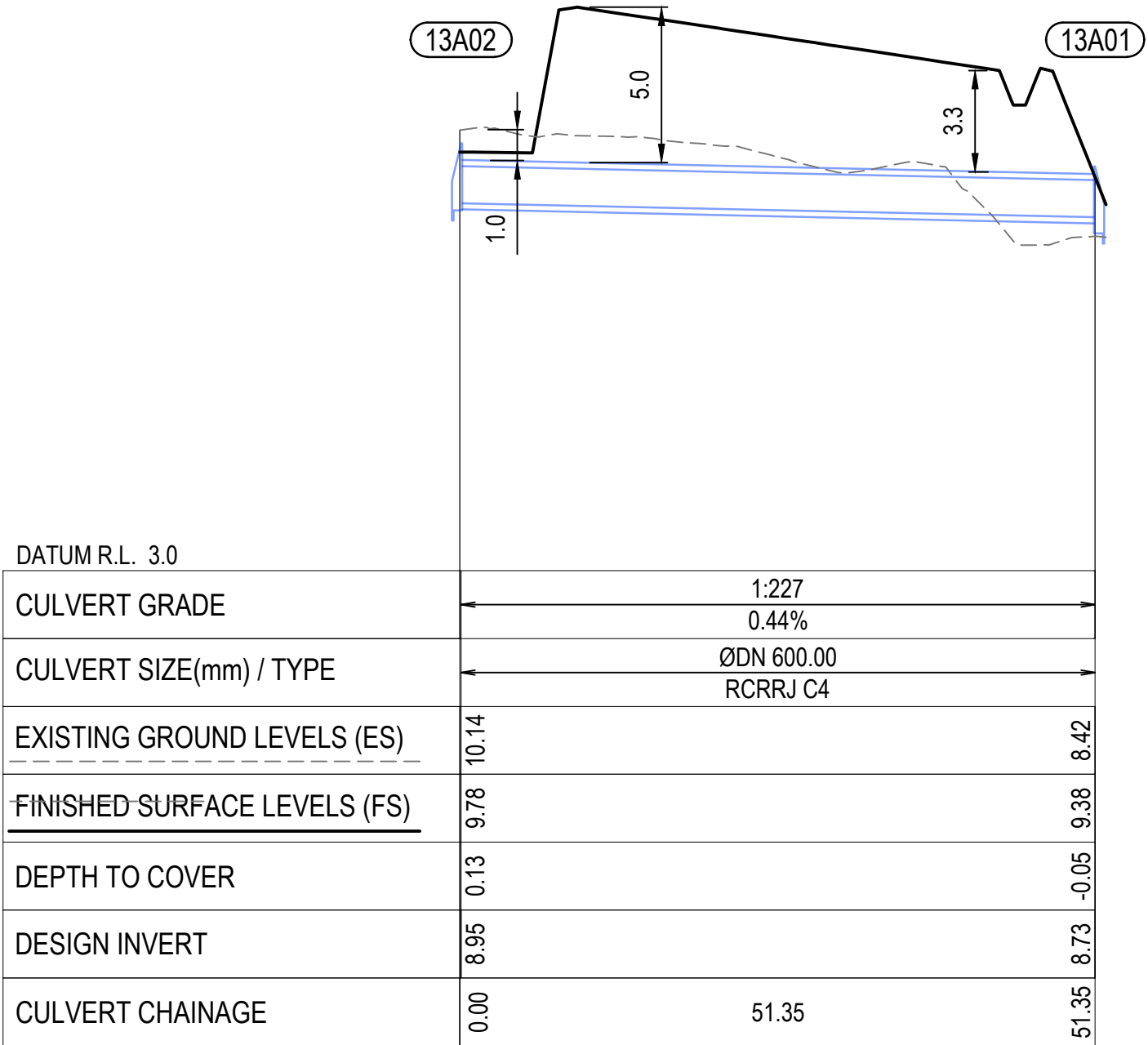
Plot Date: 2025-12-11 4:23 PM Filename: 11320-AUR-0350-PWI-SW-DRG-0552.DWG



PIPELINE - DES CULVERT 11.B
1:500H 1:100V



PIPELINE - DES CULVERT 12.A
1:500H 1:100V



PIPELINE - DES CULVERT 13.A
1:500H 1:100V

REV	DATE	REVISION DETAILS	REV	DRAWN	DESIGNED	VERIFIED	APPROVED
A	2025-09-17	ISSUED FOR 50% DETAILED DESIGN	A	C.LACAMBRA	Y.HOOI	W.HERBERT	M.FLANNERY
B	2025-12-12	ISSUED FOR 100% DETAILED DESIGN	B	C.LACAMBRA	Y.HOOI	W.HERBERT	M.FLANNERY

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Coordinate system

Height datum

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CONSTRUCTION STATUS
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CONSTRUCTION**

DRAWN BY
C.LACAMBRA

DESIGNED BY
Y.HOOI

STATUS
ISSUED FOR DETAILED
DESIGN

DOCUMENT STATE
PUBLISHED

PROJECT
BELFAST TO PEGASUS MOTORWAY
& WOODEND BYPASS

TITLE
STORMWATER
CULVERT LONGSECTIONS
SHEET 2

DOCUMENT CODE
11320-AUR-0350-PWI-SW-DRG-0552

SCALE	SIZE	REFERENCE No.	REV
AS SHOWN	A1	SW-DRG-0552	B

LEGEND

EXISTING DESIGNATION

PROPOSED DESIGNATION

EXISTING PROPERTY BOUNDARY

PROPOSED RETAINING WALL

PROPOSED NOISE WALL

PROPOSED SINGLE SIDED TL-5 CONCRETE BARRIER

PROPOSED TL4 DOUBLE SIDED TL-5 HT

CONCRETE BARRIER

PROPOSED CULVERTS

PROPOSED STORMWATER PIPE

PROPOSED CATCHPIT

PROPOSED DOUBLE CATCHPIT

PROPOSED CATCHPIT MANHOLE

PROPOSED MANHOLE

PROPOSED STORMWATER SCRUFFY DOME

PROPOSED CULVERT SCRUFFY DOME

PROPOSED HEADWALL

PROPOSED DIVERSION CHANNEL

PROPOSED CUTOFF DRAIN

PROPOSED TREATMENT SWALE

PROPOSED STORMWATER TREATMENT / ATTENUATION DEVICES

VERTICAL KERB

VERTICAL KERB & CHANNEL

MOUNTABLE KERB AND CHANNEL

MOUNTABLE KERB

NOTE:

1. FOR GENERAL NOTES AND LEGEND, REFER TO DRAWING No. 11320-AUR-350-PWI-SW-DRG-0011.

WILLIAMS ST BASIN - FOREBAY	
TREATMENT VOLUME	= 82.49m³
BASE AREA	= 49.24m²
BASE ELEVATION	= 2.50m

WILLIAMS ST BASIN - BIORETENTION BASIN	
STORAGE VOLUME	= 437.21m³
BASE AREA	= 480.72m²
BASE ELEVATION	= 2.50m
DEPTH (FROM WEIR LEVEL)	= 0.50m
SCRUFFY DOME LEVEL	= 3.00m
GROUNDWATER LEVEL (ASSUMED 85 PCT)	= 2.40m

REV	DATE	REVISION DETAILS	REV	DRAWN	DESIGNED	VERIFIED	APPROVED
A	2025-09-17	ISSUED FOR 50% DETAILED DESIGN	A	C.LACAMBRA	Y.HOOI	W.HERBERT	M.FLANNERY
B	2025-12-12	ISSUED FOR 100% DETAILED DESIGN	B	C.LACAMBRA	Y.HOOI	W.HERBERT	M.FLANNERY

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Coordinate system

Height datum

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CONSTRUCTION STATUS		PROJECT			
NOT FOR CONSTRUCTION		BELFAST TO PEGASUS MOTORWAY & WOODEND BYPASS			
DRAWN BY C.LACAMBRA		TITLE STORMWATER BASIN PLAN AND LONGSECTION SHEET 1			
DESIGNED BY Y.HOOI		DOCUMENT CODE 11320-AUR-0350-PWI-SW-DRG-0601			
STATUS ISSUED FOR DETAILED DESIGN		CODE P3		SCALE 1:250	
DOCUMENT STATE PUBLISHED		SIZE A1		REFERENCE No. SW-DRG-0601	
				REV B	

LEGEND

EXISTING DESIGNATION

PROPOSED DESIGNATION

EXISTING PROPERTY BOUNDARY

PROPOSED RETAINING WALL

PROPOSED NOISE WALL

PROPOSED SINGLE SIDED TL-5 CONCRETE BARRIER

PROPOSED TL4 DOUBLE SIDED TL-5 HT CONCRETE BARRIER

PROPOSED CULVERTS

PROPOSED STORMWATER PIPE

PROPOSED CATCHPIT

PROPOSED DOUBLE CATCHPIT

PROPOSED CATCHPIT MANHOLE

PROPOSED MANHOLE

PROPOSED STORMWATER SCRUFFY DOME

PROPOSED CULVERT SCRUFFY DOME

PROPOSED HEADWALL

PROPOSED DIVERSION CHANNEL

PROPOSED CUTOFF DRAIN

PROPOSED TREATMENT SWALE

PROPOSED STORMWATER TREATMENT / ATTENUATION DEVICES

VERTICAL KERB

VERTICAL KERB & CHANNEL

MOUNTABLE KERB AND CHANNEL

MOUNTABLE KERB

NOTE:

1. FOR GENERAL NOTES AND LEGEND, REFER TO DRAWING No. 11320-AUR-350-PWI-SW-DRG-0011.

PLAN - QUARRY LAKE 1 BASIN
1:250

SECTION A
1:250
QUARRY LAKE 1 BASIN

COMBINED QUARRY LAKES BASIN 1 - 2x BIOINFILTRATION BASIN	
TREATMENT VOLUME	= 666.64m³
BASE AREA	= 921.70m²
BASE ELEVATION	= 2.90m
DEPTH (FROM SPILLWAY LEVEL)	= 0.50m
SPILLWAY LEVEL	= 3.40mRL
GROUNDWATER LEVEL (85PCT FORM T&T)	= 0.65mRL

SEE CONTINUATION ABOVE

SEE CONTINUATION BELOW

REV	DATE	REVISION DETAILS	REV	DRAWN	DESIGNED	VERIFIED	APPROVED
A	2025-09-17	ISSUED FOR 50% DETAILED DESIGN	A	C.LACAMBRA	Y.HOOI	W.HERBERT	M.FLANNERY
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Height datum

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CONSTRUCTION STATUS
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DRAWN BY
C.LACAMBRA

DESIGNED BY
Y.HOOI

STATUS
ISSUED FOR DETAILED DESIGN

CODE
P3

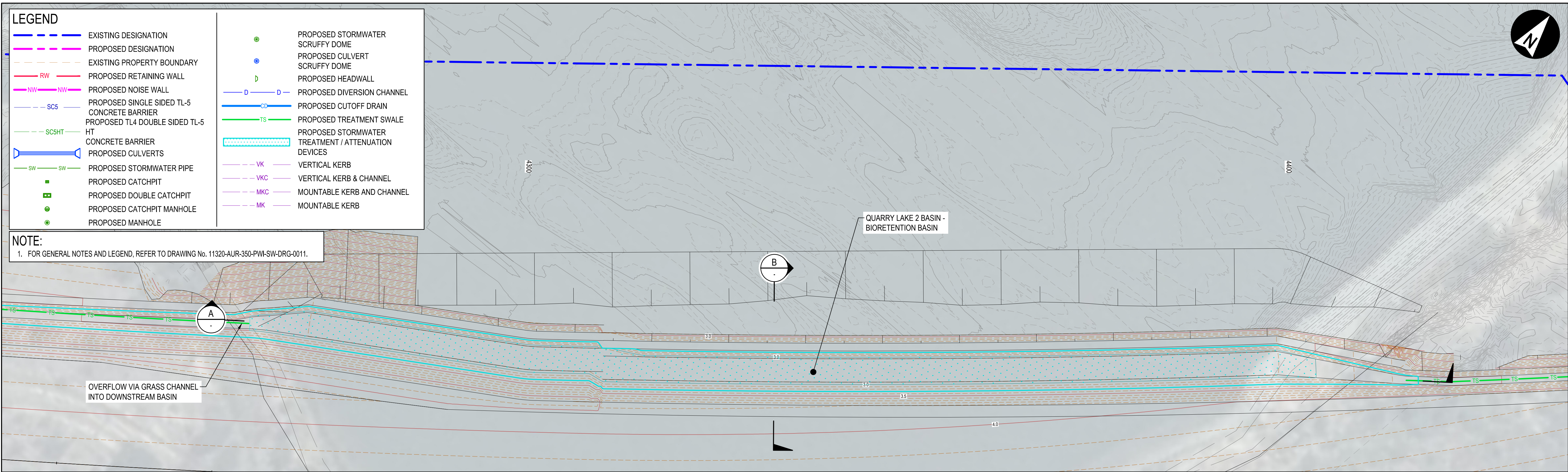
DOCUMENT STATE
PUBLISHED

PROJECT
BELFAST TO PEGASUS MOTORWAY & WOODEND BYPASS

TITLE
STORMWATER
BASIN PLAN AND LONGSECTION
SHEET 2

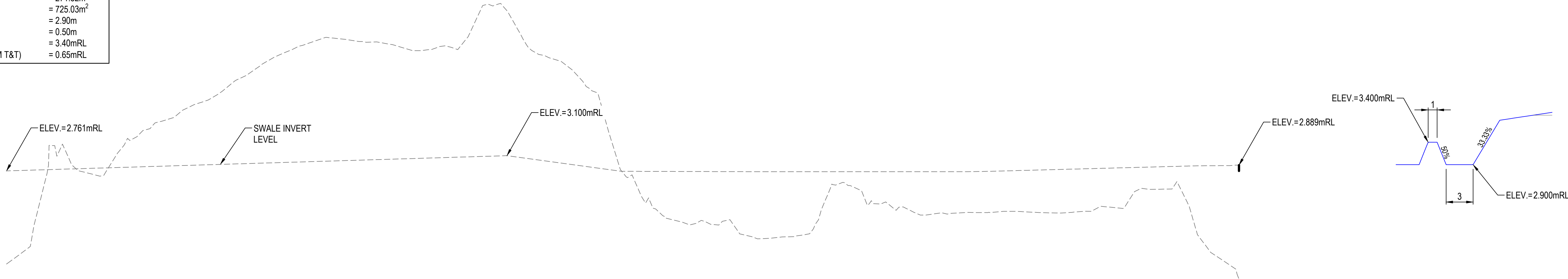
DOCUMENT CODE
11320-AUR-0350-PWI-SW-DRG-0602

SCALE	SIZE	REFERENCE No.	REV
1:1000	A1	SW-DRG-0602	B



PLAN - QUARRY LAKE 2 BASIN
1:250

QUARRY LAKES BASIN 2 - BIOINFILTRATION BASIN	
TREATMENT VOLUME	= 271.82m ³
BASE AREA	= 725.03m ²
BASE ELEVATION	= 2.90m
DEPTH (FROM SPILLWAY LEVEL)	= 0.50m
SPILLWAY LEVEL	= 3.40mRL
GROUNDWATER LEVEL (85PCT FORM T&T)	= 0.65mRL



SECTION A
1:250
QUARRY LAKE 2 BASIN TO QUARRY LAKE 1 BASIN

SECTION B
1:250
QUARRY LAKE 2 BASIN

REV	DATE	REVISION DETAILS	REV	DRAWN	DESIGNED	VERIFIED	APPROVED
A	2025-09-17	ISSUED FOR 50% FOR DETAILED DESIGN	A	C.LACAMBRA	Y.HOOI	W.HERBERT	M.FLANNERY
B	2025-12-12	ISSUED FOR 100% FOR DETAILED DESIGN	B	C.LACAMBRA	Y.HOOI	W.HERBERT	M.FLANNERY

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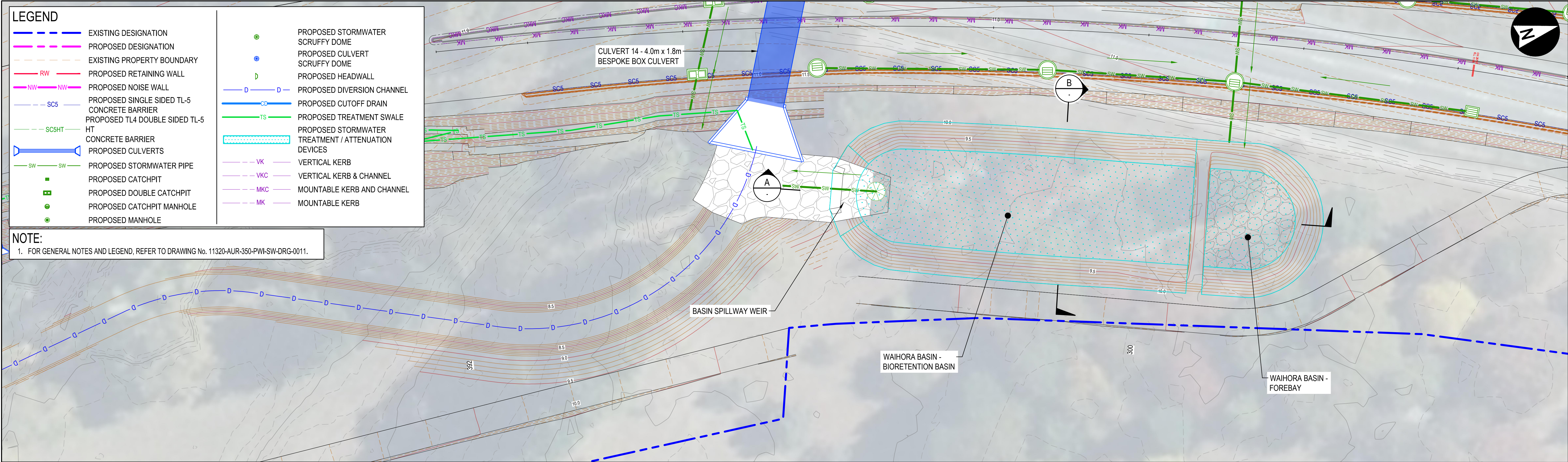
Coordinate system

Height datum

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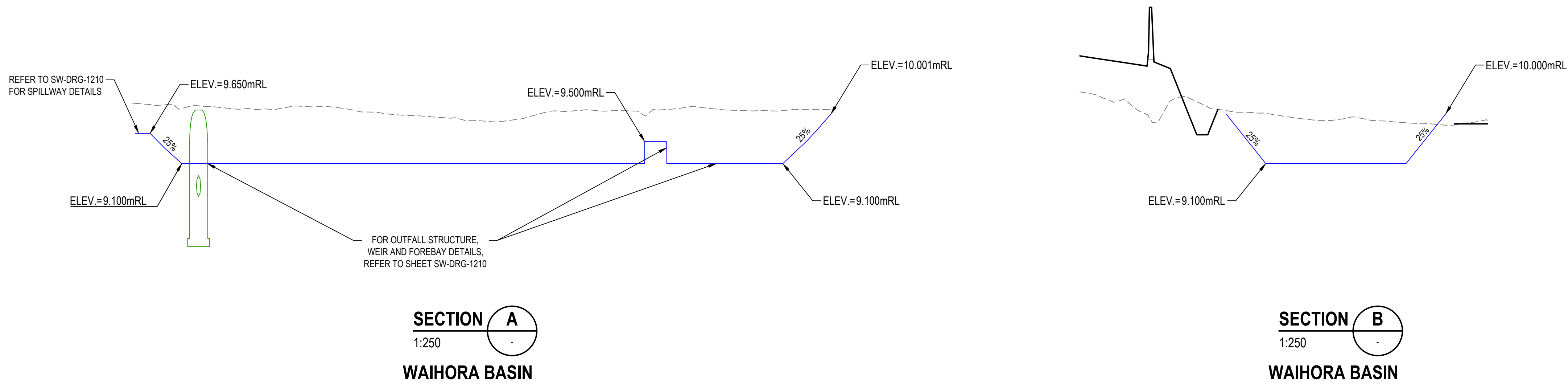
CONSTRUCTION STATUS	
NOT FOR CONSTRUCTION	
DRAWN BY	C.LACAMBRA
DESIGNED BY	Y.HOOI
STATUS	ISSUED FOR DETAILED DESIGN
CODE	P3
DOCUMENT STATE	PUBLISHED

PROJECT			
BELFAST TO PEGASUS MOTORWAY & WOODEND BYPASS			
TITLE			
STORMWATER BASIN PLAN AND LONGSECTION SHEET 3			
DOCUMENT CODE			
11320-AUR-0350-PWI-SW-DRG-0603			
SCALE	SIZE	REFERENCE No.	REV
1:1000	A1	SW-DRG-0603	B



PLAN - WAIHORA BASIN

1:250



WAIHORA BASIN - BIOINFILTRATION BASIN	
TREATMENT VOLUME	= 239.12m ³
BASE AREA	= 526.70m ²
BASE ELEVATION	= 9.10mRL
DEPTH	= 0.40m
SCRUFFYDOME LEVEL	= 9.50mRL
SPILLWAY LEVEL	= 9.65mRL
GROUNDWATER LEVEL (WAIHORA STREAM IL+200mm)	= 8.50mRL
WAIHORA BASIN - FOREBAY	
STORAGE VOLUME	= 58.70m ³
BASE AREA	= 127.15m ²
BASE ELEVATION	= 9.10mRL
DEPTH	= 0.40m
GROUNDWATER LEVEL (WAIHORA STREAM IL+200mm)	= 8.50mRL

Plot Date: 2025-12-11 4:25 PM Filename: 11320-AUR-0350-PWI-SW-DRG-0604.DWG

REV	DATE	REVISION DETAILS	REV	DRAWN	DESIGNED	VERIFIED	APPROVED
A	2025-09-17	ISSUED FOR 50% DETAILED DESIGN	A	C.LACAMBRA	Y.HOOI	W.HERBERT	M.FLANNERY
B	2025-12-12	ISSUED FOR 100% DETAILED DESIGN	B	C.LACAMBRA	Y.HOOI	W.HERBERT	M.FLANNERY

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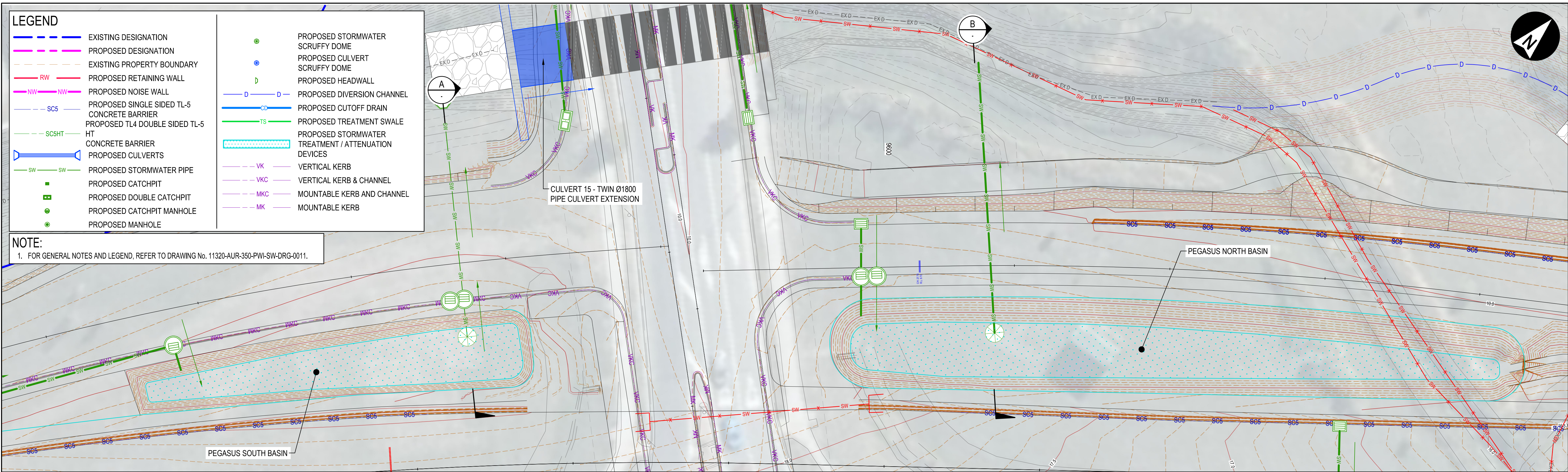
Coordinate system

Height datum

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CONSTRUCTION STATUS	
NOT FOR CONSTRUCTION	
DRAWN BY	C.LACAMBRA
DESIGNED BY	Y.HOOI
STATUS	ISSUED FOR DETAILED DESIGN
DOCUMENT STATE	PUBLISHED

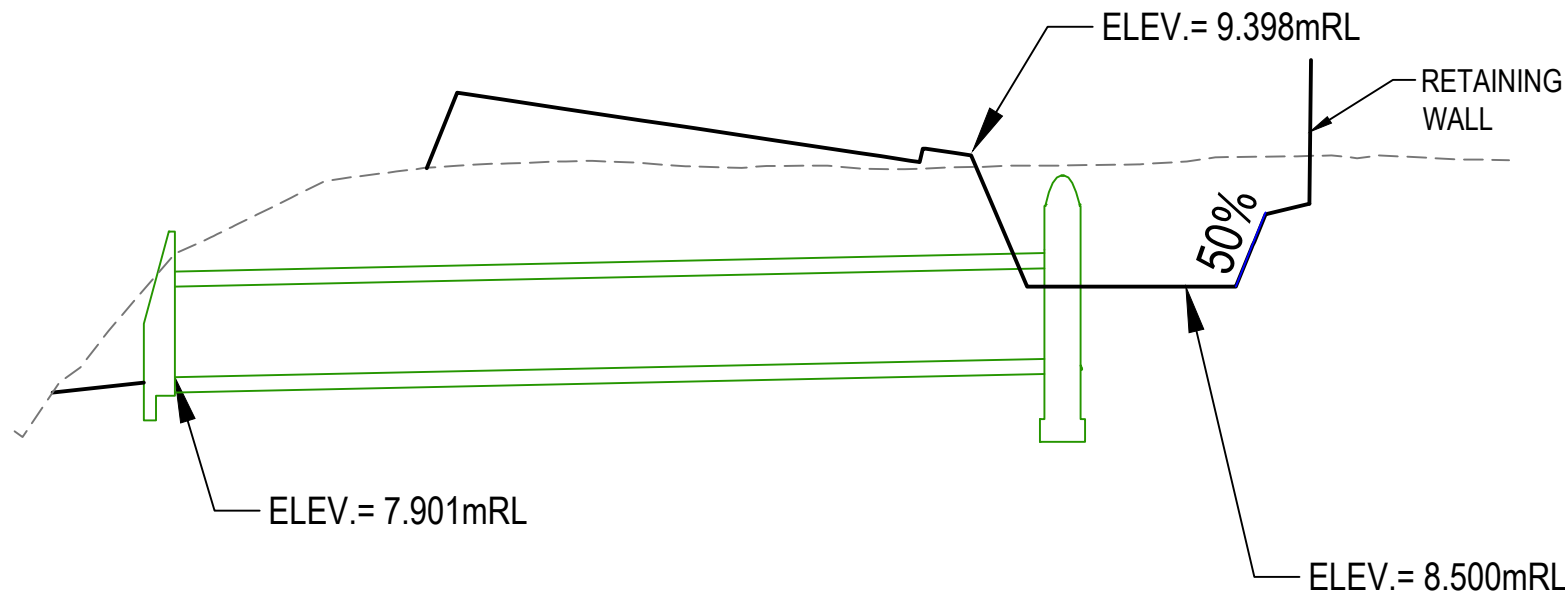
PROJECT			
BELFAST TO PEGASUS MOTORWAY & WOODEND BYPASS			
TITLE			
STORMWATER BASIN PLAN AND LONGSECTION SHEET 4			
DOCUMENT CODE			
11320-AUR-0350-PWI-SW-DRG-0604			
SCALE	SIZE	REFERENCE No.	REV
1:1000	A1	SW-DRG-0604	B



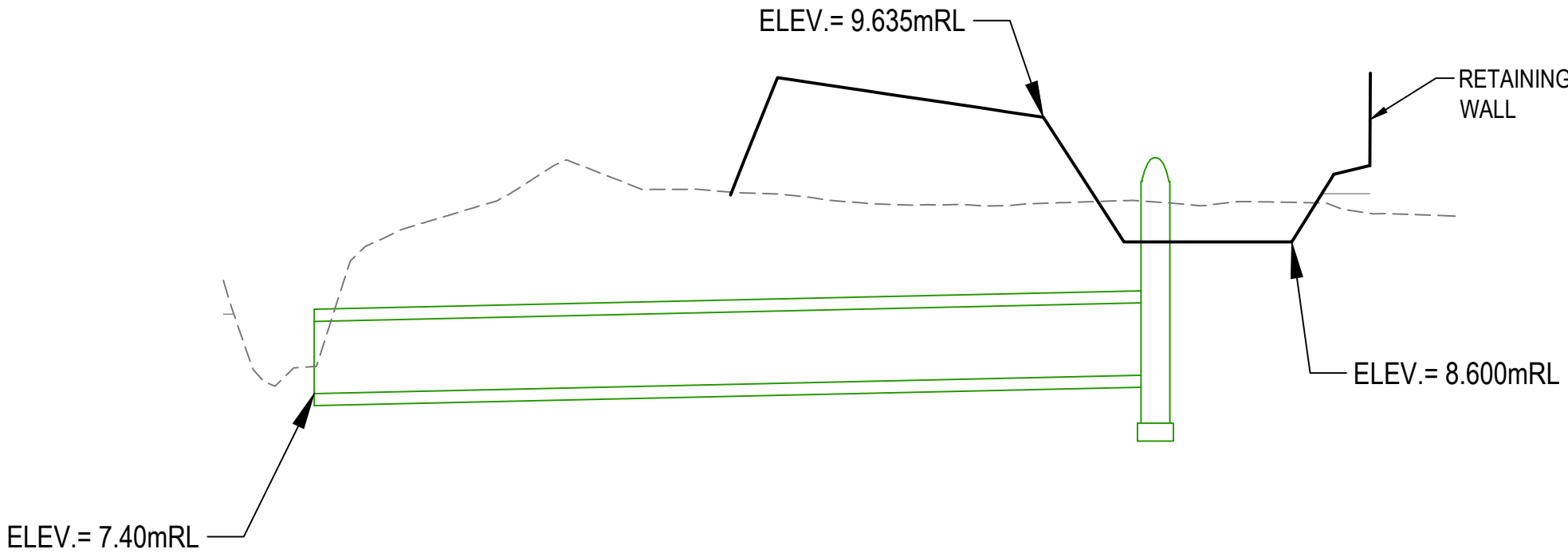
PLAN - PEGASUS BASIN
1:250

PEGASUS BASIN SOUTH	
TREATMENT VOLUME	= 152.20m ³
BASE AREA	= 252.51m ²
BASE ELEVATION	= 8.50mRL
DEPTH (FROM SCRUFFY DOME LEVEL)	= 0.50m
SCRUFFY DOME LEVEL	= 9.00mRL
GROUNDWATER LEVEL (TARANAKI STREAM IL+250mm)	= 7.50mRL

PEGASUS BASIN NORTH	
TREATMENT VOLUME	= 230.92m ³
BASE AREA	= 473.72m ²
BASE ELEVATION	= 8.60mRL
DEPTH (FROM SCRUFFY DOME LEVEL)	= 0.40m
SCRUFFY DOME LEVEL	= 9.00mRL
GROUNDWATER LEVEL (TARANAKI STREAM IL+250mm)	= 7.50mRL



SECTION A
1:250
PEGASUS SOUTH BASIN



SECTION B
1:250
PEGASUS NORTH BASIN

REV	DATE	REVISION DETAILS	REV	DRAWN	DESIGNED	VERIFIED	APPROVED
A	2025-09-17	ISSUED FOR 50% DETAILED DESIGN	A	C.LACAMBRA	Y.HOOI	W.HERBERT	M.FLANNERY
B	2025-12-12	ISSUED FOR 100% DETAILED DESIGN	B	C.LACAMBRA	Y.HOOI	W.HERBERT	M.FLANNERY

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Coordinate system

Height datum

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CONSTRUCTION STATUS
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CONSTRUCTION**

DRAWN BY
C.LACAMBRA

DESIGNED BY
Y.HOOI

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DOCUMENT STATE
PUBLISHED

PROJECT
BELFAST TO PEGASUS MOTORWAY
& WOODEND BYPASS

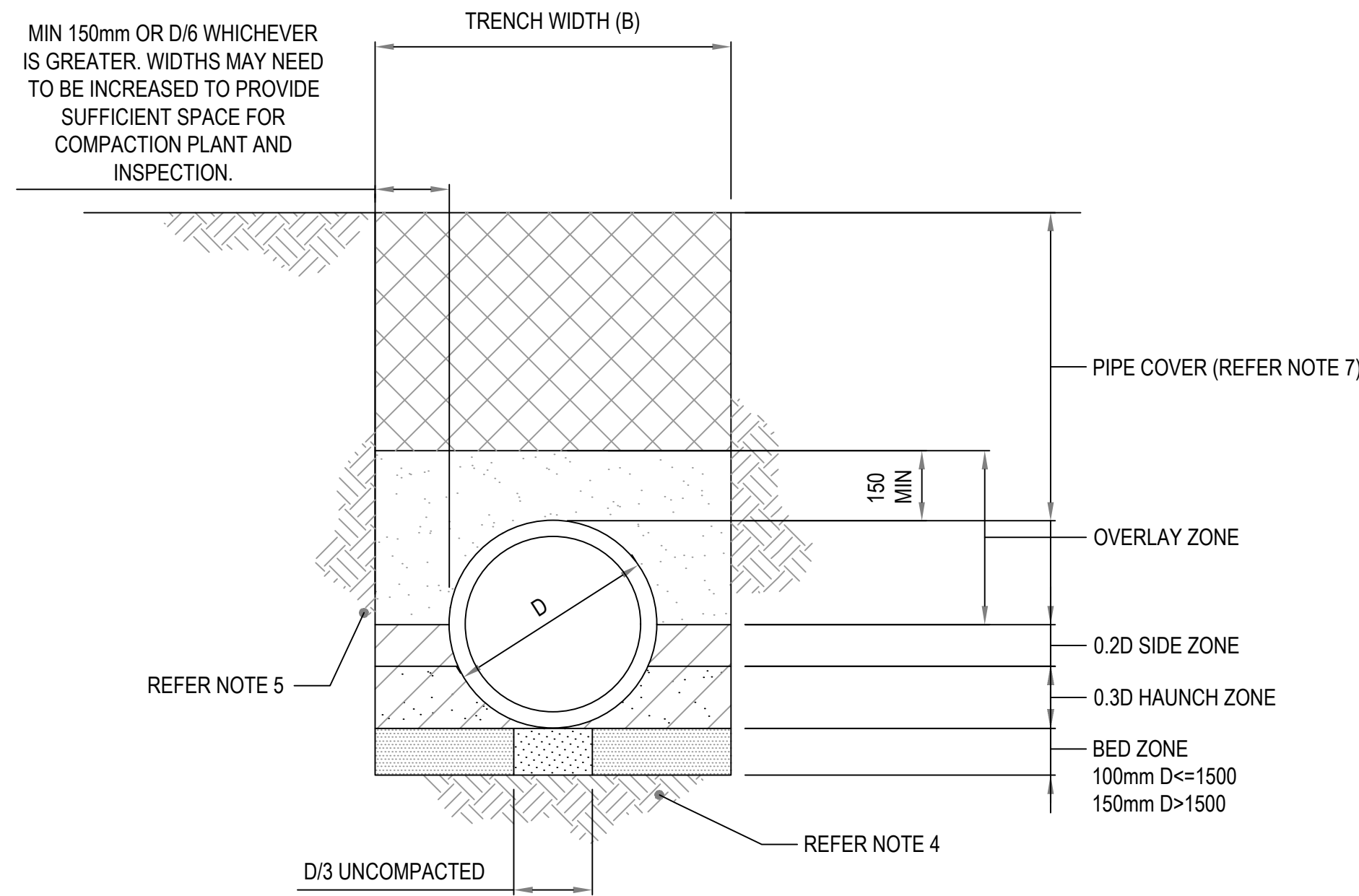
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STORMWATER
BASIN PLAN AND LONGSECTION
SHEET 5

