Bakwena
N1N4 toll

BPCC-2024/UG/HS18-HS20/001

VOLUME 4 - OPTION 2

THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 KM 2.800 AND THE P115-1 (R24) INTERCHANGE N4-13 KM 40.0

AUGUST 2023

ISSUED BY :

Bakwena
N1N4 toll

BAKWENA PLATINUM CORRIDOR
CONCESSIONAIRE (Pty) Ltd

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LIST OF DRAWINGS

KEY PLANS

3257/23/01 KP	KEY PLAN SHEET 01 OF 07
3257/23/02 KP	KEY PLAN SHEET 02 OF 07
3257/23/03 KP	KEY PLAN SHEET 03 OF 07
3257/23/04 KP	KEY PLAN SHEET 04 OF 07
3257/23/05 KP	KEY PLAN SHEET 05 OF 07
3257/23/06 KP	KEY PLAN SHEET 06 OF 07
3257/23/07 KP	KEY PLAN SHEET 07 OF 07

LAYOUT PLANS

3257/23/01 LP	LAYOUT N4-13 KM 2.000 TO 3.000
3257/23/02 LP	LAYOUT N4-13 KM 3.000 TO 4.000
3257/23/03 LP	LAYOUT N4-13 KM 4.000 TO 5.000
3257/23/04 LP	LAYOUT N4-13 KM 5.000 TO 6.000
3257/23/05 LP	LAYOUT N4-13 KM 6.000 TO 7.000
3257/23/06 LP	LAYOUT N4-13 KM 7.000 TO 8.000
3257/23/07 LP	LAYOUT N4-13 KM 8.000 TO 9.000
3257/23/08 LP	LAYOUT N4-13 KM 9.000 TO 10.000
3257/23/09 LP	LAYOUT N4-13 KM 10.000 TO 11.000
3257/23/10 LP	LAYOUT N4-13 KM 11.000 TO 12.000
3257/23/11 LP	LAYOUT N4-13 KM 12.000 TO 13.000
3257/23/12 LP	LAYOUT N4-13 KM 13.000 TO 14.000
3257/23/13 LP	LAYOUT N4-13 KM 14.000 TO 15.000
3257/23/14 LP	LAYOUT N4-13 KM 15.000 TO 16.000
3257/23/15 LP	LAYOUT N4-13 KM 16.000 TO 17.000
3257/23/16 LP	LAYOUT N4-13 KM 17.000 TO 18.000
3257/23/17 LP	LAYOUT N4-13 KM 18.000 TO 19.000
3257/23/18 LP	LAYOUT N4-13 KM 19.000 TO 20.000
3257/23/19 LP	LAYOUT N4-13 KM 20.000 TO 21.000
3257/23/20 LP	LAYOUT N4-13 KM 21.000 TO 22.000
3257/23/21 LP	LAYOUT N4-13 KM 22.000 TO 23.000
3257/23/22 LP	LAYOUT N4-13 KM 23.000 TO 24.000
3257/23/23 LP	LAYOUT N4-13 KM 24.000 TO 25.000
3257/23/24 LP	LAYOUT N4-13 KM 25.000 TO 26.000
3257/23/25 LP	LAYOUT N4-13 KM 26.000 TO 27.000
3257/23/26 LP	LAYOUT N4-13 KM 27.000 TO 28.000
3257/23/27 LP	LAYOUT N4-13 KM 28.000 TO 29.000
3257/23/28 LP	LAYOUT N4-13 KM 29.000 TO 30.000
3257/23/29 LP	LAYOUT N4-13 KM 30.000 TO 30.5000
3257/23/30 LP	LAYOUT N4-13 KM 30.500 TO 31.000
3257/23/31 LP	LAYOUT N4-13 KM 31.000 TO 32.000
3257/23/32 LP	LAYOUT N4-13 KM 32.000 TO 33.000
3257/23/33 LP	LAYOUT N4-13 KM 33.000 TO 34.000
3257/23/34 LP	LAYOUT N4-13 KM 34.000 TO 35.000
3257/23/35 LP	LAYOUT N4-13 KM 35.000 TO 36.000
3257/23/36 LP	LAYOUT N4-13 KM 36.000 TO 37.000
3257/23/37 LP	LAYOUT N4-13 KM 37.000 TO 38.000
3257/23/38 LP	LAYOUT N4-13 KM 38.000 TO 39.000
3257/23/39 LP	LAYOUT N4-13 KM 39.000 TO 40.000
3257/23/40 LP	LAYOUT N4-13 KM 40.000 TO 41.000
3257/23/41 LP	LAYOUT N4-13 KM 41.000 TO 42.000

LONGITUDINAL SECTIONS

3257/23/01 LS	LONGITUDINAL SECTION N4-13 KM 2.000 TO 3.000
3257/23/02 LS	LONGITUDINAL SECTION N4-13 KM 3.000 TO 4.000
3257/23/03 LS	LONGITUDINAL SECTION N4-13 KM 4.000 TO 5.000
3257/23/04 LS	LONGITUDINAL SECTION N4-13 KM 5.000 TO 6.000
3257/23/05 LS	LONGITUDINAL SECTION N4-13 KM 6.000 TO 7.000
3257/23/06 LS	LONGITUDINAL SECTION N4-13 KM 7.000 TO 8.000
3257/23/07 LS	LONGITUDINAL SECTION N4-13 KM 8.000 TO 9.000
3257/23/08 LS	LONGITUDINAL SECTION N4-13 KM 9.000 TO 10.000
3257/23/09 LS	LONGITUDINAL SECTION N4-13 KM 10.000 TO 11.000
3257/23/10 LS	LONGITUDINAL SECTION N4-13 KM 11.000 TO 12.000
3257/23/11 LS	LONGITUDINAL SECTION N4-13 KM 12.000 TO 13.000
3257/23/12 LS	LONGITUDINAL SECTION N4-13 KM 13.000 TO 14.000
3257/23/13 LS	LONGITUDINAL SECTION N4-13 KM 14.000 TO 15.000
3257/23/14 LS	LONGITUDINAL SECTION N4-13 KM 15.000 TO 16.000
3257/23/15 LS	LONGITUDINAL SECTION N4-13 KM 16.000 TO 17.000
3257/23/16 LS	LONGITUDINAL SECTION N4-13 KM 17.000 TO 18.000
3257/23/17 LS	LONGITUDINAL SECTION N4-13 KM 18.000 TO 19.000
3257/23/18 LS	LONGITUDINAL SECTION N4-13 KM 19.000 TO 20.000
3257/23/19 LS	LONGITUDINAL SECTION N4-13 KM 20.000 TO 21.000
3257/23/20 LS	LONGITUDINAL SECTION N4-13 KM 21.000 TO 22.000
3257/23/21 LS	LONGITUDINAL SECTION N4-13 KM 22.000 TO 23.000
3257/23/22 LS	LONGITUDINAL SECTION N4-13 KM 23.000 TO 24.000
3257/23/23 LS	LONGITUDINAL SECTION N4-13 KM 24.000 TO 25.000
3257/23/24 LS	LONGITUDINAL SECTION N4-13 KM 25.000 TO 26.000
3257/23/25 LS	LONGITUDINAL SECTION N4-13 KM 26.000 TO 27.000
3257/23/26 LS	LONGITUDINAL SECTION N4-13 KM 27.000 TO 28.000
3257/23/27 LS	LONGITUDINAL SECTION N4-13 KM 28.000 TO 29.000
3257/23/28 LS	LONGITUDINAL SECTION N4-13 KM 29.000 TO 30.000
3257/23/29 LS	LONGITUDINAL SECTION N4-13 KM 30.000 TO 31.000
3257/23/30 LS	LONGITUDINAL SECTION N4-13 KM 31.000 TO 32.000
3257/23/31 LS	LONGITUDINAL SECTION N4-13 KM 32.000 TO 33.000
3257/23/32 LS	LONGITUDINAL SECTION N4-13 KM 33.000 TO 34.000
3257/23/33 LS	LONGITUDINAL SECTION N4-13 KM 34.000 TO 35.000
3257/23/34 LS	LONGITUDINAL SECTION N4-13 KM 35.000 TO 36.000
3257/23/35 LS	LONGITUDINAL SECTION N4-13 KM 36.000 TO 37.000
3257/23/36 LS	LONGITUDINAL SECTION N4-13 KM 37.000 TO 38.000
3257/23/37 LS	LONGITUDINAL SECTION N4-13 KM 38.000 TO 39.000
3257/23/38 LS	LONGITUDINAL SECTION N4-13 KM 39.000 TO 40.000
3257/23/39 LS	LONGITUDINAL SECTION N4-13 KM 40.000 TO 40.9.000
3257/23/40 LS	LONGITUDINAL SECTION N4-13 R104 (P2-4) KROONDAL ON RAMP km 0.000 T0 0.900 101 - EAST BOUND
3257/23/41 LS	LONGITUDINAL SECTION N4-13 R104 (P2-4) KROONDAL OFF RAMP km 0.000 T0 0.632 363 - EAST BOUND
3257/23/42 LS	LONGITUDINAL SECTION N4-13 R24 (P16-1) RUSTENBURG (KRUGERSDORP) INTERCHANGE ON RAMP km 0.000 T0 0.893 9010
3257/23/43 LS	LONGITUDINAL SECTION N4-13 R24 (P16-1) RUSTENBURG (KRUGERSDORP) INTERCHANGE OFF RAMP km 0.000 000 T0 0.623 164 EAST BOUND
3257/23/44 LS	LONGITUDINAL SECTION N4-13 HELEN JOSEPH EASTBOUND ON RAMP km 0.0 TO km 0.993 718
3257/23/45 LS	LONGITUDINAL SECTION N4-13 (P16-2) DR MOROKA INTERCHANGE EASTBOUND ON RAMP km 0.000 T0 0.868
3257/23/46 LS	LONGITUDINAL SECTION N4-13 (P16-2) DR MOROKA DRIVE EASTBOUND OFF RAMP km 0.000 T0 0.707 502
3257/23/47 LS	LONGITUDINAL SECTION N4-13 (P2-3) R104 SWARTRUGGENS ROAD EASTBOUND ON RAMP km 0.000 T0 1.000 000
3257/23/48 LS	LONGITUDINAL SECTION N4-13 (P2-3) R104 SWARTRUGGENS ROAD EASTBOUND ON RAMP km 1.000 T0 1.207 009
3257/23/49 LS	LONGITUDINAL SECTION N4-13 (P2-3) R104 SWARTRUGGENS ROAD EASTBOUND OFF RAMP km 0.000 T0 1.000 000
3257/23/50 LS	LONGITUDINAL SECTION N4-13 (P2-3) R104 SWARTRUGGENS ROAD EASTBOUND OFF RAMP km 1.000 T0 1.100 411

TYPICAL CROSS SECTION

3257/23/01 TCS	TYPICAL CROSS SECTION KM 2.800 TO KM 5.827
3257/23/02 TCS	TYPICAL CROSS SECTION KM 5.827 TO KM 30.500
3257/23/03 TCS	TYPICAL CROSS SECTION KM 30.500 TO KM 40.900
3257/23/04 TCS	TYPICAL CROSS SECTION INTERCHANGE RAMPS
3257/23/05 TCS	TYPICAL CROSS SECTION TREATMENT OF CLAYS

SERVICES SCHEDULE

3257/23/01 SS	SERVICES SCHEDULE SHEET 01 OF 10
3257/23/02 SS	SERVICES SCHEDULE SHEET 02 OF 10
3257/23/03 SS	SERVICES SCHEDULE SHEET 03 OF 10
3257/23/04 SS	SERVICES SCHEDULE SHEET 04 OF 10
3257/23/05 SS	SERVICES SCHEDULE SHEET 05 OF 10
3257/23/06 SS	SERVICES SCHEDULE SHEET 06 OF 10
3257/23/07 SS	SERVICES SCHEDULE SHEET 07 OF 10
3257/23/08 SS	SERVICES SCHEDULE SHEET 08 OF 10
3257/23/09 SS	SERVICES SCHEDULE SHEET 09 OF 10
3257/23/10 SS	SERVICES SCHEDULE SHEET 10 OF 10

SETTING OUT DETAILS

3257/23/01 SO	SETTING OUT DETAILS MARIKANA TOLL PLAZA FROM KM 11.500 TO 12.000
3257/23/02 SO	SETTING OUT DETAILS R104 (P2-4) KROONDAL INTERCHANGE SHEET 01 OF 03
3257/23/03 SO	SETTING OUT DETAILS R104 (P2-4) KROONDAL INTERCHANGE SHEET 02 OF 03
3257/23/04 SO	SETTING OUT DETAILS R104 (P2-4) KROONDAL INTERCHANGE SHEET 03 OF 03
3257/23/05 SO	SETTING OUT DETAILS R24 (P16-1) RUSTENBURG (KRUGERSDORP) INTERCHANGE SHEET 01 OF 03
3257/23/06 SO	SETTING OUT DETAILS R24 (P16-1) RUSTENBURG (KRUGERSDORP) INTERCHANGE SHEET 02 OF 03
3257/23/07 SO	SETTING OUT DETAILS R24 (P16-1) RUSTENBURG (KRUGERSDORP) INTERCHANGE SHEET 03 OF 03
3257/23/08 SO	SETTING OUT DETAILS HELEN JOSEPH DRIVE INTERCHANGE SHEET 01 OF 03
3257/23/09 SO	SETTING OUT DETAILS HELEN JOSEPH DRIVE INTERCHANGE SHEET 02 OF 03
3257/23/10 SO	SETTING OUT DETAILS HELEN JOSEPH DRIVE INTERCHANGE SHEET 03 OF 03
3257/23/11 SO	SETTING OUT DETAILS (P16-2) DR MOROKA INTERCHANGE SHEET 01 OF 03
3257/23/12 SO	SETTING OUT DETAILS (P16-2) DR MOROKA INTERCHANGE SHEET 02 OF 03
3257/23/13 SO	SETTING OUT DETAILS (P16-2) DR MOROKA INTERCHANGE SHEET 03 OF 03
3257/23/14 SO	SETTING OUT DETAILS R104 (P2-3) INTERCHANGE & N4-13 TIE-IN SECTION SHEET 01 OF 04
3257/23/15 SO	SETTING OUT DETAILS R104 (P2-3) INTERCHANGE & N4-13 TIE-IN SECTION SHEET 03 OF 04
3257/23/16 SO	SETTING OUT DETAILS R104 (P2-3) INTERCHANGE & N4-13 TIE-IN SECTION SHEET 03 OF 04
3257/23/17 SO	SETTING OUT DETAILS R104 (P2-3) INTERCHANGE & N4-13 TIE-IN SECTION SHEET 04 OF 04

CULVERT SCHEDULE

3257/23/01 CS	CULVERT SCHEDULE CULVERTS BETWEEN KM 4.497 TO KM 4.987
3257/23/02 CS	CULVERT SCHEDULE CULVERTS BETWEEN KM 5.027 TO KM 5.307
3257/23/03 CS	CULVERT SCHEDULE CULVERTS BETWEEN KM 5.373 TO KM 5.587
3257/23/04 CS	CULVERT SCHEDULE CULVERTS BETWEEN KM 6.272 TO KM 7.627
3257/23/05 CS	CULVERT SCHEDULE CULVERTS BETWEEN KM 7.777 TO KM 8.218
3257/23/06 CS	CULVERT SCHEDULE CULVERTS BETWEEN KM 8.367 TO KM 9.048
3257/23/07 CS	CULVERT SCHEDULE CULVERTS BETWEEN KM 9.216 TO KM 9.831
3257/23/08 CS	CULVERT SCHEDULE CULVERTS BETWEEN KM 10.049 TO KM 11.227
3257/23/09 CS	CULVERT SCHEDULE CULVERTS BETWEEN KM 11.327 TO KM 12.287
3257/23/10 CS	CULVERT SCHEDULE CULVERTS BETWEEN KM 12.727 TO KM13.687
3257/23/11 CS	CULVERT SCHEDULE CULVERTS BETWEEN KM 14.787 TO KM 15.647
3257/23/12 CS	CULVERT SCHEDULE CULVERTS BETWEEN KM 15.780 TO KM 16.247
3257/23/13 CS	CULVERT SCHEDULE CULVERTS BETWEEN KM 15.780 TO KM 16.247
3257/23/14 CS	CULVERT SCHEDULE CULVERTS BETWEEN KM 16.367 TO KM 17.047
3257/23/15 CS	CULVERT SCHEDULE CULVERTS BETWEEN KM 17.187 TO KM 17.567
3257/23/16 CS	CULVERT SCHEDULE CULVERTS BETWEEN KM 17.667 TO KM 18.747
3257/23/17 CS	CULVERT SCHEDULE CULVERTS BETWEEN KM 18.787 TO KM 19.807
3257/23/18 CS	CULVERT SCHEDULE CULVERTS BETWEEN KM 20.047 TO KM 20.720
3257/23/19 CS	CULVERT SCHEDULE CULVERTS BETWEEN KM 20.976 TO KM 21.540
3257/23/20 CS	CULVERT SCHEDULE CULVERTS BETWEEN KM 22.227 TO KM 22.957
3257/23/21 CS	CULVERT SCHEDULE CULVERTS BETWEEN KM 23.387 TO KM 24.387
3257/23/22 CS	CULVERT SCHEDULE CULVERTS BETWEEN KM 24.657 TO KM 25.525
3257/23/23 CS	CULVERT SCHEDULE CULVERTS BETWEEN KM 25.626 TO KM 26.727
3257/23/24 CS	CULVERT SCHEDULE CULVERTS BETWEEN KM 26.877 TO KM 27.600
3257/23/25 CS	CULVERT SCHEDULE CULVERTS BETWEEN KM 27.707 TO KM 29.627
3257/23/26 CS	CULVERT SCHEDULE CULVERTS BETWEEN KM 29.787 TO KM 30.367
3257/23/27 CS	CULVERT SCHEDULE KROONDAL OFF-RAMP km 0.298, WATERFALL ON-RAMP km 0.493 & HELEN JOSEPH ON-RAMP CULVERT km 0.139
3257/23/28 CS	CULVERT SCHEDULE
3257/23/29 CS	CULVERT SCHEDULE CULVERTS BETWEEN KM 30.807 TO KM 32.310
3257/23/30 CS	CULVERT SCHEDULE CULVERTS BETWEEN KM 32.490 TO KM 33.459
3257/23/31 CS	CULVERT SCHEDULE CULVERTS BETWEEN KM 33.944 TO KM 34.987
3257/23/32 CS	CULVERT SCHEDULE CULVERTS BETWEEN KM 35.156 TO KM 35.967
3257/23/33 CS	CULVERT SCHEDULE CULVERTS BETWEEN KM 36.107 TO KM 37.309
3257/23/34 CS	CULVERT SCHEDULE CULVERTS BETWEEN KM 38.090 TO KM 38.808
3257/23/35 CS	CULVERT SCHEDULE CULVERTS BETWEEN KM 39.057 TO KM 39.787
3257/23/36 CS	CULVERT SCHEDULE CULVERTS BETWEEN KM 39.867 TO KM 40.167
3257/23/37 CS	CULVERT SCHEDULE CULVERTS BETWEEN KM 40.287 TO KM 40.887
3257/23/38 CS	CULVERT SCHEDULE DR MOROKA OFF-RAMP km 0.397 & DR MOROKA ON-RAMP km 0.311 TO km 0.570
3257/23/39 CS	CULVERT SCHEDULE R104 (P2-3) OFF-RAMP km 0.266 TO km 0.421 & R104 (P2-3) ON-RAMP km 0.414 TO km 0.864
3257/23/40 CS	CULVERT SCHEDULE R104 (P2-3) ON-RAMP km 0.985 TO km 1.205

DRAINAGE PLANS

3257/23/01 DP	DRAINAGE PLAN R104 (P2-4) KROONDAL INTERCHANGE EASTBOUND ON RAMP
3257/23/02 DP	DRAINAGE PLAN R104 (P2-4) KROONDAL INTERCHANGE EASTBOUND OFF RAMP
3257/23/03 DP	R24 (P16-1) RUSTENBURG (KRUGERSDORP) INTERCHANGE EASTBOUND ON RAMP - DRAINAGE PLAN
3257/23/04 DP	R24 (P16-1) RUSTENBURG (KRUGERSDORP) INTERCHANGE EASTBOUND OFF RAMP - DRAINAGE PLAN
3257/23/05 DP	HELEN JOSEPH DRIVE INTERCHANGE EASTOUND ON RAMP DRAINAGE PLAN
3257/23/06 DP	DRAINAGE PLAN (P16-2) DR MOROKA INTERCHANGE SHEET 01 OF 03
3257/23/07 DP	DRAINAGE PLAN (P16-2) DR MOROKA INTERCHANGE SHEET 02 OF 03
3257/23/08 DP	DRAINAGE PLAN (P16-2) DR MOROKA INTERCHANGE SHEET 03 OF 03
3257/23/09 DP	DRAINAGE PLAN R104 (P2-3) INTERCHANGE SHEET 01 OF 03
3257/23/10 DP	DRAINAGE PLAN R104 (P2-3) INTERCHANGE SHEET 02 OF 03
3257/23/11 DP	DRAINAGE PLAN R104 (P2-3) INTERCHANGE SHEET 03 OF 03

ROAD PAINT MARKINGS

3257/23/01 RM	TYPICAL ROAD PAINT MARKINGS
3257/23/02 RM	ROAD PAINT MARKINGS R104 (P2-4) KROONDAL INTERCHANGE SHEET 01 OF 03
3257/23/03 RM	ROAD PAINT MARKINGS R104 (P2-4) KROONDAL INTERCHANGE SHEET 02 OF 03
3257/23/04 RM	ROAD PAINT MARKINGS R104 (P2-4) KROONDAL INTERCHANGE SHEET 03 OF 03
3257/23/05 RM	ROAD PAINT MARKINGS R24 (P16-1) RUSTENBURG (KRUGERSDORP) INTERCHANGE SHEET 01 OF 03
3257/23/06 RM	ROAD PAINT MARKINGS R24 (P16-1) RUSTENBURG (KRUGERSDORP) INTERCHANGE SHEET 02 OF 03
3257/23/07 RM	ROAD PAINT MARKINGS R24 (P16-1) RUSTENBURG (KRUGERSDORP) INTERCHANGE SHEET 03 OF 03
3257/23/08 RM	ROAD PAINT MARKINGS HELEN JOSEPH DRIVE SHEET 01 OF 02
3257/23/09 RM	ROAD PAINT MARKINGS HELEN JOSEPH DRIVE SHEET 02 OF 02
3257/23/10 RM	ROAD PAINT MARKINGS (P16-2) DR MOROKA INTERCHANGE SHEET 01 OF 03
3257/23/11 RM	ROAD PAINT MARKINGS (P16-2) DR MOROKA INTERCHANGE SHEET 02 OF 03
3257/23/12 RM	ROAD PAINT MARKINGS (P16-2) DR MOROKA INTERCHANGE SHEET 03 OF 03
3257/23/13 RM	ROAD PAINT MARKINGS R104 (P2-3) INTERCHANGE SHEET 01 OF 07
3257/23/14 RM	ROAD PAINT MARKINGS R104 (P2-3) INTERCHANGE SHEET 02 OF 07
3257/23/15 RM	ROAD PAINT MARKINGS R104 (P2-3) INTERCHANGE SHEET 03 OF 07
3257/23/16 RM	ROAD PAINT MARKINGS R104 (P2-3) INTERCHANGE SHEET 04 OF 07
3257/23/17 RM	ROAD PAINT MARKINGS R104 (P2-3) INTERCHANGE SHEET 05 OF 07
3257/23/18 RM	ROAD PAINT MARKINGS R104 (P2-3) INTERCHANGE SHEET 06 OF 07
3257/23/19 RM	ROAD PAINT MARKINGS R104 (P2-3) INTERCHANGE SHEET 07 OF 07

ROAD SIGNS

3257/23/01 RS	ROAD TRAFFIC SIGNS N4-13 WESTBOUND AND EASTBOUND SHEET 01 OF 02
3257/23/02 RS	ROAD TRAFFIC SIGNS N4-13 WESTBOUND AND EASTBOUND SHEET 02 OF 02
3257/23/03 RS	ROAD TRAFFIC SIGNS N4-13 SPECIAL DESIGNS SHEET 01 OF 02
3257/23/04 RS	ROAD TRAFFIC SIGNS N4-13 SPECIAL DESIGNS SHEET 02 OF 02
3257/23/05 RS	ROAD TRAFFIC SIGNS R104 (P2-24) KROONDAL INTERCHANGE (188) SHEET 01 OF 04
3257/23/06 RS	ROAD TRAFFIC SIGNS R104 (P2-24) KROONDAL INTERCHANGE (188) SHEET 02 OF 04
3257/23/07 RS	ROAD TRAFFIC SIGNS R104 (P2-24) KROONDAL INTERCHANGE (188) SHEET 03 OF 04
3257/23/08 RS	ROAD TRAFFIC SIGNS R104 (P2-24) KROONDAL INTERCHANGE (188) SHEET 04 OF 04
3257/23/09 RS	ROAD TRAFFIC SIGNS R24 (P16-1) RUSTENBURG KRUGERSDORP) INTERCHANGE (182) SIGNAGE SHEET 01 OF 04
3257/23/10 RS	ROAD TRAFFIC SIGNS R24 (P16-1) RUSTENBURG KRUGERSDORP) INTERCHANGE (182) SIGNAGE SHEET 02 OF 04
3257/23/11 RS	ROAD TRAFFIC SIGNS R24 (P16-1) RUSTENBURG KRUGERSDORP) INTERCHANGE (182) SIGNAGE SHEET 03 OF 04
3257/23/12 RS	ROAD TRAFFIC SIGNS R24 (P16-1) RUSTENBURG KRUGERSDORP) INTERCHANGE (182) SIGNAGE SHEET 04 OF 04
3257/23/13 RS	ROAD TRAFFIC SIGNS HELEN JOSEPH INTERCHANGE SHEET 01 OF 04
3257/23/14 RS	ROAD TRAFFIC SIGNS HELEN JOSEPH INTERCHANGE SHEET 02 OF 04
3257/23/15 RS	ROAD TRAFFIC SIGNS HELEN JOSEPH INTERCHANGE SHEET 03 OF 04
3257/23/16 RS	ROAD TRAFFIC SIGNS HELEN JOSEPH INTERCHANGE SHEET 04 OF 04

No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date :

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NAME : PL NGQUMSHE
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CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
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ACCEPTANCE
THIS ACCEPTANCE IS FOR PROCEDURAL AND ADMINISTRATIVE REVIEW PURPOSES ONLY AND DOES NOT ATTRACT LEGAL LIABILITY OR LIABILITY OF ANY KIND FROM WHATSOEVER CAUSE OR HOWEVER ARISING
for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION
KEY PLAN

SCALE : AS SHOWN (A0) | SHEET 01 OF 07

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001		
DRAWING LOCATION DATA	START	END	
ROUTE	N 4	N 4	
SECTION	SECTION 13	SECTION 13	
DRAWING km DISTANCE	- -	- -	
DRAWING TYPE	ROADS - INDEX AND LOCALITY		
BRIDGE/STRUCTURE No.	NA		
CONSULTANT DRAWING No.	FA	3257 / 23 / 01 KP	VER
SANRAL DOCUMENT #	- -		V0

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\01 - Key Plan\3257-23-01-05KP_Key plan_20230731.dwg

DRAWING LIST

3257/23/17 RS	ROAD TRAFFIC SIGNS DR MOROKA INTERCHANGE 176 SHEET 01 OF 05
3257/23/18 RS	ROAD TRAFFIC SIGNS DR MOROKA INTERCHANGE 176 SHEET 02 OF 05
3257/23/19 RS	ROAD TRAFFIC SIGNS DR MOROKA INTERCHANGE 176 SHEET 03 OF 05
3257/23/20 RS	ROAD TRAFFIC SIGNS DR MOROKA INTERCHANGE 176 SHEET 04 OF 05
3257/23/21 RS	ROAD TRAFFIC SIGNS DR MOROKA INTERCHANGE 176 SHEET 05 OF 05
3257/23/22 RS	ROAD TRAFFIC SIGNS(P2-3) R104 INTERCHANGE SHEET 01 OF 08
3257/23/23 RS	ROAD TRAFFIC SIGNS(P2-3) R104 INTERCHANGE SHEET 02 OF 08
3257/23/24 RS	ROAD TRAFFIC SIGNS(P2-3) R104 INTERCHANGE SHEET 03 OF 08
3257/23/25 RS	ROAD TRAFFIC SIGNS(P2-3) R104 INTERCHANGE SHEET 04 OF 08
3257/23/26 RS	ROAD TRAFFIC SIGNS(P2-3) R104 INTERCHANGE SHEET 05 OF 08
3257/23/27 RS	ROAD TRAFFIC SIGNS(P2-3) R104 INTERCHANGE SHEET 06 OF 08
3257/23/28 RS	ROAD TRAFFIC SIGNS(P2-3) R104 INTERCHANGE SHEET 07 OF 08
3257/23/29 RS	ROAD TRAFFIC SIGNS(P2-3) R104 INTERCHANGE SHEET 08 OF 08
3257/23/30 RS	ROAD TRAFFIC SIGNS INTERCHANGE 169
3257/23/31 RS	ROAD TRAFFIC SIGNS INTERCHANGE 170
3257/23/32 RS	ROAD TRAFFIC SIGNS INTERCHANGE 171,172

TRAFFIC ACCOMMODATION

3257/23/01 TA	TRAFFIC ACCOMMODATION - WORK ON SHOULDER
3257/23/02 TA	TRAFFIC ACCOMMODATION - GENERAL CONSTRUCTION ZONE
3257/23/03 TA	TRAFFIC ACCOMMODATION - CARRIAGEWAY CLOSURE - CONTRAFLOW (2 LANE / 2 WAY)
3257/23/04 TA	TRAFFIC ACCOMMODATION - ON/ OFF RAMP AMENDED CONFIGURATION
3257/23/05 TA	TRAFFIC ACCOMMODATION - HALF WIDTH CONSTRUCTION
3257/23/06 TA	TRAFFIC ACCOMMODATION - CLOSURE OF HELEN JOSEPH BRIDGE DETOUR VIA R24 (P16-1) BRIDGE
3257/23/07 TA	TRAFFIC ACCOMMODATION - CLOSURE OF HELEN JOSEPH BRIDGE DETOUR VIA KRUGER STREET BRIDGE
3257/23/08 TA	TRAFFIC ACCOMMODATION - PHASE CONSTRUCTION AT R104 (P2-4) KROONDAL INTERCHANGE SHEET 1 OF 3
3257/23/09 TA	TRAFFIC ACCOMMODATIONPHASE CONSTRUCTION AT R104 (P2-4) KROONDAL INTERCHANGE SHEET 2 OF 3
3257/23/10 TA	TRAFFIC ACCOMMODATIONPHASE CONSTRUCTION AT R104 (P2-4) KROONDAL INTERCHANGE SHEET 3 OF 3
3257/23/11 TA	TRAFFIC ACCOMMODATION - R24 (P16-1) RUSTENBURG (KRUGERSDORP) INTERCHANGE SHEET 1 OF 3
3257/23/12 TA	TRAFFIC ACCOMMODATION- R24 (P16-1) RUSTENBURG (KRUGERSDORP) INTERCHANGE SHEET 2 OF 3
3257/23/13 TA	TRAFFIC ACCOMMODATION- R24 (P16-1) RUSTENBURG (KRUGERSDORP) INTERCHANGE SHEET 3 OF 3
3257/23/14 TA	TRAFFIC ACCOMMODATION - HELEN JOSEPH DRIVE INTERCHANGE SHEET 01 OF 02
3257/23/15 TA	TRAFFIC ACCOMMODATION - HELEN JOSEPH DRIVE INTERCHANGE SHEET 02 OF 02
3257/23/16 TA	TRAFFIC ACCOMMODATION CLOSURE OF KRUGER STREET DETOUR VIA HELEN JOSEPH DRIVE
3257/23/17 TA	TRAFFIC ACCOMMODATION - CLOSURE OF DR MOROKA STREET DETOUR VIA KRUGER STREET AND HELEN JOSEPH DRIVE
3257/23/18 TA	TRAFFIC ACCOMMODATION - CLOSURE OF DR MOROKA (P16-2) BRIDGE DETOUR VIA R104 (P2-3_
3257/23/19 TA	TRAFFIC ACCOMMODATION - CLOSURE OF SERVICE ROAD B DETOUR VIA NEW GRAVEL ROUTE
3257/23/20 TA	TRAFFIC ACCOMMODATION - CLOSURE OF ROAD 287 BRIDGE DETOUR VIA DR MOROKA (P16-2) BRIDGE
3257/23/21 TA	TRAFFIC ACCOMMODATION - PHASED CONSTRUCTION AT DR MOROKA INTERCHANGE
3257/23/22 TA	TRAFFIC ACCOMMODATION - DR MOROKA INTERCHANGE TEMPORARY ON RAMP KM 0.000 TO KM 0.350 133
3257/23/23 TA	TRAFFIC ACCOMMODATION - DR MOROKA INTERCHANGE TEMPORARY OFF RAMP KM 0.000 TO KM 0.335 946
3257/23/24 TA	TRAFFIC ACCOMMODATION PHASED CONSTRUCTION AT R104 (P2-3) INTERCHANGE SHEET 01 OF 02
3257/23/25 TA	TRAFFIC ACCOMMODATION PHASED CONSTRUCTION AT R104 (P2-3) INTERCHANGE SHEET 02 OF 02

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3257/23/01 TP	ROAD SURFACE DRAINAGE - TYPICAL DRAIN TYPES
3257/23/02 TP	ROAD SURFACE DRAINAGE - TRANSITION AT SIDE INLETS - TYPE A SIDE DRAINS
3257/23/03 TP	ROAD SURFACE DRAINAGE - TYPE E CONCRETE CHANNELS IN MEDIANS SHEET 01 OF 02
3257/23/04 TP	ROAD SURFACE DRAINAGE - TYPE E CONCRETE CHANNELS IN MEDIANS SHEET 02 OF 02
3257/23/05 TP	ROAD SURFACE DRAINAGE - TYPE F CONCRETE CHANNELS OUTLET DETAILS
3257/23/06 TP	MANHOLES AND GRID INLET CHAMBERS - DETERMINATION OF CHAMBER SIZES
3257/23/07 TP	MANHOLES AND GRID INLET CHAMBERS - GENERAL ARRANGEMENT OF CHAMBERS
3257/23/08 TP	MANHOLES AND GRID INLET CHAMBERS - GRID INLET CHAMBER REINFORCEMENT
3257/23/09 TP	MANHOLES AND GRID INLET CHAMBERS - CONCRETE DETAILS FOR HIGH FILLS AND SKEW CULVERTS
3257/23/10 TP	MANHOLES AND GRID INLET CHAMBERS - REINFORCEMENT DETAILS FOR HIGH FILLS AND SKEW CULVERTS
3257/23/11 TP	WELDED STEEL GRIDS FOR MEDIANS, ETC - GRID AND FRAM D DETAILS
3257/23/12 TP	WELDED STEEL GRIDS FOR MEDIANS, ETC - ASSEMBLY DETAILS
3257/23/13 TP	INLET STRUCTURE - SIDE INLETS ON TYPE A DRAINS
3257/23/14 TP	INLET STRUCTURES - DOWN PIPES FOR SIDE INLETS
3257/23/15 TP	INLET STRUCTURES - FIELD AND GRID INLETS MANHOLES
3257/23/16 TP	INLET STRUCTURES - DISH AND BERM INLETS
3257/23/17 TP	MISCELLANEOUS PIPE LAYING DETAILS
3257/23/18 TP	PRECAST PORTAL CULVERT BASE SLAB SHEET 01 OF 02
3257/23/19 TP	PRECAST PORTAL CULVERT BASE SLAB SHEET 02 OF 02
3257/23/20 TP	WING WALLS FOR PRECAST CULVERTS - DIMENSIONS
3257/23/21 TP	WING WALLS FOR PRECAST CULVERTS - REINFORCEMENT
3257/23/22 TP	EROSION CONTROL STONE PITCHING AND GABION SHEET 01 OF 03
3257/23/23 TP	EROSION CONTROL STONE PITCHING AND GABION SHEET 02 OF 03
3257/23/24 TP	EROSION CONTROL STONE PITCHING AND GABION SHEET 03 OF 03
3257/23/25 TP	SUBSURFACE DRAINAGE SHEET 01 OF 03
3257/23/26 TP	SUBSURFACE DRAINAGE SHEET 02 OF 03
3257/23/27 TP	SUBSURFACE DRAINAGE SHEET 03 OF 03
3257/23/28 TP	ROAD RESERVE FINISHING SHEET 01 OF 02
3257/23/29 TP	ROAD RESERVE FINISHING SHEET 02 OF 02
3257/23/30 TP	FENCING AND RELATED ITEMS - FENCING SHEET 01 OF 03
3257/23/31 TP	FENCING AND RELATED ITEMS - STOCK PROOF FENCING 9 STRANDS ON STEEL POSTS SHEET 02 OF 03
3257/23/32 TP	FENCING AND RELATED ITEMS - STOCK PROOF FENCING 9 STRANDS ON TIMBER POSTS SHEET 03 OF 03
3257/23/33 TP	FENCING AND RELATED ITEMS - FENCING DETAIL AT RIVER BRIDGES AND DRAINAGE CULVERTS SHEET 01 OF 02
3257/23/34 TP	FENCING AND RELATED ITEMS - FENCING DETAIL AT RIVER BRIDGES AND DRAINAGE CULVERTS SHEET 02 OF 02
3257/23/35 TP	GUARDRAILS - GUARDRAIL ELEMENT AND MOUNTING DETAILS SHEET 01 OF 02
3257/23/36 TP	GUARDRAILS - GUARDRAIL ELEMENT AND MOUNTING DETAILS SHEET 02 OF 02
3257/23/37 TP	GUARDRAILS - DETAIL OF TERMINAL SECTION SHEET 01 OF 02
3257/23/38 TP	GUARDRAILS - DETAIL OF TERMINAL SECTION SHEET 0 OF 02
3257/23/39 TP	GUARDRAILS - PLACING DETAIL AT BRIDGE APPROACHES AND HIGH FILL
3257/23/40 TP	ROAD SIGNS - SUPPORTS AND FOUNDATIONS - GENERAL DETAILS
3257/23/41 TP	ROAD SIGNS - SUPPORTS AND FOUNDATIONS - DETERMINATION
3257/23/42 TP	ROAD SIGNS - DETAILS OF ROAD SIGN FACE
3257/23/43 TP	ROAD SIGNS - DETAILS OF ROAD SIGN PROFILE AND JOINT
3257/23/44 TP	ROAD SIGNS - SMALLER ROAD SIGN DETAILS
3257/23/45 TP	ROAD SIGNS INFORMATION BOARD DETAILS
3257/23/46 TP	ROAD SIGN REFERENCE MARKER BOARD SHEET 01 OF 02
3257/23/47 TP	ROAD SIGN REFERENCE MARKER BOARD SHEET 02 OF 02
3257/23/48 TP	MISCELLANEOUS TYPICAL DETAILS OF UTILITY DUCTS AND SERVICE MARKERS SHEET 01 OF 02
3257/23/49 TP	MISCELLANEOUS TYPICAL DETAILS OF UTILITY DUCTS AND SERVICE MARKERS SHEET 02 OF 02

No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

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NAME	WB HARTMANN

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THIS ACCEPTANCE IS FOR PROCEDURAL AND ADMINISTRATIVE REVIEW PURPOSES ONLY AND DOES NOT ATTRACT LEGAL LIABILITY OR LIABILITY OF ANY KIND FROM WHATSOEVER CAUSE OR HOWEVER ARISING
for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION
KEY PLAN

SCALE : AS SHOWN (A0) | SHEET 02 OF 07

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001		
DRAWING LOCATION DATA	START	END	
ROUTE	N 4	N 4	
SECTION	SECTION 13	SECTION 13	
DRAWING km DISTANCE	- -	- -	
DRAWING TYPE	ROADS - INDEX AND LOCALITY		
BRIDGE/STRUCTURE No.	NA		
CONSULTANT DRAWING No.	FA	3257 / 23 / 02 KP	VER V0
SANRAL DOCUMENT #	- -		

SANRAL DOCUMENT NUMBER :

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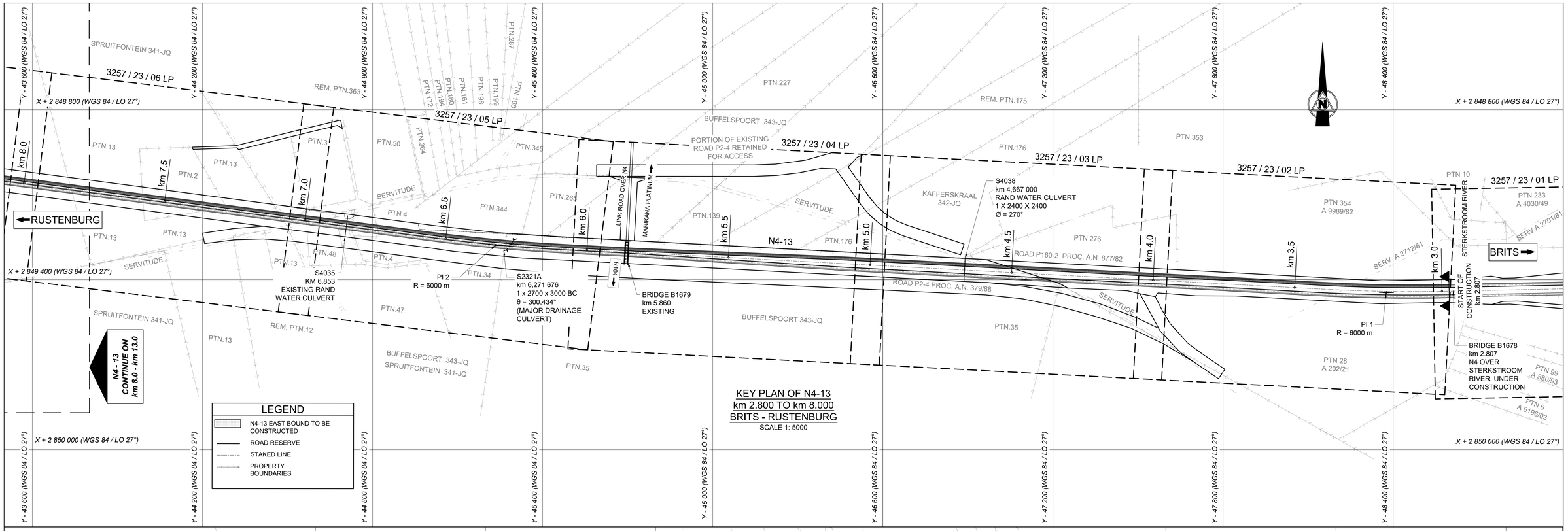

No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
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PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION
KEY PLAN N4-13 FROM km 2.807 TO 13.000

SCALE : 1 : 5000 (A0) SHEET 03 OF 07

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	SECTION 13	SECTION 13
DRAWING km DISTANCE	km 2.800	km 13.000
DRAWING TYPE	ROADS - KEY PLAN	
BRIDGE/STRUCTURE No.	NA	
CONSULTANT DRAWING No.	FA 3257 / 23 / 03 KP	VER V0
SANRAL DOCUMENT #	- -	

SANRAL DOCUMENT NUMBER :

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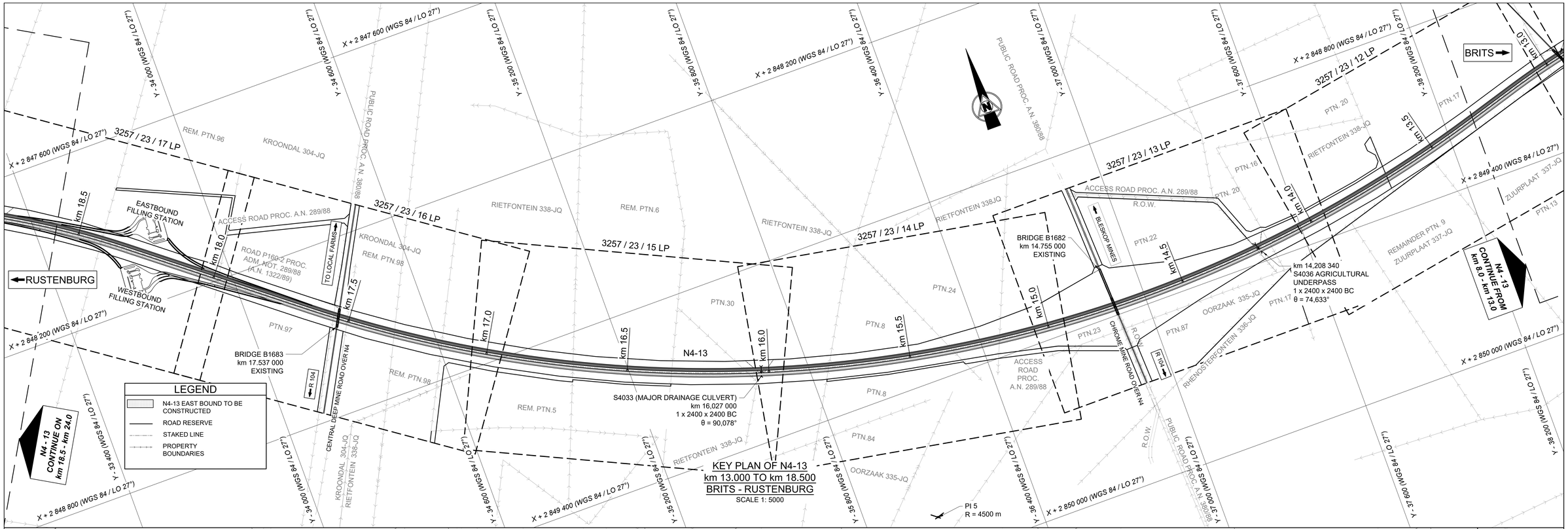

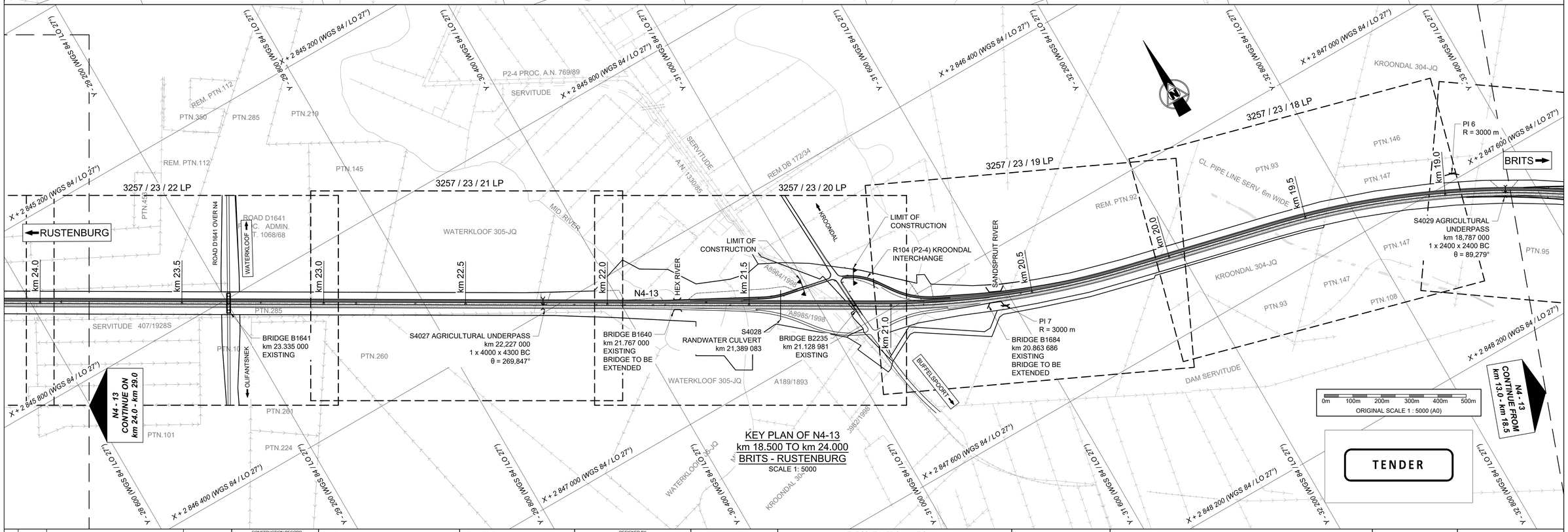

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Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION
KEY PLAN N4-13 FROM km 13.000 TO 24.000

SCALE : 1 : 5000 (A0) SHEET 04 OF 07

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	SECTION 13	SECTION 13
DRAWING km DISTANCE	km 13.000	km 24.000
DRAWING TYPE	ROADS - KEY PLAN	
BRIDGE/STRUCTURE No.	NA	
CONSULTANT DRAWING No.	FA 3257 / 23 / 04 KP	VER
SANRAL DOCUMENT #	- -	V0

SANRAL DOCUMENT NUMBER :

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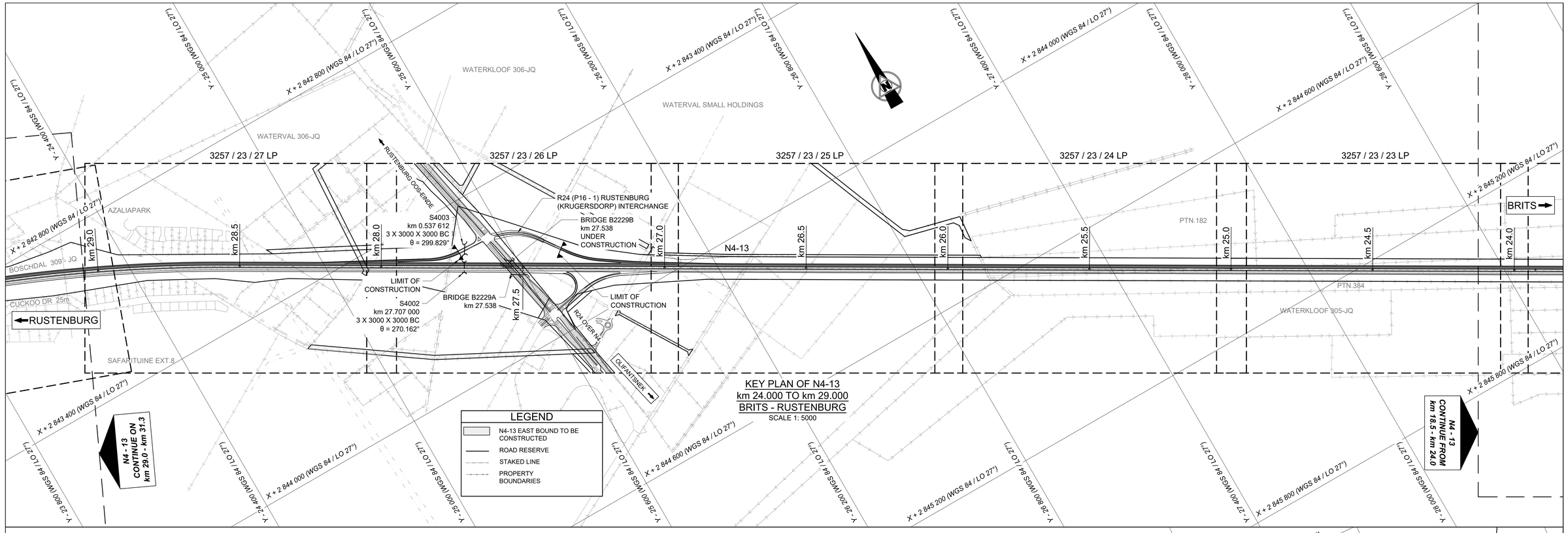
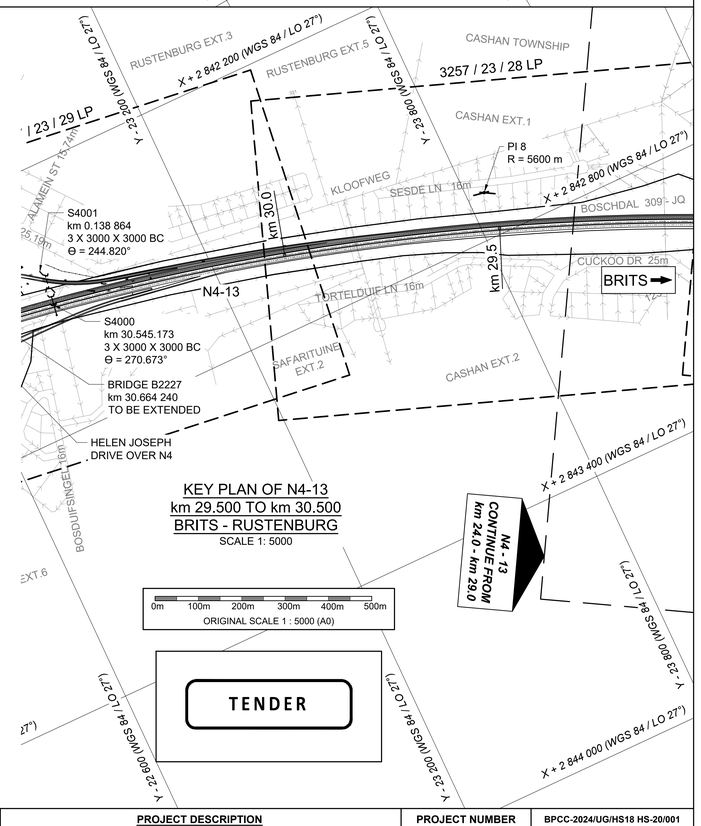


KEY PLAN OF N4-13
km 24.000 TO km 29.000
BRITS - RUSTENBURG
SCALE 1: 5000



KEY PLAN OF N4-13
km 29.500 TO km 30.500
BRITS - RUSTENBURG
SCALE 1: 5000

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V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE
			CONSULT. ENG.

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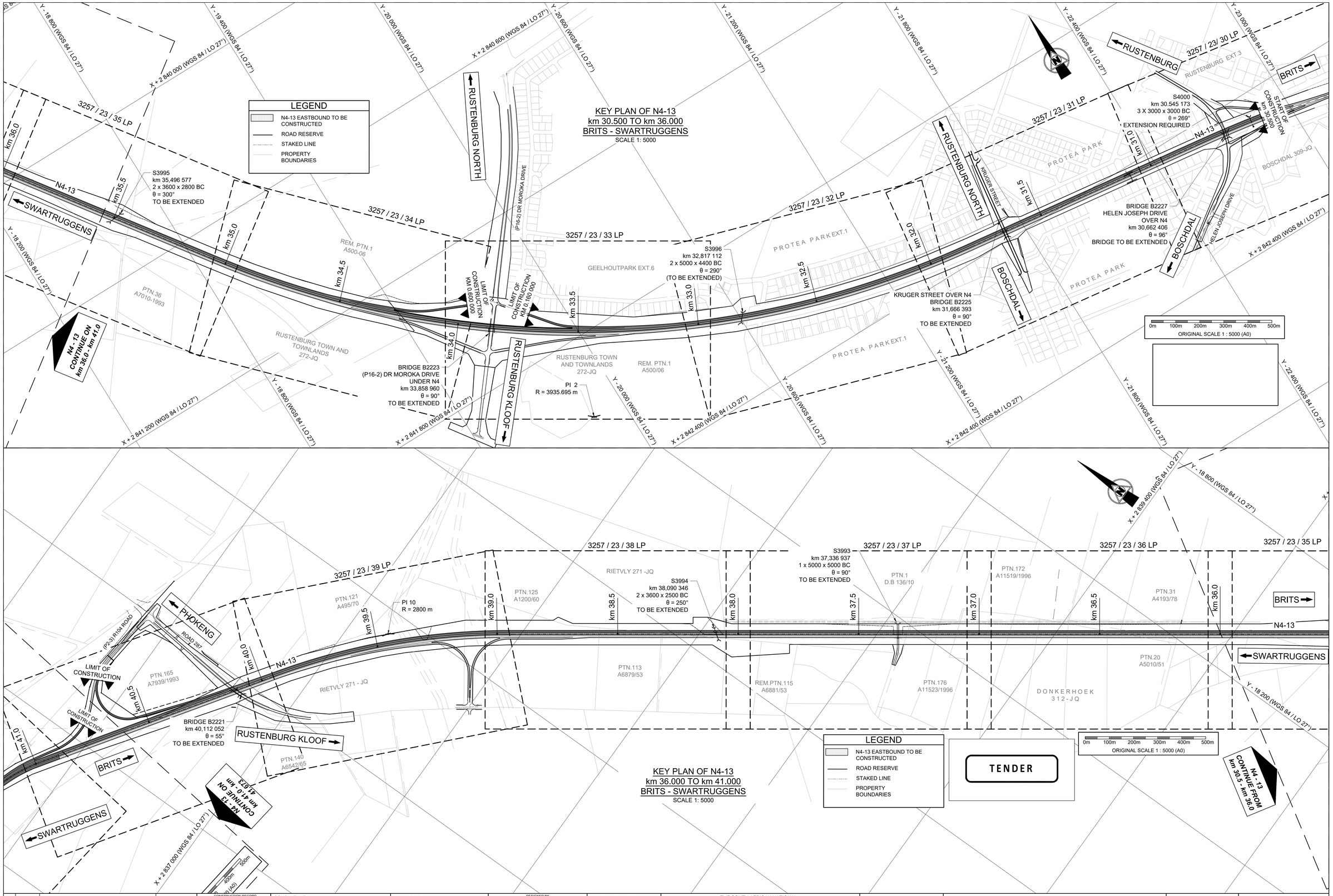
PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION
KEY PLAN N4-13 FROM km 24.000 TO 30.500

SCALE : 1 : 5000 (A0) | SHEET 05 OF 07

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001		
DRAWING LOCATION DATA	START	END	
ROUTE	N 4	N 4	
SECTION	SECTION 13	SECTION 13	
DRAWING km DISTANCE	km 24.000	km 31.300	
DRAWING TYPE	ROADS - KEY PLAN		
BRIDGE/STRUCTURE No.	NA		
CONSULTANT DRAWING No.	FA	3257 / 23 / 05 KP	VER
SANRAL DOCUMENT #	- -		V0

SANRAL DOCUMENT NUMBER :



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V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

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Name :
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PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

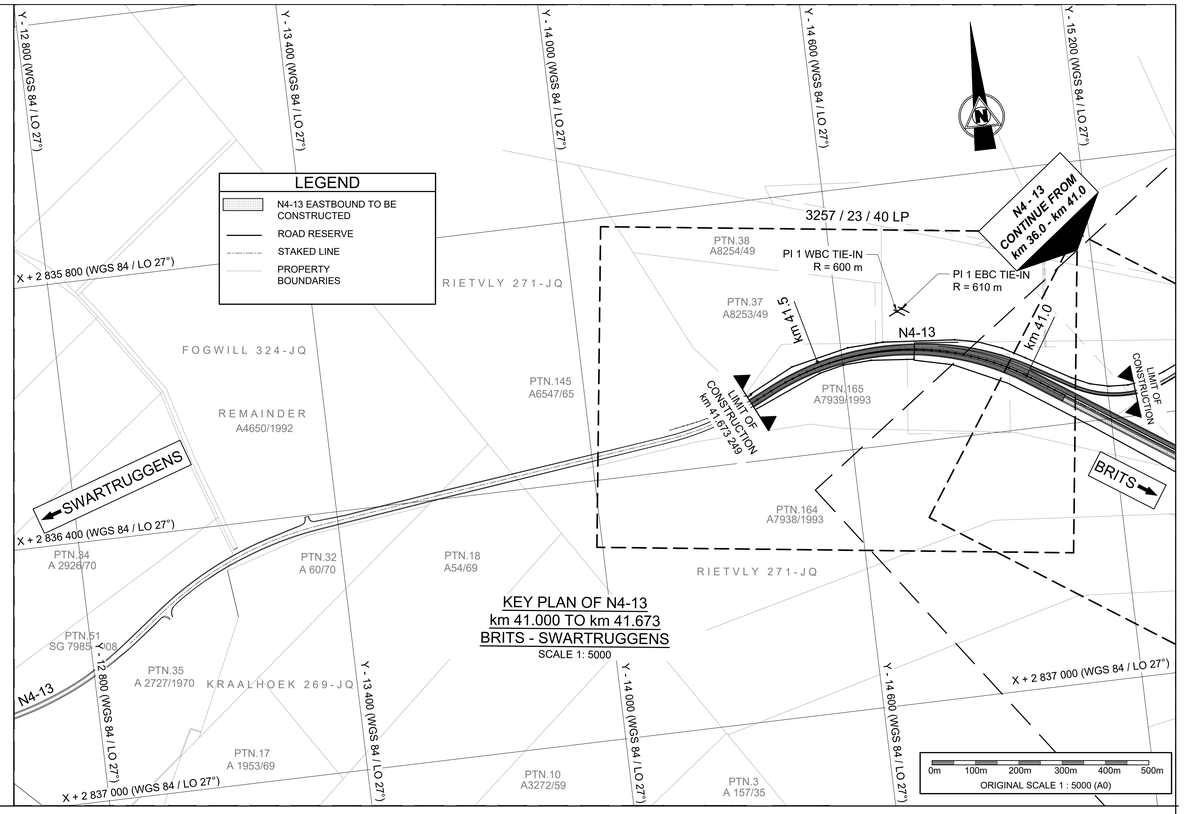
DRAWING DESCRIPTION
LIST OF DRAWINGS AND KEY PLAN N4-13 FROM km 30.500 TO 41.000

SCALE : 1 : 5000 (A0) | SHEET 06 OF 07

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	SECTION 13	SECTION 13
DRAWING km DISTANCE	km 30.500	km 41.000
DRAWING TYPE	ROADS - LAYOUTS	
BRIDGE/STRUCTURE No.	NA	
CONSULTANT DRAWING No.	FA 3257 / 16 / 06 KP	VER V0
SANRAL DOCUMENT #	- -	

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\01 - Key Plan\3257-23-06-07KP_Key plan_20230731.dwg



KEY PLAN OF N4-13
km 41.000 TO km 41.673
BRITS - SWARTRUGGENS
SCALE 1: 5000

TENDER

No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD

WORKS CONTRACT ENGINEER

Name :
Prof. Reg. No. :
Date

SANRAL PROJECT MANAGER

Name
Prof. Reg. No. :
Date :

CONSULTANT

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Prof. Reg. No.	-
CHECKED BY	
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Prof. Reg. No.	20080112
DRAWN BY	
NAME	M DE KOCK

CONSULTANT APPROVAL

Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17/07/2023

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ACCEPTANCE

THIS ACCEPTANCE IS FOR PROCEDURAL AND ADMINISTRATIVE REVIEW PURPOSES ONLY AND DOES NOT ATTRACT LEGAL LIABILITY OR LIABILITY OF ANY KIND FROM WHATSOEVER CAUSE OR HOWEVER ARISING

for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION

THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION

KEYPLAN N4-13
FROM km 41.000 TO 41.673

SCALE : 1 : 5000 (A0) | **SHEET 07 OF 07**

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001		
DRAWING LOCATION DATA	START	END	
ROUTE	N 4	N 4	
SECTION	SECTION 13	SECTION 13	
DRAWING km DISTANCE	km 41.000	km 41.673	
DRAWING TYPE	ROADS - LAYOUTS		
BRIDGE/STRUCTURE No.	NA		
CONSULTANT DRAWING No.	FA	3257 / 23 / 07 KP	VER
SANRAL DOCUMENT #	- -		V0

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\01 - Key Plan\3257-23-06-07KP_Key plan_20230731.dwg

LEGEND

N4-13 TO BE CONSTRUCTED	NEW DOUBLE STREET LIGHT
FENCE	FLOOD LIGHT
BUILDING	TELEPHONE POLE
CONCRETE	FARM PORTIONS
VALVE	CONTOURS
GRID INLET	BATTER
BRIDGE PILLARS	BENCH MARK
KERB INLET	WALL
ELECTRIC BOX	NEW GUARDRAILS AND NJ BARRIERS
POWERLINES	EXISTING GUARDRAILS
MANHOLE	NEW CULVERTS
TRAFFIC SIGN	EXISTING CULVERTS
ELECTRIC POLES	NEW ROAD RESERVE
REMOVE STREET LIGHT	FLOW DIRECTION ARROW
NEW SINGLE STREET LIGHT	CONCRETE V-DRAINS
RELOCATE STREET LIGHT	CHUTES
DIRECTION OF FLOW (SIDE DRAIN)	DIRECTION OF FLOW (MEDIAN DRAIN

Y + 49 600 (WGS 84 / LO 27°) | Y + 49 800 (WGS 84 / LO 27°) | Y + 50 000 (WGS 84 / LO 27°) | Y + 49 200 (WGS 84 / LO 27°) | Y + 49 400 (WGS 84 / LO 27°) | Y + 49 600 (WGS 84 / LO 27°)

X + 2 849 200 (WGS 84 / LO 27°)

X + 2 849 600 (WGS 84 / LO 27°)

X + 2 849 800 (WGS 84 / LO 27°)

PTN 10 | PTN 233 A 4030/49 | SERV A 2708/81 | PTN 146 A 2717/21 | SERV A 2701/81 | PTN 37 A 3202/28 | PTN 13 A 2189/05 | PTN 12 A 2188/05 | PTN 28 A 202/21 | PTN 99 A 880/93 | PTN 100 A 881/93 | PTN 6 A 6196/03 | PTN 20 A 2196/05 | PTN 98 A 879/93 | PTN 17

ROAD 344

MARIKANA

RUSTENBURG

BRITS

BUFFELSPOORT

N4 - 13 CONTINUE ON 3257 / 23 / 02 LP

0.5 m GRAVEL SHOULDER
1.0 m SHOULDER
3.7 m LANE
3.7 m LANE
2.5 m SHOULDER

TIE INTO EXISTING DUAL CARRIAGEWAY SECTION
120.5m

STERKSTROOM RIVER

BRIDGE B1678B
km 2,807 000
N4 OVER
STERKSTROOM RIVER
Ø = 0°

LIMIT OF CONSTRUCTION km 2.800

N4-13 EASTBOUND

120.5m

3.0 | BC1 | 2.9 | 2.8 | 2.7 | 2.6 | 2.5 | 2.4 | 2.3 | 2.2 | 2.1 | 2.0

km 3,007 394
EXISTING
CULVERT TO
BE REMOVED

2.5 m SHOULDER
3.7 m LANE
3.7 m LANE
2.5 m SHOULDER
MEDIAN WIDTH 23.4m

N4-13 WESTBOUND

NRB573

STERKSTROOM RIVER

BRIDGE B1678A
km 2,807 000
N4 OVER
STERKSTROOM RIVER
Ø = 0°

R1 | R2 | R3 | R4 | R5 | R6 | R7 | R8 | R9

MINIMUM ROAD RESERVE WIDTH: 80 m

(D1325) MARIKANA ON RAMP WESTBOUND

(D1325) MARIKANA OFF RAMP WESTBOUND

(D1325) MARIKANA OFF RAMP EASTBOUND

(D1325) MARIKANA ON RAMP EASTBOUND

BRIDGE B2236
km 2,270 000
N4 UNDER ROAD 344
Ø = 0°

L1 | L2

N4-13 EASTBOUND

N4-13 WESTBOUND

SHEET LAYOUT
SCALE 1:100 000

LP1 LP2 LP3 LP4 LP5 LP6 LP7 LP8 LP9 LP10 LP11 LP12 LP13 LP14 LP15 LP16 LP17 LP18 LP19 LP20 LP21 LP22 LP23 LP24 LP25 LP26 LP27 LP28 LP29 LP30

TYPICAL CROSS SECTION N4 - 13
km 2.000 TO km 3.000
SCALE 1:250

EXISTING WESTBOUND CARRIAGEWAY | NEW EASTBOUND CARRIAGEWAY

2.5 | 3.7 | 3.7 | 2.5 | 17.9 | 17.4 | 1 | 3.7 | 3.7 | 2.5

2 % OR ←

2 % OR →

DESIGN SPEED 120 km/h	N4-13 NRA CENTER LINE CO-ORDINATES		(WGS 84 \ LO 27°)
CHAINAGE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
2800.000	- 48 752.494	+ 2 849 437.360	START OF CONSTRUCTION
2900.000	- 48 652.515	+ 2 849 439.436	
3000.000	- 48 522.533	+ 2 849 441.342	

N4-13 DUAL CARRIAGEWAY km 2000.000 - km 3000.000 (WGS 84 \ LO 27°)

CURVE	DESCRIPTION	CURVE LENGTH	CURVE RADIUS	POINT	CHAINAGE DISTANCE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
-	START			START	2800.000	- 48 752.494	+ 2 849 437.360
1	RIGHT HAND CIRCULAR	443.240 m	6000 m	BC 1	2954.788	- 48 597.739	+ 2 849 440.574
				PI 1	-	- 48 376.066	+ 2 849 445.178
				EC 1	3398.027	- 48 154.658	+ 2 849 433.409

EXISTING ROAD RESERVE (WGS 84 \ LO 27°)

DESCRIPTION	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
L1	- 49 354.163	+ 2 849 304.163
L2	- 49 412.816	+ 2 849 326.603
R1	- 48 813.078	+ 2 849 486.029
R2	- 49 061.827	+ 2 849 507.692
R3	- 49 153.892	+ 2 849 525.305
R4	- 49 216.156	+ 2 849 547.656
R5	- 49 314.137	+ 2 849 545.637
R6	- 49 378.585	+ 2 849 518.434
R7	- 49 471.271	+ 2 849 498.096
R8	- 49 546.018	+ 2 849 484.182
R9	- 49 621.508	+ 2 849 475.117

TENDER

5m 15m 25m 35m 45m
0m 10m 20m 30m 40m 50m
ORIGINAL SCALE 1 : 500 (A0)

V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE
No.	DATE	REVISION	CONSULT. ENG.

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
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DESIGNED BY
NAME: EF DAY
Prof. Reg. No.: 20130622
CHECKED BY
NAME: PL NGQUMSHE
Prof. Reg. No.: 20080112
DRAWN BY
NAME: WB HARTMANN

CONSULTANT APPROVAL
Name: PL NGQUMSHE
Prof. Reg. No.: 20080112
Date: 17 / 07 / 2023

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for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
The construction of the dual carriageway of the N4-13 between Buffelspoort N4-13 km 2.800 and the P16-2 Interchange N4-13 km 40.000

DRAWING DESCRIPTION
LAYOUT N4-13
FROM km 2.000 TO 3.000

SCALE : 1 : 1000 (A0) | SHEET 01 OF 41

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	SECTION 13	SECTION 13
DRAWING km DISTANCE	km 2.000	km 3.000
DRAWING TYPE	ROADS - LAYOUTS	
BRIDGE/STRUCTURE No.	NA	
CONSULTANT DRAWING No.	FA 3257 / 23 / 01 LP	VER
SANRAL DOCUMENT #	- -	V0

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\02 - Layouts\3257-23-01-03 LP-N4 Dual Carriageway Layouts km 2 to km 5_20230717.dwg

DESIGN SPEED 120 km/h	N4-13 NRA CENTER LINE CO-ORDINATES (WGS 84 \ LO 27°)		
CHAINAGE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
3000.000	- 48 552.533	+ 2 849 441.342	
3100.000	- 48 452.536	+ 2 849 441.832	
3200.000	- 48 352.544	+ 2 849 440.655	
3300.000	- 48 252.585	+ 2 849 437.812	
3400.000	- 48 152.688	+ 2 849 433.304	
3500.000	- 48 052.829	+ 2 849 427.996	
3600.000	- 47 952.970	+ 2 849 422.688	
3700.000	- 47 853.111	+ 2 849 417.380	
3800.000	- 47 753.252	+ 2 849 412.072	
3900.000	- 47 653.393	+ 2 849 406.764	
4000.000	- 47 553.534	+ 2 849 401.455	

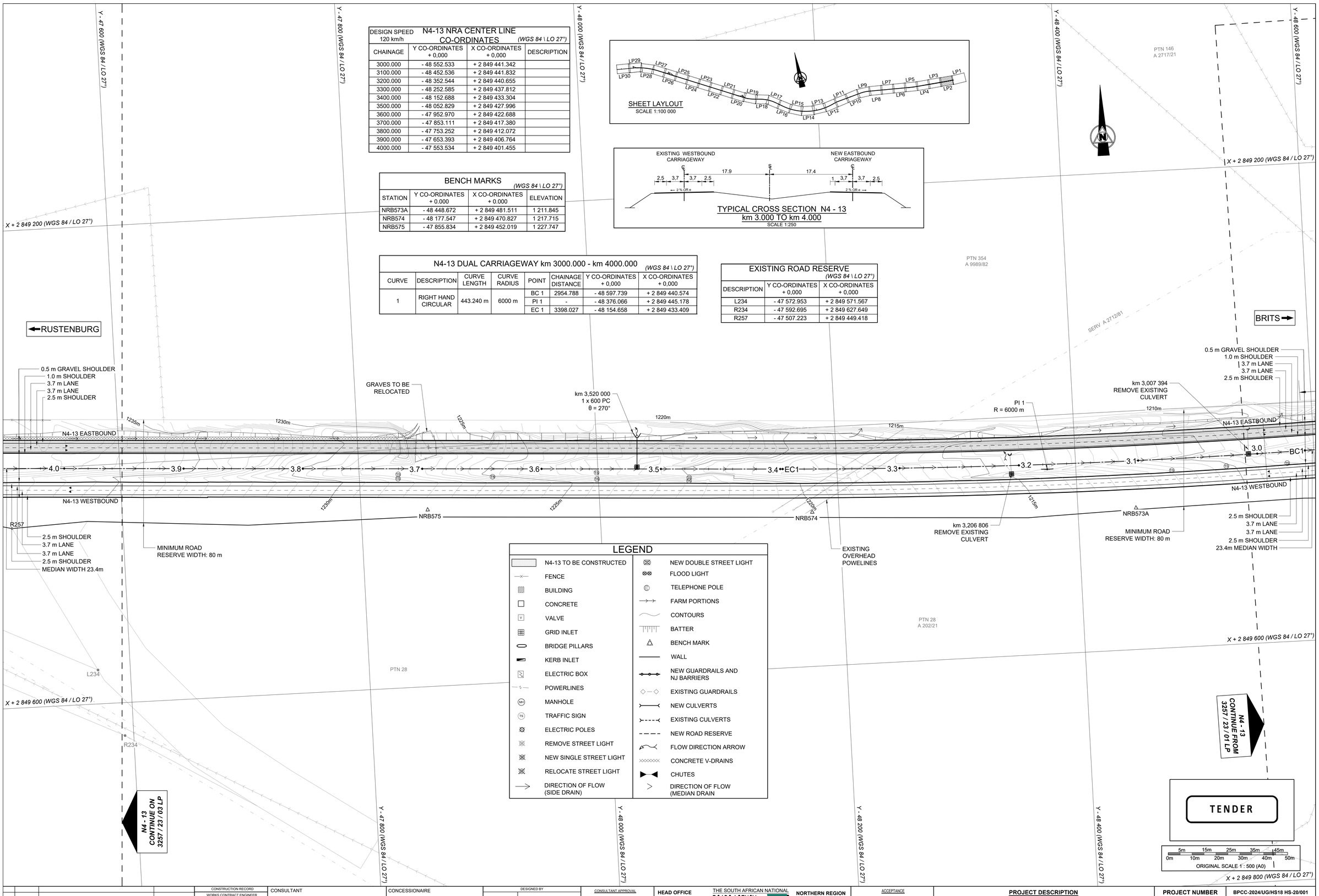
SHEET LAYLOUT
SCALE 1:100 000

TYPICAL CROSS SECTION N4 - 13
km 3.000 TO km 4.000
SCALE 1:250

BENCH MARKS (WGS 84 \ LO 27°)			
STATION	Y CO-ORDINATES + 0.000	X CO-ORDINATES + 0.000	ELEVATION
NRB573A	- 48 448.672	+ 2 849 481.511	1 211.845
NRB574	- 48 177.547	+ 2 849 470.827	1 217.715
NRB575	- 47 855.834	+ 2 849 452.019	1 227.747

N4-13 DUAL CARRIAGEWAY km 3000.000 - km 4000.000 (WGS 84 \ LO 27°)							
CURVE	DESCRIPTION	CURVE LENGTH	CURVE RADIUS	POINT	CHAINAGE DISTANCE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
1	RIGHT HAND CIRCULAR	443.240 m	6000 m	BC 1	2954.788	- 48 597.739	+ 2 849 440.574
				PI 1	-	- 48 376.066	+ 2 849 445.178
				EC 1	3398.027	- 48 154.658	+ 2 849 433.409

EXISTING ROAD RESERVE (WGS 84 \ LO 27°)		
DESCRIPTION	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
L234	- 47 572.953	+ 2 849 571.567
R234	- 47 592.695	+ 2 849 627.649
R257	- 47 507.223	+ 2 849 449.418



LEGEND

	N4-13 TO BE CONSTRUCTED		NEW DOUBLE STREET LIGHT
	FENCE		FLOOD LIGHT
	BUILDING		TELEPHONE POLE
	CONCRETE		FARM PORTIONS
V	VALVE		CONTOURS
	GRID INLET		BATTER
	BRIDGE PILLARS		BENCH MARK
	KERB INLET		WALL
	ELECTRIC BOX		NEW GUARDRAILS AND NJ BARRIERS
	POWERLINES		EXISTING GUARDRAILS
MH	MANHOLE		NEW CULVERTS
TS	TRAFFIC SIGN		EXISTING CULVERTS
	ELECTRIC POLES		NEW ROAD RESERVE
	REMOVE STREET LIGHT		FLOW DIRECTION ARROW
	NEW SINGLE STREET LIGHT		CONCRETE V-DRAINS
	RELOCATE STREET LIGHT		CHUTES
	DIRECTION OF FLOW (SIDE DRAIN)		DIRECTION OF FLOW (MEDIAN DRAIN

No.	DATE	REVISION	
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date :
CONSULT. ENG.

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DESIGNED BY
NAME: EF DAY
Prof. Reg. No.: 20130622
CHECKED BY
NAME: PL NGQUMSHE
Prof. Reg. No.: 20080112
DRAWN BY
NAME: WB HARTMANN

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17 / 07 / 2023

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for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
The construction of the dual carriageway of the N4-13 between Buffelspoort N4-13 km 2.800 and the P16-2 Interchange N4-13 km 40.000

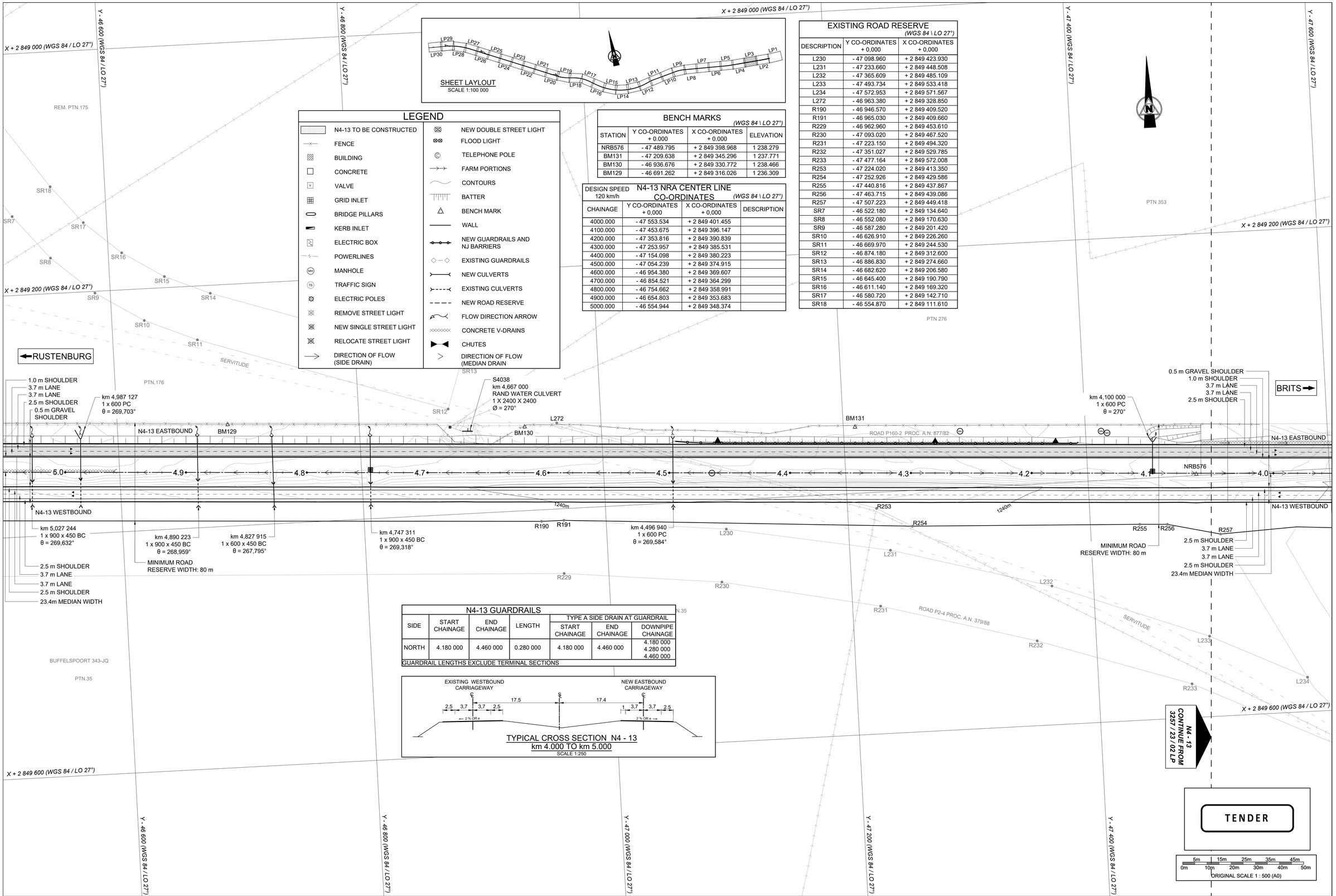
DRAWING DESCRIPTION
LAYOUT N4-13
FROM km 3.000 TO 4.000

SCALE : 1 : 1000 (A0) | SHEET 02 OF 41

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	SECTION 13	SECTION 13
DRAWING km DISTANCE	km 3.000	km 4.000
DRAWING TYPE	ROADS - LAYOUTS	
BRIDGE/STRUCTURE No.	NA	
CONSULTANT DRAWING No.	FA 3257 / 13 / 02 LP	VER V0
SANRAL DOCUMENT #	- -	

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\02 - Layouts\3257-23-01-03 LP-N4 Dual Carriageway Layouts km 3 to km 5_20230717.dwg



LEGEND

N4-13 TO BE CONSTRUCTED	NEW DOUBLE STREET LIGHT
FENCE	FLOOD LIGHT
BUILDING	TELEPHONE POLE
CONCRETE	FARM PORTIONS
VALVE	CONTOURS
GRID INLET	BATTER
BRIDGE PILLARS	BENCH MARK
KERB INLET	WALL
ELECTRIC BOX	NEW GUARDRAILS AND NJ BARRIERS
POWERLINES	EXISTING GUARDRAILS
MANHOLE	NEW CULVERTS
TRAFFIC SIGN	EXISTING CULVERTS
ELECTRIC POLES	NEW ROAD RESERVE
REMOVE STREET LIGHT	FLOW DIRECTION ARROW
NEW SINGLE STREET LIGHT	CONCRETE V-DRAINS
RELOCATE STREET LIGHT	CHUTES
DIRECTION OF FLOW (SIDE DRAIN)	DIRECTION OF FLOW (MEDIAN DRAIN

BENCH MARKS

(WGS 84 \ LO 27°)

STATION	Y CO-ORDINATES + 0.000	X CO-ORDINATES + 0.000	ELEVATION
NRB576	- 47 489.795	+ 2 849 398.968	1 238.279
BM131	- 47 209.638	+ 2 849 345.296	1 237.771
BM130	- 46 936.676	+ 2 849 330.772	1 238.466
BM129	- 46 691.262	+ 2 849 316.026	1 236.309

N4-13 NRA CENTER LINE CO-ORDINATES

DESIGN SPEED 120 km/h

(WGS 84 \ LO 27°)

CHAINAGE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
4000.000	- 47 553.534	+ 2 849 401.455	
4100.000	- 47 453.675	+ 2 849 396.147	
4200.000	- 47 353.816	+ 2 849 390.839	
4300.000	- 47 253.957	+ 2 849 385.531	
4400.000	- 47 154.098	+ 2 849 380.223	
4500.000	- 47 054.239	+ 2 849 374.915	
4600.000	- 46 954.380	+ 2 849 369.607	
4700.000	- 46 854.521	+ 2 849 364.299	
4800.000	- 46 754.662	+ 2 849 358.991	
4900.000	- 46 654.803	+ 2 849 353.683	
5000.000	- 46 554.944	+ 2 849 348.374	

EXISTING ROAD RESERVE

(WGS 84 \ LO 27°)

DESCRIPTION	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
L230	- 47 098.960	+ 2 849 423.930
L231	- 47 233.660	+ 2 849 448.508
L232	- 47 365.609	+ 2 849 485.109
L233	- 47 493.734	+ 2 849 533.418
L234	- 47 572.953	+ 2 849 571.567
L272	- 46 963.380	+ 2 849 328.850
R190	- 46 946.570	+ 2 849 409.520
R191	- 46 965.030	+ 2 849 409.660
R229	- 46 962.960	+ 2 849 453.610
R230	- 47 093.020	+ 2 849 467.520
R231	- 47 223.150	+ 2 849 494.320
R232	- 47 351.027	+ 2 849 529.785
R233	- 47 477.164	+ 2 849 572.008
R253	- 47 224.020	+ 2 849 413.350
R254	- 47 252.926	+ 2 849 429.586
R255	- 47 440.816	+ 2 849 437.867
R256	- 47 463.715	+ 2 849 439.086
R257	- 47 507.223	+ 2 849 449.418
SR7	- 46 522.180	+ 2 849 134.640
SR8	- 46 552.080	+ 2 849 170.630
SR9	- 46 587.280	+ 2 849 201.420
SR10	- 46 626.910	+ 2 849 226.260
SR11	- 46 669.970	+ 2 849 244.530
SR12	- 46 874.180	+ 2 849 312.600
SR13	- 46 886.830	+ 2 849 274.660
SR14	- 46 682.620	+ 2 849 206.580
SR15	- 46 645.400	+ 2 849 190.790
SR16	- 46 611.140	+ 2 849 169.320
SR17	- 46 580.720	+ 2 849 142.710
SR18	- 46 554.870	+ 2 849 111.610

N4-13 GUARDRAILS

SIDE	START CHAINAGE	END CHAINAGE	LENGTH	TYPE A SIDE DRAIN AT GUARDRAIL		
				START CHAINAGE	END CHAINAGE	DOWNPIPE CHAINAGE
NORTH	4.180 000	4.460 000	0.280 000	4.180 000	4.460 000	4.180 000 4.280 000 4.460 000

GUARDRAIL LENGTHS EXCLUDE TERMINAL SECTIONS

TYPICAL CROSS SECTION N4 - 13
km 4.000 TO km 5.000
SCALE 1:250

No.	DATE	REVISION	
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
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THE SOUTH AFRICAN NATIONAL ROADS AGENCY SOC LTD
Reg. No. 1998/009584/30

NORTHERN REGION
38 Ida Street
Menlo Park
Pretoria
0081
Private Bag X17
Lynnwood Ridge
0040
Tel: (012) 426 6200

ACCEPTANCE
THIS ACCEPTANCE IS FOR PROCEDURAL AND ADMINISTRATIVE REVIEW PURPOSES ONLY AND DOES NOT ATTRACT LEGAL LIABILITY OR LIABILITY OF ANY KIND FROM WHATSOEVER CAUSE OR HOWEVER ARISING
for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION

The construction of the dual carriageway of the N4-13 between Buffelspoort N4-13 km 2.800 and the P16-2 Interchange N4-13 km 40.000

DRAWING DESCRIPTION

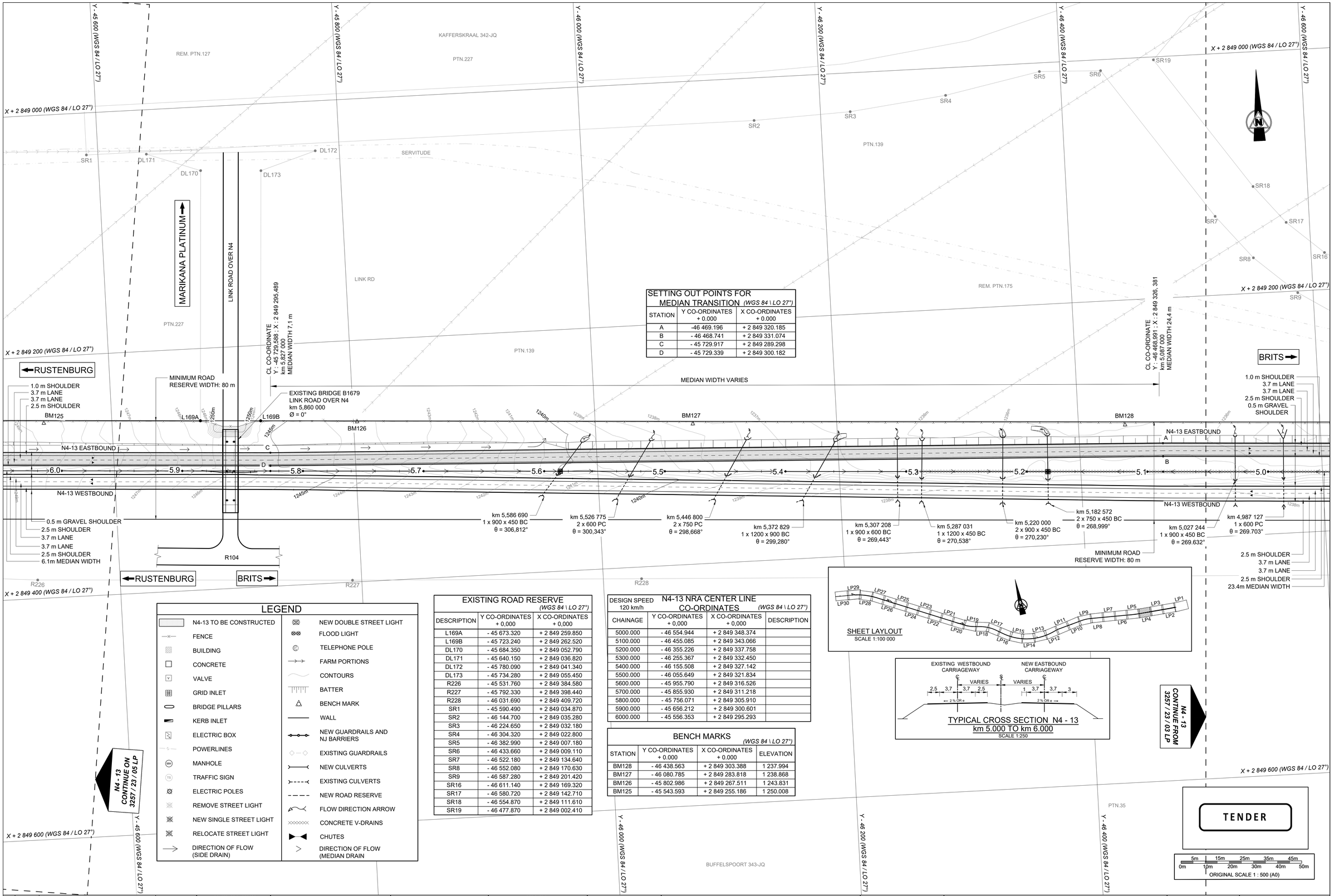
LAYOUT N4-13 FROM km 4.000 TO 5.000

SCALE : 1 : 1000 (A0) SHEET 03 OF 41

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	SECTION 13	SECTION 13
DRAWING km DISTANCE	km 4.000	km 5.000
DRAWING TYPE	ROADS - LAYOUTS	
BRIDGE/STRUCTURE No.	NA	
CONSULTANT DRAWING No.	FA 3257 / 23 / 03 LP	VER
SANRAL DOCUMENT #	- -	V0

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\02 - Layouts\3257-23-01-03 LP-N4 Dual Carriageway Layouts km 2 to km 5_20230717.dwg



SETTING OUT POINTS FOR MEDIAN TRANSITION *(WGS 84 \ LO 27°)*

STATION	Y CO-ORDINATES + 0.000	X CO-ORDINATES + 0.000
A	-46 469.196	+ 2 849 320.185
B	- 46 468.741	+ 2 849 331.074
C	- 45 729.917	+ 2 849 289.298
D	- 45 729.339	+ 2 849 300.182

LEGEND

- N4-13 TO BE CONSTRUCTED
- FENCE
- BUILDING
- CONCRETE
- VALVE
- GRID INLET
- BRIDGE PILLARS
- KERB INLET
- ELECTRIC BOX
- POWERLINES
- MANHOLE
- TRAFFIC SIGN
- ELECTRIC POLES
- REMOVE STREET LIGHT
- NEW SINGLE STREET LIGHT
- RELOCATE STREET LIGHT
- DIRECTION OF FLOW (SIDE DRAIN)
- NEW DOUBLE STREET LIGHT
- FLOOD LIGHT
- TELEPHONE POLE
- FARM PORTIONS
- CONTOURS
- BATTER
- BENCH MARK
- WALL
- NEW GUARDRAILS AND NJ BARRIERS
- EXISTING GUARDRAILS
- NEW CULVERTS
- EXISTING CULVERTS
- NEW ROAD RESERVE
- FLOW DIRECTION ARROW
- CONCRETE V-DRAINS
- CHUTES
- DIRECTION OF FLOW (MEDIAN DRAIN

EXISTING ROAD RESERVE *(WGS 84 \ LO 27°)*

DESCRIPTION	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
L169A	- 45 673.320	+ 2 849 259.850
L169B	- 45 723.240	+ 2 849 262.520
DL170	- 45 684.350	+ 2 849 052.790
DL171	- 45 640.150	+ 2 849 036.820
DL172	- 45 780.090	+ 2 849 041.340
DL173	- 45 734.280	+ 2 849 055.450
R226	- 45 531.760	+ 2 849 384.580
R227	- 45 792.330	+ 2 849 398.440
R228	- 46 031.690	+ 2 849 409.720
SR1	- 45 590.490	+ 2 849 034.870
SR2	- 46 144.700	+ 2 849 035.280
SR3	- 46 224.650	+ 2 849 032.180
SR4	- 46 304.320	+ 2 849 022.800
SR5	- 46 382.990	+ 2 849 007.180
SR6	- 46 433.660	+ 2 849 009.110
SR7	- 46 522.180	+ 2 849 134.640
SR8	- 46 552.080	+ 2 849 170.630
SR9	- 46 587.280	+ 2 849 201.420
SR16	- 46 611.140	+ 2 849 169.320
SR17	- 46 580.720	+ 2 849 142.710
SR18	- 46 554.870	+ 2 849 111.610
SR19	- 46 477.870	+ 2 849 002.410

N4-13 NRA CENTER LINE CO-ORDINATES *(WGS 84 \ LO 27°)*

DESIGN SPEED 120 km/h

CHAINAGE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
5000.000	- 46 554.944	+ 2 849 348.374	
5100.000	- 46 455.085	+ 2 849 343.066	
5200.000	- 46 355.226	+ 2 849 337.758	
5300.000	- 46 255.367	+ 2 849 332.450	
5400.000	- 46 155.508	+ 2 849 327.142	
5500.000	- 46 055.649	+ 2 849 321.834	
5600.000	- 45 955.790	+ 2 849 316.526	
5700.000	- 45 855.930	+ 2 849 311.218	
5800.000	- 45 756.071	+ 2 849 305.910	
5900.000	- 45 656.212	+ 2 849 300.601	
6000.000	- 45 556.353	+ 2 849 295.293	

BENCH MARKS *(WGS 84 \ LO 27°)*

STATION	Y CO-ORDINATES + 0.000	X CO-ORDINATES + 0.000	ELEVATION
BM128	- 46 438.563	+ 2 849 303.388	1 237.994
BM127	- 46 080.785	+ 2 849 283.818	1 238.868
BM126	- 45 802.986	+ 2 849 267.511	1 243.831
BM125	- 45 543.593	+ 2 849 255.186	1 250.008

SHEET LAYLOUT
SCALE 1:100 000

TYPICAL CROSS SECTION N4 - 13
km 5.000 TO km 6.000
SCALE 1:250

TENDER

5m 15m 25m 35m 45m
0m 10m 20m 30m 40m 50m
ORIGINAL SCALE 1 : 500 (A0)

No.	DATE	REVISION	
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSULT. ENG.

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date

CONSULTANT
JG AFRIKA
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Tel: +27 11 519-0400
Fax: +27 11 519-0414

DESIGNED BY	
NAME	EF DAY
Prof. Reg. No.	20130622
CHECKED BY	
NAME	PL NGQUMSHE
Prof. Reg. No.	20080112
DRAWN BY	
NAME	WB HARTMANN

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17 / 07 / 2023

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Date:

PROJECT DESCRIPTION

The construction of the dual carriageway of the N4-13 between Buffelspoort N4-13 km 2.800 and the P16-2 Interchange N4-13 km 40.000

DRAWING DESCRIPTION

LAYOUT N4-13 FROM km 5.000 TO 6.000

SCALE : 1 : 1000 (A0) | SHEET 04 OF 41

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	SECTION 13	SECTION 13
DRAWING km DISTANCE	km 5.000	km 6.000
DRAWING TYPE	ROADS - LAYOUTS	
BRIDGE/STRUCTURE No.	NA	
CONSULTANT DRAWING No.	FA 3257 / 23 / 04 LP	VER
SANRAL DOCUMENT #	- -	V0

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\02 - Layouts\3257-23-04-08 LP-N4 Dual Carriageway Layouts Nr 5 to km 10, 20230717.dwg

LEGEND

N4-13 TO BE CONSTRUCTED	NEW DOUBLE STREET LIGHT
FENCE	FLOOD LIGHT
BUILDING	TELEPHONE POLE
CONCRETE	FARM PORTIONS
VALVE	CONTOURS
GRID INLET	BATTER
BRIDGE PILLARS	BENCH MARK
KERB INLET	WALL
ELECTRIC BOX	NEW GUARDRAILS AND NJ BARRIERS
POWERLINES	EXISTING GUARDRAILS
MANHOLE	NEW CULVERTS
TRAFFIC SIGN	EXISTING CULVERTS
ELECTRIC POLES	NEW ROAD RESERVE
REMOVE STREET LIGHT	FLOW DIRECTION ARROW
NEW SINGLE STREET LIGHT	CONCRETE V-DRAINS
RELOCATE STREET LIGHT	CHUTES
DIRECTION OF FLOW (SIDE DRAIN)	DIRECTION OF FLOW (MEDIAN DRAIN

EXISTING ROAD RESERVE

(WGS 84 \ LO 27°)

DESCRIPTION	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
DL160	- 44 685.910	+ 2 848 836.600
DL161	- 44 687.650	+ 2 848 837.720
DL162	- 44 693.230	+ 2 848 866.710
DL163	- 44 675.820	+ 2 848 855.520
L167	- 45 006.600	+ 2 849 207.730
L168	- 45 235.180	+ 2 849 233.480
L169	- 45 470.770	+ 2 849 249.020
R186	- 44 996.000	+ 2 849 287.020
R187	- 45 087.370	+ 2 849 300.410
R188	- 45 327.920	+ 2 849 323.630
R189	- 45 466.420	+ 2 849 330.600
R223	- 44 521.550	+ 2 849 264.630
R224	- 44 990.700	+2 849 326.670
R225	- 45 257.120	+ 2 849 361.110
R226	- 45 531.760	+ 2 849 384.580
SR1	- 45 590.490	+ 2 849 034.870

N4-13 NRA CENTER LINE CO-ORDINATES

DESIGN SPEED 120 km/h

(WGS 84 \ LO 27°)

CHAINAGE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
6000.000	- 45 556.353	+ 2 849 295.293	
6100.000	- 45 456.495	+ 2 849 289.972	
6200.000	- 45 356.698	+ 2 849 283.623	
6300.000	- 45 257.021	+ 2 849 275.612	
6400.000	- 45 157.491	+ 2 849 265.941	
6500.000	- 45 058.135	+ 2 849 254.612	
6600.000	- 44 958.963	+ 2 849 241.777	
6700.000	- 44 859.826	+ 2 849 228.666	
6800.000	- 44 760.690	+ 2 849 215.556	
6900.000	- 44 661.553	+ 2 849 202.445	
7000.000	- 44 562.416	+ 2 849 189.334	

N4-13 GUARDRAILS

SIDE	START CHAINAGE	END CHAINAGE	LENGTH
NORTH	6.216 000	6.326 000	0.110 000

GUARDRAIL LENGTHS EXCLUDE TERMINAL SECTIONS

SHEET LAYLOUT

SCALE 1:100 000

N4-13 DUAL CARRIAGEWAY km 6000.000 - km 7000.000

(WGS 84 \ LO 27°)

CURVE	DESCRIPTION	CURVE LENGTH	CURVE RADIUS	POINT	CHAINAGE DISTANCE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
2	RIGHT HAND CIRCULAR	470.274 m	6000 m	BC 2	6087.445	- 45 469.032	+ 2 849 290.652
				PI 2	-	- 45 234.106	+ 2 849 278.164
				EC 2	6557.719	- 45 000.879	+ 2 849 247.320

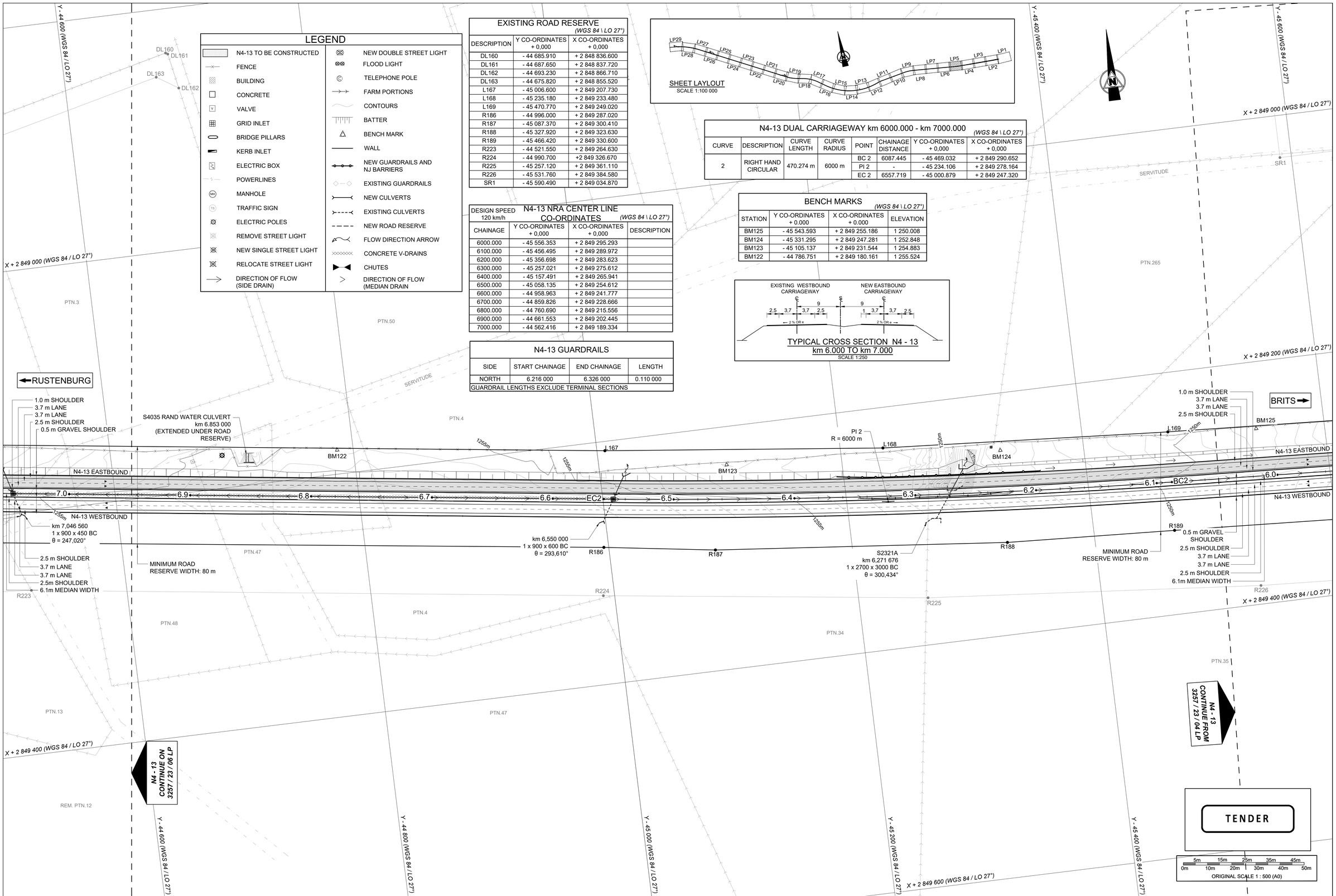
BENCH MARKS

(WGS 84 \ LO 27°)

STATION	Y CO-ORDINATES + 0.000	X CO-ORDINATES + 0.000	ELEVATION
BM125	- 45 543.593	+ 2 849 255.186	1 250.008
BM124	- 45 331.295	+ 2 849 247.281	1 252.848
BM123	- 45 105.137	+ 2 849 231.544	1 254.883
BM122	- 44 786.751	+ 2 849 180.161	1 255.524

TYPICAL CROSS SECTION N4 - 13
km 6.000 TO km 7.000

SCALE 1:250



No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD

WORKS CONTRACT ENGINEER

Name :
Prof. Reg. No. :
Date :

SANRAL PROJECT MANAGER

Name :
Prof. Reg. No. :
Date :

CONSULTANT

JG AFRIKA

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Fax: +27 11 519-0414

DESIGNED BY	
NAME	EF DAY
Prof. Reg. No.	20130622
CHECKED BY	
NAME	PL NGQUMSHE
Prof. Reg. No.	20080112
DRAWN BY	
NAME	WB HARTMANN

CONSULTANT APPROVAL

Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17 / 07 / 2023

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for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION

The construction of the dual carriageway of the N4-13 between Buffelspoort N4-13 km 2.800 and the P16-2 Interchange N4-13 km 40.000

DRAWING DESCRIPTION

LAYOUT N4-13
FROM km 6.000 TO 7.000

SCALE : 1 : 1000 (A0) SHEET 05 OF 41

PROJECT NUMBER		BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA		START	END
ROUTE		N 4	N 4
SECTION		SECTION 13	SECTION 13
DRAWING km DISTANCE		km 6.000	km 7.000
DRAWING TYPE		ROADS - LAYOUTS	
BRIDGE/STRUCTURE No.		NA	
CONSULTANT DRAWING No.	FA	3257 / 23 / 05 LP	VER
SANRAL DOCUMENT #		- -	V0

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\02 - Layouts\3257-23-04-08 LP-N4 Dual Carriageway Layouts km 5 to km 10_20230717.dwg

DESIGN SPEED 120 km/h	N4-13 NRA CENTER LINE CO-ORDINATES		*(WGS 84 \ LO 27°)*
CHAINAGE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
7000.000	- 44 562.416	+ 2 849 189.334	
7100.000	- 44 463.279	+ 2 849 176.224	
7200.000	- 44 364.142	+ 2 849 163.113	
7300.000	- 44 265.005	+ 2 849 150.002	
7400.000	- 44 165.869	+ 2 849 136.892	
7500.000	- 44 066.732	+ 2 849 123.781	
7600.000	- 43 967.595	+ 2 849 110.670	
7700.000	- 43 868.458	+ 2 849 097.560	
7800.000	- 43 769.321	+ 2 849 084.449	
7900.000	- 43 670.184	+ 2 849 071.339	
8000.000	- 43 571.048	+ 2 849 058.228	

EXISTING ROAD RESERVE *(WGS 84 \ LO 27°)*		
DESCRIPTION	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
DL155	- 44 167.230	+ 2 848 940.260
DL156	- 44 163.450	+ 2 848 933.710
DL157	- 44 164.200	+ 2 848 932.360
DL158	- 44 317.990	+ 2 848 927.090
DL159	- 44 506.900	+ 2 848 880.110
DL164	- 44 512.180	+ 2 848 895.300
DL165	- 44 327.070	+ 2 848 941.320
L220	- 44 200.380	+ 2 849 236.110
L221	- 44 309.270	+2 849 219.610
R185	- 44 416.380	+ 2 849 211.440
R220	- 44 207.400	+ 2 849 272.830
R221	- 44 312.560	+ 2 849 259.480
R222	- 44 415.360	+ 2 849 256.420
R223	- 44 521.550	+ 2 849 264.630

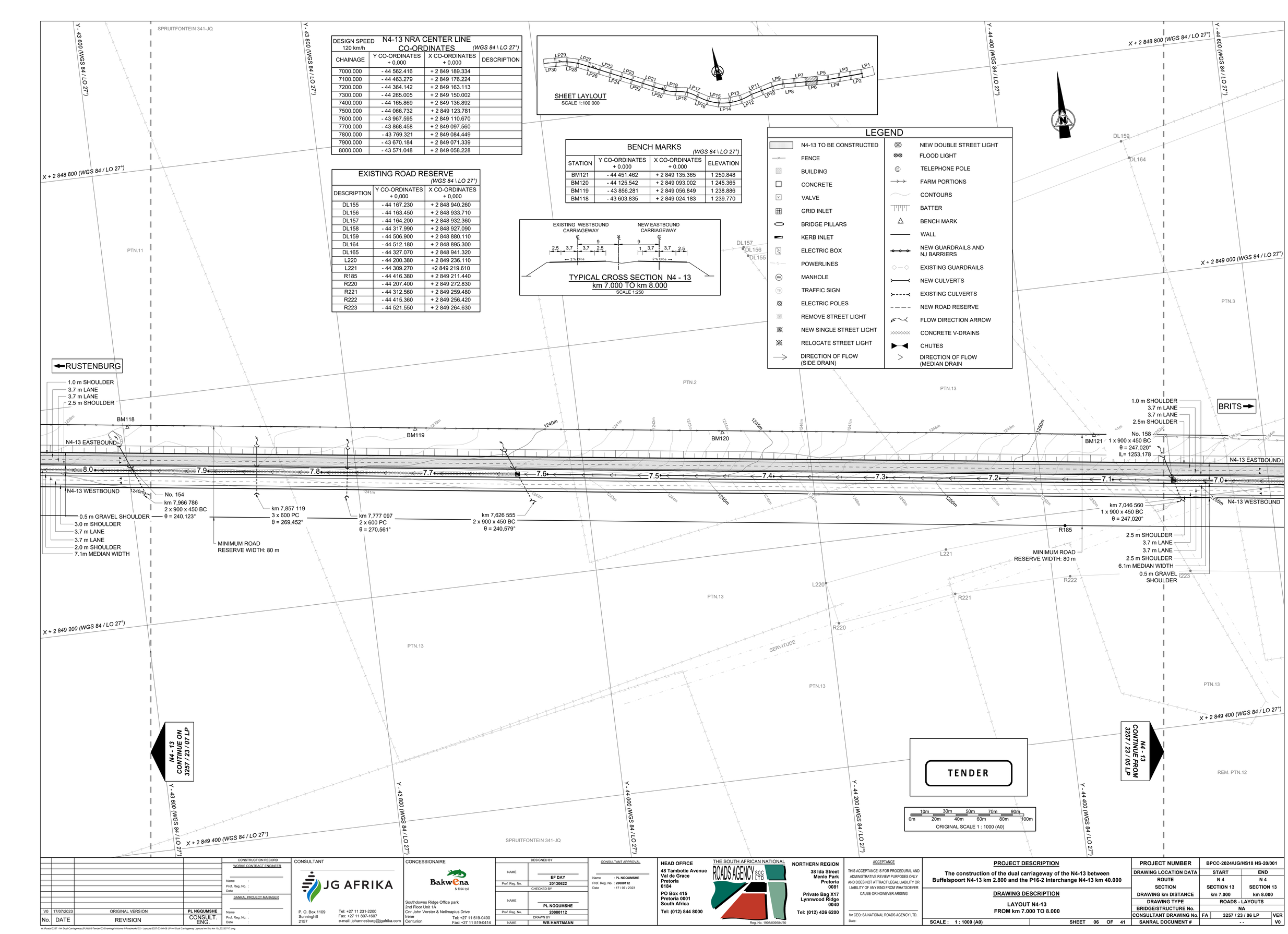
SHEET LAYLOUT
SCALE 1:100 000

BENCH MARKS *(WGS 84 \ LO 27°)*			
STATION	Y CO-ORDINATES + 0.000	X CO-ORDINATES + 0.000	ELEVATION
BM121	- 44 451.462	+ 2 849 135.365	1 250.848
BM120	- 44 125.542	+ 2 849 093.002	1 245.365
BM119	- 43 856.281	+ 2 849 056.849	1 238.886
BM118	- 43 603.835	+ 2 849 024.183	1 239.770

TYPICAL CROSS SECTION N4 - 13
km 7.000 TO km 8.000
SCALE 1:250

LEGEND

N4-13 TO BE CONSTRUCTED	NEW DOUBLE STREET LIGHT
FENCE	FLOOD LIGHT
BUILDING	TELEPHONE POLE
CONCRETE	FARM PORTIONS
VALVE	CONTOURS
GRID INLET	BATTER
BRIDGE PILLARS	BENCH MARK
KERB INLET	WALL
ELECTRIC BOX	NEW GUARDRAILS AND NJ BARRIERS
POWERLINES	EXISTING GUARDRAILS
MANHOLE	NEW CULVERTS
TRAFFIC SIGN	EXISTING CULVERTS
ELECTRIC POLES	NEW ROAD RESERVE
REMOVE STREET LIGHT	FLOW DIRECTION ARROW
NEW SINGLE STREET LIGHT	CONCRETE V-DRAINS
RELOCATE STREET LIGHT	CHUTES
DIRECTION OF FLOW (SIDE DRAIN)	DIRECTION OF FLOW (MEDIAN DRAIN



No.	DATE	REVISION	
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date

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DESIGNED BY	
NAME	EF DAY
Prof. Reg. No.	20130622
CHECKED BY	
NAME	PL NGQUMSHE
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NAME	WB HARTMANN

CONSULTANT APPROVAL
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Date:

PROJECT DESCRIPTION
The construction of the dual carriageway of the N4-13 between Buffelspoort N4-13 km 2.800 and the P16-2 Interchange N4-13 km 40.000

DRAWING DESCRIPTION
LAYOUT N4-13
FROM km 7.000 TO 8.000

SCALE : 1 : 1000 (A0) | SHEET 06 OF 41

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001		
DRAWING LOCATION DATA	START	END	
ROUTE	N 4	N 4	
SECTION	SECTION 13	SECTION 13	
DRAWING km DISTANCE	km 7.000	km 8.000	
DRAWING TYPE	ROADS - LAYOUTS		
BRIDGE/STRUCTURE No.	NA		
CONSULTANT DRAWING No.	FA	3257 / 23 / 06 LP	VER
SANRAL DOCUMENT #		- -	V0

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadwork\02 - Layouts\3257-23-04-08 LP-N4 Dual Carriageway Layouts km 5 to km 10, 20230717.dwg

DESIGN SPEED 120 km/h	N4-13 NRA CENTER LINE CO-ORDINATES (WGS 84 \ LO 27°)		
CHAINAGE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
8000.000	- 43 571.048	+ 2 849 058.228	
8100.000	- 43 471.911	+ 2 849 045.117	
8200.000	- 43 372.774	+ 2 849 032.007	
8300.000	- 43 273.637	+ 2 849 018.896	
8400.000	- 43 174.500	+ 2 849 005.785	
8500.000	- 43 075.363	+ 2 848 992.675	
8600.000	- 42 976.227	+ 2 848 979.564	
8700.000	- 42 877.090	+ 2 848 966.453	
8800.000	- 42 777.953	+ 2 848 953.343	
8900.000	- 42 678.816	+ 2 848 940.232	
9000.000	- 42 579.679	+ 2 848 927.121	

BENCH MARKS (WGS 84 \ LO 27°)			
STATION	Y CO-ORDINATES + 0.000	X CO-ORDINATES + 0.000	ELEVATION
BM118	- 43 603.835	+ 2 849 024.183	1 239.770
BM117	- 43 361.958	+ 2 848 991.158	1 236.122
BM116	- 43 126.187	+ 2 848 960.986	1 234.524
BM115	- 42 907.564	+ 2 848 934.143	1 232.239
BM114	- 42 609.686	+ 2 848 892.468	1 226.125

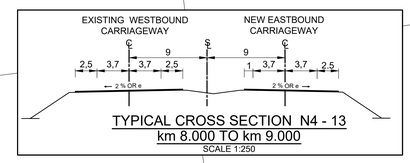
EXISTING ROAD RESERVE (WGS 84 \ LO 27°)		
DESCRIPTION	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
L166	- 42 948.150	+ 2 848 935.500
R184	- 42 937.660	+ 2 849 014.810

SHEET LAYLOUT
SCALE 1:100 000

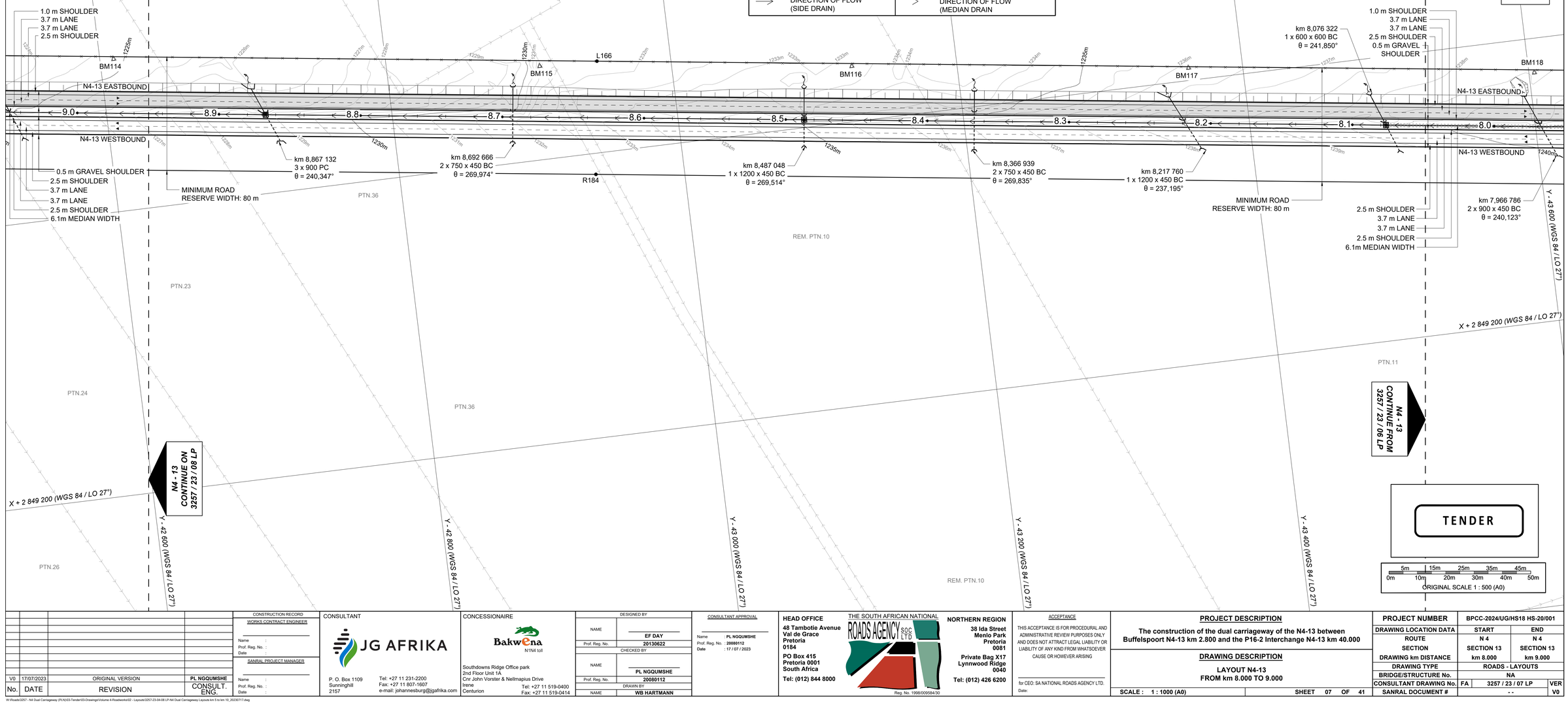
LP30 LP29 LP28 LP27 LP26 LP25 LP24 LP23 LP22 LP21 LP20 LP19 LP18 LP17 LP16 LP15 LP14 LP13 LP12 LP11 LP10 LP9 LP8 LP7 LP6 LP5 LP4 LP3 LP2 LP1

LEGEND

- N4-13 TO BE CONSTRUCTED
- FENCE
- BUILDING
- CONCRETE
- VALVE
- GRID INLET
- BRIDGE PILLARS
- KERB INLET
- ELECTRIC BOX
- POWERLINES
- MANHOLE
- TRAFFIC SIGN
- ELECTRIC POLES
- REMOVE STREET LIGHT
- NEW SINGLE STREET LIGHT
- RELOCATE STREET LIGHT
- DIRECTION OF FLOW (SIDE DRAIN)
- NEW DOUBLE STREET LIGHT
- FLOOD LIGHT
- TELEPHONE POLE
- FARM PORTIONS
- CONTOURS
- BATTER
- BENCH MARK
- WALL
- NEW GUARDRAILS AND NJ BARRIERS
- EXISTING GUARDRAILS
- NEW CULVERTS
- EXISTING CULVERTS
- NEW ROAD RESERVE
- FLOW DIRECTION ARROW
- CONCRETE V-DRAINS
- CHUTES
- DIRECTION OF FLOW (MEDIAN DRAIN



TYPICAL CROSS SECTION N4 - 13
km 8.000 TO km 9.000
SCALE 1:250



TENDER

5m 10m 15m 20m 25m 30m 35m 40m 45m 50m
ORIGINAL SCALE 1 : 500 (A0)

No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date :

CONSULTANT
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DESIGNED BY	
NAME	EF DAY
Prof. Reg. No.	20130622
CHECKED BY	
NAME	PL NGQUMSHE
Prof. Reg. No.	20080112
DRAWN BY	
NAME	WB HARTMANN

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17 / 07 / 2023

HEAD OFFICE
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THE SOUTH AFRICAN NATIONAL ROADS AGENCY SOC LTD
Reg. No. 1998/009584/30

NORTHERN REGION
38 Ida Street
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Tel: (012) 426 6200

ACCEPTANCE
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for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
The construction of the dual carriageway of the N4-13 between Buffelspoort N4-13 km 2.800 and the P16-2 Interchange N4-13 km 40.000

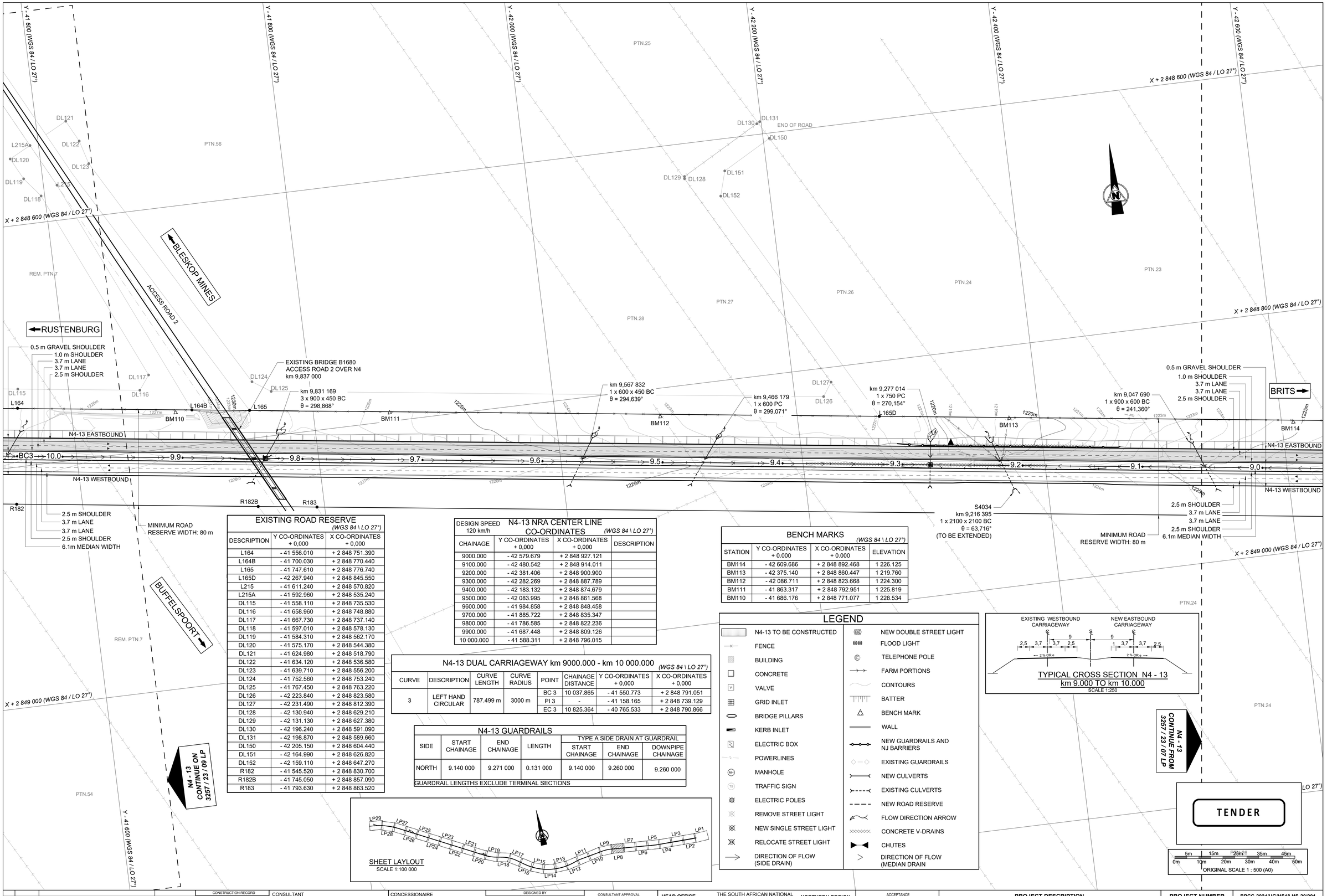
DRAWING DESCRIPTION
LAYOUT N4-13
FROM km 8.000 TO 9.000

SCALE : 1 : 1000 (A0) SHEET 07 OF 41

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	SECTION 13	SECTION 13
DRAWING km DISTANCE	km 8.000	km 9.000
DRAWING TYPE	ROADS - LAYOUTS	
BRIDGE/STRUCTURE No.	NA	
CONSULTANT DRAWING No.	FA 3257 / 23 / 07 LP	VER V0
SANRAL DOCUMENT #	- -	

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\02 - Layouts\3257-23-04-08 LP-N4 Dual Carriageway Layouts km 5 to km 10_20230717.dwg



EXISTING ROAD RESERVE
(WGS 84 \ LO 27°)

DESCRIPTION	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
L164	- 41 556.010	+ 2 848 751.390
L164B	- 41 700.030	+ 2 848 770.440
L165	- 41 747.610	+ 2 848 776.740
L165D	- 42 267.940	+ 2 848 845.550
L215	- 41 611.240	+ 2 848 570.820
L215A	- 41 592.960	+ 2 848 535.240
DL115	- 41 558.110	+ 2 848 735.530
DL116	- 41 658.960	+ 2 848 748.880
DL117	- 41 667.730	+ 2 848 737.140
DL118	- 41 597.010	+ 2 848 578.130
DL119	- 41 584.310	+ 2 848 562.170
DL120	- 41 575.170	+ 2 848 544.380
DL121	- 41 624.980	+ 2 848 518.790
DL122	- 41 634.120	+ 2 848 536.580
DL123	- 41 639.710	+ 2 848 556.200
DL124	- 41 752.560	+ 2 848 753.240
DL125	- 41 767.450	+ 2 848 763.220
DL126	- 42 223.840	+ 2 848 823.580
DL127	- 42 231.490	+ 2 848 812.390
DL128	- 42 130.940	+ 2 848 629.210
DL129	- 42 131.130	+ 2 848 627.380
DL130	- 42 196.240	+ 2 848 591.090
DL131	- 42 198.870	+ 2 848 589.660
DL150	- 42 205.150	+ 2 848 604.440
DL151	- 42 164.990	+ 2 848 626.820
DL152	- 42 159.110	+ 2 848 647.270
R182	- 41 545.520	+ 2 848 830.700
R182B	- 41 745.050	+ 2 848 857.090
R183	- 41 793.630	+ 2 848 863.520

N4-13 NRA CENTER LINE CO-ORDINATES
DESIGN SPEED 120 km/h — *(WGS 84 \ LO 27°)*

CHAINAGE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
9000.000	- 42 579.679	+ 2 848 927.121	
9100.000	- 42 480.542	+ 2 848 914.011	
9200.000	- 42 381.406	+ 2 848 900.900	
9300.000	- 42 282.269	+ 2 848 887.789	
9400.000	- 42 183.132	+ 2 848 874.679	
9500.000	- 42 083.995	+ 2 848 861.568	
9600.000	- 41 984.858	+ 2 848 848.458	
9700.000	- 41 885.722	+ 2 848 835.347	
9800.000	- 41 786.585	+ 2 848 822.236	
9900.000	- 41 687.448	+ 2 848 809.126	
10 000.000	- 41 588.311	+ 2 848 796.015	

BENCH MARKS
(WGS 84 \ LO 27°)

STATION	Y CO-ORDINATES + 0.000	X CO-ORDINATES + 0.000	ELEVATION
BM114	- 42 609.686	+ 2 848 892.468	1 226.125
BM113	- 42 375.140	+ 2 848 860.447	1 219.760
BM112	- 42 086.711	+ 2 848 823.668	1 224.300
BM111	- 41 863.317	+ 2 848 792.951	1 225.819
BM110	- 41 686.176	+ 2 848 771.077	1 228.534

N4-13 DUAL CARRIAGEWAY km 9000.000 - km 10 000.000
(WGS 84 \ LO 27°)

CURVE	DESCRIPTION	CURVE LENGTH	CURVE RADIUS	POINT	CHAINAGE DISTANCE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
3	LEFT HAND CIRCULAR	787.499 m	3000 m	BC 3	10 037.865	- 41 550.773	+ 2 848 791.051
				PI 3	-	- 41 158.165	+ 2 848 739.129
				EC 3	10 825.364	- 40 765.533	+ 2 848 790.866

N4-13 GUARDRAILS

SIDE	START CHAINAGE	END CHAINAGE	LENGTH	TYPE A SIDE DRAIN AT GUARDRAIL		
				START CHAINAGE	END CHAINAGE	DOWNPIPE CHAINAGE
NORTH	9.140 000	9.271 000	0.131 000	9.140 000	9.260 000	9.260 000

GUARDRAIL LENGTHS EXCLUDE TERMINAL SECTIONS

LEGEND

- N4-13 TO BE CONSTRUCTED
- FENCE
- BUILDING
- CONCRETE
- VALVE
- GRID INLET
- BRIDGE PILLARS
- KERB INLET
- ELECTRIC BOX
- POWERLINES
- MANHOLE
- TRAFFIC SIGN
- ELECTRIC POLES
- REMOVE STREET LIGHT
- NEW SINGLE STREET LIGHT
- RELOCATE STREET LIGHT
- DIRECTION OF FLOW (SIDE DRAIN)
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- NEW CULVERTS
- EXISTING CULVERTS
- NEW ROAD RESERVE
- FLOW DIRECTION ARROW
- CONCRETE V-DRAINS
- CHUTES
- DIRECTION OF FLOW (MEDIAN DRAIN

TYPICAL CROSS SECTION N4 - 13
km 9.000 TO km 10.000
SCALE 1:250

V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE	
No.	DATE	REVISION	CONSULT. ENG.	

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date :

CONSULTANT
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DESIGNED BY
NAME: EF DAY
Prof. Reg. No.: 20130622
CHECKED BY
NAME: PL NGQUMSHE
Prof. Reg. No.: 20080112
DRAWN BY
NAME: WB HARTMANN

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17 / 07 / 2023

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for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
The construction of the dual carriageway of the N4-13 between Buffelspoort N4-13 km 2.800 and the P16-2 Interchange N4-13 km 40.000

DRAWING DESCRIPTION
LAYOUT N4-13
FROM km 9.000 TO 10.000

SCALE : 1 : 1000 (A0) — SHEET 08 OF 41

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	SECTION 13	SECTION 13
DRAWING km DISTANCE	km 9.000	km 10.000
DRAWING TYPE	ROADS - LAYOUTS	
BRIDGE/STRUCTURE No.	NA	
CONSULTANT DRAWING No.	FA 3257 / 23 / 08 LP	VER
SANRAL DOCUMENT #	- -	V0

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\02 - Layouts\3257-23-04-08 LP-N4 Dual Carriageway Layouts km 5 to km 10_20230717.dwg

Y - 40 600 (WGS 84 / LO 27°)
Y - 40 800 (WGS 84 / LO 27°)
Y - 41 000 (WGS 84 / LO 27°)
Y - 41 200 (WGS 84 / LO 27°)
Y - 41 400 (WGS 84 / LO 27°)
Y - 41 600 (WGS 84 / LO 27°)
X + 2 848 600 (WGS 84 / LO 27°)
X + 2 849 000 (WGS 84 / LO 27°)

REMAINDER PTN. 1
SPRUITFONTEIN 341-JQ
SPRUITFONTEIN 341-JQ
RIETFONTEIN 338-JQ
SERV. 10m WIDE
PTN.43
PTN.46
PTN.54
REM. PTN.7
PTN.59
WAAGFONTEIN 340-JQ
SPRUITFONTEIN 341-JQ
PTN.43
PTN.54
REM. PTN.7

RUSTENBURG

BRITS

1.0 m SHOULDER
3.7 m LANE
3.7 m LANE
2.5 m SHOULDER
0.5 m GRAVEL SHOULDER

2.5 m SHOULDER
3.7 m LANE
3.7 m LANE
2.5 m SHOULDER
6.1m MEDIAN WIDTH

N4-13 EASTBOUND
N4-13 WESTBOUND

BM106 BM107 BM108 BM109

L159 L160 L161 L162 L163 L164 L215 L215A

DL110 DL111 DL112 DL113 DL114 DL115 DL118 DL119 DL120 DL121 DL122 DL123

PI 3
R = 3000 m

1230m

EC3 BC3

10.0 10.1 10.2 10.3 10.4 10.5 10.6 10.7 10.8 10.9 11.0

R177 R178 R179 R180 R181 R182

km 10,887 015
1 x 900 x 450 BC
θ = 240,065°

km 10,786 962
1 x 600 x 450 BC
θ = 240,261°

km 10,047 012
1 x 600 x 450 BC
θ = 299,567°

MINIMUM ROAD RESERVE WIDTH: 80 m

MINIMUM ROAD RESERVE WIDTH: 80 m

R.O.W

EXISTING ROAD RESERVE
(WGS 84 \ LO 27°)

DESCRIPTION	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
L159	- 40 760,310	+ 2 848 751.210
L160	- 40 951,500	+ 2 848 730.140
L161	- 41 128,970	+ 2 848 723.730
L162	- 41 143,990	+ 2 848 723.190
L163	- 41 346,790	+ 2 848 727.050
L164	- 41 556,010	+ 2 848 751.390
L215	- 41 611,240	+ 2 848 570.820
L215A	- 41 592,960	+ 2 848 535.240
DL110	- 41 126,000	+ 2 848 715.830
DL111	- 41 143,950	+ 2 848 715.190
DL112	- 41 285,810	+ 2 848 717.890
DL113	- 41 281,280	+ 2 848 709.810
DL114	- 41 347,790	+ 2 848 711.080
DL115	- 41 558,110	+ 2 848 735.530
DL116	- 41 658,960	+ 2 848 748.880
DL117	- 41 667,730	+ 2 848 737.140
DL118	- 41 597,010	+ 2 848 578.130
DL119	- 41 584,310	+ 2 848 562.170
DL120	- 41 575,170	+ 2 848 544.380
DL121	- 41 624,980	+ 2 848 518.790
DL122	- 41 634,120	+ 2 848 536.580
DL123	- 41 639,710	+ 2 848 556.200
R177	- 40 771,130	+ 2 848 833.320
R178	- 40 907,860	+ 2 848 815.700
R179	- 41 085,160	+ 2 848 806.040
R180	- 41 262,730	+ 2 848 807.030
R181	- 41 439,920	+ 2 848 818.660
R182	- 41 545,520	+ 2 848 830.700

SHEET LAYLOUT
SCALE 1:100 000

LP1 LP2 LP3 LP4 LP5 LP6 LP7 LP8 LP9 LP10 LP11 LP12 LP13 LP14 LP15 LP16 LP17 LP18 LP19 LP20 LP21 LP22 LP23 LP24 LP25 LP26 LP27 LP28 LP29 LP30

TYPICAL CROSS SECTION N4 - 13
km 10.000 TO km 11.000
SCALE 1:250

EXISTING WESTBOUND CARRIAGEWAY
NEW EASTBOUND CARRIAGEWAY
2,5 3,7 3,7 3,7 2,5
9 9
2 % OR e
2 % OR e

LEGEND

- N4-13 TO BE CONSTRUCTED
- FENCE
- BUILDING
- CONCRETE
- VALVE
- GRID INLET
- BRIDGE PILLARS
- KERB INLET
- ELECTRIC BOX
- POWERLINES
- MANHOLE
- TRAFFIC SIGN
- ELECTRIC POLES
- REMOVE STREET LIGHT
- NEW SINGLE STREET LIGHT
- RELOCATE STREET LIGHT
- DIRECTION OF FLOW (SIDE DRAIN)
- NEW DOUBLE STREET LIGHT
- FLOOD LIGHT
- TELEPHONE POLE
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- WALL
- NEW GUARDRAILS AND NJ BARRIERS
- EXISTING GUARDRAILS
- NEW CULVERTS
- EXISTING CULVERTS
- NEW ROAD RESERVE
- FLOW DIRECTION ARROW
- CONCRETE V-DRAINS
- CHUTES
- DIRECTION OF FLOW (MEDIAN DRAIN)

N4-13 NRA CENTER LINE CO-ORDINATES
DESIGN SPEED 120 km/h
(WGS 84 \ LO 27°)

CHAINAGE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
10 000.000	- 41 588.311	+ 2 848 796.015	
10 100.000	- 41 489.094	+ 2 848 783.543	
10 200.000	- 41 389.541	+ 2 848 774.146	
10 300.000	- 41 289.730	+ 2 848 768.073	
10 400.000	- 41 189.773	+ 2 848 765.330	
10 500.000	- 41 089.779	+ 2 848 765.919	
10 600.000	- 40 989.860	+ 2 848 769.840	
10 700.000	- 40 890.128	+ 2 848 777.090	
10 800.000	- 40 790.693	+ 2 848 787.659	
10 900.000	- 40 691.537	+ 2 848 800.616	
11 000.000	- 40 592.394	+ 2 848 813.680	

BENCH MARKS
(WGS 84 \ LO 27°)

STATION	Y CO-ORDINATES + 0.000	X CO-ORDINATES + 0.000	ELEVATION
BM109	- 41 464.571	+ 2 848 741.410	1 228.907
BM108	- 41 244.412	+ 2 848 727.370	1 231.090
BM107	- 40 856.144	+ 2 848 742.915	1 233.267
BM106	- 40 654.743	+ 2 848 766.042	1 230.886

N4-13 DUAL CARRIAGEWAY km 10 000.000 - km 11 000.000
(WGS 84 \ LO 27°)

CURVE	DESCRIPTION	CURVE LENGTH	CURVE RADIUS	POINT	CHAINAGE DISTANCE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
3	LEFT HAND CIRCULAR	787.499 m	3000 m	BC 3	10 037.865	- 41 550.773	+ 2 848 791.051
				PI 3	-	- 41 158.165	+ 2 848 739.129
				EC 3	10 825.364	- 40 765.533	+ 2 848 790.866

N4 - 13 CONTINUE ON 3257 / 23 / 10 LP

N4 - 13 CONTINUE FROM 3257 / 23 / 08 LP

TENDER

0m 5m 10m 15m 20m 25m 30m 35m 40m 45m 50m
ORIGINAL SCALE 1 : 500 (A0)

No.	DATE	REVISION	
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date
SANRAL PROJECT MANAGER
Name
Prof. Reg. No. :
Date

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DESIGNED BY	
NAME	EF DAY
Prof. Reg. No.	20130622
CHECKED BY	
NAME	PL NGQUMSHE
Prof. Reg. No.	20080112
DRAWN BY	
NAME	WB HARTMANN

CONSULTANT APPROVAL
Name : PL NGQUMSHE
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Date : 17 / 07 / 2023

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Date:

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The construction of the dual carriageway of the N4-13 between Buffelspoort N4-13 km 2.800 and the P16-2 Interchange N4-13 km 40.000

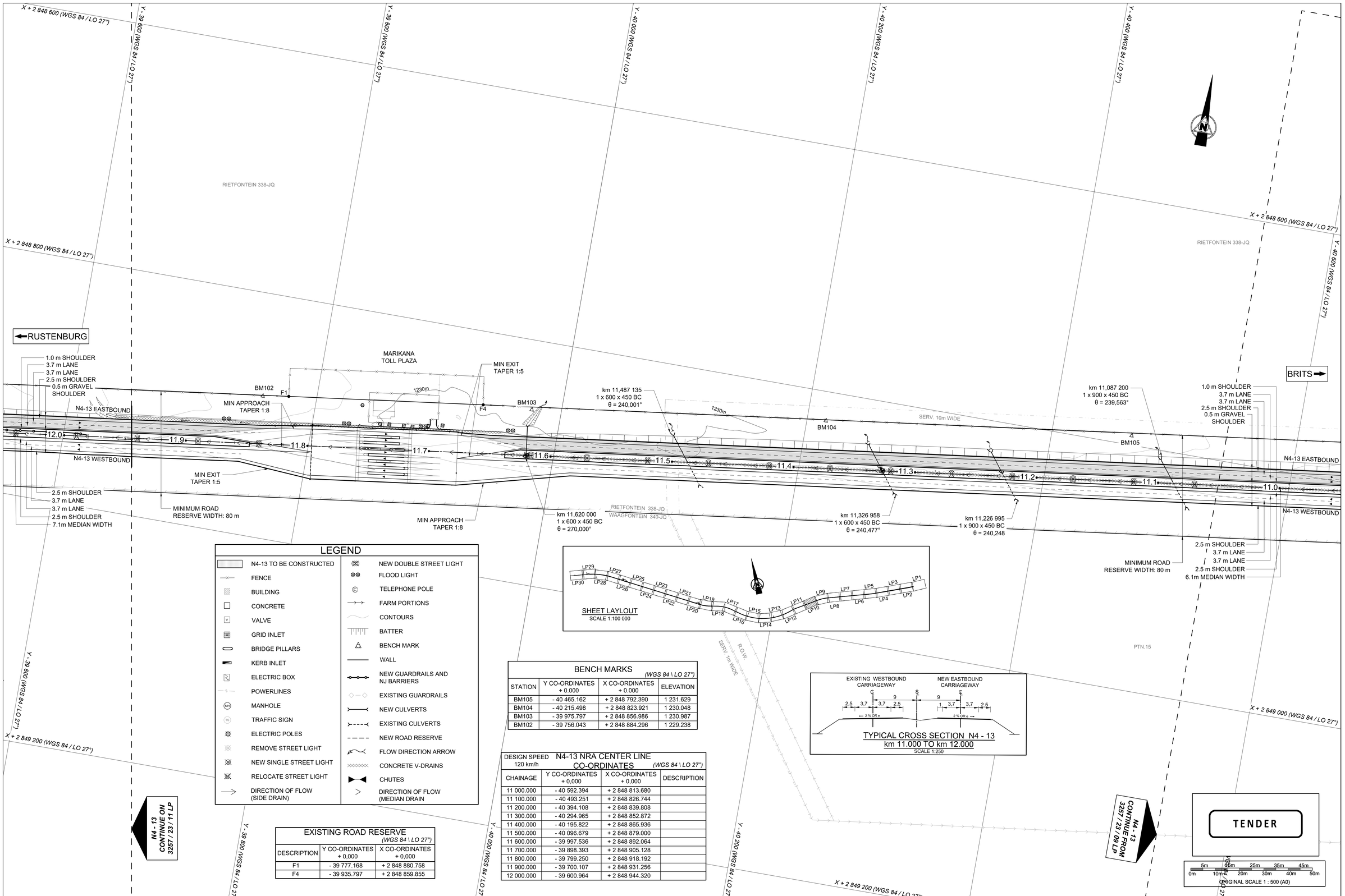
DRAWING DESCRIPTION
LAYOUT N4-13
FROM km 10.000 TO 11.000

SCALE : 1 : 1000 (A0) SHEET 09 OF 40

PROJECT NUMBER		BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END	
ROUTE	N 4	N 4	
SECTION	SECTION 13	SECTION 13	
DRAWING km DISTANCE	km 10.000	km 11.000	
DRAWING TYPE	ROADS - LAYOUTS		
BRIDGE/STRUCTURE No.	NA		
CONSULTANT DRAWING No.	FA	3257 / 23 / 09 LP	VER
SANRAL DOCUMENT #		- -	V0

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\02 - Layouts\3257-23-09-13LP-N4 Dual Carriageway Layouts km 10 to km 15_20230717.dwg



LEGEND

N4-13 TO BE CONSTRUCTED	NEW DOUBLE STREET LIGHT
FENCE	FLOOD LIGHT
BUILDING	TELEPHONE POLE
CONCRETE	FARM PORTIONS
VALVE	CONTOURS
GRID INLET	BATTER
BRIDGE PILLARS	BENCH MARK
KERB INLET	WALL
ELECTRIC BOX	NEW GUARDRAILS AND NJ BARRIERS
POWERLINES	EXISTING GUARDRAILS
MANHOLE	NEW CULVERTS
TRAFFIC SIGN	EXISTING CULVERTS
ELECTRIC POLES	NEW ROAD RESERVE
REMOVE STREET LIGHT	FLOW DIRECTION ARROW
NEW SINGLE STREET LIGHT	CONCRETE V-DRAINS
RELOCATE STREET LIGHT	CHUTES
DIRECTION OF FLOW (SIDE DRAIN)	DIRECTION OF FLOW (MEDIAN DRAIN

SHEET LAYLOUT
SCALE 1:100 000

BENCH MARKS
(WGS 84 \ LO 27°)

STATION	Y CO-ORDINATES + 0.000	X CO-ORDINATES + 0.000	ELEVATION
BM105	- 40 465.162	+ 2 848 792.390	1 231.629
BM104	- 40 215.498	+ 2 848 823.921	1 230.048
BM103	- 39 975.797	+ 2 848 856.986	1 230.987
BM102	- 39 756.043	+ 2 848 884.296	1 229.238

TYPICAL CROSS SECTION N4 - 13
km 11.000 TO km 12.000
SCALE 1:250

N4-13 NRA CENTER LINE CO-ORDINATES
DESIGN SPEED 120 km/h
(WGS 84 \ LO 27°)

CHAINAGE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
11 000.000	- 40 592.394	+ 2 848 813.680	
11 100.000	- 40 493.251	+ 2 848 826.744	
11 200.000	- 40 394.108	+ 2 848 839.808	
11 300.000	- 40 294.965	+ 2 848 852.872	
11 400.000	- 40 195.822	+ 2 848 865.936	
11 500.000	- 40 096.679	+ 2 848 879.000	
11 600.000	- 39 997.536	+ 2 848 892.064	
11 700.000	- 39 898.393	+ 2 848 905.128	
11 800.000	- 39 799.250	+ 2 848 918.192	
11 900.000	- 39 700.107	+ 2 848 931.256	
12 000.000	- 39 600.964	+ 2 848 944.320	

EXISTING ROAD RESERVE
(WGS 84 \ LO 27°)

DESCRIPTION	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
F1	- 39 777.168	+ 2 848 880.758
F4	- 39 935.797	+ 2 848 859.855

N4 - 13
CONTINUE ON
3257 / 23 / 11 LP

N4 - 13
CONTINUE FROM
3257 / 23 / 09 LP

TENDER

5m 15m 25m 35m 45m
0m 10m 20m 30m 40m 50m
ORIGINAL SCALE 1 : 500 (A0)

No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date :

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DESIGNED BY
NAME: EF DAY
Prof. Reg. No.: 20130622
CHECKED BY
NAME: PL NGQUMSHE
Prof. Reg. No.: 20080112
DRAWN BY
NAME: WB HARTMANN

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17 / 07 / 2023

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THE SOUTH AFRICAN NATIONAL ROADS AGENCY SOC LTD
Reg. No. 1998/009584/30

NORTHERN REGION
38 Ida Street
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Private Bag X17
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Tel: (012) 426 6200

ACCEPTANCE
THIS ACCEPTANCE IS FOR PROCEDURAL AND ADMINISTRATIVE REVIEW PURPOSES ONLY AND DOES NOT ATTRACT LEGAL LIABILITY OR LIABILITY OF ANY KIND FROM WHATSOEVER CAUSE OR HOWEVER ARISING
for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
The construction of the dual carriageway of the N4-13 between Buffelspoort N4-13 km 2.800 and the P16-2 Interchange N4-13 km 40.000

DRAWING DESCRIPTION
LAYOUT N4-13
FROM km 11.000 TO 12.000

SCALE : 1 : 1000 (A0) SHEET 10 OF 40

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001		
DRAWING LOCATION DATA	START	END	
ROUTE	N 4	N 4	
SECTION	SECTION 13	SECTION 13	
DRAWING km DISTANCE	km 11.000	km 12.000	
DRAWING TYPE	ROADS - LAYOUTS		
BRIDGE/STRUCTURE No.	NA		
CONSULTANT DRAWING No.	FA	3257 / 23 / 10 LP	VER
SANRAL DOCUMENT #	- -		V0

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadwork\02 - Layouts\3257-23-09-10LP-N4 Dual Carriageway Layouts km 10 to km 15_20230717.dwg

X + 2 848 800 (WGS 84 / LO 27°)

Y - 38 600 (WGS 84 / LO 27°)

Y - 38 800 (WGS 84 / LO 27°)

Y - 39 000 (WGS 84 / LO 27°)

Y - 39 200 (WGS 84 / LO 27°)

Y - 39 400 (WGS 84 / LO 27°)

Y - 39 600 (WGS 84 / LO 27°)

X + 2 849 000 (WGS 84 / LO 27°)

X + 2 849 200 (WGS 84 / LO 27°)

X + 2 849 400 (WGS 84 / LO 27°)

RIETFONTEIN 338-JQ

REM. PTN.15

WAAGFONTEIN 340-JQ

ZUURPLAAT 357-JQ

ACCESS ROAD

TO LOCAL FARMS

RUSTENBURG

BRITS

N4 - 13 CONTINUE ON 3257 / 23 / 12 LP

N4 - 13 CONTINUE FROM 3257 / 23 / 10 LP

EXISTING BRIDGE B1681
km 12,948 449
ACCESS ROAD OVER N4

1.0 m SHOULDER
3.7 m LANE
3.7 m LANE
2.5 m SHOULDER

0.5 m GRAVEL SHOULDER
2.5 m SHOULDER
3.7 m LANE
3.7 m LANE
2.5 m SHOULDER
6.1m MEDIAN WIDTH

PI 4
R = 2500 m

N4-13 EASTBOUND

N4-13 WESTBOUND

MINIMUM ROAD
RESERVE WIDTH: 80 m

km 13,007 080
1 x 600 X 450 BC
θ = 120,224°

km 12, 727 039
1 x 600 x 450 BC
θ = 119,970°

km 12,286 945
1 x 600 x 450 BC
θ = 120,093°

km 12,067 113
1 x 600 x 450 BC
θ = 119,394°

1225m

BC4

L156 L205 R206 BM98 L157 L158 BM99 L158A BM100 L158C BM101

L204 R205 R176 R176A R176B R176C L206 R206 L205 R205 L204 R204 L203A R203

12.0 12.1 12.2 12.3 12.4 12.5 12.6 12.7 12.8 12.9 13.0

LP1 LP2 LP3 LP4 LP5 LP6 LP7 LP8 LP9 LP10 LP11 LP12 LP13 LP14 LP15 LP16 LP17 LP18 LP19 LP20 LP21 LP22 LP23 LP24 LP25 LP26 LP27 LP28 LP29 LP30

SHEET LAYOUT
SCALE 1:100 000

EXISTING ROAD RESERVE

(WGS 84 \ LO 27°)

DESCRIPTION	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
L156	- 38 596.500	+ 2 849 048.860
L157	- 38 725.710	+ 2 849 021.110
L158	- 38 862.920	+ 2 849 001.220
L158A	- 39 253.130	+ 2 848 949.810
L158C	- 39 298.740	+ 2 848 943.800
L203	- 39 393.570	+ 2 849 184.870
L203A	- 39 376.067	+ 2 849 160.740
L204	- 38 658.932	+ 2 849 119.867
L204	- 39 342.310	+ 2 849 114.200
L205	- 38 623.059	+ 2 849 043.156
L205	- 39 239.970	+ 2 848 862.660
L206	- 39 205.220	+ 2 848 693.190
R176	- 38 711.670	+ 2 849 106.360
R176A	- 39 267.000	+ 2 849 032.590
R176B	- 39 287.900	+ 2 849 029.900
R176C	- 39 335.480	+ 2 849 023.590
R203	- 39 418.100	+ 2 849 167.610
R204	- 39 376.880	+ 2 849 094.070
R205	- 38 703.971	+ 2 849 108.332
R205	- 39 274.760	+ 2 848 853.400
R206	- 38 667.644	+ 2 849 033.581
R206	- 39 220.680	+ 2 848 689.070

N4-13 NRA CENTER LINE CO-ORDINATES

DESIGN SPEED 120 km/h

(WGS 84 \ LO 27°)

CHAINAGE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
12 000.000	- 39 600.964	+ 2 848 944.320	
12 100.000	- 39 501.821	+ 2 848 957.384	
12 200.000	- 39 402.678	+ 2 848 970.448	
12 300.000	- 39 303.535	+ 2 848 983.512	
12 400.000	- 39 204.392	+ 2 848 996.576	
12 500.000	- 39 105.249	+ 2 849 009.640	
12 600.000	- 39 006.106	+ 2 849 022.704	
12 700.000	- 38 906.963	+ 2 849 035.768	
12 800.000	- 38 807.922	+ 2 849 049.566	
12 900.000	- 38 709.462	+ 2 849 067.010	
13 000.000	- 38 611.779	+ 2 849 088.378	

N4-13 DUAL CARRIAGEWAY km 12 000.000 - km 13 000.000

(WGS 84 \ LO 27°)

CURVE	DESCRIPTION	CURVE LENGTH	CURVE RADIUS	POINT	CHAINAGE DISTANCE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
4	LEFT HAND CIRCULAR	400.493 m	2500 m	BC 4	12 739.148	- 38 868.150	+ 2 849 040.883
				PI 4	-	- 38 669.194	+ 2 849 067.099
				EC 4	13 139.641	- 38 476.967	+ 2 849 124.716

POINT OF INTERSECTION OUT OF DRAWING BOUNDS

LEGEND

- N4-13 TO BE CONSTRUCTED
- FENCE
- BUILDING
- CONCRETE
- VALVE
- GRID INLET
- BRIDGE PILLARS
- KERB INLET
- ELECTRIC BOX
- POWERLINES
- MANHOLE
- TRAFFIC SIGN
- ELECTRIC POLES
- REMOVE STREET LIGHT
- NEW SINGLE STREET LIGHT
- RELOCATE STREET LIGHT
- DIRECTION OF FLOW (SIDE DRAIN)
- NEW DOUBLE STREET LIGHT
- FLOOD LIGHT
- TELEPHONE POLE
- FARM PORTIONS
- CONTOURS
- BATTER
- BENCH MARK
- WALL
- NEW GUARDRAILS AND NJ BARRIERS
- EXISTING GUARDRAILS
- NEW CULVERTS
- EXISTING CULVERTS
- NEW ROAD RESERVE
- FLOW DIRECTION ARROW
- CONCRETE V-DRAINS
- CHUTES
- DIRECTION OF FLOW (MEDIAN DRAIN)

N4-13 GUARDRAILS

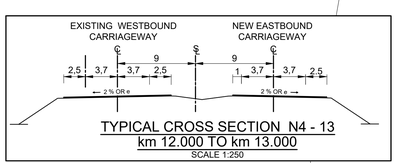
SIDE	START CHAINAGE	END CHAINAGE	LENGTH
SOUTH	12.000 000	20.860 000	8.860

GUARDRAIL LENGTHS EXCLUDE TERMINAL SECTIONS

BENCH MARKS

(WGS 84 \ LO 27°)

STATION	Y CO-ORDINATES + 0.000	X CO-ORDINATES + 0.000	ELEVATION
BM101	- 39 529.116	+ 2 848 915.857	1 229.060
BM100	- 39 253.047	+ 2 848 950.576	1 225.902
BM99	- 38 993.395	+ 2 848 986.635	1 225.410
BM98	- 38 725.837	+ 2 849 021.908	1 222.086



TYPICAL CROSS SECTION N4 - 13
km 12.000 TO km 13.000
SCALE 1:250

TENDER

0m 15m 25m 35m 45m
0m 10m 20m 30m 40m 50m
ORIGINAL SCALE 1 : 500 (A0)

No.	DATE	REVISION	
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE
		CONSULT. ENG.	