DOCUMENT CODE
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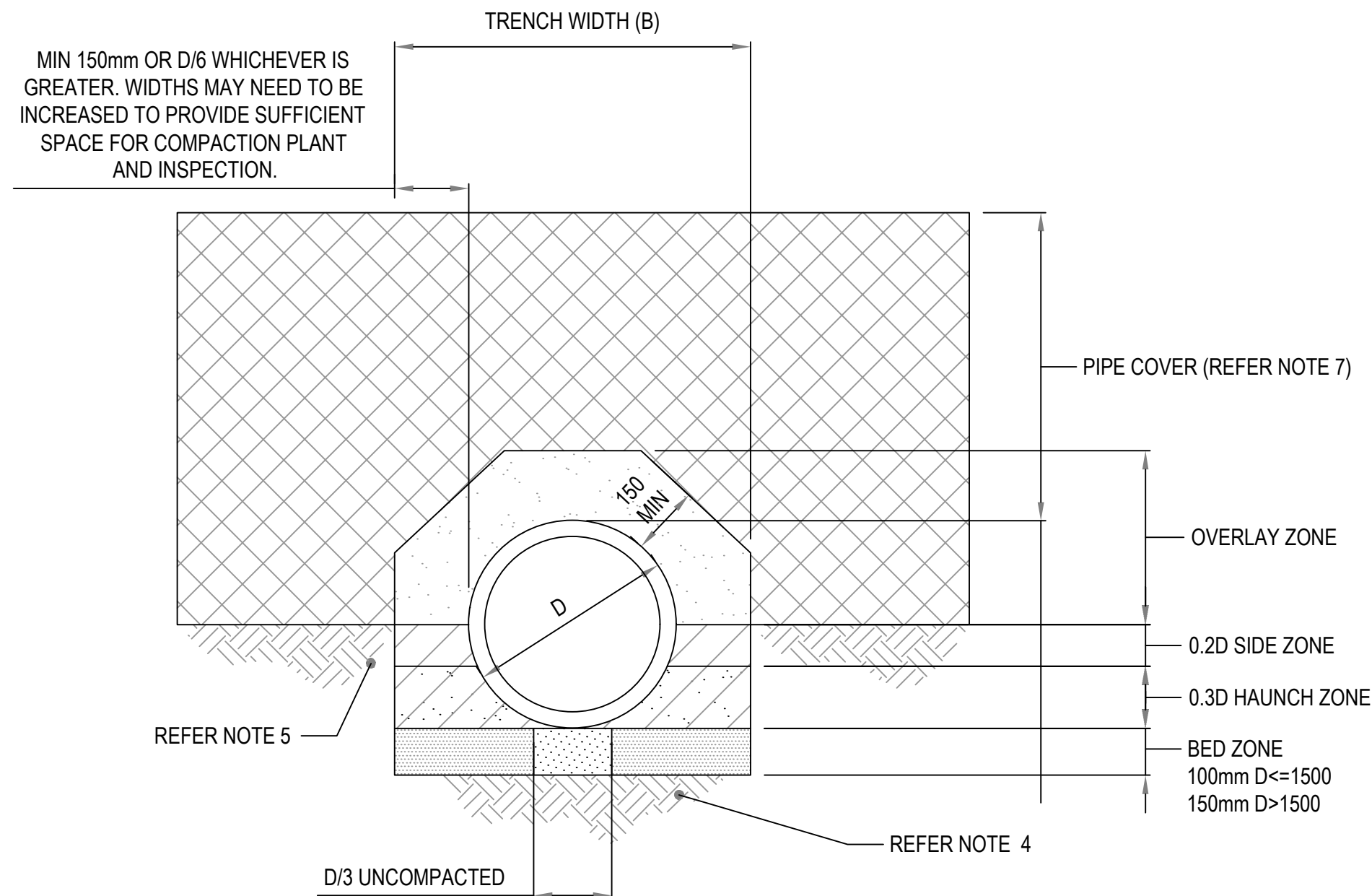
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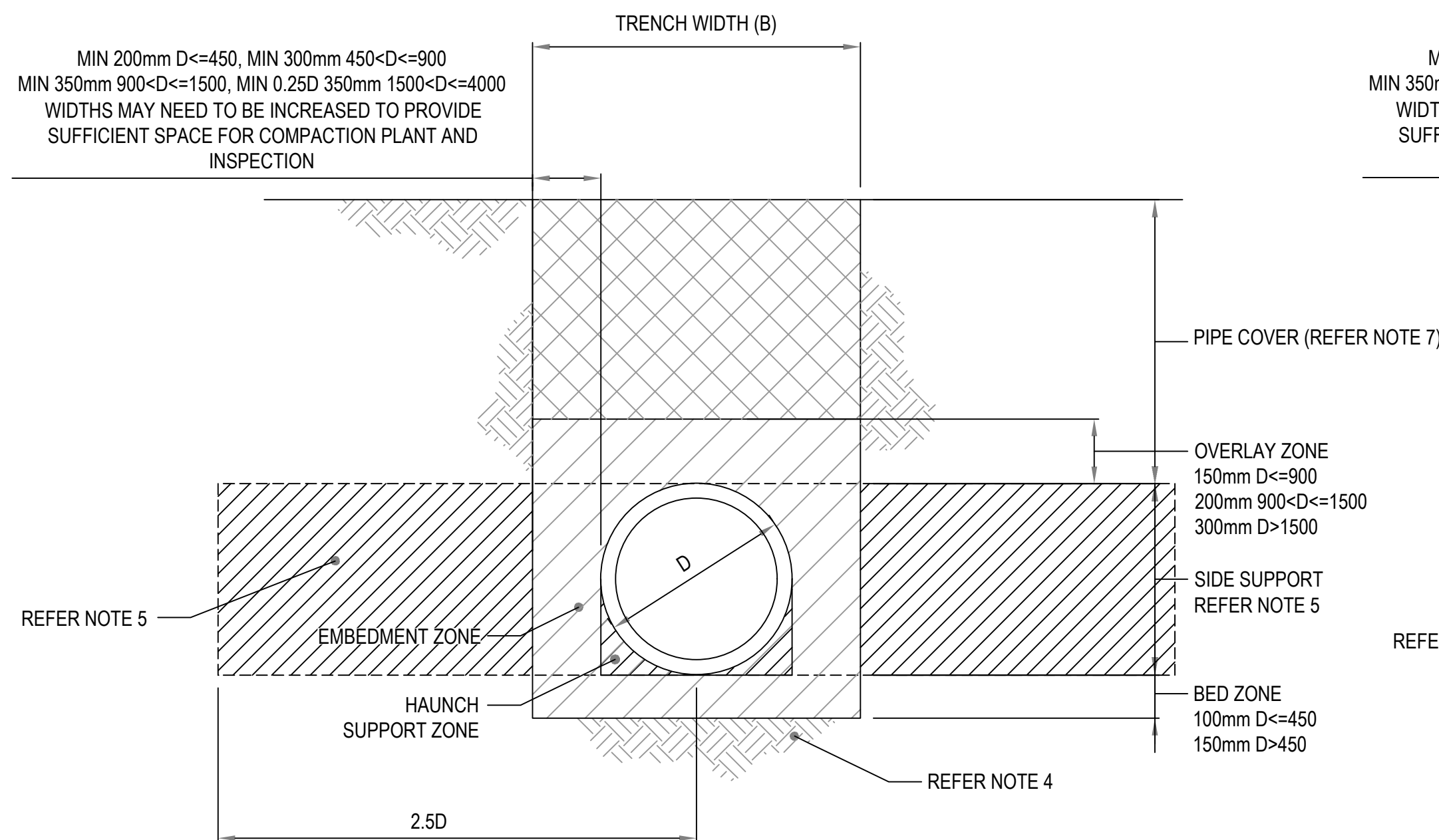
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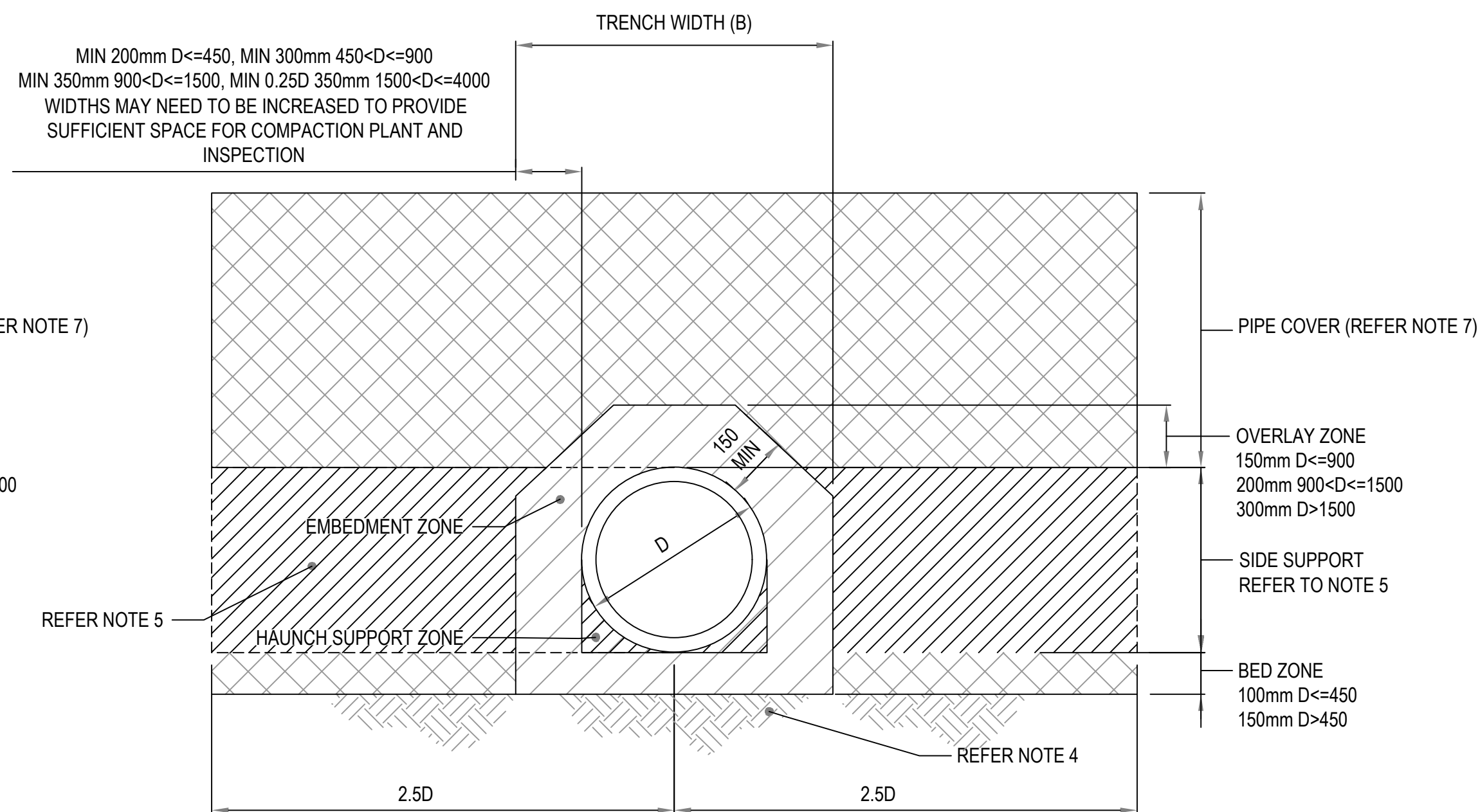
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NOT TO SCALE



SECTION - CONCRETE PIPE TYPE HS SUPPORT - EMBANKMENT
NOT TO SCALE



SECTION - FLEXIBLE PIPE SUPPORT - TRENCH
NOT TO SCALE



SECTION - FLEXIBLE PIPE SUPPORT - EMBANKMENT
NOT TO SCALE

- NOTES:**
1. ALL DIMENSIONS IN MILLIMETRES UNLESS NOTED OTHERWISE.
 2. DRAWING TO BE READ IN CONJUNCTION WITH WITH AS/NZS 3725 FOR CONCRETE PIPES AND AS/NZS 2566 FOR FLEXIBLE PIPES.
 3. PIPE BEDDING, HAUNCH AND SIDE ZONES ARE TO BE CONSTRUCTED IN ACCORDANCE WITH AS/NZS 3725 OR AS/NZS 2566 AS APPROPRIATE. COMPACTION SHALL BE TO THE LEVEL SPECIFIED BY THE DRAWINGS AND IN ACCORDANCE WITH THE SPECIFICATION.
 4. SHOULD THE EXCAVATION TO THE REQUIRED FOUNDATION AT THE BOTTOM OF THE BED LEVEL REVEAL UNSUITABLE MATERIAL (MINIMUM UNDRAINED SHEAR STRENGTH OF 80kPa), THE TRENCH SHALL BE OVER-EXCAVATED AND BACKFILLED WITH SUITABLE GRANULAR MATERIAL AS AGREED WITH THE DESIGNER.
 5. TRENCH WALLS FOR CONCRETE PIPES ARE TO HAVE MINIMUM UNDRAINED SHEAR STRENGTH OF 80kPa TO 0.5D ABOVE THE UNDERSIDE OF THE PIPE AND FOR A LATERAL DISTANCE FROM THE PIPE OUTSIDE SPRINGLINE OF NOT LESS THAN 1.5 TIMES D OR D BEYOND THE TRENCH WALL, WHICHEVER IS THE LESSER. FOR FLEXIBLE PIPES, THE TRENCH WALLS (SIDE SUPPORT) ARE TO HAVE MINIMUM UNDRAINED SHEAR STRENGTH OF 80kPa TO D ABOVE THE UNDERSIDE OF THE PIPE AND FOR A LATERAL DISTANCE FROM THE PIPE CENTRELINE NOT LESS THAN 2.5 TIMES D. SOILS NOT MEETING THIS REQUIREMENT SHALL BE REMOVED AND REPLACED WITH SOIL THAT MEETS THE MINIMUM STRENGTH REQUIREMENTS.
 6. PROVIDE POCKETS IN BED ZONE AT JOINTS PRIOR TO LAYING PIPES. FILL VOID DURING COMPLETION OF EMBEDMENT. ENSURE THAT THE BEDDING IS DEEP ENOUGH SO THAT PIPE JOINT PROJECTIONS DO NOT TOUCH THE TRENCH FLOOR.
 7. THE MINIMUM PIPE COVER UNDER TRAFFIC LANES IS 1.0 METRE AND THE MINIMUM PIPE COVER IN NON-TRAFFICABLE LANDSCAPE AREAS (COVERED BY TOPSOIL AND GRASS SEED/VEGETATION) IS 0.9 METRES. WHERE THESE CANNOT BE ACHIEVED, A REDUCED COVER OF NO LESS THAN 0.6 METRES MAY BE APPROVED BY THE PRINCIPAL/CLIENT WHERE IT CAN BE DEMONSTRATED WITH SPECIFIC DESIGN THAT ADEQUATE STRUCTURAL CAPACITY DURING CONSTRUCTION AND THROUGHOUT THE WHOLE OF LIFE IS ACHIEVED.

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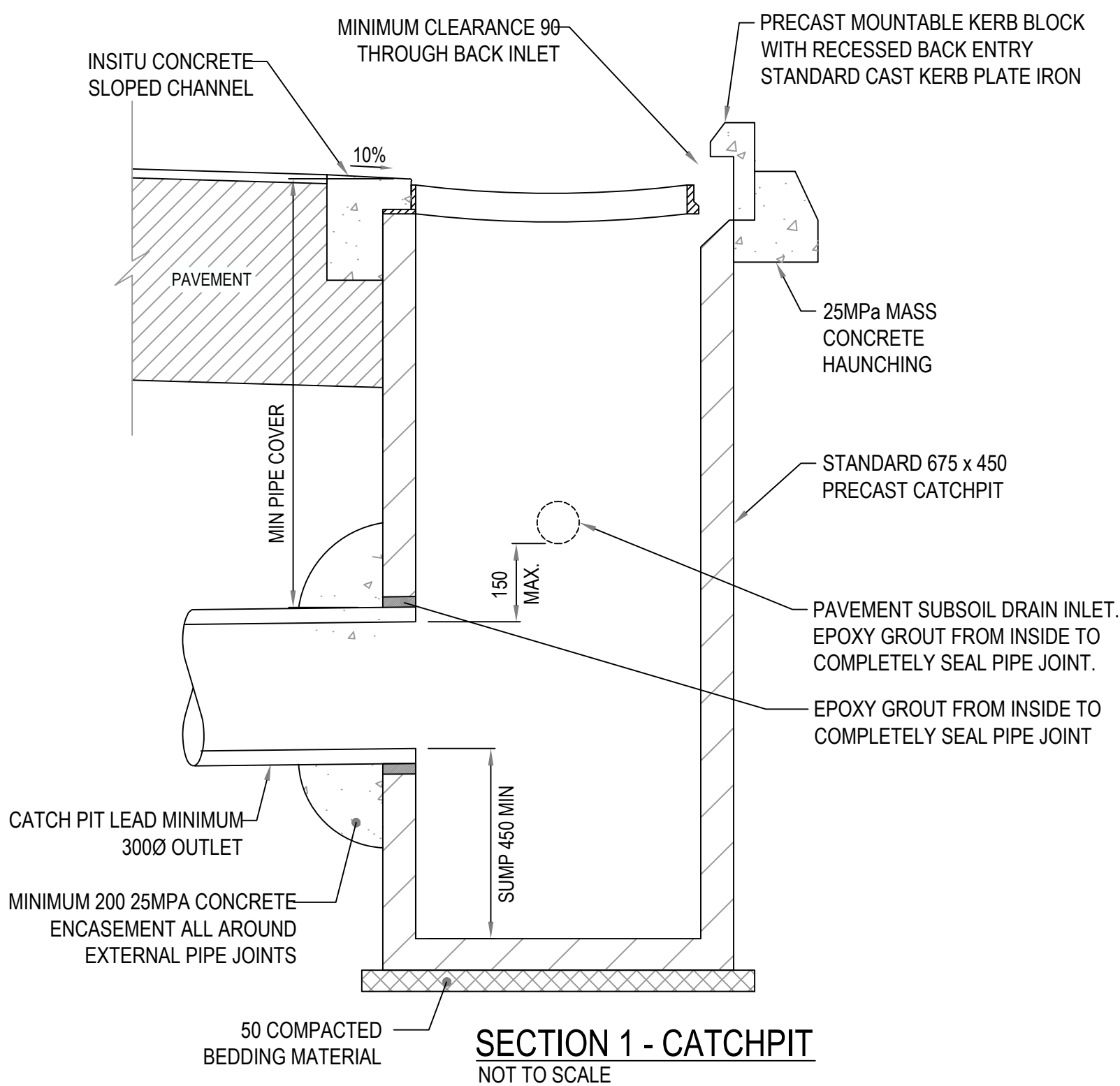
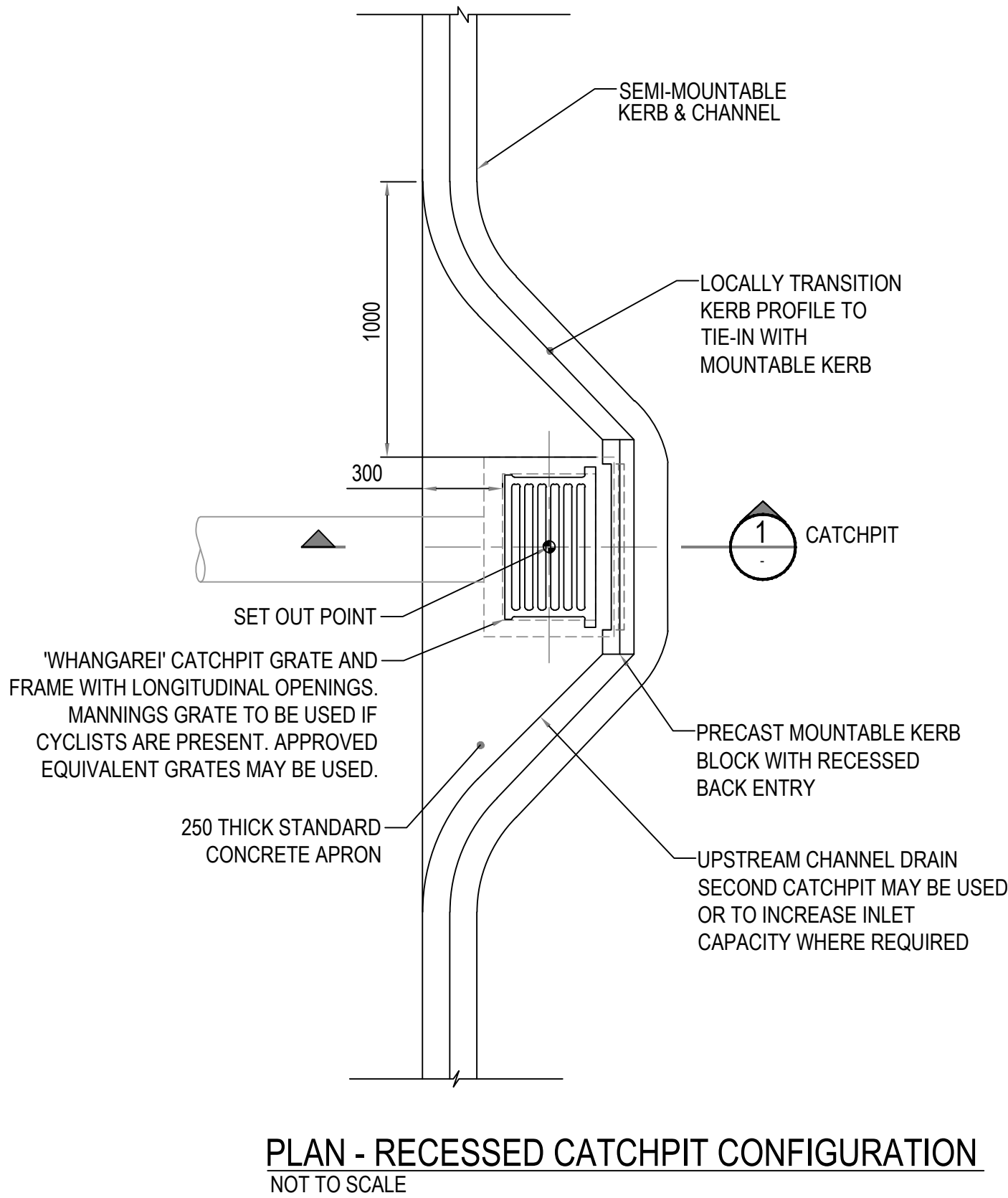
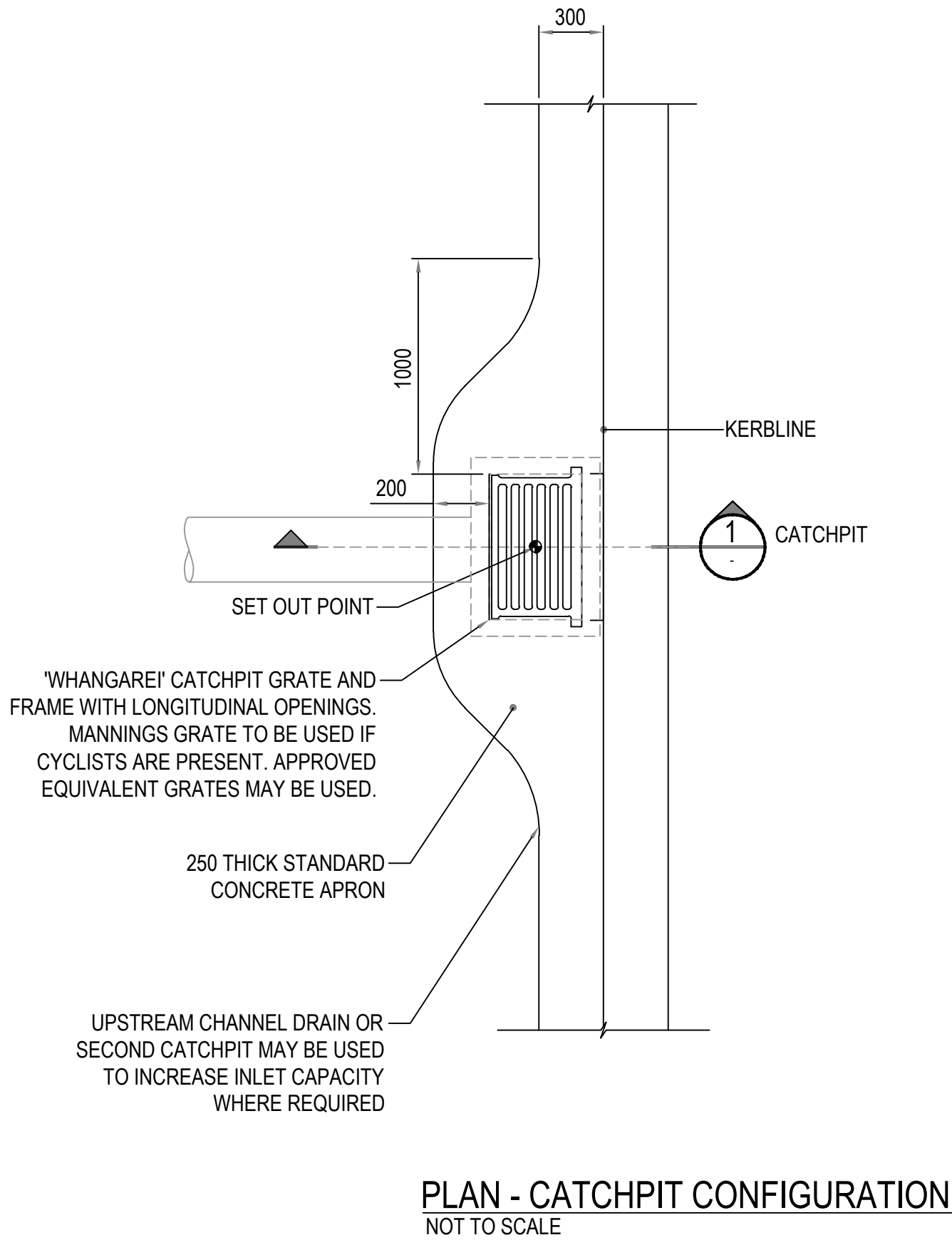
Coordinate system

Height datum

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CONSTRUCTION STATUS		PROJECT			
NOT FOR CONSTRUCTION		BELFAST TO PEGASUS MOTORWAY & WOODEND BYPASS			
DRAWN BY		TITLE			
C.LACAMBRA		STORMWATER STANDARD DETAILS SHEET 2			
DESIGNED BY		DOCUMENT CODE			
Y.HOOI		11320-AUR-0350-PWI-SW-DRG-1102			
STATUS	CODE	SCALE	SIZE	REFERENCE No.	REV
ISSUED FOR DETAILED DESIGN	P3	NOT TO SCALE	A1	SW-DRG-1102	A
DOCUMENT STATE					
PUBLISHED					

- NOTES:
1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.
 2. ALL OPENINGS SHALL BE CUT WITH CONCRETE SAW. SLEDGE HAMMERS SHALL NOT BE USED.
 3. APPROVED GRATES SHALL BE ORIENTATED TO BE CYCLE FRIENDLY WHEN INSTALLED WITHIN TRAFFIC LANES USED BY CYCLISTS, WITHIN LOCAL ROADS AND ON SHARED USER PATHS.
 4. CRACKING CONTROL JOINTS OR SAW CUTS SHALL BE PROVIDED TO A MINIMUM DEPTH OF 30mm AT MAXIMUM 3m INTERVALS.
 5. FLEXIBLE JOINTS ON CONCRETE PIPES SHALL BE LOCATED A MAXIMUM OF 600mm FROM THE MANHOLE STRUCTURE FOR PIPES UP TO 300mmØ, AND 1000mm FOR PIPES 375mmØ AND GREATER.



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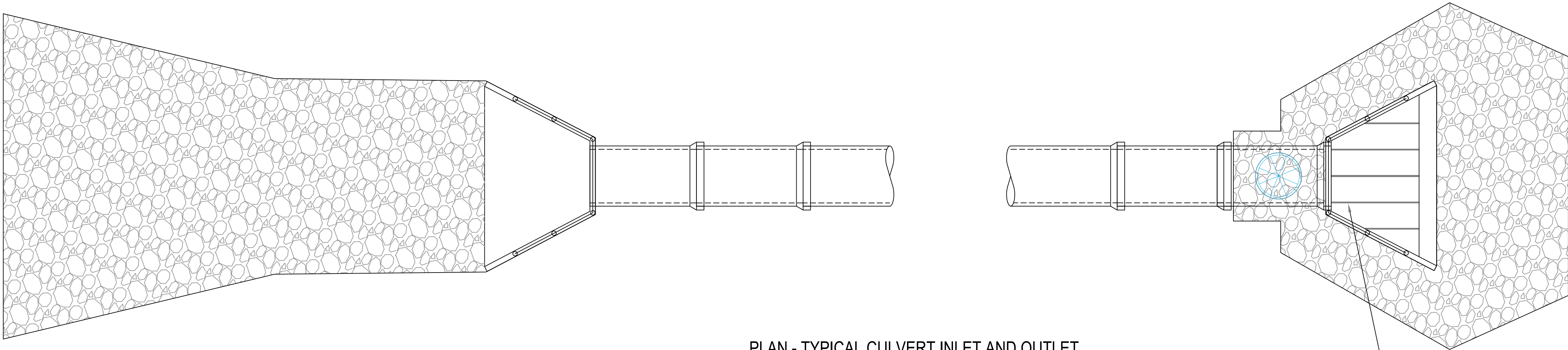
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Coordinate system

Height datum

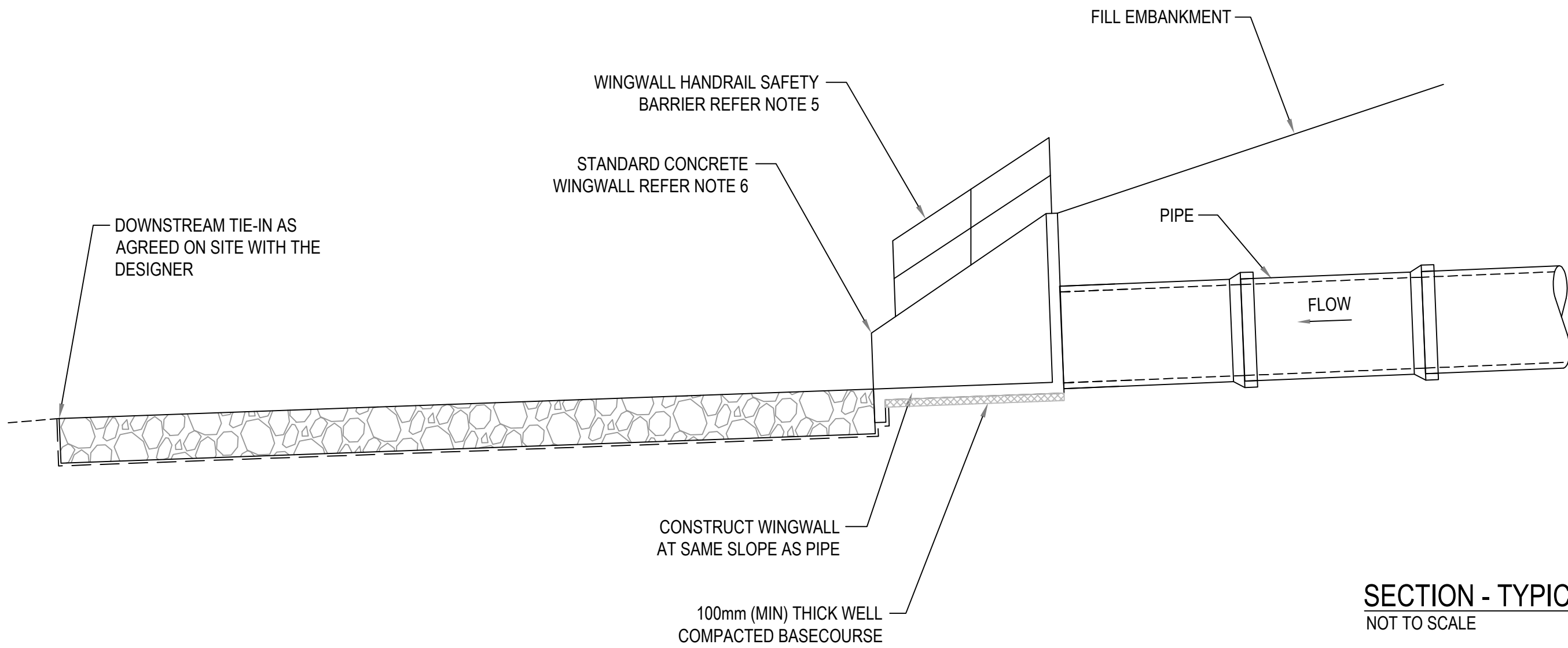
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NOT FOR CONSTRUCTION		BELFAST TO PEGASUS MOTORWAY & WOODEND BYPASS			
DRAWN BY		TITLE			
C.LACAMBRA		STORMWATER STANDARD DETAILS SHEET 3			
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Y.HOOI		11320-AUR-0350-PWI-SW-DRG-1103			
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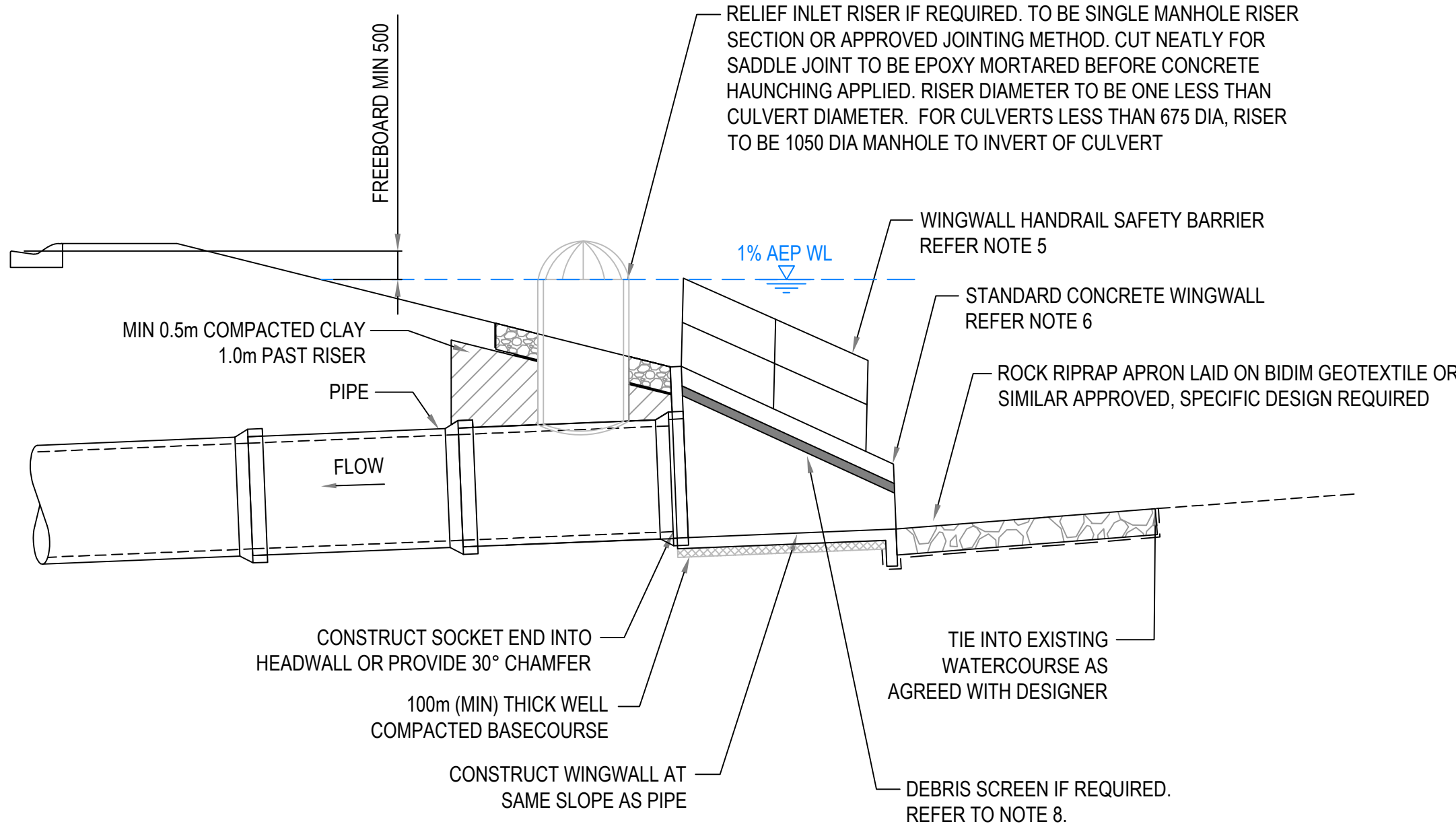


PLAN - TYPICAL CULVERT INLET AND OUTLET
NOT TO SCALE

- NOTES:
1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.
 2. THIS DRAWING IS INTENDED TO PROVIDED A TYPICAL CONFIGURATION FOR INLET/OUTLET STRUCTURES. WHERE STANDARD PRE-CAST PRODUCTS ARE NOT SUITABLE, SPECIFIC DESIGN IS REQUIRED.
 3. MINIMUM 200mm 20MPa CONCRETE ENCASEMENT ALL AROUND EXTERNAL PIPE JOINT. EPOXY GROUT ALL AROUND PIPE JOINTS INSIDE WINGWALL AND MANHOLE TO COMPLETELY SEAL PIPE JOINTS.
 4. SPECIFIC DESIGN OF SCOUR AND ENERGY DISSIPATION IS REQUIRED IN ACCORDANCE WITH HEC-14.
 5. HANDRAIL SAFETY BARRIER TO BE GALVANISED 1.017m HIGH WEB FORGE MONOWILLS STANDARD HANDRAIL SYSTEM (TYPE S OR SO STANCHIONS), OR APPROVED EQUIVALENT. HANDRAIL TO BE CONTINUOUS AROUND THE HEADWALL TO EXTENT SHOWN OR WHERE FALL HEIGHT IS GREATER THAN 1m.
 6. WINGWALLS FOR MAJOR CULVERTS (CULVERT AREA $\geq 3.4m^2$) TO BE 6. STRUCTURALLY DESIGNED FOR SEISMIC LOADING IN ACCORDANCE WITH THE BRIDGE MANUAL.
 7. CULVERTS AND ENERGY DISSIPATION DESIGN SHALL INCLUDE MEASURES TO ALLOW FISH PASSAGE WHERE REQUIRED AND SPECIFIC DESIGN IS REQUIRED.
 8. A DEBRIS SCREEN MAY BE REQUIRED SUBJECT TO A BLOCKAGE ASSESSMENT. SPECIFIC DESIGN IS REQUIRED.



SECTION - TYPICAL CULVERT INLET AND OUTLET
NOT TO SCALE



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Coordinate system

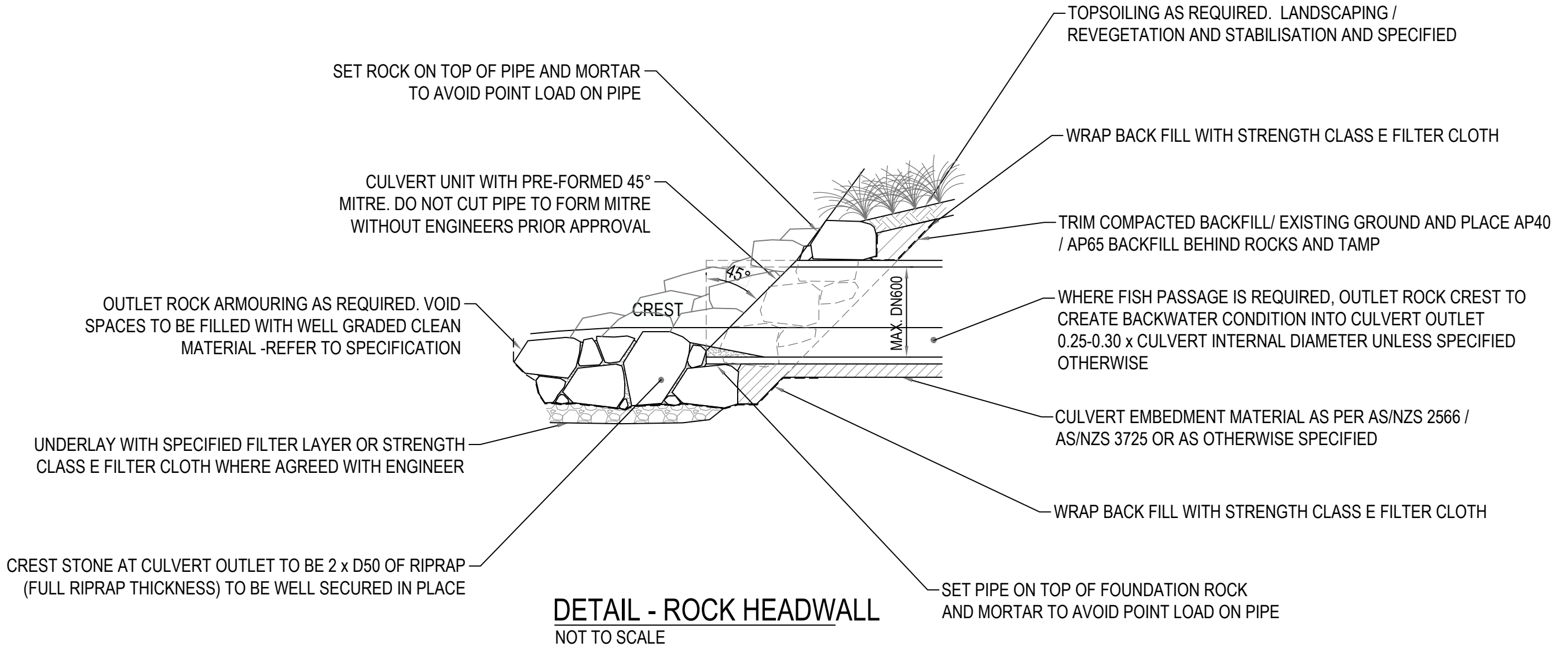
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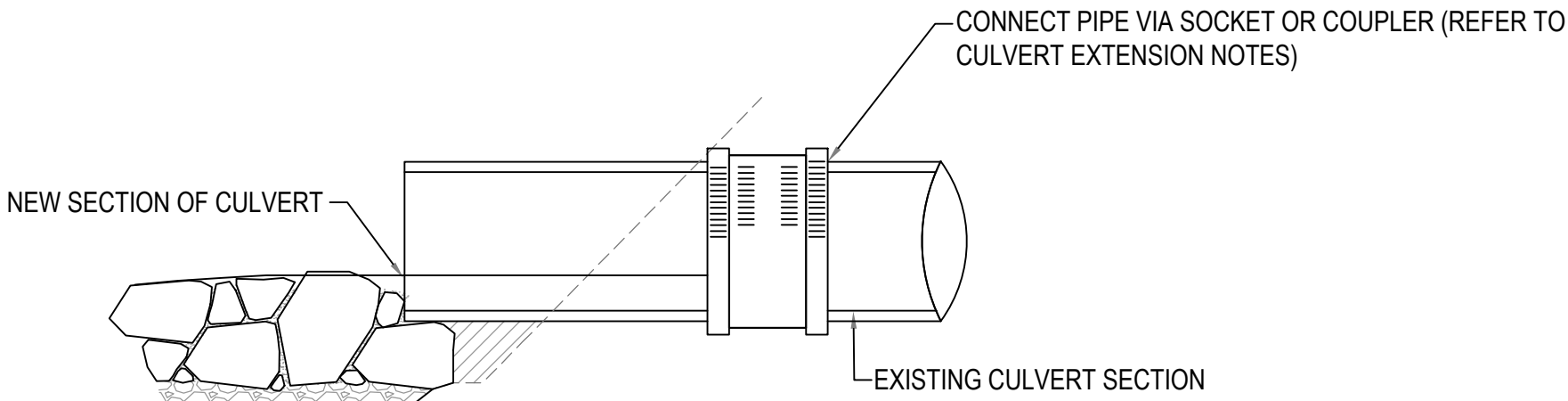


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DESIGNED BY Y.HOOI	
STATUS ISSUED FOR DETAILED DESIGN	CODE P3
DOCUMENT STATE PUBLISHED	

PROJECT BELFAST TO PEGASUS MOTORWAY & WOODEND BYPASS			
TITLE STORMWATER STANDARD DETAILS SHEET 4			
DOCUMENT CODE 11320-AUR-0350-PWI-SW-DRG-1104			
SCALE NOT TO SCALE	SIZE A1	REFERENCE No. SW-DRG-1104	REV A



DETAIL - ROCK HEADWALL
NOT TO SCALE



DETAIL - CULVERT EXTENSION
NOT TO SCALE

CULVERT EXTENSION NOTES:

1. EXPOSE THE EXISTING CULVERT INLET/OUTLET PIPE TO CONFIRM PIPE ID/OD AND SOCKET TYPE.
2. FOR COMPATIBLE RCRRJ PIPE UNITS UTILISE THE EXISTING SOCKET IF UNDAMAGED. IF DAMAGED REMOVE PIPE LENGTH AND RELAY TO NEXT UNDAMAGED SOCKET UPSTREAM.
3. FOR FLUSH /BUTT JOINTED EXISTING CONCRETE PIPE CONNECT WITH A SS SHEAR BAND COUPLER OR MULTIFIT GIBAULT. AN INSITU CONCRETE COUPLER MAY ALSO BE FORMED ONSITE TO JOIN THE PIPES WITH DESIGN INPUT (NOTIFY CPS IF A DETAIL IS REQUIRED FOR THIS) IF THE PRIOR METHODS ARE NOT FEASIBLE. DENSO WRAP GIBAULTS TO PREVENT CORROSION.
4. DO NOT SLEEVE A LARGER PIPE OVER THE EXISTING PIPE UNLESS SPECIFICALLY REQUIRED ON THE PROJECT SPECIFIC DRAWINGS. 5.FINISH NEW PIPE SECTION AS REQUIRED TO SUIT THE PROJECT SPECIFIC DRAWINGS AND SLOPE FINISH.

ROCKWALL HEADWALL NOTES:

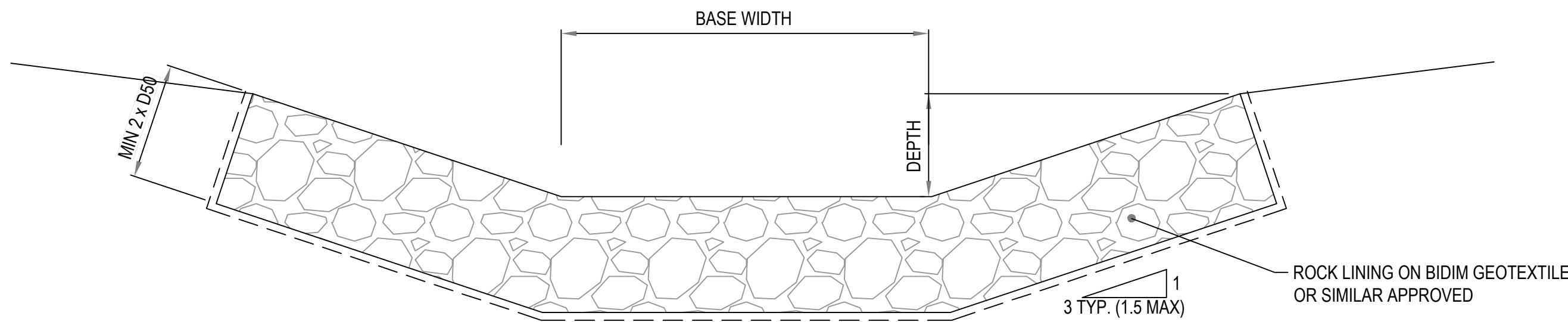
1. INSTALL IN ACCORDANCE WITH THE PROJECTS EROSION AND SEDIMENT CONTROL PLAN / ENVIRONMENTAL MANAGEMENT PLAN AND IN CONSULTATION WITH THE PROJECT ECOLOGIST WHERE APPLICABLE.
2. INSTALL WITH A MAXIMUM SLOPE OF 45° OR 1:1 (H:V).
3. ROCK TO BE IN ACCORDANCE WITH THE SPECIFICATION.
4. MEDIAN ROCK SIZE (D50) TO BE 0.5 X PIPE ID +/-150 MM AND MIN 50 KG IN WEIGHT TO DETER VANDALISM (WHICHEVER IS THE GREATER). PLACE LARGEST ROCK AT TOE AND SMALLEST ROCK AT CREST OF HEADWALL.
5. ROCK TO BE ANGULAR AND BLOCK SHAPED. STACK TO FORM A STABLE HEADWALL.
6. ENSURE BACKFILL BEHIND ROCKS IS FULLY WRAPPED WITH FILTER CLOTH TO PREVENT ANY LOSS OF FINES.
7. COLLAR OMITTED FOR CLARITY.
8. ROCK MAY BE PARTIALLY MORTARED FOR STABILITY IN AGREEMENT WITH THE CPS ENGINEER.
9. CUT PIPES TO BE SEALED WITH APPROVED EPOXY MORTAR.

SUBSOIL DRAINAGE NOTES:

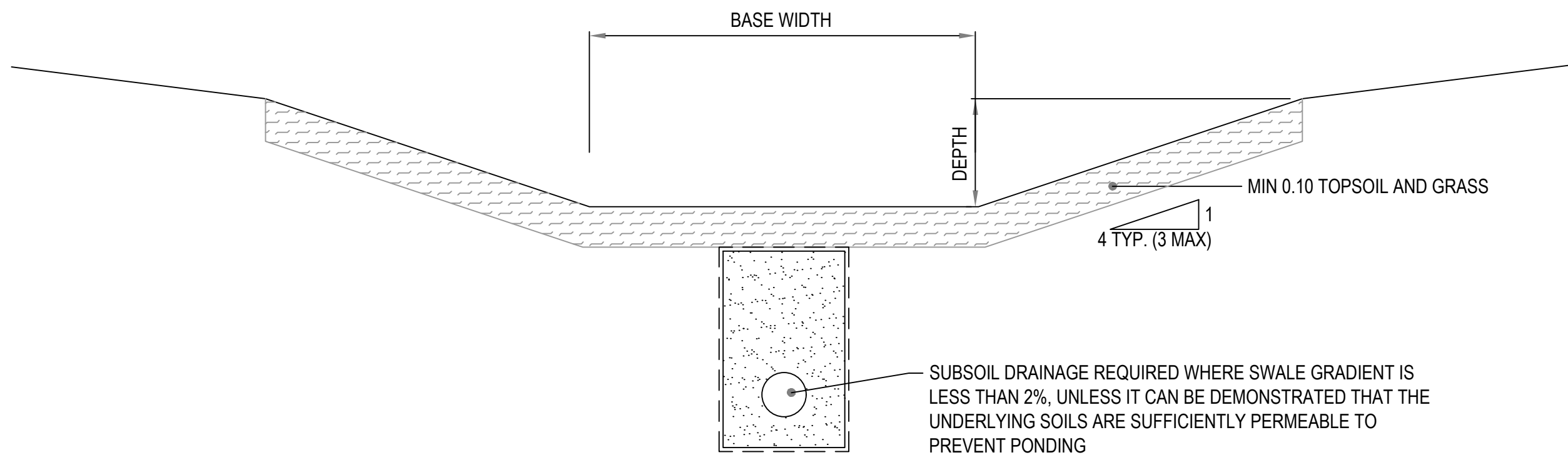
1. RODDING POINTS SHALL BE PROVIDED FOR ALL SUBSOIL PIPES AT MINIMUM 100m INTERVALS FOR MAINTENANCE PURPOSES AND MARKER POSTS SHALL BE PROVIDED AT ALL RODDING POINTS AND OUTLETS.
2. REFER TO NZTA SPECIFICATION F/2, F/5, F/6 AND F/7 FOR SUBSOIL DRAINAGE CONSTRUCTION AND TRENCH FILL MATERIAL.
3. TRENCHES SHALL HAVE A MINIMUM LONGITUDINAL GRADIENT OF 1 IN 100.
4. PLACE TRENCH FILL IN 150mm LIFTS AND TAMP/LIGHTLY COMPACT. DO NOT USE HEAVY COMPACTION EQUIPMENT.
5. OUTLETS SHALL HAVE A FREE DISCHARGE AND MIN. 100mm DROP TO THE INVERT OF ANY DOWNSTREAM PIPE INVERT.

SWALE NOTES:

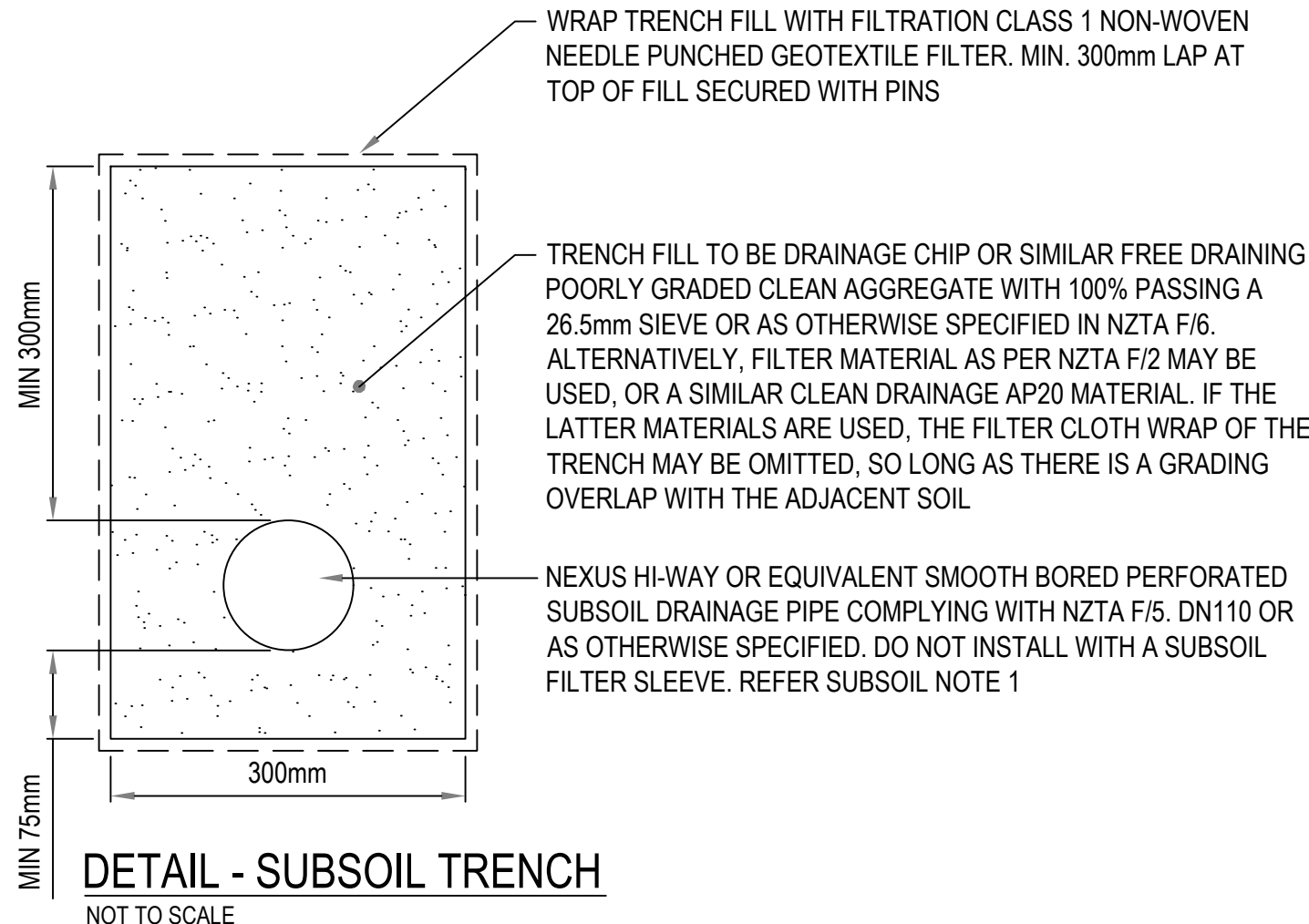
1. GRASS AND ROCK LINED SWALES REQUIRE SPECIFIC DESIGN AND CONSIDERATION OF DESIGN FLOWS, VELOCITIES AND CHANNEL SLOPES.



SECTION - TYPICAL ROCK LINED SWALE
NOT TO SCALE



SECTION - TYPICAL GRASS LINED SWALE
NOT TO SCALE



DETAIL - SUBSOIL TRENCH
NOT TO SCALE

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CODE

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PROJECT

BELFAST TO PEGASUS MOTORWAY & WOODEND BYPASS

TITLE

STORMWATER STANDARD DETAILS SHEET 5

DOCUMENT CODE

11320-AUR-0350-PWI-SW-DRG-1105

SCALE

NOT TO SCALE

SIZE

A1

REFERENCE No.

SW-DRG-1105

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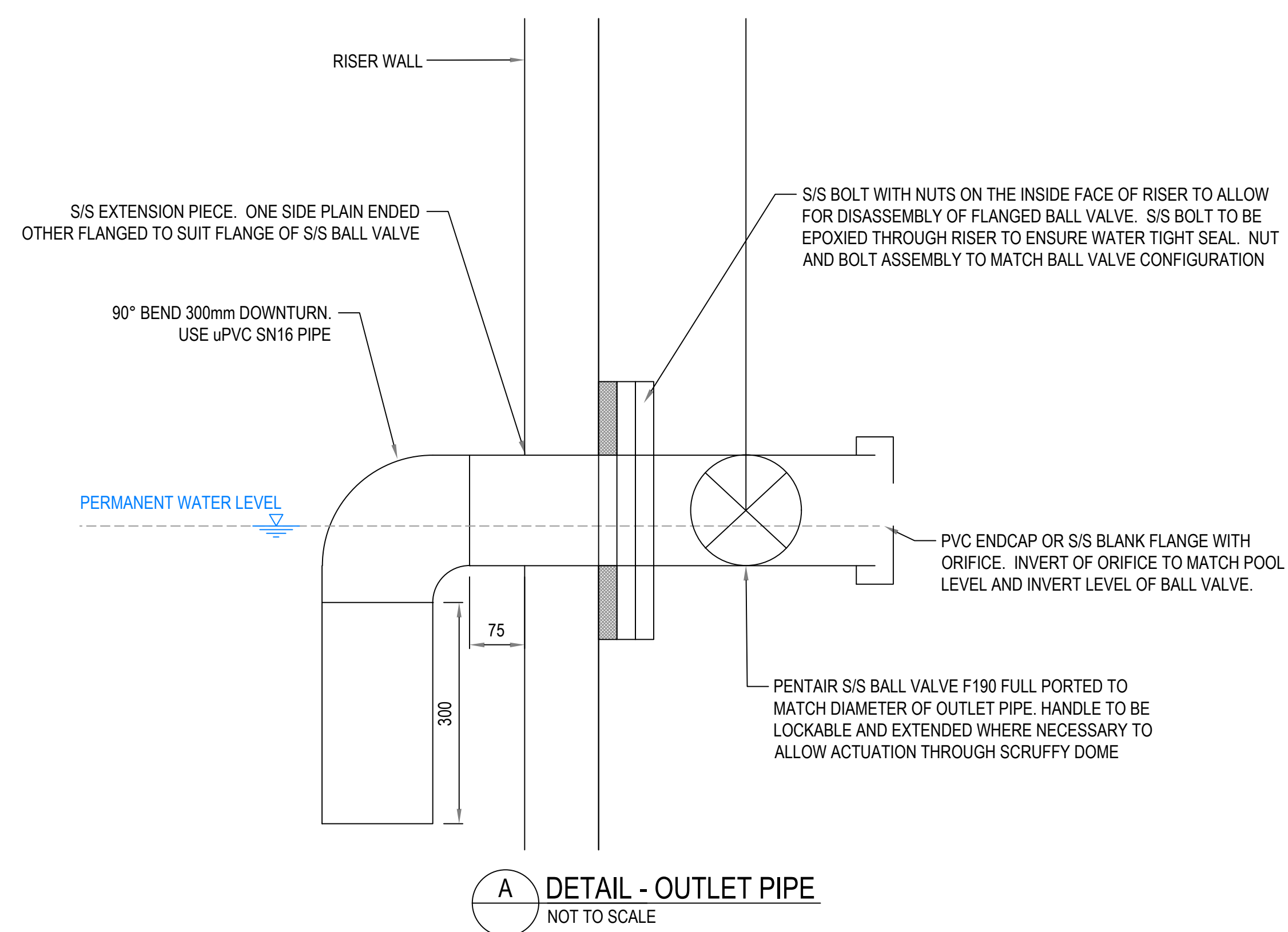


TABLE A - WETLAND AND OUTLET STRUCTURE PROPERTIES

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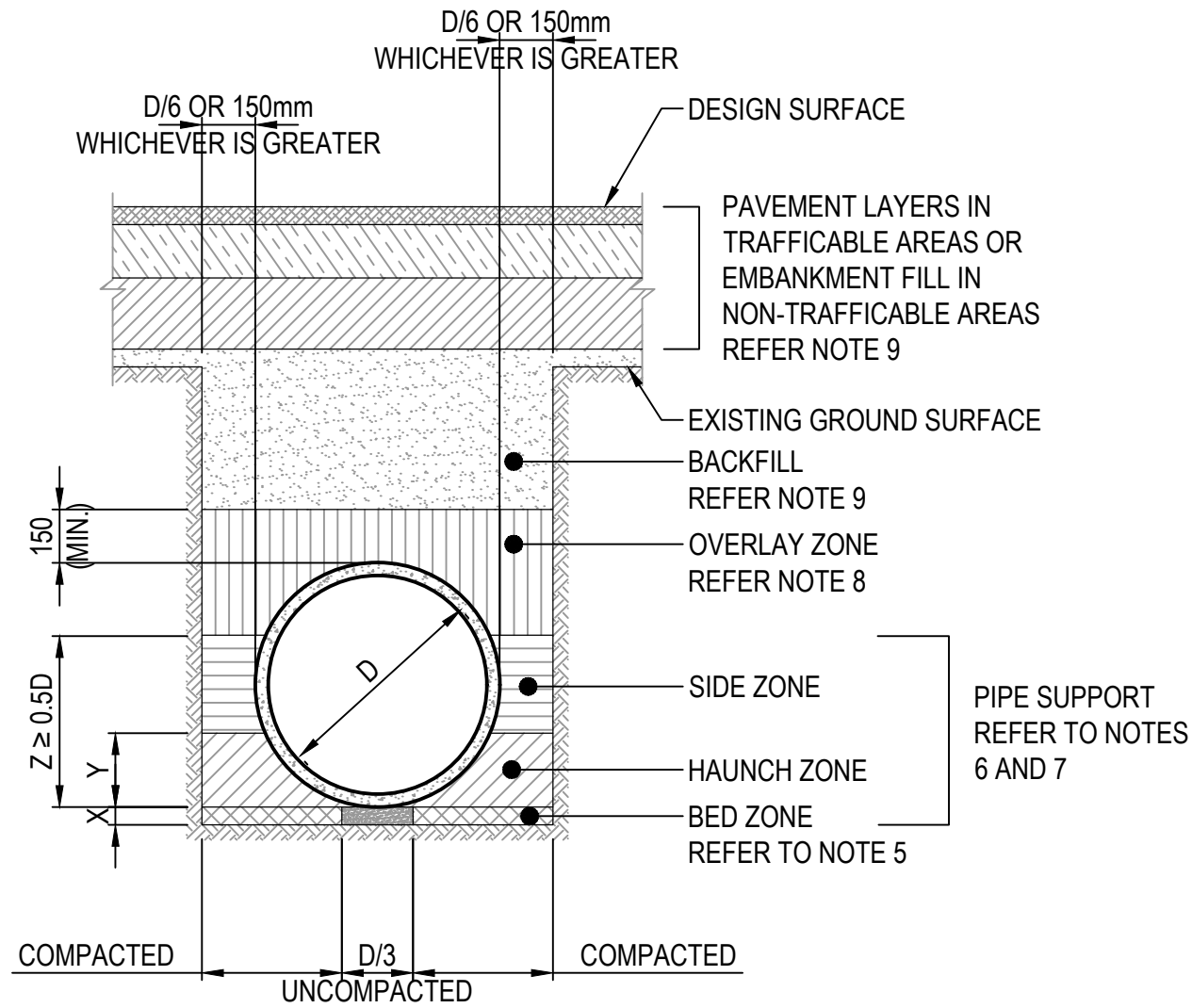
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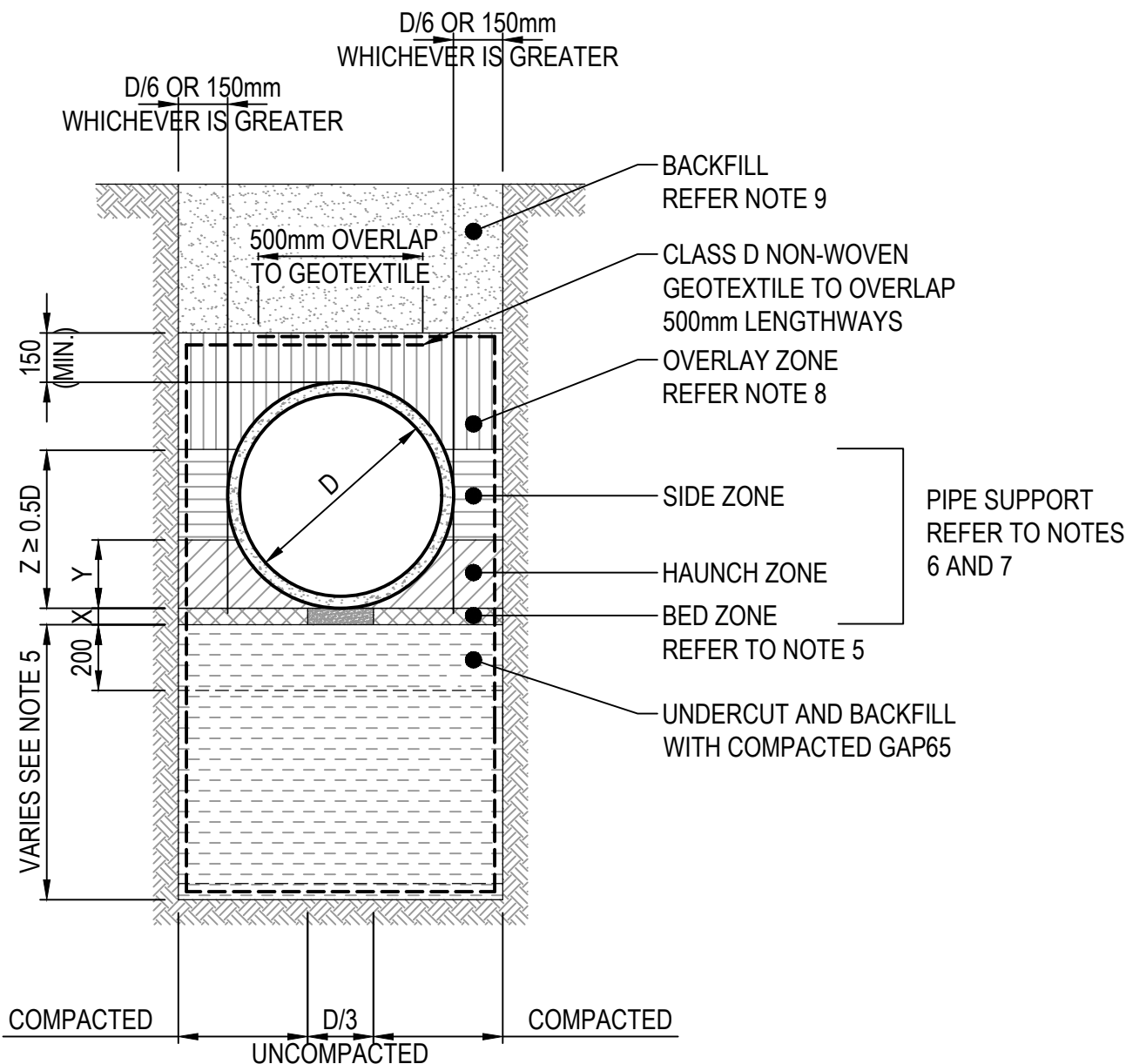
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**BEDDING DETAILS CONCRETE PIPE
NEGATIVE PROJECTION EMBANKMENT**
1:20



**BEDDING DETAILS CONCRETE PIPE TRENCH UNDERCUT
FOR UNSATISFACTORY GROUND CONDITIONS (REFER NOTE 6)**
1:20

- NOTES:**
- PIPE BEDDING TYPICAL DETAILS FOR CONCRETE PIPE AND FLEXIBLE PIPE ARE TO BE HS SUPPORT AS PER NZTA WAKA KOTAHĪ P46 DRAINAGE DESIGN STANDARD DRAWING SHEET 20211117-0001.
 - CONCRETE PIPE INSTALLATION TO BE IN ACCORDANCE WITH AS/NZS 3725:2007.
 - REFER TO THE TECHNICAL SPECIFICATION FOR FURTHER DETAIL AND INFORMATION FOR CONSTRUCTION.
 - ALL DIMENSION IN MILLIMETERS UNLESS STATED OTHERWISE.
 - DO NOT SCALE OFF THIS DRAWING.
 - WHERE UNSUITABLE MATERIAL IS ENCOUNTERED IN TRENCH INVERTS (CBR<5), THE MATERIAL SHALL BE EXCAVATED TO A DEPTH AGREED WITH THE ENGINEER AND REPLACED WITH GAP65 COMPACTED IN 200mm LAYERS.
 - PIPE SUPPORT TYPE SHALL BE DEFINED IN TERMS OF THE LOADING. TYPE HS AND HS2 SHALL BE APPLICABLE IN TRAFFICABLE AREAS AND TYPE H AND H2 IN NON-TRAFFICABLE AREAS.
 - PIPE SUPPORT MATERIAL SHALL BE GAP7 AND SHALL BE PLACED/COMPACTED IN LAYERS NOT EXCEEDING 200mm. FOR COMPACTION REQUIREMENTS, REFER TO TABLE.
 - OVERLAY ZONE MATERIAL SHALL BE GAP20 AND SHALL BE PLACED/COMPACTED IN LAYERS NOT EXCEEDING 200mm AND SHALL AT COMPLETION ACHIEVE 95% M.D.D IN ACCORDANCE WITH NZTA B2.
 - IN TRAFFICABLE AREAS BACKFILL MATERIAL SHALL BE GAP65 AND SHALL BE PLACED/COMPACTED IN LAYERS NOT EXCEEDING 200mm. AT COMPLETION BACKFILL SHALL ACHIEVE 95% M.D.D IN ACCORDANCE WITH NZTA B2. WHERE PIPES ARE LOCATED IN CUT AREAS FURTHER THAN 1m PLAN OFFSET FROM EDGE OF SEAL AND NOT LOCATED IN TRAFFICABLE AREAS, AVAILABLE CUT MATERIAL (FREE FROM ORGANICS) MAY BE USED FOR BACKFILL UPON APPROVAL BY THE ENGINEER. THIS IS LIMITED TO SITUATIONS WHERE THE FINAL SURFACE SLOPE IS FLATTER THAN 1V:5H. REFER TO LANDSCAPE DRAWINGS FOR TOPSOIL DEPTH INFORMATION IN NON-TRAFFICABLE AREAS.
 - FOR PIPE TRENCHES LOCATED IN AREAS TO BE TOPSOILED, PLACEMENT AND COMPACTION OF EMBANKMENT FILL IS TO TERMINATE 300mm BELOW THE FINAL DESIGN LEVEL, FOLLOWED BY THE PLACEMENT OF TOPSOIL.
 - WHERE PIPES ARE TO BE INSTALLED IN EMBANKMENT FILL AREAS, BACKFILL IS TO BE CONSISTENT WITH EMBANKMENT FILL.
 - CONCRETE PROTECTION REQUIRED IN INSTANCES WHERE MIN TOP COVER OF 600mm IS NOT ACHIEVED IN TRAFFICABLE AREAS AND 400mm IS NOT ACHIEVED IN NON TRAFFICABLE AREAS.
 - WHERE APPLICABLE, CONCRETE CAP TO TERMINATE AGAINST ADJACENT RIGID BARRIER FOOTINGS, THEREBY RESULTING IN A LOCALISED REDUCTION IN THE CONCRETE CAPPING WIDTH.