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date

SANRAL PROJECT MANAGER
Name
Prof. Reg. No. :
Date :

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DESIGNED BY	
NAME	EF DAY
Prof. Reg. No.	20130622
CHECKED BY	
NAME	PL NGQUMSHE
Prof. Reg. No.	20080112
DRAWN BY	
NAME	WB HARTMANN

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17 / 07 / 2023

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for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION

The construction of the dual carriageway of the N4-13 between Buffelspoort N4-13 km 2.800 and the P16-2 Interchange N4-13 km 40.000

DRAWING DESCRIPTION

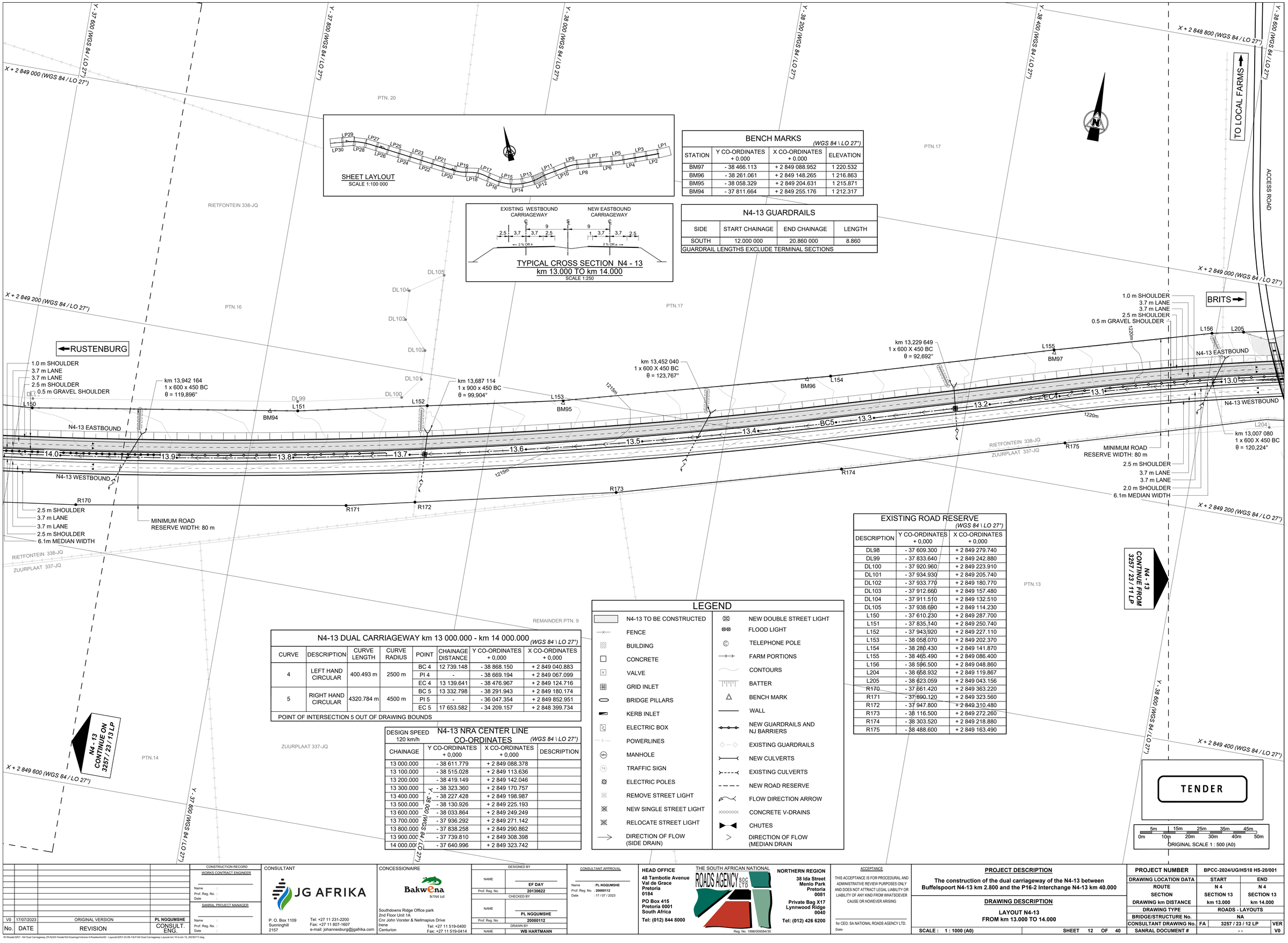
LAYOUT N4-13 FROM km 12.000 TO 13.000

SCALE : 1 : 1000 (A0) SHEET 11 OF 40

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	SECTION 13	SECTION 13
DRAWING km DISTANCE	km 12.000	km 13.000
DRAWING TYPE	ROADS - LAYOUTS	
BRIDGE/STRUCTURE No.	NA	
CONSULTANT DRAWING No.	FA 3257 / 23 / 11 LP	VER
SANRAL DOCUMENT #	- -	V0

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\02 - Layouts\3257-23-09-13LP-N4 Dual Carriageway Layouts km 10 to km 15_20230717.dwg



SHEET LAYOUT
SCALE 1:100 000

TYPICAL CROSS SECTION N4 - 13
km 13.000 TO km 14.000
SCALE 1:250

BENCH MARKS
(WGS 84 \ LO 27°)

STATION	Y CO-ORDINATES + 0.000	X CO-ORDINATES + 0.000	ELEVATION
BM97	- 38 466.113	+ 2 849 088.952	1 220.532
BM96	- 38 261.061	+ 2 849 148.265	1 216.863
BM95	- 38 058.329	+ 2 849 204.631	1 215.871
BM94	- 37 811.664	+ 2 849 255.176	1 212.317

N4-13 GUARDRAILS

SIDE	START CHAINAGE	END CHAINAGE	LENGTH
SOUTH	12.000 000	20.860 000	8.860
GUARDRAIL LENGTHS EXCLUDE TERMINAL SECTIONS			

EXISTING ROAD RESERVE
(WGS 84 \ LO 27°)

DESCRIPTION	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
DL98	- 37 609.300	+ 2 849 279.740
DL99	- 37 833.640	+ 2 849 242.880
DL100	- 37 920.960	+ 2 849 223.910
DL101	- 37 934.930	+ 2 849 205.740
DL102	- 37 933.770	+ 2 849 180.770
DL103	- 37 912.660	+ 2 849 157.480
DL104	- 37 911.510	+ 2 849 132.510
DL105	- 37 938.690	+ 2 849 114.230
L150	- 37 610.230	+ 2 849 287.700
L151	- 37 835.140	+ 2 849 250.740
L152	- 37 943.920	+ 2 849 227.110
L153	- 38 058.070	+ 2 849 202.370
L154	- 38 280.430	+ 2 849 141.870
L155	- 38 465.490	+ 2 849 086.400
L156	- 38 596.500	+ 2 849 048.860
L204	- 38 658.932	+ 2 849 119.867
L205	- 38 623.059	+ 2 849 043.156
R170	- 37 661.420	+ 2 849 363.220
R171	- 37 890.120	+ 2 849 323.560
R172	- 37 947.800	+ 2 849 310.480
R173	- 38 116.500	+ 2 849 272.260
R174	- 38 303.520	+ 2 849 218.880
R175	- 38 488.600	+ 2 849 163.490

N4-13 DUAL CARRIAGEWAY km 13 000.000 - km 14 000.000
(WGS 84 \ LO 27°)

CURVE	DESCRIPTION	CURVE LENGTH	CURVE RADIUS	POINT	CHAINAGE DISTANCE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
4	LEFT HAND CIRCULAR	400.493 m	2500 m	BC 4	12 739.148	- 38 868.150	+ 2 849 040.883
				PI 4	-	- 38 669.194	+ 2 849 067.099
				EC 4	13 139.641	- 38 476.967	+ 2 849 124.716
5	RIGHT HAND CIRCULAR	4320.784 m	4500 m	BC 5	13 332.798	- 38 291.943	+ 2 849 180.174
				PI 5	-	- 36 047.354	+ 2 849 852.951
				EC 5	17 653.582	- 34 209.157	+ 2 848 399.734
POINT OF INTERSECTION 5 OUT OF DRAWING BOUNDS							

N4-13 NRA CENTER LINE CO-ORDINATES
DESIGN SPEED 120 km/h
(WGS 84 \ LO 27°)

CHAINAGE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
13 000.000	- 38 611.779	+ 2 849 088.378	
13 100.000	- 38 515.028	+ 2 849 113.636	
13 200.000	- 38 419.149	+ 2 849 142.046	
13 300.000	- 38 323.360	+ 2 849 170.757	
13 400.000	- 38 227.428	+ 2 849 198.987	
13 500.000	- 38 130.926	+ 2 849 225.193	
13 600.000	- 38 033.864	+ 2 849 249.249	
13 700.000	- 37 936.292	+ 2 849 271.142	
13 800.000	- 37 838.258	+ 2 849 290.862	
13 900.000	- 37 739.810	+ 2 849 308.398	
14 000.000	- 37 640.996	+ 2 849 323.742	

LEGEND

N4-13 TO BE CONSTRUCTED	NEW DOUBLE STREET LIGHT
FENCE	FLOOD LIGHT
BUILDING	TELEPHONE POLE
CONCRETE	FARM PORTIONS
VALVE	CONTOURS
GRID INLET	BATTER
BRIDGE PILLARS	BENCH MARK
KERB INLET	WALL
ELECTRIC BOX	NEW GUARDRAILS AND NJ BARRIERS
POWERLINES	EXISTING GUARDRAILS
MANHOLE	NEW CULVERTS
TRAFFIC SIGN	EXISTING CULVERTS
ELECTRIC POLES	NEW ROAD RESERVE
REMOVE STREET LIGHT	FLOW DIRECTION ARROW
NEW SINGLE STREET LIGHT	CONCRETE V-DRAINS
RELOCATE STREET LIGHT	CHUTES
DIRECTION OF FLOW (SIDE DRAIN)	DIRECTION OF FLOW (MEDIAN DRAIN

No.	DATE	REVISION	
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
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Date :

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DESIGNED BY
NAME: EF DAY
Prof. Reg. No.: 20130622
CHECKED BY
NAME: PL NGQUMSHE
Prof. Reg. No.: 20080112
DRAWN BY
NAME: WB HARTMANN

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
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for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
The construction of the dual carriageway of the N4-13 between Buffelspoort N4-13 km 2.800 and the P16-2 Interchange N4-13 km 40.000

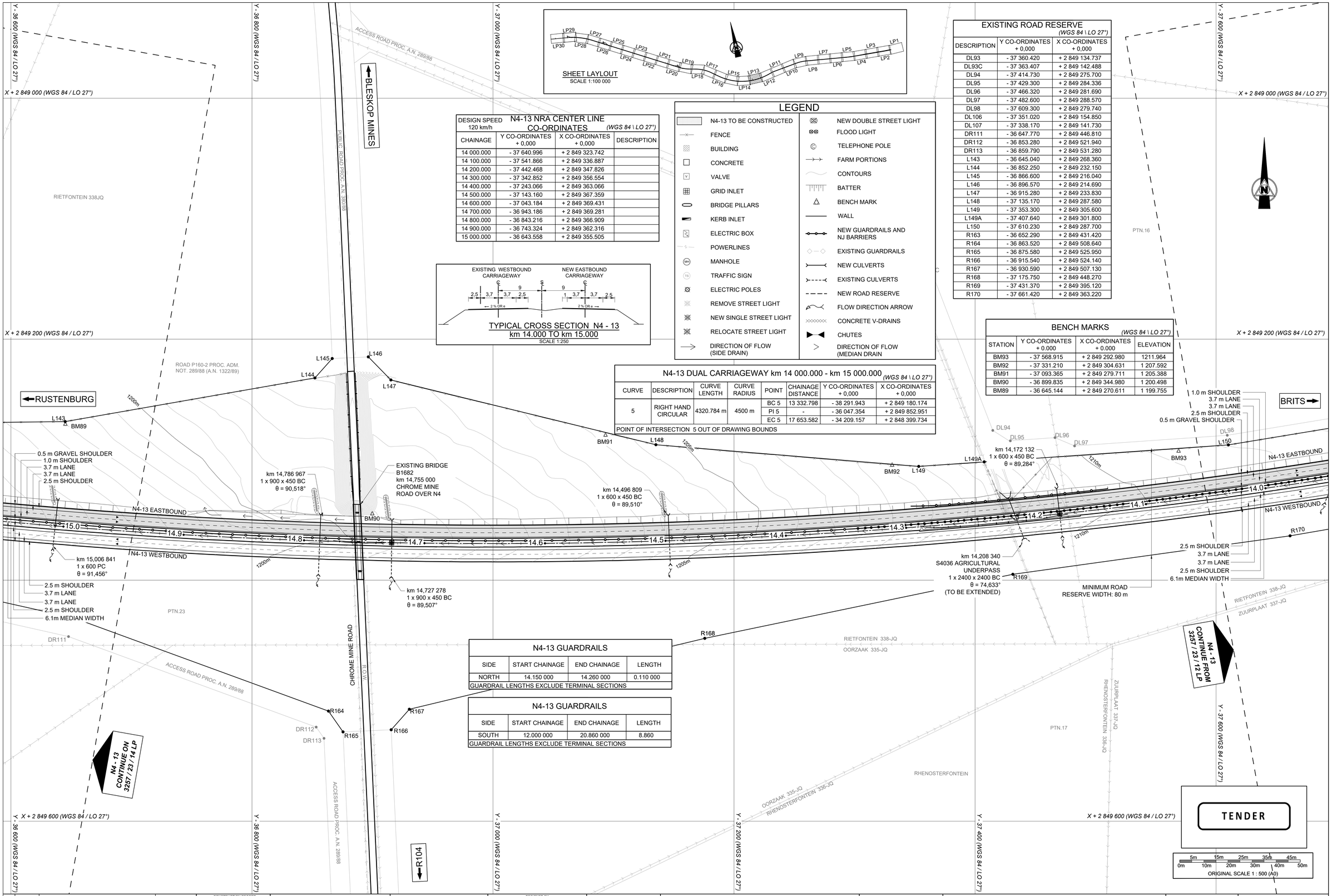
DRAWING DESCRIPTION
LAYOUT N4-13
FROM km 13.000 TO 14.000

SCALE : 1 : 1000 (A0) | SHEET 12 OF 40

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	SECTION 13	SECTION 13
DRAWING km DISTANCE	km 13.000	km 14.000
DRAWING TYPE	ROADS - LAYOUTS	
BRIDGE/STRUCTURE No.	NA	
CONSULTANT DRAWING No.	FA 3257 / 23 / 12 LP	VER V0
SANRAL DOCUMENT #	- -	

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\02 - Layouts\3257-23-09-13LP-N4 Dual Carriageway Layouts km 10 to km 15_20230717.dwg



LEGEND

N4-13 TO BE CONSTRUCTED	NEW DOUBLE STREET LIGHT
FENCE	FLOOD LIGHT
BUILDING	TELEPHONE POLE
CONCRETE	FARM PORTIONS
VALVE	CONTOURS
GRID INLET	BATTER
BRIDGE PILLARS	BENCH MARK
KERB INLET	WALL
ELECTRIC BOX	NEW GUARDRAILS AND NJ BARRIERS
POWERLINES	EXISTING GUARDRAILS
MANHOLE	NEW CULVERTS
TRAFFIC SIGN	EXISTING CULVERTS
ELECTRIC POLES	NEW ROAD RESERVE
REMOVE STREET LIGHT	FLOW DIRECTION ARROW
NEW SINGLE STREET LIGHT	CONCRETE V-DRAINS
RELOCATE STREET LIGHT	CHUTES
DIRECTION OF FLOW (SIDE DRAIN)	DIRECTION OF FLOW (MEDIAN DRAIN)

DESIGN SPEED 120 km/h — N4-13 NRA CENTER LINE CO-ORDINATES (WGS 84 \ LO 27°)

CHAINAGE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
14 000.000	- 37 640.996	+ 2 849 323.742	
14 100.000	- 37 541.866	+ 2 849 336.887	
14 200.000	- 37 442.468	+ 2 849 347.826	
14 300.000	- 37 342.852	+ 2 849 356.554	
14 400.000	- 37 243.066	+ 2 849 363.066	
14 500.000	- 37 143.160	+ 2 849 367.359	
14 600.000	- 37 043.184	+ 2 849 369.431	
14 700.000	- 36 943.186	+ 2 849 369.281	
14 800.000	- 36 843.216	+ 2 849 366.909	
14 900.000	- 36 743.324	+ 2 849 362.316	
15 000.000	- 36 643.558	+ 2 849 355.505	

EXISTING ROAD RESERVE (WGS 84 \ LO 27°)

DESCRIPTION	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
DL93	- 37 360.420	+ 2 849 134.737
DL93C	- 37 363.407	+ 2 849 142.488
DL94	- 37 414.730	+ 2 849 275.700
DL95	- 37 429.300	+ 2 849 284.336
DL96	- 37 466.320	+ 2 849 281.690
DL97	- 37 482.600	+ 2 849 288.570
DL98	- 37 609.300	+ 2 849 279.740
DL106	- 37 351.020	+ 2 849 154.850
DL107	- 37 338.170	+ 2 849 141.730
DR111	- 36 647.770	+ 2 849 446.810
DR112	- 36 853.280	+ 2 849 521.940
DR113	- 36 859.790	+ 2 849 531.280
L143	- 36 645.040	+ 2 849 268.360
L144	- 36 852.250	+ 2 849 232.150
L145	- 36 866.600	+ 2 849 216.040
L146	- 36 896.570	+ 2 849 214.690
L147	- 36 915.280	+ 2 849 233.830
L148	- 37 135.170	+ 2 849 287.580
L149	- 37 353.300	+ 2 849 305.600
L149A	- 37 407.640	+ 2 849 301.800
L150	- 37 610.230	+ 2 849 287.700
R163	- 36 652.290	+ 2 849 431.420
R164	- 36 863.520	+ 2 849 508.640
R165	- 36 875.580	+ 2 849 525.950
R166	- 36 915.540	+ 2 849 524.140
R167	- 36 930.590	+ 2 849 507.130
R168	- 37 175.750	+ 2 849 448.270
R169	- 37 431.370	+ 2 849 395.120
R170	- 37 661.420	+ 2 849 363.220

BENCH MARKS (WGS 84 \ LO 27°)

STATION	Y CO-ORDINATES + 0.000	X CO-ORDINATES + 0.000	ELEVATION
BM93	- 37 568.915	+ 2 849 292.980	1211.964
BM92	- 37 331.210	+ 2 849 304.631	1 207.592
BM91	- 37 093.365	+ 2 849 279.711	1 205.388
BM90	- 36 899.835	+ 2 849 344.980	1 200.498
BM89	- 36 645.144	+ 2 849 270.611	1 199.755

N4-13 DUAL CARRIAGEWAY km 14 000.000 - km 15 000.000 (WGS 84 \ LO 27°)

CURVE	DESCRIPTION	CURVE LENGTH	CURVE RADIUS	POINT	CHAINAGE DISTANCE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
5	RIGHT HAND CIRCULAR	4320.784 m	4500 m	BC 5	13 332.798	- 38 291.943	+ 2 849 180.174
				PI 5	-	- 36 047.354	+ 2 849 852.951
				EC 5	17 653.582	- 34 209.157	+ 2 848 399.734
POINT OF INTERSECTION 5 OUT OF DRAWING BOUNDS							

N4-13 GUARDRAILS

SIDE	START CHAINAGE	END CHAINAGE	LENGTH
NORTH	14.150 000	14.260 000	0.110 000
GUARDRAIL LENGTHS EXCLUDE TERMINAL SECTIONS			

N4-13 GUARDRAILS

SIDE	START CHAINAGE	END CHAINAGE	LENGTH
SOUTH	12.000 000	20.860 000	8.860
GUARDRAIL LENGTHS EXCLUDE TERMINAL SECTIONS			

No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date

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DESIGNED BY
NAME: EF DAY
Prof. Reg. No.: 20130622
CHECKED BY
NAME: PL NGQUMSHE
Prof. Reg. No.: 20080112
DRAWN BY
NAME: WB HARTMANN

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17 / 07 / 2023

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THE SOUTH AFRICAN NATIONAL ROADS AGENCY SOC LTD
Reg. No. 1998/009584/30

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Tel: (012) 426 6200

ACCEPTANCE
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for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
The construction of the dual carriageway of the N4-13 between Buffelspoort N4-13 km 2.800 and the P16-2 Interchange N4-13 km 40.000

DRAWING DESCRIPTION
LAYOUT N4-13
FROM km 14.000 TO 15.000

SCALE : 1 : 1000 (A0) | SHEET 13 OF 40

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	SECTION 13	SECTION 13
DRAWING km DISTANCE	km 14.000	km 15.000
DRAWING TYPE	ROADS - LAYOUTS	
BRIDGE/STRUCTURE No.	NA	
CONSULTANT DRAWING No.	FA 3257 / 23 / 13 LP	VER V0
SANRAL DOCUMENT #	- -	

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\02 - Layouts\3257-23-09-13LP-N4 Dual Carriageway Layouts km 10 to km 15, 20230717.dwg

EXISTING ROAD RESERVE

(WGS 84 \ LO 27°)

DESCRIPTION	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
DR105	- 35 843.330	+ 2 849 269.800
DR106	- 36 054.140	+ 2 849 320.270
DR107	- 36 282.540	+ 2 849 362.730
DR108	- 36 319.620	+ 2 849 369.620
DR109	- 36 323.540	+ 2 849 378.490
DR110	- 36 439.830	+ 2 849 400.100
DR111	- 36 647.770	+ 2 849 446.810
L139	- 35 746.190	+ 2 849 134.149
L140	- 35 966.500	+ 2 849 208.270
L141	- 36 189.500	+ 2 849 255.390
L142	- 36 417.240	+ 2 849 271.250
L143	- 36 645.040	+ 2 849 268.360
R159A	- 35 847.430	+ 2 849 262.560
R160	- 36 055.810	+ 2 849 312.440
R161	- 36 284.010	+ 2 849 354.870
R162	- 36 443.040	+ 2 849 384.440
R163	- 36 652.290	+ 2 849 431.420

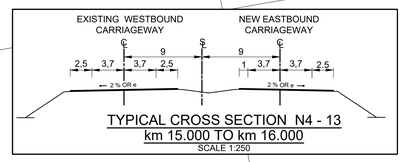
LEGEND

- N4-13 TO BE CONSTRUCTED
- FENCE
- BUILDING
- CONCRETE
- VALVE
- GRID INLET
- BRIDGE PILLARS
- KERB INLET
- ELECTRIC BOX
- POWERLINES
- MANHOLE
- TRAFFIC SIGN
- ELECTRIC POLES
- REMOVE STREET LIGHT
- NEW SINGLE STREET LIGHT
- RELOCATE STREET LIGHT
- DIRECTION OF FLOW (SIDE DRAIN)
- NEW DOUBLE STREET LIGHT
- FLOOD LIGHT
- TELEPHONE POLE
- FARM PORTIONS
- CONTOURS
- BATTER
- BENCH MARK
- WALL
- NEW GUARDRAILS AND NJ BARRIERS
- EXISTING GUARDRAILS
- NEW CULVERTS
- EXISTING CULVERTS
- NEW ROAD RESERVE
- FLOW DIRECTION ARROW
- CONCRETE V-DRAINS
- CHUTES
- DIRECTION OF FLOW (MEDIAN DRAIN)

N4-13 DUAL CARRIAGEWAY km 15 000.000 - km 16 000.000

(WGS 84 \ LO 27°)

CURVE	DESCRIPTION	CURVE LENGTH	CURVE RADIUS	POINT	CHAINAGE DISTANCE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
5	RIGHT HAND CIRCULAR	4320.784 m	4500 m	BC 5	13 332.798	- 38 291.943	+ 2 849 180.174
				PI 5	-	- 36 047.354	+ 2 849 852.951
				EC 5	17 653.582	- 34 209.157	+ 2 848 399.734
POINT OF INTERSECTION 5 OUT OF DRAWING BOUNDS							



TYPICAL CROSS SECTION N4 - 13
km 15.000 TO km 16.000
SCALE 1:250

BENCH MARKS

(WGS 84 \ LO 27°)

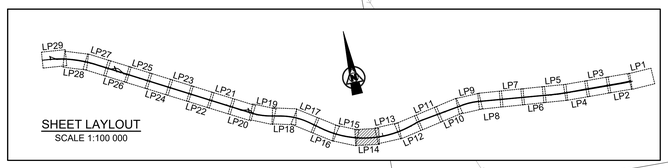
STATION	Y CO-ORDINATES + 0.000	X CO-ORDINATES + 0.000	ELEVATION
BM89	- 36 645.144	+ 2 849 270.611	1 199.755
BM88	- 36 417.205	+ 2 849 272.159	1 194.637
BM87	- 36 188.953	+ 2 849 257.757	1 192.949
BM86	- 35 940.606	+ 2 849 202.348	1 189.463
BM85	- 35 706.051	+ 2 849 138.755	1 190.668

N4-13 NRA CENTER LINE CO-ORDINATES

DESIGN SPEED 120 km/h

(WGS 84 \ LO 27°)

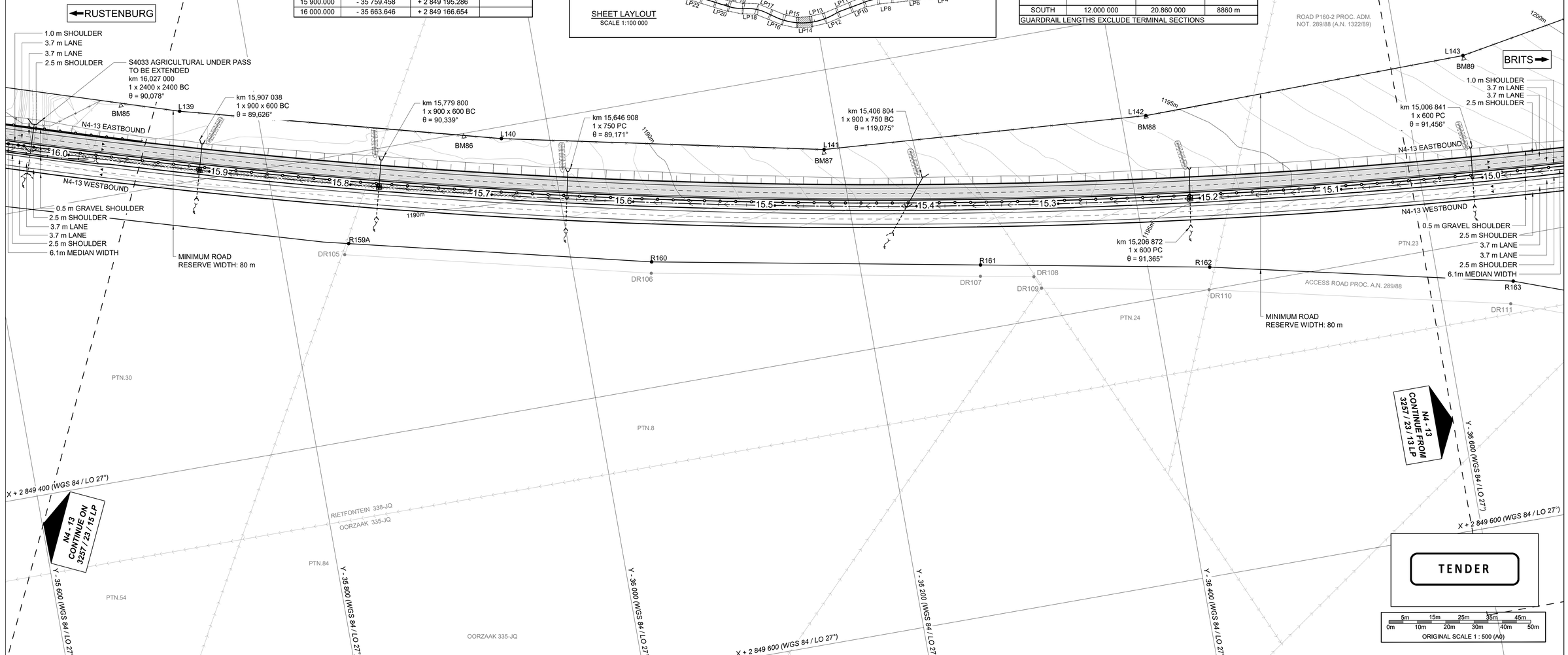
CHAINAGE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
15 000.000	- 36 643.558	+ 2 849 355.505	
15 100.000	- 36 543.968	+ 2 849 346.479	
15 200.000	- 36 444.604	+ 2 849 335.242	
15 300.000	- 36 345.513	+ 2 849 321.799	
15 400.000	- 36 246.746	+ 2 849 306.159	
15 500.000	- 36 148.351	+ 2 849 288.327	
15 600.000	- 36 050.376	+ 2 849 268.314	
15 700.000	- 35 952.870	+ 2 849 246.128	
15 800.000	- 35 855.881	+ 2 849 221.781	
15 900.000	- 35 759.458	+ 2 849 195.286	
16 000.000	- 35 663.646	+ 2 849 166.654	



SHEET LAYLOUT
SCALE 1:100 000

N4-13 GUARDRAILS

SIDE	START CHAINAGE	END CHAINAGE	LENGTH
SOUTH	12.000 000	20.860 000	8860 m
GUARDRAIL LENGTHS EXCLUDE TERMINAL SECTIONS			



No.	DATE	REVISION	
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date :

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DESIGNED BY
NAME: EF DAY
Prof. Reg. No.: 20130622
CHECKED BY
NAME: PL NGQUMSHE
Prof. Reg. No.: 20080112
DRAWN BY
NAME: WB HARTMANN

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17 / 07 / 2023

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for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION

The construction of the dual carriageway of the N4-13 between Buffelspoort N4-13 km 2.800 and the P16-2 Interchange N4-13 km 40.000

DRAWING DESCRIPTION

LAYOUT N4-13 FROM km 15.000 TO 16.000

SCALE : 1 : 1000 (A0) SHEET 14 OF 41

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	SECTION 13	SECTION 13
DRAWING km DISTANCE	km 15.000	km 16.000
DRAWING TYPE	ROADS - LAYOUTS	
BRIDGE/STRUCTURE No.	NA	
CONSULTANT DRAWING No.	FA 3257 / 23 / 14 LP	VER V0
SANRAL DOCUMENT #	- -	

SANRAL DOCUMENT NUMBER : :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadwork\02 - Layouts\3257-23-14-18LP-N4 Dual Carriageway Layouts km 15 to km 20_20230717.dwg

EXISTING ROAD RESERVE
(WGS 84 \ LO 27°)

DESCRIPTION	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
DR97	- 34 750.770	+ 2 848 834.080
DR98	- 34 956.250	+ 2 848 943.810
DR99	- 35 000.570	+ 2 848 964.630
DR100	- 35 000.003	+ 2 848 957.200
DR101	- 35 170.270	+ 2 849 035.570
DR102	- 35 320.460	+ 2 849 097.000
L135	- 34 903.350	+ 2 848 806.140
L136	- 35 107.190	+ 2 848 908.110
L137	- 35 315.980	+ 2 848 999.530
L138	- 35 529.170	+ 2 849 080.170
R154	- 34 758.670	+ 2 848 820.160
R155	- 34 963.420	+ 2 848 929.500
R156	- 35 173.490	+ 2 849 028.240
R156A	- 35 323.870	+ 2 849 089.750
R157	- 35 388.330	+ 2 849 116.120
R158	- 35 607.370	+ 2 849 192.810

LEGEND

- N4-13 TO BE CONSTRUCTED
- FENCE
- BUILDING
- CONCRETE
- VALVE
- GRID INLET
- BRIDGE PILLARS
- KERB INLET
- ELECTRIC BOX
- POWERLINES
- MANHOLE
- TRAFFIC SIGN
- ELECTRIC POLES
- REMOVE STREET LIGHT
- NEW SINGLE STREET LIGHT
- RELOCATE STREET LIGHT
- DIRECTION OF FLOW (SIDE DRAIN)
- NEW DOUBLE STREET LIGHT
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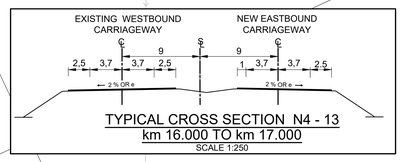
- EXISTING CULVERTS
- NEW ROAD RESERVE
- FLOW DIRECTION ARROW
- CONCRETE V-DRAINS
- CHUTES
- DIRECTION OF FLOW (MEDIAN DRAIN

N4-13 DUAL CARRIAGEWAY km 16 000.000 - km 17 000.000
(WGS 84 \ LO 27°)

CURVE	DESCRIPTION	CURVE LENGTH	CURVE RADIUS	POINT	CHAINAGE DISTANCE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
5	RIGHT HAND CIRCULAR	4320.784 m	4500 m	BC 5	13 332.798	- 38 291.943	+ 2 849 180.174
				PI 5	-	- 36 047.354	+ 2 849 852.951
				EC 5	17 653.582	- 34 209.157	+ 2 848 399.734
POINT OF INTERSECTION 5 OUT OF DRAWING BOUNDS							



TYPICAL CROSS SECTION N4 - 13
km 16.000 TO km 17.000
SCALE 1:250

BENCH MARKS
(WGS 84 \ LO 27°)

STATION	Y CO-ORDINATES + 0.000	X CO-ORDINATES + 0.000	ELEVATION
BM85	- 35 706.051	+ 2 849 138.755	1 190.668
BM84	- 35 421.913	+ 2 849 040.639	1 190.879
BM83	- 35 145.873	+ 2 848 927.414	1 192.785
BM82	- 34 945.602	+ 2 848 829.851	1 188.618
BM81	- 34 742.866	+ 2 848 716.286	1 182.395

N4-13 NRA CENTER LINE CO-ORDINATES
DESIGN SPEED 120 km/h *(WGS 84 \ LO 27°)*

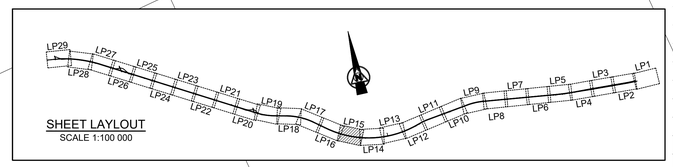
CHAINAGE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
16 000.000	- 35 663.646	+ 2 849 166.654	
16 100.000	- 35 568.495	+ 2 849 135.900	
16 200.000	- 35 474.050	+ 2 849 103.040	
16 300.000	- 35 380.359	+ 2 849 068.089	
16 400.000	- 35 287.468	+ 2 849 031.064	
16 500.000	- 35 195.422	+ 2 848 991.985	
16 600.000	- 35 104.268	+ 2 848 950.870	
16 700.000	- 35 014.049	+ 2 848 907.740	
16 800.000	- 34 924.811	+ 2 848 862.616	
16 900.000	- 34 836.598	+ 2 848 815.520	
17 000.000	- 34 749.453	+ 2 848 766.476	

N4-13 GUARDRAILS

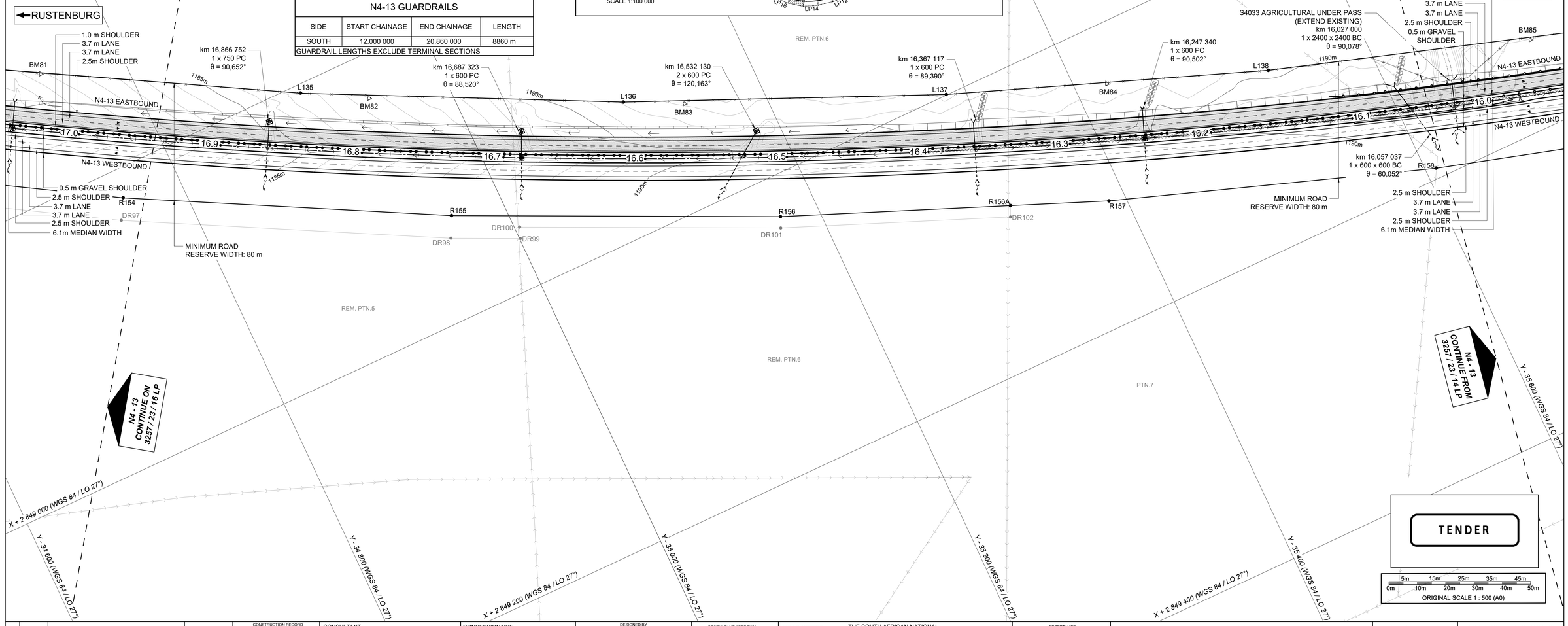
SIDE	START CHAINAGE	END CHAINAGE	LENGTH
SOUTH	12.000 000	20.860 000	8860 m
GUARDRAIL LENGTHS EXCLUDE TERMINAL SECTIONS			

N4-13 GUARDRAILS

SIDE	START CHAINAGE	END CHAINAGE	LENGTH
NORTH	15.972 000	16.082 000	0.110 000
GUARDRAIL LENGTHS EXCLUDE TERMINAL SECTIONS			



SHEET LAYLOUT
SCALE 1:100 000



TENDER

5m 15m 25m 35m 45m
0m 10m 20m 30m 40m 50m
ORIGINAL SCALE 1 : 500 (A0)

No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date :

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DESIGNED BY
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Prof. Reg. No.: 20130622
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Prof. Reg. No.: 20080112
DRAWN BY
NAME: WB HARTMANN

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17 / 07 / 2023

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for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
The construction of the dual carriageway of the N4-13 between Buffelspoort N4-13 km 2.800 and the P16-2 Interchange N4-13 km 40.000

DRAWING DESCRIPTION
LAYOUT N4-13
FROM km 16.000 TO 17.000

SCALE : 1 : 1000 (A0) | SHEET 15 OF 41

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	SECTION 13	SECTION 13
DRAWING km DISTANCE	km 16.000	km 17.000
DRAWING TYPE	ROADS - LAYOUTS	
BRIDGE/STRUCTURE No.	NA	
CONSULTANT DRAWING No.	FA 3257 / 23 / 15 LP	VER V0
SANRAL DOCUMENT #	- -	

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\02 - Layouts\3257-23-14-18LP-N4 Dual Carriageway Layouts km 13 to km 20_20230717.dwg

EXISTING ROAD RESERVE

(WGS 84 \ LO 27°)

DESCRIPTION	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
DL70	- 34 434.580	+ 2 848 162.370
DL71	- 34 025.320	+ 2 848 060.280
DL72	- 34 092.720	+ 2 847 948.980
DL73	- 34 090.740	+ 2 847 942.680
DL77	- 34 105.500	+ 2 847 940.450
DL78	- 34 106.900	+ 2 847 942.340
DL79	- 34 044.710	+ 2 848 043.710
DL80	- 34 047.968	+ 2 848 049.190
DL81	- 34 442.480	+ 2 848 147.850
DR90	- 34 473.240	+ 2 848 957.610
DR95	- 34 593.240	+ 2 848 756.760
DR96	- 34 612.880	+ 2 848 751.120
DR97	- 34 750.770	+ 2 848 834.080
L24	- 34 375.020	+ 2 848 302.140
L24A	- 34 441.960	+ 2 848 179.180
L24B	- 34 464.208	+ 2 848 138.308
L129	- 33 944.700	+ 2 848 134.580
L130	- 34 020.670	+ 2 848 199.730
L131	- 34 233.990	+ 2 848 368.380
L131A	- 34 304.260	+ 2 848 422.080
L131C	- 34 336.420	+ 2 848 446.660
L132	- 34 350.580	+ 2 848 457.480
L133	- 34 512.600	+ 2 848 571.640
L134	- 34 704.970	+ 2 848 693.880
R24	- 34 401.560	+ 2 848 316.590
R24A	- 34 470.935	+ 2 848 189.184
R151	- 34 184.380	+ 2 848 431.140
R151A	- 34 262.350	+ 2 848 490.700
R151C	- 34 300.950	+ 2 848 520.180
R152	- 34 367.250	+ 2 848 570.830
R153	- 34 559.770	+ 2 848 700.490
R153B	- 34 593.550	+ 2 848 720.820
R154	- 34 758.670	+ 2 848 820.160

N4-13 NRA CENTER LINE CO-ORDINATES

DESIGN SPEED 120 km/h

(WGS 84 \ LO 27°)

CHAINAGE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
17 000.000	- 34 749.453	+ 2 848 766.476	
17 100.000	- 34 663.419	+ 2 848 715.507	
17 200.000	- 34 578.540	+ 2 848 662.639	
17 300.000	- 34 494.856	+ 2 848 607.899	
17 400.000	- 34 412.408	+ 2 848 551.312	
17 500.000	- 34 331.239	+ 2 848 492.907	
17 600.000	- 34 251.388	+ 2 848 432.713	
17 700.000	- 34 172.744	+ 2 848 370.947	
17 800.000	- 34 094.297	+ 2 848 308.929	
17 900.000	- 34 015.851	+ 2 848 246.912	
18 000.000	- 33 937.404	+ 2 848 184.895	

BENCH MARKS

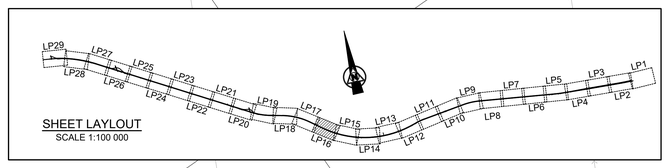
(WGS 84 \ LO 27°)

STATION	Y CO-ORDINATES + 0.000	X CO-ORDINATES + 0.000	ELEVATION
BM81	- 34 742.866	+ 2 848 716.286	1 182.395
BM80	- 34 539.374	+ 2 848 591.293	1 180.505
BM79	- 34 350.034	+ 2 848 458.422	1 179.364
BM78	- 34 160.224	+ 2 848 313.012	1 180.787
BM77	- 33 973.268	+ 2 848 162.047	1 177.621

N4-13 GUARDRAILS

SIDE	START CHAINAGE	END CHAINAGE	LENGTH
SOUTH	12.000 000	20.860 000	8860 m

GUARDRAIL LENGTHS EXCLUDE TERMINAL SECTIONS



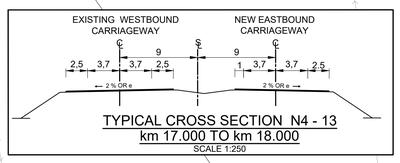
SHEET LAYLOUT
SCALE 1:100 000

N4-13 DUAL CARRIAGEWAY km 17 000.000 - km 18 000.000

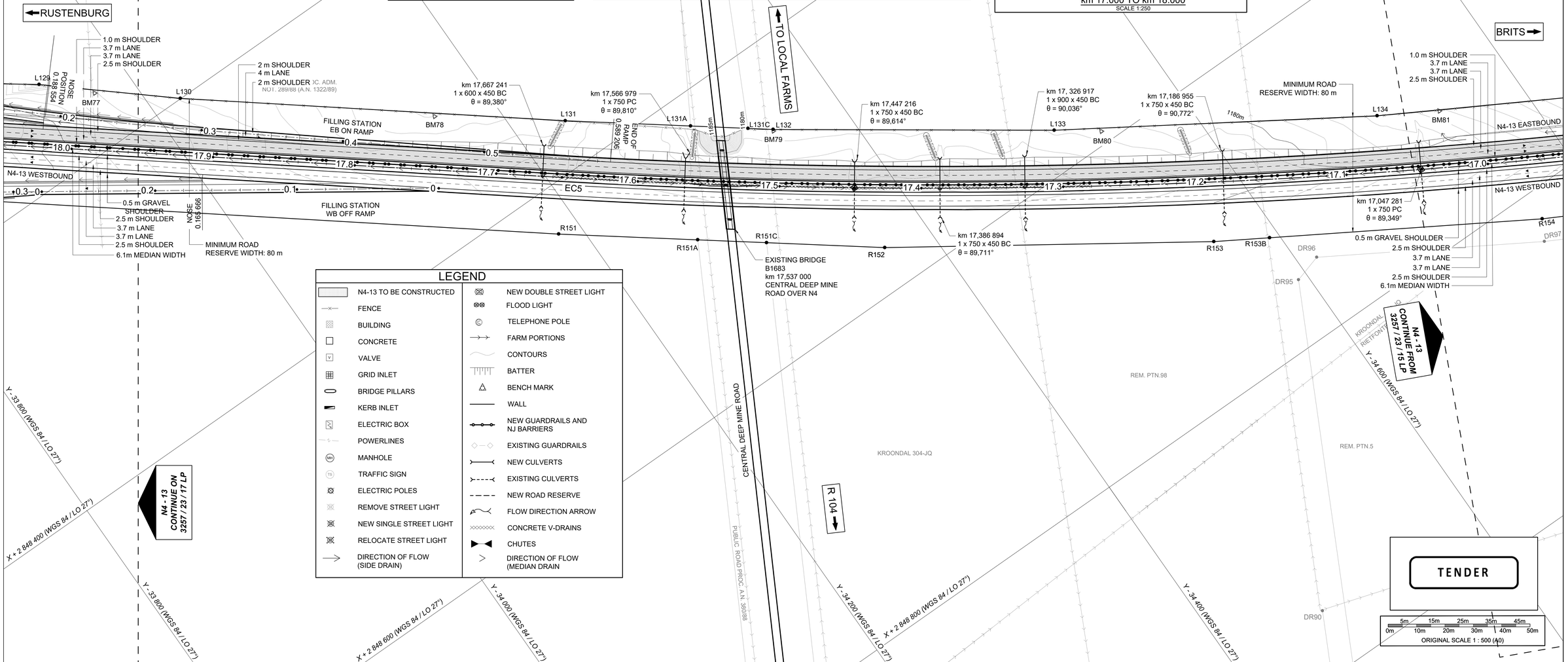
(WGS 84 \ LO 27°)

CURVE	DESCRIPTION	CURVE LENGTH	CURVE RADIUS	POINT	CHAINAGE DISTANCE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
5	RIGHT HAND CIRCULAR	4320.784 m	4500 m	BC 5	13 332.798	- 38 291.943	+ 2 849 180.174
				PI 5	-	- 36 047.354	+ 2 849 852.951
				EC 5	17 653.582	- 34 209.157	+ 2 848 399.734

POINT OF INTERSECTION 5 OUT OF DRAWING BOUNDS



TYPICAL CROSS SECTION N4 - 13
km 17.000 TO km 18.000
SCALE 1:250



LEGEND

N4-13 TO BE CONSTRUCTED	NEW DOUBLE STREET LIGHT
FENCE	FLOOD LIGHT
BUILDING	TELEPHONE POLE
CONCRETE	FARM PORTIONS
VALVE	CONTOURS
GRID INLET	BATTER
BRIDGE PILLARS	BENCH MARK
KERB INLET	WALL
ELECTRIC BOX	NEW GUARDRAILS AND NJ BARRIERS
POWERLINES	EXISTING GUARDRAILS
MANHOLE	NEW CULVERTS
TRAFFIC SIGN	EXISTING CULVERTS
ELECTRIC POLES	NEW ROAD RESERVE
REMOVE STREET LIGHT	FLOW DIRECTION ARROW
NEW SINGLE STREET LIGHT	CONCRETE V-DRAINS
RELOCATE STREET LIGHT	CHUTES
DIRECTION OF FLOW (SIDE DRAIN)	DIRECTION OF FLOW (MEDIAN DRAIN

No.	DATE	REVISION	
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE
			CONSULT. ENG.

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date :

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DESIGNED BY	
NAME	EF DAY
Prof. Reg. No.	20130622
CHECKED BY	
NAME	PL NGQUMSHE
Prof. Reg. No.	20080112
DRAWN BY	
NAME	WB HARTMANN

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17 / 07 / 2023

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THE SOUTH AFRICAN NATIONAL ROADS AGENCY SOC LTD
Reg. No. 1998/009584/30

NORTHERN REGION
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0040
Tel: (012) 426 6200

ACCEPTANCE
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for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION

The construction of the dual carriageway of the N4-13 between Buffelspoort N4-13 km 2.800 and the P16-2 Interchange N4-13 km 40.000

DRAWING DESCRIPTION

LAYOUT N4-13
FROM km 17.000 TO 18.000

SCALE : 1 : 1000 (A0) SHEET 16 OF 41

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	SECTION 13	SECTION 13
DRAWING km DISTANCE	km 17.000	km 18.000
DRAWING TYPE	ROADS - LAYOUTS	
BRIDGE/STRUCTURE No.	NA	
CONSULTANT DRAWING No.	FA 3257 / 23 / 16 LP	VER
SANRAL DOCUMENT #	- -	V0

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\02 - Layouts\3257-23-14-18LP-N4 Dual Carriageway Layouts km 15 to km 20_20230717.dwg

N4-13 GUARDRAILS			
SIDE	START CHAINAGE	END CHAINAGE	LENGTH
SOUTH	12.000 000	20.860 000	8860 m
GUARDRAIL LENGTHS EXCLUDE TERMINAL SECTIONS			

N4-13 GUARDRAILS			
SIDE	START CHAINAGE	END CHAINAGE	LENGTH
NORTH	18.732 000	18.842 000	0.110 000
GUARDRAIL LENGTHS EXCLUDE TERMINAL SECTIONS			

RUSTENBURG

BRITS

PI 6
R = 3000 m

1.0 m SHOULDER
3.7 m LANE
3.7 m LANE
2.5 m SHOULDER

N4-13 EASTBOUND

N4-13 WESTBOUND

km 19,027 015
1 x 600 x 450 BC
θ = 90,632°

0.5 m GRAVEL SHOULDER
2.5 m SHOULDER
3.7 m LANE
3.7 m LANE
2.5 m SHOULDER
6.1m MEDIAN WIDTH

MINIMUM ROAD
RESERVE WIDTH: 80 m

km 18,746 682
1 x 600 x 450 BC
θ = 90,625°

START OF RAMP 0.270 842

FILLING STATION EB OFF RAMP (RAMP A)

S4029 AGRICULTURAL UNDERPASS
km 18,787 000
1 x 2400 x 2400 BC
θ = 89,279°

km 18,566 448
1 x 750 x 450 BC
θ = 92,297°

NOSE 0.435 063

2.0 m SHOULDER
4.0 m LANE
2.0 m SHOULDER

FILLING STATION WB ON RAMP (RAMP C)

km 18,566 448
(km 0.254 261)
1 x 750 x 450 BC
θ = 92°
(Θ = 270°)

NOSE 0.178 629

km 0.175 000
1 x 600Ø PC
θ = 270°

km 18,327 176
1 x 900 x 450 BC
θ = 89,436°

EASTBOUND FILLING STATION

km 0.010 000
1 x 900 x 450 BC
θ = 270°

km 18,147 078
1 x 750 x 450 BC
θ = 90,254°

FILLING STATION EB ON RAMP (RAMP D)

km 0.060 000
1 x 600 x 450 BC
θ = 270°

NOSE POSITION 0.188 554

1.0 m SHOULDER
3.7 m LANE
3.7 m LANE
2.5 m SHOULDER

N4-13 WESTBOUND

0.5 m GRAVEL SHOULDER
2.5 m SHOULDER
3.7 m LANE
3.7 m LANE
2.5 m SHOULDER
6.1m MEDIAN WIDTH

FILLING STATION WB OFF RAMP (RAMP F)

WESTBOUND FILLING STATION

km 0.408 000
1 x 750 x 450 BC
θ = 274°

DESIGN SPEED 120 km/h	N4-13 NRA CENTER LINE CO-ORDINATES *(WGS 84 \ LO 27°)*		
CHAINAGE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
18 000.000	- 33 937.404	+ 2 848 184.895	
18 100.000	- 33 858.958	+ 2 848 122.878	
18 200.000	- 33 780.511	+ 2 848 060.860	
18 300.000	- 33 702.065	+ 2 847 998.843	
18 400.000	- 33 622.995	+ 2 847 937.628	
18 500.000	- 33 541.977	+ 2 847 879.017	
18 600.000	- 33 459.051	+ 2 847 823.140	
18 700.000	- 33 374.309	+ 2 847 770.057	
18 800.000	- 33 287.844	+ 2 847 719.827	
18 900.000	- 33 199.754	+ 2 847 672.507	
19 000.000	- 33 110.135	+ 2 847 628.150	

SHEET LAYLOUT
SCALE 1:100 000

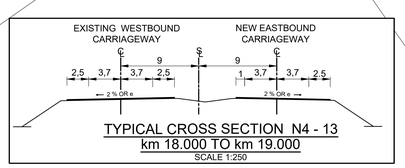
EXISTING ROAD RESERVE *(WGS 84 \ LO 27°)*		
DESCRIPTION	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
DL71	- 34 025.320	+ 2 848 060.280
DL72	- 34 092.720	+ 2 847 948.980
DL73	- 34 090.740	+ 2 847 942.680
DL74	- 33 718.520	+ 2 847 778.240
DL75	- 33 722.360	+ 2 847 772.800
DL76	- 33 724.590	+ 2 847 772.180
DL77	- 34 105.500	+ 2 847 940.450
DL78	- 34 106.090	+ 2 847 942.340
DL79	- 34 044.710	+ 2 848 043.710
DL80	- 34 047.968	+ 2 848 049.190
L124	- 33 250.030	+ 2 847 651.420
L125	- 33 408.600	+ 2 847 741.740
L126	- 33 569.790	+ 2 847 847.220
L127	- 33 709.650	+ 2 847 953.860
L128	- 33 863.770	+ 2 848 075.700
L129	- 33 944.700	+ 2 848 134.580
R146	- 33 123.680	+ 2 847 679.080
R147	- 33 280.820	+ 2 847 761.770
R148	- 33 432.720	+ 2 847 853.750
R149	- 33 578.830	+ 2 847 954.660
R150	- 33 660.040	+ 2 848 016.620

LEGEND

- N4-13 TO BE CONSTRUCTED
- FENCE
- BUILDING
- CONCRETE
- VALVE
- GRID INLET
- BRIDGE PILLARS
- KERB INLET
- ELECTRIC BOX
- POWERLINES
- MANHOLE
- TRAFFIC SIGN
- ELECTRIC POLES
- REMOVE STREET LIGHT
- NEW SINGLE STREET LIGHT
- RELOCATE STREET LIGHT
- DIRECTION OF FLOW (SIDE DRAIN)
- NEW DOUBLE STREET LIGHT
- FLOOD LIGHT
- TELEPHONE POLE
- FARM PORTIONS
- CONTOURS
- BATTER
- BENCH MARK
- WALL
- NEW GUARDRAILS AND NJ BARRIERS
- EXISTING GUARDRAILS
- NEW CULVERTS
- EXISTING CULVERTS
- NEW ROAD RESERVE
- FLOW DIRECTION ARROW
- CONCRETE V-DRAINS
- CHUTES
- DIRECTION OF FLOW (MEDIAN DRAIN)

N4-13 DUAL CARRIAGEWAY km 18 000.000 - km 19 000.000 *(WGS 84 \ LO 27°)*							
CURVE	DESCRIPTION	CURVE LENGTH	CURVE RADIUS	POINT	CHAINAGE DISTANCE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
6	LEFT HAND CIRCULAR	1298.876 m	3000 m	BC 6	18 321.940	- 33 684.853	+ 2 847 985.236
				PI 6	-	- 33 167.281	+ 2 847 576.061
				EC 6	19 620.816	- 32 525.793	+ 2 847 421.793

BENCH MARKS *(WGS 84 \ LO 27°)*			
STATION	Y CO-ORDINATES + 0.000	X CO-ORDINATES + 0.000	ELEVATION
BM77	- 33 973.268	+ 2 848 162.047	1 177.621
BM76	- 33 747.116	+ 2 847 984.334	1 170.914
BM75	- 33 508.502	+ 2 847 809.493	1 169.599
BM74	- 33 271.261	+ 2 847 664.533	1 166.665



TYPICAL CROSS SECTION N4 - 13
km 18.000 TO km 19.000
SCALE 1:250

TENDER

5m 10m 15m 20m 25m 30m 35m 40m 45m 50m
ORIGINAL SCALE 1 : 500 (A0)

CONTINUE ON N4 - 13 3257 / 23 / 17 LP

CONTINUE FROM N4 - 13 3257 / 23 / 16 LP

SANRAL DOCUMENT NUMBER :

No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date :

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DESIGNED BY
NAME: EF DAY
Prof. Reg. No. 20130622
CHECKED BY
NAME: PL NGQUMSHE
Prof. Reg. No. 20080112
DRAWN BY
NAME: WB HARTMNN

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17 / 07 / 2023

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THE SOUTH AFRICAN NATIONAL ROADS AGENCY SOC LTD
Reg. No. 1998/009584/30

NORTHERN REGION
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Tel: (012) 426 6200

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for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

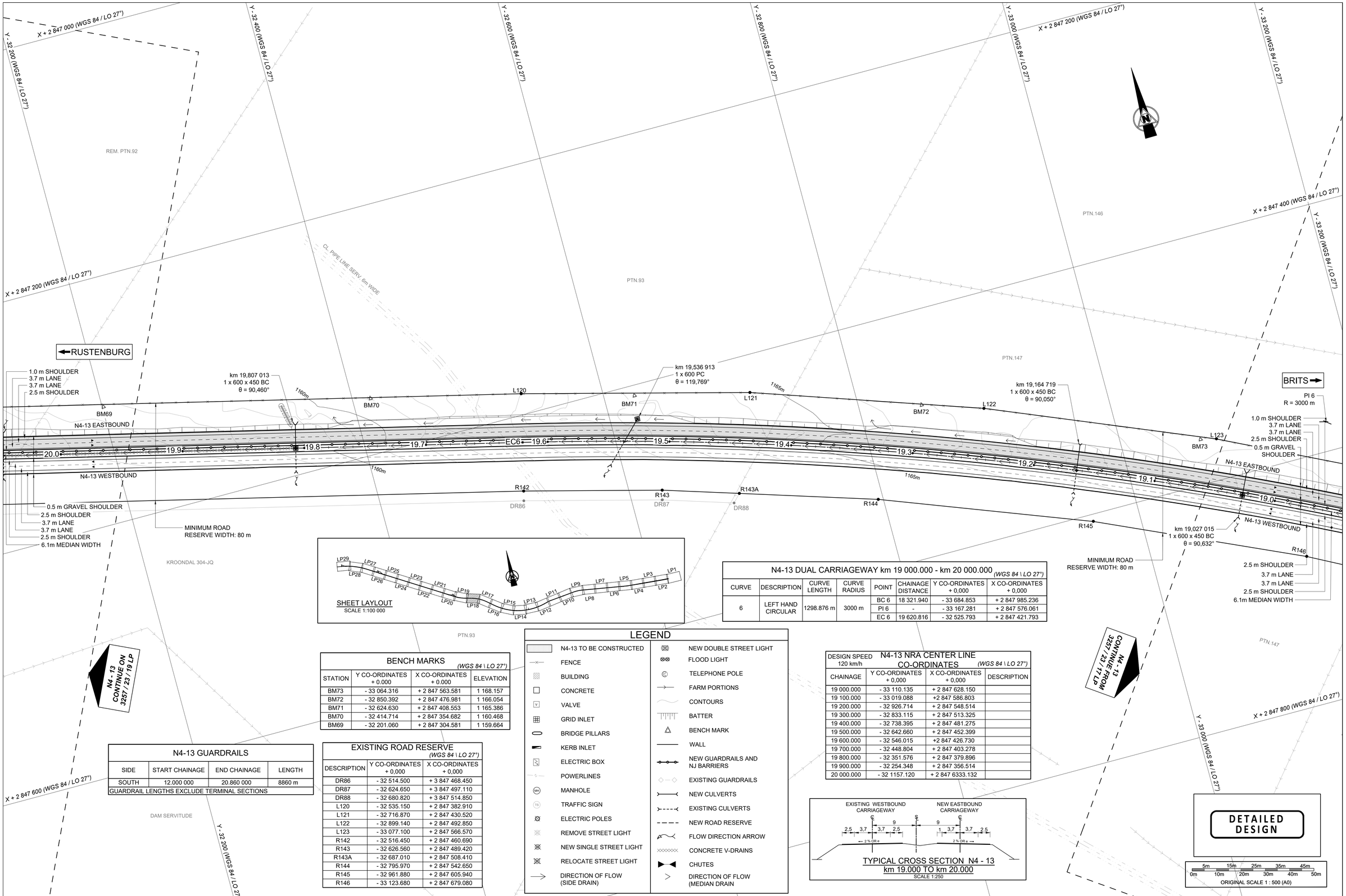
PROJECT DESCRIPTION
The construction of the dual carriageway of the N4-13 between Buffelspoort N4-13 km 2.800 and the P16-2 Interchange N4-13 km 40.000

DRAWING DESCRIPTION
LAYOUT N4-13
FROM km 18.000 TO 19.000

SCALE : 1 : 1000 (A0) SHEET 17 OF 41

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	SECTION 13	SECTION 13
DRAWING km DISTANCE	km 18.000	km 19.000
DRAWING TYPE	ROADS - LAYOUTS	
BRIDGE/STRUCTURE No.	NA	
CONSULTANT DRAWING No.	FA 3257 / 23 / 17 LP	VER
SANRAL DOCUMENT #	- -	V0

W:\Roads\3257 - N4 Dual Carriageway (PL)\ID3-Tender\03-Drawings\Volume 4-Roadworks\02 - Layouts\3257-23-14-18LP-N4 Dual Carriageway Layouts km 15 to km 20_20230717.dwg



SHEET LAYLOUT
SCALE 1:100 000

N4-13 DUAL CARRIAGEWAY km 19 000.000 - km 20 000.000 *(WGS 84 \ LO 27°)*

CURVE	DESCRIPTION	CURVE LENGTH	CURVE RADIUS	POINT	CHAINAGE DISTANCE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
6	LEFT HAND CIRCULAR	1298.876 m	3000 m	BC 6	18 321.940	- 33 684.853	+ 2 847 985.236
				PI 6	-	- 33 167.281	+ 2 847 576.061
				EC 6	19 620.816	- 32 525.793	+ 2 847 421.793

BENCH MARKS *(WGS 84 \ LO 27°)*

STATION	Y CO-ORDINATES + 0.000	X CO-ORDINATES + 0.000	ELEVATION
BM73	- 33 064.316	+ 2 847 563.581	1 168.157
BM72	- 32 850.392	+ 2 847 476.981	1 166.054
BM71	- 32 624.630	+ 2 847 408.553	1 165.386
BM70	- 32 414.714	+ 2 847 354.682	1 160.468
BM69	- 32 201.060	+ 2 847 304.581	1 159.664

LEGEND

N4-13 TO BE CONSTRUCTED	NEW DOUBLE STREET LIGHT
FENCE	FLOOD LIGHT
BUILDING	TELEPHONE POLE
CONCRETE	FARM PORTIONS
VALVE	CONTOURS
GRID INLET	BATTER
BRIDGE PILLARS	BENCH MARK
KERB INLET	WALL
ELECTRIC BOX	NEW GUARDRAILS AND NJ BARRIERS
POWERLINES	EXISTING GUARDRAILS
MANHOLE	NEW CULVERTS
TRAFFIC SIGN	EXISTING CULVERTS
ELECTRIC POLES	NEW ROAD RESERVE
REMOVE STREET LIGHT	FLOW DIRECTION ARROW
NEW SINGLE STREET LIGHT	CONCRETE V-DRAINS
RELOCATE STREET LIGHT	CHUTES
DIRECTION OF FLOW (SIDE DRAIN)	DIRECTION OF FLOW (MEDIAN DRAIN

N4-13 GUARDRAILS

SIDE	START CHAINAGE	END CHAINAGE	LENGTH
SOUTH	12.000 000	20.860 000	8860 m
GUARDRAIL LENGTHS EXCLUDE TERMINAL SECTIONS			

EXISTING ROAD RESERVE *(WGS 84 \ LO 27°)*

DESCRIPTION	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
DR86	- 32 514.500	+ 3 847 468.450
DR87	- 32 624.650	+ 3 847 497.110
DR88	- 32 680.820	+ 3 847 514.850
L120	- 32 535.150	+ 2 847 382.910
L121	- 32 716.870	+ 2 847 430.520
L122	- 32 899.140	+ 2 847 492.850
L123	- 33 077.100	+ 2 847 566.570
R142	- 32 516.450	+ 2 847 460.690
R143	- 32 626.560	+ 2 847 489.420
R143A	- 32 687.010	+ 2 847 508.410
R144	- 32 795.970	+ 2 847 542.650
R145	- 32 961.880	+ 2 847 605.940
R146	- 33 123.680	+ 2 847 679.080

DESIGN SPEED 120 km/h — N4-13 NRA CENTER LINE CO-ORDINATES *(WGS 84 \ LO 27°)*

CHAINAGE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
19 000.000	- 33 110.135	+ 2 847 628.150	
19 100.000	- 33 019.088	+2 847 586.803	
19 200.000	- 32 926.714	+ 2 847 548.514	
19 300.000	- 32 833.115	+ 2 847 513.325	
19 400.000	- 32 738.395	+ 2 847 481.275	
19 500.000	- 32 642.660	+ 2 847 452.399	
19 600.000	- 32 546.015	+2 847 426.730	
19 700.000	- 32 448.804	+ 2 847 403.278	
19 800.000	- 32 351.576	+ 2 847 379.896	
19 900.000	- 32 254.348	+ 2 847 356.514	
20 000.000	- 32 1157.120	+ 2 847 6333.132	

TYPICAL CROSS SECTION N4 - 13
km 19.000 TO km 20.000
SCALE 1:250

DETAILED DESIGN

5m 15m 25m 35m 45m
0m 10m 20m 30m 40m 50m
ORIGINAL SCALE 1 : 500 (A0)

No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date :

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DESIGNED BY
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Prof. Reg. No. : 20130622
CHECKED BY
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Prof. Reg. No. : 20080112
DRAWN BY
NAME : WB HARTMANN

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for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
The construction of the dual carriageway of the N4-13 between Buffelspoort N4-13 km 2.800 and the P16-2 Interchange N4-13 km 40.000

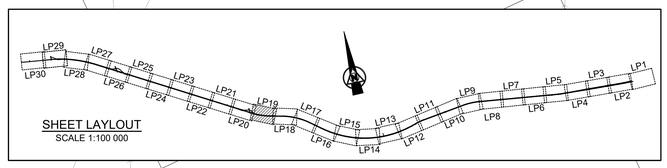
DRAWING DESCRIPTION
LAYOUT N4-13
FROM km 19.000 TO 20.000

SCALE : 1 : 1000 (A0) SHEET 18 OF 41

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	SECTION 13	SECTION 13
DRAWING km DISTANCE	km 19.000	km 20.000
DRAWING TYPE	ROADS - LAYOUTS	
BRIDGE/STRUCTURE No.	NA	
CONSULTANT DRAWING No.	FA 3257 / 23 / 18 LP	VER V0
SANRAL DOCUMENT #	- -	

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PL\N03-Tender\03-Drawings\Volume 4-Roadworks\02 - Layouts\3257-23-14-18LP-N4 Dual Carriageway Layouts km 15 to km 20_20230717.dwg



SHEET LAYLOUT
SCALE 1:100 000

LEGEND

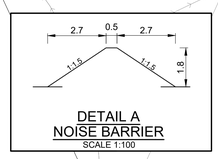
- N4-13 TO BE CONSTRUCTED
- FENCE
- BUILDING
- CONCRETE
- VALVE
- GRID INLET
- BRIDGE PILLARS
- KERB INLET
- ELECTRIC BOX
- POWERLINES
- MANHOLE
- TRAFFIC SIGN
- ELECTRIC POLES
- REMOVE STREET LIGHT
- NEW SINGLE STREET LIGHT
- RELOCATE STREET LIGHT
- NEW DOUBLE STREET LIGHT
- FLOOD LIGHT
- TELEPHONE POLE
- FARM PORTIONS
- CONTOURS
- BATTER
- BENCH MARK
- WALL
- NEW GUARDRAILS AND NJ BARRIERS
- EXISTING GUARDRAILS
- NEW CULVERTS
- EXISTING CULVERTS
- NEW ROAD RESERVE
- FLOW DIRECTION ARROW
- CONCRETE V-DRAINS
- CHUTES

N4-13 DUAL CARRIAGEWAY km 20 000.000 - km 21 000.000 *(WGS 84 \ LO 27°)*

CURVE	DESCRIPTION	CURVE LENGTH	CURVE RADIUS	POINT	CHAINAGE DISTANCE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
7	RIGHT HAND CIRCULAR	872.155 m	3000.00 m	BC 7	20 163.497	- 31 998.155	+ 2 847 294.904
				PI 7	-	- 31 571.154	+ 2 847 192.216
				EC 7	21 035.652	- 31 191.505	+ 2 846 971.442

EXISTING ROAD RESERVE *(WGS 84 \ LO 27°)*

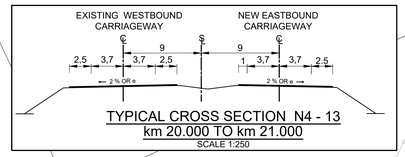
DESCRIPTION	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
DR70	- 31 486.030	+ 2 847 234.140
DR71	- 31 461.770	+ 2 847 235.260
DR72	- 31 239.390	+ 2 847 087.160
DR73	- 31 129.490	+ 2 847 164.150
DR74	- 31 229.560	+ 2 847 112.280
DR75	- 31 245.800	+ 2 847 113.160
DR76	- 31 473.970	+ 2 847 262.420
DR77	- 31 476.400	+ 2 847 262.300
DR78	- 31 532.720	+ 2 847 217.330
DR79	- 31 549.790	+ 2 847 214.880
DR80	- 31 555.080	+ 2 847 217.050
DR81	- 31 670.500	+ 2 847 257.700
DR82	- 31 844.810	+ 2 847 314.180
DR83	- 31 984.990	+ 2 847 349.340
DR84	- 32 074.710	+ 2 847 370.920
DR85	- 32 081.990	+ 2 847 364.440
L111	- 31 340.310	+ 2 846 968.030
L112	- 31 354.250	+ 2 846 941.470
L113	- 31 379.030	+ 2 846 954.480
L114	- 31 381.400	+ 2 846 994.790
L115	- 31 506.550	+ 2 847 073.860
L116	- 31 594.810	+ 2 847 117.690
L117	- 31 703.900	+ 2 847 163.450
L118	- 31 824.910	+ 2 847 205.880
L119	- 32 007.510	+ 2 847 256.020
R64	- 31 112.497	+ 2 847 181.563
R65	- 31 110.427	+ 2 847 183.443
R66	- 31 096.907	+ 2 847 188.692
R130	- 31 124.030	+ 2 847 148.960
R131	- 31 137.810	+ 2 847 141.820
R132	- 31 135.700	+ 2 847 137.750
R133	- 31 135.330	+ 2 847 134.960
R134	- 31 146.180	+ 2 847 084.990
R135	- 31 170.770	+ 2 847 069.100
R136	- 31 275.240	+ 2 847 092.000
R137	- 31 419.800	+ 2 847 144.360
R137A	- 31 537.900	+ 2 847 192.720
R138	- 31 560.770	+ 2 847 202.090
R139	- 31 675.630	+ 2 847 242.540
R140	- 31 849.220	+ 2 847 298.790



DETAIL A
NOISE BARRIER
SCALE 1:100

NOISE BARRIER *(WGS 84 \ LO 27°)*

STATION	Y CO-ORDINATES + 0.000	X CO-ORDINATES + 0.000
A	- 31 490.148	+ 2 847 075.093
B	- 31 492.772	+ 2 847 069.809
C	- 31 593.770	+ 2 847 119.965
D	- 31 591.314	+ 2 847 125.333
E	- 31 653.168	+ 2 847 144.881
F	- 31 650.886	+ 2 847 150.321



TYPICAL CROSS SECTION N4 - 13
km 20.000 TO km 21.000
SCALE 1:250

N4-13 GUARDRAILS

SIDE	START CHAINAGE	END CHAINAGE	LENGTH
SOUTH	12.000 000	20.860 000	8860 m
GUARDRAIL LENGTHS EXCLUDE TERMINAL SECTIONS			

BENCH MARKS *(WGS 84 \ LO 27°)*

STATION	Y CO-ORDINATES + 0.000	X CO-ORDINATES + 0.000	ELEVATION
BM65	- 31 200.799	+ 2 846 941.677	1 151.166
BM66	- 31 436.965	+ 2 847 023.327	1 150.946
BM67	- 31 703.083	+ 2 847 165.311	1 155.815
BM68	- 31 950.827	+ 2 847 241.242	1 157.019
BM69	- 32 201.060	+ 2 847304.581	1 159.664

N4-13 NRA CENTER LINE CO-ORDINATES *(WGS 84 \ LO 27°)*

DESIGN SPEED 120 km/h

CHAINAGE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
20 000.000	- 32 157.120	+ 2 847 333.132	
20 100.000	- 32 059.892	+ 2 847 309.750	
20 200.000	- 31 962.717	+ 2 847286.153	
20 300.000	- 31 866.208	+ 2 847 259.979	
20 400.000	- 31 770.625	+ 2 847 230.603	
20 500.000	- 31 676.074	+ 2 847 198.058	
20 600.000	- 31 582.660	+ 2 847 162.379	
20 700.000	- 31 490.487	+ 2 847 123.608	
20 800.000	- 31 399.658	+ 2 847 081.786	
20 900.000	- 31 310.272	+ 2 847 036.960	
21 000.000	- 31 222.431	+ 2 846 989.180	

R104 (P2-4) KROONDAL EASTBOUND ON RAMP GUARDRAILS

SIDE	START CHAINAGE	END CHAINAGE	LENGTH	TYPE A SIDE DRAIN AT GUARDRAIL		
				START CHAINAGE	END CHAINAGE	DOWNPIPE CHAINAGE
NORTH	0.000 000	0.362 000	0.362 000	NONE	NONE	NONE
SOUTH	0.010 000	0.215 000	0.205 000	0.010 000	0.180 000	0.100 000 0.180 000
GUARDRAIL LENGTHS EXCLUDE TERMINAL SECTIONS						

N4-13 R104 (P2 - 4) KROONDAL INTERSECTION ON RAMP EASTBOUND CENTER LINE CO-ORDINATES *(WGS 84 \ LO 27°)*

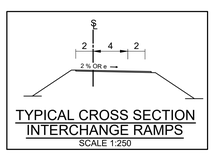
DESIGN SPEED 60 km/h

CHAINAGE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
0.000	- 31 103.682	+ 2 846 804.735	
100.000	- 31 188.592	+ 2 846 856.771	
200.000	- 31 250.404	+ 2 846 935.052	
300.000	- 31 317.880	+ 2 847 008.265	
400.000	- 31 404.523	+ 2 847 057.721	
500.000	- 31 494.372	+ 2 847 101.620	
600.000	- 31 585.274	+ 2 847 143.272	
700.000	- 31 677.899	+ 2 847 780.951	
800.000	- 31 771.736	+ 2 847 215.500	
900.000	- 31 866.677	+ 2 847 246.890	
900.101	- 31 866.773	+ 2 847 246.920	

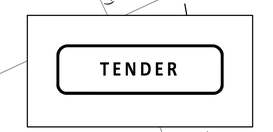
R 104 (P2-4) KROONDAL ON RAMP - EASTBOUND km 0.000 - km 00 900.101 *(WGS 84 \ LO 27°)*

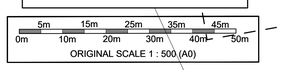
DESIGN SPEED 60 km/h

CURVE	DESCRIPTION	CURVE LENGTH	CURVE RADIUS	POINT	CHAINAGE DISTANCE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
1 B	RIGHT HAND CIRCULAR	113.800 m	230.000 m	START	0.000	- 31 103.682	+ 2 846 804.735
				BC 1B	37.157	- 31 136.910	+ 2 846 821.365
				PI 1B	-	- 31 188.857	+ 2 846 847.363
				EC 1B	150.957	- 31 222.229	+ 2 846 894.910
2 B	LEFT HAND CIRCULAR	151.302 m	300.000 m	BC 2B	210.781	- 31 256.598	+ 2 846 943.876
				PI 2B	-	- 31 301.004	+ 2 847 007.144
				EC 2B	362.083	- 31 370.454	+ 2 847 041.076
3 B	LEFT HAND CIRCULAR	109.714 m	2000.000 m	BC 3B	500.391	- 31 494.724	+ 2 847 101.791
				PI 3B	-	- 31 544.025	+ 2 847 125.879
				EC 3B	610.105	- 31 594.573	+ 2 847 147.227
4 B	LEFT HAND CIRCULAR	289.982 m	2987.300 m	BC 3B	610.105	- 31 594.573	+ 2 847 147.227
				PI 3B	-	- 31 728.248	+ 2 847 203.683
				EC 3B	900.087	- 31 866.760	+ 2 847 246.916
				END	900.101	- 31 866.773	+ 2 847 246.920



TYPICAL CROSS SECTION
INTERCHANGE RAMPS
SCALE 1:250





ORIGINAL SCALE 1 : 500 (A0)

No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date :

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Prof. Reg. No.	20130622
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Prof. Reg. No.	20080112
DRAWN BY	
NAME	WB HARTMANN

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17 / 07 / 2023

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THE SOUTH AFRICAN NATIONAL ROADS AGENCY SOC LTD
Reg. No. 1998/009584/30

NORTHERN REGION
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Private Bag X17
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ACCEPTANCE
THIS ACCEPTANCE IS FOR PROCEDURAL AND ADMINISTRATIVE REVIEW PURPOSES ONLY AND DOES NOT ATTRACT LEGAL LIABILITY OR LIABILITY OF ANY KIND FROM WHATSOEVER CAUSE OR HOWEVER ARISING
for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
The construction of the dual carriageway of the N4-13 between Buffelspoort N4-13 km 2.800 and the P16-2 Interchange N4-13 km 40.000

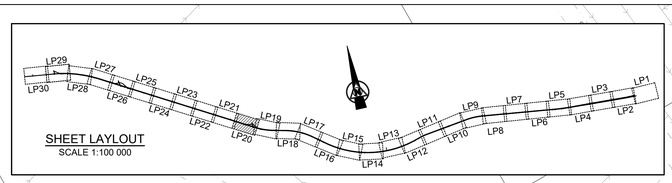
DRAWING DESCRIPTION
LAYOUT N4-13
FROM km 20.000 TO 21.000

SCALE : 1 : 1000 (A0) SHEET 19 OF 41

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001		
DRAWING LOCATION DATA	START	END	
ROUTE	N 4	N 4	
SECTION	SECTION 13	SECTION 13	
DRAWING km DISTANCE	km 20.000	km 21.000	
DRAWING TYPE	ROADS - LAYOUTS		
BRIDGE/STRUCTURE No.	NA		
CONSULTANT DRAWING No.	FA	3257 / 23 / 19 LP	VER
SANRAL DOCUMENT #	- -		V0

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PA,N)\03-Tender\03-Drawings\Volume 4-Roadworks\02 - Layouts\3257-23-19-23lp-N4 Dual Carriageway Layouts km 20 to km 25, 20230717.dwg



SHEET LAYLOUT
SCALE 1:100 000

N4-13 DUAL CARRIAGEWAY km 21 000.000 - km 22 000.000 *(WGS 84 \ LO 27°)*

CURVE	DESCRIPTION	CURVE LENGTH	CURVE RADIUS	POINT	CHAINAGE DISTANCE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
7	RIGHT HAND CIRCULAR	872.155 m	3000.00 m	BC 7	20 163.497	- 31 998.155	+ 2 847 294.904
				PI 7	-	- 31 571.154	+ 2 847 192.216
				EC 7	21 035.652	- 31 191.505	+ 2 846 971.442
POINT OF INTERSECTION OUT OF DRAWING BOUNDS							

EXISTING ROAD RESERVE *(WGS 84 \ LO 27°)*

DESCRIPTION	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
DR73	- 31 129.490	+ 2 847 164.150	R112	- 30 685.460	+ 2 846 943.220
DR202	- 31 050.550	+ 2 847 083.165	R113	- 30 743.270	+ 2 846 843.820
L60	- 30 888.040	+ 2 846 528.830	R114	- 30 749.400	+ 2 846 850.360
L61	- 30 898.710	+ 2 846 527.690	R115	- 30 836.030	+ 2 846 843.670
L63	- 30 913.270	+ 2 846 614.020	R116	- 30 838.670	+ 2 846 844.530
L89	- 30 482.360	+ 2 846 377.440	R116X	- 30 852.880	+ 2 846 856.664
L90	- 30 518.150	+ 2 846 435.260	R117	- 31 032.080	+ 2 847 009.680
L91	- 30 604.090	+ 2 846 486.400	R117X	- 31 047.090	+ 2 847 038.180
L92	- 30 664.890	+ 2 846 580.760	R118	- 31 041.700	+ 2 847 006.950
L93	- 30 777.170	+ 2 846 626.380	R119	- 31 096.080	+ 2 847 012.620
L94	- 30 839.680	+ 2 846 639.260	R120	- 31 096.390	+ 2 847 009.340
L95	- 30 889.680	+ 2 846 629.210	R121	- 31 085.550	+ 2 846 963.390
L96	- 30 950.579	+ 2 846 659.895	R122	- 31 085.360	+ 2 846 960.440
L97	- 31 029.080	+ 2 846 756.360	R123	- 31 087.070	+ 2 846 943.620
L98	- 31 030.970	+ 2 846 758.690	R124	- 31 088.720	+ 2 846 942.080
L99	- 31 050.870	+ 2 846 783.100	R125	- 31 100.560	+ 2 846 941.670
L100	- 31 053.260	+ 2 846 783.860	R126	- 31 101.720	+ 2 846 940.160
L101	- 31 064.100	+ 2 846 780.850	R130	- 31 124.030	+ 2 847 148.960
L102	- 31 065.870	+ 2 846 781.910	R131	- 31 137.810	+ 2 847 141.820
L108	- 30 962.430	+ 2 846 665.880	R132	- 31135.700	+ 2 847 137.750
L109	- 31 047.870	+ 2 846 717.870	R133	- 31 135.330	+ 2 847 134.960
L110	- 31 193.010	+ 2 846 830.030	R134	- 31 146.180	+ 2 847 084.990
L232	- 31 150.652	+ 2 846 797.297	R135	- 31 170.770	+ 2 847 069.100
R60	- 31 092.210	+ 2 847 023.380	R107	- 30 345.740	+ 2 846 532.820
R61	- 31 092.250	+ 2 847 026.180	R108	- 30 598.030	+ 2 846 695.730
R64	- 31 112.497	+ 2 847 181.563	R109	- 30 537.710	+ 2 846 799.460
R65	- 31 110.427	+ 2 847 183.443	R110	- 30 624.150	+ 2 846 849.730
R66	- 31 096.907	+ 2 847 188.692	R111	- 30 634.591	+ 2 846 913.063

DESIGN SPEED 120km/h

N4-13 NRA CENTER LINE CO-ORDINATES *(WGS 84 \ LO 27°)*

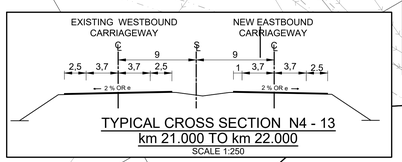
CHAINAGE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
21 000.000	- 31 222.431	+ 2 846 989.180	
21 100.000	- 31 135.879	+ 2 846 939.094	
21 200.000	- 31 049.433	+ 2 846 888.823	
21 300.000	- 30 962.987	+ 2 846 838.553	
21 400.000	- 30 876.541	+ 2 846 788.283	
21 500.000	- 30 790.095	+ 2 846 738.013	
21 600.000	- 30 703.649	+ 2 846 687.742	
21 700.000	- 30 617.203	+ 2 846 637.472	
21 800.000	- 30 530.757	+ 2 846 587.202	
21 900.000	- 30 444.311	+ 2 846 536.932	
22 000.000	- 30 357.865	+ 2 846 486.661	

N4-13 GUARDRAILS

SIDE	START CHAINAGE	END CHAINAGE	LENGTH	TYPE A SIDE DRAIN AT GUARDRAIL: START CHAINAGE	END CHAINAGE	DOWNPIPE CHAINAGE
NORTH	21.820 000	22.500 000	0.680 000	21.820 000	22.500 000	21.800 000
						21.900 000
						22.000 000
						22.100 000
						22.200 000
						22.300 000
GUARDRAIL LENGTHS EXCLUDE TERMINAL SECTIONS						22.400 000

BENCH MARKS *(WGS 84 \ LO 27°)*

STATION	Y CO-ORDINATES + 0.000	X CO-ORDINATES + 0.000	ELEVATION
BM63	- 30 646.996	+ 2 846 610.405	1 146.813
BM64	- 30 902.323	+ 2 846 780.573	1 147.960
BM65	- 30 200.799	+ 2 846 941.677	1 151.166



TYPICAL CROSS SECTION N4 - 13
km 21.000 TO km 22.000
SCALE 1:250

R104 (P2-4) KROONDAL ON RAMP - EASTBOUND km 0.000 - km 00 900.101 *(WGS 84 \ LO 27°)*

CURVE	DESCRIPTION	CURVE LENGTH	CURVE RADIUS	POINT	CHAINAGE DISTANCE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
				START	0.000	- 31 103.682	+ 2 846 804.735
1 B	RIGHT HAND CIRCULAR	113.800 m	230.000 m	BC 1B	37.157	- 31 136.910	+ 2 846 821.365
				PI 1B	-	- 31 188.857	+ 2 846 847.363
				EC 1B	150.957	- 31 222.229	+ 2 846 894.910
2 B	LEFT HAND CIRCULAR	151.302 m	300.000 m	BC 2B	210.781	- 31 256.598	+ 2 846 943.876
				PI 2B	-	- 31 301.004	+ 2 847 007.144
				EC 2B	362.083	- 31 370.454	+ 2 847 041.076
3 B	LEFT HAND CIRCULAR	109.714 m	2000.000 m	BC 3B	500.391	- 31 494.724	+ 2 847 101.791
				PI 3B	-	- 31 544.025	+ 2 847 125.879
				EC 3B	610.105	- 31 594.573	+ 2 847 147.227
4 B	LEFT HAND CIRCULAR	289.982 m	2987.300 m	BC 4B	610.105	- 31 594.573	+ 2 847 147.227
				PI 4B	-	- 31 728.248	+ 2 847 203.683
				EC 4B	900.087	- 31 866.760	+ 2 847 246.916
				END	900.101	- 31 866.773	+ 2 847 246.920
POINT OF INTERSECTION (PI 2B), (PI 3B) & (PI 4B) OUT OF DRAWING BOUNDS							

N4-13 KROONDAL INTERSECTION ON RAMP EASTBOUND CENTER LINE CO-ORDINATES *(WGS 84 \ LO 27°)*

DESIGN SPEED 60 km/h

CHAINAGE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
0.000	- 31 103.682	+ 2 846 804.735	
100.000	- 31 188.592	+ 2 846 856.771	
200.000	- 31 250.404	+ 2 846 935.052	
300.000	- 31 317.880	+ 2 847 008.265	
400.000	- 31 404.523	+ 2 847 057.721	
500.000	- 31 494.372	+ 2 847 101.620	
600.000	- 31 585.274	+ 2 847 143.272	
700.000	- 31 677.899	+ 2 847 780.951	
800.000	- 31 771.736	+ 2 847 215.500	
900.000	- 31 866.677	+ 2 847 246.890	
900.101	- 31 866.773	+ 2 847 246.920	

N4-13 R104 (P2-4) KROONDAL INTERCHANGE EASTBOUND OFF RAMP CENTER LINE CO-ORDINATES *(WGS 84 \ LO 27°)*

DESIGN SPEED 60 km/h

CHAINAGE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
0.000	- 30 523.105	+ 2 846 568.061	
100.000	- 30 611.352	+ 2 846 615.097	
200.000	- 30 699.600	+ 2 846 662.133	
300.000	- 30 9787.847	+ 2 846 709.170	
400.000	- 30 877.082	+ 2 846 754.154	
500.000	- 30 974.017	+ 2 846 778.149	
600.000	- 31 071.979	+ 2 846 798.235	
632.363	- 31 103.682	+ 2 846 804.735	

R104 (P2-4) KROONDAL EASTBOUND OFF GUARDRAILS

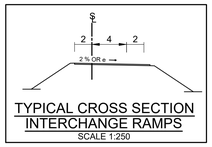
START TERMINAL SECTION (KM)	LENGTH OF TERMINAL SECTION (EXIT)(m)	START FULL GUARDRAIL (KM)	GUARDRAIL LENGTH(m)	END FULL GUARDRAIL (KM)	LENGTH OF TERMINAL SECTION (APPROACH) (m)	END TERMINAL SECTION (KM)
0.000 000	32.385	0.025 000	PARAPET B1640B NORTH - CONTINUES FROM N4-13			
PARAPET B1640B NORTH				0.080 000	17.145	0.097 145

N4-13 R104 (P2-4) KROONDAL INTERCHANGE EASTBOUND OFF RAMP km 0.000 TO km 0.632 *(WGS 84 \ LO 27°)*

CURVE	DESCRIPTION	CURVE LENGTH	CURVE RADIUS	POINT	CHAINAGE DISTANCE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
				START	0.000	- 30 523.105	+ 2 846 568.061
1A	LEFT HAND CIRCULAR	86.242 m	300.00 m	BC 1A	363.028	- 30 843.468	+ 2 846 738.816
				PI 1A	-	- 30 881.785	+ 2 846 759.239
				EC 1A	449.270	- 30 924.320	+ 2 846 767.960
				END	632.363	- 31 103.682	+ 2 846 804.735

N4-13 GUARDRAILS

START TERMINAL SECTION (KM)	LENGTH OF TERMINAL SECTION (EXIT)(m)	START FULL GUARDRAIL (KM)	GUARDRAIL LENGTH(m)	END FULL GUARDRAIL (KM)	LENGTH OF TERMINAL SECTION (APPROACH) (m)	END TERMINAL SECTION (KM)
21.723 000	32.385	21.755 385	PARAPET B1640B SOUTH			
PARAPET B1640B SOUTH				21.790 000	17.145	21.807 145



TYPICAL CROSS SECTION
INTERCHANGE RAMPS
SCALE 1:250

LEGEND

- N4-13 TO BE CONSTRUCTED
- FENCE
- BUILDING
- CONCRETE
- VALVE
- GRID INLET
- BRIDGE PILLARS
- KERB INLET
- ELECTRIC BOX
- POWERLINES
- MANHOLE
- TRAFFIC SIGN
- ELECTRIC POLES
- REMOVE STREET LIGHT
- NEW SINGLE STREET LIGHT
- RELOCATE STREET LIGHT
- NEW DOUBLE STREET LIGHT
- FLOOD LIGHT
- TELEPHONE POLE
- FARM PORTIONS
- CONTOURS
- BATTER
- BENCH MARK
- WALL
- NEW GUARDRAILS AND NJ BARRIERS
- EXISTING GUARDRAILS
- NEW CULVERTS
- EXISTING CULVERTS
- NEW ROAD RESERVE
- FLOW DIRECTION ARROW
- CONCRETE V-DRAINS
- CHUTES

TENDER

0m 5m 10m 15m 20m 25m 30m 35m 40m 45m 50m
ORIGINAL SCALE 1 : 500 (A0)

No.	DATE	REVISION	
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date :

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DESIGNED BY
NAME: EF DAY
Prof. Reg. No.: 20130622
CHECKED BY
NAME: PL NGQUMSHE
Prof. Reg. No.: 20080112
DRAWN BY
NAME: M. GROBLER

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17 / 07 / 2023

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THE SOUTH AFRICAN NATIONAL ROADS AGENCY SOC LTD
Reg. No. 1998/009584/30

NORTHERN REGION
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Tel: (012) 426 6200

ACCEPTANCE
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for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
The construction of the dual carriageway of the N4-13 between Buffelspoort N4-13 km 2.800 and the P16-2 Interchange N4-13 km 40.000

DRAWING DESCRIPTION
LAYOUT N4-13
FROM km 21.000 TO 22.000

SCALE : 1 : 1000 (A0) | SHEET 20 OF 41

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	SECTION 13	SECTION 13
DRAWING km DISTANCE	km 21.000	km 22.000
DRAWING TYPE	ROADS - LAYOUTS	
BRIDGE/STRUCTURE No.	NA	
CONSULTANT DRAWING No.	FA 3257 / 20 / LP	VER V0
SANRAL DOCUMENT #	- -	

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\02 - Layouts\3257-23-19-23lp-N4 Dual Carriageway Layouts km 20 to km 25, 20230717.dwg

DESIGN SPEED 120 km/h	N4-13 NRA CENTER LINE CO-ORDINATES		(WGS 84 \ LO 27°)
CHAINAGE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
22 000.000	- 30 357.865	+ 2 846 486.661	
22 100.000	- 30 271.419	+ 2 846 436.391	
22 200.000	- 30 184.973	+ 2 846 386.121	
22 300.000	- 30 098.527	+ 2 846 335.851	
22 400.000	- 30 012.081	+ 2 846 285.580	
22 500.000	- 29 925.635	+ 2 846 235.310	
22 600.000	- 29 839.189	+ 2 846 185.040	
22 700.000	- 29 752.743	+ 2 846 134.770	
22 800.000	- 29 666.298	+ 2 846 084.499	
22 900.000	- 29 579.852	+ 2 846 034.229	
23 000.000	- 29 493.406	+ 2 846 983.959	

LEGEND

- N4-13 TO BE CONSTRUCTED
- FENCE
- BUILDING
- CONCRETE
- VALVE
- GRID INLET
- BRIDGE PILLARS
- KERB INLET
- ELECTRIC BOX
- POWERLINES
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- TRAFFIC SIGN
- ELECTRIC POLES
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- EXISTING CULVERTS
- NEW ROAD RESERVE
- FLOW DIRECTION ARROW
- CONCRETE V-DRAINS
- CHUTES

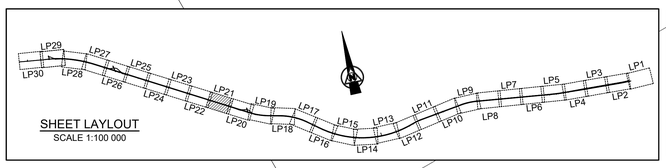
BENCH MARKS			(WGS 84 \ LO 27°)
STATION	Y CO-ORDINATES + 0.000	X CO-ORDINATES + 0.000	ELEVATION
BM59	- 29 648.628	+ 2 846 029.310	1 153.231
BM60	- 29 878.433	+ 2 846 163.415	1 152.755
BM61	- 30 109.345	+ 2 846 296.805	1 147.817
BM62	- 30 339.237	+ 2 846 423.693	1 146.100

N4-13 GUARDRAILS						
SIDE	START CHAINAGE	END CHAINAGE	LENGTH	TYPE A SIDE DRAIN AT GUARDRAIL		
				START CHAINAGE	END CHAINAGE	DOWNPIPE CHAINAGE
NORTH	21.820 000	22.500 000	0.680 000	21.820 000	22.500 000	21.800 000 21.900 000 22.000 000 22.100 000 22.200 000 22.300 000 22.400 000

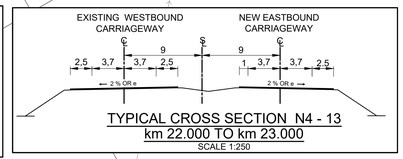
GUARDRAIL LENGTHS EXCLUDE TERMINAL SECTIONS

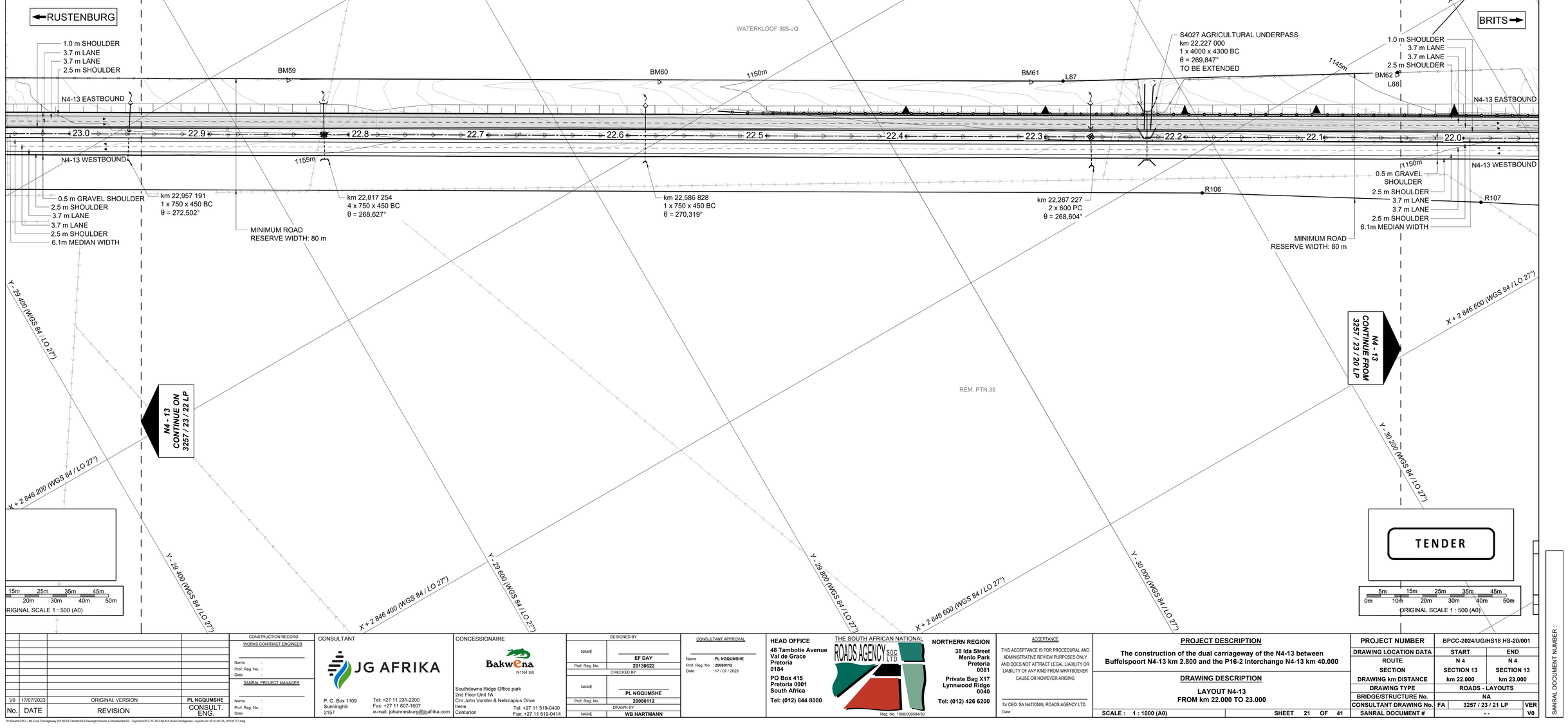
EXISTING ROAD RESERVE		(WGS 84 \ LO 27°)
DESCRIPTION	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
L87	- 30 129.630	+ 2 846 307.660
L88	- 30 340.620	+ 2 846 422.260
L89	- 30 482.360	+ 2 846 377.440
R106	- 30 175.860	+ 2 846 427.080
R107	- 30 345.740	+ 2 846 532.820

SHEET LAYLOUT
SCALE 1:100 000



TYPICAL CROSS SECTION N4 - 13
km 22.000 TO km 23.000
SCALE 1:250





No.	DATE	REVISION	
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSULTANT. ENG.

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date :

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DESIGNED BY	
NAME	EF DAY
Prof. Reg. No.	20130622
CHECKED BY	
NAME	PL NGQUMSHE
Prof. Reg. No.	20080112
DRAWN BY	
NAME	WB HARTMANN

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17 / 07 / 2023

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for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
The construction of the dual carriageway of the N4-13 between Buffelspoort N4-13 km 2.800 and the P16-2 Interchange N4-13 km 40.000

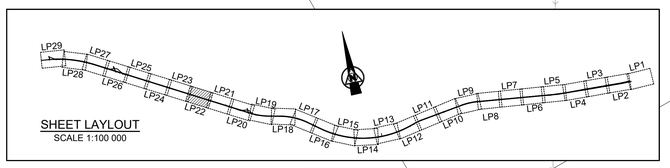
DRAWING DESCRIPTION
LAYOUT N4-13
FROM km 22.000 TO 23.000

SCALE : 1 : 1000 (A0) | SHEET 21 OF 41

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	SECTION 13	SECTION 13
DRAWING km DISTANCE	km 22.000	km 23.000
DRAWING TYPE	ROADS - LAYOUTS	
BRIDGE/STRUCTURE No.	NA	
CONSULTANT DRAWING No.	FA 3257 / 23 / 21 LP	VER
SANRAL DOCUMENT #	- -	V0

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\02 - Layouts\3257-23-19-23lp-N4 Dual Carriageway Layouts km 20 to km 25_20230717.dwg



SHEET LAYLOUT
SCALE 1:100 000

EXISTING ROAD RESERVE

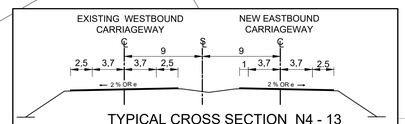
(WGS 84 \ LO 27°)

DESCRIPTION	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
L51	- 29 285.820	+ 2 845 746.800
L53	- 29 188.880	+ 2 845 921.730
L54	- 29 107.160	+ 2 846 051.180
L55	- 29 082.230	+ 2 846 090.680
L85	- 29 201.090	+ 2 845 767.680
L86	- 29 256.420	+ 2 845 799.850
R51	- 29 229.840	+ 2 845 715.770
R53	- 29 113.510	+ 2 845 925.690
R54	- 29 064.120	+ 2 846 027.330
R104	- 29 162.270	+ 2 845 837.690
R105	- 29 217.630	+ 2 845 869.840

BENCH MARKS

(WGS 84 \ LO 27°)

STATION	Y CO-ORDINATES + 0.000	X CO-ORDINATES + 0.000	ELEVATION
BM55	- 28 745.962	+ 2 845 504.054	1 160.515
BM56	- 28 974.655	+ 2 845 636.752	1 158.950
BM57	- 29 189.690	+ 2 845 762.131	1 157.323
BM58	- 29 411.718	+ 2 845 892.083	1 156.377



TYPICAL CROSS SECTION N4 - 13
km 23.000 TO km 24.000
SCALE 1:250

LEGEND

- N4-13 TO BE CONSTRUCTED
- FENCE
- BUILDING
- CONCRETE
- VALVE
- GRID INLET
- BRIDGE PILLARS
- KERB INLET
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- EXISTING CULVERTS
- NEW ROAD RESERVE
- FLOW DIRECTION ARROW
- CONCRETE V-DRAINS
- CHUTES

N4-13 NRA CENTER LINE CO-ORDINATES

DESIGN SPEED 120 km/h — *(WGS 84 \ LO 27°)*

CHAINAGE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
23 000.000	- 29 493.406	+ 2 845 983.959	
23 100.000	- 29 406.960	+ 2 845 933.689	
23 200.000	- 29 320.514	+ 2 845 883.418	
23 300.000	- 29 234.068	+ 2 845 833.148	
23 400.000	- 29 147.622	+ 2 845 782.878	
23 500.000	- 29 061.176	+ 2 845 732.608	
23 600.000	- 28 974.730	+ 2 845 682.337	
23 700.000	- 28 888.284	+ 2 845 632.067	
23 800.000	- 28 801.838	+ 2 845 581.797	
23 900.000	- 28 715.392	+ 2 845 531.527	
24 000.000	- 28 628.946	+ 2 845 481.256	

RUSTENBURG
BRITS
WATERKLOOF
OLIFANTS NEK
ROAD D1641
ROAD D1641 PROC. ADMIN. NOT: 1068/68

X + 2 845 200 (WGS 84 / LO 27°)
Y - 28 800 (WGS 84 / LO 27°)
X + 2 845 400 (WGS 84 / LO 27°)
X + 2 845 600 (WGS 84 / LO 27°)
Y - 29 400 (WGS 84 / LO 27°)
Y - 29 600 (WGS 84 / LO 27°)
X + 2 846 200 (WGS 84 / LO 27°)
Y - 29 400 (WGS 84 / LO 27°)
X + 2 845 800 (WGS 84 / LO 27°)
Y - 28 600 (WGS 84 / LO 27°)
X + 2 846 000 (WGS 84 / LO 27°)
Y - 29 000 (WGS 84 / LO 27°)

1.0 m SHOULDER
3.7 m LANE
3.7 m LANE
2.5 m SHOULDER
0.5 m GRAVEL SHOULDER
N4-13 EASTBOUND
N4-13 WESTBOUND
2.5 m SHOULDER
3.7 m LANE
3.7 m LANE
2.5 m SHOULDER
6.1m MEDIAN WIDTH

BM55 BM56 BM57 BM58
1160m 1160m 1155m
L85 L86
R51 L51
R105 R104
L53 R53
L54 R54
L55
24.0 23.9 23.8 23.7 23.6 23.5 23.4 23.3 23.2 23.1 23.0

km 23,807 198
1 x 900 x 450 BC
θ = 305,333°

km 23,586 955
1 x 900 x 450 BC
θ = 301,211°

km 23,386 648
2 x 600 x 450 BC
θ = 296,573°

km 22,957 191
1 x 750 x 450 BC
θ = 272,502°

MINIMUM ROAD RESERVE WIDTH: 80 m
MINIMUM ROAD RESERVE WIDTH: 80 m
SERVITUDE 407/1928S
EXISTING BRIDGE B1641
km 23,335 000
ROAD D1641 OVER N4

PTN.208
PTN.206
PTN.207
PTN.177
PTN.285
PTN.260
PTN.101
PTN.261

N4 - 13
CONTINUE ON
3257 / 13 / 23 LP

N4 - 13
CONTINUE FROM
3257 / 13 / 21 LP

TENDER

5m 15m 25m 35m 45m
0m 10m 20m 30m 40m 50m
ORIGINAL SCALE 1 : 500 (A0)

SANRAL DOCUMENT NUMBER :

No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date

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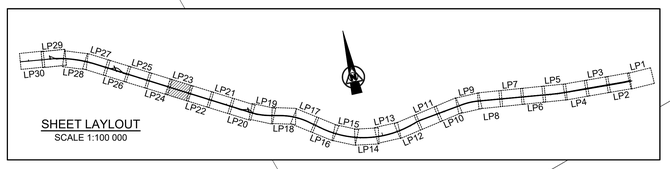
The construction of the dual carriageway of the N4-13 between Buffelspoort N4-13 km 2.800 and the P16-2 Interchange N4-13 km 40.000

DRAWING DESCRIPTION
LAYOUT N4-13
FROM km 23.000 TO 24.000

SCALE : 1 : 1000 (A0) SHEET 22 OF 41

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	SECTION 13	SECTION 13
DRAWING km DISTANCE	km 23.000	km 24.000
DRAWING TYPE	ROADS - LAYOUTS	
BRIDGE/STRUCTURE No.	NA	
CONSULTANT DRAWING No.	FA 3257 / 23 / 22 LP	VER V0
SANRAL DOCUMENT #	- -	

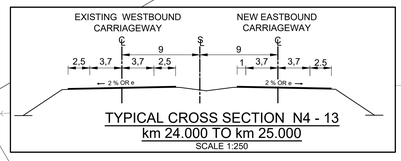
W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\02 - Layouts\3257-23-19-23lp-N4 Dual Carriageway Layouts km 20 to km 25_20230717.dwg



SHEET LAYLOUT
SCALE 1:100 000

BENCH MARKS
(WGS 84 \ LO 27°)

STATION	Y CO-ORDINATES + 0.000	X CO-ORDINATES + 0.000	ELEVATION
BM51	- 27 904.535	+ 2 845 014.374	1 159.816
BM52	- 28 123.661	+ 2 845 143.420	1 160.155
BM53	- 28 322.349	+ 2 845 257.248	1 159.941
BM54	- 28 525.152	+ 2 845 376.688	1 162.099



TYPICAL CROSS SECTION N4 - 13
km 24.000 TO km 25.000
SCALE 1:250

N4-13 NRA CENTER LINE CO-ORDINATES
DESIGN SPEED 120 km/h *(WGS 84 \ LO 27°)*

CHAINAGE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
24 000.000	- 28 628.946	+ 2 845 481.256	
24 100.000	- 28 542.500	+ 2 845 430.986	
24 200.000	- 28 456.054	+ 2 845 380.716	
24 300.000	- 28 369.608	+ 2 845 330.446	
24 400.000	- 28 283.162	+ 2 845 280.175	
24 500.000	- 28 196.716	+ 2 845 229.905	
24 600.000	- 28 110.270	+ 2 845 179.635	
24 700.000	- 28 023.825	+ 2 845 129.365	
24 800.000	- 27 937.379	+ 2 845 079.094	
24 900.000	- 27 850.933	+ 2 845 028.824	
25 000.000	- 27 764.487	+ 2 844 978.554	

EXISTING ROAD RESERVE
(WGS 84 \ LO 27°)

DESCRIPTION	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
L85	- 29 201.090	+ 2 845 767.680
R104	- 29 162.270	+ 2 845 837.690
L84C	- 27 022.790	+ 2 844 500.920
XDL61	- 27 023.520	+ 2 844 492.100

LEGEND

- N4-13 TO BE CONSTRUCTED
- FENCE
- BUILDING
- CONCRETE
- VALVE
- GRID INLET
- BRIDGE PILLARS
- KERB INLET
- ELECTRIC BOX
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- BENCH MARK
- WALL
- NEW GUARDRAILS AND NJ BARRIERS
- EXISTING GUARDRAILS
- NEW CULVERTS
- EXISTING CULVERTS
- NEW ROAD RESERVE
- FLOW DIRECTION ARROW
- CONCRETE V-DRAINS
- CHUTES

X + 2 844 800 (WGS 84 / LO 27°)
Y - 28 000 (WGS 84 / LO 27°)
X + 2 844 800 (WGS 84 / LO 27°)
Y - 27 800 (WGS 84 / LO 27°)
PTN.182
PTN.257
RUSTENBURG
Y - 28 400 (WGS 84 / LO 27°)
X + 2 845 000 (WGS 84 / LO 27°)
Y - 28 600 (WGS 84 / LO 27°)
Y - 28 800 (WGS 84 / LO 27°)
X + 2 845 200 (WGS 84 / LO 27°)
X + 2 845 400 (WGS 84 / LO 27°)
BRITS

1.0 m SHOULDER
3.7 m LANE
3.7 m LANE
2.5 m SHOULDER
0.5 m GRAVEL SHOULDER
160m
BM51
1160m
BM52
1160m
BM53
1160m
BM54
N4-13 EASTBOUND
25.0
24.9
24.8
24.7
24.6
24.5
24.4
24.3
24.2
24.1
24.0
N4-13 WESTBOUND
km 24,916 921
2 x 1200 x 600 BC
θ = 270,411°
1161m
PTN.183
km 24,657 252
4 x 1200 x 1200 BC
θ = 269,958°
PTN.384
km 24,387 031
1 x 600 x 450 BC
θ = 269,687°
km 24,227 104
1 x 600 x 450 BC
θ = 269,655°
2.5 m SHOULDER
3.7 m LANE
3.7 m LANE
2.5 m SHOULDER
6.1m MEDIAN WIDTH
MINIMUM ROAD RESERVE WIDTH: 80 m

WATERKLOOF 305-JQ

N4 - 13
CONTINUE ON
3257 / 23 / 24 LP

N4 - 13
CONTINUE FROM
3257 / 23 / 22 LP

TENDER

5m 10m 15m 20m 25m 30m 35m 40m 45m 50m
ORIGINAL SCALE 1 : 500 (A0)

No.	DATE	REVISION	
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSULT. ENG.

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date :

CONSULTANT
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DESIGNED BY	
NAME	EF DAY
Prof. Reg. No.	20130622
CHECKED BY	
NAME	PL NGQUMSHE
Prof. Reg. No.	20080112
DRAWN BY	
NAME	WB HARTMANN

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17 / 07 / 2023

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THE SOUTH AFRICAN NATIONAL ROADS AGENCY SOC LTD
Reg. No. 1998/009984/30

NORTHERN REGION
38 Ida Street
Menlo Park
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Private Bag X17
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Tel: (012) 426 6200

ACCEPTANCE
THIS ACCEPTANCE IS FOR PROCEDURAL AND ADMINISTRATIVE REVIEW PURPOSES ONLY AND DOES NOT ATTRACT LEGAL LIABILITY OR LIABILITY OF ANY KIND FROM WHATSOEVER CAUSE OR HOWEVER ARISING
for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
The construction of the dual carriageway of the N4-13 between Buffelspoort N4-13 km 2.800 and the P16-2 Interchange N4-13 km 40.000

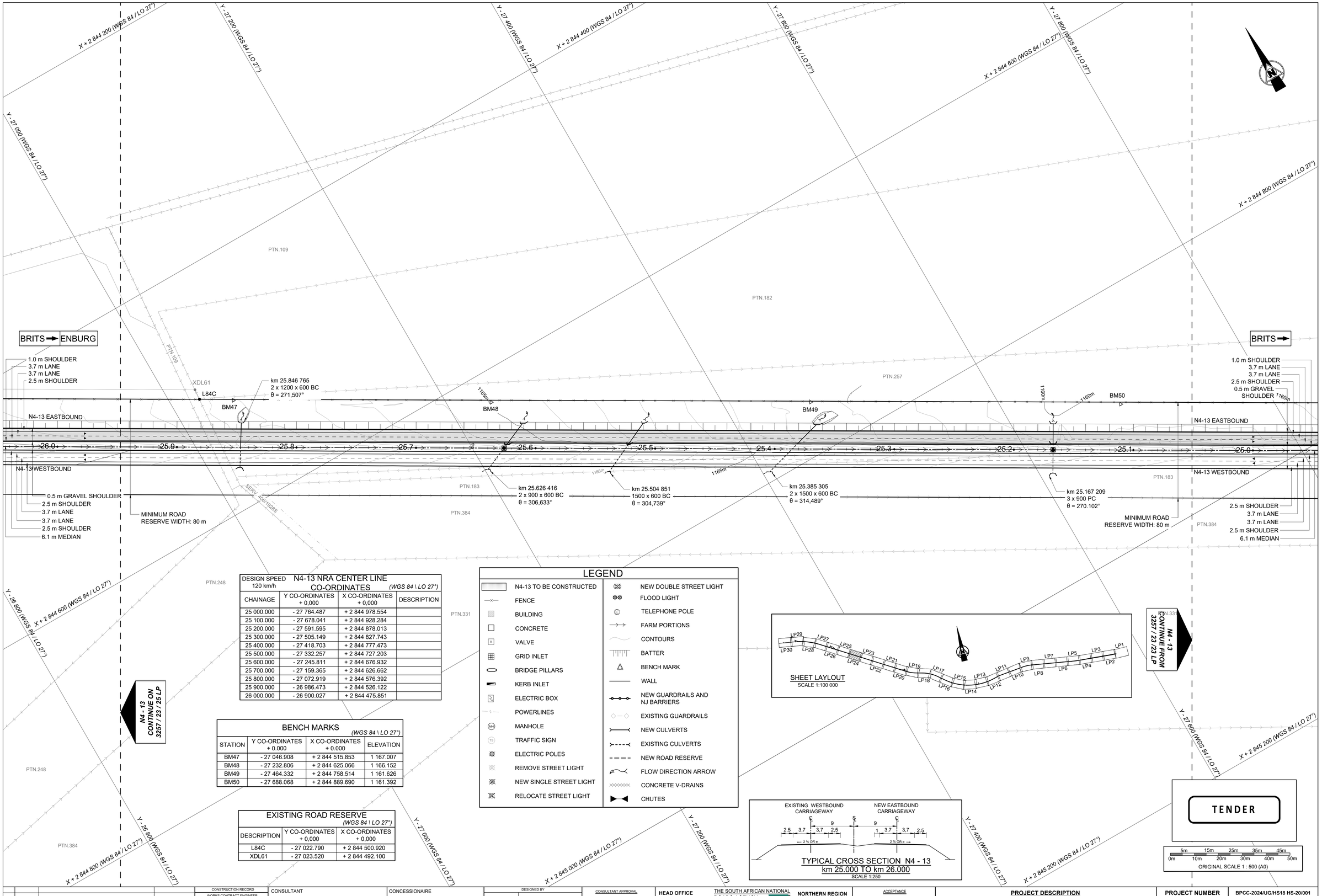
DRAWING DESCRIPTION
LAYOUT N4-13
FROM km 24.000 TO 25.000

SCALE : 1 : 1000 (A0) | SHEET 23 OF 41

PROJECT NUMBER	BPCC-2024/[illegible]18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	SECTION 13	SECTION 13
DRAWING km DISTANCE	km 24.000	km 25.000
DRAWING TYPE	ROADS - LAYOUTS	
BRIDGE/STRUCTURE No.	NA	
CONSULTANT DRAWING No.	FA 3257 / 23 / 23 LP	VER V0
SANRAL DOCUMENT #	- -	

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\02 - Layouts\3257-23-19-23lp-N4 Dual Carriageway Layouts km 20 to km 25_20230717.dwg



DESIGN SPEED 120 km/h	N4-13 NRA CENTER LINE CO-ORDINATES (WGS 84 \ LO 27°)		
CHAINAGE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
25 000.000	- 27 764.487	+ 2 844 978.554	
25 100.000	- 27 678.041	+ 2 844 928.284	
25 200.000	- 27 591.595	+ 2 844 878.013	
25 300.000	- 27 505.149	+ 2 844 827.743	
25 400.000	- 27 418.703	+ 2 844 777.473	
25 500.000	- 27 332.257	+ 2 844 727.203	
25 600.000	- 27 245.811	+ 2 844 676.932	
25 700.000	- 27 159.365	+ 2 844 626.662	
25 800.000	- 27 072.919	+ 2 844 576.392	
25 900.000	- 26 986.473	+ 2 844 526.122	
26 000.000	- 26 900.027	+ 2 844 475.851	

BENCH MARKS (WGS 84 \ LO 27°)			
STATION	Y CO-ORDINATES + 0.000	X CO-ORDINATES + 0.000	ELEVATION
BM47	- 27 046.908	+ 2 844 515.853	1 167.007
BM48	- 27 232.806	+ 2 844 625.066	1 166.152
BM49	- 27 464.332	+ 2 844 758.514	1 161.626
BM50	- 27 688.068	+ 2 844 889.690	1 161.392

EXISTING ROAD RESERVE (WGS 84 \ LO 27°)		
DESCRIPTION	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
L84C	- 27 022.790	+ 2 844 500.920
XDL61	- 27 023.520	+ 2 844 492.100

LEGEND

- N4-13 TO BE CONSTRUCTED
- FENCE
- BUILDING
- CONCRETE
- VALVE
- GRID INLET
- BRIDGE PILLARS
- KERB INLET
- ELECTRIC BOX
- POWERLINES
- MANHOLE
- TRAFFIC SIGN
- ELECTRIC POLES
- REMOVE STREET LIGHT
- NEW SINGLE STREET LIGHT
- RELOCATE STREET LIGHT
- NEW DOUBLE STREET LIGHT
- FLOOD LIGHT
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- EXISTING CULVERTS
- NEW ROAD RESERVE
- FLOW DIRECTION ARROW
- CONCRETE V-DRAINS
- CHUTES

SHEET LAYLOUT
SCALE 1:100 000

N4 - 13 CONTINUE ON 3257 / 23 / 25 LP

N4 - 13 CONTINUE FROM 3257 / 23 / 23 LP

TYPICAL CROSS SECTION N4 - 13
km 25.000 TO km 26.000
SCALE 1:250

TENDER

5m 15m 25m 35m 45m
0m 10m 20m 30m 40m 50m
ORIGINAL SCALE 1 : 500 (A0)

No.	DATE	REVISION	
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
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SANRAL PROJECT MANAGER
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NAME	EF DAY
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NAME	WB HARTMANN

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for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION

The construction of the dual carriageway of the N4-13 between Buffelspoort N4-13 km 2.800 and the P16-2 Interchange N4-13 km 40.000

DRAWING DESCRIPTION

LAYOUT N4-13
FROM km 25.000 TO 26.000

SCALE : 1 : 1000 (A0) SHEET 24 OF 41

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001		
DRAWING LOCATION DATA	START	END	
ROUTE	N 4	N 4	
SECTION	SECTION 13	SECTION 13	
DRAWING km DISTANCE	km 25.000	km 26.000	
DRAWING TYPE	ROADS - LAYOUTS		
BRIDGE/STRUCTURE No.	NA		
CONSULTANT DRAWING No.	FA	3257 / 23 / 24 LP	VER
SANRAL DOCUMENT #	- -		V0

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\02 - Layouts\3257-23-24-26LP-N4 Dual Carriageway Layouts km 25 to km 30_20230717.dwg

R24 (P16-1) RUSTENBURG (KRUGERSDORP) ON RAMP - EASTBOUND CENTER LINE CO-ORDINATES

DESIGN SPEED 60 km/h *(WGS 84 \ LO 27°)*

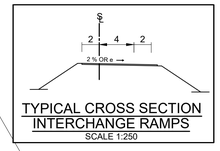
CHAINAGE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
0.000	- 25 543.130	+ 2 843 564.273	
100.000	- 25 636.579	+ 2 843 599.465	
200.000	- 25 708.695	+ 2 843 667.340	
300.000	- 25 766.852	+ 2 843 748.689	
400.000	- 25 835.807	+ 2 843 820.643	
500.000	- 25 917.860	+ 2 843 877.781	
600.000	- 26 001.844	+ 2 843 932.044	
700.000	- 26 087.267	+ 2 843 984.036	
800.000	- 26 172.690	+ 2 844 036.025	
893.901	- 26 252.904	+ 2 844 084.843	

R24 (P16-1) RUSTENBURG (KRUGERSDORP) ON RAMP km 0.000 - km 0.893 901

(WGS 84 \ LO 27°)

CURVE	DESCRIPTION	CURVE LENGTH	CURVE RADIUS	POINT	CHAINAGE DISTANCE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
				START	0.000	- 25 543.130	+ 2 843 564.273
1 B	RIGHT HAND CIRCULAR	124.542 m	200.000 m	BC 1B	63.790	- 25 603.531	+ 2 843 584.788
				PI 1B	-	- 25 664.476	+ 2 843 605.488
				EC 1B	188.332	- 25 701.909	+ 2 843 657.848
2 B	LEFT HAND CIRCULAR	121.995 m	350.000 m	BC 2B	299.792	- 25 766.731	+ 2 843 748.520
				PI 2B	-	- 25 802.569	+ 2 843 798.649
				EC 2B	421.787	- 25 853.373	+ 2 843 833.524
3 B	LEFT HAND CIRCULAR	109.719 m	2000.000 m	BC 3B	494.130	- 25 913.016	+ 2 843 874.466
				PI 3B	-	- 25 958.256	+ 2 843 905.521
				EC 3B	603.849	- 26 005.131	+ 2 843 934.049
				END	893.901	- 26 252.904	+ 2 844 084.843

POINT OF INTERSECTION OUT OF DWG BOUNDS



TYPICAL CROSS SECTION INTERCHANGE RAMPS
SCALE 1:250

LEGEND

- N4-13 TO BE CONSTRUCTED
- FENCE
- BUILDING
- CONCRETE
- VALVE
- GRID INLET
- BRIDGE PILLARS
- KERB INLET
- ELECTRIC BOX
- POWERLINES
- MANHOLE
- TRAFFIC SIGN
- ELECTRIC POLES
- REMOVE STREET LIGHT
- NEW SINGLE STREET LIGHT
- RELOCATE STREET LIGHT
- NEW DOUBLE STREET LIGHT
- FLOOD LIGHT
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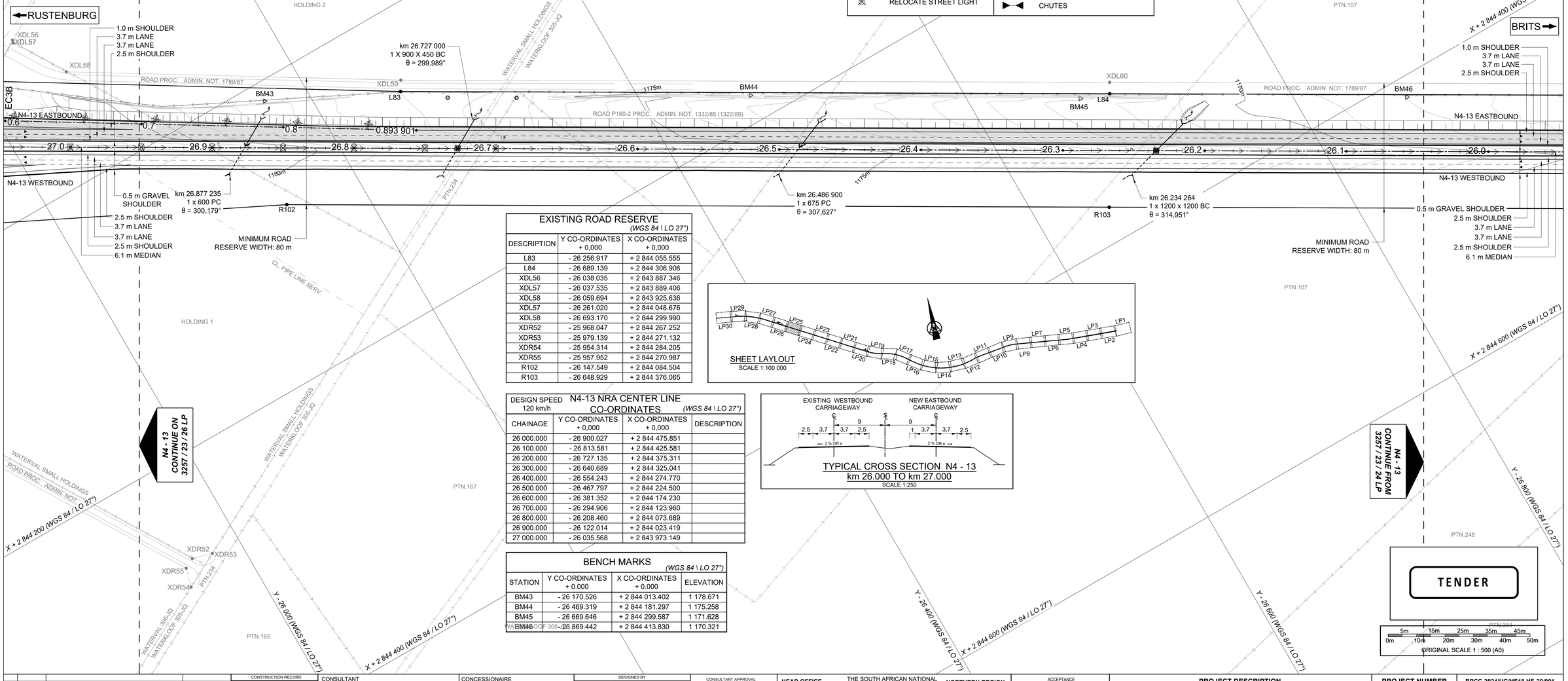
- FLOW DIRECTION ARROW
- CONCRETE V-DRAINS
- CHUTES



EXISTING ROAD RESERVE

(WGS 84 \ LO 27°)

DESCRIPTION	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
L83	- 26 256.917	+ 2 844 055.555
L84	- 26 689.139	+ 2 844 306.906
XDL56	- 26 038.035	+ 2 843 887.346
XDL57	- 26 037.535	+ 2 843 889.406
XDL58	- 26 059.694	+ 2 843 925.636
XDL57	- 26 261.020	+ 2 844 048.676
XDL58	- 26 693.170	+ 2 844 299.990
XDR52	- 25 968.047	+ 2 844 267.252
XDR53	- 25 979.139	+ 2 844 271.132
XDR54	- 25 954.314	+ 2 844 284.205
XDR55	- 25 957.952	+ 2 844 270.987
R102	- 26 147.549	+ 2 844 084.504
R103	- 26 648.929	+ 2 844 376.065

SHEET LAYLOUT
SCALE 1:100 000

N4-13 NRA CENTER LINE CO-ORDINATES

DESIGN SPEED 120 km/h *(WGS 84 \ LO 27°)*

CHAINAGE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
26 000.000	- 26 900.027	+ 2 844 475.851	
26 100.000	- 26 813.581	+ 2 844 425.581	
26 200.000	- 26 727.135	+ 2 844 375.311	
26 300.000	- 26 640.689	+ 2 844 325.041	
26 400.000	- 26 554.243	+ 2 844 274.770	
26 500.000	- 26 467.797	+ 2 844 224.500	
26 600.000	- 26 381.352	+ 2 844 174.230	
26 700.000	- 26 294.906	+ 2 844 123.960	
26 800.000	- 26 208.460	+ 2 844 073.689	
26 900.000	- 26 122.014	+ 2 844 023.419	
27 000.000	- 26 035.568	+ 2 843 973.149	

TYPICAL CROSS SECTION N4 - 13
km 26.000 TO km 27.000
SCALE 1:250

BENCH MARKS

(WGS 84 \ LO 27°)

STATION	Y CO-ORDINATES + 0.000	X CO-ORDINATES + 0.000	ELEVATION
BM43	- 26 170.526	+ 2 844 013.402	1 178.671
BM44	- 26 469.319	+ 2 844 181.297	1 175.258
BM45	- 26 669.646	+ 2 844 299.587	1 171.628
BM46	- 26 869.442	+ 2 844 413.830	1 170.321

N4 - 13
CONTINUE ON
3257 / 23 / 26 LP

N4 - 13
CONTINUE FROM
3257 / 23 / 24 LP

TENDER

0m 5m 10m 15m 20m 25m 30m 35m 40m 45m 50m

ORIGINAL SCALE 1 : 500 (A0)

No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD

WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :

SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date :

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DESIGNED BY	
NAME	EF DAY
Prof. Reg. No.	20130622
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NAME	PL NGQUMSHE
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DRAWN BY	
NAME	WB HARTMANN

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
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Date:

PROJECT DESCRIPTION

The construction of the dual carriageway of the N4-13 between Buffelspoort N4-13 km 2.800 and the P16-2 Interchange N4-13 km 40.000

DRAWING DESCRIPTION

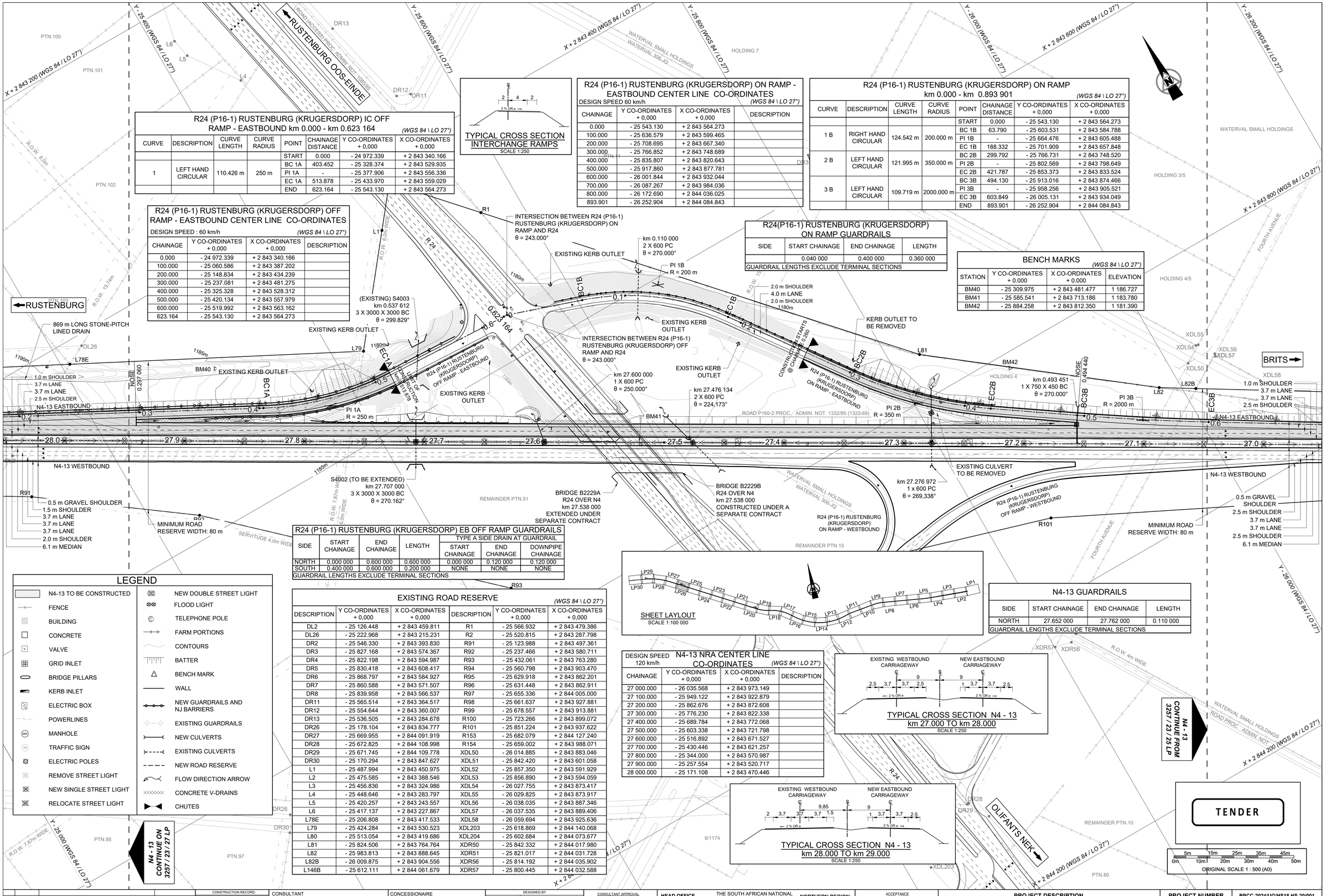
LAYOUT N4-13
FROM km 26.000 TO 27.000

SCALE : 1 : 1000 (A0) SHEET 25 OF 41

PROJECT NUMBER		BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA		START	END
ROUTE		N 4	N 4
SECTION		SECTION 13	SECTION 13
DRAWING km DISTANCE		km 26.000	km 27.000
DRAWING TYPE		ROADS - LAYOUTS	
BRIDGE/STRUCTURE No.		NA	
CONSULTANT DRAWING No.	FA	3257 / 23 / 25 LP	VER
SANRAL DOCUMENT #		- -	V0

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\02 - Layouts\3257-23-24-28LP-N4 Dual Carriageway Layouts km 25 to km 30_20230717.dwg



R24 (P16-1) RUSTENBURG (KRUGERSDORP) IC OFF RAMP - EASTBOUND km 0.000 - km 0.623 164

(WGS 84 \ LO 27°)

CURVE	DESCRIPTION	CURVE LENGTH	CURVE RADIUS	POINT	CHAINAGE DISTANCE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
				START	0.000	- 24 972.339	+ 2 843 340.166
1	LEFT HAND CIRCULAR	110.426 m	250 m	BC 1A	403.452	- 25 328.374	+ 2 843 529.935
				PI 1A	-	- 25 377.906	+ 2 843 556.336
				EC 1A	513.878	- 25 433.970	+ 2 843 559.029
				END	623.164	- 25 543.130	+ 2 843 564.273

R24 (P16-1) RUSTENBURG (KRUGERSDORP) OFF RAMP - EASTBOUND CENTER LINE CO-ORDINATES

DESIGN SPEED : 60 km/h *(WGS 84 \ LO 27°)*

CHAINAGE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
0.000	- 24 972.339	+ 2 843 340.166	
100.000	- 25 060.586	+ 2 843 387.202	
200.000	- 25 148.834	+ 2 843 434.239	
300.000	- 25 237.081	+ 2 843 481.275	
400.000	- 25 325.328	+ 2 843 528.312	
500.000	- 25 420.134	+ 2 843 557.979	
600.000	- 25 519.992	+ 2 843 563.162	
623.164	- 25 543.130	+ 2 843 564.273	

TYPICAL CROSS SECTION INTERCHANGE RAMPS

SCALE 1:250

R24 (P16-1) RUSTENBURG (KRUGERSDORP) ON RAMP - EASTBOUND CENTER LINE CO-ORDINATES

DESIGN SPEED 60 km/h *(WGS 84 \ LO 27°)*

CHAINAGE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
0.000	- 25 543.130	+ 2 843 564.273	
100.000	- 25 636.579	+ 2 843 599.465	
200.000	- 25 708.695	+ 2 843 667.340	
300.000	- 25 766.852	+ 2 843 748.689	
400.000	- 25 835.807	+ 2 843 820.643	
500.000	- 25 917.860	+ 2 843 877.781	
600.000	- 26 001.844	+ 2 843 932.044	
700.000	- 26 087.267	+ 2 843 984.036	
800.000	- 26 172.690	+ 2 844 036.025	
893.901	- 26 252.904	+ 2 844 084.843	

R24 (P16-1) RUSTENBURG (KRUGERSDORP) ON RAMP km 0.000 - km 0.893 901

(WGS 84 \ LO 27°)

CURVE	DESCRIPTION	CURVE LENGTH	CURVE RADIUS	POINT	CHAINAGE DISTANCE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
				START	0.000	- 25 543.130	+ 2 843 564.273
1 B	RIGHT HAND CIRCULAR	124.542 m	200.000 m	BC 1B	63.790	- 25 603.531	+ 2 843 584.788
				PI 1B	-	- 25 664.476	+ 2 843 605.488
				EC 1B	188.332	- 25 701.909	+ 2 843 657.848
2 B	LEFT HAND CIRCULAR	121.995 m	350.000 m	BC 2B	299.792	- 25 766.731	+ 2 843 748.520
				PI 2B	-	- 25 802.569	+ 2 843 798.649
				EC 2B	421.787	- 25 853.373	+ 2 843 833.524
3 B	LEFT HAND CIRCULAR	109.719 m	2000.000 m	BC 3B	494.130	- 25 913.016	+ 2 843 874.466
				PI 3B	-	- 25 958.256	+ 2 843 905.521
				EC 3B	603.849	- 26 005.131	+ 2 843 934.049
				END	893.901	- 26 252.904	+ 2 844 084.843

R24(P16-1) RUSTENBURG (KRUGERSDORP) ON RAMP GUARDRAILS

SIDE	START CHAINAGE	END CHAINAGE	LENGTH
	0.040 000	0.400 000	0.360 000

GUARDRAIL LENGTHS EXCLUDE TERMINAL SECTIONS

BENCH MARKS

(WGS 84 \ LO 27°)

STATION	Y CO-ORDINATES + 0.000	X CO-ORDINATES + 0.000	ELEVATION
BM40	- 25 309.975	+ 2 843 481.477	1 186.727
BM41	- 25 585.541	+ 2 843 713.186	1 183.780
BM42	- 25 884.258	+ 2 843 812.350	1 181.390

R24 (P16-1) RUSTENBURG (KRUGERSDORP) EB OFF RAMP GUARDRAILS

SIDE	START CHAINAGE	END CHAINAGE	LENGTH	TYPE A SIDE DRAIN AT GUARDRAIL: START CHAINAGE	TYPE A SIDE DRAIN AT GUARDRAIL: END CHAINAGE	DOWNPIPE CHAINAGE
NORTH	0.000 000	0.600 000	0.600 000	0.000 000	0.120 000	0.120 000
SOUTH	0.400 000	0.600 000	0.200 000	NONE	NONE	NONE

GUARDRAIL LENGTHS EXCLUDE TERMINAL SECTIONS

EXISTING ROAD RESERVE

(WGS 84 \ LO 27°)

DESCRIPTION	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
DL2	- 25 126.448	+ 2 843 459.811	R1	- 25 566.932	+ 2 843 479.386
DL26	- 25 222.968	+ 2 843 215.231	R2	- 25 520.815	+ 2 843 287.798
DR2	- 25 546.330	+ 2 843 393.830	R91	- 25 123.988	+ 2 843 497.361
DR3	- 25 827.168	+ 2 843 574.367	R92	- 25 237.466	+ 2 843 580.711
DR4	- 25 822.198	+ 2 843 594.987	R93	- 25 432.061	+ 2 843 763.280
DR5	- 25 830.418	+ 2 843 608.417	R94	- 25 560.798	+ 2 843 903.470
DR6	- 25 868.797	+ 2 843 584.927	R95	- 25 629.918	+ 2 843 862.201
DR7	- 25 860.588	+ 2 843 571.507	R96	- 25 631.448	+ 2 843 862.911
DR8	- 25 839.958	+ 2 843 566.537	R97	- 25 655.336	+ 2 844 005.000
DR11	- 25 565.514	+ 2 843 364.517	R98	- 25 661.637	+ 2 843 927.881
DR12	- 25 554.644	+ 2 843 360.007	R99	- 25 678.557	+ 2 843 913.881
DR13	- 25 536.505	+ 2 843 284.678	R100	- 25 723.266	+ 2 843 899.072
DR26	- 25 178.104	+ 2 843 834.777	R101	- 25 851.224	+ 2 843 937.622
DR27	- 25 669.955	+ 2 844 091.919	R153	- 25 682.079	+ 2 844 127.240
DR28	- 25 672.825	+ 2 844 108.998	R154	- 25 659.002	+ 2 843 988.071
DR29	- 25 671.745	+ 2 844 109.778	XDL50	- 26 014.885	+ 2 843 883.046
DR30	- 25 170.294	+ 2 843 847.627	XDL51	- 25 842.420	+ 2 843 601.058
L1	- 25 487.994	+ 2 843 450.975	XDL52	- 25 857.350	+ 2 843 591.929
L2	- 25 475.585	+ 2 843 388.546	XDL53	- 25 856.890	+ 2 843 594.059
L3	- 25 456.836	+ 2 843 324.986	XDL54	- 26 027.755	+ 2 843 873.417
L4	- 25 448.646	+ 2 843 283.797	XDL55	- 26 029.825	+ 2 843 873.917
L5	- 25 420.257	+ 2 843 243.557	XDL56	- 26 038.035	+ 2 843 887.346
L6	- 25 417.137	+ 2 843 227.867	XDL57	- 26 037.535	+ 2 843 889.406
L78E	- 25 206.808	+ 2 843 417.533	XDL58	- 26 059.694	+ 2 843 925.636
L79	- 25 424.284	+ 2 843 530.523	XDL203	- 25 618.869	+ 2 844 140.068
L80	- 25 513.054	+ 2 843 419.686	XDL204	- 25 602.684	+ 2 844 073.677
L81	- 25 824.506	+ 2 843 764.764	XDR50	- 25 842.332	+ 2 844 017.980
L82	- 25 983.813	+ 2 843 888.645	XDR51	- 25 821.017	+ 2 844 031.728
L82B	- 26 009.875	+ 2 843 904.556	XDR56	- 25 814.192	+ 2 844 035.902
L146B	- 25 612.111	+ 2 844 061.679	XDR57	- 25 800.445	+ 2 844 032.588

SHEET LAYLOUT

SCALE 1:100 000

LP1 LP2 LP3 LP4 LP5 LP6 LP7 LP8 LP9 LP10 LP11 LP12 LP13 LP14 LP15 LP16 LP17 LP18 LP19 LP20 LP21 LP22 LP23 LP24 LP25 LP26 LP27 LP28 LP29 LP30

N4-13 GUARDRAILS

SIDE	START CHAINAGE	END CHAINAGE	LENGTH
NORTH	27.652 000	27.762 000	0.110 000

GUARDRAIL LENGTHS EXCLUDE TERMINAL SECTIONS

N4-13 NRA CENTER LINE CO-ORDINATES

DESIGN SPEED 120 km/h *(WGS 84 \ LO 27°)*

CHAINAGE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
27 000.000	- 26 035.568	+ 2 843 973.149	
27 100.000	- 25 949.122	+ 2 843 922.879	
27 200.000	- 25 862.676	+ 2 843 872.608	
27 300.000	- 25 776.230	+ 2 843 822.338	
27 400.000	- 25 689.784	+ 2 843 772.068	
27 500.000	- 25 603.338	+ 2 843 721.798	
27 600.000	- 25 516.892	+ 2 843 671.527	
27 700.000	- 25 430.446	+ 2 843 621.257	
27 800.000	- 25 344.000	+ 2 843 570.987	
27 900.000	- 25 257.554	+ 2 843 520.717	
28 000.000	- 25 171.108	+ 2 843 470.446	

TYPICAL CROSS SECTION N4 - 13 km 27.000 TO km 28.000

SCALE 1:250

EXISTING WESTBOUND CARRIAGEWAY — NEW EASTBOUND CARRIAGEWAY

TYPICAL CROSS SECTION N4 - 13 km 28.000 TO km 29.000

SCALE 1:250

EXISTING WESTBOUND CARRIAGEWAY — NEW EASTBOUND CARRIAGEWAY

LEGEND

- N4-13 TO BE CONSTRUCTED
- FENCE
- BUILDING
- CONCRETE
- VALVE
- GRID INLET
- BRIDGE PILLARS
- KERB INLET
- ELECTRIC BOX
- POWERLINES
- MANHOLE
- TRAFFIC SIGN
- ELECTRIC POLES
- REMOVE STREET LIGHT
- NEW SINGLE STREET LIGHT
- RELOCATE STREET LIGHT
- NEW DOUBLE STREET LIGHT
- FLOOD LIGHT
- TELEPHONE POLE
- FARM PORTIONS
- CONTOURS
- BATTER
- BENCH MARK
- WALL
- NEW GUARDRAILS AND NJ BARRIERS
- EXISTING GUARDRAILS
- NEW CULVERTS
- EXISTING CULVERTS
- NEW ROAD RESERVE
- FLOW DIRECTION ARROW
- CONCRETE V-DRAINS
- CHUTES

No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date

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DESIGNED BY
NAME: EF DAY
Prof. Reg. No. 20130622
CHECKED BY
NAME: PL NGQUMSHE
Prof. Reg. No. 20080112
DRAWN BY
NAME: WB HARTMANN

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17 / 07 / 2023

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THE SOUTH AFRICAN NATIONAL ROADS AGENCY SOC LTD
Reg. No. 1998/009584/30

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ACCEPTANCE
THIS ACCEPTANCE IS FOR PROCEDURAL AND ADMINISTRATIVE REVIEW PURPOSES ONLY AND DOES NOT ATTRACT LEGAL LIABILITY OR LIABILITY OF ANY KIND FROM WHATSOEVER CAUSE OR HOWEVER ARISING
for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
The construction of the dual carriageway of the N4-13 between Buffelspoort N4-13 km 2.800 and the P16-2 Interchange N4-13 km 40.000

DRAWING DESCRIPTION
LAYOUT N4-13
FROM km 27.000 TO 28.000

SCALE : 1 : 1000 (A0) — SHEET 26 OF 41

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	SECTION 13	SECTION 13
DRAWING km DISTANCE	km 27.000	km 28.000
DRAWING TYPE	ROADS - LAYOUTS	
BRIDGE/STRUCTURE No.	NA	
CONSULTANT DRAWING No.	FA 3257 / 13 / 26 LP	VER V0
SANRAL DOCUMENT #	- -	

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\02 - Layouts\3257-23-24-28LP-N4 Dual Carriageway Layouts km 25 to km 30_20230717.dwg

LEGEND

N4-13 TO BE CONSTRUCTED	NEW DOUBLE STREET LIGHT
FENCE	FLOOD LIGHT
BUILDING	TELEPHONE POLE
CONCRETE	FARM PORTIONS
VALVE	CONTOURS
GRID INLET	BATTER
BRIDGE PILLARS	BENCH MARK
KERB INLET	WALL
ELECTRIC BOX	NEW GUARDRAILS AND NJ BARRIERS
POWERLINES	EXISTING GUARDRAILS
MANHOLE	NEW CULVERTS
TRAFFIC SIGN	EXISTING CULVERTS
ELECTRIC POLES	NEW ROAD RESERVE
REMOVE STREET LIGHT	FLOW DIRECTION ARROW
NEW SINGLE STREET LIGHT	CONCRETE V-DRAINS
RELOCATE STREET LIGHT	CHUTES

N4-13 GUARDRAILS

SIDE	START CHAINAGE	END CHAINAGE	LENGTH	TYPE A SIDE DRAIN AT GUARDRAIL		
				START CHAINAGE	END CHAINAGE	DOWNPIPE CHAINAGE
NORTH	28.220 000	28.340 000	0.140 000	28.220 000	28.220 000	28.220 000

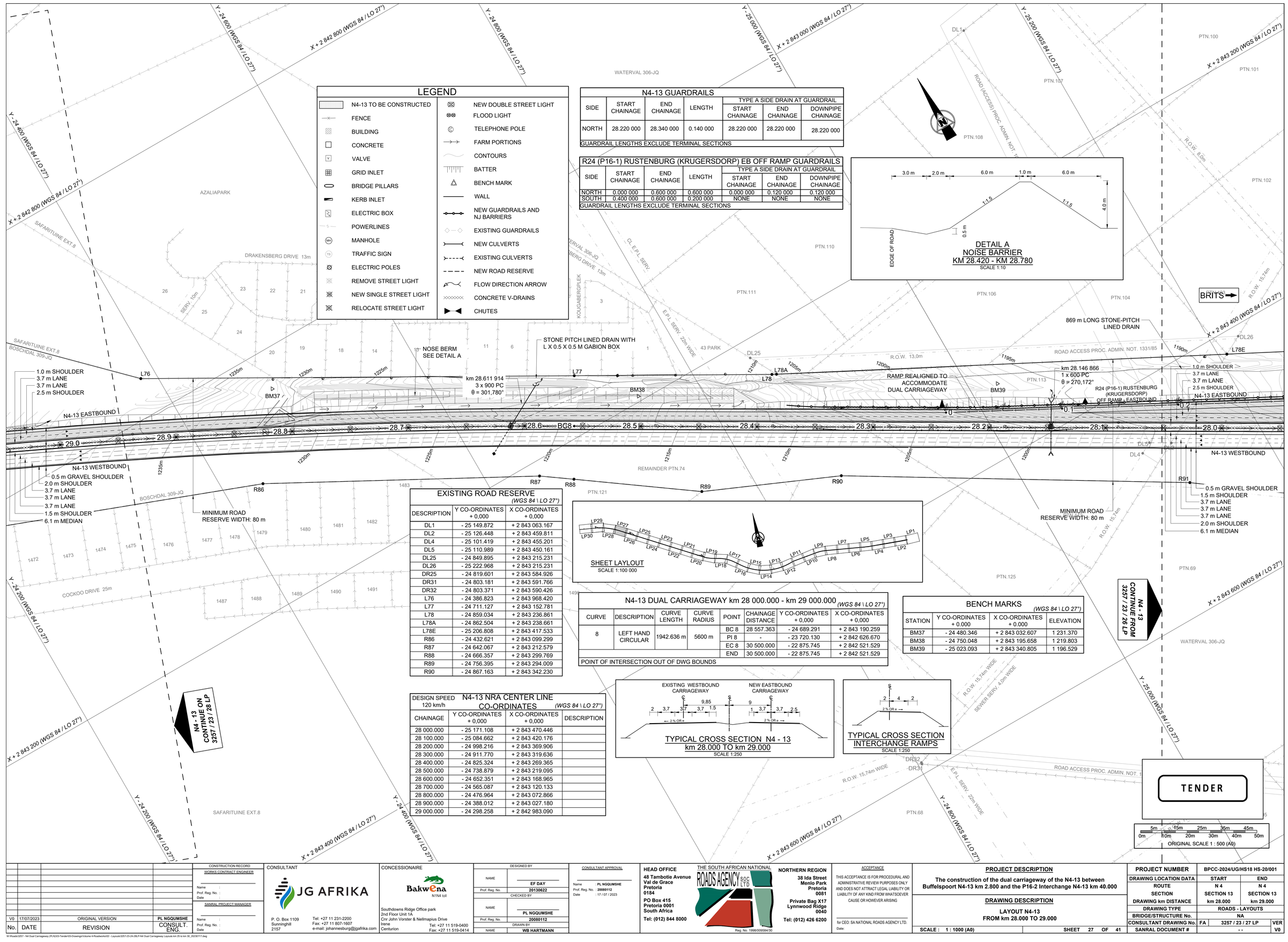
GUARDRAIL LENGTHS EXCLUDE TERMINAL SECTIONS

R24 (P16-1) RUSTENBURG (KRUGERSDORP) EB OFF RAMP GUARDRAILS

SIDE	START CHAINAGE	END CHAINAGE	LENGTH	TYPE A SIDE DRAIN AT GUARDRAIL		
				START CHAINAGE	END CHAINAGE	DOWNPIPE CHAINAGE
NORTH	0.000 000	0.600 000	0.600 000	0.000 000	0.120 000	0.120 000
SOUTH	0.400 000	0.600 000	0.200 000	NONE	NONE	NONE

GUARDRAIL LENGTHS EXCLUDE TERMINAL SECTIONS

DETAIL A
NOISE BARRIER
KM 28.420 - KM 28.780
SCALE 1:10



EXISTING ROAD RESERVE
(WGS 84 \ LO 27°)

DESCRIPTION	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
DL1	- 25 149.872	+ 2 843 063.167
DL2	- 25 126.448	+ 2 843 459.811
DL4	- 25 101.419	+ 2 843 455.201
DL5	- 25 110.989	+ 2 843 450.161
DL25	- 24 849.895	+ 2 843 215.231
DL26	- 25 222.968	+ 2 843 215.231
DR25	- 24 819.601	+ 2 843 584.926
DR31	- 24 803.181	+ 2 843 591.766
DR32	- 24 803.371	+ 2 843 590.426
L76	- 24 386.823	+ 2 843 968.420
L77	- 24 711.127	+ 2 843 152.781
L78	- 24 859.034	+ 2 843 236.861
L78A	- 24 862.504	+ 2 843 238.661
L78E	- 25 206.808	+ 2 843 417.533
R86	- 24 432.621	+ 2 843 099.299
R87	- 24 642.067	+ 2 843 212.579
R88	- 24 666.357	+ 2 843 299.769
R89	- 24 756.395	+ 2 843 294.009
R90	- 24 867.163	+ 2 843 342.230

SHEET LAYLOUT
SCALE 1:100 000

N4-13 DUAL CARRIAGEWAY km 28 000.000 - km 29 000.000
(WGS 84 \ LO 27°)

CURVE	DESCRIPTION	CURVE LENGTH	CURVE RADIUS	POINT	CHAINAGE DISTANCE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
8	LEFT HAND CIRCULAR	1942.636 m	5600 m	BC 8	28 557.363	- 24 689.291	+ 2 843 190.259
				PI 8	-	- 23 720.130	+ 2 842 626.670
				EC 8	30 500.000	- 22 875.745	+ 2 842 521.529
				END	30 500.000	- 22 875.745	+ 2 842 521.529

POINT OF INTERSECTION OUT OF DWG BOUNDS

BENCH MARKS
(WGS 84 \ LO 27°)

STATION	Y CO-ORDINATES + 0.000	X CO-ORDINATES + 0.000	ELEVATION
BM37	- 24 480.346	+ 2 843 032.607	1 231.370
BM38	- 24 750.048	+ 2 843 195.658	1 219.803
BM39	- 25 023.093	+ 2 843 340.805	1 196.529

N4 - 13
CONTINUE FROM
3257 / 23 / 26 LP

N4 - 13
CONTINUE ON
3257 / 23 / 28 LP

DESIGN SPEED 120 km/h — N4-13 NRA CENTER LINE CO-ORDINATES
(WGS 84 \ LO 27°)

CHAINAGE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
28 000.000	- 25 171.108	+ 2 843 470.446	
28 100.000	- 25 084.662	+ 2 843 420.176	
28 200.000	- 24 998.216	+ 2 843 369.906	
28 300.000	- 24 911.770	+ 2 843 319.636	
28 400.000	- 24 825.324	+ 2 843 269.365	
28 500.000	- 24 738.879	+ 2 843 219.095	
28 600.000	- 24 652.351	+ 2 843 168.965	
28 700.000	- 24 565.087	+ 2 843 120.133	
28 800.000	- 24 476.964	+ 2 843 072.866	
28 900.000	- 24 388.012	+ 2 843 027.180	
29 000.000	- 24 298.258	+ 2 842 983.090	

TYPICAL CROSS SECTION N4 - 13
km 28.000 TO km 29.000
SCALE 1:250

TYPICAL CROSS SECTION
INTERCHANGE RAMPS
SCALE 1:250

TENDER

5m 15m 25m 35m 45m
0m 10m 20m 30m 40m 50m
ORIGINAL SCALE 1 : 500 (A0)

No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
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NAME	EF DAY
Prof. Reg. No.	20130622
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NAME	PL NGQUMSHE
Prof. Reg. No.	20080112
DRAWN BY	
NAME	WB HARTMANN

CONSULTANT APPROVAL
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for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
The construction of the dual carriageway of the N4-13 between Buffelspoort N4-13 km 2.800 and the P16-2 Interchange N4-13 km 40.000

DRAWING DESCRIPTION
LAYOUT N4-13
FROM km 28.000 TO 29.000

SCALE : 1 : 1000 (A0) | SHEET 27 OF 41

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001
DRAWING LOCATION DATA	START / END
ROUTE	N 4 / N 4
SECTION	SECTION 13 / SECTION 13
DRAWING km DISTANCE	km 28.000 / km 29.000
DRAWING TYPE	ROADS - LAYOUTS
BRIDGE/STRUCTURE No.	NA
CONSULTANT DRAWING No.	FA 3257 / 23 / 27 LP VER
SANRAL DOCUMENT #	- - V0

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\ED-Tender\03-Drawings\Volume 4-Roadworks\02 - Layouts\3257-23-24-28LP-N4 Dual Carriageway Layouts km 25 to km 30_20230717.dwg

HELEN JOSEPH DRIVE ON RAMP - EASTBOUND
km 0.000 - km 0.993 718 *(WGS 84 \ LO 27°)*

CURVE	DESCRIPTION	CURVE LENGTH	CURVE RADIUS	POINT	CHAINAGE DISTANCE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
				START	0.000	- 22 718.082	+ 2 842 391.521
1 B	RIGHT HAND CIRCULAR	61.187 m	150.000 m	BC 1	26.468	- 22 743.921	+ 2 842 397.255
				PI 1	-	- 22 774.209	+ 2 842 403.977
				EC 1	87.655	- 22 799.345	+ 2 842 422.162
2 B	LEFT HAND CIRCULAR	154.893 m	400.000 m	BC 2	129.549	- 22 833.288	+ 2 842 446.718
				PI 2	-	- 22 896.831	+ 2 842 492.689
				EC 2	284.442	- 22 973.029	+ 2 842 511.261
3 B	RIGHT HAND CIRCULAR	581.517 m	5612.700 m	BC 3	412.201	- 23 097.155	+ 2 842 541.513
				PI 3	-	- 23 379.897	+ 2 842 610.425
				EC 3	993.718	- 23 653.996	+ 2 842 708.209
				END	993.718	- 23 653.996	+ 2 842 708.209

HELEN JOSEPH DRIVE ON RAMP - EASTBOUND
DESIGN SPEED 60 km/h — CENTER LINE CO-ORDINATES *(WGS 84 \ LO 27°)*

CHAINAGE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
0.000	- 22 718.082	+ 2 842 391.521	
100.000	- 22 809.347	+ 2 842 429.398	
200.000	- 22 893.700	+ 2 842 482.786	
300.000	- 22 988.145	+ 2 842 514.945	
400.000	- 23 085.301	+ 2 842 538.624	
500.000	- 23 182.291	+ 2 842 562.970	
600.000	- 23 278.835	+ 2 842 589.027	
700.000	- 23 374.900	+ 2 842 616.800	
800.000	- 23 470.454	+ 2 842 646.280	
900.000	- 23 565.468	+ 2 842 677.458	
993.718	- 23 653.996	+ 2 842 708.209	

TYPICAL CROSS SECTION INTERCHANGE RAMPS
SCALE 1:250

LEGEND

- N4-13 TO BE CONSTRUCTED
- FENCE
- BUILDING
- CONCRETE
- VALVE
- GRID INLET
- BRIDGE PILLARS
- KERB INLET
- ELECTRIC BOX
- POWERLINES
- MANHOLE
- TRAFFIC SIGN
- ELECTRIC POLES
- REMOVE STREET LIGHT
- NEW SINGLE STREET LIGHT
- RELOCATE STREET LIGHT
- NEW DOUBLE STREET LIGHT
- FLOOD LIGHT
- TELEPHONE POLE
- FARM PORTIONS
- CONTOURS
- BATTER
- BENCH MARK
- WALL
- NEW GUARDRAILS AND NJ BARRIERS
- EXISTING GUARDRAILS
- NEW CULVERTS
- EXISTING CULVERTS
- NEW ROAD RESERVE
- FLOW DIRECTION ARROW
- CONCRETE V-DRAINS
- CHUTES

DETAIL B
NOISE BARRIER
KM 29.580 - KM 30.280
SCALE 1:10

SHEET LAYLOUT
SCALE 1:100 000

HELEN JOSEPH EASTBOUND ON RAMP GUARDRAILS

SIDE	START CHAINAGE	END CHAINAGE	LENGTH
NORTH	0.129 000	0.993 718	0.993 718
SOUTH	0.129 000	0.445 000	0.316 000
GUARDRAIL LENGTHS EXCLUDE TERMINAL SECTIONS			

N4-13 GUARDRAILS

SIDE	START CHAINAGE	END CHAINAGE	LENGTH
NORTH	29.480 000	29.740 000	0.260 000
GUARDRAIL LENGTHS EXCLUDE TERMINAL SECTIONS			

EXISTING ROAD RESERVE
(WGS 84 \ LO 27°)

DESCRIPTION	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
L62	- 23 341.941	+ 2 842 585.534
L63	- 23 528.678	+ 2 842 640.035
L64	- 23 531.548	+ 2 842 640.905
L65	- 23 673.485	+ 2 842 685.936
L66	- 23 676.325	+ 2 842 686.886
L67	- 23 822.963	+ 2 842 739.217
L68	- 23 827.703	+ 2 842 740.897
L69	- 24 034.439	+ 2 842 812.018
L70	- 24 037.339	+ 2 842 812.768
L71	- 24 178.097	+ 2 842 837.489
L72	- 24 181.067	+ 2 842 837.909
L73	- 24 228.007	+ 2 842 842.960
L74	- 24 230.986	+ 2 842 842.280
L75	- 24 265.036	+ 2 842 843.940
R71	- 23 321.120	+ 2 842 662.773
R72	- 23 515.767	+ 2 842 719.874
R73	- 23 518.637	+ 2 842 720.744
R74	- 23 610.336	+ 2 842 749.885
R75	- 23 613.166	+ 2 842 750.875
R76	- 23 702.646	+ 2 842 785.365
R77	- 23 705.224	+ 2 842 786.535
R78	- 23 775.493	+ 2 842 818.755
R79	- 23 778.133	+ 2 842 820.166
R80	- 23 826.982	+ 2 842 849.686
R81	- 23 829.632	+ 2 842 851.076
R82	- 24 115.847	+ 2 842 979.027
R83	- 24 118.617	+ 2 842 980.177
R84	- 24 161.506	+ 2 842 996.647
R85	- 24 164.306	+ 2 842 997.717

BENCH MARKS
(WGS 84 \ LO 27°)

STATION	Y CO-ORDINATES + 0.000	X CO-ORDINATES + 0.000	ELEVATION
BM34	- 23 607.572	+ 2 842 677.780	1 227.284
BM35	- 23 917.310	+ 2 842 778.891	1 239.775
BM36	- 24 190.678	+ 2 842 908.594	1 241.159

N4-13 DUAL CARRIAGEWAY km 29 000.000 - km 30 000.000
(WGS 84 \ LO 27°)

CURVE	DESCRIPTION	CURVE LENGTH	CURVE RADIUS	POINT	CHAINAGE DISTANCE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
8	LEFT HAND CIRCULAR	1942.636 m	5600 m	BC 8	28 557.363	- 24 689.291	+ 2 843 190.259
				PI 8	-	- 23 720.130	+ 2 842 626.670
				EC 8	30 500.000	- 22 875.745	+ 2 842 521.529

N4-13 NRA CENTER LINE CO-ORDINATES
DESIGN SPEED 120 km/h *(WGS 84 \ LO 27°)*

CHAINAGE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
29 000.000	- 24 298.258	+ 2 842 983.090	
29 100.000	- 24 207.731	+ 2 842 940.610	
29 200.000	- 24 116.459	+ 2 842 899.753	
29 300.000	- 24 024.473	+ 2 842 860.532	
29 400.000	- 23 931.801	+ 2 842 822.960	
29 500.000	- 23 838.473	+ 2 842 787.048	
29 600.000	- 23 744.519	+ 2 842 752.809	
29 700.000	- 23 649.968	+ 2 842 720.253	
29 800.000	- 23 554.851	+ 2 842 689.391	
29 900.000	- 23 459.198	+ 2 842 660.231	
30 000.000	- 23 363.040	+ 2 842 632.785	

TYPICAL CROSS SECTION N4 - 13
km 29.000 TO km 30.600
SCALE 1:250

TYPICAL CROSS SECTION N4 - 13
km 28.000 TO km 29.000
SCALE 1:250

TENDER

ORIGINAL SCALE 1 : 500 (A0)

V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE				
No.	DATE	REVISION	CONSULT. ENG.				

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date :

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DESIGNED BY
NAME: EF DAY
Prof. Reg. No.: 20130622
CHECKED BY
NAME: PL NGQUMSHE
Prof. Reg. No.: 20080112
DRAWN BY
NAME: WB HARTMANN

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17 / 07 / 2023

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Reg. No. 1998/009584/30

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Tel: (012) 426 6200

ACCEPTANCE
THIS ACCEPTANCE IS FOR PROCEDURAL AND ADMINISTRATIVE REVIEW PURPOSES ONLY AND DOES NOT ATTRACT LEGAL LIABILITY OR LIABILITY OF ANY KIND FROM WHATSOEVER CAUSE OR HOWEVER ARISING
for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
The construction of the dual carriageway of the N4-13 between Buffelspoort N4-13 km 2.800 and the P16-2 Interchange N4-13 km 40.000

DRAWING DESCRIPTION
LAYOUT N4-13
FROM km 29.000 TO 30.000

SCALE : 1 : 1000 (A0) — SHEET 28 OF 41

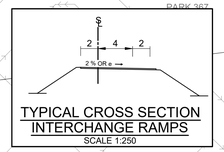
PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	SECTION 13	SECTION 13
DRAWING km DISTANCE	km 29.000	km 30.000
DRAWING TYPE	ROADS - LAYOUTS	
BRIDGE/STRUCTURE No.	NA	
CONSULTANT DRAWING No.	FA 3257 / 23 / 28 LP	VER
SANRAL DOCUMENT #	- -	V0

SANRAL DOCUMENT NUMBER :

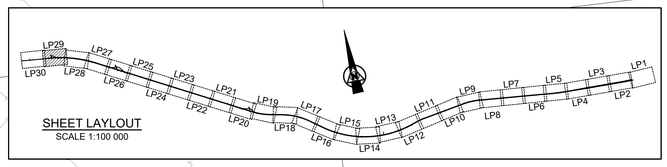
W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\02 - Layouts\3257-23-24-28LP-N4 Dual Carriageway Layouts km 25 to km 30_20230717.dwg

HELEN JOSEPH DRIVE ON RAMP - EASTBOUND
km 0.000 - km 0.993 718 *(WGS 84 \ LO 27°)*

CURVE	DESCRIPTION	CURVE LENGTH	CURVE RADIUS	POINT	CHAINAGE DISTANCE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
				START	0.000	- 22 718.082	+ 2 842 391.521
1 B	RIGHT HAND CIRCULAR	61.187 m	150.000 m	BC 1	26.468	- 22 743.921	+ 2 842 397.255
				PI 1	-	- 22 774.209	+ 2 842 403.977
				EC 1	87.655	- 22 799.345	+ 2 842 422.162
2 B	LEFT HAND CIRCULAR	154.893 m	400.000 m	BC 2	129.549	- 22 833.288	+ 2 842 446.718
				PI 2	-	- 22 896.831	+ 2 842 492.689
				EC 2	284.442	- 22 973.029	+ 2 842 511.261
3 B	RIGHT HAND CIRCULAR	581.517 m	5612.700 m	BC 3	412.201	- 23 097.155	+ 2 842 541.513
				PI 3	-	- 23 379.897	+ 2 842 610.425
				EC 3	993.718	- 23 653.996	+ 2 842 708.209
				END	993.718	- 23 653.996	+ 2 842 708.209



TYPICAL CROSS SECTION
INTERCHANGE RAMPS
SCALE 1:250



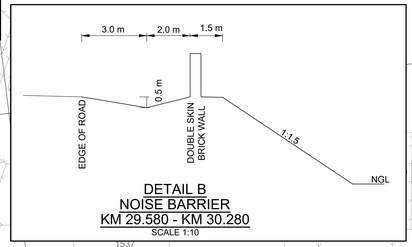
SHEET LAYLOUT
SCALE 1:100 000

N4-13 GUARDRAILS

SIDE	START CHAINAGE	END CHAINAGE	LENGTH
NORTH	30.260 000	30.602 000	0.342 000
NORTH OF WB	30.280 000	30.800 000	0.520 000
GUARDRAIL LENGTHS EXCLUDE TERMINAL SECTIONS			

HELEN JOSEPH EASTBOUND ON RAMP GUARDRAILS

SIDE	START CHAINAGE	END CHAINAGE	LENGTH
NORTH	0.129 000	0.993 718	0.993 718
SOUTH	0.129 000	0.445 000	0.316 000
GUARDRAIL LENGTHS EXCLUDE TERMINAL SECTIONS			



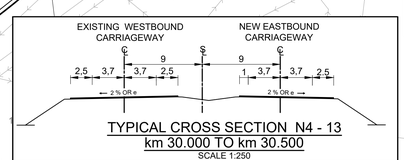
DETAIL B
NOISE BARRIER
KM 29.580 - KM 30.280
SCALE 1:10

EXISTING ROAD RESERVE
(WGS 84 \ LO 27°)

DESCRIPTION	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
L2	- 22 694.882	+ 2 842 270.451
L3	- 22 696.392	+ 2 842 273.051
L4	- 22 738.751	+ 2 842 345.741
L5	- 22 765.350	+ 2 842 389.761
L10	- 22 728.399	+ 2 842 608.077
L11	- 22 679.379	+ 2 842 655.326
L12	- 22 659.269	+ 2 842 666.586
L13	- 22 596.679	+ 2 842 701.625
L14	- 22 555.000	+ 2 842 724.954
L15	- 22 451.920	+ 2 842 785.622
L54	- 22 604.922	+ 2 842 448.908
L55	- 22 607.892	+ 2 842 448.888
L56	- 22 651.451	+ 2 842 442.439
L57	- 22 654.421	+ 2 842 442.359
L59	- 22 713.480	+ 2 842 449.299
L60	- 22 974.756	+ 2 842 499.621
L61	- 23 101.485	+ 2 842 526.352
L62	- 23 341.941	+ 2 842 585.534
R1	- 22 519.646	+ 2 842 146.881
R3	- 22 561.706	+ 2 842 130.702
R4	- 22 668.482	+ 2 842 323.140
R7	- 22 659.940	+ 2 842 546.437
R8	- 22 660.740	+ 2 842 549.047
R9	- 22 658.030	+ 2 842 569.487
R10	- 22 657.040	+ 2 842 572.247
R12	- 22 617.540	+ 2 842 634.556
R13	- 22 378.221	+ 2 842 807.921
R14	- 22 377.881	+ 2 842 810.011
R63	- 22 601.591	+ 2 842 508.817
R64	- 22 604.421	+ 2 842 509.677
R65	- 22 643.910	+ 2 842 529.258
R66	- 22 646.250	+ 2 842 531.048
R66C	- 22 763.929	+ 2 842 544.609
R67	- 22 780.318	+ 2 842 546.499
R68	- 22 783.288	+ 2 842 546.899
R70	- 23 084.084	+ 2 842 604.431
R71	- 23 321.120	+ 2 842 662.773

HELEN JOSEPH DRIVE ON RAMP CENTER LINE CO-ORDINATES
DESIGN SPEED 60 km/h *(WGS 84 \ LO 27°)*

CHAINAGE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
0.000	- 22 718.082	+ 2 842 391.521	
100.000	- 22 809.347	+ 2 842 429.398	
200.000	- 22 893.700	+ 2 842 482.786	
300.000	- 22 988.145	+ 2 842 514.945	
400.000	- 23 085.301	+ 2 842 538.624	
500.000	- 23 182.291	+ 2 842 562.970	
600.000	- 23 278.835	+ 2 842 589.027	
700.000	- 23 374.900	+ 2 842 616.800	



TYPICAL CROSS SECTION N4 - 13
km 30.000 TO km 30.500
SCALE 1:250

CROSS SECTION CHANGES FROM A DUAL CARRIAGEWAY TO A SINGLE CARRIAGEWAY SETTING OUT DETAILS TO BE SHOWN IN DETAILED DESIGN

TYPICAL CROSS SECTION N4 - 13
km 30.500 TO km 31.100
SCALE 1:250

N4-13 DUAL CARRIAGEWAY km 30 000.000 - km 31 000.000 *(WGS 84 \ LO 27°)*

CURVE	DESCRIPTION	CURVE LENGTH	CURVE RADIUS	POINT	CHAINAGE DISTANCE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
8	LEFT HAND CIRCULAR	1942.636 m	5600 m	BC 8	28 557.363	- 24 689.291	+ 2 843 190.259
				PI 8	-	- 23 720.130	+ 2 842 626.670
				EC 8	30 500.000	- 22 875.745	+ 2 842 521.529
				END	30 500.000	- 22 875.745	+ 2 842 521.529
POINT OF INTERSECTION OUT OF DWG BOUNDS							

BENCH MARKS
(WGS 84 \ LO 27°)

STATION	Y CO-ORDINATES + 0.000	X CO-ORDINATES + 0.000	ELEVATION
BM 30	- 22 408.823	+ 2 842 430.254	1 216.123
BM 31	- 22 731.933	+ 2 842 418.789	1 223.169
BM 32	- 23 009.841	+ 2 842 511.659	1 214.941
BM 33	- 23 314.896	+ 2 842 582.033	1 216.493

N4-13 NRA CENTER LINE CO-ORDINATES
(WGS 84 \ LO 27°)

CHAINAGE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
30 000.000	- 23 363.040	+ 2 842 632.785	
30 100.000	- 23 266.407	+ 2 842 607.060	
30 200.000	- 23 169.330	+ 2 842 583.064	
30 300.000	- 23 071 840	+ 2 842 560.806	
30 400.000	- 22 973.968	+ 2 842 540.292	
30 500.000	- 22 875.745	+ 2 842 521.529	

LEGEND

N4-13 TO BE CONSTRUCTED	NEW DOUBLE STREET LIGHT
FENCE	FLOOD LIGHT
BUILDING	TELEPHONE POLE
CONCRETE	FARM PORTIONS
VALVE	CONTOURS
GRID INLET	BATTER
BRIDGE PILLARS	BENCH MARK
KERB INLET	WALL
ELECTRIC BOX	NEW GUARDRAILS AND NJ BARRIERS
POWERLINES	EXISTING GUARDRAILS
MANHOLE	NEW CULVERTS
TRAFFIC SIGN	EXISTING CULVERTS
ELECTRIC POLES	NEW ROAD RESERVE
REMOVE STREET LIGHT	FLOW DIRECTION ARROW
NEW SINGLE STREET LIGHT	CONCRETE V-DRAINS
RELOCATE STREET LIGHT	CHUTES

DETAILED DESIGN

5m 15m 25m 35m 45m
0m 10m 20m 30m 40m 50m
ORIGINAL SCALE 1 : 500 (A0)

No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date :

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DESIGNED BY
NAME : EF DAY
Prof. Reg. No. : 20130622
CHECKED BY
NAME : PL NGQUMSHE
Prof. Reg. No. : 20080112
DRAWN BY
NAME : WB HARTMANN

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17 / 07 / 2023

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for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
The construction of the dual carriageway of the N4-13 between Buffelspoort N4-13 km 2.800 and the P16-2 Interchange N4-13 km 40.000

DRAWING DESCRIPTION
LAYOUT N4-13
FROM km 30.000 TO 30.500

SCALE : 1 : 1000 (A0) SHEET 29 OF 40

PROJECT NUMBER	BPCC-2024/[illegible]318 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	SECTION 13	SECTION 13
DRAWING km DISTANCE	km 30.000	km 30.900
DRAWING TYPE	ROADS - LAYOUTS	
BRIDGE/STRUCTURE No.	NA	
CONSULTANT DRAWING No.	FA 3257 / 23 / 29 LP	VER V0
SANRAL DOCUMENT #	- -	

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PL\N03-Tender\03-Drawings\Volume 4-Roadworks\02 - Layouts\3257-23-29LP-N4 Dual Carriageway Layouts km 30 to km 30.500_20230717.dwg

N4-13 NRA CENTER LINE COORDINATES

DESIGN SPEED 120 km/h

(WGS 84 \ LO 27°)

CHAINAGE	Y COORDINATE + 0,000	X CO-ORDINATE + 0,000	DESCRIPTION
30.500 000	-22 875.746	+2 842 521.529	
30.600 000	-22 777.204	+2 842 504.523	
30.700 000	-22 678.374	+2 842 489.279	
30.800 000	-22 579.298	+2 842 475.725	
30.900 000	-22 480.162	+2 842 462.608	
31.000 000	-22 381.026	+2 842 449.491	

BENCH MARKS

(WGS 84 \ LO 27°)

STATION	Y CO-ORDINATES + 0.000	X CO-ORDINATES + 0.000	ELEVATION
BM30	- 22 408.823	+ 2 842 430.254	1 216.123
BM31	- 22 731.933	+ 2 842 418.789	1 223.169
BM32	- 23 009.841	+ 2 842 511.659	1 214.941
BM33	- 23 314.896	+ 2 842 582.033	1 216.493

N4-13 EASTBOUND GUARDRAILS WITH TYPE A V-DRAIN

SIDE	START CHAINAGE	END CHAINAGE	LENGTH	DOWNPIPE CHAINAGE
NORTH	30.500 000	30.600 000	0.100 000	30.500 000 30.550 000
SOUTH	30.545 000	30.600 000	0.055 000	

GUARDRAIL LENGTHS EXCLUDE TERMINAL SECTIONS

N4-13 WESTBOUND GUARDRAILS WITH TYPE A V-DRAIN

SIDE	START CHAINAGE	END CHAINAGE	LENGTH	DOWNPIPE CHAINAGE
NORTH	30.500 000	32.540 000	2.040 000	

GUARDRAIL LENGTHS EXCLUDE TERMINAL SECTIONS

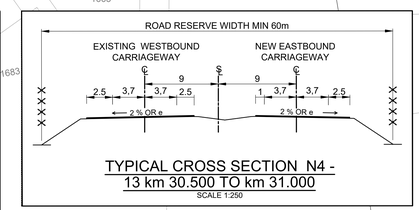
EXISTING ROAD RESERVE

(WGS 84 \ LO 27°)

DESCRIPTION	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
R70	- 23 084.084	+2 842 604.431
R69	- 22 844.708	+ 2 842 556.559
R68	- 22 783.288	+ 2 842 546.899
R67	- 22 780.318	+ 2 842 546.499
R66	- 22 646.250	+ 2 842 531.048
R66C	- 22 763.929	+ 2 842 544.609
R65	- 22 643.910	+ 2 842 529.258
R64	- 22 604.421	+ 2 842 509.677
R63	- 22 601.591	+ 2 842 508.817
BOEK1	- 22 923.883	+ 2 842 572.440
BOEK2	- 22 863.353	+2 842 572.007
BOEK3	- 22 824.691	+2 842 585.232
BOEK4	- 22 742.648	+ 2 842 582.602
L10	- 22 728.400	+ 2 842 608.080
L11	- 22 679.380	+ 2 842 655.330
L12	- 22 659.269	+ 2 842 666.586
L13	- 22 596.680	+ 2 842 701.630
L14	- 22 555.000	+2 842 724.954
L15	- 22 451.920	+ 2 842 785.622
L16	- 22 391.781	+ 2 842 829.191
R14	- 22 377.881	+ 2 842 810.011
R13	- 22 378.221	+ 2 842 807.921
R12	- 22 617.540	+ 2 842 634.556
R11	- 22 619.550	+ 2 842 632.406
R10	- 22 657.040	+2 842 572.247
R9	- 22 658.030	+ 2 842 569.487
R8	- 22 660.740	+ 2 842 549.047
R7	- 22 659.940	+ 2 842 546.437
L54	- 22 604.922	+ 2 842 448.908
L55	- 22 607.892	+ 2 842 448.888
L56	- 22 651.451	+ 2 842 442.439
L57	- 22 654.421	+ 2 842 442.359
L58	- 22 711.520	+ 2 842 447.589
L59	- 22 713.480	+ 2 842 449.299
BOEK8	- 22 680.829	+ 2 842 444.749
R5	- 22 687.101	+ 2 842 376.270
R4	- 22 668.482	+ 2 842 323.140
L4	- 22 738.751	+ 2 842 345.741
BOEK7	- 22 749.743	+ 2 842 363.898
L5	- 22 765.350	+ 2 842 389.761
L59A	- 22 777.799	+ 2 842 461.680
BOEK 6	- 22 827.371	+ 2 842 406.958
BOEK5	- 22 932.558	+ 2 842 491.460
L60	- 22 974.756	+ 2 842 499.621
L61	- 23 101.485	+ 2 842 526.352

LEGEND

- N4-13 TO BE CONSTRUCTED
- FENCE
- BUILDING
- CONCRETE
- VALVE
- GRID INLET
- BRIDGE PILLARS
- KERB INLET
- ELECTRIC BOX
- POWERLINES
- MANHOLE
- TRAFFIC SIGN
- ELECTRIC POLES
- REMOVE STREET LIGHT
- NEW SINGLE STREET LIGHT
- RELOCATE STREET LIGHT
- DIRECTION OF FLOW (SIDE DRAIN)
- NEW DOUBLE STREET LIGHT
- FLOOD LIGHT
- TELEPHONE POLE
- FARM PORTIONS
- CONTOURS
- BATTER
- BENCH MARK
- WALL
- NEW GUARDRAILS
- EXISTING GUARDRAILS
- NEW CULVERTS
- EXISTING CULVERTS
- ROAD RESERVE
- FLOW DIRECTION ARROW
- CHUTES
- DIRECTION OF FLOW (MEDIAN DRAIN)



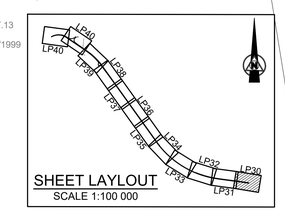
TYPICAL CROSS SECTION N4 - 13 km 30.500 TO km 31.000

SCALE 1:250

N4-13 DUAL CARRIAGEWAY (PART B) km 30.500 000 - km 31.000 000

(WGS 84 \ LO 27°)

CURVE	DESCRIPTION	CURVE LENGTH	CURVE RADIUS	POINT	CHAINAGE DISTANCE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
				START	30 500 000	-22 875.746	+ 2 842 521.529
				BC 8	30 500 000	-22 875.746	+ 2 842 521.529
PI 8	LEFT HAND CIRCULAR	270.343	5 600.00 m	PI 8	-	-23 720.130	+ 2 842 626.670
				EC 8	30.770 343	- 22 608.698	+ 2 842 479.615



SHEET LAYOUT

SCALE 1:100 000

TENDER

0m 5m 10m 15m 20m 25m 30m 35m 40m 45m 50m

ORIGINAL SCALE 1 : 500 (A0)

No.	DATE	REVISION	
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date :

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DESIGNED BY
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Prof. Reg. No. -
CHECKED BY
NAME PL NGQUMSHE
Prof. Reg. No. 20080112
DRAWN BY
NAME M DE KOCK

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17 / 07 / 2023

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Reg. No. 1998/009984/30

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for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
The construction of the dual carriageway of the N4-13 between Buffelspoort N4-13 km 2.800 and the P16-2 Interchange N4-13 km 40.000

DRAWING DESCRIPTION
LAYOUT N4-13
FROM km 30.500 TO 31.000

SCALE : 1 : 1000 (A0) SHEET 30 OF 41

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	SECTION 13	SECTION 13
DRAWING km DISTANCE	km 30.500	km 31.000
DRAWING TYPE	ROADS - LAYOUTS	
BRIDGE/STRUCTURE No.	NA	
CONSULTANT DRAWING No.	FA 3257 / 23 / 30 LP	VER
SANRAL DOCUMENT #	- -	V0

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\02 - Layouts\3257-23-30-41LP-N4 Dual Carriageway Layouts km 30 500 to 40 600_20230717.dwg

N4-13 DUAL CARRIAGEWAY (PART B) km 31.000 000 - km 32.000 000

(WGS 84 \ LO 27°)

CURVE	DESCRIPTION	CURVE LENGTH	CURVE RADIUS	POINT	CHAINAGE DISTANCE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
PI 9	RIGHT HAND CIRCULAR	3 216.810 m	3 935.695 m	BC 9	31.830 788	-21 557.416	+ 2 842 340.518
				PI 9	-	-19 867.780	+ 2 842 116.960
				EC 9	35 047.598	- 18 874.843	+ 2 840 731.708

N4-13 NRA CENTER LINE COORDINATES

(WGS 84 \ LO 27°)

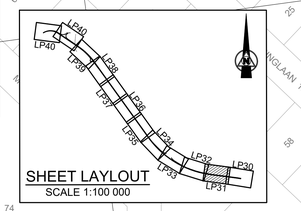
DESIGN SPEED 120 km/h

CHAINAGE	Y COORDINATE + 0,000	X CO-ORDINATE + 0,000	DESCRIPTION
31.000 000	-22 381.026	+2 842 449.491	
31.100 000	-22 281.890	+2 842 436.374	
31.200 000	-22 182.754	+2 842 423.258	
31.300 000	-22 083.618	+2 842 410.141	
31.400 000	-21 984.482	+2 842 397.024	
31.500 000	-21 885.346	+2 842 383.907	
31.600 000	-21 786.210	+2 842 370.790	
31.700 000	-21 687.074	+2 842 357.673	
31.800 000	-21 587.938	+2 842 344.557	
31.900 000	-21 488.885	+2 842 330.837	
32.000 000	-21 390.195	+2 842 314.724	

BENCH MARKS

(WGS 84 \ LO 27°)

STATION	Y CO-ORDINATES + 0.000	X CO-ORDINATES + 0.000	ELEVATION
BM27	- 21 503.757	+ 2 842 310.259	1 213.195
BM28	- 21 806.082	+ 2 842 349.547	1 212.903
BM29	- 22 108.332	+ 2 842 386.362	1 215.987
BM30	- 22 408.823	+ 2 842 430.254	1 216.123



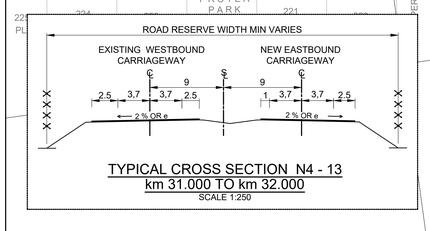
EXISTING ROAD RESERVE

(WGS 84 \ LO 27°)

DESCRIPTION	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
R62	- 21 800.823	+ 2 842 402.860
R61	- 21 797.873	+ 2 842 403.010
R60	- 21 755.693	+ 2 842 413.080
R59	- 21 753.803	+ 2 842 414.860
R58	- 21 684.664	+ 2 842 397.669
R57	- 21 576.826	+ 2 842 394.578
R56	- 21 573.836	+ 2 842 394.348
R55	- 21 551.996	+ 2 842 391.678
R54	- 21 549.026	+ 2 842 391.268
R53	- 21 356.089	+ 2 842 360.826
R52	- 21 353.139	+ 2 842 360.296
1XDR	- 21 728.653	+ 2 842 481.519
DR15F	- 21 728.243	+ 2 842 500.358
DR15	- 21 689.932	+ 2 842 628.496
DR14	- 21 688.042	+ 2 842 630.246
DR13	- 21 674.392	+ 2 842 633.136
DR12	- 21 673.072	+ 2 842 631.956
DR11	- 21 679.703	+ 2 842 565.107
DR10	- 21 679.903	+ 2 842 562.107
L46	- 21 353.080	+ 2 842 267.277
L47	- 21 562.657	+ 2 842 300.839
L48	- 21 695.075	+ 2 842 318.240
L49	- 21 696.865	+ 2 842 316.970
L50	- 21 766.184	+ 2 842 319.041
L51	- 21 767.514	+ 2 842 321.251
L52	- 21 807.613	+ 2 842 342.891
L53	- 21 810.423	+ 2 842 343.801
XDL2	- 21 758.235	+ 2 842 256.292
XDL1	- 21 765.535	+ 2 842 213.852
DL20	- 21 765.955	+ 2 842 240.882
DL21	- 21 765.715	+ 2 842 243.852
DL10	- 21 749.017	+ 2 842 058.634
DL11	- 21 750.817	+ 2 842 057.114

LEGEND

- N4-13 TO BE CONSTRUCTED
- FENCE
- BUILDING
- CONCRETE
- VALVE
- GRID INLET
- BRIDGE PILLARS
- KERB INLET
- ELECTRIC BOX
- POWERLINES
- MANHOLE
- TRAFFIC SIGN
- ELECTRIC POLES
- REMOVE STREET LIGHT
- NEW SINGLE STREET LIGHT
- RELOCATE STREET LIGHT
- DIRECTION OF FLOW (SIDE DRAIN)
- NEW DOUBLE STREET LIGHT
- FLOOD LIGHT
- TELEPHONE POLE
- FARM PORTIONS
- CONTOURS
- BATTER
- BENCH MARK
- WALL
- NEW GUARDRAILS
- EXISTING GUARDRAILS
- NEW CULVERTS
- EXISTING CULVERTS
- ROAD RESERVE
- FLOW DIRECTION ARROW
- CHUTES
- DIRECTION OF FLOW (MEDIAN DRAIN)



N4-13 WESTBOUND GUARDRAILS WITH TYPE A V-DRAIN

SIDE	START CHAINAGE	END CHAINAGE	LENGTH	DOWNPIPE CHAINAGE
NORTH	30.500 000	32.540 000	2.040 000	

GUARDRAIL LENGTHS EXCLUDE TERMINAL SECTIONS

TENDER

5m 15m 25m 35m 45m
0m 10m 20m 30m 40m 50m
ORIGINAL SCALE 1 : 500 (A0)

No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date :

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NAME: Z MASHININI
Prof. Reg. No. : -
CHECKED BY
NAME: PL NGQUMSHE
Prof. Reg. No. : 20080112
DRAWN BY
NAME: M DE KOCK

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17 / 07 / 2023

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THE SOUTH AFRICAN NATIONAL ROADS AGENCY SOC LTD
Reg. No. 1998/009584/30

NORTHERN REGION
38 Ida Street
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ACCEPTANCE
THIS ACCEPTANCE IS FOR PROCEDURAL AND ADMINISTRATIVE REVIEW PURPOSES ONLY AND DOES NOT ATTRACT LEGAL LIABILITY OR LIABILITY OF ANY KIND FROM WHATSOEVER CAUSE OR HOWEVER ARISING
for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION

The construction of the dual carriageway of the N4-13 between Buffelspoort N4-13 km 2.800 and the P16-2 Interchange N4-13 km 40.000

DRAWING DESCRIPTION

LAYOUT N4-13 FROM km 31.000 TO 32.000

SCALE : 1 : 1000 (A0) SHEET 31 OF 41

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	SECTION 13	SECTION 13
DRAWING km DISTANCE	km 31.000	km 32.000
DRAWING TYPE	ROADS - LAYOUTS	
BRIDGE/STRUCTURE No.	NA	
CONSULTANT DRAWING No.	FA 3257 / 23 / 31 LP	VER V0
SANRAL DOCUMENT #	- -	

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\02 - Layouts\3257-23-30-41LP-N4 Dual Carriageway Layouts km 30 500 to 40 800_20230717.dwg

EXISTING ROAD RESERVE
(WGS 84 \ LO 27°)

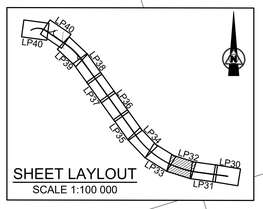
DESCRIPTION	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
R53	- 21 356.089	+2 842 360.826
R52	- 21 353.139	+ 2 842 360.296
R51	- 21 190.162	+ 2 842 326.815
R50	- 21 187.232	+ 2 842 326.145
R49	- 20 997.865	+ 2 842 277.984
R48	- 20 994.975	+ 2 842 277.184
R47	- 20 981.555	+ 2 842 273.184
R46	- 20 978.685	+ 2 842 272.314
R45	- 20 829.047	+ 2 842 226.683
R44	- 20 826.197	+ 2 842 225.733
R43	- 20 659.810	+ 2 842 166.132
R42	- 20 657.000	+ 2 842 165.102
R41	- 20 558.002	+ 2 842 128.311
L38	- 20 409.700	+ 2 841 944.660
L39	- 20 599.042	+ 2 842 028.413
L40	- 20 644.862	+ 2 842 019.993
L41	- 20 699.621	+ 2 842 041.364
L42	- 20 687.141	+ 2 842 074.063
L43	- 20 834.448	+ 2 842 132.154
L44	- 20 940.966	+ 2 842 166.195
L45	- 21 145.643	+ 2 842 222.346
L46	- 21 353.080	+ 2 842 267.277

N4-13 NRA CENTER LINE COORDINATES
DESIGN SPEED 120 km/h *(WGS 84 \ LO 27°)*

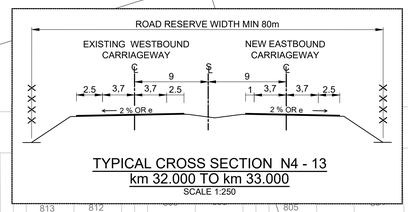
CHAINAGE	Y COORDINATE + 0,000	X CO-ORDINATE + 0,000	DESCRIPTION
32.000 000	-21 390.195	+2 842 314.724	
32.100 000	-21 291.945	+2 842 296.109	
32.200 000	-21 194.200	+2 842 275.004	
32.300 000	-21 097.023	+2 842 251.423	
32.400 000	-21 000.477	+2 842 225.380	
32.500 000	-20 904.623	+2 842 196.893	
32.600 000	-20 809.524	+2 842 165.980	
32.700 000	-20 715.241	+2 842 132.661	
32.800 000	-20 621.835	+2 842 096.957	
32.900 000	-20 529.366	+2 842 058.892	
33.000 000	-20 437.894	+2 842 018.490	

BENCH MARKS
(WGS 84 \ LO 27°)

STATION	Y CO-ORDINATES + 0.000	X CO-ORDINATES + 0.000	ELEVATION
BM24	- 20 619.738	+ 2 842 097.126	1 209.554
BM25	- 20 924.886	+ 2 842 152.100	1 210.042
BM26	- 21 210.367	+ 2 842 236.561	1 209.220



SHEET LAYLOUT
SCALE 1:100 000



TYPICAL CROSS SECTION N4 - 13
km 32.000 TO km 33.000
SCALE 1:250

N4-13 DUAL CARRIAGEWAY (PART B) km 32.000 000 - km 33.000 000
(WGS 84 \ LO 27°)

CURVE	DESCRIPTION	CURVE LENGTH	CURVE RADIUS	POINT	CHAINAGE DISTANCE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
PI 9	RIGHT HAND CIRCULAR	3 216.810 m	3 935.695 m	BC 9	31.830 788	-21 557.416	+ 2 842 340.518
				PI 9	-	-19 867.780	+ 2 842 116.960
				EC 9	35 047.598	- 18 874.843	+ 2 840 731.708

N4-13 EASTBOUND GUARDRAILS WITH TYPE A V-DRAIN

SIDE	START CHAINAGE	END CHAINAGE	LENGTH	DOWNPIPE CHAINAGE
NORTH	32.660 000	33.020 000	0.360 000	32.660 000 32.720 000 32.770 000 32.820 000 32.870 000 32.920 000 32.970 000
SOUTH	32.680 000	33.660 000	0.980 000	
GUARDRAIL LENGTHS EXCLUDE TERMINAL SECTIONS				

N4-13 WESTBOUND GUARDRAILS WITH TYPE A V-DRAIN

SIDE	START CHAINAGE	END CHAINAGE	LENGTH	DOWNPIPE CHAINAGE
NORTH	30.500 000	32.540 000	2.040 000	
GUARDRAIL LENGTHS EXCLUDE TERMINAL SECTIONS				

LEGEND

- N4-13 TO BE CONSTRUCTED
- FENCE
- BUILDING
- CONCRETE
- VALVE
- GRID INLET
- BRIDGE PILLARS
- KERB INLET
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- EXISTING CULVERTS
- ROAD RESERVE
- FLOW DIRECTION ARROW
- CHUTES
- DIRECTION OF FLOW (MEDIAN DRAIN)

TENDER

5m 15m 25m 35m 45m
0m 10m 20m 30m 40m 50m
ORIGINAL SCALE 1 : 500 (A0)

SANRAL DOCUMENT NUMBER :

No.	DATE	REVISION	
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date :

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DESIGNED BY
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NAME : M DE KOCK

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for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
The construction of the dual carriageway of the N4-13 between Buffelspoort N4-13 km 2.800 and the P16-2 Interchange N4-13 km 40.000

DRAWING DESCRIPTION
LAYOUT N4-13
FROM km 32.000 TO 33.000

SCALE : 1 : 1000 (A0) SHEET 32 OF 41

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	SECTION 13	SECTION 13
DRAWING km DISTANCE	km 32.000	km 33.000
DRAWING TYPE	ROADS - LAYOUTS	
BRIDGE/STRUCTURE No.	NA	
CONSULTANT DRAWING No.	FA 3257 / 23 / 32 LP	VER
SANRAL DOCUMENT #	- -	V0

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\02 - Layouts\3257-23-30-41LP-N4 Dual Carriageway Layouts km 30 500 to 40 600_20230717.dwg

N4-13 DUAL CARRIAGEWAY (PART B) km 33.000 000 - km 34.000 000

(WGS 84 \ LO 27°)

CURVE	DESCRIPTION	CURVE LENGTH	CURVE RADIUS	POINT	CHAINAGE DISTANCE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
PI 9	RIGHT HAND CIRCULAR	3 216.810 m	3 935.695 m	BC 9	31.830 788	-21 557.416	+ 2 842 340.518
				PI 9	-	-19 867.780	+ 2 842 116.960
				EC 9	35 047.598	- 18 874.843	+ 2 840 731.708

(P16-2) DR MOROKA DRIVE ON RAMP - EASTBOUND
km 0.000 000 - km 0.868 575

(WGS 84 \ LO 27°)

CURVE	DESCRIPTION	CURVE LENGTH	CURVE RADIUS	POINT	CHAINAGE DISTANCE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
				START	0.000 000	- 19 762.468	+ 2 841 487.715
1B	LEFT HAND CIRCULAR	152.430 m	500.000 m	BC 1B	0.217 639	- 19 898.707	+ 2 841 657.437
				PI 1B	-	- 19 946.790	+ 2 841 717.337
				EC 1B	0.370 069	- 20 010.635	+ 2 841 760.042
2B	LEFT HAND CIRCULAR	153.701 m	2300.000 m	BC 2B	0.424 268	- 20 055.685	+ 2 841 790.176
				PI 2B	-	- 20 119.587	+ 2 841 832.919
				EC 2B	0.577 969	- 20 186.200	+ 2 841 871.300
3B	LEFT HAND CIRCULAR	290.586 m	3922.995 m	BC 3B	0.577 978	- 20 186.208	+ 2 841 871.304
				PI 3B	-	- 20 312.157	+ 2 841 943.872
				EC 3B	0.868 564	- 20 443.131	+ 2 842 006.920
				END	0.868 575	- 20 443.141	+ 2 842 006.925

EXISTING ROAD RESERVE

(WGS 84 \ LO 27°)

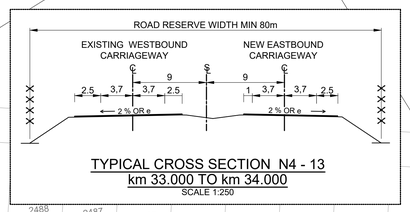
DESCRIPTION	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
R40	- 20 365.105	+ 2 842 038.620
R39	- 20 052.661	+ 2 841 871.789
R38	- 19 667.298	+ 2 841 717.137
R37	- 19 626.518	+ 2 841 726.497
R36	- 19 559.450	+ 2 841 672.667
R35	- 19 562.190	+ 2 841 619.727
L5	- 19 450.359	+ 2 841 826.173
L33	- 19 608.032	+ 2 841 397.901
L34	- 19 733.310	+ 2 841 441.641
L35	- 19 814.420	+ 2 841 506.732
L36	- 19 904.206	+ 2 841 622.641
L37	- 20 225.089	+ 2 841 850.931
L38	- 20 409.700	+ 2 841 944.660

N4-13 NRA CENTER LINE COORDINATES

DESIGN SPEED 120 km/h

(WGS 84 \ LO 27°)

CHAINAGE	Y COORDINATE + 0,000	X CO-ORDINATE + 0,000	DESCRIPTION
33.000 000	-20 437.894	+2 842 018.490	
33.100 000	-20 347.478	+2 841 975.776	
33.200 000	-20 258.176	+2 841 930.780	
33.300 000	-20 170.047	+2 841 883.529	
33.400 000	-20 083.146	+2 841 834.055	
33.500 000	-19 997.530	+2 841 782.389	
33.600 000	-19 913.255	+2 841 728.564	
33.700 000	-19 830.374	+2 841 672.616	
33.800 000	-19 748.941	+2 841 614.580	
33.900 000	-19 669.009	+2 841 554.493	
34.000 000	-19 590.629	+2 841 492.396	



TYPICAL CROSS SECTION N4 - 13
km 33.000 TO km 34.000
SCALE 1:250

BENCH MARKS

(WGS 84 \ LO 27°)

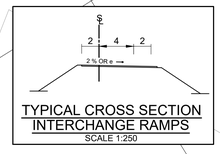
STATION	Y CO-ORDINATES + 0.000	X CO-ORDINATES + 0.000	ELEVATION
BM21	- 19 852.172	+ 2 841 573.724	1 247.735
BM22	- 20 076.228	+ 2 841 808.638	1 235.249
BM23	- 20 347.354	+ 2 841 921.112	1 219.781

DR MOROKA (P16-2) ON RAMP CENTER LINE COORDINATES

DESIGN SPEED VARIES

(WGS 84 \ LO 27°)

CHAINAGE	Y COORDINATE + 0,000	X CO-ORDINATE + 0,000	DESCRIPTION
0.000 000	-19 762.468	+2 841 487.715	
0.100 000	-19 825.067	+2 841 565.698	
0.200 000	-19 887.665	+2 841 643.682	
0.300 000	-19 955.309	+2 841 717.138	
0.400 000	-20 035.513	+2 841 776.683	
0.500 000	-20 119.315	+2 841 831.237	
0.600 000	-20 205.320	+2 841 882.244	
0.700 000	-20 292.866	+2 841 930.567	
0.800 000	-20 381.616	+2 841 976.643	
0.868 575	-20 443.141	+2 842 006.925	



TYPICAL CROSS SECTION INTERCHANGE RAMPS
SCALE 1:250

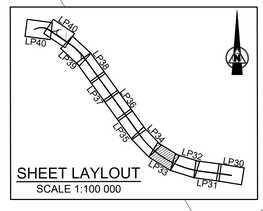
N4-13 EASTBOUND GUARDRAILS WITH TYPE A V-DRAIN

SIDE	START CHAINAGE	END CHAINAGE	LENGTH	DOWNPIPE CHAINAGE
NORTH	32.660 000	33.020 000	0.360 000	32.970 000
NORTH	33.840 000	34.120 000	0.280 000	33.840 000
				33.900 000
				33.950 000
				34.000 000
				34.050 000
				34.100 000
SOUTH	32.680 000	33.660 000	0.980 000	
SOUTH	33.858 960	33.874 960	0.016 000	

GUARDRAIL LENGTHS EXCLUDE TERMINAL SECTIONS

LEGEND

- N4-13 TO BE CONSTRUCTED
- FENCE
- BUILDING
- CONCRETE
- VALVE
- GRID INLET
- BRIDGE PILLARS
- KERB INLET
- ELECTRIC BOX
- POWERLINES
- MANHOLE
- TRAFFIC SIGN
- ELECTRIC POLES
- REMOVE STREET LIGHT
- NEW SINGLE STREET LIGHT
- RELOCATE STREET LIGHT
- DIRECTION OF FLOW (SIDE DRAIN)
- NEW DOUBLE STREET LIGHT
- FLOOD LIGHT
- TELEPHONE POLE
- FARM PORTIONS
- CONTOURS
- BATTER
- BENCH MARK
- WALL
- NEW GUARDRAILS
- EXISTING GUARDRAILS
- NEW CULVERTS
- EXISTING CULVERTS
- ROAD RESERVE
- FLOW DIRECTION ARROW
- CHUTES
- DIRECTION OF FLOW (MEDIAN DRAIN)



TENDER

5m 15m 25m 35m 45m
0m 10m 20m 30m 40m 50m
ORIGINAL SCALE 1 : 500 (A0)

V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE
No.	DATE	REVISION	CONSULT. ENG.

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date :

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DESIGNED BY	
NAME	Z MASHININI
Prof. Reg. No.	-
CHECKED BY	
NAME	PL NGQUMSHE
Prof. Reg. No.	20080112
DRAWN BY	
NAME	M DE KOCK

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17 / 07 / 2023

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THE SOUTH AFRICAN NATIONAL ROADS AGENCY SOC LTD
Reg. No. 1998/009584/30

NORTHERN REGION
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Tel: (012) 426 6200

ACCEPTANCE
THIS ACCEPTANCE IS FOR PROCEDURAL AND ADMINISTRATIVE REVIEW PURPOSES ONLY AND DOES NOT ATTRACT LEGAL LIABILITY OR LIABILITY OF ANY KIND FROM WHATSOEVER CAUSE OR HOWEVER ARISING
for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
The construction of the dual carriageway of the N4-13 between Buffelspoort N4-13 km 2.800 and the P16-2 Interchange N4-13 km 40.000

DRAWING DESCRIPTION
LAYOUT N4-13 FROM km 33.000 TO 34.000

SCALE : 1 : 1000 (A0) | SHEET 33 OF 41

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001		
DRAWING LOCATION DATA	START	END	
ROUTE	N 4	N 4	
SECTION	SECTION 13	SECTION 13	
DRAWING km DISTANCE	km 33.000	km 34.000	
DRAWING TYPE	ROADS - LAYOUTS		
BRIDGE/STRUCTURE No.	NA		
CONSULTANT DRAWING No.	FA	3257 / 23 / 33 LP	VER
SANRAL DOCUMENT #		- -	V0

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\23-Drawings\Volume 4 Roadworks\02 - Layouts\3257-23-30-41LP-N4 Dual Carriageway Layouts km 30 000 to 40 800_20230717.dwg

N4-13 DUAL CARRIAGEWAY (PART B) km 34.000 000 - km 35.000 000

(WGS 84 \ LO 27°)

CURVE	DESCRIPTION	CURVE LENGTH	CURVE RADIUS	POINT	CHAINAGE DISTANCE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
PI 9	RIGHT HAND CIRCULAR	3 216.810 m	3 935.695 m	BC 9	31.830 788	-21 557.416	+ 2 842 340.518
				PI 9	-	-19 867.780	+ 2 842 116.960
				EC 9	35 047.598	- 18 874.843	+ 2 840 731.708

N4-13 NRA CENTER LINE COORDINATES

DESIGN SPEED 120 km/h

(WGS 84 \ LO 27°)

CHAINAGE	Y COORDINATE + 0,000	X CO-ORDINATE + 0,000	DESCRIPTION
34.000 000	-19 590.629	+2 841 492.396	
34.100 000	-19 513.853	+2 841 428.327	
34.200 000	-19 438.729	+2 841 362.329	
34.300 000	-19 365.305	+2 841 294.443	
34.400 000	-19 293.630	+2 841 224.713	
34.500 000	-19 223.750	+2 841 153.186	
34.600 000	-19 155.710	+2 841 079.906	
34.700 000	-19 089.553	+2 841 004.921	
34.800 000	-19 025.323	+2 840 928.279	
34.900 000	-18 963.061	+2 840 850.030	
35.000 000	-18 902.806	+2 840 770.225	

(P16-2) DR MOROKA DRIVE OFF RAMP - EASTBOUND
km 0.000 000 - km 0.707 502

(WGS 84 \ LO 27°)

CURVE	DESCRIPTION	CURVE LENGTH	CURVE RADIUS	POINT	CHAINAGE DISTANCE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
				START	0.000 000	- 19 185.277	+ 2 841 093.477
1A	LEFT HAND CIRCULAR	297.189 m	3922.995 m	BC 1A	0.000 000	- 19 185.277	+ 2 841 093.477
				PI 1A	-	- 19 289.866	+ 2 841 199.142
				EC 1A	0.297 197	- 19 402.146	+ 2 841 296.583
2A	LEFT HAND CIRCULAR	125.706 m	420.000 m	BC 2A	0.333 726	- 19 429.735	+ 2 841 320.526
				PI 2A	-	- 19 477.562	+ 2 841 362.032
				EC 2A	0.459 432	- 19 535.501	+ 2 841 387.591
				END	0.707 502	- 19 762.468	+ 2 841 487.715

EXISTING ROAD RESERVE

(WGS 84 \ LO 27°)

DESCRIPTION	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
R34	- 19 451.363	+ 2 841 458.928
R33A	- 19 413.934	+ 2 841 418.708
R33X	- 19 422.354	+ 2 841 419.238
R33	- 19 340.386	+ 2 841 339.669
R32	- 19 231.838	+ 2 841 233.419
R31	- 19 127.421	+ 2 841 123.109
R30	- 18 960.555	+ 2 840 919.650
R29	- 18 840.718	+ 2 840 756.171
L27	- 18 908.988	+ 2 840 707.232
L28	- 19 006.925	+ 2 840 837.982
L29	- 19 110.233	+ 2 840 964.481
L30	- 19 218.780	+ 2 841 086.551
L31	- 19 332.337	+ 2 841 203.960
L31B	- 19 395.216	+ 2 841 255.940
L32	- 19 469.674	+ 2 841 317.500
L33	- 19 608.032	+ 2 841 397.901

BENCH MARKS

(WGS 84 \ LO 27°)

STATION	Y CO-ORDINATES + 0.000	X CO-ORDINATES + 0.000	ELEVATION
BM17	- 18 917.283	+ 2 840 720.117	1 272.289
BM18	- 19 075.888	+ 2 840 977.630	1 266.671
BM19	- 19 338.356	+ 2 841 206.249	1 258.466
BM20	- 19 585.677	+ 2 841 386.085	1 249.953

ROAD RESERVE WIDTH MIN 80m

EXISTING WESTBOUND CARRIAGEWAY — NEW EASTBOUND CARRIAGEWAY

2.5 | 3.7 | 3.7 | 2.5 — 9 — 1 | 3.7 | 3.7 | 2.5

2 % OR e — 2 % OR e

TYPICAL CROSS SECTION N4 - 13
km 34.000 TO km 35.000
SCALE 1:250

TYPICAL CROSS SECTION INTERCHANGE RAMPS
SCALE 1:250

SHEET LAYLOUT
SCALE 1:100 000

N4-13 EASTBOUND GUARDRAILS WITH TYPE A V-DRAIN

SIDE	START CHAINAGE	END CHAINAGE	LENGTH	DOWNPIPE CHAINAGE
NORTH	33.840 000	34.120 000	0.280 000	33.950 000
				34.000 000
				34.050 000
				34.100 000

GUARDRAIL LENGTHS EXCLUDE TERMINAL SECTIONS

DR MOROKA (P16-2) OFF RAMP CENTER LINE COORDINATES

DESIGN SPEED VARIES

(WGS 84 \ LO 27°)

CHAINAGE	Y COORDINATE + 0,000	X CO-ORDINATE + 0,000	DESCRIPTION
0.000 000	-19 185.277	+2 841 093.477	
0.100 000	-19 256.523	+2 841 163.645	
0.200 000	-19 329.534	+2 841 231.974	
0.300 000	-19 404.263	+2 841 298.420	
0.400 000	-19 483.001	+2 841 359.843	
0.500 000	-19 572.618	+2 841 403.965	
0.600 000	-19 664.111	+2 841 444.326	
0.700 000	-19 755.604	+2 841 484.687	
0.707 502	-19 762.468	+2 841 487.715	

LEGEND

- N4-13 TO BE CONSTRUCTED
- FENCE
- BUILDING
- CONCRETE
- VALVE
- GRID INLET
- BRIDGE PILLARS
- KERB INLET
- ELECTRIC BOX
- POWERLINES
- MANHOLE
- TRAFFIC SIGN
- ELECTRIC POLES
- REMOVE STREET LIGHT
- NEW SINGLE STREET LIGHT
- RELOCATE STREET LIGHT
- DIRECTION OF FLOW (SIDE DRAIN)
- NEW DOUBLE STREET LIGHT
- FLOOD LIGHT
- TELEPHONE POLE
- FARM PORTIONS
- CONTOURS
- BATTER
- BENCH MARK
- WALL
- NEW GUARDRAILS
- EXISTING GUARDRAILS
- NEW CULVERTS
- EXISTING CULVERTS
- ROAD RESERVE
- FLOW DIRECTION ARROW
- CHUTES
- DIRECTION OF FLOW (MEDIAN DRAIN)

SWARTRUGGENS

BRITS

km 34,986 981
1 x 600Ø PC
θ = 270°

0.5 m UNPAVED SHOULDER
1.0 m SHOULDER
3.7 m LANE
3.7 m LANE
2.5 m SHOULDER

N4-13 EASTBOUND

N4-13 WESTBOUND

2.5 m SHOULDER
3.7 m LANE
3.7 m LANE
2.5 m SHOULDER
6.1 m MEDIAN

MINIMUM ROAD RESERVE WIDTH: 80 m

km 34,857 045
1 x 600Ø PC
θ = 270°

START OF (P16-2) DR MOROKA DRIVE EASTBOUND OFF RAMP

PI 1A
R = 3922.995 m

(P16-2) DR MOROKA DRIVE WESTBOUND ON-RAMP

NOSE

PI 2A
R = 420.000 m

(P16-2) DR MOROKA DRIVE EASTBOUND OFF-RAMP

km 0,397 393
4 X 900Ø PC
θ = 97°

2.0 m SHOULDER
4.0 m LANE
2.0 m SHOULDER

km 33,944 111
2 x 900Ø PC
θ = 45°

OUTLET STRUCTURE TO BE REMOVED

km 34,153 348
2 x 1200Ø PC
θ = 59°

2.5 m SHOULDER
3.7 m LANE
3.7 m LANE
2.5 m SHOULDER
6.1 m MEDIAN
1.0 m SHOULDER
3.7 m LANE
3.7 m LANE
2.5 m SHOULDER
0.5 m UNPAVED SHOULDER

MINIMUM ROAD RESERVE WIDTH: 80 m

LIMIT OF CONSTRUCTION km 0.000 000

N4 - 13 CONTINUE ON 3257 / 23 / 35 LP

N4 - 13 CONTINUE FROM 3257 / 23 / 33 LP

RUSTENBURG TOWN AND TOWNLANDS 272-JQ

REMAINDER BERGSTROOM 246 - JQ

PTN.1 A574/83

PTN.2 A575/83

PTN.12 A1355/16

REM. PTN.1 A500/06

R.O.W. 6.0m WIDE

TENDER

5m 15m 25m 35m 45m
0m 10m 20m 30m 40m 50m
ORIGINAL SCALE 1 : 500 (A0)

SANRAL DOCUMENT NUMBER :

No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date :

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e-mail: johannesburg@jgafrika.com

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DESIGNED BY
NAME: Z MASHININI
Prof. Reg. No. : -
CHECKED BY
NAME: PL NGQUMSHE
Prof. Reg. No. : 20080112
DRAWN BY
NAME: M DE KOCK

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17 / 07 / 2023

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for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
The construction of the dual carriageway of the N4-13 between Buffelspoort N4-13 km 2.800 and the P16-2 Interchange N4-13 km 40.000

DRAWING DESCRIPTION
LAYOUT N4-13
FROM km 34.000 TO 35.000

SCALE : 1 : 1000 (A0) — SHEET 34 OF 41

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	SECTION 13	SECTION 13
DRAWING km DISTANCE	km 34.000	km 35.000
DRAWING TYPE	ROADS - LAYOUTS	
BRIDGE/STRUCTURE No.	NA	
CONSULTANT DRAWING No.	FA 3257 / 23 / 34 LP	VER
SANRAL DOCUMENT #	- -	V0

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadwork\02 - Layouts\3257-23-30-41LP-N4 Dual Carriageway Layouts km 30 500 to 40 600_20230717.dwg

N4-13 DUAL CARRIAGEWAY (PART B) km 35.000 000 - km 36.000 000

(WGS 84 \ LO 27°)

CURVE	DESCRIPTION	CURVE LENGTH	CURVE RADIUS	POINT	CHAINAGE DISTANCE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
PI 9	RIGHT HAND CIRCULAR	3 216.810 m	3 935.695 m	BC 9	31.830 788	-21 557.416	+ 2 842 340.518
				PI 9	-	-19 867.780	+ 2 842 116.960
				EC 9	35 047.598	- 18 874.843	+ 2 840 731.708

N4-13 EASTBOUND GUARDRAILS WITH TYPE A V-DRAIN

SIDE	START CHAINAGE	END CHAINAGE	LENGTH	DOWNPIPE CHAINAGE
NORTH	35.420 000	35.800 000	0.360 000	35.420 000
				35.470 000
				35.520 000
				35.570 000
				35.620 000
				35.670 000
				35.720 000
				35.770 000
SOUTH	36.000 000	37.100 000	1.100 000	

GUARDRAIL LENGTHS EXCLUDE TERMINAL SECTIONS

BENCH MARKS

(WGS 84 \ LO 27°)

STATION	Y CO-ORDINATES + 0.000	X CO-ORDINATES + 0.000	ELEVATION
BM14	- 18 369.893	+ 2 839 957.970	1 300.520
BM15	- 18 559.598	+ 2 840 201.332	1 284.144
BM16	- 18 738.877	+ 2 840 473.262	1 279.252
BM17	- 18 917.283	+ 2 840 720.117	1 272.289

N4-13 NRA CENTER LINE COORDINATES

DESIGN SPEED 120 km/h

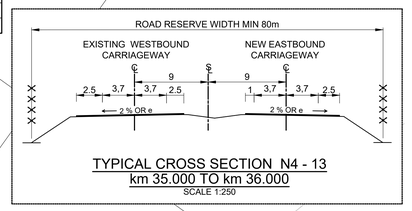
(WGS 84 \ LO 27°)

CHAINAGE	Y COORDINATE + 0,000	X CO-ORDINATE + 0,000	DESCRIPTION
35.000 000	-18 902.806	+2 840 770.225	
35.100 000	-18 844.314	+2 840 689.117	
35.200 000	-18 786.056	+2 840 607.840	
35.300 000	-18 727.797	+2 840 526.563	
35.400 000	-18 669.539	+2 840 445.286	
35.500 000	-18 611.280	+2 840 364.009	
35.600 000	-18 553.021	+2 840 282.732	
35.700 000	-18 494.763	+2 840 201.455	
35.800 000	-18 436.504	+2 840 120.178	
35.900 000	-18 378.246	+2 840 038.902	
36.000 000	-18 319.987	+2 839 957.625	

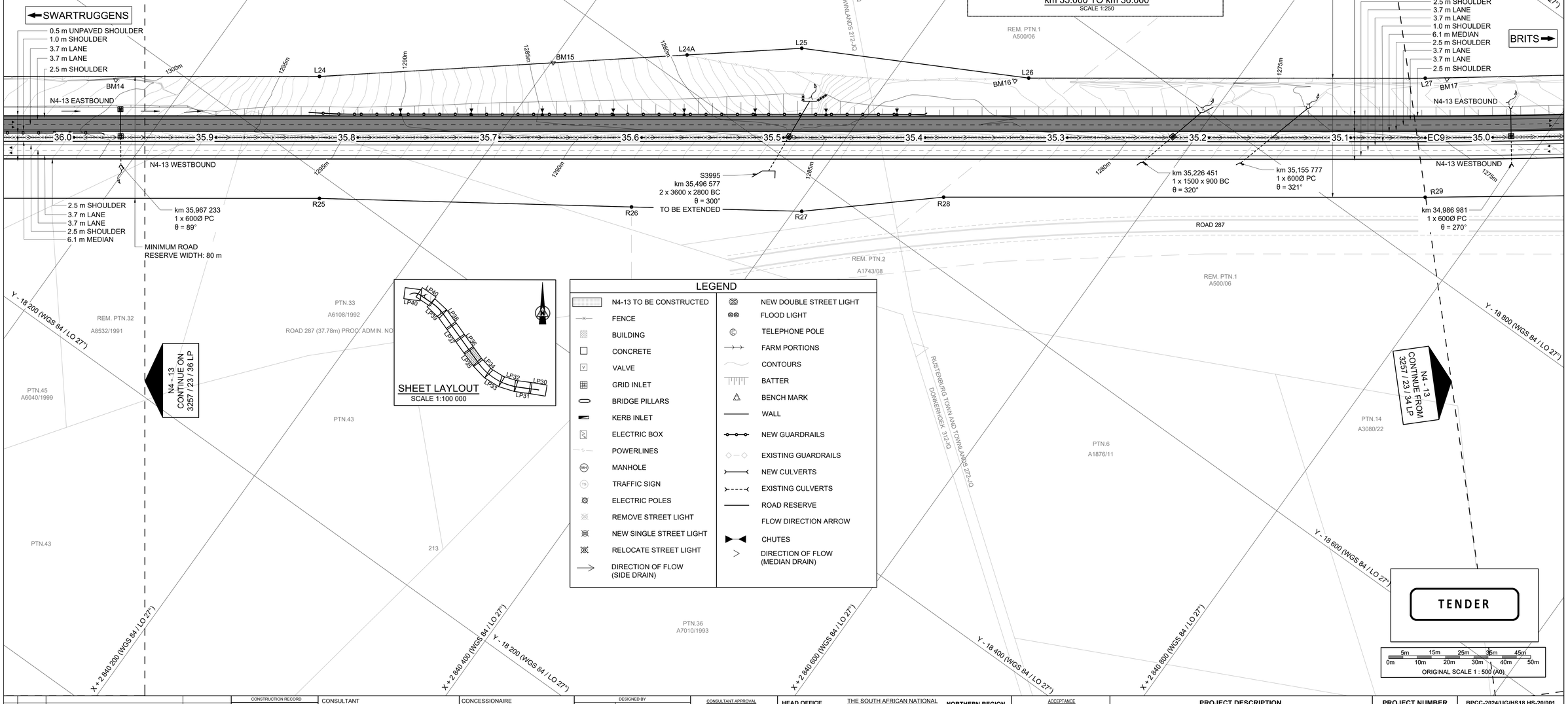
EXISTING ROAD RESERVE

(WGS 84 \ LO 27°)

DESCRIPTION	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
R29	- 18 840.718	+ 2 840 756.171
R28	- 18 642.924	+ 2 840 480.233
R27	- 18 576.536	+ 2 840 404.783
R26	- 18 509.067	+ 2 840 305.504
R25	- 18 385.771	+ 2 840 123.195
L24	- 18 455.671	+ 2 840 073.096
L24A	- 18 619.026	+ 2 840 274.835
L25	- 18 670.005	+ 2 840 337.785
L26	- 18 746.143	+ 2 840 480.054
L27	- 18 908.988	+ 2 840 707.232



TYPICAL CROSS SECTION N4 - 13
km 35.000 TO km 36.000
SCALE 1:250



LEGEND

N4-13 TO BE CONSTRUCTED	NEW DOUBLE STREET LIGHT
FENCE	FLOOD LIGHT
BUILDING	TELEPHONE POLE
CONCRETE	FARM PORTIONS
VALVE	CONTOURS
GRID INLET	BATTER
BRIDGE PILLARS	BENCH MARK
KERB INLET	WALL
ELECTRIC BOX	NEW GUARDRAILS
POWERLINES	EXISTING GUARDRAILS
MANHOLE	NEW CULVERTS
TRAFFIC SIGN	EXISTING CULVERTS
ELECTRIC POLES	ROAD RESERVE
REMOVE STREET LIGHT	FLOW DIRECTION ARROW
NEW SINGLE STREET LIGHT	CHUTES
RELOCATE STREET LIGHT	DIRECTION OF FLOW (MEDIAN DRAIN)
DIRECTION OF FLOW (SIDE DRAIN)	

N4 - 13 CONTINUE ON 3257 / 23 / 36 LP

N4 - 13 CONTINUE FROM 3257 / 23 / 34 LP

TENDER

5m 15m 25m 35m 45m
0m 10m 20m 30m 40m 50m
ORIGINAL SCALE 1 : 500 (A0)

No.	DATE	REVISION	
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSULTANT: ENG.

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date :

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DESIGNED BY	
NAME	Z MASHININI
Prof. Reg. No.	-
CHECKED BY	
NAME	PL NGQUMSHE
Prof. Reg. No.	20080112
DRAWN BY	
NAME	M DE KOCK

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17 / 07 / 2023

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for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
The construction of the dual carriageway of the N4-13 between Buffelspoort N4-13 km 2.800 and the P16-2 Interchange N4-13 km 40.000

DRAWING DESCRIPTION
LAYOUT N4-13
FROM km 35.000 TO 36.000

SCALE : 1 : 1000 (A0) SHEET 35 OF 41

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	SECTION 13	SECTION 13
DRAWING km DISTANCE	km 35.000	km 36.000
DRAWING TYPE	ROADS - LAYOUTS	
BRIDGE/STRUCTURE No.	NA	
CONSULTANT DRAWING No.	FA 3257 / 23 / 35 LP	VER V0
SANRAL DOCUMENT #	- -	

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadwork\02 - Layouts\3257-23-3C-41LP-N4 Dual Carriageway Layouts km 30 000 to 40 600_20230717.dwg

N4-13 NRA CENTER LINE COORDINATES

DESIGN SPEED 120 km/h — *(WGS 84 \ LO 27°)*

CHAINAGE	Y COORDINATE + 0,000	X CO-ORDINATE + 0,000	DESCRIPTION
36.000 000	-18 319.987	+2 839 957.625	
36.100 000	-18 261.728	+2 839 876.348	
36.200 000	-18 203.470	+2 839 795.071	
36.300 000	-18 145.211	+2 839 713.794	
36.400 000	-18 086.953	+2 839 632.517	
36.500 000	-18 028.694	+2 839 551.240	
36.600 000	-17 970.435	+2 839 469.963	
36.700 000	-17 912.177	+2 839 388.686	
36.800 000	-17 853.918	+2 839 307.409	
36.900 000	-17 795.660	+2 839 226.132	
37.000 000	-17 737.401	+2 839 144.856	

BENCH MARKS *(WGS 84 \ LO 27°)*

STATION	Y CO-ORDINATES + 0.000	X CO-ORDINATES + 0.000	ELEVATION
BM11	- 17 840.391	+ 2 839 219.466	1 319.627
BM12	- 18 006.241	+ 2 839 450.750	1 318.431
BM13	- 18 188.687	+ 2 839 704.178	1 309.705
BM14	- 18 369.863	+ 2 839 957.970	1 300.520

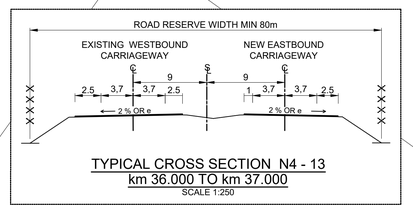
EXISTING ROAD RESERVE *(WGS 84 \ LO 27°)*

DESCRIPTION	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
R24	- 17 826.496	+ 2 839 342.949
L23	- 17 896.396	+ 2 839 292.850

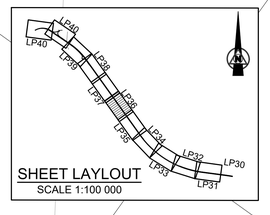
N4-13 EASTBOUND GUARDRAILS WITH TYPE A V-DRAIN

SIDE	START CHAINAGE	END CHAINAGE	LENGTH	DOWNPIPE CHAINAGE
SOUTH	36.000 000	37.100 000	1.100 000	

GUARDRAIL LENGTHS EXCLUDE TERMINAL SECTIONS



TYPICAL CROSS SECTION N4 - 13
km 36.000 TO km 37.000
SCALE 1:250



SHEET LAYLOUT
SCALE 1:100 000

LEGEND

- N4-13 TO BE CONSTRUCTED
- FENCE
- BUILDING
- CONCRETE
- VALVE
- GRID INLET
- BRIDGE PILLARS
- KERB INLET
- ELECTRIC BOX
- POWERLINES
- MANHOLE
- TRAFFIC SIGN
- ELECTRIC POLES
- REMOVE STREET LIGHT
- NEW SINGLE STREET LIGHT
- RELOCATE STREET LIGHT
- DIRECTION OF FLOW (SIDE DRAIN)
- NEW DOUBLE STREET LIGHT
- FLOOD LIGHT
- TELEPHONE POLE
- FARM PORTIONS
- CONTOURS
- BATTER
- BENCH MARK
- WALL
- NEW GUARDRAILS
- EXISTING GUARDRAILS
- NEW CULVERTS
- EXISTING CULVERTS
- ROAD RESERVE
- FLOW DIRECTION ARROW
- CHUTES
- DIRECTION OF FLOW (MEDIAN DRAIN)

TENDER

0m 5m 10m 15m 20m 25m 30m 35m 40m 45m 50m
ORIGINAL SCALE 1 : 500 (A0)

SANRAL DOCUMENT NUMBER :

No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date :

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DESIGNED BY	
NAME	Z MASHININI
Prof. Reg. No.	-
CHECKED BY	
NAME	PL NGQUMSHE
Prof. Reg. No.	20080112
DRAWN BY	
NAME	M DE KOCK

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17 / 07 / 2023

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THE SOUTH AFRICAN NATIONAL ROADS AGENCY SOC LTD
Reg. No. 1998/009584/30

NORTHERN REGION
38 Ida Street
Menlo Park
Pretoria
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Private Bag X17
Lynnwood Ridge
0040
Tel: (012) 426 6200

ACCEPTANCE
THIS ACCEPTANCE IS FOR PROCEDURAL AND ADMINISTRATIVE REVIEW PURPOSES ONLY AND DOES NOT ATTRACT LEGAL LIABILITY OR LIABILITY OF ANY KIND FROM WHATSOEVER CAUSE OR HOWEVER ARISING

for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION

The construction of the dual carriageway of the N4-13 between Buffelspoort N4-13 km 2.800 and the P16-2 Interchange N4-13 km 40.000

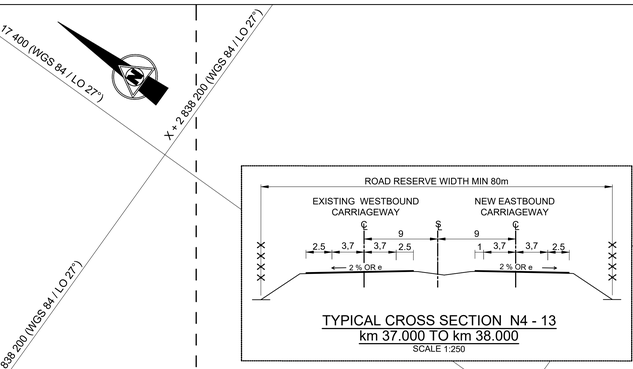
DRAWING DESCRIPTION

LAYOUT N4-13
FROM km 36.000 TO 37.000

SCALE : 1 : 1000 (A0) — SHEET 36 OF 40

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	SECTION 13	SECTION 13
DRAWING km DISTANCE	km 36.000	km 37.000
DRAWING TYPE	ROADS - LAYOUTS	
BRIDGE/STRUCTURE No.	NA	
CONSULTANT DRAWING No.	FA 3257 / 23 / 36 LP	VER
SANRAL DOCUMENT #	- -	V0

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\02 - Layouts\3257-23-30-41LP-N4 Dual Carriageway Layouts km 30 500 to 40 600_20230717.dwg



TYPICAL CROSS SECTION N4 - 13
km 37.000 TO km 38.000
SCALE 1:250

N4-13 NRA CENTER LINE COORDINATES

DESIGN SPEED 120 km/h — *(WGS 84 \ LO 27°)*

CHAINAGE	Y COORDINATE + 0,000	X CO-ORDINATE + 0,000	DESCRIPTION
37.000 000	-17 737.401	+2 839 144.856	
37.100 000	-17 679.143	+2 839 063.579	
37.200 000	-17 620.884	+2 838 982.302	
37.300 000	-17 562.625	+2 838 901.025	
37.400 000	-17 504.367	+2 838 819.748	
37.500 000	-17 446.108	+2 838 738.471	
37.600 000	-17 387.850	+2 838 657.194	
37.700 000	-17 329.591	+2 838 575.917	
37.800 000	-17 271.332	+2 838 494.640	
37.900 000	-17 213.074	+2 838 413.363	
38.000 000	-17 154.815	+2 838 332.086	

EXISTING ROAD RESERVE

(WGS 84 \ LO 27°)

DESCRIPTION	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
R23	- 17 535.204	+ 2 838 936.571
R22	- 17 243.912	+ 2 838 530.193
R21	- 17 213.843	+ 2 838 551.753
R20	- 17 061.836	+ 2 838 365.424
XDR23	- 17 484.503	+ 2 838 928.787
XDR22	- 17 429.330	+ 2 838 938.399
XDR21	- 17 424.644	+ 2 838 923.370
XDR20	- 17 470.152	+ 2 838 904.744
XR22A	- 17 493.349	+ 2 838 878.178
L21	- 17 313.812	+ 2 838 480.095
L22	- 17 605.104	+ 2 838 886.473

BENCH MARKS

(WGS 84 \ LO 27°)

STATION	Y CO-ORDINATES + 0.000	X CO-ORDINATES + 0.000	ELEVATION
BM08	- 17 296.667	+ 2 838 457.398	1 295.045
BM09	- 17 471.882	+ 2 838 710.788	1 304.282
BM10	- 17 650.731	+ 2 838 960.668	1 312.322

N4-13 EASTBOUND GUARDRAILS WITH TYPE A V-DRAIN

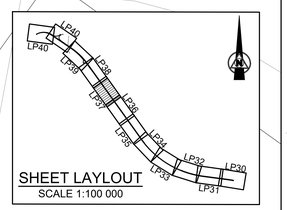
SIDE	START CHAINAGE	END CHAINAGE	LENGTH	DOWNPIPE CHAINAGE
NORTH	37.330 000	37.340 000	0.010 000	37.320 000
SOUTH	36.000 000	37.100 000	1.100 000	
SOUTH	37.330 000	37.340 000	0.010 000	

GUARDRAIL LENGTHS EXCLUDE TERMINAL SECTIONS

N4-13 WESTBOUND GUARDRAILS WITH TYPE A V-DRAIN

SIDE	START CHAINAGE	END CHAINAGE	LENGTH	DOWNPIPE CHAINAGE
NORTH	37.330 000	37.340 000	0.010 000	

GUARDRAIL LENGTHS EXCLUDE TERMINAL SECTIONS



LEGEND

- N4-13 TO BE CONSTRUCTED
- FENCE
- BUILDING
- CONCRETE
- VALVE
- GRID INLET
- BRIDGE PILLARS
- KERB INLET
- ELECTRIC BOX
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- NEW GUARDRAILS
- EXISTING GUARDRAILS
- NEW CULVERTS
- EXISTING CULVERTS
- ROAD RESERVE
- FLOW DIRECTION ARROW
- CHUTES
- DIRECTION OF FLOW (MEDIAN DRAIN)

No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date

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DESIGNED BY
NAME: Z MASHININI
Prof. Reg. No. : -
CHECKED BY
NAME: PL NGQUMSHE
Prof. Reg. No. : 20080112
DRAWN BY
NAME: M DE KOCK

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17 / 07 / 2023

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THE SOUTH AFRICAN NATIONAL ROADS AGENCY SOC LTD
Reg. No. 1998/009584/30

NORTHERN REGION
38 Ida Street
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Tel: (012) 426 6200

ACCEPTANCE
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for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
The construction of the dual carriageway of the N4-13 between Buffelspoort N4-13 km 2.800 and the P16-2 Interchange N4-13 km 40.000

DRAWING DESCRIPTION
LAYOUT N4-13
FROM km 37.000 TO 38.000

SCALE : 1 : 1000 (A0) | SHEET 37 OF 41

PROJECT NUMBER		BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END	
ROUTE	N 4	N 4	
SECTION	SECTION 13	SECTION 13	
DRAWING km DISTANCE	km 37.000	km 38.000	
DRAWING TYPE	ROADS - LAYOUTS		
BRIDGE/STRUCTURE No.	NA		
CONSULTANT DRAWING No.	FA	3257 / 23 / 37 LP	VER
SANRAL DOCUMENT #	- -		V0

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadwork\02 - Layouts\3257-23-30-41LP-N4 Dual Carriageway Layouts km 30 500 to 40 600_20230717.dwg

N4-13 DUAL CARRIAGEWAY (PART B) km 38.000 000 - km 39.000 000

(WGS 84 \ LO 27°)

CURVE	DESCRIPTION	CURVE LENGTH	CURVE RADIUS	POINT	CHAINAGE DISTANCE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
PI 10	LEFT HAND CIRCULAR	990.840 m	2 800.000 m	BC 10	38.951 819	-16 600.299	+ 2 837 558.477
				PI 10	-	-16 308.624	+ 2 837 151.560
				EC 10	39.942 659	- 15 894.012	+ 2 836 870.931

N4-13 EASTBOUND GUARDRAILS WITH TYPE A V-DRAIN

SIDE	START CHAINAGE	END CHAINAGE	LENGTH	DOWNPIPE CHAINAGE
NORTH	38.100 000	38.140 000	0.040 000	38.140 000
NORTH	38.740 000	39.300 000	0.560 000	38.790 000
				38.840 000
				38.890 000

GUARDRAIL LENGTHS EXCLUDE TERMINAL SECTIONS

N4-13 NRA CENTER LINE COORDINATES

DESIGN SPEED 120 km/h

(WGS 84 \ LO 27°)

CHAINAGE	Y COORDINATE + 0,000	X CO-ORDINATE + 0,000	DESCRIPTION
38.000 000	-17 154.815	+2 838 332.086	
38.100 000	-17 096.557	+2 838 250.810	
38.200 000	-17 038.298	+2 838 169.533	
38.300 000	-16 980.039	+2 838 088.256	
38.400 000	-16 921.781	+2 838 006.979	
38.500 000	-16 863.522	+2 837 925.702	
38.600 000	-16 805.264	+2 837 844.425	
38.700 000	-16 747.005	+2 837 763.148	
38.800 000	-16 688.746	+2 837 681.871	
38.900 000	-16 630.488	+2 837 600.594	
39.000 000	-16 571.894	+2 837 519.561	

EXISTING ROAD RESERVE

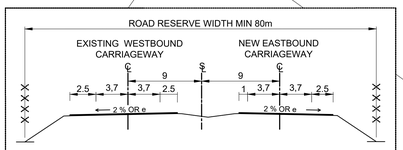
(WGS 84 \ LO 27°)

DESCRIPTION	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
R20	- 17 061.836	+ 2 838 365.424
R19	- 17 055.868	+ 2 838 271.275
R18	- 16 834.484	+ 2 837 962.427
R17	- 16 563.681	+ 2 837 584.639
L14	- 16 754.268	+ 2 837 675.430
L15	- 16 776.477	+ 2 837 684.110
L16	- 16 790.306	+ 2 837 748.029
L17	- 17 081.598	+ 2 838 154.407
L18	- 17 102.728	+ 2 838 139.257
L19	-17 137.677	+ 2 838 188.027
L20	- 17 173.996	+ 2 838 285.026

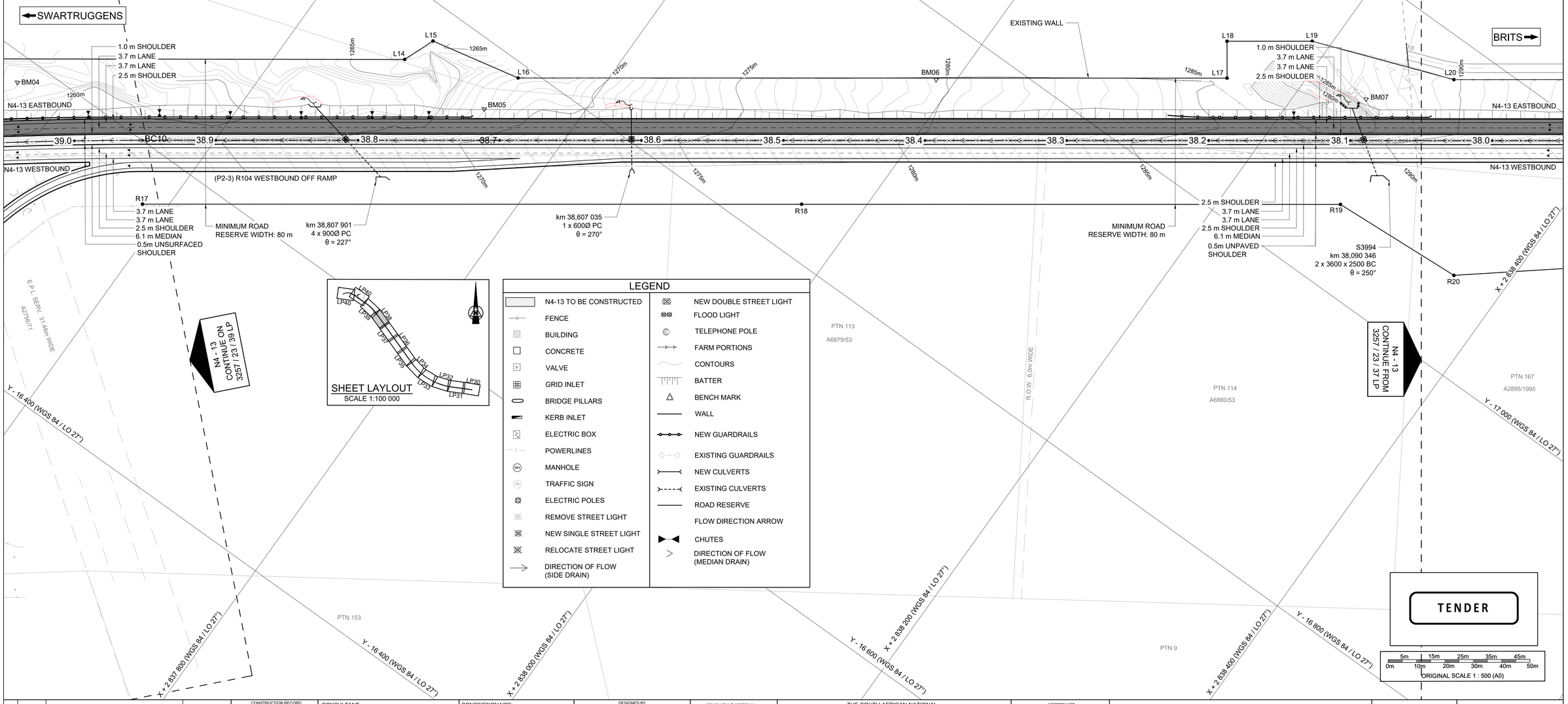
BENCH MARKS

(WGS 84 \ LO 27°)

STATION	Y CO-ORDINATES + 0.000	X CO-ORDINATES + 0.000	ELEVATION
BM04	- 16 581.906	+ 2 837 462.986	1 258.357
BM05	- 16 758.571	+ 2 837 741.453	1 267.977
BM06	- 16 961.112	+ 2 837 988.358	1 279.774
BM07	- 17 126.646	+ 2 838 242.809	1 287.866



TYPICAL CROSS SECTION N4 - 13
km 38.000 TO km 39.000
SCALE 1:250



SHEET LAYLOUT
SCALE 1:100 000

LEGEND

N4-13 TO BE CONSTRUCTED	NEW DOUBLE STREET LIGHT
FENCE	FLOOD LIGHT
BUILDING	TELEPHONE POLE
CONCRETE	FARM PORTIONS
VALVE	CONTOURS
GRID INLET	BATTER
BRIDGE PILLARS	BENCH MARK
KERB INLET	WALL
ELECTRIC BOX	NEW GUARDRAILS
POWERLINES	EXISTING GUARDRAILS
MANHOLE	NEW CULVERTS
TRAFFIC SIGN	EXISTING CULVERTS
ELECTRIC POLES	ROAD RESERVE
REMOVE STREET LIGHT	FLOW DIRECTION ARROW
NEW SINGLE STREET LIGHT	CHUTES
RELOCATE STREET LIGHT	DIRECTION OF FLOW (MEDIAN DRAIN)
DIRECTION OF FLOW (SIDE DRAIN)	

TENDER

5m 15m 25m 35m 45m
0m 10m 20m 30m 40m 50m
ORIGINAL SCALE 1 : 500 (A0)

No.	DATE	REVISION	
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSULTANT. ENG.

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date :

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DESIGNED BY
NAME: Z MASHININI
Prof. Reg. No. : -
CHECKED BY
NAME: PL NGQUMSHE
Prof. Reg. No. : 20080112
DRAWN BY
NAME: Z MASHININI

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17 / 07 / 2023

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for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
The construction of the dual carriageway of the N4-13 between Buffelspoort N4-13 km 2.800 and the P16-2 Interchange N4-13 km 40.000

DRAWING DESCRIPTION
LAYOUT N4-13
FROM km 38.000 TO 39.000

SCALE : 1 : 1000 (A0) SHEET 38 OF 41

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	SECTION 13	SECTION 13
DRAWING km DISTANCE	km 38.000	km 39.000
DRAWING TYPE	ROADS - LAYOUTS	
BRIDGE/STRUCTURE No.	NA	
CONSULTANT DRAWING No.	FA 3257 / 23 / 38 LP	VER
SANRAL DOCUMENT #	- -	V0

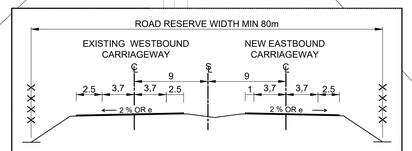
SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\02 - Layouts\3257-23-30-41LP-N4 Dual Carriageway Layouts km 30 500 to 40 600_20230717.dwg

N4-13 DUAL CARRIAGEWAY (PART B) km 39.000 000 - km 40.000 000

(WGS 84 \ LO 27°)

CURVE	DESCRIPTION	CURVE LENGTH	CURVE RADIUS	POINT	CHAINAGE DISTANCE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
PI 10	LEFT HAND CIRCULAR	990.840 m	2 800.000 m	BC 10	38.951 819	-16 600.299	+ 2 837 558.477
				PI 10	-	-16 308.624	+ 2 837 151.560
				EC 10	39.942 659	- 15 894.012	+ 2 836 870.931



TYPICAL CROSS SECTION N4 - 13
km 39.000 TO km 40.000
SCALE 1:250

N4-13 NRA CENTER LINE COORDINATES

DESIGN SPEED 120 km/h — *(WGS 84 \ LO 27°)*

CHAINAGE	Y COORDINATE + 0,000	X CO-ORDINATE + 0,000	DESCRIPTION
39.000 000	-16 571.894	+2 837 519.561	
39.100 000	-16 510.825	+2 837 440.380	
39.200 000	-16 446.968	+2 837 363.431	
39.300 000	-16 380.403	+2 837 288.811	
39.400 000	-16 311.217	+2 837 216.615	
39.500 000	-16 239.498	+2 837 146.936	
39.600 000	-16 165.335	+2 837 079.862	
39.700 000	-16 088.826	+2 837 015.479	
39.800 000	-16 010.066	+2 836 953.869	
39.900 000	-15 929.156	+2 836 895.110	
40.000 000	-15 846.526	+2 836 838.790	

EXISTING ROAD RESERVE

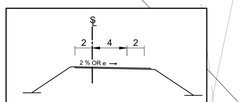
(WGS 84 \ LO 27°)

DESCRIPTION	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
R17	- 16 563.681	+ 2 837 584.639
R16	- 16 458.964	+ 2 837 447.779
R15	- 16 288.968	+ 2 837 256.670
R14	- 16 219.380	+ 2 837 187.040
R13	- 16 056.973	+ 2 837 043.711
R12	- 15 915.536	+ 2 836 936.850
R11C	- 15 792.169	+ 2 836 857.060
L56	- 15 810.997	+ 2 836 977.349
L57	- 15 846.976	+ 2 837 066.158
L58	- 15 896.994	+ 2 837 148.627
L59	- 15 962.333	+ 2 837 222.197
R59	- 15 932.933	+ 2 837 249.327
R58	- 15 865.564	+ 2 837 173.357
R57	- 15 805.006	+ 2 837 089.447
R56	- 15 742.978	+ 2 836 979.388
L11	- 16 032.045	+ 2 836 912.822
L12	- 16 250.140	+ 2 837 095.392
L13	- 16 542.634	+ 2 837 379.501

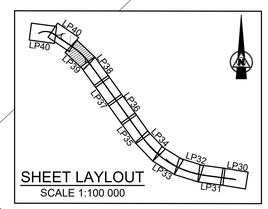
BENCH MARKS

(WGS 84 \ LO 27°)

STATION	Y CO-ORDINATES + 0.000	X CO-ORDINATES + 0.000	ELEVATION
BM01	- 15 867.394	+ 2 836 800.389	1 254.606
BM02	- 16 136.590	+ 2 836 991.295	1 257.003
BM03	- 16 342.178	+ 2 837 241.967	1 260.136
BM04	- 16 581.906	+ 2 837 462.986	1 258.357
NRB104	- 15 786.682	+ 2 836 852.372	1 257.650



TYPICAL CROSS SECTION
INTERCHANGE RAMPS
SCALE 1:250



SHEET LAYLOUT
SCALE 1:100 000

(P2-3) R104 SWARTRUGGENS ROAD EASTBOUND ON-RAMP
km 0.000 000 - km 1.207 009

(WGS 84 \ LO 27°)

CURVE	DESCRIPTION	CURVE LENGTH	CURVE RADIUS	POINT	CHAINAGE DISTANCE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
				START	0.000 000	-15 787.654	+ 2 836 299.514
1B	LEFT HAND CIRCULAR	87.711 m	266.300 m	BC 1B	0.232 481	-15 556.538	+ 2 836 274.356
				PI 1B	-	-15 512.541	+ 2 836 269.567
				EC 1B	0.320 192	-15 469.361	+ 2 836 279.265
2B	LEFT HAND CIRCULAR	286.444 m	127.000 m	BC 2B	0.321 565	-15 468.021	+ 2 836 279.566
				PI 2B	-	-15 206.893	+ 2 836 338.218
				EC 2B	0.608 009	-15 417.468	+ 2 836 503.403
3B	LEFT HAND CIRCULAR	115.189 m	2296.000 m	BC 3B	0.801 411	-15 569.638	+ 2 836 622.772
				PI 3B	-	-15 614.963	+ 2 836 658.327
				EC 3B	0.916 600	-15 662.014	+ 2 836 691.564
				END	1.207 009	-15 899.210	+ 2 836 859.122

N4-13 EASTBOUND GUARDRAILS WITH TYPE A V-DRAIN

SIDE	START CHAINAGE	END CHAINAGE	LENGTH	DOWNPIPE CHAINAGE
NORTH	39.740 000	39.300 000	0.560 000	38.890 000
GUARDRAIL LENGTHS EXCLUDE TERMINAL SECTIONS				

N4-13 WESTBOUND GUARDRAILS WITH TYPE A V-DRAIN

SIDE	START CHAINAGE	END CHAINAGE	LENGTH	DOWNPIPE CHAINAGE
NORTH	39.680 000	40.180 000	0.500 000	
GUARDRAIL LENGTHS EXCLUDE TERMINAL SECTIONS				

LEGEND

- N4-13 TO BE CONSTRUCTED
- FENCE
- BUILDING
- CONCRETE
- VALVE
- GRID INLET
- BRIDGE PILLARS
- KERB INLET
- ELECTRIC BOX
- POWERLINES
- MANHOLE
- TRAFFIC SIGN
- ELECTRIC POLES
- REMOVE STREET LIGHT
- NEW SINGLE STREET LIGHT
- RELOCATE STREET LIGHT
- DIRECTION OF FLOW (SIDE DRAIN)
- NEW DOUBLE STREET LIGHT
- FLOOD LIGHT
- TELEPHONE POLE
- FARM PORTIONS
- CONTOURS
- BATTER
- BENCH MARK
- WALL
- NEW GUARDRAILS
- EXISTING GUARDRAILS
- NEW CULVERTS
- EXISTING CULVERTS
- ROAD RESERVE
- FLOW DIRECTION ARROW
- CHUTES
- DIRECTION OF FLOW (MEDIAN DRAIN)

TENDER

5m 15m 25m 35m 45m
0m 10m 20m 30m 40m 50m
ORIGINAL SCALE 1 : 500 (A0)

No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date

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NAME: Z MASHININI
Prof. Reg. No. : -
CHECKED BY
NAME: PL NGQUMSHE
Prof. Reg. No. : 20080112
DRAWN BY
NAME: Z MASHININI

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17 / 07 / 2023

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THE SOUTH AFRICAN NATIONAL ROADS AGENCY SOC LTD
Reg. No. 1998/009584/30

NORTHERN REGION
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Tel: (012) 426 6200

ACCEPTANCE
THIS ACCEPTANCE IS FOR PROCEDURAL AND ADMINISTRATIVE REVIEW PURPOSES ONLY AND DOES NOT ATTRACT LEGAL LIABILITY OR LIABILITY OF ANY KIND FROM WHATSOEVER CAUSE OR HOWEVER ARISING
for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
The construction of the dual carriageway of the N4-13 between Buffelspoort N4-13 km 2.800 and the P16-2 Interchange N4-13 km 40.000

DRAWING DESCRIPTION
LAYOUT N4-13
FROM km 39.000 TO 40.000

SCALE : 1 : 1000 (A0) — SHEET 39 OF 41

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	SECTION 13	SECTION 13
DRAWING km DISTANCE	km 39.000	km 40.000
DRAWING TYPE	ROADS - LAYOUTS	
BRIDGE/STRUCTURE No.	NA	
CONSULTANT DRAWING No.	FA 3257 / 23 / 39 LP	VER V0
SANRAL DOCUMENT #	- -	

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\02 - Layouts\3257-23-30-41LP-N4 Dual Carriageway Layouts km 30 500 to 40 600_20230717.dwg

EXISTING ROAD RESERVE

(WGS 84 \ LO 27°)

DESCRIPTION	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
R56	- 15 742.978	+ 2 836 979.388
L56	- 15 810.997	+ 2 836 977.349
R55	- 15 714.370	+ 2 836 842.130
R11C	- 15 792.169	+ 2 836 857.060
R11	- 15 750.190	+ 2 836 829.900
R10A	- 15 706.690	+ 2 836 805.260
R4A	- 15 145.166	+ 2 836 406.436
R3A	- 14 972.961	+ 2 836 290.226
L2A	- 15 009.602	+ 2 836 259.044
L4A	- 15 210.877	+ 2 836 379.184
L5A	- 15 216.019	+ 2 836 380.642
L6A	- 15 241.100	+ 2 836 379.505
XL20	- 15 438.720	+ 2 836 276.685
L9	- 15 635.303	+ 2 836 666.881
L9A	- 15 715.211	+ 2 836 708.331
R53	- 15 750.423	+ 2 836 490.375
R52	- 15 765.175	+ 2 836 326.037
R51	- 15 721.695	+ 2 836 307.077
L53	- 15 789.783	+ 2 836 491.685
L54	- 15 789.623	+ 2 836 494.675
XA1	- 15 789.425	+ 2 836 503.963
L55	- 15 784.860	+ 2 836 721.812
L9C	- 15 784.450	+ 2 836 744.252
L10	- 15 797.760	+ 2 836 751.162
AL15	- 14 969.840	+ 2 836 208.480
AL16	- 15 020.230	+ 2 836 236.930
AL17	- 15 120.690	+ 2 836 295.540
AL18	- 15 160.810	+ 2 836 314.180
AL19	- 15 203.860	+ 2 836 325.020
AL20	- 15 248.110	+ 2 836 327.360
AL21	- 15 292.790	+ 2 836 321.040
AL22	- 15 333.720	+ 2 836 306.820
AL23	- 15 407.630	+ 2 836 273.530
AL24	- 15 451.970	+ 2 836 259.720
AL25	- 15 499.440	+ 2 836 250.900
AL26	- 15 808.440	+ 2 836 284.400
AL27	- 15 969.051	+ 2 836 301.913
AR7	- 15 589.060	+ 2 836 642.620
AR8	- 15 533.750	+ 2 836 603.020
AR9	- 15 446.870	+ 2 836 537.660
AR10	- 15 419.170	+ 2 836 510.090
AR11	- 15 416.320	+ 2 836 326.910
AR12	- 15 469.960	+ 2 836 296.910
AR13	- 15 508.490	+ 2 836 290.250
AR14	- 15 533.490	+ 2 836 287.510
AR15	- 15 688.460	+ 2 836 303.390
AR16	- 15 733.690	+ 2 836 324.520
AR17	- 15 743.430	+ 2 836 365.770
AR18	- 15 754.810	+ 2 836 446.310

(P2-3) R104 SWARTRUGGENS ROAD EASTBOUND ON-RAMP
km 0.000 000 - km 1.207 009

(WGS 84 \ LO 27°)

CURVE	DESCRIPTION	CURVE LENGTH	CURVE RADIUS	POINT	CHAINAGE DISTANCE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
				START	0.000 000	-15 787.654	+ 2 836 299.514
1B	LEFT HAND CIRCULAR	87.711 m	266.300 m	BC 1B	0.232 481	-15 556.538	+ 2 836 274.356
				PI 1B	-	-15 512.541	+ 2 836 269.567
				EC 1B	0.320 192	-15 469.361	+ 2 836 279.265
2B	LEFT HAND CIRCULAR	286.444 m	127.000 m	BC 2B	0.321 565	-15 468.021	+ 2 836 279.566
				PI 2B	-	-15 206.893	+ 2 836 338.218
				EC 2B	0.608 009	-15 417.468	+ 2 836 503.403
3B	LEFT HAND CIRCULAR	115.189 m	2296.000 m	BC 3B	0.801 411	-15 569.638	+ 2 836 622.772
				PI 3B	-	-15 614.963	+ 2 836 658.327
				EC 3B	0.916 600	-15 662.014	+ 2 836 691.564
				END	1.207 009	-15 899.210	+ 2 836 859.122

(P2-3) R104 SWARTRUGGENS ROAD EASTBOUND OFF-RAMP
km 0.000 000 - km 1.100 411

(WGS 84 \ LO 27°)

CURVE	DESCRIPTION	CURVE LENGTH	CURVE RADIUS	POINT	CHAINAGE DISTANCE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
				START	0.000 000	-14 738.900	+ 2 836 175.080
1A	RIGHT HAND CIRCULAR	311.408 m	617.400 m	BC 1A	0.000 000	-14 738.900	+ 2 836 175.080
				PI 1A	-	-14 897.917	+ 2 836 179.940
				EC 1A	0.311 408	- 15 034.783	+ 2 836 261.043
2A	LEFT HAND CIRCULAR	228.257 m	237.000 m	BC 2A	0.411 642	-15 121.014	+ 2 836 312.141
				PI 2A	-	-15 227.565	+ 2 836 375.280
				EC 2A	0.639 899	- 15 340.238	+ 2 836 323.855
3A	RIGHT HAND CIRCULAR	144.881 m	270.000 m	BC 3A	0.722 778	-15 415.635	+ 2 836 289.444
				PI 3A	-	-15 483.164	+ 2 836 258.623
				EC 3A	0.867 659	- 15 556.958	+ 2 836 266.656
				END	1.100 411	- 15 788.343	+ 2 836 291.843

PTN.35
A8251/49

TIE IN SECTION - EASTBOUND CARRIAGEWAY
km 40.900 000 - km 41.673 249

(WGS 84 \ LO 27°)

CURVE	DESCRIPTION	CURVE LENGTH	CURVE RADIUS	POINT	CHAINAGE DISTANCE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
				START	40.900 000	-15 104.219	+ 2 836 329.962
1EB	LEFT HAND CIRCULAR	634.226 m	610.000 m	BC 1EB	40.978 609	-15 039.120	+ 2 836 285.900
				PI 1EB	-	-14 749.977	+ 2 836 090.195
				EC 1EB	41.612 835	- 14 434.788	+ 2 836 240.394
				END	41.673 249	- 14 380.249	+ 2 836 266.383

TIE IN SECTION - WESTBOUND CARRIAGEWAY
km 40.900 000 - km 41.668 176

(WGS 84 \ LO 27°)

CURVE	DESCRIPTION	CURVE LENGTH	CURVE RADIUS	POINT	CHAINAGE DISTANCE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
				START	40.900 000	-15 098.230	+ 2 836 338.709
1WB	LEFT HAND CIRCULAR	623.829 m	600.000 m	BC 1WB	40.990 502	-15 023.281	+ 2 836 287.980
				PI 1WB	-	-14 738.879	+ 2 836 095.484
				EC 1WB	41.614 331	- 14 428.857	+ 2 836 243.220
				END	41.668 176	- 14 380.249	+ 2 836 266.383

PTN.165
A7939/1993

(P2-3) R104 SWARTRUGGENS ROAD EASTBOUND OFF-RAMP CENTER LINE COORDINATES

DESIGN SPEED VARIES

(WGS 84 \ LO 27°)

CHAINAGE	Y COORDINATE + 0,000	X CO-ORDINATE + 0,000	DESCRIPTION
0.000 000	-14 738.900	+2 836 175.080	
0.100 000	-14 838.170	+2 836 186.199	
0.200 000	-14 934.348	+2 836 213.180	
0.300 000	-15 024.916	+2 836 255.318	
0.400 000	-15 110.999	+2 836 306.206	
0.500 000	-15 203.580	+2 836 342.142	
0.600 000	-15 302.721	+2 836 337.295	
0.700 000	-15 394.913	+2 836 298.901	
0.800 000	-15 489.486	+2 836 267.794	
0.900 000	-15 589.109	+2 836 270.156	
1.000 000	-15 688.522	+2 836 280.977	
1.100 000	-15 787.935	+2 836 291.799	
1.100 411	-15 788.343	+2 836 291.843	

(P2-3) R104 SWARTRUGGENS ROAD EASTBOUND ON-RAMP CENTER LINE COORDINATES

DESIGN SPEED VARIES

(WGS 84 \ LO 27°)

CHAINAGE	Y COORDINATE + 0,000	X CO-ORDINATE + 0,000	DESCRIPTION
0.000 000	-15 787.654	+2 836 299.514	
0.100 000	-15 688.241	+2 836 288.692	
0.200 000	-15 588.829	+2 836 277.871	
0.300 000	-15 489.211	+2 836 275.591	
0.400 000	-15 401.407	+2 836 318.573	
0.500 000	-15 369.046	+2 836 410.479	
0.600 000	-15 411.327	+2 836 498.264	
0.700 000	-15 489.847	+2 836 560.180	
0.800 000	-15 568.527	+2 836 621.901	
0.900 000	-15 648.490	+2 836 681.938	
1.000 000	-15 730.132	+2 836 739.684	
1.100 000	-15 811.809	+2 836 797.381	
1.200 000	-15 893.485	+2 836 855.078	
1.207 009	-15 899.210	+2 836 859.122	

R104 (P2-3) EASTBOUND ON RAMP GUARDRAILS WITH TYPE A V-DRAIN

SIDE	START CHAINAGE	END CHAINAGE	LENGTH	DOWNPIPE CHAINAGE
NORTH	0.780 000	0.960 000	0.180 000	0.830 000
				0.880 000
				0.930 000
				0.980 000

GUARDRAIL LENGTHS EXCLUDE TERMINAL SECTIONS

N4-13 WESTBOUND GUARDRAILS WITH TYPE A V-DRAIN

SIDE	START CHAINAGE	END CHAINAGE	LENGTH	DOWNPIPE CHAINAGE
NORTH	39.680 000	40.180 000	0.500 000	
NORTH	40.660 000	40.770 000	0.110 000	

GUARDRAIL LENGTHS EXCLUDE TERMINAL SECTIONS

BENCH MARKS

(WGS 84 \ LO 27°)

STATION	Y CO-ORDINATES + 0.000	X CO-ORDINATES + 0.000	ELEVATION
BM01	- 15 867.394	+ 2 836 800.389	1 254.606
NRB104	- 15 786.682	+ 2 836 852.372	1 257.650
NRB105	- 15 539.001	+ 2 836 684.412	1 263.944
NRB106	- 15 297.853	+ 2 836 513.558	1 267.770
NRB107	- 15 060.738	+ 2 836 348.355	1 270.971

PTN.164
A7938/1993

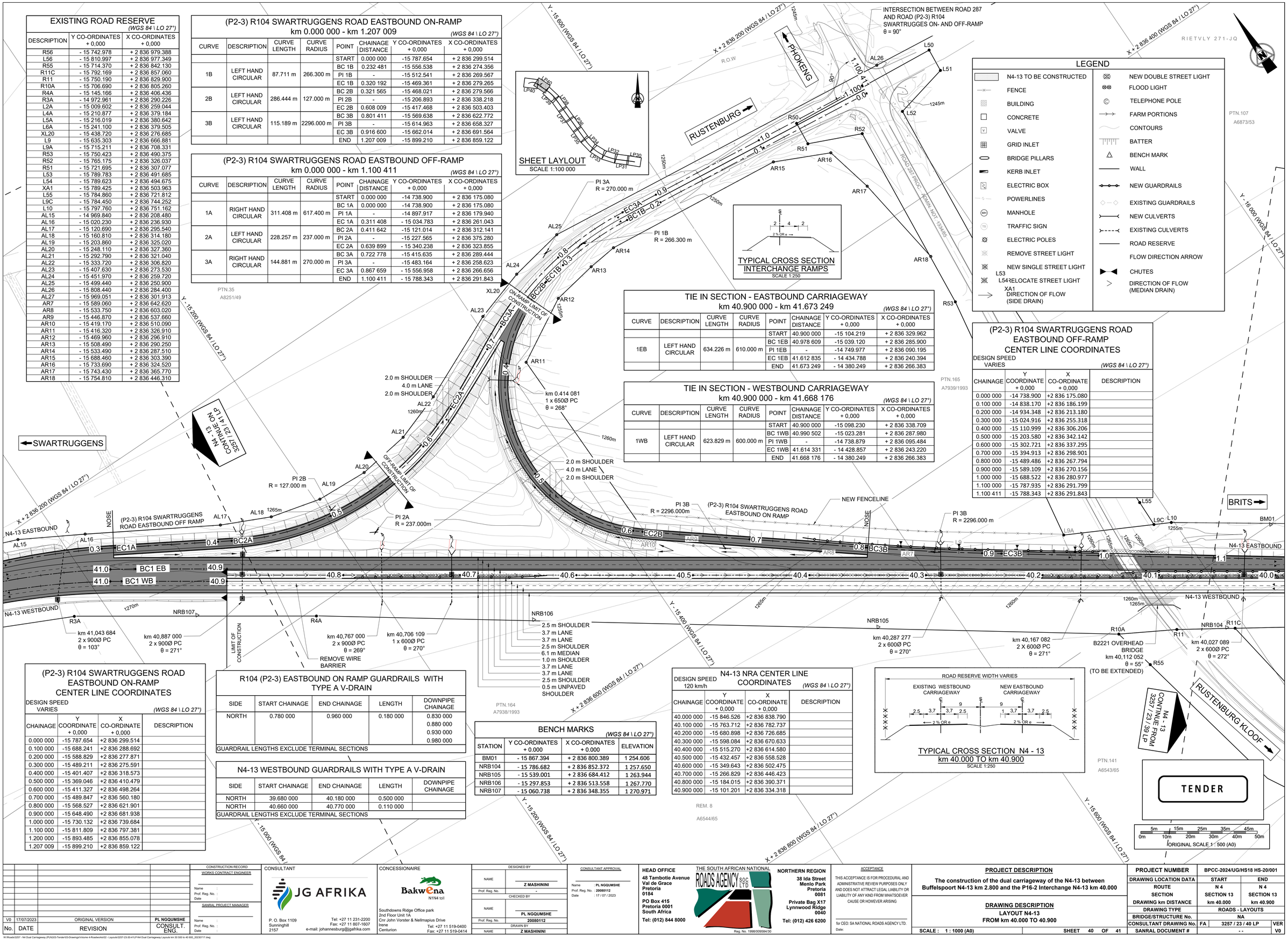
REM. 8
A6544/65

N4-13 NRA CENTER LINE COORDINATES

DESIGN SPEED 120 km/h

(WGS 84 \ LO 27°)

CHAINAGE	Y COORDINATE + 0,000	X CO-ORDINATE + 0,000	DESCRIPTION
40.000 000	-15 846.526	+2 836 838.790	
40.100 000	-15 763.712	+2 836 782.737	
40.200 000	-15 680.898	+2 836 726.685	
40.300 000	-15 598.084	+2 836 670.633	
40.400 000	-15 515.270	+2 836 614.580	
40.500 000	-15 432.457	+2 836 558.528	
40.600 000	-15 349.643	+2 836 502.475	
40.700 000	-15 266.829	+2 836 446.423	
40.800 000	-15 184.015	+2 836 390.371	
40.900 000	-15 101.201	+2 836 334.318	



No.	DATE	REVISION	
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date :

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Prof. Reg. No.	-
CHECKED BY	
NAME	PL NGQUMSHE
Prof. Reg. No.	20080112
DRAWN BY	
NAME	Z MASHININI

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17 / 07 / 2023

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Reg. No. 1998/009584/30

NORTHERN REGION
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Tel: (012) 426 6200

ACCEPTANCE
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for CEO. SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
The construction of the dual carriageway of the N4-13 between Buffelspoort N4-13 km 2.800 and the P16-2 Interchange N4-13 km 40.000

DRAWING DESCRIPTION
LAYOUT N4-13
FROM km 40.000 TO 40.900

SCALE : 1 : 1000 (A0) | SHEET 40 OF 41

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	SECTION 13	SECTION 13
DRAWING km DISTANCE	km 40.000	km 40.900
DRAWING TYPE	ROADS - LAYOUTS	
BRIDGE/STRUCTURE No.	NA	
CONSULTANT DRAWING No.	FA 3257 / 23 / 40 LP	VER V0
SANRAL DOCUMENT #	- -	

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadwork\02 - Layouts\3257-23-30-41LP-N4 Dual Carriageway Layouts km 30 000 to 40 900_20230717.dwg

LEGEND

- N4-13 TO BE CONSTRUCTED
- FENCE
- BUILDING
- CONCRETE
- VALVE
- GRID INLET
- BRIDGE PILLARS
- KERB INLET
- ELECTRIC BOX
- POWERLINES
- MANHOLE
- TRAFFIC SIGN
- ELECTRIC POLES
- REMOVE STREET LIGHT
- NEW SINGLE STREET LIGHT
- RELOCATE STREET LIGHT
- DIRECTION OF FLOW (SIDE DRAIN)
- NEW DOUBLE STREET LIGHT
- FLOOD LIGHT
- TELEPHONE POLE
- FARM PORTIONS
- CONTOURS
- BATTER
- BENCH MARK
- WALL
- NEW GUARDRAILS
- EXISTING GUARDRAILS
- NEW CULVERTS
- EXISTING CULVERTS
- ROAD RESERVE
- FLOW DIRECTION ARROW
- CHUTES
- DIRECTION OF FLOW (MEDIAN DRAIN)

EXISTING ROAD RESERVE

(WGS 84 \ LO 27°)

DESCRIPTION	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
AL1	- 14 101.810	+ 2 836 315.540
AL2	- 14 155.700	+ 2 836 309.800
AL3	- 14 274.330	+ 2 836 289.750
AL4	- 14 336.090	+ 2 836 270.610
AL5	- 14 382.030	+ 2 836 246.570
AL6	- 14 380.890	+ 2 836 244.310
AL7	- 14 483.000	+ 2 836 193.620
AL8	- 14 616.490	+ 2 836 165.180
AL9	- 14 680.960	+ 2 836 162.672
AL10	- 14 684.360	+ 2 836 162.540
AL11	- 14 697.178	+ 2 836 162.021
AL12	- 14 699.170	+ 2 836 161.840
AL13	- 14 863.280	+ 2 836 176.280
AL14	- 14 915.520	+ 2 836 187.330
AL15	- 14 969.840	+ 2 836 208.480
AL16	- 15 020.230	+ 2 836 236.930
AL17	- 15 120.690	+ 2 836 295.540
AR1	- 14 196.930	+ 2 836 344.400
AR2	- 14 220.900	+ 2 836 337.640
AR3	- 14 294.150	+ 2 836 318.130
AR4	- 14 544.820	+ 2 836 216.100
AR5	- 14 601.870	+ 2 836 203.480
AR6	- 14 666.210	+ 2 836 200.290

TIE IN SECTION - EASTBOUND CARRIAGEWAY

km 40.900 000 - km 41.673 249 (WGS 84 \ LO 27°)

CURVE	DESCRIPTION	CURVE LENGTH	CURVE RADIUS	POINT	CHAINAGE DISTANCE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
				START	40.900 000	-15 104.219	+ 2 836 329.962
1EB	LEFT HAND CIRCULAR	634.226 m	610.000 m	BC 1EB	40.978 609	-15 039.120	+ 2 836 285.900
				PI 1EB	-	-14 749.977	+ 2 836 090.195
				EC 1EB	41.612 835	- 14 434.788	+ 2 836 240.394
				END	41.673 249	- 14 380.249	+ 2 836 266.383

BENCH MARKS

(WGS 84 \ LO 27°)

STATION	Y CO-ORDINATES + 0.000	X CO-ORDINATES + 0.000	ELEVATION
NRB107	- 15 060.738	+ 2 836 348.355	1 270.971
NRB108	- 14 797.227	+ 2 836 218.496	1 278.187
NRB109	- 14 533.059	+ 2 836 219.321	1 294.764

TIE IN SECTION - WESTBOUND CARRIAGEWAY

km 40.900 000 - km 41.668 176 (WGS 84 \ LO 27°)

CURVE	DESCRIPTION	CURVE LENGTH	CURVE RADIUS	POINT	CHAINAGE DISTANCE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
				START	40.900 000	-15 098.230	+ 2 836 338.709
1WB	LEFT HAND CIRCULAR	623.829 m	600.000 m	BC 1WB	40.990 502	-15 023.281	+ 2 836 287.980
				PI 1WB	-	-14 738.879	+ 2 836 095.484
				EC 1WB	41.614 331	- 14 428.857	+ 2 836 243.220
				END	41.668 176	- 14 380.249	+ 2 836 266.383

(P2-3) R104 SWARTRUGGENS ROAD EASTBOUND OFF-RAMP

km 0.000 000 - km 1.100 411 (WGS 84 \ LO 27°)

CURVE	DESCRIPTION	CURVE LENGTH	CURVE RADIUS	POINT	CHAINAGE DISTANCE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
				START	0.000 000	-14 738.900	+ 2 836 175.080
1A	RIGHT HAND CIRCULAR	311.408 m	617.400 m	BC 1A	0.000 000	-14 738.900	+ 2 836 175.080
				PI 1A	-	-14 897.917	+ 2 836 179.940
				EC 1A	0.311 408	- 15 034.783	+ 2 836 261.043
2A	LEFT HAND CIRCULAR	228.257 m	237.000 m	BC 2A	0.411 642	-15 121.014	+ 2 836 312.141
				PI 2A	-	-15 227.565	+ 2 836 375.280
				EC 2A	0.639 899	- 15 340.238	+ 2 836 323.855
3A	RIGHT HAND CIRCULAR	144.881 m	270.000 m	BC 3A	0.722 778	-15 415.635	+ 2 836 289.444
				PI 3A	-	-15 483.164	+ 2 836 258.623
				EC 3A	0.867 659	- 15 556.958	+ 2 836 266.656
				END	1.100 411	- 15 788.343	+ 2 836 291.843

TIE IN SECTION EASTBOUND CENTER LINE COORDINATES

DESIGN SPEED 80 km/h (WGS 84 \ LO 27°)

CHAINAGE	Y COORDINATE + 0,000	X CO-ORDINATE + 0,000	DESCRIPTION
40.900 000	-15 104.219	+2 836 329.962	
41.000 000	-15 021.199	+2 836 274.223	
41.100 000	-14 932.505	+2 836 228.276	
41.200 000	-14 837.503	+2 836 197.419	
41.300 000	-14 738.738	+2 836 182.481	
41.400 000	-14 638.859	+2 836 183.861	
41.500 000	-14 540.545	+2 836 201.524	
41.600 000	-14 446.432	+2 836 234.994	
41.673 249	-14 380.249	+2 836 266.383	

TIE IN SECTION WESTBOUND CENTER LINE COORDINATES

DESIGN SPEED 80 km/h (WGS 84 \ LO 27°)

CHAINAGE	Y COORDINATE + 0,000	X CO-ORDINATE + 0,000	DESCRIPTION
40.900 000	-15 098.230	+2 836 338.709	
41.000 000	-15 015.374	+2 836 282.719	
41.100 000	-14 927.519	+2 836 235.196	
41.200 000	-14 832.998	+2 836 202.906	
41.300 000	-14 734.430	+2 836 186.744	
41.400 000	-14 634.547	+2 836 187.158	
41.500 000	-14 536.116	+2 836 204.137	
41.600 000	-14 441.866	+2 836 237.210	
41.668 176	-14 380.249	+2 836 266.383	

SHEET LAYOUT
SCALE 1:100 000

TYPICAL CROSS SECTION INTERCHANGE RAMPS
SCALE 1:250

TYPICAL CROSS SECTION N4 - 13
km 40.900 000 TO km 41.673 249
SCALE 1:250

TENDER

ORIGINAL SCALE 1 : 500 (A0)

No.	DATE	REVISION	
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date :

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DESIGNED BY
NAME: Z MASHININI
Prof. Reg. No. :
CHECKED BY
NAME: PL NGQUMSHE
Prof. Reg. No. 20080112
DRAWN BY
NAME: Z MASHININI

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17 / 07 / 2023

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THE SOUTH AFRICAN NATIONAL ROADS AGENCY SOC LTD
Reg. No. 1998/009584/30

NORTHERN REGION
38 Ida Street
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Private Bag X17
Lynnwood Ridge
0040
Tel: (012) 426 6200

ACCEPTANCE
THIS ACCEPTANCE IS FOR PROCEDURAL AND ADMINISTRATIVE REVIEW PURPOSES ONLY, AND DOES NOT ATTRACT LEGAL LIABILITY OR LIABILITY OF ANY KIND FROM WHATSOEVER CAUSE OR HOWEVER ARISING
for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
The construction of the dual carriageway of the N4-13 between Buffelspoort N4-13 km 2.800 and the P16-2 Interchange N4-13 km 40.000

DRAWING DESCRIPTION
LAYOUT N4-13
FROM km 40.900 000 TO 41.673 249

SCALE : 1 : 1000 (A0) SHEET 41 OF 41

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	SECTION 13	SECTION 13
DRAWING km DISTANCE	km 40.900	km 41.673 249
DRAWING TYPE	ROADS - LAYOUTS	
BRIDGE/STRUCTURE No.	NA	
CONSULTANT DRAWING No.	FA 3257 / 23 / 41 LP	VER
SANRAL DOCUMENT #	- -	V0

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\02 - Layouts\3257-23-30-41LP-N4 Dual Carriageway Layouts km 30 500 to 40 600_20230717.dwg

GUARDRAIL SOUTH WB CARRIAGEWAY
V-DRAIN SOUTH WB CARRIAGEWAY
SUBSOIL DRAIN SOUTH WB CARRIAGEWAY
GUARDRAIL NORTH WB CARRIAGEWAY
V-DRAIN NORTH WB CARRIAGEWAY
SUBSOIL DRAIN NORTH WB CARRIAGEWAY
MEDIAN V-DRAIN
GUARDRAIL SOUTH EB CARRIAGEWAY
V-DRAIN SOUTH EB CARRIAGEWAY
SUBSOIL DRAIN SOUTH EB CARRIAGEWAY
GUARDRAIL NORTH EB CARRIAGEWAY
V-DRAIN NORTH EB CARRIAGEWAY
SUBSOIL DRAIN NORTH EB CARRIAGEWAY

AS PER EXISTING

EARTH DRAIN

EARTH DRAIN

DRAINAGE
KILOMETRE DISTANCE
SIZE AND ANGLE

km 2.807 000
BRIDGE B1678
θ = 269.584°

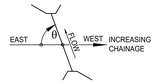
NOTES:

1) LEVELS IN BRACKETS MAY BE ALTERED TO TIE IN WITH EXISTING ROAD LEVELS AFTER CONSULTING WITH THE RESIDENT ENGINEER.
2) VPI's AND GRADES GIVEN AT PIVOT POINT
3) BARRIER LINES AS PER ROAD PAINT MARKINGS DRAWINGS

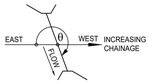
"AS BUILT" NOTES:

DESIGN SPEED
120 km/h

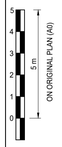
TYPICAL CROSS SECTION KM 2.000 TO KM 3.000
N.T.S



CULVERT SKEW ANGLE



CULVERT SKEW ANGLE



DATUM 1195.000

EXISTING DUAL CARRIAGEWAY

BRITS

RUSTENBURG

N4 - 13
CONTINUE ON
3257 / 23 / 02 LS

VPI 1
km 2.209 000
ELEV = 1215.800m
LVC = 240.000m
K = 204.098

EXISTING
FRL AT L2

DIRECTION OF
TRAFFIC FLOW

TIE INTO EXISTING DUAL CARRIAGEWAY

FRL AT R1

EXISTING BRIDGE B1678
km 2.807 000
θ = 270.000
N4 OVER STERKSTROOM
RIVER

LIMIT OF CONSTRUCTION

LIMIT OF SURVEY

NGL AT R1

VPI 2
km 2.802 000
ELEV = 1203.920m
LVC = 350.000m
K = 73.160

TENDER

1225
1215
1205

CHAINAGES: 2000 2020 2040 2060 2080 2100 2120 2140 2160 2180 2200 2220 2240 2260 2280 2300 2320 2340 2360 2380 2400 2420 2440 2460 2450 2500 2520 2540 2560 2580 2600 2620 2640 2660 2680 2700 2720 2740 2760 2780 2800 2820 2840 2860 2880 2900 2920 2940 2960 2980 3000

GROUND LEVEL AT R1: 1203.429 1206.566 1207.069 1207.575 1208.108 1208.627

VERTICAL ALIGNMENT

EXISTING LEFT CARRIAGEWAY WESTBOUND

LEFT EDGE (L1): 1216.694 1216.381 1216.066 1215.749 1215.431 1215.114 1214.796 1214.479 1214.161 1213.842 1213.524 1213.205 1212.886 1212.567 1212.247 1211.928 1211.608 1211.288 1210.968 1210.647 1210.327 1210.007 1209.687 1209.367 1209.047 1208.727 1208.406 1208.086 1207.766 1207.446 1207.126 1206.805 1206.486 1206.165 1205.845 1205.555 1205.337 1205.192 1205.120 1205.120 1205.194 1205.341 1205.560 1205.853 1206.219 1206.657 1206.764 1207.210 1207.272 1207.624 1207.806 1208.402 1208.999 1209.595 1209.480

RIGHT EDGE (L2): 1216.842 1216.626 1216.307 1215.987 1215.667 1215.346 1215.026 1214.705 1214.384 1214.062 1213.740 1213.419 1213.097 1212.774 1212.452 1212.129 1211.806 1211.483 1211.159 1210.836 1210.513 1210.189 1209.866 1209.543 1209.220 1208.896 1208.573 1208.250 1207.927 1207.603 1207.280 1206.957 1206.634 1206.310 1205.987 1205.693 1205.472 1205.324 1205.249 1205.246 1205.317 1205.460 1205.677 1205.966 1206.329 1206.764 1206.851 1207.023 1207.175 1207.603 1207.821 1208.085 1208.621 1209.178 1209.396

GRADES: 2209.000 1213.600 -1.602 % -1.616 % 2802.000 1204.015 2.760 % 3000.000 1216.850

VERTICAL CURVES AT PIVOT POINT: LVC = 240.000m K = 1514.767 | 2045.000 EVC | BVC 2089.000 | LVC = 240.000m K = 16848.220 | 2329.000 EVC | BVC 2682.000 | LVC = 240.000m K = 54.837 | 2927.000 EVC

MEDIAN LEVEL AT STAKED LINE

NEW RIGHT CARRIAGEWAY EASTBOUND

LEFT EDGE (R1): AS PER EXISTING — 1205.465 1205.575 1205.757 1206.075 1205.857 1205.565 1205.719 1205.229 1205.928 1206.438 1206.192 1206.702 1206.851 1207.030 1206.883 1207.393 1207.314 1207.821 1207.866 1208.303 1208.418 1208.839 1208.621 1209.178 1209.396 1208.97

RIGHT EDGE (R2): AS PER EXISTING

GRADES: 2209.000 1215.800 -0.827 % -2.003 % 2802.000 1203.920 2.781 % 3000.000 1216.850

VERTICAL CURVES AT PIVOT POINT: LVC = 240.000m K = 389.479 | 2045.000 EVC | BVC 2089.000 | LVC = 240.000m K = 204.098 | 2329.000 EVC | BVC 2627.000 | LVC = 350.000m K = 73.160 | 2977.000 EVC

SUPERELEVATION (e)
EB SUPERELEVATION/BOTH
WB SUPERELEVATION

-2.000%

2900

HORIZONTAL CURVES ON STAKED LINE

DIRECTION
88°48'36"

2547.788
EBC 1

CURVE 1 RIGHT
RADIUS=6000.000m
ANGLE= 4°13'57"

No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date

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Prof. Reg. No.	20130622
CHECKED BY	
NAME	PL NGQUMSHE
Prof. Reg. No.	20080112
DRAWN BY	
NAME	WB HARTMANN

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17 / 07 / 2023

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THE SOUTH AFRICAN NATIONAL ROADS AGENCY SOC LTD
Reg. No. 1998/009584/30

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Tel: (012) 426 6200

ACCEPTANCE
THIS ACCEPTANCE IS FOR PROCEDURAL AND ADMINISTRATIVE REVIEW PURPOSES ONLY AND DOES NOT ATTRACT LEGAL LIABILITY OR LIABILITY OF ANY KIND FROM WHATSOEVER CAUSE OR HOWEVER ARISING
for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION
LONGITUDINAL SECTION N4-13 FROM km 2.000 to 3.000

SCALE : HORIZONTAL 1:1000m, VERTICAL 1:100m (A0) | SHEET 01 OF 50

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	SECTION 13	SECTION 13
DRAWING km DISTANCE	km 2.000	km 3.000
DRAWING TYPE	ROADS - LONG SECTIONS	
BRIDGE/STRUCTURE No.	B1678	
CONSULTANT DRAWING No.	FA 3257 / 23 / 01 LS	VER
SANRAL DOCUMENT #	- -	V0

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadwork\03 - Longsections\3257_23_(ALL) LS.dwg

GUARDRAIL SOUTH WB CARRIAGEWAY	
V-DRAIN SOUTH WB CARRIAGEWAY	
SUBSOIL DRAIN SOUTH WB CARRIAGEWAY	AS PER EXISTING
GUARDRAIL NORTH WB CARRIAGEWAY	
V-DRAIN NORTH WB CARRIAGEWAY	
SUBSOIL DRAIN NORTH WB CARRIAGEWAY	
MEDIAN V-DRAIN	EARTH DRAIN
GUARDRAIL SOUTH EB CARRIAGEWAY	
V-DRAIN SOUTH EB CARRIAGEWAY	
SUBSOIL DRAIN SOUTH EB CARRIAGEWAY	
GUARDRAIL NORTH EB CARRIAGEWAY	
V-DRAIN NORTH EB CARRIAGEWAY	EARTH DRAIN / EARTH DRAIN / CONCRETE DRAIN - TYPE F
SUBSOIL DRAIN NORTH EB CARRIAGEWAY	SUBSOIL DRAIN

DRAINAGE
KILOMETRE DISTANCE
SIZE AND ANGLE

km 3.520 000
1 X 600 PC
θ = 270°

NOTES:

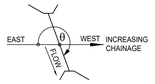
1) LEVELS IN BRACKETS MAY BE ALTERED TO TIE IN WITH EXISTING ROAD LEVELS AFTER CONSULTING WITH THE RESIDENT ENGINEER.
2) VPI's AND GRADES GIVEN AT PIVOT POINT
3) BARRIER LINES AS PER ROAD PAINT MARKINGS DRAWINGS

"AS BUILT" NOTES:

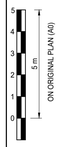
DESIGN SPEED
120 km/h

TYPICAL CROSS SECTION KM 3.000 TO KM 4.000
N.T.S

CULVERT SKEW ANGLE



CULVERT SKEW ANGLE



DATUM 1205.000

1235
1225
1215

← BRITS

N4 - 13
CONTINUE FROM
3257 / 23 / 01 LS

RUSTENBURG →

N4 - 13
CONTINUE ON
3257 / 23 / 03 LS

FRL AT R1
DIRECTION OF TRAFFIC FLOW
NGL AT R1
km 3,520 000
1 X 600 PC
θ = 270°
VPI 3
km 3.267
ELEV = 1216.850m
LVC = 240.000m
K = 1580.024
EXISTING FRL AT L2

TENDER

CHAINAGES	3000	3020	3040	3060	3080	**3100**	3120	3140	3160	3180	**3200**	3220	3240	3260	3280	**3300**	3320	3340	3360	3380	**3400**	3420	3440	3460	3480	**3500**	3520	3540	3560	3580	**3600**	3620	3640	3660	3680	**3700**	3720	3740	3760	3780	**3800**	3820	3840	3860	3880	**3900**	3920	3940	3960	3980	**4000**
GROUND LEVEL AT R1	1208.627	1209.191	1209.748	1210.297	1210.857	**1211.435**	1211.953	1212.441	1212.949	1213.122	**1213.164**	1213.504	1214.126	1214.935	1215.551	**1215.980**	1216.390	1216.994	1217.638	1218.810	**1219.924**	1221.101	1221.285	1221.683	1222.204	**1220.881**	1221.669	1222.328	1222.957	1224.026	**1224.536**	1225.312	1226.046	1225.958	1226.468	**1226.845**	1229.215	1228.889	1229.535	1230.222	**1231.244**	1232.487	1233.522	1232.997	1234.621	**1235.502**	1236.118	1236.761	1237.219	1235.841	**1238.077**
VERTICAL ALIGNMENT — EXISTING LEFT CARRIAGEWAY WESTBOUND — LEFT EDGE (L1)	1209.595	1210.191	1210.788	1211.384	1211.936	**1212.489**	1213.041	1213.593	1214.144	1214.694	**1215.241**	1215.788	1216.329	1216.870	1217.408	**1217.945**	1218.479	1219.011	1219.541	1219.997	**1220.453**	1220.907	1221.362	1221.817	1222.272	**1222.727**	1223.253	1223.778	1224.304	1224.830	**1225.356**	1225.881	1226.407	1226.933	1227.459	**1227.984**	1228.510	1229.086	1229.662	1230.087	**1230.613**	1231.139	1231.665	1232.190	1232.716	**1233.242**	1233.768	1234.293	1234.819	1235.345	**1235.871**
RIGHT EDGE (L2)	1209.480	1210.032	1210.584	1211.136	1211.688	**1212.240**	1212.792	1213.344	1213.896	1214.446	**1214.993**	1215.538	1216.081	1216.622	1217.160	**1217.697**	1218.231	1218.763	1219.293	1219.820	**1220.346**	1220.872	1221.398	1221.923	1222.449	**1222.975**	1223.501	1224.026	1224.552	1225.078	**1225.604**	1226.130	1226.655	1227.181	1227.707	**1228.232**	1228.758	1229.284	1229.810	1230.335	**1230.861**	1231.387	1231.913	1232.438	1232.964	**1233.490**	1234.016	1234.542	1235.067	1235.593	**1236.119**
GRADES		2.760 %												3267.000	1216.850																																							2.629 %					4000.000 1242.270
VERTICAL CURVES AT PIVOT POINT																BVC 3147.000																																						EC 3387.000					
																LVC = 240.000m K = 1825.562																																										
MEDIAN LEVEL AT STAKED LINE	1208.97	1209.522	1210.074	1210.626	1211.178	**1211.73**	1212.282	1212.834	1213.386	1213.936	**1214.483**	1215.028	1215.571	1216.112	1216.65	**1217.187**	1217.721	1218.253	1218.783	1219.31	**1219.836**	1220.362	1220.888	1221.413	1221.939	**1222.465**	1222.991	1223.516	1224.042	1224.568	**1225.094**	1225.62	1226.145	1226.671	1227.197	**1227.722**	1228.248	1228.774	1229.3	1229.825	**1230.351**	1230.877	1231.403	1231.928	1232.454	**1232.98**	1233.506	1234.032	1234.557	1235.083	**1235.609**
VERTICAL ALIGNMENT — NEW RIGHT CARRIAGEWAY EASTBOUND — LEFT EDGE (R1)	1209.396	1209.952	1210.508	1211.064	1211.620	**1212.176**	1212.732	1213.289	1213.844	1214.397	**1214.948**	1215.496	1216.042	1216.585	1216.907	**1217.125**	1217.663	1218.199	1218.732	1219.262	**1219.790**	1220.842	1221.368	1221.893	1222.419	**1222.945**	1223.471	1223.996	1224.522	1225.048	**1225.574**	1226.099	1226.625	1227.151	1227.677	**1228.202**	1228.728	1229.254	1229.780	1230.305	**1230.831**	1231.357	1231.883	1232.408	1232.934	**1233.460**	1233.986	1234.511	1235.037	1235.563	**1236.089**
RIGHT EDGE (R2)	1209.178	1209.734	1210.290	1210.846	1211.402	**1211.958**	1212.514	1213.071	1213.626	1214.179	**1214.730**	1215.278	1215.824	1216.367	1216.907	**1217.445**	1217.981	1218.514	1219.044	1219.572	**1220.098**	1220.624	1221.150	1221.675	1222.201	**1222.727**	1223.253	1223.778	1224.304	1224.830	**1225.356**	1225.881	1226.407	1226.933	1227.459	**1227.984**	1228.510	1229.036	1229.562	1230.087	**1230.613**	1231.139	1231.665	1232.190	1232.716	**1233.242**	1233.768	1234.293	1234.819	1235.345	**1235.871**
GRADES		2.781 %												3267.000	1216.850																																					2.629 %					4000.000 1242.270
VERTICAL CURVES AT PIVOT POINT																BVC 3147.000																																						EC 3387.000					
																LVC = 240.000m K = 1580.024																																										

SUPERELEVATION (e)
EB SUPERELEVATION/BOTH
WB SUPERELEVATION

2.000%
-2.000%
3060
3360
3500
-2.000%

HORIZONTAL CURVES ON STAKED LINE

CURVE 1 RIGHT
RADIUS=6000.000m
ANGLE= 4°13'57"
EC1
3396.027
DIRECTION
93°02'34"

No.	DATE	REVISION	
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date :

CONSULTANT
JG AFRIKA
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Sunninghill
2157
Tel: +27 11 231-2200
Fax: +27 11 807-1607
e-mail: johannesburg@jgafrika.com

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Southdowns Ridge Office park
2nd Floor Unit 1A
Cnr John Vorster & Nellmapius Drive
Irene
Centurion
Tel: +27 11 519-0400
Fax: +27 11 519-0414

DESIGNED BY
NAME: EF DAY
Prof. Reg. No. 20130622
CHECKED BY
NAME: PL NGQUMSHE
Prof. Reg. No. 20080112
DRAWN BY
NAME: WB HARTMANN

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17 / 07 / 2023

HEAD OFFICE
48 Tambotie Avenue
Val de Grace
Pretoria
0184
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South Africa
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THE SOUTH AFRICAN NATIONAL ROADS AGENCY SOC LTD
Reg. No. 1998/009584/30

NORTHERN REGION
38 Ida Street
Menlo Park
Pretoria
0081
Private Bag X17
Lynnwood Ridge
0040
Tel: (012) 426 6200

ACCEPTANCE
THIS ACCEPTANCE IS FOR PROCEDURAL AND ADMINISTRATIVE REVIEW PURPOSES ONLY AND DOES NOT ATTRACT LEGAL LIABILITY OR LIABILITY OF ANY KIND FROM WHATSOEVER CAUSE OR HOWEVER ARISING
for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION
LONGITUDINAL SECTION N4 - 13 FROM km 3.000 TO km 4.000

SCALE : HORIZONTAL 1:1000m, VERTICAL 1:100m (A0)
SHEET 02 OF 50

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	SECTION 13	SECTION 13
DRAWING km DISTANCE	km 3.000	km 4.000
DRAWING TYPE	ROADS - LONG SECTIONS	
BRIDGE/STRUCTURE No.	NA	
CONSULTANT DRAWING No.	FA 3257 / 23 / 02 LS	VER
SANRAL DOCUMENT #	- -	V0

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadwork\03 - Longsections\3257_23_(ALL) LS.dwg

GUARDRAIL SOUTH WB CARRIAGEWAY	
V-DRAIN SOUTH WB CARRIAGEWAY	
SUBSOIL DRAIN SOUTH WB CARRIAGEWAY	AS PER EXISTING
GUARDRAIL NORTH WB CARRIAGEWAY	
V-DRAIN NORTH WB CARRIAGEWAY	
SUBSOIL DRAIN NORTH WB CARRIAGEWAY	CONCRETE DRAIN
MEDIAN V-DRAIN	EARTH DRAIN / EARTH DRAIN / EARTH DRAIN
GUARDRAIL SOUTH EB CARRIAGEWAY	
V-DRAIN SOUTH EB CARRIAGEWAY	
SUBSOIL DRAIN SOUTH EB CARRIAGEWAY	
GUARDRAIL NORTH EB CARRIAGEWAY	GUARDRAIL
V-DRAIN NORTH EB CARRIAGEWAY	CONCRETE DRAIN / CONCRETE DRAIN - TYPE A / CONCRETE DRAIN TYPE A
SUBSOIL DRAIN NORTH EB CARRIAGEWAY	SUBSOIL DRAIN / SUBSOIL DRAIN

DRAINAGE
KILOMETRE DISTANCE
SIZE AND ANGLE

km 4,100 000
1 X 600 PC
θ = 270°

km 4,496 940
1 X 600 PC
θ = 269.584°

km 4,747 311
1 X 900 X 450 BC
θ = 269.318°

km 4,827 915
1 X 600 X 450 BC
θ = 267.795°

km 4,890 223
1 X 900 X 450 BC
θ = 268.959°

km 4,987 127
1 X 600 PC
θ = 269.703°

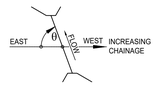
NOTES:

1) LEVELS IN BRACKETS MAY BE ALTERED TO TIE IN WITH EXISTING ROAD LEVELS AFTER CONSULTING WITH THE RESIDENT ENGINEER.
2) VPI's AND GRADES GIVEN AT PIVOT POINT
3) BARRIER LINES AS PER ROAD PAINT MARKINGS DRAWINGS

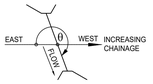
"AS BUILT" NOTES:

DESIGN SPEED
120 km/h

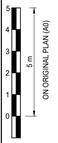
TYPICAL CROSS SECTION KM 4.000 TO KM 5.000
N.T.S

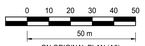


CULVERT SKEW ANGLE



CULVERT SKEW ANGLE





DATUM 1225.000

N4 - 13
CONTINUE FROM
3257 / 23 / 02 LS

N4 - 13
CONTINUE ON
3257 / 23 / 04 LS

BRITS

RUSTENBURG

VPI 4
km 4.234 000
ELEV = 1242.270m
LVC = 380.000m
K = 120.058

EXISTING
FRL AT L2

DIRECTION OF
TRAFFIC FLOW

FRL AT R1

NGL AT R1

km 4,100 000
1 X 600 PC
θ = 270°

km 4,496 940
1 X 600 PC
θ = 269.584°

S4038
km 4,667 000
RANDWATER CULVERT
UNDER ROAD RESERVE

km 4,747 311
1 X 900 X 450 BC
θ = 269.318°

km 4,827 915
1 X 600 X 450 BC
θ = 267.795°

km 4,890 223
1 X 900 X 450 BC
θ = 268.959°

km 4,987 127
1 X 600 PC
θ = 269.703°

TENDER

CHAINAGES	4000	4020	4040	4060	4080	4100	4120	4140	4160	4180	4200	4220	4240	4260	4280	4300	4320	4340	4360	4380	4400	4420	4440	4460	4480	4500	4520	4540	4560	4580	4600	4620	4640	4660	4680	4700	4720	4740	4760	4780	4800	4820	4840	4860	4880	4900	4920	4940	4960	4980	5000
GROUND LEVEL AT R1	1238.077	1238.090	1238.392	1238.265	1237.816	1237.593	1237.420	1237.304	1237.375	1237.345	1237.272	1237.368	1237.606	1237.885	1238.205	1238.398	1238.546	1238.218	1238.240	1238.062	1238.064	1238.075	1237.859	1237.769	1237.839	1237.878	1238.071	1238.177	1237.929	1237.793	1237.710	1237.601	1237.500	1237.609	1237.578	1237.365	1237.261	1237.170	1237.087	1237.057	1237.000	1236.950	1236.892	1236.885	1236.740	1236.295	1235.943	1235.786	1235.793	1235.891
VERTICAL ALIGNMENT — EXISTING LEFT CARRIAGEWAY WESTBOUND — LEFT EDGE (L1)	1235.871	1236.396	1236.922	1237.446	1237.944	1238.407	1238.835	1239.227	1239.585	1239.867	1240.093	1240.324	1240.542	1240.724	1240.872	1240.994	1241.062	1241.105	1241.112	1241.085	1241.022	1240.926	1240.822	1240.717	1240.613	1240.609	1240.404	1240.300	1240.195	1240.091	1239.986	1239.882	1239.777	1239.673	1239.568	1239.464	1239.359	1239.255	1239.150	1239.046	1238.941	1238.837	1238.732	1238.628	1238.523	1238.419	1238.314	1238.210	1238.105	1238.001	1237.897
RIGHT EDGE (L2)	1238.119	1236.645	1237.170	1237.694	1238.192	1238.655	1239.083	1239.475	1239.833	1240.156	1240.443	1240.696	1240.914	1241.096	1241.244	1241.356	1241.434	1241.477	1241.484	1241.457	1241.394	1241.298	1241.194	1241.089	1240.985	1240.880	1240.776	1240.672	1240.567	1240.463	1240.358	1240.254	1240.149	1240.045	1239.940	1239.836	1239.731	1239.627	1239.522	1239.418	1239.313	1239.209	1239.104	1239.000	1238.895	1238.791	1238.686	1238.582	1238.477	1238.373	1238.269
GRADES		2.629 %																																																			
		4234.000											1242.270																																								5000.000
																																																			1236.670
VERTICAL CURVES AT PIVOT POINT		BVC 4004.000																																																	
													LVC = 360.000m																																						
													K = 114.244																																				

GUARDRAIL SOUTH WB CARRIAGEWAY	
V-DRAIN SOUTH WB CARRIAGEWAY	
SUBSOIL DRAIN SOUTH WB CARRIAGEWAY	AS PER EXISTING
GUARDRAIL NORTH WB CARRIAGEWAY	
V-DRAIN NORTH WB CARRIAGEWAY	
SUBSOIL DRAIN NORTH WB CARRIAGEWAY	
MEDIAN V-DRAIN	CONCRETE TYPE E / EARTH DRAIN / EARTH DRAIN
GUARDRAIL SOUTH EB CARRIAGEWAY	
V-DRAIN SOUTH EB CARRIAGEWAY	
SUBSOIL DRAIN SOUTH EB CARRIAGEWAY	
GUARDRAIL NORTH EB CARRIAGEWAY	
V-DRAIN NORTH EB CARRIAGEWAY	EARTH DRAIN
SUBSOIL DRAIN NORTH EB CARRIAGEWAY	

DRAINAGE
KILOMETRE DISTANCE
SIZE AND ANGLE

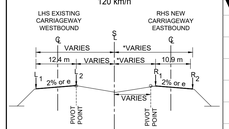
km 5,027 244 — 1 X 900 X 450 BC — θ = 269.632°
km 5,182 572 — 2 X 750 X 450 BC — θ = 269.999°
km 5,220 000 — 2 X 900 X 450 BC — θ = 270.230°
km 5,287 031 — 1 X 1200 X 450 BC — θ = 270.538°
km 5,307 208 — 1 X 900 X 600 BC — θ = 269.443°
km 5,372 829 — 1 X 1200 X 900 BC — θ = 299.280°
km 5,446 800 — 2 X 750 PC — θ = 298.668°
km 5,526 775 — 2 X 600 PC — θ = 300.343°
km 5.586 690 — 1 X 900 x 450 PC — θ = 306.812°

NOTES:

1) LEVELS IN BRACKETS MAY BE ALTERED TO TIE IN WITH EXISTING ROAD LEVELS AFTER CONSULTING WITH THE RESIDENT ENGINEER.
2) VPI's AND GRADES GIVEN AT PIVOT POINT
3) BARRIER LINES AS PER ROAD PAINT MARKINGS DRAWINGS

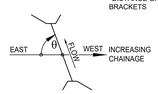
"AS BUILT" NOTES:

DESIGN SPEED
120 km/h

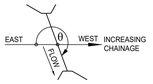


TYPICAL CROSS SECTION KM 5.087 TO KM 5.827
N.T.S

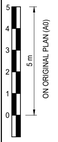
*DISTANCE GIVEN IN BRACKETS

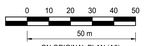


CULVERT SKEW ANGLE



CULVERT SKEW ANGLE





DATUM 1224.000

← BRITS

N4 - 13
CONTINUE FROM
3257 / 23 / 03 LS

RUSTENBURG →

N4 - 13
CONTINUE ON
3257 / 23 / 05 LS

km 5,860 100
BRIDGE B1679 (EXISTING)
LINK ROAD OVER N4

EXISTING FRL AT L2
FRL AT R1
NGL AT R1
VPI 5
km 5.306 000
ELEV = 1236.520m
LVC = 600.000m
K = 271.131

TENDER

CHAINAGES	5000	5020	5040	5060	5080	5100	5120	5140	5160	5180	5200	5220	5240	5260	5280	5300	5320	5340	5360	5380	5400	5420	5440	5460	5480	5500	5520	5540	5560	5580	5600	5620	5640	5660	5680	5700	5720	5740	5760	5780	5800	5820	5840	5860	5880	5900	5920	5940	5960	5980	6000
GROUND LEVEL AT R1	1235.801	1236.053	1236.283	1236.482	1236.533	1236.736	1236.635	1236.634	1236.609	1236.626	1236.437	1236.202	1236.260	1236.232	1236.222	1236.420	1236.415	1236.471	1236.747	1237.037	1237.223	1237.329	1237.631	1237.974	1238.317	1238.740	1239.151	1239.196	1239.842	1239.949	1240.393	1240.894	1241.471	1241.746	1242.204	1242.592	1243.071	1243.490	1243.807	1244.085	1244.307	1244.501	1244.813	1245.155	1245.586	1245.825	1246.404	1246.799	1247.234	1247.671	1248.040	1248.447
VERTICAL ALIGNMENT — EXISTING LEFT CARRIAGEWAY WESTBOUND — LEFT EDGE (L1)	1237.897	1237.796	1237.709	1237.637	1237.579	1237.536	1237.508	1237.494	1237.495	1237.511	1237.542	1237.587	1237.646	1237.721	1237.810	1237.913	1238.032	1238.165	1238.312	1238.475	1238.652	1238.843	1239.050	1239.271	1239.506	1239.756	1240.021	1240.301	1240.595	1240.904	1241.228	1241.563	1241.898	1242.233	1242.588	1242.904	1243.239	1243.574	1243.910	1244.245	1244.580	1244.916	1245.251	1245.586	1245.950	1246.330	1246.709	1247.089	1247.469	1247.848	1248.228
RIGHT EDGE (L2)	1238.269	1238.168	1238.081	1238.009	1237.951	1237.908	1237.880	1237.866	1237.867	1237.883	1237.913	1237.958	1238.018	1238.093	1238.182	1238.285	1238.404	1238.537	1238.684	1238.847	1239.024	1239.215	1239.422	1239.643	1239.878	1240.128	1240.393	1240.673	1240.967	1241.276	1241.600	1241.934	1242.270	1242.605	1242.940	1243.276	1243.611	1243.946	1244.282	1244.617	1244.952	1245.288	1245.623	1245.958	1246.293	1246.629	1246.964	1247.299	1247.635	1247.970	1248.305
GRADES		-0.522 %														5306.000 1236.670																																				1.677 %							6000.000 1261.500
VERTICAL CURVES AT PIVOT POINT		5006.000 BVC														LVC = 600.000m K = 272.857															5600.000 EVC																					
MEDIAN LEVEL AT STAKED LINE	1237.729	1237.660	1237.591	1237.522	1237.453	1237.384	1237.315	1237.246	1237.177	1237.108	1237.200	1237.315	1237.430	1237.545	1237.660	1237.775	1237.894	1238.027	1238.174	1238.337	1238.514	1238.705	1238.912	1239.133	1239.368	1239.618	1239.883	1240.163	1240.457	1240.766	1241.09	1241.424	1241.76	1242.095	1242.43	1242.786	1243.101	1243.436	1243.772	1244.107	1244.442	1244.778	1245.113	1245.448	1245.783	1246.119	1246.454	1246.789	1247.125	1247.46	1247.795
VERTICAL ALIGNMENT — NEW RIGHT CARRIAGEWAY EASTBOUND — LEFT EDGE (R1)	(12.700) 1238.116	(12.700) 1238.013	(12.700) 1237.923	(12.700) 1237.848	(12.700) 1237.788	(12.552) 1237.743	(12.325) 1237.712	(12.098) 1237.697	(11.871) 1237.695	(11.644) 1237.709	(11.417) 1237.738	(11.190) 1237.781	(10.963) 1237.839	(10.736) 1237.911	(10.509) 1237.999	(10.282) 1238.101	(10.055) 1238.226	(9.828) 1238.365	(9.601) 1238.511	(9.374) 1238.672	(9.147) 1238.849	(8.920) 1239.039	(8.693) 1239.245	(8.466) 1239.465	(8.239) 1239.700	(8.012) 1239.950	(7.785) 1240.214	(7.558) 1240.494	(7.331) 1240.787	(7.104) 1241.096	(6.877) 1241.420	(6.650) 1241.754	(6.423) 1242.090	(6.196) 1242.425	(5.969) 1242.760	(5.742) 1243.096	(5.515) 1243.451	(5.288) 1243.766	(5.061) 1244.102	(4.834) 1244.437	(4.606) 1244.772	(4.379) 1245.108	(4.300) 1245.443	(4.300) 1245.778	(4.300) 1246.114	(4.300) 1246.449	(4.300) 1246.784	(4.300) 1247.119	(4.300) 1247.455	(4.300) 1247.790	(4.300) 1248.125
RIGHT EDGE (R2)	(36.600) 1237.769	(23.600) 1237.686	(23.600) 1237.596	(23.600) 1237.521	(24.100) 1237.461	(23.452) 1237.416	(23.225) 1237.385	(22.998) 1237.370	(22.771) 1237.369	(22.544) 1237.382	(22.317) 1237.411	(22.090) 1237.454	(21.863) 1237.512	(21.636) 1237.585	(21.409) 1237.672	(21.182) 1237.774	(20.955) 1237.953	(20.728) 1238.147	(20.501) 1238.293	(20.274) 1238.454	(20.047) 1238.630	(19.820) 1238.821	(19.593) 1239.027	(19.366) 1239.247	(19.139) 1239.482	(18.912) 1239.732	(18.685) 1239.996	(18.458) 1240.276	(18.231) 1240.569	(18.004) 1240.878	(17.777) 1241.202	(17.550) 1241.536	(17.323) 1241.872	(17.096) 1242.207	(16.869) 1242.542	(16.642) 1242.878	(16.415) 1243.213	(16.188) 1243.548	(15.961) 1243.884	(15.734) 1244.219	(15.506) 1244.554	(15.279) 1244.890	(15.200) 1245.225	(15.200) 1245.560	(15.200) 1245.896	(15.200) 1246.231	(15.200) 1246.566	(15.200) 1246.901	(15.200) 1247.237	(15.200) 1247.572	(15.200) 1247.907
GRADES		-0.536 %														5306.000 1236.520																																				1.677 %							6000.000 1261.350
VERTICAL CURVES AT PIVOT POINT		5006.000 BVC														LVC = 600.000m K = 271.131															5600.000 EVC																					
SUPERELEVATION (e)		-3.000%																																																-2.000% -3.000%						
EB SUPERELEVATION/BOTH																5300		5340																																			5867			
WB SUPERELEVATION																																																								
HORIZONTAL CURVES ON STAKED LINE		DIRECTION 93°02'34"																																																						

V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE	CONSULT. ENG.
No.	DATE	REVISION		

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date :

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Prof. Reg. No.: 20080112
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CONSULTANT APPROVAL
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Prof. Reg. No.: 20080112
Date: 17 / 07 / 2023

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THE SOUTH AFRICAN NATIONAL ROADS AGENCY SOC LTD
Reg. No. 1998/009584/30

NORTHERN REGION
38 Ida Street
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Tel: (012) 426 6200

ACCEPTANCE
THIS ACCEPTANCE IS FOR PROCEDURAL AND ADMINISTRATIVE REVIEW PURPOSES ONLY, AND DOES NOT ATTRACT LEGAL LIABILITY OR LIABILITY OF ANY KIND FROM WHATSOEVER CAUSE OR HOWEVER ARISING
for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION
LONGITUDINAL SECTION N4 - 13 FROM km 5.000 TO km 6.000

SCALE : HORIZONTAL 1:1000m, VERTICAL 1:100m (A0) — SHEET 04 OF 50

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	SECTION 13	SECTION 13
DRAWING km DISTANCE	km 5.000	km 6.000
DRAWING TYPE	ROADS - LONG SECTIONS	
BRIDGE/STRUCTURE No.	NA	
CONSULTANT DRAWING No.	FA 3257 / 23 / 04 LS	VER
SANRAL DOCUMENT #	- -	V0

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\03 - Longsections\3257_23_(ALL) LS.dwg

GUARDRAIL SOUTH WB CARRIAGEWAY
V-DRAIN SOUTH WB CARRIAGEWAY
SUBSOIL DRAIN SOUTH WB CARRIAGEWAY
GUARDRAIL NORTH WB CARRIAGEWAY — AS PER EXISTING — RHS GAURDRAILS
V-DRAIN NORTH WB CARRIAGEWAY
SUBSOIL DRAIN NORTH WB CARRIAGEWAY
MEDIAN V-DRAIN — EARTH DRAIN — CONCRETE DRAIN TYPE E
GUARDRAIL SOUTH EB CARRIAGEWAY
V-DRAIN SOUTH EB CARRIAGEWAY
SUBSOIL DRAIN SOUTH EB CARRIAGEWAY
GUARDRAIL NORTH EB CARRIAGEWAY — GUARDRAIL
V-DRAIN NORTH EB CARRIAGEWAY — EARTH DRAIN
SUBSOIL DRAIN NORTH EB CARRIAGEWAY

DRAINAGE
KILOMETRE DISTANCE
SIZE AND ANGLE

S2321A
km 6,271 676
2 X 2700 X 3000 BC
θ = 300.434°

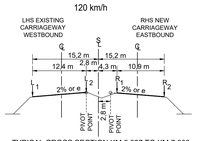
km 6,550 000
1 X 900 X 600 BC
θ = 293.610°

NOTES:

1) LEVELS IN BRACKETS MAY BE ALTERED TO TIE IN WITH EXISTING ROAD LEVELS AFTER CONSULTING WITH THE RESIDENT ENGINEER.
2) VPI's AND GRADES GIVEN AT PIVOT POINT
3) BARRIER LINES AS PER ROAD PAINT MARKINGS DRAWINGS

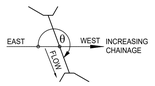
"AS BUILT" NOTES:

DESIGN SPEED
120 km/h



TYPICAL CROSS SECTION KM 5.827 TO KM 7.000
N.T.S

CULVERT SKEW ANGLE



CULVERT SKEW ANGLE

0 10 20 30 40 50
50 m
ON ORIGINAL PLAN (A0)

0 1 2 3 4 5
5 m
ON ORIGINAL PLAN (A0)

DATUM 1233.000

1263
1253
1243

← BRITS

N4 - 13
CONTINUE FROM
3257 / 23 / 04 LS

RUSTENBURG →

N4 - 13
CONTINUE ON
3257 / 23 / 06 LS

VPI 6
km 6.787 000
ELEV = 1261.350m
LVC = 800.000m
K = 194.621

DIRECTION OF TRAFFIC FLOW

EXISTING FRL AT L2

NGL AT R1

FRL AT R1

km 6.550 000
1 X 900 X 600 BC
θ = 293.610°

S4035
km 6.853 000
RAND WATER CULVERT
UNDER ROAD RESERVE

S2321A
km 6,271 676
2 X 2700 X 3000 BC
θ = 300.434°
TO BE EXTENDED

TENDER

CHAINAGES	6000	6020	6040	6060	6080	6100	6120	6140	6160	6180	6200	6220	6240	6260	6280	6300	6320	6340	6360	6380	6400	6420	6440	6460	6480	6500	6520	6540	6560	6580	6600	6620	6640	6660	6680	6700	6720	6740	6760	6780	6800	6820	6840	6860	6880	6900	6920	6940	6960	6980	7000
GROUND LEVEL AT R1	1248.447	1248.898	1249.245	1249.520	1249.800	1250.174	1250.588	1250.924	1251.210	1251.472	1251.793	1252.133	1252.242	1252.329	1252.577	1252.912	1252.912	1252.813	1253.248	1253.583	1253.856	1254.134	1254.318	1254.516	1254.680	1254.943	1255.271	1255.484	1255.594	1255.709	1255.823	1256.128	1256.461	1256.593	1256.439	1256.567	1256.720	1256.943	1256.858	1256.738	1256.728	1256.552	1256.069	1256.091	1256.025	1255.780	1255.424	1254.925	1254.607	1254.339	1253.979
VERTICAL ALIGNMENT — EXISTING LEFT CARRIAGEWAY WESTBOUND — LEFT EDGE (L1)	1248.228	1248.608	1248.987	1249.367	1249.746	1250.126	1250.505	1250.885	1251.236	1251.571	1251.907	1252.242	1252.577	1252.912	1253.248	1253.583	1253.918	1254.254	1254.589	1254.924	1255.255	1255.467	1255.858	1256.128	1256.378	1256.607	1256.786	1256.928	1257.050	1257.151	1257.232	1257.292	1257.331	1257.350	1257.348	1257.326	1257.292	1257.248	1257.208	1257.148	1257.067	1257.214	1256.966	1256.844	1256.701	1256.538	1256.397	1256.224	1255.926	1255.678	1255.411	1255.124
RIGHT EDGE (L2)	1248.305	1248.641	1248.976	1249.311	1249.647	1249.982	1250.317	1250.653	1250.988	1251.323	1251.659	1251.994	1252.329	1252.664	1253.000	1253.335	1253.670	1254.006	1254.341	1254.676	1255.007	1255.319	1255.610	1255.880	1256.130	1256.399	1256.667	1256.755	1256.922	1257.068	1257.194	1257.299	1257.383	1257.447	1257.490	1257.513	1257.515	1257.496	1257.456	1257.396	1257.315	1257.214	1257.092	1256.949	1256.786	1256.602	1256.417	1256.235	1256.033	1255.811	1255.667	1255.504	1255.372
GRADES		1.677 %		

GUARDRAIL SOUTH WB CARRIAGEWAY	
V-DRAIN SOUTH WB CARRIAGEWAY	
SUBSOIL DRAIN SOUTH WB CARRIAGEWAY	AS PER EXISTING
GUARDRAIL NORTH WB CARRIAGEWAY	
V-DRAIN NORTH WB CARRIAGEWAY	
SUBSOIL DRAIN NORTH WB CARRIAGEWAY	
MEDIAN V-DRAIN	EARTH DRAIN / CONCRETE DRAIN - TYPE E
GUARDRAIL SOUTH EB CARRIAGEWAY	
V-DRAIN SOUTH EB CARRIAGEWAY	
SUBSOIL DRAIN SOUTH EB CARRIAGEWAY	
GUARDRAIL NORTH EB CARRIAGEWAY	
V-DRAIN NORTH EB CARRIAGEWAY	
SUBSOIL DRAIN NORTH EB CARRIAGEWAY	

DRAINAGE
KILOMETRE DISTANCE
SIZE AND ANGLE

km 7.046 560
1 X 900 X 450 BC
θ = 247.020°

km 7.626 555
2 X 900 X 450 BC
θ = 240.579°

km 7.777 097
2 X 600 PC
θ = 270.561°

km 7.857 119
3 X 600 PC
θ = 269.452°

km 7.966 786
2 X 900 X 450 BC
θ = 240.123°

NOTES:

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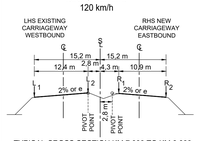
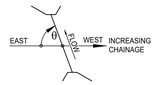
2) VPI's AND GRADES GIVEN AT PIVOT POINT
3) BARRIER LINES AS PER ROAD PAINT MARKINGS DRAWINGS

"AS BUILT" NOTES:

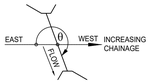
DESIGN SPEED
120 km/h



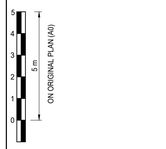
TYPICAL CROSS SECTION KM 7.000 TO KM 8.000
N.T.S



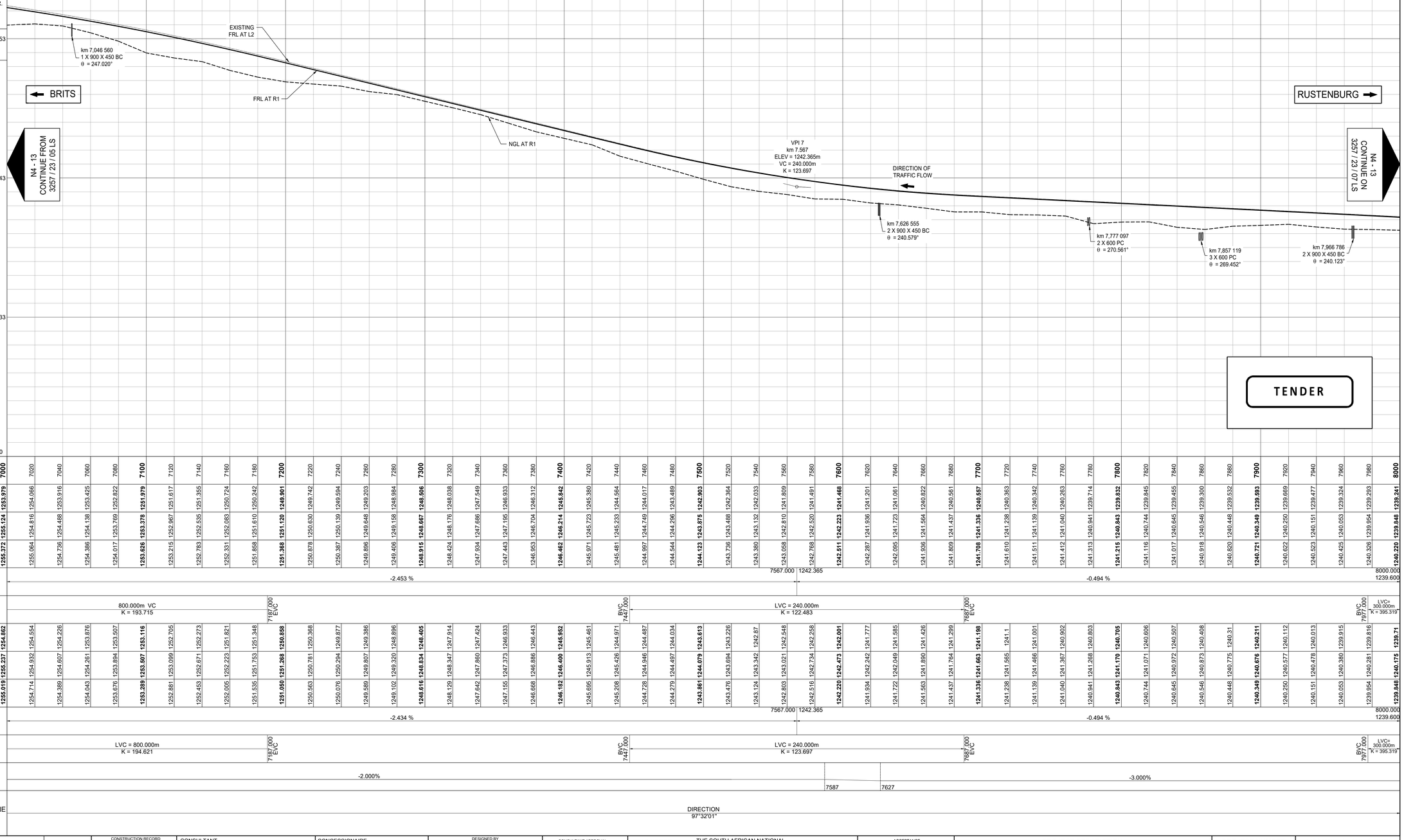
CULVERT SKEW ANGLE



CULVERT SKEW ANGLE



DATUM 1223.000



CHAINAGES		7000	7020	7040	7060	7080	7100	7120	7140	7160	7180	7200	7220	7240	7260	7280	7300	7320	7340	7360	7380	7400	7420	7440	7460	7480	7500	7520	7540	7560	7580	7600	7620	7640	7660	7680	7700	7720	7740	7760	7780	7800	7820	7840	7860	7880	7900	7920	7940	7960	7980	8000
GROUND LEVEL AT R1		1253.979	1254.066	1253.916	1253.425	1252.822	1251.979	1251.617	1251.355	1251.535	1252.242	1249.901	1249.742	1249.594	1249.203	1248.984	1248.596	1248.038	1247.549	1246.933	1246.312	1245.842	1245.380	1244.564	1244.017	1243.489	1242.903	1242.364	1242.033	1241.809	1241.491	1241.468	1241.201	1241.061	1240.822	1240.561	1240.557	1240.353	1240.342	1240.283	1240.714	1239.832	1239.845	1239.455	1239.300	1239.532	1239.593	1239.669	1239.477	1239.324	1239.293	1239.241
VERTICAL ALIGNMENT — EXISTING LEFT CARRIAGEWAY WESTBOUND — LEFT EDGE (L1)		1255.124	1254.816	1254.488	1254.138	1253.769	1253.378	1252.967	1252.535	1252.083	1251.610	1251.120	1250.630	1250.139	1249.648	1249.158	1248.667	1248.176	1247.686	1247.195	1246.704	1246.214	1245.723	1245.233	1244.749	1244.296	1243.875	1243.488	1243.132	1242.810	1242.520	1242.223	1241.936	1241.723	1241.564	1241.437	1241.336	1241.238	1241.139	1241.040	1239.941	1240.843	1240.744	1240.645	1240.546	1240.448	1240.349	1240.250	1240.151	1240.053	1239.954	1240.220
RIGHT EDGE (L2)		1255.372	1255.064	1254.736	1254.386	1254.017	1253.626	1253.215	1252.783	1252.331	1251.858	1251.368	1250.878	1250.387	1249.896	1249.406	1248.915	1248.424	1247.934	1247.443	1246.953	1246.462	1245.971	1245.481	1244.997	1244.544	1244.123	1243.736	1243.380	1243.058	1242.768	1242.511	1242.287	1242.095	1241.936	1241.809	1241.708	1241.610	1241.511	1241.412	1241.313	1241.215	1241.116	1241.017	1240.918	1240.820	1240.721	1240.622	1240.523	1240.425	1240.326	1240.220
GRADES			-2.453 %																																																				
			7567.000 1242.365																																																				
			-0.494 %																																																			
			8000.000 1239.600																																																			
VERTICAL CURVES AT PIVOT POINT			800.000m VC K = 193.715								7187.000 EVC						BVC 7447.000	LVC = 240.000m K = 122.483																		

GUARDRAIL SOUTH WB CARRIAGEWAY
V-DRAIN SOUTH WB CARRIAGEWAY
SUBSOIL DRAIN SOUTH WB CARRIAGEWAY
GUARDRAIL NORTH WB CARRIAGEWAY
V-DRAIN NORTH WB CARRIAGEWAY
SUBSOIL DRAIN NORTH WB CARRIAGEWAY

AS PER EXISTING

MEDIAN V-DRAIN

CONCRETE DRAIN — EARTH DRAIN — EARTH DRAIN

GUARDRAIL SOUTH EB CARRIAGEWAY
V-DRAIN SOUTH EB CARRIAGEWAY
SUBSOIL DRAIN SOUTH EB CARRIAGEWAY
GUARDRAIL NORTH EB CARRIAGEWAY
V-DRAIN NORTH EB CARRIAGEWAY
SUBSOIL DRAIN NORTH EB CARRIAGEWAY

DRAINAGE
KILOMETRE DISTANCE
SIZE AND ANGLE

km 8,076 322
1 X 600 X 600 BC
θ = 241.850°

km 8,217 760
1 X 1200 X 450 BC
θ = 237.195°

km 8,366 939
2 X 750 X 450 BC
θ = 269.835°

km 8,487 048
1 X 1200 X 450 BC
θ = 269.514°

km 8,692 666
2 X 750 X 450 BC
θ = 269.974°

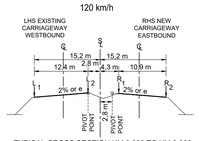
km 8,867 132
3 X 900 PC
θ = 240.347°

NOTES:

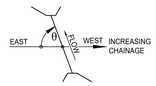
1) LEVELS IN BRACKETS MAY BE ALTERED TO TIE IN WITH EXISTING ROAD LEVELS AFTER CONSULTING WITH THE RESIDENT ENGINEER.
2) VPI's AND GRADES GIVEN AT PIVOT POINT
3) BARRIER LINES AS PER ROAD PAINT MARKINGS DRAWINGS

"AS BUILT" NOTES:

DESIGN SPEED
120 km/h

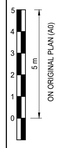


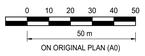
TYPICAL CROSS SECTION KM 8.000 TO KM 9.000
N.T.S



CULVERT SKEW ANGLE

CULVERT SKEW ANGLE





DATUM 1213.000

BRITS

RUSTENBURG

N4 - 13
CONTINUE FROM
3257 / 23 / 06 LS

N4 - 13
CONTINUE ON
3257 / 23 / 08 LS

VPI 8
km 8.127 000
ELEV = 1239.600m
LVC = 300.000m
K = 395.319

EXISTING FRL AT L2

FRL AT R1

DIRECTION OF TRAFFIC FLOW

NGL AT R1

VPI 9
km 8.697 000
ELEV = 1232.460m
LVC = 510.000m
K = 612.935

TENDER

CHAINAGES

8000	8020	8040	8060	8080	8100	8120	8140	8160	8180	8200	8220	8240	8260	8280	8300	8320	8340	8360	8380	8400	8420	8440	8460	8480	8500	8520	8540	8560	8580	8600	8620	8640	8660	8680	8700	8720	8740	8760	8780	8800	8820	8840	8860	8880	8900	8920	8940	8960	8980	9000

GROUND LEVEL AT R1

1239.241	1239.053	1238.952	1238.870	1238.023	1238.542	1238.092	1237.758	1237.645	1237.452	1237.553	1236.974	1236.774	1236.766	1236.407	1236.100	1235.716	1235.517	1235.133	1235.009	1234.889	1234.700	1234.571	1234.409	1234.152	1233.755	1234.049	1233.896	1233.961	1233.738	1233.514	1233.265	1233.032	1232.412	1231.491	1230.299	1229.937	1229.646	1228.974	1228.584	1228.318	1228.018	1227.587	1227.320	1227.187	1226.981	1226.714	1226.534	1226.248	1225.873	1225.496

VERTICAL ALIGNMENT

EXISTING LEFT CARRIAGEWAY WESTBOUND

LEFT EDGE (L1)

1239.848	1239.733	1239.607	1239.472	1239.326	1239.170	1239.004	1238.828	1238.642	1238.445	1238.239	1238.022	1237.795	1237.599	1237.414	1237.185	1236.934	1236.684	1236.433	1236.183	1235.932	1235.682	1235.431	1235.178	1234.919	1234.653	1234.380	1234.101	1233.816	1233.524	1233.226	1232.921	1232.610	1232.292	1231.969	1231.638	1231.301	1230.958	1230.608	1230.252	1229.889	1229.520	1229.144	1228.762	1228.374	1227.979	1227.578	1227.170	1226.756	1226.358	1225.886

RIGHT EDGE (L2)

1240.220	1240.105	1239.979	1239.844	1239.698	1239.542	1239.376	1239.200	1239.014	1238.817	1238.611	1238.394	1238.167	1237.930	1237.683	1237.433	1237.182	1236.932	1236.681	1236.431	1236.180	1235.930	1235.679	1235.426	1235.167	1234.901	1234.628	1234.349	1234.064	1233.772	1233.474	1233.169	1232.858	1232.541	1232.217	1231.886	1231.549	1231.206	1230.856	1230.500	1230.137	1229.768	1229.392	1229.010	1228.622	1228.227	1227.826	1227.418	1227.004	1226.606	1226.234

GRADES

-0.494 % | 8127.000 | 1239.600 | -1.253 % | 8697.000 | 1232.460 | -2.074 % | 9000.000 | 1222.295

VERTICAL CURVES AT PIVOT POINT

LVC = 300.000m
K = 395.319

PVC 8247.000

BVC 8447.000

LVC = 510.000m
K = 620.545

EVC 8957.000

BVC 9057.000

LVC = 460.000m
K = 153.897

MEDIAN LEVEL AT STAKED LINE

1239.71	1239.595	1239.469	1239.334	1239.188	1239.032	1238.866	1238.69	1238.504	1238.307	1238.101	1237.884	1237.657	1237.42	1237.173	1236.923	1236.672	1236.422	1236.171	1235.921	1235.67	1235.42	1235.169	1234.916	1234.657	1234.391	1234.118	1233.839	1233.554	1233.262	1232.964	1232.659	1232.348	1232.031	1231.707	1231.375	1231.039	1230.696	1230.346	1229.99	1229.627	1229.258	1228.882	1228.5	1228.112	1227.717	1227.316	1226.908	1226.494	1226.096	1225.724

NEW RIGHT CARRIAGEWAY EASTBOUND

LEFT EDGE (R1)

1240.175	1240.060	1239.934	1239.799	1239.653	1239.497	1239.331	1239.155	1238.969	1238.772	1238.566	1238.349	1238.122	1237.890	1237.651	1237.403	1237.152	1236.902	1236.651	1236.401	1236.150	1235.900	1235.649	1235.396	1235.136	1234.870	1234.598	1234.318	1234.032	1233.740	1233.441	1233.136	1232.824	1232.506	1232.181	1231.849	1231.511	1231.167	1230.816	1230.458	1230.094	1229.724	1229.347	1228.963	1228.573	1228.176	1227.773	1227.363	1226.947	1226.524	1226.096

RIGHT EDGE (R2)

1239.848	1239.733	1239.607	1239.472	1239.326	1239.170	1239.004	1238.828	1238.642	1238.445	1238.239	1238.022	1237.795	1237.599	1237.414	1237.185	1236.934	1236.684	1236.433	1236.183	1235.932	1235.682	1235.431	1235.178	1234.918	1234.652	1234.380	1234.100	1233.814	1233.522	1233.223	1232.918	1232.606	1232.288	1231.963	1231.631	1231.293	1230.949	1230.598	1230.240	1229.876	1229.506	1229.129	1228.745	1228.355	1227.958	1227.555	1227.145	1226.729	1226.329	1225.956

GRADES

-0.494 % | 8127.000 | 1239.600 | -1.253 % | 8697.000 | 1232.460 | -2.085 % | 9000.000 | 1222.245

VERTICAL CURVES AT PIVOT POINT

LVC = 300.000m
K = 395.319

PVC 8247.000

BVC 8447.000

LVC = 510.000m
K = 612.935

EVC 8957.000

BVC 9057.000

LVC = 460.000m
K = 153.374

SUPERELEVATION (e)

EB SUPERELEVATION/BOTH
WB SUPERELEVATION

-3.000% | 8247 | 8287 | -2.000%

HORIZONTAL CURVES ON STAKED LINE

DIRECTION
97°32'01"

V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE	CONSULT. ENG.	
No.	DATE	REVISION			

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date :

CONSULTANT
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Tel: +27 11 519-0400
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DESIGNED BY
NAME: EF DAY
Prof. Reg. No.: 20130622
CHECKED BY
NAME: PL NGQUMSHE
Prof. Reg. No.: 20080112
DRAWN BY
NAME: WB HARTMANN

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17 / 07 / 2023

HEAD OFFICE
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Pretoria
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THE SOUTH AFRICAN NATIONAL ROADS AGENCY SOC LTD
Reg. No. 1998/009584/30

NORTHERN REGION
38 Ida Street
Menlo Park
Pretoria
0081
Private Bag X17
Lynnwood Ridge
0040
Tel: (012) 426 6200

ACCEPTANCE
THIS ACCEPTANCE IS FOR PROCEDURAL AND ADMINISTRATIVE REVIEW PURPOSES ONLY AND DOES NOT ATTRACT LEGAL LIABILITY OR LIABILITY OF ANY KIND FROM WHATSOEVER CAUSE OR HOWEVER ARISING
for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION
LONGITUDINAL SECTION N4 - 13 FROM km 8.000 TO km 9.000