**TABLE 1
BEDDING FACTORS FOR WORKING DEAD LOADS - (H AND HS SUPPORTS)**

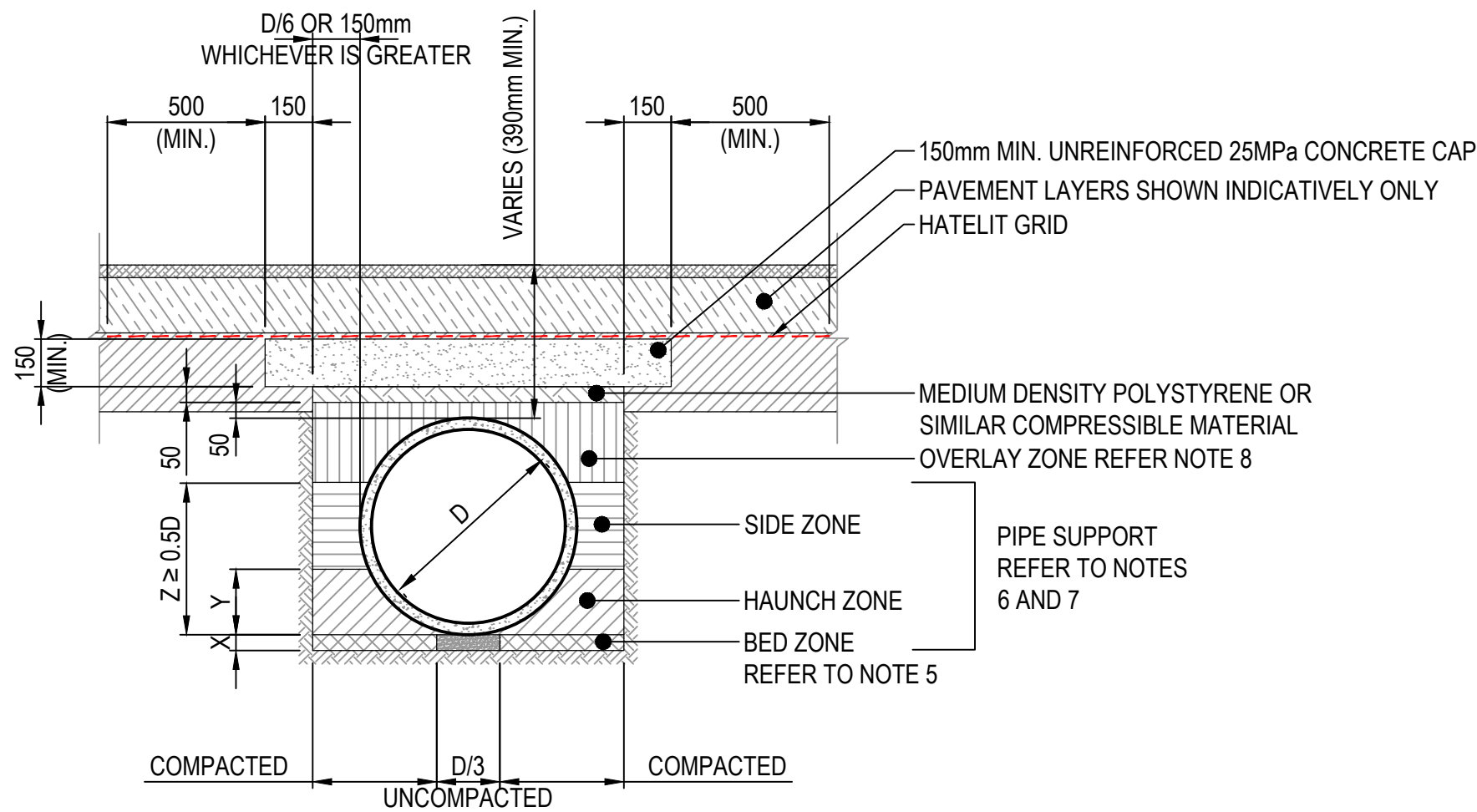
SUPPORT TYPE		MINIMUM DEPTH (mm)		MINIMUM ZONE COMPACTION, % ¹			BEDDING FACTOR ³ (F)
		BED ZONE X	HAUNCH ZONE Y	BED & HAUNCH ZONE ID ²	SIDE ZONES		
					ID ²	RD ²	
H	H2	100 IF D ≤ 1500; OR 150 IF D > 1500	0.3D	60	-	-	2.0
HS	HS2	100 IF D ≤ 1500; OR 150 IF D > 1500	0.3D	60	60	90	2.5

1 EXCLUDES CENTRAL D/3 UNCOMPACTED ZONE UNDER PIPE

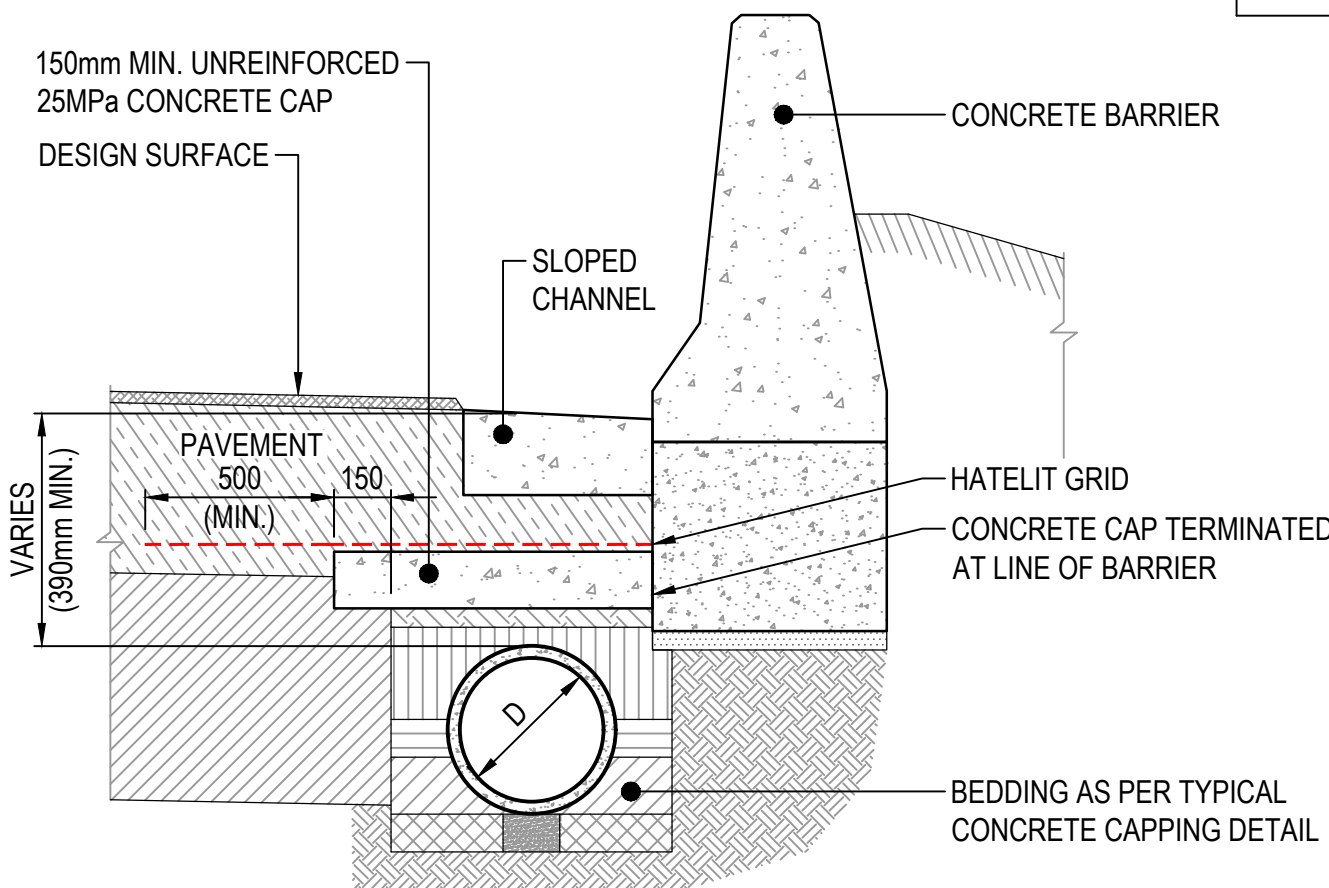
2 DENSITY INDEX ID APPLIES TO COHENSIONLESS MATERIALS AND DRY DENSITY RATIO RD APPLIES TO COHESIVE MATERIALS

3 SEE CONDITIONS IN CLAUSE 9.3.2 OF AS/NZS 3725-2007

ALL PIPE BEDDING TO BE CLASS HS2 IN ALL TRAFFICABLE AREAS AND CLASS H2 IN ALL OTHER AREAS UNLESS OTHERWISE SPECIFIED BY THE ENGINEER. REFER TO STORMWATER LONGSECTIONS (SW-DRG-0501 TO 0552) FOR SUPPORT TYPE REQUIRED ON RESPECTIVE PIPE RUN LENGTHS.



**TYPICAL CONCRETE
CAPPING DETAIL**
1:20



**TYPICAL CONCRETE CAPPING DETAIL
ADJACENT TO CONCRETE BARRIER**
1:20

REV	DATE	REVISION DETAILS	REV	DRAWN	DESIGNED	VERIFIED	APPROVED
A	2025-09-17	ISSUED FOR 50% DETAILED DESIGN	A	C.LACAMBRA	Y.HOOI	W.HERBERT	M.FLANNERY
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Roads of National
Significance

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1:20

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DRAWN BY

C.LACAMBRA

DESIGNED BY

Y.HOOI

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PROJECT

**BELFAST TO PEGASUS MOTORWAY
& WOODEND BYPASS**

TITLE

**STORMWATER
TYPICAL DETAILS
SHEET 1**

DOCUMENT CODE

11320-AUR-0350-PWI-SW-DRG-1201

SCALE

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SIZE

A1

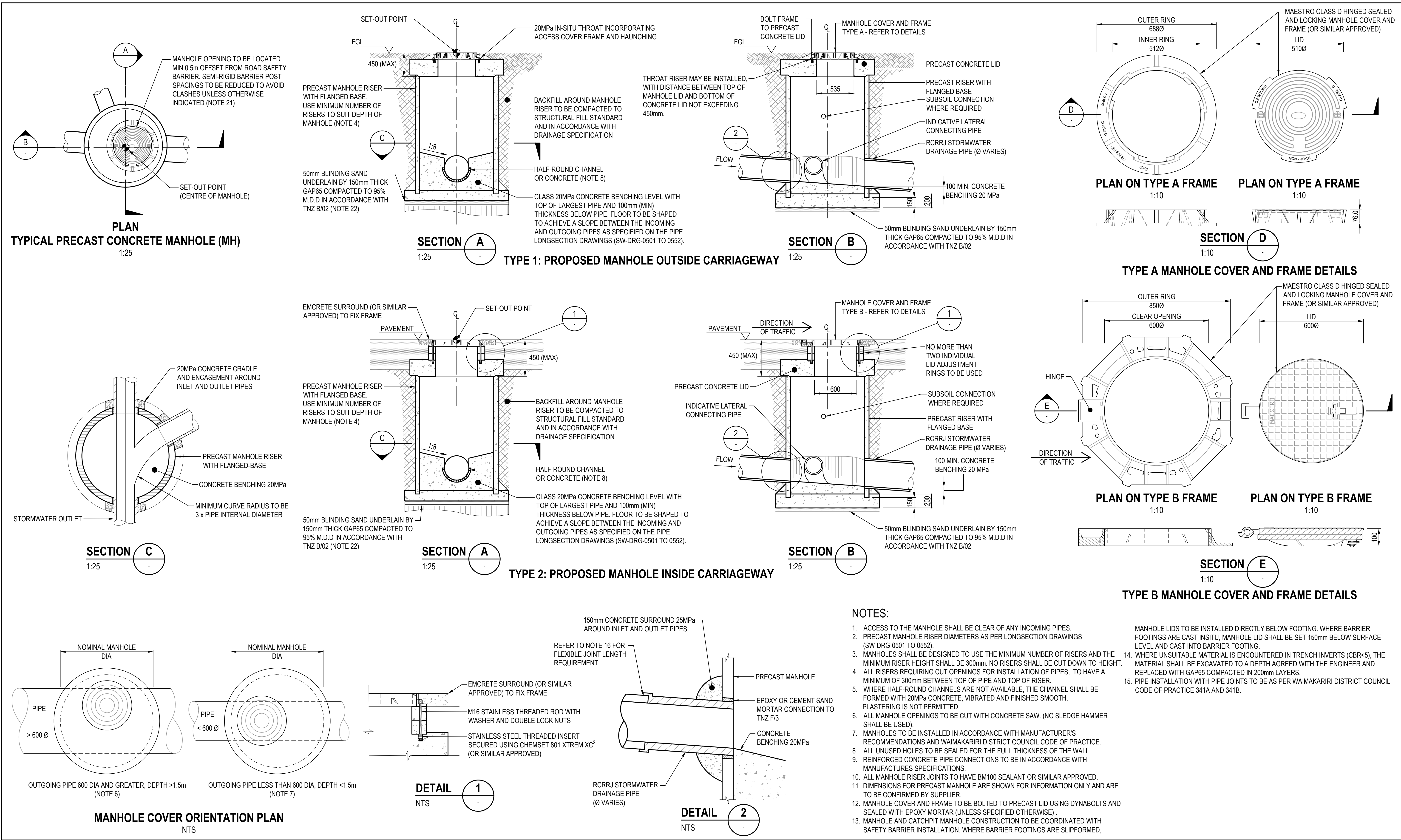
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SW-DRG-1201

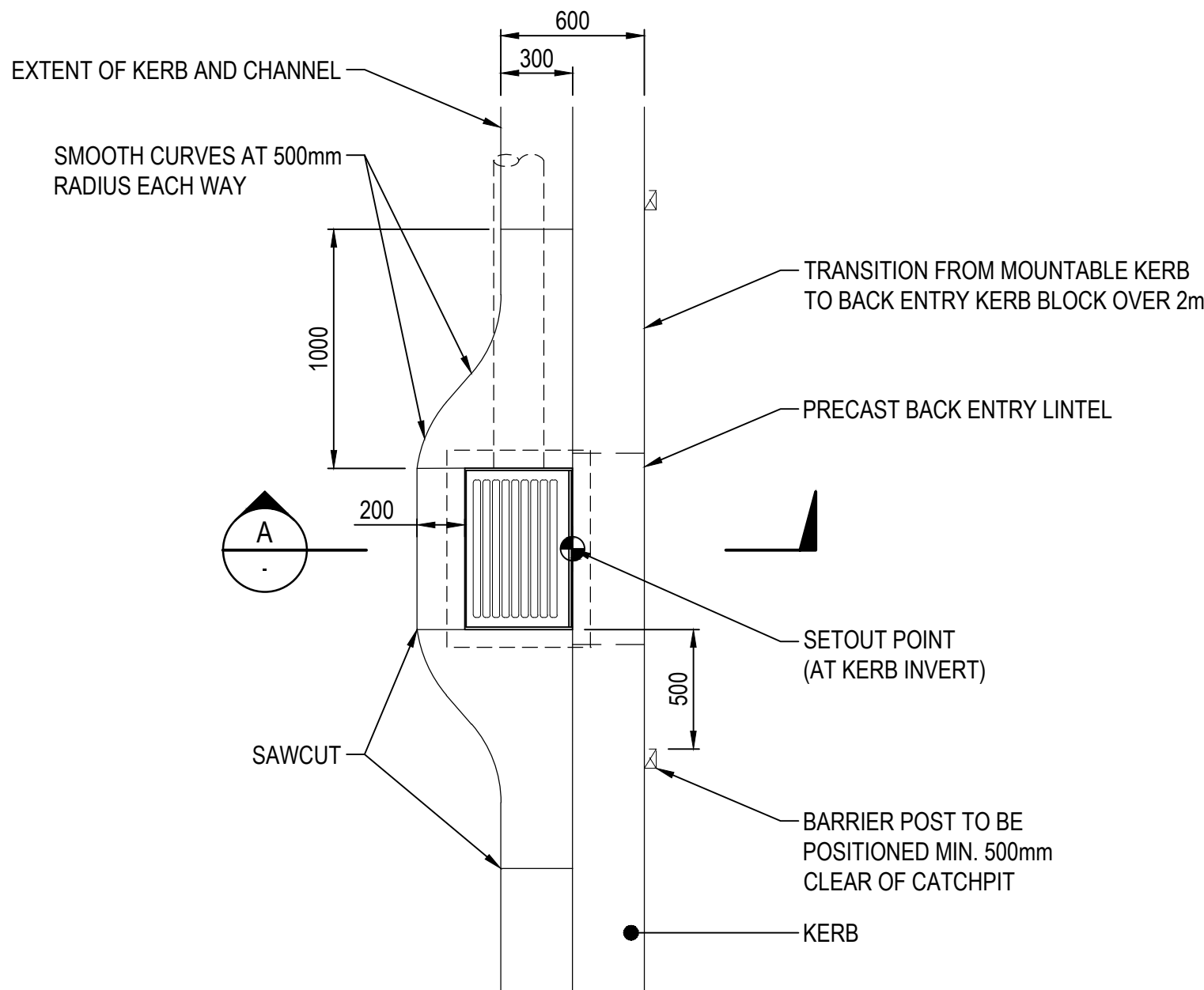
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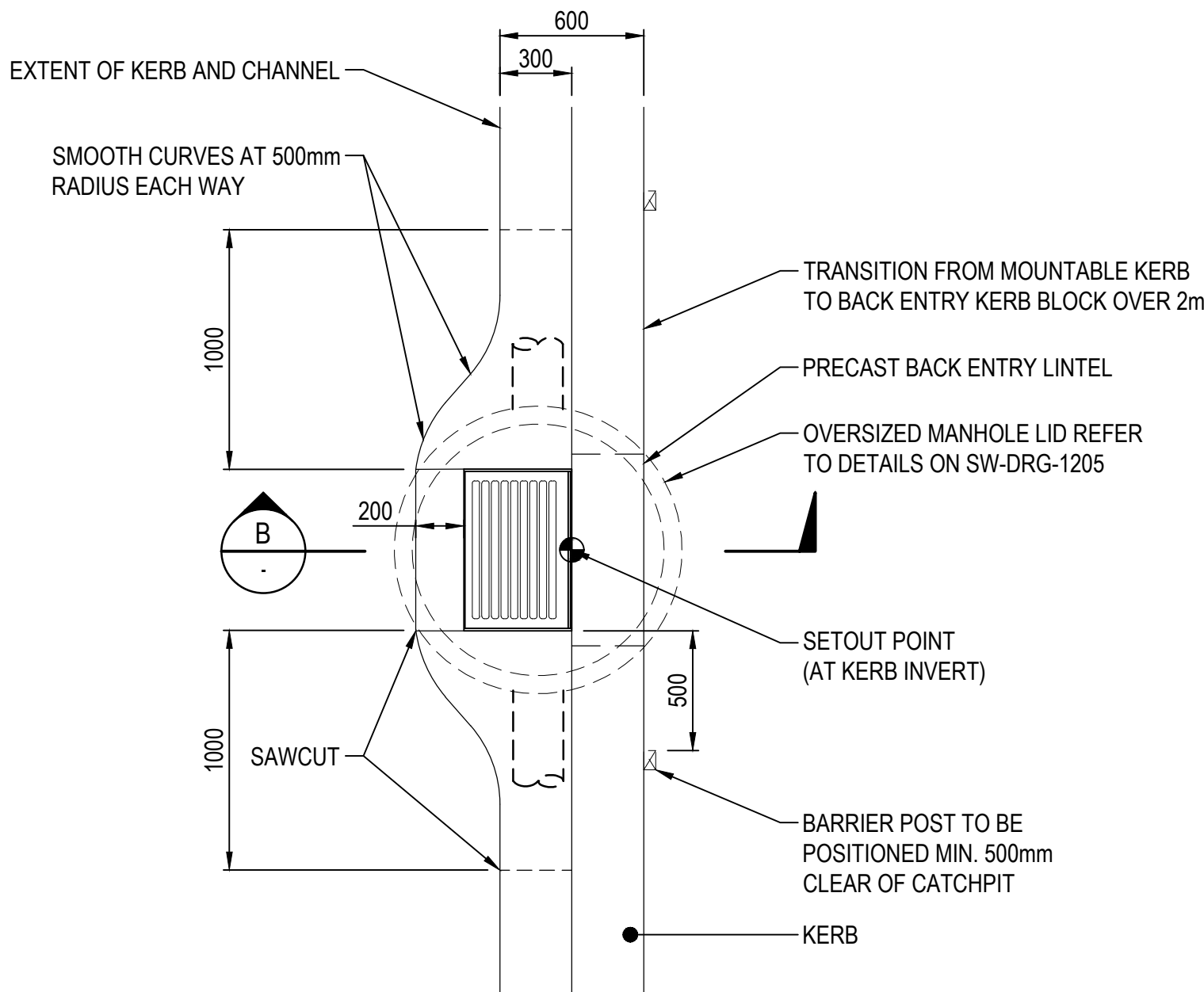
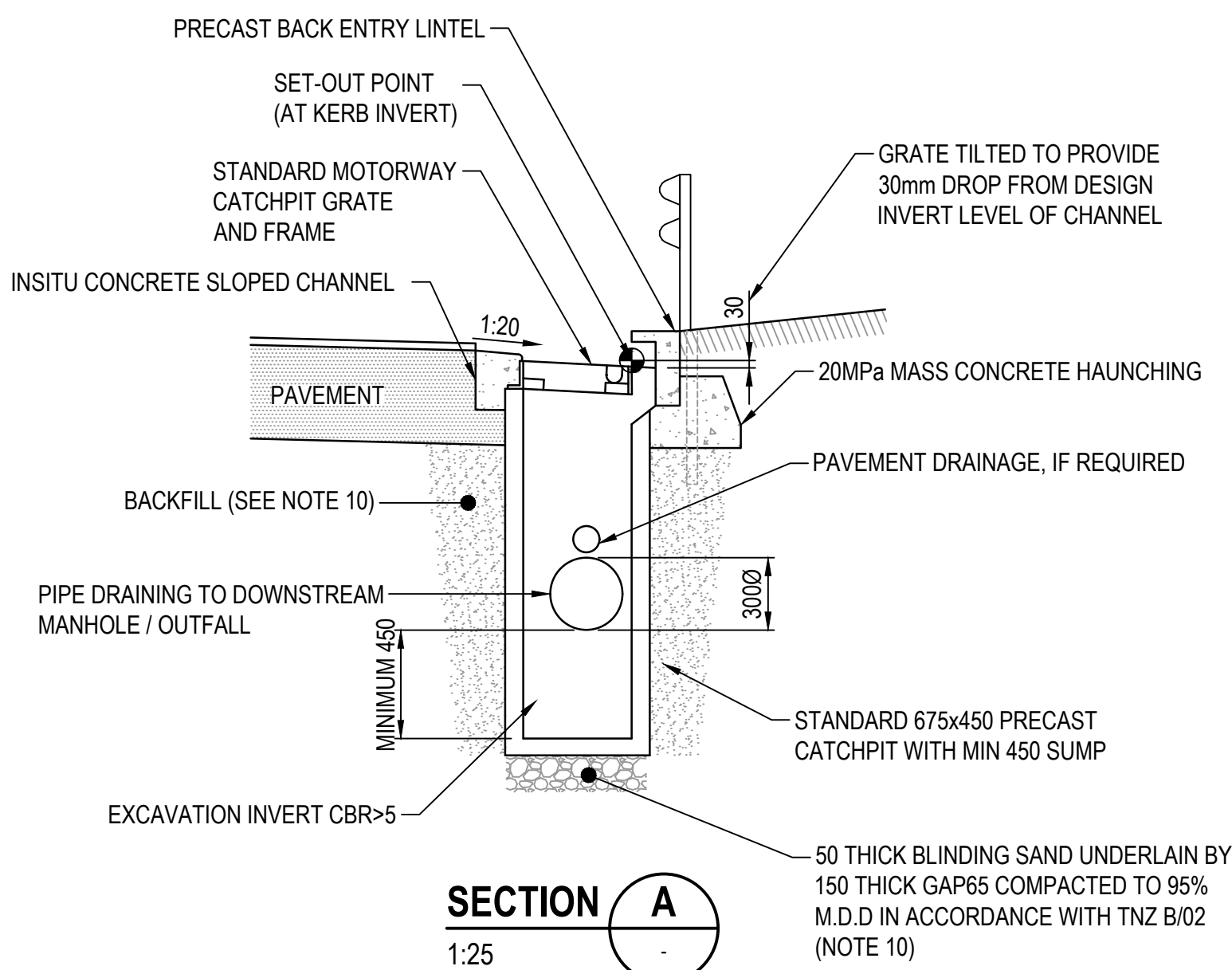


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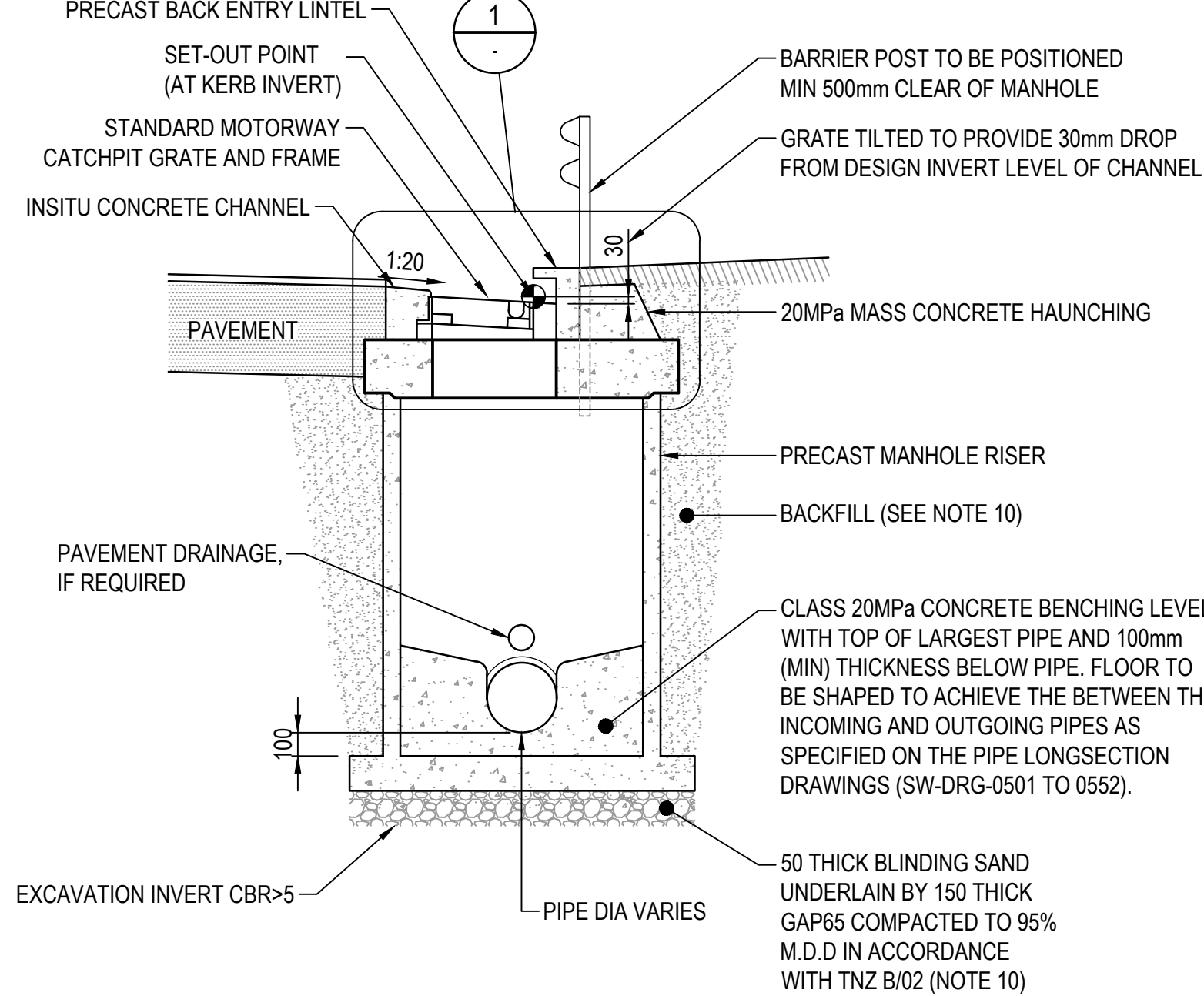
PLAN - TYPICAL CATCHPIT AND KERB (CP)

1:25



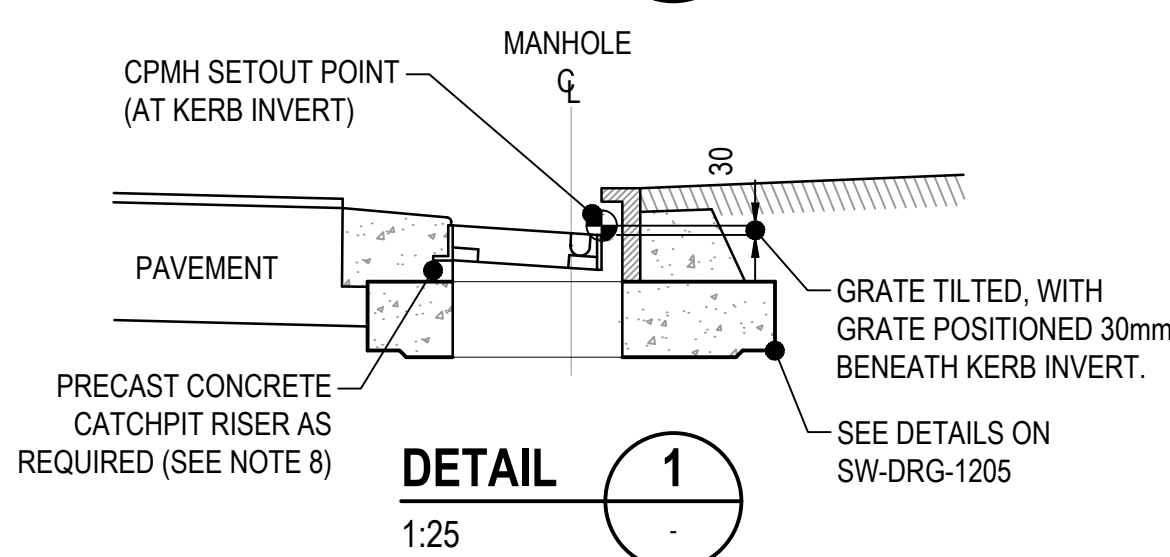
PLAN - TYPICAL CATCHPIT MANHOLE AND KERB (CPMH)

1:25



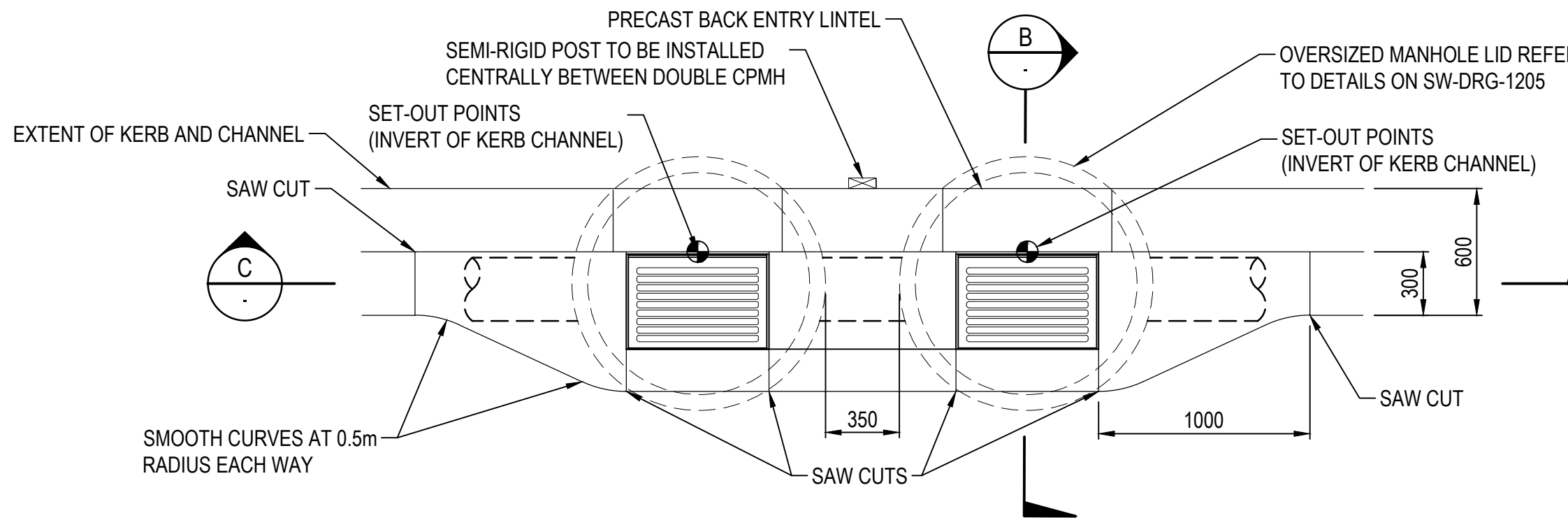
SECTION B

1:25



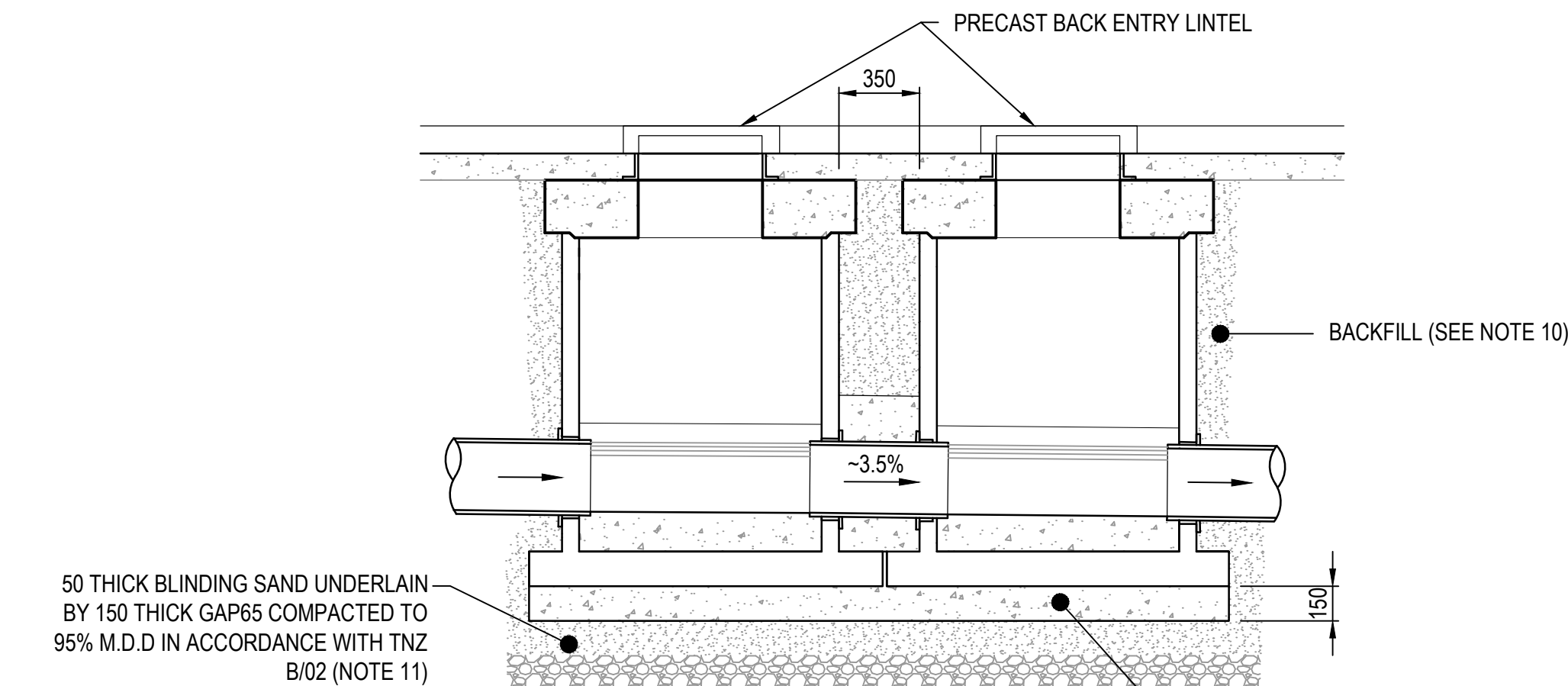
DETAIL 1

1:25



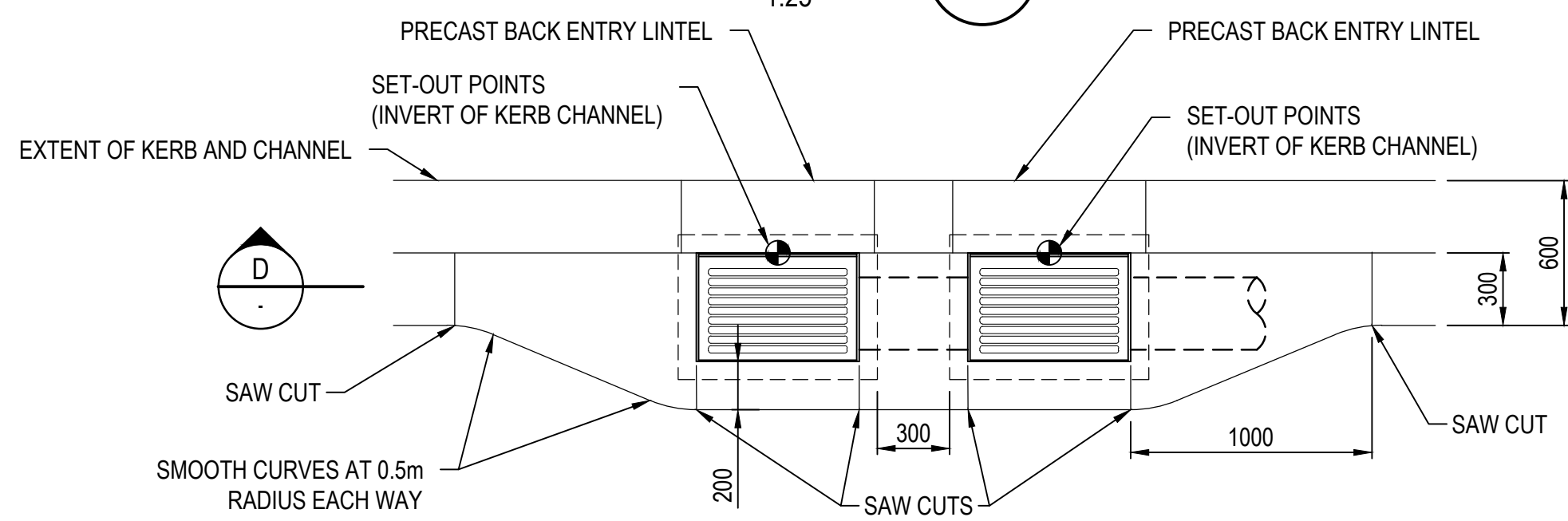
PLAN - TYPICAL DOUBLE CATCHPIT MANHOLE AND KERB (DCPMH)

1:25



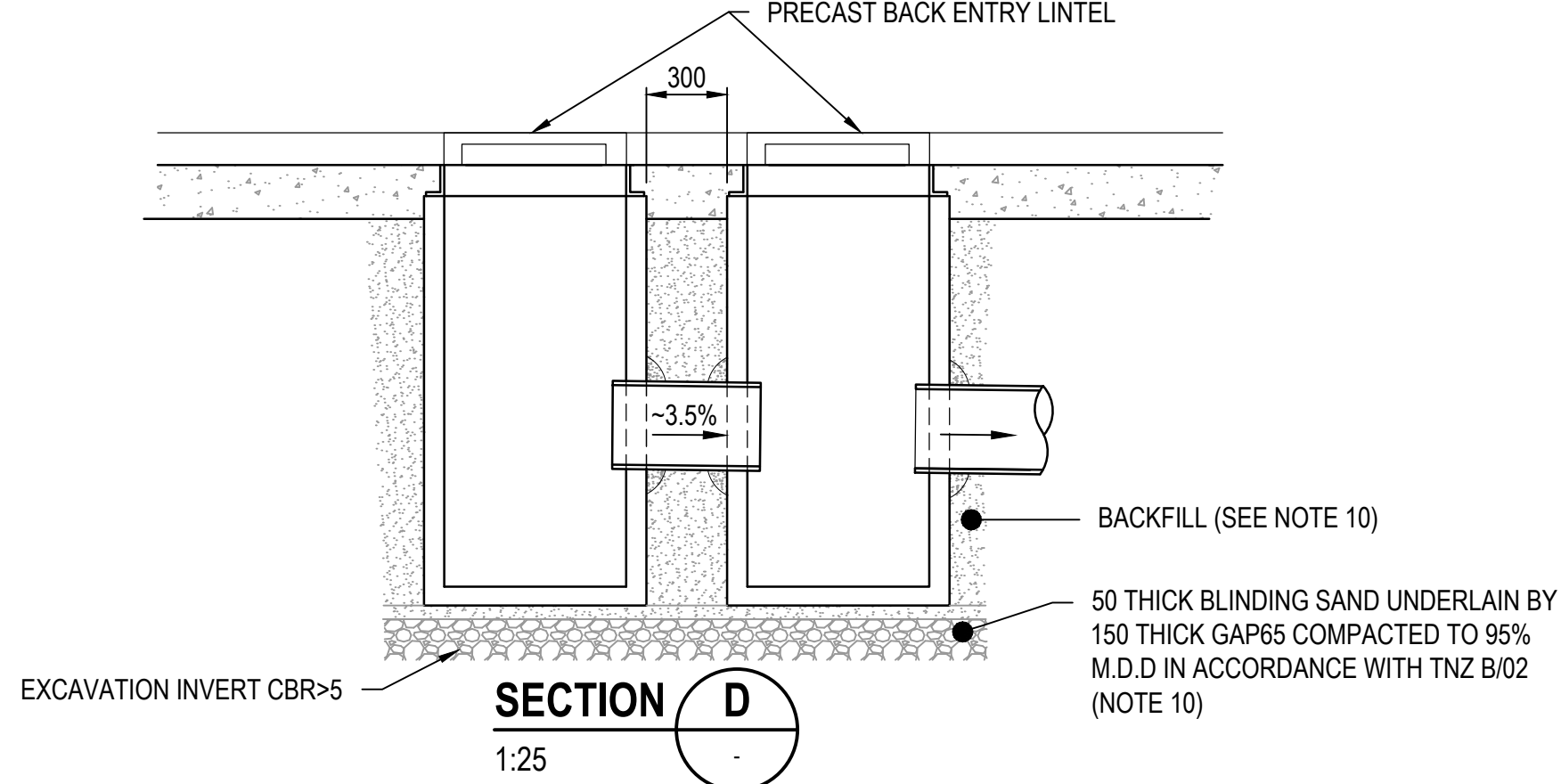
SECTION C

1:25



PLAN - TYPICAL DOUBLE CATCHPIT AND KERB (DCP)

1:25



SECTION D

1:25

NOTES:

- ALL DIMENSIONS IN MILLIMETERS UNLESS STATED OTHERWISE.
- DIMENSIONS OF PRECAST CATCHPIT MANHOLE ARE SHOWN FOR INFORMATION ONLY AND ARE TO BE CONFIRMED BY SUPPLIER.
- CATCHPIT GRATES TO BE SUITABLE FOR HIGHWAY LOADING REQUIREMENTS. (HN-HO-72) CARRIAGEWAY GRATES WITHIN THE WAKA KOTAHİ DESIGNATION SHALL HAVE LONGITUDINAL OPENINGS WITH MINIMUM 35mm APERTURES (NZTA STANDARD). LOCAL ROAD CARRIAGEWAY GRATES TO BE IN ACCORDANCE WITH WAIMAKARIRI DISTRICT COUNCIL CODE OF PRACTICE.
- CATCHPIT AND CATCHPIT MANHOLE CONSTRUCTION TO BE COORDINATED WITH SAFETY BARRIER INSTALLATION. WHERE BARRIER FOOTINGS ARE SLIPFORMED, MANHOLE LIDS TO BE INSTALLED DIRECTLY BELOW FOOTING. WHERE BARRIER FOOTINGS ARE CAST INSITU, MANHOLE LID SHALL BE SET 150mm BELOW SURFACE LEVEL AND CAST INTO BARRIER FOOTING.
- CATCHPIT MANHOLES TO BE PROVIDED WITH PRECAST FLANGE BASE, UNLESS OTHERWISE APPROVED BY DESIGN ENGINEER. ALL MANHOLES TO BE FULLY BENCHED.
- SITE CONCRETE TO BE A MINIMUM OF 20MPa. CONCRETE SHOULD BE VIBRATED TO MINIMISE AIR POCKETS.
- COVER FOR ALL REINFORCEMENT BARS TO BE A MINIMUM OF 40mm.
- WHERE REQUIRED, PRECAST CATCHPIT RISER UNITS CAN BE INSTALLED ON MANHOLE LIDS TO RAISE GRATE LEVELS. THE DISTANCE BETWEEN TE TOP OF THE GRATE TO BOTTOM OF PRECAST CONCRETE LID SHALL NOT EXCEED 450mm.
- ALL CATCHPIT MANHOLES AND CATCHPITS TO BE BACKFILLED WITH AP65 HARDFILL COMPACTED IN 200mm LAYERS TO ACHIEVE 95% MDD.
- WHERE UNSUITABLE MATERIAL IS ENCOUNTERED IN TRENCH INVERTS (CBR<5), THE MATERIAL SHALL BE EXCAVATED TO A DEPTH AGREED WITH THE ENGINEER AND REPLACED WITH GAP65 COMPACTED IN 200mm LAYERS.

REV	DATE	REVISION DETAILS	REV	DRAWN	DESIGNED	VERIFIED	APPROVED
A	2025-09-17	ISSUED FOR 50% DETAILED DESIGN	A	C.LACAMBRA	Y.HOOI	W.HERBERT	M.FLANNERY
B	2025-12-12	ISSUED FOR 100% DETAILED DESIGN	B	C.LACAMBRA	Y.HOOI	W.HERBERT	M.FLANNERY

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AGENCY
WAKA KOTAHİ

Roads of National
Significance

250 0 500 1000 mm
1:25

All written dimensions
take precedence over
scaled dimensions.

Coordinate system

Height datum

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CONSTRUCTION STATUS

NOT FOR
CONSTRUCTION

DRAWN BY

C.LACAMBRA

DESIGNED BY

Y.HOOI

STATUS

ISSUED FOR DETAILED
DESIGN

DOCUMENT STATE

PUBLISHED

CODE

P3

REFERENCE No.

SW-DRG-1203

SCALE

1:25

SIZE

A1

REV

B

PROJECT
BELFAST TO PEGASUS MOTORWAY
& WOODEND BYPASS

TITLE
STORMWATER
TYPICAL DETAILS
SHEET 3

DOCUMENT CODE

11320-AUR-0350-PWI-SW-DRG-1203

SCALE

1:25

SIZE

A1

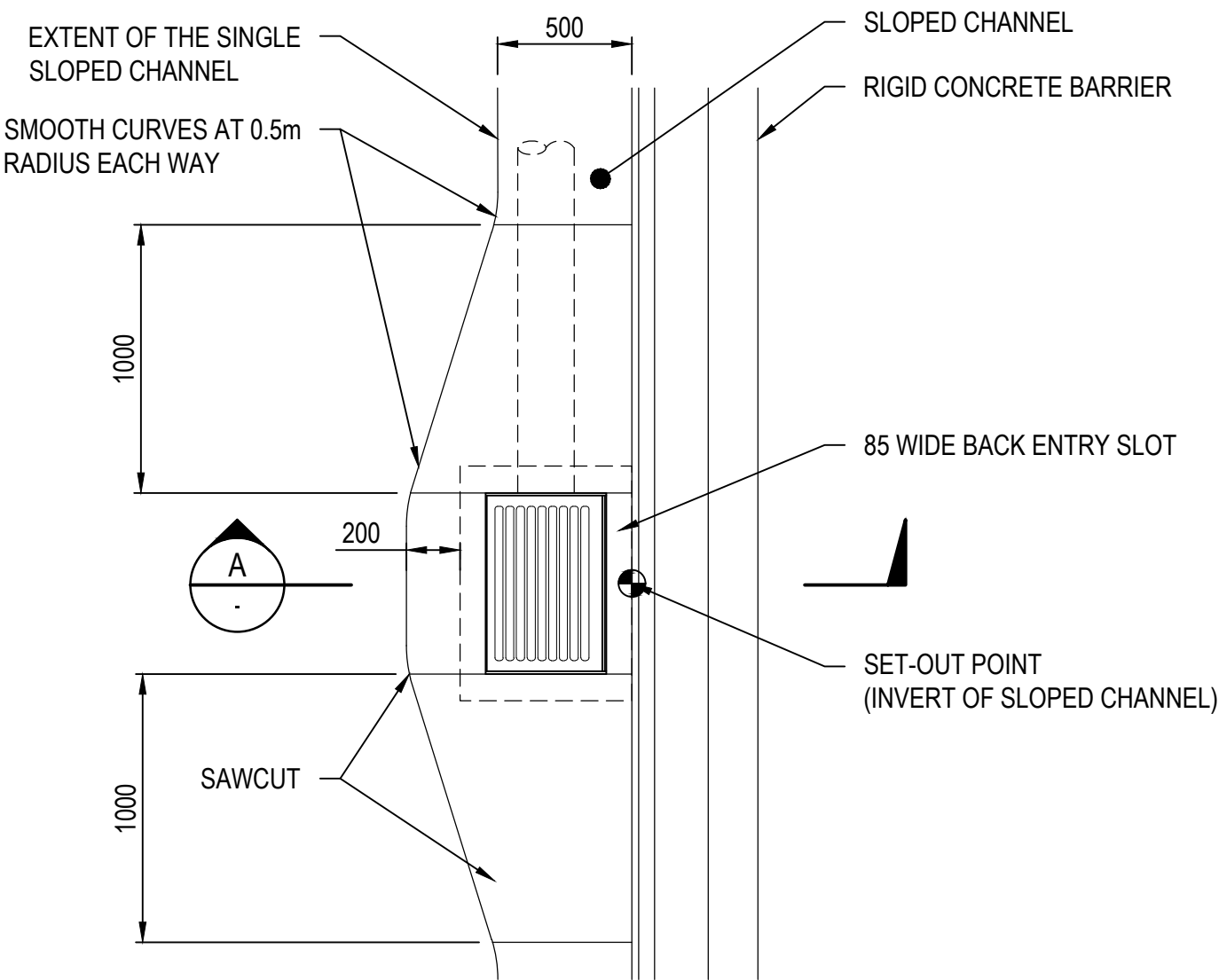
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SW-DRG-1203

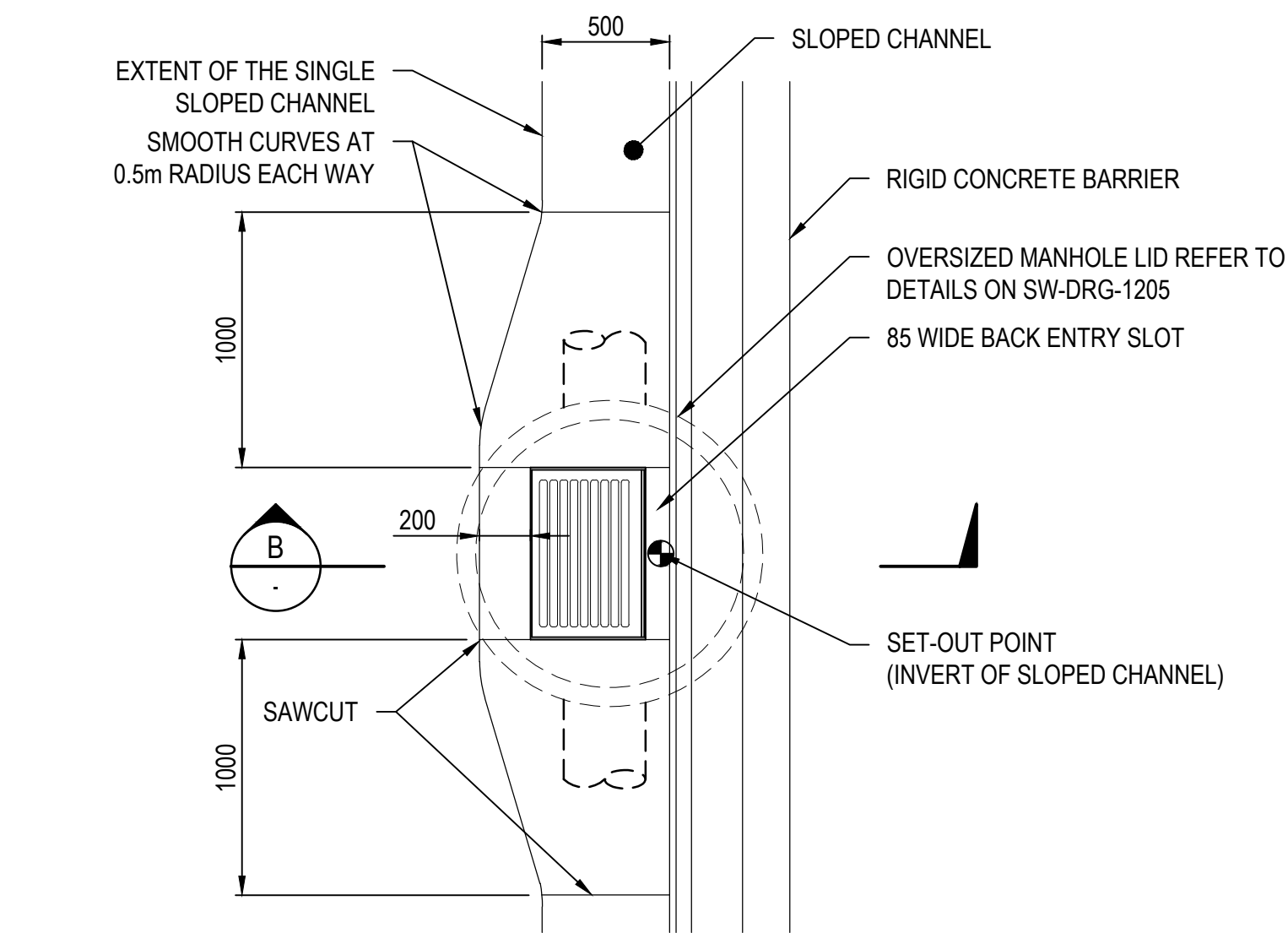
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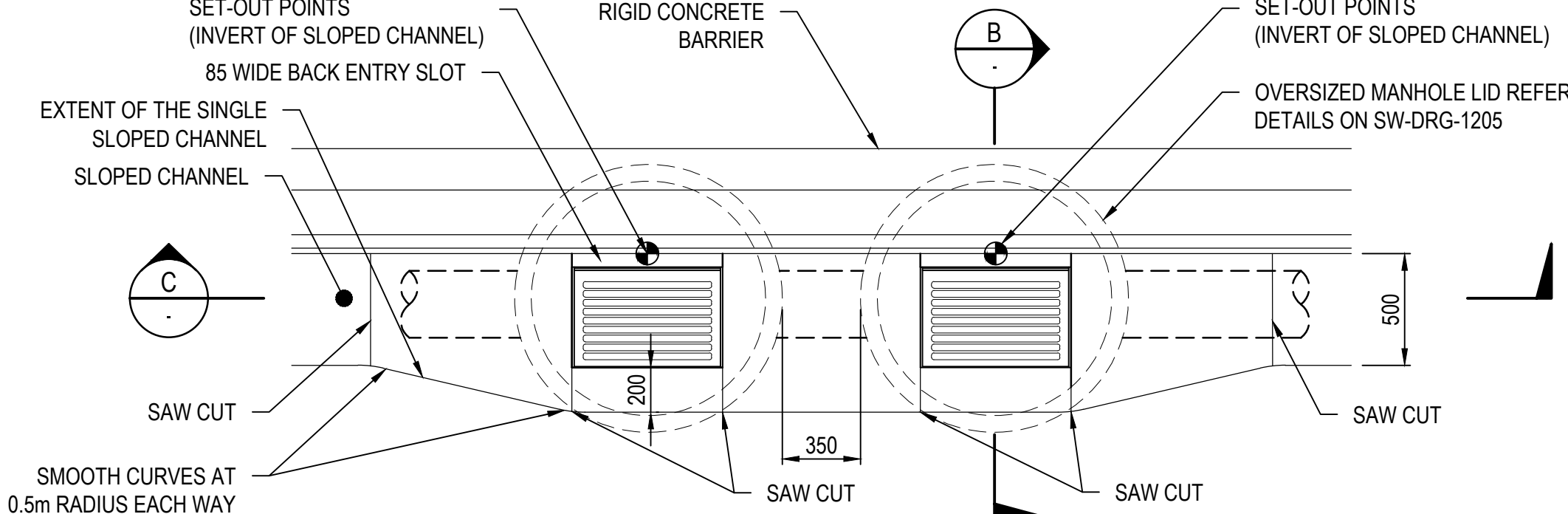
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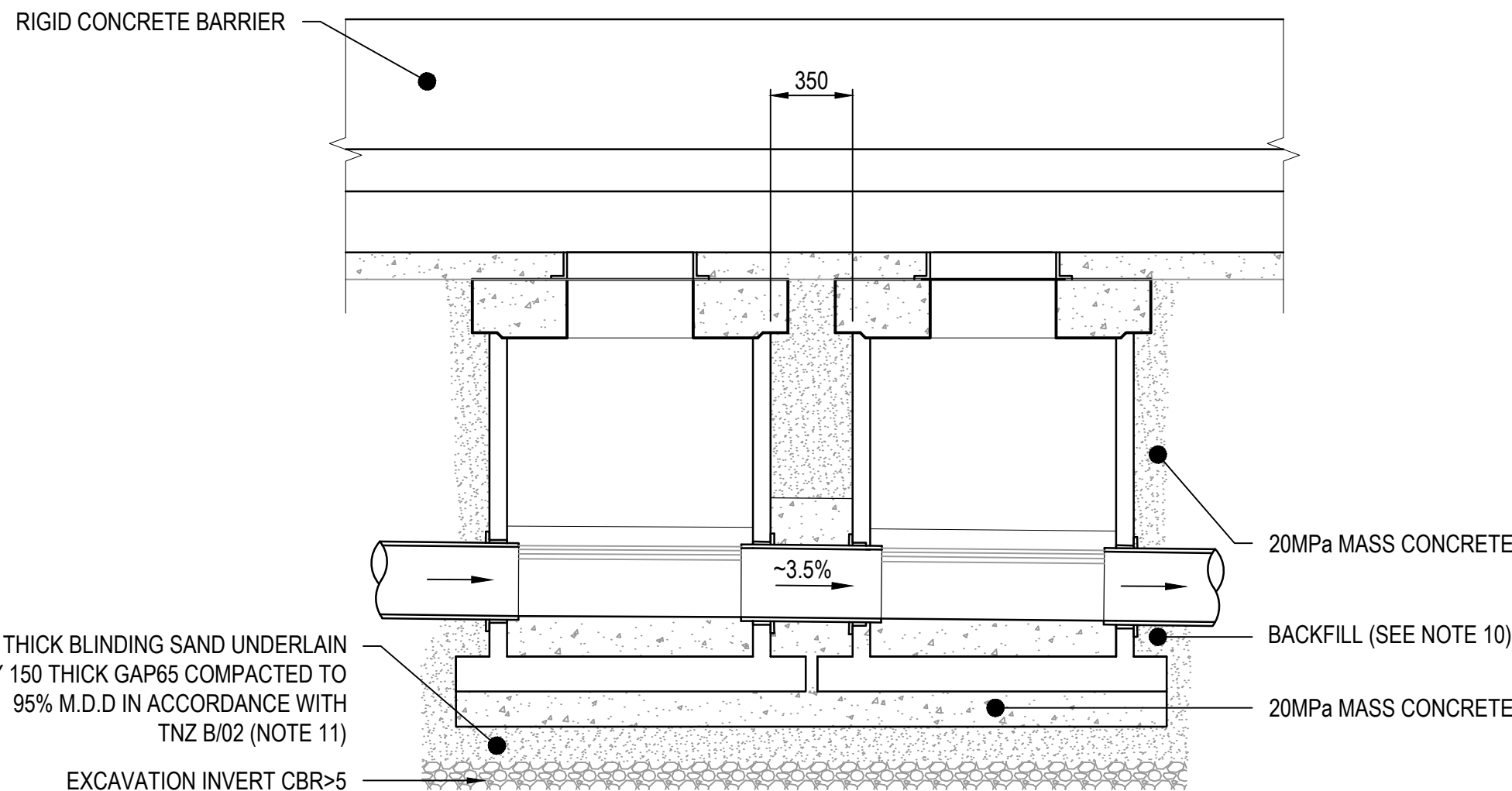
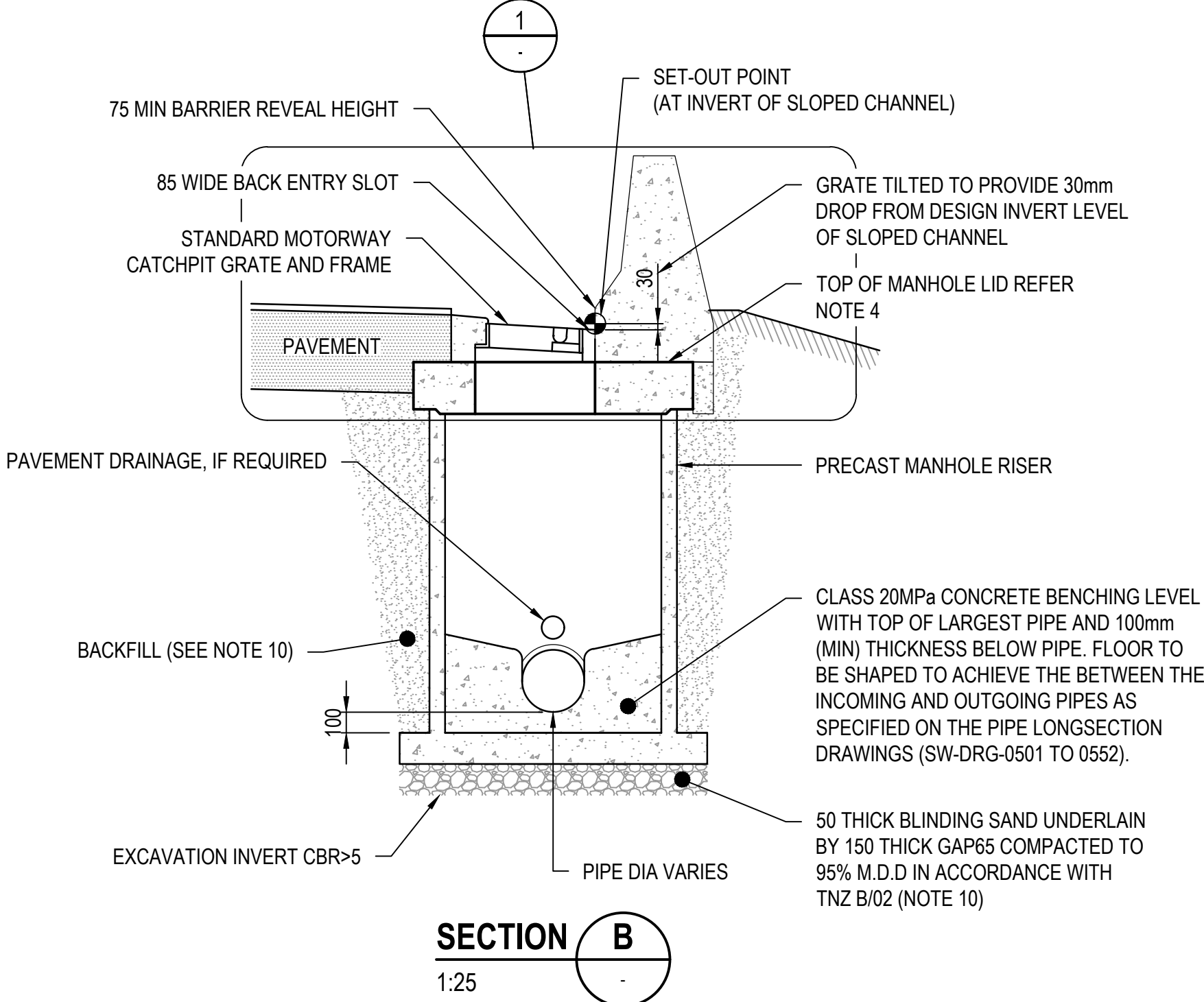
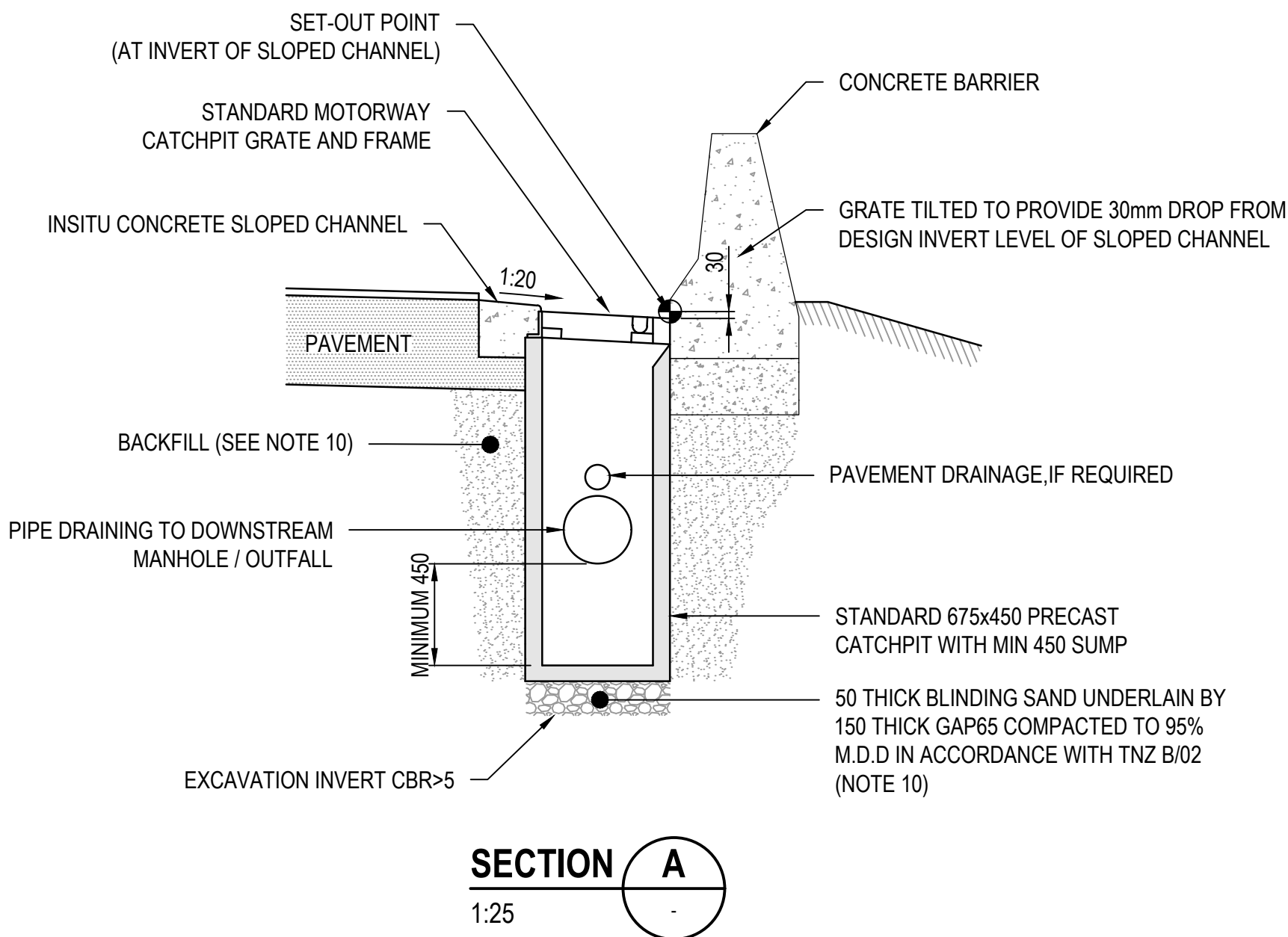
PLAN - TYPICAL CATCHPIT AND RIGID BARRIER (CP)
1:25