SCALE : HORIZONTAL 1:1000m, VERTICAL 1:100m (A0)
SHEET 07 OF 50

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	SECTION 13	SECTION 13
DRAWING km DISTANCE	km 8.000	km 9.000
DRAWING TYPE	ROADS - LONG SECTIONS	
BRIDGE/STRUCTURE No.	NA	
CONSULTANT DRAWING No.	FA 3257 / 23 / 07 LS	VER
SANRAL DOCUMENT #	- -	V0

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadwork\03 - Longsections\3257_23_(ALL) LS.dwg

GUARDRAIL SOUTH WB CARRIAGEWAY
V-DRAIN SOUTH WB CARRIAGEWAY
SUBSOIL DRAIN SOUTH WB CARRIAGEWAY
GUARDRAIL NORTH WB CARRIAGEWAY
V-DRAIN NORTH WB CARRIAGEWAY
SUBSOIL DRAIN NORTH WB CARRIAGEWAY — AS PER EXISTING

MEDIAN V-DRAIN — EARTH DRAIN | CONCRETE DRAIN | EARTH DRAIN | EARTH DRAIN

GUARDRAIL SOUTH EB CARRIAGEWAY
V-DRAIN SOUTH EB CARRIAGEWAY
SUBSOIL DRAIN SOUTH EB CARRIAGEWAY
GUARDRAIL NORTH EB CARRIAGEWAY — GUARDRAIL
V-DRAIN NORTH EB CARRIAGEWAY — CONCRETE DRAIN TYPE A
SUBSOIL DRAIN NORTH EB CARRIAGEWAY — SUBSOIL DRAIN

DRAINAGE
KILOMETRE DISTANCE
SIZE AND ANGLE

km 9.047 690
1 X 900 X 600 BC
θ = 241.360°

S4034
km 9.216 395
1 X 2100 X 2100 BC
θ = 63.716°

km 9.277 014
1 X 750 PC
θ = 270.154°

km 9.466 179
1 X 600 PC
θ = 299.071°

km 9.567 832
1 X 600 X 450 BC
θ = 294.639°

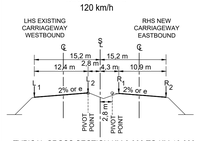
km 9.831 169
3 X 900 X 450 BC
θ = 298.868°

NOTES:

1) LEVELS IN BRACKETS MAY BE ALTERED TO TIE IN WITH EXISTING ROAD LEVELS AFTER CONSULTING WITH THE RESIDENT ENGINEER.
2) VPI's AND GRADES GIVEN AT PIVOT POINT
3) BARRIER LINES AS PER ROAD PAINT MARKINGS DRAWINGS

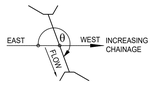
"AS BUILT" NOTES:

DESIGN SPEED
120 km/h

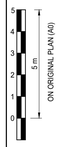


TYPICAL CROSS SECTION KM 9.000 TO KM 10.000
N.T.S

CULVERT SKEW ANGLE



CULVERT SKEW ANGLE



DATUM 1213.000

← BRITS

N4 -13
CONTINUE FROM
3257 / 23 / 07 LS

RUSTENBURG →

N4 - 13
CONTINUE ON
3257 / 23 / 09 LS

km 9,837 000
BRIDGE B1680
ACCESS ROAD 2 OVER N4
(EXISTING BRIDGE)

DIRECTION OF TRAFFIC FLOW

km 9,047 690
1 X 900 X 600 BC
θ = 241.360°

EXISTING FRL AT L2

FRL AT R1

NGL AT R1

km 9,466 179
1 X 600 PC
θ = 299.071°

km 9,567 832
1 X 600 X 450 BC
θ = 294.639°

km 9,831 169
3 X 900 X 450 BC
θ = 298.868°

VPI 10
km 9.187 000
ELEV = 1222.245m
LVC = 460.000m
K = 153.374

S4034
km 9,216 395
1 X 2100 X 2100 BC
θ = 63.716°
(TO BE EXTENDED)

km 9,277 014
1 X 750 PC
θ = 270.154°

1243
1233
1223

TENDER

| | | |

GUARDRAIL SOUTH WB CARRIAGEWAY
V-DRAIN SOUTH WB CARRIAGEWAY
SUBSOIL DRAIN SOUTH WB CARRIAGEWAY
GUARDRAIL NORTH WB CARRIAGEWAY
V-DRAIN NORTH WB CARRIAGEWAY
SUBSOIL DRAIN NORTH WB CARRIAGEWAY

AS PER EXISTING

MEDIAN V-DRAIN: EARTH DRAIN | CONCRETE DRAIN - TYPE E | CONCRETE DRAIN - TYPE E

GUARDRAIL SOUTH EB CARRIAGEWAY
V-DRAIN SOUTH EB CARRIAGEWAY
SUBSOIL DRAIN SOUTH EB CARRIAGEWAY
GUARDRAIL NORTH EB CARRIAGEWAY
V-DRAIN NORTH EB CARRIAGEWAY
SUBSOIL DRAIN NORTH EB CARRIAGEWAY

DRAINAGE
KILOMETRE DISTANCE
SIZE AND ANGLE

km 10.049 012
1 X 600 X 450 BC
θ = 299.567°

km 10.786 962
1 X 600 X 450 BC
θ = 240.261°

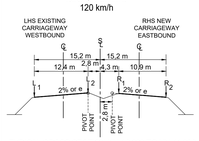
km 10.887 015
1 X 900 X 450 BC
θ = 240.065°

NOTES:

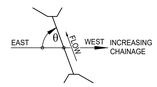
1) LEVELS IN BRACKETS MAY BE ALTERED TO TIE IN WITH EXISTING ROAD LEVELS AFTER CONSULTING WITH THE RESIDENT ENGINEER.
2) VPI's AND GRADES GIVEN AT PIVOT POINT
3) BARRIER LINES AS PER ROAD PAINT MARKINGS DRAWINGS

"AS BUILT" NOTES:

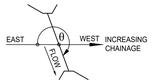
DESIGN SPEED
120 km/h



TYPICAL CROSS SECTION KM 10.000 TO KM 11.000
N.T.S



CULVERT SKEW ANGLE



CULVERT SKEW ANGLE

0 1 2 3 4 5
1 5 m
ON ORIGINAL PLAN (A0)

0 10 20 30 40 50
50 m
ON ORIGINAL PLAN (A0)

DATUM 1213.000

1243
1233
1223

BRITS

N4 - 13
CONTINUE FROM
3257 / 23 / 08 LS

RUSTENBURG

N4 - 13
CONTINUE ON
3257 / 23 / 10 LS

EXISTING
FRL AT L2

DIRECTION OF
TRAFFIC FLOW

VPI 12
km 10.667 000
ELEV = 1233.905m
LVC = 320.000m
K = 357.842

FRL AT R1

NGL AT R1

km 10.049 012
1 X 600X 450 BC
θ = 299.567°

VPI 11
km 10.117 000
ELEV = 1230.750m
LVC = 240.000m
K = 704.061

km 10.786 962
1 X 600 X 450 BC
θ = 240.261°

km 10.887 015
1 X 900 X 450 BC
θ = 240.065°

TENDER

CHAINAGES		10000	10020	10040	10060	10080	10100	10120	10140	10160	10180	10200	10220	10240	10260	10280	10300	10320	10340	10360	10380	10400	10420	10440	10460	10480	10500	10520	10540	10560	10580	10600	10620	10640	10660	10680	10700	10720	10740	10760	10780	10800	10820	10840	10860	10880	10900	10920	10940	10960	10980	11000
GROUND LEVEL AT R1		1228.893	1229.090	1229.353	1229.287	1229.497	1229.666	1229.896	1229.962	1229.928	1230.009	1230.129	1230.208	1230.298	1230.364	1230.382	1230.502	1230.619	1230.722	1230.850	1230.947	1231.005	1231.167	1231.599	1231.654	1231.559	1231.612	1231.782	1231.889	1231.939	1231.996	1232.051	1232.776	1233.155	1233.618	1232.892	1232.732	1232.563	1232.605	1232.514	1232.533	1232.471	1232.290	1232.146	1232.054	1232.147	1232.147	1232.786	1231.855	1231.744	1231.713	1231.480
VERTICAL ALIGNMENT — EXISTING LEFT CARRIAGEWAY WESTBOUND — LEFT EDGE (L1)		1229.358	1229.537	1229.710	1229.878	1230.039	1230.195	1230.345	1230.489	1230.628	1230.760	1230.887	1231.007	1231.122	1231.235	1231.348	1231.461	1231.574	1231.687	1231.800	1231.913	1232.026	1232.139	1232.252	1232.365	1232.477	1232.590	1232.701	1232.801	1232.890	1232.968	1233.035	1233.091	1233.136	1233.170	1233.193	1233.204	1233.205	1233.194	1233.173	1233.140	1233.097	1233.042	1232.978	1232.914	1232.850	1232.786	1232.722	1232.658	1232.594	1232.530	1232.465
RIGHT EDGE (L2)		1229.730	1229.909	1230.082	1230.250	1230.411	1230.567	1230.717	1230.861	1231.000	1231.132	1231.259	1231.379	1231.494	1231.607	1231.720	1231.833	1231.946	1232.059	1232.172	1232.285	1232.398	1232.511	1232.624	1232.736	1232.849	1232.962	1233.073	1233.173	1233.262	1233.340	1233.407	1233.463	1233.508	1233.542	1233.564	1233.576	1233.577	1233.566	1233.545	1233.512	1233.469	1233.414	1233.350	1233.286	1233.222	1233.158	1233.094	1233.030	1232.966	1232.901	1232.837
GRADES			0.915 %																																																				
			10117.000					1230.800																																															
VERTICAL CURVES AT PIVOT POINT			LVC = 240.000m K = 685.772																																																		
													10227.000 EVC																																													
																											BVC 10507.000																														

GUARDRAIL SOUTH WB CARRIAGEWAY
V-DRAIN SOUTH WB CARRIAGEWAY
SUBSOIL DRAIN SOUTH WB CARRIAGEWAY
GUARDRAIL NORTH WB CARRIAGEWAY
V-DRAIN NORTH WB CARRIAGEWAY
SUBSOIL DRAIN NORTH WB CARRIAGEWAY — AS PER EXISTING

MEDIAN V-DRAIN — CONCRETE DRAIN - TYPE E | CONCRETE DRAIN - TYPE E | MARIKANA TOLL PLAZA | EARTH DRAIN

GUARDRAIL SOUTH EB CARRIAGEWAY
V-DRAIN SOUTH EB CARRIAGEWAY
SUBSOIL DRAIN SOUTH EB CARRIAGEWAY
GUARDRAIL NORTH EB CARRIAGEWAY
V-DRAIN NORTH EB CARRIAGEWAY
SUBSOIL DRAIN NORTH EB CARRIAGEWAY — CONCRETE DRAIN - TYPE F / SUBSOIL DRAIN

DRAINAGE
KILOMETRE DISTANCE
SIZE AND ANGLE

km 11,087 200
1 X 900 X 450 BC
θ = 239.563°

km 11,226 995
1 X 900 X 450 BC
θ = 240.248°

km 11,326 958
1 X 600 X 450 BC
θ = 240.477°

km 11,487 135
1 X 600 X 450 BC
θ = 240.001°

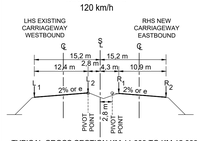
km 11,620 000
1 X 600 X 450 BC
θ = 270.000°

NOTES:

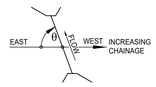
1) LEVELS IN BRACKETS MAY BE ALTERED TO TIE IN WITH EXISTING ROAD LEVELS AFTER CONSULTING WITH THE RESIDENT ENGINEER.
2) VPI's AND GRADES GIVEN AT PIVOT POINT
3) BARRIER LINES AS PER ROAD PAINT MARKINGS DRAWINGS

"AS BUILT" NOTES:

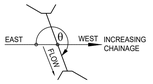
DESIGN SPEED
120 km/h



TYPICAL CROSS SECTION KM 11.000 TO KM 12.000
N.T.S



CULVERT SKEW ANGLE



CULVERT SKEW ANGLE

0 1 2 3 4 5 — 5 m — ON ORIGINAL PLAN (A0)

0 10 20 30 40 50 — 50 m — ON ORIGINAL PLAN (A0)

DATUM 1209.000

BRITS

RUSTENBURG

EXISTING FRL AT L2

FRL AT R1

DIRECTION OF TRAFFIC FLOW

MARIKANA TOLL PLAZA
TIE INTO EXISTING LEVELS

km 11,087 200
1 X 900 X 450 BC
θ = 239.563°

km 11,226 995
1 X 900 X 450 BC
θ = 240.248°

km 11,326 958
1 X 600 X 450 BC
θ = 240.477°

km 11,487 135
1 X 600 X 450 BC
θ = 240.001°

NGL AT R1

km 11,620 000
1 X 600 X 450 BC
θ = 270.000°

VPI 13
km 11.807 000
ELEV = 1230.250m
LVC = 260.000m
K = 1156.375

N4 - 13
CONTINUE FROM
3257 / 23 / 09 LS

N4 - 13
CONTINUE ON
3257 / 23 / 11 LS

TENDER

CHAINAGES		11000	11020	11040	11060	11080	11100	11120	11140	11160	11180	11200	11220	11240	11260	11280	11300	11320	11340	11360	11380	11400	11420	11440	11460	11480	11500	11520	11540	11560	11580	11600	11620	11640	11660	11680	11700	11720	11740	11760	11780	11800	11820	11840	11860	11880	11900	11920	11940	11960	11980	12000
GROUND LEVEL AT R1		1231.480	1231.224	1231.425	1231.237	1231.309	1231.413	1231.236	1231.162	1231.177	1231.073	1231.170	1230.970	1231.029	1230.760	1230.593	1230.749	1230.554	1230.518	1230.633	1230.611	1230.607	1230.628	1230.494	1230.431	1230.357	1230.279	1230.409	1230.429	1230.305	1230.387	1230.653	1230.809	1230.745	1230.661	1230.576	1230.491	1230.450	1230.569	1230.285	1230.213	1230.141	1230.051	1229.940	1229.814	1229.701	1229.575	1229.370	1229.096	1229.038	1228.698	1228.525
VERTICAL ALIGNMENT — EXISTING LEFT CARRIAGEWAY WESTBOUND — LEFT EDGE (L1)		1232.465	1232.401	1232.337	1232.273	1232.209	1232.145	1232.081	1232.017	1231.952	1231.888	1231.824	1231.760	1231.696	1231.632	1231.568	1231.504	1231.439	1231.375	1231.311	1231.247	1231.183	1231.119	1231.055	1230.991	1230.927	1230.862	1230.798	1230.734	1230.670	1230.606	1230.542	1230.478	1230.413	1230.349	1230.285	1230.219	1230.155	1230.091	1229.919	1229.748	1229.657	1229.563	1229.466	1229.365	1229.260	1229.153	1229.042	1228.930	1228.815	1228.702
RIGHT EDGE (L2)		1232.837	1232.773	1232.709	1232.645	1232.581	1232.517	1232.453	1232.389	1232.324	1232.260	1232.196	1232.132	1232.068	1232.004	1231.940	1231.875	1231.811	1231.747	1231.683	1231.619	1231.555	1231.491	1231.427	1231.363	1231.298	1231.234	1231.170	1231.106	1231.042	1230.978	1230.914	1230.849	1230.785	1230.721	1230.657	1230.592	1230.521	1230.443	1230.359	1230.270	1230.174	1230.071	1229.963	1229.848	1229.728	1229.601	1229.468	1229.329	1229.191	1229.053	1228.914
GRADES			-0.321 %																																																			
VERTICAL CURVES AT PIVOT POINT																																				BVC 11567.000	LVC = 240.000m K = 646.045													EVC 11927.000				
MEDIAN LEVEL AT STAKED LINE		1232.327	1232.263	1232.199	1232.135	1232.071	1232.007	1231.943	1231.879	1231.814	1231.75	1231.686	1231.622	1231.558	1231.494	1231.43	1231.365	1231.301	1231.237	1231.173	1231.109	1231.045	1230.981	1230.917	1230.853	1230.788	1230.724	1230.66	1230.596	1230.532	1230.468	1230.404	1230.339	1230.275	1230.211	1230.147	1230.082	1230.011	1229.933	1229.849	1229.76	1229.664	1229.565	1229.474	1229.38	1229.283	1229.182	1229.077	1228.97	1228.859	1228.722	1228.582
VERTICAL ALIGNMENT — NEW RIGHT CARRIAGEWAY EASTBOUND — LEFT EDGE (R1)		1232.792	1232.728	1232.664	1232.600	1232.536	1232.472	1232.408	1232.344	1232.279	1232.215	1232.151	1232.087	1232.023	1231.959	1231.895	1231.830	1231.766	1231.702	1231.638	1231.574	1231.510	1231.446	1231.382	1231.318	1231.253	1231.189	1231.125	1231.061	1230.997	1230.933	1230.869	1230.804	1230.740	1230.676	1230.612	1230.548	1230.476	1230.403	1230.326	1230.246	1230.162	1230.075	1229.984	1229.890	1229.793	1229.692	1229.587	1229.479	1229.369	1229.257	1229.142
RIGHT EDGE (R2)		1232.465	1232.401	1232.337	1232.273	1232.209	1232.145	1232.081	1232.017	1231.952	1231.888	1231.824	1231.760	1231.696	1231.632	1231.568	1231.504	1231.439	1231.375	1231.311	1231.247	1231.183	1231.119	1231.055	1230.991	1230.927	1230.862	1230.798	1230.734	1230.670	1230.606	1230.542	1230.478	1230.413	1230.349	1230.285	1230.219	1230.155	1230.091	1229.919	1229.748	1229.657	1229.563	1229.466	1229.365	1229.260	1229.153	1229.042	1228.930	1228.815	1228.702
GRADES			-0.321 %																																																		
VERTICAL CURVES AT PIVOT POINT																																			BVC 11677.000	LVC = 260.000m K = 1156.375													EVC 11937.00	11940.00 BVC	LVC = 240.000m K = 1786.178		
SUPERELEVATION (e)			-3.000%																																																	
EB SUPERELEVATION/BOTH																																																				
WB SUPERELEVATION																																																			
HORIZONTAL CURVES ON STAKED LINE			DIRECTION 82°29'36"																																																	

V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE	CONSULT. ENG.
No.	DATE	REVISION		

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date :

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DESIGNED BY
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Prof. Reg. No.: 20130622
CHECKED BY
NAME: PL NGQUMSHE
Prof. Reg. No.: 20080112
DRAWN BY
NAME: WB HARTMANN

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17 / 07 / 2023

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THE SOUTH AFRICAN NATIONAL ROADS AGENCY SOC LTD
Reg. No. 1998/009584/30

NORTHERN REGION
38 Ida Street
Menlo Park
Pretoria
0081
Private Bag X17
Lynnwood Ridge
0040
Tel: (012) 426 6200

ACCEPTANCE
THIS ACCEPTANCE IS FOR PROCEDURAL AND ADMINISTRATIVE REVIEW PURPOSES ONLY, AND DOES NOT ATTRACT LEGAL LIABILITY OR LIABILITY OF ANY KIND FROM WHATSOEVER CAUSE OR HOWEVER ARISING
for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION
LONGITUDINAL SECTION N4 - 13 FROM km 11.000 TO km 12.000

SCALE : HORIZONTAL 1:1000m, VERTICAL 1:100m (A0) — SHEET 10 OF 50

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	SECTION 13	SECTION 13
DRAWING km DISTANCE	km 11.000	km 12.000
DRAWING TYPE	ROADS - LONG SECTIONS	
BRIDGE/STRUCTURE No.	NA	
CONSULTANT DRAWING No.	FA 3257 / 23 / 10 LS	VER V0
SANRAL DOCUMENT #	- -	

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\03 - Longsections\3257_23_(ALL) LS.dwg

GUARDRAIL SOUTH WB CARRIAGEWAY
V-DRAIN SOUTH WB CARRIAGEWAY
SUBSOIL DRAIN SOUTH WB CARRIAGEWAY
GUARDRAIL NORTH WB CARRIAGEWAY
V-DRAIN NORTH WB CARRIAGEWAY
SUBSOIL DRAIN NORTH WB CARRIAGEWAY
MEDIAN V-DRAIN
GUARDRAIL SOUTH EB CARRIAGEWAY
V-DRAIN SOUTH EB CARRIAGEWAY
SUBSOIL DRAIN SOUTH EB CARRIAGEWAY
GUARDRAIL NORTH EB CARRIAGEWAY
V-DRAIN NORTH EB CARRIAGEWAY
SUBSOIL DRAIN NORTH EB CARRIAGEWAY

AS PER EXISTING

EARTH DRAIN — GUARDRAIL — EARTH DRAIN

DRAINAGE
KILOMETRE DISTANCE
SIZE AND ANGLE

km 12.067 113
1 X 600 X 450 BC
θ = 119.394°

km 12.286 945
1 X 600 X 450 BC
θ = 120.093°

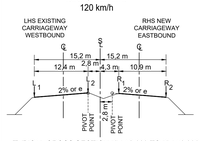
km 12.727 649
1 X 600 X 450 BC
θ = 119.970°

NOTES:

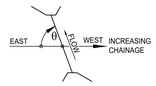
1) LEVELS IN BRACKETS MAY BE ALTERED TO TIE IN WITH EXISTING ROAD LEVELS AFTER CONSULTING WITH THE RESIDENT ENGINEER.
2) VPI's AND GRADES GIVEN AT PIVOT POINT
3) BARRIER LINES AS PER ROAD PAINT MARKINGS DRAWINGS

"AS BUILT" NOTES:

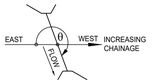
DESIGN SPEED
120 km/h



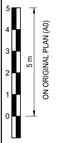
TYPICAL CROSS SECTION KM 12.000 TO KM 13.000
N.T.S



CULVERT SKEW ANGLE



CULVERT SKEW ANGLE



0 10 20 30 40 50
50 m
ON ORIGINAL PLAN (A0)

DATUM 1209.000

← BRITS

RUSTENBURG →

N4 - 13
CONTINUE FROM
3257 / 23 / 10 LS

N4 - 13
CONTINUE ON
3257 / 23 / 12 LS

VPI 14
km 12.060 000
ELEV = 1228.870m
LVC = 240.000m
K = 1786.178

km 12.067 113
1 X 600 X 450 BC
θ = 119.394°

km 12.286 945
1 X 600 X 450 BC
θ = 120.093°

DIRECTION OF TRAFFIC FLOW

EXISTING FRL AT L2

FRL AT R1

NGL AT R1

km 12.727 649
1 X 600 X 450 BC
θ = 119.970°

km 12.947 000
BRIDGE B1681
ACCESS ROAD OVER N4
(EXISTING)

VPI 15
km 12.947 000
ELEV = 1222.840m
LVC = 280.000m
K = 556.642

TENDER

| | | |

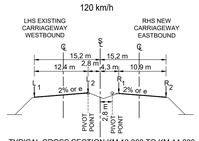
GUARDRAIL SOUTH WB CARRIAGEWAY	
V-DRAIN SOUTH WB CARRIAGEWAY	
SUBSOIL DRAIN SOUTH WB CARRIAGEWAY	
GUARDRAIL NORTH WB CARRIAGEWAY	AS PER EXISTING
V-DRAIN NORTH WB CARRIAGEWAY	
SUBSOIL DRAIN NORTH WB CARRIAGEWAY	
MEDIAN V-DRAIN	EARTH DRAIN — EARTH DRAIN
GUARDRAIL SOUTH EB CARRIAGEWAY	GUARDRAIL
V-DRAIN SOUTH EB CARRIAGEWAY	
SUBSOIL DRAIN SOUTH EB CARRIAGEWAY	
GUARDRAIL NORTH EB CARRIAGEWAY	
V-DRAIN NORTH EB CARRIAGEWAY	
SUBSOIL DRAIN NORTH EB CARRIAGEWAY	
DRAINAGE KILOMETRE DISTANCE SIZE AND ANGLE	km 13.007 080 1 X 600 X 450 BC θ = 120.224° — km 13,229 649 1 X 600 X 450 BC θ = 92.692° — km 13,452 040 1 X 600 X 450 BC θ = 123.767° — km 13,687 114 1 X 900 X 450 BC θ = 99.904° — km 13,942 104 1 X 600 X 450 BC θ = 119.896°

NOTES:

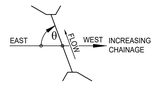
1) LEVELS IN BRACKETS MAY BE ALTERED TO TIE IN WITH EXISTING ROAD LEVELS AFTER CONSULTING WITH THE RESIDENT ENGINEER.
2) VPI's AND GRADES GIVEN AT PIVOT POINT
3) BARRIER LINES AS PER ROAD PAINT MARKINGS DRAWINGS

"AS BUILT" NOTES:

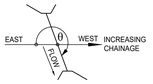
DESIGN SPEED
120 km/h



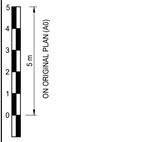
TYPICAL CROSS SECTION KM 13.000 TO KM 14.000
N.T.S



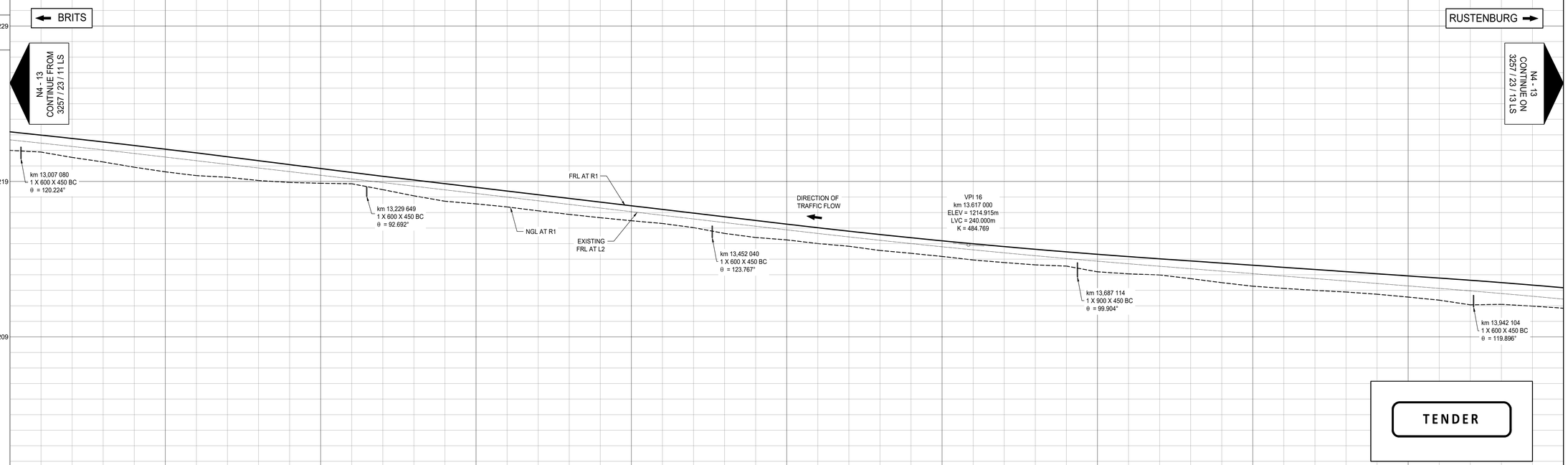
CULVERT SKEW ANGLE



CULVERT SKEW ANGLE



DATUM 1199.000



TENDER

| | | |

GUARDRAIL SOUTH WB CARRIAGEWAY
V-DRAIN SOUTH WB CARRIAGEWAY
SUBSOIL DRAIN SOUTH WB CARRIAGEWAY
GUARDRAIL NORTH WB CARRIAGEWAY
V-DRAIN NORTH WB CARRIAGEWAY
SUBSOIL DRAIN NORTH WB CARRIAGEWAY
MEDIAN V-DRAIN
GUARDRAIL SOUTH EB CARRIAGEWAY
V-DRAIN SOUTH EB CARRIAGEWAY
SUBSOIL DRAIN SOUTH EB CARRIAGEWAY
GUARDRAIL NORTH EB CARRIAGEWAY
V-DRAIN NORTH EB CARRIAGEWAY
SUBSOIL DRAIN NORTH EB CARRIAGEWAY

AS PER EXISTING

EARTH DRAIN
GUARDRAIL
EARTH DRAIN
GUARDRAIL
EARTH DRAIN

DRAINAGE
KILOMETRE DISTANCE
SIZE AND ANGLE

km 14,172 132
1 X 600 X 450 BC
θ = 89.284°

km 14,208 340
1 X 2400 X 2400 BC
θ = 74.633°

km 14,496 809
1 X 600 X 450 BC
θ = 89.510°

km 14,727 278
1 X 900 X 450 BC
θ = 89.507°

km 14,786 967
1 X 900 X 450 BC
θ = 90.518°

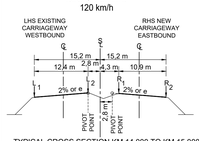
NOTES:

1) LEVELS IN BRACKETS MAY BE ALTERED TO TIE IN WITH EXISTING ROAD LEVELS AFTER CONSULTING WITH THE RESIDENT ENGINEER.
2) VPI's AND GRADES GIVEN AT PIVOT POINT
3) BARRIER LINES AS PER ROAD PAINT MARKINGS DRAWINGS

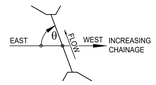
"AS BUILT" NOTES:

1219

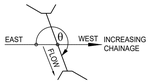
DESIGN SPEED
120 km/h



TYPICAL CROSS SECTION KM 14.000 TO KM 15.000
N.T.S



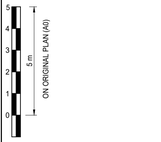
CULVERT SKEW ANGLE

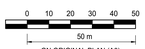


CULVERT SKEW ANGLE

1209

1199





DATUM 1189.000

BRITS

VPI 17
km 14.107 000
ELEV = 1211.545m
LVC = 360.000m
K = 368.838

N4 - 13
CONTINUE FROM
3257 / 23 / 12 LS

km 14,172 132
1 X 600 X 450 BC
θ = 89.284°

S4036
AGRICULTURAL UNDERPASS
km 14,208 340
1 X 2400 X 2400 BC
θ = 74.633°
(TO BE EXTENDED)

EXISTING
FRL AT L2

FRL AT R1

NGL AT R1

km 14,496 809
1 X 600 X 450 BC
θ = 89.510°

DIRECTION OF
TRAFFIC FLOW

km 14.755 000
BRIDGE B1682
CHROME MINE ROAD OVER N4
(EXISTING)

VPI 18
km 14.687 000
ELEV = 1201.895m
LVC = 240.000m
K = 539.900

km 14,727 278
1 X 900 X 450 BC
θ = 89.507°

km 14,786 967
1 X 900 X 450 BC
θ = 90.518°

RUSTENBURG

N4 - 13
CONTINUE ON
3257 / 23 / 14 LS

TENDER

CHAINAGES

14000	14020	14040	14060	14080	14100	14120	14140	14160	14180	14200	14220	14240	14260	14280	14300	14320	14340	14360	14380	14400	14420	14440	14460	14480	14500	14520	14540	14560	14580	14600	14620	14640	14660	14680	14700	14720	14740	14760	14780	14800	14820	14840	14860	14880	14900	14920	14940	14960	14980	15000

GROUND LEVEL AT R1

1210.845	1210.684	1210.545	1210.377	1210.222	1210.001	1209.773	1209.557	1209.224	1209.045	1208.943	1208.472	1208.227	1207.798	1207.558	1207.312	1206.781	1206.380	1205.986	1205.666	1205.394	1205.084	1204.721	1204.393	1204.094	1203.715	1203.471	1203.155	1202.801	1202.497	1202.196	1201.852	1201.520	1201.230	1200.974	1200.737	1200.342	1200.252	1200.038	1199.604	1199.633	1199.413	1199.049	1198.760	1198.520	1198.218	1197.890	1197.520	1197.199	1196.956	1196.647

VERTICAL ALIGNMENT

EXISTING LEFT CARRIAGEWAY WESTBOUND

LEFT EDGE (L1) 1211.802

1211.607	1211.403	1211.190	1210.969	1210.738	1210.498	1210.249	1209.991	1209.725	1209.449	1209.165	1208.871	1208.569	1208.257	1207.939	1207.620	1207.301	1206.982	1206.663	1206.344	1205.972	1205.653	1205.334	1205.015	1204.696	1204.377	1204.058	1203.739	1203.420	1203.103	1202.791	1202.485	1202.185	1201.891	1201.604	1201.322	1201.047	1200.778	1200.514	1200.257	1200.006	1199.760	1199.514	1199.268	1199.022	1198.776	1198.531	1198.285	1198.039	1197.793	1197.547

RIGHT EDGE (L2) 1211.431

1211.235	1211.031	1210.818	1210.597	1210.366	1210.126	1209.877	1209.619	1209.353	1209.077	1208.793	1208.499	1208.197	1207.885	1207.567	1207.248	1206.929	1206.610	1206.291	1205.972	1205.653	1205.334	1205.015	1204.696	1204.377	1204.058	1203.739	1203.420	1203.103	1202.791	1202.485	1202.185	1201.891	1201.604	1201.322	1201.047	1200.778	1200.514	1200.257	1200.006	1199.760	1199.514	1199.268	1199.022	1198.776	1198.531	1198.285	1198.039	1197.793	1197.547

GRADES

14107.000 1210.645 -0.790 % -1.595 % 14687.000 1201.395 -1.229 % 15000.000 1187.995

VERTICAL CURVES AT PIVOT POINT

LVC = 360.000m
K = 447.187

14287.000 EVC

BVC 14567.000

LVC = 240.000m
K = 656.689

14687.000 EVC

MEDIAN LEVEL AT STAKED LINE 1211.104

1210.921	1210.703	1210.498	1210.283	1210.032	1209.803	1209.563	1209.305	1209.035	1208.755	1208.464	1208.187	1207.875	1207.551	1207.244	1206.911	1206.603	1206.271	1205.963	1205.63	1205.322	1205.015	1204.682	1204.349	1204.041	1203.734	1203.401	1203.068	1202.762	1202.463	1202.146	1201.861	1201.559	1201.265	1201.003	1200.723	1200.45	1200.185	1199.928	1199.678	1199.433	1199.19	1198.946	1198.702	1198.458	1198.214	1197.97	1197.726	1197.458	1197.214

NEW RIGHT CARRIAGEWAY EASTBOUND

LEFT EDGE (R1) 1212.164

1211.981	1211.788	1211.583	1211.368	1211.142	1210.906	1210.658	1210.400	1210.130	1209.850	1209.559	1209.257	1208.944	1208.621	1208.289	1207.956	1207.623	1207.291	1206.958	1206.625	1206.292	1205.959	1205.627	1205.294	1204.961	1204.629	1204.296	1203.963	1203.632	1203.307	1202.991	1202.681	1202.379	1202.085	1201.797	1201.518	1201.245	1200.980	1200.723	1200.473	1200.228	1199.984	1199.741	1199.497	1199.253	1199.009	1198.765	1198.521	1198.277	1198.034

RIGHT EDGE (R2) 1211.837

1211.654	1211.461	1211.256	1211.041	1210.815	1210.579	1210.331	1210.073	1209.803	1209.523	1209.232	1208.930	1208.618	1208.294	1207.962	1207.629	1207.296	1206.964	1206.631	1206.298	1205.965	1205.633	1205.300	1204.967	1204.634	1204.302	1203.969	1203.636	1203.305	1202.981	1202.664	1202.354	1202.052	1201.758	1201.471	1201.191	1200.918	1200.653	1200.396	1200.146	1199.901	1199.658	1199.414	1199.170	1198.926	1198.682	1198.438	1198.194	1197.951	1197.707

GRADES

14107.000 1211.545 -0.688 % -1.664 % 14687.000 1201.895 -1.219 % 15000.000 1188.605

VERTICAL CURVES AT PIVOT POINT

LVC = 360.000m
K = 368.838

14287.000 EVC

BVC 14567.000

LVC = 240.000m
K = 539.900

14687.000 EVC

SUPERELEVATION (e)

EB SUPERELEVATION/BOTH
WB SUPERELEVATION

3.000%
-3.000%

HORIZONTAL CURVES ON STAKED LINE

CURVE 5 RIGHT
RADIUS=4500.000m
ANGLE= 55°00'50"

V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE	CONSULT. ENG.
No.	DATE	REVISION		

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date :

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DESIGNED BY
NAME: EF DAY
Prof. Reg. No.: 20130622
CHECKED BY
NAME: PL NGQUMSHE
Prof. Reg. No.: 20080112
DRAWN BY
NAME: WB HARTMANN

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17 / 07 / 2023

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THE SOUTH AFRICAN NATIONAL ROADS AGENCY SOC LTD
Reg. No. 1998/009584/30

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ACCEPTANCE
THIS ACCEPTANCE IS FOR PROCEDURAL AND ADMINISTRATIVE REVIEW PURPOSES ONLY, AND DOES NOT ATTRACT LEGAL LIABILITY OR LIABILITY OF ANY KIND FROM WHATSOEVER CAUSE OR HOWEVER ARISING
for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION
LONGITUDINAL SECTION N4 - 13 FROM km 14.000 TO km 15.000

SCALE : HORIZONTAL 1:1000m, VERTICAL 1:100m (A0)
SHEET 13 OF 50

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	SECTION 13	SECTION 13
DRAWING km DISTANCE	km 14.000	km 15.000
DRAWING TYPE	ROADS - LONG SECTIONS	
BRIDGE/STRUCTURE No.	B1682	
CONSULTANT DRAWING No.	FA 3257 / 23 / 13 LS	VER
SANRAL DOCUMENT #	- -	V0

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\03 - Longsections\3257_23_(ALL) LS.dwg

GUARDRAIL SOUTH WB CARRIAGEWAY	
V-DRAIN SOUTH WB CARRIAGEWAY	
SUBSOIL DRAIN SOUTH WB CARRIAGEWAY	
GUARDRAIL NORTH WB CARRIAGEWAY	AS PER EXISTING
V-DRAIN NORTH WB CARRIAGEWAY	
SUBSOIL DRAIN NORTH WB CARRIAGEWAY	
MEDIAN V-DRAIN	EARTH DRAIN / EARTH DRAIN / CONCRETE DRAIN - TYPE E / CONCRETE DRAIN - TYPE E
GUARDRAIL SOUTH EB CARRIAGEWAY	GUARDRAIL
V-DRAIN SOUTH EB CARRIAGEWAY	
SUBSOIL DRAIN SOUTH EB CARRIAGEWAY	
GUARDRAIL NORTH EB CARRIAGEWAY	GUARDRAIL
V-DRAIN NORTH EB CARRIAGEWAY	
SUBSOIL DRAIN NORTH EB CARRIAGEWAY	

DRAINAGE
KILOMETRE DISTANCE
SIZE AND ANGLE

km 15,006 841
1 X 600 PC
θ = 91.456°

km 15,206 872
1 X 600 PC
θ = 91.365°

km 15,406 804
1 X 900 X 750 BC
θ = 119.075°

km 15,646 908
1 X 750 PC
θ = 89.171°

km 15,779 800
1 X 900 X 600 BC
θ = 90.339°

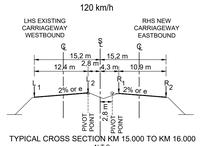
km 15,907 038
1 X 900 X 600 BC
θ = 89.626°

NOTES:

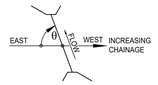
1) LEVELS IN BRACKETS MAY BE ALTERED TO TIE IN WITH EXISTING ROAD LEVELS AFTER CONSULTING WITH THE RESIDENT ENGINEER.
2) VPI's AND GRADES GIVEN AT PIVOT POINT
3) BARRIER LINES AS PER ROAD PAINT MARKINGS DRAWINGS

"AS BUILT" NOTES:

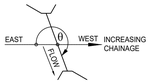
DESIGN SPEED
120 km/h



TYPICAL CROSS SECTION KM 15.000 TO KM 16.000
N.T.S



CULVERT SKEW ANGLE



CULVERT SKEW ANGLE

0 1 2 3 4 5 5 m ON ORIGINAL PLAN (A0)

0 10 20 30 40 50
50 m
ON ORIGINAL PLAN (A0)

DATUM 1175.000

BRITS

RUSTENBURG

N4 - 13
CONTINUE FROM
3257 / 23 / 13 LS

N4 - 13
CONTINUE ON
3257 / 23 / 15 LS

km 15,006 841
1 X 600 PC
θ = 91.456°

km 15,206 872
1 X 600 PC
θ = 91.365°

km 15,406 804
1 X 900 X 750 BC
θ = 119.075°

km 15,646 908
1 X 750 PC
θ = 89.171°

km 15,779 800
1 X 900 X 600 BC
θ = 90.339°

km 15,907 038
1 X 900 X 600 BC
θ = 89.626°

DIRECTION OF TRAFFIC FLOW

EXISTING FRL AT L2

FRL AT R1

NGL AT R1

VPI 19
km 15.777 000
ELEV = 1188.605m
LVC = 700.000m
K = 395.793

TENDER

CHAINAGES	15000	15020	15040	15060	15080	15100	15120	15140	15160	15180	15200	15220	15240	15260	15280	15300	15320	15340	15360	15380	15400	15420	15440	15460	15480	15500	15520	15540	15560	15580	15600	15620	15640	15660	15680	15700	15720	15740	15760	15780	15800	15820	15840	15860	15880	15900	15920	15940	15960	15980	16000
GROUND LEVEL AT R1	1196.647	1196.395	1196.132	1195.961	1195.655	1195.389	1195.104	1194.928	1194.674	1194.412	1194.159	1194.229	1193.965	1193.717	1193.439	1193.188	1192.917	1192.700	1192.446	1192.218	1191.618	1191.638	1191.542	1191.512	1191.221	1190.946	1190.560	1190.312	1190.058	1189.739	1189.441	1189.029	1188.492	1188.904	1189.159	1189.036	1188.965	1188.848	1188.759	1187.953	1188.551	1188.687	1188.776	1188.787	1188.735	1188.832	1188.707	1188.710	1188.746	1188.885	1188.832
VERTICAL ALIGNMENT — EXISTING LEFT CARRIAGEWAY WESTBOUND — LEFT EDGE (L1)	1197.919	1197.673	1197.427	1196.936	1196.690	1196.444	1196.198	1195.952	1195.706	1195.460	1195.214	1194.969	1194.723	1194.477	1194.231	1193.985	1193.739	1193.493	1193.248	1193.002	1192.756	1192.512	1192.278	1192.053	1191.839	1191.634	1191.440	1191.255	1191.081	1190.916	1190.761	1190.617	1190.482	1190.357	1190.242	1190.138	1190.043	1189.958	1189.883	1189.818	1189.763	1189.718	1189.683	1189.658	1189.658	1189.643	1189.638	1189.707	1189.682	1189.643	1189.658	1189.746	1189.885	1189.832
RIGHT EDGE (L2)	1197.547	1197.301	1197.055	1196.809	1196.564	1196.318	1196.072	1195.826	1195.580	1195.334	1195.088	1194.843	1194.597	1194.351	1194.105	1193.859	1193.613	1193.367	1193.121	1192.876	1192.630	1192.384	1192.140	1191.906	1191.681	1191.467	1191.262	1191.068	1190.883	1190.709	1190.544	1190.389	1190.245	1190.110	1189.985	1189.870	1189.766	1189.671	1189.586	1189.511	1189.446	1189.391	1189.346	1189.311	1189.286	1189.271	1189.266	1189.271	1189.286	1189.310	1189.345
GRADES		-1.229 %																																																			0.515 %	
VERTICAL CURVES AT PIVOT POINT																					BVC 15427.000										LVC = 700.000m K = 401.217																								
MEDIAN LEVEL AT STAKED LINE	1197.214	1196.97	1196.726	1196.482	1196.238	1195.994	1195.751	1195.507	1195.263	1195.019	1194.775	1194.531	1194.262	1194.019	1193.775	1193.531	1193.287	1193.043	1192.799	1192.555	1192.312	1192.068	1191.826	1191.594	1191.347	1191.135	1190.933	1190.741	1190.559	1190.388	1190.226	1190.075	1189.934	1189.777	1189.656	1189.545	1189.445	1189.346	1189.258	1189.196	1189.133	1189.071	1189.009	1188.946	1188.884	1188.822	1188.832	1188.892	1188.932	1188.982	1189.032
VERTICAL ALIGNMENT — NEW RIGHT CARRIAGEWAY EASTBOUND — LEFT EDGE (R1)	1198.034	1197.790	1197.546	1197.302	1197.058	1196.814	1196.571	1196.327	1196.083	1195.839	1195.595	1195.351	1195.107	1194.864	1194.620	1194.376	1194.132	1193.888	1193.644	1193.400	1193.157	1192.913	1192.671	1192.439	1192.217	1192.005	1191.803	1191.611	1191.429	1191.258	1191.096	1190.945	1190.803	1190.672	1190.551	1190.440	1190.339	1190.249	1190.168	1190.098	1190.037	1189.987	1189.947	1189.917	1189.896	1189.887	1189.897	1189.918	1189.948	1189.978	1189.989
RIGHT EDGE (R2)	1197.707	1197.463	1197.219	1196.975	1196.731	1196.487	1196.244	1196.000	1195.756	1195.512	1195.268	1195.024	1194.781	1194.537	1194.293	1194.049	1193.805	1193.561	1193.317	1193.073	1192.830	1192.586	1192.344	1192.112	1191.890	1191.678	1191.476	1191.284	1191.102	1190.931	1190.769	1190.618	1190.477	1190.345	1190.224	1190.113	1190.013	1189.922	1189.841	1189.771	1189.710	1189.660	1189.620	1189.590	1189.570	1189.560	1189.560	1189.570	1189.591	1189.621	1189.662
GRADES		-1.219 %																																																		0.549 %	
VERTICAL CURVES AT PIVOT POINT																					BVC 15427.000										LVC = 700.000m K = 395.793																								
SUPERELEVATION (e)		3.000%																																																			
EB SUPERELEVATION/BOTH		-3.000%																																																	
WB SUPERELEVATION																																																			
HORIZONTAL CURVES ON STAKED LINE																																																			

CURVE 5 RIGHT
RADIUS=4500.000m
ANGLE= 55°00'50"

V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE	CONSULT. ENG.
No.	DATE	REVISION		

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date :

CONSULTANT
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e-mail: johannesburg@jgafrika.com

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Centurion
Tel: +27 11 519-0400
Fax: +27 11 519-0414

DESIGNED BY
NAME: EF DAY
Prof. Reg. No.: 20130622
CHECKED BY
NAME: PL NGQUMSHE
Prof. Reg. No.: 20080112
DRAWN BY
NAME: WB HARTMANN

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17 / 07 / 2023

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Tel: (012) 844 8000

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NORTHERN REGION
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ACCEPTANCE
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for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION
LONGITUDINAL SECTION N4 - 13 FROM km 15.000 TO km 16.000

SCALE : HORIZONTAL 1:1000m, VERTICAL 1:100m (A0) — SHEET 14 OF 50

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001		
DRAWING LOCATION DATA	START	END	
ROUTE	N 4	N 4	
SECTION	SECTION 13	SECTION 13	
DRAWING km DISTANCE	km 15.000	km 16.000	
DRAWING TYPE	ROADS - LONG SECTIONS		
BRIDGE/STRUCTURE No.	NA		
CONSULTANT DRAWING No.	FA	3257 / 23 / 14 LS	VER
SANRAL DOCUMENT #	- -		V0

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\03 - Longsections\3257_23_(ALL) LS.dwg

GUARDRAIL SOUTH WB CARRIAGEWAY
V-DRAIN SOUTH WB CARRIAGEWAY
SUBSOIL DRAIN SOUTH WB CARRIAGEWAY
GUARDRAIL NORTH WB CARRIAGEWAY
V-DRAIN NORTH WB CARRIAGEWAY
SUBSOIL DRAIN NORTH WB CARRIAGEWAY — AS PER EXISTING

MEDIAN V-DRAIN — CONCRETE DRAIN - TYPE E / EARTH DRAIN
GUARDRAIL SOUTH EB CARRIAGEWAY — GUARDRAIL
V-DRAIN SOUTH EB CARRIAGEWAY
SUBSOIL DRAIN SOUTH EB CARRIAGEWAY
GUARDRAIL NORTH EB CARRIAGEWAY — GUARDRAIL
V-DRAIN NORTH EB CARRIAGEWAY — EARTH DRAIN
SUBSOIL DRAIN NORTH EB CARRIAGEWAY

DRAINAGE
KILOMETRE DISTANCE
SIZE AND ANGLE

km 16,057 037
1 X 600 X 600 BC
θ = 60.052°

km 16.026 988
1 X 2400 X 2400 BC
θ = 90.078°

km 16,247 340
1 X 600 PC
θ = 90.502°

km 16,367 117
1 X 600 PC
θ = 89.390°

km 16,532 130
2 X 600 PC
θ = 120.163°

km 16,687 323
1 X 600 PC
θ = 88.520°

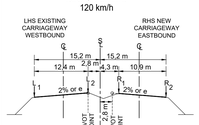
km 16,866 752
1 X 750 PC
θ = 90.652°

NOTES:

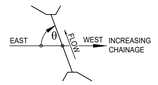
1) LEVELS IN BRACKETS MAY BE ALTERED TO TIE IN WITH EXISTING ROAD LEVELS AFTER CONSULTING WITH THE RESIDENT ENGINEER.
2) VPI's AND GRADES GIVEN AT PIVOT POINT
3) BARRIER LINES AS PER ROAD PAINT MARKINGS DRAWINGS

"AS BUILT" NOTES:

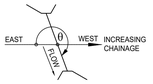
DESIGN SPEED
120 km/h



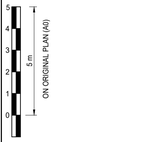
TYPICAL CROSS SECTION KM 16.000 TO KM 17.000
N.T.S



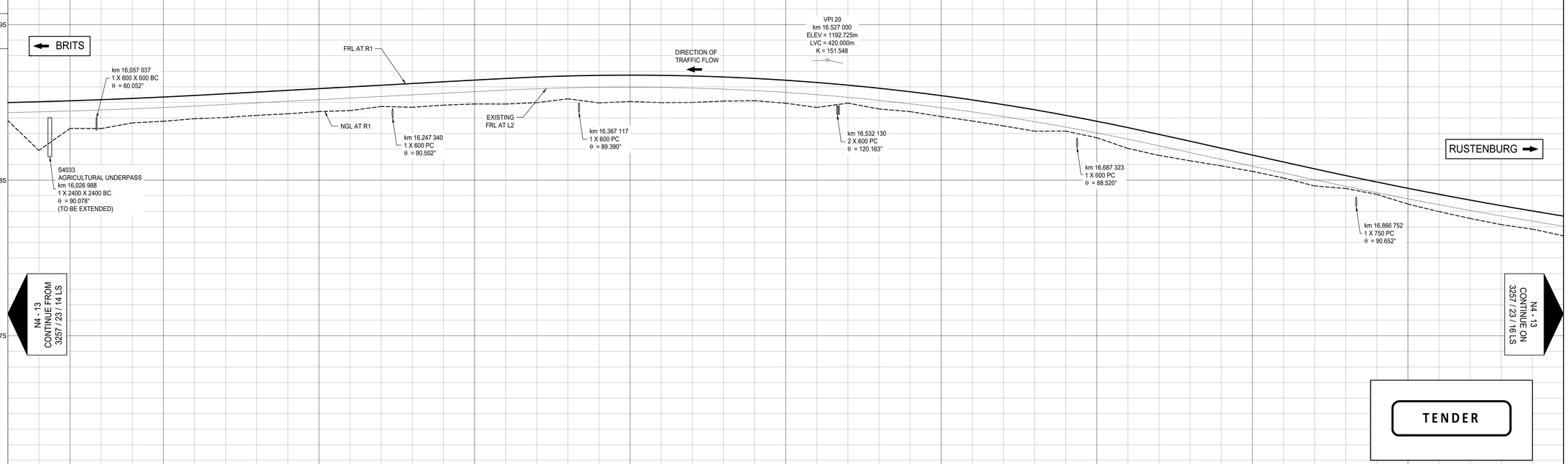
CULVERT SKEW ANGLE



CULVERT SKEW ANGLE



DATUM 1165.000



N4 - 13
CONTINUE FROM
3257 / 23 / 14 LS

N4 - 13
CONTINUE ON
3257 / 23 / 16 LS

TENDER

CHAINAGES

16000	16020	16040	16060	16080	16100	16120	16140	16160	16180	16200	16220	16240	16260	16280	16300	16320	16340	16360	16380	16400	16420	16440	16460	16480	16500	16520	16540	16560	16580	16600	16620	16640	16660	16680	16700	16720	16740	16760	16780	16800	16820	16840	16860	16880	16900	16920	16940	16960	16980	17000

GROUND LEVEL AT R1

| 1188.832 | 1186.911 | 1188.329 | 1188.318 | 1188.681 | 1188.787 | 1188.949 | 1189.029 | 1189.168 | 1189.267 | 1189.411 | 1189.873 | 1189.740 | 1189.687 | 1189.823 | 1189.899 | 1189.896 | 1189.982 | 1190.230 | 1189.969 | 1190.056 | 1189.984 | 1189.998 | 1190.081 | 1190.110 | 1189.946 | 1189.674 | 1189.954 | 1189.578 | 1189.407 | 1189.091 | 1188.803 | 1188.490 | 1188.153 | 1188.154 | 1187.728 | 1187.041 | 1186.593 | 1186.246 | 1185.921 | 1185.567 | 1185.143 | 1184.630 | 1184.467 | 1184.089 | 1183.467 | 1182.979 | 1182.540 | 1182.144 | 1181.853 | 1181.428 |

VERTICAL ALIGNMENT

EXISTING LEFT CARRIAGEWAY WESTBOUND

LEFT EDGE (L1)

| 1188.717 | 1189.762 | 1189.817 | 1189.881 | 1189.956 | 1189.041 | 1190.135 | 1190.238 | 1190.341 | 1190.444 | 1190.547 | 1190.650 | 1190.753 | 1190.856 | 1190.959 | 1191.062 | 1191.165 | 1191.251 | 1191.312 | 1191.347 | 1191.356 | 1191.340 | 1191.298 | 1191.230 | 1191.136 | 1191.017 | 1190.872 | 1190.701 | 1190.505 | 1190.283 | 1190.035 | 1189.762 | 1189.463 | 1189.138 | 1188.787 | 1187.728 | 1187.009 | 1186.592 | 1186.145 | 1185.709 | 1186.272 | 1185.835 | 1185.400 | 1185.028 | 1184.976 | 1184.567 | 1184.172 | 1183.791 | 1183.467 | 1182.734 | 1182.144 | 1182.039 |

RIGHT EDGE (L2)

| 1188.345 | 1189.390 | 1188.445 | 1189.509 | 1189.584 | 1189.669 | 1189.763 | 1189.866 | 1189.969 | 1190.072 | 1190.175 | 1190.278 | 1190.381 | 1190.484 | 1190.587 | 1190.690 | 1190.793 | 1190.879 | 1190.940 | 1190.975 | 1190.984 | 1190.968 | 1190.926 | 1190.858 | 1190.764 | 1190.645 | 1190.500 | 1190.329 | 1190.133 | 1189.911 | 1189.663 | 1189.390 | 1189.091 | 1188.766 | 1188.416 | 1188.039 | 1187.637 | 1187.210 | 1186.773 | 1186.337 | 1185.900 | 1185.464 | 1185.028 | 1184.604 | 1184.195 | 1183.800 | 1183.419 | 1183.052 | 1182.700 | 1182.362 | 1182.039 |

GRADES

0.515 % | 16527.000 1191.860 | -2.183 % | 17000.000 1177.015

VERTICAL CURVES AT PIVOT POINT

LVC = 700.000m
K = 401.217
16127.000 EVC
BVC 16317.000
LVC = 420.000m
K = 155.647
16737.000 EVC
BVC 16832.000
LVC = 750.000m
K = 279.617

MEDIAN LEVEL AT STAKED LINE

| 1189.032 | 1189.082 | 1189.132 | 1189.186 | 1189.267 | 1189.334 | 1189.435 | 1189.544 | 1189.654 | 1189.739 | 1189.849 | 1189.959 | 1190.068 | 1190.138 | 1190.209 | 1190.279 | 1190.35 | 1190.43 | 1190.51 | 1190.59 | 1190.67 | 1190.599 | 1190.528 | 1190.458 | 1190.388 | 1190.317 | 1190.172 | 1190.008 | 1189.818 | 1189.594 | 1189.344 | 1189.067 | 1188.764 | 1188.434 | 1188.103 | 1187.721 | 1187.312 | 1186.877 | 1186.458 | 1186.013 | 1185.569 | 1185.124 | 1184.681 | 1184.275 | 1183.859 | 1183.482 | 1183.096 | 1182.724 | 1182.367 | 1182.025 | 1181.723 |

NEW RIGHT CARRIAGEWAY EASTBOUND

LEFT EDGE (R1)

| 1189.989 | 1190.039 | 1190.100 | 1190.171 | 1190.252 | 1190.344 | 1190.445 | 1190.554 | 1190.664 | 1190.774 | 1190.884 | 1190.994 | 1191.103 | 1191.213 | 1191.323 | 1191.433 | 1191.542 | 1191.635 | 1191.702 | 1191.741 | 1191.755 | 1191.742 | 1191.703 | 1191.637 | 1191.545 | 1191.427 | 1191.282 | 1191.111 | 1190.913 | 1190.689 | 1190.439 | 1190.162 | 1189.859 | 1189.529 | 1189.173 | 1188.791 | 1188.392 | 1187.947 | 1187.503 | 1187.058 | 1186.614 | 1186.169 | 1185.726 | 1185.295 | 1184.879 | 1184.477 | 1184.091 | 1183.719 | 1183.362 | 1183.035 | 1182.693 | 1182.366 |

RIGHT EDGE (R2)

| 1189.662 | 1189.713 | 1189.773 | 1189.844 | 1189.925 | 1190.017 | 1190.118 | 1190.227 | 1190.337 | 1190.447 | 1190.557 | 1190.667 | 1190.776 | 1190.886 | 1190.996 | 1191.106 | 1191.216 | 1191.308 | 1191.375 | 1191.415 | 1191.428 | 1191.415 | 1191.376 | 1191.310 | 1191.218 | 1191.100 | 1190.955 | 1190.784 | 1190.586 | 1190.362 | 1190.112 | 1189.835 | 1189.532 | 1189.202 | 1188.846 | 1188.464 | 1188.055 | 1187.620 | 1187.176 | 1186.731 | 1186.287 | 1185.842 | 1185.399 | 1184.968 | 1184.552 | 1184.150 | 1183.764 | 1183.392 | 1183.035 | 1182.693 | 1182.366 |

GRADES

0.549 % | 16527.000 1192.725 | -2.222 % | 17000.000 1177.615

VERTICAL CURVES AT PIVOT POINT

LVC = 700.000m
K = 395.793
16127.000 EVC
BVC 16317.000
LVC = 420.000m
K = 151.548
16737.000 EVC
BVC 16832.000
LVC = 750.000m
K = 269.897

SUPERELEVATION (e)
EB SUPERELEVATION/BOTH ——
WB SUPERELEVATION – – – –

3.000%
-3.000%

HORIZONTAL CURVES ON STAKED LINE

CURVE 5 RIGHT
RADIUS=4500.000m
ANGLE= 55°00'50"

V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE	CONSULT. ENG.
No.	DATE	REVISION		

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date :

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Fax: +27 11 519-0414

DESIGNED BY
NAME: EF DAY
Prof. Reg. No.: 20130622
CHECKED BY
NAME: PL NGQUMSHE
Prof. Reg. No.: 20080112
DRAWN BY
NAME: WB HARTMANN

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17 / 07 / 2023

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THE SOUTH AFRICAN NATIONAL ROADS AGENCY SOC LTD
Reg. No. 1998/009584/30

NORTHERN REGION
38 Ida Street
Menlo Park
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0081
Private Bag X17
Lynnwood Ridge
0040
Tel: (012) 426 6200

ACCEPTANCE
THIS ACCEPTANCE IS FOR PROCEDURAL AND ADMINISTRATIVE REVIEW PURPOSES ONLY, AND DOES NOT ATTRACT LEGAL LIABILITY OR LIABILITY OF ANY KIND FROM WHATSOEVER CAUSE OR HOWEVER ARISING
for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION
LONGITUDINAL SECTION N4 - 13 FROM km 16.000 TO km 17.000

SCALE : HORIZONTAL 1:1000m, VERTICAL 1:100m (A0) — SHEET 15 OF 50

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	SECTION 13	SECTION 13
DRAWING km DISTANCE	km 16.000	km 17.000
DRAWING TYPE	ROADS - LONG SECTIONS	
BRIDGE/STRUCTURE No.	NA	
CONSULTANT DRAWING No.	FA 3257 / 23 / 15 LS	VER V0
SANRAL DOCUMENT #	- -	

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\03 - Longsections\3257_23_LN11 LS.dwg

GUARDRAIL SOUTH WB CARRIAGEWAY
V-DRAIN SOUTH WB CARRIAGEWAY
SUBSOIL DRAIN SOUTH WB CARRIAGEWAY
GUARDRAIL NORTH WB CARRIAGEWAY
V-DRAIN NORTH WB CARRIAGEWAY
SUBSOIL DRAIN NORTH WB CARRIAGEWAY
MEDIAN V-DRAIN
GUARDRAIL SOUTH EB CARRIAGEWAY
V-DRAIN SOUTH EB CARRIAGEWAY
SUBSOIL DRAIN SOUTH EB CARRIAGEWAY
GUARDRAIL NORTH EB CARRIAGEWAY
V-DRAIN NORTH EB CARRIAGEWAY
SUBSOIL DRAIN NORTH EB CARRIAGEWAY

AS PER EXISTING

EARTH DRAIN | CONCRETE DRAIN - TYPE E | GUARDRAILS

DRAINAGE
KILOMETRE DISTANCE
SIZE AND ANGLE

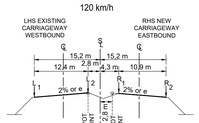
km 17,047 281 1 X 750 PC θ = 89.349°
km 17,186 955 1 X 750 X 450 BC θ = 90.772°
km 17,326 917 1 X 900 X 450 BC θ = 90.036°
km 17,386 894 1 X 750 X 450 BC θ = 89.711°
km 17,447 216 1 X 750 X 450 BC θ = 89.614°
km 17,566 979 1 X 750 PC θ = 89.810°
km 17,667 241 1 X 600 X 450 BC θ = 89.380°

NOTES:

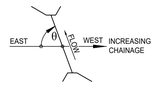
1) LEVELS IN BRACKETS MAY BE ALTERED TO TIE IN WITH EXISTING ROAD LEVELS AFTER CONSULTING WITH THE RESIDENT ENGINEER.
2) VPI's AND GRADES GIVEN AT PIVOT POINT
3) BARRIER LINES AS PER ROAD PAINT MARKINGS DRAWINGS

"AS BUILT" NOTES:

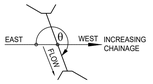
DESIGN SPEED
120 km/h



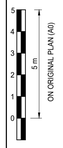
TYPICAL CROSS SECTION KM 17.000 TO KM 18.000
N.T.S



CULVERT SKEW ANGLE



CULVERT SKEW ANGLE



DATUM 1165.000

1195
1185
1175

← BRITS

RUSTENBURG →

km 17,537 000
BRIDGE B1683
CENTRAL DEEP MINE ROAD OVER N4
(EXISTING)

km 17,620 000
END OF KROONDAL FILLING STATION ON RAMP

VPI 22
km 17,797 000
ELEV = 1180.900m
LVC = 410.000m
K = 141.050

FRL AT R1

NGL AT R1

DIRECTION OF TRAFFIC FLOW

EXISTING FRL AT L2

km 17,047 281 1 X 750 PC θ = 89.349°
km 17,186 955 1 X 750 X 450 BC θ = 90.772°
VPI 21 km 17.207 000 ELEV = 1177.615m LVC = 750.000m K = 269.897
km 17,326 917 1 X 900 X 450 BC θ = 90.036°
km 17,386 894 1 X 750 X 450 BC θ = 89.711°
km 17,447 216 1 X 750 X 450 BC θ = 89.614°
km 17,566 979 1 X 750 PC θ = 89.810°
km 17,667 241 1 X 600 X 450 BC θ = 89.380°

N4 - 13
CONTINUE FROM
3257 / 23 / 15 LS

N4 - 13
CONTINUE ON
3257 / 23 / 17 LS

TENDER

CHAINAGES

17000	17020	17040	17060	17080	17100	17120	17140	17160	17180	17200	17220	17240	17260	17280	17300	17320	17340	17360	17380	17400	17420	17440	17460	17480	17500	17520	17540	17560	17580	17600	17620	17640	17660	17680	17700	17720	17740	17760	17780	17800	17820	17840	17860	17880	17900	17920	17940	17960	17980	18000

GROUND LEVEL AT R1

| 1181.428 | 1180.932 | 1180.457 | 1180.769 | 1180.302 | 1180.031 | 1180.649 | 1179.273 | 1180.037 | 1178.710 | 1178.546 | 1178.506 | 1178.349 | 1178.164 | 1178.016 | 1177.931 | 1177.844 | 1177.823 | 1177.889 | 1177.996 | 1177.921 | 1177.898 | 1178.051 | 1178.371 | 1178.304 | 1178.370 | 1178.091 | 1178.224 | 1178.355 | 1178.371 | 1178.304 | 1177.570 | 1177.737 | 1177.939 | 1178.018 | 1177.776 | 1177.859 | 1177.975 | 1178.117 | 1178.273 | 1178.161 | 1178.202 | 1178.203 | 1178.134 | 1177.910 | 1177.556 | 1177.181 | 1176.791 | 1176.383 | 1176.015 | 1175.800 | 1175.624 | 1175.107 |

VERTICAL ALIGNMENT

EXISTING LEFT CARRIAGEWAY WESTBOUND

	1182.411	1182.101	1180.492	1180.806	1181.526	1181.259	1180.546	1180.337	1180.142	1179.961	1179.795	1179.643	1179.505	1179.382	1178.273	1178.178	1178.088	1178.032	1177.980	1178.943	1178.919	1178.911	1178.916	1178.936	1178.970	1178.918	1178.846	1178.709	1178.786	1178.877	1178.975	1179.369	1179.336	1179.276	1179.190	1179.078	1178.939	1178.774	1178.682	1178.364	1178.173	1177.985	1177.797	1177.597	1177.370	1177.091	1176.770	1176.423	1176.050	1175.650	1175.224	1175.224
RIGHT EDGE (L2)	1182.039	1181.729	1181.434	1181.154	1180.887	1180.635	1180.397	1180.174	1179.965	1179.770	1179.589	1179.423	1179.271	1179.134	1179.010	1178.901	1178.807	1178.726	1178.660	1178.608	1178.571	1178.547	1178.539	1178.544	1178.564	1178.598	1178.646	1178.709	1178.766	1178.877	1178.975	1179.051	1179.100	1179.123	1179.120	1178.990	1179.034	1178.952	1178.843	1178.707	1178.545	1178.357	1178.142	1177.901	1177.633	1177.339	1177.018	1176.671	1176.298	1175.898	1175.472	1175.472
GRADES		-2.183 %								17207.000 1177.015						0.499 %																										17797.000 1179.960														18000.000 1170.895
VERTICAL CURVES AT PIVOT POINT		LVC = 750.000m K = 279.617																													EVC 17582.000 BVC 17592.000												LVC = 410.000m K = 151.284														

MEDIAN LEVEL AT STAKED LINE

1181.723	1181.441	1181.112	1180.829	1180.561	1180.308	1180.07	1179.846	1179.637	1179.436	1179.249	1179.085	1179.936	1178.801	1178.681	1178.576	1178.486	1178.41	1178.343	1178.276	1178.208	1178.141	1178.074	1178.096	1178.169	1178.241	1178.314	1178.386	1178.459	1178.522	1178.595	1178.648	1178.711	1178.774	1178.758	1178.697	1178.635	1178.574	1178.513	1178.372	1178.228	1178.03	1177.804	1177.55	1177.317	1177.096	1176.691	1176.348	1175.977	1175.552	1175.124	1175.124

NEW RIGHT CARRIAGEWAY EASTBOUND

LEFT EDGE (R1)	1182.693	1182.380	1182.082	1181.799	1181.531	1180.951	1181.278	1180.713	1181.040	1180.816	1180.607	1180.413	1179.907	1180.234	1179.249	1180.070	1179.743	1179.594	1179.459	1179.339	1179.666	1179.561	1179.234	1179.144	1179.471	1179.068	1179.395	1179.008	1179.335	1178.962	1179.289	1178.931	1179.258	1178.915	1179.242	1178.914	1179.241	1178.927	1179.254	1178.956	1179.283	1178.999	1179.326	1179.057	1179.384	1179.130	1179.457	1179.217	1179.544	1179.320	1179.647	1179.429	1179.756	1179.515	1179.842	1179.572	1179.899	1179.601	1179.928	1179.602	1179.929	1179.574	1179.901	1179.519	1179.845	1179.434	1179.761	1179.322	1179.648	1179.181	1179.507	1179.011	1179.338	1178.813	1179.140	1178.587	1178.914	1178.333	1178.660	1178.050	1178.377	1177.739	1178.066	1177.399	1177.726	1177.031	1177.358	1176.635	1176.962	1176.210	1176.537	1175.757	1176.084	1175.124
RIGHT EDGE (R2)	1182.366	1182.053	1181.755	1181.473	1181.204	1180.951	1180.713	1180.489	1180.281	1180.087	1179.907	1179.743	1179.594	1179.459	1179.339	1179.234	1179.144	1179.068	1179.008	1178.962	1178.931	1178.915	1178.914	1178.927	1178.956	1178.999	1179.057	1179.130	1179.217	1179.320	1179.429	1179.515	1179.572	1179.601	1179.602	1179.574	1179.519	1179.434	1179.322	1179.181	1179.011	1178.813	1178.587	1178.333	1178.050	1177.739	1177.399	1177.031	1176.635	1176.210	1175.757	1175.757
GRADES		-2.222 %								17207.000 1177.615						0.557 %																										17797.000 1180.900														18000.000 1171.265
VERTICAL CURVES AT PIVOT POINT		LVC = 750.000m K = 269.897																													EVC 17582.000 BVC 17592.000												LVC = 410.000m K = 141.050														

SUPERELEVATION (e)
EB SUPERELEVATION/BOTH
WB SUPERELEVATION

3.000%
-3.000%
-3.000%
-2.000%
-3.000%
17607
17787
17827
17887

HORIZONTAL CURVES ON STAKED LINE

CURVE 5 RIGHT
RADIUS=4500.000m
ANGLE= 55°00'50"
ES 17553.382
DIRECTION 128°19'43"

No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date

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DESIGNED BY
NAME: EF DAY
Prof. Reg. No.: 20130622
CHECKED BY
NAME: PL NGQUMSHE
Prof. Reg. No.: 20080112
DRAWN BY
NAME: WB HARTMANN

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17 / 07 / 2023

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THE SOUTH AFRICAN NATIONAL ROADS AGENCY SOC LTD
Reg. No. 1998/009584/30

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Tel: (012) 426 6200

ACCEPTANCE
THIS ACCEPTANCE IS FOR PROCEDURAL AND ADMINISTRATIVE REVIEW PURPOSES ONLY AND DOES NOT ATTRACT LEGAL LIABILITY OR LIABILITY OF ANY KIND FROM WHATSOEVER CAUSE OR HOWEVER ARISING
for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION
LONGITUDINAL SECTION N4 - 13 FROM km 17.000 TO km 18.000

SCALE : HORIZONTAL 1:1000m, VERTICAL 1:100m (A0)
SHEET 16 OF 50

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	SECTION 13	SECTION 13
DRAWING km DISTANCE	km 17.000	km 18.000
DRAWING TYPE	ROADS - LONG SECTIONS	
BRIDGE/STRUCTURE No.	B1683	
CONSULTANT DRAWING No.	FA 3257 / 23 / 16 LS	VER
SANRAL DOCUMENT #	- -	V0

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\03 - Longsections\3257_23_(ALL) LS.dwg

GUARDRAIL SOUTH WB CARRIAGEWAY	
V-DRAIN SOUTH WB CARRIAGEWAY	
SUBSOIL DRAIN SOUTH WB CARRIAGEWAY	
GUARDRAIL NORTH WB CARRIAGEWAY	AS PER EXISTING
V-DRAIN NORTH WB CARRIAGEWAY	
SUBSOIL DRAIN NORTH WB CARRIAGEWAY	
MEDIAN V-DRAIN	EARTH DRAIN
GUARDRAIL SOUTH EB CARRIAGEWAY	GUARDRAIL
V-DRAIN SOUTH EB CARRIAGEWAY	
SUBSOIL DRAIN SOUTH EB CARRIAGEWAY	
GUARDRAIL NORTH EB CARRIAGEWAY	GUARDRAIL
V-DRAIN NORTH EB CARRIAGEWAY	EARTH DRAIN
SUBSOIL DRAIN NORTH EB CARRIAGEWAY	

DRAINAGE
KILOMETRE DISTANCE
SIZE AND ANGLE

km 18,147 078
1 X 750 X 450 BC
θ = 90.254°

km 18,327 176
1 X 900 X 450 BC
θ = 89.436°

km 18,566 448
1 X 750 X 450 BC
θ = 92.297°

km 18,746.682
1 X 600 X 450 BC
θ = 90.625°

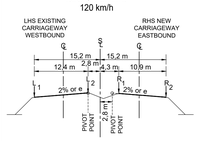
km 18,787 174
1 X 2400 X 2400 BC
θ = 89.279°

NOTES:

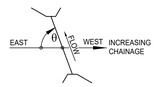
1) LEVELS IN BRACKETS MAY BE ALTERED TO TIE IN WITH EXISTING ROAD LEVELS AFTER CONSULTING WITH THE RESIDENT ENGINEER.
2) VPI's AND GRADES GIVEN AT PIVOT POINT
3) BARRIER LINES AS PER ROAD PAINT MARKINGS DRAWINGS

"AS BUILT" NOTES:

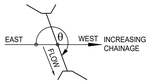
DESIGN SPEED
120 km/h



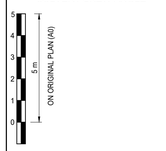
TYPICAL CROSS SECTION KM 18.000 TO KM 19.000
N.T.S



CULVERT SKEW ANGLE



CULVERT SKEW ANGLE



Datum 1155.000

1185
1175
1165

← BRITS

N4 - 13
CONTINUE FROM
3257 / 23 / 16 LS

km 18.020 844
NOSE KROONDAL
FILLING STATION ON
RAMP

EXISTING
FRL AT L2

km 18,147 078
1 X 750 X 450 BC
θ = 90.254°

VPI 23
km 18.207 000
ELEV = 1171.265m
LVC = 280.000m
K = 152.430

km 18,327 176
1 X 900 X 450 BC
θ = 89.436°

FRL AT R1

NGL AT R1

DIRECTION OF
TRAFFIC FLOW

km 18.565 649
NOSE OFF KROONDAL
FILLING STATION OFF
RAMP
DECISION SIGHT
DISTANCE > 400 m

km 18,566 448
1 X 750 X 450 BC
θ = 92.297°

km 18,730 000
START OF KROONDAL
FILLING STATION OFF
RAMP

km 18,746.682
1 X 600 X 450 BC
θ = 90.625°

S4029
AGRICULTURAL UNDERPASS
km 18,787 174
1 X 2400 X 2400 BC
θ = 89.279°

RUSTENBURG →

N4 - 13
CONTINUE ON
3257 / 23 / 18 LS

TENDER

CHAINAGES	18000	18020	18040	18060	18080	18100	18120	18140	18160	18180	18200	18220	18240	18260	18280	18300	18320	18340	18360	18380	18400	18420	18440	18460	18480	18500	18520	18540	18560	18580	18600	18620	18640	18660	18680	18700	18720	18740	18760	18780	18800	18820	18840	18860	18880	18900	18920	18940	18960	18980	19000
GROUND LEVEL AT R1	1175.107	1174.775	1174.465	1173.942	1173.562	1173.092	1172.681	1172.108	1171.967	1171.681	1171.336	1171.048	1170.832	1170.664	1170.452	1170.059	1169.378	1169.716	1169.604	1169.406	1169.269	1169.345	1169.180	1169.804	1168.559	1168.438	1169.270	1168.039	1167.734	1167.832	1168.777	1167.547	1167.420	1167.344	1167.316	1167.229	1166.688	1166.576	1167.129	1167.501	1167.936	1168.307	1168.207	1168.106	1167.734	1167.633	1167.532	1167.431	1167.330	1167.601	1167.193	1166.878	1166.766	1166.624	1166.391	1166.343	1166.927	1166.996	1166.826	1166.405	1166.725	1166.116	1166.029
EXISTING LEFT CARRIAGEWAY WESTBOUND — LEFT EDGE (L1)	1175.224	1174.781	1174.339	1173.897	1173.460	1173.046	1172.656	1172.291	1171.950	1171.633	1171.341	1171.073	1170.829	1170.610	1170.416	1170.245	1169.550	1169.751	1169.551	1169.348	1169.550	1169.449	1169.248	1168.950	1168.744	1168.645	1168.743	1168.642	1168.541	1168.440	1168.339	1168.238	1168.137	1168.036	1167.936	1167.835	1167.734	1167.633	1167.532	1167.431	1167.330	1167.229	1167.129	1167.028	1166.927	1166.826	1166.725	1166.624	1166.523
EXISTING LEFT CARRIAGEWAY WESTBOUND — RIGHT EDGE (L2)	1175.472	1175.030	1174.587	1174.145	1173.708	1173.294	1172.904	1172.539	1172.198	1171.881	1171.589	1171.321	1171.078	1170.858	1170.664	1170.493	1170.347	1170.226	1170.123	1170.022	1169.922	1169.821	1169.720	1169.619	1169.518	1169.417	1169.316	1169.215	1169.115	1169.014	1168.913	1168.812	1168.711	1168.610	1168.509	1168.408	1168.308	1168.207	1168.106	1168.005	1167.904	1167.803	1167.702	1167.601	1167.501	1167.400	1167.299	1167.198	1167.097	1166.996	1166.895
EXISTING LEFT CARRIAGEWAY WESTBOUND — GRADES		-2.211 %									18207.000 1170.895																				-0.504 %																						19000.000 1164.540
EXISTING LEFT CARRIAGEWAY WESTBOUND — VERTICAL CURVES AT PIVOT POINT		LVC = 410.000m K = 151.284																			LVC = 280.000m K = 164.068																																						
		18002.0 EVC				BVC 18061.000																									18347.000 EVC																										
MEDIAN LEVEL AT STAKED LINE	1175.124	1174.68	1174.234	1173.814	1173.375	1172.96	1172.572	1172.209	1171.873	1171.538	1171.255	1170.972	1170.741	1170.526	1170.338	1170.175	1170.014	1169.904	1169.79	1169.687	1169.585	1169.507	1169.404	1169.302	1169.199	1169.097	1168.994	1168.891	1168.789	1168.686	1168.584	1168.481	1168.378	1168.276	1168.173	1168.07	1167.968	1167.865	1167.763	1167.685	1167.582	1167.48	1167.377	1167.274	1167.172	1167.069	1166.967	1166.864	1166.761	1166.659	1166.556
NEW RIGHT CARRIAGEWAY EASTBOUND — LEFT EDGE (R1)	1176.084	1175.615	1175.144	1174.674	1174.210	1173.770	1173.357	1172.969	1172.608	1172.273	1171.965	1171.682	1171.440	1171.225	1171.036	1170.874	1170.738	1170.628	1170.525	1170.422	1170.320	1170.217	1170.115	1170.012	1169.909	1169.807	1169.704	1169.601	1169.499	1169.396	1169.294	1169.191	1169.088	1168.986	1168.883	1168.781	1168.678	1168.575	1168.473	1168.370	1168.267	1168.165	1168.062	1167.959	1167.857	1167.754	1167.652	1167.549	1167.446	1167.344	1167.241
NEW RIGHT CARRIAGEWAY EASTBOUND — RIGHT EDGE (R2)	1176.757	1175.288	1174.818	1174.348	1173.883	1173.443	1173.030	1172.642	1172.281	1171.946	1171.638	1171.355	1171.211	1171.105	1171.025	1170.972	1170.945	1170.944	1170.852	1170.749	1170.647	1170.544	1170.441	1170.339	1170.236	1170.134	1170.031	1169.928	1169.826	1169.723	1169.620	1169.518	1169.415	1169.313	1169.210	1169.107	1169.005	1168.902	1168.800	1168.697	1168.594	1168.492	1168.389	1168.286	1168.184	1168.081	1167.979	1167.876	1167.773	1167.671	1167.568
NEW RIGHT CARRIAGEWAY EASTBOUND — GRADES		-2.350 %									18207.000 1171.265																				-0.513 %																						19000.000 1164.800
NEW RIGHT CARRIAGEWAY EASTBOUND — VERTICAL CURVES AT PIVOT POINT		LVC = 410.000m K = 141.050																			LVC = 280.000m K = 152.430																																						
		18002.0 EVC				BVC 18061.000																									18347.000 EVC																										

SUPERELEVATION (e)
EB SUPERELEVATION/BOTH
WB SUPERELEVATION

-2.000%
-3.000%
18222
18327 18342
3.000%
-3.000%

HORIZONTAL CURVES ON STAKED LINE

DIRECTION
128°19'43"

18520.040
SCS

CURVE 6 LEFT
RADIUS=3000.000m
ANGLE= 24°48'24"

V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE	CONSULT. ENG.
No.	DATE	REVISION		

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date :

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Prof. Reg. No.: 20130622
CHECKED BY
NAME: PL NGQUMSHE
Prof. Reg. No.: 20080112
DRAWN BY
NAME: WB HARTMANN

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17 / 07 / 2023

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Reg. No. 1998/009584/30

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ACCEPTANCE
THIS ACCEPTANCE IS FOR PROCEDURAL AND ADMINISTRATIVE REVIEW PURPOSES ONLY, AND DOES NOT ATTRACT LEGAL LIABILITY OR LIABILITY OF ANY KIND FROM WHATSOEVER CAUSE OR HOWEVER ARISING
for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION
LONGITUDINAL SECTION N4 - 13 FROM km 18.000 TO km 19.000

SCALE : HORIZONTAL 1:1000m, VERTICAL 1:100m (A0)
SHEET 17 OF 50

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001		
DRAWING LOCATION DATA	START	END	
ROUTE	N 4	N 4	
SECTION	SECTION 13	SECTION 13	
DRAWING km DISTANCE	km 18.000	km 19.000	
DRAWING TYPE	ROADS - LONG SECTIONS		
BRIDGE/STRUCTURE No.	NA		
CONSULTANT DRAWING No.	FA	3257 / 23 / 17 LS	VER
SANRAL DOCUMENT #	- -		V0

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\03 - Longsections\3257_23_(ALL) LS.dwg

GUARDRAIL SOUTH WB CARRIAGEWAY
V-DRAIN SOUTH WB CARRIAGEWAY
SUBSOIL DRAIN SOUTH WB CARRIAGEWAY
GUARDRAIL NORTH WB CARRIAGEWAY
V-DRAIN NORTH WB CARRIAGEWAY
SUBSOIL DRAIN NORTH WB CARRIAGEWAY — AS PER EXISTING

MEDIAN V-DRAIN — EARTH DRAIN — EARTH DRAIN — CONCRETE DRAIN - TYPE E

GUARDRAIL SOUTH EB CARRIAGEWAY — GUARDRAIL
V-DRAIN SOUTH EB CARRIAGEWAY
SUBSOIL DRAIN SOUTH EB CARRIAGEWAY
GUARDRAIL NORTH EB CARRIAGEWAY
V-DRAIN NORTH EB CARRIAGEWAY — EARTH DRAIN — EARTH DRAIN
SUBSOIL DRAIN NORTH EB CARRIAGEWAY

DRAINAGE
KILOMETRE DISTANCE
SIZE AND ANGLE

km 19.027 015
1 X 600 X 450 BC
θ = 90.632°

km 19,164 719
1 X 600 X 450 BC
θ = 90.050°

km 19,536 913
1 X 600 PC
θ = 119.769°

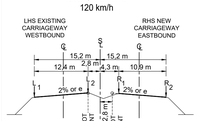
km 19,807 013
1 X 600 X 450 BC
θ = 90.460°

NOTES:

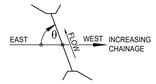
1) LEVELS IN BRACKETS MAY BE ALTERED TO TIE IN WITH EXISTING ROAD LEVELS AFTER CONSULTING WITH THE RESIDENT ENGINEER.
2) VPI's AND GRADES GIVEN AT PIVOT POINT
3) BARRIER LINES AS PER ROAD PAINT MARKINGS DRAWINGS

"AS BUILT" NOTES:

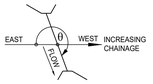
DESIGN SPEED
120 km/h



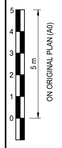
TYPICAL CROSS SECTION KM 19.000 TO KM 20.000
N.T.S



CULVERT SKEW ANGLE



CULVERT SKEW ANGLE



DATUM 1145.000

1175
1165
1155

← BRITS

N4 - 13
CONTINUE FROM
3257 / 23 / 17 LS

km 19,027 015
1 X 600 X 450 BC
θ = 90.632°

km 19,164 719
1 X 600 X 450 BC
θ = 90.050°

EXISTING
FRL AT L2

VPI 24
km 19.467 000
ELEV = 1164.800m
LVC = 240.000m
K = 240.320

DIRECTION OF
TRAFFIC FLOW

km 19,536 913
1 X 600 PC
θ = 119.769°

FRL AT R1

NGL AT R1

VPI 25
km 19.807 000
ELEV = 1159.660m
LVC = 240.000m
K = 229.122

km 19,807 013
1 X 600 X 450 BC
θ = 90.460°

RUSTENBURG →

N4 - 13
CONTINUE ON
3257 / 23 / 19 LS

TENDER

CHAINAGES		19000	19020	19040	19060	19080	19100	19120	19140	19160	19180	19200	19220	19240	19260	19280	19300	19320	19340	19360	19380	19400	19420	19440	19460	19480	19500	19520	19540	19560	19580	19600	19620	19640	19660	19680	19700	19720	19740	19760	19780	19800	19820	19840	19860	19880	19900	19920	19940	19960	19980	20000
GROUND LEVEL AT R1		1166.029	1166.007	1166.076	1166.182	1166.207	1166.949	1165.703	1165.621	1165.103	1165.629	1165.903	1166.373	1166.291	1166.091	1165.944	1165.712	1165.535	1165.191	1165.179	1164.871	1164.535	1164.483	1164.214	1163.993	1163.831	1163.731	1163.306	1163.362	1163.357	1163.168	1162.827	1162.455	1162.260	1161.842	1161.179	1160.744	1160.229	1159.881	1159.422	1159.128	1158.557	1158.401	1158.477	1158.468	1158.351	1158.151	1158.550	1158.436	1157.888	1157.794	1157.880	1157.786	1157.382
VERTICAL ALIGNMENT — EXISTING LEFT CARRIAGEWAY WESTBOUND	LEFT EDGE (L1)	1166.523	1166.423	1166.322	1166.221	1166.120	1166.019	1165.918	1165.817	1165.716	1165.616	1165.515	1165.414	1165.313	1165.212	1165.111	1165.010	1164.909	1164.809	1164.704	1164.584	1164.447	1164.305	1164.121	1163.933	1163.728	1163.506	1163.267	1163.011	1162.739	1162.449	1162.146	1161.842	1161.537	1161.233	1160.929	1160.629	1160.344	1160.077	1159.826	1159.593	1159.376	1159.177	1158.995	1158.830	1158.681	1158.550	1158.436	1158.335	1158.246	1158.136	1158.080
	RIGHT EDGE (L2)	1166.895	1166.795	1166.694	1166.593	1166.492	1166.391	1166.290	1166.189	1166.088	1165.988	1165.887	1165.786	1165.685	1165.584	1165.483	1165.382	1165.281	1165.181	1165.076	1164.956	1164.818	1164.664	1164.493	1164.305	1164.100	1163.878	1163.639	1163.383	1163.110	1162.821	1162.518	1162.214	1161.909	1161.605	1161.301	1161.001	1160.716	1160.449	1160.198	1159.965	1159.748	1159.549	1159.367	1159.202	1159.053	1158.922	1158.808	1158.707	1158.608	1158.508	1158.408
	GRADES		-0.504 %																			19467.000		1164.540									-1.521 %									19807.000	1159.370									-0.498 %				20000.000
	VERTICAL CURVES AT PIVOT POINT																					BVC 19347.000					LVC = 240.000m K = 236.169					EVC 19587.000					BVC 19807.000					LVC = 240.000m K = 234.748					EVC 19927.000				
MEDIAN LEVEL AT STAKED LINE		1166.556	1166.454	1166.376	1166.273	1166.171	1166.068	1165.965	1165.863	1165.76	1165.658	1165.555	1165.452	1165.35	1165.247	1165.145	1165.042	1164.939	1164.837	1164.755	1164.634	1164.495	1164.34	1164.169	1163.98	1163.775	1163.554	1163.315	1163.061	1162.789	1162.501	1162.184	1161.892	1161.575	1161.282	1160.965	1160.651	1160.369	1160.104	1159.857	1159.627	1159.414	1159.219	1159.042	1158.882	1158.739	1158.599	1158.481	1158.397	1158.295	1158.177	1158.084
	LEFT EDGE (R1)	1167.241	1167.139	1167.036	1166.933	1166.831	1166.728	1166.625	1166.523	1166.420	1166.318	1166.215	1166.112	1166.010	1165.907	1165.805	1165.702	1165.599	1165.497	1165.391	1165.269	1165.130	1164.975	1164.804	1164.615	1164.410	1164.189	1163.950	1163.696	1163.424	1163.136	1162.834	1162.518	1162.200	1161.883	1161.566	1161.252	1160.955	1160.689	1160.442	1160.212	1159.899	1159.804	1159.627	1159.467	1159.324	1159.199	1159.091	1159.007	1158.997	1158.905	1158.812	1158.719
	RIGHT EDGE (R2)	1167.568	1167.465	1167.363	1167.260	1167.158	1167.055	1166.952	1166.850	1166.747	1166.645	1166.542	1166.439	1166.337	1166.234	1166.131	1166.029	1165.926	1165.824	1165.717	1165.596	1165.457	1165.302	1165.130	1164.942	1164.737	1164.516	1164.277	1164.022	1163.751	1163.463	1163.161	1162.741	1162.315	1161.889	1161.462	1161.039	1160.633	1160.362	1160.115	1159.885	1159.672	1159.478	1159.300	1159.140	1158.997	1158.872	1158.765	1158.671	1158.578	1158.485	1158.392
	GRADES		-0.513 %																			19467.000		1164.800									-1.512 %									19807.000	1159.660									-0.464 %				20000.000
	VERTICAL CURVES AT PIVOT POINT																					BVC 19347.000					LVC = 240.000m K = 240.320					EVC 19587.000					BVC 19807.000					LVC = 240.000m K = 229.122					EVC 19927.000				

SUPERELEVATION (e)
EB SUPERELEVATION/BOTH
WB SUPERELEVATION

3.000%
-3.000%
19601
19721
-3.000%
19987

HORIZONTAL CURVES ON STAKED LINE

CURVE 6 LEFT
RADIUS=3000.000m
ANGLE= 24°48'24"

EC6
19620.816

DIRECTION
103°31'19"

No.	DATE	REVISION	CONSULT. ENG.
V0	17/01/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date

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CHECKED BY
NAME: PL NGQUMSHE
Prof. Reg. No.: 20080112
DRAWN BY
NAME: WB HARTMANN

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17 / 07 / 2023

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ACCEPTANCE
THIS ACCEPTANCE IS FOR PROCEDURAL AND ADMINISTRATIVE REVIEW PURPOSES ONLY AND DOES NOT ATTRACT LEGAL LIABILITY OR LIABILITY OF ANY KIND FROM WHATSOEVER CAUSE OR HOWEVER ARISING
for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION
LONGITUDINAL SECTION N4 - 13 FROM km 19.000 TO km 20.000

SCALE : HORIZONTAL 1:1000m, VERTICAL 1:100m (A0) — SHEET 18 OF 50

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	SECTION 13	SECTION 13
DRAWING km DISTANCE	km 19.000	km 20.000
DRAWING TYPE	ROADS - LONG SECTIONS	
BRIDGE/STRUCTURE No.	NA	
CONSULTANT DRAWING No.	FA 3257 / 23 / 18 LS	VER
SANRAL DOCUMENT #	- -	V0

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN3\03-Tender\03-Drawings\Volume 4-Roadworks\03 - Longsections\3257_23_(ALL) LS.dwg

GUARDRAIL SOUTH WB CARRIAGEWAY	
V-DRAIN SOUTH WB CARRIAGEWAY	
SUBSOIL DRAIN SOUTH WB CARRIAGEWAY	
GUARDRAIL NORTH WB CARRIAGEWAY	AS PER EXISTING
V-DRAIN NORTH WB CARRIAGEWAY	
SUBSOIL DRAIN NORTH WB CARRIAGEWAY	
MEDIAN V-DRAIN	CONCRETE DRAIN - TYPE E / EARTH DRAIN
GUARDRAIL SOUTH EB CARRIAGEWAY	GUARDRAIL
V-DRAIN SOUTH EB CARRIAGEWAY	
SUBSOIL DRAIN SOUTH EB CARRIAGEWAY	
GUARDRAIL NORTH EB CARRIAGEWAY	
V-DRAIN NORTH EB CARRIAGEWAY	CONCRETE DRAIN - TYPE F
SUBSOIL DRAIN NORTH EB CARRIAGEWAY	SUBSOIL DRAIN

DRAINAGE
KILOMETRE DISTANCE
SIZE AND ANGLE

km 20,047 042
1 X 600 X 450 BC
θ = 90.796°

km 20,346 717
1 X 750 X 450 BC
θ = 118.307°

km 20,466 857
1 X 600 X 450 BC
θ = 125.483°

km 20,719 658
1 X 600 PC
θ = 230.041°

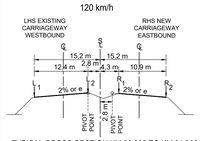
km 20,976 162
1 X 600 PC
θ = 290.390°

NOTES:

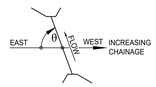
1) LEVELS IN BRACKETS MAY BE ALTERED TO TIE IN WITH EXISTING ROAD LEVELS AFTER CONSULTING WITH THE RESIDENT ENGINEER.
2) VPI's AND GRADES GIVEN AT PIVOT POINT
3) BARRIER LINES AS PER ROAD PAINT MARKINGS DRAWINGS

"AS BUILT" NOTES:

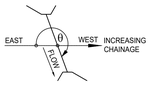
DESIGN SPEED
120 km/h



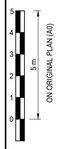
TYPICAL CROSS SECTION KM 20.000 TO KM 21.000
N.T.S



CULVERT SKEW ANGLE



CULVERT SKEW ANGLE



DATUM 1139.000

TENDER

BRITS

RUSTENBURG

N4 - 13
CONTINUE FROM
3257 / 23 / 18 LS

N4 - 13
CONTINUE ON
3257 / 23 / 20 LS

km 20,303 127
END OF R104 (P2-4)
KROONDAL ON RAMP
EASTBOUND

VPI 26
km 20.367 000
ELEV = 1157.060m
LVC = 300.000m
K = 578.427

DIRECTION OF TRAFFIC FLOW

FRL AT R1

NGL AT R1

EXISTING FRL AT L2

km 20,047 042
1 X 600 X 450 BC
θ = 90.796°

km 20,346 717
1 X 750 X 450 BC
θ = 118.307°

km 20,466 857
1 X 600 X 450 BC
θ = 125.483°

km 20,719 658
1 X 600 PC
θ = 230.041°

km 20,789 847
NOSE OF R104 (P2-4)
KROONDAL ON RAMP
EASTBOUND

BRIDGE B1684
km 20.863 686
N4 OVER
SANDSPRUIT RIVER
(TO BE EXTENDED)

km 20,976 162
1 X 600 PC
θ = 290.390°

1159

1149

CHAINAGES	20000	20020	20040	20060	20080	20100	20120	20140	20160	20180	20200	20220	20240	20260	20280	20300	20320	20340	20360	20380	20400	20420	20440	20460	20480	20500	20520	20540	20560	20580	20600	20620	20640	20660	20680	20700	20720	20740	20760	20780	20800	20820	20840	20860	20880	20900	20920	20940	20960	20980	21000
GROUND LEVEL AT R1	1157.362	1157.120	1156.825	1157.032	1157.200	1157.054	1156.933	1156.905	1156.951	1156.910	1156.782	1156.626	1156.506	1156.335	1156.353	1156.234	1155.907	1155.830	1155.894	1155.620	1155.346	1155.006	1154.681	1154.223	1154.519	1154.290	1153.934	1153.808	1153.670	1153.495	1153.393	1153.298	1153.069	1152.815	1152.653	1152.465	1152.270	1152.093	1151.911	1151.710	1151.568	1151.437	1151.274	1151.151
VERTICAL ALIGNMENT — EXISTING LEFT CARRIAGEWAY WESTBOUND — LEFT EDGE (L1)	1158.080	1158.048	1158.016	1157.984	1157.952	1157.920	1157.888	1157.856	1157.824	1157.792	1157.760	1157.684	1157.581	1157.471	1157.366	1157.235	1157.108	1156.975	1156.837	1156.692	1156.542	1156.385	1156.223	1156.055	1155.881	1155.701	1154.765	1154.577	1154.389	1154.202	1154.014	1153.826	1153.639	1153.451	1153.263	1153.075	1152.888	1152.700	1152.512	1152.324	1152.137	1151.953	1151.775	1151.602	1151.435	1151.274	1151.074
RIGHT EDGE (L2)	1158.408	1158.309	1158.209	1158.109	1158.010	1157.910	1157.811	1157.711	1157.611	1157.512	1157.412	1157.312	1157.209	1157.099	1156.984	1156.863	1156.736	1156.604	1156.465	1156.320	1156.170	1156.013	1155.851	1155.683	1155.509	1155.329	1155.144	1154.956	1154.768	1154.581	1154.393	1154.205	1154.017	1153.830	1153.642	1153.454	1153.267	1153.079	1152.891	1152.703	1152.516	1152.328	1152.140	1151.952	1151.765	1151.581	1151.403	1151.230	1151.063	1150.902	1150.746
GRADES		-0.498 %																	20367.000 | 1156.580													-0.939 %																				21000.000 | 1146.405
VERTICAL CURVES AT PIVOT POINT												BVC 20217.000																			EVC 20517.000																			BVC 20876.000					
												LVC = 300.000m K = 681.139																																				LVC = 1150.000m K = 713.312					
MEDIAN LEVEL AT STAKED LINE	1158.084																																																					
VERTICAL ALIGNMENT — NEW RIGHT CARRIAGEWAY EASTBOUND — LEFT EDGE (R1)	1158.719	1158.626	1158.533	1158.440	1158.347	1158.255	1158.162	1158.069	1157.976	1157.883	1157.790	1157.697	1157.600	1157.496	1157.385	1157.266	1157.141	1157.010	1156.875	1156.725	1156.572	1156.413	1156.246	1156.073	1155.892	1155.705	1155.511	1155.314	1155.118	1154.921	1154.725	1154.528	1154.332	1154.135	1153.938	1153.742	1153.545	1153.349	1153.152	1152.955	1152.759	1152.562	1152.366	1152.169	1151.973	1151.780	1151.593	1151.412	1151.237	1151.068	1150.904
RIGHT EDGE (R2)	1158.392	1158.299	1158.206	1158.113	1158.021	1157.928	1157.835	1157.742	1157.649	1157.556	1157.463	1157.370	1157.273	1157.169	1157.058	1156.940	1156.815	1156.683	1156.544	1156.398	1156.245	1156.086	1155.919	1155.746	1155.566	1155.378	1155.184	1154.988	1154.791	1154.594	1154.398	1154.201	1154.005	1153.808	1153.611	1153.415	1153.218	1153.022	1152.825	1152.629	1152.432	1152.235	1152.039	1151.842	1151.646	1151.453	1151.266	1151.085	1150.910	1150.741	1150.577
GRADES		-0.464 %																	20367.000 | 1157.060													-0.983 %																				21000.000 | 1146.405
VERTICAL CURVES AT PIVOT POINT												BVC 20217.000															EVC 20517.000																			BVC 20876.000					
												LVC = 300.000m K = 578.427																																				LVC = 1150.000m K = 694.244					

SUPERELEVATION (e)
EB SUPERELEVATION/BOTH
WB SUPERELEVATION

3.000%
-3.000%
20207
20987

HORIZONTAL CURVES ON STAKED LINE

DIRECTION
103°31'19"
20163.497
BC7

CURVE 7 RIGHT
RADIUS=3000.000m
ANGLE= 16°39'25"

No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date

SANRAL PROJECT MANAGER
Name
Prof. Reg. No. :
Date

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Prof. Reg. No.	20130622
CHECKED BY	
NAME	PL NGQUMSHE
Prof. Reg. No.	20080112
DRAWN BY	
NAME	WB HARTMANN

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17 / 07 / 2023

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THE SOUTH AFRICAN NATIONAL ROADS AGENCY SOC LTD
Reg. No. 1998/009584/30

NORTHERN REGION
38 Ida Street
Menlo Park
Pretoria
0081
Private Bag X17
Lynnwood Ridge
0040
Tel: (012) 426 6200

ACCEPTANCE
THIS ACCEPTANCE IS FOR PROCEDURAL AND ADMINISTRATIVE REVIEW PURPOSES ONLY AND DOES NOT ATTRACT LEGAL LIABILITY OR LIABILITY OF ANY KIND FROM WHATSOEVER CAUSE OR HOWEVER ARISING

for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION
LONGITUDINAL SECTION N4 - 13 FROM km 20.000 TO km 21.000

SCALE : HORIZONTAL 1:1000m, VERTICAL 1:100m (A0)

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	SECTION 13	SECTION 13
DRAWING km DISTANCE	km 20.000	km 21.000
DRAWING TYPE	ROADS - LONG SECTIONS	
BRIDGE/STRUCTURE No.	B1684	
CONSULTANT DRAWING No.	FA 3257 / 23 / 19 LS	VER
SANRAL DOCUMENT #	- -	V0

SHEET 19 OF 50

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadwork\03 - Longsections\3257_23_(ALL) LS.dwg

GUARDRAIL SOUTH WB CARRIAGEWAY
V-DRAIN SOUTH WB CARRIAGEWAY
SUBSOIL DRAIN SOUTH WB CARRIAGEWAY
GUARDRAIL NORTH WB CARRIAGEWAY
V-DRAIN NORTH WB CARRIAGEWAY
SUBSOIL DRAIN NORTH WB CARRIAGEWAY
MEDIAN V-DRAIN
GUARDRAIL SOUTH EB CARRIAGEWAY
V-DRAIN SOUTH EB CARRIAGEWAY
SUBSOIL DRAIN SOUTH EB CARRIAGEWAY
GUARDRAIL NORTH EB CARRIAGEWAY
V-DRAIN NORTH EB CARRIAGEWAY
SUBSOIL DRAIN NORTH EB CARRIAGEWAY

AS PER EXISTING

EARTH DRAIN | CONCRETE DRAIN - TYPE E | CONCRETE DRAIN - TYPE E | BRIDGE | GUARDRAIL

GUARDRAIL | CONCRETE DRAIN TYPE A | SUBSOIL DRAIN

CONCRETE DRAIN TYPE F | CONCRETE DRAIN TYPE F | SUBSOIL DRAIN

DRAINAGE
KILOMETRE DISTANCE
SIZE AND ANGLE

RANDWATER CULVERT S4028
km 21,389 083
1 X 2100 x 2100 BC
θ = 90°

km 21,403 063
1 X 600 PC
θ = 270.569°

km 21,540 000
1 X 600 PC
θ = 270.000°

km 21,800 000
1 X 600 PC
θ = 270.000°

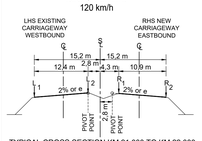
NOTES:

1) LEVELS IN BRACKETS MAY BE ALTERED TO TIE IN WITH EXISTING ROAD LEVELS AFTER CONSULTING WITH THE RESIDENT ENGINEER.
2) VPI's AND GRADES GIVEN AT PIVOT POINT
3) BARRIER LINES AS PER ROAD PAINT MARKINGS DRAWINGS

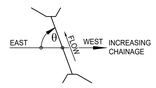
"AS BUILT" NOTES:

1159

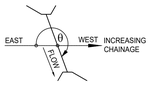
DESIGN SPEED
120 km/h



TYPICAL CROSS SECTION KM 21.000 TO KM 22.000
N.T.S

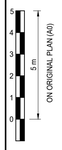


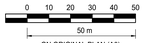
CULVERT SKEW ANGLE



CULVERT SKEW ANGLE

1139





DATUM 1129.000

km 21,128 981
BRIDGE B2235
ROAD R104 OVER R104 (P2-4)
KROONDAL INTERCHANGE
(EXISTING)

BRITS

RUSTENBURG

N4 -13
CONTINUE FROM
3257 / 23 / 19 LS

N4 - 13
CONTINUE ON
3257 / 23 / 21 LS

EXISTING FRL AT L2

DIRECTION OF TRAFFIC FLOW

S4028
RANDWATER
CULVERT
ELEV = 1144.891
km 21,389 083
2 X 2240 x 2400 BC
& 1 x 2240 x 2720 BC
θ = 90°
(RUNS BELOW
ROAD RESERVE)

km 21,403 063
1 X 600 PC
θ = 270.569°

VPI 27
km 21.451 000
ELEV = 1146.405m
LVC = 1150.000m
K = 694.244

km 21,519 163
NOSE OF R104 (P2-4)
KROONDAL OFF RAMP
EAST BOUND
DECISION SIGHT
DISTANCE > 400 m

km 21,540 000
1 X 600 PC
θ = 270.000°

NGL AT R1

FRL AT R1

km 21,767 000
BRIDGE B1640 B
N4 OVER HEX RIVER
NEW BRIDGE

km 21,816 237
START OF R104 (P2-4)
KROONDAL OFF RAMP
EAST BOUND

km 21,800 000
1 X 600 PC
θ = 270.000°

TENDER

| | | |

GUARDRAIL SOUTH WB CARRIAGEWAY
V-DRAIN SOUTH WB CARRIAGEWAY
SUBSOIL DRAIN SOUTH WB CARRIAGEWAY
GUARDRAIL NORTH WB CARRIAGEWAY
V-DRAIN NORTH WB CARRIAGEWAY
SUBSOIL DRAIN NORTH WB CARRIAGEWAY — AS PER EXISTING

MEDIAN V-DRAIN — EARTH DRAIN — EARTH DRAIN — EARTH DRAIN

GUARDRAIL SOUTH EB CARRIAGEWAY
V-DRAIN SOUTH EB CARRIAGEWAY
SUBSOIL DRAIN SOUTH EB CARRIAGEWAY
GUARDRAIL NORTH EB CARRIAGEWAY — GUARDRAIL
V-DRAIN NORTH EB CARRIAGEWAY — CONCRETE DRAIN TYPE A — CONCRETE DRAIN TYPE A
SUBSOIL DRAIN NORTH EB CARRIAGEWAY

DRAINAGE
KILOMETRE DISTANCE
SIZE AND ANGLE

km 22.227 000
1 x 4000 x 4300 BC
θ = 269.857°

km 22.267 227
2 X 600 PC
θ = 268.604°

km 22.586 828
1 X 750 X 450 BC
θ = 270.319°

km 22.817 254
4 X 750 X 450 BC
θ = 268.627°

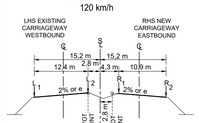
km 22.957 191
1 X 750 X 450 BC
θ = 272.502°

NOTES:

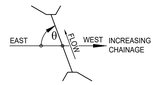
1) LEVELS IN BRACKETS MAY BE ALTERED TO TIE IN WITH EXISTING ROAD LEVELS AFTER CONSULTING WITH THE RESIDENT ENGINEER.
2) VPI's AND GRADES GIVEN AT PIVOT POINT
3) BARRIER LINES AS PER ROAD PAINT MARKINGS DRAWINGS

"AS BUILT" NOTES:

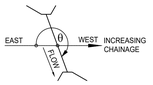
DESIGN SPEED
120 km/h



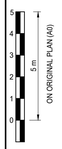
TYPICAL CROSS SECTION KM 22.000 TO KM 23.000
N.T.S



CULVERT SKEW ANGLE



CULVERT SKEW ANGLE



DATUM 1139.000

BRITS

N4 - 13
CONTINUE FROM
3257 / 23 / 20 LS

RUSTENBURG

N4 - 13
CONTINUE ON
3257 / 23 / 22 LS

EXISTING FRL AT L2

FRL AT R1

NGL AT R1

DIRECTION OF TRAFFIC FLOW

VPI 28
km 22.687 000
ELEV = 1154.730m
LVC = 640.000m
K = 3093.625

km 22.586 828
1 X 750 X 450 BC
θ = 270.319°

km 22.817 254
4 X 750 X 450 BC
θ = 268.627°

km 22.957 191
1 X 750 X 450 BC
θ = 272.502°

km 22.267 227
2 X 600 PC
θ = 268.604°

S4027
AGRICULTURAL UNDERPASS
km 22.227 000
1 x 4000 x 4300 BC
θ = 269.847°
(EXTEND)

TENDER

CHAINAGES	22000	22020	22040	22060	22080	22100	22120	22140	22160	22180	22200	22220	22240	22260	22280	22300	22320	22340	22360	22380	22400	22420	22440	22460	22480	22500	22520	22540	22560	22580	22600	22620	22640	22660	22680	22700	22720	22740	22760	22780	22800	22820	22840	22860	22880	22900	22920	22940	22960	22980	23000
GROUND LEVEL AT R1	1147.491	1147.443	1147.871	1147.709	1148.595	1148.854	1149.006	1149.207	1149.485	1149.604	1149.567	1148.663	1149.196	1147.597	1149.823	1150.305	1150.444	1150.546	1150.759	1150.857	1151.143	1151.243	1151.348	1151.641	1151.864	1152.085	1152.259	1152.668	1152.957	1152.587	1152.789	1153.138	1153.333	1153.444	1153.636	1153.789	1154.128	1154.290	1154.542	1154.855	1154.964	1155.073	1155.180	1155.287	1155.544	1155.608	1155.496	1155.749	1155.936	1155.999	1156.073	1156.273	1155.441
VERTICAL ALIGNMENT — EXISTING LEFT CARRIAGEWAY WESTBOUND — LEFT EDGE (L1)	1149.736	1149.866	1150.000	1150.135	1150.270	1150.404	1150.539	1150.674	1150.808	1150.943	1151.078	1151.213	1151.347	1151.482	1151.617	1151.751	1151.886	1152.021	1152.156	1152.290	1152.423	1152.555	1152.687	1152.817	1152.946	1153.074	1153.200	1153.326	1153.450	1153.573	1153.695	1153.817	1153.938	1154.055	1154.173	1154.289	1154.405	1154.519	1154.632	1154.744	1154.855	1154.964	1155.073	1155.180	1155.287	1155.392	1155.496	1155.599	1155.701	1155.802	1155.901	1156.000
RIGHT EDGE (L2)	1150.109	1150.238	1150.372	1150.507	1150.642	1150.776	1150.911	1151.046	1151.180	1151.315	1151.450	1151.585	1151.719	1151.854	1151.989	1152.123	1152.258	1152.393	1152.527	1152.662	1152.795	1152.928	1153.059	1153.189	1153.318	1153.446	1153.572	1153.698	1153.822	1153.945	1154.067	1154.188	1154.308	1154.427	1154.545	1154.661	1154.778	1154.891	1155.004	1155.116	1155.227	1155.336	1155.445	1155.552	1155.659	1155.764	1155.868	1155.971	1156.073	1156.173	1156.273	1156.373
GRADES		0.674 %																																	22687.000 1154.730																			0.493 %																		

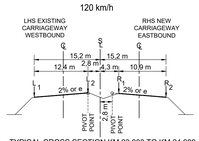
GUARDRAIL SOUTH WB CARRIAGEWAY	
V-DRAIN SOUTH WB CARRIAGEWAY	
SUBSOIL DRAIN SOUTH WB CARRIAGEWAY	AS PER EXISTING
GUARDRAIL NORTH WB CARRIAGEWAY	
V-DRAIN NORTH WB CARRIAGEWAY	
SUBSOIL DRAIN NORTH WB CARRIAGEWAY	
MEDIAN V-DRAIN	EARTH DRAIN — EARTH DRAIN — CONCRETE DRAIN - TYPE E
GUARDRAIL SOUTH EB CARRIAGEWAY	
V-DRAIN SOUTH EB CARRIAGEWAY	
SUBSOIL DRAIN SOUTH EB CARRIAGEWAY	
GUARDRAIL NORTH EB CARRIAGEWAY	
V-DRAIN NORTH EB CARRIAGEWAY	
SUBSOIL DRAIN NORTH EB CARRIAGEWAY	
DRAINAGE KILOMETRE DISTANCE SIZE AND ANGLE	km 23,386 648 2 X 600 X 450 BC θ = 296.573° — km 23,586 955 1 X 900 X 450 BC θ = 301.211° — km 23,807 198 1 X 900 X 450 BC θ = 305.333°

NOTES:

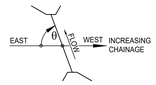
1) LEVELS IN BRACKETS MAY BE ALTERED TO TIE IN WITH EXISTING ROAD LEVELS AFTER CONSULTING WITH THE RESIDENT ENGINEER.
2) VPI's AND GRADES GIVEN AT PIVOT POINT
3) BARRIER LINES AS PER ROAD PAINT MARKINGS DRAWINGS

"AS BUILT" NOTES:

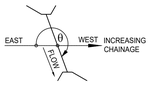
DESIGN SPEED
120 km/h



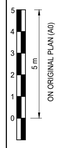
TYPICAL CROSS SECTION KM 23.000 TO KM 24.000
N.T.S

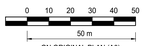


CULVERT SKEW ANGLE



CULVERT SKEW ANGLE





DATUM 1139.000

1169
1159
1149

← BRITS

EXISTING FRL AT L2

km 23,335 000
BRIDGE B1641
ROAD D1641 OVER N4
EXISTING

FRL AT R1

DIRECTION OF TRAFFIC FLOW

NGL AT R1

VPI 29
km 23,257 000
ELEV = 1157.390m
LVC = 500.000m
K = 1095.000

km 23,386 648
2 X 600 X 450 BC
θ = 296.573°

km 23,586 955
1 X 900 X 450 BC
θ = 301.211°

km 23,807 198
1 X 900 X 450 BC
θ = 305.333°

VPI 30
km 23.987 000
ELEV = 1164.130m
LVC = 860.000m
K = 592.601

RUSTENBURG →

N4 - 13
CONTINUE FROM
3257 / 23 / 21 LS

N4 - 13
CONTINUE ON
3257 / 23 / 23 LS

TENDER

| | | |

GUARDRAIL SOUTH WB CARRIAGEWAY
V-DRAIN SOUTH WB CARRIAGEWAY
SUBSOIL DRAIN SOUTH WB CARRIAGEWAY
GUARDRAIL NORTH WB CARRIAGEWAY — AS PER EXISTING
V-DRAIN NORTH WB CARRIAGEWAY
SUBSOIL DRAIN NORTH WB CARRIAGEWAY
MEDIAN V-DRAIN — CONCRETE DRAIN - TYPE E | CONCRETE DRAIN - TYPE E | CONCRETE DRAIN - TYPE E | EARTH DRAIN
GUARDRAIL SOUTH EB CARRIAGEWAY
V-DRAIN SOUTH EB CARRIAGEWAY
SUBSOIL DRAIN SOUTH EB CARRIAGEWAY
GUARDRAIL NORTH EB CARRIAGEWAY — RHS GUARDRAIL
V-DRAIN NORTH EB CARRIAGEWAY
SUBSOIL DRAIN NORTH EB CARRIAGEWAY

DRAINAGE
KILOMETRE DISTANCE
SIZE AND ANGLE

km 24.227 104
1 X 600 X 450 BC
θ = 269.655°

km 24.387 031
1 X 600 X 450 BC
θ = 269.687°

km 24.657 252
4 X 1200 X 1200 BC
θ = 269.958°

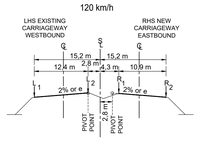
km 24.916 921
2 X 1200 X 600 BC
θ = 270.411°

NOTES:

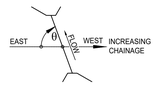
1) LEVELS IN BRACKETS MAY BE ALTERED TO TIE IN WITH EXISTING ROAD LEVELS AFTER CONSULTING WITH THE RESIDENT ENGINEER.
2) VPI's AND GRADES GIVEN AT PIVOT POINT
3) BARRIER LINES AS PER ROAD PAINT MARKINGS DRAWINGS

"AS BUILT" NOTES:

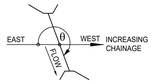
DESIGN SPEED
120 km/h



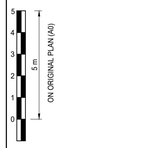
TYPICAL CROSS SECTION KM 24.000 TO KM 25.000
N.T.S



CULVERT SKEW ANGLE



CULVERT SKEW ANGLE



DATUM 1139.000

BRITS

RUSTENBURG

EXISTING FRL AT L2

FRL AT R1

DIRECTION OF TRAFFIC FLOW

NGL AT R1

VPI 31
km 24.667 000
ELEV = 1160.540m
LVC = 500.000m
K = 467.517

km 24,227 104
1 X 600 X 450 BC
θ = 269.655°

km 24,387 031
1 X 600 X 450 BC
θ = 269.687°

km 24,657 252
4 X 1200 X 1200 BC
θ = 269.958°

km 24,916 921
2 X 1200 X 600 BC
θ = 270.411°

N4 - 13
CONTINUE FROM
3257 / 23 / 22 LS

N4 - 13
CONTINUE ON
3257 / 23 / 24 LS

TENDER

| | | |

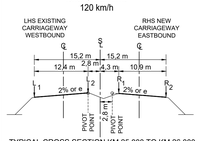
GUARDRAIL SOUTH WB CARRIAGEWAY	
V-DRAIN SOUTH WB CARRIAGEWAY	
SUBSOIL DRAIN SOUTH WB CARRIAGEWAY	
GUARDRAIL NORTH WB CARRIAGEWAY	AS PER EXISTING
V-DRAIN NORTH WB CARRIAGEWAY	
SUBSOIL DRAIN NORTH WB CARRIAGEWAY	
MEDIAN V-DRAIN	EARTH DRAIN — EARTH DRAIN
GUARDRAIL SOUTH EB CARRIAGEWAY	
V-DRAIN SOUTH EB CARRIAGEWAY	
SUBSOIL DRAIN SOUTH EB CARRIAGEWAY	
GUARDRAIL NORTH EB CARRIAGEWAY	
V-DRAIN NORTH EB CARRIAGEWAY	
SUBSOIL DRAIN NORTH EB CARRIAGEWAY	
DRAINAGE KILOMETRE DISTANCE SIZE AND ANGLE	km 25.167 209 — 3 X 900 PC — θ = 270.102° ; km 25.385 305 — 2 X 1500 X 600 BC — θ = 314.489° ; km 25,504 851 — 1 X 1500 X 600 BC — θ = 304.739° ; km 25.626 416 — 2 X 900 X 600 BC — θ = 306.633° ; km 25,846 765 — 2 X 1200 X 600 BC — θ = 271.507°

NOTES:

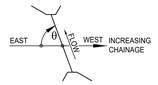
1) LEVELS IN BRACKETS MAY BE ALTERED TO TIE IN WITH EXISTING ROAD LEVELS AFTER CONSULTING WITH THE RESIDENT ENGINEER.
2) VPI's AND GRADES GIVEN AT PIVOT POINT
3) BARRIER LINES AS PER ROAD PAINT MARKINGS DRAWINGS

"AS BUILT" NOTES:

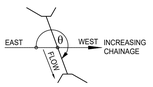
DESIGN SPEED
120 km/h



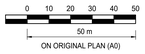
TYPICAL CROSS SECTION KM 25.000 TO KM 26.000
N.T.S



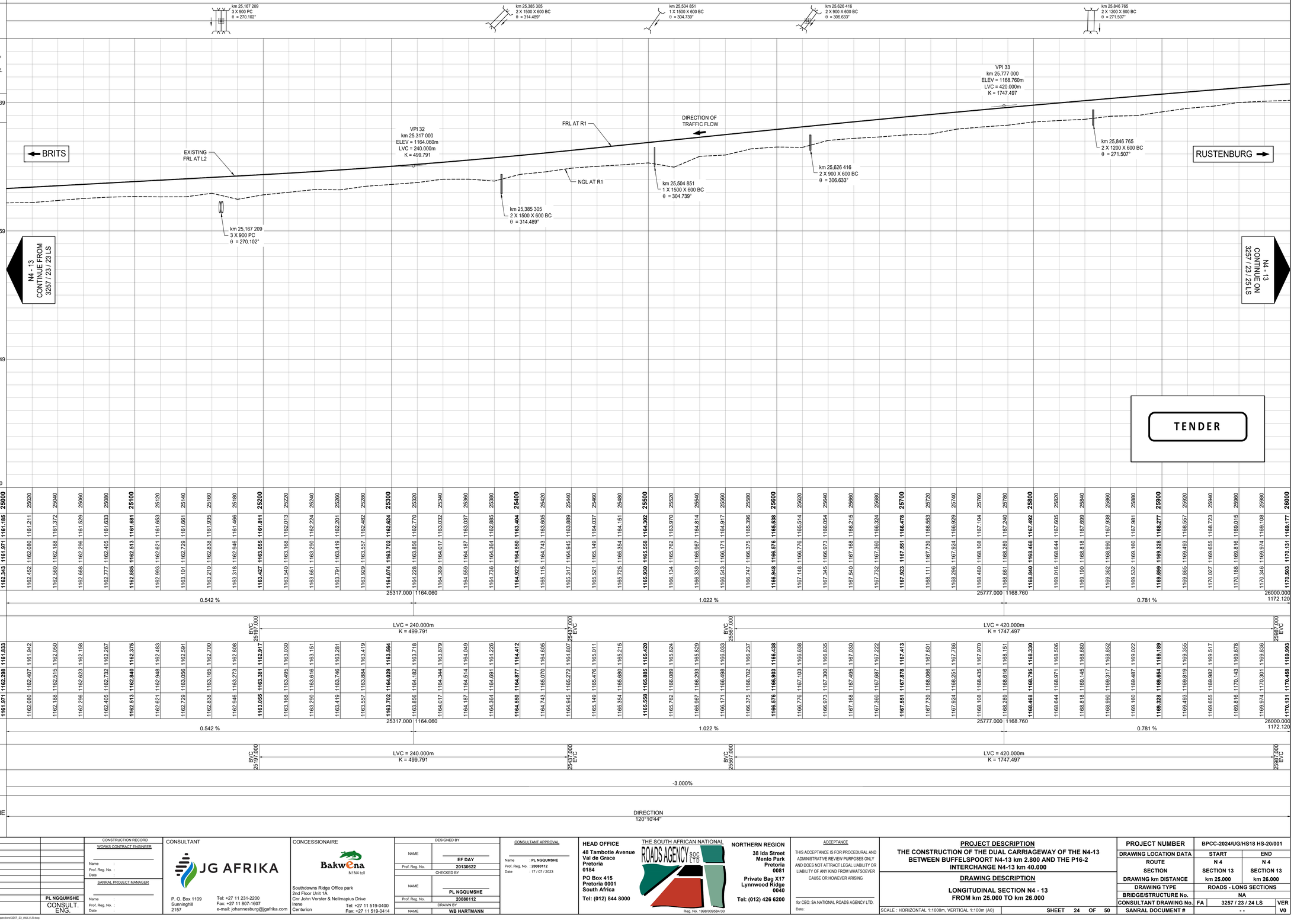
CULVERT SKEW ANGLE



CULVERT SKEW ANGLE



DATUM 1139.000



CHAINAGES	25000	25020	25040	25060	25080	25100	25120	25140	25160	25180	25200	25220	25240	25260	25280	25300	25320	25340	25360	25380	25400	25420	25440	25460	25480	25500	25520	25540	25560	25580	25600	25620	25640	25660	25680	25700	25720	25740	25760	25780	25800	25820	25840	25860	25880	25900	25920	25940	25960	25980	26000
GROUND LEVEL AT R1	1161.185	1161.211	1161.372	1161.529	1161.633	1161.691	1161.653	1161.661	1161.729	1161.935	1161.946	1161.811	1162.013	1162.168	1162.290	1162.224	1162.201	1162.419	1162.557	1162.482	1162.624	1162.770	1163.032	1163.037	1162.885	1162.404	1163.605	1163.889	1164.037	1164.151	1164.302	1163.970	1164.814	1164.917	1165.396	1165.538	1165.514	1166.054	1166.215	1166.324	1167.104	1167.240	1167.492	1167.605	1167.699	1167.938	1167.881	1168.277	1168.557	1168.723	1168.908	1169.177
VERTICAL ALIGNMENT — EXISTING LEFT CARRIAGEWAY WESTBOUND — LEFT EDGE (L1)	1161.971	1162.080	1162.188	1162.296	1162.405	1162.513	1162.621	1162.729	1162.838	1162.946	1163.055	1163.168	1163.290	1163.419	1163.557	1163.702	1163.856	1164.017	1164.187	1164.364	1164.550	1164.743	1164.945	1165.149	1165.354	1165.558	1165.762	1165.967	1166.171	1166.375	1166.576	1166.776	1166.973	1167.168	1167.360	1167.551	1167.739	1167.924	1168.108	1168.289	1168.468	1168.644	1168.818	1168.990	1169.160	1169.328	1169.493	1169.655	1169.816	1169.974	1170.131	1170.288
RIGHT EDGE (L2)	1162.343	1162.452	1162.560	1162.668	1162.777	1162.885	1162.993	1163.101	1163.210	1163.318	1163.427	1163.540	1163.661	1163.791	1163.929	1164.074	1164.228	1164.389	1164.559	1164.736	1164.922	1165.115	1165.317	1165.521	1165.725	1165.930	1166.134	1166.339	1166.543	1166.747	1166.948	1167.148	1167.345	1167.540	1167.732	1167.923	1168.111	1168.296	1168.480	1168.661	1168.840	1169.016	1169.190	1169.362	1169.532	1169.699	1169.865	1170.027	1170.188	1170.346	1170.503	1170.658
GRADES		0.542 %														25317.000 1164.060																1.022 %																				25777.000 1168.760								0.781 %																										26000.000 1172.120
VERTICAL CURVES AT PIVOT POINT											BVC 25197.000							LVC = 240.000m K = 499.791				EVC 25437.000										BVC 25567.000																		

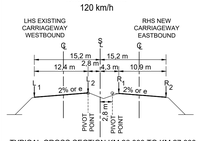
GUARDRAIL SOUTH WB CARRIAGEWAY	
V-DRAIN SOUTH WB CARRIAGEWAY	
SUBSOIL DRAIN SOUTH WB CARRIAGEWAY	
GUARDRAIL NORTH WB CARRIAGEWAY	AS PER EXISTING
V-DRAIN NORTH WB CARRIAGEWAY	
SUBSOIL DRAIN NORTH WB CARRIAGEWAY	
MEDIAN V-DRAIN	EARTH DRAIN … EARTH DRAIN
GUARDRAIL SOUTH EB CARRIAGEWAY	
V-DRAIN SOUTH EB CARRIAGEWAY	
SUBSOIL DRAIN SOUTH EB CARRIAGEWAY	
GUARDRAIL NORTH EB CARRIAGEWAY	
V-DRAIN NORTH EB CARRIAGEWAY	
SUBSOIL DRAIN NORTH EB CARRIAGEWAY	
DRAINAGE KILOMETRE DISTANCE SIZE AND ANGLE	km 26,234 264 1 X 1200 X 1200 BC θ = 314.951° … km 26,486 900 1 X 675 PC θ = 307.627° … km 26,727 000 1 X 900 x 450 BC θ = 299.989° … km 26,877 235 1 X 600 PC θ = 300.179°

NOTES:

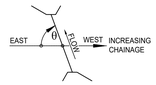
1) LEVELS IN BRACKETS MAY BE ALTERED TO TIE IN WITH EXISTING ROAD LEVELS AFTER CONSULTING WITH THE RESIDENT ENGINEER.
2) VPI's AND GRADES GIVEN AT PIVOT POINT
3) BARRIER LINES AS PER ROAD PAINT MARKINGS DRAWINGS

"AS BUILT" NOTES:

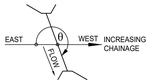
DESIGN SPEED
120 km/h



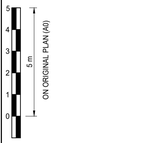
TYPICAL CROSS SECTION KM 26.000 TO KM 27.000
N.T.S



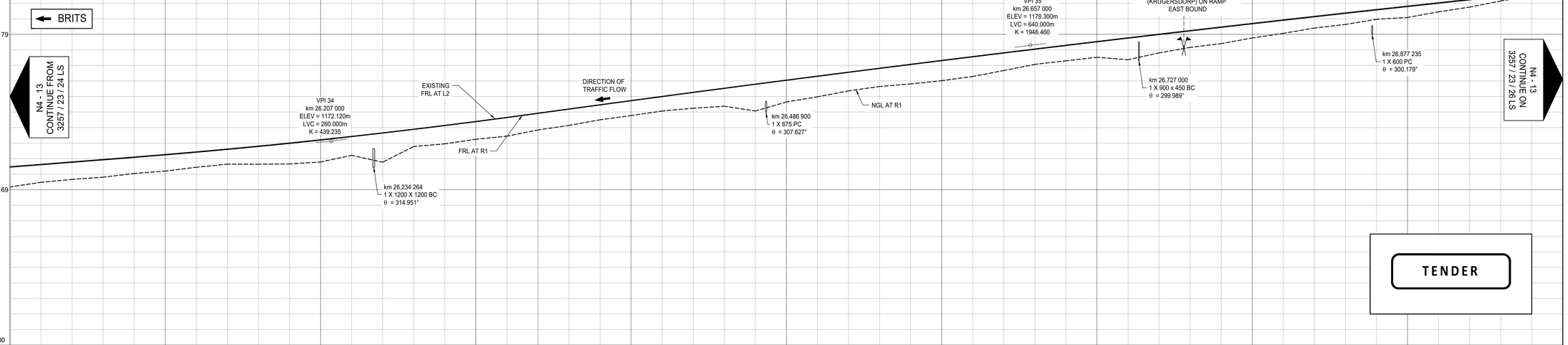
CULVERT SKEW ANGLE



CULVERT SKEW ANGLE



DATUM 1159.000



TENDER

| VERTICAL ALIGNMENT | | |

GUARDRAIL SOUTH WB CARRIAGEWAY
V-DRAIN SOUTH WB CARRIAGEWAY
SUBSOIL DRAIN SOUTH WB CARRIAGEWAY
GUARDRAIL NORTH WB CARRIAGEWAY
V-DRAIN NORTH WB CARRIAGEWAY
SUBSOIL DRAIN NORTH WB CARRIAGEWAY
MEDIAN V-DRAIN
GUARDRAIL SOUTH EB CARRIAGEWAY
V-DRAIN SOUTH EB CARRIAGEWAY
SUBSOIL DRAIN SOUTH EB CARRIAGEWAY
GUARDRAIL NORTH EB CARRIAGEWAY
V-DRAIN NORTH EB CARRIAGEWAY
SUBSOIL DRAIN NORTH EB CARRIAGEWAY

AS PER EXISTING

EARTH DRAIN

CONCRETE DRAIN - TYPE E

CONCRETE DRAIN - TYPE F

GUARDRAIL

SUBSOIL DRAIN

DRAINAGE
KILOMETRE DISTANCE
SIZE AND ANGLE

km 27.276 972
1 X 600 PC
θ = 269.338°

km 27.476 134
2 X 600 PC
θ = 224.173°

km 27.600 000
1 x 600 PC
θ = 250.000°

km 27.707 000
3 x 3000 x 3000 BC
θ = 270.162°

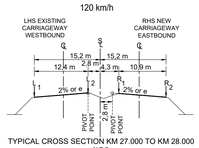
NOTES:

1) LEVELS IN BRACKETS MAY BE ALTERED TO TIE IN WITH EXISTING ROAD LEVELS AFTER CONSULTING WITH THE RESIDENT ENGINEER.
2) VPI's AND GRADES GIVEN AT PIVOT POINT
3) BARRIER LINES AS PER ROAD PAINT MARKINGS DRAWINGS

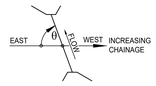
"AS BUILT" NOTES:

1202

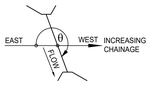
DESIGN SPEED
120 km/h



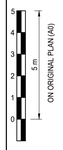
TYPICAL CROSS SECTION KM 27.000 TO KM 28.000
N.T.S

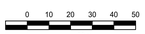


CULVERT SKEW ANGLE



CULVERT SKEW ANGLE





DATUM 1172.000

1192

1182

BRITS

N4 - 13
CONTINUE FROM
3257 / 23 / 25 LS

RUSTENBURG

N4 - 13
CONTINUE ON
3257 / 23 / 27 LS

km 27.155 690
NOSE OF R24 (P16-1)
RUSTENBURG (KRUGERSDORP)
ON RAMP EASTBOUND

VPI 36
km 27.297 000
ELEV = 1184.985m
LVC = 320.000m
K = 203.364

FRL AT R1

NGL AT R1

km 27,538 000
BRIDGE B2229 B
R24 OVER N4
(CONSTRUCTED UNDER
A SEPARATE CONTRACT)

km 27,538 000
BRIDGE B2229 A
R24 OVER N4
(EXTEND UNDER A
SEPARATE CONTRACT)

km 27.920 250
NOSE OF R24 (P16-1) RUSTENBURG
(KRUGERSDORP)
OFF RAMP EASTBOUND
DECISION SIGHT DISTANCE > 400 m

km 27,276 972
1 X 600 PC
θ = 269.338°

km 27,476 134
2 X 600 PC
θ = 224.173°

km 27,600 000
1 X 600 PC
θ = 250.000°

S4002
km 27,707 000
3 x 3000 x 3000 BC
θ = 270.162°
(TO BE EXTENDED)

VPI 37
km 27.797 000
ELEV = 1182.340m
LVC = 480.000m
K = 89.007

TENDER

CHAINAGES	27000	27020	27040	27060	27080	27100	27120	27140	27160	27180	27200	27220	27240	27260	27280	27300	27320	27340	27360	27380	27400	27420	27440	27460	27480	27500	27520	27540	27560	27580	27600	27620	27640	27660	27680	27700	27720	27740	27760	27780	27800	27820	27840	27860	27880	27900	27920	27940	27960	27980	28000
GROUND LEVEL AT R1	1181.789	1182.060	1182.282	1182.560	1182.726	1182.968	1183.113	1183.251	1183.434	1183.651	1183.963	1184.155	1184.363	1183.185	1183.851	1183.246	1183.574	1183.415	1183.379	1183.298	1183.282	1182.964	1182.637	1182.105	1182.243	1182.604	1182.332	1182.371	1182.317	1182.212	1179.985	1181.798	1181.961	1182.842	1182.939	1183.531	1184.155	1184.988	1185.796	1186.697	1186.376	1186.928	1187.317	1187.525	1187.604	1188.241	1188.976	1189.728	1190.523	1191.343	1192.170
VERTICAL ALIGNMENT — EXISTING LEFT CARRIAGEWAY WESTBOUND — LEFT EDGE (L1)	1181.667	1181.878	1182.088	1182.299	1182.510	1182.680	1182.829	1183.018	1183.216	1183.394	1183.553	1183.691	1183.810	1183.909	1183.988	1184.047	1184.087	1184.107	1184.107	1184.082	1184.034	1183.967	1183.879	1183.772	1183.658	1183.658	1183.121	1183.179	1182.282	1183.430	1183.623	1183.861	1183.943	1184.143	1184.471	1184.843	1185.261	1185.796	1186.376	1186.928	1187.317	1187.525	1187.604	1188.167	1188.854	1189.585	1190.382	1191.183	1192.050
RIGHT EDGE (L2)	1181.915	1182.126	1182.336	1182.547	1182.758	1182.969	1183.180	1183.390	1183.588	1183.766	1183.925	1184.063	1184.182	1184.281	1184.360	1184.419	1184.459	1184.479	1184.479	1184.459	1184.420	1184.360	1184.281	1184.183	1184.077	1183.971	1183.559	1183.617	1183.720	1183.868	1184.061	1184.299	1184.581	1184.909	1184.909	1185.281	1185.699	1186.161	1186.668	1187.220	1187.817	1188.459	1189.146	1189.877	1190.654	1191.475	1192.342
GRADES		1.054 %																																																		
		27297.000 1185.045																																																		
VERTICAL CURVES AT PIVOT POINT		BVC 27150.000														EVC 27447.000										BVC 27550.000																									
		LVC = 320.000m K = 202.160																																																	
MEDIAN LEVEL AT STAKED LINE	1181.405	1181.616	1181.826	1182.037	1182.248	1182.459	1182.670	1182.880	1183.078	1183.256	1183.415	1183.553	1183.672	1183.771	1183.841	1183.911	1184.050	1184.150	1184.188	1184.188	1184.188	1184.188	1184.188	1184.188	1184.188	1184.188	1184.188	1184.188	1184.188	1184.188	1184.188	1184.188	1184.188	1184.188	1184.188	1184.188	1184.188	1184.188	1184.188	1184.188	1184.188	1184.188	1184.188	1184.188	1184.188	1184.188	1184.188	1184.188	1184.188	1184.188	1184.188
VERTICAL ALIGNMENT — NEW RIGHT CARRIAGEWAY EASTBOUND — LEFT EDGE (R1)	1181.853	1182.062	1182.271	1182.479	1182.688	1182.892	1183.094	1183.300	1183.496	1183.672	1183.829	1183.966	1184.084	1184.182	1184.260	1184.318	1184.376	1184.375	1184.355	1184.315	1184.256	1184.176	1184.078	1183.972	1183.866	1183.761	1183.454	1183.512	1183.616	1183.764	1183.957	1184.195	1184.478	1184.806	1185.178	1185.596	1186.066	1186.582	1187.134	1187.732	1188.374	1189.062	1189.795	1190.571	1191.393	1192.260
RIGHT EDGE (R2)	1181.635	1181.844	1182.052	1182.261	1182.470	1182.639	1182.786	1182.973	1183.169	1183.345	1183.502	1183.639	1183.757	1183.855	1183.933	1183.991	1184.030	1184.049	1184.048	1184.028	1183.988	1183.929	1183.849	1183.751	1183.645	1183.539	1183.433	1183.328	1183.222	1183.146	1183.114	1183.127	1183.180	1183.289	1183.437	1183.630	1183.868	1184.151	1184.479	1184.852	1185.269	1185.794	1186.364	1186.916	1187.514	1188.155	1188.844	1189.570	1190.353	1191.175	1192.042
GRADES		1.045 %																																																	
		27297.000 1184.985																																																	
VERTICAL CURVES AT PIVOT POINT		BVC 27150.000														EVC 27447.000										BVC 27550.000																									
		LVC = 320.000m K = 203.364																																																	
SUPERELEVATION (e)		-2.000%																																																	
EB SUPERELEVATION/BOTH																																																		
WB SUPERELEVATION																																																		
		27087																																																	
		27127																																																	
		-3.000%																																																	
		-3.000%																																																	
		27800																																																	
		-2.000%																																																	
		27840																																																	
HORIZONTAL CURVES ON STAKED LINE		DIRECTION 120°10'44"																																																

No.	DATE	REVISION	
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date :

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DESIGNED BY	
NAME	EF DAY
Prof. Reg. No.	20130622
CHECKED BY	
NAME	PL NGQUMSHE
Prof. Reg. No.	20080112
DRAWN BY	
NAME	WB HARTMANN

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17 / 07 / 2023

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THE SOUTH AFRICAN NATIONAL ROADS AGENCY SOC LTD
Reg. No. 1998/009584/30

NORTHERN REGION
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Private Bag X17
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ACCEPTANCE
THIS ACCEPTANCE IS FOR PROCEDURAL AND ADMINISTRATIVE REVIEW PURPOSES ONLY AND DOES NOT ATTRACT LEGAL LIABILITY OR LIABILITY OF ANY KIND FROM WHATSOEVER CAUSE OR HOWEVER ARISING
for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION
LONGITUDINAL SECTION N4 - 13 FROM km 27.000 TO km 28.000

SCALE : HORIZONTAL 1:1000m, VERTICAL 1:100m (A0) | SHEET 26 OF 50

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	SECTION 13	SECTION 13
DRAWING km DISTANCE	km 27.000	km 28.000
DRAWING TYPE	ROADS - LONG SECTIONS	
BRIDGE/STRUCTURE No.	B2229 A/B	
CONSULTANT DRAWING No.	FA 3257 / 23 / 26 LS	VER
SANRAL DOCUMENT #	- -	V0

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadwork\03 - Longsection\3257_23_(ALL) LS.dwg

GUARDRAIL SOUTH WB CARRIAGEWAY	
V-DRAIN SOUTH WB CARRIAGEWAY	
SUBSOIL DRAIN SOUTH WB CARRIAGEWAY	AS PER EXISTING
GUARDRAIL NORTH WB CARRIAGEWAY	
V-DRAIN NORTH WB CARRIAGEWAY	
SUBSOIL DRAIN NORTH WB CARRIAGEWAY	
MEDIAN V-DRAIN	CONCRETE DRAIN - TYPE E / CONCRETE DRAIN - TYPE E / CONCRETE DRAIN - TYPE E
GUARDRAIL SOUTH EB CARRIAGEWAY	
V-DRAIN SOUTH EB CARRIAGEWAY	
SUBSOIL DRAIN SOUTH EB CARRIAGEWAY	
GUARDRAIL NORTH EB CARRIAGEWAY	GUARDRAIL
V-DRAIN NORTH EB CARRIAGEWAY	CONCRETE DRAIN - TYPE A
SUBSOIL DRAIN NORTH EB CARRIAGEWAY	SUBSOIL DRAIN

DRAINAGE
KILOMETRE DISTANCE
SIZE AND ANGLE

km 28,146 866
1 X 600 PC
θ = 270.172°

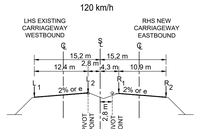
km 28,611 914
3 X 900 PC
θ = 301.780°

NOTES:

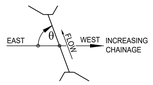
1) LEVELS IN BRACKETS MAY BE ALTERED TO TIE IN WITH EXISTING ROAD LEVELS AFTER CONSULTING WITH THE RESIDENT ENGINEER.
2) VPI's AND GRADES GIVEN AT PIVOT POINT
3) BARRIER LINES AS PER ROAD PAINT MARKINGS DRAWINGS

"AS BUILT" NOTES:

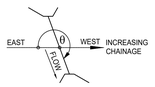
DESIGN SPEED
120 km/h



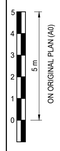
TYPICAL CROSS SECTION KM 28.000 TO KM 29.000
N.T.S

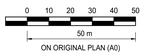


CULVERT SKEW ANGLE

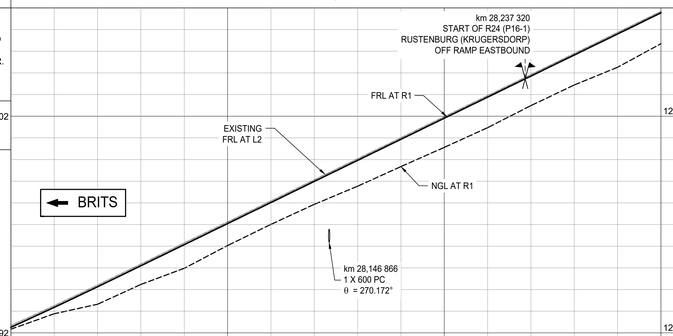


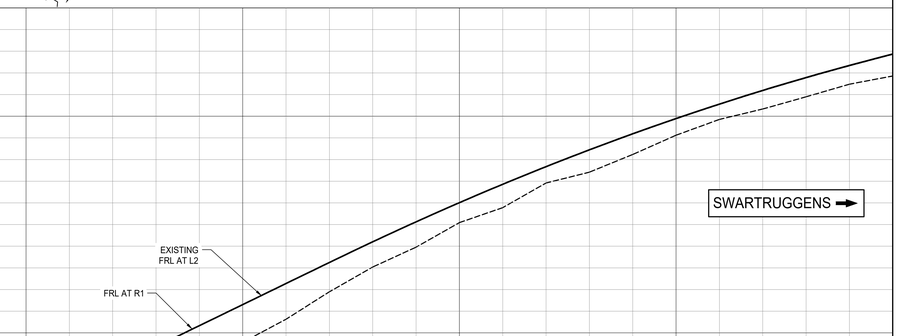
CULVERT SKEW ANGLE





DATUM 1172.000





N4 - 13
CONTINUE FROM
3257 / 23 / 26 LS

N4 - 13
CONTINUE ON
3257 / 23 / 28 LS

TENDER

CHAINAGES	28000	28020	28040	28060	28080	28100	28120	28140	28160	28180	28200	28220	28240	28260	28280	28300	28320	28340	28360	28380	28400	28420	28440	28460	28480	28500	28520	28540	28560	28580	28600	28620	28640	28660	28680	28700	28720	28740	28760	28780	28800	28820	28840	28860	28880	28900	28920	28940	28960	28980	29000
GROUND LEVEL AT R1	1192.170	1192.883	1193.323	1194.235	1194.981	1196.031	1197.008	1197.933	1198.770	1199.676	1200.563	1201.472	1202.491	1203.442	1204.262	1205.347	1206.486	1207.506	1208.479	1209.539	1210.501	1211.453	1212.344	1213.312	1214.525	1215.904	1218.105	1218.638	1218.667	1218.935	1219.831	1220.266	1221.905	1222.935	1223.735	1225.003	1226.282	1225.975	1224.565	1225.629	1226.896	1228.039	1228.957	1230.088	1230.781	1231.918	1232.418	1233.119	1233.858	1234.124	1234.561	1234.853	1235.333	1235.896	1236.479	1237.011	1237.533	1236.857
VERTICAL ALIGNMENT — EXISTING LEFT CARRIAGEWAY WESTBOUND — LEFT EDGE (L1)	1192.050	1192.961	1193.917	1194.889	1195.861	1196.833	1197.804	1198.776	1199.748	1200.720	1201.692	1202.664	1203.636	1204.608	1205.580	1206.552	1207.524	1208.495	1209.467	1210.439	1211.411	1212.383	1213.355	1214.327	1215.299	1216.271	1217.243	1218.215	1219.187	1220.158	1221.116	1222.088	1223.060	1224.031	1225.003	1225.975	1226.947	1227.919	1228.876	1229.797	1230.682	1231.531	1232.343	1233.119	1233.858	1234.561	1235.228	1235.859	1236.453	1236.760	1237.011	1237.533
RIGHT EDGE (L2)	1192.342	1193.253	1194.209	1195.181	1196.153	1197.125	1198.096	1199.068	1200.040	1201.012	1201.984	1202.956	1203.928	1204.900	1205.872	1206.844	1207.816	1208.787	1209.759	1210.731	1211.703	1212.675	1213.647	1214.619	1215.591	1216.563	1217.535	1218.507	1219.479	1220.450	1221.422	1222.394	1223.366	1224.338	1225.310	1226.282	1227.254	1228.226	1229.183	1230.104	1230.989	1231.837	1232.650	1233.425	1234.165	1234.868	1235.535	1236.166	1236.760	1237.318	1237.840
GRADES		4.860 %																																																		29000.000 1250.920
VERTICAL CURVES AT PIVOT POINT		LVC = 480.000m K = 89.077																													BVC 28742.000																				LVC = 930.000m K = 110.167	
MEDIAN LEVEL AT STAKED LINE	1191.832	1192.743	1193.699	1194.671	1195.643	1196.615	1197.586	1198.558	1199.530	1200.502	1201.474	1202.446	1203.418	1204.390	1205.362	1206.334	1207.306	1208.277	1209.249	1210.221	1211.193	1212.165	1213.137	1214.109	1215.081	1216.053	1217.025	1217.997	1218.969	1219.946	1220.932	1221.904	1222.877	1223.850	1224.823	1225.795	1226.768	1227.741	1228.699	1229.621	1230.506	1231.356	1232.169	1232.945	1233.686	1234.398	1235.057	1235.688	1236.283	1236.842	1237.364
VERTICAL ALIGNMENT — NEW RIGHT CARRIAGEWAY EASTBOUND — LEFT EDGE (R1)	1192.260	1193.172	1194.129	1195.102	1196.075	1197.047	1198.020	1198.993	1199.966	1200.938	1201.911	1202.884	1203.857	1204.829	1205.802	1206.775	1207.748	1208.721	1209.693	1210.666	1211.639	1212.612	1213.584	1214.557	1215.532	1216.508	1217.508	1218.495	1219.483	1220.469	1221.442	1222.414	1223.387	1224.360	1225.333	1226.305	1227.278	1228.251	1229.209	1230.131	1231.016	1231.866	1232.679	1233.455	1234.196	1234.900	1235.567	1236.198	1236.793	1237.352	1237.874
RIGHT EDGE (R2)	1192.042	1192.954	1193.911	1194.884	1195.857	1196.829	1197.802	1198.775	1199.748	1200.720	1201.693	1202.666	1203.639	1204.611	1205.584	1206.557	1207.530	1208.503	1209.475	1210.448	1211.421	1212.394	1213.366	1214.339	1215.331	1216.427	1217.524	1218.621	1219.718	1220.796	1221.769	1222.741	1223.714	1224.687	1225.660	1226.632	1227.605	1228.578	1229.536	1230.458	1231.343	1232.193	1233.006	1233.782	1234.522	1235.226	1235.894	1236.525	1237.120	1237.679	1238.201
GRADES		4.864 %																																																		29000.000 1250.920
VERTICAL CURVES AT PIVOT POINT		LVC = 480.000m K = 89.007																													BVC 28742.000																				LVC = 930.000m K = 110.112	

SUPERELEVATION (e)
EB SUPERELEVATION/BOTH
WB SUPERELEVATION

-2.000%
28477
28577
28583
28587
3.000%
-2.100%

HORIZONTAL CURVES ON STAKED LINE

DIRECTION
120°10'44"
28557,363
BCB

CURVE 8 LEFT
RADIUS=5600.000m
ANGLE= 22°38'31"

No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date :

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Prof. Reg. No.: 20130622
CHECKED BY
NAME: PL NGQUMSHE
Prof. Reg. No.: 20080112
DRAWN BY
NAME: WB HARTMANN

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17 / 07 / 2023

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Tel: (012) 426 6200

ACCEPTANCE
THIS ACCEPTANCE IS FOR PROCEDURAL AND ADMINISTRATIVE REVIEW PURPOSES ONLY AND DOES NOT ATTRACT LEGAL LIABILITY OR LIABILITY OF ANY KIND FROM WHATSOEVER CAUSE OR HOWEVER ARISING
for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION
LONGITUDINAL SECTION N4 - 13 FROM km 28.000 TO km 29.000

SCALE : HORIZONTAL 1:1000m, VERTICAL 1:100m (A0)

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001
DRAWING LOCATION DATA	START / END
ROUTE	N 4 / N 4
SECTION	SECTION 13 / SECTION 13
DRAWING km DISTANCE	km 28.000 / km 29.000
DRAWING TYPE	ROADS - LONG SECTIONS
BRIDGE/STRUCTURE No.	NA
CONSULTANT DRAWING No.	FA 3257 / 23 / 27 LS VER
SANRAL DOCUMENT #	- - V0

SHEET 27 OF 60

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadwork\03 - Longsections\3257_23_(ALL) LS.dwg

GUARDRAIL SOUTH WB CARRIAGEWAY
V-DRAIN SOUTH WB CARRIAGEWAY
SUBSOIL DRAIN SOUTH WB CARRIAGEWAY
GUARDRAIL NORTH WB CARRIAGEWAY
V-DRAIN NORTH WB CARRIAGEWAY
SUBSOIL DRAIN NORTH WB CARRIAGEWAY — AS PER EXISTING

MEDIAN V-DRAIN — CONCRETE - TYPE E | CONCRETE - TYPE E | CONCRETE - TYPE E

GUARDRAIL SOUTH EB CARRIAGEWAY
V-DRAIN SOUTH EB CARRIAGEWAY
SUBSOIL DRAIN SOUTH EB CARRIAGEWAY
GUARDRAIL NORTH EB CARRIAGEWAY — GUARDRAIL

V-DRAIN NORTH EB CARRIAGEWAY — CONCRETE DRAIN - TYPE F | CONCRETE DRAIN

SUBSOIL DRAIN NORTH EB CARRIAGEWAY — SUBSOIL DRAIN

DRAINAGE
KILOMETRE DISTANCE
SIZE AND ANGLE

km 29.627 288
2 X 900 PC
θ = 268.675°

km 29.786 997
1 X 750 PC
θ = 269.725°

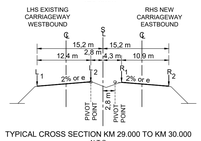
km 29.997.202
2 X 750 PC
θ = 270.206°

NOTES:

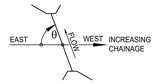
1) LEVELS IN BRACKETS MAY BE ALTERED TO TIE IN WITH EXISTING ROAD LEVELS AFTER CONSULTING WITH THE RESIDENT ENGINEER.
2) VPI's AND GRADES GIVEN AT PIVOT POINT
3) BARRIER LINES AS PER ROAD PAINT MARKINGS DRAWINGS

"AS BUILT" NOTES:

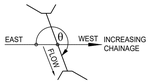
DESIGN SPEED
120 km/h



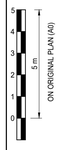
TYPICAL CROSS SECTION KM 29.000 TO KM 30.000
N.T.S

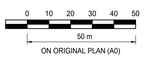


CULVERT SKEW ANGLE



CULVERT SKEW ANGLE





DATUM 1217.000

VPI 38
km 29.207 000
ELEV = 1250.920m
LVC = 930.000m
K = 110.112

BRITS

FRL AT R1

EXISTING FRL AT L2

NGL AT R1

DIRECTION OF TRAFFIC FLOW

km 29,700 022
END OF HELEN JOSEPH DRIVE ON RAMP

SWARTRUGGENS

N4 - 13
CONTINUE FROM
3257 / 23 / 27 LS

N4 - 13
CONTINUE ON
3257 / 23 / 29 LS

km 29,627 288
2 X 900 PC
θ = 268.675°

km 29,786 997
1 X 750 PC
θ = 269.725°

TENDER

km 29,997.202
2 X 750 PC
θ = 270.206°

1247
1237
1227

CHAINAGES

| | | |

GUARDRAIL SOUTH WB CARRIAGEWAY
V-DRAIN SOUTH WB CARRIAGEWAY
SUBSOIL DRAIN SOUTH WB CARRIAGEWAY
GUARDRAIL NORTH WB CARRIAGEWAY — AS PER EXISTING — GUARDRAIL — RHS GUARDRAIL
V-DRAIN NORTH WB CARRIAGEWAY
SUBSOIL DRAIN NORTH WB CARRIAGEWAY
MEDIAN V-DRAIN — CONCRETE DRAIN - TYPE E — CONCRETE DRAIN-TYPE E — CONCRETE DRAIN-TYPE E — CONCRETE DRAIN-TYPE E
GUARDRAIL SOUTH EB CARRIAGEWAY — LHS GUARDRAIL
V-DRAIN SOUTH EB CARRIAGEWAY
SUBSOIL DRAIN SOUTH EB CARRIAGEWAY
GUARDRAIL NORTH EB CARRIAGEWAY — GUARDRAIL — RHS GUARDRAIL
V-DRAIN NORTH EB CARRIAGEWAY — CONCRETE DRAIN-TYPE A — CONCRETE DRAIN-TYPE F — EARTH DRAIN
SUBSOIL DRAIN NORTH EB CARRIAGEWAY — SUBSOIL DRAIN — SUBSOIL DRAIN

DRAINAGE
KILOMETRE DISTANCE
SIZE AND ANGLE

km 30.187 044
1 X 900 PC
θ = 270.391°

km 30.367 333
2 x 750 PC
θ = 270.144°

S4000
km 30.545 173
3 x 3 000 x 3 000 BC
θ = 269°

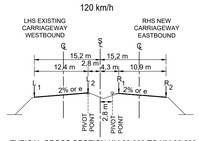
km 30.807 027
2 x 750Ø PC
θ = 269°

NOTES:

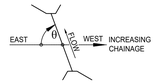
1) LEVELS IN BRACKETS MAY BE ALTERED TO TIE IN WITH EXISTING ROAD LEVELS AFTER CONSULTING WITH THE RESIDENT ENGINEER.
2) VPI's AND GRADES GIVEN AT PIVOT POINT
3) BARRIER LINES AS PER ROAD PAINT MARKINGS DRAWINGS

"AS BUILT" NOTES:

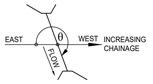
DESIGN SPEED
120 km/h



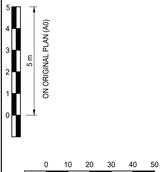
TYPICAL CROSS SECTION KM 30.000 TO KM 30.500
N.T.S



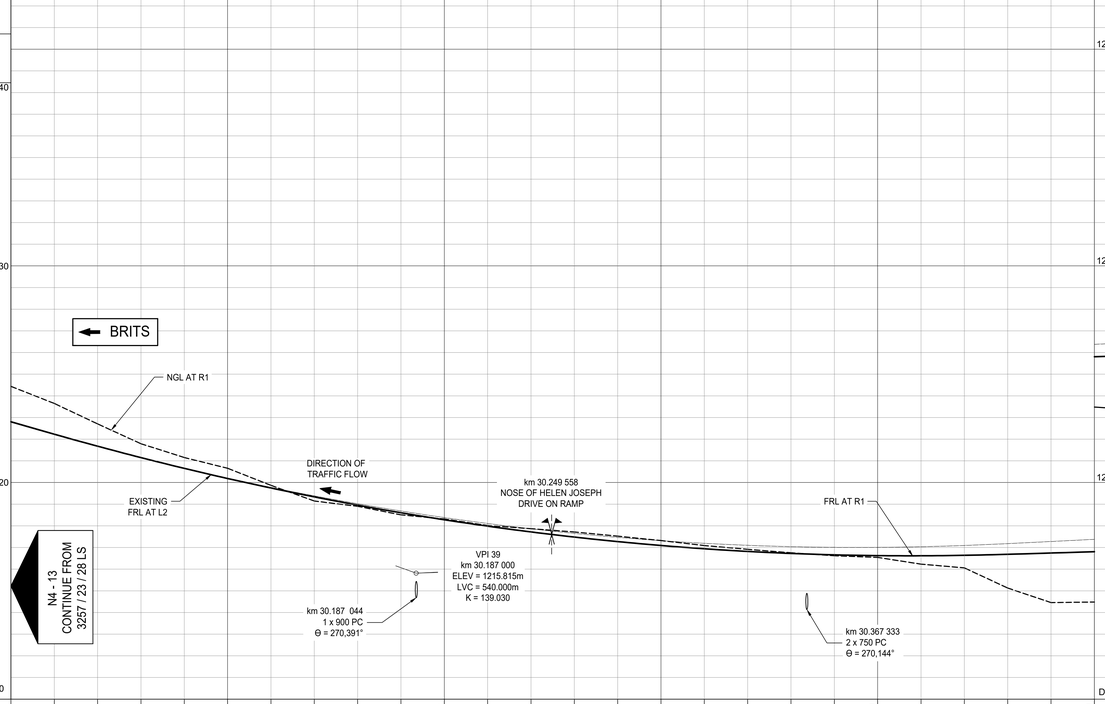
CULVERT SKEW ANGLE



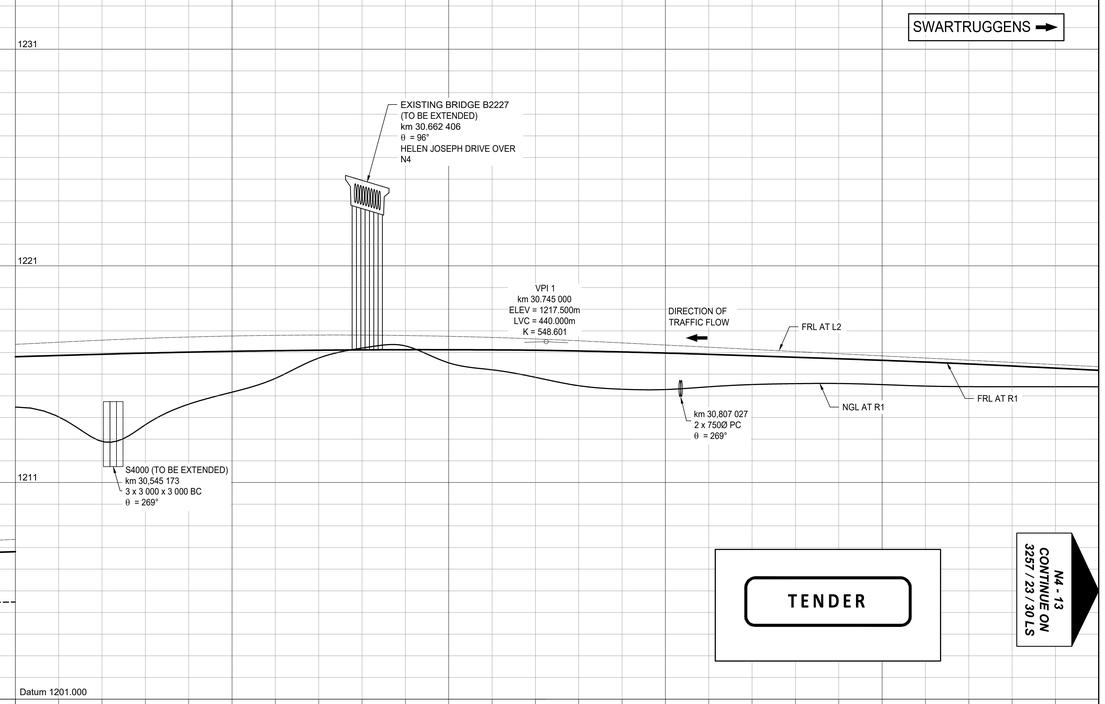
CULVERT SKEW ANGLE



Datum 1210.000



Datum 1201.000



CHAINAGES	30000	30020	30040	30060	30080	30100	30120	30140	30160	30180	30200	30220	30240	30260	30280	30300	30320	30340	30360	30380	30400	30420	30440	30460	30480	30500	30520	30540	30560	30580	30600	30620	30640	30660	30680	30700	30720	30740	30760	30780	30800	30820	30840	30860	30880	30900	30920	30940	30960	30980	31000
GROUND LEVEL AT R1	1224.438	1223.649	1222.705	1221.790	1221.153	1220.656	1219.869	1219.146	1218.901	1218.507	1218.317	1218.015	1217.868	1217.717	1217.524	1217.321	1217.091	1216.916	1216.757	1216.620	1216.542	1216.232	1216.060	1215.128	1214.458	1214.483	1214.506	1212.029	1213.821	1214.678	1215.163	1215.688	1216.924	1224.930	1217.519	1215.412	1215.291	1215.257	1215.430	1215.534	1215.566	1215.584	1215.523	1215.440	1215.422	1215.420	1215.423	1215.419
VERTICAL ALIGNMENT — EXISTING LEFT CARRIAGEWAY WESTBOUND — LEFT EDGE (L1)	1222.514	1221.938	1221.392	1220.877	1220.391	1219.937	1219.512	1219.117	1218.753	1218.419	1218.043	1217.730	1217.487	1217.274	1217.091	1216.938	1216.816	1216.724	1216.692	1216.630	1216.629	1216.658	1216.717	1216.805	1217.005	1217.005	1217.105	1217.201	1217.282	1217.346	1217.393	1217.423	1217.438	1217.435	1217.416	1217.380	1217.327	1217.298	1217.172	1217.073	1216.973	1216.873	1216.773	1216.673	1216.673	1216.673	1216.573	1216.473	1216.373	1216.273	1216.173	1216.073	1215.973
RIGHT EDGE (L2)	1222.774	1222.198	1221.652	1221.137	1220.652	1220.197	1219.772	1219.378	1219.014	1218.680	1218.376	1218.102	1217.859	1217.646	1217.463	1217.310	1217.188	1217.096	1217.034	1217.002	1217.001	1217.030	1217.089	1217.177	1217.277	1217.377	1217.477	1217.573	1217.654	1217.718	1217.765	1217.795	1217.809	1217.807	1217.787	1217.752	1217.699	1217.630	1217.544	1217.445	1217.345	1217.245	1217.145	1217.045	1216.945	1216.845	1216.745	1216.645	1216.545	1216.445	1216.345
GRADES		30187.000									1215.815																																									31000.000
		-3.582 %									0.499 %																																									1207.510
VERTICAL CURVES AT PIVOT POINT		LVC = 540.000m K = 132.315																																																
MEDIAN LEVEL AT STAKED LINE	1222.296	1221.714		1221.160	1220.635	1220.142			1219.262	1218.868	1218.504	1218.170	1217.866	1217.592	1217.349	1217.136	1216.953	1216.800	1216.683	1216.585	1216.486	1216.490	1216.553	1216.678	1216.741	1216.804	1216.867	1216.929	1216.996	1217.055	1217.085	1217.107	1217.122	1217.130	1217.123	1217.109	1217.078	1217.037	1216.989	1216.933	1216.871	1216.783	1216.680	1216.611	1216.537	1216.458	1216.384	1216.304	1216.229	1216.147	1216.053	1215.933	1215.853
VERTICAL ALIGNMENT — NEW RIGHT CARRIAGEWAY EASTBOUND — LEFT EDGE (R1)	1222.806	1222.224	1221.670	1221.145	1220.648	1220.191	1219.742	1219.332	1218.951	1218.598	1218.275	1217.980	1217.714	1217.476	1217.268	1217.088	1216.937	1216.814	1216.721	1216.656	1216.620	1216.613	1216.634	1216.684	1216.745	1216.805	1216.865	1216.924	1216.975	1217.019	1217.056	1217.085	1217.107	1217.122	1217.130	1217.130	1217.123	1217.109	1217.078	1217.037	1216.989	1216.933	1216.871	1216.783	1216.680	1216.611	1216.537	1216.458	1216.384	1216.304	1216.229	1216.147	1216.053	1215.933	1215.853
RIGHT EDGE (R2)	1223.153	1222.551	1221.997	1221.472	1220.975	1220.508	1220.069	1219.659	1219.278	1218.925	1218.602	1218.307	1218.040	1217.803	1217.594	1217.415	1217.264	1217.141	1217.048	1216.983	1216.947	1216.940	1216.961	1217.011	1217.072	1217.132	1217.192	1217.251	1217.302	1217.346	1217.383	1217.412	1217.434	1217.449	1217.457	1217.457	1217.450	1217.436	1217.340	1217.211	1217.076	1216.933	1216.783	1216.626	1216.462	1216.315	1216.235	1216.147	1216.053	1215.953	1215.853
GRADES		30187.000									1215.815																																								31000.000
		-3.582 %									0.302 %																																								1207.390
VERTICAL CURVES AT PIVOT POINT		LVC = 540.000m K = 139.030																																															
SUPERELEVATION (e)		3.000%									30187.000	30207.000	3.000%																			3.000 %											km 30.745									km 30.895	
EB SUPERELEVATION/BOTH		-2.100%											-3.000%																			-3.000 %																-3.000 %	
WB SUPERELEVATION																																																		
HORIZONTAL CURVES ON STAKED LINE		Curve 8 Left Radius=5600.000m Angle= 19.52.33																							EC8 30560.000							Curve 8 Left Radius=5600 Angle= 22.38.31											EC 8 30770.343						Direction 97.32.14		