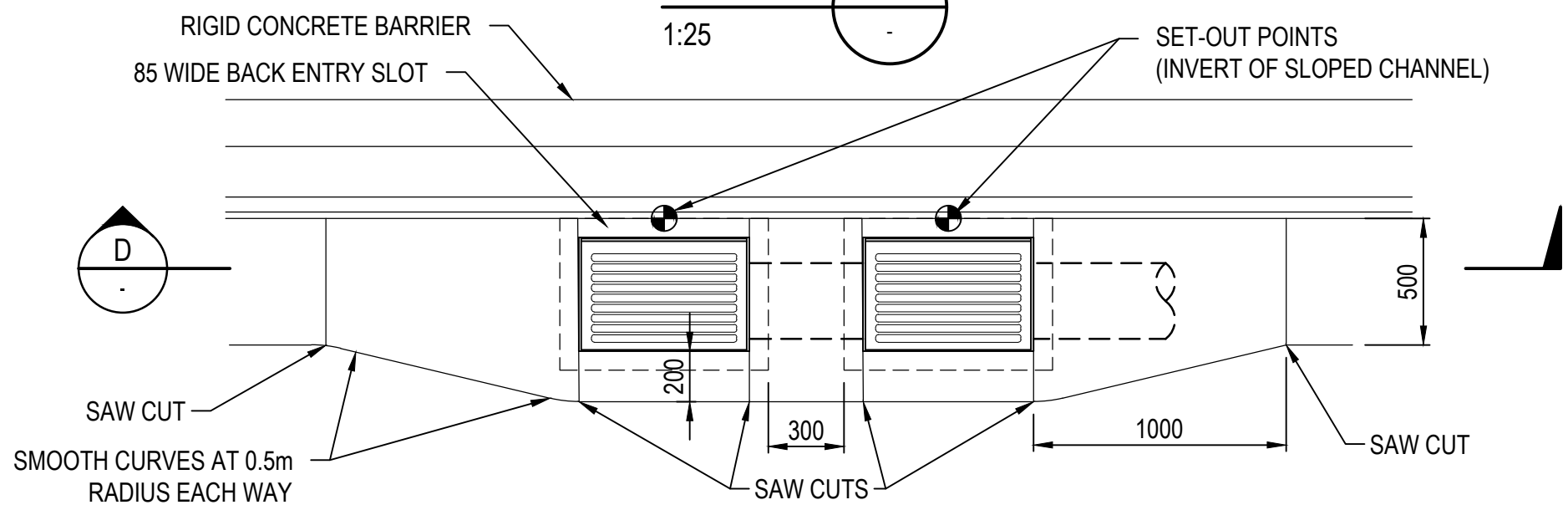
PLAN - TYPICAL CATCHPIT MANHOLE AND RIGID BARRIER (CPMH)
1:25



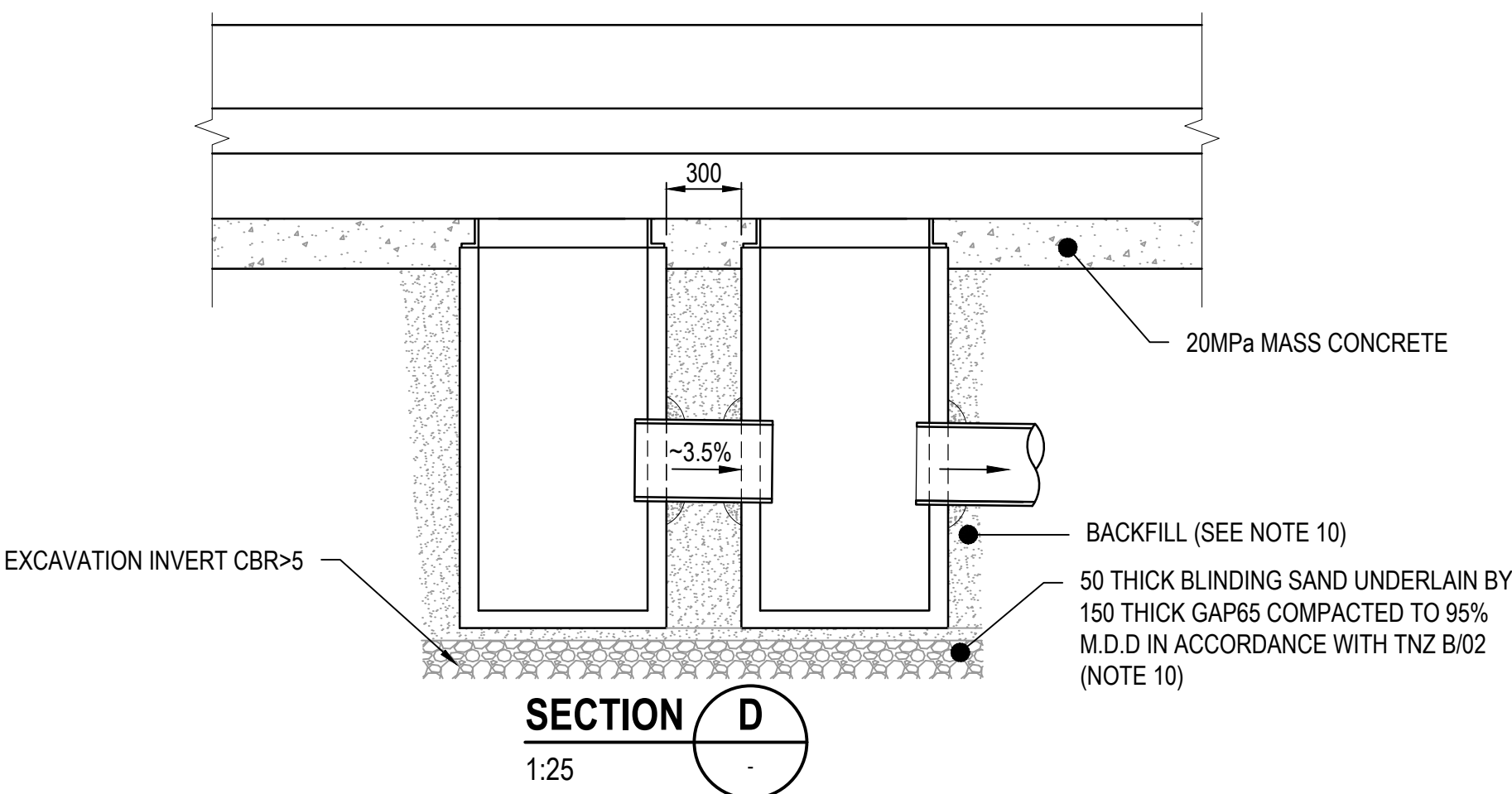
PLAN - TYPICAL DOUBLE CATCHPIT MANHOLE AND BARRIER (CPMH)
1:25



SECTION C
1:25



PLAN - TYPICAL DOUBLE CATCHPIT AND BARRIER (CP)
1:25



SECTION D
1:25

NOTES:

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2. DIMENSIONS OF PRECAST CATCHPIT MANHOLE ARE SHOWN FOR INFORMATION ONLY AND ARE TO BE CONFIRMED BY SUPPLIER.
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8. WHERE REQUIRED, PRECAST CATCHPIT RISER UNITS CAN BE INSTALLED ON MANHOLE LIDS TO RAISE GRATE LEVELS. THE DISTANCE BETWEEN TE TOP OF THE GRATE TO BOTTOM OF PRECAST CONCRETE LID SHALL NOT EXCEED 450mm.
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B	2025-12-12	ISSUED FOR 100% DETAILED DESIGN	B	C.LACAMBRA	Y.HOOI	W.HERBERT	M.FLANNERY

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Roads of National
Significance

250 0 500 1000 mm
1:25

All written dimensions
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scaled dimensions.

Coordinate system

Height datum

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CONSTRUCTION STATUS

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CONSTRUCTION

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C.LACAMBRA

DESIGNED BY

Y.HOOI

STATUS

ISSUED FOR DETAILED
DESIGN

CODE

P3

DOCUMENT STATE

PUBLISHED

PROJECT

BELFAST TO PEGASUS MOTORWAY
& WOODEND BYPASS

TITLE

STORMWATER
TYPICAL DETAILS
SHEET 4

DOCUMENT CODE

11320-AUR-0350-PWI-SW-DRG-1204

SCALE

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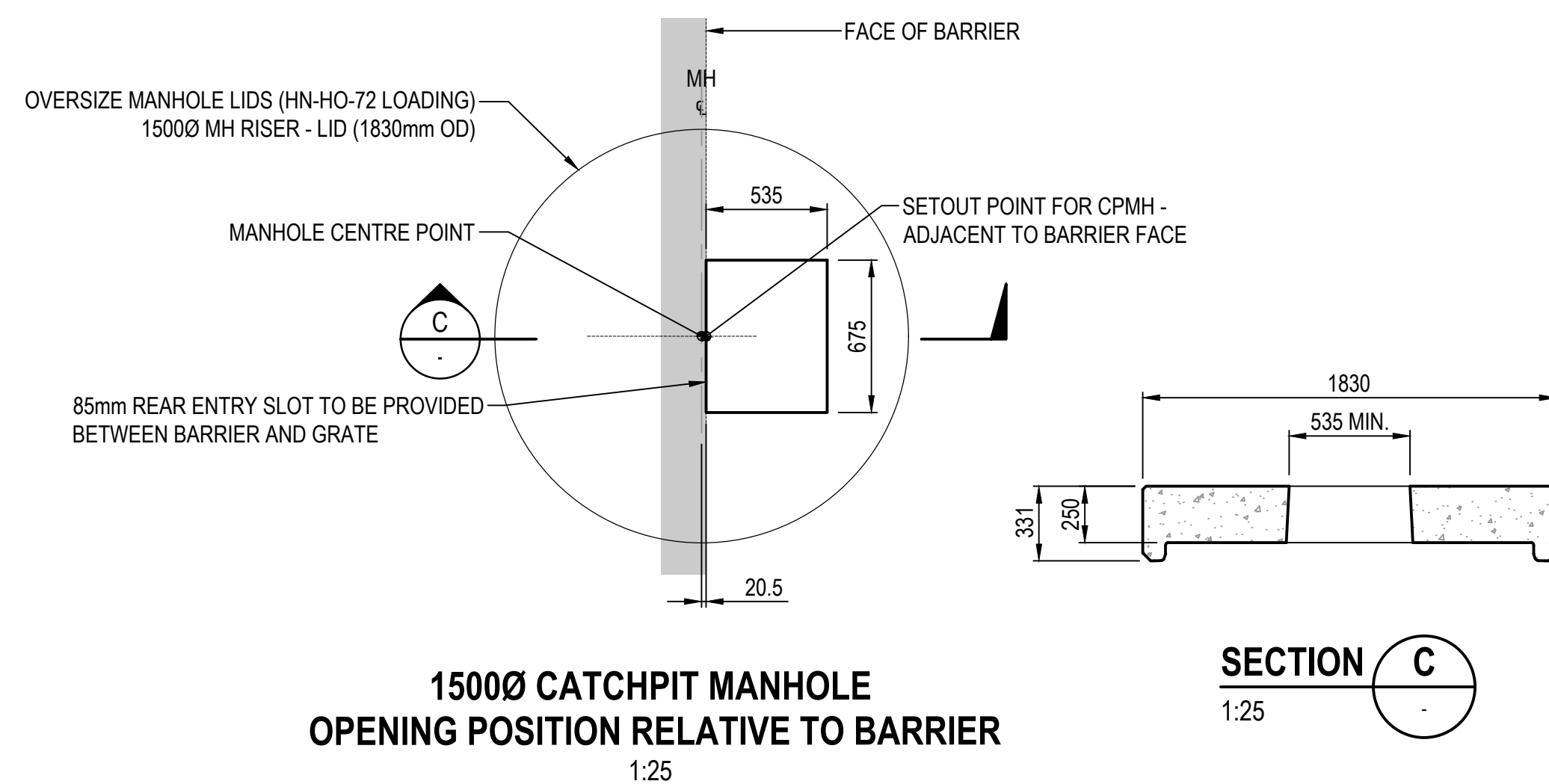
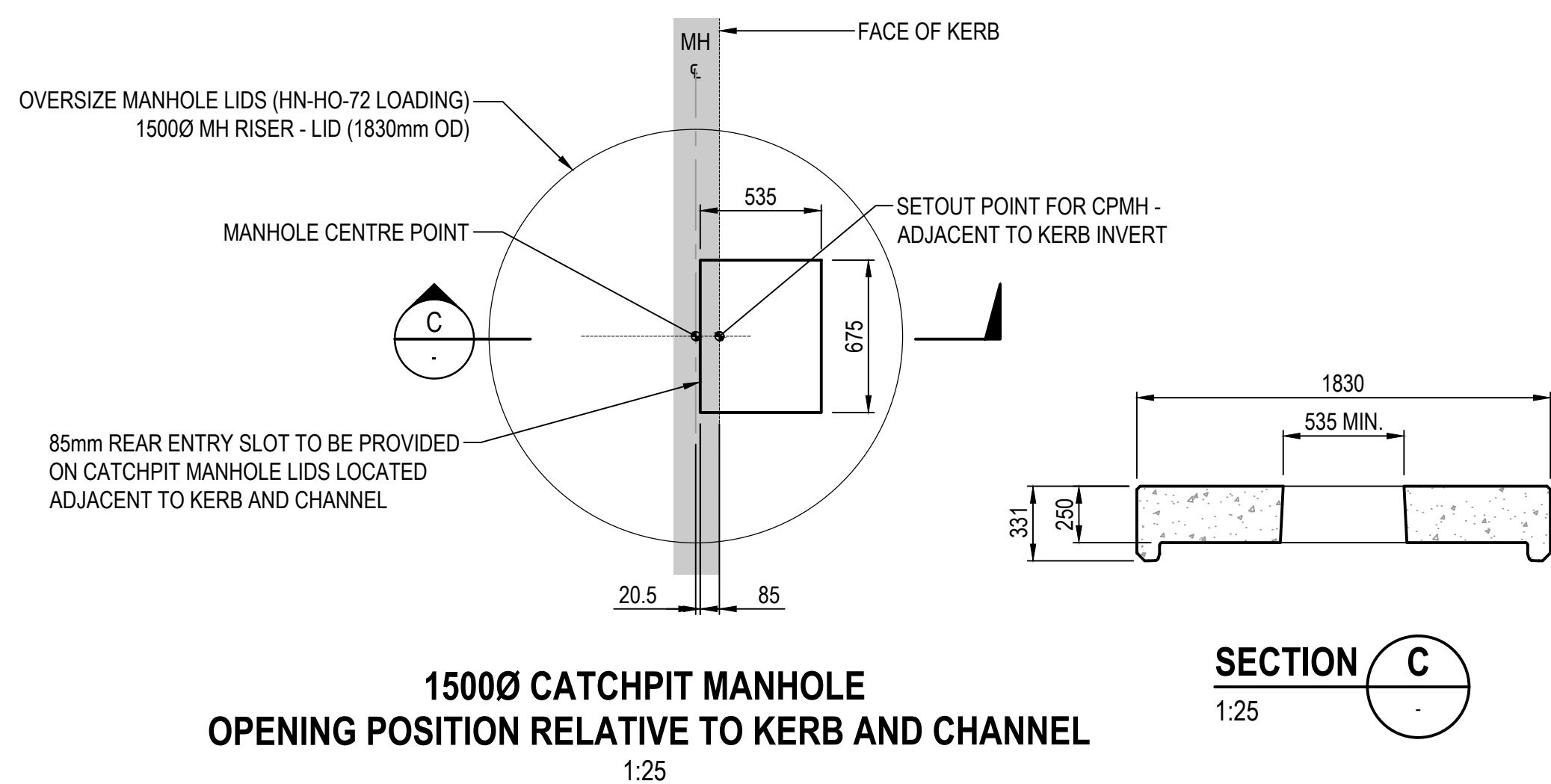
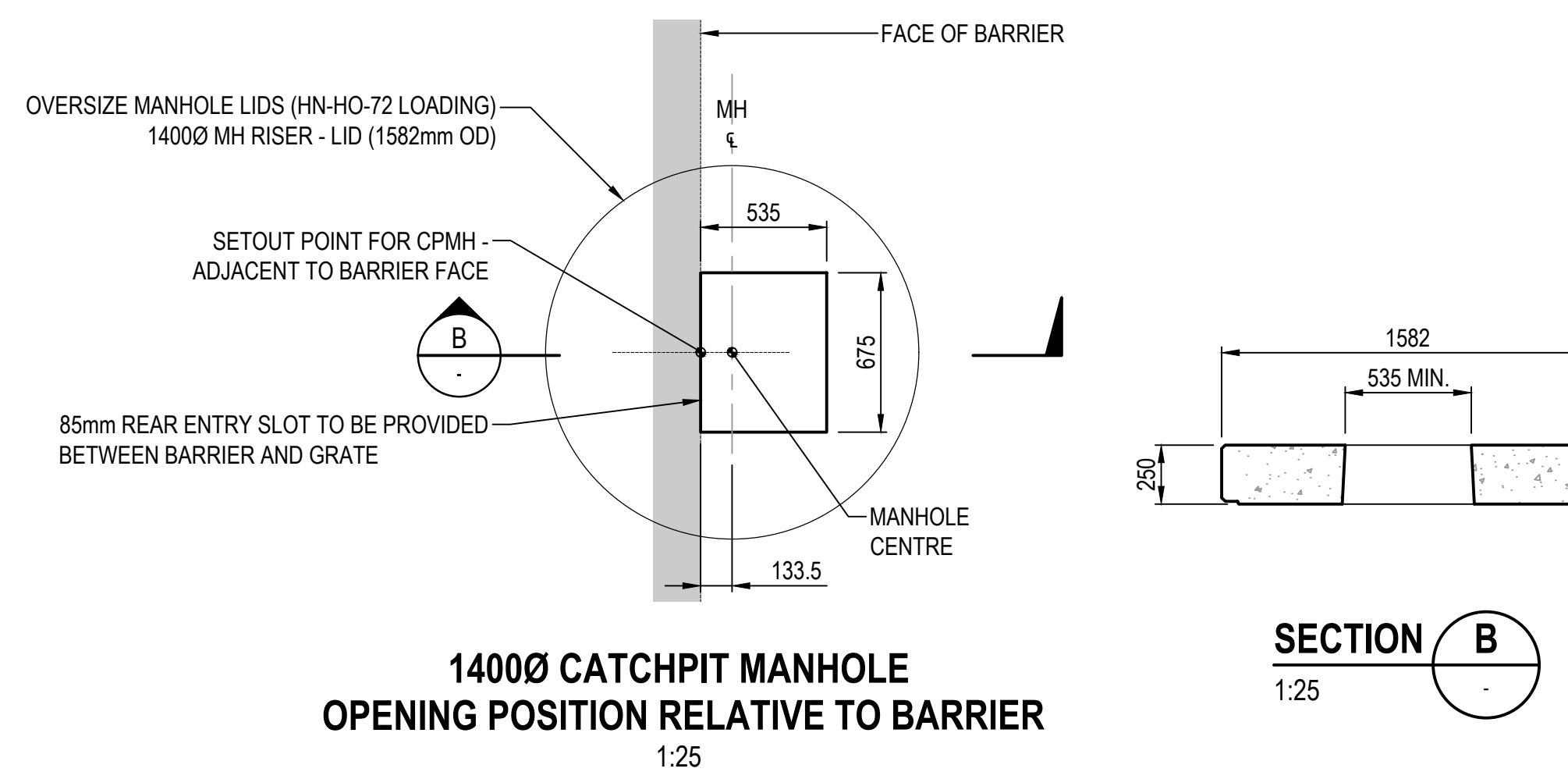
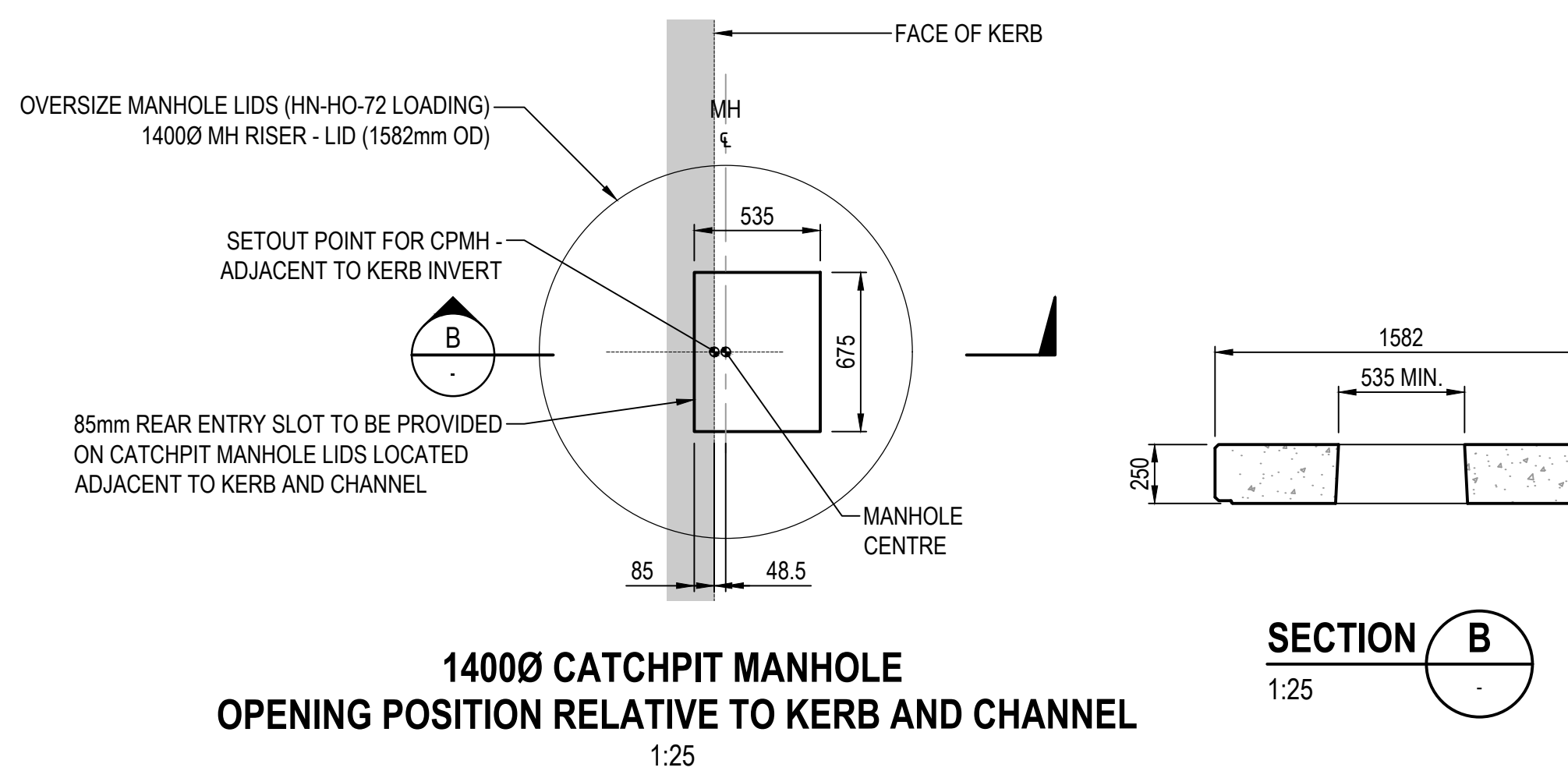
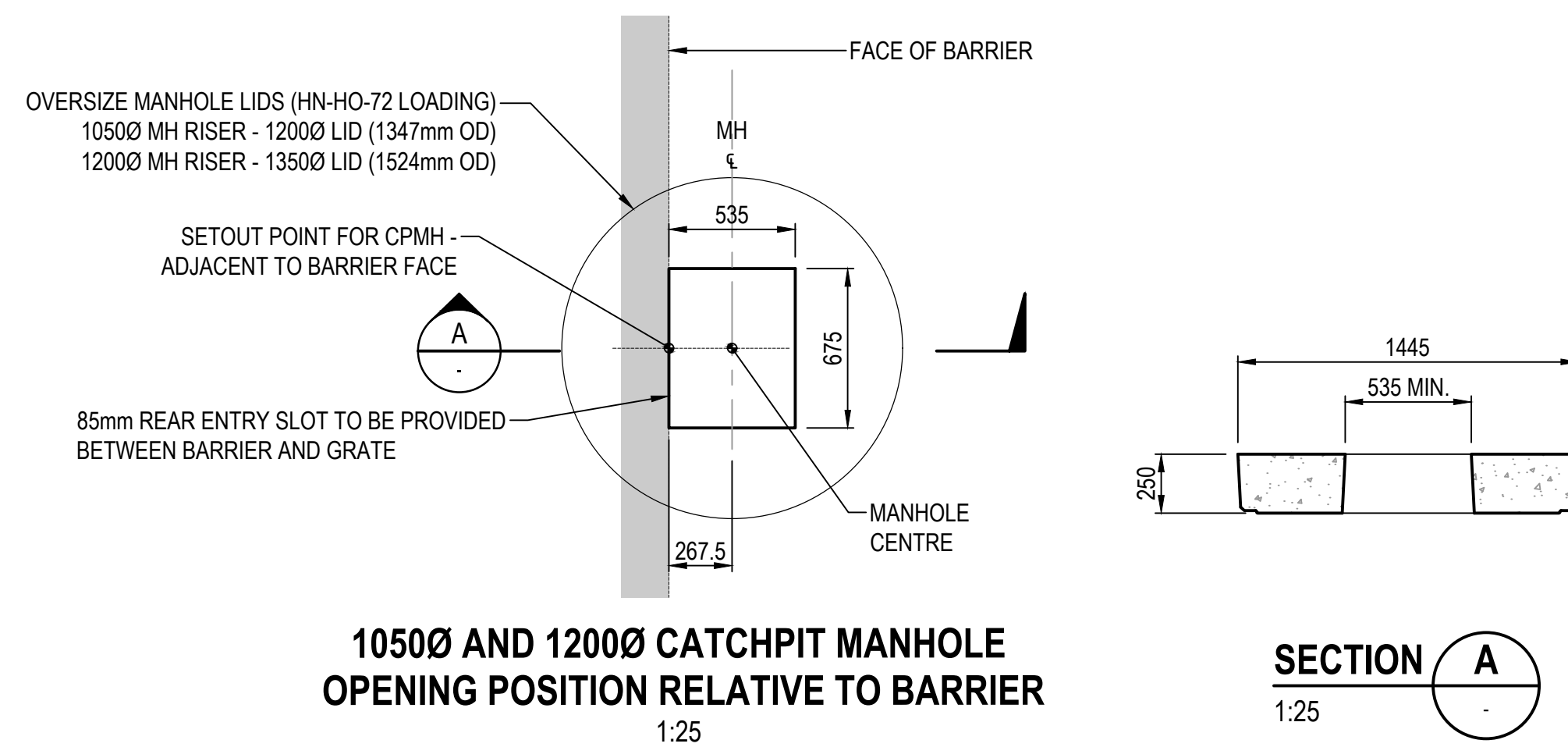
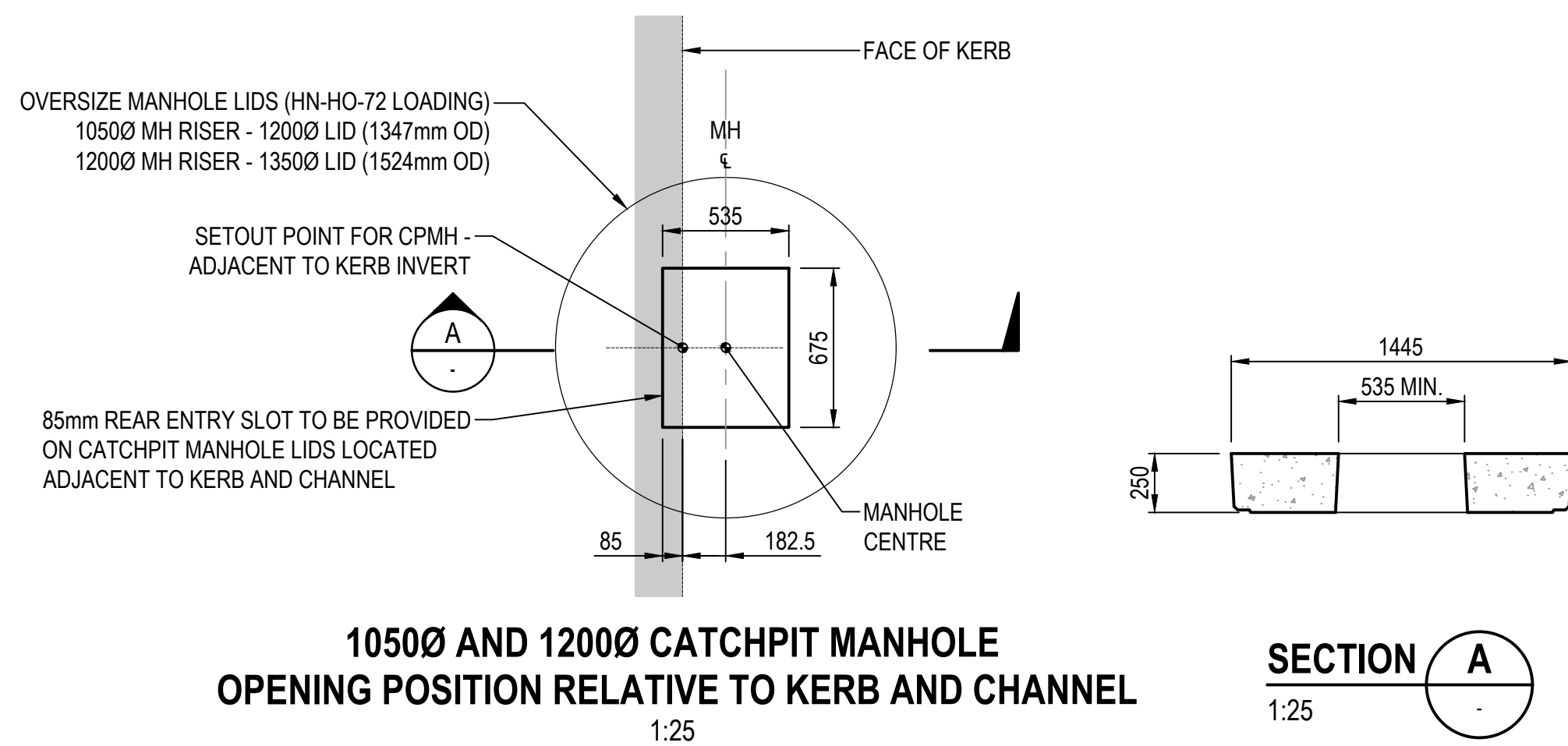
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REFERENCE No.

SW-DRG-1204

REV

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A	2025-09-17	ISSUED FOR 50% DETAILED DESIGN	A	C.LACAMBRA	Y.HOOI	W.HERBERT	M.FLANNERY
B	2025-12-12	ISSUED FOR 100% DETAILED DESIGN	B	C.LACAMBRA	Y.HOOI	W.HERBERT	M.FLANNERY

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scaled dimensions.