No.	DATE	REVISION	
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date :

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DESIGNED BY
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Prof. Reg. No.: 20130622
CHECKED BY
NAME: PL NGQUMSHE
Prof. Reg. No.: 20080112
DRAWN BY
NAME: WB HARTMANN

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17 / 07 / 2023

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Tel: (012) 844 8000

THE SOUTH AFRICAN NATIONAL ROADS AGENCY SOC LTD
Reg. No. 1998/009584/30

NORTHERN REGION
38 Ida Street
Menlo Park
Pretoria
0081
Private Bag X17
Lynnwood Ridge
0040
Tel: (012) 426 6200

ACCEPTANCE
THIS ACCEPTANCE IS FOR PROCEDURAL AND ADMINISTRATIVE REVIEW PURPOSES ONLY AND DOES NOT ATTRACT LEGAL LIABILITY OR LIABILITY OF ANY KIND FROM WHATSOEVER CAUSE OR HOWEVER ARISING
for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION
LONGITUDINAL SECTION N4 - 13 FROM km 30.000 TO km 31.000

SCALE : HORIZONTAL 1:1000m, VERTICAL 1:100m (A0)
SHEET 29 OF 50

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	SECTION 13	SECTION 13
DRAWING km DISTANCE	km 30.000	km 30.500
DRAWING TYPE	ROADS - LONG SECTIONS	
BRIDGE/STRUCTURE No.	NA	
CONSULTANT DRAWING No.	FA 3257 / 23 / 29 LS	VER
SANRAL DOCUMENT #	- -	V0

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadwork\03 - Longsections\3257_23_(ALL) LS.dwg

GUARDRAIL LEFT WB CARRIAGEWAY	
V-DRAIN LEFT WB CARRIAGEWAY	
SUBSOIL DRAIN LEFT WB CARRIAGEWAY	
GUARDRAIL RIGHT WB CARRIAGEWAY	RHS GUARDRAIL
V-DRAIN RIGHT WB CARRIAGEWAY	
SUBSOIL DRAIN RIGHT WB CARRIAGEWAY	
MEDIAN V-DRAIN	CONCRETE DRAIN-TYPE E / CONCRETE DRAIN-TYPE E / CONCRETE DRAIN-TYPE E
GUARDRAIL LEFT EB CARRIAGEWAY	
V-DRAIN LEFT EB CARRIAGEWAY	
SUBSOIL DRAIN LEFT EB CARRIAGEWAY	
GUARDRAIL RIGHT EB CARRIAGEWAY	
V-DRAIN RIGHT EB CARRIAGEWAY	EARTH DRAIN / EARTH DRAIN / CONCRETE-TYPE F / EARTH DRAIN
SUBSOIL DRAIN RIGHT EB CARRIAGEWAY	SUBSOIL DRAIN

SIZE AND ANGLE
KILOMETRE DISTANCE
DRAINAGE

km 31,310 000
1 X 600Ø PC
θ = 270°
NEW 1 x 900 x 450 BC

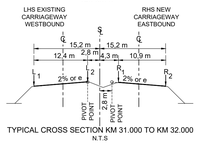
km 31, 810 000
1 X 600Ø PC
θ = 90°
NEW 1 x 900 x 450 BC

NOTES:

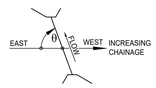
1) LEVELS IN BRACKETS MAY BE ALTERED TO TIE IN WITH EXISTING ROAD LEVELS AFTER CONSULTING WITH THE RESIDENT ENGINEER.
2) VPI's AND GRADES GIVEN AT PIVOT POINT
3) BARRIER LINES AS PER ROAD PAINT MARKINGS DRAWINGS

"AS BUILT" NOTES:

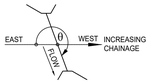
DESIGN SPEED
120 km/h



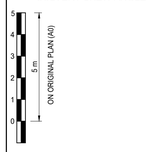
TYPICAL CROSS SECTION KM 31.000 TO KM 32.000
N.T.S



CULVERT SKEW ANGLE



CULVERT SKEW ANGLE



Datum 1201.000

BRITS

SWARTRUGGENS

EXISTING BRIDGE B2225
(TO BE EXTENDED)
km 31.666 393
θ = 90°
KRUGER STREET OVER N4

DIRECTION OF TRAFFIC FLOW

FRL AT L2
NGL AT R1
FRL AT R1
km 31,310 000
1 x 600Ø PC
θ = 270°

MEDIAN DRAINAGE
1 x 900 x 450 BC
km 31,810 000
1 x 600Ø PC
θ = 90°

N4 - 13
CONTINUE FROM
3257 / 23 / 29 LS

N4 - 13
CONTINUE ON
3257 / 23 / 31 LS

TENDER

CHAINAGES		31000	31020	31040	31060	31080	31100	31120	31140	31160	31180	31200	31220	31240	31260	31280	31300	31320	31340	31360	31380	31400	31420	31440	31460	31480	31500	31520	31540	31560	31580	31600	31620	31640	31660	31680	31700	31720	31740	31760	31780	31800	31820	31840	31860	31880	31900	31920	31940	31960	31980	32000
GROUND LEVEL AT R1		1215.419	1215.341	1215.189	1215.137	1215.016	1215.016	1215.002	1214.871	1214.887	1214.765	1214.659	1214.566	1214.486	1214.389	1214.245	1214.067	1213.918	1213.775	1213.600	1213.471	1213.343	1213.250	1213.223	1213.171	1213.077	1213.025	1212.898	1212.826	1212.781	1212.725	1212.575	1212.480	1212.782	1218.921	1212.566	1212.552	1211.566	1211.399	1211.078	1210.946	1210.793	1210.703	1210.537	1210.374	1210.238	1210.152	1210.118	1210.071	1209.942	1209.815	1209.756
VERTICAL ALIGNMENT — EXISTING LEFT CARRIAGEWAY WESTBOUND — LEFT EDGE (L1)		1215.573	1215.873	1215.773	1215.673	1215.573	1215.473	1215.373	1215.273	1215.173	1215.073	1214.973	1214.873	1214.773	1214.673	1214.573	1214.473	1214.373	1214.273	1214.173	1214.073	1213.973	1213.873	1213.773	1213.673	1213.573	1213.473	1213.373	1213.273	1213.173	1213.073	1212.973	1212.873	1212.773	1212.673	1212.573	1212.466	1212.373	1212.273	1212.173	1212.073	1211.973	1211.873	1211.773	1211.673	1211.573	1211.473	1211.373	1211.273	1211.173	1211.073	1210.973
RIGHT EDGE (L2)		1216.345	1216.245	1216.145	1216.045	1215.945	1215.845	1215.745	1215.645	1215.545	1215.445	1215.345	1215.245	1215.145	1215.045	1214.945	1214.845	1214.745	1214.645	1214.545	1214.445	1214.345	1214.245	1214.145	1214.045	1213.945	1213.845	1213.745	1213.645	1213.545	1213.445	1213.345	1213.245	1213.145	1213.045	1212.945	1212.845	1212.745	1212.645	1212.545	1212.445	1212.345	1212.245	1212.145	1212.045	1211.945	1211.845	1211.745	1211.645	1211.545	1211.445	1211.345
GRADES			-0.500 %																																																		32000.000 1207.510
VERTICAL CURVES AT PIVOT POINT																																																					
MEDIAN LEVEL AT STAKED LINE		1215.833	1216.734	1216.634	1216.534	1216.433	1216.333	1216.234	1216.134	1216.034	1215.934	1215.833	1215.734	1215.634	1215.534	1215.433	1215.333	1215.234	1215.134	1215.034	1214.934	1214.833	1214.734	1214.634	1214.534	1214.433	1214.333	1214.234	1214.134	1214.034	1213.933	1213.833	1213.734	1213.634	1213.534	1213.434	1213.333	1213.234	1213.134	1213.034	1212.933	1212.833	1212.734	1212.634	1212.534	1212.433	1212.333	1212.234	1212.134	1212.034	1211.933	1211.833
VERTICAL ALIGNMENT — NEW RIGHT CARRIAGEWAY EASTBOUND — LEFT EDGE (R1)		1216.180	1216.080	1215.980	1215.880	1215.780	1215.680	1215.580	1215.480	1215.380	1215.280	1215.180	1215.080	1214.980	1214.880	1214.780	1214.680	1214.580	1214.480	1214.380	1214.280	1214.180	1214.080	1213.980	1213.880	1213.780	1213.680	1213.580	1213.480	1213.380	1213.280	1213.180	1213.080	1212.980	1212.880	1212.780	1212.680	1212.580	1212.480	1212.380	1212.280	1212.180	1212.080	1211.980	1211.880	1211.780	1211.680	1211.580	1211.480	1211.380	1211.280	1211.180
RIGHT EDGE (R2)		1215.853	1215.753	1215.653	1215.553	1215.453	1215.353	1215.253	1215.153	1215.053	1214.953	1214.853	1214.753	1214.653	1214.553	1214.453	1214.353	1214.253	1214.153	1214.053	1213.953	1213.853	1213.753	1213.653	1213.553	1213.453	1213.353	1213.253	1213.153	1213.053	1212.953	1212.853	1212.753	1212.653	1212.553	1212.453	1212.353	1212.253	1212.153	1212.053	1211.953	1211.853	1211.753	1211.653	1211.553	1211.453	1211.353	1211.253	1211.153	1211.053	1210.953	1210.853
GRADES			-0.500 %																																																			32000.000 1207.390
VERTICAL CURVES AT PIVOT POINT																																																				

SUPERELEVATION (e)
EB SUPER ELEVATION
WB SUPER ELEVATION

-3.000 %
km 31.680 787
km 31.860 788
3.000 %
-3.000 %

HORIZONTAL CURVES ON STAKED LINE

Direction
97.32.14
31830.788
BC 9
Curve 9 Right
Radius=3935.695
Angle= 46.49.49

No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date

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DESIGNED BY
NAME: EF DAY
Prof. Reg. No.: 20130622
CHECKED BY
NAME: PL NGQUMSHE
Prof. Reg. No.: 20080112
DRAWN BY
NAME: WB HARTMANN

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17 / 07 / 2023

HEAD OFFICE
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THE SOUTH AFRICAN NATIONAL ROADS AGENCY SOC LTD
Reg. No. 1998/009584/30

NORTHERN REGION
38 Ida Street
Menlo Park
Pretoria
0081
Private Bag X17
Lynnwood Ridge
0040
Tel: (012) 426 6200

ACCEPTANCE
THIS ACCEPTANCE IS FOR PROCEDURAL AND ADMINISTRATIVE REVIEW PURPOSES ONLY AND DOES NOT ATTRACT LEGAL LIABILITY OR LIABILITY OF ANY KIND FROM WHATSOEVER CAUSE OR HOWEVER ARISING
for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION
LONGITUDINAL SECTION N4 - 13 FROM km 31.000 TO km 32.000

SCALE : HORIZONTAL 1:1000m, VERTICAL 1:100m (A0)

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001		
DRAWING LOCATION DATA	START	END	
ROUTE	N 4	N 4	
SECTION	SECTION 13	SECTION 13	
DRAWING km DISTANCE	km 30,500	km 31.000	
DRAWING TYPE	ROADS - LONG SECTIONS		
BRIDGE/STRUCTURE No.	NA		
CONSULTANT DRAWING No.	FA	3257 / 23 / 30 LS	VER
SANRAL DOCUMENT #	- -		V0

SHEET 30 OF 50

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN003-Tender\03-Drawings\Volume 4-Roadworks\03 - Longsections\3257_23_(ALL) LS.dwg

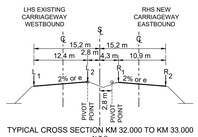
GUARDRAIL LEFT WB CARRIAGEWAY	
V-DRAIN LEFT WB CARRIAGEWAY	
SUBSOIL DRAIN LEFT WB CARRIAGEWAY	
GUARDRAIL RIGHT WB CARRIAGEWAY	RHS GUARDRAIL
V-DRAIN RIGHT WB CARRIAGEWAY	
SUBSOIL DRAIN RIGHT WB CARRIAGEWAY	
MEDIAN V-DRAIN	CONCRETE-TYPE E / CONCRETE DRAIN-TYPE E / CONCRETE DRAIN-TYPE E / EARTH DRAIN / EARTH DRAIN / CONCRETE DRAIN-TYPE E
GUARDRAIL LEFT EB CARRIAGEWAY	LHS GUARDRAIL
V-DRAIN LEFT EB CARRIAGEWAY	
SUBSOIL DRAIN LEFT EB CARRIAGEWAY	
GUARDRAIL RIGHT EB CARRIAGEWAY	RHS GUARDRAIL
V-DRAIN RIGHT EB CARRIAGEWAY	EARTH DRAIN / EARTH DRAIN / CONCRETE DRAIN-TYPE F / CONCRETE DRAIN-TYPE F / EARTH DRAIN / CONCRETE DRAIN-TYPE A / CONCRETE DRAIN-TYPE A
SUBSOIL DRAIN RIGHT EB CARRIAGEWAY	SUBSOIL DRAIN / SUBSOIL DRAIN / SUBSOIL DRAIN / SUBSOIL DRAIN
SIZE AND ANGLE KILOMETRE DISTANCE DRAINAGE	km 32,060 000 1 x 600 PC θ = 90° — NEW 1 x 900 x 450 BC — km 32,310 000 1 X 600Ø PC θ = 90° — NEW 1 x 900 x 450 BC — km 32,490 000 1 X 600Ø PC θ = 90° — NEW 1 x 900 x 450 BC — km 32,680 000 1 X 600Ø PC θ = 270° — S3996 km 32,817 112 2 X 5000 x 4400 BC θ = 290°

NOTES:

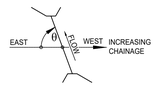
1) LEVELS IN BRACKETS MAY BE ALTERED TO TIE IN WITH EXISTING ROAD LEVELS AFTER CONSULTING WITH THE RESIDENT ENGINEER.
2) VPI's AND GRADES GIVEN AT PIVOT POINT
3) BARRIER LINES AS PER ROAD PAINT MARKINGS DRAWINGS

"AS BUILT" NOTES:

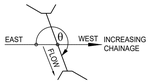
DESIGN SPEED
120 km/h



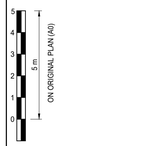
TYPICAL CROSS SECTION KM 32.000 TO KM 33.000
N.T.S



CULVERT SKEW ANGLE



CULVERT SKEW ANGLE



Datum 1201.000

1231 ← BRITS

SWARTRUGGENS →

N4 - 13 CONTINUE FROM 3257 / 23 / 30 LS

N4 - 13 CONTINUE ON 3257 / 23 / 32 LS

1221

1211

MEDIAN DRAINAGE 1 x 900 x 450 BC

MEDIAN DRAINAGE 1 x 900 x 450 BC

DIRECTION OF TRAFFIC FLOW

FRL AT R1

FRL AT L2

MEDIAN DRAINAGE 1 x 900 x 450 BC

km 32,060 000 1 x 600Ø PC θ = 90°

km 32,310 000 1 x 600Ø PC θ = 90°

NGL AT R1

km 32,490 000 1 x 600Ø PC θ = 90°

km 32,680 000 1 x 600Ø PC θ = 270°

VPI 2
km 32,740 000
ELEV = 1207.525m
LVC = 240.000m
K = 53.344

S3996
km 32,817 112
2 X 5000 X 4400 BC
θ = 290°

TENDER

| | | |

GUARDRAIL LEFT WB CARRIAGEWAY	
V-DRAIN LEFT WB CARRIAGEWAY	
SUBSOIL DRAIN LEFT WB CARRIAGEWAY	
GUARDRAIL RIGHT WB CARRIAGEWAY	
V-DRAIN RIGHT WB CARRIAGEWAY	
SUBSOIL DRAIN RIGHT WB CARRIAGEWAY	
MEDIAN V-DRAIN	CONCRETE DRAIN-TYPE E / CONCRETE DRAIN-TYPE E / CONCRETE DRAIN-TYPE E / EARTH DRAIN
GUARDRAIL LEFT EB CARRIAGEWAY	LHS GUARDRAIL / LHS GUARDRAIL
V-DRAIN LEFT EB CARRIAGEWAY	
SUBSOIL DRAIN LEFT EB CARRIAGEWAY	
GUARDRAIL RIGHT EB CARRIAGEWAY	RHS GUARDRAIL / RHS GUARDRAIL
V-DRAIN RIGHT EB CARRIAGEWAY	CONCRETE DRAIN-TYPE A / CONCRETE DRAIN-TYPE A / CONCRETE DRAIN-TYPE A
SUBSOIL DRAIN RIGHT EB CARRIAGEWAY	SUBSOIL DRAIN / SUBSOIL DRAIN / SUBSOIL DRAIN

SIZE AND ANGLE
KILOMETRE DISTANCE
DRAINAGE

km 33.300 000
2 X 600Ø PC
θ = 90°

NEW 1 x 900Ø PIPE

km 33.459 190
1 X 900Ø PC
θ = 118°

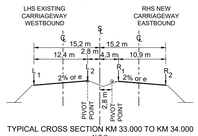
km 33.944 111
2 X 900Ø PC
θ = 45°

NOTES:

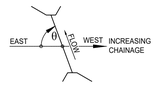
1) LEVELS IN BRACKETS MAY BE ALTERED TO TIE IN WITH EXISTING ROAD LEVELS AFTER CONSULTING WITH THE RESIDENT ENGINEER.
2) VPI's AND GRADES GIVEN AT PIVOT POINT
3) BARRIER LINES AS PER ROAD PAINT MARKINGS DRAWINGS

"AS BUILT" NOTES:

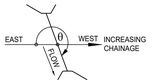
DESIGN SPEED
120 km/h



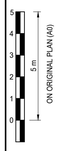
TYPICAL CROSS SECTION KM 33.000 TO KM 34.000
N.T.S

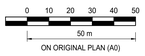


CULVERT SKEW ANGLE



CULVERT SKEW ANGLE





BRITS

SWARTRUGGENS

DIRECTION OF TRAFFIC FLOW

km 33,079 502
END OF DR MOROKA (P16-2)
EASTBOUND ON RAMP - N4-13
REFER TO DRAWING 3257-16-13 LS

FRL AT R1
NGL AT R1
FRL AT L2

MEDIAN DRAINAGE
1 x 900Ø PIPE

km 33,300 000
2 X 600Ø PC
θ = 90°

km 33.525 805
NOSE OF DR MOROKA (P16-2)
EASTBOUND ON RAMP - N4-13

km 33,459 190
1 X 900Ø PC
θ = 118°

Datum 1234.000

NEW BRIDGE B2223 B
km 33.858 960
θ = 91°
DR MOROKA STREET UNDER N4

VPI 3
km 33.827 000
ELEV = 1250.995m
LVC = 260.000m
K = 116.709

km 33,944 111
2 X 900Ø PC
θ = 45°

N4 - 13
CONTINUE FROM
3257 / 23 / 31 LS

N4 - 13
CONTINUE ON
3257 / 23 / 33 LS

TENDER

Datum 1201.000

| | | |

GUARDRAIL LEFT WB CARRIAGEWAY
V-DRAIN LEFT WB CARRIAGEWAY
SUBSOIL DRAIN LEFT WB CARRIAGEWAY
GUARDRAIL RIGHT WB CARRIAGEWAY
V-DRAIN RIGHT WB CARRIAGEWAY
SUBSOIL DRAIN RIGHT WB CARRIAGEWAY
MEDIAN V-DRAIN — EARTH DRAIN — EARTH DRAIN — CONCRETE DRAIN-TYPE E — CONCRETE DRAIN-TYPE E
GUARDRAIL LEFT EB CARRIAGEWAY
V-DRAIN LEFT EB CARRIAGEWAY
SUBSOIL DRAIN LEFT EB CARRIAGEWAY
GUARDRAIL RIGHT EB CARRIAGEWAY — RHS GUARDRAIL
V-DRAIN RIGHT EB CARRIAGEWAY — CONCRETE DRAIN-TYPE A
SUBSOIL DRAIN RIGHT EB CARRIAGEWAY — SUBSOIL DRAIN

SIZE AND ANGLE
KILOMETRE DISTANCE
DRAINAGE

km 34,153 348
2 X 1 200Ø PC
θ = 59°

km 34,857 045
1 X 600Ø PC
θ = 270°

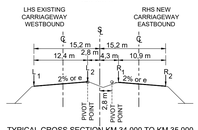
km 34,986 981
1 X 600Ø PC
θ = 270°

NOTES:

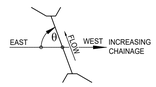
1) LEVELS IN BRACKETS MAY BE ALTERED TO TIE IN WITH EXISTING ROAD LEVELS AFTER CONSULTING WITH THE RESIDENT ENGINEER.
2) VPI's AND GRADES GIVEN AT PIVOT POINT
3) BARRIER LINES AS PER ROAD PAINT MARKINGS DRAWINGS

"AS BUILT" NOTES:

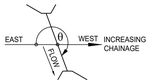
DESIGN SPEED
120 km/h



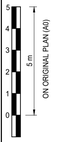
TYPICAL CROSS SECTION KM 34.000 TO KM 35.000
N.T.S

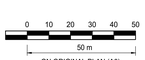


CULVERT SKEW ANGLE



CULVERT SKEW ANGLE





Datum 1244.000

1274
1264
1254

BRITS

SWARTRUGGENS

km 34,570 000
START OF DR MOROKA (P16-2)
EASTBOUND OFF RAMP - N4-13
REFER TO DRAWING 3257-16-12 LS

VPI 4
km 34.437 000
ELEV = 1261.800m
LVC = 300.000m
K = 670.037

km 34,271 174
NOSE OF DR MOROKA (P16-2)
EASTBOUND OFF RAMP - N4-13
DECISION SIGHT DISTANCE >400 m

DIRECTION OF TRAFFIC FLOW

FRL AT R1
FRL AT L2
NGL AT R1

km 34,153 348
2 X 1 200Ø PC
θ = 59°

km 34,857 045
1 X 600Ø PC
θ = 270°

km 34,986 981
1 X 600Ø PC
θ = 270°

N4 - 13
CONTINUE FROM
3257 / 23 / 32 LS

TENDER

N4 - 13
CONTINUE ON
3257 / 23 / 34 LS

CHAINAGES		34000	34020	34040	34060	34080	34100	34120	34140	34160	34180	34200	34220	34240	34260	34280	34300	34320	34340	34360	34380	34400	34420	34440	34460	34480	34500	34520	34540	34560	34580	34600	34620	34640	34660	34680	34700	34720	34740	34760	34780	34800	34820	34840	34860	34880	34900	34920	34940	34960	34980	35000
GROUND LEVEL AT R1		1251.696	1252.099	1252.343	1252.704	1253.368	1253.804	1254.353	1254.776	1255.236	1255.425	1256.341	1256.473	1257.052	1257.739	1258.252	1258.655	1259.027	1259.376	1259.736	1260.098	1260.464	1260.674	1261.363	1262.048	1262.540	1263.100	1263.576	1264.002	1264.388	1264.803	1265.202	1265.615	1266.063	1266.534	1266.981	1267.262	1267.412	1267.696	1268.108	1268.413	1268.857	1269.265	1269.722	1270.336	1270.701	1270.972	1271.316	1271.800	1272.064	1272.053	1272.671
VERTICAL ALIGNMENT — EXISTING LEFT CARRIAGEWAY WESTBOUND — LEFT EDGE (L1)		1254.431	1254.786	1255.140	1255.494	1255.848	1256.203	1256.557	1256.911	1257.265	1257.620	1257.974	1258.328	1258.682	1259.037	1259.391	1259.746	1260.108	1260.475	1260.848	1261.227	1261.612	1262.003	1262.400	1262.803	1263.212	1263.626	1264.047	1264.474	1264.907	1265.346	1265.789	1266.233	1266.677	1267.120	1267.564	1267.636	1268.090	1268.524	1268.896	1269.339	1269.783	1270.227	1270.671	1271.115	1271.558	1272.002	1272.446	1272.074	1272.518	1272.962	1273.334	1273.778	1274.221	1274.685
EXISTING LEFT CARRIAGEWAY WESTBOUND — RIGHT EDGE (L2)		1254.059	1254.414	1254.768	1255.122	1255.476	1255.831	1256.185	1256.539	1256.893	1257.248	1257.602	1257.956	1258.311	1258.665	1259.019	1259.375	1259.736	1260.103	1260.476	1260.855	1261.240	1261.631	1262.028	1262.431	1262.840	1263.255	1263.675	1264.102	1264.535	1264.974	1265.417	1265.861	1266.305	1266.749	1267.192	1267.636	1268.080	1268.524	1268.968	1269.411	1269.855	1270.299	1270.743	1271.187	1271.630	1272.074	1272.518	1272.962	1273.406	1273.849	1274.293
EXISTING LEFT CARRIAGEWAY WESTBOUND — GRADES			1.771 %																			34437.000	1261.800																			2.219 %												35000.000 1285.100
EXISTING LEFT CARRIAGEWAY WESTBOUND — VERTICAL CURVES AT PIVOT POINT																BVC 34280.000	LVC = 300.000m K = 670.037															EVC 34587.000																					
MEDIAN LEVEL AT STAKED LINE		1254.014	1254.369	1254.723	1255.077	1255.431	1255.786	1256.140	1256.494	1256.848	1257.203	1257.557	1257.911	1258.266	1258.620	1258.974	1259.329	1259.691	1260.058	1260.431	1260.810	1261.195	1261.586	1261.983	1262.386	1262.795	1263.209	1263.630	1264.057	1264.490	1264.929	1265.372	1265.816	1266.260	1266.703	1267.147	1267.591	1268.035	1268.479	1268.922	1269.366	1269.810	1270.254	1270.698	1271.141	1271.585	1272.029	1272.473	1272.917	1273.361	1273.804	1274.248
NEW RIGHT CARRIAGEWAY EASTBOUND — LEFT EDGE (R1)		1254.014	1254.369	1254.723	1255.077	1255.431	1255.786	1256.140	1256.494	1256.848	1257.203	1257.557	1257.911	1258.266	1258.620	1258.974	1259.329	1259.691	1260.058	1260.431	1260.810	1261.195	1261.586	1261.983	1262.386	1262.795	1263.209	1263.630	1264.057	1264.490	1264.929	1265.372	1265.816	1266.260	1266.703	1267.147	1267.591	1268.035	1268.479	1268.922	1269.366	1269.810	1270.254	1270.698	1271.141	1271.585	1272.029	1272.473	1272.917	1273.361	1273.804	1274.248
NEW RIGHT CARRIAGEWAY EASTBOUND — RIGHT EDGE (R2)		1253.687	1254.042	1254.396	1254.750	1255.104	1255.459	1255.813	1256.167	1256.521	1256.876	1257.230	1257.584	1257.939	1258.293	1258.647	1259.003	1259.364	1259.731	1260.104	1260.483	1260.868	1261.259	1261.656	1262.059	1262.468	1262.883	1263.303	1263.730	1264.163	1264.602	1265.045	1265.489	1265.933	1266.377	1266.820	1267.264	1267.708	1268.152	1268.596	1269.039	1269.483	1269.927	1270.371	1270.815	1271.258	1271.702	1272.146	1272.590	1273.034	1273.478	1273.921
NEW RIGHT CARRIAGEWAY EASTBOUND — GRADES			1.771 %																			34437.000	1261.800																			2.219 %												35000.000 1285.100
NEW RIGHT CARRIAGEWAY EASTBOUND — VERTICAL CURVES AT PIVOT POINT																BVC 34280.000	LVC = 300.000m K = 670.037															EVC 34587.000																					

SUPERELEVATION (e)
EB SUPER ELEVATION
WB SUPER ELEVATION

3.000%
-3.000 %

HORIZONTAL CURVES ON STAKED LINE

Curve 9 Right
Radius=3935.695
Angle= 46.49.49

V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE	CONSULT. ENG.
No.	DATE	REVISION		

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date :

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DESIGNED BY
NAME: EF DAY
Prof. Reg. No. 20130622
CHECKED BY
NAME: PL NGQUMSHE
Prof. Reg. No. 20080112
DRAWN BY
NAME: WB HARTMANN

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17 / 07 / 2023

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0184
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Pretoria 0001
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Tel: (012) 844 8000

THE SOUTH AFRICAN NATIONAL ROADS AGENCY SOC LTD
Reg. No. 1998/009584/30

NORTHERN REGION
38 Ida Street
Menlo Park
Pretoria
0081
Private Bag X17
Lynnwood Ridge
0040
Tel: (012) 426 6200

ACCEPTANCE
THIS ACCEPTANCE IS FOR PROCEDURAL AND ADMINISTRATIVE REVIEW PURPOSES ONLY, AND DOES NOT ATTRACT LEGAL LIABILITY OR LIABILITY OF ANY KIND FROM WHATSOEVER CAUSE OR HOWEVER ARISING
for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION
LONGITUDINAL SECTION N4 - 13 FROM km 34.000 TO km 35.000

SCALE : HORIZONTAL 1:1000m, VERTICAL 1:100m (A0) — SHEET 33 OF 50

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	SECTION 13	SECTION 13
DRAWING km DISTANCE	km 34.000	km 35.000
DRAWING TYPE	ROADS - LONG SECTIONS	
BRIDGE/STRUCTURE No.	NA	
CONSULTANT DRAWING No.	FA 3257 / 23 / 33 LS	VER V0
SANRAL DOCUMENT #	- -	

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\03 - Longsections\3257_23_(ALL) LS.dwg

GUARDRAIL LEFT WB CARRIAGEWAY
V-DRAIN LEFT WB CARRIAGEWAY
SUBSOIL DRAIN LEFT WB CARRIAGEWAY
GUARDRAIL RIGHT WB CARRIAGEWAY
V-DRAIN RIGHT WB CARRIAGEWAY
SUBSOIL DRAIN RIGHT WB CARRIAGEWAY
MEDIAN V-DRAIN — CONCRETE DRAIN-TYPE E — CONCRETE DRAIN-TYPE E — CONCRETE DRAIN-TYPE E
GUARDRAIL LEFT EB CARRIAGEWAY — LHS GUARDRAIL
V-DRAIN LEFT EB CARRIAGEWAY
SUBSOIL DRAIN LEFT EB CARRIAGEWAY
GUARDRAIL RIGHT EB CARRIAGEWAY — RHS GUARDRAIL
V-DRAIN RIGHT EB CARRIAGEWAY — CONCRETE DRAIN-TYPE A — CONCRETE DRAIN-TYPE A — EARTH DRAIN
SUBSOIL DRAIN RIGHT EB CARRIAGEWAY — SUBSOIL DRAIN — SUBSOIL DRAIN

SIZE AND ANGLE
KILOMETRE DISTANCE
DRAINAGE

km 35,155 777
1 X 600Ø PC
θ = 321°

km 35,226 451
1 X 1 500 X 900 BC
θ = 320°

km 35,496 577
2 x 3600 X 2800 BC
θ = 300°

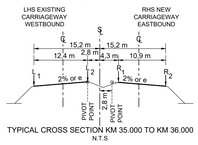
km 35,967 233
1 X 600Ø PC
θ = 89°

NOTES:

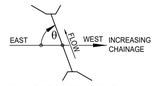
1) LEVELS IN BRACKETS MAY BE ALTERED TO TIE IN WITH EXISTING ROAD LEVELS AFTER CONSULTING WITH THE RESIDENT ENGINEER.
2) VPI's AND GRADES GIVEN AT PIVOT POINT
3) BARRIER LINES AS PER ROAD PAINT MARKINGS DRAWINGS

"AS BUILT" NOTES:

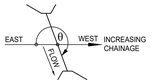
DESIGN SPEED
120 km/h



TYPICAL CROSS SECTION KM 35.000 TO KM 36.000
N.T.S



CULVERT SKEW ANGLE



CULVERT SKEW ANGLE

5 m ON ORIGINAL PLAN (A0)

0 10 20 30 40 50
50 m
ON ORIGINAL PLAN (A0)

BRITS

N4 - 13
CONTINUE FROM
3257 / 23 / 33 LS

SWARTRUGGENS

N4 - 13
CONTINUE ON
3257 / 23 / 35 LS

TENDER

VPI 5
km 35.487 000
ELEV = 1285.100m
LVC = 300.000m
K = 348.613

DIRECTION OF TRAFFIC FLOW

FRL AT L2
FRL AT R1
NGL AT R1

Datum 1268.000

| | | |

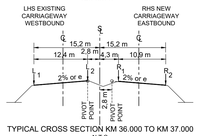
GUARDRAIL LEFT WB CARRIAGEWAY	
V-DRAIN LEFT WB CARRIAGEWAY	
SUBSOIL DRAIN LEFT WB CARRIAGEWAY	
GUARDRAIL RIGHT WB CARRIAGEWAY	
V-DRAIN RIGHT WB CARRIAGEWAY	
SUBSOIL DRAIN RIGHT WB CARRIAGEWAY	
MEDIAN V-DRAIN	CONCRETE DRAIN-TYPE E / CONCRETE DRAIN-TYPE E / CONCRETE DRAIN-TYPE E / CONCRETE DRAIN-TYPE E / EARTH DRAIN / EARTH DRAIN
GUARDRAIL LEFT EB CARRIAGEWAY	LHS GUARDRAIL
V-DRAIN LEFT EB CARRIAGEWAY	
SUBSOIL DRAIN LEFT EB CARRIAGEWAY	
GUARDRAIL RIGHT EB CARRIAGEWAY	
V-DRAIN RIGHT EB CARRIAGEWAY	EARTH DRAIN / EARTH DRAIN / EARTH DRAIN / EARTH DRAIN / EARTH DRAIN / EARTH DRAIN
SUBSOIL DRAIN RIGHT EB CARRIAGEWAY	
SIZE AND ANGLE KILOMETRE DISTANCE DRAINAGE	km 36,107 113 1 X 600Ø PC θ = 90° / km 36,287 254 1 X 600Ø PC θ = 89° / km 36,466 831 1 X 600Ø PC θ = 90°

NOTES:

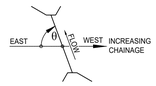
1) LEVELS IN BRACKETS MAY BE ALTERED TO TIE IN WITH EXISTING ROAD LEVELS AFTER CONSULTING WITH THE RESIDENT ENGINEER.
2) VPI's AND GRADES GIVEN AT PIVOT POINT
3) BARRIER LINES AS PER ROAD PAINT MARKINGS DRAWINGS

"AS BUILT" NOTES:

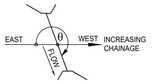
DESIGN SPEED
120 km/h



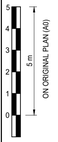
TYPICAL CROSS SECTION KM 36.000 TO KM 37.000
N.T.S

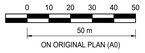


CULVERT SKEW ANGLE

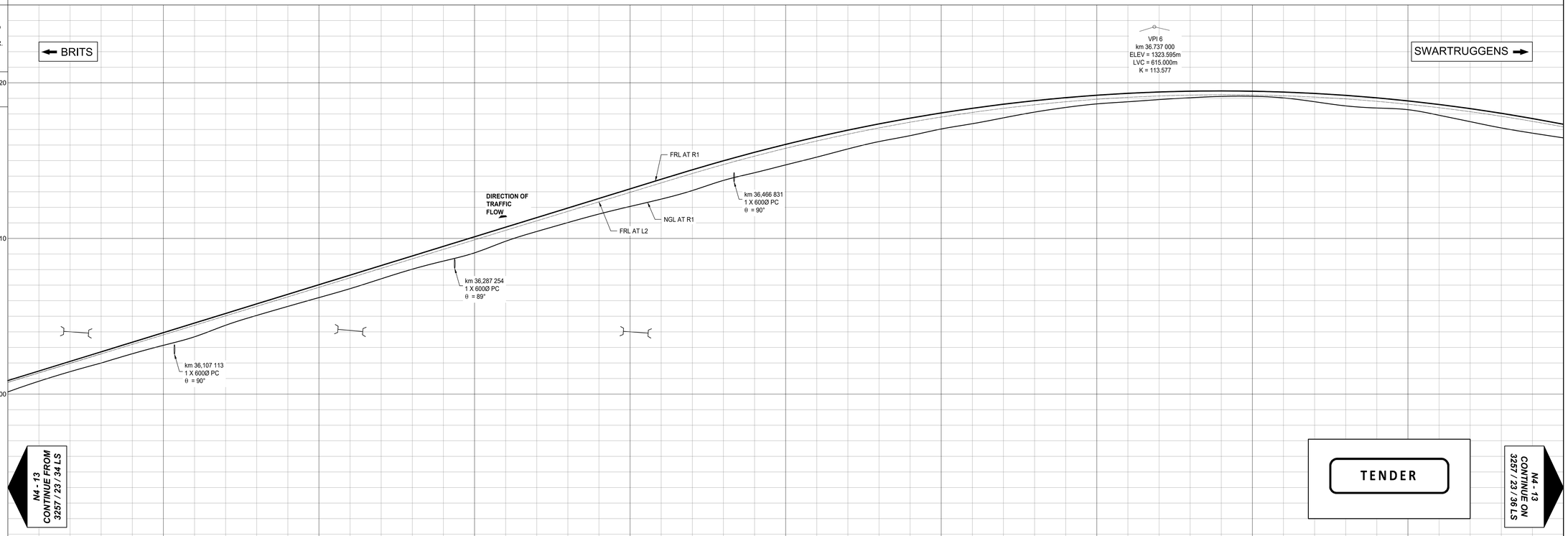


CULVERT SKEW ANGLE





Datum 1290.000



| | | |

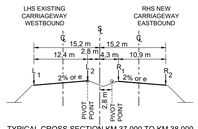
GUARDRAIL LEFT WB CARRIAGEWAY	
V-DRAIN LEFT WB CARRIAGEWAY	
SUBSOIL DRAIN LEFT WB CARRIAGEWAY	
GUARDRAIL RIGHT WB CARRIAGEWAY	RHS GUARDRAIL
V-DRAIN RIGHT WB CARRIAGEWAY	
SUBSOIL DRAIN RIGHT WB CARRIAGEWAY	
MEDIAN V-DRAIN	EARTH DRAIN → CONCRETE DRAIN-TYPE E → CONCRETE DRAIN-TYPE E
GUARDRAIL LEFT EB CARRIAGEWAY	LHS GUARDRAIL LHS GUARDRAIL
V-DRAIN LEFT EB CARRIAGEWAY	
SUBSOIL DRAIN LEFT EB CARRIAGEWAY	
GUARDRAIL RIGHT EB CARRIAGEWAY	RHS GUARDRAIL
V-DRAIN RIGHT EB CARRIAGEWAY	EARTH DRAIN → TYPE A → EARTH DRAIN →
SUBSOIL DRAIN RIGHT EB CARRIAGEWAY	SUBSOIL DRAIN
SIZE AND ANGLE KILOMETRE DISTANCE DRAINAGE	km 37,066 619 1 x 600Ø PC θ = 91° · km 37,309 000 1 x 600Ø PC θ = 89° · S3993 km 37,336 937 1 x 5000 x 5000 BC θ = 90°

NOTES:

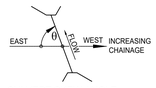
1) LEVELS IN BRACKETS MAY BE ALTERED TO TIE IN WITH EXISTING ROAD LEVELS AFTER CONSULTING WITH THE RESIDENT ENGINEER.
2) VPI's AND GRADES GIVEN AT PIVOT POINT
3) BARRIER LINES AS PER ROAD PAINT MARKINGS DRAWINGS

"AS BUILT" NOTES:

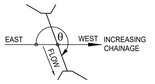
DESIGN SPEED
120 km/h



TYPICAL CROSS SECTION KM 37.000 TO KM 38.000
N.T.S



CULVERT SKEW ANGLE



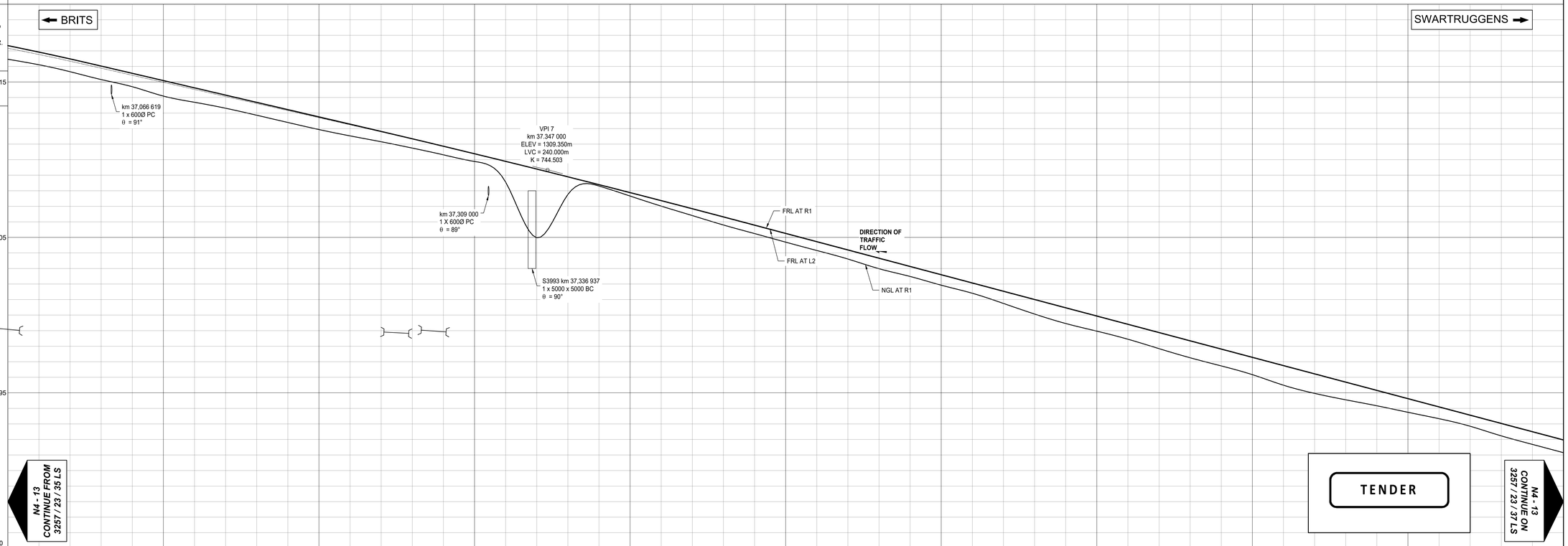
CULVERT SKEW ANGLE

0 1 2 3 4 5 — 5 m ON ORIGINAL PLAN (A0)

0 10 20 30 40 50 — 50 m ON ORIGINAL PLAN (A0)

Datum 1285.000

1315
1305
1295



| | | |

GUARDRAIL LEFT WB CARRIAGEWAY
V-DRAIN LEFT WB CARRIAGEWAY
SUBSOIL DRAIN LEFT WB CARRIAGEWAY
GUARDRAIL RIGHT WB CARRIAGEWAY
V-DRAIN RIGHT WB CARRIAGEWAY
SUBSOIL DRAIN RIGHT WB CARRIAGEWAY
MEDIAN V-DRAIN — CONCRETE DRAIN-TYPE E — CONCRETE DRAIN-TYPE E — CONCRETE DRAIN-TYPE E — CONCRETE DRAIN-TYPE E — EARTH DRAIN
GUARDRAIL LEFT EB CARRIAGEWAY
V-DRAIN LEFT EB CARRIAGEWAY
SUBSOIL DRAIN LEFT EB CARRIAGEWAY
GUARDRAIL RIGHT EB CARRIAGEWAY — RHS GUARDRAIL — RHS GUARDRAIL
V-DRAIN RIGHT EB CARRIAGEWAY — CONCRETE DRAIN-TYPE A — CONCRETE DRAIN-TYPE A
SUBSOIL DRAIN RIGHT EB CARRIAGEWAY — SUBSOIL DRAIN — SUBSOIL DRAIN

SIZE AND ANGLE
KILOMETRE DISTANCE
DRAINAGE

S3994
km 38.090 346
2 x 3600 x 2500 BC (In-situ)
θ = 250°

km 38,607 035
1 x 6000 PC
θ = 270°

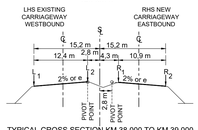
km 38,807 901
4 x 9000 PC
θ = 227°

NOTES:

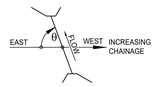
1) LEVELS IN BRACKETS MAY BE ALTERED TO TIE IN WITH EXISTING ROAD LEVELS AFTER CONSULTING WITH THE RESIDENT ENGINEER.
2) VPI's AND GRADES GIVEN AT PIVOT POINT
3) BARRIER LINES AS PER ROAD PAINT MARKINGS DRAWINGS

"AS BUILT" NOTES:

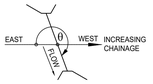
DESIGN SPEED
120 km/h



TYPICAL CROSS SECTION KM 38.000 TO KM 39.000
N.T.S



CULVERT SKEW ANGLE



CULVERT SKEW ANGLE

0 1 2 3 4 5 — 5 m — ON ORIGINAL PLAN (A0)

0 10 20 30 40 50 — 50 m — ON ORIGINAL PLAN (A0)

Datum 1259.000

← BRITS

VPI 8
km 38.267 000
ELEV = 1284.900m
LVC = 300.000m
K = 525.677

S3994
km 38.090 346
2 x 3600 x 2500 BC (In-situ)
θ = 250°

FRL AT L2
FRL AT R1
NGL AT R1
DIRECTION OF TRAFFIC FLOW

km 38,607 035
1 x 6000 PC
θ = 270°

N4 - 13
CONTINUE ON
3257 / 23 / 38 LS

SWARTRUGGENS →

TENDER

km 38.807 901
4 x 9000 PC
θ = 227°

VPI 9
km 38.956 000
ELEV = 1262.657m
LVC = 300.000m
K = 109.939

N4 - 13
CONTINUE FROM
3257 / 23 / 36 LS

| | | |

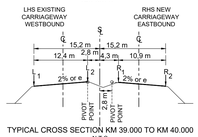
GUARDRAIL LEFT WB CARRIAGEWAY	
V-DRAIN LEFT WB CARRIAGEWAY	
SUBSOIL DRAIN LEFT WB CARRIAGEWAY	
GUARDRAIL RIGHT WB CARRIAGEWAY	RHS GUARDRAIL
V-DRAIN RIGHT WB CARRIAGEWAY	
SUBSOIL DRAIN RIGHT WB CARRIAGEWAY	
MEDIAN V-DRAIN	EARTH DRAIN → EARTH DRAIN → EARTH DRAIN → CONCRETE DRAIN-TYPE E → CONCRETE DRAIN-TYPE E
GUARDRAIL LEFT EB CARRIAGEWAY	LHS GUARDRAIL
V-DRAIN LEFT EB CARRIAGEWAY	
SUBSOIL DRAIN LEFT EB CARRIAGEWAY	
GUARDRAIL RIGHT EB CARRIAGEWAY	RHS GUARDRAIL
V-DRAIN RIGHT EB CARRIAGEWAY	CONCRETE DRAIN-TYPE A → CONCRETE DRAIN-TYPE A
SUBSOIL DRAIN RIGHT EB CARRIAGEWAY	SUBSOIL DRAIN / SUBSOIL DRAIN
SIZE AND ANGLE KILOMETRE DISTANCE DRAINAGE	km 39,057 008 2 x 1050Ø PC θ = 273° km 39,297 076 1 x 2400 x 2400 BC θ = 90° km 39.707 389 4 x 600Ø PC θ = 267° km 39.787 227 1 x 750Ø PC θ = 269° km 39,866 977 1 x 750Ø PC θ = 271° km 39,946 996 1 x 750Ø PC θ = 269°

NOTES:

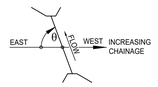
1) LEVELS IN BRACKETS MAY BE ALTERED TO TIE IN WITH EXISTING ROAD LEVELS AFTER CONSULTING WITH THE RESIDENT ENGINEER.
2) VPI's AND GRADES GIVEN AT PIVOT POINT
3) BARRIER LINES AS PER ROAD PAINT MARKINGS DRAWINGS

"AS BUILT" NOTES:

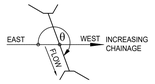
DESIGN SPEED
120 km/h



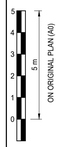
TYPICAL CROSS SECTION KM 39.000 TO KM 40.000
N.T.S



CULVERT SKEW ANGLE



CULVERT SKEW ANGLE



Datum 1253.000

← BRITS

SWARTRUGGENS →

N4 - 13
CONTINUE FROM
3257 / 23 / 37 LS

N4 - 13
CONTINUE ON
3257 / 23 / 39 LS

TENDER

DIRECTION OF TRAFFIC FLOW

FRL AT L2

FRL AT R1

NGL AT R1

km 39,057 008
2 x 1050Ø PC
θ = 273°

km 39,297 076
1 x 2400 x 2400 BC
θ = 90°

VPI 10
km 39.564 000
ELEV = 1259.620m
LVC = 240.000m
K = 2264.607

km 39,942 314
START OF R104 SWARTRUGGENS ROAD (P2-3)
EASTBOUND ON RAMP - N4-13
REFER TO DRAWING 3257-16-16&17 LS

km 39,707 389
4 x 600Ø PC
θ = 267°

km 39,787 227
1 x 750Ø PC
θ = 269°

km 39,866 977
1 x 750Ø PC
θ = 271°

km 39,946 996
1 x 750Ø PC
θ = 269°

| | | |

GUARDRAIL LEFT WB CARRIAGEWAY
V-DRAIN LEFT WB CARRIAGEWAY
SUBSOIL DRAIN LEFT WB CARRIAGEWAY
GUARDRAIL RIGHT WB CARRIAGEWAY — RHS GUARDRAIL — RHS GUARDRAIL
V-DRAIN RIGHT WB CARRIAGEWAY
SUBSOIL DRAIN RIGHT WB CARRIAGEWAY
MEDIAN V-DRAIN — CONCRETE DRAIN-TYPE E — CONCRETE DRAIN-TYPE E — EARTH DRAIN — CONCRETE-TYPE E — CONCRETE-TYPE E — EARTH DRAIN
GUARDRAIL LEFT EB CARRIAGEWAY
V-DRAIN LEFT EB CARRIAGEWAY
SUBSOIL DRAIN LEFT EB CARRIAGEWAY
GUARDRAIL RIGHT EB CARRIAGEWAY
V-DRAIN RIGHT EB CARRIAGEWAY
SUBSOIL DRAIN RIGHT EB CARRIAGEWAY

SIZE AND ANGLE
KILOMETRE DISTANCE
DRAINAGE

km 40,027 089
2 x 600 PC
θ = 272°

km 40,167 082
2 x 600Ø PC
θ = 271°

km 40,287 277
2 x 600Ø PC
θ = 270°

km 40,706 109
1 x 600Ø PC
θ = 270°

km 40,767 000
2 x 900Ø PC
θ = 269°

km 40,887 000
2 x 900Ø PC
θ = 271°

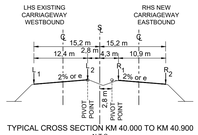
NOTES:

1) LEVELS IN BRACKETS MAY BE ALTERED TO TIE IN WITH EXISTING ROAD LEVELS AFTER CONSULTING WITH THE RESIDENT ENGINEER.
2) VPI's AND GRADES GIVEN AT PIVOT POINT
3) BARRIER LINES AS PER ROAD PAINT MARKINGS DRAWINGS

"AS BUILT" NOTES:

1283

DESIGN SPEED
120 km/h

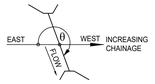


TYPICAL CROSS SECTION KM 40.000 TO KM 40.900
N.T.S

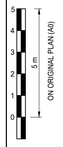
N4 - 13
CONTINUE FROM
3257 / 23 / 38 LS

1273

CULVERT SKEW ANGLE

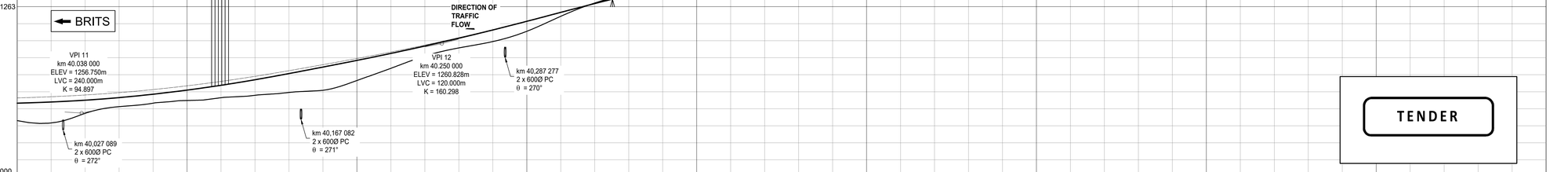


CULVERT SKEW ANGLE



1263

Datum 1253.000



TENDER

| | | |

GUARDRAIL NORTH	GUARDRAIL
CONCRETE V-DRAIN NORTH	
SUBSOIL DRAIN NORTH	
GUARDRAIL SOUTH	GUARDRAIL
CONCRETE V-DRAIN SOUTH	CONCRETE DRAIN - TYPE A
SUBSOIL DRAIN SOUTH	SUBSOIL DRAIN

DRAINAGE
KILOMETRE DISTANCE
SIZE AND ANGLE

(N4-13 km 20 976.162)
km 0.245 314
1 X 600 PC
θ = 290.390°

(N4-13 km 20 719.655)
km 0.466 399
1 X 600 PC
θ = 230.041°

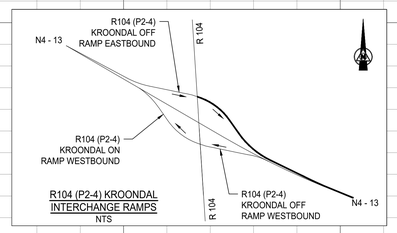
(N4-13 km 20 466.857)
km 0.748 338
1 X 600 X 450 BC
θ = 125.483°

(N4-13 km 20 346.717)
km 0.863 910
1 X 900 X 450 BC
θ = 118.307°

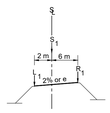
NOTES:

1) LEVELS IN BRACKETS MAY BE ALTERED TO TIE IN WITH EXISTING ROAD LEVELS AFTER CONSULTING WITH THE RESIDENT ENGINEER.
2) VPI's AND GRADES GIVEN AT PIVOT POINT
3) BARRIER LINES AS PER ROAD PAINT MARKINGS DRAWINGS

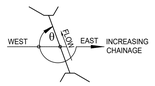
"AS BUILT" NOTES:



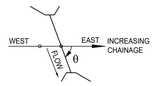
DESIGN SPEED
60 km/h



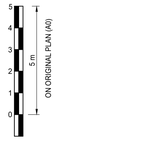
TYPICAL CROSS SECTION INTERCHANGE RAMPS
N.T.S

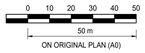


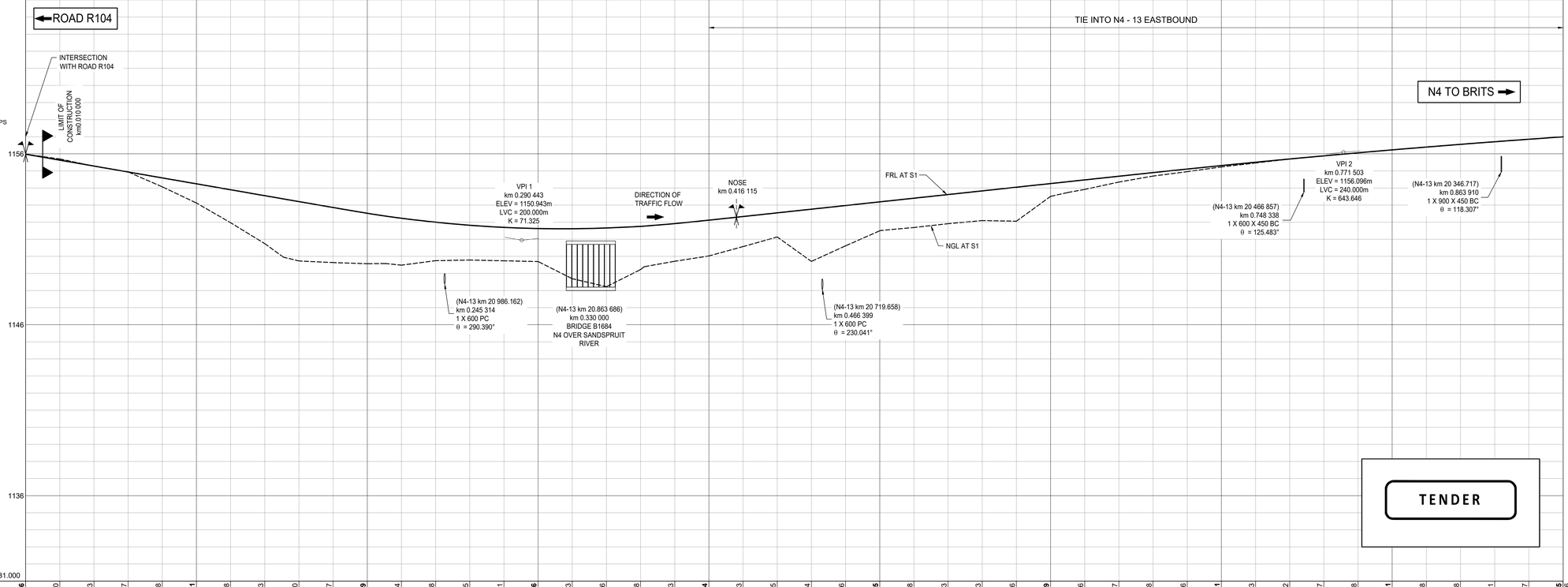
CULVERT SKEW ANGLE



CULVERT SKEW ANGLE







TENDER

| | | |

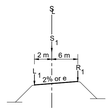
GUARDRAIL NORTH	GUARDRAIL
CONCRETE V-DRAIN NORTH	
SUBSOIL DRAIN NORTH	
GUARDRAIL SOUTH	
CONCRETE V-DRAIN SOUTH	
SUBSOIL DRAIN SOUTH	
DRAINAGE KILOMETRE DISTANCE SIZE AND ANGLE	(N4-13 km 21 520.000) km 0.297 745 1 X 750 X 450 BC θ = 270.000° ; (N4-13 km 21 403.063) km 0.414 183 1 X 600 PC θ = 270.5°

NOTES:

1) LEVELS IN BRACKETS MAY BE ALTERED TO TIE IN WITH EXISTING ROAD LEVELS AFTER CONSULTING WITH THE RESIDENT ENGINEER.
2) VPI's AND GRADES GIVEN AT PIVOT POINT
3) BARRIER LINES AS PER ROAD PAINT MARKINGS DRAWINGS

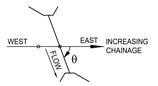
"AS BUILT" NOTES:

DESIGN SPEED
60 km/h

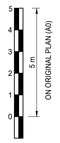


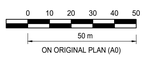
TYPICAL CROSS SECTION INTERCHANGE RAMPS
N.T.S

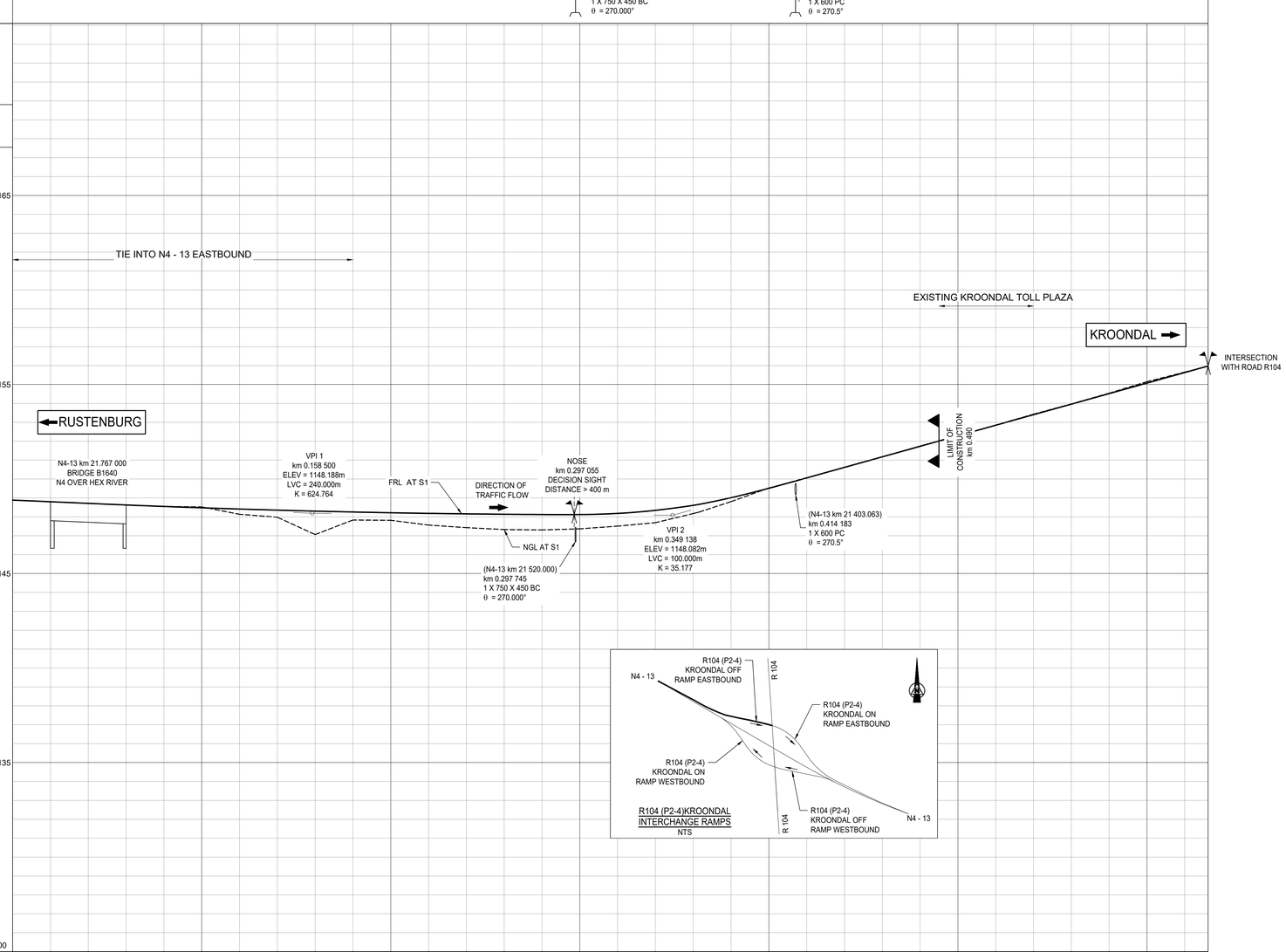
CULVERT SKEW ANGLE



CULVERT SKEW ANGLE







R104 (P2-4)KROONDAL INTERCHANGE RAMPS
NTS

| | | |

GUARDRAIL NORTH	GUARDRAIL
CONCRETE V-DRAIN NORTH	
SUBSOIL DRAIN NORTH	
GUARDRAIL SOUTH	
CONCRETE V-DRAIN SOUTH	
SUBSOIL DRAIN SOUTH	
DRAINAGE KILOMETRE DISTANCE SIZE AND ANGLE	(N4-13 km 27 520.000) km 0.110 000 2 X 600 PC θ = 270.000° ; (N4-13 km 27 276.972) km 0.379 888 1 X 600 PC θ = 278.824° ; (N4-13 km 27 156.082) km 0.493 451 1 X 750 X 450 BC θ = 270.000° ; (N4-13 km 26 877.235) km 0.781 311 1 X 600 PC θ = 300.179°

NOTES:

1) LEVELS IN BRACKETS MAY BE ALTERED TO TIE IN WITH EXISTING ROAD LEVELS AFTER CONSULTING WITH THE RESIDENT ENGINEER.
2) VPI's AND GRADES GIVEN AT PIVOT POINT
3) BARRIER LINES AS PER ROAD PAINT MARKINGS DRAWINGS

"AS BUILT" NOTES:

AS PER EXISTING RAMP

TIE INTO EXISTING N4 - 13 EASTBOUND

RUSTENBURG

INTERSECTION WITH ROAD R24

VPI 1
km 0.054 995
ELEV = 1188.965m
LVC = 80.000m
K = 67.978

(N4-13 km 27 520.000)
km 0.110 000
2 X 600 PC
θ = 270.000°

LIMIT OF CONSTRUCTION km 0.260 000

VPI 2
km 0.264 270
ELEV = 1184.980m
LVC = 180.000m
K = 159.769

FRL AT S1

(N4-13 km 27 276.972)
km 0.379 888
1 X 600 PC
θ = 278.824°

NGL AT S1

VPI 3
km 0.455 250
ELEV = 1183.495m
LVC = 180.000m
K = 973.136

NOSE km 0.494 440

DIRECTION OF TRAFFIC FLOW

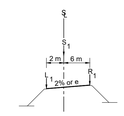
(N4-13 km 27 156.082)
km 0.493 451
1 X 750 X 450 BC
θ = 270.000°

VPI 4
km 0.691 085
ELEV = 1181.225m
LVC = 290.000m
K = 2237.904

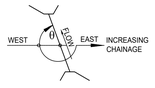
(N4-13 km 26 877.235)
km 0.781 311
1 X 600 PC
θ = 300.179°

N4 TO BRITS

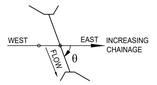
DESIGN SPEED
60 km/h



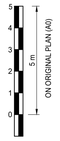
TYPICAL CROSS SECTION INTERCHANGE RAMPS
N.T.S

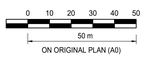


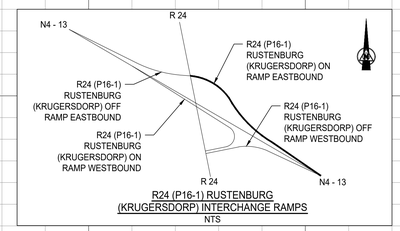
CULVERT SKEW ANGLE



CULVERT SKEW ANGLE







R24 (P16-1) RUSTENBURG
(KRUGERSDORP) INTERCHANGE RAMPS
NTS

TENDER

DATUM 1157.000

| | | |

GUARDRAIL NORTH	GUARDRAIL
CONCRETE V-DRAIN NORTH	CONCRETE TYPE A DRAIN
SUBSOIL DRAIN NORTH	
GUARDRAIL SOUTH	GUARDRAIL
CONCRETE V-DRAIN SOUTH	
SUBSOIL DRAIN SOUTH	
DRAINAGE KILOMETRE DISTANCE SIZE AND ANGLE	S4003 (N4-13 km 27 707.000) km 0.537 612 3 x 3000 x 3000 BC θ = 299.829°

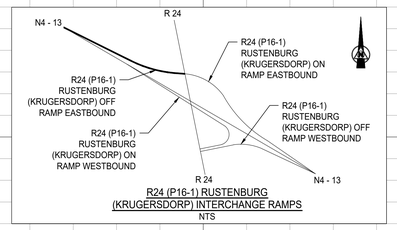
NOTES:

1) LEVELS IN BRACKETS MAY BE ALTERED TO TIE IN WITH EXISTING ROAD LEVELS AFTER CONSULTING WITH THE RESIDENT ENGINEER.
2) VPI's AND GRADES GIVEN AT PIVOT POINT
3) BARRIER LINES AS PER ROAD PAINT MARKINGS DRAWINGS

"AS BUILT" NOTES:

TIE INTO N4 - 13 EASTBOUND

SWARTRUGGENS



R24 (P16-1) RUSTENBURG (KRUGERSDORP) INTERCHANGE RAMPS
NTS

1202
1192
1182
1172

FRL AT S1
NGL AT S1

NOSE
km 0.297 060
DECISION SIGHT DISTANCE > 400 m

DIRECTION OF TRAFFIC FLOW

VPI 1
km 0.272 970
ELEV = 1190.125m
LVC = 130.000m
K = 73.980

VPI 2
km 0.438 750
ELEV = 1184.850m
LVC = 160.000m
K = 28.522

LIMIT OF CONSTRUCTION
km 0.513 878

VPI 3
km 0.579 645
ELEV = 1188.295m
LVC = 0.000m
K = 0.000

VPI 4
km 0.600 115
ELEV = 1188.960m
LVC = 0.000m
K = 0.000

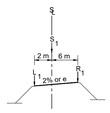
INTERSECTION WITH ROAD R24

R24

AS PER EXISTING RAMP

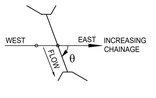
S4003
(N4-13 km 27 707.000)
km 0.537 612
3 x 3000 x 3000 BC
θ = 299.829°
(EXISTING)

DESIGN SPEED
60 km/h

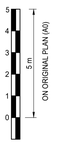


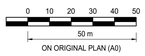
TYPICAL CROSS SECTION INTERCHANGE RAMPS
N.T.S

CULVERT SKEW ANGLE



CULVERT SKEW ANGLE





DATUM 1162.000

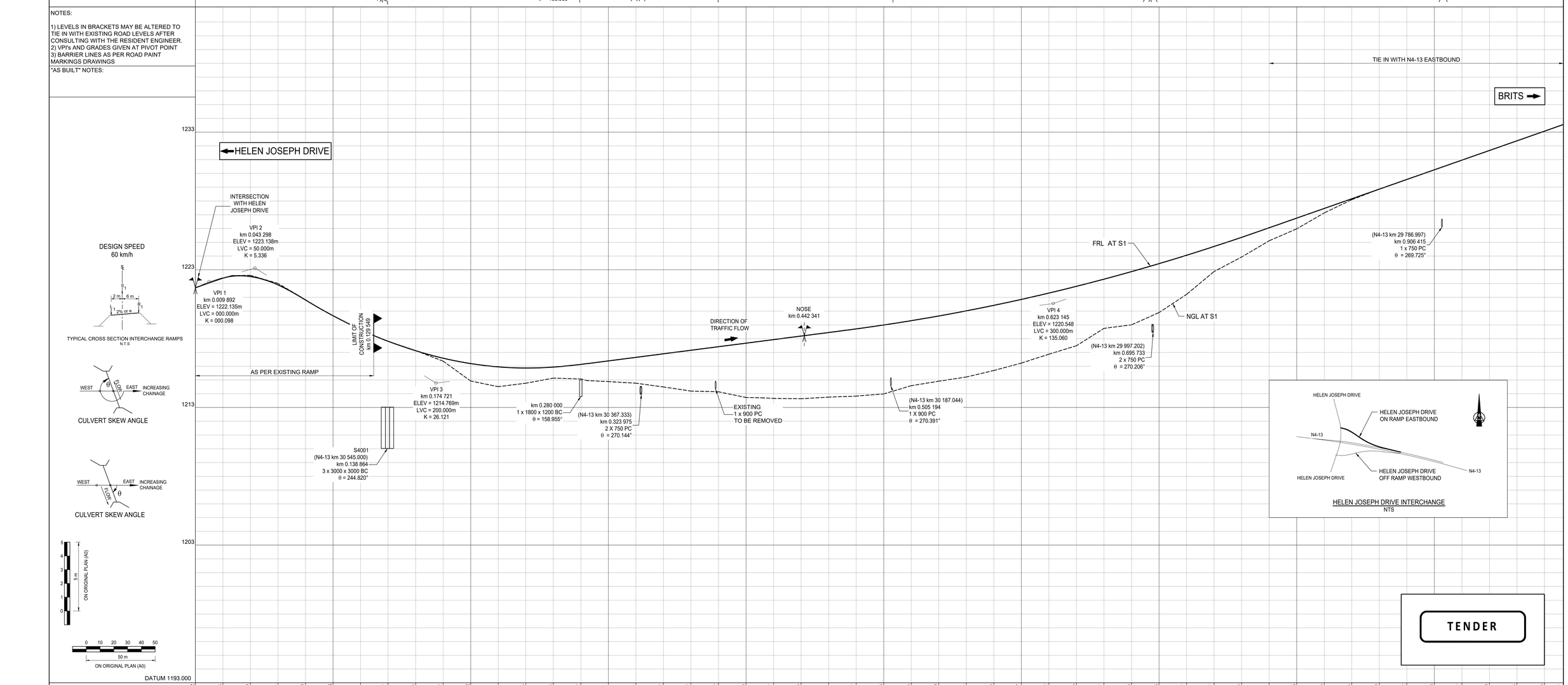
| | | |

GUARDRAIL NORTH	GUARDRAIL
CONCRETE V-DRAIN NORTH	
SUBSOIL DRAIN NORTH	
GUARDRAIL SOUTH	GUARDRAIL
CONCRETE V-DRAIN SOUTH	
SUBSOIL DRAIN SOUTH	
DRAINAGE KILOMETRE DISTANCE SIZE AND ANGLE	(N4-13 km 30 545.000) km 0.138 864 3 X 3000 x 3000 BC θ = 244.820° · km 0.280 000 1 x 1800 x 1200 BC θ = 158.955° · (N4-13 km 30 367.333) km 0.323 975 2 X 750 PC θ = 270.144° · EXISTING 1 x 900 PC TO BE REMOVED · (N4-13 km 30 187.333) km 0.505 194 1 X 900 PC θ = 270.391° · (N4-13 km 29 997.202) km 0.695 733 2 x 750 PC θ = 270.206° · (N4-13 km 29 786.997) km 0.906 415 1 x 750 PC θ = 269.725°

NOTES:

1) LEVELS IN BRACKETS MAY BE ALTERED TO TIE IN WITH EXISTING ROAD LEVELS AFTER CONSULTING WITH THE RESIDENT ENGINEER.
2) VPI's AND GRADES GIVEN AT PIVOT POINT
3) BARRIER LINES AS PER ROAD PAINT MARKINGS DRAWINGS

"AS BUILT" NOTES:



DESIGN SPEED
60 km/h

TYPICAL CROSS SECTION INTERCHANGE RAMPS
N.T.S

CULVERT SKEW ANGLE

CULVERT SKEW ANGLE

HELEN JOSEPH DRIVE INTERCHANGE
NTS

TENDER

| | | |

GUARDRAIL NORTH

CONCRETE V-DRAIN NORTH — EARTH DRAIN — CONCRETE DRAIN-TYPE F — CONCRETE DRAIN-TYPE F — EARTH DRAIN

SUBSOIL DRAIN NORTH — SUBSOIL DRAIN — SUBSOIL DRAIN — SUBSOIL DRAIN

GUARDRAIL SOUTH

CONCRETE V-DRAIN SOUTH — EARTH DRAIN

SUBSOIL DRAIN SOUTH

DRAINAGE KILOMETRE DISTANCE SIZE AND ANGLE

km 0.110 341 — 1 x 900Ø PIPE — km 0.181 805 — 1 x 900Ø PIPE — km 0.271 258 — 1 x 900Ø PIPE — km 0.311 485, 1 X 900 PC, θ = 268° — km 0.351 760 — 1 x 900Ø PIPE — km 0.425 052 — 1 x 1050Ø PIPE — km 0.519 386 — km 0.623 365, 1 X 900 PC, θ = 272°

NOTES:

1) LEVELS IN BRACKETS MAY BE ALTERED TO TIE IN WITH EXISTING ROAD LEVELS AFTER CONSULTING WITH THE RESIDENT ENGINEER.

"AS BUILT" NOTES:

← (P16-2) DR MOROKA DRIVE

BRITS →

AS PER EXISTING RAMP

INTERSECTION WITH DR MOROKO DRIVE

LIMIT OF CONSTRUCTION km 0.160.000

VPI 1
km 0.332 000
ELEV = 1238.800m
LVC = 120.000m
K = 46.167

NOSE OF DR MOROKA (P16-2) EASTBOUND ON RAMP - N4-13 km 0.371 447

km 0.311 485
1 X 600 PC
θ = 268°

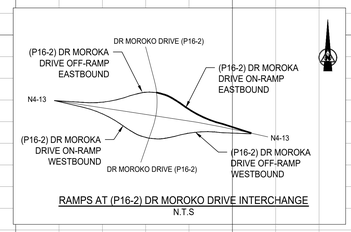
DIRECTION OF TRAFFIC FLOW

km 0.623 365
1 X 900 PC
θ = 272°

FRL AT S1

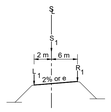
NGL AT S1

1246
1236
1226
1216

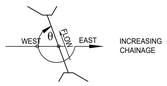


RAMPS AT (P16-2) DR MOROKO DRIVE INTERCHANGE
N.T.S

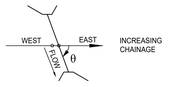
DESIGN SPEED VARIES



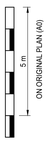
TYPICAL CROSS SECTION INTERCHANGE RAMPS
N.T.S

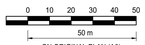


CULVERT SKEW ANGLE



CULVERT SKEW ANGLE





Datum 1206.000

| | | |

GUARDRAIL NORTH
CONCRETE V-DRAIN NORTH — EARTH DRAIN
SUBSOIL DRAIN NORTH
GUARDRAIL SOUTH
CONCRETE V-DRAIN SOUTH — EARTH DRAIN — EARTH DRAIN
SUBSOIL DRAIN SOUTH

DRAINAGE
KILOMETRE DISTANCE
SIZE AND ANGLE

km 0.397 393
4 X 900 PC
θ = 97°

NOTES:

1) LEVELS IN BRACKETS MAY BE ALTERED TO TIE IN WITH EXISTING ROAD LEVELS AFTER CONSULTING WITH THE RESIDENT ENGINEER.

"AS BUILT" NOTES:

SWARTRUGGENS

RUSTENBURG

1269
1259
1249
1239

TIE INTO N4-13

VPI 1
km 0.137 300
ELEV = 1261.270m
LVC = 260.000m
K = 604.296

km 0.297 197
NOSE OF DR MOROKA (P16-2)
EASTBOUND OFF RAMP - N4-13
DECISION SIGHT DISTANCE >400 m

VPI 2
km 0.381 000
ELEV = 1256.660m
LVC = 160.000m
K = 43.481

AS PER EXISTING RAMP

NGL AT S1

FRL AT S1

km 0.397 393
4 X 900 PC
θ = 97°

DIRECTION OF TRAFFIC FLOW

LIMIT OF CONSTRUCTION km 0.600 000

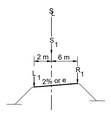
VPI 3
km 0.539.130
ELEV = 1247.850m
LVC = 120.000m
K = 43.951

INTERSECTION WITH DR MOROKO DRIVE

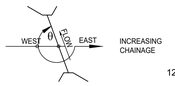
VPI 4
km 0.685 200
ELEV = 1243.700m
LVC = 40.000m
K = 43.384

Datum 1241.000

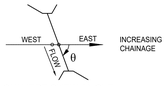
DESIGN SPEED VARIES



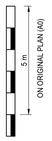
TYPICAL CROSS SECTION INTERCHANGE RAMPS
N.T.S

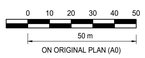


CULVERT SKEW ANGLE

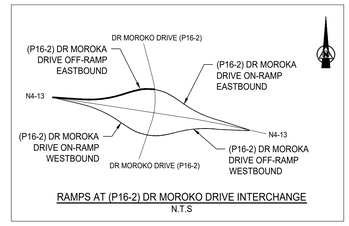


CULVERT SKEW ANGLE





Datum 1229.000



RAMPS AT (P16-2) DR MOROKO DRIVE INTERCHANGE
N.T.S

| | | |

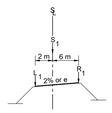
GUARDRAIL NORTH	LHS GUARDRAIL
CONCRETE V-DRAIN NORTH	CONCRETE DRAIN-TYPE A
SUBSOIL DRAIN NORTH	SUBSOIL DRAIN
GUARDRAIL SOUTH	CONCRETE DRAIN-TYPE F
CONCRETE V-DRAIN SOUTH	EARTH DRAIN / EARTH DRAIN / CONCRETE DRAIN-TYPE F / EARTH DRAIN
SUBSOIL DRAIN SOUTH	SUBSOIL DRAIN / SUBSOIL DRAIN
DRAINAGE KILOMETRE DISTANCE SIZE AND ANGLE	km 0.414 081 1 X 650Ø PC θ = 268° ; km 0.864 392 2 X 600Ø PC θ = 267° ; km 0.985 124 2 X 600Ø PC θ = 270°

NOTES:

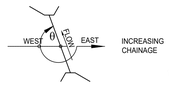
1) LEVELS IN BRACKETS MAY BE ALTERED TO TIE IN WITH EXISTING ROAD LEVELS AFTER CONSULTING WITH THE RESIDENT ENGINEER.

"AS BUILT" NOTES:

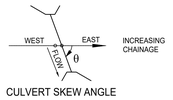
DESIGN SPEED VARIES



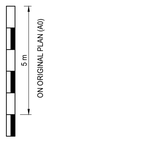
TYPICAL CROSS SECTION INTERCHANGE RAMPS
N.T.S

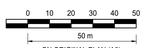


CULVERT SKEW ANGLE



CULVERT SKEW ANGLE





Datum 1231.000

SWARTRUGGENS

(P2-3) R104 SWARTRUGGENS ROAD

N4 - 13 CONTINUE ON 3257 / 23 / 46 LS

1271
1261
1251
1241

AS PER EXISTING RAMP

VPI 2
km 0.567 858
ELEV = 1268.558m
LVC = 360.000m
K = 48.402

FRL AT S1

NGL AT S1

NOSE OF R104 SWARTRUGGENS ROAD (P2-3) EASTBOUND ON RAMP - N4-13
km 0.881 411

TIE INTO N4-13

km 0.382 517
NOSE OF R104 SWARTRUGGENS ROAD (P2-3) EASTBOUND ON RAMP - OFF RAMP

LIMIT OF CONSTRUCTION km 0.382 517

km 0.414.081
1 X 650Ø PC
θ = 268°

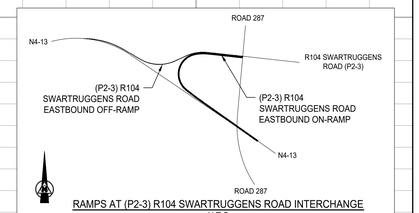
DIRECTION OF TRAFFIC FLOW

VPI 1
km 0.242 000
ELEV = 1252.077m
LVC = 80.000m
K = 33.340

VPI 3
km 0.926 224
ELEV = 1260.029m
LVC = 120.000m
K = 275.652

km 0.864 392
2 X 600Ø PC
θ = 267°

km 0.985 124
2 X 600Ø PC
θ = 270°



RAMPS AT (P2-3) R104 SWARTRUGGENS ROAD INTERCHANGE
N.T.S

TENDER

| | | |

GUARDRAIL NORTH	
CONCRETE V-DRAIN NORTH	CONCRETE DRAIN-TYPE F
SUBSOIL DRAIN NORTH	SUBSOIL DRAIN
GUARDRAIL SOUTH	
CONCRETE V-DRAIN SOUTH	
SUBSOIL DRAIN SOUTH	
DRAINAGE KILOMETRE DISTANCE SIZE AND ANGLE	km 1.125 303 2 X 600Ø PC θ = 271° ; km 1.204 693 2 X 600Ø PC θ = 268°

NOTES:

1) LEVELS IN BRACKETS MAY BE ALTERED TO TIE IN WITH EXISTING ROAD LEVELS AFTER CONSULTING WITH THE RESIDENT ENGINEER.

"AS BUILT" NOTES:

SWARTRUGGENS

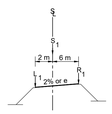
N4 - 13
CONTINUE FROM
3257 / 23 / 47 LS

(P2-3) R104
SWARTRUGGENS ROAD

1271

B2221
km 1.030 000
θ = 50°
ROAD 287 OVER N4
TO BE EXTENDED

DESIGN SPEED
VARIES



TYPICAL CROSS SECTION INTERCHANGE RAMPS
N.T.S

1261

DIRECTION OF TRAFFIC FLOW

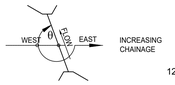
VPI 4
km 1.094 173
ELEV = 1256.763m
LVC = 180.000m
K = 72.634

FRL AT S1

NGL AT S1

km 1.125 303
2 X 600Ø PC
θ = 271°

km 1.204 693
2 X 600Ø PC
θ = 268°



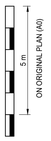
CULVERT SKEW ANGLE

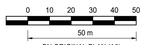
1251

TIE INTO N4-13

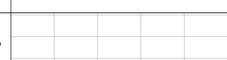
CULVERT SKEW ANGLE

1241





Datum 1231.000



GUARDRAIL NORTH
CONCRETE V-DRAIN NORTH
SUBSOIL DRAIN NORTH
GUARDRAIL SOUTH
CONCRETE V-DRAIN SOUTH
SUBSOIL DRAIN SOUTH
DRAINAGE KILOMETRE DISTANCE SIZE AND ANGLE

km 0.267 274
2 X 900Ø PC
θ = 285°

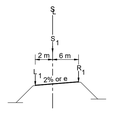
km 0.420 896
2 X 900Ø PC
θ = 276°

NOTES:

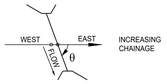
1) LEVELS IN BRACKETS MAY BE ALTERED TO TIE IN WITH EXISTING ROAD LEVELS AFTER CONSULTING WITH THE RESIDENT ENGINEER.

"AS BUILT" NOTES:

DESIGN SPEED VARIES

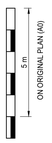


TYPICAL CROSS SECTION INTERCHANGE RAMPS
N.T.S



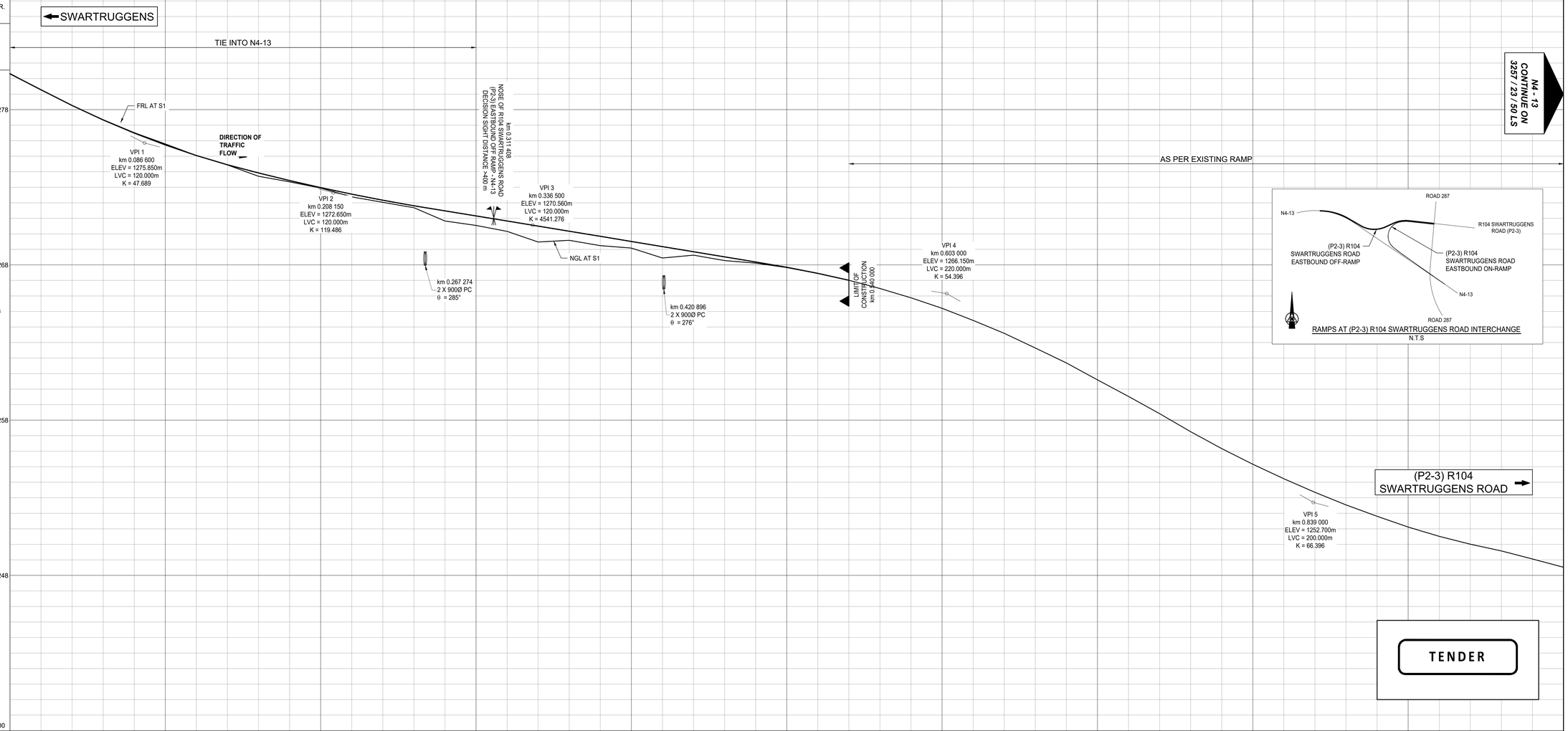
INCREASING CHAINAGE

CULVERT SKEW ANGLE



0 10 20 30 40 50
50 m
ON ORIGINAL PLAN (A0)

Datum 1238.000



1278
1268
1258
1248

GROUND LEVEL AT S1: 1280.330 | 1279.263 | 1278.265 | 1277.352 | 1276.517 | 1275.791 | 1275.045 | 1274.436 | 1273.709 | 1273.348 | 1272.946 | 1272.382 | 1272.030 | 1271.684 | 1270.827 | 1270.542 | 1270.159 | 1269.474 | 1269.583 | 1269.242 | 1269.082 | 1268.444 | 1268.627 | 1268.278 | 1268.114 | 1267.827 | 1267.448 | 1267.011 | 1266.479 | 1265.879 | 1265.204 | 1264.423 | 1263.593 | 1262.647 | 1261.686 | 1260.595 | 1259.527 | 1258.419 | 1257.256 | 1256.167 | 1255.161 | 1254.226 | 1253.352 | 1252.542 | 1251.808 | 1251.115 | 1250.516 | 1250.010 | 1249.577 | 1249.058 | 1248.526

VERTICAL ALIGNMENT

DESIGN RAMP LEVELS

LEFT EDGE L1: TIE INTO N4 | 1270.811 | 1270.463 | 1270.114 | 1269.764 | 1269.413 | 1269.062 | 1268.727 | 1268.396 | 1268.065 | 1267.730 | 1267.396 | 1266.870 | AS PER EXISTING RAMP

STAKED LINES: 1280.309 | 1279.279 | 1278.268 | 1277.337 | 1276.489 | 1275.725 | 1275.045 | 1274.449 | 1273.923 | 1273.434 | 1272.977 | 1272.554 | 1272.165 | 1271.808 | 1271.480 | 1271.154 | 1270.827 | 1270.499 | 1270.170 | 1269.840 | 1269.509 | 1269.178 | 1268.847 | 1268.516 | 1268.185 | 1267.850 | 1267.496 | 1266.990 | 1266.479 | 1265.879 | 1265.204 | 1264.423 | 1263.593 | 1262.647 | 1261.686 | 1260.595 | 1259.527 | 1258.419 | 1257.256 | 1256.167 | 1255.161 | 1254.226 | 1253.352 | 1252.542 | 1251.808 | 1251.115 | 1250.516 | 1250.010 | 1249.577 | 1249.058 | 1248.526

RIGHT EDGE R1: TIE INTO N4 | 1270.900 | 1270.675 | 1270.461 | 1270.257 | 1269.797 | 1269.526 | 1269.207 | 1268.876 | 1268.545 | 1268.210 | 1267.816 | 1267.349 | AS PER EXISTING RAMP

GRADES: -5.149 % (86.600 1275.850) | -2.633 % (208.150 1272.650) | -1.628 % (336.500 1270.560) | -1.655 % (603.000 1266.150) | -5.699 % (839.000 1252.700) | -2.687 %

VERTICAL CURVES: BVC 26.400 | 120.000m VC K = 47.689 | EVC 146.600 | BVC 148.150 | 120.000m VC K = 119.486 | EVC 268.150 | BVC 276.500 | 120.000m VC K = 4541.277 | EVC 396.500 | BVC 400.000 | 220.000m VC K = 54.397 | EVC 713.000 | BVC 726.400 | 200.000m VC K = 66.397 | EVC 939.000

SUPERELEVATION AT R1 (e): -5.200% | 200 | 424 | 6.000% | AS PER EXISTING RAMP

HORIZONTAL CURVES: BC1A 0.000 | Curve 1A Right Radius=617.400 I= 28°53'57" | EC1A 317.400 | Direction 300°38'59" | BC2A 411.647 | Curve 2A Left Radius=237.000 I= 55°10'55" | EC2A 639.899 | Direction 245°28'04" | BC3A 726.278 | Curve 3A Right Radius=270.000 I= 30°44'41" | EC3A 467.769 | Direction 276°12'45"

CHAINAGES: 0.000 | 0.020 | 0.040 | 0.060 | 0.080 | 0.100 | 0.120 | 0.140 | 0.160 | 0.180 | 0.200 | 0.220 | 0.240 | 0.260 | 0.280 | 0.300 | 0.320 | 0.340 | 0.360 | 0.380 | 0.400 | 0.420 | 0.440 | 0.460 | 0.480 | 0.500 | 0.520 | 0.540 | 0.560 | 0.580 | 0.600 | 0.620 | 0.640 | 0.660 | 0.680 | 0.700 | 0.720 | 0.740 | 0.760 | 0.780 | 0.800 | 0.820 | 0.840 | 0.860 | 0.880 | 0.900 | 0.920 | 0.940 | 0.960 | 0.980 | 1.000

No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date :

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CHECKED BY
NAME: PL NGQUMSHE
Prof. Reg. No.: 20080112
DRAWN BY
NAME: WB HARTMANN

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17 / 07 / 2023

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Reg. No. 1998/009084/30

NORTHERN REGION
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Menlo Park
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0081
Private Bag X17
Lynnwood Ridge
0040
Tel: (012) 426 6200

ACCEPTANCE
THIS ACCEPTANCE IS FOR PROCEDURAL AND ADMINISTRATIVE REVIEW PURPOSES ONLY AND DOES NOT ATTRACT LEGAL LIABILITY OR LIABILITY OF ANY KIND FROM WHATSOEVER CAUSE OR HOWEVER ARISING
for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION
LONGITUDINAL SECTION N4 - 13
(P2-3) R104 SWARTRUGGENS ROAD EASTBOUND OFF RAMP
km 0.000 T0 1.000 000

SCALE : HORIZONTAL 1:1000m, VERTICAL 1:100m (A0) | SHEET 49 OF 50

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	SECTION 13	SECTION 13
DRAWING km DISTANCE	km 0.000	km 1.000
DRAWING TYPE	ROADS - LONG SECTIONS	
BRIDGE/STRUCTURE No.	NA	
CONSULTANT DRAWING No.	FA 3257 / 23 /49 LS	VER
SANRAL DOCUMENT #	- -	v0

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\03 - Longsections\3257_23_(ALL) LS.dwg

GUARDRAIL NORTH	
CONCRETE V-DRAIN NORTH	
SUBSOIL DRAIN NORTH	
GUARDRAIL SOUTH	
CONCRETE V-DRAIN SOUTH	
SUBSOIL DRAIN SOUTH	
DRAINAGE KILOMETRE DISTANCE SIZE AND ANGLE	

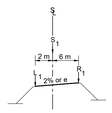
NOTES:

1) LEVELS IN BRACKETS MAY BE ALTERED TO TIE IN WITH EXISTING ROAD LEVELS AFTER CONSULTING WITH THE RESIDENT ENGINEER.

"AS BUILT" NOTES:

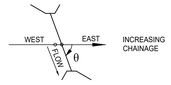
RAMPS AT (P2-3) R104 SWARTRUGGENS ROAD INTERCHANGE
N.T.S

DESIGN SPEED
VARIES

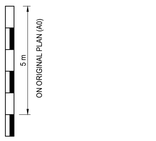


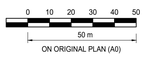
TYPICAL CROSS SECTION INTERCHANGE RAMPS
N.T.S

CULVERT SKEW ANGLE



CULVERT SKEW ANGLE





GROUND LEVEL AT S1		1248.526	1247.944	1247.379	1246.806	1246.242	1245.688 1245.670	
VERTICAL ALIGNMENT / DESIGN RAMP LEVELS	LEFT EDGE L1	AS PER EXISTING RAMP						
	STAKED LINES	1248.526	1247.944	1247.379	1246.806	1246.242	1245.688 1245.670	
	RIGHT EDGE R1	AS PER EXISTING RAMP						
	GRADES	-2.687 %						
	VERTICAL CURVES							
SUPERELEVATION AT R1 (e)		AS PER EXISTING RAMP						
HORIZONTAL CURVES		Direction 276°12'45"						
CHAINAGES		1.000	1.020	1.040	1.060	1.080	1.100 1.100.411	

TENDER

No.	DATE	REVISION	
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSULTANT: CONSULT. ENG.

CONSTRUCTION RECORD

WORKS CONTRACT ENGINEER

Name :
Prof. Reg. No. :
Date :

SANRAL PROJECT MANAGER

Name :
Prof. Reg. No. :
Date :

CONSULTANT

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DESIGNED BY	
NAME	EF DAY
Prof. Reg. No.	20130622
CHECKED BY	
NAME	PL NGQUMSHE
Prof. Reg. No.	20080112
DRAWN BY	
NAME	WB HARTMANN

CONSULTANT APPROVAL

Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17 / 07 / 2023

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Reg. No. 1998/009584/30

NORTHERN REGION
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Tel: (012) 426 6200

ACCEPTANCE

THIS ACCEPTANCE IS FOR PROCEDURAL AND ADMINISTRATIVE REVIEW PURPOSES ONLY AND DOES NOT ATTRACT LEGAL LIABILITY OR LIABILITY OF ANY KIND FROM WHATSOEVER CAUSE OR HOWEVER ARISING

for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION

THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION

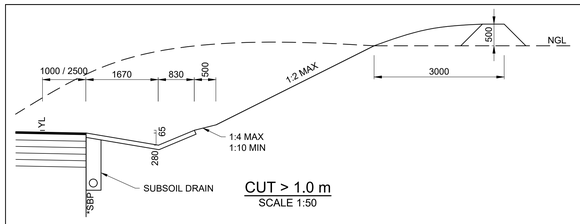
LONGITUDINAL SECTION N4 - 13
(P2-3) R104 SWARTRUGGENS ROAD EASTBOUND OFF RAMP
km 1.000 T0 1.100 411

SCALE : HORIZONTAL 1:1000m, VERTICAL 1:100m (A0) | SHEET 50 OF 50

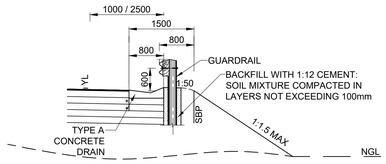
PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	SECTION 13	SECTION 13
DRAWING km DISTANCE	km 1.000	km 1.100
DRAWING TYPE	ROADS - LONG SECTIONS	
BRIDGE/STRUCTURE No.	NA	
CONSULTANT DRAWING No.	FA 3257 / 23 / 50 LS	VER
SANRAL DOCUMENT #	- -	V0

SANRAL DOCUMENT NUMBER :

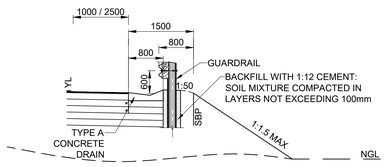
W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\03 - Longsections\3257_23_(ALL) LS.dwg



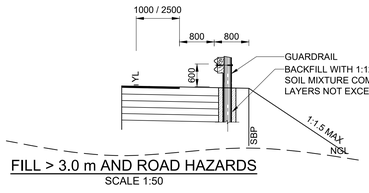
CUT > 1.0 m
SCALE 1:50



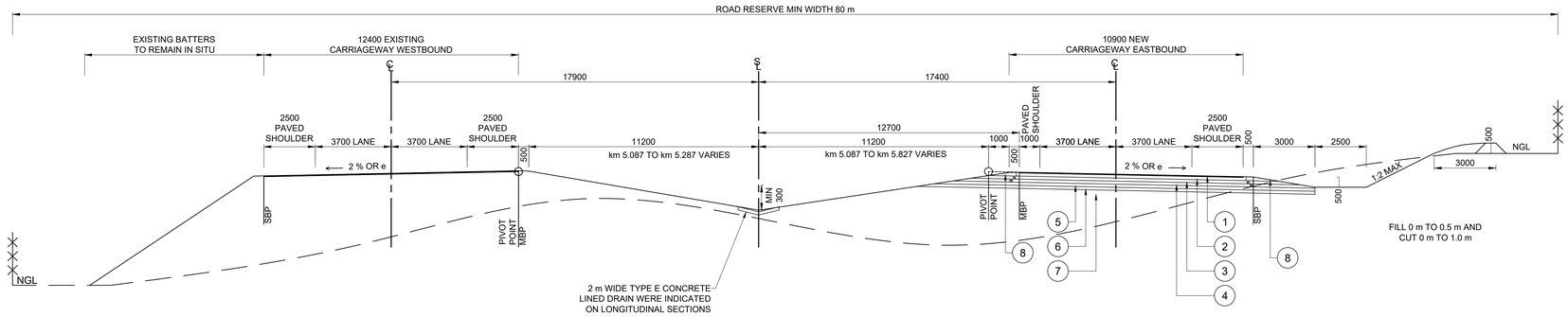
FILL > 3.0 m WITH TYPE "A" DRAIN AT RIVER BRIDGE
SCALE 1:50



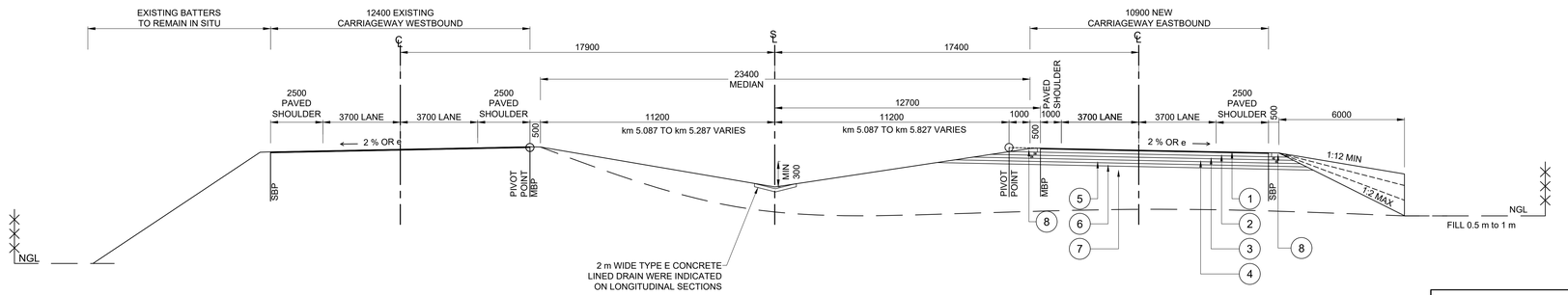
FILL > 3.0 m WITH TYPE "A" DRAIN
SCALE 1:50



FILL > 3.0 m AND ROAD HAZARDS
SCALE 1:50



TYPICAL CROSS SECTION km 2.8 TO km 5.087
AND km 5.087 TO km 5.827
CUT
SCALE 1:100



TYPICAL CROSS SECTION km 2.8 TO km 5.087
AND km 5.087 TO km 5.827
FILL
SCALE 1:100

TENDER

0m 2m 4m 6m 8m 10m
ORIGINAL SCALE 1 : 100 (A0)

PAVEMENT SPECIFICATIONS - N4 NEW EASTBOUND CARRIAGEWAY AND RAMPS

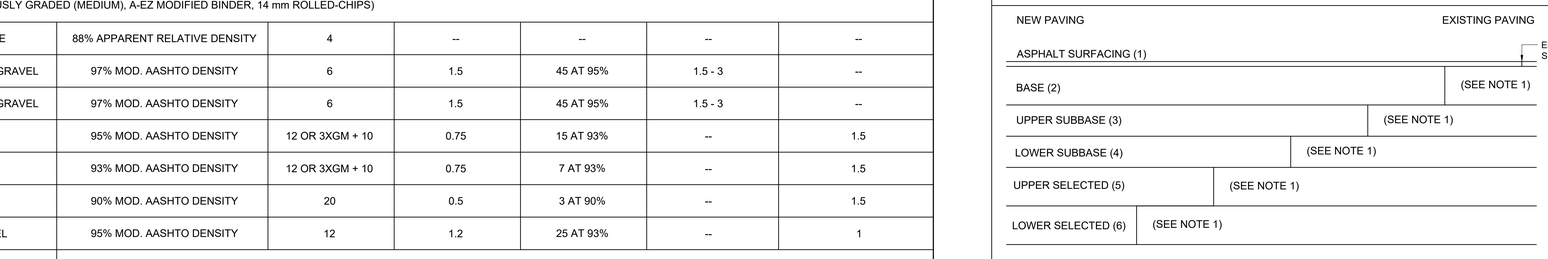
LAYER NO.	COLTO MATERIAL CODE	LAYER	THICKNESS (mm)	DESCRIPTION	MINIMUM COMPACTION REQUIREMENT	MAX PI SPECIFICATION	MIN GM SPECIFICATION	CBR AT MOD AASHTO DENSITY	UCS AT 100% MOD AASHTO	MAX SWELL AT 100% MOD AASHTO
1	--	SURFACING	40	ASPHALT (CONTINUOUSLY GRADED (MEDIUM), A-EZ MODIFIED BINDER, 14 mm ROLLED-CHIPS)						
2	G1	BASE	150	CRUSHED STONE	88% APPARENT RELATIVE DENSITY	4	--	--	--	--
3	C3	UPPER SUBBASE	125	CEMENTED NATURAL GRAVEL	97% MOD. AASHTO DENSITY	6	1.5	45 AT 95%	1.5 - 3	--
4	C3	LOWER SUBBASE	125	CEMENTED NATURAL GRAVEL	97% MOD. AASHTO DENSITY	6	1.5	45 AT 95%	1.5 - 3	--
5	G7	UPPER SELECTED	150	GRAVEL / SOIL	95% MOD. AASHTO DENSITY	12 OR 3XGM + 10	0.75	15 AT 93%	--	1.5
6	G9	LOWER SELECTED	150	GRAVEL / SOIL	93% MOD. AASHTO DENSITY	12 OR 3XGM + 10	0.75	7 AT 93%	--	1.5
7	G10	FILL	VARIES	GRAVEL / SOIL	90% MOD. AASHTO DENSITY	20	0.5	3 AT 90%	--	1.5
8	G6	GRAVEL SHOULDER	190	NATURAL GRAVEL	95% MOD. AASHTO DENSITY	12	1.2	25 AT 93%	--	1
9	--	PIONEER LAYER	500	DUMP ROCK WITH FINES	DUMP ROCK: 300 mm MAXIMUM STONE SIZE. FINES: SUFFICIENT FINES TO FILL ALL VOIDS IN BETWEEN DUMP ROCK. MAX PI OF FINES = 12					
10	--	ROCK	500	DUMP ROCK WITH FINES	DUMP ROCK: 300 mm MAXIMUM STONE SIZE. FINES: SUFFICIENT FINES TO FILL ALL VOIDS IN BETWEEN DUMP ROCK. MAX PI OF FINES = 12					

NOTES

1. FOR DETAILS REGARDING SUB-GRADE TREATMENT FOR AREAS WITH EXPANSIVE CLAYS REFER TO DRAWING 3257/13/04 TCS
2. FOR BENCHING DETAILS SEE BELOW
3. 75 mm OF TOP SOIL TO BE ADDED TO ALL CUTS, FILLS AND MEDIAN AREAS. FOR EARTH LINED SURFACES, FINAL LEVEL INDICATED IS TOP OF TOP SOIL

LEGEND

- MBP: MEDIAN BREAK POINT
- SBP: SHOULDER BREAK POINT
- *: LIMIT OF STABILIZATION



TYPICAL DETAIL - TRANSVERSE JOINT ONTO EXISTING PAVEMENT
NOT TO SCALE

NOTES

1. TRANSVERSE JOINT STEPS 500 mm AND LONGITUDINAL JOINT STEPS 300 mm
2. MATERIAL AS SPECIFIED IN THE TABLE

No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date :

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DESIGNED BY
NAME : EF DAY
Prof. Reg. No. : 20130622
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NAME : PL NGQUMSHE
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Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

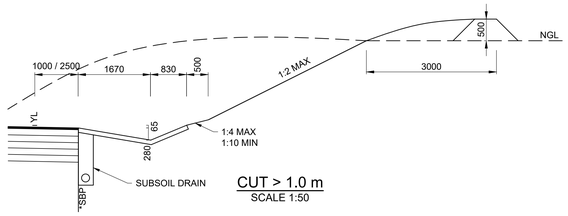
DRAWING DESCRIPTION
TYPICAL CROSS SECTION KM 2.800 TO KM 5.827

SCALE : 1 : 100 (A0) **SHEET 01 OF 05**

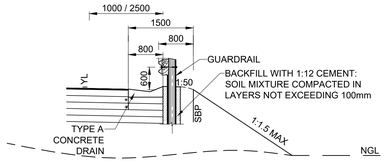
PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	13	13
DRAWING km DISTANCE	2.800	5.827
DRAWING TYPE	ROADS - TYPICAL	
BRIDGE/STRUCTURE No.	NA	
CONSULTANT DRAWING No.	FA 3257 / 23 / 01 TCS	VER
SANRAL DOCUMENT #	- -	V0

SANRAL DOCUMENT NUMBER :

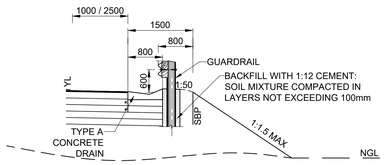
W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\04 - Typical Cross Sections\3257-23-01-02 TCS-Typical Cross Section_20230717.dwg



CUT > 1.0 m
SCALE 1:50

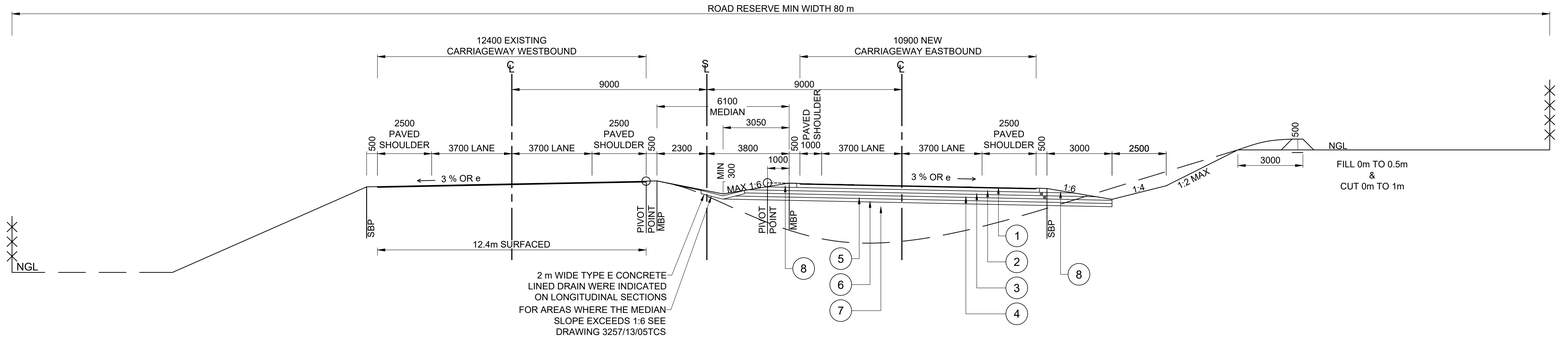


FILL > 3.0 m WITH TYPE "A" DRAIN AT RIVER BRIDGE
SCALE 1:50

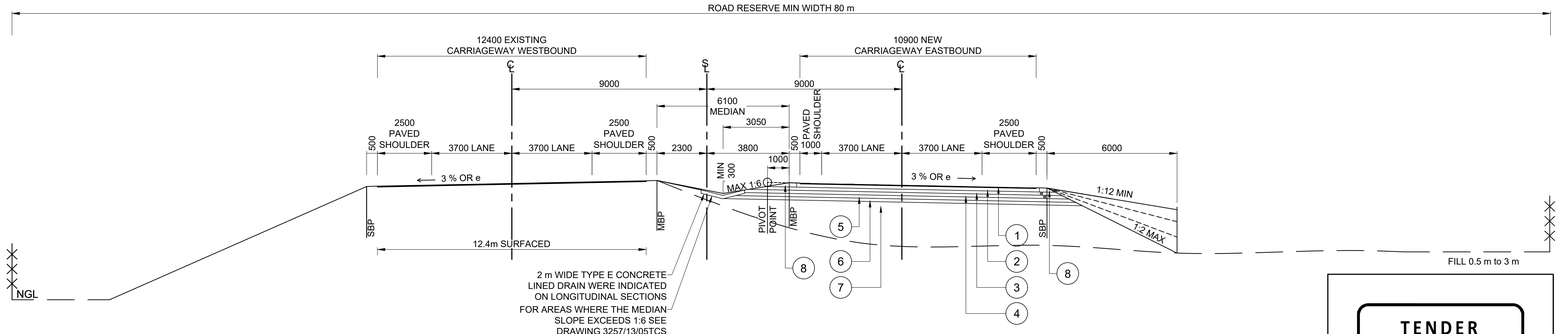


FILL > 3.0 m WITH TYPE "A" DRAIN
SCALE 1:50

FILL > 3.0 m AND ROAD HAZARDS
SCALE 1:50



TYPICAL CROSS SECTION km 5.827 TO km 30.500
CUT
SCALE 1:100



TYPICAL CROSS SECTION km 5.827 TO km 30.500
FILL
SCALE 1:100

LEGEND

- MBP: MEDIAN BREAK POINT
- SBP: SHOULDER BREAK POINT
- *: LIMIT OF STABILIZATION

TENDER

0m 2m 4m 6m 8m 10m
ORIGINAL SCALE 1 : 100 (A0)

PAVEMENT SPECIFICATIONS - N4 NEW EASTBOUND CARRIAGEWAY AND RAMPS

LAYER NO.	COLTO MATERIAL CODE	LAYER	THICKNESS (mm)	DESCRIPTION	MINIMUM COMPACTION REQUIREMENT	MAX PI SPECIFICATION	MIN GM SPECIFICATION	CBR AT MOD AASHTO DENSITY	UCS AT 100% MOD AASHTO	MAX SWELL AT 100% MOD AASHTO
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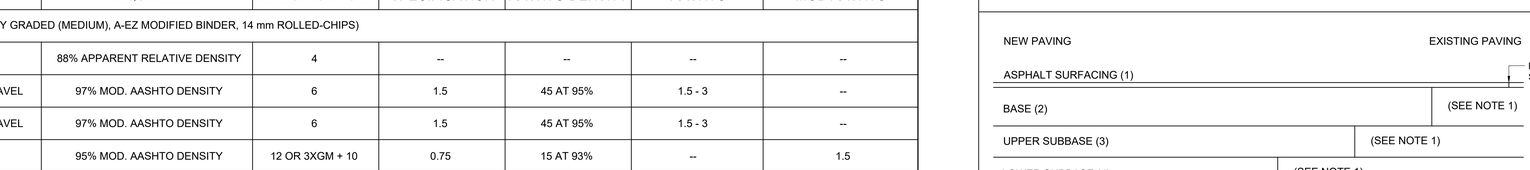

TYPICAL DETAIL - TRANSVERSE JOINT ONTO EXISTING PAVEMENT
NOT TO SCALE

NOTES

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2. MATERIAL AS SPECIFIED IN THE TABLE

No.	DATE	REVISION	CONSULT. ENG.
V1	17/07/2023	IE COMMENTS INCORPORATED	PL NGQUMSHE
V0	15/01/2019	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date :

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DESIGNED BY
NAME: EF DAY
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NAME: WB HARTMANN

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Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION
TYPICAL CROSS SECTION KM 5.827 TO KM 30.500

SCALE : 1 : 100 (A0) | SHEET 02 OF 05

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	13	13
DRAWING km DISTANCE	5.827	30.500
DRAWING TYPE	ROADS - TYPICAL	
BRIDGE/STRUCTURE No.	NA	
CONSULTANT DRAWING No.	FA 3257 / 23 / 02 TCS	VER
SANRAL DOCUMENT #	- -	V0

SANRAL DOCUMENT NUMBER :

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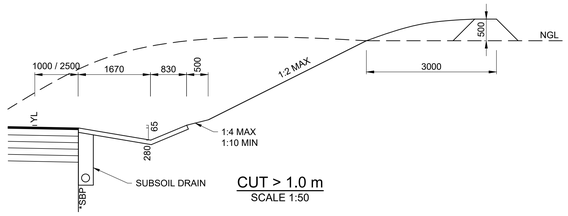
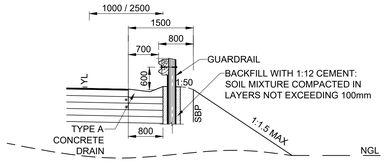
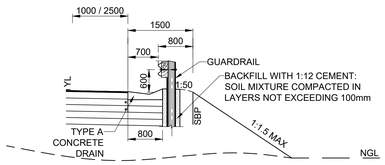


CUT > 1.0 m
SCALE 1:50

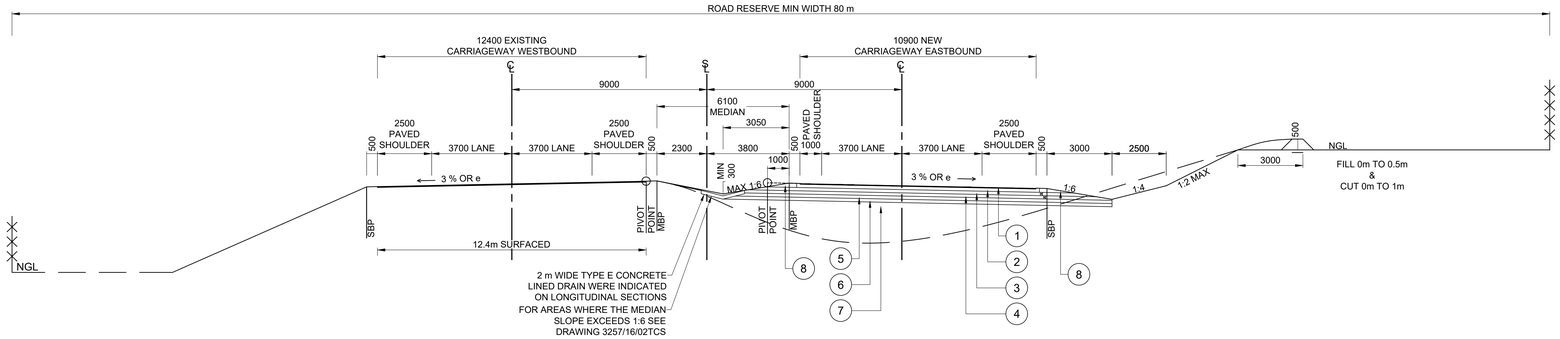


FILL > 3.0 m WITH TYPE "A" DRAIN AT RIVER BRIDGE
SCALE 1:50

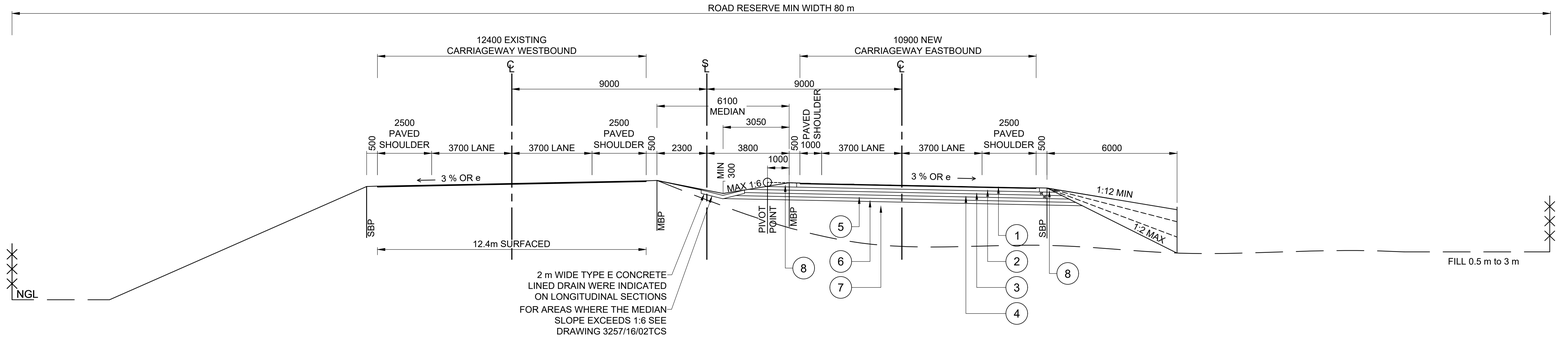


FILL > 3.0 m WITH TYPE "A" DRAIN
SCALE 1:50

FILL > 3.0 m AND ROAD HAZARDS
SCALE 1:50



TYPICAL CROSS SECTION km 30.500 TO km 40.900
CUT
SCALE 1:100



TYPICAL CROSS SECTION km 30.500 TO km 40.900
FILL
SCALE 1:100

LEGEND

- MBP: MEDIAN BREAK POINT
- SBP: SHOULDER BREAK POINT
- *: LIMIT OF STABILIZATION

0m 2m 4m 6m 8m 10m
ORIGINAL SCALE 1 : 100 (A0)

PAVEMENT SPECIFICATIONS - N4 NEW EASTBOUND CARRIAGEWAY AND RAMPS

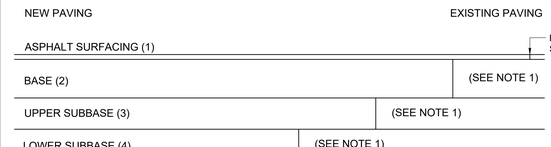
LAYER NO.	COLTO MATERIAL CODE	LAYER	THICKNESS (mm)	DESCRIPTION	MINIMUM COMPACTION REQUIREMENT	MAX PI SPECIFICATION	MIN GM SPECIFICATION	CBR AT MOD AASHTO DENSITY	UCS AT 100% MOD AASHTO	MAX SWELL AT 100% MOD AASHTO
1	--	SURFACING	40	ASPHALT (CONTINUOUSLY GRADED (MEDIUM), A-EZ MODIFIED BINDER, 14 mm ROLLED-CHIPS)						
2	G1	BASE	150	CRUSHED STONE	88% APPARENT RELATIVE DENSITY	4	--	--	--	--
3	C3	UPPER SUBBASE	125	CEMENTED NATURAL GRAVEL	97% MOD. AASHTO DENSITY	6	1.5	45 AT 95%	1.5 - 3	--
4	C3	LOWER SUBBASE	125	CEMENTED NATURAL GRAVEL	97% MOD. AASHTO DENSITY	6	1.5	45 AT 95%	1.5 - 3	--
5	G7	UPPER SELECTED	150	GRAVEL / SOIL	95% MOD. AASHTO DENSITY	12 OR 3XGM + 10	0.75	15 AT 93%	--	1.5
6	G9	LOWER SELECTED	150	GRAVEL / SOIL	93% MOD. AASHTO DENSITY	12 OR 3XGM + 10	0.75	7 AT 93%	--	1.5
7	G10	FILL	VARIES	GRAVEL / SOIL	90% MOD. AASHTO DENSITY	20	0.5	3 AT 90%	--	1.5
8	G6	GRAVEL SHOULDER	190	NATURAL GRAVEL	95% MOD. AASHTO DENSITY	12	1.2	25 AT 93%	--	1
9	--	PIONEER LAYER	500	DUMP ROCK WITH FINES	DUMP ROCK: 300 mm MAXIMUM STONE SIZE. FINES: SUFFICIENT FINES TO FILL ALL VOIDS IN BETWEEN DUMP ROCK. MAX PI OF FINES = 12					
10	--	ROCK	500	DUMP ROCK WITH FINES	DUMP ROCK: 300 mm MAXIMUM STONE SIZE. FINES: SUFFICIENT FINES TO FILL ALL VOIDS IN BETWEEN DUMP ROCK. MAX PI OF FINES = 12					

NOTES

1. FOR DETAILS REGARDING SUB-GRADE TREATMENT FOR AREAS WITH EXPANSIVE CLAYS REFER TO DRAWING 3257/16/03 TCS
2. FOR BENCHING DETAILS SEE BELOW
3. 75 mm OF TOP SOIL TO BE ADDED TO ALL CUTS, FILLS AND MEDIAN AREAS. FOR EARTH LINED SURFACES, FINAL LEVEL INDICATED IS TOP OF TOP SOIL

LEGEND

- MBP: MEDIAN BREAK POINT
- SBP: SHOULDER BREAK POINT
- *: LIMIT OF STABILIZATION



TYPICAL DETAIL - TRANSVERSE JOINT ONTO EXISTING PAVEMENT
NOT TO SCALE

NOTES

1. TRANSVERSE JOINT STEPS 500 mm AND LONGITUDINAL JOINT STEPS 300 mm
2. MATERIAL AS SPECIFIED IN THE TABLE

TENDER

No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date :

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DESIGNED BY
NAME: EF DAY
Prof. Reg. No.: 20130622
CHECKED BY
NAME: PL NGQUMSHE
Prof. Reg. No.: 20080112
DRAWN BY
NAME: WB HARTMANN

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17 / 07 / 2023

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Reg. No. 1998/009584/30

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ACCEPTANCE
THIS ACCEPTANCE IS FOR PROCEDURAL AND ADMINISTRATIVE REVIEW PURPOSES ONLY AND DOES NOT ATTRACT LEGAL LIABILITY OR LIABILITY OF ANY KIND FROM WHATSOEVER CAUSE OR HOWEVER ARISING
for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

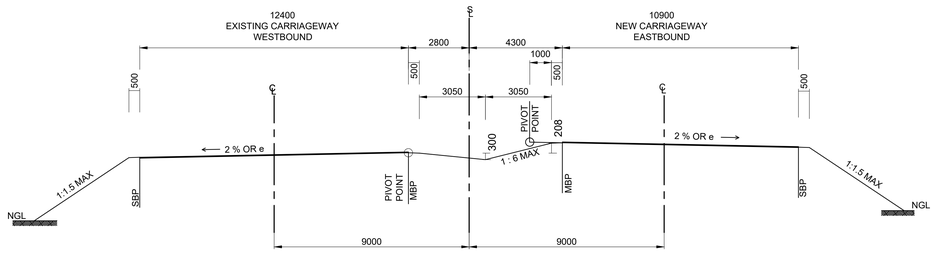
DRAWING DESCRIPTION
TYPICAL CROSS SECTION N4-13 KM 30.500 TO KM 40.900

SCALE : 1 : 100 (A0) | SHEET 03 OF 05

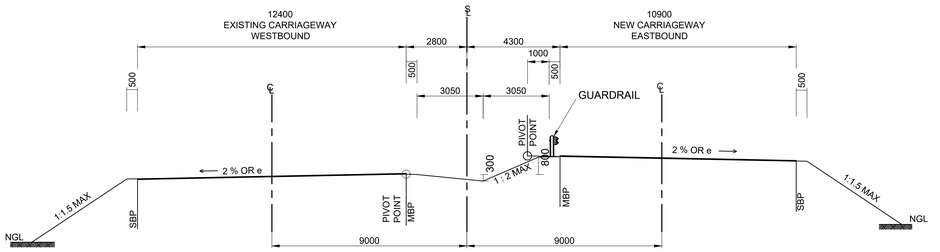
PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001		
DRAWING LOCATION DATA	START	END	
ROUTE	N 4	N 4	
SECTION	13	13	
DRAWING km DISTANCE	30.500	40.900	
DRAWING TYPE	ROADS - TYPICAL		
BRIDGE/STRUCTURE No.	NA		
CONSULTANT DRAWING No.	FA	3257 / 23 / 03 TCS	VER
SANRAL DOCUMENT #		- -	V0

SANRAL DOCUMENT NUMBER :

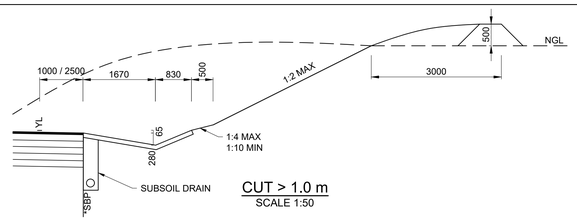
W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\04 - Typical Cross Sections\3257-23-03-05 TCS-Typical Cross Section_20230717.dwg



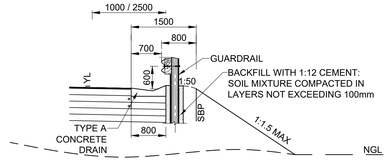
MEDIAN
DIFFERENCE IN HEIGHT BETWEEN
CARRIAGEWAYS LESS THAN 0.208 m
SCALE 1:100



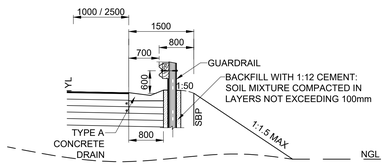
MEDIAN
DIFFERENCE IN HEIGHT BETWEEN
CARRIAGEWAYS BETWEEN 0.208 m AND 0.8 m
SCALE 1:100



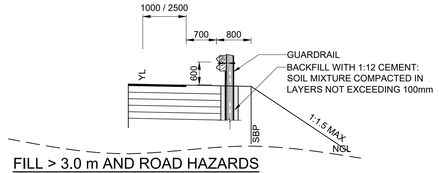
CUT > 1.0 m
SCALE 1:50



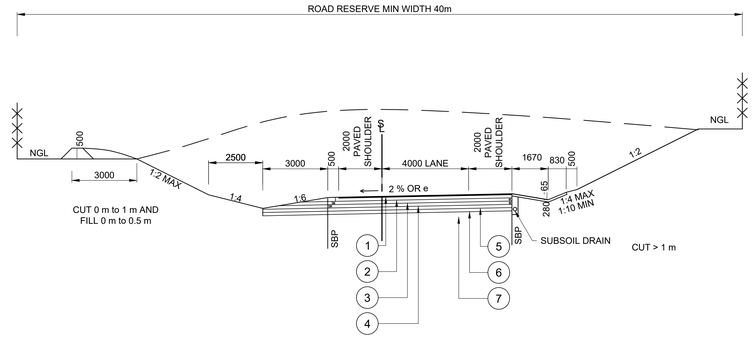
FILL > 3.0 m WITH TYPE "A" DRAIN AT RIVER BRIDGE
SCALE 1:50



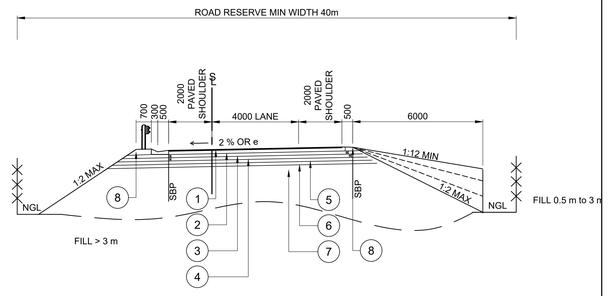
FILL > 3.0 m WITH TYPE "A" DRAIN
SCALE 1:50



FILL > 3.0 m AND ROAD HAZARDS
SCALE 1:50



TYPICAL CROSS SECTION - INTERCHANGE RAMP
CUT
SCALE 1:100



TYPICAL CROSS SECTION - INTERCHANGE RAMP
FILL
SCALE 1:100

0m 2m 4m 6m 8m 10m
ORIGINAL SCALE 1 : 100 (A0)

NOTES

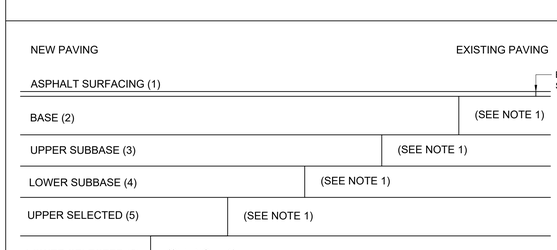
1. FOR DETAILS REGARDING SUB-GRADE TREATMENT FOR AREAS WITH EXPANSIVE CLAYS REFER TO DRAWING 4174/16/06 TCS
2. FOR BENCHING DETAILS SEE BELOW
3. 75 mm OF TOP SOIL TO BE ADDED TO ALL CUTS, FILLS AND MEDIAN AREAS. FOR EARTH LINED SURFACES, FINAL LEVEL INDICATED IS TOP OF TOP SOIL

LEGEND

- MBP: MEDIAN BREAK POINT
- SBP: SHOULDER BREAK POINT
- *: LIMIT OF STABILIZATION

PAVEMENT SPECIFICATIONS - N4 NEW EASTBOUND CARRIAGEWAY AND RAMPS

LAYER NO.	COLTO MATERIAL CODE	LAYER	THICKNESS (mm)	DESCRIPTION	MINIMUM COMPACTION REQUIREMENT	MAX PI SPECIFICATION	MIN GM SPECIFICATION	CBR AT MOD AASHTO DENSITY	UCS AT 100% MOD AASHTO	MAX SWELL AT 100% MOD AASHTO
1	--	SURFACING	40	ASPHALT (CONTINUOUSLY GRADED (MEDIUM), A-EZ MODIFIED BINDER, 14 mm ROLLED-CHIPS)						
2	G1	BASE	150	CRUSHED STONE	88% APPARENT RELATIVE DENSITY	4	--	--	--	--
3	C3	UPPER SUBBASE	125	CEMENTED NATURAL GRAVEL	97% MOD. AASHTO DENSITY	6	1.5	45 AT 95%	1.5 - 3	--
4	C3	LOWER SUBBASE	125	CEMENTED NATURAL GRAVEL	97% MOD. AASHTO DENSITY	6	1.5	45 AT 95%	1.5 - 3	--
5	G7	UPPER SELECTED	150	GRAVEL / SOIL	95% MOD. AASHTO DENSITY	12 OR 3XGM + 10	0.75	15 AT 93%	--	1.5
6	G9	LOWER SELECTED	150	GRAVEL / SOIL	93% MOD. AASHTO DENSITY	12 OR 3XGM + 10	0.75	7 AT 93%	--	1.5
7	G10	FILL	VARIES	GRAVEL / SOIL	90% MOD. AASHTO DENSITY	20	0.5	3 AT 90%	--	1.5
8	G6	GRAVEL SHOULDER	190	NATURAL GRAVEL	95% MOD. AASHTO DENSITY	12	1.2	25 AT 93%	--	1
9	--	PIONEER LAYER	500	DUMP ROCK WITH FINES	DUMP ROCK: 300 mm MAXIMUM STONE SIZE. FINES: SUFFICIENT FINES TO FILL ALL VOIDS IN BETWEEN DUMP ROCK. MAX PI OF FINES = 12					
10	--	ROCK	500	DUMP ROCK WITH FINES	DUMP ROCK: 300 mm MAXIMUM STONE SIZE. FINES: SUFFICIENT FINES TO FILL ALL VOIDS IN BETWEEN DUMP ROCK. MAX PI OF FINES = 12					



TYPICAL DETAIL - TRANSVERSE JOINT ONTO EXISTING PAVEMENT
NOT TO SCALE

NOTES

1. TRANSVERSE JOINT STEPS 500 mm AND LONGITUDINAL JOINT STEPS 300 mm
2. MATERIAL AS SPECIFIED IN THE TABLE

TENDER

No.	DATE	REVISION	
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date :
CONSULT. ENG.

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DESIGNED BY
NAME: EF DAY
Prof. Reg. No.: 20130622
CHECKED BY
NAME: PL NGQUMSHE
Prof. Reg. No.: 20080112
DRAWN BY
NAME: WB HARTMANN

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17 / 07 / 2023

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ACCEPTANCE
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for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION
TYPICAL CROSS SECTION INTERCHANGE RAMPS

SCALE : 1 : 100 (A0) SHEET 04 OF 05

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001		
DRAWING LOCATION DATA	START	END	
ROUTE	N 4	N 4	
SECTION	13	13	
DRAWING km DISTANCE	30.500	40.900	
DRAWING TYPE	ROADS - TYPICAL		
BRIDGE/STRUCTURE No.	NA		
CONSULTANT DRAWING No.	FA	3257 / 23 / 04 TCS	VER
SANRAL DOCUMENT #	- -		V0

SANRAL DOCUMENT NUMBER :

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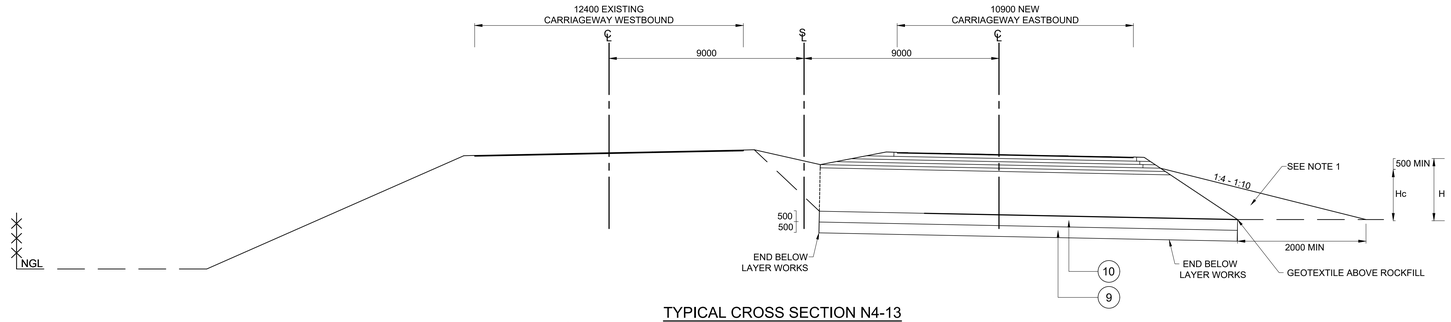
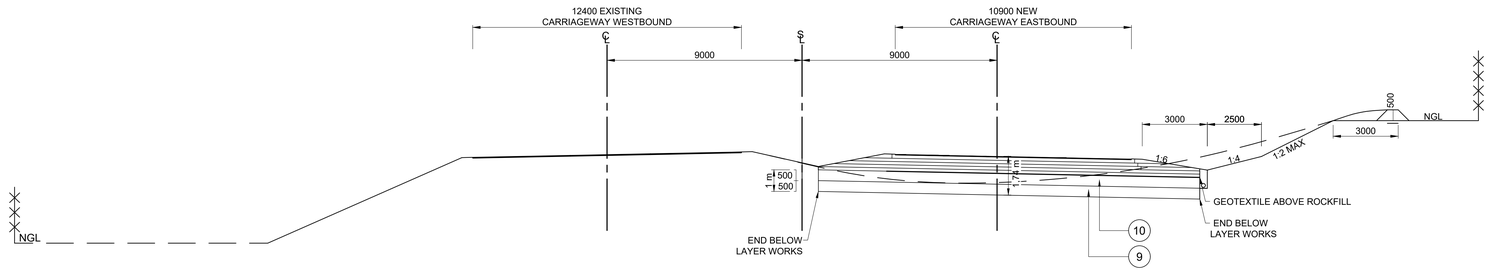


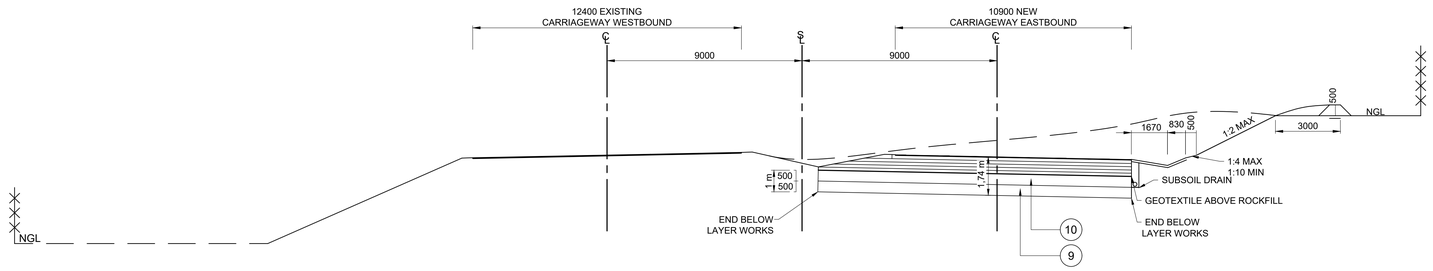
TYPICAL CROSS SECTION N4-13
TYPICAL TREATMENT OF ROADBED IN AREAS OF EXPANSIVE CLAYS
FILL
SCALE 1:100

NOTES

1. MATERIAL FROM UNDERCUT PLACED AT TOE OF FILL TO DIMENSIONS AS SHOWN. THE BATTER SLOPE SHALL BE SHAPED USING MECHANICAL EQUIPMENT TO ELIMINATE ALL UNDULATIONS THAT COULD ALLOW WATER TO POND
   H = HEIGHT OF EMBANKMENT
   Hc = HEIGHT OF CLAY PLACEMENT
   Hc = H - 500 mm FOR H < 3500 mm
   Hc = 3000 mm MAXIMUM
2. FOR BENCHING DETAILS REFER SEE BELOW
3. 75 mm OF TOP SOIL TO BE ADDED TO ALL CUTS, FILLS AND MEDIAN AREAS



TYPICAL CROSS SECTION N4-13
TYPICAL TREATMENT OF ROADBED IN AREAS OF EXPANSIVE CLAYS
FILL 0 m TO 0.5 m AND CUT 0m TO 1 m
SCALE 1:100



TYPICAL CROSS SECTION N4-13
TYPICAL TREATMENT OF ROADBED IN AREAS OF EXPANSIVE CLAYS
CUT > 1 m
SCALE 1:100

TENDER

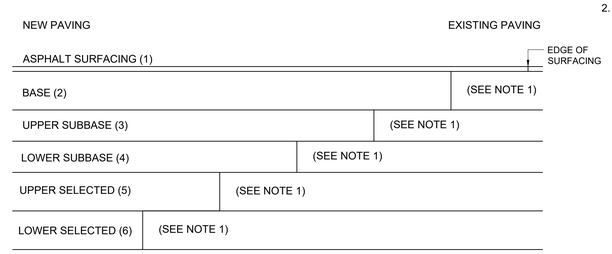
0m 2m 4m 6m 8m 10m
ORIGINAL SCALE 1 : 100 (A0)

PAVEMENT SPECIFICATIONS - N4 NEW EASTBOUND CARRIAGEWAY AND RAMPS

LAYER NO.	COLTO MATERIAL CODE	LAYER	THICKNESS (mm)	DESCRIPTION	MINIMUM COMPACTION REQUIREMENT	MAX PI SPECIFICATION	MIN GM SPECIFICATION	CBR AT MOD AASHTO DENSITY	UCS AT 100% MOD AASHTO	MAX SWELL AT 100% MOD AASHTO
1	--	SURFACING	40	ASPHALT (CONTINUOUSLY GRADED (MEDIUM), A-EZ MODIFIED BINDER, 14 mm ROLLED-CHIPS)						
2	G1	BASE	150	CRUSHED STONE	88% APPARENT RELATIVE DENSITY	4	--	--	--	--
3	C3	UPPER SUBBASE	125	CEMENTED NATURAL GRAVEL	97% MOD. AASHTO DENSITY	6	1.5	45 AT 95%	1.5 - 3	--
4	C3	LOWER SUBBASE	125	CEMENTED NATURAL GRAVEL	97% MOD. AASHTO DENSITY	6	1.5	45 AT 95%	1.5 - 3	--
5	G7	UPPER SELECTED	150	GRAVEL / SOIL	95% MOD. AASHTO DENSITY	12 OR 3XGM + 10	0.75	15 AT 93%	--	1.5
6	G9	LOWER SELECTED	150	GRAVEL / SOIL	93% MOD. AASHTO DENSITY	12 OR 3XGM + 10	0.75	7 AT 93%	--	1.5
7	G10	FILL	VARIES	GRAVEL / SOIL	90% MOD. AASHTO DENSITY	20	0.5	3 AT 90%	--	1.5
8	G6	GRAVEL SHOULDER	190	NATURAL GRAVEL	95% MOD. AASHTO DENSITY	12	1.2	25 AT 93%	--	1
9	--	PIONEER LAYER	500	DUMP ROCK WITH FINES	DUMP ROCK: 300 mm MAXIMUM STONE SIZE. FINES: SUFFICIENT FINES TO FILL ALL VOIDS IN BETWEEN DUMP ROCK. MAX PI OF FINES = 12					
10	--	ROCK	500	DUMP ROCK WITH FINES	DUMP ROCK: 300 mm MAXIMUM STONE SIZE. FINES: SUFFICIENT FINES TO FILL ALL VOIDS IN BETWEEN DUMP ROCK. MAX PI OF FINES = 12					

NOTES

1. TRANSVERSE JOINT STEPS 500 mm AND LONGITUDINAL JOINT STEPS 300 mm
2. MATERIAL AS SPECIFIED IN THE TABLE



TYPICAL DETAIL - TRANSVERSE JOINT ONTO EXISTING PAVEMENT
NOT TO SCALE

No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date :

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Fax: +27 11 519-0414

DESIGNED BY	
NAME	EF DAY
Prof. Reg. No.	20130622
CHECKED BY	
NAME	PL NGQUMSHE
Prof. Reg. No.	20080112
DRAWN BY	
NAME	WB HARTMANN

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17 / 07 / 2023

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ACCEPTANCE
THIS ACCEPTANCE IS FOR PROCEDURAL AND ADMINISTRATIVE REVIEW PURPOSES ONLY AND DOES NOT ATTRACT LEGAL LIABILITY OR LIABILITY OF ANY KIND FROM WHATSOEVER CAUSE OR HOWEVER ARISING
for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION
TYPICAL CROSS SECTION TREATMENT OF CLAYS

SCALE : 1:100 (A0) | **SHEET 05 OF 05**

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001		
DRAWING LOCATION DATA	START	END	
ROUTE	N 4	N 4	
SECTION	13	13	
DRAWING km DISTANCE	30.500	40.900	
DRAWING TYPE	ROADS - TYPICAL		
BRIDGE/STRUCTURE No.	NA		
CONSULTANT DRAWING No.	FA	3257 / 23 / 03 TCS	VER
SANRAL DOCUMENT #	- -		V0

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\04 - Typical Cross Sections\3257-23-03-05 TCS-Typical Cross Section_20230717.dwg

ITEM NO.	APPLICABLE PLAN NO.	AS BUILT REF NO.	AS BUILT PLAN NO.	ROAD	CROSSING CHAINAGE (Km)	CHAINAGE FROM (Km)	CHAINAGE TO (Km)	AUTHORITY	DESCRIPTION OF SERVICE	DESCRIPTION OF WORK REQUIRED	SERVICE LOCATED ON ICW AS BUILTS	SERVICE LOCATED IN SURVEY	WAYLEAVE REFERENCE DATE
E1	3257/13 /02LP	E001	AB/5/LP002	N4		3.289	3.4060	ESKOM	3 X OVERHEAD POWER LINES	NONE - REMAIN IN SITU	YES	YES	
W1	3257/13 /03LP	S205-04	AB4/LP25	N4	4.138			DWAF	UNDERGROUND WATER MAIN WITH AN ACCESS MANHOLE AT THE EDGE OF THE N4 ROAD RESERVE	NONE - REMAIN IN SITU	YES	YES	
W2	3257/13 /03LP	S205-04	AB4/LP25	N4	4.143			DWAF	UNDERGROUND WATER MAIN WITH AN ACCESS MANHOLE AT THE EDGE OF THE N4 ROAD RESERVE	NONE - REMAIN IN SITU	YES	YES	
E2	3257/13 /03LP	S205-03	AB4/LP25	N4	4.259			ESKOM	POWER LINE CONTAINED IN 160 mm DIA DUCT UNDER THE ROAD RESERVE OF THE N4 WITH A MANHOLE AT THE EDGE OF THE N4 ROAD RESERVE	NONE - REMAIN IN SITU	YES	YES	
T1	3257/13 /03LP	S205-01	AB4/LP25	N4	4.465			TELKOM	TELEPHONE LINES CONTAINED IN 4 X 110 DIA DUCT UNDER THE EXISTING CARRIAGEWAY OF THE N4 AND A MANHOLE AT THE EDGE OF THE EXISTING CARRIAGEWAY OF THE N4	EXTENSION OF THE TELEPHONE LINES AND RELOCATION OF THE MANHOLE TO THE EDGE OF THE ROAD RESERVE IN ORDER TO ACCOMMODATE THE SECOND CARRIAGEWAY OF THE N4		YES	
W3	3257/13 /03LP	S204-03	AB4/LP24	N4	4.667			RAND WATER	WATER PIPELINES CONTAINED IN 1 X 2400 X 2400 BC AND 2 X 2100 X 2100 BC BELOW THE ROAD RESERVE. CULVERT NO. S4038	NONE - REMAIN IN SITU	YES	YES	
E3	3257/13 /03LP			N4	4.681			ESKOM	ELECTRICITY POLE WITH A POWER LINE	NONE - REMAIN IN SITU	YES	YES	
W4	3257/13 /04LP	S203-06	AB4/LP23	N4	5.617*			DWAF	EXISTING UNDERWATER MAIN WITH CULVERT UNDER THE ROAD RESERVE	NONE - REMAIN IN SITU	YES		
E4	3257/13 /05LP	S203-07	AB4/LP23	N4	6.236			ESKOM	POWER LINE REALIGNED DURING ICW WITH A MINIMUM VERTICAL CLEARANCE OF 7.2 m OVER N4	NONE - REMAIN IN SITU	YES	YES	
W5	3257/13 /05LP	S202-04	AB4/LP22	N4	6.853			RAND WATER	WATER PIPELINES CONTAINED 1 X 2400 X 2400 BC AND 2 X 2100 X 2100 BC BELOW THE ROAD RESERVE. CULVERT NO. S4035	NONE - REMAIN IN SITU	YES	YES	
E5	3257/13 /05LP	S202-02	AB4/LP22	N4	6.874			ESKOM	POWER LINES CONTAINED IN 4 X 160 DIA DUCTS UNDER THE ROAD RESERVE	NONE - REMAIN IN SITU	YES	YES	
U1	3257/13 /05LP			N4	6.897			UNKNOWN	VALVE ECASED IN CONCRETE	NONE - REMAIN IN SITU		YES	
T2	3257/13 /05LP 3257/13 /06LP	S202-01	AB4/LP22	N4		6.967*	7.167*	TELKOM	TELEPHONE LINES CONTAINED IN 4 X 110 DIA DUCTS ADJACENT TO N4	NONE - REMAIN IN SITU	YES		
E6	3257/13 /06LP	S201-02	AB4/LP21	N4	7.577*			ESKOM	POWER LINE CONTAINED IN 1 X 110 DIA DUCT UNDER THE ROAD RESERVE	NONE - REMAIN IN SITU	YES		
T3	3257/13 /06LP	S201-01	AB4/LP21	N4	7.587*			TELKOM	TELEPHONE LINE CONTAINED IN 1 X 110 DIA DUCT UNDER THE ROAD RESERVE	NONE - REMAIN IN SITU	YES		
W6	3257/13 /07LP	S200-07	AB4/LP20	N4	8.597*			J.D. NEL	1 X 200 DIA WATER PIPE DUCT FOR FUTURE WATER PIPE UNDER THE ROAD RESERVE	NONE - REMAIN IN SITU	YES		
W7	3257/13 /07LP	S200-06	AB4/LP20	N4	8.947*			H.A.C DE BEER	2 X 200 DIA WATER PIPE DUCTS FOR FUTURE WATER PIPE UNDER THE ROAD RESERVE	NONE - REMAIN IN SITU	YES		
E7	3257/13 /08LP	S200-05	AB4/LP20	N4	9.017*			ESKOM	POWER LINE CONTAINED IN 1 X 160 DIA DUCT UNDER THE ROAD RESERVE	NONE - REMAIN IN SITU	YES		
W8	3257/13 /08LP	S200-04	AB4/LP20	N4	9.317*			C. VENTER	2 X 600 DUCTS FOR IRRIGATION PIPELINE UNDER THE ROAD RESERVE	NONE - REMAIN IN SITU	YES		
T4	3257/13 /08LP	S200-03	AB4/LP20	N4	9.357*			TELKOM	TELEPHONE LINE CONTAINED IN 4 X 110 DIA DUCTS UNDER THE ROAD RESERVE	NONE - REMAIN IN SITU	YES		
E8	3257/13 /08LP	S200-01	AB4/LP20	N4	9.367*			ESKOM	POWER LINE CONTAINED IN 1 X 160 DIA DUCT UNDER THE ROAD RESERVE	NONE - REMAIN IN SITU	YES		
W9	3257/13 /10LP	S197-01	AB4/LP17	N4	11.497*			XSTRATA	SERVICES CONTAINED IN A LOCKED MANHOLE AT MARIKANA MAINLINE PLAZA	NONE - REMAIN IN SITU	YES		
STP1	3257/13 /10LP			N4	11.690			BAKWENA	SERVICES CONTAINED IN A LOCKED MANHOLE AT MARIKANA MAINLINE PLAZA	NONE - REMAIN IN SITU	YES	YES	
STP2	3257/13 /10LP			N4	11.702			BAKWENA	SERVICES CONTAINED IN A LOCKED MANHOLE AT MARIKANA MAINLINE PLAZA	NONE - REMAIN IN SITU	YES	YES	
STP3	3257/13 /10LP			N4	11.715			BAKWENA	SERVICES CONTAINED IN A LOCKED MANHOLE AT MARIKANA MAINLINE PLAZA	NONE - REMAIN IN SITU	YES	YES	
STP4	3257/13 /10LP			N4	11.722			BAKWENA	SERVICES CONTAINED IN A LOCKED MANHOLE AT MARIKANA MAINLINE PLAZA	NONE - REMAIN IN SITU	YES	YES	
STP5	3257/13 /10LP			N4	11.733			BAKWENA	SERVICES CONTAINED IN A LOCKED MANHOLE AT MARIKANA MAINLINE PLAZA	NONE - REMAIN IN SITU	YES	YES	
STP6	3257/13 /10LP			N4	11.741			BAKWENA	SERVICES CONTAINED IN A LOCKED MANHOLE AT MARIKANA MAINLINE PLAZA	NONE - REMAIN IN SITU	YES	YES	
S1	3257/13 /10LP			N4	11.756			BAKWENA	SEWER WITH MANHOLE AT MARIKANA MAINLINE PLAZA	NONE - REMAIN IN SITU	YES	YES	
STP7	3257/13 /10LP			N4	11.804			BAKWENA	CAMERA AT MARIKANA MAINLINE PLAZA	NONE - REMAIN IN SITU	YES	YES	
E9	3257/13 /13LP	S195-01	AB4/LP15	N4	14.267*			RUSTENBURG LOCAL MUNICIPALITY	POWER LINE CONTAINED IN 1 X 160 DIA DUCT UNDER THE ROAD RESERVE	NONE - REMAIN IN SITU	YES		
W10	3257/13 /15LP	S193-01	AB4/LP13	N4	16.347*			ANGLO WATER PIPE	300 DIA STEEL WATER PIPELINE UNDER THE EXISTING CARRIAGEWAY OF THE N4 INCASE IN CONCRETE PIPE CULVERT	NONE - REMAIN IN SITU		YES	
E10	3257/13 /16LP	S192-02	AB4/LP12	N4	17.117*			RUSTENBURG LOCAL MUNICIPALITY	POWER LINE CONTAINED IN 1 X 160 DIA DUCT UNDER THE ROAD RESERVE	NONE - REMAIN IN SITU	YES		
T5	3257/13 /16LP	S192-01	AB4/LP12	N4	17.157*			TELKOM	TELEPHONE LINE CONTAINED IN 1 X DIA DUCT UNDER THE ROAD RESERVE	NONE - REMAIN IN SITU	YES		
W11	3257/13 /16LP	S191-02	AB4/LP11	N4	17.557*			A.H. OTTERMANN	WATER PIPELINE CONTAINED IN 1 X 600 DIA DUCT UNDER THE ROAD RESERVE	NONE - REMAIN IN SITU	YES		
E11	3257/13 /16LP	S191-01	AB4/LP11	N4	17.657*			RUSTENBURG LOCAL MUNICIPALITY	ELECTRICAL CABLES CONTAINED IN 1 X 160 DIA DUCT UNDER THE ROAD RESERVE	NONE - REMAIN IN SITU	YES		
E12	3257/13 /17LP	S190-01	AB4/LP10	N4	18.907*			RUSTENBURG LOCAL MUNICIPALITY	ELECTRICAL CABLES CONTAINED IN 1 X 160 DIA DUCT UNDER THE ROAD RESERVE	NONE - REMAIN IN SITU	YES		
W12	3257/13 /18LP	S190-02	AB4/LP10	N4	19.207*			R. OTTERMANN	60 DIA AND 150 DIA WATER PIPES CONTAINED IN 2 X 300 DIA uPVC DUCTS UNDER THE ROAD RESERVE	NONE - REMAIN IN SITU	YES		
W13	3257/13 /18LP	S189-03	AB4/LP09	N4	19.477*			L. LANGE	1 X 200 DIA DUCT FOR IRRIGATION PIPELINE UNDER THE ROAD RESERVE	NONE - REMAIN IN SITU	YES		
F1	3257/13 /18LP	S189-01	AB4/LP09	N4	19.637*			PETRONET	FUEL PIPELINE PROTECTED BY CONCRETE SLAB UNDER THE ROAD RESERVE	NONE - REMAIN IN SITU	YES		
W14	3257/13 /18LP	S189-02	AB4/LP09	N4	19.957*			V. LANGE	WATER PIPELINE CONTAINED IN 1 X 110 DIA DUCT UNDER THE ROAD RESERVE	NONE - REMAIN IN SITU	YES		
W15	3257/13 /19LP	S188-05	AB4/LP08	N4	20.717*			KROONDAL WATER BOARD	1 x 700 DIA WATER PIPELINE UNDER THE ROAD RESERVE	NONE - REMAIN IN SITU	YES		
U2	3257/13 /19LP			N4	20.885			UNKNOWN	UNKNOWN VALVE	THE TYPE OF SERVICE WILL NEED TO BE ESTABLISHED AND THE VALVE WILL NEED TO BE RELOCATED TO THE EDGE OF THE ROAD RESERVE IN ORDER TO ACCOMMODATE THE SECOND CARRIAGEWAY OF THE N4		YES	
W16	3257/13 /20LP	S188-07	AB4/LP08	N4	21.142			KROONDAL WATER BOARD	1 X 750 DIA CONCRETE WATER PIPE UNDER THE ROAD RESERVE AND ADJACENT TO N4	NONE - REMAIN IN SITU	YES	YES	

No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD

WORKS CONTRACT ENGINEER

Name : - - -
Prof. Reg. No. : - - -
Date : DD / MM / YYYY

SANRAL PROJECT MANAGER

Name : - - -
Prof. Reg. No. : - - -
Date : DD / MM / YYYY

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CONSULTANT APPROVAL

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for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION

THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION

SCHEDULE OF SERVICES

SCALE : N.T.S | SHEET 01 OF 10

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	13	13
DRAWING km DISTANCE	- -	- -
DRAWING TYPE	ROADS - UTILITIES	
BRIDGE/STRUCTURE No.	NA	
CONSULTANT DRAWING No.	FA 3257 / 23 / 01 SS	VER
SANRAL DOCUMENT #	- -	V0

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\05 - Services\3257-23-01-05 SS SERVICES SCHEDULE_20230717.dwg

ITEM NO.	APPLICABLE PLAN NO.	AS BUILT REF NO.	AS BUILT PLAN NO.	ROAD	CROSSING CHAINAGE (Km)	CHAINAGE FROM (Km)	CHAINAGE TO (Km)	AUTHORITY	DESCRIPTION OF SERVICE	DESCRIPTION OF WORK REQUIRED	SERVICE LOCATED ON ICW AS BUILTS	SERVICE LOCATED IN SURVEY	WAYLEAVE REFERENCE DATE
W17	3257/13 /20LP	S188-04	AB4/LP08	N4	21.257			KROONDAL WATER BOARD	1 x 700 DIA WATER PIPELINE UNDER THE ROAD RESERVE WITH 2 X VALVES ENCASED ENCASED CONCRETE	THE VALVES WILL HAVE TO BE RELOCATED TO THE EDGE OF THE ROAD RESERVE OF THE N4 IN ORDER TO ACCOMMODATE THE SECOND CARRIAGEWAY OF THE N4	YES	YES	
W18	3257/13 /20LP	S188-04	AB4/LP08	N4	21.287			RAND WATER	1 X 600 DIA RAND WATER PIPELINE UNDER THE ROAD RESERVE	NONE - REMAIN IN SITU	YES	YES	
STP8	3257/13 /20LP			KROONDAL EB OFF RAMP	0.522			BAKWENA	CAMERA AT KROONDAL OFF RAMP PLAZA	NONE - REMAIN IN SITU	YES	YES	
STP9	3257/13 /20LP			KROONDAL EB OFF RAMP	0.523			BAKWENA	CAMERA AT KROONDAL OFF RAMP PLAZA	NONE - REMAIN IN SITU	YES	YES	
STP10	3257/13 /20LP			KROONDAL EB OFF RAMP	0.515			BAKWENA	LOCKED MANHOLE KROONDAL OFF RAMP PLAZA	NONE - REMAIN IN SITU	YES	YES	
S2	3257/13 /20LP			N4	21.306			UNKNOWN	LOCKED SEWER MANHOLE KROONDAL OFF RAMP PLAZA	NONE - REMAIN IN SITU		YES	
STP11	3257/13 /20LP			KROONDAL EB OFF RAMP	0.511			BAKWENA	LOCKED MANHOLE AT KROONDAL OFF RAMP PLAZA	NONE - REMAIN IN SITU	YES	YES	
STP12	3257/13 /20LP			KROONDAL EB OFF RAMP	0.509			BAKWENA	LOCKED MANHOLE AT KROONDAL OFF RAMP PLAZA	NONE - REMAIN IN SITU	YES	YES	
T6	3257/13 /20LP			N4	21.317*			TELKOM	TELEPHONE LINES CONTAINED IN 8 X 160 DIA uPVC DUCTS UNDER THE ROAD RESERVE	NONE - REMAIN IN SITU	YES		
W19	3257/13 /20LP	S188-03	AB4/LP08	N4	21.289			RAND WATER	1 X 2400 X 2100 BC AJD 2 X 2100 X 2100 BC (CULVERT NO. S4028) CONTAINING 940 DIA AND 660 DIA RAND WATER PIPELINES UNDER THE ROAD RESERVE	NONE - REMAIN IN SITU	YES	YES	
T7	3257/13 /20LP	S188-02	AB4/LP08	N4	21.392*			TELKOM	TELEPHONE LINE CONTAINED IN 4 X 110 DIA DUCTS UNDER THE ROAD RESERVE	NONE - REMAIN IN SITU	YES		
E13	3257/13 /20LP	S188-01	AB4/LP08	N4	21.392*			RUSTENBURG LOCAL MUNICIPALITY	POWER LINES CONTAINED IN 2 X 160 DIA uPVC DUCTS UNDER THE ROAD RESERVE	NONE - REMAIN IN SITU	YES		
W20	3257/13 /20LP	S187-04	AB4/LP07	N4	21.751			OLIFANTSNEK IRRIGATION BOARD	1 X 600 DIA SPIGOT AND SOCKET IRRIGATION PIPE UNDER THE ROAD RESERVE WITH A VALVE CAST IN CONCRETE	THE VALVE WILL HAVE TO BE RELOCATED TO THE END OF THE ROAD RESERVE OF THE N4 IN ORDER TO ACCOMMODATE THE SECOND CARRIAGEWAY ON THE N4	YES	YES	
W21	3257/13 /20LP	S187-03	AB4/LP07	N4	21.887*	21.867*	21.867*	OLIFANTSNEK IRRIGATION BOARD	1 X 600 DIA SPIGOT AND SOCKET IRRIGATION PIPE UNDER THE ROAD RESERVE	NONE - REMAIN IN SITU	YES		
W22	3257/13 /21LP	S187-02	AB4/LP07	N4	22.248*			CR PENZHORN	160 DIA PVC DUCT CONTAINING A 63 DIA HDPE IRRIGATION PIPELINE UNDER THE ROAD RESERVE	NONE - REMAIN IN SITU	YES		
E14	3257/13 /21LP	S187-01	AB4/LP07	N4	22.252*			CR PENZHORN	1 X 160 DIA DUCT FOR ELECTRICAL CABLE UNDER THE ROAD RESERVE	NONE - REMAIN IN SITU	YES		
W23	3257/13 /21LP	S186-08	AB4/LP06	N4	22.577*			CR PENZHORN	1 X 450 DIA SPIGOT AND SOCKET CONCRETE WATER PIPE UNDER THE ROAD RESERVE	NONE - REMAIN IN SITU	YES		
W24	3257/13 /21LP	S186-06	AB4/LP06	N4	22.827*			OLIFANTSNEK IRRIGATION BOARD	1 X 450 DIA SPIGOT AND SOCKET CONCRETE WATER PIPE UNDER THE ROAD RESERVE	NONE - REMAIN IN SITU	YES		
W25	3257/13 /22LP	S186-05	AB4/LP06	N4	23.037*			PG ROOS	1 X 450 DIA SPIGOT AND SOCKET CONCRETE WATER PIPE UNDER THE ROAD RESERVE	NONE - REMAIN IN SITU	YES		
W26	3257/13 /22LP	S186-04	AB4/LP06	N4	23.247*			M MUHL	1 X 450 DIA SPIGOT AND SOCKET CONCRETE WATER PIPE UNDER THE ROAD RESERVE	NONE - REMAIN IN SITU	YES		
W27	3257/13 /22LP	S186-03	AB4/LP06	N4	23.297*			TOBACCO RESEARCH INSTITUTE	WATER PIPELINE UNKNOWN UNDER THE ROAD RESERVE	NONE - REMAIN IN SITU	YES		
W28	3257/13 /22LP	S186-01	AB4/LP06	N4	23.327*			OLIFANTSNEK IRRIGATION BOARD	1 X 450 DIA SPIGOT AND SOCKET CONCRETE WATER PIPE UNDER THE ROAD RESERVE	NONE - REMAIN IN SITU	YES		
E15	3257/13 /22LP	S186-01	AB4/LP06	N4	23.317*			RUSTENBURG LOCAL MUNICIPALITY	POWER LINE CONTAINED IN 2 X 160 DIA uPVC DUCTS UNDER THE ROAD RESERVE	NONE - REMAIN IN SITU	YES		
W29	3257/13 /23LP	S185-01, 02	AB4/LP05	N4	24.017*			OLIFANTSNEK IRRIGATION BOARD	1 X 450 DIA SPIGOT AND SOCKET CONCRETE WATER PIPE UNDER THE ROAD RESERVE	NONE - REMAIN IN SITU	YES		
W30	3257/13 /24LP	S183-05	AB4/LP03	N4	25.847*			OLIFANTSNEK IRRIGATION BOARD	2 X 450 DIA SPIGOT AND SOCKET CONCRETE WATER PIPE UNDER THE ROAD RESERVE	NONE - REMAIN IN SITU	YES		
T8	3257/13 /24LP	S183-04	AB4/LP03	N4	25.887*			TELKOM	TELEPHONE LINES CONTAINED IN 2 X 160 DIA uPVC DUCTS UNDER THE ROAD RESERVE	NONE - REMAIN IN SITU	YES		
E16	3257/13 /24LP	S183-03	AB4/LP03	N4	25.887*			RUSTENBURG LOCAL MUNICIPALITY	POWER LINES CONTAINED IN 1 X 160 DIA uPVC DUCT UNDER THE ROAD RESERVE	NONE - REMAIN IN SITU	YES		
W31	3257/13 /25LP	S183-01	AB4/LP03	N4	26.257*			J DE FLEMINGH	200 DIA GMS IRRIGATION PIPE CONTAINED IN A 600 DIA CONCRETE SLEEVE UNDER THE ROAD RESERVE	NONE - REMAIN IN SITU	YES		
T9	3257/13 /25LP	S182-07	AB4/LP03	N4	26.487*			TELKOM	TELEPHONE LINE CONTAINED IN 1 X 110 DIA DUCT UNDER THE ROAD RESERVE	NONE - REMAIN IN SITU	YES		
S3	3257/13 /25LP			N4	26.685			UNKNOWN	MANHOLE WITH SEWER	NONE - REMAIN IN SITU		YES	
U3	3257/13 /25LP			N4	26.694			UNKNOWN	UNKNOWN VALVE ENCASED IN CONCRETE	THE TYPE OF SERVICE WILL NEED TO BE ESTABLISHED AND THE VALVE WILL NEED TO BE RELOCATED TO THE EDGE OF THE ROAD RESERVE IN ORDER TO ACCOMMODATE THE SECOND CARRIAGEWAY OF THE N4		YES	
E17	3257/13 /25LP	S182-06	AB4/LP01	N4	26.717*	26.687*	26.757*	RUSTENBURG LOCAL MUNICIPALITY	11 KW POWER LINES CONTAINED IN 3 X 160 DIA uPVC DUCTS, A 450 DIA uPVC SLEEVE AND A 315 DIA PIPE UNDER THE ROAD RESERVE	NONE - REMAIN IN SITU	YES		
W32	3257/13 /25LP	B3	AB/3/SA/15	N4	26.717*			GG DUFFY	1200 X 4500 BC CONTAINING WATER PIPELINE UNDER THE EXISTING CARRIAGEWAY OF THE N4	THE CULVERT WILL NEED TO BE EXTENDED TO THE EDGE OF THE ROAD RESERVE OF THE N4 IN ORDER TO PROTECT THE PIPELINE BELOW THE N4	YES		
E18	3257/13 /25LP	E36	AB/3/SA/15	N4	2.717*			RUSTENBURG LOCAL MUNICIPALITY	11 KW POWER LINES CONTAINED IN 3 X 160 DIA uPVC DUCTS UNDER ROAD RESERVE	NONE - REMAIN IN SITU	YES		
E19	3257/13 /25LP	E35	AB/3/SA/15	N4	2.717*			RUSTENBURG LOCAL MUNICIPALITY	11 KW POWER LINE 1m INSIDE OF ROAD RESERVE OF THE N4	NONE - REMAIN IN SITU	YES		
S4	3257/13 /25LP			N4	26.734			UNKNOWN	SEWER MANHOLE	NONE - REMAIN IN SITU		YES	
W33	3257/13 /025LP	S182-05	AB4/LP02	N4	26.967*			OLIFANTSNEK IRRIGATION BOARD	1 X 750 DIA CONCRETE PIPE CONTAINING WATER CANAL UNDER THE EXISTING CARRIAGEWAY OF THE N4	THE PIPELINE WILL NEED EXTENDING TO THE EDGE OF THE ROAD RESERVE OF THE N4 IN ORDER TO ACCOMMODATE THE SECOND CARRIAGEWAY OF THE N4	YES		
E20	3257/13 /26LP	E34	AB/3/SA/15	N4	27.067*			RUSTENBURG LOCAL MUNICIPALITY	11 KW POWER LINE CONTAINED IN 1 X 160 DIA uPVC DUCT AN ADDITIONAL 1 X 160 DIA DUCT UNDER THE ROAD RESERVE	NONE - REMAIN IN SITU	YES		
E21	3257/13 /26LP	S182-04	AB4/LP02	N4	27.077*			RUSTENBURG LOCAL MUNICIPALITY	11 KW POWER LINE CONTAINED IN 1 X 160 DIA uPVC DUCT UNDER THE ROAD RESERVE	NONE - REMAIN IN SITU	YES		
T10	3257/13 /26LP	S182-03	AB4/LP02	N4	27.097*			TELKOM	TELEPHONE LINE CONTAINED IN 1 X 110 DIA DUCT UNDER THE ROAD RESERVE	NONE - REMAIN IN SITU	YES		
W34	3257/13 /26LP	S182-02	AB4/LP02	N4	27.367*	27.067*	27.367	OLIFANTSNEK IRRIGATION BOARD	450 SPIGOT AND SOCKET IRRIGATION PIPE UNDER THE ROAD RESERVE	NONE - REMAIN IN SITU	YES		
E22	3257/13 /26LP	E33	AB/3/SA/14	N4	27.567*			RUSTENBURG LOCAL MUNICIPALITY	11 KW POWER LINE CONTAINED IN 1 X 160 DIA uPVC DUCT UNDER THE ROAD RESERVE	NONE - REMAIN IN SITU	YES		
S5	3257/13 /26LP	S14	AB/3/SA/14	N4/P16-1	27.604			RUSTENBURG LOCAL MUNICIPALITY	450 DIA SEWER LINE UNDER ROAD RESERVE IN A BOX CULVERT REMAIN IN SITU WITH A MANHOLE	NONE - REMAIN IN SITU	YES	YES	
T11	3257/13 /26LP	T25	AB/3/SA/14	N4	27.627*			TELKOM	TELEPHONE LINE UNDER THE ROAD RESERVE	NONE - REMAIN IN SITU	YES		

No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name : - -
Prof. Reg. No. : - -
Date : DD / MM / YYYY
SANRAL PROJECT MANAGER
Name : - -
Prof. Reg. No. : - -
Date : DD / MM / YYYY

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CHECKED BY
NAME: PL NGQUMSHE
Prof. Reg. No.: 20080112
DRAWN BY
NAME: WB HARTMANN

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17 / 07 / 2023

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THE SOUTH AFRICAN NATIONAL ROADS AGENCY SOC LTD
Reg. No. 1998/009584/30

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ACCEPTANCE
THIS ACCEPTANCE IS FOR PROCEDURAL AND ADMINISTRATIVE REVIEW PURPOSES ONLY AND DOES NOT ATTRACT LEGAL LIABILITY OR LIABILITY OF ANY KIND FROM WHATSOEVER CAUSE OR HOWEVER ARISING
for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION
SCHEDULE OF SERVICES

SCALE : N.T.S
SHEET 02 OF 10

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	13	13
DRAWING km DISTANCE	- -	- -
DRAWING TYPE	ROADS - UTILITIES	
BRIDGE/STRUCTURE No.	NA	
CONSULTANT DRAWING No.	FA 3257 / 23 / 02 SS	VER V0
SANRAL DOCUMENT #	- -	

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\05 - Services\3257-23-01-05 SS SERVICES SCHEDULE_20230717.dwg

ITEM NO.	APPLICABLE PLAN NO.	AS BUILT REF NO.	AS BUILT PLAN NO.	ROAD	CROSSING CHAINAGE (Km)	CHAINAGE FROM (Km)	CHAINAGE TO (Km)	AUTHORITY	DESCRIPTION OF SERVICE	DESCRIPTION OF WORK REQUIRED	SERVICE LOCATED ON ICW AS BUILTS	SERVICE LOCATED IN SURVEY	WAYLEAVE REFERENCE DATE
T12	3257/13 /26LP	T27	AB/3/SA/14	N4	27.767*			TELKOM	TELEPHONE LINE CONTAINED IN 1 X 150 DIA DUCT UNDER R24 (P16-1) RUSTENBURG (KRUGERSDORP) INTERCHANGE - EASTBOUND OFF RAMP/WESTBOUND ON RAMP	NONE - REMAIN IN SITU	YES		
T13	3257/13 /27LP	T24	AB/3/SA/14	N4	28.067*			TELKOM	TELEPHONE LINE CONTAINED IN 1 X 150 DIA DUCT UNDER THE ROAD RESERVE	NONE - REMAIN IN SITU	YES		
E23	3257/13 /27LP	E31	AB/3/SA/14	N4	28.067*			RUSTENBURG LOCAL MUNICIPALITY	11 KW POWER LINES CONTAINED IN 7 X 160 DIA DUCTS UNDER THE ROAD RESERVE	NONE - REMAIN IN SITU	YES		
W35	3257/13 /27LP	W21	AB/3/SA/14	N4	28.015			RUSTENBURG LOCAL MUNICIPALITY	1 X 300 DIA STEEL WATER PIPELINE IN 1 X 600 DIA CONCRETE PIPE CULVERT UNDER THE ROAD RESERVE	NONE - REMAIN IN SITU	YES	YES	
E24	3257/13 /27LP	E??	AB/3/SA/14	N4	28.0667*			ESKOM	6 X 160 DIA ELECTRICAL DUCTS FOR FUTURE USE UNDER THE ROAD RESERVE	NONE - REMAIN IN SITU	YES		
W36	3257/13 /27LP	W20	AB/3/SA/13	N4	28.692*			RUSTENBURG LOCAL MUNICIPALITY	160 DIA STEEL WATER PIPELINE CONTAINED IN A 1200 DIA DUCT UNDER THE ROAD RESERVE	NONE - REMAIN IN SITU	YES		
W37	3257/13 /27LP	W??	AB/3/SA/13	N4	28.867*			RUSTENBURG LOCAL MUNICIPALITY	WATER PIPELINE UNDER THE ROAD RESERVE	NONE - REMAIN IN SITU	YES		
W38	3257/13 /28LP	W19	AB/3/SA/13	N4	29.117*			RUSTENBURG LOCAL MUNICIPALITY	200 DIA STEEL WATER PIPELINE CONTAINED IN A 1 X 1200 DIA 75d CONCRETE PIPE UNDER THE ROAD RESERVE	NONE - REMAIN IN SITU	YES		
E25	3257/13 /28LP	E29	AB/3/SA/13	N4	29.117*			RUSTENBURG LOCAL MUNICIPALITY	LOW VOLTAGE POWER CABLE IN 3 X 160 DIA DUCTS UNDER THE ROAD RESERVE	NONE - REMAIN IN SITU	YES		
E26	3257/13 /28LP	E??	AB/3/SA/13	N4	26.267*			ESKOM	6 X 160 DIA ELECTRICAL DUCTS FOR FUTURE USE UNDER THE ROAD RESERVE	NONE - REMAIN IN SITU	YES		
W39	3257/13 /28LP			N4	29.4			RAND WATER	WATER PIPELINE UNDER THE ROAD RESERVE	NONE - REMAIN IN SITU		YES	
S6	3257/13 /28LP	S13	AB/3/SA/13	N4	29.817*			RUSTENBURG LOCAL MUNICIPALITY	150 DIA SEWER LINE ENCASED IN 1 X 600 X 450 BC UNDER ROAD RESERVE	NONE - REMAIN IN SITU	YES		
E27	3257/13 /28LP	E28	AB/3/SA/12	N4	29.842*			RUSTENBURG LOCAL MUNICIPALITY	33KW AND 11KW POWER LINES CONTAINED IN 2 X 160 DIA DUCTS AND 1 X 160 DIA SPARE DUCT UNDER THE ROAD RESERVE	NONE - REMAIN IN SITU	YES		
S7	3257/13 /29LP	S11	AB/3/SA/11	N4	30.562			RUSTENBURG LOCAL MUNICIPALITY	SEWER LINE ENCASED IN 1 X 600 X 450 BC UNDER HELEN JOSEPH DRIVE AND A MANHOLE	NONE - REMAIN IN SITU	YES	YES	
W40	3257/13 /29LP	W16/17	AB/3/SA/11	N4	30.578			RUSTENBURG LOCAL MUNICIPALITY	1 X 1200 DIA 75 CONCRETE PIPE CULVERT WITH A 300 DIA STEEL WATER PIPELINE RUNNING PARALLEL TO THE N4 UNDER HELEN JOSEPH DRIVE BRIDGE AND UNDER THE ROAD RESERVE OF THE N4	NONE - REMAIN IN SITU	YES	YES	
S8	3257/13 /29LP	S??	AB/3/SA/11	N4	30.578			RUSTENBURG LOCAL MUNICIPALITY	SEWER IN CULVERT UNDER THE ROAD RESERVE WITH A LOCKED MANHOLE	NONE - REMAIN IN SITU	YES	YES	
T14	3257/13 /29LP	T19&T20	AB/3/SA/11	N4	30.617*			TELKOM	TELEPHONE LINES ENCASED IN 1 X 100 DIA DUCT UNDER THE ROAD RESERVE	THE PIPELINE WILL REMAIN IN SITU AND THE MANHOLE NEEDS TO BE RELOCATED AWAY FROM THE N4	YES	YES	
S9	3257/13 /29LP	S10	AB/3/SA/11	N4	30.715			RUSTENBURG LOCAL MUNICIPALITY	1 X 150 DIA SEWER LINE IN 1 X 600 X 450 BC UNDER THE ROAD RESERVE WITH A MANHOLE	NONE - REMAIN IN SITU	YES	YES	
W41	3257/13 /29LP	W22	AB/3/SA/11	N4	30.832			RUSTENBURG LOCAL MUNICIPALITY	1 X 150 DIA STEEL WATER PIPE IN 1 X 1050 DIA 75 D CONCRETE PIPE UNDER THE ROAD RESERVE WITH A VALVE ENCASED IN CONCRETE	NONE - REMAIN IN SITU	YES	YES	
W42	3257/13 /29LP	W22	AB/3/SA/11	N4	30.842			RUSTENBURG LOCAL MUNICIPALITY	1 X 150 DIA STEEL WATER PIPE IN 1 X 1050 DIA 75 D CONCRETE PIPE UNDER THE ROAD RESERVE WITH A VALVE ENCASED IN CONCRETE	NONE - REMAIN IN SITU	YES		
S10	3257/13 /29LP	S9	AB/3/SA/11	N4	30.617*			RUSTENBURG LOCAL MUNICIPALITY	1 X 150 DIA SEWER LINE CONTAINED IN A 600 X 450 BC UNDER THE ROAD RESERVE	NONE - REMAIN IN SITU	YES		
E28	3257/13 /30LP	E23	AB/3/SA/11	N4	31.092*			RUSTENBURG LOCAL MUNICIPALITY	POWER LINE CONTAINED IN 1 X 160 DIA DUCT WITH 1 X 160 DIA SPARE DUCT UNDER THE ROAD RESERVE	NONE - REMAIN IN SITU	YES		
S11	3257/13 /30LP	S8	AB/3/SA/11	N4	31.196			RUSTENBURG LOCAL MUNICIPALITY	1 X 150 DIA SEWER LINE CONTAINED IN A 600 X 450 BC UNDER THE ROAD RESERVE	NONE - REMAIN IN SITU	YES	YES	

*SERVICES WAS DETERMINED FROM AS-BUILT DRAWINGS

TENDER

No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD

WORKS CONTRACT ENGINEER

Name :
Prof. Reg. No. :
Date :

SANRAL PROJECT MANAGER

Name :
Prof. Reg. No. :
Date :

CONSULTANT

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DESIGNED BY

NAME : EF DAY
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NAME : PL NGQUMSHE
Prof. Reg. No. : 20080112

DRAWN BY

NAME : WB HARTMANN

CONSULTANT APPROVAL

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Prof. Reg. No. : 20080112
Date : 19 / 07 / 2039

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for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION

THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION

SCHEDULE OF SERVICES

SCALE : N.T.S | SHEET 03 OF 10

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001		
DRAWING LOCATION DATA	START	END	
ROUTE	N 4	N 4	
SECTION	13	13	
DRAWING km DISTANCE	- -	- -	
DRAWING TYPE	ROADS - UTILITIES		
BRIDGE/STRUCTURE No.	NA		
CONSULTANT DRAWING No.	FA	3257 / 23 / 03 SS	VER
SANRAL DOCUMENT #		- -	V0

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\05 - Services\3257-23-01-05 SS SERVICES SCHEDULE_20230717.dwg

APPLICABLE PLAN NO	ROAD	CROSSING CHAINING KM	AUTHORITY	DESCRIPTION OF SERVICES	DESCRIPTION OF WORK REQUIRED	POSITION (WGS 84 / LO 27°)		WAYLEAVE REFERENCE DATE
						Y	X	
3257 / 23 / 10 LP	N4	11 070.000	BAKWENA	DOUBLE STREET LIGHT	NEW	-40 522.906	2 848 822.158	
3257 / 23 / 10 LP	N4	11 091.195	BAKWENA	SINGLE STREET LIGHT	REMOVE	-	-	
3257 / 23 / 10 LP	N4	11 120.000	BAKWENA	DOUBLE STREET LIGHT	NEW	-40 473.334	2 848 828.690	
3257 / 23 / 10 LP	N4	11 131.421	BAKWENA	SINGLE STREET LIGHT	REMOVE	-	-	
3257 / 23 / 10 LP	N4	11 170.000	BAKWENA	DOUBLE STREET LIGHT	NEW	-40 423.763	2 848 835.222	
3257 / 23 / 10 LP	N4	11 171.490	BAKWENA	SINGLE STREET LIGHT	REMOVE	-	-	
3257 / 23 / 10 LP	N4	11 220.000	BAKWENA	DOUBLE STREET LIGHT	NEW	-40 374.191	2 848 841.754	
3257 / 23 / 10 LP	N4	11 213.128	BAKWENA	SINGLE STREET LIGHT	REMOVE	-	-	
3257 / 23 / 10 LP	N4	11 270.000	BAKWENA	DOUBLE STREET LIGHT	NEW	POSITION	POSITION	
3257 / 23 / 10 LP	N4	11 253.564	BAKWENA	SINGLE STREET LIGHT	REMOVE	-	-	
3257 / 23 / 10 LP	N4	11 297.003	BAKWENA	SINGLE STREET LIGHT	REMOVE	-	-	
3257 / 23 / 10 LP	N4	11 320.000	BAKWENA	DOUBLE STREET LIGHT	NEW	-40 275.048	2 848 854.818	
3257 / 23 / 10 LP	N4	11 340.000	BAKWENA	SINGLE STREET LIGHT	REMOVE	-	-	
3257 / 23 / 10 LP	N4	11 370.000	BAKWENA	DOUBLE STREET LIGHT	NEW	-40 225.477	2 848 861.350	
3257 / 23 / 10 LP	N4	11 383.069	BAKWENA	SINGLE STREET LIGHT	REMOVE	-	-	
3257 / 23 / 10 LP	N4	11 420.000	BAKWENA	DOUBLE STREET LIGHT	NEW	-40 175.905	2 848 867.882	
3257 / 23 / 10 LP	N4	11 424.827	BAKWENA	SINGLE STREET LIGHT	REMOVE	-	-	
3257 / 23 / 10 LP	N4	11 467.719	BAKWENA	SINGLE STREET LIGHT	REMOVE	-	-	
3257 / 23 / 10 LP	N4	11 470.000	BAKWENA	DOUBLE STREET LIGHT	NEW	-40 126.334	2 848 874.414	
3257 / 23 / 10 LP	N4	11 511.954	BAKWENA	SINGLE STREET LIGHT	REMOVE	-	-	
3257 / 23 / 10 LP	N4	11 520.000	BAKWENA	DOUBLE STREET LIGHT	NEW	-40 076.762	2 848 880.946	
3257 / 23 / 10 LP	N4	11 562.123	BAKWENA	SINGLE STREET LIGHT	REMOVE	-	-	
3257 / 23 / 10 LP	N4	11 570.000	BAKWENA	DOUBLE STREET LIGHT	NEW	-40 027.191	2 848 887.478	
3257 / 23 / 10 LP	N4	11 620.000	BAKWENA	DOUBLE STREET LIGHT	NEW	-39 977.619	2 848 894.010	
3257 / 23 / 10 LP	N4	11 633.683	BAKWENA	FLOOD LIGHT	AT TOLL MARIKANA TOLL PLAZA -REMAIN IN SITU	-39 961.593	2 848 876.761	
3257 / 23 / 10 LP	N4	11 705.421	BAKWENA	FLOOD LIGHT	AT TOLL MARIKANA TOLL PLAZA -REMAIN IN SITU	-39 890.317	2 848 886.063	
3257 / 23 / 10 LP	N4	11 768.665	BAKWENA	FLOOD LIGHT	AT TOLL MARIKANA TOLL PLAZA -REMAIN IN SITU	-39 827.763	2 848 894.358	
3257 / 23 / 10 LP	N4	11 840.000	BAKWENA	DOUBLE STREET LIGHT	NEW	-39 759.494	2 848 922.674	
3257 / 23 / 10 LP	N4	11 864.227	BAKWENA	FLOOD LIGHT	AT TOLL MARIKANA TOLL PLAZA -REMAIN IN SITU	-39 729.844	2 848 907.681	
3257 / 23 / 10 LP	N4	11 890.000	BAKWENA	DOUBLE STREET LIGHT	NEW	-39 709.923	2 848 929.206	
3257 / 23 / 10 LP	N4	11 940.000	BAKWENA	DOUBLE STREET LIGHT	NEW	-39 660.352	2 848 935.738	
3257 / 23 / 10 LP	N4	11 948.871	BAKWENA	SINGLE STREET LIGHT	REMOVE	-	-	
3257 / 23 / 10 LP	N4	11 990.000	BAKWENA	DOUBLE STREET LIGHT	NEW	-39 610.780	2 848 942.270	
3257 / 23 / 11 LPA	N4	12 002.014	BAKWENA	SINGLE STREET LIGHT	REMOVE	-	-	
3257 / 23 / 11 LP	N4	12 040.000	BAKWENA	DOUBLE STREET LIGHT	NEW	-39 561.209	2 848 948.802	
3257 / 23 / 11 LP	N4	12 043.795	BAKWENA	SINGLE STREET LIGHT	REMOVE	-	-	
3257 / 23 / 11 LP	N4	12 086.860	BAKWENA	SINGLE STREET LIGHT	REMOVE	-	-	
3257 / 23 / 11 LP	N4	12 090.000	BAKWENA	DOUBLE STREET LIGHT	NEW	-39 511.637	2 848 955.334	
3257 / 23 / 11 LP	N4	12 129.943	BAKWENA	SINGLE STREET LIGHT	REMOVE	-	-	
3257 / 23 / 11 LP	N4	12 140.000	BAKWENA	DOUBLE STREET LIGHT	NEW	-39 462.066	2 848 961.866	
3257 / 23 / 11 LP	N4	12 172.825	BAKWENA	SINGLE STREET LIGHT	REMOVE	-	-	
3257 / 23 / 11 LP	N4	12 190.000	BAKWENA	DOUBLE STREET LIGHT	NEW	-39 412.494	2 848 968.398	
3257 / 23 / 11 LP	N4	12 215.813	BAKWENA	SINGLE STREET LIGHT	REMOVE	-	-	
3257 / 23 / 11 LP	N4	12 240.000	BAKWENA	DOUBLE STREET LIGHT	NEW	-39 362.923	2 848 974.930	
3257 / 23 / 11 LP	N4	12 257.367	BAKWENA	SINGLE STREET LIGHT	REMOVE	-	-	
3257 / 23 / 11 LP	N4	11 290.000	BAKWENA	DOUBLE STREET LIGHT	NEW	-39 313.351	2 848 981.462	
3257 / 23 / 11 LP	N4	12 300.831	BAKWENA	SINGLE STREET LIGHT	REMOVE	-	-	
3257 / 23 / 11 LP	N4	12 339.804	BAKWENA	SINGLE STREET LIGHT	REMOVE	-	-	
3257 / 23 / 11 LP	N4	12 340.000	BAKWENA	DOUBLE STREET LIGHT	NEW	-39 263.779	2 848 987.994	
3257 / 23 / 11 LP	N4	12 380.695	BAKWENA	SINGLE STREET LIGHT	REMOVE	-	-	
3257 / 23 / 11 LP	N4	12 390.000	BAKWENA	DOUBLE STREET LIGHT	NEW	-39 214.208	2 848 994.526	
3257 / 23 / 11 LP	N4	12 507.886	BAKWENA	2X ELECTRICITY BOX FOR STREET LIGHTS	MOVE TO CENTRE OF CARRIAGEWAY	-39 097.159	2 848 994.526	
3257 / 23 / 11 LP	N4	12 594.707	BAKWENA	ELECTRICITY BOX FOR STREET LIGHTS	REMAIN IN SITU	-39 011.201	2 849 020.196	
3257 / 23 / 26 LP	N4	27 249.157	BAKWENA	ELECTRICITY BOX FOR STREET LIGHTS	REMOVE	-25 820.804	2 843 847.009	
3257 / 23 / 26 LP	N4	27 392.389	BAKWENA	SINGLE STREET LIGHT	REMOVE	-	-	
3257 / 23 / 26 LP	N4	27 435.429	BAKWENA	SINGLE STREET LIGHT	REMOVE	-	-	
3257 / 23 / 26 LP	N4	27 438.042	BAKWENA	ELECTRICITY BOX FOR STREET LIGHTS	REMOVE	-25 656.717	2 843 752.662	
3257 / 23 / 26 LP	N4	27 481.783	BAKWENA	SINGLE STREET LIGHT	REMOVE	-	-	
3257 / 23 / 26 LP	N4	27 524.093	BAKWENA	SINGLE STREET LIGHT	REMOVE	-	-	
3257 / 23 / 26 LP	N4	27 584.815	BAKWENA	SINGLE STREET LIGHT	REMOVE	-	-	
3257 / 23 / 26 LP	N4	27 620.000	BAKWENA	SINGLE STREET LIGHT	REMOVE	-	-	
3257 / 23 / 26 LP	N4	27 669.845	BAKWENA	SINGLE STREET LIGHT	REMOVE	-	-	
3257 / 23 / 26 LP	N4	27 714.258	BAKWENA	SINGLE STREET LIGHT	REMOVE	-	-	
3257 / 23 / 26 LP	N4	27 760.805	BAKWENA	SINGLE STREET LIGHT	REMOVE	-	-	
3257 / 23 / 26 LP	N4	27 807.720	BAKWENA	SINGLE STREET LIGHT	REMOVE	-	-	
3257 / 23 / 26 LP	N4	27 853.782	BAKWENA	SINGLE STREET LIGHT	REMOVE	-	-	
3257 / 23 / 27 LP	N4	28 276.507	BAKWENA	SINGLE STREET LIGHT	REMOVE	-	-	
3257 / 23 / 27 LP	N4	28 321.165	BAKWENA	SINGLE STREET LIGHT	REMOVE	-	-	
3257 / 23 / 27 LP	N4	28 416.657	BAKWENA	SINGLE STREET LIGHT	REMOVE	-	-	
3257 / 23 / 27 LP	N4	28 463.466	BAKWENA	SINGLE STREET LIGHT	REMOVE	-	-	
3257 / 23 / 27 LP	N4	28 510.507	BAKWENA	SINGLE STREET LIGHT	REMOVE	-	-	
3257 / 23 / 27 LP	N4	28 556.977	BAKWENA	SINGLE STREET LIGHT	REMOVE	-	-	
3257 / 23 / 27 LP	N4	28 604.196	BAKWENA	SINGLE STREET LIGHT	REMOVE	-	-	
3257 / 23 / 27 LP	N4	28 650.608	BAKWENA	SINGLE STREET LIGHT	REMOVE	-	-	
3257 / 23 / 27 LP	N4	28 697.689	BAKWENA	SINGLE STREET LIGHT	REMOVE	-	-	
3257 / 23 / 27 LP	N4	28 744.252	BAKWENA	SINGLE STREET LIGHT	REMOVE	-	-	
3257 / 23 / 27 LP	N4	28 791.062	BAKWENA	SINGLE STREET LIGHT	REMOVE	-	-	
3257 / 23 / 27 LP	N4	28 814.960	BAKWENA	ELECTRICITY BOX FOR STREET LIGHTS	REMOVE	-24 464.748	2 843 063.609	
3257 / 23 / 27 LP	N4	28 838.240	BAKWENA	SINGLE STREET LIGHT	REMOVE	-	-	
3257 / 23 / 27 LP	N4	28 884.909	BAKWENA	SINGLE STREET LIGHT	REMOVE	-	-	
3257 / 23 / 27 LP	N4	28 931.833	BAKWENA	SINGLE STREET LIGHT	REMOVE	-	-	
3257 / 23 / 27 LP	N4	28 978.815	BAKWENA	SINGLE STREET LIGHT	REMOVE	-	-	
3257 / 23 / 28 LP	N4	29 025.698	BAKWENA	SINGLE STREET LIGHT	REMOVE	-	-	
3257 / 23 / 28 LP	N4	29 072.691	BAKWENA	SINGLE STREET LIGHT	REMOVE	-	-	
3257 / 23 / 28 LP	N4	29 119.477	BAKWENA	SINGLE STREET LIGHT	REMOVE	-	-	
3257 / 23 / 28 LP	N4	29 166.310	BAKWENA	SINGLE STREET LIGHT	REMOVE	-	-	
3257 / 23 / 28 LP	N4	29 213.389	BAKWENA	SINGLE STREET LIGHT	REMOVE	-	-	

TENDER

No.	DATE	REVISION	
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE
			CONSULT. ENG.

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
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Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
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Date :

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CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17 / 07 / 2023

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ACCEPTANCE
THIS ACCEPTANCE IS FOR PROCEDURAL AND ADMINISTRATIVE REVIEW PURPOSES ONLY AND DOES NOT ATTRACT LEGAL LIABILITY OR LIABILITY OF ANY KIND FROM WHATSOEVER CAUSE OR HOWEVER ARISING
for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION
SCHEDULE OF SERVICES - STREET LIGHTS

SCALE : N.T.S
SHEET 04 OF 10

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001		
DRAWING LOCATION DATA	START	END	
ROUTE	N 4	N 4	
SECTION	13	13	
DRAWING km DISTANCE	- -	- -	
DRAWING TYPE	ROADS - UTILITIES		
BRIDGE/STRUCTURE No.	NA		
CONSULTANT DRAWING No.	FA	3257 / 23 / 04 SS	VER
SANRAL DOCUMENT #		- -	V0

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\05 - Services\3257-23-01-05 SS SERVICES SCHEDULE_20230717.dwg

APPLICABLE PLAN NO	ROAD	CROSSING CHAINING KM	AUTHORITY	DESCRIPTION OF SERVICES	DESCRIPTION OF WORK REQUIRED	POSITION (WGS 84 / LO 27°)		WAYLEAVE REFERENCE DATE
						Y	X	
3257 / 23 / 28 LP	N4	29 260.209	BAKWENA	SINGLE STREET LIGHT	REMOVE	-	-	
3257 / 23 / 28 LP	N4	29 307.266	BAKWENA	SINGLE STREET LIGHT	REMOVE	-	-	
3257 / 23 / 28 LP	N4	29 354.023	BAKWENA	SINGLE STREET LIGHT	REMOVE	-	-	
3257 / 23 / 28 LP	N4	29 401.441	BAKWENA	SINGLE STREET LIGHT	REMOVE	-	-	
3257 / 23 / 28 LP	N4	29 448.279	BAKWENA	SINGLE STREET LIGHT	REMOVE	-	-	
3257 / 23 / 28 LP	N4	29 494.814	BAKWENA	SINGLE STREET LIGHT	REMOVE	-	-	
3257 / 23 / 28 LP	N4	29 550.246	BAKWENA	SINGLE STREET LIGHT	REMOVE	-	-	
3257 / 23 / 28 LP	N4	29 605.015	BAKWENA	SINGLE STREET LIGHT	REMOVE	-	-	
3257 / 23 / 28 LP	N4	29 659.911	BAKWENA	SINGLE STREET LIGHT	REMOVE	-	-	
3257 / 23 / 28 LP	N4	29 833.330	BAKWENA	ELECTRICITY BOX FOR STREET LIGHTS	REMOVE	-23 523.427	2 842 678.584	
3257 / 23 / 29 LP	N4	30 422.717	BAKWENA	ELECTRICITY BOX FOR STREET LIGHTS	REMOVE	-22 952.485	2 842 532.978	
R104 (P2-4) KROONDAL INTERCHANGE - EASTBOUND OFF RAMP								
APPLICABLE PLAN NO	ROAD	CROSSING CHAINING KM	AUTHORITY	DESCRIPTION OF SERVICES	DESCRIPTION OF WORK REQUIRED	POSITION (WGS 84 / LO 27°)		WAYLEAVE REFERENCE DATE
						Y	X	
3257 / 23 / 20 LP	R104 - EASTBOUND	35.235	BAKWENA	SINGLE STREET LIGHT	RELOCATE FROM N4-13 CH 27 298.066	-30 555.611	2 846 581.987	
3257 / 23 / 20 LP	R104 - EASTBOUND	85.235	BAKWENA	SINGLE STREET LIGHT	RELOCATE FROM N4-13 CH 27 343.645	-30 599.735	2 846 605.505	
3257 / 23 / 20 LP	R104 - EASTBOUND	135.236	BAKWENA	SINGLE STREET LIGHT	MOVE TO NEW LOCATION AT SAME CHAINAGE	-30 643.858	2 846 629.023	
3257 / 23 / 20 LP	R104 - EASTBOUND	193.056	BAKWENA	SINGLE STREET LIGHT	MOVE TO NEW LOCATION AT SAME CHAINAGE	-30 686.059	2 846 651.058	
3257 / 23 / 20 LP	R104 - EASTBOUND	227.341	BAKWENA	SINGLE STREET LIGHT	MOVE TO NEW LOCATION AT SAME CHAINAGE	-30 725.139	2 846 672.346	
3257 / 23 / 20 LP	R104 - EASTBOUND	270.807	BAKWENA	SINGLE STREET LIGHT	MOVE TO NEW LOCATION AT SAME CHAINAGE	-30 764.680	2 846 693.326	
3257 / 23 / 20 LP	R104 - EASTBOUND	317.047	BAKWENA	SINGLE STREET LIGHT	MOVE TO NEW LOCATION AT SAME CHAINAGE	-30 804.361	2 846 714.429	
3257 / 23 / 20 LP	R104 - EASTBOUND	320.000	BAKWENA	ELECTRICITY BOX FOR STREET LIGHTS	MOVE TO NEW LOCATION AT CH 320	-30 806.908	2 846 715.929	
3257 / 23 / 20 LP	R104 - EASTBOUND	361.075	BAKWENA	SINGLE STREET LIGHT	MOVE TO NEW LOCATION AT SAME CHAINAGE	-30 843.308	2 846 735.174	
3257 / 23 / 20 LP	R104 - EASTBOUND	404.173	BAKWENA	SINGLE STREET LIGHT	MOVE TO NEW LOCATION AT SAME CHAINAGE	-30 882.030	2 846 752.537	
3257 / 23 / 20 LP	R104 - EASTBOUND	439.363	BAKWENA	SINGLE STREET LIGHT	REMAIN IN SITU	-30 915.398	2 846 762.693	
3257 / 23 / 20 LP	R104 - EASTBOUND	474.457	BAKWENA	SINGLE STREET LIGHT	REMAIN IN SITU	-30 949.698	2 846 769.589	
3257 / 23 / 20 LP	R104 - EASTBOUND	500.601	BAKWENA	SINGLE STREET LIGHT	REMAIN IN SITU	-30 975.325	2 846 774.765	
3257 / 23 / 20 LP	R104 - EASTBOUND	523.285	BAKWENA	SINGLE STREET LIGHT	REMAIN IN SITU	-30 997.539	2 846 779.357	
3257 / 23 / 20 LP	R104 - EASTBOUND	561.332	BAKWENA	SINGLE STREET LIGHT	REMAIN IN SITU	-31 034.839	2 846 786.862	
3257 / 23 / 20 LP	R104 - EASTBOUND	591.560	BAKWENA	SINGLE STREET LIGHT	REMAIN IN SITU	-31 064.458	2 846 792.892	
R24 (P16-1) RUSTENBURG (KRUGERSDORP) INTERCHANGE - EASTBOUND ON RAMP								
3257 / 23 / 26 LP	R24 - EASTBOUND	25.288	BAKWENA	SINGLE STREET LIGHT	REMAIN IN SITU	-25 568.077	2 843 569.453	
3257 / 23 / 26 LP	R24 - EASTBOUND	80.000	BAKWENA	SINGLE STREET LIGHT	REMAIN IN SITU	-25 619.784	2 843 587.739	
3257 / 23 / 26 LP	R24 - EASTBOUND	133.032	BAKWENA	SINGLE STREET LIGHT	REMAIN IN SITU	-25 668.663	2 843 617.413	
3257 / 23 / 26 LP	R24 - EASTBOUND	191.290	BAKWENA	SINGLE STREET LIGHT	REMAIN IN SITU	-25 706.122	2 843 658.474	
3257 / 23 / 26 LP	R24 - EASTBOUND	246.514	BAKWENA	SINGLE STREET LIGHT	REMAIN IN SITU	-25 738.494	2 843 703.214	
3257 / 23 / 26 LP	R24 - EASTBOUND	297.571	BAKWENA	SINGLE STREET LIGHT	REMAIN IN SITU	-25 770.791	2 843 748.830	
3257 / 23 / 26 LP	R24 - EASTBOUND	358.178	BAKWENA	SINGLE STREET LIGHT	RELOCATE FROM OLD RAMP ALIGNMENT	-25 807.064	2 843 790.540	
3257 / 23 / 26 LP	R24 - EASTBOUND	412.035	BAKWENA	SINGLE STREET LIGHT	RELOCATE FROM N4-13 CH 27 238.530	-25 847.552	2 843 824.954	
3257 / 23 / 26 LP	R24 - EASTBOUND	480.000	BAKWENA	SINGLE STREET LIGHT	RELOCATE FROM N4-13 CH 27 179.573	-25 903.373	2 843 863.601	
3257 / 23 / 26 LP	R24 - EASTBOUND	560.000	BAKWENA	SINGLE STREET LIGHT	RELOCATE FROM N4-13 CH 27 085.261	-25 969.824	2 843 907.905	

APPLICABLE PLAN NO	ROAD	CROSSING CHAINING KM	AUTHORITY	DESCRIPTION OF SERVICES	DESCRIPTION OF WORK REQUIRED	POSITION (WGS 84 / LO 27°)		WAYLEAVE REFERENCE DATE
						Y	X	
3257 / 23 / 26 LP	R24 - EASTBOUND	610.000	BAKWENA	SINGLE STREET LIGHT	RELOCATE FROM N4-13 CH 27037.999	-26 012.206	2 843 934.256	
3257 / 23 / 26 LP	R24 - EASTBOUND	660.000	BAKWENA	SINGLE STREET LIGHT	RELOCATE FROM N4-13 CH 26 990.072	-26 054.917	2 843 960.251	
3257 / 23 / 26 LP	R24 - EASTBOUND	710.000	BAKWENA	SINGLE STREET LIGHT	RELOCATE FROM N4-13 CH 26 942.560	-26 097.628	2 843 986.246	
3257 / 23 / 26 LP	R24 - EASTBOUND	760.000	BAKWENA	SINGLE STREET LIGHT	RELOCATE FROM N4-13 CH 26 895.498	-26 140.340	2 844 012.259	
3257 / 23 / 26 LP	R24 - EASTBOUND	810.000	BAKWENA	SINGLE STREET LIGHT	RELOCATE FROM N4-13 CH 27 206.164	-26 183.052	2 844 038.234	
3257 / 23 / 26 LP	R24 - EASTBOUND	860.000	BAKWENA	SINGLE STREET LIGHT	RELOCATE FROM N4-13 CH 27 251.955	-26 225.764	2 844 064.228	
R24 (P16-1) RUSTENBURG (KRUGERSDORP) INTERCHANGE - EASTBOUND OFF RAMP								
3257 / 23 / 26 LP	R24 - EASTBOUND	0.000	BAKWENA	SINGLE STREET LIGHT	RELOCATE FROM N4-13 CH 28 229.740	-24 974.602	2 843 336.276	
3257 / 23 / 26 LP	R24 - EASTBOUND	50.000	BAKWENA	SINGLE STREET LIGHT	RELOCATE FROM N4-13 CH 28 183.228	-25 018.109	2 843 360.596	
3257 / 23 / 26 LP	R24 - EASTBOUND	100.000	BAKWENA	SINGLE STREET LIGHT	RELOCATE FROM N4-13 CH 28 136.397	-25 062.233	2 843 384.113	
3257 / 23 / 26 LP	R24 - EASTBOUND	150.000	BAKWENA	SINGLE STREET LIGHT	RELOCATE FROM N4-13 CH 28 089.837	-25 106.356	2 843 407.632	
3257 / 23 / 26 LP	R24 - EASTBOUND	200.000	BAKWENA	SINGLE STREET LIGHT	RELOCATE FROM N4-13 CH 28 043.955	-25 150.480	2 843 431.150	
3257 / 23 / 26 LP	R24 - EASTBOUND	250.000	BAKWENA	SINGLE STREET LIGHT	RELOCATE FROM N4-13 CH 27 996.418	-25 194.603	2 843 454.668	
3257 / 23 / 26 LP	R24 - EASTBOUND	300.000	BAKWENA	SINGLE STREET LIGHT	RELOCATE FROM N4-13 CH 27 949.780	-25 238.727	2 843 478.187	
3257 / 23 / 26 LP	R24 - EASTBOUND	350.000	BAKWENA	SINGLE STREET LIGHT	RELOCATE FROM N4-13 CH 27 902.542	-25 282.851	2 843 501.705	
3257 / 23 / 26 LP	R24 - EASTBOUND	400.000	BAKWENA	SINGLE STREET LIGHT	RELOCATE FROM N4-13 CH 27 854.920	-25 326.961	2 843 525.216	
3257 / 23 / 26 LP	R24 - EASTBOUND	450.000	BAKWENA	SINGLE STREET LIGHT	RELOCATE FROM OLD RAMP ALIGNMENT	-25 372.228	2 843 544.532	
3257 / 23 / 26 LP	R24 - EASTBOUND	500.000	BAKWENA	SINGLE STREET LIGHT	RELOCATE FROM OLD RAMP ALIGNMENT	-25 420.180	2 843 554.488	
3257 / 23 / 26 LP	R24 - EASTBOUND	551.529	BAKWENA	SINGLE STREET LIGHT	REMAIN IN SITU	-25 471.736	2 843 557.665	
HELEN JOSEPH DRIVE INTERCHANGE - EASTBOUND ON RAMP								
3257 / 23 / 28 LP	HELEN JOSEPH DRIVE	20.000	BAKWENA	SINGLE STREET LIGHT	REMAIN IN SITU	-22 735.140	2 842 404.281	
3257 / 23 / 28 LP	HELEN JOSEPH DRIVE	67.285	BAKWENA	SINGLE STREET LIGHT	REMAIN IN SITU	-22 783.452	2 842 408.815	
3257 / 23 / 28 LP	HELEN JOSEPH DRIVE	119.831	BAKWENA	SINGLE STREET LIGHT	REMAIN IN SITU	-22 827.314	2 842 438.397	
3257 / 23 / 28 LP	HELEN JOSEPH DRIVE	170.000	BAKWENA	SINGLE STREET LIGHT	RELOCATE FROM OLD RAMP ALIGNMENT	-22 869.099	2 842 465.643	
3257 / 23 / 28 LP	HELEN JOSEPH DRIVE	220.000	BAKWENA	SINGLE STREET LIGHT	RELOCATE FROM OLD RAMP ALIGNMENT	-22 913.281	2 842 487.811	
3257 / 23 / 28 LP	HELEN JOSEPH DRIVE	270.000	BAKWENA	SINGLE STREET LIGHT	RELOCATE FROM N4-13 CH 30 466.746	-22 960.061	2 842 504.104	
3257 / 23 / 28 LP	HELEN JOSEPH DRIVE	320.000	BAKWENA	SINGLE STREET LIGHT	RELOCATE FROM N4-13 CH 30 365.958	-23 008.405	2 842 516.280	
3257 / 23 / 28 LP	HELEN JOSEPH DRIVE	370.000	BAKWENA	SINGLE STREET LIGHT	RELOCATE FROM N4-13 CH 30 316.958	-23 056.980	2 842 528.131	
3257 / 23 / 28 LP	HELEN JOSEPH DRIVE	420.000	BAKWENA	SINGLE STREET LIGHT	RELOCATE FROM N4-13 CH 30 260.766	-23 105.566	2 842 539.964	
3257 / 23 / 28 LP	HELEN JOSEPH DRIVE	470.000	BAKWENA	SINGLE STREET LIGHT	RELOCATE FROM N4-13 CH 30 205.475	-23 154.100	2 842 552.106	
3257 / 23 / 28 LP	HELEN JOSEPH DRIVE	520.000	BAKWENA	SINGLE STREET LIGHT	RELOCATE FROM N4-13 CH 30 150.389	-23 202.528	2 842 564.669	
3257 / 23 / 28 LP	HELEN JOSEPH DRIVE	570.000	BAKWENA	SINGLE STREET LIGHT	RELOCATE FROM N4-13 CH 30 095.361	-23 250.842	2 842 577.662	
3257 / 23 / 28 LP	HELEN JOSEPH DRIVE	620.000	BAKWENA	SINGLE STREET LIGHT	RELOCATE FROM N4-13 CH 30 040.852	-23 299.042	2 842 591.075	
3257 / 23 / 28 LP	HELEN JOSEPH DRIVE	670.000	BAKWENA	SINGLE STREET LIGHT	RELOCATE FROM N4-13 CH 29 987.105	-23 347.081	2 842 604.928	
3257 / 23 / 28 LP	HELEN JOSEPH DRIVE	720.000	BAKWENA	SINGLE STREET LIGHT	RELOCATE FROM N4-13 CH 29 933.073	-23 395.072	2 842 619.212	
3257 / 23 / 28 LP	HELEN JOSEPH DRIVE	770.000	BAKWENA	SINGLE STREET LIGHT	RELOCATE FROM N4-13 CH 29 879.010	-23 442.884	2 842 633.925	
3257 / 23 / 28 LP	HELEN JOSEPH DRIVE	820.000	BAKWENA	SINGLE STREET LIGHT	RELOCATE FROM N4-13 CH 29 824.096	-23 490.566	2 842 649.057	
3257 / 23 / 28 LP	HELEN JOSEPH DRIVE	870.000	BAKWENA	SINGLE STREET LIGHT	RELOCATE FROM N4-13 CH 29 769.834	-23 538.123	2 842 664.614	
3257 / 23 / 28 LP	HELEN JOSEPH DRIVE	920.000	BAKWENA	SINGLE STREET LIGHT	RELOCATE FROM N4-13 CH 29 714.978	-23 585.540	2 842 680.571	

TENDER

No.	DATE	REVISION	
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
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CHECKED BY	
NAME	PL NGQUMSHE
Prof. Reg. No.	20080112
DRAWN BY	
NAME	WB HARTMANN

CONSULTANT APPROVAL
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Prof. Reg. No. : 20080112
Date : 17 / 07 / 2023

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for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION
SCHEDULE OF SERVICES - STREET LIGHTS

SCALE : N.T.S | SHEET 05 OF 10

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	13	13
DRAWING km DISTANCE	- -	- -
DRAWING TYPE	ROADS - UTILITIES	
BRIDGE/STRUCTURE No.	NA	
CONSULTANT DRAWING No.	FA 3257 / 23 / 05 SS	VER V0
SANRAL DOCUMENT #	- -	

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\05 - Services\3257-23-01-05 SS SERVICES SCHEDULE_20230717.dwg

ITEM NO.	APPLICABLE PLAN NO.	AS BUILT REF NO.	AS BUILT PLAN NO.	ROAD	CROSSING CHAINAGE (Km)	CHAINAGE FROM (Km)	CHAINAGE TO (Km)	AUTHORITY	DESCRIPTION OF SERVICE	DESCRIPTION OF WORK REQUIRED	SERVICE LOCATED ON ICW AS BUILTS	SERVICE LOCATED IN SURVEY	WAYLEAVE REFERENCE DATE
W1	3257/23/30 LP			N4	30562.462				MANHOLE	NONE	YES	YES	
W2	3257/23/30 LP		AB/3/LP/11	N4	30595.218	30592.724	30597.469		1 X 300MM DIA WATER PIPELINE CROSSING ROAD	NONE	YES		
W3	3257/23/30 LP		AB/3/LP/11	N4	30606.800	30604.306	30609.051		1 X 300MM DIA WATER PIPELINE CROSSING ROAD	NONE	YES		
S1	3257/23/30 LP			N4	30610.592				MANHOLE - LOCKED	NONE	YES	YES	
S2	3257/23/30 LP		AB/3/LP/11	N4	30619.017				SEWER LINE CROSSING UNDER N4 ROAD	NONE	YES		
T1	3257/23/30 LP		AB/3/LP/11	N4	30623.640				OVERHEAD TELEPHONE LINE CROSSING ROAD	NONE	YES		
W4	3257/23/30 LP		AB/3/LP/11	N4	30652.726				WATER LINE CROSSING UNDER N4 ROAD	NONE	YES		
E1	3257/23/30 LP	E41 & E42	AB/3/LP/11	N4	30655.284			TOWN COUNCIL OF RUSTENBURG	6 X 100MM DIA POWERLINE DUCTS CROSSING N4 ROAD	NONE	YES		
W5	3257/23/30 LP		AB/3/LP/11	N4	30710.687	30714.063	30719.059		1 X PROPOSED STORMWATER CROSSING UNDER N4 ROAD	NONE	YES		
E2	3257/23/30 LP		AB/3/LP/11	N4	30712.313				POWERLINE DUCT CROSSING N4 ROAD	NONE	YES		
W6	3257/23/30 LP			N4	30714.512				MANHOLE - LOCKED	RELOCATE MANHOLE TO THE EDGE OF THE ROAD RESERVE IN ORDER TO ACCOMMODATE THE SECOND CARRIAGEWAY OF THE N4	YES	YES	
S3	3257/23/30 LP	S10	AB/3/LP/11	N4	30755.242	30749.999	30758.546	TOWN COUNCIL OF RUSTENBURG	1 X 150MM DIA SEWER PIPELINE IN 1 X 600 X 450 CONCRETE BOX CULVERT UNDER N4 ROAD	NONE	YES		
W7	3257/23/30 LP	W22	AB/3/LP/11	N4	30799.350			TOWN COUNCIL OF RUSTENBURG	MANHOLE & 1 X 150MM DIA STEEL PIPE IN 1 X 1050MM DIA CONCRETE PIPE CULVERT UNDER N4 ROAD	NONE	YES		
W8	3257/23/30 LP		AB/3/LP/11	N4	30820.000				MANHOLE	NONE	YES		
W9	3257/23/30 LP		AB/3/LP/11	N4	30831.981				VALVE	NONE	YES	YES	
W10	3257/23/30 LP			N4	30832.173				VALVE ENCASED IN CONCRETE	NONE	YES	YES	
W11	3257/23/30 LP		AB/3/LP/11	N4	30833.323				1 X WATER LINE CROSSING UNDER N4 ROAD	NONE	YES		
W12	3257/23/30 LP			N4	30842.179				VALVE ENCASED IN CONCRETE	NONE		YES	
U1	3257/23/30 LP		AB/3/LP/11	N4	30842.179				VALVE	NONE	YES		
S4	3257/23/30 LP	S9	AB/3/LP/11	N4	30916.682	30910.547	30922.779	TOWN COUNCIL OF RUSTENBURG	1 X 150MM DIA SEWER PIPELINE IN 1 X 600 X 450 CONCRETE BOX CULVERT UNDER N4 ROAD	NONE	YES		
W13	3257/23/31 LP		AB/3/LP/11	N4	31018.448	31004.341	31032.556		1 X STORMWATER LINE CROSSING UNDER N4 ROAD	NONE	YES		
E3	3257/23/31 LP			N4	31041.024				ELECTRICITY BOX	NONE		YES	
E4	3257/23/31 LP	E23	AB/3/LP/11	N4	31098.557			TOWN COUNCIL OF RUSTENBURG	11 KV POWER LINE CONTAINED IN 1 X 160 DIA DUCT UNDER N4 ROAD	NONE	YES		
E5	3257/23/31 LP	E24	AB/3/LP/11	N4	31100.058			TOWN COUNCIL OF RUSTENBURG	LIGHTING ON PEDESTRIAN BRIDGE OVER N4 ROAD	NONE	YES		
S5	3257/23/31 LP	S8	AB/3/LP/11	N4	31150.129			TOWN COUNCIL OF RUSTENBURG	MANHOLE & 1 X 150MM DIA SEWER PIPELINE IN CONCRETE CASING UNDER N4 ROAD	NONE	YES	YES	
S6	3257/23/31 LP			N4	31195.978			TOWN COUNCIL OF RUSTENBURG	MANHOLE - SEWER IL 1213.630	NONE	YES	YES	
S7	3257/23/31 LP			N4	31376.321				VALVE	NONE		YES	
E6	3257/23/31 LP			N4	31387.638				ELECTRICITY BOX	NONE		YES	
S8	3257/23/31 LP		AB/3/LP/10	N4	31509.615				MANHOLE	NONE	YES		
S9	3257/23/31 LP	S7	AB/3/LP/10	N4	31512.017	31510.765	31513.568	TOWN COUNCIL OF RUSTENBURG	1 X 150MM DIA SEWER PIPELINE IN CONCRETE CASING UNDER N4 ROAD	NONE	YES		
S10	3257/23/31 LP			N4	31513.550			TOWN COUNCIL OF RUSTENBURG	MANHOLE - BLOCKED	NONE	YES	YES	
S11	3257/23/31 LP			N4	31515.603				MANHOLE - SEWER IL 1210.81	NONE		YES	
S12	3257/23/31 LP			N4	31579.077				MANHOLE - SEWER IL 1209.950	NONE		YES	
E7	3257/23/31 LP		AB/3/LP/10	N4	31584.038	31582.270	31585.806		1 X PROPOSED POWER LINE CROSSING N4 ROAD	NONE	YES		
W14	3257/23/31 LP			N4	31626.461				VALVE	RELOCATE VALVE TO THE EDGE OF THE ROAD RESERVE IN ORDER TO ACCOMMODATE THE SECOND CARRIAGEWAY OF THE N4		YES	
W15	3257/23/31 LP	W13	AB/3/LP/10	N4	31631.041	31630.235	31632.012	TOWN COUNCIL OF RUSTENBURG	1 X 150MM DIA WATER PIPELINE CROSSING UNDER N4 ROAD	NONE	YES		
E8	3257/23/31 LP	E22	AB/3/LP/10	N4	31648.151			TOWN COUNCIL OF RUSTENBURG	POWER CABLES CONTAINED IN 2 X 160 DIA DUCT UNDER N4 ROAD	NONE	YES		
T2	3257/23/31 LP		AB/3/LP/10	N4	31654.458				UNDERGROUND TELEPHONE LINE CROSSING N4 ROAD	NONE	YES		
T3	3257/23/31 LP		AB/3/LP/10	N4	31693.933				TELEPHONE LINE CROSSING N4 ROAD	NONE	YES		
W16	3257/23/31 LP		AB/3/LP/10	N4	31733.432				WATER PIPE LINE CROSSING N4 ROAD	NONE	YES		
W17	3257/23/32 LP		AB/3/LP/10	N4	32029.144				STORMWATER LINE CROSSING N4 ROAD	NONE	YES		
E9	3257/23/32 LP	E19	AB/3/LP/10	N4	32031.456			TOWN COUNCIL OF RUSTENBURG	LIGHTING ON PEDESTRIAN BRIDGE OVER N4 ROAD	NONE	YES		
E10	3257/23/32 LP	E20	AB/3/LP/10	N4	32034.947			TOWN COUNCIL OF RUSTENBURG	11 KV POWER LINE CONTAINED IN 1 X 160 DIA DUCT UNDER N4 ROAD	NONE	YES		
S13	3257/23/32 LP	S5	AB/3/LP/10	N4	32042.110			TOWN COUNCIL OF RUSTENBURG	1 X 150MM DIA SEWER PIPELINE IN 1 X 600 X 450 CONCRETE BOX CULVERT UNDER N4 ROAD	NONE	YES		
W18	3257/23/32 LP	W9	AB/3/LP/10	N4	32046.899			TOWN COUNCIL OF RUSTENBURG	1 X 300MM DIA WATER PIPELINE UNDER KRUGER STREET ROAD RESERVE	NONE	YES		

No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD

WORKS CONTRACT ENGINEER

Name : - -
Prof. Reg. No. : - -
Date : DD / MM / YYYY

SANRAL PROJECT MANAGER

Name : - -
Prof. Reg. No. : - -
Date : DD / MM / YYYY

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NAME	WB HARTMANN

CONSULTANT APPROVAL

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ACCEPTANCE

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for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION

THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION

SCHEDULE OF SERVICES

SCALE : N.T.S | SHEET 06 OF 10

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	13	13
DRAWING km DISTANCE	- -	- -
DRAWING TYPE	ROADS - UTILITIES	
BRIDGE/STRUCTURE No.	NA	
CONSULTANT DRAWING No.	FA 3257 / 23 / 06 SS	VER
SANRAL DOCUMENT #	- -	V0

SANRAL DOCUMENT NUMBER :

ITEM NO.	APPLICABLE PLAN NO.	AS BUILT REF NO.	AS BUILT PLAN NO.	ROAD	CROSSING CHAINAGE (Km)	CHAINAGE FROM (Km)	CHAINAGE TO (Km)	AUTHORITY	DESCRIPTION OF SERVICE	DESCRIPTION OF WORK REQUIRED	SERVICE LOCATED ON ICW AS BUILTS	SERVICE LOCATED IN SURVEY	WAYLEAVE REFERENCE DATE
W19	3257/23/32 LP	W8	AB/3/LP/10	N4	32113.447	32084.959	32141.216	TOWN COUNCIL OF RUSTENBURG	1 X 375MM DIA WATER PIPELINE CROSSING UNDER ROAD IN 750MM DIA CONCRETE PIPE	NONE	YES		
W20	3257/23/32 LP	W10	AB/3/LP/10	N4	32186.037	32174.089	32201.588	TOWN COUNCIL OF RUSTENBURG	1 X 300MM DIA WATER PIPELINE CROSSING UNDER ROAD IN 1200MM DIA CONCRETE PIPE	NONE	YES		
W21	3257/23/32 LP	W7	AB/3/LP/10	N4	32218.118	32218.118	32221.120	TOWN COUNCIL OF RUSTENBURG	1 X 300MM DIA WATER PIPELINE CROSSING UNDER ROAD IN 1200MM DIA CONCRETE PIPE	NONE	YES		
E11	3257/23/32 LP			N4	32415.722				ELECTRICITY BOX	NONE		YES	
S14	3257/23/32 LP		AB/3/LP/09	N4	32643.517				MANHOLE	NONE	YES		
S15	3257/23/32 LP	S4	AB/3/LP/09	N4	32697.788	32681.575	32713.764	TOWN COUNCIL OF RUSTENBURG	1 X 150MM DIA SEWER PIPELINE IN 1 X 600 X 450 CONCRETE BOX CULVERT UNDER N4 ROAD	NONE	YES		
S16	3257/23/32 LP			N4	32739.135				MANHOLE - LOCKED	NONE	YES	YES	
S17	3257/23/32 LP	S3	AB/3/LP/09	N4	32739.491	32733.954	32750.840	TOWN COUNCIL OF RUSTENBURG	1 X 150MM DIA SEWER PIPELINE IN 1 X 600 X 450 CONCRETE BOX CULVERT UNDER N4 ROAD	NONE	YES		
E12	3257/23/32 LP	E18	AB/3/LP/09	N4	32739.491	32733.954	32750.840	TOWN COUNCIL OF RUSTENBURG	11 KV POWER LINE CONTAINED IN 1 X 160 DIA DUCT UNDER N4 ROAD	NONE	YES		
S18	3257/23/32 LP		AB/3/LP/09	N4	32743.866				MANHOLE	NONE	YES		
S19	3257/23/32 LP		AB/3/LP/09	N4	32769.393				MANHOLE	NONE	YES		
W22	3257/23/32 LP	W5	AB/3/LP/09	N5	32850.000			TOWN COUNCIL OF RUSTENBURG	PUMPSTATION & CABLE	NONE	YES		
W23	3257/23/32 LP	W6	AB/3/LP/09	N4	32874.419			TOWN COUNCIL OF RUSTENBURG	1 X 200MM DIA WATER PIPELINE CROSSING UNDER ROAD IN 750MM DIA CONCRETE PIPE	NONE	YES		
U2	3257/23/32 LP			N4	32880.087				VALVE	NONE		YES	
U3	3257/23/33 LP			N4	33129.892				VALVE	NONE		YES	
U4	3257/23/33 LP			N4	33184.959				VALVE	NONE		YES	
T4	3257/23/33 LP		AB/3/LP/09	N4/P16-2 EB ON-RAMP	33393.359	33391.542	33398.697		TELEPHONE LINE CROSSING N4 ROAD	NONE	YES		
U5	3257/23/33 LP			N4	33427.953				VALVE	NONE		YES	
E13	3257/23/33 LP	E17	AB/3/LP/08	N4/P16-2 EB ON-RAMP	33610.882	33606.829	33620.620	TOWN COUNCIL OF RUSTENBURG	POWER LINE CONTAINED IN 1 X 160 DIA DUCT UNDER N4 ROAD	NONE	YES		
E14	3257/23/34 LP	E14	AB/3/LP/08	N4	34063.547			TOWN COUNCIL OF RUSTENBURG	11 KV POWER LINE CONTAINED IN 1 X 160 DIA DUCT UNDER N4 ROAD	NONE	YES		
U6	3257/23/34 LP			N4	34366.099				VALVE	NONE		YES	
U7	3257/23/34 LP			P16-2 EB OFF-RAMP	209.010				VALVE			YES	
U8	3257/23/34 LP			N4	34657.941				VALVE			YES	
U9	3257/23/34 LP			N4	34825.870				2 X VALVES			YES	
E15	3257/23/34 LP	E13	AB/3/LP/07	N4	34861.594	34860.000	34864.632	TOWN COUNCIL OF RUSTENBURG	11 KV POWER LINE CONTAINED IN 1 X 160 DIA DUCT UNDER N4 ROAD	NONE	YES		
T5	3257/23/34 LP		AB/3/LP/07	N4	34899.216				PROPOSED TELEPHONE LINE CROSSING N4 ROAD	NONE	YES		
U10	3257/23/34 LP			N4	34953.071				VALVE	NONE		YES	
U11	3257/23/35 LP			N4	35120.302				VALVE	NONE		YES	
E16	3257/23/35 LP	E12	AB/3/LP/07	N4	35336.026			TOWN COUNCIL OF RUSTENBURG	11 KV POWER LINE CONTAINED IN 1 X 160 DIA DUCT UNDER N4 ROAD	NONE	YES		
U12	3257/23/35 LP			N4	35821.421				VALVE	NONE		YES	
E17	3257/23/35 LP	E10	AB/3/LP/06	N4	35832.528	35829.910	35835.202	TOWN COUNCIL OF RUSTENBURG	11 KV POWER LINE CONTAINED IN 1 X 160 DIA DUCT UNDER N4 ROAD	NONE	YES		
T6	3257/23/36 LP		AB/3/LP/06	N4	36171.260	36167.203	36178.924		TELEPHONE LINE CROSSING N4 ROAD	NONE	YES		
E18	3257/23/36 LP	E9	AB/3/LP/06	N4	36644.032			TOWN COUNCIL OF RUSTENBURG	11KV POWERLINE IN 1 X 160 DUCT UNDER N4 ROAD RESERVE	NONE	YES		
E19	3257/23/37 LP	E7	AB/3/LP/05	N4	37092.896	37088.268	37100.000	TOWN COUNCIL OF RUSTENBURG	11KV POWERLINE IN 1 X 160 DUCT UNDER N4 ROAD RESERVE	NONE	YES		
E20	3257/23/38 LP	E5	AB/3/LP/04	N4	38313.627			TOWN COUNCIL OF RUSTENBURG	11KV POWERLINE IN 1 X 160 DUCT UNDER N4 ROAD RESERVE	NONE	YES		
T7	3257/23/38 LP		AB/3/LP/04	N4	38334.068	38330.228	38339.524		TELEPHONE LINE CROSSING N4 ROAD	NONE	YES		
U13	3257/23/38 LP			N4	38450.392				VALVE	NONE		YES	
E21	3257/23/39 LP	ES4	AB/3/LP/03	N4	39049.727	39044.369	39060.870	ESKOM	275KV POWER LINE CROSSING ROAD	NONE	YES		
E22	3257/23/39 LP	ES3	AB/3/LP/03	N4	39073.550	39068.093	39081.596	ESKOM	132KV POWER LINE CROSSING ROAD	NONE	YES		
E23	3257/23/39 LP	ES2	AB/3/LP/03	N4	39347.245	39340.000	39358.721	ESKOM	132KV POWER LINE CROSSING ROAD	NONE	YES		
E24	3257/23/39 LP	ES1	AB/3/LP/03	N4	39390.399	39383.572	39396.279	ESKOM	88KV POWER LINE CROSSING ROAD	NONE	YES		
E25	3257/23/39 LP	W1	AB/3/LP/02	N4	39772.122			TOWN COUNCIL OF RUSTENBURG	1 X ELECTRIC CABLE CROSSING UNDER ROAD IN 110MM DIA DUCT	NONE	YES		
W24	3257/23/39 LP	W1	AB/3/LP/02	N4	39776.532			TOWN COUNCIL OF RUSTENBURG	1 X 30MM DIA WATER PIPELINE CROSSING UNDER ROAD IN 150MM DIA DUCT	NONE	YES		
U14	3257/23/40 LP			N4	40042.538				VALVE	NONE		YES	
T8	3257/23/40 LP		AB/3/LP/02	N4	40067.165	40053.060	40084.402	TOWN COUNCIL OF RUSTENBURG	OVERHEAD TELEPHONE LINE CROSSING N4 ROAD	NONE	YES		

No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name : - -
Prof. Reg. No. : - -
Date : DD / MM / YYYY
SANRAL PROJECT MANAGER
Name : - -
Prof. Reg. No. : - -
Date : DD / MM / YYYY

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CHECKED BY	
NAME	PL NGQUMSHE
Prof. Reg. No.	20080112
DRAWN BY	
NAME	WB HARTMANN

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17 / 07 / 2023

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ACCEPTANCE
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for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION
SCHEDULE OF SERVICES

SCALE : N.T.S
SHEET 08 OF 10

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	13	13
DRAWING km DISTANCE	- -	- -
DRAWING TYPE	ROADS - UTILITIES	
BRIDGE/STRUCTURE No.	NA	
CONSULTANT DRAWING No.	FA 3257 / 23 / 07 SS	VER
SANRAL DOCUMENT #	- -	V0

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (RLN)\03-Tender\03-Drawings\Volume 4-Roadworks\06 - Services\3257-23-06-10 SS SERVICES SCHEDULE_20230717.dwg

ITEM NO.	APPLICABLE PLAN NO.	AS BUILT REF NO.	AS BUILT PLAN NO.	ROAD		CHAINAGE FROM (Km)	CHAINAGE TO (Km)	AUTHORITY	DESCRIPTION OF SERVICE	DESCRIPTION OF WORK REQUIRED			
E26	3257/23/40 LP	E2	AB/3/LP/02	N4	40140.441	40129.102	40148.750	TOWN COUNCIL OF RUSTENBURG	POWERLINE IN 1 X 160 DUCT UNDER N4 ROAD RESERVE	NONE	YES		
U15	3257/23/40 LP			N4	40346.073				VALVE	RELOCATE VALVE TO THE EDGE OF THE ROAD RESERVE IN ORDER TO ACCOMMODATE THE SECOND CARRIAGEWAY OF THE N4		YES	
U16	3257/23/40 LP			N4	40500.807				VALVE	RELOCATE VALVE TO THE EDGE OF THE ROAD RESERVE IN ORDER TO ACCOMMODATE THE SECOND CARRIAGEWAY OF THE N4		YES	
U17	3257/23/40 LP			N4	40534.981				VALVE	RELOCATE VALVE TO THE EDGE OF THE ROAD RESERVE IN ORDER TO ACCOMMODATE THE SECOND CARRIAGEWAY OF THE N4		YES	
U18	3257/23/41 LP			N4	41046.1411				MANHOLE	RELOCATE MANHOLE TO THE EDGE OF THE ROAD RESERVE IN ORDER TO ACCOMMODATE THE SECOND CARRIAGEWAY OF THE N4		YES	
U19	3257/23/41 LP			N4	41112.9994				VALVE	RELOCATE VALVE TO THE EDGE OF THE ROAD RESERVE IN ORDER TO ACCOMMODATE THE SECOND CARRIAGEWAY OF THE N4		YES	
U20	3257/23/41 LP			N4	41332.0230				VALVE	NONE		YES	
U21	3257/23/41 LP			N4	41552.0985				VALVE	NONE		YES	
U22	3257/23/41 LP			N4	41630.2263				VALVE	NONE		YES	
U23	3257/23/41 LP			R104 EB OFF-RAMP	7.1879				VALVE	NONE		YES	
U24	3257/23/41 LP			R104 EB OFF-RAMP	115.6909				VALVE	NONE		YES	
U25	3257/23/41 LP			R104 EB OFF-RAMP	626.3740				VALVE	NONE		YES	
U26	3257/23/41 LP			R104 EB OFF-RAMP	700.0000				VALVE	NONE		YES	
U27	3257/23/41 LP			R104 EB OFF-RAMP	702.8963				VALVE	NONE		YES	

No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD

WORKS CONTRACT ENGINEER

Name :
Prof. Reg. No. :
Date

SANRAL PROJECT MANAGER

Name
Prof. Reg. No. :
Date :

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CONSULTANT APPROVAL

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for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION

THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION

SCHEDULE OF SERVICES

SCALE : N.T.S

SHEET 08 OF 10

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001		
DRAWING LOCATION DATA	START	END	
ROUTE	N 4	N 4	
SECTION	13	13	
DRAWING km DISTANCE	- -	- -	
DRAWING TYPE	ROADS - UTILITIES		
BRIDGE/STRUCTURE No.	NA		
CONSULTANT DRAWING No.	FA	3257 / 23 / 08 SS	VER
SANRAL DOCUMENT #		- -	V0

TENDER

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\05 - Services\3257-23-06-10 SS SERVICES SCHEDULE_20230717.dwg

APPLICABLE PLAN NO	ROAD	CROSSING CHAINING KM	AUTHORITY	DESCRIPTION OF SERVICES	DESCRIPTION OF WORK REQUIRED	POSITION (WGS 84 / LO 27°)		WAYLEAVE REFERENCE DATE
						Y	X	
3257 / 23 / 30 LP	N4	30529.0000	BAKWENA	SINGLE STREET LIGHT	REMOVE	-22 846.884	2 842 518.211	
3257 / 23 / 30 LP	N4	30581.5110	BAKWENA	SINGLE STREET LIGHT	REMOVE	-22 795.179	2 842 509.151	
3257 / 23 / 30 LP	N4	30634.9930	BAKWENA	SINGLE STREET LIGHT	REMOVE	-22 742.414	2 842 500.494	
3257 / 23 / 30 LP	N4	30653.2840	BAKWENA	SINGLE STREET LIGHT	REMOVE	-22 725.430	2 842 490.651	
3257 / 23 / 30 LP	N4	30689.5190	BAKWENA	SINGLE STREET LIGHT	REMOVE	-22 688.493	2 842 492.506	
3257 / 23 / 30 LP	N4	30744.9860	BAKWENA	SINGLE STREET LIGHT	REMOVE	-22 633.829	2 842 482.995	
3257 / 23 / 30 LP	N4	30801.2180	BAKWENA	SINGLE STREET LIGHT	REMOVE	-22 578.097	2 842 475.518	
3257 / 23 / 30 LP	N4	30856.8988	BAKWENA	SINGLE STREET LIGHT	REMOVE	-22 522.896	2 842 468.220	
3257 / 23 / 30 LP	N4	30912.9270	BAKWENA	SINGLE STREET LIGHT	REMOVE	-22 467.351	2 842 460.875	
3257 / 23 / 30 LP	N4	30968.6599	BAKWENA	SINGLE STREET LIGHT	REMOVE	-22 412.099	2 842 453.572	
3257 / 23 / 31 LP	N4	31024.4840	BAKWENA	SINGLE STREET LIGHT	REMOVE	-22 356.755	2 842 446.270	
3257 / 23 / 31 LP	N4	31041.0239	BAKWENA	ELECTRIC BOX	REMOVE	-	-	
3257 / 23 / 31 LP	N4	31080.2866	BAKWENA	SINGLE STREET LIGHT	REMOVE	-22 301.415	2 842 439.094	
3257 / 23 / 31 LP	N4	31135.7428	BAKWENA	SINGLE STREET LIGHT	REMOVE	-22 246.458	2 842 431.668	
3257 / 23 / 31 LP	N4	31191.9490	BAKWENA	SINGLE STREET LIGHT	REMOVE	-22 190.731	2 842 424.344	
3257 / 23 / 31 LP	N4	31247.8380	BAKWENA	SINGLE STREET LIGHT	REMOVE	-22 135.341	2 842 416.972	
3257 / 23 / 31 LP	N4	31303.3558	BAKWENA	SINGLE STREET LIGHT	REMOVE	-22 080.288	2 842 409.722	
3257 / 23 / 31 LP	N4	31359.2339	BAKWENA	SINGLE STREET LIGHT	REMOVE	-22 024.887	2 842 402.435	
3257 / 23 / 31 LP	N4	31387.2437	BAKWENA	ELECTRIC BOX	REMOVE	-	-	
3257 / 23 / 31 LP	N4	31414.9850	BAKWENA	SINGLE STREET LIGHT	REMOVE	-21 969.639	2 842 395.047	
3257 / 23 / 31 LP	N4	31471.1401	BAKWENA	SINGLE STREET LIGHT	REMOVE	-21 913.947	2 842 387.762	
3257 / 23 / 31 LP	N4	31526.5480	BAKWENA	SINGLE STREET LIGHT	REMOVE	-21 859.025	2 842 380.441	
3257 / 23 / 31 LP	N4	31582.3663	BAKWENA	SINGLE STREET LIGHT	REMOVE	-21 803.682	2 842 373.171	
3257 / 23 / 31 LP	N4	31638.7147	BAKWENA	SINGLE STREET LIGHT	REMOVE	-21 747.826	2 842 365.738	
3257 / 23 / 31 LP	N4	31660.0673	BAKWENA	SINGLE STREET LIGHT	REMOVE	-21 727.889	2 842 353.632	
3257 / 23 / 31 LP	N4	31697.4190	BAKWENA	SINGLE STREET LIGHT	REMOVE	-21 689.620	2 842 358.105	
3257 / 23 / 31 LP	N4	31750.6937	BAKWENA	SINGLE STREET LIGHT	REMOVE	-21 636.832	2 842 350.917	
3257 / 23 / 31 LP	N4	31803.2817	BAKWENA	SINGLE STREET LIGHT	REMOVE	-21 584.730	2 842 343.780	
3257 / 23 / 31 LP	N4	31855.7177	BAKWENA	SINGLE STREET LIGHT	REMOVE	-21 532.744	2 842 336.935	
3257 / 23 / 31 LP	N4	31908.5326	BAKWENA	SINGLE STREET LIGHT	REMOVE	-21 480.505	2 842 329.186	
3257 / 23 / 31 LP	N4	31961.4050	BAKWENA	SINGLE STREET LIGHT	REMOVE	-21 428.144	2 842 321.792	
3257 / 23 / 32 LP	N4	32015.5132	BAKWENA	SINGLE STREET LIGHT	REMOVE	-21 374.953	2 842 311.827	
3257 / 23 / 32 LP	N4	32071.0328	BAKWENA	SINGLE STREET LIGHT	REMOVE	-21 320.330	2 842 301.895	
3257 / 23 / 32 LP	N4	32125.2737	BAKWENA	SINGLE STREET LIGHT	REMOVE	-21 267.208	2 842 290.930	
3257 / 23 / 32 LP	N4	32180.3280	BAKWENA	SINGLE STREET LIGHT	REMOVE	-21 213.239	2 842 280.023	
3257 / 23 / 32 LP	N4	32235.3340	BAKWENA	SINGLE STREET LIGHT	REMOVE	-21 159.607	2 842 267.761	
3257 / 23 / 32 LP	N4	32290.6220	BAKWENA	SINGLE STREET LIGHT	REMOVE	-21 106.147	2 842 253.597	
3257 / 23 / 32 LP	N4	32344.7610	BAKWENA	SINGLE STREET LIGHT	REMOVE	-21 053.786	2 842 239.847	
3257 / 23 / 32 LP	N4	32407.4120	BAKWENA	SINGLE STREET LIGHT	REMOVE	-20 993.742	2 842 221.974	
3257 / 23 / 32 LP	N4	32415.8390	BAKWENA	ELECTRIC BOX	REMOVE	-	-	
3257 / 23 / 32 LP	N4	32454.0195	BAKWENA	SINGLE STREET LIGHT	REMOVE	-20 948.588	2 842 210.359	
3257 / 23 / 32 LP	N4	32510.6269	BAKWENA	SINGLE STREET LIGHT	REMOVE	-20 894.415	2 842 193.932	
3257 / 23 / 32 LP	N4	32563.7176	BAKWENA	SINGLE STREET LIGHT	REMOVE	-20 843.947	2 842 177.445	
3257 / 23 / 32 LP	N4	32618.7392	BAKWENA	SINGLE STREET LIGHT	REMOVE	-20 791.499	2 842 160.783	
3257 / 23 / 32 LP	N4	32673.7453	BAKWENA	SINGLE STREET LIGHT	REMOVE	-20 739.963	2 842 141.498	

APPLICABLE PLAN NO	ROAD	CROSSING CHAINING KM	AUTHORITY	DESCRIPTION OF SERVICES	DESCRIPTION OF WORK REQUIRED	POSITION (WGS 84 / LO 27°)		WAYLEAVE REFERENCE DATE
						Y	X	
3257 / 23 / 32 LP	N4	32729.1287	BAKWENA	SINGLE STREET LIGHT	REMOVE	-20 687.535	2 842 123.593	
3257 / 23 / 32 LP	N4	32783.1422	BAKWENA	SINGLE STREET LIGHT	REMOVE	-20 637.124	2 842 104.150	
3257 / 23 / 32 LP	N4	32838.5977	BAKWENA	SINGLE STREET LIGHT	REMOVE	-20 585.603	2 842 083.603	
3257 / 23 / 32 LP	N4	32893.1924	BAKWENA	SINGLE STREET LIGHT	REMOVE	-20 535.151	2 842 062.688	
3257 / 23 / 32 LP	N4	32947.9706	BAKWENA	SINGLE STREET LIGHT	REMOVE	-20 484.851	2 842 040.949	
3257 / 23 / 33 LP	N4	33002.6406	BAKWENA	SINGLE STREET LIGHT	REMOVE	-20 435.464	2 842 017.454	
3257 / 23 / 33 LP	N4	33057.8473	BAKWENA	SINGLE STREET LIGHT	REMOVE	-20 386.558	2 841 991.733	
3257 / 23 / 33 LP	N4	33848.0916	BAKWENA	SINGLE STREET LIGHT	REMOVE	-19 713.518	2 841 581.669	
3257 / 23 / 38 LP	N4	38271.6708	BAKWENA	SINGLE STREET LIGHT	REMOVE	-16 996.175	2 838 111.545	
3257 / 23 / 38 LP	N4	38321.8419	BAKWENA	SINGLE STREET LIGHT	REMOVE	-16 966.916	2 838 070.789	
3257 / 23 / 38 LP	N4	38371.5796	BAKWENA	SINGLE STREET LIGHT	REMOVE	-16 938.048	2 838 030.286	
3257 / 23 / 38 LP	N4	38421.1196	BAKWENA	SINGLE STREET LIGHT	REMOVE	-16 908.895	2 837 990.137	
3257 / 23 / 38 LP	N4	38471.3986	BAKWENA	SINGLE STREET LIGHT	REMOVE	-16 879.782	2 837 949.237	
3257 / 23 / 38 LP	N4	38571.3200	BAKWENA	SINGLE STREET LIGHT	REMOVE	-16 821.766	2 837 867.883	
3257 / 23 / 38 LP	N4	38621.2343	BAKWENA	SINGLE STREET LIGHT	REMOVE	-16 792.564	2 837 827.402	
3257 / 23 / 38 LP	N4	38671.3213	BAKWENA	SINGLE STREET LIGHT	REMOVE	-16 763.386	2 837 786.689	
3257 / 23 / 38 LP	N4	38771.0228	BAKWENA	SINGLE STREET LIGHT	REMOVE	-16 705.515	2 837 705.504	
3257 / 23 / 38 LP	N4	38820.6397	BAKWENA	SINGLE STREET LIGHT	REMOVE	-16 676.578	2 837 665.199	
3257 / 23 / 38 LP	N4	38870.1445	BAKWENA	SINGLE STREET LIGHT	REMOVE	-16 647.736	2 837 624.964	
3257 / 23 / 38 LP	N4	38919.6082	BAKWENA	SINGLE STREET LIGHT	REMOVE	-16 619.147	2 837 584.598	
3257 / 23 / 38 LP	N4	38969.7649	BAKWENA	SINGLE STREET LIGHT	REMOVE	-16 589.804	2 837 543.920	
3257 / 23 / 39 LP	N4	39019.4309	BAKWENA	SINGLE STREET LIGHT	REMOVE	-16 560.102	2 837 504.115	
3257 / 23 / 39 LP	N4	39069.2243	BAKWENA	SINGLE STREET LIGHT	REMOVE	-16 529.580	2 837 464.780	
3257 / 23 / 39 LP	N4	39119.5335	BAKWENA	SINGLE STREET LIGHT	REMOVE	-16 498.338	2 837 425.355	
3257 / 23 / 39 LP	N4	39169.7397	BAKWENA	SINGLE STREET LIGHT	REMOVE	-16 466.322	2 837 386.691	
3257 / 23 / 39 LP	N4	39219.5393	BAKWENA	SINGLE STREET LIGHT	REMOVE	-16 433.847	2 837 348.944	
3257 / 23 / 39 LP	N4	39269.5613	BAKWENA	SINGLE STREET LIGHT	REMOVE	-16 400.646	2 837 311.542	
3257 / 23 / 39 LP	N4	39319.6337	BAKWENA	SINGLE STREET LIGHT	REMOVE	-16 366.786	2 837 274.662	
3257 / 23 / 39 LP	N4	39369.6211	BAKWENA	SINGLE STREET LIGHT	REMOVE	-16 332.184	2 837 238.598	
3257 / 23 / 39 LP	N4	39419.3134	BAKWENA	SINGLE STREET LIGHT	REMOVE	-16 297.200	2 837 203.317	
3257 / 23 / 39 LP	N4	39469.7403	BAKWENA	SINGLE STREET LIGHT	REMOVE	-16 261.075	2 837 168.151	
3257 / 23 / 39 LP	N4	39519.4046	BAKWENA	SINGLE STREET LIGHT	REMOVE	-16 225.158	2 837 133.860	
3257 / 23 / 40 LP	N4	40531.1956	BAKWENA	SINGLE STREET LIGHT	REMOVE	-15 407.550	2 836 539.671	
3257 / 23 / 40 LP	N4	40581.5376	BAKWENA	SINGLE STREET LIGHT	REMOVE	-15 365.975	2 836 511.283	
3257 / 23 / 40 LP	N4	40631.0955	BAKWENA	SINGLE STREET LIGHT	REMOVE	-15 325.137	2 836 483.205	
3257 / 23 / 40 LP	N4	40681.1537	BAKWENA	SINGLE STREET LIGHT	REMOVE	-15 283.815	2 836 454.950	
3257 / 23 / 40 LP	N4	40734.3632	BAKWENA	SINGLE STREET LIGHT	REMOVE	-15 239.974	2 836 424.794	
3257 / 23 / 40 LP	N4	40784.3094	BAKWENA	SINGLE STREET LIGHT	REMOVE	-15 198.816	2 836 396.496	
3257 / 23 / 40 LP	N4	40834.1330	BAKWENA	SINGLE STREET LIGHT	REMOVE	-15 157.509	2 836 368.637	
3257 / 23 / 40 LP	N4	40882.5587	BAKWENA	SINGLE STREET LIGHT	REMOVE	-15 117.477	2 836 341.388	
3257 / 23 / 41 LP	N4	40936.5561	BAKWENA	SINGLE STREET LIGHT	REMOVE	-15 072.850	2 836 311.090	
3257 / 23 / 41 LP	N4	41036.7235	BAKWENA	SINGLE STREET LIGHT	REMOVE	-14 989.920	2 836 254.930	
3257 / 23 / 41 LP	N4	41086.5491	BAKWENA	SINGLE STREET LIGHT	REMOVE	-14 946.281	2 836 230.347	
3257 / 23 / 41 LP	N4	41341.8770	BAKWENA	SINGLE STREET LIGHT	REMOVE	-14 696.696	2 836 167.489	
3257 / 23 / 41 LP	N4	41489.5530	BAKWENA	SINGLE STREET LIGHT	REMOVE	-14 546.992	2 836 184.132	

No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date :

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Prof. Reg. No. : --
CHECKED BY
NAME: PL NGQUMSHE
Prof. Reg. No. : 20080112
DRAWN BY
NAME: Z MASHININI

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17 / 07 / 2023

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THE SOUTH AFRICAN NATIONAL ROADS AGENCY SOC LTD
Reg. No. 1998/009584/30

NORTHERN REGION
38 Ida Street
Menlo Park
Pretoria
0081
Private Bag X17
Lynnwood Ridge
0040
Tel: (012) 426 6200

ACCEPTANCE
THIS ACCEPTANCE IS FOR PROCEDURAL AND ADMINISTRATIVE REVIEW PURPOSES ONLY AND DOES NOT ATTRACT LEGAL LIABILITY OR LIABILITY OF ANY KIND FROM WHATSOEVER CAUSE OR HOWEVER ARISING
for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION
SCHEDULE OF SERVICES

SCALE : N.T.S
SHEET 09 OF 10

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001		
DRAWING LOCATION DATA	START	END	
ROUTE	N 4	N 4	
SECTION	13	13	
DRAWING km DISTANCE	- -	- -	
DRAWING TYPE	ROADS - UTILITIES		
BRIDGE/STRUCTURE No.	NA		
CONSULTANT DRAWING No.	FA	3257 / 23 / 09 SS	VER
SANRAL DOCUMENT #		- -	V0

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\05 - Services\3257-23-06-10 SS SERVICES SCHEDULE_20230717.dwg

APPLICABLE PLAN NO	ROAD	CROSSING CHAINING KM	AUTHORITY	DESCRIPTION OF SERVICES	DESCRIPTION OF WORK REQUIRED	POSITION (WGS 84 / LO 27°)		WAYLEAVE REFERENCE DATE
						Y	X	
3257 / 23 / 41 LP	N4	41537.9445	BAKWENA	SINGLE STREET LIGHT	REMAIN INSITU	-14 499.704	2 836 198.335	
3257 / 23 / 41 LP	N4	41591.0543	BAKWENA	SINGLE STREET LIGHT	REMAIN INSITU	-14 449.528	2 836 219.587	
(P16-2) DR MOROKA INTERCHANGE - EASTBOUND ON RAMP								
APPLICABLE PLAN NO	ROAD	CROSSING CHAINING KM	AUTHORITY	DESCRIPTION OF SERVICES	DESCRIPTION OF WORK REQUIRED	POSITION (WGS 84 / LO 27°)		WAYLEAVE REFERENCE DATE
						Y	X	
3257 / 23 / 33 LP	DR MOROKA DRIVE	33.0398	BAKWENA		REMAIN INSITU	-19 786.837	2 841 509.798	
3257 / 23 / 33 LP	DR MOROKA DRIVE	93.1791	BAKWENA	SINGLE STREET LIGHT	REMAIN INSITU	-19 824.225	2 841 556.904	
3257 / 23 / 33 LP	DR MOROKA DRIVE	149.1963	BAKWENA	SINGLE STREET LIGHT	REMAIN INSITU	-19 859.336	2 841 600.552	
3257 / 23 / 33 LP	DR MOROKA DRIVE	205.3608	BAKWENA	SINGLE STREET LIGHT	REMAIN INSITU	-19 894.437	2 841 644.397	
3257 / 23 / 33 LP	DR MOROKA DRIVE	220.9310	BAKWENA	ELECTRIC BOX	REMAIN INSITU	-	-	
3257 / 23 / 33 LP	DR MOROKA DRIVE	261.1400	BAKWENA	SINGLE STREET LIGHT	REMAIN INSITU	-19 929.473	2 841 687.782	
3257 / 23 / 33 LP	DR MOROKA DRIVE	316.9259	BAKWENA	SINGLE STREET LIGHT	MOVE TO NORTHERN EDGE OF NEW RAMP	-19 966.195	2 841 728.629	
3257 / 23 / 33 LP	DR MOROKA DRIVE	371.8700	BAKWENA	SINGLE STREET LIGHT	MOVE TO NORTHERN EDGE OF NEW RAMP	-20 007.347	2 841 765.294	
3257 / 23 / 33 LP	DR MOROKA DRIVE	373.4705	BAKWENA	ELECTRIC BOX	MOVE TO NORTHERN EDGE OF NEW RAMP	-	-	
3257 / 23 / 33 LP	DR MOROKA DRIVE	427.3310	BAKWENA	SINGLE STREET LIGHT	MOVE TO NORTHERN EDGE OF NEW RAMP	-20 052.572	2 841 797.613	
3257 / 23 / 33 LP	DR MOROKA DRIVE	482.6970	BAKWENA	SINGLE STREET LIGHT	MOVE TO NORTHERN EDGE OF NEW RAMP	-20 098.953	2 841 828.098	
3257 / 23 / 33 LP	DR MOROKA DRIVE	538.5314	BAKWENA	SINGLE STREET LIGHT	MOVE TO NORTHERN EDGE OF NEW RAMP	-20 145.916	2 841 858.570	
3257 / 23 / 33 LP	DR MOROKA DRIVE	593.5505	BAKWENA	SINGLE STREET LIGHT	MOVE TO NORTHERN EDGE OF NEW RAMP	-20 193.025	2 841 887.237	
3257 / 23 / 33 LP	DR MOROKA DRIVE	653.9417	BAKWENA	SINGLE STREET LIGHT	MOVE TO NORTHERN EDGE OF NEW RAMP	-20 245.138	2 841 918.074	
3257 / 23 / 33 LP	DR MOROKA DRIVE	703.8876	BAKWENA	SINGLE STREET LIGHT	MOVE TO NORTHERN EDGE OF NEW RAMP	-20 289.446	2 841 941.406	
3257 / 23 / 33 LP	DR MOROKA DRIVE	758.3815	BAKWENA	SINGLE STREET LIGHT	MOVE TO NORTHERN EDGE OF NEW RAMP	-20 337.629	2 841 967.064	
(P2-3) R104 INTERCHANGE - EASTBOUND OFF RAMP								
APPLICABLE PLAN NO	ROAD	CROSSING CHAINING KM	AUTHORITY	DESCRIPTION OF SERVICES	DESCRIPTION OF WORK REQUIRED	POSITION (WGS 84 / LO 27°)		WAYLEAVE REFERENCE DATE
						Y	X	
3257 / 23 / 41 LP	R104 - EASTBOUND	7.1879	BAKWENA	SINGLE STREET LIGHT	REMAIN INSITU	-14 746.284	2 836 170.262	
3257 / 23 / 41 LP	R104 - EASTBOUND	55.9394	BAKWENA	SINGLE STREET LIGHT	REMAIN INSITU	-14 795.233	2 836 174.614	
3257 / 23 / 41 LP	R104 - EASTBOUND	105.9768	BAKWENA	SINGLE STREET LIGHT	REMAIN INSITU	-14 844.884	2 836 183.209	
3257 / 23 / 41 LP	R104 - EASTBOUND	155.5472	BAKWENA	SINGLE STREET LIGHT	MOVE TO NORTHERN EDGE OF NEW RAMP	-14 893.083	2 836 196.015	
3257 / 23 / 41 LP	R104 - EASTBOUND	205.9277	BAKWENA	SINGLE STREET LIGHT	MOVE TO NORTHERN EDGE OF NEW RAMP	-14 940.806	2 836 212.879	
3257 / 23 / 40 LP	R104 - EASTBOUND	255.6302	BAKWENA	SINGLE STREET LIGHT	MOVE TO NORTHERN EDGE OF NEW RAMP	-14 986.287	2 836 233.328	
3257 / 23 / 40 LP	R104 - EASTBOUND	305.5916	BAKWENA	SINGLE STREET LIGHT	MOVE TO NORTHERN EDGE OF NEW RAMP	-15 029.923	2 836 257.823	
3257 / 23 / 40 LP	R104 - EASTBOUND	355.8104	BAKWENA	SINGLE STREET LIGHT	MOVE TO NORTHERN EDGE OF NEW RAMP	-15 073.421	2 836 282.938	
3257 / 23 / 40 LP	R104 - EASTBOUND	405.2618	BAKWENA	SINGLE STREET LIGHT	MOVE TO NORTHERN EDGE OF NEW RAMP	-15 116.086	2 836 307.933	
3257 / 23 / 40 LP	R104 - EASTBOUND	445.6462	BAKWENA	SINGLE STREET LIGHT	MOVE TO NORTHERN EDGE OF NEW RAMP	-15 152.307	2 836 325.149	
3257 / 23 / 40 LP	R104 - EASTBOUND	485.4471	BAKWENA	SINGLE STREET LIGHT	REMAIN INSITU	-15 190.125	2 836 335.720	
3257 / 23 / 40 LP	R104 - EASTBOUND	566.3485	BAKWENA	SINGLE STREET LIGHT	REMAIN INSITU	-15 269.142	2 836 338.931	
3257 / 23 / 40 LP	R104 - EASTBOUND	607.2547	BAKWENA	SINGLE STREET LIGHT	REMAIN INSITU	-15 308.286	2 836 330.517	
3257 / 23 / 40 LP	R104 - EASTBOUND	648.2290	BAKWENA	SINGLE STREET LIGHT	REMAIN INSITU	-15 345.784	2 836 315.945	
3257 / 23 / 40 LP	R104 - EASTBOUND	697.6943	BAKWENA	SINGLE STREET LIGHT	REMAIN INSITU	-15 390.753	2 836 295.339	
3257 / 23 / 40 LP	R104 - EASTBOUND	732.7009	BAKWENA	SINGLE STREET LIGHT	REMAIN INSITU	-15 422.769	2 836 280.746	
3257 / 23 / 40 LP	R104 - EASTBOUND	930.4881	BAKWENA	SINGLE STREET LIGHT	REMAIN INSITU	-15 619.992	2 836 268.185	
3257 / 23 / 40 LP	R104 - EASTBOUND	980.3338	BAKWENA	SINGLE STREET LIGHT	REMAIN INSITU	-15 669.773	2 836 271.485	
3257 / 23 / 40 LP	R104 - EASTBOUND	1025.4959	BAKWENA	SINGLE STREET LIGHT	REMAIN INSITU	-15 714.909	2 836 274.175	
3257 / 23 / 40 LP	R104 - EASTBOUND	1069.8302	BAKWENA	SINGLE STREET LIGHT	REMAIN INSITU	-15 759.104	2 836 277.861	

APPLICABLE PLAN NO	ROAD	CROSSING CHAINING KM	AUTHORITY	DESCRIPTION OF SERVICES	DESCRIPTION OF WORK REQUIRED	POSITION (WGS 84 / LO 27°)		WAYLEAVE REFERENCE DATE
						Y	X	
(P2-3) R104 INTERCHANGE - EASTBOUND ON RAMP								
3257 / 23 / 40 LP	R104 - EASTBOUND	31.2682	BAKWENA	SINGLE STREET LIGHT	REMAIN INSITU	-15 755.508	2 836 305.882	
3257 / 23 / 40 LP	R104 - EASTBOUND	76.0974	BAKWENA	SINGLE STREET LIGHT	REMAIN INSITU	-15 711.267	2 836 298.046	
3257 / 23 / 40 LP	R104 - EASTBOUND	121.0380	BAKWENA	SINGLE STREET LIGHT	REMAIN INSITU	-15 666.705	2 836 292.129	
3257 / 23 / 40 LP	R104 - EASTBOUND	362.6526	BAKWENA	SINGLE STREET LIGHT	MOVE TO NORTHERN EDGE OF NEW RAMP	-15 432.314	2 836 298.546	
3257 / 23 / 40 LP	R104 - EASTBOUND	395.3159	BAKWENA	SINGLE STREET LIGHT	MOVE TO NORTHERN EDGE OF NEW RAMP	-15 406.992	2 836 317.474	
3257 / 23 / 40 LP	R104 - EASTBOUND	427.3083	BAKWENA	SINGLE STREET LIGHT	MOVE TO NORTHERN EDGE OF NEW RAMP	-15 387.280	2 836 341.714	
3257 / 23 / 40 LP	R104 - EASTBOUND	461.4557	BAKWENA	SINGLE STREET LIGHT	MOVE TO NORTHERN EDGE OF NEW RAMP	-15 373.976	2 836 369.575	
3257 / 23 / 40 LP	R104 - EASTBOUND	489.7841	BAKWENA	SINGLE STREET LIGHT	MOVE TO NORTHERN EDGE OF NEW RAMP	-15 367.769	2 836 400.241	
3257 / 23 / 40 LP	R104 - EASTBOUND	528.1610	BAKWENA	SINGLE STREET LIGHT	MOVE TO NORTHERN EDGE OF NEW RAMP	-15 370.592	2 836 439.078	
3257 / 23 / 40 LP	R104 - EASTBOUND	565.7324	BAKWENA	SINGLE STREET LIGHT	MOVE TO NORTHERN EDGE OF NEW RAMP	-15 382.992	2 836 476.237	
3257 / 23 / 40 LP	R104 - EASTBOUND	600.8167	BAKWENA	SINGLE STREET LIGHT	MOVE TO NORTHERN EDGE OF NEW RAMP	-15 402.730	2 836 510.040	
3257 / 23 / 40 LP	R104 - EASTBOUND	639.1957	BAKWENA	SINGLE STREET LIGHT	MOVE TO NORTHERN EDGE OF NEW RAMP	-15 429.169	2 836 539.016	
3257 / 23 / 40 LP	R104 - EASTBOUND	679.0594	BAKWENA	SINGLE STREET LIGHT	MOVE TO NORTHERN EDGE OF NEW RAMP	-15 460.097	2 836 564.177	
3257 / 23 / 40 LP	R104 - EASTBOUND	718.9709	BAKWENA	SINGLE STREET LIGHT	MOVE TO NORTHERN EDGE OF NEW RAMP	-15 491.627	2 836 588.648	
3257 / 23 / 40 LP	R104 - EASTBOUND	763.7759	BAKWENA	SINGLE STREET LIGHT	MOVE TO NORTHERN EDGE OF NEW RAMP	-15 527.755	2 836 615.186	
3257 / 23 / 40 LP	R104 - EASTBOUND	862.2005	BAKWENA	SINGLE STREET LIGHT	MOVE TO NORTHERN EDGE OF NEW RAMP	-15 608.340	2 836 672.607	
3257 / 23 / 40 LP	R104 - EASTBOUND	813.5396	BAKWENA	SINGLE STREET LIGHT	MOVE TO NORTHERN EDGE OF NEW RAMP	-15 568.435	2 836 644.096	
3257 / 23 / 40 LP	R104 - EASTBOUND	912.9395	BAKWENA	SINGLE STREET LIGHT	MOVE TO NORTHERN EDGE OF NEW RAMP	-15 649.959	2 836 702.217	

TENDER

SANRAL DOCUMENT NUMBER :

No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date :

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Fax: +27 11 519-0414

DESIGNED BY
NAME : Z MASHININI
Prof. Reg. No. : --
CHECKED BY
NAME : PL NGQUMSHE
Prof. Reg. No. : 20080112
DRAWN BY
NAME : WB HARTMANN

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17 / 07 / 2023

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Reg. No. 1998/009584/30

NORTHERN REGION
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Tel: (012) 426 6200

ACCEPTANCE
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for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION
SCHEDULE OF SERVICES

SCALE : N.T.S
SHEET 10 OF 10

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001		
DRAWING LOCATION DATA	START	END	
ROUTE	N 4	N 4	
SECTION	13	13	
DRAWING km DISTANCE	- -	- -	
DRAWING TYPE	ROADS - UTILITIES		
BRIDGE/STRUCTURE No.	NA		
CONSULTANT DRAWING No.	FA	3257 / 23 / 10 SS	VER
SANRAL DOCUMENT #		- -	V0

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\05 - Services\3257-23-06-10 SS SERVICES SCHEDULE_20230717.dwg

X + 2 848 800 (WGS 84 / LO 27°)

Y - 39 600 (WGS 84 / LO 27°)

Y - 39 800 (WGS 84 / LO 27°)

Y - 40 000 (WGS 84 / LO 27°)

RUSTENBURG

BRITS

MARIKANA
TOLL PLAZA

F1

F4

1.0 m SHOULDER
3.7 m LANE
3.7 m LANE
2.5 m SHOULDER
7.1 m MEDIAN
N4-13 EASTBOUND

APPROACH
TAPER 1:8

TOLL PLAZA TO REMAIN UNCHANGED

EXIT TAPER
1:5

12.0 11.9 11.8 11.7 11.6 11.5

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z AA AB AC

N4-13 WESTBOUND
2.5 m SHOULDER
3.7 m LANE
3.7 m LANE
2.5 m SHOULDER

EXIT
TAPER 1:5

APPROACH
TAPER 1:8

X + 2 849 000 (WGS 84 / LO 27°)

MARIKANA TOLL PLAZA SETTING OUT POINTS

(WGS 84 \ LO 27°)

POINT	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
A	- 39 645.536	+ 2 848 941.303
B	- 39 645.984	+ 2 848 943.230
C	- 39 758.506	+ 2 848 908.532
D	- 39 758.833	+ 2 848 910.708
E	- 39 722.933	+ 2 848 922.903
F	- 39 722.938	+ 2 848 923.903
G	- 39 800.490	+ 2 848 923.374
H	- 39 751.790	+ 2 848 923.748
I	- 39 752.246	+ 2 848 927.210
J	- 39 745.651	+ 2 848 938.115
K	- 39 745.246	+ 2 848 940.594
L	- 39 800.391	+ 2 848 901.346
M	- 39 800.730	+ 2 848 903.947
N	- 39 803.147	+ 2 848 922.472
O	- 39 806.058	+ 2 848 944.602
P	- 39 919.245	+ 2 848 885.497
Q	- 39 919.591	+ 2 848 887.975
R	- 39 922.113	+ 2 848 907.127
S	- 39 924.991	+ 2 848 928.872
T	- 39 960.105	+ 2 848 895.828
U	- 39 960.700	+ 2 848 899.742
V	- 39 971.400	+ 2 848 882.700
W	- 39 972.149	+ 2 848 890.064
X	- 39 972.378	+ 2 848 891.042
Y	- 39 973.534	+ 2 848 900.573
Z	- 40 016.323	+ 2 848 902.398
AA	- 40 016.089	+ 2 848 905.043
AB	- 40 020.376	+ 2 848 891.992
AC	- 40 020.615	+ 2 848 894.369

LEGEND

- N4-13 TO BE CONSTRUCTED
- DIRECTION OF TRAVEL
- EXISTING ROAD
- EXISTING ROAD RESERVE

EXISTING ROAD RESERVE

(WGS 84 \ LO 27°)

DESCRIPTION	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
F1	- 39 777.168	+ 2 848 880.758
F4	- 39 935.797	+ 2 848 859.855

N4-13 NRA CENTER LINE CO-ORDINATES

DESIGN SPEED 120 km/h

(WGS 84 \ LO 27°)

CHAINAGE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
11 500.000	- 40 096.679	+ 2 848 879.000	
11 600.000	- 39 997.536	+ 2 848 892.064	
11 700.000	- 39 898.393	+ 2 848 905.128	
11 800.000	- 39 799.250	+ 2 848 918.192	
11 900.000	- 39 700.107	+ 2 848 931.256	
12 000.000	- 39 600.964	+ 2 848 944.320	

TENDER

5m 15m 25m 35m 45m
0m 10m 20m 30m 40m 50m
ORIGINAL SCALE 1 : 500 (A0)

No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD

WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date

SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date

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DESIGNED BY
NAME: EF DAY
Prof. Reg. No. 20130622

CHECKED BY
NAME: PL NGQUMSHE
Prof. Reg. No. 20080112

DRAWN BY
NAME: WB HARTMANN

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Date : 17 / 07 / 2023

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for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION

THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION

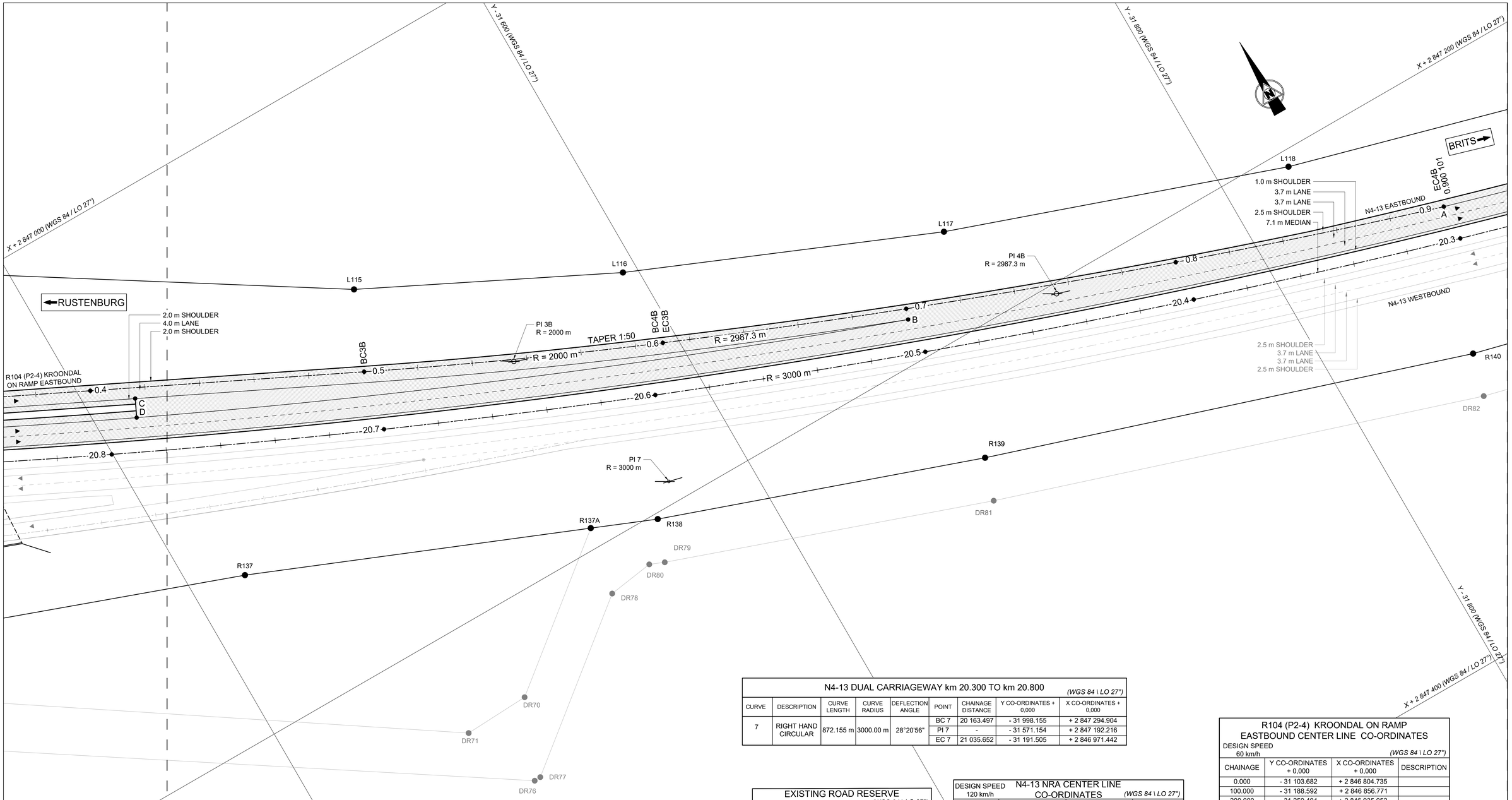
SETTING OUT DETAILS MARIKANA TOLL PLAZA FROM km 11.500 TO 12.000

SCALE : 1 : 500 (A0) SHEET 01 OF 17

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	SECTION 13	SECTION 13
DRAWING km DISTANCE	km 11.500	km 12.000
DRAWING TYPE	TOLL PLAZAS - CIVIL	
BRIDGE/STRUCTURE No.	NA	
CONSULTANT DRAWING No.	FA 3257 / 23 / 01 SO	VER
SANRAL DOCUMENT #	- -	V0

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\06 - Setting Out\3257-23-01SO-Marikana Toll Plaza Setting out_20230717.dwg



N4 - 13
CONTINUE ON
3257 / 23 / 02 SO

R104 (P2-4) KROONDAL ON RAMP - EASTBOUND km 0.000 - km 00 900.101

(WGS 84 \ LO 27°)

CURVE	DESCRIPTION	CURVE LENGTH	CURVE RADIUS	DEFLECTION ANGLE	POINT	CHAINAGE DISTANCE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
					START	0.000	- 31 103.682	+ 2 846 804.735
1B	RIGHT HAND CIRCULAR	113.800 m	230.000 m	28°20'56"	BC 1B	37.157	- 31 136.910	+ 2 846 821.365
					PI 1B	-	- 31 188.857	+ 2 846 847.363
					EC 1B	150.957	- 31 222.229	+ 2 846 894.910
2B	LEFT HAND CIRCULAR	151.302 m	300.000m	28°53'48"	BC 2B	210.781	- 31 256.598	+ 2 846 943.876
					PI 2B	-	- 31 301.004	+ 2 847 007.144
					EC 2B	362.083	- 31 370.454	+ 2 847 041.076
3B	LEFT HAND CIRCULAR	109.714 m	2000.000m	3°08'35"	BC 3B	500.391	- 31 494.724	+ 2 847 101.791
					PI 3B	-	- 31 544.025	+ 2 847 125.879
					EC 3B	610.105	- 31 594.573	+ 2 847 147.227
4B	LEFT HAND CIRCULAR	289.996 m	2987.300m	5°33'42"	BC 4B	610.105	- 31 594.573	+ 2 847 147.227
					PI 4B	101.000	- 31 728.248	+ 2 847 203.683
					EC 4B	900.087	- 31 866.773	+ 2 847 246.920
					END	900.101	- 31 866.773	+ 2 847 246.920

N4-13 DUAL CARRIAGEWAY km 20.300 TO km 20.800

(WGS 84 \ LO 27°)

CURVE	DESCRIPTION	CURVE LENGTH	CURVE RADIUS	DEFLECTION ANGLE	POINT	CHAINAGE DISTANCE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
7	RIGHT HAND CIRCULAR	872.155 m	3000.00 m	28°20'56"	BC 7	20 163.497	- 31 998.155	+ 2 847 294.904
					PI 7	-	- 31 571.154	+ 2 847 192.216
					EC 7	21 035.652	- 31 191.505	+ 2 846 971.442

EXISTING ROAD RESERVE

(WGS 84 \ LO 27°)

DESCRIPTION	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
DR70	- 31 486.030	+ 2 847 234.140
DR71	- 31 461.770	+ 2 847 235.260
DR76	- 31 473.970	+ 2 847 262.420
DR77	- 31 476.400	+ 2 847 262.300
DR78	- 31 532.720	+ 2 847 217.330
DR79	- 31 549.790	+ 2 847 214.880
DR80	- 31 555.080	+ 2 847 217.050
DR81	- 31 670.500	+ 2 847 257.700
DR82	- 31 844.810	+ 2 847 314.180
L115	- 31 506.550	+ 2 847 073.860
L116	- 31 594.810	+ 2 847 117.690
L117	- 31 703.900	+ 2 847 163.450
L118	- 31 824.910	+ 2 847 205.880
R137	- 31 419.800	+ 2 847 144.360
R137A	- 31 537.900	+ 2 847 192.720
R138	- 31 560.770	+ 2 847 202.090
R139	- 31 675.630	+ 2 847 242.540
R140	- 31 849.220	+ 2 847 298.790

N4-13 NRA CENTER LINE CO-ORDINATES

DESIGN SPEED 120 km/h

(WGS 84 \ LO 27°)

CHAINAGE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
20 300.000	- 31 866.208	+ 2 847 259.979	
20 400.000	- 31 770.625	+ 2 847 230.603	
20 500.000	- 31 676.074	+ 2 847 198.058	
20 600.000	- 31 582.660	+ 2 847 162.379	
20 700.000	- 31 490.487	+ 2 847 123.608	
20 800.000	- 31 399.658	+ 2 847 081.786	

R104 (P2-4) KROONDAL SETTING OUT POINTS

(WGS 84 \ LO 27°)

POINT	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
A	- 31 866.774	+ 2 847 246.920	
B	- 31 676.521	+ 2 847 184.706	
C	- 31 417.291	+ 2 847 068.386	
D	- 31 414.279	+ 2 847 074.705	

R104 (P2-4) KROONDAL ON RAMP EASTBOUND CENTER LINE CO-ORDINATES

DESIGN SPEED 60 km/h

(WGS 84 \ LO 27°)

CHAINAGE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
0.000	- 31 103.682	+ 2 846 804.735	
100.000	- 31 188.592	+ 2 846 856.771	
200.000	- 31 250.404	+ 2 846 935.052	
300.000	- 31 317.880	+ 2 847 008.265	
400.000	- 31 404.523	+ 2 847 057.721	
500.000	- 31 494.372	+ 2 847 101.620	
600.000	- 31 585.274	+ 2 847 143.272	
700.000	- 31 677.899	+ 2 847 780.951	
800.000	- 31 771.736	+ 2 847 215.500	
900.000	- 31 866.677	+ 2 847 246.890	
900.101	- 31 866.773	+ 2 847 246.920	

LEGEND

- N4-13 TO BE CONSTRUCTED
- DIRECTION OF TRAVEL
- EXISTING ROAD
- EXISTING ROAD RESERVE

TENDER

5m 15m 25m 35m 45m
0m 10m 20m 30m 40m 50m
ORIGINAL SCALE 1 : 500 (A0)

No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date :

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DESIGNED BY
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for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION
SETTING OUT DETAILS
R104 (P2-4) KROONDAL INTERCHANGE
SHEET 01 OF 03

SCALE : 1 : 500 (A0) SHEET 02 OF 17

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	SECTION 13	SECTION 13
DRAWING km DISTANCE	km 20.300	km 20.800
DRAWING TYPE	ROADS - INTERCHANGES	
BRIDGE/STRUCTURE No.	B2235	
CONSULTANT DRAWING No.	FA 3257 / 23 / 02 SO	VER
SANRAL DOCUMENT #	- -	V0

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadwork\06 - Setting Out\3257-23-02-04SO-Kroondal N4 Interchange Setting out_20230717.dwg

KROONDAL

RUSTENBURG

BRITS

INTERSECTION BETWEEN R104 AND THE R104 (P2-4) KROONDAL ON RAMP
θ = 300,000°
Y - 31 103.682 , X + 2 846 804.735

INTERSECTION BETWEEN R104 AND THE R104 (P2-4) KROONDAL OFF RAMP
θ = 210,000°
Y - 31 103.682 , X + 2 846 804.735

X + 2 846 800 (WGS 84 / LO 27°)

Y - 31 200 (WGS 84 / LO 27°)

Y - 31 000 (WGS 84 / LO 27°)

Y - 31 400 (WGS 84 / LO 27°)

X + 2 847 000 (WGS 84 / LO 27°)

L109 L232 L110 L111 L113 L114

L97 L98 L99 L100 L101 L102

G F E

BC1B EC1B BC2B EC2B

PI 1B
R = 230 m

PI 2B
R = 300 m

R = 230 m

R = 300 m

0 0.1 0.2 0.3 0.4 0.5 0.6 0.632 363

LIMIT OF CONSTRUCTION km 0,010 000

RAMP REALIGNED TO ACCOMMODATE DUAL CARRIAGEWAY

R104 (P2-4) KROONDAL ON RAMP EASTBOUND

R104 (P2-4) KROONDAL OFF RAMP EASTBOUND

EXISTING TOLL PLAZA

ROAD R 104 (P2-4)

R104 (P2-4) KROONDAL I/C

SANDSPRUIT RIVER

N4-13 EASTBOUND

N4-13 WESTBOUND

1.0 m SHOULDER
3.7 m LANE
3.7 m LANE
2.5 m SHOULDER

2.5 m SHOULDER
3.7 m LANE
3.7 m LANE
2.5 m SHOULDER

1.0 m SHOULDER
3.7 m LANE
3.7 m LANE
2.5 m SHOULDER
7.1 m MEDIAN

2.0 m SHOULDER
4.0 m LANE
2.0 m SHOULDER

21.3 21.2 21.1 EC7 21.0 20.9 20.8

BRIDGE B2235
km 21,128 981
ROAD R104 OVER N4
θ = 210,000°

BRIDGE B1684
km 20,863 686
N4 OVER SANDSPRUIT RIVER
θ = 22,517°
TO BE EXTENDED

R104 (P2-4)KROONDAL ON RAMP WESTBOUND

R104 (P2-4) KROONDAL OFF RAMP WESTBOUND

R104

BUFFELSPOORT

R126 R125 R124 R123 R122 R121 R120 R119 R60 R61 R118 R117 R135 R134 R133 R132 R131 R130 R136

DR72

N4 - 13
CONTINUE ON
3257 / 23 / 03 SO

N4 - 13
CONTINUE FROM
3257 / 23 / 01 SO

TENDER

5m 10m 15m 20m 25m 30m 35m 40m 45m 50m
ORIGINAL SCALE 1 : 500 (A0)

R104 (P2-4) KROONDAL ON RAMP - EASTBOUND km 0.000 - km 00 900.101

(WGS 84 \ LO 27°)

CURVE	DESCRIPTION	CURVE LENGTH	CURVE RADIUS	DEFLECTION ANGLE	POINT	CHAINAGE DISTANCE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
					START	0.000	- 31 103.682	+ 2 846 804.735
1B	RIGHT HAND CIRCULAR	113.800 m	230.000 m	28°20'56"	BC 1B	37.157	- 31 136.910	+ 2 846 821.365
					PI 1B	-	- 31 188.857	+ 2 846 847.363
					EC 1B	150.957	- 31 222.229	+ 2 846 894.910
2B	LEFT HAND CIRCULAR	151.302 m	300.000m	28°53'48"	BC 2B	210.781	- 31 256.598	+ 2 846 943.876
					PI 2B	-	- 31 301.004	+ 2 847 007.144
					EC 2B	362.083	- 31 370.454	+ 2 847 041.076
3B	LEFT HAND CIRCULAR	109.714 m	2000.000m	3°08'35"	BC 3B	500.391	- 31 494.724	+ 2 847 101.791
					PI 3B	-	- 31 544.025	+ 2 847 125.879
					EC 3B	610.105	- 31 594.573	+ 2 847 147.227
4B	LEFT HAND CIRCULAR	289.996 m	2987.300m	5°33'42"	BC 4B	610.105	- 31 594.573	+ 2 847 147.227
					PI 4B	101.000	- 31 728.248	+ 2 847 203.683
					EC 4B	900.087	- 31 866.773	+ 2 847 246.920
					END	900.101	- 31 866.773	+ 2 847 246.920

R104 (P2-4) KROONDAL ON RAMP EASTBOUND CENTER LINE CO-ORDINATES

DESIGN SPEED 60 km/h

(WGS 84 \ LO 27°)

CHAINAGE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
0.000	- 31 103.682	+ 2 846 804.735	
100.000	- 31 188.592	+ 2 846 856.771	
200.000	- 31 250.404	+ 2 846 935.052	
300.000	- 31 317.880	+ 2 847 008.265	
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700.000	- 31 677.899	+ 2 847 780.951	
800.000	- 31 771.736	+ 2 847 215.500	
900.000	- 31 866.677	+ 2 847 246.890	
900.101	- 31 866.773	+ 2 847 246.920	

EXISTING ROAD RESERVE

(WGS 84 \ LO 27°)

DESCRIPTION	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
DR72	- 31 239.390	+ 2 847 087.160
DR74	- 31 229.560	+ 2 847 112.280
DR75	- 31 245.800	+ 2 847 113.160
DR202	- 31 050.550	+ 2 847 083.165
L97	- 31 029.080	+ 2 846 756.360
L98	- 31 030.970	+ 2 846 758.690
L99	- 31 050.870	+ 2 846 783.100
L100	- 31 053.260	+ 2 846 783.860
L101	- 31 064.100	+ 2 846 780.850
L102	- 31 065.870	+ 2 846 781.910
L109	- 31 047.870	+ 2 846 717.870
L110	- 31 193.010	+ 2 846 830.030
L111	- 31 340.310	+ 2 846 968.030
L112	- 31 354.250	+ 2 846 941.470
L113	- 31 379.030	+ 2 846 954.480
L114	- 31 381.400	+ 2 846 994.790
L232	- 31 150.652	+ 2 846 797.297
R60	- 31 092.210	+ 2 847 023.380
R61	- 31 092.250	+ 2 847 026.180
R67	- 31 043.080	+ 2 847 066.160
R117	- 31 032.080	+ 2 847 009.680
R117X	- 31 047.090	+ 2 847 038.180
R118	- 31 041.700	+ 2 847 006.950
R119	- 31 096.080	+ 2 847 012.620
R120	- 31 096.390	+ 2 847 009.340
R121	- 31 085.550	+ 2 846 963.390
R122	- 31 085.360	+ 2 846 960.440
R123	- 31 087.070	+ 2 846 943.620
R124	- 31 088.720	+ 2 846 942.080
R125	- 31 100.560	+ 2 846 941.670
R126	- 31 101.720	+ 2 846 940.160
R130	- 31 124.030	+ 2 847 148.960
R131	- 31 137.810	+ 2 847 141.820
R132	- 31 135.700	+ 2 847 137.750
R133	- 31 135.330	+ 2 847 134.960
R134	- 31 146.180	+ 2 847 084.990
R135	- 31 170.770	+ 2 847 069.100
R136	- 31 275.240	+ 2 847 092.000

N4-13 NRA CENTER LINE CO-ORDINATES

DESIGN SPEED 120 km/h

(WGS 84 \ LO 27°)

CHAINAGE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
20 800.000	- 31 399.658	+ 2 847 081.786	
20 900.000	- 31 310.272	+ 2 847 036.960	
21 000.000	- 31 222.431	+ 2 846 989.180	
21 100.000	- 31 135.879	+ 2 846 939.094	
21 200.000	- 31 049.433	+ 2 846 888.823	
21 300.000	- 30 962.987	+ 2 846 838.553	

R104 (P2-4) KROONDAL EASTBOUND OFF RAMP CENTER LINE CO-ORDINATES

DESIGN SPEED 60 km/h

(WGS 84 \ LO 27°)

CHAINAGE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
0.000	- 30 523.105	+ 2 846 568.061	
100.000	- 30 611.352	+ 2 846 615.097	
200.000	- 30 699.600	+ 2 846 662.133	
300.000	- 30 9787.847	+ 2 846 709.170	
400.000	- 30 877.082	+ 2 846 754.154	
500.000	- 30 974.017	+ 2 846 778.149	
600.000	- 31 071.979	+ 2 846 798.235	
632.363	- 31 103.682	+ 2 846 804.735	

LEGEND

- N4-13 TO BE CONSTRUCTED
- DIRECTION OF TRAVEL
- EXISTING ROAD
- EXISTING ROAD RESERVE

R104 (P2-4) KROONDAL SETTING OUT POINTS

(WGS 84 \ LO 27°)

POINT	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
C	- 31 417.291	+ 2 847 068.386	
D	- 31 414.279	+ 2 847 074.705	
E	- 31 131.056	+ 2 846 825.119	
F	- 31 119.938	+ 2 846 824.194	
G	- 31 125.624	+ 2 846 813.758	

R104 (P2-4) KROONDAL OFF RAMP - EASTBOUND km 0.000 - km 0.632 363

(WGS 84 \ LO 27°)

CURVE	DESCRIPTION	CURVE LENGTH	CURVE RADIUS	DEFLECTION ANGLE	POINT	CHAINAGE DISTANCE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
1A	LEFT HAND CIRCULAR	86.242 m	300.00 m	16°28'15"	START	0.000	- 30 523.105	+ 2 846 568.061
					BC 1A	363.028	- 30 843.468	+ 2 846 738.816
					PI 1A	-	- 30 881.785	+ 2 846 759.239
					EC 1A	449.270	- 30 924.320	+ 2 846 767.960
					END	632.363	- 31 103.682	+ 2 846 804.735

N4-13 DUAL CARRIAGEWAY km 20.800 TO km 21.300

(WGS 84 \ LO 27°)

CURVE	DESCRIPTION	CURVE LENGTH	CURVE RADIUS	DEFLECTION ANGLE	POINT	CHAINAGE DISTANCE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
7	RIGHT HAND CIRCULAR	872.155 m	3000.00 m	28°20'56"	BC 7	20 163.497	- 31 998.155	+ 2 847 294.904
					PI 7 *	-	- 31 571.154	+ 2 847 192.216
					EC 7	21 035.652	- 31 191.505	+ 2 846 971.442
* POINT OF INTERSECTION LIES OUT OF BOUNDS OF DRAWING								

No.	DATE	REVISION	
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date
SANRAL PROJECT MANAGER
Name
Prof. Reg. No. :
Date :

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DESIGNED BY
NAME EF DAY
Prof. Reg. No. 20130622
CHECKED BY
NAME PL NGQUMSHE
Prof. Reg. No. 20080112
DRAWN BY
NAME WB HARTMANN

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17 / 07 / 2023

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for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

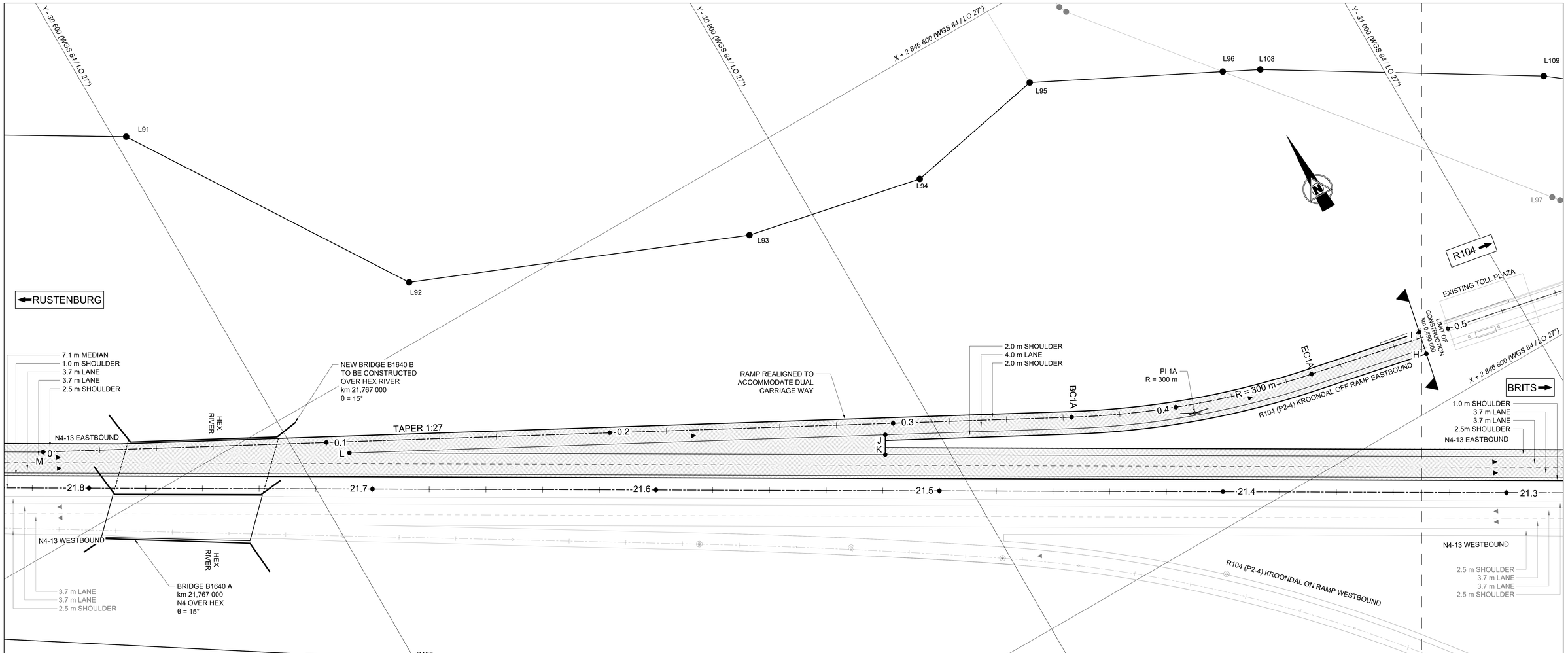
DRAWING DESCRIPTION
SETTING OUT DETAILS
R104 (P2-4) KROONDAL INTERCHANGE
SHEET 02 OF 03

SCALE : 1 : 500 (A0) SHEET 03 OF 17

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	SECTION 13	SECTION 13
DRAWING km DISTANCE	km 20.800	km 21.300
DRAWING TYPE	ROADS - INTERCHANGES	
BRIDGE/STRUCTURE No.	B2235	
CONSULTANT DRAWING No.	FA 3257 / 23 / 03 SO	VER
SANRAL DOCUMENT #	- -	V0

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\06 - Setting Out\3257-23-02-045O-Kroondal N4 Interchange Setting out_20230717.dwg



EXISTING ROAD RESERVE

(WGS 84 \ LO 27°)

DESCRIPTION	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
L62	- 30 9112.080	+ 2 846 011.370
L63	- 30 913.270	+ 2 846 614.020
L91	- 30 604.090	+ 2 846 486.400
L92	- 30 664.890	+ 2 846 580.760
L93	- 30 777.170	+ 2 846 626.380
L94	- 30 839.680	+ 2 846 639.260
L95	- 30 889.680	+ 2 846 629.210
L96	- 30 950.579	+ 2 846 659.895
L97	- 31 029.080	+ 2 846 756.360
L98	- 31 030.970	+ 2 846 758.690
L108	- 30 962.430	+ 2 846 665.880
L109	- 31 047.870	+ 2 846 717.870
R108	- 30 598.030	+ 2 846 695.730
R109	- 30 537.710	+ 2 846 799.460
R110	- 30 624.150	+ 2 846 849.730
R113	- 30 743.270	+ 2 846 843.820
R114	- 30 749.400	+ 2 846 850.360
R115	- 30 836.030	+ 2 846 843.670
R116	- 30 838.670	+ 2 846 844.530
R116X	- 30 852.880	+ 2 846 856.664

R104 (P2-4) KROONDAL EASTBOUND OFF RAMP CENTER LINE CO-ORDINATES

DESIGN SPEED 60 km/h

(WGS 84 \ LO 27°)

CHAINAGE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
0.000	- 30 523.105	+ 2 846 568.061	
100.000	- 30 611.352	+ 2 846 615.097	
200.000	- 30 699.600	+ 2 846 662.133	
300.000	- 30 9787.847	+ 2 846 709.170	
400.000	- 30 877.082	+ 2 846 754.154	
500.000	- 30 974.017	+ 2 846 778.149	
600.000	- 31 071.979	+ 2 846 798.235	
632.363	- 31 103.682	+ 2 846 804.735	

R104 (P2-4) KROONDAL OFF RAMP - EASTBOUND km 0.000 - km 0.632 363

(WGS 84 \ LO 27°)

CURVE	DESCRIPTION	CURVE LENGTH	CURVE RADIUS	DEFLECTION ANGLE	POINT	CHAINAGE DISTANCE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
1A	LEFT HAND CIRCULAR	86.242 m	300.00 m	16°28'15"	START	0.000	- 30 523.105	+ 2 846 568.061
					BC 1A	363.028	- 30 843.468	+ 2 846 738.816
					PI 1A	-	- 30 881.785	+ 2 846 759.239
					EC 1A	449.270	- 30 924.320	+ 2 846 767.960
					END	632.363	- 31 103.682	+ 2 846 804.735

N4-13 NRA CENTER LINE CO-ORDINATES

DESIGN SPEED 120 km/h

(WGS 84 \ LO 27°)

CHAINAGE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
21 300.000	- 30 962.987	+ 2 846 838.553	
21 400.000	- 30 876.541	+ 2 846 788.283	
21 500.000	- 30 790.095	+ 2 846 738.013	
21 600.000	- 30 703.649	+ 2 846 687.742	
21 700.000	- 30 617.203	+ 2 846 637.472	
21 800.000	- 30 530.757	+ 2 846 587.202	

R104 (P2-4) KROONDAL SETTING OUT POINTS

(WGS 84 \ LO 27°)

POINT	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
H	- 30 963.016	+ 2 846 782.018	
I	- 30 964.622	+ 2 846 774.181	
J	- 30 783.433	+ 2 846 711.349	
K	- 30 779.914	+ 2 846 717.400	
L	- 30 616.531	+ 2 846 622.390	
M	- 30 523.089	+ 2 846 568.051	

LEGEND

- N4-13 TO BE CONSTRUCTED
- DIRECTION OF TRAVEL
- EXISTING ROAD
- EXISTING ROAD RESERVE

N4 - 13 CONTINUE FROM 3257 / 23 / 02 SO

5m 15m 25m 35m 45m
0m 10m 20m 30m 40m 50m
ORIGINAL SCALE 1 : 500 (A0)

TENDER

No.	DATE	REVISION	
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date :

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DESIGNED BY
NAME : EF DAY
Prof. Reg. No. : 20130622
CHECKED BY
NAME : PL NGQUMSHE
Prof. Reg. No. : 20080112
DRAWN BY
NAME : WB HARTMANN

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17 / 07 / 2023

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for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

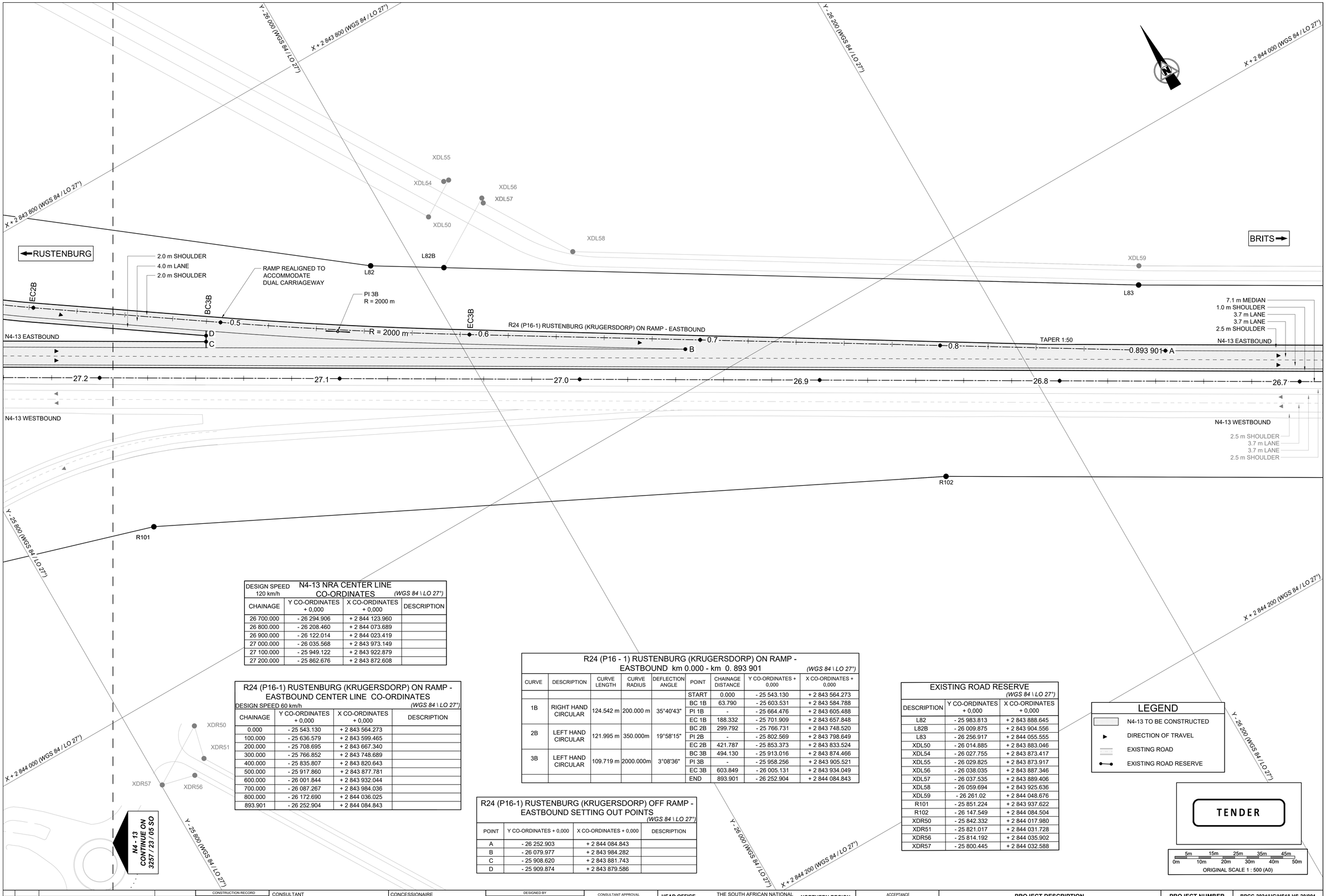
DRAWING DESCRIPTION
SETTING OUT DETAILS
R104 (P2-4) KROONDAL INTERCHANGE
SHEET 03 OF 03

SCALE : 1 : 500 (A0) | SHEET 04 OF 17

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	SECTION 13	SECTION 13
DRAWING km DISTANCE	km 21.300	km 21.800
DRAWING TYPE	ROADS - INTERCHANGES	
BRIDGE/STRUCTURE No.	B1640	
CONSULTANT DRAWING No.	FA 3257 / 23 / 04 SO	VER V0
SANRAL DOCUMENT #	- -	

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\06 - Setting Out\3257-23-02-04SO-Kroondal N4 Interchange Setting out_20230717.dwg



DESIGN SPEED 120 km/h	N4-13 NRA CENTER LINE CO-ORDINATES (WGS 84 \ LO 27°)		
CHAINAGE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
26 700.000	- 26 294.906	+ 2 844 123.960	
26 800.000	- 26 208.460	+ 2 844 073.689	
26 900.000	- 26 122.014	+ 2 844 023.419	
27 000.000	- 26 035.568	+ 2 843 973.149	
27 100.000	- 25 949.122	+ 2 843 922.879	
27 200.000	- 25 862.676	+ 2 843 872.608	

R24 (P16-1) RUSTENBURG (KRUGERSDORP) ON RAMP - EASTBOUND CENTER LINE CO-ORDINATES			
DESIGN SPEED 60 km/h		(WGS 84 \ LO 27°)	
CHAINAGE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
0.000	- 25 543.130	+ 2 843 564.273	
100.000	- 25 636.579	+ 2 843 599.465	
200.000	- 25 708.695	+ 2 843 667.340	
300.000	- 25 766.852	+ 2 843 748.689	
400.000	- 25 835.807	+ 2 843 820.643	
500.000	- 25 917.860	+ 2 843 877.781	
600.000	- 26 001.844	+ 2 843 932.044	
700.000	- 26 087.267	+ 2 843 984.036	
800.000	- 26 172.690	+ 2 844 036.025	
893.901	- 26 252.904	+ 2 844 084.843	

R24 (P16 - 1) RUSTENBURG (KRUGERSDORP) ON RAMP - EASTBOUND km 0.000 - km 0. 893 901 (WGS 84 \ LO 27°)								
CURVE	DESCRIPTION	CURVE LENGTH	CURVE RADIUS	DEFLECTION ANGLE	POINT	CHAINAGE DISTANCE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
					START	0.000	- 25 543.130	+ 2 843 564.273
1B	RIGHT HAND CIRCULAR	124.542 m	200.000 m	35°40'43"	BC 1B	63.790	- 25 603.531	+ 2 843 584.788
					PI 1B	-	- 25 664.476	+ 2 843 605.488
					EC 1B	188.332	- 25 701.909	+ 2 843 657.848
2B	LEFT HAND CIRCULAR	121.995 m	350.000m	19°58'15"	BC 2B	299.792	- 25 766.731	+ 2 843 748.520
					PI 2B	-	- 25 802.569	+ 2 843 798.649
					EC 2B	421.787	- 25 853.373	+ 2 843 833.524
3B	LEFT HAND CIRCULAR	109.719 m	2000.000m	3°08'36"	BC 3B	494.130	- 25 913.016	+ 2 843 874.466
					PI 3B	-	- 25 958.256	+ 2 843 905.521
					EC 3B	603.849	- 26 005.131	+ 2 843 934.049
					END	893.901	- 26 252.904	+ 2 844 084.843

R24 (P16-1) RUSTENBURG (KRUGERSDORP) OFF RAMP - EASTBOUND SETTING OUT POINTS (WGS 84 \ LO 27°)			
POINT	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
A	- 26 252.903	+ 2 844 084.843	
B	- 26 079.977	+ 2 843 984.282	
C	- 25 908.620	+ 2 843 881.743	
D	- 25 909.874	+ 2 843 879.586	

EXISTING ROAD RESERVE (WGS 84 \ LO 27°)		
DESCRIPTION	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
L82	- 25 983.813	+ 2 843 888.645
L82B	- 26 009.875	+ 2 843 904.556
L83	- 26 256.917	+ 2 844 055.555
XDL50	- 26 014.885	+ 2 843 883.046
XDL54	- 26 027.755	+ 2 843 873.417
XDL55	- 26 029.825	+ 2 843 873.917
XDL56	- 26 038.035	+ 2 843 887.346
XDL57	- 26 037.535	+ 2 843 889.406
XDL58	- 26 059.694	+ 2 843 925.636
XDL59	- 26 261.02	+ 2 844 048.676
R101	- 25 851.224	+ 2 843 937.622
R102	- 26 147.549	+ 2 844 084.504
XDR50	- 25 842.332	+ 2 843 017.980
XDR51	- 25 821.017	+ 2 844 031.728
XDR56	- 25 814.192	+ 2 844 035.902
XDR57	- 25 800.445	+ 2 844 032.588

LEGEND

- N4-13 TO BE CONSTRUCTED
- DIRECTION OF TRAVEL
- EXISTING ROAD
- EXISTING ROAD RESERVE

TENDER

5m 10m 15m 20m 25m 30m 35m 40m 45m 50m

ORIGINAL SCALE 1 : 500 (A0)

No.	DATE	REVISION	
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
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Date :
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CONSULTANT APPROVAL
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Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION
SETTING OUT DETAILS
R24 (P16-1) RUSTENBURG (KRUGERSDORP) INTERCHANGE
SHEET 01 OF 03

SCALE : 1 : 500 (A0) | SHEET 05 OF 17

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	SECTION 13	SECTION 13
DRAWING km DISTANCE	km 26.700	km 27.200
DRAWING TYPE	ROADS - INTERCHANGES	
BRIDGE/STRUCTURE No.	B2229A	
CONSULTANT DRAWING No.	FA 3257 / 23 / 05 SO	VER V0
SANRAL DOCUMENT #	- -	

SANRAL DOCUMENT NUMBER :

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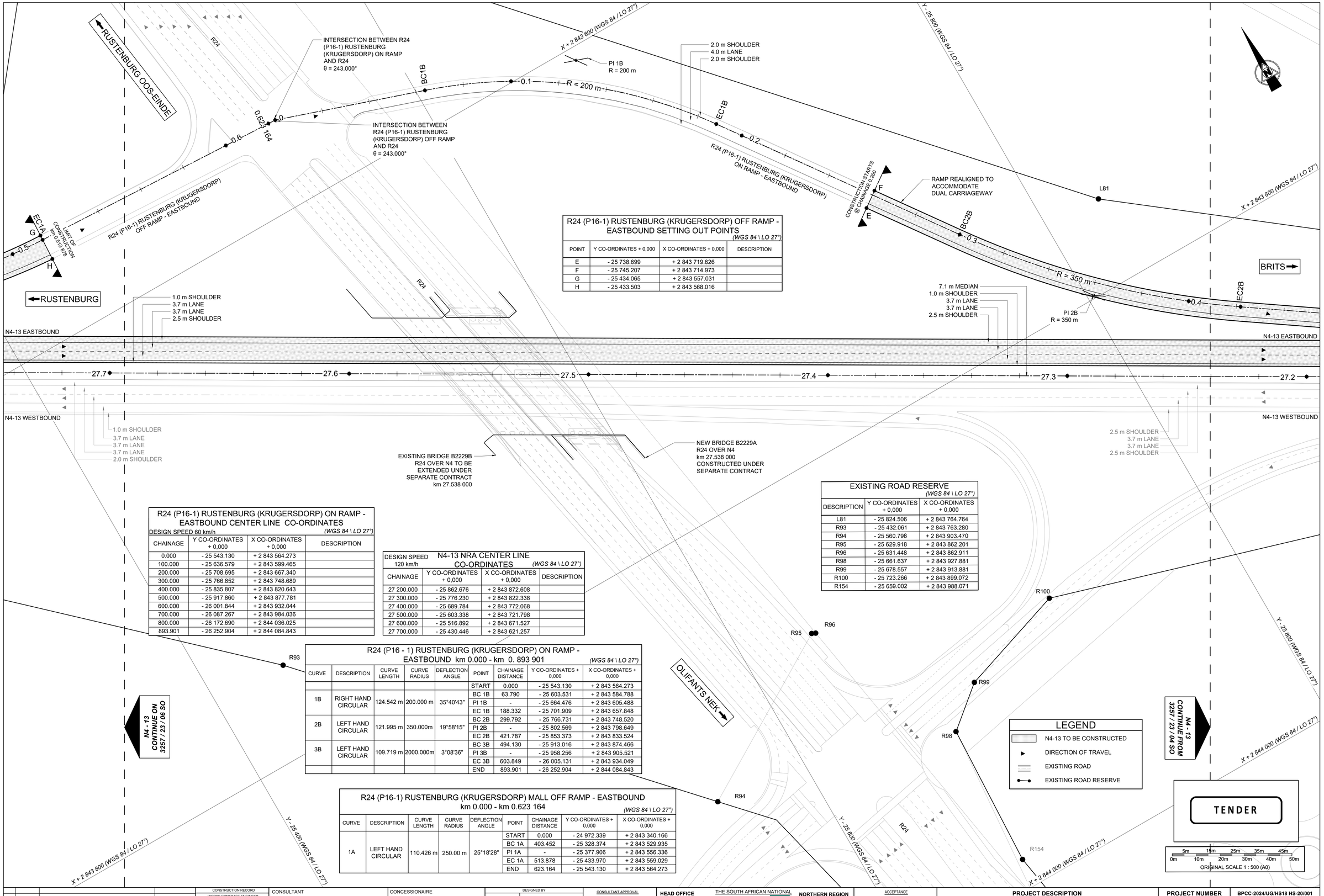

R24 (P16-1) RUSTENBURG (KRUGERSDORP) OFF RAMP - EASTBOUND SETTING OUT POINTS

(WGS 84 \ LO 27°)

POINT	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
E	- 25 738.699	+ 2 843 719.626	
F	- 25 745.207	+ 2 843 714.973	
G	- 25 434.065	+ 2 843 557.031	
H	- 25 433.503	+ 2 843 568.016	

EXISTING ROAD RESERVE

(WGS 84 \ LO 27°)

DESCRIPTION	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
L81	- 25 824.506	+ 2 843 764.764
R93	- 25 432.061	+ 2 843 763.280
R94	- 25 560.798	+ 2 843 903.470
R95	- 25 629.918	+ 2 843 862.201
R96	- 25 631.448	+ 2 843 862.911
R98	- 25 661.637	+ 2 843 927.881
R99	- 25 678.557	+ 2 843 913.881
R100	- 25 723.266	+ 2 843 899.072
R154	- 25 659.002	+ 2 843 988.071

R24 (P16-1) RUSTENBURG (KRUGERSDORP) ON RAMP - EASTBOUND CENTER LINE CO-ORDINATES

DESIGN SPEED 60 km/h *(WGS 84 \ LO 27°)*

CHAINAGE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
0.000	- 25 543.130	+ 2 843 564.273	
100.000	- 25 636.579	+ 2 843 599.465	
200.000	- 25 708.695	+ 2 843 667.340	
300.000	- 25 766.852	+ 2 843 748.689	
400.000	- 25 835.807	+ 2 843 820.643	
500.000	- 25 917.860	+ 2 843 877.781	
600.000	- 26 001.844	+ 2 843 932.044	
700.000	- 26 087.267	+ 2 843 984.036	
800.000	- 26 172.690	+ 2 844 036.025	
893.901	- 26 252.904	+ 2 844 084.843	

N4-13 NRA CENTER LINE CO-ORDINATES

DESIGN SPEED 120 km/h *(WGS 84 \ LO 27°)*

CHAINAGE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
27 200.000	- 25 862.676	+ 2 843 872.608	
27 300.000	- 25 776.230	+ 2 843 822.338	
27 400.000	- 25 689.784	+ 2 843 772.068	
27 500.000	- 25 603.338	+ 2 843 721.798	
27 600.000	- 25 516.892	+ 2 843 671.527	
27 700.000	- 25 430.446	+ 2 843 621.257	

R24 (P16 - 1) RUSTENBURG (KRUGERSDORP) ON RAMP - EASTBOUND km 0.000 - km 0. 893 901

(WGS 84 \ LO 27°)

CURVE	DESCRIPTION	CURVE LENGTH	CURVE RADIUS	DEFLECTION ANGLE	POINT	CHAINAGE DISTANCE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
					START	0.000	- 25 543.130	+ 2 843 564.273
1B	RIGHT HAND CIRCULAR	124.542 m	200.000 m	35°40'43"	BC 1B	63.790	- 25 603.531	+ 2 843 584.788
					PI 1B	-	- 25 664.476	+ 2 843 605.488
					EC 1B	188.332	- 25 701.909	+ 2 843 657.848
2B	LEFT HAND CIRCULAR	121.995 m	350.000m	19°58'15"	BC 2B	299.792	- 25 766.731	+ 2 843 748.520
					PI 2B	-	- 25 802.569	+ 2 843 798.649
					EC 2B	421.787	- 25 853.373	+ 2 843 833.524
3B	LEFT HAND CIRCULAR	109.719 m	2000.000m	3°08'36"	BC 3B	494.130	- 25 913.016	+ 2 843 874.466
					PI 3B	-	- 25 958.256	+ 2 843 905.521
					EC 3B	603.849	- 26 005.131	+ 2 843 934.049
					END	893.901	- 26 252.904	+ 2 844 084.843

R24 (P16-1) RUSTENBURG (KRUGERSDORP) MALL OFF RAMP - EASTBOUND km 0.000 - km 0.623 164

(WGS 84 \ LO 27°)

CURVE	DESCRIPTION	CURVE LENGTH	CURVE RADIUS	DEFLECTION ANGLE	POINT	CHAINAGE DISTANCE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
1A	LEFT HAND CIRCULAR	110.426 m	250.00 m	25°18'28"	START	0.000	- 24 972.339	+ 2 843 340.166
					BC 1A	403.452	- 25 328.374	+ 2 843 529.935
					PI 1A	-	- 25 377.906	+ 2 843 556.336
					EC 1A	513.878	- 25 433.970	+ 2 843 559.029
					END	623.164	- 25 543.130	+ 2 843 564.273

V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE
No.	DATE	REVISION	CONSULT. ENG.