Coordinate system

Height datum

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CONSTRUCTION

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C.LACAMBRA

DESIGNED BY

Y.HOOI

STATUS

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DESIGN

DOCUMENT STATE

PUBLISHED

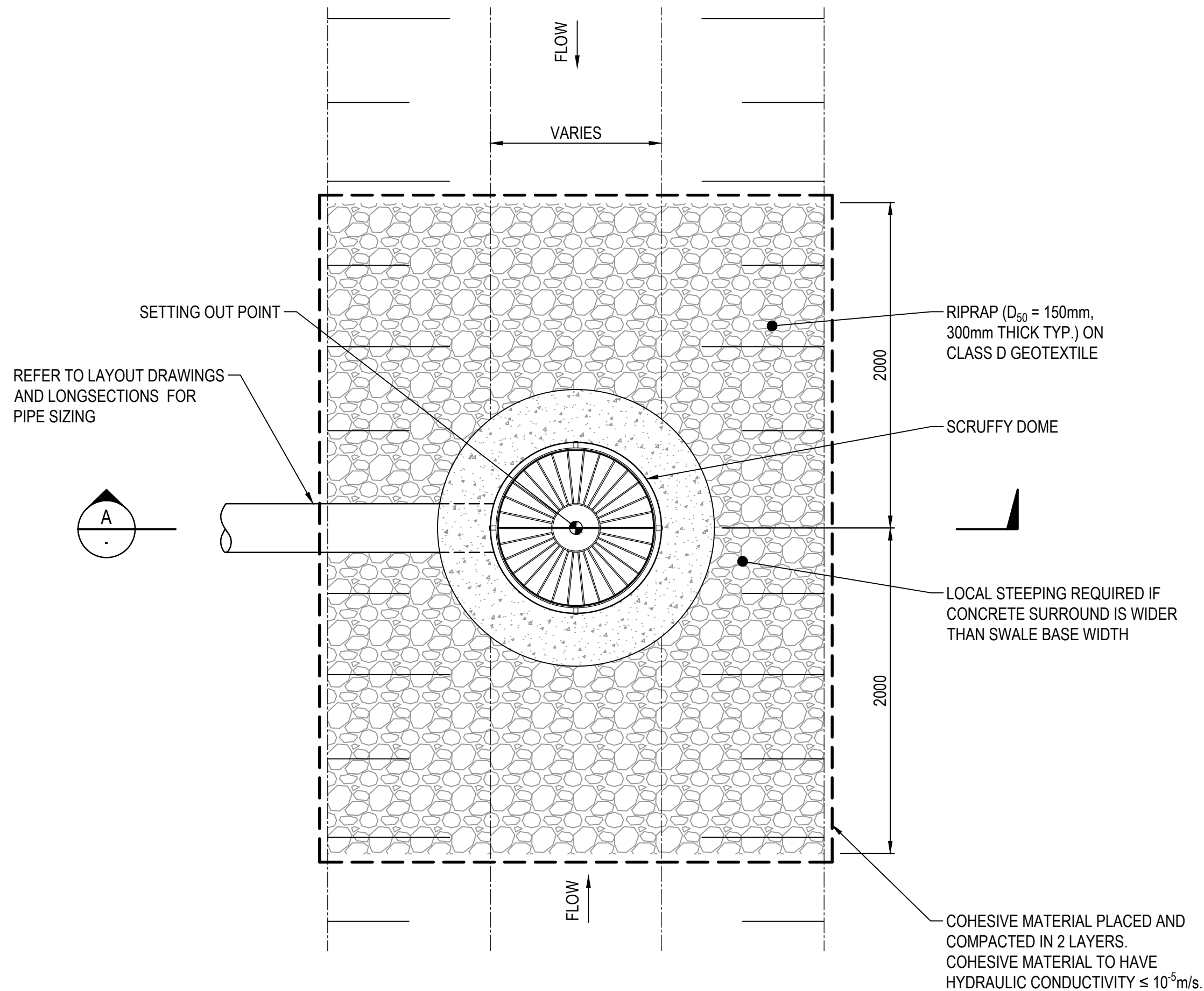
PROJECT
BELFAST TO PEGASUS MOTORWAY
& WOODEND BYPASS

TITLE
STORMWATER
TYPICAL DETAILS
SHEET 5

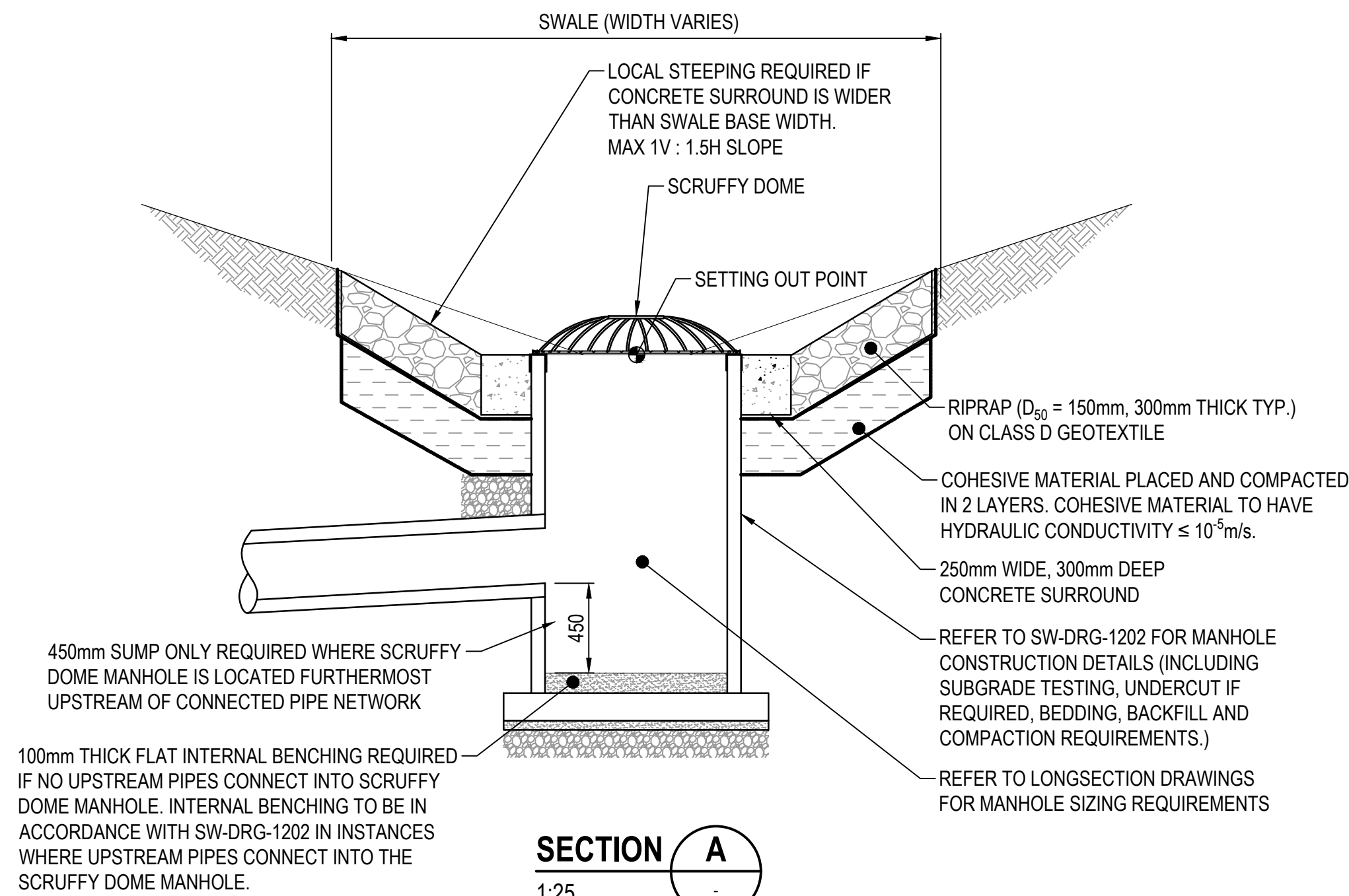
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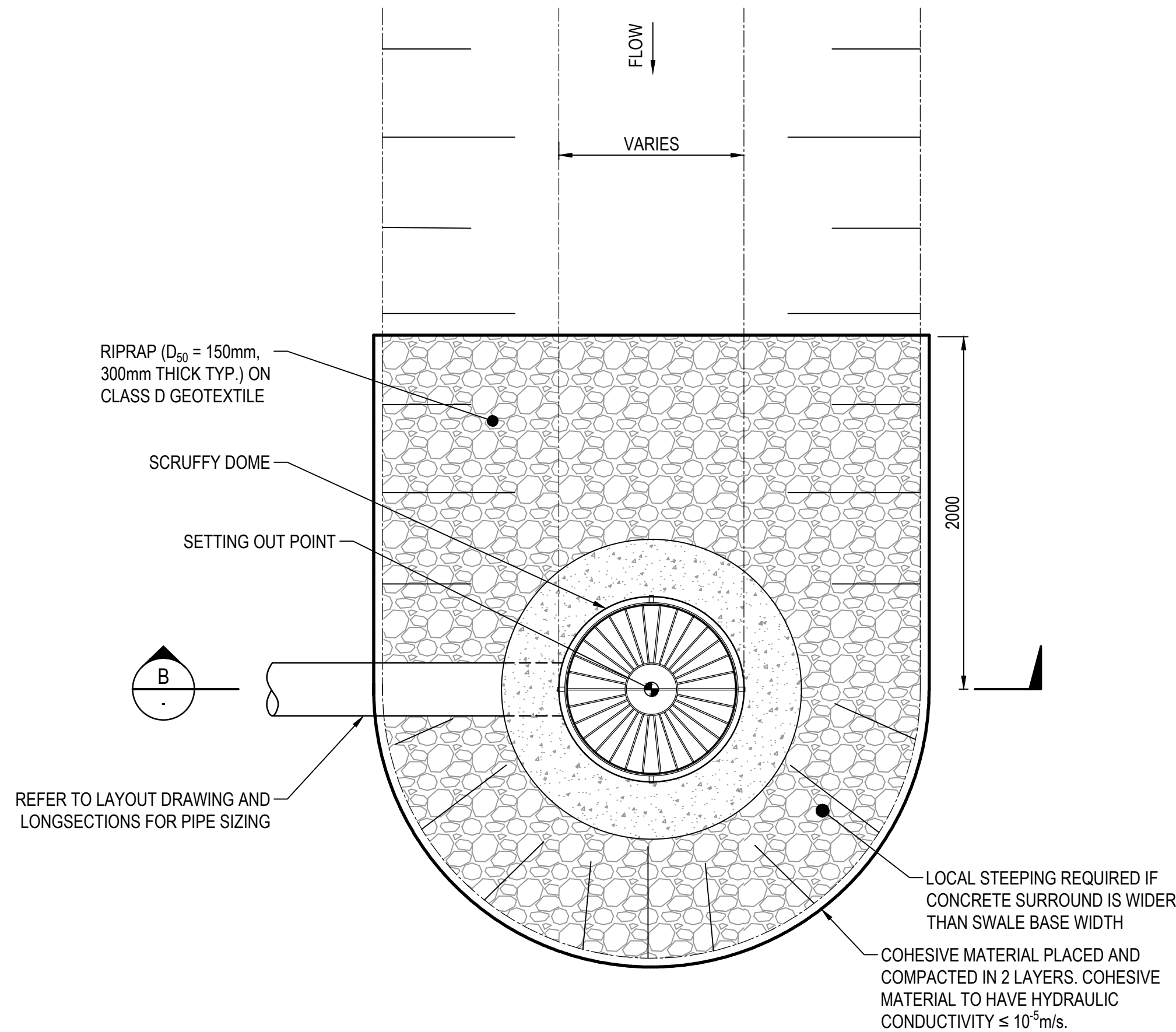
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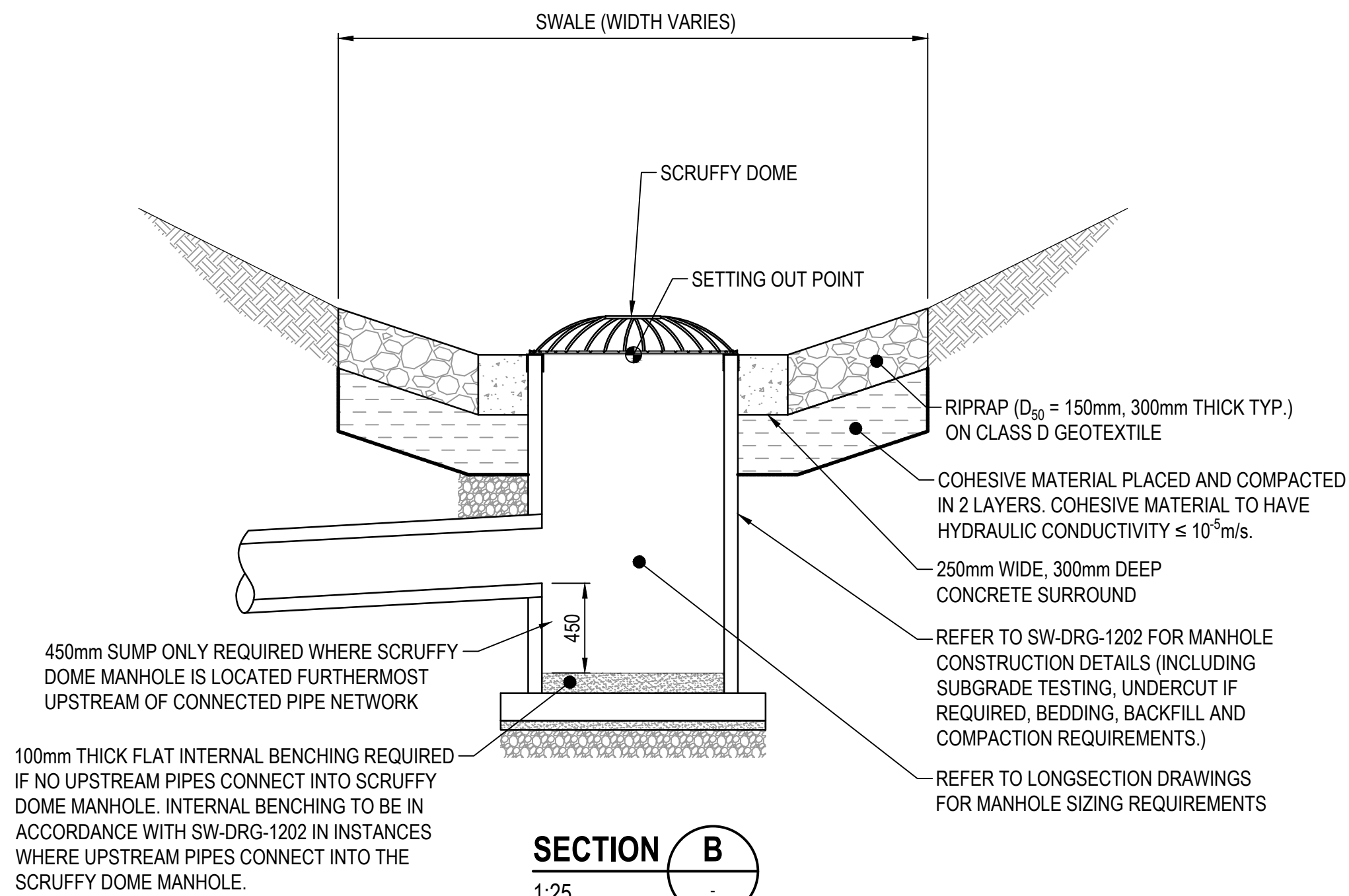
PLAN - SCRUFFY DOME INLET ALONG SWALE
1:25



(WHERE CHAMBER DIAMETER IS GREATER THAN SWALE BASE WIDTH)



PLAN - SCRUFFY DOME INLET AT END OF SWALE
1:25



(WHERE CHAMBER DIAMETER IS LESS THAN SWALE BASE WIDTH)

REV	DATE	REVISION DETAILS	REV	DRAWN	DESIGNED	VERIFIED	APPROVED
A	2025-09-17	ISSUED FOR 50% DETAILED DESIGN	A	C.LACAMBRA	Y.HOOI	W.HERBERT	M.FLANNERY
B	2025-12-12	ISSUED FOR 100% DETAILED DESIGN	B	C.LACAMBRA	Y.HOOI	W.HERBERT	M.FLANNERY

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Roads of National
Significance

250 0 500 1000 mm
1:25

All written dimensions
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scaled dimensions.

Coordinate system

Height datum

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CONSTRUCTION

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C.LACAMBRA

DESIGNED BY

Y.HOOI

STATUS

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DESIGN

DOCUMENT STATE

PUBLISHED

PROJECT

BELFAST TO PEGASUS MOTORWAY
& WOODEND BYPASS

TITLE

STORMWATER
TYPICAL DETAILS
SHEET 6

DOCUMENT CODE

11320-AUR-0350-PWI-SW-DRG-1206

SCALE

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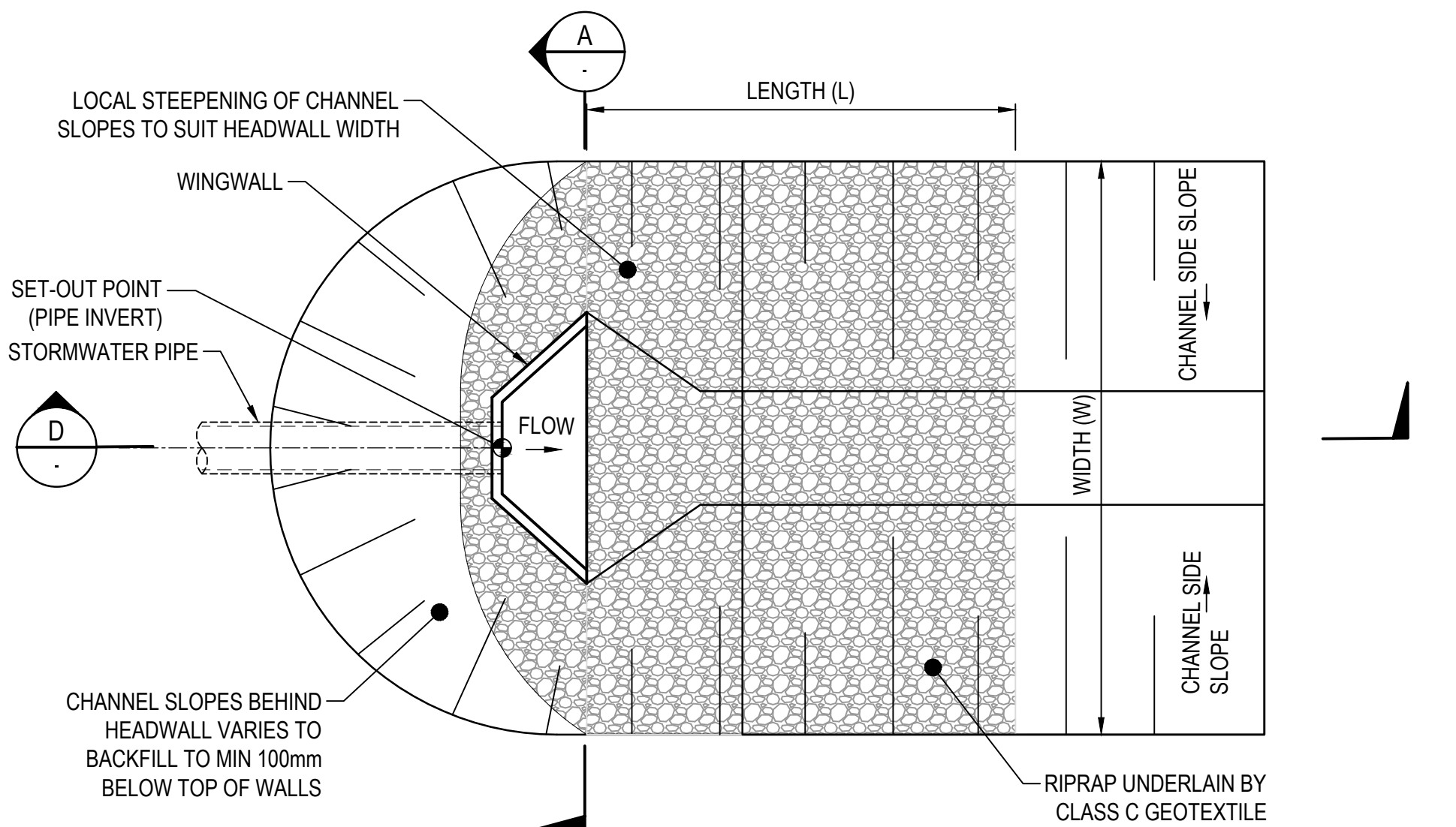
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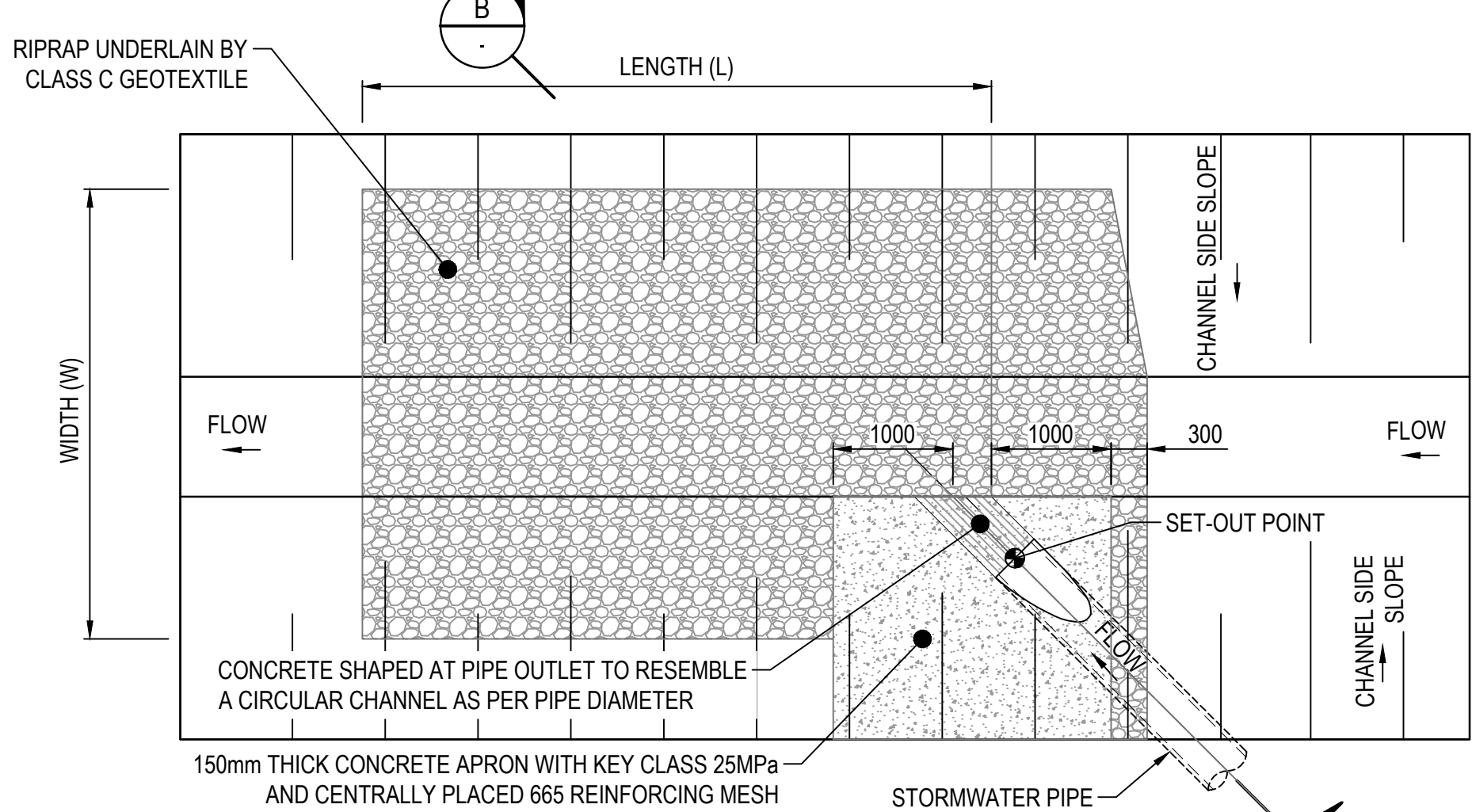
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REV

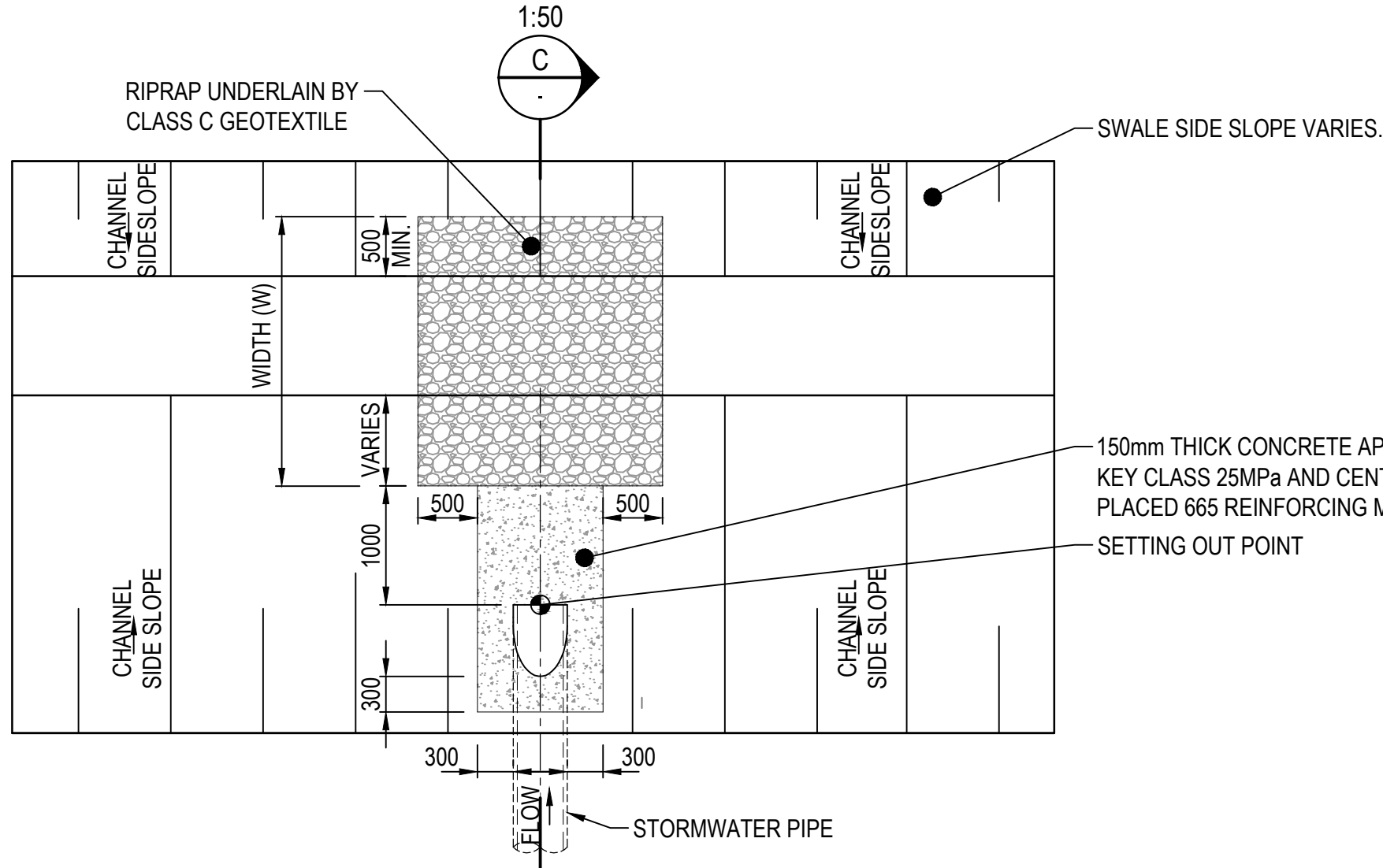
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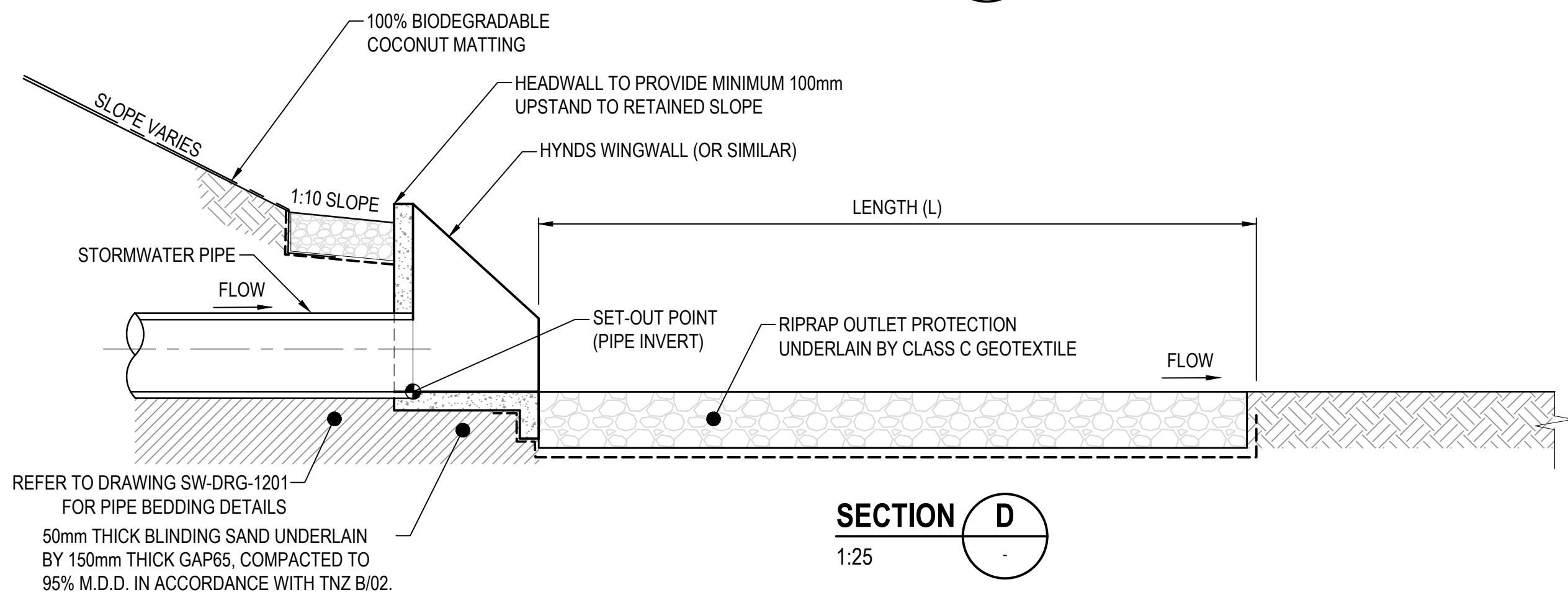
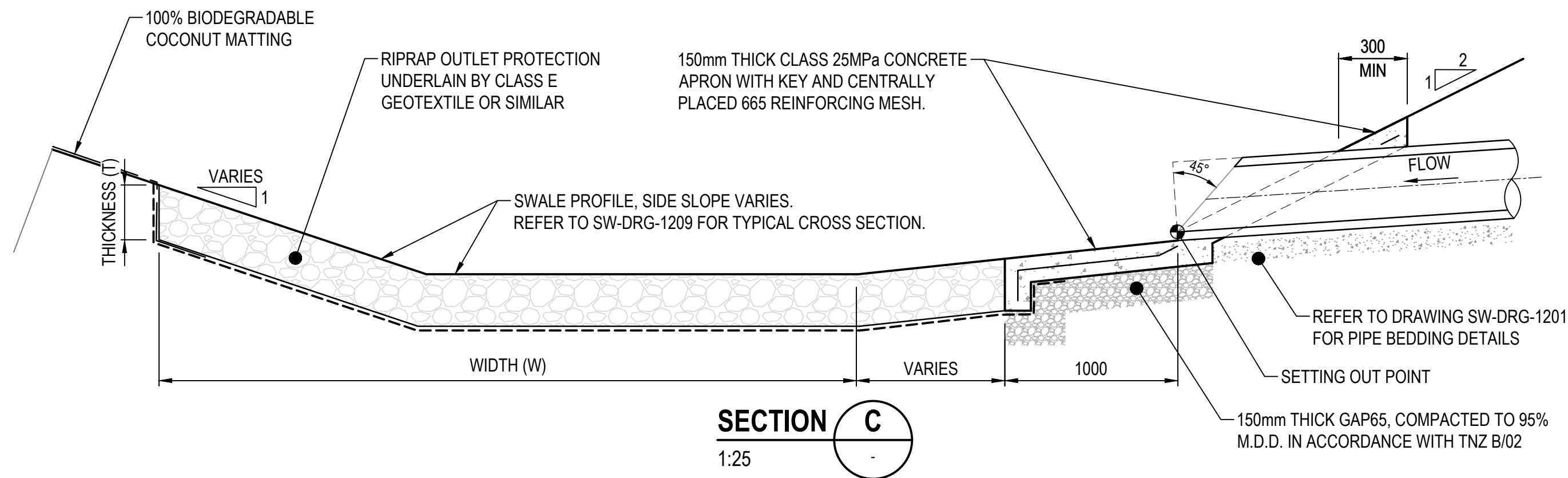
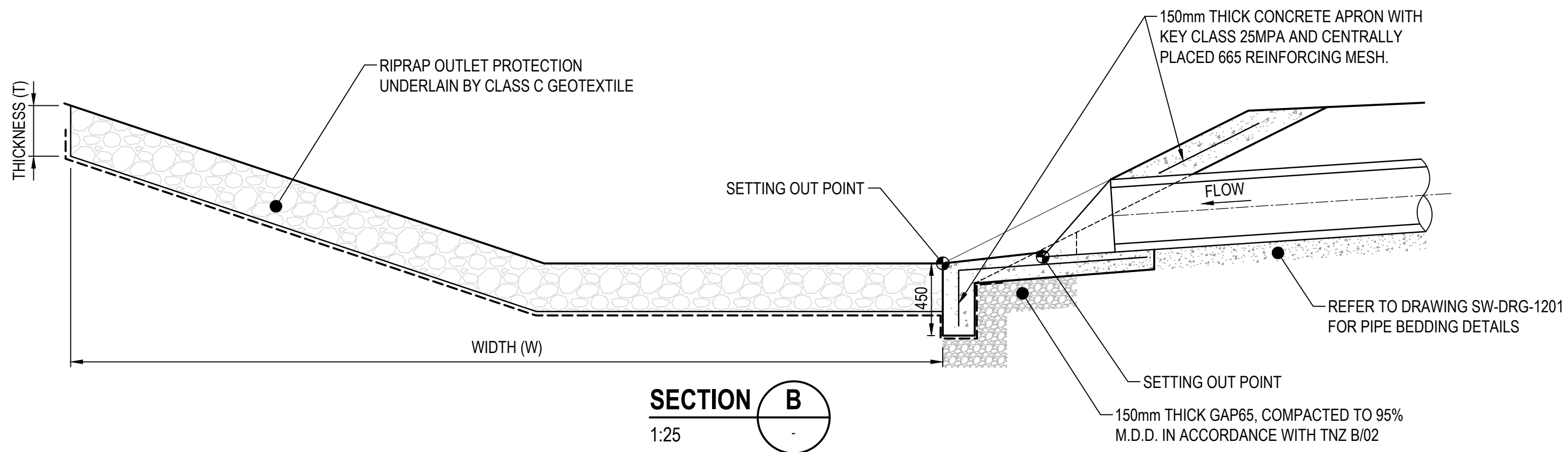
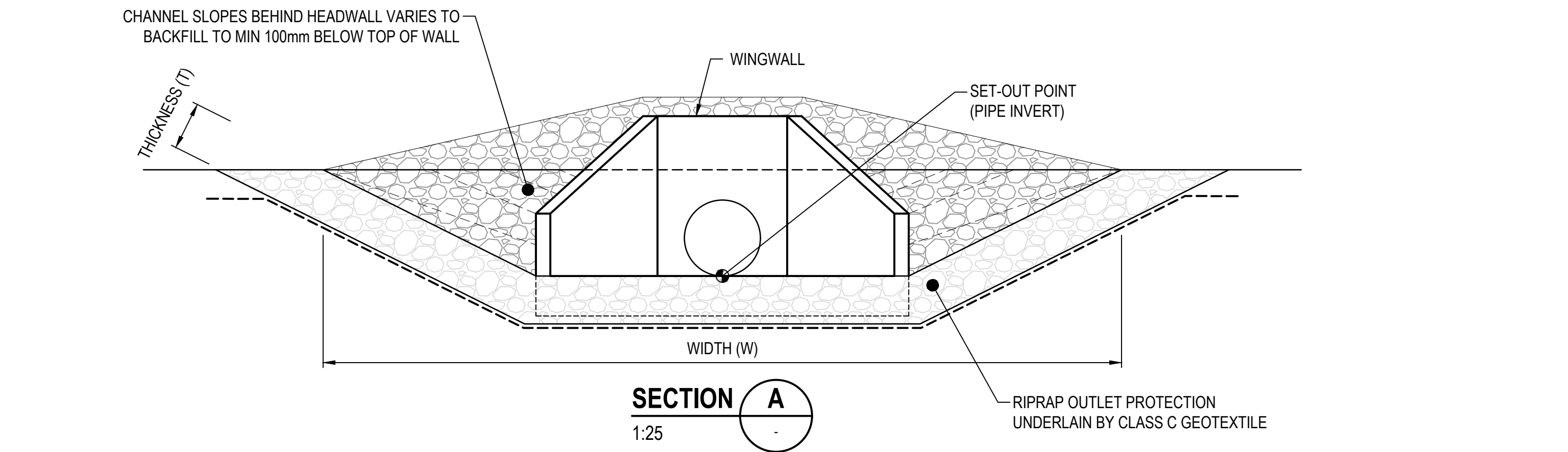
PLAN - STRAIGHT OUTLET TO CHANNEL
1:50



PLAN - ANGLED OUTLET TO CHANNEL (UPTO 3750 PIPE)



PLAN - PERPENDICULAR OUTLET TO CHANNEL (UPTO 3750 PIPE)
1:50



250 0 500 1000 mm
1:25

500 0 1000 2000 mm
1:50

All written dimensions
take precedence over
scaled dimensions.