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date :

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DESIGNED BY
NAME: EF DAY
Prof. Reg. No.: 20130622
CHECKED BY
NAME: PL NGQUMSHE
Prof. Reg. No.: 20080112
DRAWN BY
NAME: WB HARTMANN

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17 / 07 / 2023

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THE SOUTH AFRICAN NATIONAL ROADS AGENCY SOC LTD
Reg. No. 1998/009584/30

NORTHERN REGION
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ACCEPTANCE
THIS ACCEPTANCE IS FOR PROCEDURAL AND ADMINISTRATIVE REVIEW PURPOSES ONLY AND DOES NOT ATTRACT LEGAL LIABILITY OR LIABILITY OF ANY KIND FROM WHATSOEVER CAUSE OR HOWEVER ARISING
for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

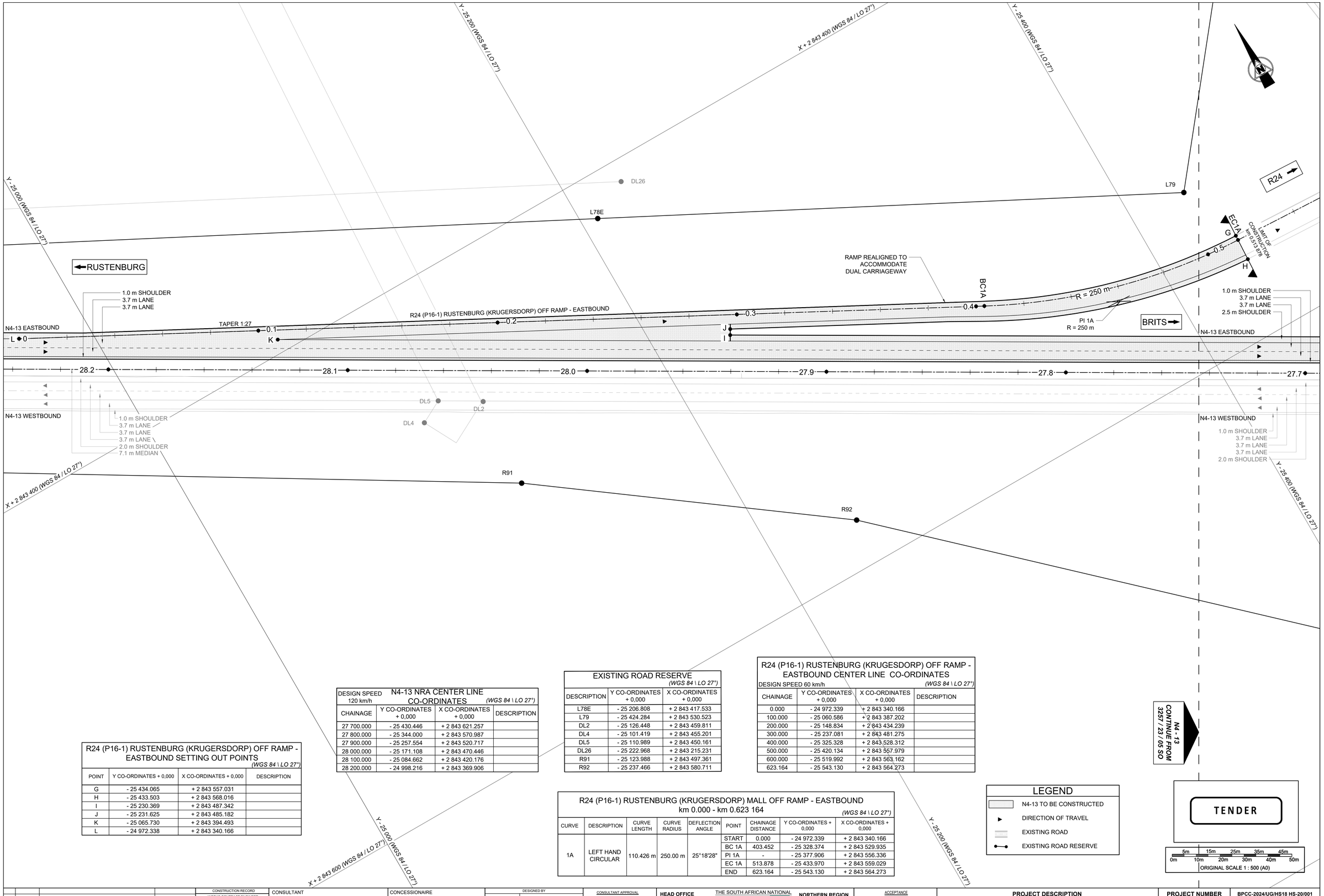
DRAWING DESCRIPTION
SETTING OUT DETAILS N4-13
R24 (P16-1) RUSTENBURG (KRUGERSDORP) INTERCHANGE
SHEET 02 OF 03

SCALE : 1 : 500 (A0) | SHEET 06 OF 17

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	SECTION 13	SECTION 13
DRAWING km DISTANCE	km 27.200	km 27.700
DRAWING TYPE	ROADS - INTERCHANGES	
BRIDGE/STRUCTURE No.	B2229A	
CONSULTANT DRAWING No.	FA 3257 / 23 / 06 SO	VER
SANRAL DOCUMENT #	- -	V0

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\06 - Setting Out\3257-23-05-07SO-Waterfall N4 Interchange Setting out_20230717.dwg



R24 (P16-1) RUSTENBURG (KRUGERSDORP) OFF RAMP - EASTBOUND SETTING OUT POINTS

(WGS 84 \ LO 27°)

POINT	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
G	- 25 434.065	+ 2 843 557.031	
H	- 25 433.503	+ 2 843 568.016	
I	- 25 230.369	+ 2 843 487.342	
J	- 25 231.625	+ 2 843 485.182	
K	- 25 065.730	+ 2 843 394.493	
L	- 24 972.338	+ 2 843 340.166	

N4-13 NRA CENTER LINE CO-ORDINATES

DESIGN SPEED 120 km/h — *(WGS 84 \ LO 27°)*

CHAINAGE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
27 700.000	- 25 430.446	+ 2 843 621.257	
27 800.000	- 25 344.000	+ 2 843 570.987	
27 900.000	- 25 257.554	+ 2 843 520.717	
28 000.000	- 25 171.108	+ 2 843 470.446	
28 100.000	- 25 084.662	+ 2 843 420.176	
28 200.000	- 24 998.216	+ 2 843 369.906	

EXISTING ROAD RESERVE

(WGS 84 \ LO 27°)

DESCRIPTION	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
L78E	- 25 206.808	+ 2 843 417.533
L79	- 25 424.284	+ 2 843 530.523
DL2	- 25 126.448	+ 2 843 459.811
DL4	- 25 101.419	+ 2 843 455.201
DL5	- 25 110.989	+ 2 843 450.161
DL26	- 25 222.968	+ 2 843 215.231
R91	- 25 123.988	+ 2 843 497.361
R92	- 25 237.466	+ 2 843 580.711

R24 (P16-1) RUSTENBURG (KRUGESDORP) OFF RAMP - EASTBOUND CENTER LINE CO-ORDINATES

DESIGN SPEED 60 km/h — *(WGS 84 \ LO 27°)*

CHAINAGE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
0.000	- 24 972.339	+ 2 843 340.166	
100.000	- 25 060.586	+ 2 843 387.202	
200.000	- 25 148.834	+ 2 843 434.239	
300.000	- 25 237.081	+ 2 843 481.275	
400.000	- 25 325.328	+ 2 843 528.312	
500.000	- 25 420.134	+ 2 843 557.979	
600.000	- 25 519.992	+ 2 843 563.162	
623.164	- 25 543.130	+ 2 843 564.273	

R24 (P16-1) RUSTENBURG (KRUGERSDORP) MALL OFF RAMP - EASTBOUND

km 0.000 - km 0.623 164 — *(WGS 84 \ LO 27°)*

CURVE	DESCRIPTION	CURVE LENGTH	CURVE RADIUS	DEFLECTION ANGLE	POINT	CHAINAGE DISTANCE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
1A	LEFT HAND CIRCULAR	110.426 m	250.00 m	25°18'28"	START	0.000	- 24 972.339	+ 2 843 340.166
					BC 1A	403.452	- 25 328.374	+ 2 843 529.935
					PI 1A	-	- 25 377.906	+ 2 843 556.336
					EC 1A	513.878	- 25 433.970	+ 2 843 559.029
					END	623.164	- 25 543.130	+ 2 843 564.273

LEGEND

- N4-13 TO BE CONSTRUCTED
- DIRECTION OF TRAVEL
- EXISTING ROAD
- EXISTING ROAD RESERVE

TENDER

5m 15m 25m 35m 45m
0m 10m 20m 30m 40m 50m
ORIGINAL SCALE 1 : 500 (A0)

No.	DATE	REVISION	
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date :

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NAME: EF DAY
Prof. Reg. No.: 20130622
CHECKED BY
NAME: PL NGQUMSHE
Prof. Reg. No.: 20080112
DRAWN BY
NAME: WB HARTMANN

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17 / 07 / 2023

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for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION
SETTING OUT DETAILS
R24 (P16-1) RUSTENBURG (KRUGERSDORP) INTERCHANGE
SHEET 03 OF 03

SCALE : 1 : 500 (A0) — **SHEET 07 OF 17**

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001		
DRAWING LOCATION DATA	START	END	
ROUTE	N 4	N 4	
SECTION	SECTION 13	SECTION 13	
DRAWING km DISTANCE	km 27.700	km 28.200	
DRAWING TYPE	ROADS - LAYOUTS		
BRIDGE/STRUCTURE No.	B2229A		
CONSULTANT DRAWING No.	FA	3257 / 23 / 07 SO	VER
SANRAL DOCUMENT #	- -		V0

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\06 - Setting Out\3257-23-05-07SO-WaterfallN4 Interchange Setting out_20230717.dwg

EXISTING ROAD RESERVE

(WGS 84 \ LO 27°)

DESCRIPTION	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
L62	- 23 341.941	+ 2 842 585.534
L63	- 23 528.678	+ 2 842 640.035
L64	- 23 531.548	+ 2 842 640.905
L65	- 23 673.485	+ 2 842 685.936
L66	- 23 676.325	+ 2 842 686.886
R71	- 23 321.120	+ 2 842 662.773
R72	- 23 515.767	+ 2 842 719.874
R73	- 23 518.637	+ 2 842 720.744
R74	- 23 610.336	+ 2 842 749.885
R75	- 23 613.166	+ 2 842 750.875

HELEN JOSEPH DRIVE ON RAMP - EASTBOUND km 0.000 - km 0.993 718

(WGS 84 \ LO 27°)

CURVE	DESCRIPTION	CURVE LENGTH	CURVE RADIUS	DEFLECTION ANGLE	POINT	CHAINAGE DISTANCE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
					START	0.000	- 22 718.082	+ 2 842 391.521
1B	RIGHT HAND CIRCULAR	61.187 m	150.000 m	23°22'18"	BC 1	26.468	- 22 743.921	+ 2 842 397.255
					PI 1	-	- 22 774.209	+ 2 842 403.977
					EC 1	87.655	- 22 799.345	+ 2 842 422.162
2B	LEFT HAND CIRCULAR	154.893 m	400.000m	22°11'12"	BC 2	129.549	- 22 833.288	+ 2 842 446.718
					PI 2	-	- 22 896.831	+ 2 842 492.689
					EC 2	284.442	- 22 973.029	+ 2 842 511.261
3B	RIGHT HAND CIRCULAR	581.517 m	5 612.700 m	5°56'11"	BC 3	412.201	- 23 097.155	+ 2 842 541.513
					PI 3	-	- 23 379.897	+ 2 842 610.425
					EC 3	993.718	- 23 653.996	+ 2 842 708.209
					END	993.718	- 23 653.996	+ 2 842 708.209

HELEN JOSEPH DRIVE ON RAMP - EASTBOUND SETTING OUT POINTS

(WGS 84 \ LO 27°)

POINT	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
A	- 23 653.995	+ 2 842 708.208	
B	- 23 463.130	+ 2 842 648.150	
C	- 23 124.448	+ 2 842 556.997	
D	- 23 125.005	+ 2 842 554.560	
E	- 22 876.519	+ 2 842 517.273	
F	- 22 878.468	+ 2 842 506.549	
G	- 22 829.852	+ 2 842 451.582	
H	- 22 834.609	+ 2 842 444.922	

LEGEND

- N4-13 TO BE CONSTRUCTED
- DIRECTION OF TRAVEL
- EXISTING ROAD
- EXISTING ROAD RESERVE

HELEN JOSEPH DRIVE ON RAMP CENTER LINE CO-ORDINATES

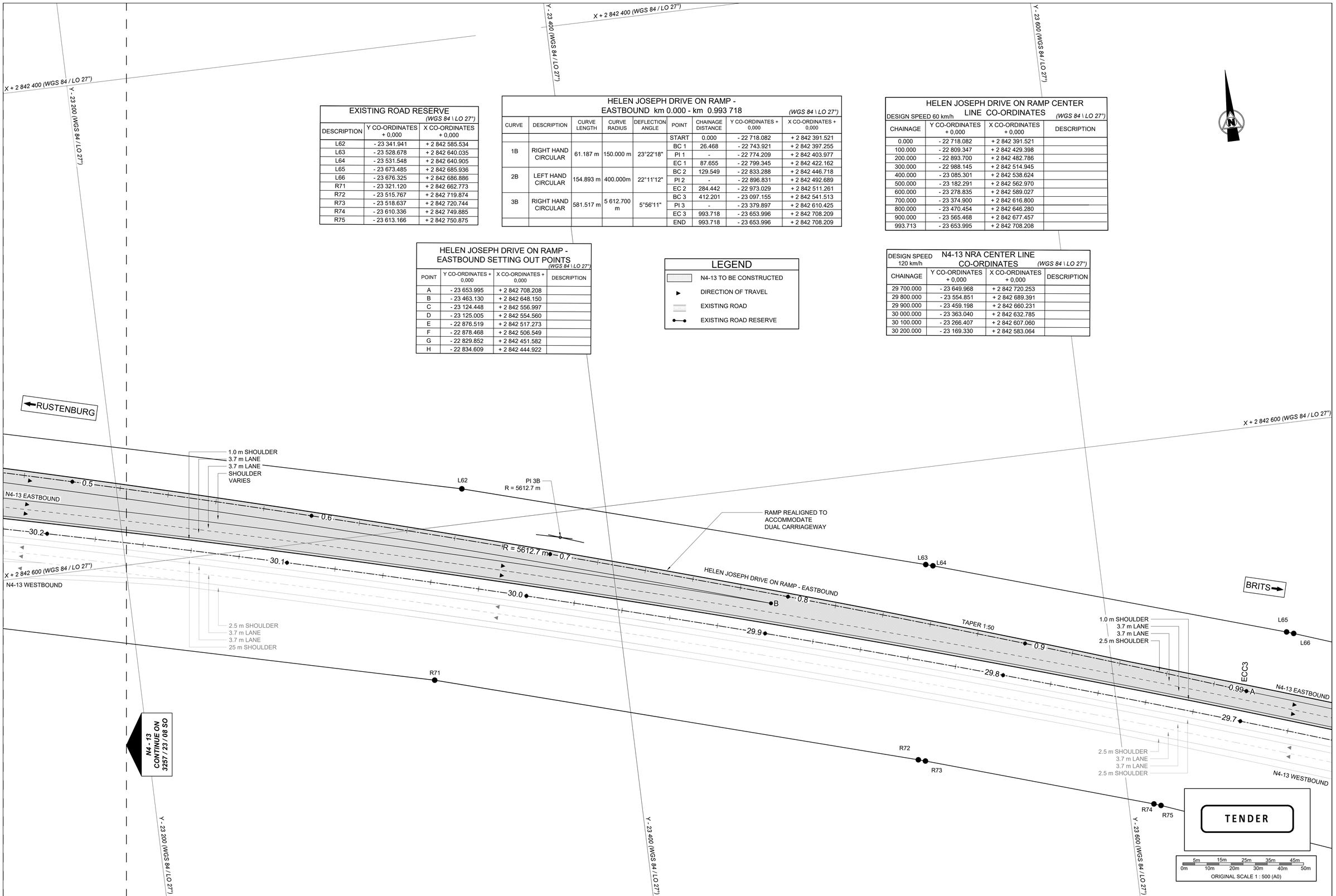
DESIGN SPEED 60 km/h *(WGS 84 \ LO 27°)*

CHAINAGE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
0.000	- 22 718.082	+ 2 842 391.521	
100.000	- 22 809.347	+ 2 842 429.398	
200.000	- 22 893.700	+ 2 842 482.786	
300.000	- 22 988.145	+ 2 842 514.945	
400.000	- 23 085.301	+ 2 842 538.624	
500.000	- 23 182.291	+ 2 842 562.970	
600.000	- 23 278.835	+ 2 842 589.027	
700.000	- 23 374.900	+ 2 842 616.800	
800.000	- 23 470.454	+ 2 842 646.280	
900.000	- 23 565.468	+ 2 842 677.457	
993.713	- 23 653.995	+ 2 842 708.208	

N4-13 NRA CENTER LINE CO-ORDINATES

DESIGN SPEED 120 km/h *(WGS 84 \ LO 27°)*

CHAINAGE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
29 700.000	- 23 649.968	+ 2 842 720.253	
29 800.000	- 23 554.851	+ 2 842 689.391	
29 900.000	- 23 459.198	+ 2 842 660.231	
30 000.000	- 23 363.040	+ 2 842 632.785	
30 100.000	- 23 266.407	+ 2 842 607.060	
30 200.000	- 23 169.330	+ 2 842 583.064	



No.	DATE	REVISION	
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
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DESIGNED BY	
NAME	EF DAY
Prof. Reg. No.	20130622
CHECKED BY	
NAME	PL NGQUMSHE
Prof. Reg. No.	20080112
DRAWN BY	
NAME	WB HARTMANN

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17 / 07 / 2023

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for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION
SETTING OUT DETAILS N4-13 HELEN JOSEPH DRIVE INTERCHANGE SHEET 01 OF 03

SCALE : 1 : 500 (A0) | SHEET 08 OF 17

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	SECTION 13	SECTION 13
DRAWING km DISTANCE	km 29.700	km 30.200
DRAWING TYPE	ROADS - INTERCHANGES	
BRIDGE/STRUCTURE No.	B2227	
CONSULTANT DRAWING No.	FA 3257 / 23 / 08 SO	VER
SANRAL DOCUMENT #	- -	V0

SANRAL DOCUMENT NUMBER :

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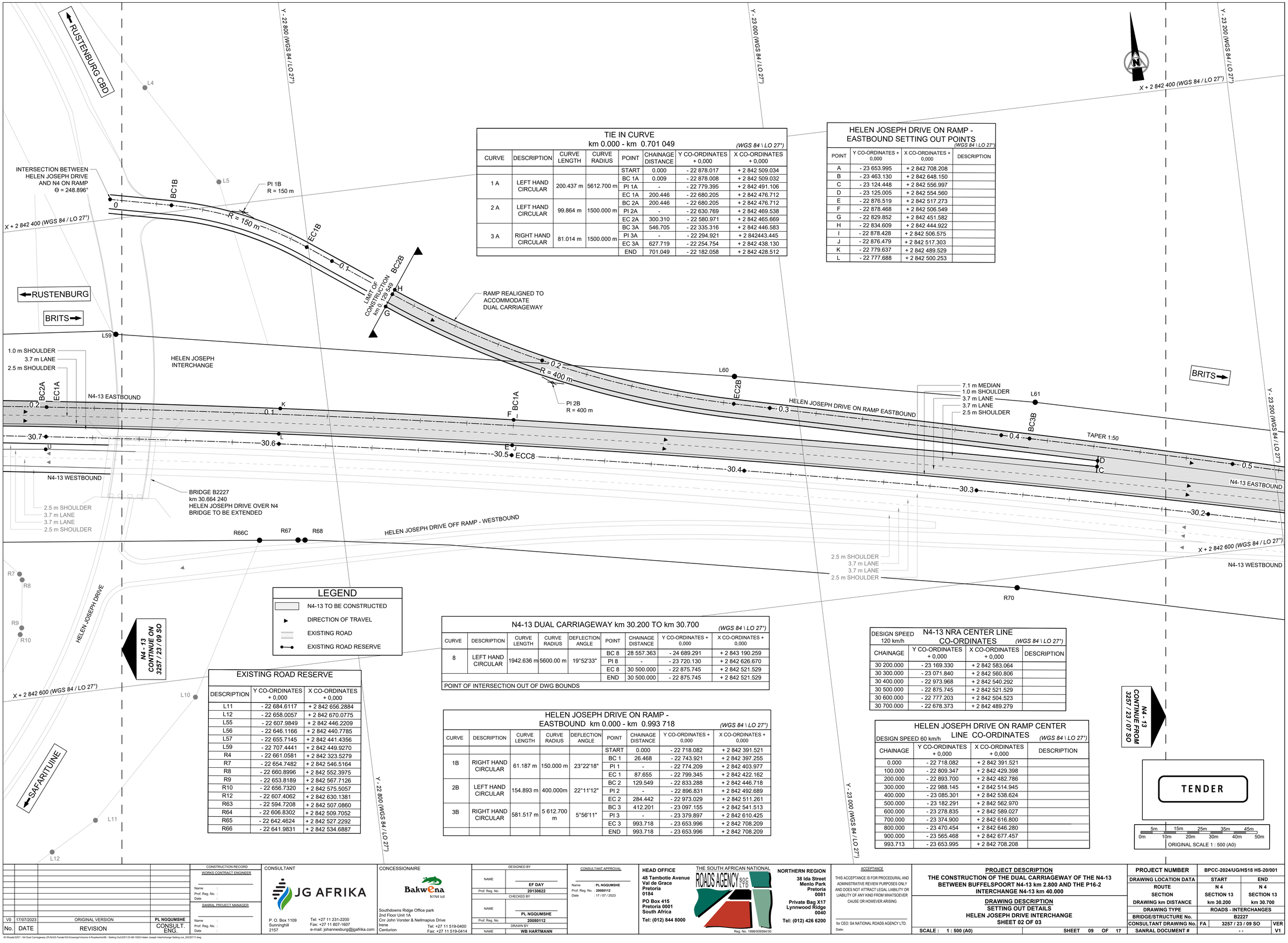

TIE IN CURVE
km 0.000 - km 0.701 049 *(WGS 84 \ LO 27°)*

CURVE	DESCRIPTION	CURVE LENGTH	CURVE RADIUS	POINT	CHAINAGE DISTANCE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
				START	0.000	- 22 878.017	+ 2 842 509.034
1 A	LEFT HAND CIRCULAR	200.437 m	5612.700 m	BC 1A	0.009	- 22 878.008	+ 2 842 509.032
				PI 1A	-	- 22 779.395	+ 2 842 491.106
				EC 1A	200.446	- 22 680.205	+ 2 842 476.712
2 A	LEFT HAND CIRCULAR	99.864 m	1500.000 m	BC 2A	200.446	- 22 680.205	+ 2 842 476.712
				PI 2A	-	- 22 630.769	+ 2 842 469.538
				EC 2A	300.310	- 22 580.971	+ 2 842 465.669
3 A	RIGHT HAND CIRCULAR	81.014 m	1500.000 m	BC 3A	546.705	- 22 335.316	+ 2 842 446.583
				PI 3A	-	- 22 294.921	+ 2 842443.445
				EC 3A	627.719	- 22 254.754	+ 2 842 438.130
				END	701.049	- 22 182.058	+ 2 842 428.512

HELEN JOSEPH DRIVE ON RAMP - EASTBOUND SETTING OUT POINTS
(WGS 84 \ LO 27°)

POINT	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
A	- 23 653.995	+ 2 842 708.208	
B	- 23 463.130	+ 2 842 648.150	
C	- 23 124.448	+ 2 842 556.997	
D	- 23 125.005	+ 2 842 554.560	
E	- 22 876.519	+ 2 842 517.273	
F	- 22 878.468	+ 2 842 506.549	
G	- 22 829.852	+ 2 842 451.582	
H	- 22 834.609	+ 2 842 444.922	
I	- 22 878.428	+ 2 842 506.575	
J	- 22 876.479	+ 2 842 517.303	
K	- 22 779.637	+ 2 842 489.529	
L	- 22 777.688	+ 2 842 500.253	

LEGEND

- N4-13 TO BE CONSTRUCTED
- DIRECTION OF TRAVEL
- EXISTING ROAD
- EXISTING ROAD RESERVE

EXISTING ROAD RESERVE

DESCRIPTION	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
L11	- 22 684.6117	+ 2 842 656.2884
L12	- 22 658.0057	+ 2 842 670.0775
L55	- 22 607.9849	+ 2 842 446.2209
L56	- 22 646.1166	+ 2 842 440.7785
L57	- 22 655.7145	+ 2 842 441.4356
L59	- 22 707.4441	+ 2 842 449.9270
R4	- 22 661.0581	+ 2 842 323.5279
R7	- 22 654.7482	+ 2 842 546.5164
R8	- 22 660.8996	+ 2 842 552.3975
R9	- 22 653.8189	+ 2 842 567.7126
R10	- 22 656.7320	+ 2 842 575.5057
R12	- 22 607.4062	+ 2 842 630.1381
R63	- 22 594.7208	+ 2 842 507.0860
R64	- 22 606.8302	+ 2 842 509.7052
R65	- 22 642.4624	+ 2 842 527.2292
R66	- 22 641.9831	+ 2 842 534.6887

N4-13 DUAL CARRIAGEWAY km 30.200 TO km 30.700
(WGS 84 \ LO 27°)

CURVE	DESCRIPTION	CURVE LENGTH	CURVE RADIUS	DEFLECTION ANGLE	POINT	CHAINAGE DISTANCE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
8	LEFT HAND CIRCULAR	1942.636 m	5600.00 m	19°52'33"	BC 8	28 557.363	- 24 689.291	+ 2 843 190.259
					PI 8	-	- 23 720.130	+ 2 842 626.670
					EC 8	30 500.000	- 22 875.745	+ 2 842 521.529
					END	30 500.000	- 22 875.745	+ 2 842 521.529
POINT OF INTERSECTION OUT OF DWG BOUNDS								

HELEN JOSEPH DRIVE ON RAMP - EASTBOUND km 0.000 - km 0.993 718
(WGS 84 \ LO 27°)

CURVE	DESCRIPTION	CURVE LENGTH	CURVE RADIUS	DEFLECTION ANGLE	POINT	CHAINAGE DISTANCE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
					START	0.000	- 22 718.082	+ 2 842 391.521
1B	RIGHT HAND CIRCULAR	61.187 m	150.000 m	23°22'18"	BC 1	26.468	- 22 743.921	+ 2 842 397.255
					PI 1	-	- 22 774.209	+ 2 842 403.977
					EC 1	87.655	- 22 799.345	+ 2 842 422.162
2B	LEFT HAND CIRCULAR	154.893 m	400.000m	22°11'12"	BC 2	129.549	- 22 833.288	+ 2 842 446.718
					PI 2	-	- 22 896.831	+ 2 842 492.689
					EC 2	284.442	- 22 973.029	+ 2 842 511.261
3B	RIGHT HAND CIRCULAR	581.517 m	5 612.700 m	5°56'11"	BC 3	412.201	- 23 097.155	+ 2 842 541.513
					PI 3	-	- 23 379.897	+ 2 842 610.425
					EC 3	993.718	- 23 653.996	+ 2 842 708.209
					END	993.718	- 23 653.996	+ 2 842 708.209

N4-13 NRA CENTER LINE CO-ORDINATES
DESIGN SPEED 120 km/h *(WGS 84 \ LO 27°)*

CHAINAGE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
30 200.000	- 23 169.330	+ 2 842 583.064	
30 300.000	- 23 071.840	+ 2 842 560.806	
30 400.000	- 22 973.968	+ 2 842 540.292	
30 500.000	- 22 875.745	+ 2 842 521.529	
30 600.000	- 22 777.203	+ 2 842 504.523	
30 700.000	- 22 678.373	+ 2 842 489.279	

HELEN JOSEPH DRIVE ON RAMP CENTER LINE CO-ORDINATES
DESIGN SPEED 60 km/h *(WGS 84 \ LO 27°)*

CHAINAGE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
0.000	- 22 718.082	+ 2 842 391.521	
100.000	- 22 809.347	+ 2 842 429.398	
200.000	- 22 893.700	+ 2 842 482.786	
300.000	- 22 988.145	+ 2 842 514.945	
400.000	- 23 085.301	+ 2 842 538.624	
500.000	- 23 182.291	+ 2 842 562.970	
600.000	- 23 278.835	+ 2 842 589.027	
700.000	- 23 374.900	+ 2 842 616.800	
800.000	- 23 470.454	+ 2 842 646.280	
900.000	- 23 565.468	+ 2 842 677.457	
993.713	- 23 653.995	+ 2 842 708.208	

TENDER

5m 15m 25m 35m 45m
0m 10m 20m 30m 40m 50m
ORIGINAL SCALE 1 : 500 (A0)

No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date :

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NAME: PL NGQUMSHE
Prof. Reg. No.: 20080112
DRAWN BY
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CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17 / 07 / 2023

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ACCEPTANCE
THIS ACCEPTANCE IS FOR PROCEDURAL AND ADMINISTRATIVE REVIEW PURPOSES ONLY AND DOES NOT ATTRACT LEGAL LIABILITY OR LIABILITY OF ANY KIND FROM WHATSOEVER CAUSE OR HOWEVER ARISING
for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION
SETTING OUT DETAILS
HELEN JOSEPH DRIVE INTERCHANGE
SHEET 02 OF 03

SCALE : 1 : 500 (A0) SHEET 09 OF 17

PROJECT NUMBER		BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END	
ROUTE	N 4	N 4	
SECTION	SECTION 13	SECTION 13	
DRAWING km DISTANCE	km 30.200	km 30.700	
DRAWING TYPE	ROADS - INTERCHANGES		
BRIDGE/STRUCTURE No.	B2227		
CONSULTANT DRAWING No.	FA 3257 / 23 / 09 SO		VER V1
SANRAL DOCUMENT #	- -		

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\06 - Setting Out\3257-23-08-105O-Helen Joseph Interchange Setting out_20230717.dwg

Y - 22 200 (WGS 84 / LO 27°)

Y - 22 400 (WGS 84 / LO 27°)

Y - 22 600 (WGS 84 / LO 27°)

RUSTENBURG CBD

R4

X + 2 842 400 (WGS 84 / LO 27°)

BRIDGE B2226
km 31.095 000
PEDESTRIAN BRIDGE OVER N4
Θ = 90°

L56 L57 L59

L55

L54

1.0 m SHOULDER
3.7 m LANE
2.5 m SHOULDER

EC2A BC2A EC1A

M

31.2 N4-13 WESTBOUND

0.7

0.701 049

CONSTRUCTION LIMIT OF

31.1

0.6

BC3A

0.5

O

0.4

30.9

S

P

T

0.3

30.8

N

0.2

30.7

U

N4-13 EASTBOUND

N4-13 WESTBOUND

RUSTENBURG

HELEN JOSEPH DRIVE ON RAMP EASTBOUND

N4-13 WESTBOUND

AS PER EXISTING

MINIMUM ROAD
RESERVE WIDTH: 80 m

R63 R64

2.0 m SHOULDER
LANES VARY
2.5 m SHOULDER

R65
R66

BRITS

R7
R8
R9
R10

HELEN JOSEPH DRIVE

N4 - 13
CONTINUE ON
3257 / 23 / 08 SO

X + 2 842 600 (WGS 84 / LO 27°)

R12

TENDER

L11

L12

SAFARITUINE

Y - 22 200 (WGS 84 / LO 27°)

Y - 22 400 (WGS 84 / LO 27°)

Y - 22 600 (WGS 84 / LO 27°)

X + 2 842 600 (WGS 84 / LO 27°)

5m 15m 25m 35m 45m
0m 10m 20m 30m 40m 50m
ORIGINAL SCALE 1 : 500 (A0)

TIE IN CURVE
EASTBOUND SETTING OUT POINTS
(WGS 84 \ LO 27°)

POINT	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
M	- 22 630.9198	+ 2 842 467.8889	
N	- 22 629.7134	+ 2 842 478.7174	
O	- 22 458.2850	+ 2 842 453.8876	
P	- 22 458.0749	+ 2 842 462.7046	
Q	- 22 255.0285	+ 2 842 435.7780	
R	- 22 254.2812	+ 2 842 441.4656	
S	-22 375.9548	+2 842 455.0750	
T	-22 375.5918	+2 842 457.8179	
U	-22 677.698	+2 842 494.654	

EXISTING ROAD RESERVE

DESCRIPTION	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
L11	- 22 684.6117	+ 2 842 656.2884
L12	- 22 658.0057	+ 2 842 670.0775
L55	- 22 607.9849	+ 2 842 446.2209
L56	- 22 646.1166	+ 2 842 440.7785
L57	- 22 655.7145	+ 2 842 441.4356
L59	- 22 707.4441	+ 2 842 449.9270
R4	- 22 661.0581	+ 2 842 323.5279
R7	- 22 654.7482	+ 2 842 546.5164
R8	- 22 660.8996	+ 2 842 552.3975
R9	- 22 653.8189	+ 2 842 567.7126
R10	- 22 656.7320	+ 2 842 575.5057
R12	- 22 607.4062	+ 2 842 630.1381
R63	- 22 594.7208	+ 2 842 507.0860
R64	- 22 606.8302	+ 2 842 509.7052
R65	- 22 642.4624	+ 2 842 527.2292
R66	- 22 641.9831	+ 2 842 534.6887

LEGEND

- N4-13 TO BE CONSTRUCTED
- DIRECTION OF TRAVEL
- EXISTING ROAD
- EXISTING ROAD RESERVE

TIE IN CURVE
km 0.000 - km 0.701 049
(WGS 84 \ LO 27°)

CURVE	DESCRIPTION	CURVE LENGTH	CURVE RADIUS	POINT	CHAINAGE DISTANCE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
				START	0.000	- 22 878.017	+ 2 842 509.034
1 A	LEFT HAND CIRCULAR	200.437 m	5612.700 m	BC 1A	0.009	- 22 878.008	+ 2 842 509.032
				PI 1A	-	- 22 779.395	+ 2 842 491.106
				EC 1A	200.446	- 22 680.205	+ 2 842 476.712
2 A	LEFT HAND CIRCULAR	99.864 m	1500.000 m	BC 2A	200.446	- 22 680.205	+ 2 842 476.712
				PI 2A	-	- 22 630.769	+ 2 842 469.538
				EC 2A	300.310	- 22 580.971	+ 2 842 465.669
3 A	RIGHT HAND CIRCULAR	81.014 m	1500.000 m	BC 3A	546.705	- 22 335.316	+ 2 842 446.583
				PI 3A	-	- 22 294.921	+ 2 842443.445
				EC 3A	627.719	- 22 254.754	+ 2 842 438.130
				END	701.049	- 22 182.058	+ 2 842 428.512

No.	DATE	REVISION	CONSULT. ENG.
V1			
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date :

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DESIGNED BY
NAME EF DAY
Prof. Reg. No. 20130622
CHECKED BY
NAME PL NGQUMSHE
Prof. Reg. No. 20080112
DRAWN BY
NAME WB HARTMANN

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17 / 07 / 2023

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for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

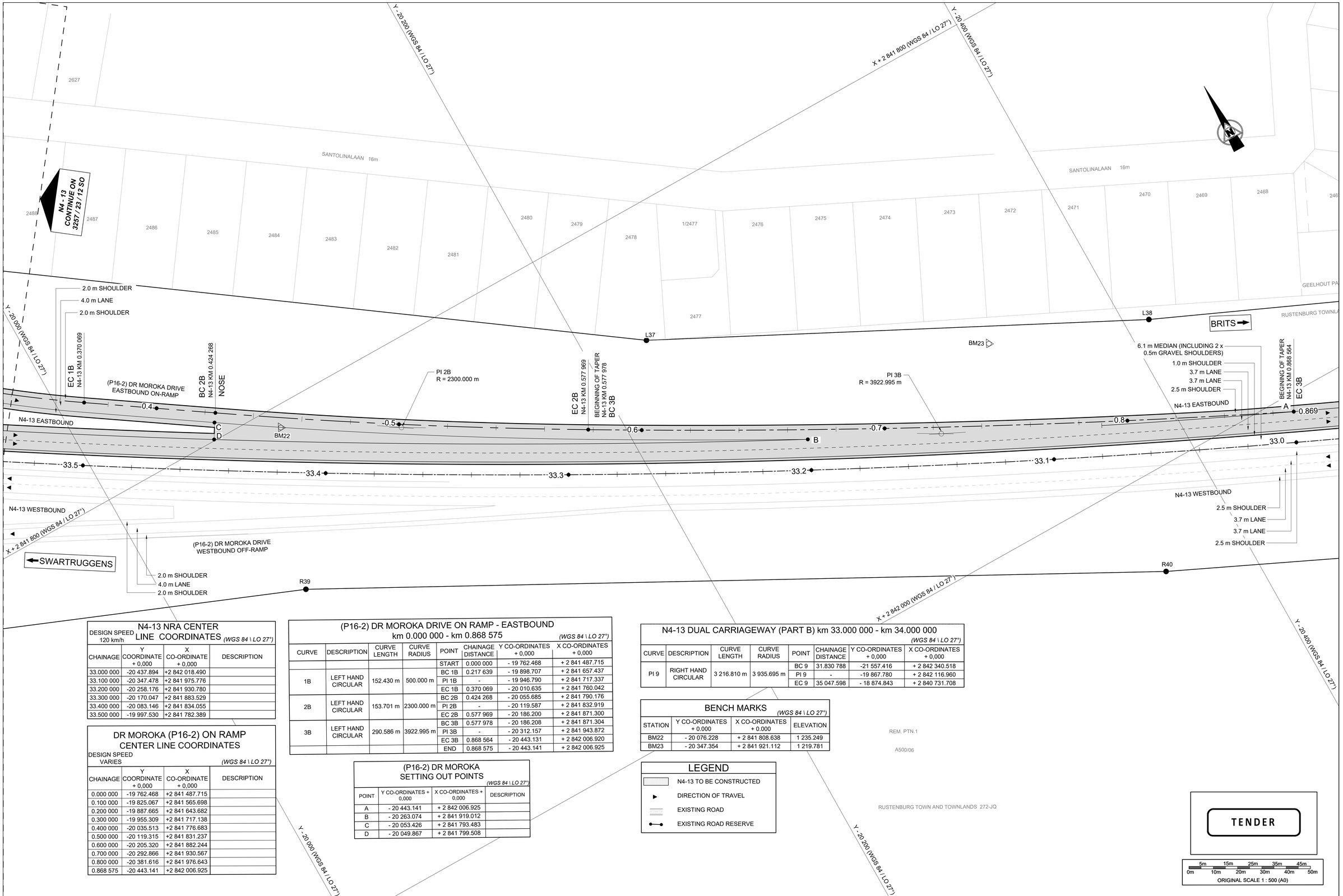
DRAWING DESCRIPTION
SETTING OUT DETAILS
HELEN JOSEPH DRIVE INTERCHANGE
SHEET 03 OF 03

SCALE : 1 : 500 (A0) SHEET 10 OF 17

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	SECTION 13	SECTION 13
DRAWING km DISTANCE	km 30.700	km 31.200
DRAWING TYPE	ROADS - INTERCHANGES	
BRIDGE/STRUCTURE No.	B2227	
CONSULTANT DRAWING No.	FA 3257 / 23 / 10 SO	VER
SANRAL DOCUMENT #	- -	V1

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\06 - Setting Out\3257-23-08-10SO-Helen Joseph Interchange Setting out_20230717.dwg



N4-13 NRA CENTER LINE COORDINATES

DESIGN SPEED 120 km/h — *(WGS 84 \ LO 27°)*

CHAINAGE	Y COORDINATE + 0,000	X CO-ORDINATE + 0,000	DESCRIPTION
33.000 000	-20 437.894	+2 842 018.490	
33.100 000	-20 347.478	+2 841 975.776	
33.200 000	-20 258.176	+2 841 930.780	
33.300 000	-20 170.047	+2 841 883.529	
33.400 000	-20 083.146	+2 841 834.055	
33.500 000	-19 997.530	+2 841 782.389	

DR MOROKA (P16-2) ON RAMP CENTER LINE COORDINATES

DESIGN SPEED VARIES — *(WGS 84 \ LO 27°)*

CHAINAGE	Y COORDINATE + 0,000	X CO-ORDINATE + 0,000	DESCRIPTION
0.000 000	-19 762.468	+2 841 487.715	
0.100 000	-19 825.067	+2 841 565.698	
0.200 000	-19 887.665	+2 841 643.682	
0.300 000	-19 955.309	+2 841 717.138	
0.400 000	-20 035.513	+2 841 776.683	
0.500 000	-20 119.315	+2 841 831.237	
0.600 000	-20 205.320	+2 841 882.244	
0.700 000	-20 292.866	+2 841 930.567	
0.800 000	-20 381.616	+2 841 976.643	
0.868 575	-20 443.141	+2 842 006.925	

(P16-2) DR MOROKA DRIVE ON RAMP - EASTBOUND
km 0.000 000 - km 0.868 575 — *(WGS 84 \ LO 27°)*

CURVE	DESCRIPTION	CURVE LENGTH	CURVE RADIUS	POINT	CHAINAGE DISTANCE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
				START	0.000 000	- 19 762.468	+ 2 841 487.715
				BC 1B	0.217 639	- 19 898.707	+ 2 841 657.437
1B	LEFT HAND CIRCULAR	152.430 m	500.000 m	PI 1B	-	- 19 946.790	+ 2 841 717.337
				EC 1B	0.370 069	- 20 010.635	+ 2 841 760.042
				BC 2B	0.424 268	- 20 055.685	+ 2 841 790.176
2B	LEFT HAND CIRCULAR	153.701 m	2300.000 m	PI 2B	-	- 20 119.587	+ 2 841 832.919
				EC 2B	0.577 969	- 20 186.200	+ 2 841 871.300
				BC 3B	0.577 978	- 20 186.208	+ 2 841 871.304
3B	LEFT HAND CIRCULAR	290.586 m	3922.995 m	PI 3B	-	- 20 312.157	+ 2 841 943.872
				EC 3B	0.868 564	- 20 443.131	+ 2 842 006.920
				END	0.868 575	- 20 443.141	+ 2 842 006.925

(P16-2) DR MOROKA SETTING OUT POINTS

(WGS 84 \ LO 27°)

POINT	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
A	- 20 443.141	+ 2 842 006.925	
B	- 20 263.074	+ 2 841 919.012	
C	- 20 053.426	+ 2 841 793.483	
D	- 20 049.867	+ 2 841 799.508	

N4-13 DUAL CARRIAGEWAY (PART B) km 33.000 000 - km 34.000 000

(WGS 84 \ LO 27°)

CURVE	DESCRIPTION	CURVE LENGTH	CURVE RADIUS	POINT	CHAINAGE DISTANCE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
PI 9	RIGHT HAND CIRCULAR	3 216.810 m	3 935.695 m	BC 9	31.830 788	-21 557.416	+ 2 842 340.518
				PI 9	-	-19 867.780	+ 2 842 116.960
				EC 9	35 047.598	- 18 874.843	+ 2 840 731.708

BENCH MARKS

(WGS 84 \ LO 27°)

STATION	Y CO-ORDINATES + 0.000	X CO-ORDINATES + 0.000	ELEVATION
BM22	- 20 076.228	+ 2 841 808.638	1 235.249
BM23	- 20 347.354	+ 2 841 921.112	1 219.781

LEGEND

- N4-13 TO BE CONSTRUCTED
- DIRECTION OF TRAVEL
- EXISTING ROAD
- EXISTING ROAD RESERVE

TENDER

5m 15m 25m 35m 45m
0m 10m 20m 30m 40m 50m
ORIGINAL SCALE 1 : 500 (A0)

SANRAL DOCUMENT NUMBER :

No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date :

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Prof. Reg. No. : -
CHECKED BY
NAME: PL NGQUMSHE
Prof. Reg. No. : 20080112
DRAWN BY
NAME: WB HARTMANN

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17 / 07 / 2023

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Date:

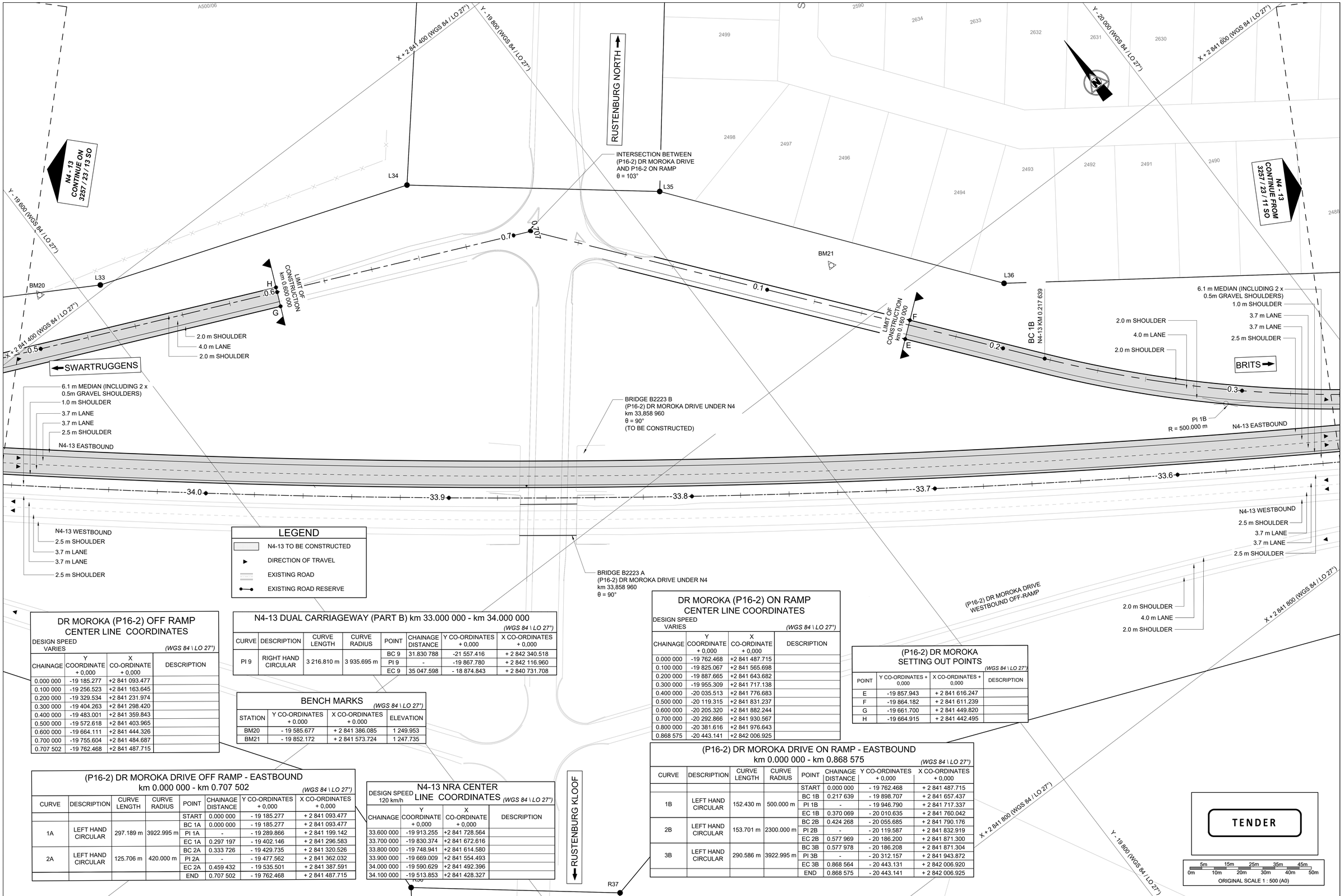
PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION
SETTING OUT DETAILS
(P16-2) DR MOROKA INTERCHANGE
SHEET 01 OF 03

SCALE : 1 : 500 (A0) SHEET 11 OF 17

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	SECTION 13	SECTION 13
DRAWING km DISTANCE	km 33.100	km 33.600
DRAWING TYPE	ROADS - INTERCHANGES	
BRIDGE/STRUCTURE No.	NA	
CONSULTANT DRAWING No.	FA 3257 / 23 / 11 SO	VER V0
SANRAL DOCUMENT #	- -	

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\06 - Setting Out\3257-23-11-13SO-Dr Moroka Interchange Setting Out_20230717.dwg



LEGEND

- N4-13 TO BE CONSTRUCTED
- DIRECTION OF TRAVEL
- EXISTING ROAD
- EXISTING ROAD RESERVE

DR MOROKA (P16-2) OFF RAMP CENTER LINE COORDINATES

DESIGN SPEED VARIES — *(WGS 84 \ LO 27°)*

CHAINAGE	Y COORDINATE + 0,000	X CO-ORDINATE + 0,000	DESCRIPTION
0.000 000	-19 185.277	+2 841 093.477	
0.100 000	-19 256.523	+2 841 163.645	
0.200 000	-19 329.534	+2 841 231.974	
0.300 000	-19 404.263	+2 841 298.420	
0.400 000	-19 483.001	+2 841 359.843	
0.500 000	-19 572.618	+2 841 403.965	
0.600 000	-19 664.111	+2 841 444.326	
0.700 000	-19 755.604	+2 841 484.687	
0.707 502	-19 762.468	+2 841 487.715	

N4-13 DUAL CARRIAGEWAY (PART B) km 33.000 000 - km 34.000 000

(WGS 84 \ LO 27°)

CURVE	DESCRIPTION	CURVE LENGTH	CURVE RADIUS	POINT	CHAINAGE DISTANCE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
PI 9	RIGHT HAND CIRCULAR	3 216.810 m	3 935.695 m	BC 9	31.830 788	-21 557.416	+ 2 842 340.518
				PI 9	-	-19 867.780	+ 2 842 116.960
				EC 9	35 047.598	- 18 874.843	+ 2 840 731.708

BENCH MARKS

(WGS 84 \ LO 27°)

STATION	Y CO-ORDINATES + 0.000	X CO-ORDINATES + 0.000	ELEVATION
BM20	- 19 585.677	+ 2 841 386.085	1 249.953
BM21	- 19 852.172	+ 2 841 573.724	1 247.735

(P16-2) DR MOROKA DRIVE OFF RAMP - EASTBOUND km 0.000 000 - km 0.707 502

(WGS 84 \ LO 27°)

CURVE	DESCRIPTION	CURVE LENGTH	CURVE RADIUS	POINT	CHAINAGE DISTANCE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
				START	0.000 000	- 19 185.277	+ 2 841 093.477
1A	LEFT HAND CIRCULAR	297.189 m	3922.995 m	BC 1A	0.000 000	- 19 185.277	+ 2 841 093.477
				PI 1A	-	- 19 289.866	+ 2 841 199.142
				EC 1A	0.297 197	- 19 402.146	+ 2 841 296.583
2A	LEFT HAND CIRCULAR	125.706 m	420.000 m	BC 2A	0.333 726	- 19 429.735	+ 2 841 320.526
				PI 2A	-	- 19 477.562	+ 2 841 362.032
				EC 2A	0.459 432	- 19 535.501	+ 2 841 387.591
				END	0.707 502	- 19 762.468	+ 2 841 487.715

N4-13 NRA CENTER LINE COORDINATES

DESIGN SPEED 120 km/h — *(WGS 84 \ LO 27°)*

CHAINAGE	Y COORDINATE + 0,000	X CO-ORDINATE + 0,000	DESCRIPTION
33.600 000	-19 913.255	+2 841 728.564	
33.700 000	-19 830.374	+2 841 672.616	
33.800 000	-19 748.941	+2 841 614.580	
33.900 000	-19 669.009	+2 841 554.493	
34.000 000	-19 590.629	+2 841 492.396	
34.100 000	-19 513.853	+2 841 428.327	

DR MOROKA (P16-2) ON RAMP CENTER LINE COORDINATES

DESIGN SPEED VARIES — *(WGS 84 \ LO 27°)*

CHAINAGE	Y COORDINATE + 0,000	X CO-ORDINATE + 0,000	DESCRIPTION
0.000 000	-19 762.468	+2 841 487.715	
0.100 000	-19 825.067	+2 841 565.698	
0.200 000	-19 887.665	+2 841 643.682	
0.300 000	-19 955.309	+2 841 717.138	
0.400 000	-20 035.513	+2 841 776.683	
0.500 000	-20 119.315	+2 841 831.237	
0.600 000	-20 205.320	+2 841 882.244	
0.700 000	-20 292.866	+2 841 930.567	
0.800 000	-20 381.616	+2 841 976.643	
0.868 575	-20 443.141	+2 842 006.925	

(P16-2) DR MOROKA SETTING OUT POINTS

(WGS 84 \ LO 27°)

POINT	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
E	-19 857.943	+ 2 841 616.247	
F	-19 864.182	+ 2 841 611.239	
G	-19 661.700	+ 2 841 449.820	
H	-19 664.915	+ 2 841 442.495	

(P16-2) DR MOROKA DRIVE ON RAMP - EASTBOUND km 0.000 000 - km 0.868 575

(WGS 84 \ LO 27°)

CURVE	DESCRIPTION	CURVE LENGTH	CURVE RADIUS	POINT	CHAINAGE DISTANCE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
				START	0.000 000	- 19 762.468	+ 2 841 487.715
1B	LEFT HAND CIRCULAR	152.430 m	500.000 m	BC 1B	0.217 639	- 19 898.707	+ 2 841 657.437
				PI 1B	-	- 19 946.790	+ 2 841 717.337
				EC 1B	0.370 069	- 20 010.635	+ 2 841 760.042
2B	LEFT HAND CIRCULAR	153.701 m	2300.000 m	BC 2B	0.424 268	- 20 055.685	+ 2 841 790.176
				PI 2B	-	- 20 119.587	+ 2 841 832.919
				EC 2B	0.577 969	- 20 186.200	+ 2 841 871.300
3B	LEFT HAND CIRCULAR	290.586 m	3922.995 m	BC 3B	0.577 978	- 20 186.208	+ 2 841 871.304
				PI 3B	-	- 20 312.157	+ 2 841 943.872
				EC 3B	0.868 564	- 20 443.131	+ 2 842 006.920
				END	0.868 575	- 20 443.141	+ 2 842 006.925

TENDER

5m 15m 25m 35m 45m
0m 10m 20m 30m 40m 50m
ORIGINAL SCALE 1 : 500 (A0)

No.	DATE	REVISION	
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date :

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DESIGNED BY	
NAME	Z MASHININI
Prof. Reg. No.	-
CHECKED BY	
NAME	PL NGQUMSHE
Prof. Reg. No.	20080112
DRAWN BY	
NAME	WB HARTMANN

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17 / 07 / 2023

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THE SOUTH AFRICAN NATIONAL ROADS AGENCY SOC LTD
Reg. No. 1998/009584/30

NORTHERN REGION
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ACCEPTANCE
THIS ACCEPTANCE IS FOR PROCEDURAL AND ADMINISTRATIVE REVIEW PURPOSES ONLY AND DOES NOT ATTRACT LEGAL LIABILITY OR LIABILITY OF ANY KIND FROM WHATSOEVER CAUSE OR HOWEVER ARISING
for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION
SETTING OUT DETAILS (P16-2) DR MOROKA INTERCHANGE
SHEET 02 OF 03

SCALE : 1 : 500 (A0) — **SHEET 12 OF 17**

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	SECTION 13	SECTION 13
DRAWING km DISTANCE	km 33.600	km 34.100
DRAWING TYPE	ROADS - INTERCHANGES	
BRIDGE/STRUCTURE No.	NA	
CONSULTANT DRAWING No.	FA 3257 / 23 / 12 SO	VER
SANRAL DOCUMENT #	- -	V0

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadwork\06 - Setting Out\3257-23-11-13SO-Dr Moroka Interchange Setting Out_20230717.dwg

DR MOROKA (P16-2) OFF RAMP CENTER LINE COORDINATES

DESIGN SPEED VARIES — *(WGS 84 \ LO 27°)*

CHAINAGE	Y COORDINATE + 0,000	X CO-ORDINATE + 0,000	DESCRIPTION
0.000 000	-19 185.277	+2 841 093.477	
0.100 000	-19 256.523	+2 841 163.645	
0.200 000	-19 329.534	+2 841 231.974	
0.300 000	-19 404.263	+2 841 298.420	
0.400 000	-19 483.001	+2 841 359.843	
0.500 000	-19 572.618	+2 841 403.965	
0.600 000	-19 664.111	+2 841 444.326	
0.700 000	-19 755.604	+2 841 484.687	
0.707 502	-19 762.468	+2 841 487.715	

BENCH MARKS

(WGS 84 \ LO 27°)

STATION	Y CO-ORDINATES + 0.000	X CO-ORDINATES + 0.000	ELEVATION
BM19	- 19 338.356	+ 2 841 206.249	1 258.466

(P16-2) DR MOROKA DRIVE OFF RAMP - EASTBOUND
km 0.000 000 - km 0.707 502

(WGS 84 \ LO 27°)

CURVE	DESCRIPTION	CURVE LENGTH	CURVE RADIUS	POINT	CHAINAGE DISTANCE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
				START	0.000 000	- 19 185.277	+ 2 841 093.477
1A	LEFT HAND CIRCULAR	297.189 m	3922.995 m	BC 1A	0.000 000	- 19 185.277	+ 2 841 093.477
				PI 1A	-	- 19 289.866	+ 2 841 199.142
				EC 1A	0.297 197	- 19 402.146	+ 2 841 296.583
2A	LEFT HAND CIRCULAR	125.706 m	420.000 m	BC 2A	0.333 726	- 19 429.735	+ 2 841 320.526
				PI 2A	-	- 19 477.562	+ 2 841 362.032
				EC 2A	0.459 432	- 19 535.501	+ 2 841 387.591
				END	0.707 502	- 19 762.468	+ 2 841 487.715

N4-13 DUAL CARRIAGEWAY (PART B) km 33.000 000 - km 34.000 000

(WGS 84 \ LO 27°)

CURVE	DESCRIPTION	CURVE LENGTH	CURVE RADIUS	POINT	CHAINAGE DISTANCE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
PI 9	RIGHT HAND CIRCULAR	3 216.810 m	3 935.695 m	BC 9	31.830 788	-21 557.416	+ 2 842 340.518
				PI 9	-	-19 867.780	+ 2 842 116.960
				EC 9	35 047.598	- 18 874.843	+ 2 840 731.708

(P16-2) DR MOROKA SETTING OUT POINTS

(WGS 84 \ LO 27°)

POINT	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
I	-19 399.755	+ 2 841 299.792	
J	-19 394.961	+ 2 841 304.921	
K	-19 259.204	+ 2 841 171.730	
L	-19 185.277	+ 2 841 093.477	

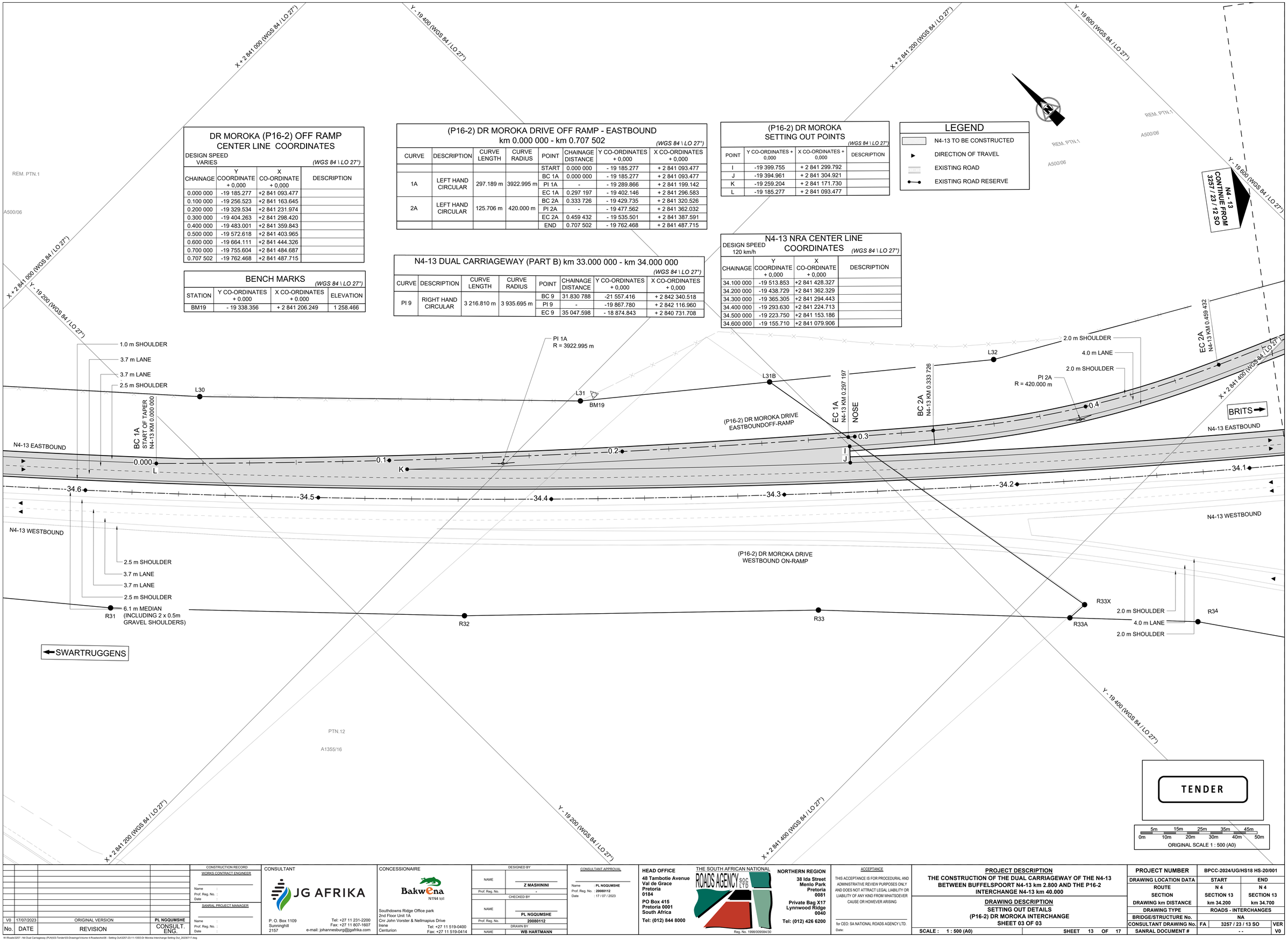
N4-13 NRA CENTER LINE COORDINATES

DESIGN SPEED 120 km/h — *(WGS 84 \ LO 27°)*

CHAINAGE	Y COORDINATE + 0,000	X CO-ORDINATE + 0,000	DESCRIPTION
34.100 000	-19 513.853	+2 841 428.327	
34.200 000	-19 438.729	+2 841 362.329	
34.300 000	-19 365.305	+2 841 294.443	
34.400 000	-19 293.630	+2 841 224.713	
34.500 000	-19 223.750	+2 841 153.186	
34.600 000	-19 155.710	+2 841 079.906	

LEGEND

- N4-13 TO BE CONSTRUCTED
- DIRECTION OF TRAVEL
- EXISTING ROAD
- EXISTING ROAD RESERVE



TENDER

5m 10m 15m 20m 25m 30m 35m 40m 45m 50m

ORIGINAL SCALE 1 : 500 (A0)

SANRAL DOCUMENT NUMBER :

No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD

WORKS CONTRACT ENGINEER

Name :
Prof. Reg. No. :
Date :

SANRAL PROJECT MANAGER

Name :
Prof. Reg. No. :
Date :

CONSULTANT

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DESIGNED BY	
NAME	Z MASHININI
Prof. Reg. No.	-
CHECKED BY	
NAME	PL NGQUMSHE
Prof. Reg. No.	20080112
DRAWN BY	
NAME	WB HARTMANN

CONSULTANT APPROVAL

Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17 / 07 / 2023

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for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION
SETTING OUT DETAILS
(P16-2) DR MOROKA INTERCHANGE
SHEET 03 OF 03

SCALE : 1 : 500 (A0) — SHEET 13 OF 17

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001		
DRAWING LOCATION DATA	START	END	
ROUTE	N 4	N 4	
SECTION	SECTION 13	SECTION 13	
DRAWING km DISTANCE	km 34.200	km 34.700	
DRAWING TYPE	ROADS - INTERCHANGES		
BRIDGE/STRUCTURE No.	NA		
CONSULTANT DRAWING No.	FA	3257 / 23 / 13 SO	VER
SANRAL DOCUMENT #	- -		V0

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\06 - Setting Out\3257-23-11-13SO-Dr Moroka Interchange Setting Out_20230717.dwg

BENCH MARKS

(WGS 84 \ LO 27°)

STATION	Y CO-ORDINATES + 0.000	X CO-ORDINATES + 0.000	ELEVATION
BM01	- 15 867.394	+ 2 836 800.389	1 254.606
NRB104	- 15 786.682	+ 2 836 852.372	1 257.650

N4-13 DUAL CARRIAGEWAY (PART B) km 39.000 000 - km 40.000 000

(WGS 84 \ LO 27°)

CURVE	DESCRIPTION	CURVE LENGTH	CURVE RADIUS	POINT	CHAINAGE DISTANCE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
PI 10	LEFT HAND CIRCULAR	990.840 m	2 800.000 m	BC 10	38.951 819	-16 600.299	+ 2 837 558.477
				PI 10	-	-16 308.624	+ 2 837 151.560
				EC 10	39.942 659	- 15 894.012	+ 2 836 870.931

(P2-3) R104 SWARTRUGGENS ROAD EASTBOUND ON-RAMP
km 0.000 000 - km 1.207 009

(WGS 84 \ LO 27°)

CURVE	DESCRIPTION	CURVE LENGTH	CURVE RADIUS	POINT	CHAINAGE DISTANCE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
				START	0.000 000	-15 787.654	+ 2 836 299.514
1B	LEFT HAND CIRCULAR	87.711 m	266.300 m	BC 1B	0.232 481	-15 556.538	+ 2 836 274.356
				PI 1B	-	-15 512.541	+ 2 836 269.567
				EC 1B	0.320 192	-15 469.361	+ 2 836 279.265
2B	LEFT HAND CIRCULAR	286.444 m	127.000 m	BC 2B	0.321 565	-15 468.021	+ 2 836 279.566
				PI 2B	-	-15 206.893	+ 2 836 338.218
				EC 2B	0.608 009	-15 417.468	+ 2 836 503.403
3B	LEFT HAND CIRCULAR	115.189 m	2296.000 m	BC 3B	0.801 411	-15 569.638	+ 2 836 622.772
				PI 3B	-	-15 614.963	+ 2 836 658.327
				EC 3B	0.916 600	-15 662.014	+ 2 836 691.564
				END	1.207 009	-15 899.210	+ 2 836 859.122

(P2-3) R104 SWARTRUGGENS ROAD EASTBOUND ON-RAMP CENTER LINE COORDINATES

DESIGN SPEED VARIES

(WGS 84 \ LO 27°)

CHAINAGE	Y COORDINATE + 0,000	X CO-ORDINATE + 0,000	DESCRIPTION
0.000 000	-15 787.654	+2 836 299.514	
0.100 000	-15 688.241	+2 836 288.692	
0.200 000	-15 588.829	+2 836 277.871	
0.300 000	-15 489.211	+2 836 275.591	
0.400 000	-15 401.407	+2 836 318.573	
0.500 000	-15 369.046	+2 836 410.479	
0.600 000	-15 411.327	+2 836 498.264	
0.700 000	-15 489.847	+2 836 560.180	
0.800 000	-15 568.527	+2 836 621.901	
0.900 000	-15 648.490	+2 836 681.938	
1.000 000	-15 730.132	+2 836 739.684	
1.100 000	-15 811.809	+2 836 797.381	
1.200 000	-15 893.485	+2 836 855.078	
1.207 009	-15 899.210	+2 836 859.122	

LEGEND

- N4-13 TO BE CONSTRUCTED
- DIRECTION OF TRAVEL
- EXISTING ROAD
- EXISTING ROAD RESERVE

(P2-3) R104 SETTING OUT POINTS

(WGS 84 \ LO 27°)

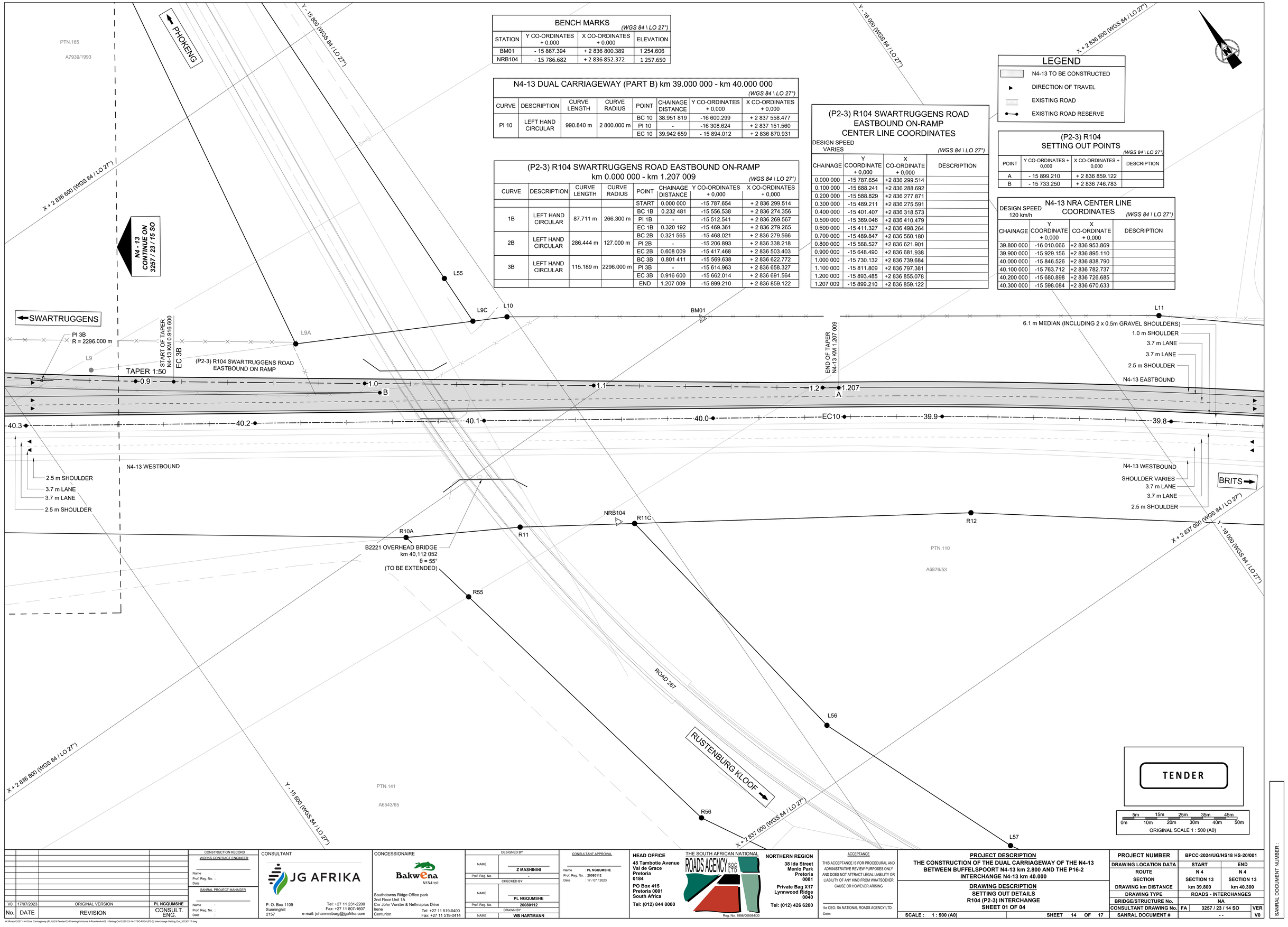
POINT	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
A	- 15 899.210	+ 2 836 859.122	
B	- 15 733.250	+ 2 836 746.783	

N4-13 NRA CENTER LINE COORDINATES

DESIGN SPEED 120 km/h

(WGS 84 \ LO 27°)

CHAINAGE	Y COORDINATE + 0,000	X CO-ORDINATE + 0,000	DESCRIPTION
39.800 000	-16 010.066	+2 836 953.869	
39.900 000	-15 929.156	+2 836 895.110	
40.000 000	-15 846.526	+2 836 838.790	
40.100 000	-15 763.712	+2 836 782.737	
40.200 000	-15 680.898	+2 836 726.685	
40.300 000	-15 598.084	+2 836 670.633	



No.	DATE	REVISION	
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSULTANT ENG.

CONSTRUCTION RECORD

WORKS CONTRACT ENGINEER

Name :
Prof. Reg. No. :
Date :

SANRAL PROJECT MANAGER

Name :
Prof. Reg. No. :
Date :

CONSULTANT

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DESIGNED BY	
NAME	Z MASHININI
Prof. Reg. No.	-
CHECKED BY	
NAME	PL NGQUMSHE
Prof. Reg. No.	20080112
DRAWN BY	
NAME	WB HARTMANN

CONSULTANT APPROVAL

Name : PL NGQUMSHE
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for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION

THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION

SETTING OUT DETAILS
R104 (P2-3) INTERCHANGE
SHEET 01 OF 04

SCALE : 1 : 500 (A0) | SHEET 14 OF 17

PROJECT NUMBER		BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END	
ROUTE	N 4	N 4	
SECTION	SECTION 13	SECTION 13	
DRAWING km DISTANCE	km 39.800	km 40.300	
DRAWING TYPE	ROADS - INTERCHANGES		
BRIDGE/STRUCTURE No.	NA		
CONSULTANT DRAWING No.	FA	3257 / 23 / 14 SO	VER
SANRAL DOCUMENT #		- -	V0

SANRAL DOCUMENT NUMBER :

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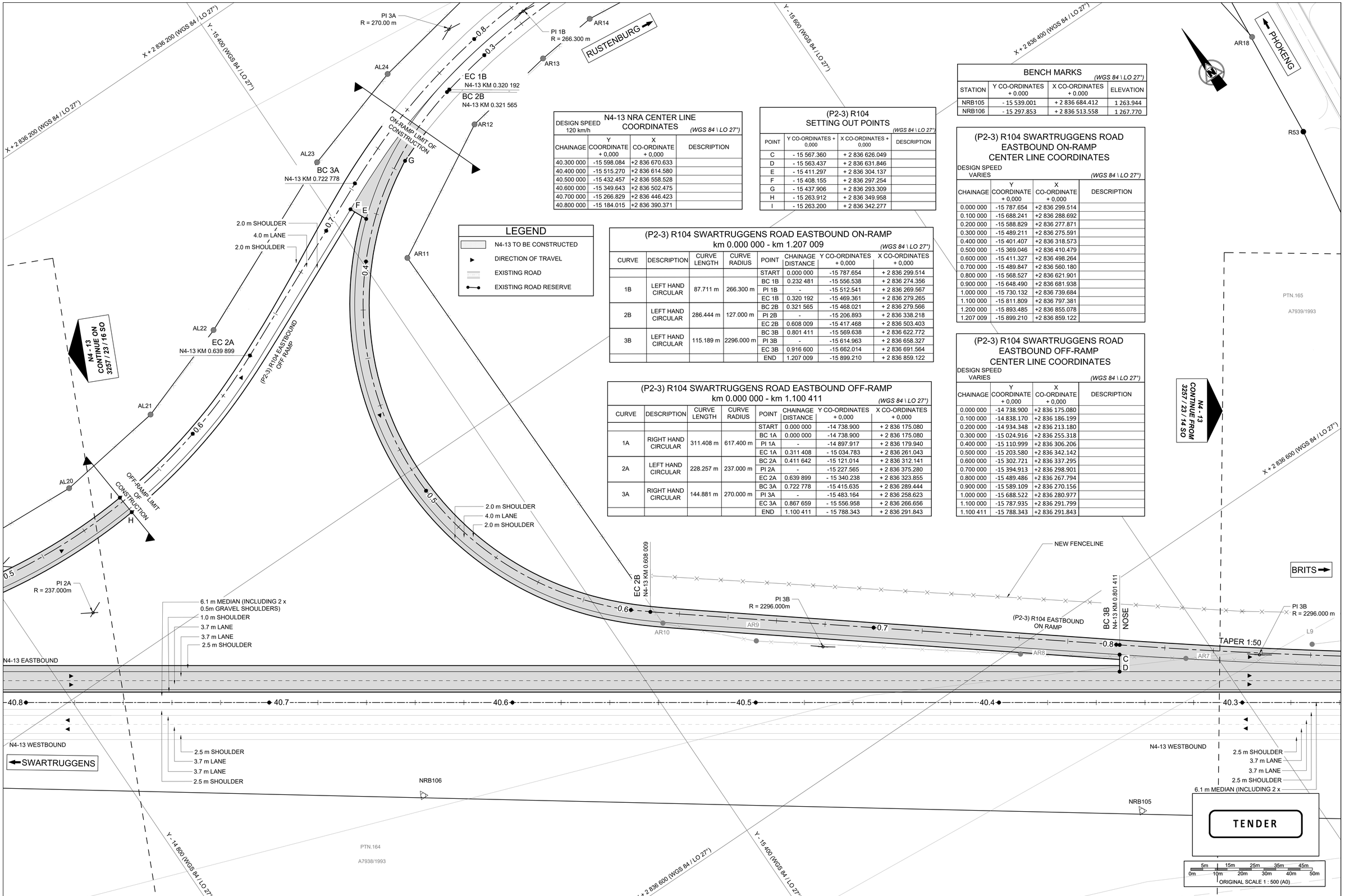

LEGEND

- N4-13 TO BE CONSTRUCTED
- DIRECTION OF TRAVEL
- EXISTING ROAD
- EXISTING ROAD RESERVE

N4-13 NRA CENTER LINE COORDINATES

DESIGN SPEED 120 km/h — *(WGS 84 \ LO 27°)*

CHAINAGE	Y COORDINATE + 0,000	X CO-ORDINATE + 0,000	DESCRIPTION
40.300 000	-15 598.084	+2 836 670.633	
40.400 000	-15 515.270	+2 836 614.580	
40.500 000	-15 432.457	+2 836 558.528	
40.600 000	-15 349.643	+2 836 502.475	
40.700 000	-15 266.829	+2 836 446.423	
40.800 000	-15 184.015	+2 836 390.371	

(P2-3) R104 SETTING OUT POINTS

(WGS 84 \ LO 27°)

POINT	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
C	- 15 567.360	+ 2 836 626.049	
D	- 15 563.437	+ 2 836 631.846	
E	- 15 411.297	+ 2 836 304.137	
F	- 15 408.155	+ 2 836 297.254	
G	- 15 437.906	+ 2 836 293.309	
H	- 15 263.912	+ 2 836 349.958	
I	- 15 263.200	+ 2 836 342.277	

BENCH MARKS

(WGS 84 \ LO 27°)

STATION	Y CO-ORDINATES + 0.000	X CO-ORDINATES + 0.000	ELEVATION
NRB105	- 15 539.001	+ 2 836 684.412	1 263.944
NRB106	- 15 297.853	+ 2 836 513.558	1 267.770

(P2-3) R104 SWARTRUGGENS ROAD EASTBOUND ON-RAMP km 0.000 000 - km 1.207 009

(WGS 84 \ LO 27°)

CURVE	DESCRIPTION	CURVE LENGTH	CURVE RADIUS	POINT	CHAINAGE DISTANCE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
				START	0.000 000	-15 787.654	+ 2 836 299.514
1B	LEFT HAND CIRCULAR	87.711 m	266.300 m	BC 1B	0.232 481	-15 556.538	+ 2 836 274.356
				PI 1B	-	-15 512.541	+ 2 836 269.567
				EC 1B	0.320 192	-15 469.361	+ 2 836 279.265
2B	LEFT HAND CIRCULAR	286.444 m	127.000 m	BC 2B	0.321 565	-15 468.021	+ 2 836 279.566
				PI 2B	-	-15 206.893	+ 2 836 338.218
				EC 2B	0.608 009	-15 417.468	+ 2 836 503.403
3B	LEFT HAND CIRCULAR	115.189 m	2296.000 m	BC 3B	0.801 411	-15 569.638	+ 2 836 622.772
				PI 3B	-	-15 614.963	+ 2 836 658.327
				EC 3B	0.916 600	-15 662.014	+ 2 836 691.564
				END	1.207 009	-15 899.210	+ 2 836 859.122

(P2-3) R104 SWARTRUGGENS ROAD EASTBOUND OFF-RAMP km 0.000 000 - km 1.100 411

(WGS 84 \ LO 27°)

CURVE	DESCRIPTION	CURVE LENGTH	CURVE RADIUS	POINT	CHAINAGE DISTANCE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
				START	0.000 000	-14 738.900	+ 2 836 175.080
1A	RIGHT HAND CIRCULAR	311.408 m	617.400 m	BC 1A	0.000 000	-14 738.900	+ 2 836 175.080
				PI 1A	-	-14 897.917	+ 2 836 179.940
				EC 1A	0.311 408	- 15 034.783	+ 2 836 261.043
2A	LEFT HAND CIRCULAR	228.257 m	237.000 m	BC 2A	0.411 642	-15 121.014	+ 2 836 312.141
				PI 2A	-	-15 227.565	+ 2 836 375.280
				EC 2A	0.639 899	- 15 340.238	+ 2 836 323.855
3A	RIGHT HAND CIRCULAR	144.881 m	270.000 m	BC 3A	0.722 778	-15 415.635	+ 2 836 289.444
				PI 3A	-	-15 483.164	+ 2 836 258.623
				EC 3A	0.867 659	- 15 556.958	+ 2 836 266.656
				END	1.100 411	- 15 788.343	+ 2 836 291.843

(P2-3) R104 SWARTRUGGENS ROAD EASTBOUND ON-RAMP CENTER LINE COORDINATES

DESIGN SPEED VARIES — *(WGS 84 \ LO 27°)*

CHAINAGE	Y COORDINATE + 0,000	X CO-ORDINATE + 0,000	DESCRIPTION
0.000 000	-15 787.654	+2 836 299.514	
0.100 000	-15 688.241	+2 836 288.692	
0.200 000	-15 588.829	+2 836 277.871	
0.300 000	-15 489.211	+2 836 275.591	
0.400 000	-15 401.407	+2 836 318.573	
0.500 000	-15 369.046	+2 836 410.479	
0.600 000	-15 411.327	+2 836 498.264	
0.700 000	-15 489.847	+2 836 560.180	
0.800 000	-15 568.527	+2 836 621.901	
0.900 000	-15 648.490	+2 836 681.938	
1.000 000	-15 730.132	+2 836 739.684	
1.100 000	-15 811.809	+2 836 797.381	
1.200 000	-15 893.485	+2 836 855.078	
1.207 009	-15 899.210	+2 836 859.122	

(P2-3) R104 SWARTRUGGENS ROAD EASTBOUND OFF-RAMP CENTER LINE COORDINATES

DESIGN SPEED VARIES — *(WGS 84 \ LO 27°)*

CHAINAGE	Y COORDINATE + 0,000	X CO-ORDINATE + 0,000	DESCRIPTION
0.000 000	-14 738.900	+2 836 175.080	
0.100 000	-14 838.170	+2 836 186.199	
0.200 000	-14 934.348	+2 836 213.180	
0.300 000	-15 024.916	+2 836 255.318	
0.400 000	-15 110.999	+2 836 306.206	
0.500 000	-15 203.580	+2 836 342.142	
0.600 000	-15 302.721	+2 836 337.295	
0.700 000	-15 394.913	+2 836 298.901	
0.800 000	-15 489.486	+2 836 267.794	
0.900 000	-15 589.109	+2 836 270.156	
1.000 000	-15 688.522	+2 836 280.977	
1.100 000	-15 787.935	+2 836 291.799	
1.100 411	-15 788.343	+2 836 291.843	

No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date :

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DESIGNED BY
NAME: Z MASHININI
Prof. Reg. No. : -
CHECKED BY
NAME: PL NGQUMSHE
Prof. Reg. No. : 20080112
DRAWN BY
NAME: WB HARTMANN

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17 / 07 / 2023

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THE SOUTH AFRICAN NATIONAL ROADS AGENCY SOC LTD
Reg. No. 1998/009584/30

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Tel: (012) 426 6200

ACCEPTANCE
THIS ACCEPTANCE IS FOR PROCEDURAL AND ADMINISTRATIVE REVIEW PURPOSES ONLY AND DOES NOT ATTRACT LEGAL LIABILITY OR LIABILITY OF ANY KIND FROM WHATSOEVER CAUSE OR HOWEVER ARISING
for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION
SETTING OUT DETAILS
R104 (P2-3) INTERCHANGE
SHEET 02 OF 04

SCALE : 1 : 500 (A0) — SHEET 15 OF 17

PROJECT NUMBER	BPCC-2024/[illegible]318 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	SECTION 13	SECTION 13
DRAWING km DISTANCE	km 40.300	km 40.800
DRAWING TYPE	ROADS - INTERCHANGES	
BRIDGE/STRUCTURE No.	NA	
CONSULTANT DRAWING No.	FA 3257 / 23 / 15 SO	VER V0
SANRAL DOCUMENT #	- -	

SANRAL DOCUMENT NUMBER :

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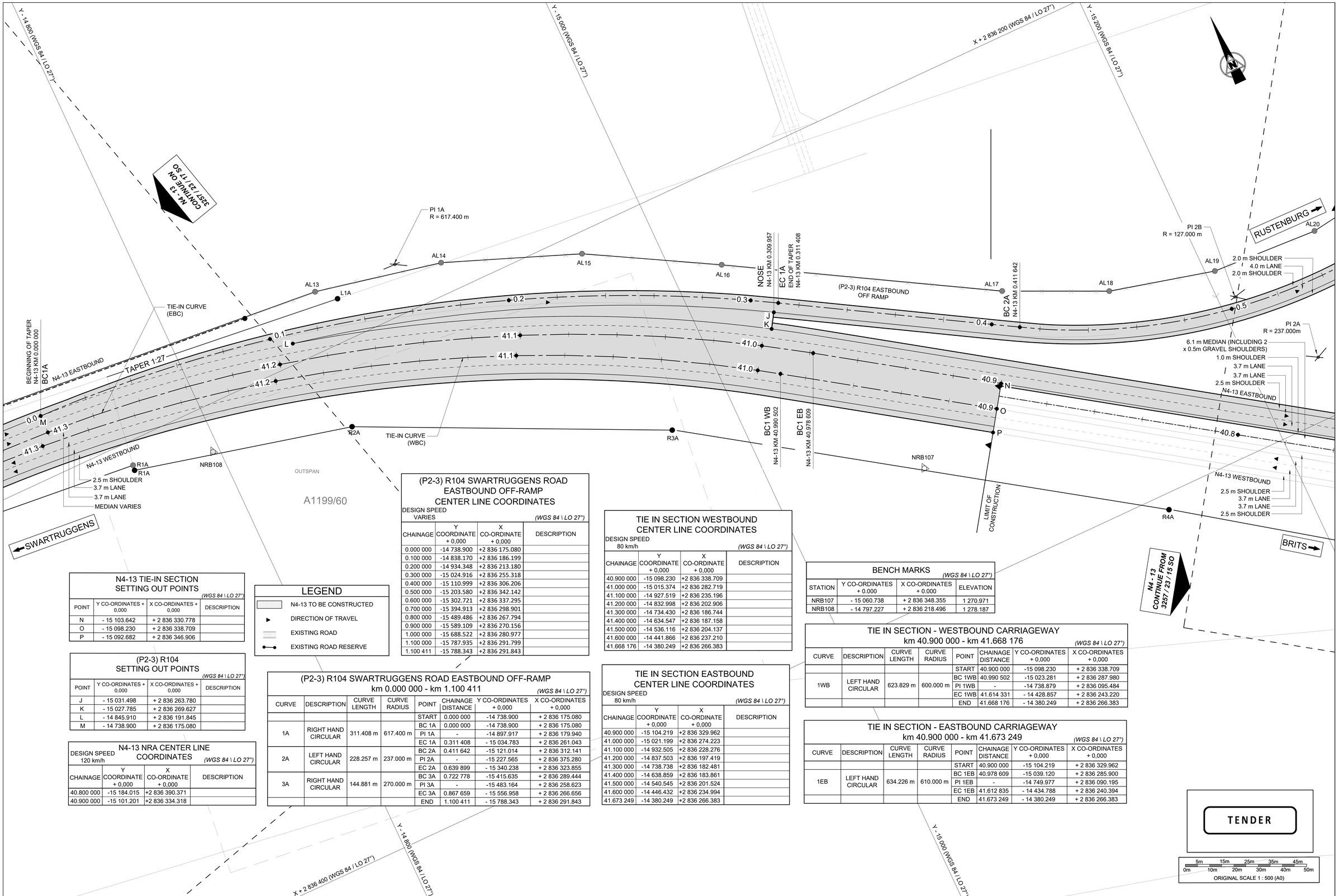

(P2-3) R104 SWARTRUGGENS ROAD EASTBOUND OFF-RAMP CENTER LINE COORDINATES

DESIGN SPEED VARIES (WGS 84 \ LO 27°)

CHAINAGE	Y COORDINATE + 0,000	X CO-ORDINATE + 0,000	DESCRIPTION
0.000 000	-14 738.900	+2 836 175.080	
0.100 000	-14 838.170	+2 836 186.199	
0.200 000	-14 934.348	+2 836 213.180	
0.300 000	-15 024.916	+2 836 255.318	
0.400 000	-15 110.999	+2 836 306.206	
0.500 000	-15 203.580	+2 836 342.142	
0.600 000	-15 302.721	+2 836 337.295	
0.700 000	-15 394.913	+2 836 298.901	
0.800 000	-15 489.486	+2 836 267.794	
0.900 000	-15 589.109	+2 836 270.156	
1.000 000	-15 688.522	+2 836 280.977	
1.100 000	-15 787.935	+2 836 291.799	
1.100 411	-15 788.343	+2 836 291.843	

TIE IN SECTION WESTBOUND CENTER LINE COORDINATES

DESIGN SPEED 80 km/h (WGS 84 \ LO 27°)

CHAINAGE	Y COORDINATE + 0,000	X CO-ORDINATE + 0,000	DESCRIPTION
40.900 000	-15 098.230	+2 836 338.709	
41.000 000	-15 015.374	+2 836 282.719	
41.100 000	-14 927.519	+2 836 235.196	
41.200 000	-14 832.998	+2 836 202.906	
41.300 000	-14 734.430	+2 836 186.744	
41.400 000	-14 634.547	+2 836 187.158	
41.500 000	-14 536.116	+2 836 204.137	
41.600 000	-14 441.866	+2 836 237.210	
41.668 176	-14 380.249	+2 836 266.383	

BENCH MARKS

(WGS 84 \ LO 27°)

STATION	Y CO-ORDINATES + 0.000	X CO-ORDINATES + 0.000	ELEVATION
NRB107	- 15 060.738	+ 2 836 348.355	1 270.971
NRB108	- 14 797.227	+ 2 836 218.496	1 278.187

N4-13 TIE-IN SECTION SETTING OUT POINTS

(WGS 84 \ LO 27°)

POINT	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
N	- 15 103.642	+ 2 836 330.778	
O	- 15 098.230	+ 2 836 338.709	
P	- 15 092.682	+ 2 836 346.906	

LEGEND

- N4-13 TO BE CONSTRUCTED
- DIRECTION OF TRAVEL
- EXISTING ROAD
- EXISTING ROAD RESERVE

(P2-3) R104 SETTING OUT POINTS

(WGS 84 \ LO 27°)

POINT	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
J	- 15 031.498	+ 2 836 263.780	
K	- 15 027.785	+ 2 836 269.627	
L	- 14 845.910	+ 2 836 191.845	
M	- 14 738.900	+ 2 836 175.080	

(P2-3) R104 SWARTRUGGENS ROAD EASTBOUND OFF-RAMP km 0.000 000 - km 1.100 411

(WGS 84 \ LO 27°)

CURVE	DESCRIPTION	CURVE LENGTH	CURVE RADIUS	POINT	CHAINAGE DISTANCE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
				START	0.000 000	-14 738.900	+ 2 836 175.080
1A	RIGHT HAND CIRCULAR	311.408 m	617.400 m	BC 1A	0.000 000	-14 738.900	+ 2 836 175.080
				PI 1A	-	-14 897.917	+ 2 836 179.940
				EC 1A	0.311 408	- 15 034.783	+ 2 836 261.043
2A	LEFT HAND CIRCULAR	228.257 m	237.000 m	BC 2A	0.411 642	-15 121.014	+ 2 836 312.141
				PI 2A	-	-15 227.565	+ 2 836 375.280
				EC 2A	0.639 899	- 15 340.238	+ 2 836 323.855
3A	RIGHT HAND CIRCULAR	144.881 m	270.000 m	BC 3A	0.722 778	-15 415.635	+ 2 836 289.444
				PI 3A	-	-15 483.164	+ 2 836 258.623
				EC 3A	0.867 659	- 15 556.958	+ 2 836 266.656
				END	1.100 411	- 15 788.343	+ 2 836 291.843

TIE IN SECTION EASTBOUND CENTER LINE COORDINATES

DESIGN SPEED 80 km/h (WGS 84 \ LO 27°)

CHAINAGE	Y COORDINATE + 0,000	X CO-ORDINATE + 0,000	DESCRIPTION
40.900 000	-15 104.219	+2 836 329.962	
41.000 000	-15 021.199	+2 836 274.223	
41.100 000	-14 932.505	+2 836 228.276	
41.200 000	-14 837.503	+2 836 197.419	
41.300 000	-14 738.738	+2 836 182.481	
41.400 000	-14 638.859	+2 836 183.861	
41.500 000	-14 540.545	+2 836 201.524	
41.600 000	-14 446.432	+2 836 234.994	
41.673 249	-14 380.249	+2 836 266.383	

TIE IN SECTION - WESTBOUND CARRIAGEWAY km 40.900 000 - km 41.668 176

(WGS 84 \ LO 27°)

CURVE	DESCRIPTION	CURVE LENGTH	CURVE RADIUS	POINT	CHAINAGE DISTANCE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
				START	40.900 000	-15 098.230	+ 2 836 338.709
1WB	LEFT HAND CIRCULAR	623.829 m	600.000 m	BC 1WB	40.990 502	-15 023.281	+ 2 836 287.980
				PI 1WB	-	-14 738.879	+ 2 836 095.484
				EC 1WB	41.614 331	- 14 428.857	+ 2 836 243.220
				END	41.668 176	- 14 380.249	+ 2 836 266.383

TIE IN SECTION - EASTBOUND CARRIAGEWAY km 40.900 000 - km 41.673 249

(WGS 84 \ LO 27°)

CURVE	DESCRIPTION	CURVE LENGTH	CURVE RADIUS	POINT	CHAINAGE DISTANCE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
				START	40.900 000	-15 104.219	+ 2 836 329.962
1EB	LEFT HAND CIRCULAR	634.226 m	610.000 m	BC 1EB	40.978 609	- 15 039.120	+ 2 836 285.900
				PI 1EB	-	-14 749.977	+ 2 836 090.195
				EC 1EB	41.612 835	- 14 434.788	+ 2 836 240.394
				END	41.673 249	- 14 380.249	+ 2 836 266.383

N4-13 NRA CENTER LINE COORDINATES

DESIGN SPEED 120 km/h (WGS 84 \ LO 27°)

CHAINAGE	Y COORDINATE + 0,000	X CO-ORDINATE + 0,000	DESCRIPTION
40.800 000	-15 184.015	+2 836 390.371	
40.900 000	-15 101.201	+2 836 334.318	

TENDER

5m 15m 25m 35m 45m
0m 10m 20m 30m 40m 50m
ORIGINAL SCALE 1 : 500 (A0)

No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date :

CONSULTANT
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DESIGNED BY
NAME: Z MASHININI
Prof. Reg. No. : -
CHECKED BY
NAME: PL NGQUMSHE
Prof. Reg. No. : 20080112
DRAWN BY
NAME: WB HARTMANN

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17 / 07 / 2023

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THE SOUTH AFRICAN NATIONAL ROADS AGENCY SOC LTD
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Tel: (012) 426 6200

ACCEPTANCE
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for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION
SETTING OUT DETAILS
R104 (P2-3) INTERCHANGE & TIE-IN SECTION
SHEET 03 OF 04

SCALE : 1 : 500 (A0) SHEET 16 OF 17

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001		
DRAWING LOCATION DATA	START	END	
ROUTE	N 4	N 4	
SECTION	SECTION 13	SECTION 13	
DRAWING km DISTANCE	km 40.800	km 41.300	
DRAWING TYPE	ROADS - INTERCHANGES		
BRIDGE/STRUCTURE No.	NA		
CONSULTANT DRAWING No.	FA	3257 / 23 / 16 SO	VER
SANRAL DOCUMENT #	- -		V0

SANRAL DOCUMENT NUMBER :

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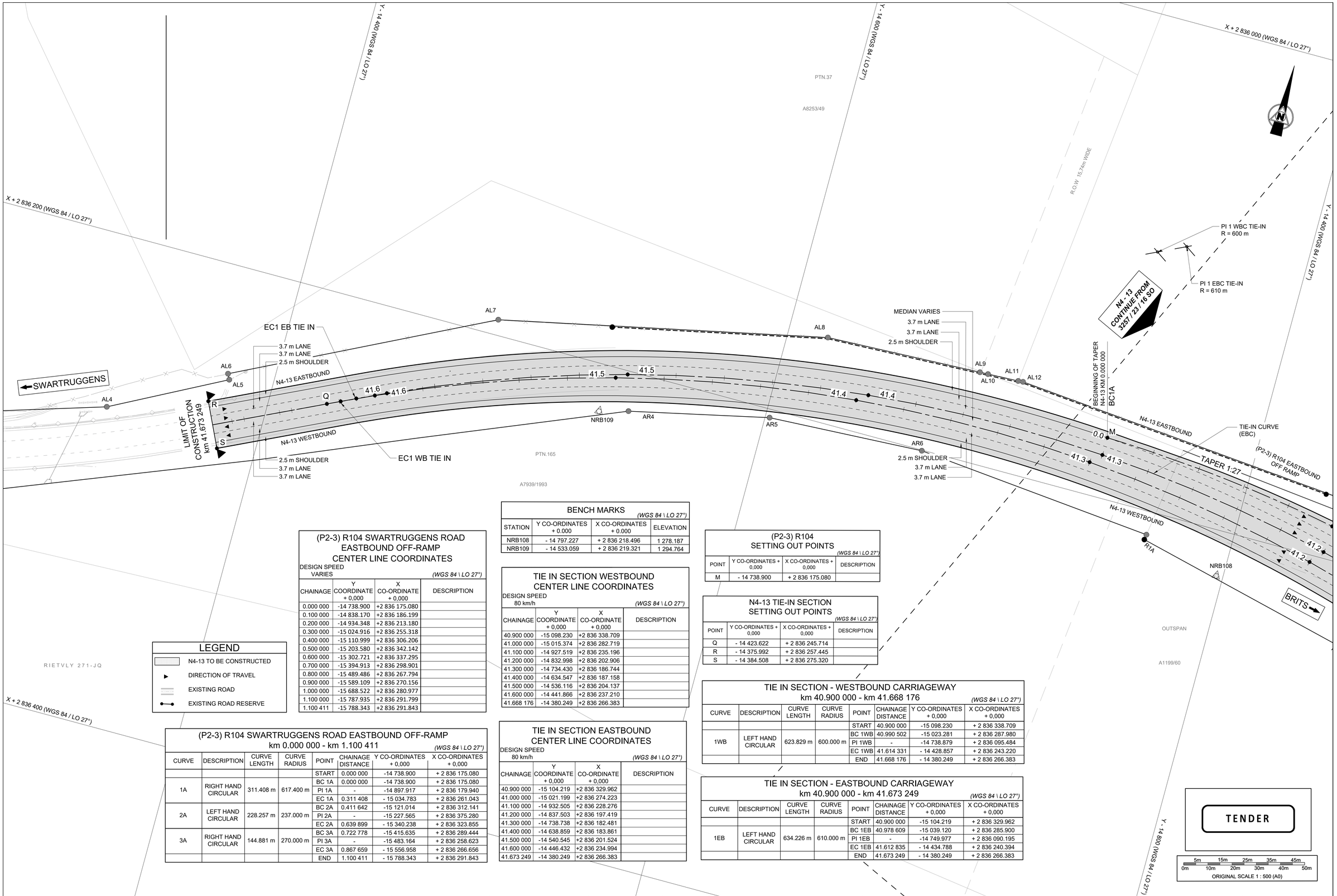

LEGEND

- N4-13 TO BE CONSTRUCTED
- DIRECTION OF TRAVEL
- EXISTING ROAD
- EXISTING ROAD RESERVE

(P2-3) R104 SWARTRUGGENS ROAD EASTBOUND OFF-RAMP CENTER LINE COORDINATES

DESIGN SPEED VARIES — *(WGS 84 \ LO 27°)*

CHAINAGE	Y COORDINATE + 0,000	X CO-ORDINATE + 0,000	DESCRIPTION
0.000 000	-14 738.900	+2 836 175.080	
0.100 000	-14 838.170	+2 836 186.199	
0.200 000	-14 934.348	+2 836 213.180	
0.300 000	-15 024.916	+2 836 255.318	
0.400 000	-15 110.999	+2 836 306.206	
0.500 000	-15 203.580	+2 836 342.142	
0.600 000	-15 302.721	+2 836 337.295	
0.700 000	-15 394.913	+2 836 298.901	
0.800 000	-15 489.486	+2 836 267.794	
0.900 000	-15 589.109	+2 836 270.156	
1.000 000	-15 688.522	+2 836 280.977	
1.100 000	-15 787.935	+2 836 291.799	
1.100 411	-15 788.343	+2 836 291.843	

(P2-3) R104 SWARTRUGGENS ROAD EASTBOUND OFF-RAMP km 0.000 000 - km 1.100 411

(WGS 84 \ LO 27°)

CURVE	DESCRIPTION	CURVE LENGTH	CURVE RADIUS	POINT	CHAINAGE DISTANCE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
				START	0.000 000	-14 738.900	+ 2 836 175.080
1A	RIGHT HAND CIRCULAR	311.408 m	617.400 m	BC 1A	0.000 000	-14 738.900	+ 2 836 175.080
				PI 1A	-	-14 897.917	+ 2 836 179.940
				EC 1A	0.311 408	- 15 034.783	+ 2 836 261.043
2A	LEFT HAND CIRCULAR	228.257 m	237.000 m	BC 2A	0.411 642	-15 121.014	+ 2 836 312.141
				PI 2A	-	-15 227.565	+ 2 836 375.280
				EC 2A	0.639 899	- 15 340.238	+ 2 836 323.855
3A	RIGHT HAND CIRCULAR	144.881 m	270.000 m	BC 3A	0.722 778	-15 415.635	+ 2 836 289.444
				PI 3A	-	-15 483.164	+ 2 836 258.623
				EC 3A	0.867 659	- 15 556.958	+ 2 836 266.656
				END	1.100 411	- 15 788.343	+ 2 836 291.843

BENCH MARKS

(WGS 84 \ LO 27°)

STATION	Y CO-ORDINATES + 0.000	X CO-ORDINATES + 0.000	ELEVATION
NRB108	- 14 797.227	+ 2 836 218.496	1 278.187
NRB109	- 14 533.059	+ 2 836 219.321	1 294.764

TIE IN SECTION WESTBOUND CENTER LINE COORDINATES

DESIGN SPEED 80 km/h — *(WGS 84 \ LO 27°)*

CHAINAGE	Y COORDINATE + 0,000	X CO-ORDINATE + 0,000	DESCRIPTION
40.900 000	-15 098.230	+2 836 338.709	
41.000 000	-15 015.374	+2 836 282.719	
41.100 000	-14 927.519	+2 836 235.196	
41.200 000	-14 832.998	+2 836 202.906	
41.300 000	-14 734.430	+2 836 186.744	
41.400 000	-14 634.547	+2 836 187.158	
41.500 000	-14 536.116	+2 836 204.137	
41.600 000	-14 441.866	+2 836 237.210	
41.668 176	-14 380.249	+2 836 266.383	

TIE IN SECTION EASTBOUND CENTER LINE COORDINATES

DESIGN SPEED 80 km/h — *(WGS 84 \ LO 27°)*

CHAINAGE	Y COORDINATE + 0,000	X CO-ORDINATE + 0,000	DESCRIPTION
40.900 000	-15 104.219	+2 836 329.962	
41.000 000	-15 021.199	+2 836 274.223	
41.100 000	-14 932.505	+2 836 228.276	
41.200 000	-14 837.503	+2 836 197.419	
41.300 000	-14 738.738	+2 836 182.481	
41.400 000	-14 638.859	+2 836 183.861	
41.500 000	-14 540.545	+2 836 201.524	
41.600 000	-14 446.432	+2 836 234.994	
41.673 249	-14 380.249	+2 836 266.383	

(P2-3) R104 SETTING OUT POINTS

(WGS 84 \ LO 27°)

POINT	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
M	- 14 738.900	+ 2 836 175.080	

N4-13 TIE-IN SECTION SETTING OUT POINTS

(WGS 84 \ LO 27°)

POINT	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
Q	- 14 423.622	+ 2 836 245.714	
R	- 14 375.992	+ 2 836 257.445	
S	- 14 384.508	+ 2 836 275.320	

TIE IN SECTION - WESTBOUND CARRIAGEWAY km 40.900 000 - km 41.668 176

(WGS 84 \ LO 27°)

CURVE	DESCRIPTION	CURVE LENGTH	CURVE RADIUS	POINT	CHAINAGE DISTANCE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
				START	40.900 000	-15 098.230	+ 2 836 338.709
1WB	LEFT HAND CIRCULAR	623.829 m	600.000 m	BC 1WB	40.990 502	-15 023.281	+ 2 836 287.980
				PI 1WB	-	-14 738.879	+ 2 836 095.484
				EC 1WB	41.614 331	- 14 428.857	+ 2 836 243.220
				END	41.668 176	- 14 380.249	+ 2 836 266.383

TIE IN SECTION - EASTBOUND CARRIAGEWAY km 40.900 000 - km 41.673 249

(WGS 84 \ LO 27°)

CURVE	DESCRIPTION	CURVE LENGTH	CURVE RADIUS	POINT	CHAINAGE DISTANCE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
				START	40.900 000	-15 104.219	+ 2 836 329.962
1EB	LEFT HAND CIRCULAR	634.226 m	610.000 m	BC 1EB	40.978 609	-15 039.120	+ 2 836 285.900
				PI 1EB	-	-14 749.977	+ 2 836 090.195
				EC 1EB	41.612 835	- 14 434.788	+ 2 836 240.394
				END	41.673 249	- 14 380.249	+ 2 836 266.383

TENDER

5m 10m 15m 20m 25m 30m 35m 40m 45m 50m 0m

ORIGINAL SCALE 1 : 500 (A0)

No.	DATE	REVISION	
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSULTANT, ENG.

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date :

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DESIGNED BY
NAME: Z MASHININI
Prof. Reg. No. : -
CHECKED BY
NAME: PL NGQUMSHE
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DRAWN BY
NAME: WB HARTMANN

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17 / 07 / 2023

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0040
Tel: (012) 426 6200

ACCEPTANCE
THIS ACCEPTANCE IS FOR PROCEDURAL AND ADMINISTRATIVE REVIEW PURPOSES ONLY AND DOES NOT ATTRACT LEGAL LIABILITY OR LIABILITY OF ANY KIND FROM WHATSOEVER CAUSE OR HOWEVER ARISING
for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

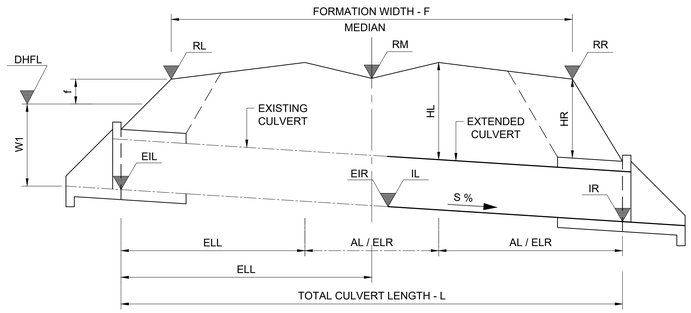
DRAWING DESCRIPTION
SETTING OUT DETAILS
R104 (P2-3) INTERCHANGE & N4-13 TIE-IN SECTION
SHEET 04 OF 04

SCALE : 1 : 500 (A0) | SHEET 17 OF 17

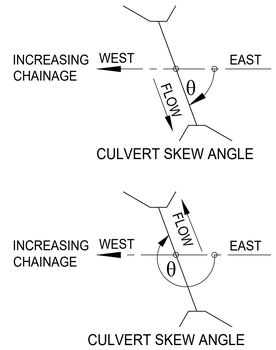
PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	SECTION 13	SECTION 13
DRAWING km DISTANCE	km 41.200	km 41.673
DRAWING TYPE	ROADS - INTERCHANGES	
BRIDGE/STRUCTURE No.	NA	
CONSULTANT DRAWING No.	FA 3257 / 23 / 17 SO	VER V0
SANRAL DOCUMENT #	- -	

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadwork\06 - Setting Out\3257-23-14-17SO-R104 (P2-3) Interchange Setting Out_20230717.dwg



TYPICAL LONGITUDINAL SECTION OF CULVERT
UNDER DOUBLE CARRIAGEWAY ROAD
SCALE: SCHEMATIC



NOTE:

1. CULVERT EXTENSIONS ON LEFT AND RIGHT HAND SIDE REQUIRED ONLY IF DIMENSIONS AL AND AR IN SCHEDULE = 0
2. GRID INLET DIMENSIONS ARE INSIDE DIMENSIONS

KEY TO CULVERT TYPES:

PC - PIPE CULVERT (UNIT LENGTHS 2,44m)
BC - BOX CULVERT (UNIT LENGTHS 1,22m)
OC - OVAL CULVERT
IBC - IN-SITU BOX CULVERT
APC - ARMCO PIPE CULVERT
MH - MANHOLE
SI - SIDE INLET
SCI - SPECIAL CULVERT INLET
FA - FARM ACCESS
SDW - SIDE DRAIN WING WALL
DI - DROP INLET

LEGEND

EXISTING CULVERT
NEW CULVERT
EXISTING GROUND

TENDER

	ITEM NUMBER		1	2	3	4	5
CULVERT DESCRIPTION	ROAD KILOMETRE DISTANCE		4.497	4.747	4.828	4.890	4.987
	TYPE OF CULVERT		1 X PC	1 X BC	1 X BC	1 X BC	1 X PC
	SPAN / DIA	(mm)	600	750	600	900	600
	HEIGHT	(mm)	-	450	450	450	-
	PIPE & BEDDING CLASS		100D/B	175S	200S	175S	100D/B
	SKEW ANGLE	°(DEG)	270	270	268	269	270
HYDROLOGICAL DATA	CATCHMENT AREA	(km²)	0.019	0.085	0.221	0.110	0.149
	TIME OF CONCENTRATION (Tc)	(Hours)	0.313	0.566	0.942	1.014	1.032
	RAINFALL INTENSITY	(mm/h)	123.237	88.139	62.678	59.462	58.715
	CATCHMENT DISCHARGE AT INLET (SDF METHOD)	(m³/s)	0.230	0.690	1.246	0.589	0.789
	CAPACITY	(m³/s)	0.450	0.413	0.330	0.495	0.450
	Hw/D RATIO AT CAPACITY		1.200	1.200	1.200	1.200	1.200
	VELOCITY AT OUTLET**		3.042	4.022	3.847	2.970	4.081
ROAD DATA	ROAD LEVEL - LEFT SHOULDER	RL (m)	1240.505	1239.228	1238.794	1238.474	1237.950
	ROAD LEVEL - ROAD S/L	RM (m)	1240.055	1238.712	1238.279	1237.945	1237.425
	ROAD LEVEL - RIGHT SHOULDER	RR (m)	1240.487	1239.133	1238.697	1238.366	1237.848
	ROAD FORMATION WIDTH	F (m)	48.442	48.378	48.446	48.430	48.441
CULVERT DATA	FLOOR SLOPE	S (%)	2.830	2.430	2.178	2.548	2.450
	INVERT LEVEL - LEFT	IL (m)	1238.600	1237.770	1237.440	1236.149	1236.240
	INVERT LEVEL - RIGHT	IR (m)	1237.564	1236.850	1236.618	1236.597	1235.541
	EXISTING INVERT LEVEL LEFT	EIL (m)	1239.090	1238.080	1237.670	1237.340	1236.890
	EXISTING INVERT LEVEL RIGHT	EIR (m)	1238.600	1237.770	1237.440	1237.050	1236.240
	FILL HEIGHT - LEFT	HL (m)	2.086	1.513	1.322	1.541	1.686
	FILL HEIGHT - RIGHT	HR (m)	2.139	1.613	1.441	1.174	1.703
	LENGTH - LEFT TO ROAD S/L (MEDIAN)	LL (m)	27.481	27.189	28.107	28.197	28.107
	TOTAL LENGTH - INLET TO OUTLET	L (m)	56.204	56.203	56.772	57.212	56.272
	EXISTING LENGTH LEFT	ELL (m)	19.616	18.394	18.961	21.843	22.102
	EXISTING LENGTH RIGHT	ELR (m)	0.000	0.000	0.000	0.000	0.000
	ADDITION LEFT	AL (m)	7.866	8.794	9.146	6.354	6.005
	NUMBER OF UNITS (LEFT)	NUMBER	3.224	7.208	7.497	5.208	2.461
	ADDITION RIGHT	AR (m)	28.723	28.534	28.672	29.044	28.148
	NUMBER OF UNITS (RIGHT)	NUMBER	11.772	23.388	23.501	23.806	11.536
	INTERNAL CHAMBER DIMENSIONS	(m)		1.2 x 0.9			
	GRID INLET TYPE *			1 x TYPE "B" MEDIAN			

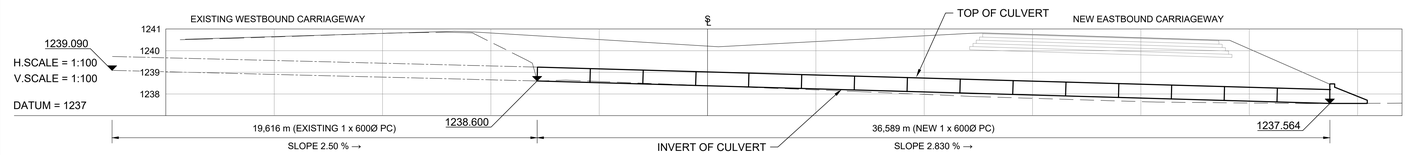
NOTES

* GRID INLET TYPE "B" DIMENSIONS ARE 0.489 x 0.809

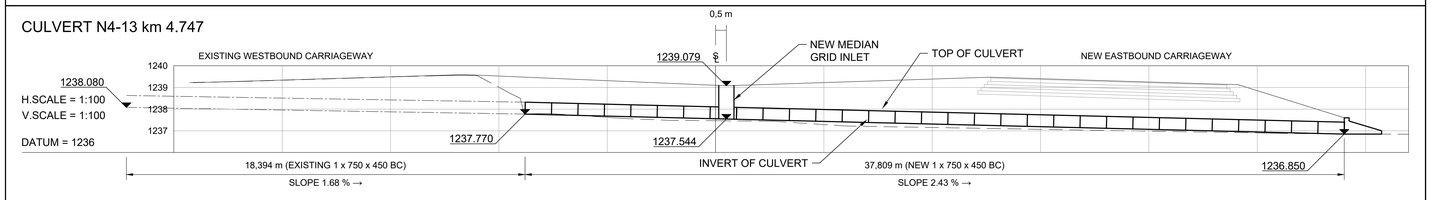
** ALL APRON SLABS AT OUTLETS ARE TO BE CONCRETE LINED WITH GABION MATTRESSES

FOR CULVERT N4-13 KM 3.520 SEE DRAWING 3257/16/28CS
FOR CULVERT N4-13 KM 4.100 SEE DRAWING 3257/16/28CS

CULVERT N4-13 km 4.497



CULVERT N4-13 km 4.747



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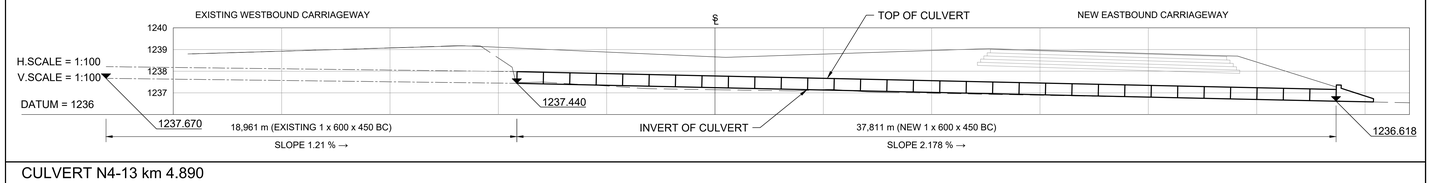
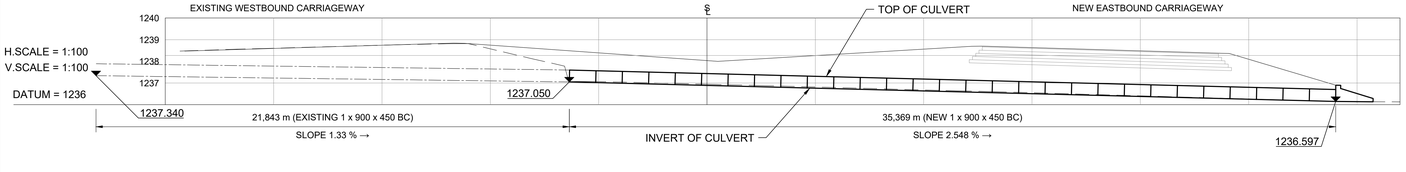
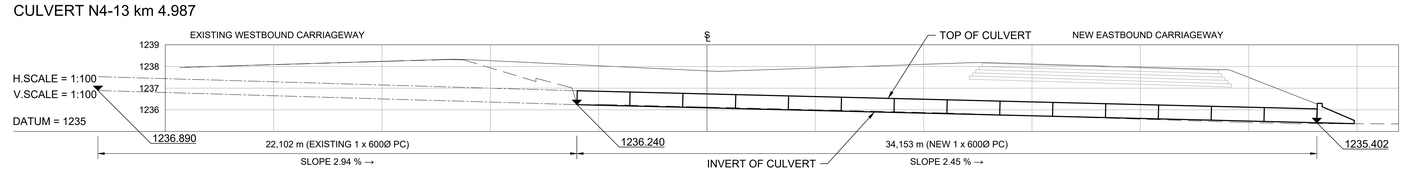


CULVERT N4-13 km 4.890



CULVERT N4-13 km 4.987



No.	DATE	REVISION	
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

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Tel: +27 11 519-0400, Fax: +27 11 519-0414

CONSULTANT APPROVAL
Name: PL NGQUMSHE
Prof. Reg. No.: 20080112
Date: 18 / 03 / 2025

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THE SOUTH AFRICAN NATIONAL ROADS AGENCY SOC LTD
Reg. No. 1998/009584/30

NORTHERN REGION
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Private Bag X17
Lynnwood Ridge
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Tel: (012) 426 6200

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for CEO: SA NATIONAL ROADS AGENCY LTD.
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THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION
CULVERT SCHEDULE N4-13
CULVERTS BETWEEN km 4.497 TO km 4.987

SCALE : AS SHOWN (A0) | SHEET 01 OF 40

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001		
DRAWING LOCATION DATA	START	END	
ROUTE	N 4	N 4	
SECTION	SECTION 13	SECTION 13	
DRAWING km DISTANCE	km 4.497	km 4.987	
DRAWING TYPE	ROADS - LAYOUTS		
BRIDGE/STRUCTURE No.	NA		
CONSULTANT DRAWING No.	FA	3257 / 23 / 01 CS	VER
SANRAL DOCUMENT #		- -	V0

SANRAL DOCUMENT NUMBER :

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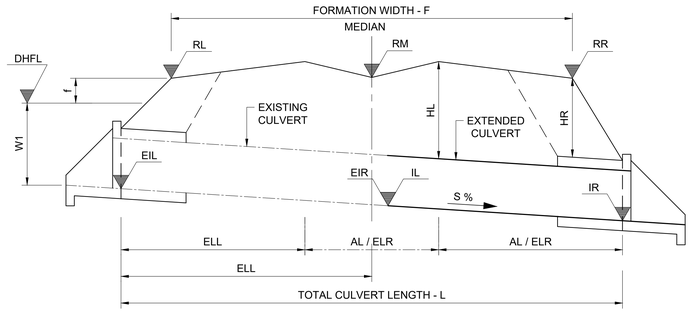
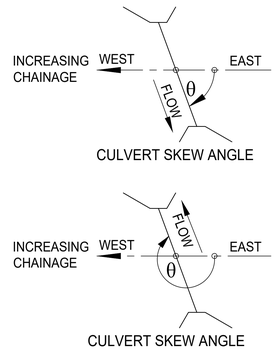


TYPICAL LONGITUDINAL SECTION OF CULVERT
UNDER DOUBLE CARRIAGEWAY ROAD
SCALE: SCHEMATIC



NOTE:

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FA - FARM ACCESS
SDW - SIDE DRAIN WING WALL
DI - DROP INLET

LEGEND

EXISTING CULVERT
NEW CULVERT
EXISTING GROUND

TENDER

	ITEM NUMBER		6	7	8	9	10
CULVERT DESCRIPTION	ROAD KILOMETRE DISTANCE		5.027	5.183	5.220	5.287	5.307
	TYPE OF CULVERT		1 X BC	2 X BC	1 X BC	1 X BC	1 X BC
	SPAN / DIA	(mm)	900	700	900	1200	900
	HEIGHT	(mm)	450	450	450	450	600
	PIPE & BEDDING CLASS		175S	175S	175S	150S	175S
	SKEW ANGLE	°(DEG)	270	269	270	271	269
HYDROLOGICAL DATA	CATCHMENT AREA	(km^2)	0.091	0.282	0.168	0.449	0.193
	TIME OF CONCENTRATION (Tc)	(Hours)	0.987	0.993	1.039	0.974	0.951
	RAINFALL INTENSITY	(mm/h)	60.604	60.359	58.400	61.185	62.258
	CATCHMENT DISCHARGE AT INLET (SDF METHOD)	(m^3/s)	0.497	1.533	0.882	2.475	1.083
	CAPACITY	(m^3/s)	0.495	0.825	0.495	0.660	0.810
	Hw/D RATIO AT CAPACITY		1.200	1.200	1.200	1.200	1.200
	VELOCITY AT OUTLET**		3.721	3.493	3.570	4.296	4.050
ROAD DATA	ROAD LEVEL - LEFT SHOULDER	RL (m)	1237.779	1237.527	1237.609	1237.879	1237.980
	ROAD LEVEL - ROAD S/L	RM (m)	1237.219	1237.402	1237.471	1237.723	1237.835
	ROAD LEVEL - RIGHT SHOULDER	RR (m)	1237.641	1237.375	1237.444	1237.695	1237.829
	ROAD FORMATION WIDTH	F (m)	48.390	46.111	45.236	43.656	43.222
CULVERT DATA	FLOOR SLOPE	S (%)	2.0170	1.160	1.170	1.715	1.530
	INVERT LEVEL - LEFT	IL (m)	1236.400	1236.400	1236.250	1236.640	1236.570
	INVERT LEVEL - RIGHT	IR (m)	1235.6955	1235.955	1235.881	1236.184	1236.104
	EXISTING INVERT LEVEL LEFT	EIL (m)	1236.840	1236.630	1236.490	1236.930	1236.870
	EXISTING INVERT LEVEL RIGHT	EIR (m)	1236.400	1236.400	1236.250	1236.640	1236.570
	FILL HEIGHT - LEFT	HL (m)	1.279	0.984	0.781	1.066	1.105
	FILL HEIGHT - RIGHT	HR (m)	1.089	0.784	0.454	0.959	0.966
	LENGTH - LEFT TO ROAD S/L (MEDIAN)	LL (m)	27.922	26.504	26.276	25.212	24.542
	TOTAL LENGTH - INLET TO OUTLET	L (m)	57.249	53.996	52.313	49.870	50.145
	EXISTING LENGTH LEFT	ELL (m)	20.651	19.835	20.595	19.373	1.530
	EXISTING LENGTH RIGHT	ELR (m)	0.000	0.000	0.000	0.000	0.000
	ADDITION LEFT	AL (m)	7.271	6.669	5.681	5.840	4.894
	NUMBER OF UNITS (LEFT)	NUMBER	5.960	5.466	4.657	4.787	4.011
	ADDITION RIGHT	AR (m)	2.326	27.489	26.037	24.657	25.603
	NUMBER OF UNITS (RIGHT)	NUMBER	24.038	22.532	21.342	20.211	20.986
	INTERNAL CHAMBER DIMENSIONS	(m)		2.0 x 1.2			
	GRID INLET TYPE *			1 X TYPE "B" MEDIAN			

NOTES

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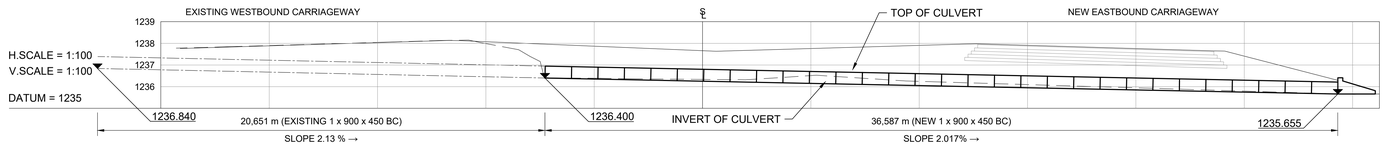
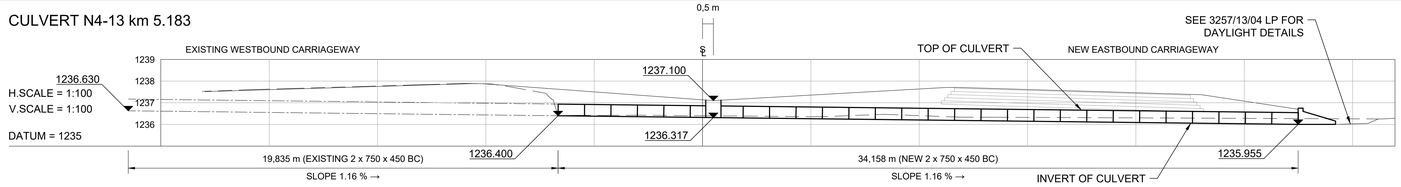
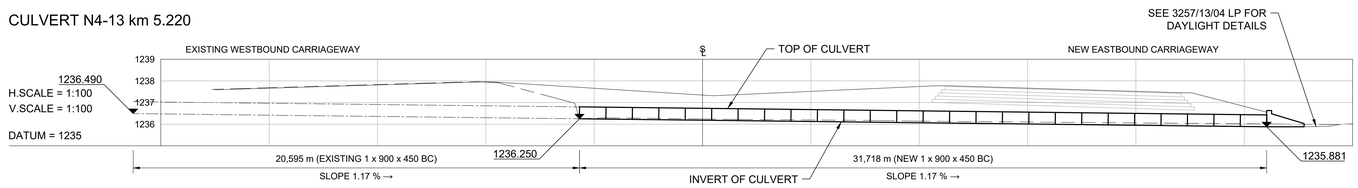
CULVERT N4-13 km 5.027



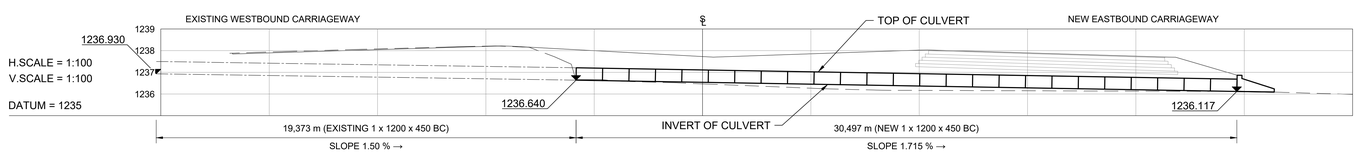
CULVERT N4-13 km 5.183



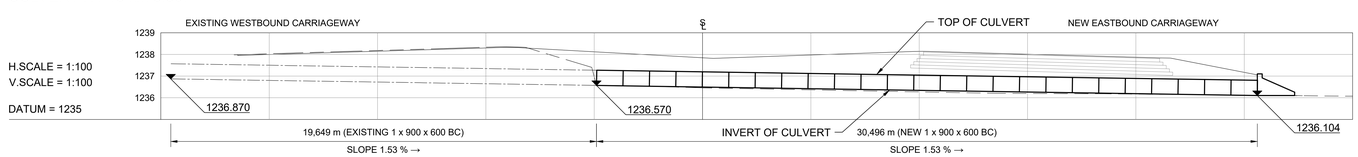
CULVERT N4-13 km 5.220



CULVERT N4-13 km 5.287



CULVERT N4-13 km 5.307



No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date :

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DESIGNED BY
NAME: JG PEIRSON
Prof. Reg. No.: -
CHECKED BY
NAME: PL NGQUMSHE
Prof. Reg. No.: 20080112
DRAWN BY
NAME: JG PEIRSON

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17 / 07 / 2023

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THE SOUTH AFRICAN NATIONAL ROADS AGENCY SOC LTD
Reg. No. 1998/009584/30

NORTHERN REGION
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Private Bag X17
Lynnwood Ridge
0040
Tel: (012) 426 6200

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for CEO: SA NATIONAL ROADS AGENCY LTD.
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THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

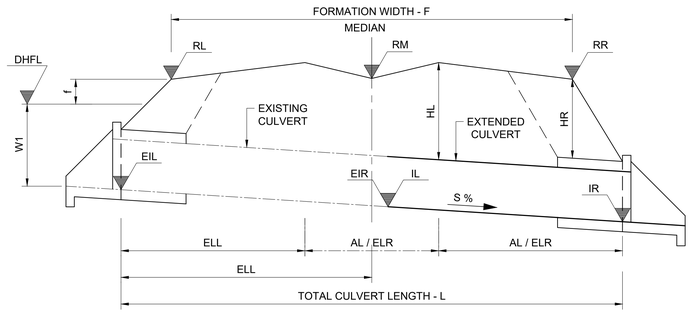
DRAWING DESCRIPTION
CULVERT SCHEDULE N4-13
CULVERTS BETWEEN km 5.027 TO km 5.307

SCALE : AS SHOWN (A0) | SHEET 02 OF 40

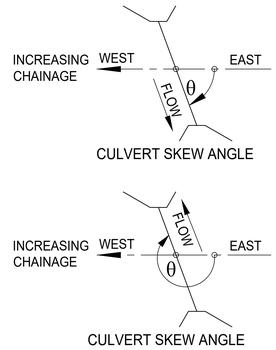
PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001		
DRAWING LOCATION DATA	START	END	
ROUTE	N 4	N 4	
SECTION	SECTION 13	SECTION 13	
DRAWING km DISTANCE	km 5.027	km 5.307	
DRAWING TYPE	ROADS - LAYOUTS		
BRIDGE/STRUCTURE No.	NA		
CONSULTANT DRAWING No.	FA	3257 / 23 / 02 CS	VER
SANRAL DOCUMENT #	- -		V0

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\07 - Culvert Schedule\3257-23-01-28CS-CULVERT SCHEDULE_20230717.dwg



TYPICAL LONGITUDINAL SECTION OF CULVERT
UNDER DOUBLE CARRIAGEWAY ROAD
SCALE: SCHEMATIC



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PC - PIPE CULVERT (UNIT LENGTHS 2,44m)
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SDW - SIDE DRAIN WING WALL
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LEGEND

- EXISTING CULVERT
- NEW CULVERT
- EXISTING GROUND

TENDER

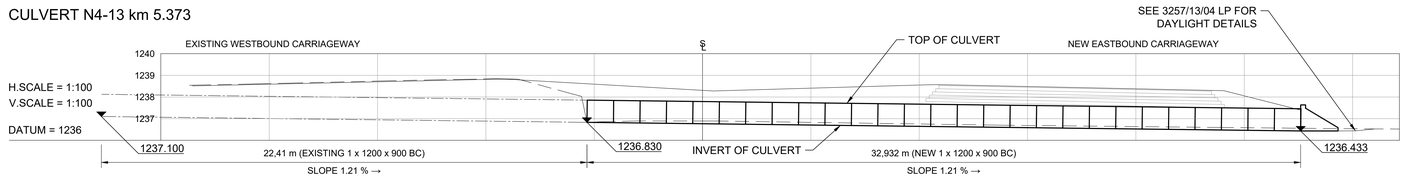
CULVERT DESCRIPTION	ITEM NUMBER		11	12	13	14
	ROAD KILOMETRE DISTANCE		5.373	5.447	5.527	5.587
	TYPE OF CULVERT		1 X BC	2 X PC	2 X PC	1 X BC
	SPAN / DIA	(mm)	1200	750	600	900
	HEIGHT	(mm)	900	-	-	450
	PIPE & BEDDING CLASS		150S	100D/B	100D/B	175S
	SKEW ANGLE	°(DEG)	299	299	300	307
HYDROLOGICAL DATA	CATCHMENT AREA	(km^2)	0.221	0.767	0.094	0.221
	TIME OF CONCENTRATION (Tc)	(Hours)	0.928	0.976	0.870	0.968
	RAINFALL INTENSITY	(mm/h)	63.326	61.117	66.259	61.443
	CATCHMENT DISCHARGE AT INLET (SDF METHOD)	(m^3/s)	1.261	4.223	0.562	1.222
	CAPACITY	(m^3/s)	2.040	1.600	0.900	0.495
	Hw/D RATIO AT CAPACITY		1.200	1.200	1.200	1.200
	VELOCITY AT OUTLET**		4.073	4.500	2.898	3.724
ROAD DATA	ROAD LEVEL - LEFT SHOULDER	RL (m)	1238.540	1239.273	1330.289	1241.240
	ROAD LEVEL - ROAD S/L	RM (m)	1238.279	1238.973	1239.969	1240.860
	ROAD LEVEL - RIGHT SHOULDER	RR (m)	1238.292	1238.982	1239.926	1240.755
	ROAD FORMATION WIDTH	F (m)	47.746	45.505	44.031	45.684
CULVERT DATA	FLOOR SLOPE	S (%)	1.210	2.260	1.710	1.060
	INVERT LEVEL - LEFT	IL (m)	1236.830	1238.054	1239.227	1239.910
	INVERT LEVEL - RIGHT	IR (m)	1236.433	1237.413	1238.725	1239.586
	EXISTING INVERT LEVEL LEFT	EIL (m)	1237.100	1238.554	1239.617	1240.330
	EXISTING INVERT LEVEL RIGHT	EIR (m)	1236.830	1238.054	1239.227	1239.910
	FILL HEIGHT - LEFT	HL (m)	0.911	0.722	0.605	0.792
	FILL HEIGHT - RIGHT	HR (m)	0.791	0.714	0.518	0.591
	LENGTH - LEFT TO ROAD S/L (MEDIAN)	LL (m)	27.743	26.763	27.105	25.386
	TOTAL LENGTH - INLET TO OUTLET	L (m)	55.352	52.102	52.019	52.194
	EXISTING LENGTH LEFT	ELL (m)	22.410	22.817	22.743	21.696
	EXISTING LENGTH RIGHT	ELR (m)	0.000	0.000	0.000	0.000
	ADDITION LEFT	AL (m)	5.333	3.946	4.362	3.690
	NUMBER OF UNITS (LEFT)	NUMBER	4.371	1.617	1.788	3.025
	ADDITION RIGHT	AR (m)	27.605	25.327	24.914	26.808
	NUMBER OF UNITS (RIGHT)	NUMBER	22.627	10.380	10.211	21.974
	INTERNAL CHAMBER DIMENSIONS	(m)				2.0 x 1.5
	GRID INLET TYPE *					1 X TYPE "B" MEDIAN

NOTES

* GRID INLET TYPE "B" DIMENSIONS ARE 0.489 x 0.809

** ALL APRON SLABS AT OUTLETS ARE TO BE CONCRETE LINED WITH GABION MATTRESSES

CULVERT N4-13 km 5.373



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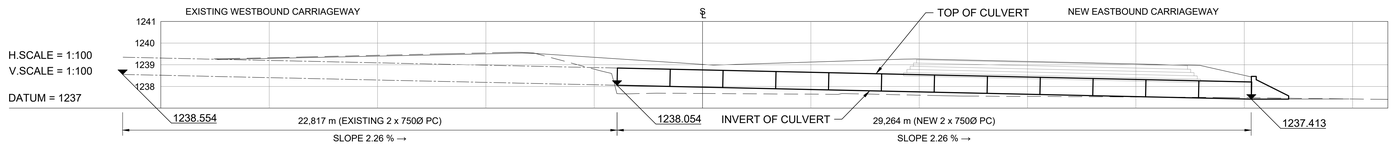

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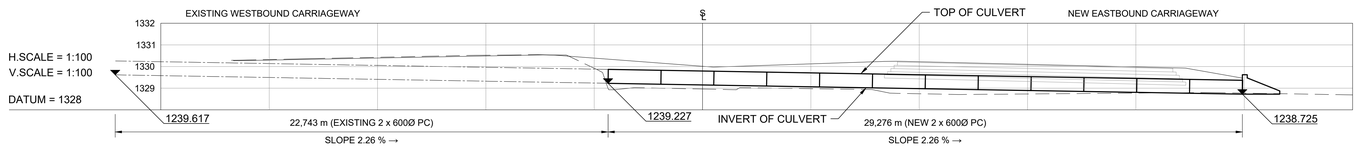
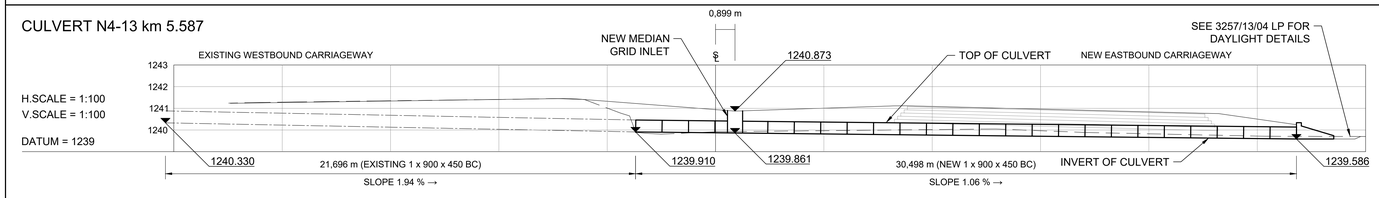


CULVERT N4-13 km 5.587



No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\07 - Culvert Schedule\3257-23-01-28CS-CULVERT SCHEDULE_20230717.dwg

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date :

CONSULTANT
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DESIGNED BY	
NAME	JG PEIRSON
Prof. Reg. No.	-
CHECKED BY	
NAME	PL NGQUMSHE
Prof. Reg. No.	20080112
DRAWN BY	
NAME	JG PEIRSON

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17 / 07 / 2023

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THE SOUTH AFRICAN NATIONAL ROADS AGENCY SOC LTD
Reg. No. 1998/009584/30

NORTHERN REGION
38 Ida Street
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Private Bag X17
Lynnwood Ridge
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Tel: (012) 426 6200

ACCEPTANCE
THIS ACCEPTANCE IS FOR PROCEDURAL AND ADMINISTRATIVE REVIEW PURPOSES ONLY AND DOES NOT ATTRACT LEGAL LIABILITY OR LIABILITY OF ANY KIND FROM WHATSOEVER CAUSE OR HOWEVER ARISING
for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

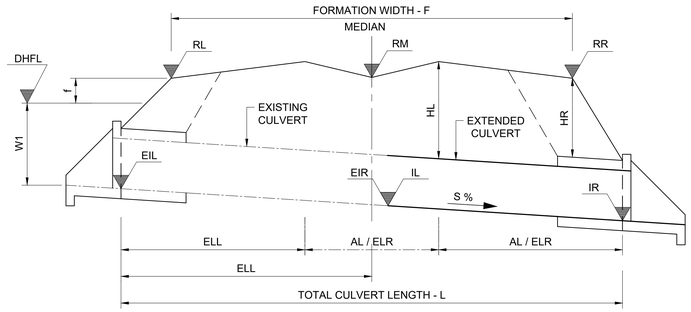
PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION
CULVERT SCHEDULE N4-13
CULVERTS BETWEEN km 5.373 TO km 5.587

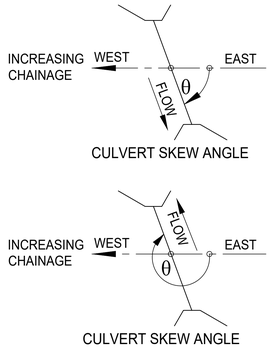
SCALE : AS SHOWN (A0) SHEET 03 OF 40

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	SECTION 13	SECTION 13
DRAWING km DISTANCE	km 5.373	km 5.587
DRAWING TYPE	ROADS - LAYOUTS	
BRIDGE/STRUCTURE No.	NA	
CONSULTANT DRAWING No.	FA 3257 / 23 / 03 CS	VER
SANRAL DOCUMENT #	- -	V0

SANRAL DOCUMENT NUMBER :



TYPICAL LONGITUDINAL SECTION OF CULVERT
UNDER DOUBLE CARRIAGEWAY ROAD
SCALE: SCHEMATIC



NOTE:

1. CULVERT EXTENSIONS ON LEFT AND RIGHT HAND SIDE REQUIRED ONLY IF DIMENSIONS AL AND AR IN SCHEDULE = 0
2. GRID INLET DIMENSIONS ARE INSIDE DIMENSIONS

KEY TO CULVERT TYPES:

PC - PIPE CULVERT (UNIT LENGTHS 2,44m)
BC - BOX CULVERT (UNIT LENGTHS 1,22m)
OC - OVAL CULVERT
IBC - IN-SITU BOX CULVERT
APC - ARMCO PIPE CULVERT
MH - MANHOLE
SI - SIDE INLET
SCI - SPECIAL CULVERT INLET
FA - FARM ACCESS
SDW - SIDE DRAIN WING WALL
DI - DROP INLET

LEGEND

EXISTING CULVERT
NEW CULVERT
EXISTING GROUND

TENDER

	ITEM NUMBER		15	16	17	18
CULVERT DESCRIPTION	ROAD KILOMETRE DISTANCE		6.272	6.550	7.047	7.627
	TYPE OF CULVERT		-	1 X BC	1 X BC	2 X BC
	SPAN / DIA	(mm)	-	900	900	900
	HEIGHT	(mm)	-	600	450	450
	PIPE & BEDDING CLASS		-	175S	175S	175S
	SKEW ANGLE	°(DEG)	-	294	247	241
HYDROLOGICAL DATA	CATCHMENT AREA	(km^2)	-	0.102	0.071	0.246
	TIME OF CONCENTRATION (Tc)	(Hours)	-	0.665	0.588	0.691
	RAINFALL INTENSITY	(mm/h)	-	79.489	86.012	77.506
	CATCHMENT DISCHARGE AT INLET (SDF METHOD)	(m^3/s)	-	0.734	0.560	1.731
	CAPACITY	(m^3/s)	-	0.810	0.495	0.990
	Hw/D RATIO AT CAPACITY		-	1.200	1.200	1.200
	VELOCITY AT OUTLET**		-	3.778	3.291	3.562
ROAD DATA	ROAD LEVEL - LEFT SHOULDER	RL (m)	-	1257.080	1254.514	1241.964
	ROAD LEVEL - ROAD S/L	RM (m)	-	1256.353	1254.186	1254.864
	ROAD LEVEL - RIGHT SHOULDER	RR (m)	-	1256.376	1254.152	1254.754
	ROAD FORMATION WIDTH	F (m)	-	33.647	33.496	35.476
CULVERT DATA	FLOOR SLOPE	S (%)	-	2.700	3.404	1.330
	INVERT LEVEL - LEFT	IL (m)	-	1255.210	1253.230	1240.190
	INVERT LEVEL - RIGHT	IR (m)	-	1255.009	1252.610	1239.979
	EXISTING INVERT LEVEL LEFT	EIL (m)	-	1255.650	1253.660	1240.630
	EXISTING INVERT LEVEL RIGHT	EIR (m)	-	1255.283	1253.230	1240.190
	FILL HEIGHT - LEFT	HL (m)	-	0.747	0.724	1242.150
	FILL HEIGHT - RIGHT	HR (m)	-	0.817	0.862	1241.766
	LENGTH - LEFT TO ROAD S/L (MEDIAN)	LL (m)	-	20.707	19.156	26.837
	TOTAL LENGTH - INLET TO OUTLET	L (m)	-	41.893	40.093	48.893
	EXISTING LENGTH LEFT	ELL (m)	-	20.707	19.156	26.837
	EXISTING LENGTH RIGHT	ELR (m)	-	4.109	2.633	6.198
	ADDITION LEFT	AL (m)	-	0.000	0.000	0.000
	NUMBER OF UNITS (LEFT)	NUMBER	-	0.000	0.000	0.000
	ADDITION RIGHT	AR (m)	-	17.080	18.300	15.859
	NUMBER OF UNITS (RIGHT)	NUMBER	-	14.000	15.000	13.000
	INTERNAL CHAMBER DIMENSIONS	(m)		2.0 x 1.5	2.0 x 1.5	3.0 x 1.5
	GRID INLET TYPE *			1 X TYPE "B" MEDIAN	1 X TYPE "B" MEDIAN	1 X TYPE "B" MEDIAN

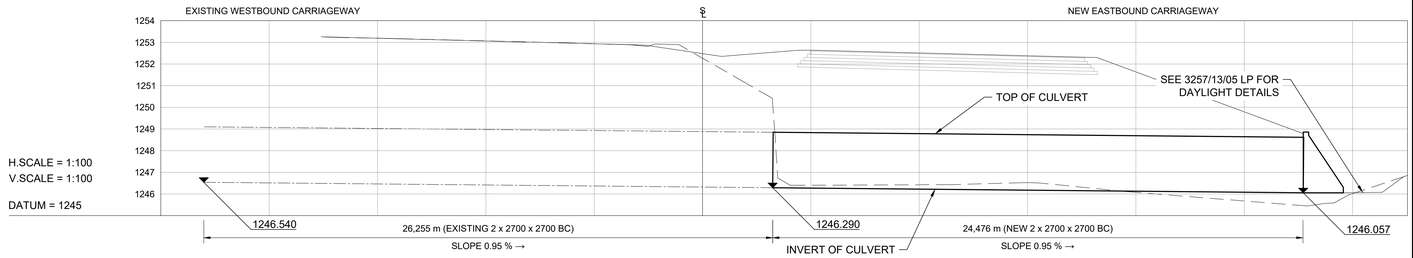
NOTES

* GRID INLET TYPE "B" DIMENSIONS ARE 0.489 x 0.809

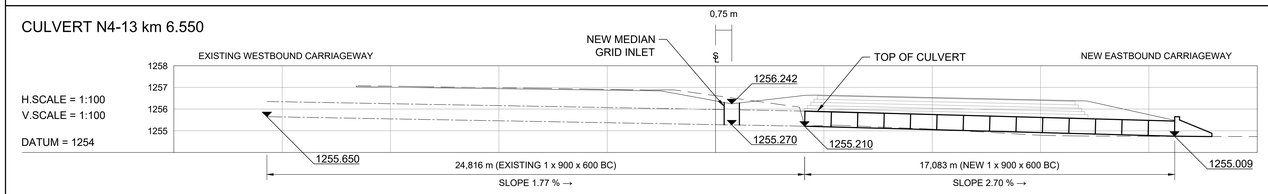
** ALL APRON SLABS AT OUTLETS ARE TO BE CONCRETE LINED WITH GABION MATTRESSES

S2321A

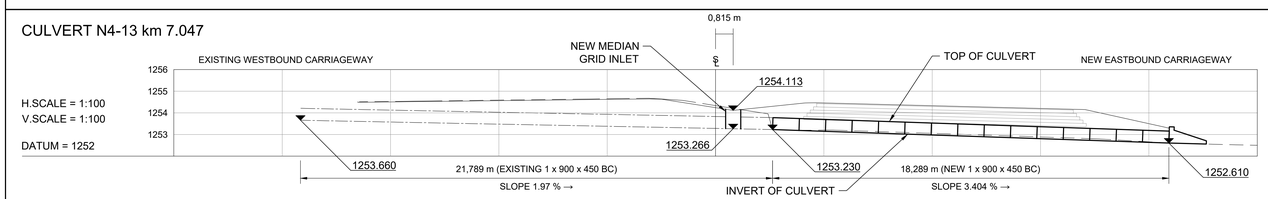
CULVERT N4-13 km 6.272



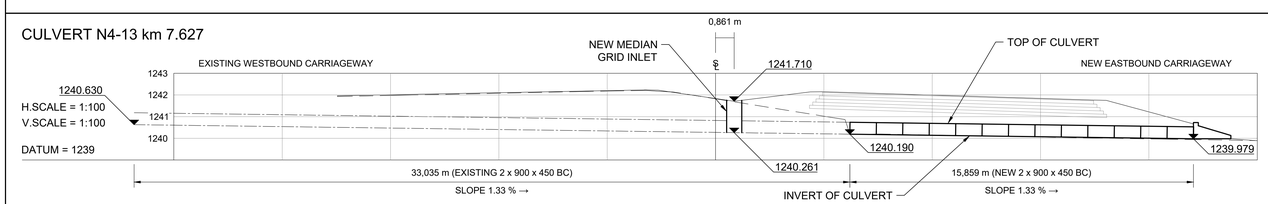
CULVERT N4-13 km 6.550



CULVERT N4-13 km 7.047



CULVERT N4-13 km 7.627



No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date :

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DESIGNED BY
NAME: JG PEIRSON
Prof. Reg. No.: -
CHECKED BY
NAME: PL NGQUMSHE
Prof. Reg. No.: 20080112
DRAWN BY
NAME: JG PEIRSON

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17 / 07 / 2023

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THE SOUTH AFRICAN NATIONAL ROADS AGENCY SOC LTD
Reg. No. 1998/009584/30

NORTHERN REGION
38 Ida Street
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Lynnwood Ridge
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Tel: (012) 426 6200

ACCEPTANCE
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for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION
CULVERT SCHEDULE N4-13
CULVERTS BETWEEN km 6.272 TO km 7.627

SCALE : AS SHOWN (A0) SHEET 04 OF 40

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001		
DRAWING LOCATION DATA	START	END	
ROUTE	N 4	N 4	
SECTION	SECTION 13	SECTION 13	
DRAWING km DISTANCE	km 6.272	km 7.627	
DRAWING TYPE	ROADS - LAYOUTS		
BRIDGE/STRUCTURE No.	NA		
CONSULTANT DRAWING No.	FA	3257 / 23 / 04 CS	VER
SANRAL DOCUMENT #	- -		V0

SANRAL DOCUMENT NUMBER :

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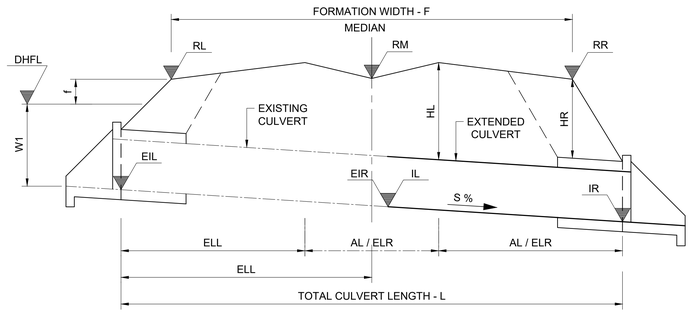
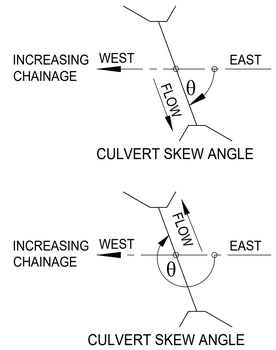


TYPICAL LONGITUDINAL SECTION OF CULVERT
UNDER DOUBLE CARRIAGEWAY ROAD
SCALE: SCHEMATIC



NOTE:

1. CULVERT EXTENSIONS ON LEFT AND RIGHT HAND SIDE REQUIRED ONLY IF DIMENSIONS AL AND AR IN SCHEDULE = 0
2. GRID INLET DIMENSIONS ARE INSIDE DIMENSIONS

KEY TO CULVERT TYPES:

PC - PIPE CULVERT (UNIT LENGTHS 2,44m)
BC - BOX CULVERT (UNIT LENGTHS 1,22m)
OC - OVAL CULVERT
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APC - ARMCO PIPE CULVERT
MH - MANHOLE
SI - SIDE INLET
SCI - SPECIAL CULVERT INLET
FA - FARM ACCESS
SDW - SIDE DRAIN WING WALL
DI - DROP INLET

LEGEND

- EXISTING CULVERT
- NEW CULVERT
- EXISTING GROUND

TENDER

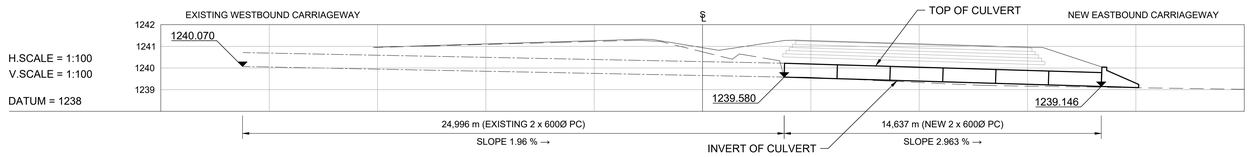
	ITEM NUMBER		19	20	21	22	23
CULVERT DESCRIPTION	ROAD KILOMETRE DISTANCE		7.777	7.857	7.967	8.076	8.218
	TYPE OF CULVERT		2 X PC	3 X PC	2 X BC	1 X BC	1 X BC
	SPAN / DIA	(mm)	600	600	900	600	1200
	HEIGHT	(mm)	-	-	450	600	450
	PIPE & BEDDING CLASS		100D/B	100D/B	175S	200S	150S
	SKEW ANGLE	°(DEG)	271	269	240	242	270
HYDROLOGICAL DATA	CATCHMENT AREA	(km^2)	0.183	0.271	0.216	0.163	0.086
	TIME OF CONCENTRATION (Tc)	(Hours)	0.682	0.829	0.810	0.816	0.853
	RAINFALL INTENSITY	(mm/h)	78.191	68.523	69.592	69.257	67.188
	CATCHMENT DISCHARGE AT INLET (SDF METHOD)	(m^3/s)	1.297	1.679	1.358	1.022	0.524
	CAPACITY	(m^3/s)	0.900	1.350	0.990	0.540	0.660
	Hw/D RATIO AT CAPACITY		1.200	1.200	1.200	1.200	1.200
	VELOCITY AT OUTLET**		5.110	4.480	3.224	3.155	3.164
ROAD DATA	ROAD LEVEL - LEFT SHOULDER	RL (m)	1240.949	1240.524	1240.056	1239.413	1238.153
	ROAD LEVEL - ROAD S/L	RM (m)	1240.973	1240.577	1240.036	1239.370	1238.079
	ROAD LEVEL - RIGHT SHOULDER	RR (m)	1240.946	1240.550	1239.964	1239.280	1238.048
	ROAD FORMATION WIDTH	F (m)	30.821	30.777	35.447	35.045	36.763
CULVERT DATA	FLOOR SLOPE	S (%)	2.963	1.350	1.190	0.780	2.870
	INVERT LEVEL - LEFT	IL (m)	1239.580	1238.470	1238.700	1237.980	1237.000
	INVERT LEVEL - RIGHT	IR (m)	1239.146	1238.272	1238.467	1237.818	1236.404
	EXISTING INVERT LEVEL LEFT	EIL (m)	1240.070	1239.230	1239.020	1238.160	1237.360
	EXISTING INVERT LEVEL RIGHT	EIR (m)	1239.580	1238.470	1238.700	1237.980	1237.000
	FILL HEIGHT - LEFT	HL (m)	1.071	1.752	1.090	1.014	0.819
	FILL HEIGHT - RIGHT	HR (m)	1.098	1.585	0.881	0.739	0.931
	LENGTH - LEFT TO ROAD S/L (MEDIAN)	LL (m)	21.229	19.522	24.022	20.851	21.280
	TOTAL LENGTH - INLET TO OUTLET	L (m)	39.641	39.186	46.385	43.830	43.513
	EXISTING LENGTH LEFT	ELL (m)	21.229	19.522	24.022	20.851	21.280
	EXISTING LENGTH RIGHT	ELR (m)	3.767	5.025	2.841	2.239	2.715
	ADDITION LEFT	AL (m)	0.000	0.000	0.000	0.000	0.000
	NUMBER OF UNITS (LEFT)	NUMBER	0.000	0.000	0.000	0.000	0.000
	ADDITION RIGHT	AR (m)	14.637	14.635	19.519	20.739	20.730
	NUMBER OF UNITS (RIGHT)	NUMBER	5.999	5.998	15.999	16.999	17.000
	INTERNAL CHAMBER DIMENSIONS	(m)				1.2 x 0.9	
	GRID INLET TYPE *					1 X TYPE "B" MEDIAN	

NOTES

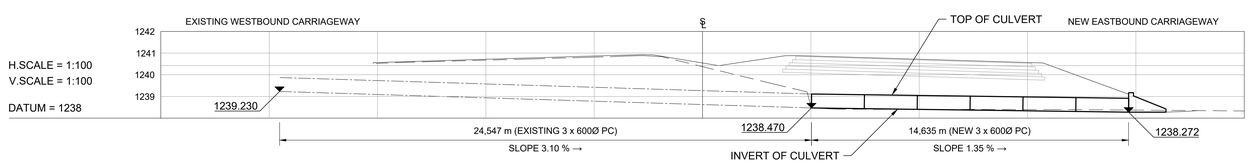
* GRID INLET TYPE "B" DIMENSIONS ARE 0.489 x 0.809

** ALL APRON SLABS AT OUTLETS ARE TO BE CONCRETE LINED WITH GABION MATTRESSES

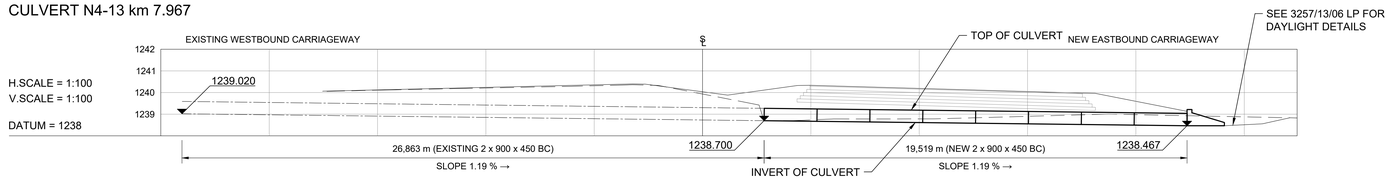
CULVERT N4-13 km 7.777



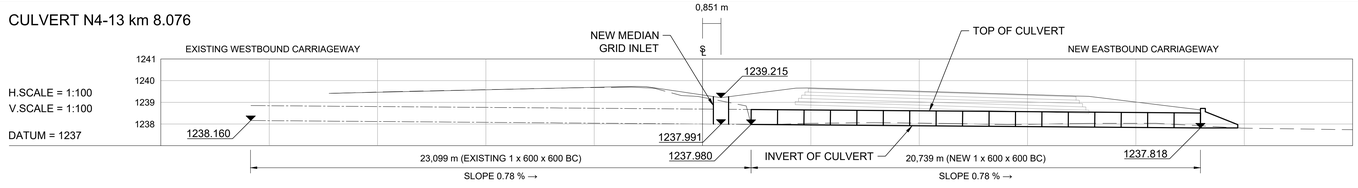
CULVERT N4-13 km 7.857



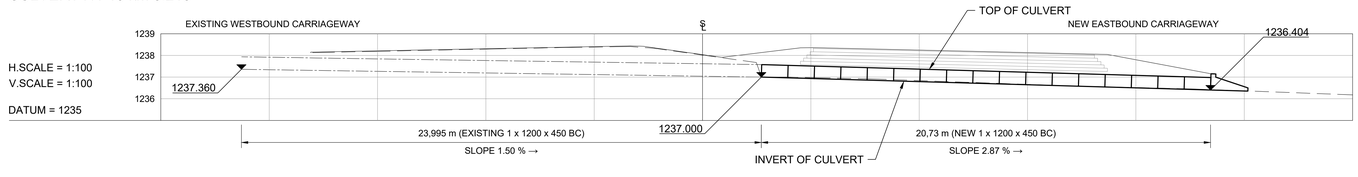
CULVERT N4-13 km 7.967



CULVERT N4-13 km 8.076



CULVERT N4-13 km 8.218



No.	DATE	REVISION	
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSULTANT: CONSULT. ENG.

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date :

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NAME	JG PEIRSON
Prof. Reg. No.	-
CHECKED BY	
NAME	PL NGQUMSHE
Prof. Reg. No.	20080112
DRAWN BY	
NAME	JG PEIRSON

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17 / 07 / 2023

HEAD OFFICE
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South Africa
Tel: (012) 844 8000

THE SOUTH AFRICAN NATIONAL ROADS AGENCY SOC LTD
Reg. No. 1998/009584/30

NORTHERN REGION
38 Ida Street
Menlo Park
Pretoria
0081
Private Bag X17
Lynnwood Ridge
0040
Tel: (012) 426 6200

ACCEPTANCE
THIS ACCEPTANCE IS FOR PROCEDURAL AND ADMINISTRATIVE REVIEW PURPOSES ONLY AND DOES NOT ATTRACT LEGAL LIABILITY OR LIABILITY OF ANY KIND FROM WHATSOEVER CAUSE OR HOWEVER ARISING
for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

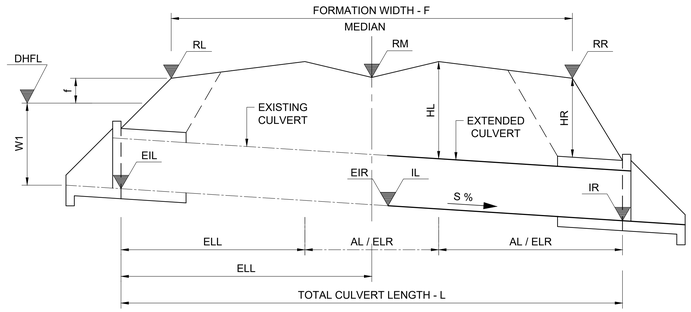
DRAWING DESCRIPTION
CULVERT SCHEDULE N4-13
CULVERTS BETWEEN km 7.777 TO km 8.218

SCALE : AS SHOWN (A0) | SHEET 05 OF 40

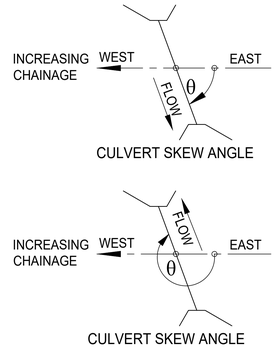
PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001		
DRAWING LOCATION DATA	START	END	
ROUTE	N 4	N 4	
SECTION	SECTION 13	SECTION 13	
DRAWING km DISTANCE	km 7.777	km 8.218	
DRAWING TYPE	ROADS - LAYOUTS		
BRIDGE/STRUCTURE No.	NA		
CONSULTANT DRAWING No.	FA	3257 / 16 / 05 CS	VER
SANRAL DOCUMENT #	- -		V0

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\07 - Culvert Schedule\3257-23-01-28CS-CULVERT SCHEDULE_20230717.dwg



TYPICAL LONGITUDINAL SECTION OF CULVERT
UNDER DOUBLE CARRIAGEWAY ROAD
SCALE: SCHEMATIC



NOTE:

1. CULVERT EXTENSIONS ON LEFT AND RIGHT HAND SIDE REQUIRED ONLY IF DIMENSIONS AL AND AR IN SCHEDULE = 0
2. GRID INLET DIMENSIONS ARE INSIDE DIMENSIONS

KEY TO CULVERT TYPES:

PC - PIPE CULVERT (UNIT LENGTHS 2,44m)
BC - BOX CULVERT (UNIT LENGTHS 1,22m)
OC - OVAL CULVERT
IBC - IN-SITU BOX CULVERT
APC - ARMCO PIPE CULVERT
MH - MANHOLE
SI - SIDE INLET
SCI - SPECIAL CULVERT INLET
FA - FARM ACCESS
SDW - SIDE DRAIN WING WALL
DI - DROP INLET

LEGEND

- EXISTING CULVERT
- NEW CULVERT
- EXISTING GROUND

TENDER

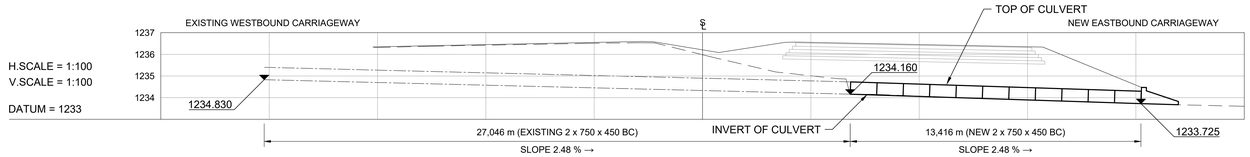
CULVERT DESCRIPTION	ITEM NUMBER		24	25	26	27	28
	ROAD KILOMETRE DISTANCE		8.367	8.487	8.693	8.867	9.048
	TYPE OF CULVERT		2 X BC	1 X BC	2 X BC	3 X PC	1 X BC
	SPAN / DIA	(mm)	750	1200	750	900	900
	HEIGHT	(mm)	450	450	450	-	600
	PIPE & BEDDING CLASS		175S	150S	175S	100D/B	175S
	SKEW ANGLE	°(DEG)	270	270	270	240	241
HYDROLOGICAL DATA	CATCHMENT AREA	(km^2)	0.446	0.169	0.086	0.317	0.522
	TIME OF CONCENTRATION (Tc)	(Hours)	0.967	0.938	1.006	1.046	1.056
	RAINFALL INTENSITY	(mm/h)	61.488	62.830	59.805	58.120	57.747
	CATCHMENT DISCHARGE AT INLET (SDF METHOD)	(m^3/s)	2.469	0.958	0.462	1.656	2.710
	CAPACITY	(m^3/s)	0.825	0.660	0.825	3.600	0.810
	Hw/D RATIO AT CAPACITY		1.200	1.200	1.200	1.200	1.200
	VELOCITY AT OUTLET**		5.420	3.245	2.758	4.900	4.780
ROAD DATA	ROAD LEVEL - LEFT SHOULDER	RL (m)	1236.347	1234.827	1231.761	1228.792	1225.330
	ROAD LEVEL - ROAD S/L	RM (m)	1236.254	1234.733	1231.662	1228.514	1225.077
	ROAD LEVEL - RIGHT SHOULDER	RR (m)	1236.336	1234.814	1231.742	1228.422	1225.034
	ROAD FORMATION WIDTH	F (m)	30.900	30.901	30.900	35.558	35.208
CULVERT DATA	FLOOR SLOPE	S (%)	3.241	1.100	1.660	4.396	1.070
	INVERT LEVEL - LEFT	IL (m)	1234.160	1233.440	1229.770	1226.820	1224.100
	INVERT LEVEL - RIGHT	IR (m)	1233.725	1233.265	1229.506	1225.962	1223.891
	EXISTING INVERT LEVEL LEFT	EIL (m)	1234.830	1233.680	1230.640	1227.160	1224.340
	EXISTING INVERT LEVEL RIGHT	EIR (m)	1234.160	1233.440	1229.770	1226.820	1224.100
	FILL HEIGHT - LEFT	HL (m)	1.772	1.049	1.658	1.122	0.591
	FILL HEIGHT - RIGHT	HR (m)	1.920	0.950	1.623	1.381	0.421
	LENGTH - LEFT TO ROAD S/L (MEDIAN)	LL (m)	20.229	18.864	17.733	21.474	21.152
	TOTAL LENGTH - INLET TO OUTLET	L (m)	40.462	37.591	37.963	42.601	41.917
	EXISTING LENGTH LEFT	ELL (m)	20.229	18.864	17.733	21.474	21.152
	EXISTING LENGTH RIGHT	ELR (m)	6.817	2.868	4.372	1.618	1.246
	ADDITION LEFT	AL (m)	0.000	0.000	0.000	0.000	0.000
	NUMBER OF UNITS (LEFT)	NUMBER	0.000	0.000	0.000	0.000	0.000
	ADDITION RIGHT	AR (m)	13.416	15.875	15.858	19.510	19.519
	NUMBER OF UNITS (RIGHT)	NUMBER	11.000	13.012	13.000	8.000	16.000
	INTERNAL CHAMBER DIMENSIONS	(m)		2.0 x 1.5		3.5 x 1.5	
	GRID INLET TYPE *			1 x TYPE "B" MEDIAN		1 x TYPE "B" MEDIAN	

NOTES

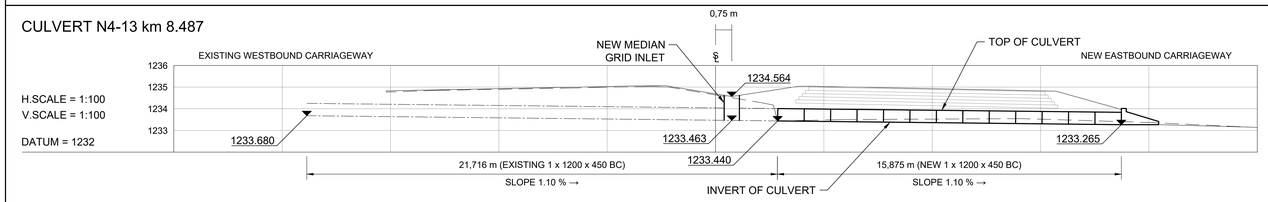
* GRID INLET TYPE "B" DIMENSIONS ARE 0.489 x 0.809

** ALL APRON SLABS AT OUTLETS ARE TO BE CONCRETE LINED WITH GABION MATTRESSES

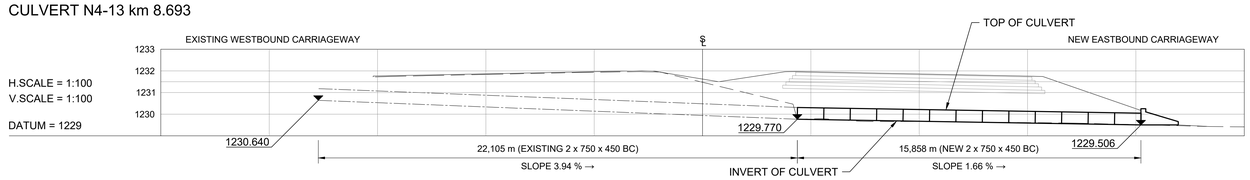
CULVERT N4-13 km 8.367



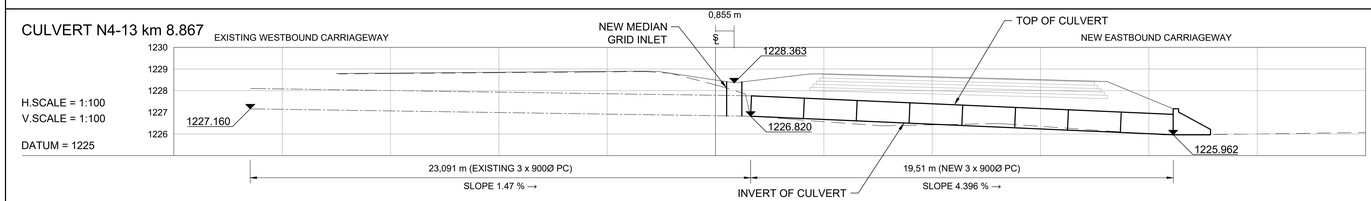
CULVERT N4-13 km 8.487



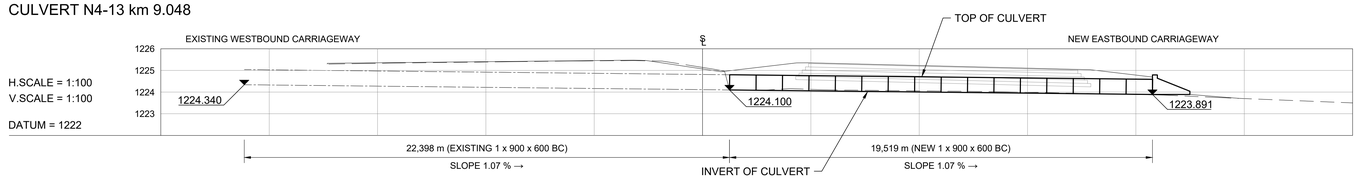
CULVERT N4-13 km 8.693



CULVERT N4-13 km 8.867



CULVERT N4-13 km 9.048



No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date :

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NAME: JG PEIRSON
Prof. Reg. No.: -
CHECKED BY
NAME: PL NGQUMSHE
Prof. Reg. No.: 20080112
DRAWN BY
NAME: JG PEIRSON

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17 / 07 / 2023

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PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

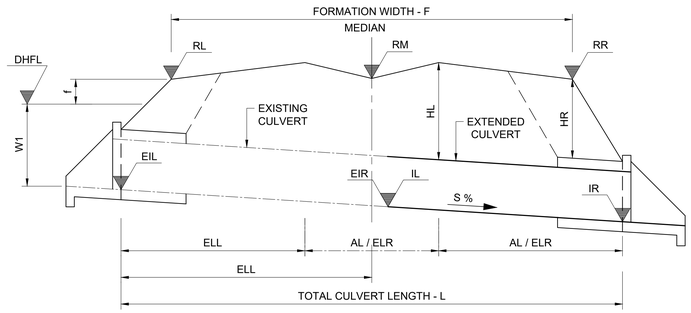
DRAWING DESCRIPTION
CULVERT SCHEDULE N4-13
CULVERTS BETWEEN km 8.367 TO km 9.048

SCALE : AS SHOWN (A0) | SHEET 06 OF 40

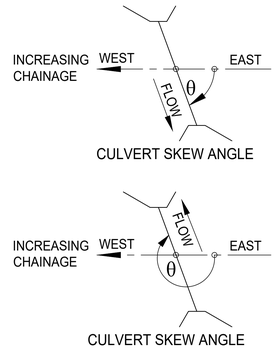
PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001		
DRAWING LOCATION DATA	START	END	
ROUTE	N 4	N 4	
SECTION	SECTION 13	SECTION 13	
DRAWING km DISTANCE	km 8.367	km 9.048	
DRAWING TYPE	ROADS - LAYOUTS		
BRIDGE/STRUCTURE No.	NA		
CONSULTANT DRAWING No.	FA	3257 / 23 / 06 CS	VER
SANRAL DOCUMENT #	- -		V0

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\07 - Culvert Schedule\3257-23-01-28CS-CULVERT SCHEDULE_20230717.dwg



TYPICAL LONGITUDINAL SECTION OF CULVERT
UNDER DOUBLE CARRIAGEWAY ROAD
SCALE: SCHEMATIC



NOTE:

1. CULVERT EXTENSIONS ON LEFT AND RIGHT HAND SIDE REQUIRED ONLY IF DIMENSIONS AL AND AR IN SCHEDULE = 0
2. GRID INLET DIMENSIONS ARE INSIDE DIMENSIONS

KEY TO CULVERT TYPES:

PC - PIPE CULVERT (UNIT LENGTHS 2,44m)
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APC - ARMCO PIPE CULVERT
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FA - FARM ACCESS
SDW - SIDE DRAIN WING WALL
DI - DROP INLET

LEGEND

- EXISTING CULVERT
- NEW CULVERT
- EXISTING GROUND

TENDER

	ITEM NUMBER		29	30	31	32	33
CULVERT DESCRIPTION	ROAD KILOMETRE DISTANCE		9.216	9.277	9.466	9.568	9.831
	TYPE OF CULVERT		-	1 X PC	1 X PC	1 X BC	3 X BC
	SPAN / DIA	(mm)	-	750	750	600	900
	HEIGHT	(mm)	-	-	-	450	450
	PIPE & BEDDING CLASS		-	100D/B	100D/B	200S	175S
	SKEW ANGLE	°(DEG)	-	270	299	295	297
HYDROLOGICAL DATA	CATCHMENT AREA	(km²)	-	0.754	0.261	0.827	0.157
	TIME OF CONCENTRATION (Tc)	(Hours)	-	1.114	1.151	1.280	0.831
	RAINFALL INTENSITY	(mm/h)	-	55.512	54.214	50.104	68.428
	CATCHMENT DISCHARGE AT INLET (SDF METHOD)	(m³/s)	-	3.762	1.271	3.726	0.967
	CAPACITY	(m³/s)	-	0.800	0.800	0.330	1.485
	Hw/D RATIO AT CAPACITY		-	1.200	1.200	1.200	1.200
	VELOCITY AT OUTLET**		-	8.875	3.924	10.349	2.568
ROAD DATA	ROAD LEVEL - LEFT SHOULDER	RL (m)	-	1223.383	1224.553	1225.470	1227.891
	ROAD LEVEL - ROAD S/L	RM (m)	-	1223.352	1224.443	1225.373	1227.781
	ROAD LEVEL - RIGHT SHOULDER	RR (m)	-	1223.270	1224.336	1225.280	1227.688
	ROAD FORMATION WIDTH	F (m)	-	30.900	35.354	33.995	34.714
CULVERT DATA	FLOOR SLOPE	S (%)	-	1.460	1.600	1.450	1.090
	INVERT LEVEL - LEFT	IL (m)	-	1220.810	1223.120	1224.180	1226.700
	INVERT LEVEL - RIGHT	IR (m)	-	1220.595	1222.846	1223.915	1226.488
	EXISTING INVERT LEVEL LEFT	EIL (m)	-	1221.880	1223.520	1224.540	1226.970
	EXISTING INVERT LEVEL RIGHT	EIR (m)	-	1220.810	1223.120	1224.180	1226.700
	FILL HEIGHT - LEFT	HL (m)	-	1.952	0.986	0.970	0.863
	FILL HEIGHT - RIGHT	HR (m)	-	1.855	0.804	0.771	0.616
	LENGTH - LEFT TO ROAD S/L (MEDIAN)	LL (m)	-	18.042	21.080	21.944	23.057
	TOTAL LENGTH - INLET TO OUTLET	L (m)	-	39.415	42.025	43.192	44.376
	EXISTING LENGTH LEFT	ELL (m)	-	18.042	21.080	21.944	23.057
	EXISTING LENGTH RIGHT	ELR (m)	-	6.734	3.862	2.950	1.799
	ADDITION LEFT	AL (m)	-	0.000	0.000	0.000	0.000
	NUMBER OF UNITS (LEFT)	NUMBER	-	0.000	0.000	0.000	0.000
	ADDITION RIGHT	AR (m)	-	14.638	17.078	18.298	19.519
	NUMBER OF UNITS (RIGHT)	NUMBER	-	6.000	7.000	15.000	16.000
	INTERNAL CHAMBER DIMENSIONS	(m)		1.2 x 0.9			3.5 x 1.5
	GRID INLET TYPE *			1 x TYPE "B" MEDIAN			

S4034

NOTES

* GRID INLET TYPE "B" DIMENSIONS ARE 0.489 x 0.809

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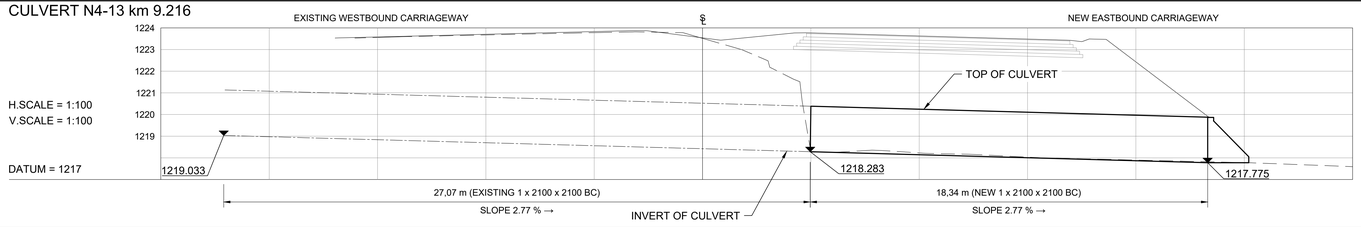
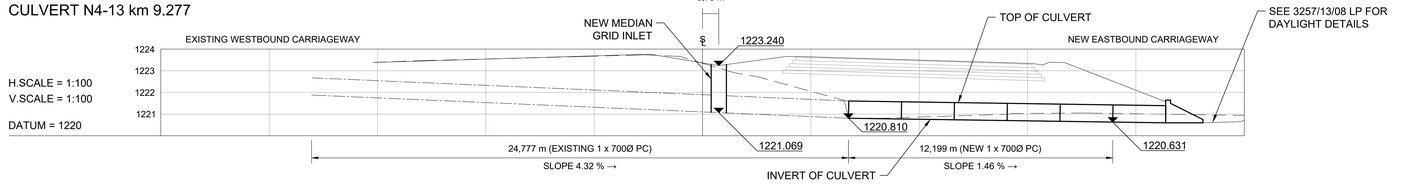
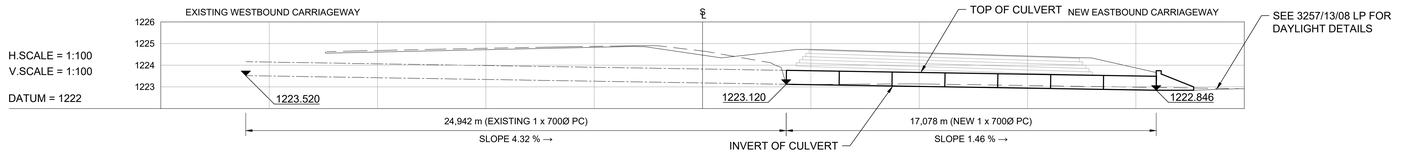
CULVERT N4-13 km 9.216



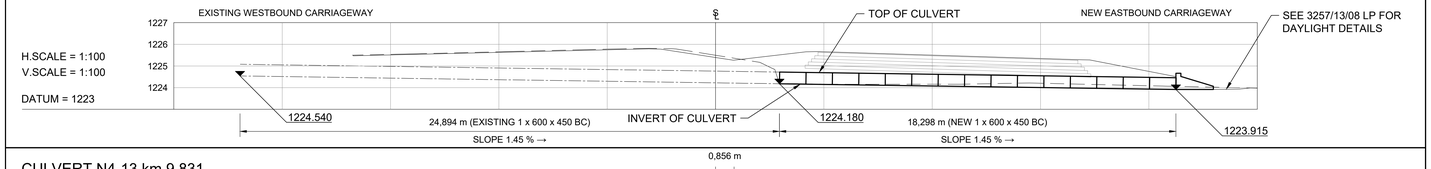
CULVERT N4-13 km 9.277



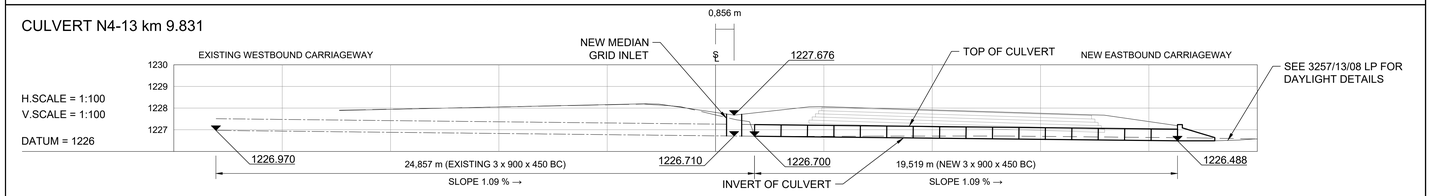
CULVERT N4-13 km 9.466



CULVERT N4-13 km 9.568



CULVERT N4-13 km 9.831



No.	DATE	REVISION	
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSULTANT ENG.