Coordinate system

Height datum

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REV	DATE	REVISION DETAILS	REV	DRAWN	DESIGNED	VERIFIED	APPROVED
A	2025-09-17	ISSUED FOR 50% DETAILED DESIGN	A	C.LACAMBRA	Y.HOOI	W.HERBERT	M.FLANNERY
B	2025-12-12	ISSUED FOR 100% DETAILED DESIGN	B	C.LACAMBRA	Y.HOOI	W.HERBERT	M.FLANNERY

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Significance

PROJECT
BELFAST TO PEGASUS MOTORWAY
& WOODEND BYPASS

TITLE
STORMWATER
TYPICAL DETAILS
SHEET 7

DOCUMENT CODE
11320-AUR-0350-PWI-SW-DRG-1207

SCALE	SIZE	REFERENCE No.	REV
AS SHOWN	A1	SW-DRG-1207	B

CONSTRUCTION STATUS
NOT FOR
CONSTRUCTION

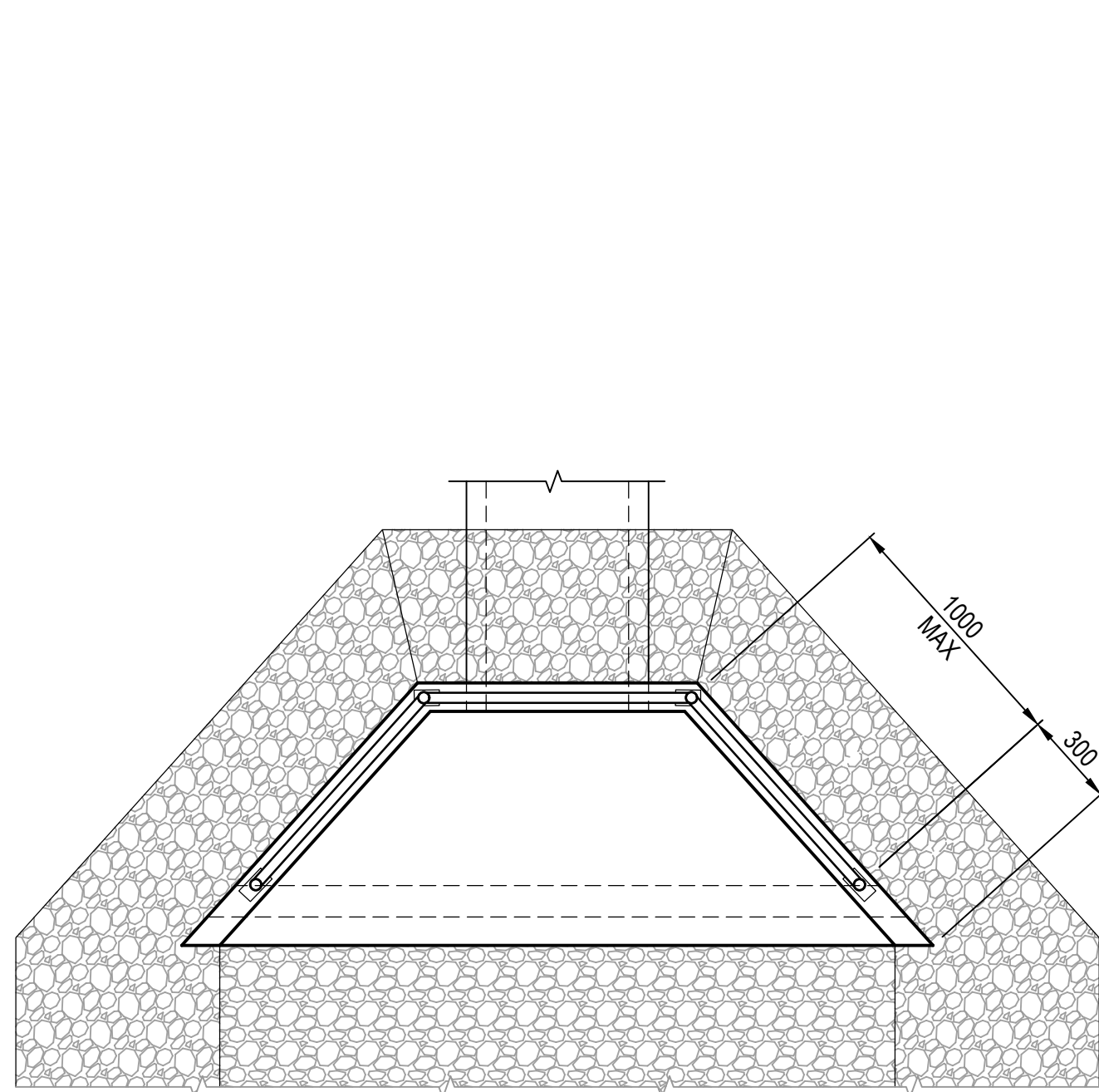
DRAWN BY
C.LACAMBRA

DESIGNED BY
Y.HOOI

STATUS
ISSUED FOR DETAILED
DESIGN

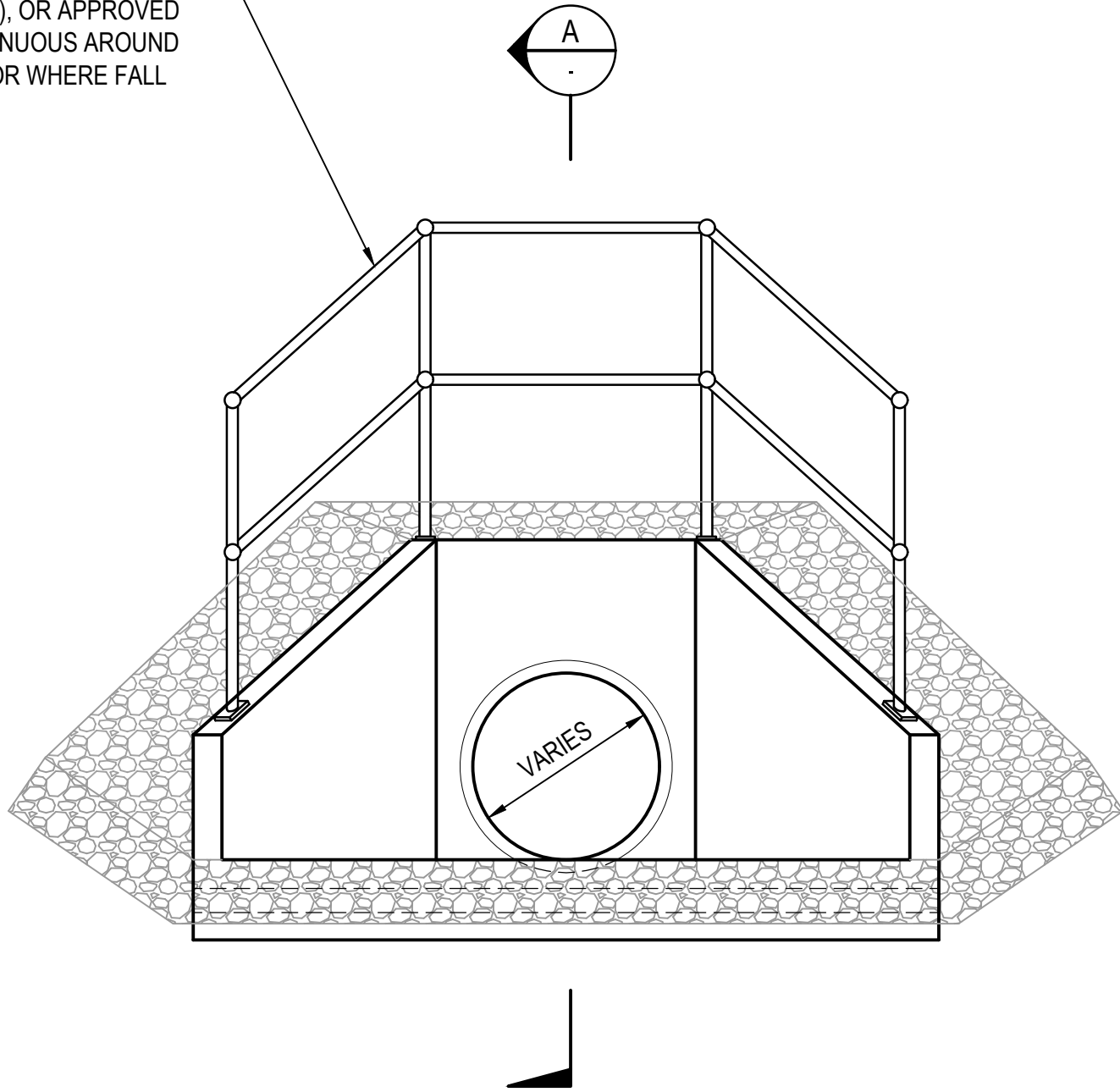
CODE
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DOCUMENT STATE
PUBLISHED



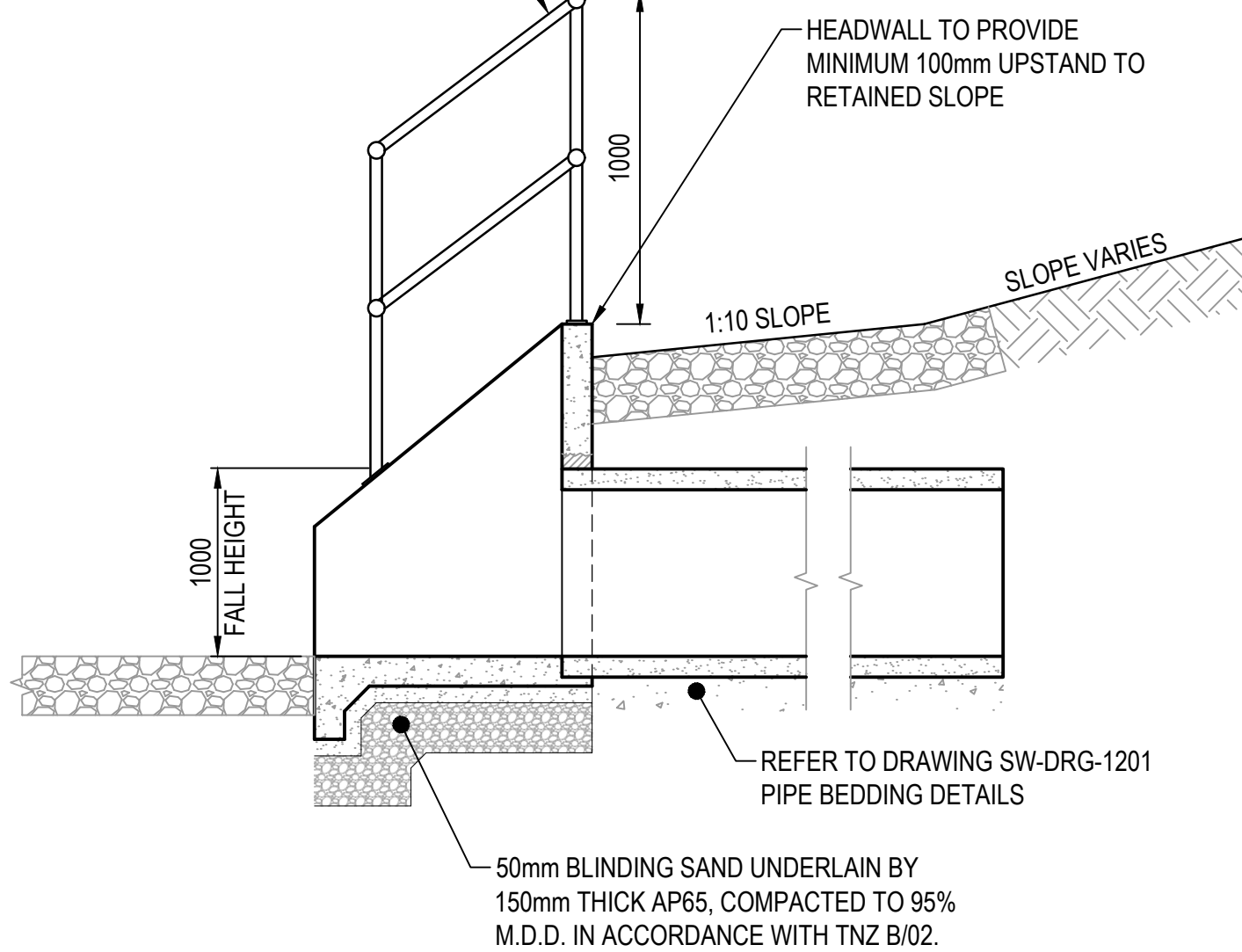
PLAN - WING WALL
FALL ARREST BARRIER
1:20

HANDRAIL SAFETY BARRIER TO BE GALVANIZED 1.017m HIGH WEB FORGE MONOWILLS STANDARD HANDRAIL SYSTEM (TYPE S OR SO STANCHIONS), OR APPROVED EQUIVALENT. HANDRAIL TO BE CONTINUOUS AROUND THE HEADWALL TO EXTENT SHOWN OR WHERE FALL HEIGHT IS GREATER THAN 1m



ELEVATION - WING WALL
FALL ARREST BARRIER
1:20

HANDRAIL SAFETY BARRIER TO BE GALVANIZED 1.017m HIGH WEB FORGE MONOWILLS STANDARD HANDRAIL SYSTEM (TYPE S OR SO STANCHIONS), OR APPROVED EQUIVALENT. HANDRAIL TO BE CONTINUOUS AROUND THE HEADWALL TO EXTENT SHOWN OR WHERE FALL HEIGHT IS GREATER THAN 1m



SECTION A
1:20

Plot Date: 2025-12-11 4:28 PM Filename: 11320-AUR-0350-PWI-SW-DRG-1208.DWG

REV	DATE	REVISION DETAILS	REV	DRAWN	DESIGNED	VERIFIED	APPROVED
A	2025-09-16	ISSUED FOR 50% DETAILED DESIGN	A	C.LACAMBRA	Y.HOOI	W.HERBERT	M.FLANNERY
B	2025-12-12	ISSUED FOR 100% DETAILED DESIGN	B	C.LACAMBRA	Y.HOOI	W.HERBERT	M.FLANNERY

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200 0 400 800 mm
1:20

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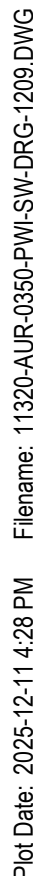
Coordinate system

Height datum

PRINT ALL COPIES IN COLOUR

CONSTRUCTION STATUS	
NOT FOR CONSTRUCTION	
DRAWN BY	C.LACAMBRA
DESIGNED BY	Y.HOOI
STATUS	ISSUED FOR DETAILED DESIGN
DOCUMENT STATE	PUBLISHED

US N



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All written dimensions
take precedence over
scaled dimensions.

Coordinate system

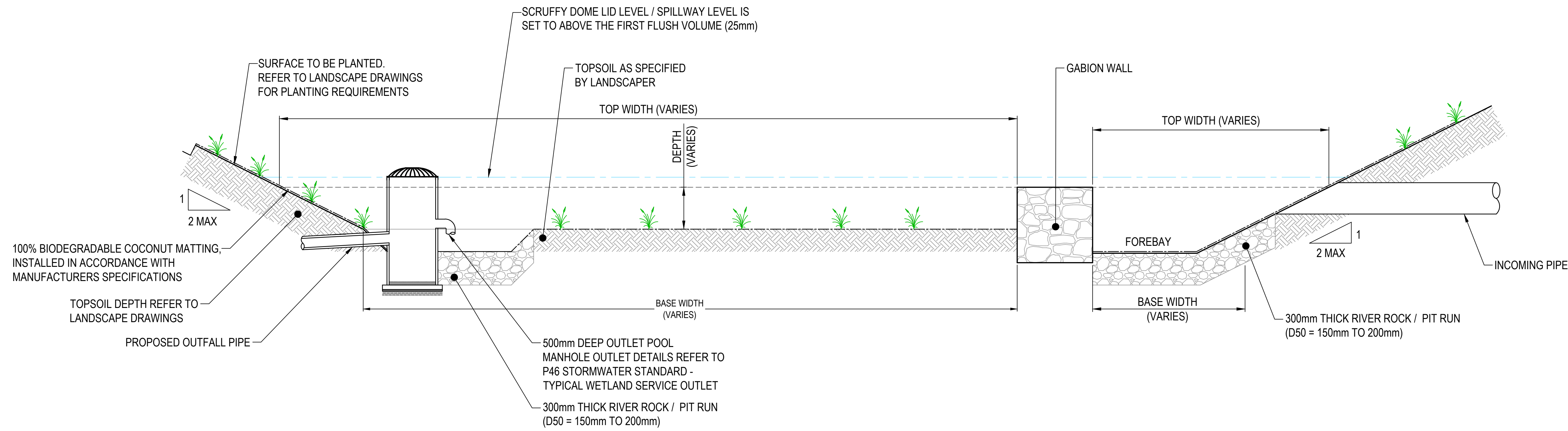
Height datum

PRINT ALL COPIES
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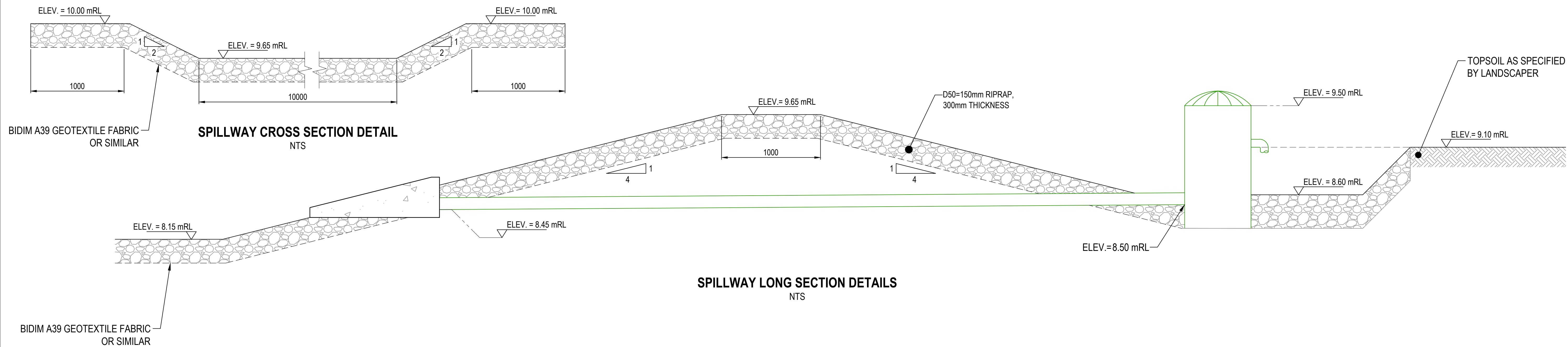


PROJECT			
BELFAST TO PEGASUS MOTORWAY & WOODEND BYPASS			
TITLE			
STORMWATER TYPICAL DETAILS SHEET 9			
DOCUMENT CODE			
11320-AUR-0350-PWI-SW-DRG-1209			
SCALE	SIZE	REFERENCE No.	REV
NOT TO SCALE	A1	SW-DRG-1209	B

NOTES:
1. ALL DIMENSIONS IN MILLIMETERS UNLESS STATED OTHERWISE.



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REV	DATE	REVISION DETAILS	REV	DRAWN	DESIGNED	VERIFIED	APPROVED
A	2025-09-17	ISSUED FOR 50% DETAILED DESIGN	A	C.LACAMBRA	Y.HOOI	W.HERBERT	M.FLANNERY
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Coordinate system

Height datum

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CONSTRUCTION STATUS		PROJECT			
NOT FOR CONSTRUCTION		BELFAST TO PEGASUS MOTORWAY & WOODEND BYPASS			
DRAWN BY		TITLE			
C.LACAMBRA		STORMWATER TYPICAL DETAILS SHEET 10			
DESIGNED BY		DOCUMENT CODE			
Y.HOOI		11320-AUR-0350-PWI-SW-DRG-1210			
STATUS		CODE		SCALE	
ISSUED FOR DETAILED DESIGN		P3		NOT TO SCALE	
DOCUMENT STATE		SIZE		REFERENCE No.	
PUBLISHED		A1		SW-DRG-1210	
				REV	
				B	

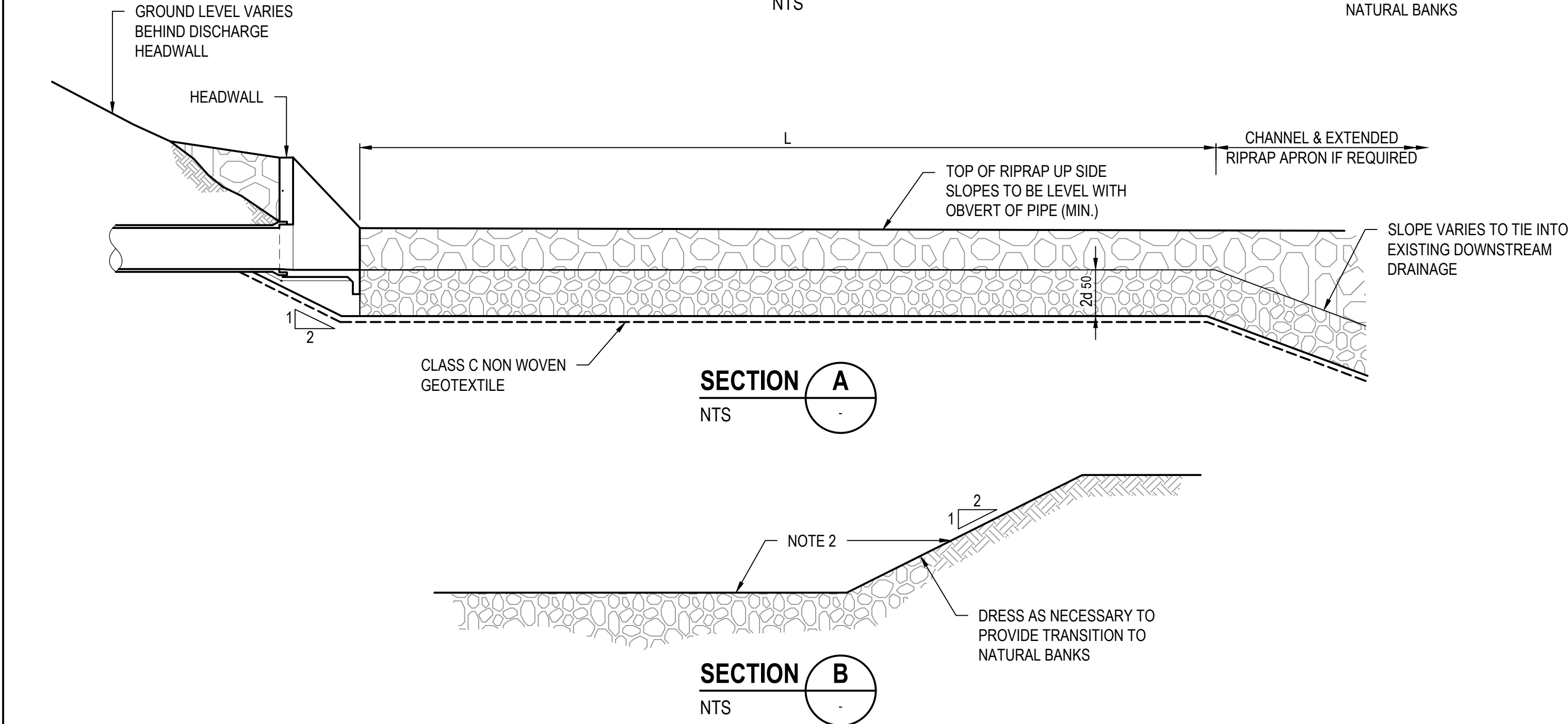
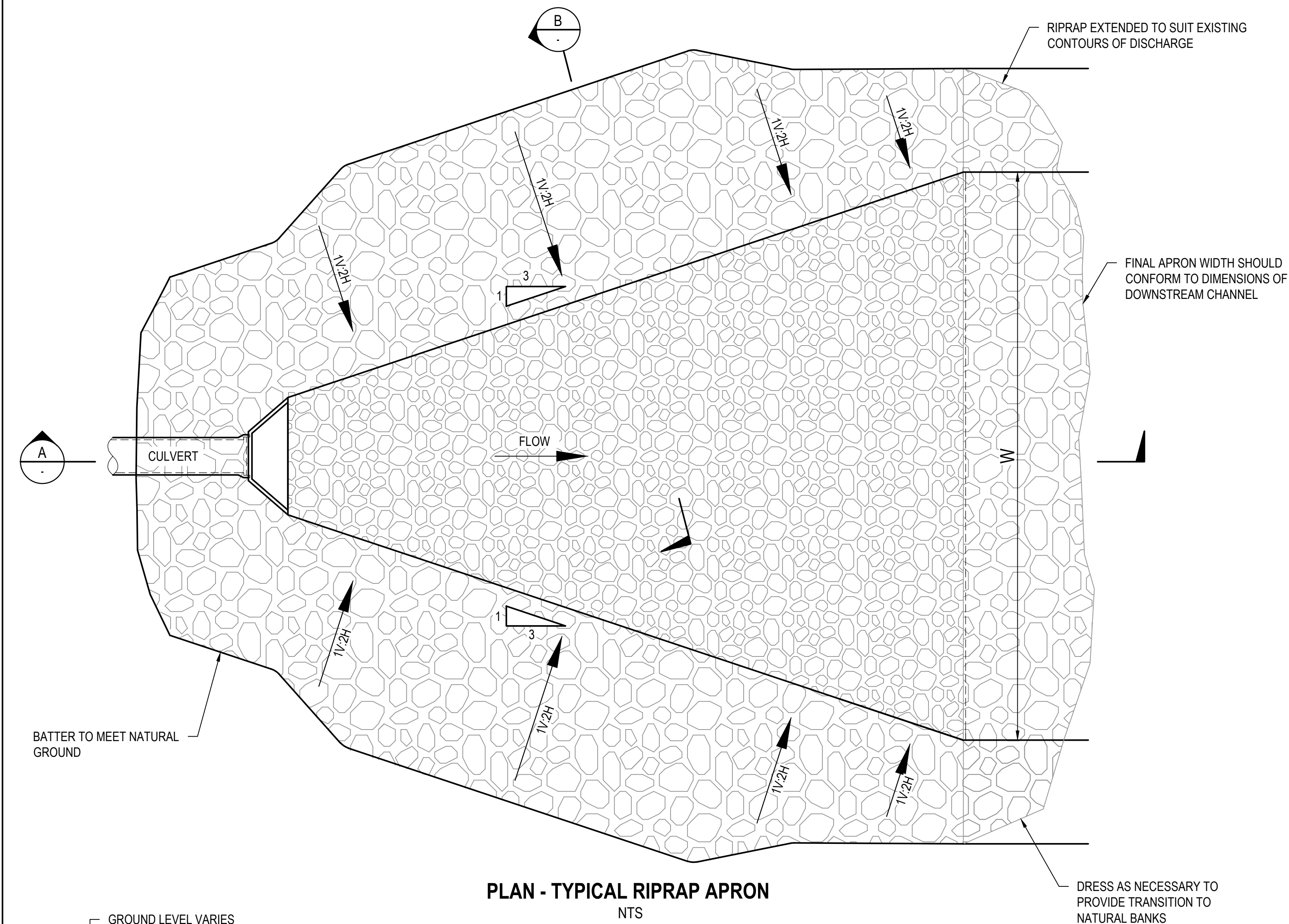


TABLE 10 - TREATMENT SWALE DETAILS									
TREATMENT SWALE ID	CHAINAGE (m)	CHANNEL TYPE	LENGTH (m)	MIN. DEPTH, D (m)	BASE WIDTH, W (m)	LEFT SIDE SLOPE (1V:Z1 H)	RIGHT SIDE SLOPE (1V:Z2 H)	LONGITUDINAL SLOPE (%)	CHANNEL LINING
TS 01	12230 (MCN0)	TYPE 1	295	0.34	1.0	3.0	3.0	1.2	VEGETATED
TS 02	12610 (MCN0)	TYPE 1	78	1.00	1.0	3.0	3.0	0.3	VEGETATED
TS 03	12640 (MCN0)	TYPE 1	51	2.20	1.0	3.0	3.0	1.3	VEGETATED
TS 04	12720 (MCN0)	TYPE 1	38	0.50	2.0	3.0	4.5	0.5	VEGETATED
TS 05	13100 (MCN0)	TYPE 1	247	1.20	1.0	3.0	3.0	0.4	VEGETATED
TS 06	13240 (MCS0)	TYPE 1	173	0.50	0.6	2.0	2.0	0.4	VEGETATED
TS 07	13360 (MCN0)	TYPE 1	49	0.60	1.0	2.5	2.0	0.8	VEGETATED
TS 08	13410 (MCN0)	TYPE 1	112	0.60	1.0	3.0	3.0	0.5	VEGETATED
TS 09	13580 (MCN0)	TYPE 1	42	1.20	1.0	3.0	3.0	0.6	VEGETATED
TS 10	13580 (MCN0)	TYPE 1	42	1.20	1.0	3.0	3.0	0.6	VEGETATED
TS 11	13580 (MCN0)	TYPE 1	42	1.20	1.0	3.0	3.0	0.6	VEGETATED
TS 12	13580 (MCN0)	TYPE 1	42	1.20	1.0	3.0	3.0	0.6	VEGETATED
TS 13	13580 (MCN0)	TYPE 1	42	1.20	1.0	3.0	3.0	0.6	VEGETATED
TS 14	13580 (MCN0)	TYPE 1	42	1.20	1.0	3.0	3.0	0.6	VEGETATED
TS 15	13580 (MCN0)	TYPE 1	42	1.20	1.0	3.0	3.0	0.6	VEGETATED
TS 16	13580 (MCN0)	TYPE 1	42	1.20	1.0	3.0	3.0	0.6	VEGETATED
TS 17	13580 (MCN0)	TYPE 1	42	1.20	1.0	3.0	3.0	0.6	VEGETATED
TS 18A	13580 (MCN0)	TYPE 1	42	1.20	1.0	3.0	3.0	0.6	VEGETATED
TS 18B	13580 (MCN0)	TYPE 1	42	1.20	1.0	3.0	3.0	0.6	VEGETATED
TS 18C	13580 (MCN0)	TYPE 1	42	1.20	1.0	3.0	3.0	0.6	VEGETATED
TS 19	13580 (MCN0)	TYPE 1	42	1.20	1.0	3.0	3.0	0.6	VEGETATED
TS 20	13580 (MCN0)	TYPE 1	42	1.20	1.0	3.0	3.0	0.6	VEGETATED
TS 21	13580 (MCN0)	TYPE 1	42	1.20	1.0	3.0	3.0	0.6	VEGETATED
TS 22	13580 (MCN0)	TYPE 1	42	1.20	1.0	3.0	3.0	0.6	VEGETATED
TS 23	13580 (MCN0)	TYPE 1	42	1.20	1.0	3.0	3.0	0.6	VEGETATED
TS 24A	13580 (MCN0)	TYPE 1	42	1.20	1.0	3.0	3.0	0.6	VEGETATED
TS 24B	13580 (MCN0)	TYPE 1	42	1.20	1.0	3.0	3.0	0.6	VEGETATED
TS 25	13580 (MCN0)	TYPE 1	42	1.20	1.0	3.0	3.0	0.6	VEGETATED
TS 26A	13580 (MCN0)	TYPE 1	42	1.20	1.0	3.0	3.0	0.6	VEGETATED
TS 26B	13580 (MCN0)	TYPE 1	42	1.20	1.0	3.0	3.0	0.6	VEGETATED
TS 27	13580 (MCN0)	TYPE 1	42	1.20	1.0	3.0	3.0	0.6	VEGETATED
TS 28	13580 (MCN0)	TYPE 1	42	1.20	1.0	3.0	3.0	0.6	VEGETATED
TS 29A	13580 (MCN0)	TYPE 1	42	1.20	1.0	3.0	3.0	0.6	VEGETATED
TS 29B	13580 (MCN0)	TYPE 1	42	1.20	1.0	3.0	3.0	0.6	VEGETATED
TS 31	13580 (MCN0)	TYPE 1	42	1.20	1.0	3.0	3.0	0.6	VEGETATED
TS 32	13580 (MCN0)	TYPE 1	42	1.20	1.0	3.0	3.0	0.6	VEGETATED
TS 33A	13580 (MCN0)	TYPE 1	42	1.20	1.0	3.0	3.0	0.6	VEGETATED
TS 33B	13580 (MCN0)	TYPE 1	42	1.20	1.0	3.0	3.0	0.6	VEGETATED
TS 34	13580 (MCN0)	TYPE 1	42	1.20	1.0	3.0	3.0	0.6	VEGETATED

TABLE 11 - CUTOFF DRAIN DETAILS								
CUTOFF DRAIN ID	CHAINAGE (m)	CHANNEL TYPE	LENGTH (m)	MIN. DEPTH, D (m)	BASE WIDTH, W (m)	LEFT SIDE SLOPE (1V:Z1 H)	RIGHT SIDE SLOPE (1V: Z2 H)	CHANNEL LINING
CD 01	12220 (MC00)	TYPE 1	154	0.30	0.60	3.0	3.0	VEGETATED
CD 02	12230 (MC00)	TYPE 1	96	0.30	0.60	3.0	2.0	VEGETATED
CD 03	12550 (MC00)	TYPE 1	24	0.30	0.60	2.0	2.0	VEGETATED
CD 04	12220 (MC00)	TYPE 1	297	0.50	0.60	3.0	3.0	VEGETATED
CD 05	12560 (MC00)	TYPE 1	20	0.30	0.60	3.0	3.0	VEGETATED
CD 06	12560 (MC00)	TYPE 1	33	0.30	0.60	3.0	3.0	VEGETATED

TABLE 12 - STREAM DIVERSION DETAILS								
CUTOFF DRAIN ID	CHAINAGE (m)	CHANNEL TYPE	LENGTH (m)	MIN. DEPTH, D (m)	BASE WIDTH, W (m)	LEFT SIDE SLOPE (1V:Z1 H)	RIGHT SIDE SLOPE (1V: Z2 H)	CHANNEL LINING
SD 01	12220 (MC00)	TYPE 1	154	0.30	0.60	3.0	3.0	VEGETATED
SD 02	12230 (MC00)	TYPE 1	96	0.30	0.60	3.0	2.0	VEGETATED
SD 03	12550 (MC00)	TYPE 1	24	0.30	0.60	2.0	2.0	VEGETATED
SD 04	12220 (MC00)	TYPE 1	297	0.50	0.60	3.0	3.0	VEGETATED
SD 05	12560 (MC00)	TYPE 1	20	0.30	0.60	3.0	3.0	VEGETATED
SD 06	12560 (MC00)	TYPE 1	33	0.30	0.60	3.0	3.0	VEGETATED
SD 07	12560 (MC00)	TYPE 1	33	0.30	0.60	3.0	3.0	VEGETATED

- NOTES:
- ALL RIPRAP APRONS TO BE CONSTRUCTED FROM END CORNERS OF THE HEADWALL TO THE EXTENTS OF THE RIPRAP APRON.
 - RIPRAP APRONS TO BE CONSTRUCTED, WHERE REQUIRED, WITH 2:1 SIDE SLOPES TO MEET THE NATURAL GROUND.
 - TNZ CLASS C GEOTEXTILE SHALL BE PLACES BETWEEN RIPRAP AND SUBGRADE.
- RIPRAP:
- RIPRAP MUST NOT BE DROPPED ON TO THE GEOTEXTILE. IT SHOULD BE PLACED FROM A HEIGHT NO GREATER THAN 0.5m, AND IN SUCH A MANNER SO AS NOT TO DAMAGE, PUNCTURE OR TEAR THE GEOTEXTILE OR COMPROMISE JOINTING.
- INSTALLATION OF GEOTEXTILE:
- UNLESS OTHERWISE STATED IN THESE NOTES, GEOTEXTILES SHALL BE INSTALLED AS SET OUT IN THE TRANSIT NZ SPECIFICATION "TNZ F/72003 GEOTEXTILES".
 - GEOTEXTILES SHALL BE PLACED JUST AHEAD OF ASSOCIATED ADVANCING CONSTRUCTION WORK AND BE COVERED BY RELEVANT CONSTRUCTION MATERIALS OR SUITABLE PROTECTIVE SHEETING WITHIN 48 HOURS OF BEING PLACED AND WITHOUT PUNCTURES OR TEARS.
 - JOINTS IN THE GEOTEXTILE MUST BE OVERLAPPED BY A MINIMUM OF 500mm WITH OVERLAPS BEING UPSTREAM SHEET OVER DOWNSTREAM SHEET NO CONSTRUCTION EQUIPMENT SHALL STAND ON TRAVEL DIRECTLY ON THE LAID GEOTEXTILE. A MINIMUM COVER OF 300mm (UNCOMPACTED) OF COVER MATERIAL SHALL BE PLACED OVER THE GEOTEXTILE PRIOR TO CONSTRUCTION EQUIPMENT TRAVELLING OVER THE AREA CONCERNED

TABLE 13 -INDICATIVE APRON DIMENSIONS						
HEADWALL ID	PIPE DIAMETER (m)	CULVERT WIDTH (m)	D50 STONE SIZE (mm)	LENGTH, L (m)	WIDTH, W (m)	THICKNESS, T (mm)
001	1.50	1.50	250	7.50	6.50	600
002	1.50	1.50	250	7.50	6.50	600
005		6.00	250	30.00	26.00	600
008		4.00	250	20.00	17.33	600
010	1.05	1.05	250	5.25	4.55	600
014		4.00	250	20.00	17.33	600
015	1.80	1.80	250	9.00	7.80	600
016		2.70	250	13.50	11.70	600
017		2.00	250	10.00	8.67	600

Plot Date: 2025-12-11 4:28 PM Filename: 11320-AUR-0350-PWI-SW-DRG-1211.DWG

REV	DATE	REVISION DETAILS	REV	DRAWN	DESIGNED	VERIFIED	APPROVED
A	2025-09-17	ISSUED FOR 50% DETAILED DESIGN	A	C.LACAMBRA	Y.HOOI	W.HERBERT	M.FLANNERY
B	2025-12-12	ISSUED FOR 100% DETAILED DESIGN	B	C.LACAMBRA	Y.HOOI	W.HERBERT	M.FLANNERY

PREPARED BY



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CLIENT



All written dimensions take precedence over scaled dimensions.

Coordinate system

Height datum

PRINT ALL COPIES IN COLOUR



CONSTRUCTION STATUS

NOT FOR CONSTRUCTION

DRAWN BY
C.LACAMBRA

DESIGNED BY
Y.HOOI

STATUS
ISSUED FOR DETAILED DESIGN

CODE
P3

DOCUMENT STATE
PUBLISHED

PROJECT

BELFAST TO PEGASUS MOTORWAY & WOODEND BYPASS

TITLE

STORMWATER TYPICAL DETAILS SHEET 11

DOCUMENT CODE

11320-AUR-0350-PWI-SW-DRG-1211

SCALE

NOT TO SCALE

SIZE

A1

REFERENCE No.

SW-DRG-1211

REV

B