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
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Date :
SANRAL PROJECT MANAGER
Name :
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Date :

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for CEO: SA NATIONAL ROADS AGENCY LTD.
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PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION
CULVERT SCHEDULE N4-13
CULVERTS BETWEEN km 9.216 TO km 9.831

SCALE : AS SHOWN (A0) | SHEET 07 OF 40

PROJECT NUMBER		BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA		START	END
ROUTE		N 4	N 4
SECTION		SECTION 13	SECTION 13
DRAWING km DISTANCE		km 9.216	km 9.831
DRAWING TYPE		ROADS - LAYOUTS	
BRIDGE/STRUCTURE No.		NA	
CONSULTANT DRAWING No.	FA	3257 / 23 / 07 CS	VER
SANRAL DOCUMENT #		- -	V0

SANRAL DOCUMENT NUMBER :

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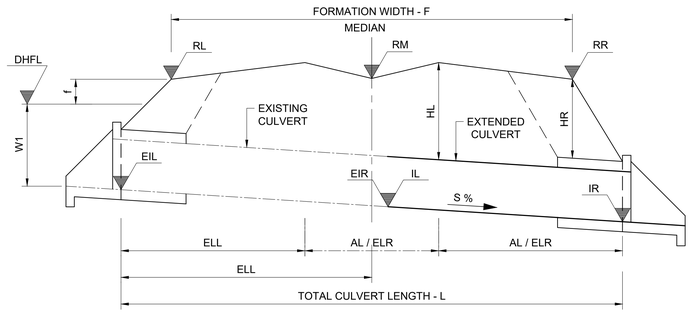
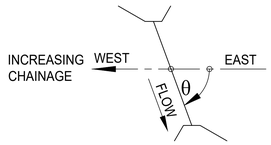
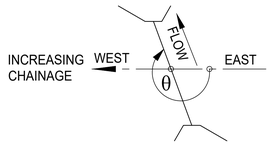


TYPICAL LONGITUDINAL SECTION OF CULVERT
UNDER DOUBLE CARRIAGEWAY ROAD
SCALE: SCHEMATIC



CULVERT SKEW ANGLE



CULVERT SKEW ANGLE

NOTE:

1. CULVERT EXTENSIONS ON LEFT AND RIGHT HAND SIDE REQUIRED ONLY IF DIMENSIONS AL AND AR IN SCHEDULE = 0
2. GRID INLET DIMENSIONS ARE INSIDE DIMENSIONS

KEY TO CULVERT TYPES:

PC - PIPE CULVERT (UNIT LENGTHS 2,44m)
BC - BOX CULVERT (UNIT LENGTHS 1,22m)
OC - OVAL CULVERT
IBC - IN-SITU BOX CULVERT
APC - ARMCO PIPE CULVERT
MH - MANHOLE
SI - SIDE INLET
SCI - SPECIAL CULVERT INLET
FA - FARM ACCESS
SDW - SIDE DRAIN WING WALL
DI - DROP INLET

LEGEND

EXISTING CULVERT
NEW CULVERT
EXISTING GROUND

TENDER

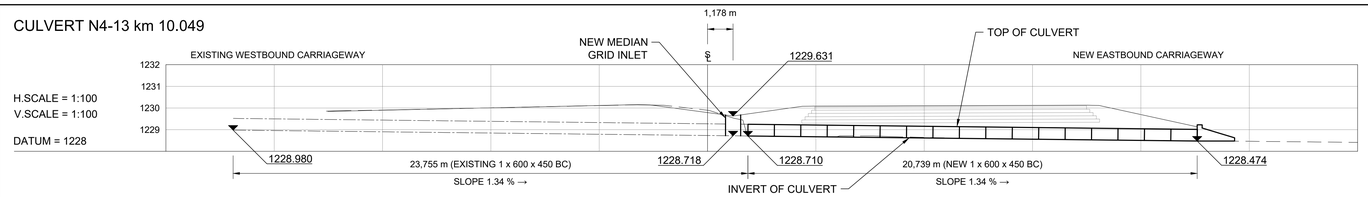
	ITEM NUMBER		34	35	36	37	38
CULVERT DESCRIPTION	ROAD KILOMETRE DISTANCE		10.049	10.787	10.887	11.087	11.227
	TYPE OF CULVERT		1 X BC	1 X BC	1 X BC	1 X BC	1 X BC
	SPAN / DIA	(mm)	600	600	900	900	900
	HEIGHT	(mm)	450	450	450	450	450
	PIPE & BEDDING CLASS		200S	200S	175S	175S	175S
	SKEW ANGLE	°(DEG)	300	240	240	240	240
HYDROLOGICAL DATA	CATCHMENT AREA	(km^2)	0.100	0.271	0.111	0.138	0.600
	TIME OF CONCENTRATION (Tc)	(Hours)	0.798	1.198	1.250	1.299	1.453
	RAINFALL INTENSITY	(mm/h)	70.342	52.636	50.975	49.546	45.513
	CATCHMENT DISCHARGE AT INLET (SDF METHOD)	(m^3/s)	0.637	1.281	0.510	0.614	2.457
	CAPACITY	(m^3/s)	0.330	0.330	0.495	0.495	0.495
	Hw/D RATIO AT CAPACITY		1.200	1.200	1.200	1.200	1.200
	VELOCITY AT OUTLET**		4.367	3.557	2.099	2.106	3.792
ROAD DATA	ROAD LEVEL - LEFT SHOULDER	RL (m)	1229.841	1233.143	1232.856	1232.214	1231.766
	ROAD LEVEL - ROAD S/L	RM (m)	1229.801	1233.188	1232.856	1232.203	1231.755
	ROAD LEVEL - RIGHT SHOULDER	RR (m)	1230.116	1233.745	1232.813	1232.146	1231.699
	ROAD FORMATION WIDTH	F (m)	35.593	35.598	35.657	35.839	35.592
CULVERT DATA	FLOOR SLOPE	S (%)	1.340	1.343	1.902	1.622	1.364
	INVERT LEVEL - LEFT	IL (m)	1228.710	1231.990	1231.540	1230.930	1230.660
	INVERT LEVEL - RIGHT	IR (m)	1228.474	1231.678	1231.217	1230.634	1230.410
	EXISTING INVERT LEVEL LEFT	EIL (m)	1228.980	1232.110	1231.660	1231.020	1230.800
	EXISTING INVERT LEVEL RIGHT	EIR (m)	1228.710	1231.990	1231.540	1230.930	1230.660
	FILL HEIGHT - LEFT	HL (m)	0.874	1.025	1.065	1.030	0.857
	FILL HEIGHT - RIGHT	HR (m)	1.058	1.450	0.977	0.906	0.693
	LENGTH - LEFT TO ROAD S/L (MEDIAN)	LL (m)	21.895	22.184	22.515	22.633	21.717
	TOTAL LENGTH - INLET TO OUTLET	L (m)	44.494	45.671	44.345	44.880	43.114
	EXISTING LENGTH LEFT	ELL (m)	21.895	22.184	22.515	22.633	21.717
	EXISTING LENGTH RIGHT	ELR (m)	1.860	0.308	4.750	3.364	3.098
	ADDITION LEFT	AL (m)	0.000	0.000	0.000	0.000	0.000
	NUMBER OF UNITS (LEFT)	NUMBER	0.000	0.000	0.000	0.000	0.000
	ADDITION RIGHT	AR (m)	20.739	23.180	17.080	18.300	18.300
	NUMBER OF UNITS (RIGHT)	NUMBER	17.000	19.000	14.000	15.000	15.000
	INTERNAL CHAMBER DIMENSIONS	(m)	1.2 x 0.9		2.0 x 1.5		
	GRID INLET TYPE *		1 x TYPE "B" MEDIAN		1 x TYPE "B" MEDIAN		

NOTES

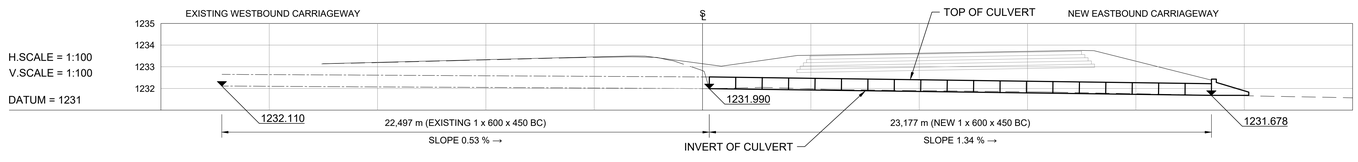
* GRID INLET TYPE "B" DIMENSIONS ARE 0.489 x 0.809

** ALL APRON SLABS AT OUTLETS ARE TO BE CONCRETE LINED WITH GABION MATTRESSES

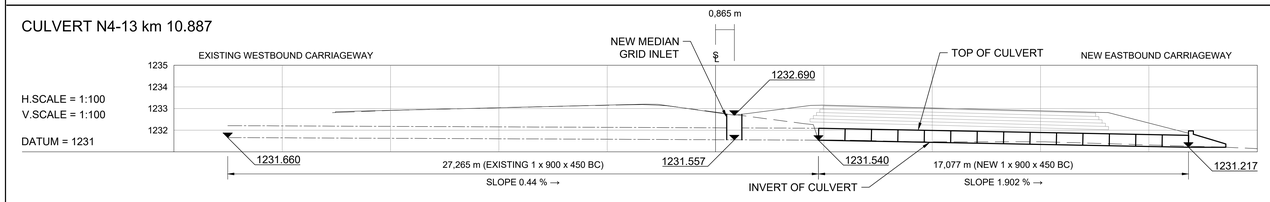
CULVERT N4-13 km 10.049



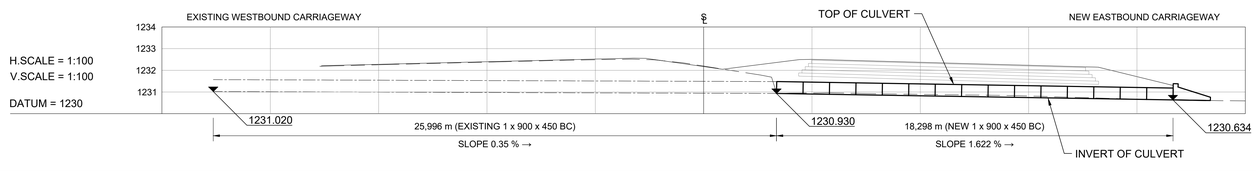
CULVERT N4-13 km 10.787



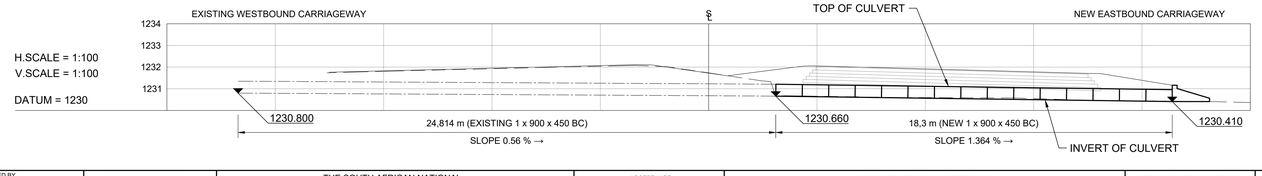
CULVERT N4-13 km 10.887



CULVERT N4-13 km 11.087



CULVERT N4-13 km 11.227



CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date :

No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

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CHECKED BY
NAME: PL NGQUMSHE
Prof. Reg. No.: 20080112
DRAWN BY
NAME: JG PEIRSON

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17 / 07 / 2023

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Tel: (012) 844 8000

THE SOUTH AFRICAN NATIONAL ROADS AGENCY SOC LTD
Reg. No. 1998/009584/30

NORTHERN REGION
38 Ida Street
Menlo Park
Pretoria
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Private Bag X17
Lynnwood Ridge
0040
Tel: (012) 426 6200

ACCEPTANCE

THIS ACCEPTANCE IS FOR PROCEDURAL AND ADMINISTRATIVE REVIEW PURPOSES ONLY AND DOES NOT ATTRACT LEGAL LIABILITY OR LIABILITY OF ANY KIND FROM WHATSOEVER CAUSE OR HOWEVER ARISING

for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

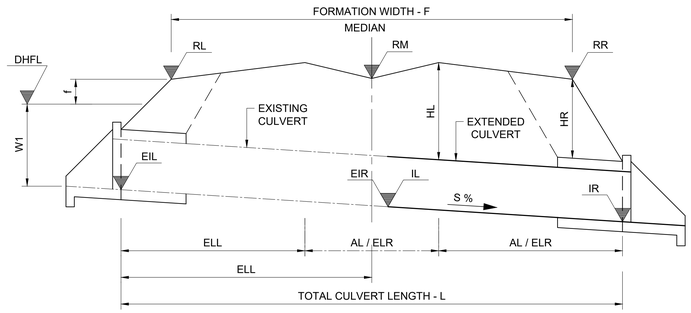
DRAWING DESCRIPTION
CULVERT SCHEDULE N4-13
CULVERTS BETWEEN km 10.049 TO km 11.227

SCALE : AS SHOWN (A0) | SHEET 08 OF 40

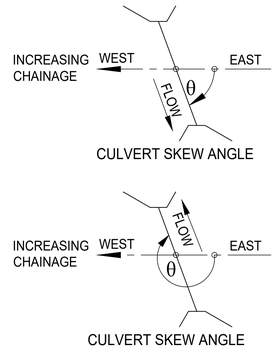
PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001		
DRAWING LOCATION DATA	START	END	
ROUTE	N 4	N 4	
SECTION	SECTION 13	SECTION 13	
DRAWING km DISTANCE	km 10.049	km 11.227	
DRAWING TYPE	ROADS - LAYOUTS		
BRIDGE/STRUCTURE No.	NA		
CONSULTANT DRAWING No.	FA	3257 / 23 / 08 CS	VER
SANRAL DOCUMENT #		- -	V0

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\07 - Culvert Schedule\3257-23-01-28CS-CULVERT SCHEDULE_20230717.dwg



TYPICAL LONGITUDINAL SECTION OF CULVERT
UNDER DOUBLE CARRIAGEWAY ROAD
SCALE: SCHEMATIC



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LEGEND

EXISTING CULVERT
NEW CULVERT
EXISTING GROUND

TENDER

	ITEM NUMBER		39	40	41	42	43
CULVERT DESCRIPTION	ROAD KILOMETRE DISTANCE		11.327	11.487	11.620	12.067	12.287
	TYPE OF CULVERT		1 X BC	1 X BC	1 X BC	1 X BC	1 X BC
	SPAN / DIA	(mm)	600	600	600	600	600
	HEIGHT	(mm)	450	450	450	450	450
	PIPE & BEDDING CLASS		200S	200S	200S	200S	200S
	SKEW ANGLE	°(DEG)	240	240	270	119	120
HYDROLOGICAL DATA	CATCHMENT AREA	(km^2)	0.310	0.377	0.001	0.052	0.044
	TIME OF CONCENTRATION (Tc)	(Hours)	1.498	1.469	0.823	0.992	1.143
	RAINFALL INTENSITY	(mm/h)	44.457	45.119	68.865	60.406	54.468
	CATCHMENT DISCHARGE AT INLET (SDF METHOD)	(m^3/s)	1.242	1.531	0.007	0.283	0.216
	CAPACITY	(m^3/s)	0.330	0.330	0.330	0.330	0.330
	Hw/D RATIO AT CAPACITY		1.200	1.200	1.200	1.200	1.200
	VELOCITY AT OUTLET**		3.832	4.253	0.020	2.669	0.599
ROAD DATA	ROAD LEVEL - LEFT SHOULDER	RL (m)	1231.445	1230.932	1230.416	1228.019	1226.495
	ROAD LEVEL - ROAD S/L	RM (m)	1231.434	1230.920	1230.431	1228.140	1226.618
	ROAD LEVEL - RIGHT SHOULDER	RR (m)	1231.379	1230.865	1230.135	1228.458	1227.007
	ROAD FORMATION WIDTH	F (m)	35.511	35.680	32.063	35.466	35.714
CULVERT DATA	FLOOR SLOPE	S (%)	0.630	0.580	2.690	1.420	0.830
	INVERT LEVEL - LEFT	IL (m)	1230.450	1230.040	1229.000	1227.280	1225.600
	INVERT LEVEL - RIGHT	IR (m)	1230.334	1229.927	1228.442	1227.540	1225.762
	EXISTING INVERT LEVEL LEFT	EIL (m)	1230.600	1230.170	-	1226.950	1225.410
	EXISTING INVERT LEVEL RIGHT	EIR (m)	1230.450	1230.040	-	1227.280	1225.600
	FILL HEIGHT - LEFT	HL (m)	0.761	0.665	1.316	0.892	1.137
	FILL HEIGHT - RIGHT	HR (m)	0.494	0.391	1.282	0.425	0.748
	LENGTH - LEFT TO ROAD S/L (MEDIAN)	LL (m)	21.229	21.348	0.000	21.406	20.491
	TOTAL LENGTH - INLET TO OUTLET	L (m)	42.054	41.941	20.732	41.534	42.346
	EXISTING LENGTH LEFT	ELL (m)	21.229	21.348	-	21.406	20.491
	EXISTING LENGTH RIGHT	ELR (m)	2.526	1.074	-	1.831	2.336
	ADDITION LEFT	AL (m)	0.000	0.000	0.000	0.000	0.000
	NUMBER OF UNITS (LEFT)	NUMBER	0.000	0.000	0.000	0.000	0.000
	ADDITION RIGHT	AR (m)	18.300	19.526	20.732	18.298	19.514
	NUMBER OF UNITS (RIGHT)	NUMBER	15.000	16.000	17.000	15.000	16.000
	INTERNAL CHAMBER DIMENSIONS	(m)	1.2 x 0.9		1.2 x 0.9		1.2 x 0.9
	GRID INLET TYPE *		1 x TYPE "B" MEDIAN		1 x TYPE "B" MEDIAN		1 x TYPE "B" MEDIAN

NOTES

* GRID INLET TYPE "B" DIMENSIONS ARE 0.489 x 0.809

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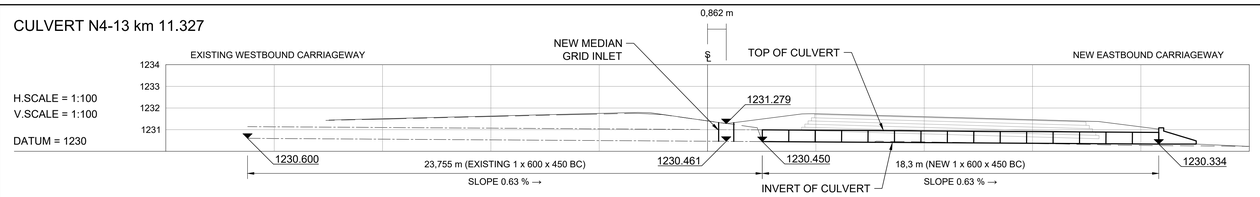
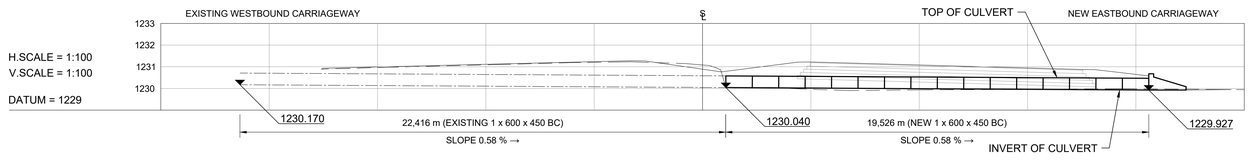
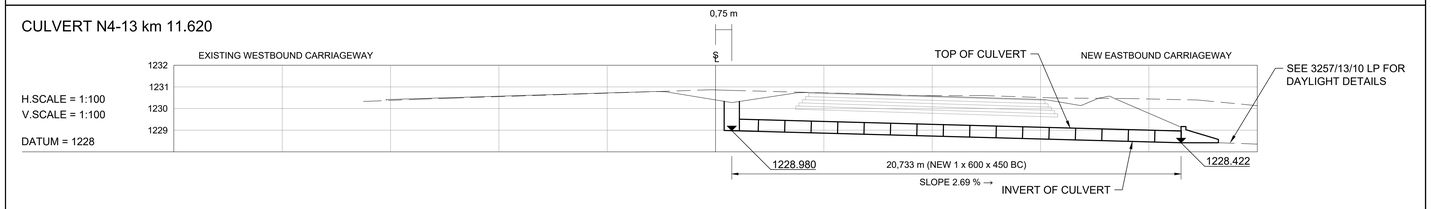
CULVERT N4-13 km 11.327



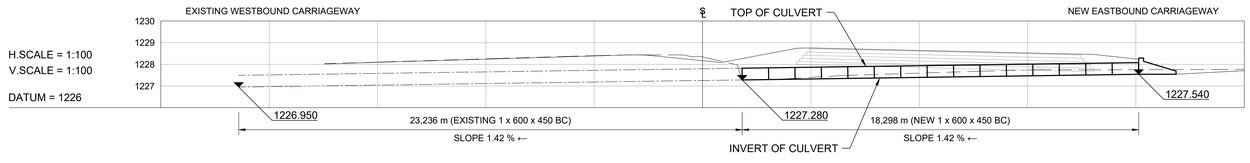
CULVERT N4-13 km 11.487



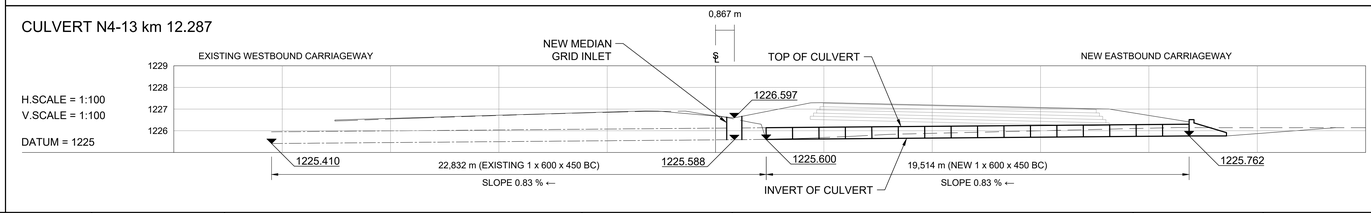
CULVERT N4-13 km 11.620



CULVERT N4-13 km 12.067



CULVERT N4-13 km 12.287



V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE	
No.	DATE	REVISION	CONSULT. ENG.	

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date :

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DESIGNED BY
NAME: JG PEIRSON
Prof. Reg. No.: -
CHECKED BY
NAME: PL NGQUMSHE
Prof. Reg. No.: 20080112
DRAWN BY
NAME: JG PEIRSON
Prof. Reg. No.: 20080112

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17 / 07 / 2023

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THE SOUTH AFRICAN NATIONAL ROADS AGENCY SOC LTD
Reg. No. 1998/009584/30

NORTHERN REGION
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Lynnwood Ridge
0040
Tel: (012) 426 6200

ACCEPTANCE
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for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

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THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

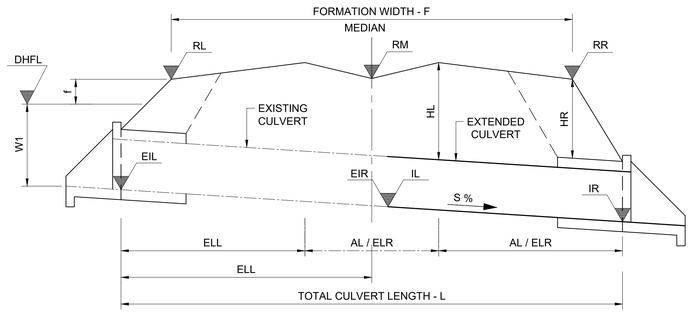
DRAWING DESCRIPTION
CULVERT SCHEDULE N4-13
CULVERTS BETWEEN km 11.327 TO km 12.287

SCALE : AS SHOWN (A0) | SHEET 09 OF 40

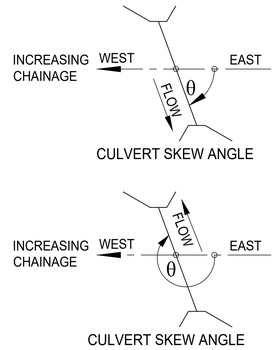
PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	SECTION 13	SECTION 13
DRAWING km DISTANCE	km 11.327	km 12.287
DRAWING TYPE	ROADS - LAYOUTS	
BRIDGE/STRUCTURE No.	NA	
CONSULTANT DRAWING No.	FA 3257 / 23 / 09 CS	VER V0
SANRAL DOCUMENT #	- -	

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\07 - Culvert Schedule\3257-23-01-28CS-CULVERT SCHEDULE_20230717.dwg



TYPICAL LONGITUDINAL SECTION OF CULVERT
UNDER DOUBLE CARRIAGEWAY ROAD
SCALE: SCHEMATIC



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2. GRID INLET DIMENSIONS ARE INSIDE DIMENSIONS

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PC - PIPE CULVERT (UNIT LENGTHS 2,44m)
BC - BOX CULVERT (UNIT LENGTHS 1,22m)
OC - OVAL CULVERT
IBC - IN-SITU BOX CULVERT
APC - ARMCO PIPE CULVERT
MH - MANHOLE
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SCI - SPECIAL CULVERT INLET
FA - FARM ACCESS
SDW - SIDE DRAIN WING WALL
DI - DROP INLET

LEGEND

EXISTING CULVERT
NEW CULVERT
EXISTING GROUND

TENDER

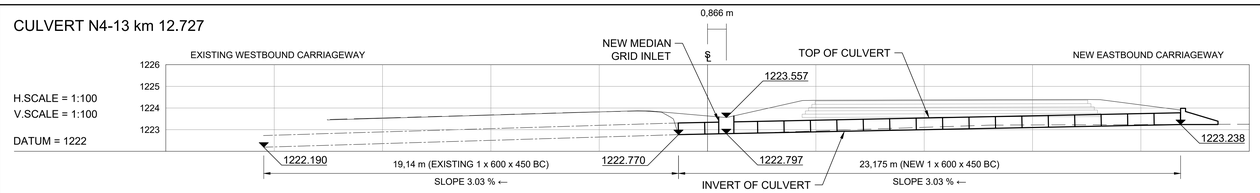
	ITEM NUMBER		44	45	46	47	48
CULVERT DESCRIPTION	ROAD KILOMETRE DISTANCE		12.727	13.007	13.230	13.452	13.687
	TYPE OF CULVERT		1 X BC	1 X BC	1 X BC	1 X BC	1 X BC
	SPAN / DIA	(mm)	600	600	600	750	900
	HEIGHT	(mm)	450	450	450	450	450
	PIPE & BEDDING CLASS		200S	200S	200S	175S	175S
	SKEW ANGLE	°(DEG)	120	120	93	124	100
HYDROLOGICAL DATA	CATCHMENT AREA	(km^2)	0.106	0.164	0.054	0.052	0.055
	TIME OF CONCENTRATION (Tc)	(Hours)	1.445	1.549	1.288	1.141	0.962
	RAINFALL INTENSITY	(mm/h)	45.708	43.331	49.855	54.544	61.730
	CATCHMENT DISCHARGE AT INLET (SDF METHOD)	(m^3/s)	0.434	0.640	0.242	0.254	0.306
	CAPACITY	(m^3/s)	0.330	0.330	0.330	0.413	0.495
	Hw/D RATIO AT CAPACITY		1.200	1.200	1.200	1.200	1.200
	VELOCITY AT OUTLET**		4.021	3.557	2.238	3.012	3.151
ROAD DATA	ROAD LEVEL - LEFT SHOULDER	RL (m)	1223.450	1221.137	1219.114	1216.700	1214.330
	ROAD LEVEL - ROAD S/L	RM (m)	1223.572	1221.292	1218.750	1216.136	1213.671
	ROAD LEVEL - RIGHT SHOULDER	RR (m)	1224.383	1222.546	1219.134	1216.609	1214.098
	ROAD FORMATION WIDTH	F (m)	35.670	35.747	30.934	37.168	31.359
CULVERT DATA	FLOOR SLOPE	S (%)	3.030	1.730	0.810	1.550	1.760
	INVERT LEVEL - LEFT	IL (m)	1222.770	1220.364	1217.940	1215.270	1212.770
	INVERT LEVEL - RIGHT	IR (m)	1223.238	1220.751	1218.088	1215.630	1213.113
	EXISTING INVERT LEVEL LEFT	EIL (m)	1222.190	1220.000	1217.650	1214.930	1212.380
	EXISTING INVERT LEVEL RIGHT	EIR (m)	1222.770	1220.364	1217.940	1215.270	1212.770
	FILL HEIGHT - LEFT	HL (m)	0.919	1.155	0.942	0.953	1.010
	FILL HEIGHT - RIGHT	HR (m)	0.701	1.345	0.533	0.509	0.504
	LENGTH - LEFT TO ROAD S/L (MEDIAN)	LL (m)	20.482	21.051	18.143	22.647	22.918
	TOTAL LENGTH - INLET TO OUTLET	L (m)	42.315	43.418	35.556	45.056	41.712
	EXISTING LENGTH LEFT	ELL (m)	20.482	20.241	17.257	21.879	22.195
	EXISTING LENGTH RIGHT	ELR (m)	3.658	0.000	0.000	0.000	0.000
	ADDITION LEFT	AL (m)	0.000	0.809	0.886	0.768	0.722
	NUMBER OF UNITS (LEFT)	NUMBER	0.000	0.663	0.726	0.630	0.592
	ADDITION RIGHT	AR (m)	23.175	22.367	17.413	22.409	18.795
	NUMBER OF UNITS (RIGHT)	NUMBER	19.000	18.334	14.273	18.368	15.406
	INTERNAL CHAMBER DIMENSIONS	(m)	1.2 x 0.9		1.2 x 0.9		1.5 x 1.2
	GRID INLET TYPE *		1 x TYPE "B" MEDIAN		1 x TYPE "B" MEDIAN		1 x TYPE "B" MEDIAN

NOTES

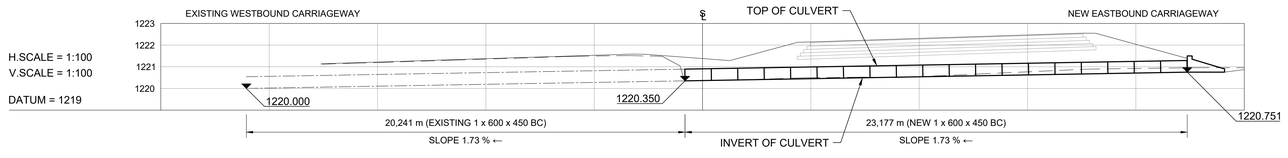
* GRID INLET TYPE "B" DIMENSIONS ARE 0.489 x 0.809

** ALL APRON SLABS AT OUTLETS ARE TO BE CONCRETE LINED WITH GABION MATTRESSES

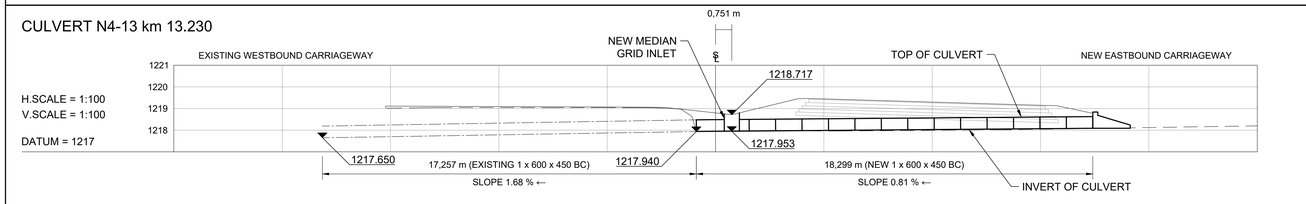
CULVERT N4-13 km 12.727



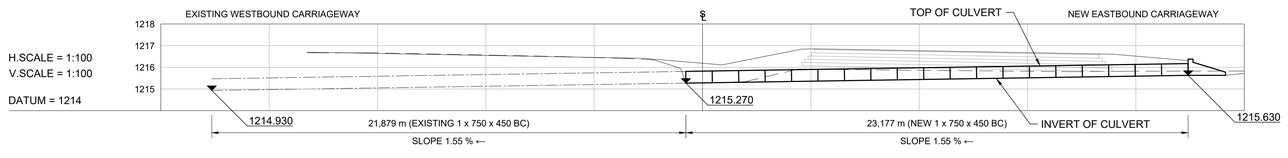
CULVERT N4-13 km 13.007



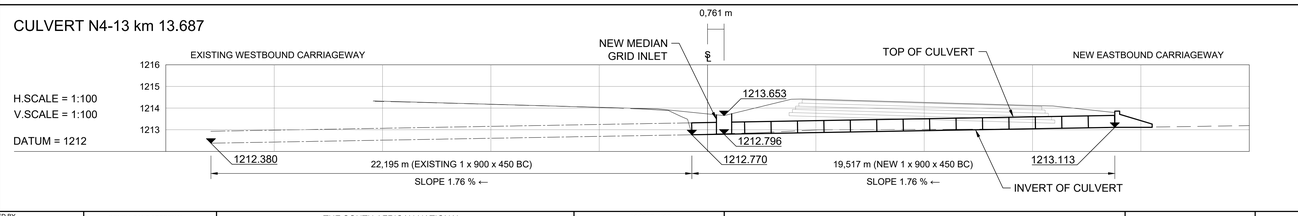
CULVERT N4-13 km 13.230



CULVERT N4-13 km 13.452



CULVERT N4-13 km 13.687



No.	DATE	REVISION	
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date :

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DESIGNED BY	
NAME	JG PEIRSON
Prof. Reg. No.	-
CHECKED BY	
NAME	PL NGQUMSHE
Prof. Reg. No.	20080112
DRAWN BY	
NAME	JG PEIRSON

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17 / 07 / 2023

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THE SOUTH AFRICAN NATIONAL ROADS AGENCY SOC LTD
Reg. No. 1998/009584/30

NORTHERN REGION
38 Ida Street
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Private Bag X17
Lynnwood Ridge
0040
Tel: (012) 426 6200

ACCEPTANCE
THIS ACCEPTANCE IS FOR PROCEDURAL AND ADMINISTRATIVE REVIEW PURPOSES ONLY AND DOES NOT ATTRACT LEGAL LIABILITY OR LIABILITY OF ANY KIND FROM WHATSOEVER CAUSE OR HOWEVER ARISING
for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

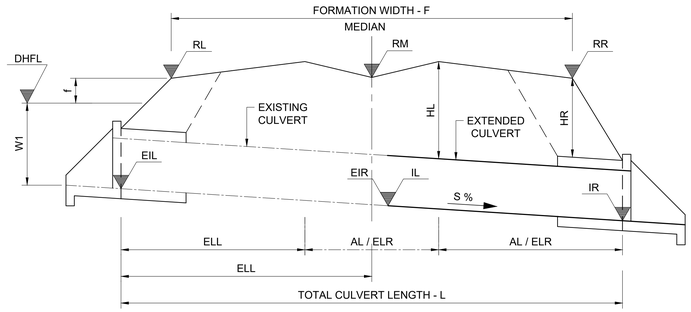
DRAWING DESCRIPTION
CULVERT SCHEDULE N4-13
CULVERTS BETWEEN km 12.727 TO km 13.687

SCALE : AS SHOWN (A0) | SHEET 10 OF 40

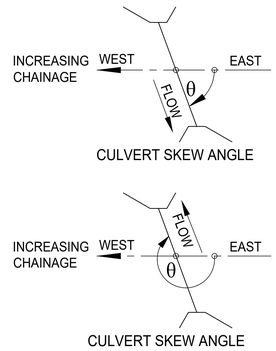
PROJECT NUMBER		BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END	
ROUTE	N 4	N 4	
SECTION	SECTION 13	SECTION 13	
DRAWING km DISTANCE	km 12.727	km 13.687	
DRAWING TYPE	ROADS - LAYOUTS		
BRIDGE/STRUCTURE No.	NA		
CONSULTANT DRAWING No.	FA	3257 / 23 / 10 CS	VER
SANRAL DOCUMENT #		- -	V0

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\07 - Culvert Schedule\3257-23-01-28CS-CULVERT SCHEDULE_20230717.dwg



TYPICAL LONGITUDINAL SECTION OF CULVERT
UNDER DOUBLE CARRIAGEWAY ROAD
SCALE: SCHEMATIC



NOTE:

1. CULVERT EXTENSIONS ON LEFT AND RIGHT HAND SIDE REQUIRED ONLY IF DIMENSIONS AL AND AR IN SCHEDULE = 0
2. GRID INLET DIMENSIONS ARE INSIDE DIMENSIONS

KEY TO CULVERT TYPES:

PC - PIPE CULVERT (UNIT LENGTHS 2,44m)
BC - BOX CULVERT (UNIT LENGTHS 1,22m)
OC - OVAL CULVERT
IBC - IN-SITU BOX CULVERT
APC - ARMCO PIPE CULVERT
MH - MANHOLE
SI - SIDE INLET
SCI - SPECIAL CULVERT INLET
FA - FARM ACCESS
SDW - SIDE DRAIN WING WALL
DI - DROP INLET

LEGEND

- EXISTING CULVERT
- NEW CULVERT
- EXISTING GROUND

TENDER

	ITEM NUMBER		49	50	51	52	53
CULVERT DESCRIPTION	ROAD KILOMETRE DISTANCE		13.942	14.172	14.208	14.497	14.727
	TYPE OF CULVERT		1 X BC	1 X BC	-	1 X BC	1 X BC
	SPAN / DIA	(mm)	600	600	-	600	900
	HEIGHT	(mm)	450	450	-	450	450
	PIPE & BEDDING CLASS		200S	200S	-	200S	175S
	SKEW ANGLE	°(DEG)	120	89	-	90	90
HYDROLOGICAL DATA	CATCHMENT AREA	(km^2)	0.181	0.046	-	0.164	0.086
	TIME OF CONCENTRATION (Tc)	(Hours)	1.263	1.070	-	1.510	0.997
	RAINFALL INTENSITY	(mm/h)	50.609	57.162	-	44.186	60.191
	CATCHMENT DISCHARGE AT INLET (SDF METHOD)	(m^3/s)	0.824	0.235	-	0.652	0.465
	CAPACITY	(m^3/s)	0.330	0.330	-	0.330	0.495
	Hw/D RATIO AT CAPACITY		1.200	1.200	-	1.200	1.200
	VELOCITY AT OUTLET**		3.521	2.216	-	3.856	2.673
ROAD DATA	ROAD LEVEL - LEFT SHOULDER	RL (m)	1212.244	1209.833	-	1204.803	1201.322
	ROAD LEVEL - ROAD S/L	RM (m)	1211.635	1209.149	-	1204.118	1200.638
	ROAD LEVEL - RIGHT SHOULDER	RR (m)	1212.359	1210.022	-	1204.799	1201.203
	ROAD FORMATION WIDTH	F (m)	35.688	30.903	-	30.902	30.901
CULVERT DATA	FLOOR SLOPE	S (%)	1.280	0.960	-	1.750	0.970
	INVERT LEVEL - LEFT	IL (m)	1210.810	1208.320	-	1203.230	1199.830
	INVERT LEVEL - RIGHT	IR (m)	1211.106	1208.518	-	1203.572	1200.019
	EXISTING INVERT LEVEL LEFT	EIL (m)	1210.530	1208.140	-	1202.890	1199.560
	EXISTING INVERT LEVEL RIGHT	EIR (m)	1210.810	1208.320	-	1203.230	1199.830
	FILL HEIGHT - LEFT	HL (m)	1.224	1.347	-	1.174	0.999
	FILL HEIGHT - RIGHT	HR (m)	0.781	1.023	-	0.763	0.674
	LENGTH - LEFT TO ROAD S/L (MEDIAN)	LL (m)	22.796	19.234	-	19.940	28.945
	TOTAL LENGTH - INLET TO OUTLET	L (m)	45.096	39.584	-	38.928	47.330
	EXISTING LENGTH LEFT	ELL (m)	21.918	18.845	-	19.411	27.811
	EXISTING LENGTH RIGHT	ELR (m)	0.000	0.000	-	0.000	0.000
	ADDITION LEFT	AL (m)	0.878	0.389	-	0.528	1.134
	NUMBER OF UNITS (LEFT)	NUMBER	0.720	0.319	-	0.433	0.930
	ADDITION RIGHT	AR (m)	22.300	20.350	-	18.989	18.385
	NUMBER OF UNITS (RIGHT)	NUMBER	18.279	16.680	-	15.565	15.070
	INTERNAL CHAMBER DIMENSIONS	(m)		1.2 x 0.9			1.5 x 1.2
	GRID INLET TYPE *			1 x TYPE "B" MEDIAN			

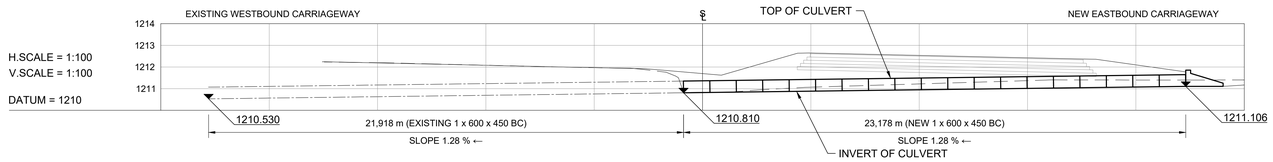
NOTES

* GRID INLET TYPE "B" DIMENSIONS ARE 0.489 x 0.809

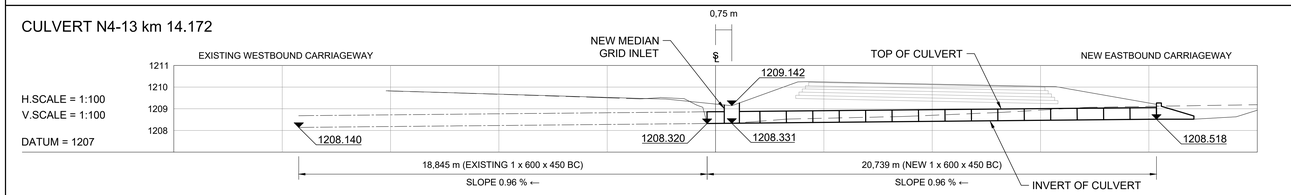
** ALL APRON SLABS AT OUTLETS ARE TO BE CONCRETE LINED WITH GABION MATTRESSES

S4036

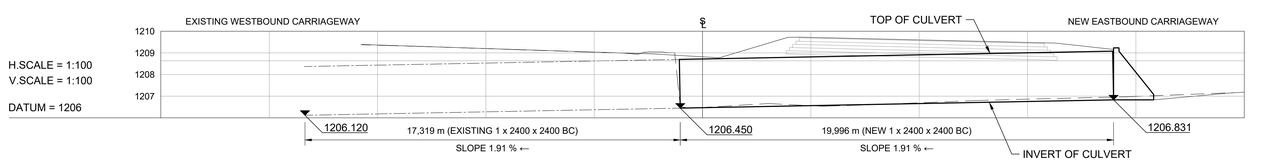
CULVERT N4-13 km 13.942



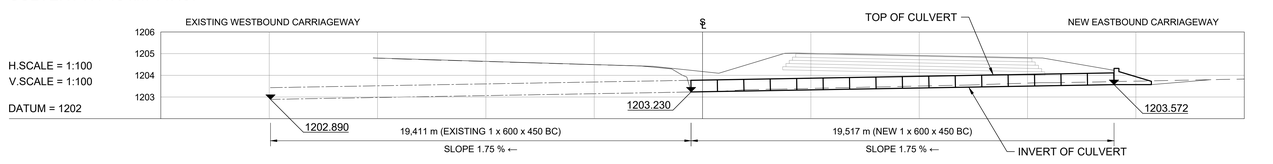
CULVERT N4-13 km 14.172



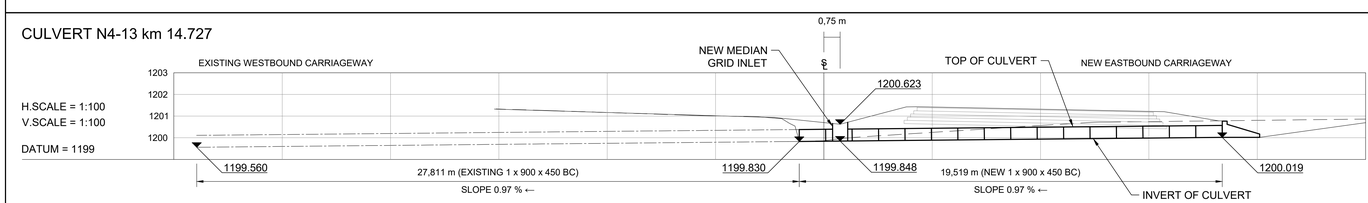
CULVERT N4-13 km 14.208



CULVERT N4-13 km 14.497



CULVERT N4-13 km 14.727



No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date :

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DESIGNED BY
NAME: JG PEIRSON
Prof. Reg. No.: -
CHECKED BY
NAME: PL NGQUMSHE
Prof. Reg. No.: 20080112
DRAWN BY
NAME: JG PEIRSON

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17 / 07 / 2023

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THE SOUTH AFRICAN NATIONAL ROADS AGENCY SOC LTD
Reg. No. 1998/009584/30

NORTHERN REGION
38 Ida Street
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Lynnwood Ridge
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Tel: (012) 426 6200

ACCEPTANCE
THIS ACCEPTANCE IS FOR PROCEDURAL AND ADMINISTRATIVE REVIEW PURPOSES ONLY AND DOES NOT ATTRACT LEGAL LIABILITY OR LIABILITY OF ANY KIND FROM WHATSOEVER CAUSE OR HOWEVER ARISING
for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION
CULVERT SCHEDULE N4-13
CULVERTS BETWEEN km 13.942 TO km 14.727

SCALE : AS SHOWN (A0) | SHEET 11 OF 40

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001		
DRAWING LOCATION DATA	START	END	
ROUTE	N 4	N 4	
SECTION	SECTION 13	SECTION 13	
DRAWING km DISTANCE	km 13.942	km 14.727	
DRAWING TYPE	ROADS - LAYOUTS		
BRIDGE/STRUCTURE No.	NA		
CONSULTANT DRAWING No.	FA	3257 / 23 / 11 CS	VER
SANRAL DOCUMENT #	- -		V0

SANRAL DOCUMENT NUMBER :

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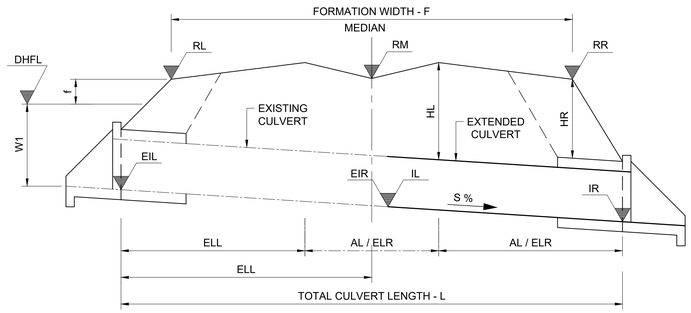
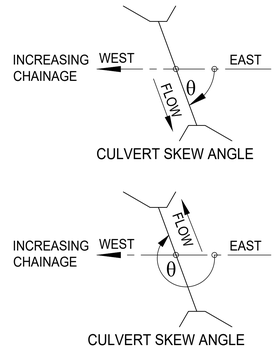


TYPICAL LONGITUDINAL SECTION OF CULVERT
UNDER DOUBLE CARRIAGEWAY ROAD
SCALE: SCHEMATIC



NOTE:

1. CULVERT EXTENSIONS ON LEFT AND RIGHT HAND SIDE REQUIRED ONLY IF DIMENSIONS AL AND AR IN SCHEDULE = 0
2. GRID INLET DIMENSIONS ARE INSIDE DIMENSIONS

KEY TO CULVERT TYPES:

PC - PIPE CULVERT (UNIT LENGTHS 2,44m)
BC - BOX CULVERT (UNIT LENGTHS 1,22m)
OC - OVAL CULVERT
IBC - IN-SITU BOX CULVERT
APC - ARMCO PIPE CULVERT
MH - MANHOLE
SI - SIDE INLET
SCI - SPECIAL CULVERT INLET
FA - FARM ACCESS
SDW - SIDE DRAIN WING WALL
DI - DROP INLET

LEGEND

EXISTING CULVERT
NEW CULVERT
EXISTING GROUND

TENDER

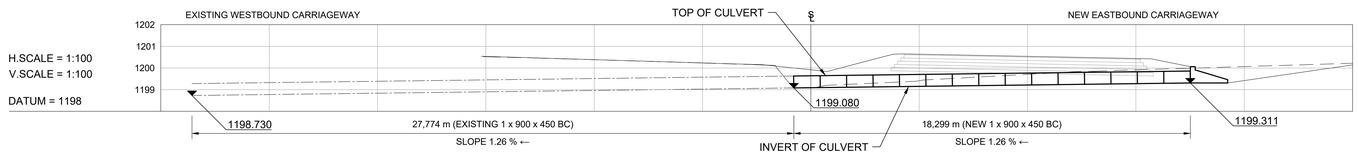
	ITEM NUMBER		54	55	56	57	58
CULVERT DESCRIPTION	ROAD KILOMETRE DISTANCE		14.787	15.007	15.207	15.407	15.647
	TYPE OF CULVERT		1 X BC	1 X PC	1 X PC	1 X BC	1 X PC
	SPAN / DIA	(mm)	900	600	600	900	600
	HEIGHT	(mm)	450	-	-	750	-
	PIPE & BEDDING CLASS		175S	100D/B	100D/B	175S	100D/B
	SKEW ANGLE	°(DEG)	91	91	91	119	89
HYDROLOGICAL DATA	CATCHMENT AREA	(km^2)	0.063	0.112	0.077	0.884	0.512
	TIME OF CONCENTRATION (Tc)	(Hours)	1.145	1.291	1.056	1.650	1.027
	RAINFALL INTENSITY	(mm/h)	54.424	49.773	57.711	41.263	58.894
	CATCHMENT DISCHARGE AT INLET (SDF METHOD)	(m^3/s)	0.307	0.501	0.402	3.290	2.713
	CAPACITY	(m^3/s)	0.495	0.450	0.450	0.450	0.450
	Hw/D RATIO AT CAPACITY		1.200	1.200	1.200	1.200	1.200
	VELOCITY AT OUTLET**		2.530	3.809	3.230	11.025	9.750
ROAD DATA	ROAD LEVEL - LEFT SHOULDER	RL (m)	1200.539	1997.829	1195.371	1192.814	1190.570
	ROAD LEVEL - ROAD S/L	RM (m)	1199.859	1997.153	1194.694	1192.968	1189.887
	ROAD LEVEL - RIGHT SHOULDER	RR (m)	1200.424	1997.742	1195.303	1192.236	1190.543
	ROAD FORMATION WIDTH	F (m)	30.902	30.717	30.909	35.365	30.903
CULVERT DATA	FLOOR SLOPE	S (%)	1.260	1.260	1.520	0.890	1.580
	INVERT LEVEL - LEFT	IL (m)	1199.080	1196.100	1193.690	1190.434	1188.160
	INVERT LEVEL - RIGHT	IR (m)	1199.311	1196.507	1193.987	1190.820	1188.470
	EXISTING INVERT LEVEL LEFT	EIL (m)	1198.730	1195.690	1193.410	1190.434	1187.820
	EXISTING INVERT LEVEL RIGHT	EIR (m)	1199.080	1196.100	1193.690	1190.624	1188.160
	FILL HEIGHT - LEFT	HL (m)	0.956	1.133	1.117	0.969	1.750
	FILL HEIGHT - RIGHT	HR (m)	0.602	0.691	0.736	0.715	1.358
	LENGTH - LEFT TO ROAD S/L (MEDIAN)	LL (m)	28.561	19.737	19.326	21.828	21.397
	TOTAL LENGTH - INLET TO OUTLET	L (m)	46.072	39.163	37.941	43.280	40.937
	EXISTING LENGTH LEFT	ELL (m)	27.774	19.647	18.423	21.321	21.397
	EXISTING LENGTH RIGHT	ELR (m)	0.000	0.000	0.000	0.000	0.022
	ADDITION LEFT	AL (m)	0.788	0.090	0.903	0.506	0.000
	NUMBER OF UNITS (LEFT)	NUMBER	0.646	0.037	0.370	0.207	0.000
	ADDITION RIGHT	AR (m)	17.511	19.426	18.615	21.453	19.518
	NUMBER OF UNITS (RIGHT)	NUMBER	14.353	7.961	7.629	8.792	8.000
	INTERNAL CHAMBER DIMENSIONS	(m)			0.9 x 0.9		
	GRID INLET TYPE *				1 x TYPE "B" MEDIAN		

NOTES

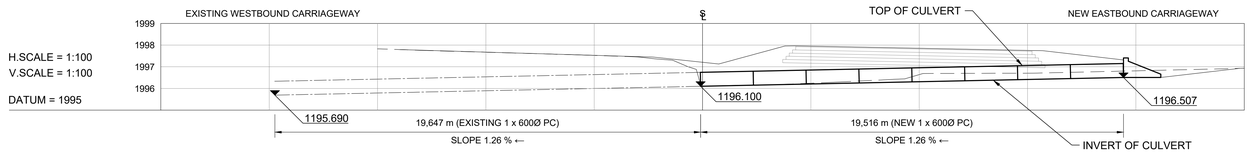
* GRID INLET TYPE "B" DIMENSIONS ARE 0.489 x 0.809

** ALL APRON SLABS AT OUTLETS ARE TO BE CONCRETE LINED WITH GABION MATTRESSES

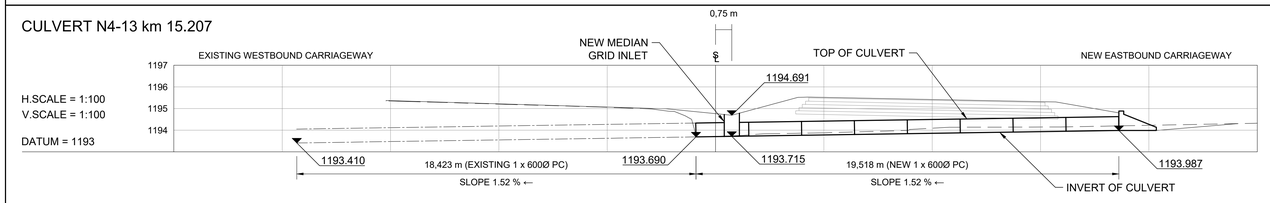
CULVERT N4-13 km 14.787



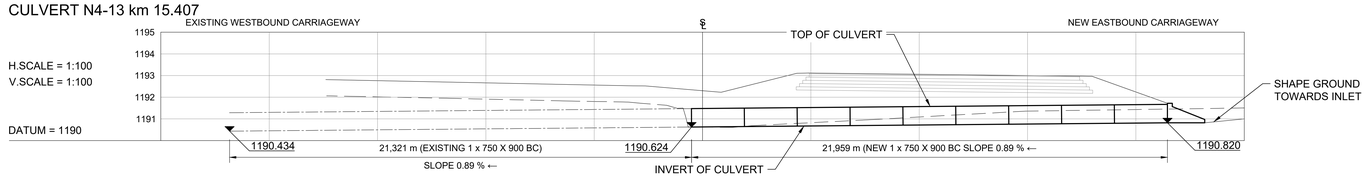
CULVERT N4-13 km 15.007



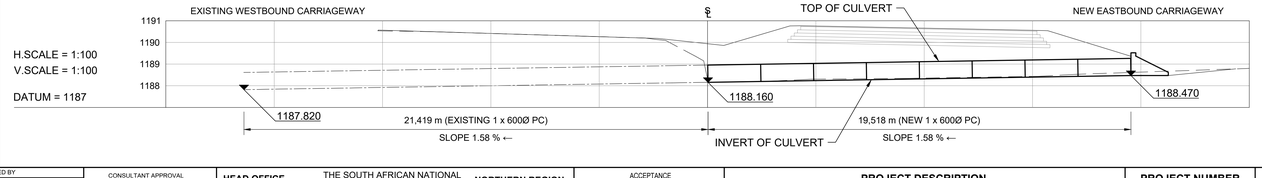
CULVERT N4-13 km 15.207



CULVERT N4-13 km 15.407



CULVERT N4-13 km 15.647



No.	DATE	REVISION	
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

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DESIGNED BY: JG PEIRSON, Prof. Reg. No. -
CHECKED BY: PL NGQUMSHE, Prof. Reg. No. 20080112
DRAWN BY: JG PEIRSON

CONSULTANT APPROVAL: Name PL NGQUMSHE, Prof. Reg. No. 20080112, Date 17 / 07 / 2023

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THE SOUTH AFRICAN NATIONAL ROADS AGENCY SOC LTD
Reg. No. 1998/009584/30

NORTHERN REGION
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ACCEPTANCE
THIS ACCEPTANCE IS FOR PROCEDURAL AND ADMINISTRATIVE REVIEW PURPOSES ONLY AND DOES NOT ATTRACT LEGAL LIABILITY OR LIABILITY OF ANY KIND FROM WHATSOEVER CAUSE OR HOWEVER ARISING
for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date :

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

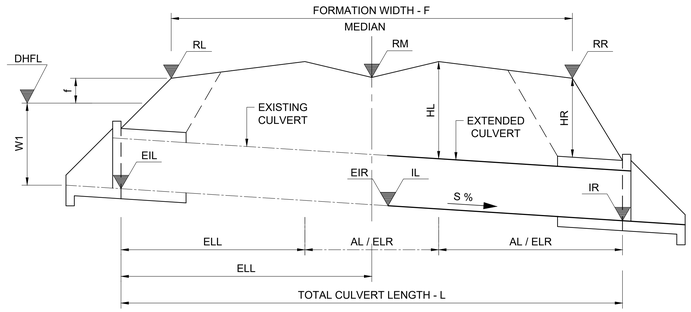
DRAWING DESCRIPTION
CULVERT SCHEDULE N4-13
CULVERTS BETWEEN km 14.787 TO km 15.647

SCALE : AS SHOWN (A0) | SHEET 12 OF 40

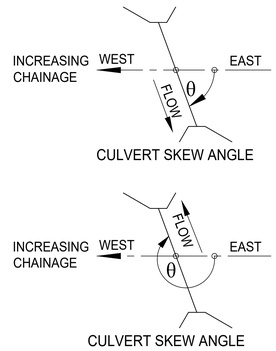
PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	SECTION 13	SECTION 13
DRAWING km DISTANCE	km 14.787	km 15.647
DRAWING TYPE	ROADS - LAYOUTS	
BRIDGE/STRUCTURE No.	NA	
CONSULTANT DRAWING No.	FA 3257 / 23 / 12 CS	VER V0
SANRAL DOCUMENT #	- -	

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\07 - Culvert Schedule\3257-23-01-28CS-CULVERT SCHEDULE_20230717.dwg



TYPICAL LONGITUDINAL SECTION OF CULVERT
UNDER DOUBLE CARRIAGEWAY ROAD
SCALE: SCHEMATIC



NOTE:

1. CULVERT EXTENSIONS ON LEFT AND RIGHT HAND SIDE REQUIRED ONLY IF DIMENSIONS AL AND AR IN SCHEDULE = 0
2. GRID INLET DIMENSIONS ARE INSIDE DIMENSIONS

KEY TO CULVERT TYPES:

PC - PIPE CULVERT (UNIT LENGTHS 2,44m)
BC - BOX CULVERT (UNIT LENGTHS 1,22m)
OC - OVAL CULVERT
IBC - IN-SITU BOX CULVERT
APC - ARMCO PIPE CULVERT
MH - MANHOLE
SI - SIDE INLET
SCI - SPECIAL CULVERT INLET
FA - FARM ACCESS
SDW - SIDE DRAIN WING WALL
DI - DROP INLET

LEGEND

EXISTING CULVERT
NEW CULVERT
EXISTING GROUND

TENDER

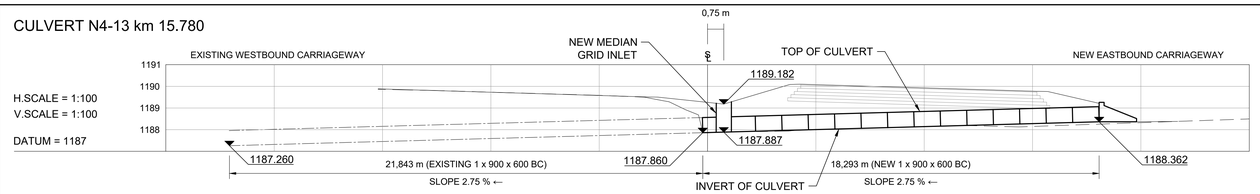
	ITEM NUMBER		59	60	61	62	63
CULVERT DESCRIPTION	ROAD KILOMETRE DISTANCE		15.780	15.907	16.027	16.057	16.247
	TYPE OF CULVERT		1 X BC	1 X BC	-	1 X BC	1 X PC
	SPAN / DIA	(mm)	900	900	-	600	600
	HEIGHT	(mm)	600	600	-	600	-
	PIPE & BEDDING CLASS		175S	175S	-	200S	100D/B
	SKEW ANGLE	°(DEG)	90	90	-	60	91
HYDROLOGICAL DATA	CATCHMENT AREA	(km²)	0.085	0.178	-	0.097	0.032
	TIME OF CONCENTRATION (Tc)	(Hours)	0.648	0.607	-	0.535	0.478
	RAINFALL INTENSITY	(mm/h)	80.806	84.300	-	91.242	97.693
	CATCHMENT DISCHARGE AT INLET (SDF METHOD)	(m³/s)	0.624	1.374	-	0.811	0.286
	CAPACITY	(m³/s)	0.810	0.810	-	0.540	0.450
	Hw/D RATIO AT CAPACITY		1.200	1.200	-	1.200	1.200
	VELOCITY AT OUTLET**		4.051	5.384	-	5.008	4.290
ROAD DATA	ROAD LEVEL - LEFT SHOULDER	RL (m)	1189.883	1189.640	-	1189.842	1190.792
	ROAD LEVEL - ROAD S/L	RM (m)	1189.202	1188.958	-	1189.189	1190.109
	ROAD LEVEL - RIGHT SHOULDER	RR (m)	1189.761	1189.549	-	1189.859	1190.806
	ROAD FORMATION WIDTH	F (m)	30.900	30.901	-	35.700	30.901
CULVERT DATA	FLOOR SLOPE	S (%)	2.750	2.250	-	2.960	3.570
	INVERT LEVEL - LEFT	IL (m)	1187.860	1187.960	-	1188.100	1188.830
	INVERT LEVEL - RIGHT	IR (m)	1188.362	1188.372	-	1188.714	1189.525
	EXISTING INVERT LEVEL LEFT	EIL (m)	1187.260	1187.520	-	1187.370	1188.060
	EXISTING INVERT LEVEL RIGHT	EIR (m)	1187.860	1187.960	-	1188.100	1188.830
	FILL HEIGHT - LEFT	HL (m)	1.414	1.117	-	1.248	1.501
	FILL HEIGHT - RIGHT	HR (m)	0.788	0.545	-	0.572	0.785
	LENGTH - LEFT TO ROAD S/L (MEDIAN)	LL (m)	22.063	20.046	-	24.114	22.051
	TOTAL LENGTH - INLET TO OUTLET	L (m)	40.137	37.846	-	45.377	41.093
	EXISTING LENGTH LEFT	ELL (m)	21.843	19.550	-	24.114	21.586
	EXISTING LENGTH RIGHT	ELR (m)	0.000	0.000	-	0.532	0.000
	ADDITION LEFT	AL (m)	0.219	0.500	-	0.000	0.465
	NUMBER OF UNITS (LEFT)	NUMBER	0.180	0.410	-	0.000	0.191
	ADDITION RIGHT	AR (m)	18.074	17.799	-	20.731	19.043
	NUMBER OF UNITS (RIGHT)	NUMBER	14.815	14.589	-	17.000	7.805
	INTERNAL CHAMBER DIMENSIONS	(m)	1.5 x 1.2	1.5 x 1.2			0.9 x 0.9
	GRID INLET TYPE *		1 x TYPE "B" MEDIAN	1 x TYPE "B" MEDIAN			1 x TYPE "B" MEDIAN
					S4033		

NOTES

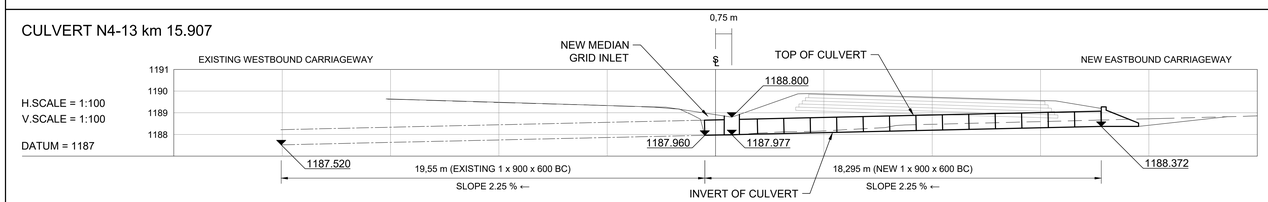
* GRID INLET TYPE "B" DIMENSIONS ARE 0.489 x 0.809

** ALL APRON SLABS AT OUTLETS ARE TO BE CONCRETE LINED WITH GABION MATTRESSES

CULVERT N4-13 km 15.780



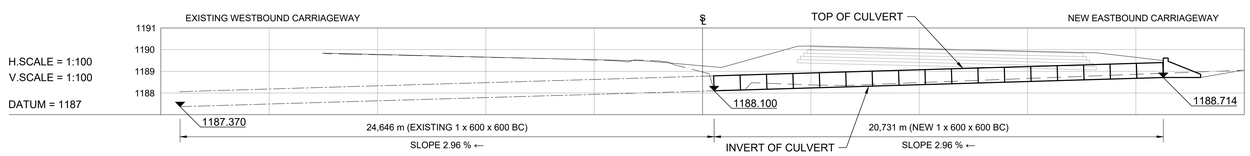
CULVERT N4-13 km 15.907



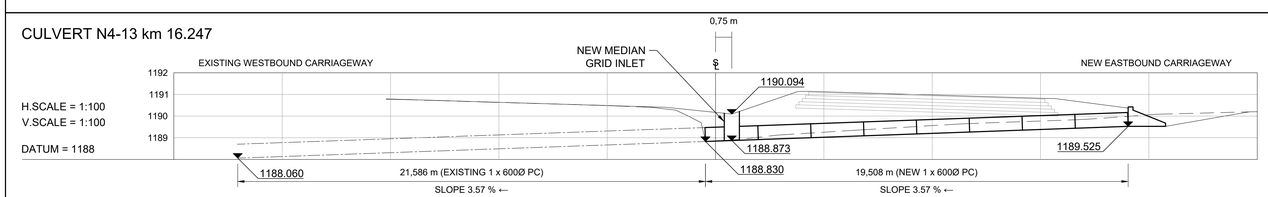
CULVERT N4-13 km 16.027 - S4033 - AGRICULTURAL UNDERPASS

SEE DRAWING: 3407/C4033/02-GA

CULVERT N4-13 km 16.057



CULVERT N4-13 km 16.247



No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date :

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NAME: JG PEIRSON
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NAME: PL NGQUMSHE
Prof. Reg. No. : 20080112
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NAME: JG PEIRSON

CONSULTANT APPROVAL
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Prof. Reg. No. : 20080112
Date : 17 / 07 / 2023

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Date:

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DRAWING DESCRIPTION
CULVERT SCHEDULE N4-13
CULVERTS BETWEEN km 15.780 TO km 16.247

SCALE : AS SHOWN (A0) | SHEET 13 OF 28

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	SECTION 13	SECTION 13
DRAWING km DISTANCE	km 15.780	km 16.247
DRAWING TYPE	ROADS - LAYOUTS	
BRIDGE/STRUCTURE No.	NA	
CONSULTANT DRAWING No.	FA 3257 / 23 / 13 CS	VER V0
SANRAL DOCUMENT #	- -	

SANRAL DOCUMENT NUMBER :

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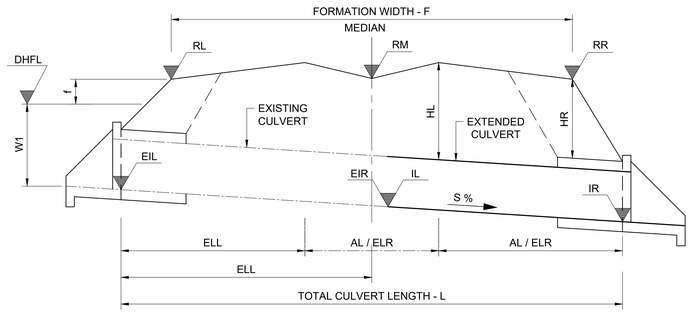
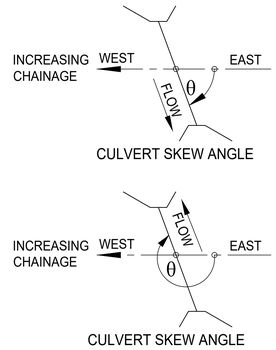


TYPICAL LONGITUDINAL SECTION OF CULVERT
UNDER DOUBLE CARRIAGEWAY ROAD
SCALE: SCHEMATIC



NOTE:

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2. GRID INLET DIMENSIONS ARE INSIDE DIMENSIONS

KEY TO CULVERT TYPES:

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BC - BOX CULVERT (UNIT LENGTHS 1,22m)
OC - OVAL CULVERT
IBC - IN-SITU BOX CULVERT
APC - ARMCO PIPE CULVERT
MH - MANHOLE
SI - SIDE INLET
SCI - SPECIAL CULVERT INLET
FA - FARM ACCESS
SDW - SIDE DRAIN WING WALL
DI - DROP INLET

LEGEND

- EXISTING CULVERT
- NEW CULVERT
- EXISTING GROUND

TENDER

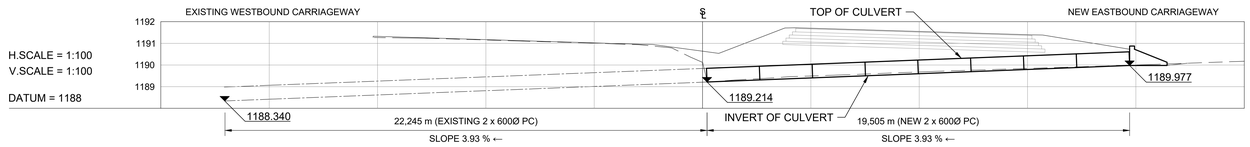
CULVERT DESCRIPTION	ITEM NUMBER		64	65	66	67	68
	ROAD KILOMETRE DISTANCE		16.367	16.532	16.687	16.867	17.047
	TYPE OF CULVERT		1 X PC	2 X PC	1 X PC	1 X PC	1 X PC
	SPAN / DIA	(mm)	600	600	600	750	750
	HEIGHT	(mm)	-	-	-	-	-
	PIPE & BEDDING CLASS		100D/B	100D/B	100D/B	100D/B	100D/B
	SKEW ANGLE	°(DEG)	89	120	89	91	89
HYDROLOGICAL DATA	CATCHMENT AREA	(km²)	0.017	0.066	0.039	0.044	0.050
	TIME OF CONCENTRATION (Tc)	(Hours)	0.433	0.425	0.453	0.406	0.434
	RAINFALL INTENSITY	(mm/h)	103.452	104.585	100.716	107.337	103.231
	CATCHMENT DISCHARGE AT INLET (SDF METHOD)	(m³/s)	0.160	0.647	0.363	0.420	0.483
	CAPACITY	(m³/s)	0.900	0.450	0.450	0.800	0.800
	Hw/D RATIO AT CAPACITY		1.200	1.200	1.200	1.200	1.200
	VELOCITY AT OUTLET**		2.836	4.505	3.231	3.486	4.712
ROAD DATA	ROAD LEVEL - LEFT SHOULDER	RL (m)	1191.327	1190.693	1188.660	1184.835	1181.705
	ROAD LEVEL - ROAD S/L	RM (m)	1190.645	1190.090	1187.971	1184.154	1181.021
	ROAD LEVEL - RIGHT SHOULDER	RR (m)	1191.382	1190.930	1188.815	1184.944	1181.762
	ROAD FORMATION WIDTH	F (m)	30.902	35.738	30.910	30.942	30.902
CULVERT DATA	FLOOR SLOPE	S (%)	3.930	3.080	2.030	1.960	4.350
	INVERT LEVEL - LEFT	IL (m)	1189.214	1189.060	1187.010	1183.220	1179.630
	INVERT LEVEL - RIGHT	IR (m)	1189.977	1189.708	1187.403	1183.598	1180.478
	EXISTING INVERT LEVEL LEFT	EIL (m)	1188.340	1188.300	1187.620	1182.840	1178.660
	EXISTING INVERT LEVEL RIGHT	EIR (m)	1189.214	1189.060	1187.010	1183.220	1179.630
	FILL HEIGHT - LEFT	HL (m)	1.711	1.354	1.296	1.059	1.369
	FILL HEIGHT - RIGHT	HR (m)	0.958	0.698	0.851	0.630	0.675
	LENGTH - LEFT TO ROAD S/L (MEDIAN)	LL (m)	22.053	24.592	19.840	19.899	22.577
	TOTAL LENGTH - INLET TO OUTLET	L (m)	41.764	45.784	38.550	38.607	41.818
	EXISTING LENGTH LEFT	ELL (m)	22.053	24.592	19.181	19.345	22.316
	EXISTING LENGTH RIGHT	ELR (m)	0.206	0.101	0.000	0.000	0.000
	ADDITION LEFT	AL (m)	0.000	0.000	0.659	0.554	0.261
	NUMBER OF UNITS (LEFT)	NUMBER	0.000	0.000	0.270	0.227	0.107
	ADDITION RIGHT	AR (m)	19.505	21.950	19.364	19.255	19.240
	NUMBER OF UNITS (RIGHT)	NUMBER	8.000	9.000	7.936	7.890	7.885
	INTERNAL CHAMBER DIMENSIONS	(m)		1.8 x 0.9	0.9 x 0.9	1.2 x 0.9	1.2 x 0.9
	GRID INLET TYPE *			2 x TYPE "B" NORTH OF N4	1 x TYPE "B" MEDIAN 1 x TYPE "B" NORTH OF N4	1 x TYPE "B" NORTH OF N4	1 x TYPE "B" MEDIAN

NOTES

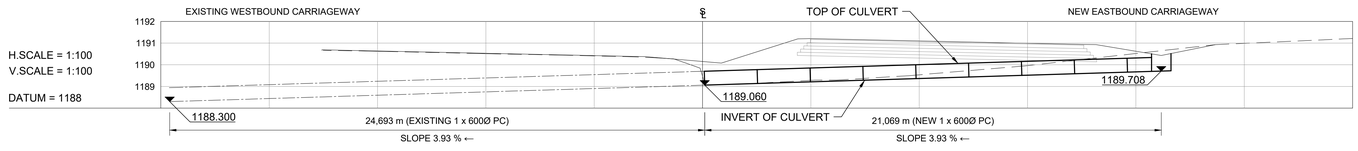
* GRID INLET TYPE "B" DIMENSIONS ARE 0.489 x 0.809

** ALL APRON SLABS AT OUTLETS ARE TO BE CONCRETE LINED WITH GABION MATTRESSES

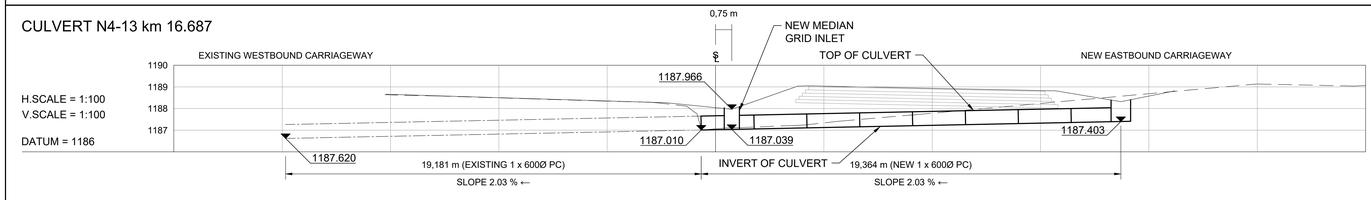
CULVERT N4-13 km 16.367



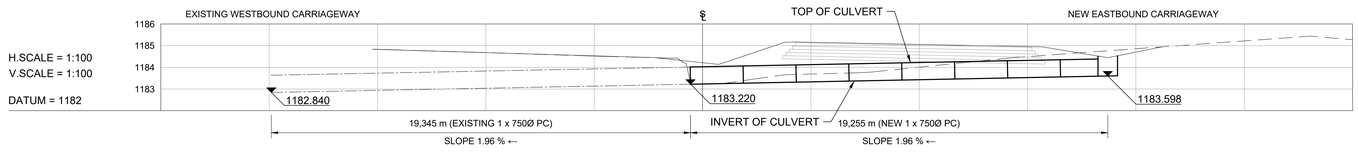
CULVERT N4-13 km 16.532



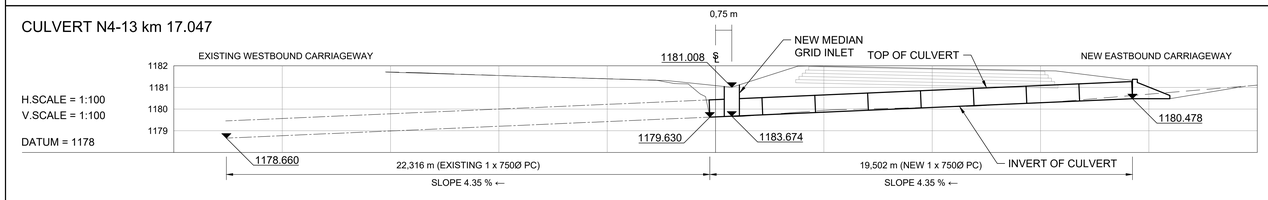
CULVERT N4-13 km 16.687



CULVERT N4-13 km 16.867



CULVERT N4-13 km 17.047



No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date :

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NAME	JG PEIRSON
Prof. Reg. No.	-
CHECKED BY	
NAME	PL NGQUMSHE
Prof. Reg. No.	20080112
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CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17 / 07 / 2023

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Tel: (012) 844 8000

THE SOUTH AFRICAN NATIONAL ROADS AGENCY SOC LTD
Reg. No. 1998/009584/30

NORTHERN REGION
38 Ida Street
Menlo Park
Pretoria
0081
Private Bag X17
Lynnwood Ridge
0040
Tel: (012) 426 6200

ACCEPTANCE
THIS ACCEPTANCE IS FOR PROCEDURAL AND ADMINISTRATIVE REVIEW PURPOSES ONLY AND DOES NOT ATTRACT LEGAL LIABILITY OR LIABILITY OF ANY KIND FROM WHATSOEVER CAUSE OR HOWEVER ARISING
for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

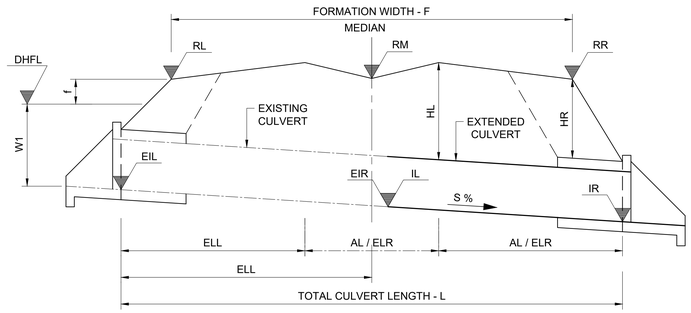
DRAWING DESCRIPTION
CULVERT SCHEDULE N4-13
CULVERTS BETWEEN km 16.367 TO 17.047

SCALE : AS SHOWN (A0) | SHEET 14 OF 40

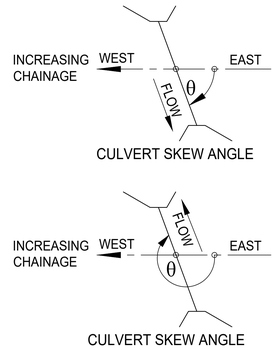
PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	SECTION 13	SECTION 13
DRAWING km DISTANCE	km 16.367	km 17.047
DRAWING TYPE	ROADS - LAYOUTS	
BRIDGE/STRUCTURE No.	NA	
CONSULTANT DRAWING No.	FA 3257 / 23 / 14 CS	VER V0
SANRAL DOCUMENT #	- -	

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\07 - Culvert Schedule\3257-23-01-28CS-CULVERT SCHEDULE_20230717.dwg



TYPICAL LONGITUDINAL SECTION OF CULVERT
UNDER DOUBLE CARRIAGEWAY ROAD
SCALE: SCHEMATIC



NOTE:

1. CULVERT EXTENSIONS ON LEFT AND RIGHT HAND SIDE REQUIRED ONLY IF DIMENSIONS AL AND AR IN SCHEDULE = 0
2. GRID INLET DIMENSIONS ARE INSIDE DIMENSIONS

KEY TO CULVERT TYPES:

PC - PIPE CULVERT (UNIT LENGTHS 2,44m)
BC - BOX CULVERT (UNIT LENGTHS 1,22m)
OC - OVAL CULVERT
IBC - IN-SITU BOX CULVERT
APC - ARMCO PIPE CULVERT
MH - MANHOLE
SI - SIDE INLET
SCI - SPECIAL CULVERT INLET
FA - FARM ACCESS
SDW - SIDE DRAIN WING WALL
DI - DROP INLET

LEGEND

- EXISTING CULVERT
- NEW CULVERT
- EXISTING GROUND

TENDER

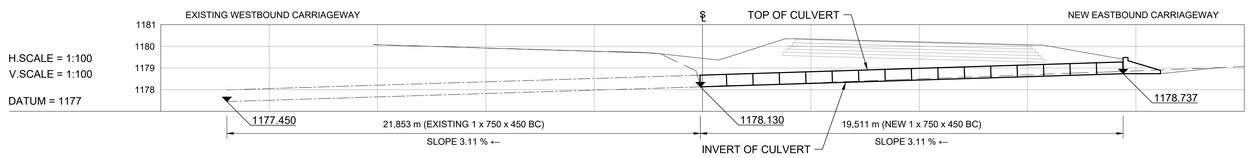
	ITEM NUMBER		69	70	71	72	73
CULVERT DESCRIPTION	ROAD KILOMETRE DISTANCE		17.187	17.327	17.387	17.447	17.567
	TYPE OF CULVERT		1 X BC	1 X BC	1 X BC	1 X BC	1 X PC
	SPAN / DIA	(mm)	750	900	750	750	750
	HEIGHT	(mm)	450	450	450	450	-
	PIPE & BEDDING CLASS		175S	175S	175S	175S	100D/B
	SKEW ANGLE	°(DEG)	91	90	90	90	90
HYDROLOGICAL DATA	CATCHMENT AREA	(km²)	0.047	0.081	0.034	0.098	0.080
	TIME OF CONCENTRATION (Tc)	(Hours)	0.457	0.542	0.574	0.658	0.797
	RAINFALL INTENSITY	(mm/h)	100.300	90.537	87.306	79.981	70.397
	CATCHMENT DISCHARGE AT INLET (SDF METHOD)	(m³/s)	0.438	0.673	0.274	0.714	0.506
	CAPACITY	(m³/s)	0.413	0.495	0.413	0.413	0.800
	Hw/D RATIO AT CAPACITY		1.200	1.200	1.200	1.200	1.200
	VELOCITY AT OUTLET**		4.723	4.885	3.148	4.374	3.480
ROAD DATA	ROAD LEVEL - LEFT SHOULDER	RL (m)	1180.076	1179.149	1178.966	1178.911	1179.188
	ROAD LEVEL - ROAD S/L	RM (m)	1179.396	1178.467	1178.284	1178.229	1178.506
	ROAD LEVEL - RIGHT SHOULDER	RR (m)	1180.056	1179.106	1178.940	1178.907	1179.242
	ROAD FORMATION WIDTH	F (m)	30.903	30.900	30.900	30.901	30.900
CULVERT DATA	FLOOR SLOPE	S (%)	3.110	2.900	1.830	2.290	1.860
	INVERT LEVEL - LEFT	IL (m)	1178.130	1177.310	1177.340	1177.280	1177.400
	INVERT LEVEL - RIGHT	IR (m)	1178.737	1177.876	1177.697	1177.728	1177.717
	EXISTING INVERT LEVEL LEFT	EIL (m)	1177.450	1176.680	1176.980	1176.830	1176.860
	EXISTING INVERT LEVEL RIGHT	EIR (m)	1178.130	1177.310	1177.340	1177.280	1177.400
	FILL HEIGHT - LEFT	HL (m)	1.548	1.460	1.299	1.297	1.324
	FILL HEIGHT - RIGHT	HR (m)	0.919	0.816	0.772	0.720	0.795
	LENGTH - LEFT TO ROAD S/L (MEDIAN)	LL (m)	21.954	21.652	20.713	20.832	18.777
	TOTAL LENGTH - INLET TO OUTLET	L (m)	41.364	41.218	39.187	39.133	36.879
	EXISTING LENGTH LEFT	ELL (m)	21.853	21.652	19.670	19.618	18.777
	EXISTING LENGTH RIGHT	ELR (m)	0.000	0.055	0.000	0.000	1.025
	ADDITION LEFT	AL (m)	0.101	0.000	1.043	1.214	0.000
	NUMBER OF UNITS (LEFT)	NUMBER	0.083	0.000	0.855	0.995	0.000
	ADDITION RIGHT	AR (m)	19.409	19.512	18.474	18.301	17.074
	NUMBER OF UNITS (RIGHT)	NUMBER	15.909	16.000	15.143	15.000	7.000
	INTERNAL CHAMBER DIMENSIONS	(m)				1.2 x 0.9	
	GRID INLET TYPE *					1 x TYPE "B" MEDIAN	

NOTES

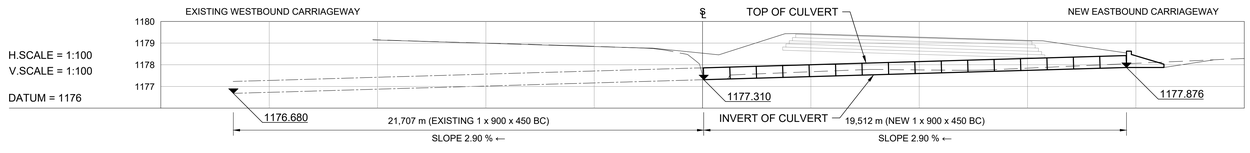
* GRID INLET TYPE "B" DIMENSIONS ARE 0.489 x 0.809

** ALL APRON SLABS AT OUTLETS ARE TO BE CONCRETE LINED WITH GABION MATTRESSES

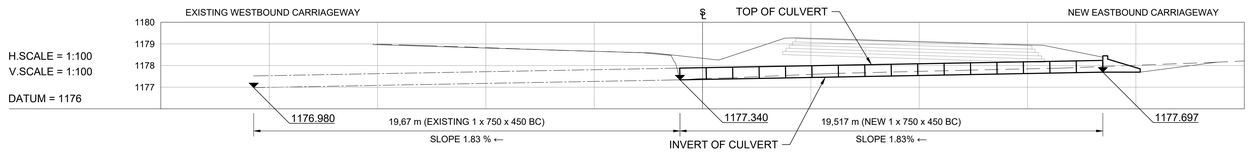
CULVERT N4-13 km 17.187



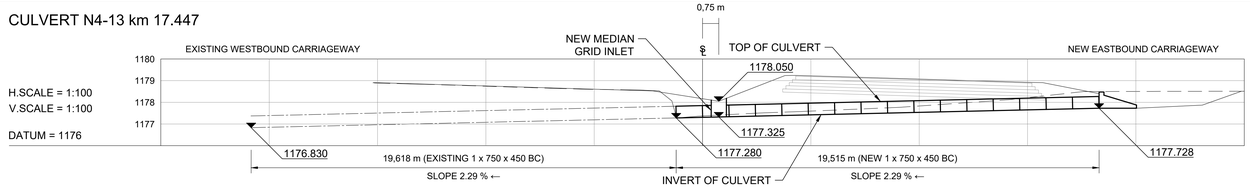
CULVERT N4-13 km 17.327



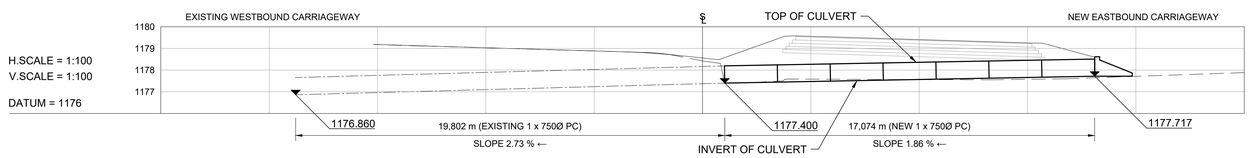
CULVERT N4-13 km 17.387



CULVERT N4-13 km 17.447



CULVERT N4-13 km 17.567



No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date :

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DESIGNED BY	
NAME	JG PEIRSON
Prof. Reg. No.	-
CHECKED BY	
NAME	PL NGQUMSHE
Prof. Reg. No.	20080112
DRAWN BY	
NAME	JG PEIRSON

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17 / 07 / 2023

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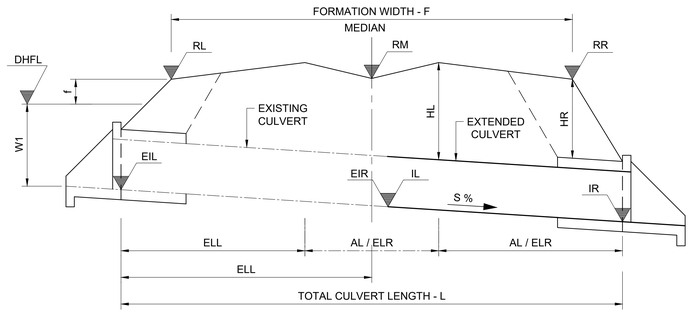
CULVERT SCHEDULE N4-13
CULVERTS BETWEEN km 17.187 TO 17.567

SCALE : AS SHOWN (A0) | SHEET 15 OF 40

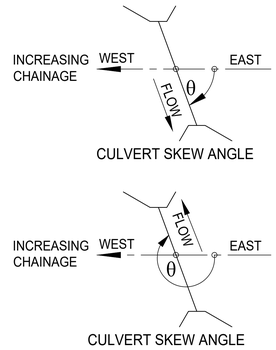
PROJECT NUMBER		BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END	
ROUTE	N 4	N 4	
SECTION	SECTION 13	SECTION 13	
DRAWING km DISTANCE	km 17.187	km 17.567	
DRAWING TYPE	ROADS - LAYOUTS		
BRIDGE/STRUCTURE No.	NA		
CONSULTANT DRAWING No.	FA	3257 / 23 / 15 CS	VER
SANRAL DOCUMENT #		- -	V0

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\07 - Culvert Schedule\3257-23-01-28CS-CULVERT SCHEDULE_20230717.dwg



TYPICAL LONGITUDINAL SECTION OF CULVERT
UNDER DOUBLE CARRIAGEWAY ROAD
SCALE: SCHEMATIC



NOTE:

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FA - FARM ACCESS
SDW - SIDE DRAIN WING WALL
DI - DROP INLET

LEGEND

EXISTING CULVERT
NEW CULVERT
EXISTING GROUND

TENDER

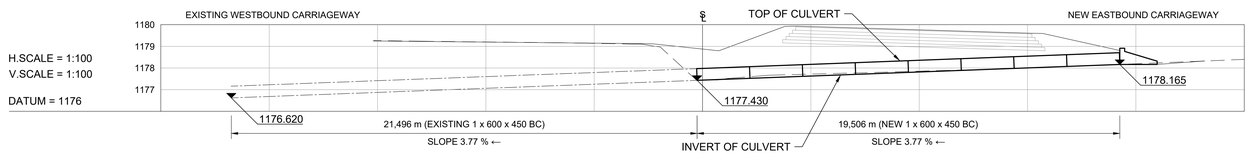
	ITEM NUMBER		74	75	76	77	78
CULVERT DESCRIPTION	ROAD KILOMETRE DISTANCE		17.667	18.147	18.327	18.566	18.747
	TYPE OF CULVERT		1 X BC	1 X BC	1 X BC	1 X BC	1 X BC
	SPAN / DIA	(mm)	600	750	900	750	600
	HEIGHT	(mm)	450	450	450	450	450
	PIPE & BEDDING CLASS		175S	175S	175S	175S	200S
	SKEW ANGLE	°(DEG)	89	90	89	92	91
HYDROLOGICAL DATA	CATCHMENT AREA	(km^2)	0.089	0.067	0.141	0.184	0.058
	TIME OF CONCENTRATION (Tc)	(Hours)	0.848	0.863	1.093	1.231	1.015
	RAINFALL INTENSITY	(mm/h)	67.473	66.634	56.295	51.560	59.413
	CATCHMENT DISCHARGE AT INLET (SDF METHOD)	(m^3/s)	0.540	0.402	0.713	0.853	0.310
	CAPACITY	(m^3/s)	0330	0.413	0.495	0.413	0.330
	Hw/D RATIO AT CAPACITY		1.200	1.200	1.200	1.200	1.200
	VELOCITY AT OUTLET**		4.468	2.981	4.399	4.970	4.010
ROAD DATA	ROAD LEVEL - LEFT SHOULDER	RL (m)	1179.249	1172.166	1170.053	1168.707	1167.800
	ROAD LEVEL - ROAD S/L	RM (m)	1178.815	1172.105	1169.991	1168.772	1167.862
	ROAD LEVEL - RIGHT SHOULDER	RR (m)	1179.595	1172.503	1170.820	1169.786	1168.858
	ROAD FORMATION WIDTH	F (m)	30.902	30.925	30.902	30.923	30.902
CULVERT DATA	FLOOR SLOPE	S (%)	3.770	1.280	2.650	2.580	2.730
	INVERT LEVEL - LEFT	IL (m)	1177.430	1171.280	1169.200	1167.350	1166.447
	INVERT LEVEL - RIGHT	IR (m)	1178.165	1171.530	1169.716	1167.854	1166.982
	EXISTING INVERT LEVEL LEFT	EIL (m)	1176.620	1171.060	1168.720	1166.810	1165.880
	EXISTING INVERT LEVEL RIGHT	EIR (m)	1177.430	1171.280	1169.200	1167.350	1166.447
	FILL HEIGHT - LEFT	HL (m)	1.790	0.948	0.798	1.478	1.448
	FILL HEIGHT - RIGHT	HR (m)	1.052	0.482	0.658	1.525	1.478
	LENGTH - LEFT TO ROAD S/L (MEDIAN)	LL (m)	21.745	18.411	18.863	20.404	20.335
	TOTAL LENGTH - INLET TO OUTLET	L (m)	41.002	36.684	37.653	40.404	40.400
	EXISTING LENGTH LEFT	ELL (m)	21.496	17.163	18.139	20.404	20.335
	EXISTING LENGTH RIGHT	ELR (m)	0.000	0.000	0.000	0.350	0.556
	ADDITION LEFT	AL (m)	0.250	1.248	0.723	0.000	0.000
	NUMBER OF UNITS (LEFT)	NUMBER	0.205	1.023	0.593	0.000	0.000
	ADDITION RIGHT	AR (m)	19.257	18.270	18.790	19.513	19.513
	NUMBER OF UNITS (RIGHT)	NUMBER	15.784	14.975	15.402	16.000	16.000
	INTERNAL CHAMBER DIMENSIONS	(m)		1.2 x 0.9			0.9 x 0.9
	GRID INLET TYPE *			1 x TYPE "B" MEDIAN			1 x TYPE "B" MEDIAN

NOTES

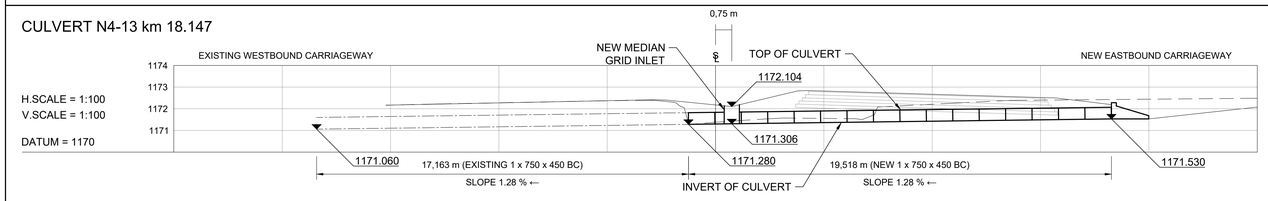
* GRID INLET TYPE "B" DIMENSIONS ARE 0.489 x 0.809

** ALL APRON SLABS AT OUTLETS ARE TO BE CONCRETE LINED WITH GABION MATTRESSES

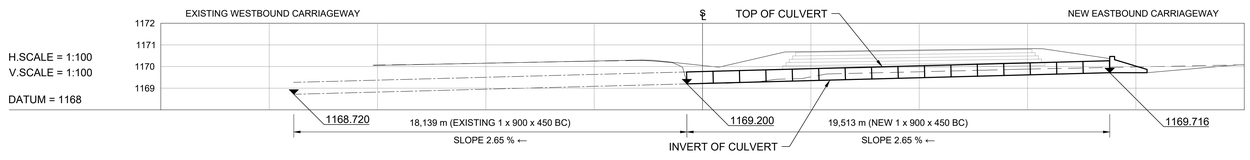
CULVERT N4-13 km 17.667



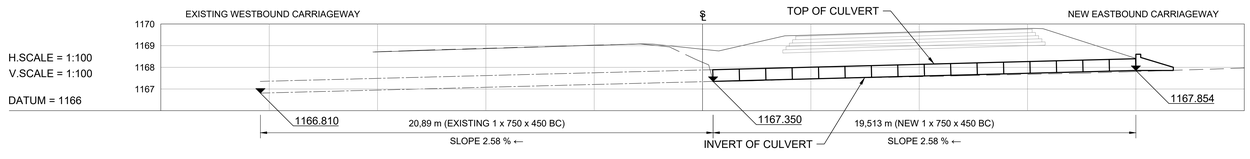
CULVERT N4-13 km 18.147



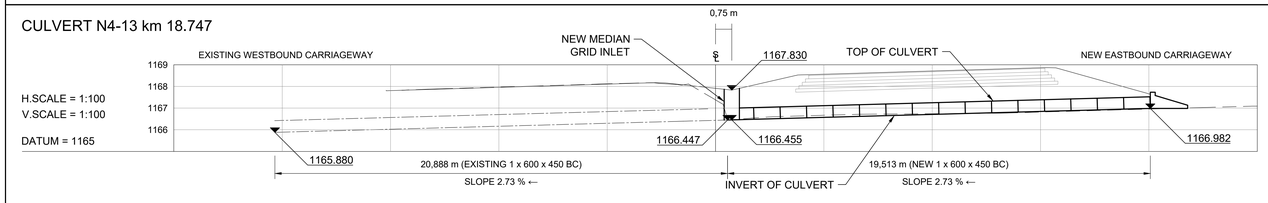
CULVERT N4-13 km 18.327



CULVERT N4-13 km 18.566



CULVERT N4-13 km 18.747



CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date :

No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

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DESIGNED BY
NAME: JG PEIRSON
Prof. Reg. No.: -
CHECKED BY
NAME: PL NGQUMSHE
Prof. Reg. No.: 20080112
DRAWN BY
NAME: JG PEIRSON

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17 / 07 / 2023

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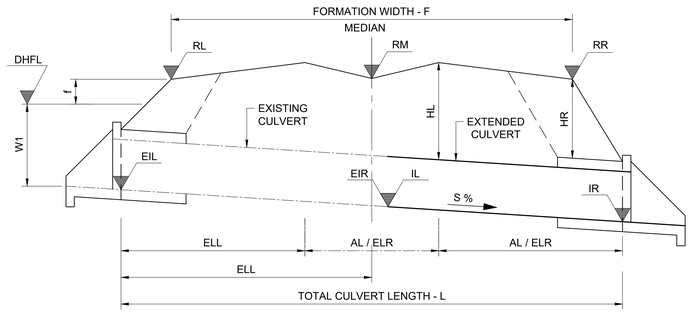
CULVERT SCHEDULE N4-13
CULVERTS BETWEEN km 17.667 TO 18.747

SCALE : AS SHOWN (A0) | SHEET 16 OF 40

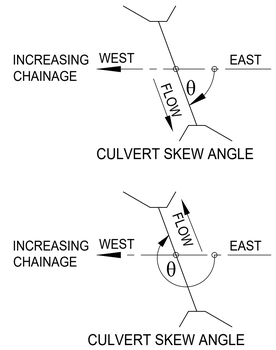
PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001		
DRAWING LOCATION DATA	START	END	
ROUTE	N 4	N 4	
SECTION	SECTION 13	SECTION 13	
DRAWING km DISTANCE	km 17.667	km 18.747	
DRAWING TYPE	ROADS - LAYOUTS		
BRIDGE/STRUCTURE No.	NA		
CONSULTANT DRAWING No.	FA	3257 / 23 / 16 CS	VER
SANRAL DOCUMENT #		- -	V0

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\07 - Culvert Schedule\3257-23-01-28CS-CULVERT SCHEDULE_20230717.dwg



TYPICAL LONGITUDINAL SECTION OF CULVERT
UNDER DOUBLE CARRIAGEWAY ROAD
SCALE: SCHEMATIC



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SDW - SIDE DRAIN WING WALL
DI - DROP INLET

LEGEND

EXISTING CULVERT
NEW CULVERT
EXISTING GROUND

TENDER

	ITEM NUMBER		79	80	81	82	83
CULVERT DESCRIPTION	ROAD KILOMETRE DISTANCE		18.787	19.027	19.165	19.537	19.807
	TYPE OF CULVERT		-	1 X BC	1 X BC	1 X PC	1 X BC
	SPAN / DIA	(mm)	-	600	600	600	600
	HEIGHT	(mm)	-	450	450	-	450
	PIPE & BEDDING CLASS		-	200S	200S	100D/B	200S
	SKEW ANGLE	°(DEG)	-	91	90	120	90
HYDROLOGICAL DATA	CATCHMENT AREA	(km²)	-	0.173	0.139	0.114	0.033
	TIME OF CONCENTRATION (Tc)	(Hours)	-	1.317	1.446	1.054	0.784
	RAINFALL INTENSITY	(mm/h)	-	49.041	45.681	57.822	71.164
	CATCHMENT DISCHARGE AT INLET (SDF METHOD)	(m³/s)	-	0.764	0.571	0.594	0.210
	CAPACITY	(m³/s)	-	0.330	0.330	0.450	0.330
	Hw/D RATIO AT CAPACITY		-	1.200	1.200	1.200	1.200
	VELOCITY AT OUTLET**		-	4.203	4.017	4.414	2.920
ROAD DATA	ROAD LEVEL - LEFT SHOULDER	RL (m)	-	1166.386	1165.692	1162.934	1159.301
	ROAD LEVEL - ROAD S/L	RM (m)	-	1166.449	1165.755	1163.114	1159.366
	ROAD LEVEL - RIGHT SHOULDER	RR (m)	-	1167.420	1166.714	1164.168	1159.593
	ROAD FORMATION WIDTH	F (m)	-	30.902	30.901	35.652	30.901
CULVERT DATA	FLOOR SLOPE	S (%)	-	1.690	2.280	2.990	2.130
	INVERT LEVEL - LEFT	IL (m)	-	1165.700	1164.900	1162.350	1158.260
	INVERT LEVEL - RIGHT	IR (m)	-	1166.030	1165.345	1163.007	1158.649
	EXISTING INVERT LEVEL LEFT	EIL (m)	-	1165.230	1164.480	1161.681	1157.670
	EXISTING INVERT LEVEL RIGHT	EIR (m)	-	1165.700	1164.900	1162.350	1158.260
	FILL HEIGHT - LEFT	HL (m)	-	0.780	0.843	0.607	1.038
	FILL HEIGHT - RIGHT	HR (m)	-	0.923	0.921	0.638	0.480
	LENGTH - LEFT TO ROAD S/L (MEDIAN)	LL (m)	-	18.969	19.093	23.052	19.674
	TOTAL LENGTH - INLET TO OUTLET	L (m)	-	37.865	37.920	44.328	37.970
	EXISTING LENGTH LEFT	ELL (m)	-	18.348	18.417	22.378	19.674
	EXISTING LENGTH RIGHT	ELR (m)	-	0.000	0.000	0.000	0.000
	ADDITION LEFT	AL (m)	-	0.622	0.676	0.674	0.000
	NUMBER OF UNITS (LEFT)	NUMBER	-	0.510	0.554	0.276	0.000
	ADDITION RIGHT	AR (m)	-	18.896	18.839	21.276	18.292
	NUMBER OF UNITS (RIGHT)	NUMBER	-	15.489	15.442	8.720	15.000
	INTERNAL CHAMBER DIMENSIONS	(m)			0.9 x 0.9		0.9 x 0.9
	GRID INLET TYPE *				1 x TYPE "B" MEDIAN		1 x TYPE "B" MEDIAN

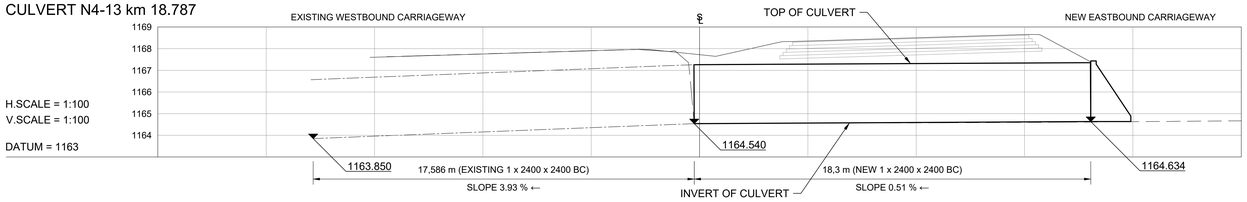
NOTES

* GRID INLET TYPE "B" DIMENSIONS ARE 0.489 x 0.809

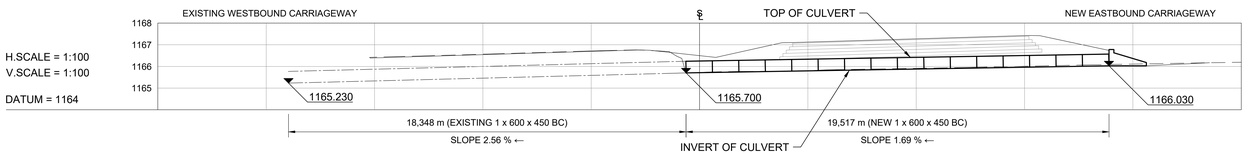
** ALL APRON SLABS AT OUTLETS ARE TO BE CONCRETE LINED WITH GABION MATTRESSES

S4029

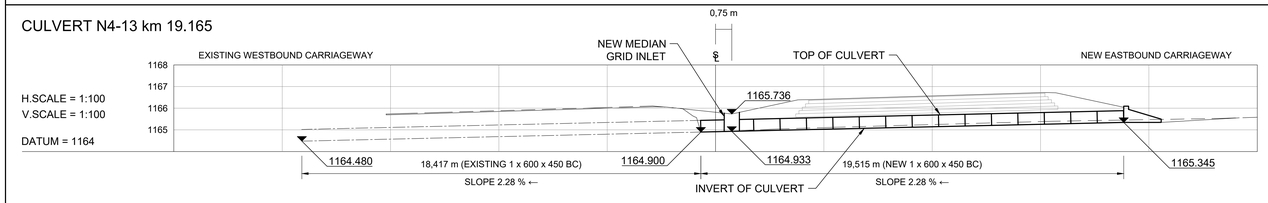
CULVERT N4-13 km 18.787



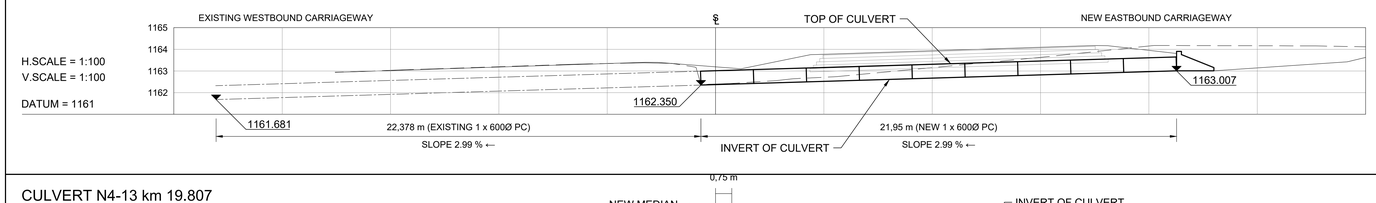
CULVERT N4-13 km 19.027



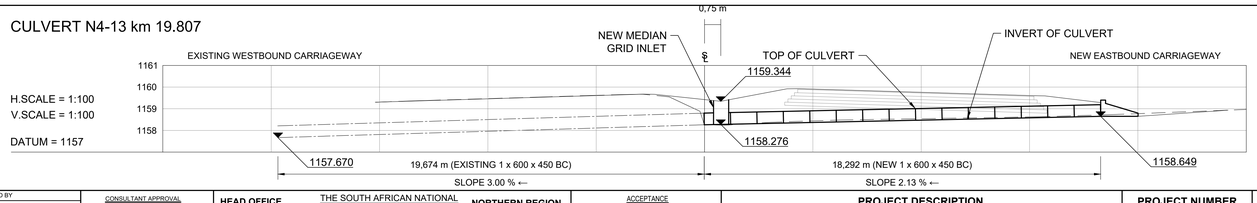
CULVERT N4-13 km 19.165



CULVERT N4-13 km 19.537



CULVERT N4-13 km 19.807



No.	DATE	REVISION	
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSULTANT ENG.

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date :

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DESIGNED BY	
NAME	JG PEIRSON
Prof. Reg. No.	-
CHECKED BY	
NAME	PL NGQUMSHE
Prof. Reg. No.	20080112
DRAWN BY	
NAME	JG PEIRSON

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17 / 07 / 2023

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THE SOUTH AFRICAN NATIONAL ROADS AGENCY SOC LTD
Reg. No. 1998/009584/30

NORTHERN REGION
38 Ida Street
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Private Bag X17
Lynnwood Ridge
0040
Tel: (012) 426 6200

ACCEPTANCE

THIS ACCEPTANCE IS FOR PROCEDURAL AND ADMINISTRATIVE REVIEW PURPOSES ONLY AND DOES NOT ATTRACT LEGAL LIABILITY OR LIABILITY OF ANY KIND FROM WHATSOEVER CAUSE OR HOWEVER ARISING

for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

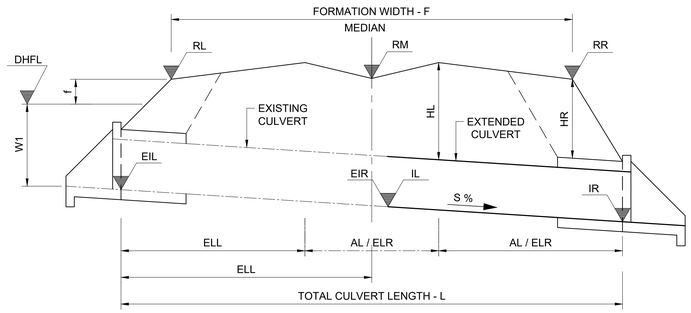
DRAWING DESCRIPTION
CULVERT SCHEDULE N4-13
CULVERTS BETWEEN km 18.787 TO 19.807

SCALE : AS SHOWN (A0) | SHEET 17 OF 40

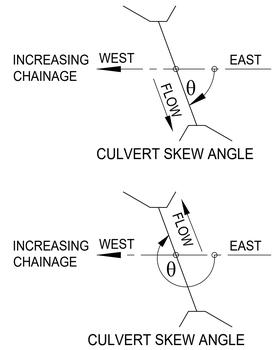
PROJECT NUMBER		BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA		START	END
ROUTE		N 4	N 4
SECTION		SECTION 13	SECTION 13
DRAWING km DISTANCE		km 18.787	km 19.807
DRAWING TYPE		ROADS - LAYOUTS	
BRIDGE/STRUCTURE No.		NA	
CONSULTANT DRAWING No.	FA	3257 / 23 / 17 CS	VER
SANRAL DOCUMENT #		- -	V0

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\07 - Culvert Schedule\3257-23-01-28CS-CULVERT SCHEDULE_20230717.dwg



TYPICAL LONGITUDINAL SECTION OF CULVERT
UNDER DOUBLE CARRIAGEWAY ROAD
SCALE: SCHEMATIC



NOTE:

1. CULVERT EXTENSIONS ON LEFT AND RIGHT HAND SIDE REQUIRED ONLY IF DIMENSIONS AL AND AR IN SCHEDULE = 0
2. GRID INLET DIMENSIONS ARE INSIDE DIMENSIONS

KEY TO CULVERT TYPES:

PC - PIPE CULVERT (UNIT LENGTHS 2,44m)
BC - BOX CULVERT (UNIT LENGTHS 1,22m)
OC - OVAL CULVERT
IBC - IN-SITU BOX CULVERT
APC - ARMCO PIPE CULVERT
MH - MANHOLE
SI - SIDE INLET
SCI - SPECIAL CULVERT INLET
FA - FARM ACCESS
SDW - SIDE DRAIN WING WALL
DI - DROP INLET

LEGEND

EXISTING CULVERT
NEW CULVERT
EXISTING GROUND

TENDER

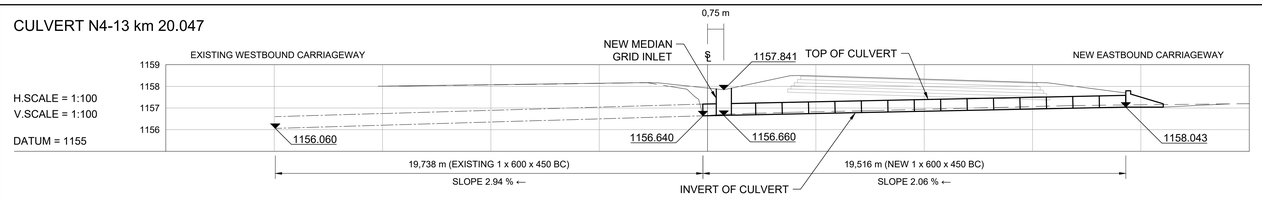
CULVERT DESCRIPTION	ITEM NUMBER		84	85	86	87
	ROAD KILOMETRE DISTANCE		20.047	20.347	20.467	20.720
	TYPE OF CULVERT		1 X BC	1 X BC	1 X BC	1 X PC
	SPAN / DIA	(mm)	600	750	750	600
	HEIGHT	(mm)	450	450	450	-
	PIPE & BEDDING CLASS		200S	175S	175S	100D/B
	SKEW ANGLE	°(DEG)	91	118	125	230
HYDROLOGICAL DATA	CATCHMENT AREA	(km²)	0.053	0.126	0.094	0.011
	TIME OF CONCENTRATION (Tc)	(Hours)	0.880	1.244	1.418	0.348
	RAINFALL INTENSITY	(mm/h)	65.734	51.175	46.354	116.599
	CATCHMENT DISCHARGE AT INLET (SDF METHOD)	(m³/s)	0.316	0.581	0.393	0.120
	CAPACITY	(m³/s)	0.330	0.413	0.413	0.450
	Hw/D RATIO AT CAPACITY		1.200	1.200	1.200	1.200
	VELOCITY AT OUTLET**		3.583	3.388	2.910	2.100
ROAD DATA	ROAD LEVEL - LEFT SHOULDER	RL (m)	1158.005	1156.873	1155.902	1153.476
	ROAD LEVEL - ROAD S/L	RM (m)	1157.864	1156.247	1155.314	1152.960
	ROAD LEVEL - RIGHT SHOULDER	RR (m)	1158.165	1156.679	1155.721	1152.707
	ROAD FORMATION WIDTH	F (m)	30.903	34.767	41.050	43.223
CULVERT DATA	FLOOR SLOPE	S (%)	2.060	1.280	1.280	1.300
	INVERT LEVEL - LEFT	IL (m)	1156.640	1155.440	1154.138	1148.351
	INVERT LEVEL - RIGHT	IR (m)	1158.043	1155.740	1154.441	1148.002
	EXISTING INVERT LEVEL LEFT	EIL (m)	1156.060	1155.130	1153.630	1148.663
	EXISTING INVERT LEVEL RIGHT	EIR (m)	1156.640	1155.440	1154.138	1148.351
	FILL HEIGHT - LEFT	HL (m)	1.227	0.914	1.295	4.412
	FILL HEIGHT - RIGHT	HR (m)	0.676	0.445	0.778	3.972
	LENGTH - LEFT TO ROAD S/L (MEDIAN)	LL (m)	19.949	21.795	24.022	36.540
	TOTAL LENGTH - INLET TO OUTLET	L (m)	39.254	42.193	48.515	77.396
	EXISTING LENGTH LEFT	ELL (m)	19.738	21.455	24.022	36.540
	EXISTING LENGTH RIGHT	ELR (m)	0.000	0.000	0.095	14.018
	ADDITION LEFT	AL (m)	0.211	0.340	0.000	0.000
	NUMBER OF UNITS (LEFT)	NUMBER	0.173	0.279	0.000	0.000
	ADDITION RIGHT	AR (m)	19.305	20.398	23.178	26.838
	NUMBER OF UNITS (RIGHT)	NUMBER	15.824	16.720	19.000	11.000
	INTERNAL CHAMBER DIMENSIONS	(m)	0.9 x 0.9		1.5 x 1.2	
	GRID INLET TYPE *		1 x TYPE "B" MEDIAN		1 x TYPE "B" MEDIAN	

NOTES

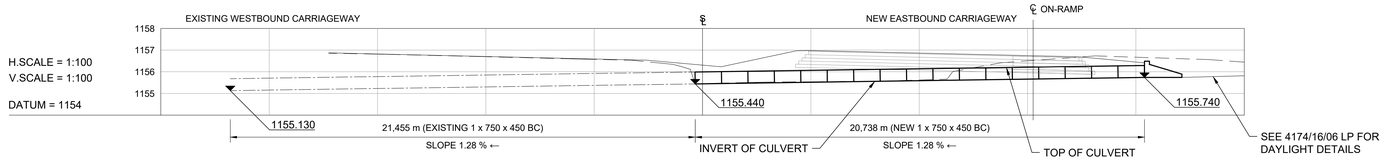
* GRID INLET TYPE "B" DIMENSIONS ARE 0.489 x 0.809

** ALL APRON SLABS AT OUTLETS ARE TO BE CONCRETE LINED WITH GABION MATTRESSES

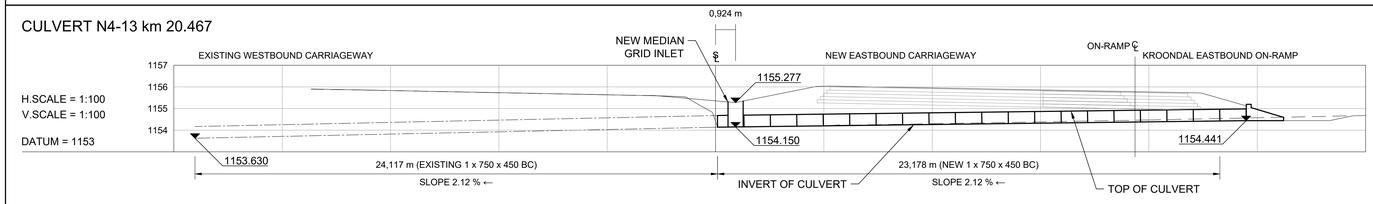
CULVERT N4-13 km 20.047



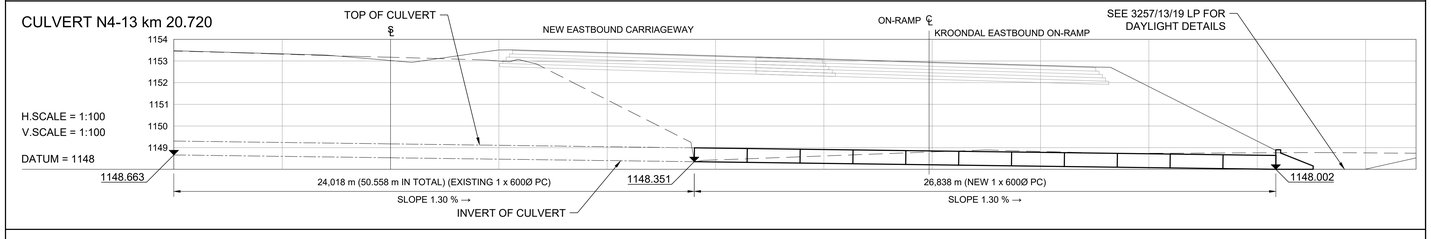
CULVERT N4-13 km 20.347



CULVERT N4-13 km 20.467



CULVERT N4-13 km 20.720



No.	DATE	REVISION	
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

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CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date :

DESIGNED BY
NAME: JG PEIRSON
Prof. Reg. No.: -
CHECKED BY
NAME: PL NGQUMSHE
Prof. Reg. No.: 20080112
DRAWN BY
NAME: JG PEIRSON

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17 / 07 / 2023

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Tel: (012) 844 8000

THE SOUTH AFRICAN NATIONAL ROADS AGENCY SOC LTD
Reg. No. 1998/009584/30

NORTHERN REGION
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ACCEPTANCE
THIS ACCEPTANCE IS FOR PROCEDURAL AND ADMINISTRATIVE REVIEW PURPOSES ONLY AND DOES NOT ATTRACT LEGAL LIABILITY OR LIABILITY OF ANY KIND FROM WHATSOEVER CAUSE OR HOWEVER ARISING
for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION
CULVERT SCHEDULE N4-13
CULVERTS BETWEEN km 20.047 TO 20.720

SCALE : AS SHOWN (A0) | SHEET 18 OF 40

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001		
DRAWING LOCATION DATA	START	END	
ROUTE	N 4	N 4	
SECTION	SECTION 13	SECTION 13	
DRAWING km DISTANCE	km 20.047	km 20.720	
DRAWING TYPE	ROADS - LAYOUTS		
BRIDGE/STRUCTURE No.	NA		
CONSULTANT DRAWING No.	FA	3257 / 23 / 18 CS	VER
SANRAL DOCUMENT #		- -	V0

SANRAL DOCUMENT NUMBER :

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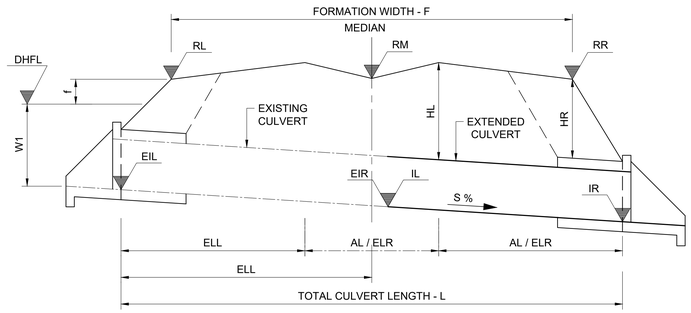
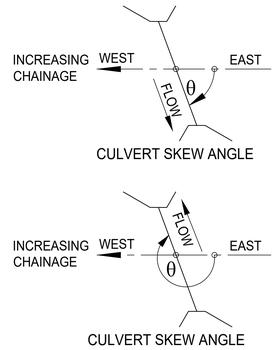


TYPICAL LONGITUDINAL SECTION OF CULVERT
UNDER DOUBLE CARRIAGEWAY ROAD
SCALE: SCHEMATIC



NOTE:

1. CULVERT EXTENSIONS ON LEFT AND RIGHT HAND SIDE REQUIRED ONLY IF DIMENSIONS AL AND AR IN SCHEDULE = 0
2. GRID INLET DIMENSIONS ARE INSIDE DIMENSIONS

KEY TO CULVERT TYPES:

PC - PIPE CULVERT (UNIT LENGTHS 2,44m)
BC - BOX CULVERT (UNIT LENGTHS 1,22m)
OC - OVAL CULVERT
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APC - ARMCO PIPE CULVERT
MH - MANHOLE
SI - SIDE INLET
SCI - SPECIAL CULVERT INLET
FA - FARM ACCESS
SDW - SIDE DRAIN WING WALL
DI - DROP INLET

LEGEND

EXISTING CULVERT
NEW CULVERT
EXISTING GROUND

TENDER

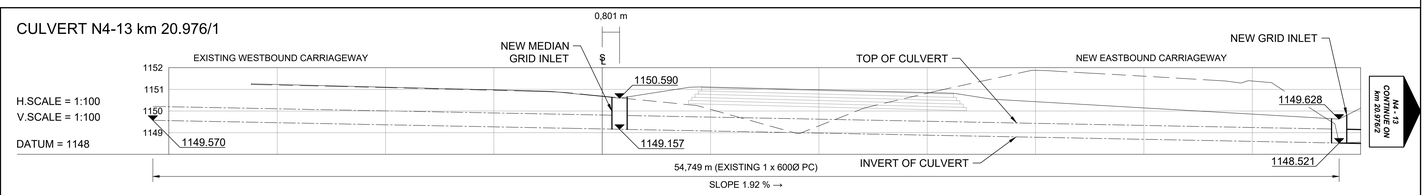
	ITEM NUMBER		88	89	90
CULVERT DESCRIPTION	ROAD KILOMETRE DISTANCE		20.976	21.403	21.540
	TYPE OF CULVERT		1 X PC	1 X PC	1 X PC
	SPAN / DIA	(mm)	600	600	600
	HEIGHT	(mm)	-	-	-
	PIPE & BEDDING CLASS		100D/B	100D/B	100D/B
	SKEW ANGLE	°(DEG)	290	271	270
HYDROLOGICAL DATA	CATCHMENT AREA	(km²)	0.040	0.447	0.447
	TIME OF CONCENTRATION (Tc)	(Hours)	0.385	1.912	1.912
	RAINFALL INTENSITY	(mm/h)	110.528	36.760	36.760
	CATCHMENT DISCHARGE AT INLET (SDF METHOD)	(m³/s)	0.421	1.485	1.485
	CAPACITY	(m³/s)	0.450	0.450	0.450
	Hw/D RATIO AT CAPACITY		1.200	1.200	1.200
	VELOCITY AT OUTLET**		3.355	5.900	5.900
ROAD DATA	ROAD LEVEL - LEFT SHOULDER	RL (m)	1151.258	1148.430	1148.082
	ROAD LEVEL - ROAD S/L	RM (m)	1150.622	1148.492	1148.009
	ROAD LEVEL - RIGHT SHOULDER	RR (m)	1150.545	1148.506	1148.304
	ROAD FORMATION WIDTH	F (m)	34.184	30.400	37.961
CULVERT DATA	FLOOR SLOPE	S (%)	1.920	1.280	1.63
	INVERT LEVEL - LEFT	IL (m)	1148.521	1146.508	1146.743
	INVERT LEVEL - RIGHT	IR (m)	1148.100	1147.009	1146.425
	EXISTING INVERT LEVEL LEFT	EIL (m)	1149.570	1146.231	-
	EXISTING INVERT LEVEL RIGHT	EIR (m)	1148.521	1146.508	-
	FILL HEIGHT - LEFT	HL (m)	3.278	2.822	1.333
	FILL HEIGHT - RIGHT	HR (m)	2.910	2.374	1.184
	LENGTH - LEFT TO ROAD S/L (MEDIAN)	LL (m)	20.738	20.925	0.750
	TOTAL LENGTH - INLET TO OUTLET	L (m)	76.705	64.744	19.538
	EXISTING LENGTH LEFT	ELL (m)	20.738	20.925	-
	EXISTING LENGTH RIGHT	ELR (m)	34.011	4.782	-
	ADDITION LEFT	AL (m)	0.000	0.000	-
	NUMBER OF UNITS (LEFT)	NUMBER	0.000	0.000	-
	ADDITION RIGHT	AR (m)	21.956	39.037	19.538
	NUMBER OF UNITS (RIGHT)	NUMBER	9.000	16.000	8.000
	INTERNAL CHAMBER DIMENSIONS	(m)	1.2 x 0.9		0.9 x 0.9
	GRID INLET TYPE *		1 x TYPE "B" MEDIAN 1 x TYPE "B" BTW RAMP & MAIN CW		1 x TYPE "B" MEDIAN

NOTES

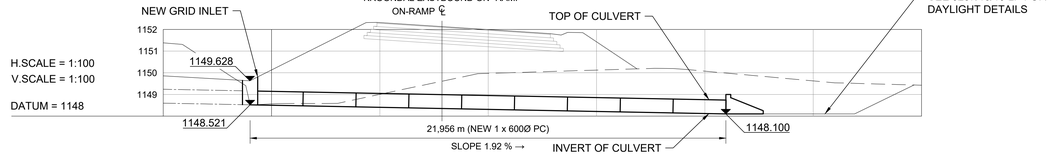
* GRID INLET TYPE "B" DIMENSIONS ARE 0.489 x 0.809

** ALL APRON SLABS AT OUTLETS ARE TO BE CONCRETE LINED WITH GABION MATTRESSES

CULVERT N4-13 km 20.976/1

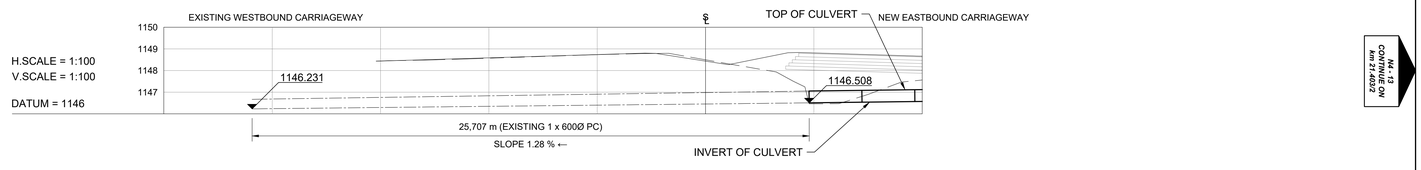


CULVERT N4-13 km 20.976/2

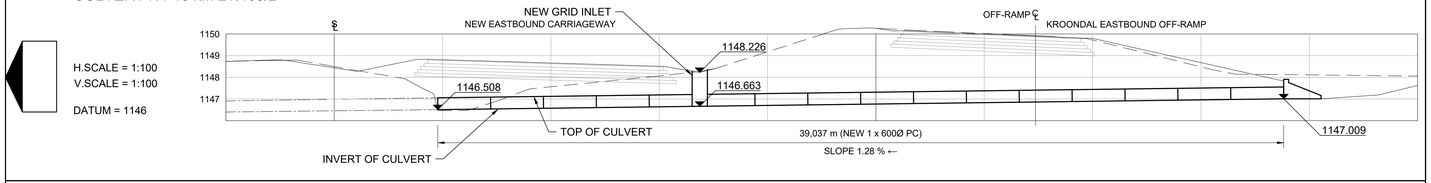


FOR CULVERT N4-13 KM 21.800 SEE DRAWING 3257/16/28CS

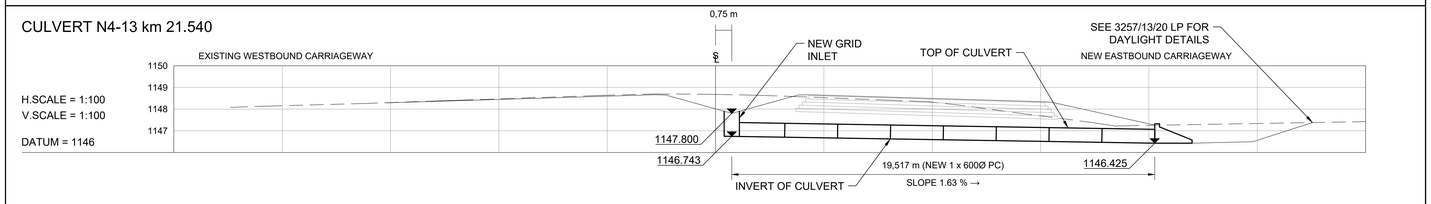
CULVERT N4-13 km 21.403/1



CULVERT N4-13 km 21.403/2



CULVERT N4-13 km 21.540



No.	DATE	REVISION	
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date :
CONSULT. ENG.

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DESIGNED BY
NAME: JG PEIRSON
Prof. Reg. No.: -
CHECKED BY
NAME: PL NGQUMSHE
Prof. Reg. No.: 20080112
DRAWN BY
NAME: JG PEIRSON

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17 / 07 / 2023

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THE SOUTH AFRICAN NATIONAL ROADS AGENCY SOC LTD
Reg. No. 1998/009584/30

NORTHERN REGION
38 Ida Street
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Pretoria
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Private Bag X17
Lynnwood Ridge
0040
Tel: (012) 426 6200

ACCEPTANCE
THIS ACCEPTANCE IS FOR PROCEDURAL AND ADMINISTRATIVE REVIEW PURPOSES ONLY AND DOES NOT ATTRACT LEGAL LIABILITY OR LIABILITY OF ANY KIND FROM WHATSOEVER CAUSE OR HOWEVER ARISING
for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

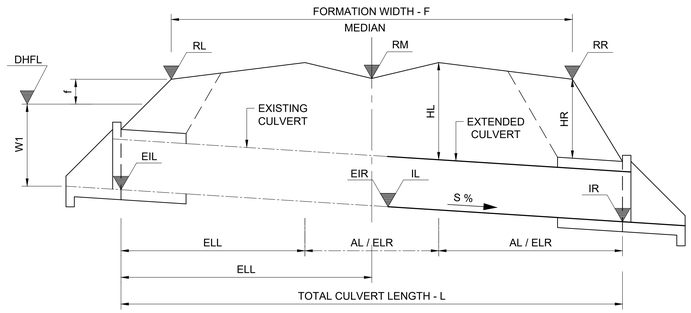
DRAWING DESCRIPTION
CULVERT SCHEDULE N4-13
CULVERTS BETWEEN km 20.976 TO 21.540

SCALE : AS SHOWN (A0) | SHEET 19 OF 40

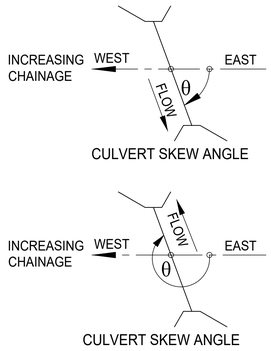
PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	SECTION 13	SECTION 13
DRAWING km DISTANCE	km 20.976	km 21.540
DRAWING TYPE	ROADS - LAYOUTS	
BRIDGE/STRUCTURE No.	NA	
CONSULTANT DRAWING No.	FA 3257 / 23 / 19 CS	VER
SANRAL DOCUMENT #	- -	V0

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\07 - Culvert Schedule\3257-23-01-28CS-CULVERT SCHEDULE_20230717.dwg



TYPICAL LONGITUDINAL SECTION OF CULVERT
UNDER DOUBLE CARRIAGEWAY ROAD
SCALE: SCHEMATIC



NOTE:

1. CULVERT EXTENSIONS ON LEFT AND RIGHT HAND SIDE REQUIRED ONLY IF DIMENSIONS AL AND AR IN SCHEDULE = 0
2. GRID INLET DIMENSIONS ARE INSIDE DIMENSIONS

KEY TO CULVERT TYPES:

PC - PIPE CULVERT (UNIT LENGTHS 2,44m)
BC - BOX CULVERT (UNIT LENGTHS 1,22m)
OC - OVAL CULVERT
IBC - IN-SITU BOX CULVERT
APC - ARMCO PIPE CULVERT
MH - MANHOLE
SI - SIDE INLET
SCI - SPECIAL CULVERT INLET
FA - FARM ACCESS
SDW - SIDE DRAIN WING WALL
DI - DROP INLET

LEGEND

EXISTING CULVERT
NEW CULVERT
EXISTING GROUND

TENDER

	ITEM NUMBER		91	92	93	94	95
CULVERT DESCRIPTION	ROAD KILOMETRE DISTANCE		22.227	22.267	22.587	22.817	22.957
	TYPE OF CULVERT		-	2 X PC	1 X BC	4 X BC	1 X BC
	SPAN / DIA	(mm)	-	600	750	750	750
	HEIGHT	(mm)	-	-	450	450	450
	PIPE & BEDDING CLASS		-	100D/B	175S	175S	175S
	SKEW ANGLE	°(DEG)	-	269	270	269	273
HYDROLOGICAL DATA	CATCHMENT AREA	(km²)	-	0.339	0.098	0.063	0.341
	TIME OF CONCENTRATION (Tc)	(Hours)	-	1.668	1.075	1.054	1.235
	RAINFALL INTENSITY	(mm/h)	-	40.907	57.001	57.809	51.435
	CATCHMENT DISCHARGE AT INLET (SDF METHOD)	(m³/s)	-	1.249	0.503	0.327	1.577
	CAPACITY	(m³/s)	-	0.900	0.413	1.650	0.413
	Hw/D RATIO AT CAPACITY		-	1.200	1.200	1.200	1.200
	VELOCITY AT OUTLET**		-	5.109	3.374	1.452	3.504
ROAD DATA	ROAD LEVEL - LEFT SHOULDER	RL (m)	-	1151.652	1153.616	1154.947	1155.690
	ROAD LEVEL - ROAD S/L	RM (m)	-	1151.548	1153.622	1154.925	1155.632
	ROAD LEVEL - RIGHT SHOULDER	RR (m)	-	1151.468	1153.595	1154.900	1155.602
	ROAD FORMATION WIDTH	F (m)	-	30.909	30.901	30.909	30.930
CULVERT DATA	FLOOR SLOPE	S (%)	-	4.616	3.110	0.650	1.285
	INVERT LEVEL - LEFT	IL (m)	-	1148.290	1152.340	1153.490	1154.600
	INVERT LEVEL - RIGHT	IR (m)	-	1147.497	1151.840	1153.371	1154.398
	EXISTING INVERT LEVEL LEFT	EIL (m)	-	1149.380	1152.630	1153.610	1154.740
	EXISTING INVERT LEVEL RIGHT	EIR (m)	-	1148.290	1152.340	1153.490	1154.600
	FILL HEIGHT - LEFT	HL (m)	-	2.845	1.065	1.229	0.817
	FILL HEIGHT - RIGHT	HR (m)	-	3.009	1.098	0.975	0.639
	LENGTH - LEFT TO ROAD S/L (MEDIAN)	LL (m)	-	20.715	18.797	17.772	18.945
	TOTAL LENGTH - INLET TO OUTLET	L (m)	-	44.085	36.777	36.711	36.710
	EXISTING LENGTH LEFT	ELL (m)	-	20.715	18.797	17.772	18.945
	EXISTING LENGTH RIGHT	ELR (m)	-	6.304	3.341	0.639	1.902
	ADDITION LEFT	AL (m)	-	0.000	0.000	0.000	0.000
	NUMBER OF UNITS (LEFT)	NUMBER	-	0.000	0.000	0.000	0.000
	ADDITION RIGHT	AR (m)	-	17.066	15.860	18.300	15.860
	NUMBER OF UNITS (RIGHT)	NUMBER	-	7.000	13.000	15.000	13.000
	INTERNAL CHAMBER DIMENSIONS	(m)		2.0 x 1.5		4.0 x 2.0	
	GRID INLET TYPE *			1 x TYPE "B" MEDIAN		1 x TYPE "B" MEDIAN	
			S4027				

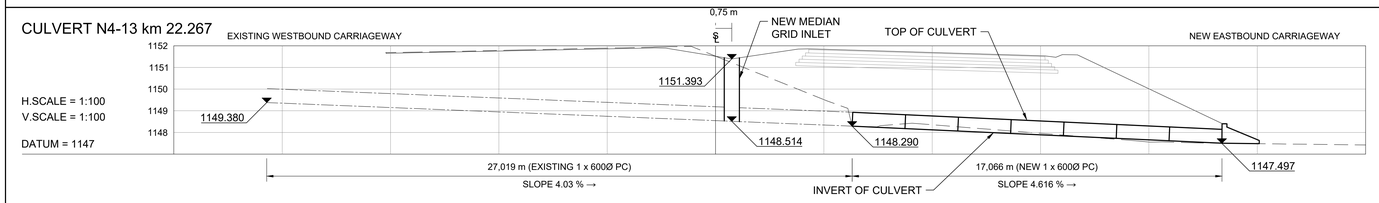
NOTES

* GRID INLET TYPE "B" DIMENSIONS ARE 0.489 x 0.809

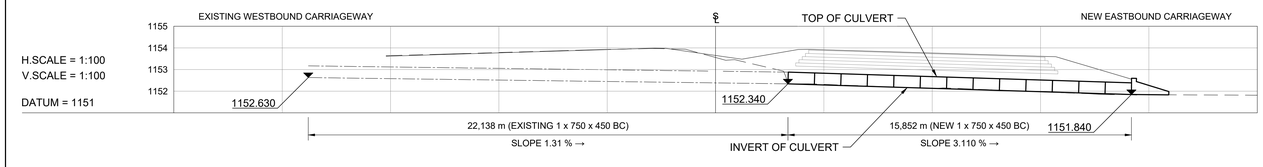
** ALL APRON SLABS AT OUTLETS ARE TO BE CONCRETE LINED WITH GABION MATTRESSES

CULVERT N4-13 km 22.227 - S4027 - UNDER PASS
SEE DRAWING 3407/C027/02-GA

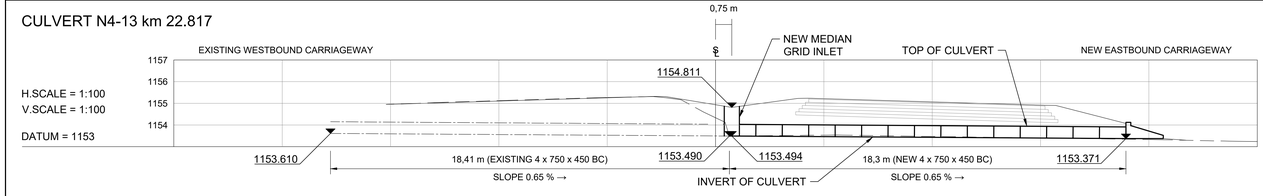
CULVERT N4-13 km 22.267



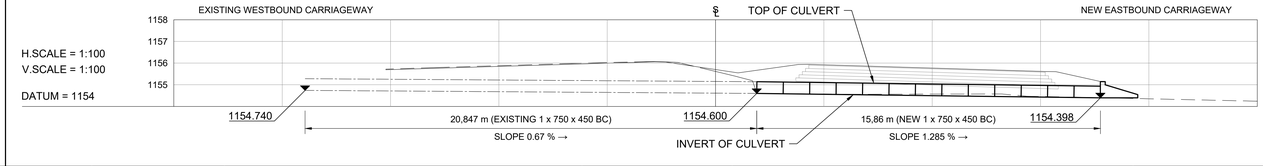
CULVERT N4-13 km 22.587



CULVERT N4-13 km 22.817



CULVERT N4-13 km 22.957



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V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
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Name :
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Date :
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DRAWING DESCRIPTION
CULVERT SCHEDULE N4-13
CULVERTS BETWEEN km 22.227 TO 22.957

SCALE : AS SHOWN (A0) SHEET 20 OF 40

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001		
DRAWING LOCATION DATA	START	END	
ROUTE	N 4	N 4	
SECTION	SECTION 13	SECTION 13	
DRAWING km DISTANCE	km 22.227	km 22.957	
DRAWING TYPE	ROADS - LAYOUTS		
BRIDGE/STRUCTURE No.	NA		
CONSULTANT DRAWING No.	FA	3257 / 23 / 20 CS	VER
SANRAL DOCUMENT #		- -	V0

SANRAL DOCUMENT NUMBER :

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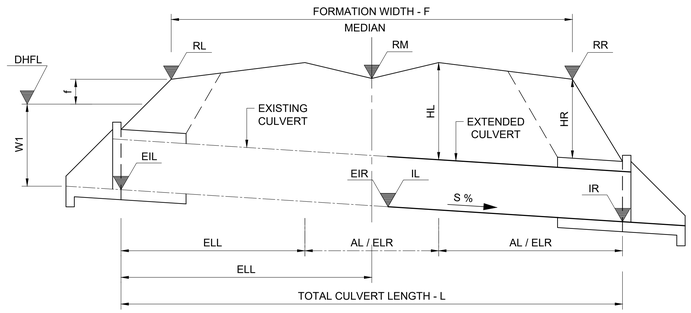
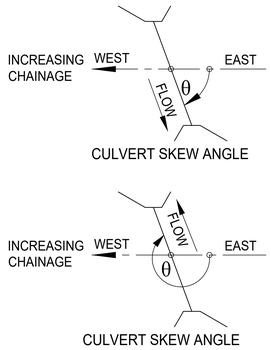


TYPICAL LONGITUDINAL SECTION OF CULVERT
UNDER DOUBLE CARRIAGEWAY ROAD
SCALE: SCHEMATIC



NOTE:

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FA - FARM ACCESS
SDW - SIDE DRAIN WING WALL
DI - DROP INLET

LEGEND

EXISTING CULVERT
NEW CULVERT
EXISTING GROUND

TENDER

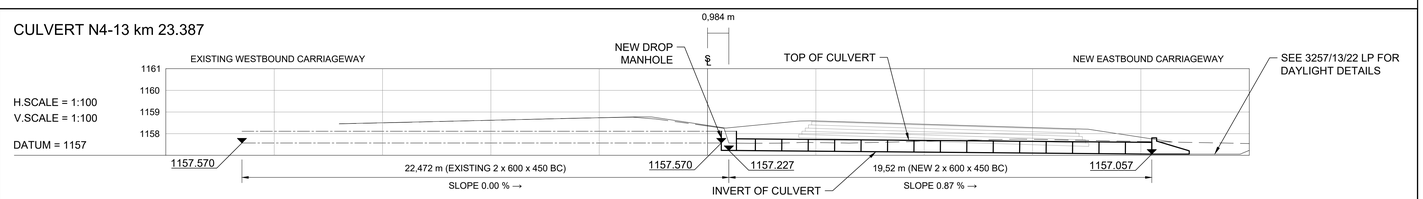
	ITEM NUMBER		96	97	98	99	100
CULVERT DESCRIPTION	ROAD KILOMETRE DISTANCE		23.387	23.587	23.807	24.227	24.387
	TYPE OF CULVERT		2 X BC	1 X BC	1 X BC	1 X BC	1 X BC
	SPAN / DIA	(mm)	600	900	900	600	600
	HEIGHT	(mm)	450	450	450	450	450
	PIPE & BEDDING CLASS		200S	175S	175S	200S	200S
	SKEW ANGLE	°(DEG)	297	301	305	270	270
HYDROLOGICAL DATA	CATCHMENT AREA	(km^2)	0.098	0.241	0.285	0.063	0.132
	TIME OF CONCENTRATION (Tc)	(Hours)	0.802	1.804	1.785	0.991	1.573
	RAINFALL INTENSITY	(mm/h)	70.113	38.489	38.812	60.418	42.819
	CATCHMENT DISCHARGE AT INLET (SDF METHOD)	(m^3/s)	0.624	0.837	0.999	0.340	0.508
	CAPACITY	(m^3/s)	0.660	0.495	0.495	0.330	0.330
	Hw/D RATIO AT CAPACITY		1.200	1.200	1.200	1.200	1.200
	VELOCITY AT OUTLET**		2.407	3.130	3.334	2.332	2.820
ROAD DATA	ROAD LEVEL - LEFT SHOULDER	RL (m)	1158.459	1160.217	1161.666	1162.191	1161.639
	ROAD LEVEL - ROAD S/L	RM (m)	1158.298	1160.074	1161.522	1162.203	1161.655
	ROAD LEVEL - RIGHT SHOULDER	RR (m)	1158.208	1159.963	1161.503	1162.176	1161.628
	ROAD FORMATION WIDTH	F (m)	34.551	36.129	37.877	30.901	30.901
CULVERT DATA	FLOOR SLOPE	S (%)	0.870	0.830	1.401	1.117	0.910
	INVERT LEVEL - LEFT	IL (m)	1157.227	1158.840	1160.500	1160.946	1160.110
	INVERT LEVEL - RIGHT	IR (m)	1157.057	1158.688	1160.226	1160.773	1159.943
	EXISTING INVERT LEVEL LEFT	EIL (m)	1157.570	1159.050	1160.680	1161.070	1160.290
	EXISTING INVERT LEVEL RIGHT	EIR (m)	1157.570	11588.840	1160.500	1160.946	1160.110
	FILL HEIGHT - LEFT	HL (m)	0.837	0.983	0.852	1.040	1.345
	FILL HEIGHT - RIGHT	HR (m)	0.592	0.704	0.690	0.858	1.117
	LENGTH - LEFT TO ROAD S/L (MEDIAN)	LL (m)	21.488	21.573	21.601	19.512	18.721
	TOTAL LENGTH - INLET TO OUTLET	L (m)	41.991	43.504	46.607	37.983	38.079
	EXISTING LENGTH LEFT	ELL (m)	21.488	21.573	21.601	19.512	18.721
	EXISTING LENGTH RIGHT	ELR (m)	1.334	3.632	2.486	1.391	1.059
	ADDITION LEFT	AL (m)	0.000	0.000	0.000	0.000	0.000
	NUMBER OF UNITS (LEFT)	NUMBER	0.000	0.000	0.000	0.000	0.000
	ADDITION RIGHT	AR (m)	19.520	18.299	19.519	17.080	18.291
	NUMBER OF UNITS (RIGHT)	NUMBER	16.000	15.000	16.000	14.000	15.000
	INTERNAL CHAMBER DIMENSIONS	(m)	2.0 x 1.5		2.0 x 1.5		
	GRID INLET TYPE *		1 x TYPE "B" MEDIAN		1 x TYPE "B" MEDIAN		

NOTES

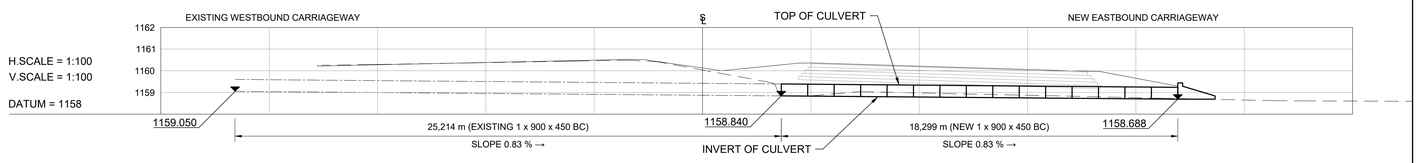
* GRID INLET TYPE "B" DIMENSIONS ARE 0.489 x 0.809

** ALL APRON SLABS AT OUTLETS ARE TO BE CONCRETE LINED WITH GABION MATTRESSES

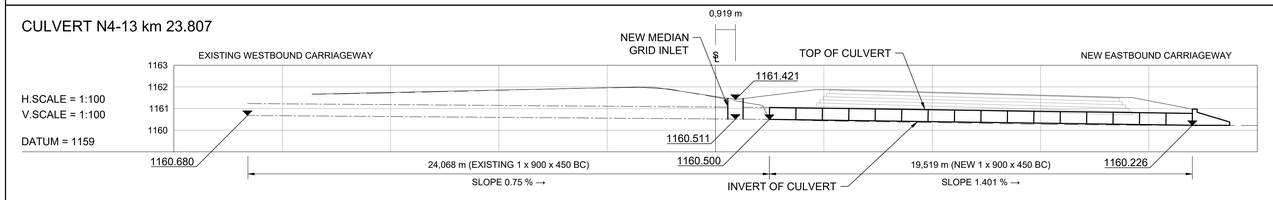
CULVERT N4-13 km 23.387



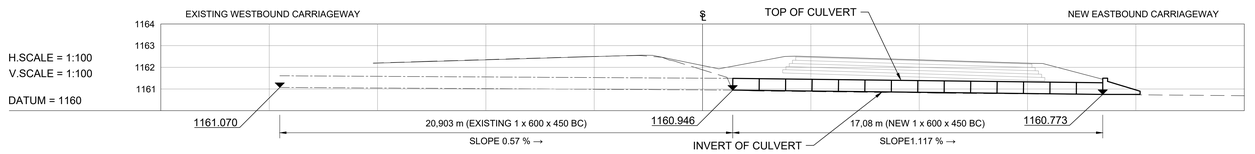
CULVERT N4-13 km 23.587



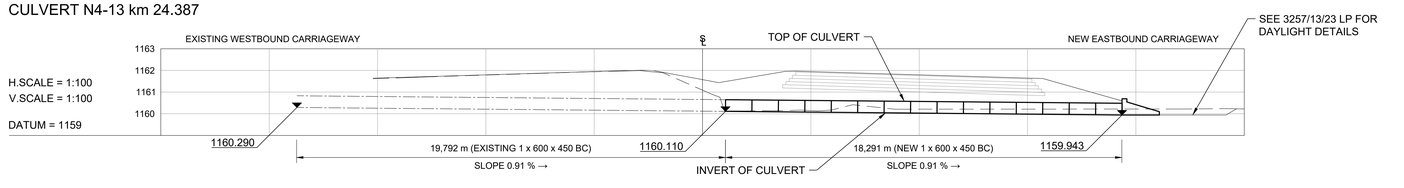
CULVERT N4-13 km 23.807



CULVERT N4-13 km 24.227



CULVERT N4-13 km 24.387



No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
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PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

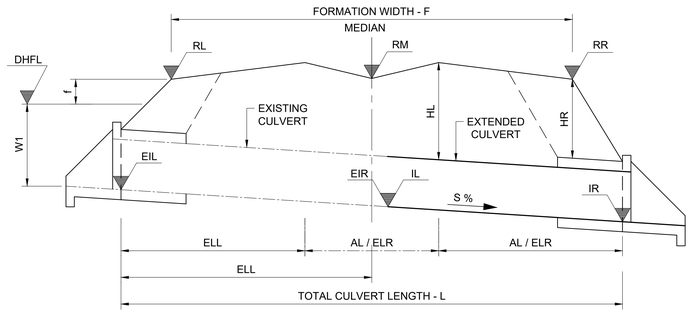
DRAWING DESCRIPTION
CULVERT SCHEDULE N4-13
CULVERTS BETWEEN km 23.387 TO 24.387

SCALE : AS SHOWN (A0) | SHEET 21 OF 40

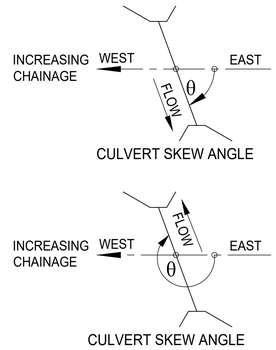
PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001		
DRAWING LOCATION DATA	START	END	
ROUTE	N 4	N 4	
SECTION	SECTION 13	SECTION 13	
DRAWING km DISTANCE	km 23.587	km 24.387	
DRAWING TYPE	ROADS - LAYOUTS		
BRIDGE/STRUCTURE No.	NA		
CONSULTANT DRAWING No.	FA	3257 / 23 / 21 CS	VER
SANRAL DOCUMENT #	- -		V0

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\07 - Culvert Schedule\3257-23-01-28CS-CULVERT SCHEDULE_20230717.dwg



TYPICAL LONGITUDINAL SECTION OF CULVERT
UNDER DOUBLE CARRIAGEWAY ROAD
SCALE: SCHEMATIC



NOTE:

1. CULVERT EXTENSIONS ON LEFT AND RIGHT HAND SIDE REQUIRED ONLY IF DIMENSIONS AL AND AR IN SCHEDULE = 0
2. GRID INLET DIMENSIONS ARE INSIDE DIMENSIONS

KEY TO CULVERT TYPES:

PC - PIPE CULVERT (UNIT LENGTHS 2,44m)
BC - BOX CULVERT (UNIT LENGTHS 1,22m)
OC - OVAL CULVERT
IBC - IN-SITU BOX CULVERT
APC - ARMCO PIPE CULVERT
MH - MANHOLE
SI - SIDE INLET
SCI - SPECIAL CULVERT INLET
FA - FARM ACCESS
SDW - SIDE DRAIN WING WALL
DI - DROP INLET

LEGEND

EXISTING CULVERT
NEW CULVERT
EXISTING GROUND

TENDER

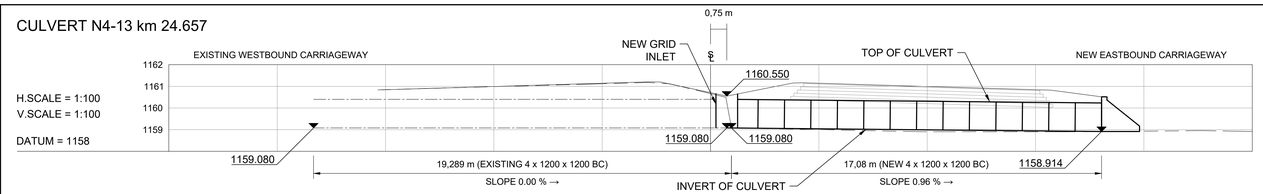
CULVERT DESCRIPTION	ITEM NUMBER		101	102	103	104	105
	ROAD KILOMETRE DISTANCE		24.657	24.917	25.167	25.385	25.525
	TYPE OF CULVERT		4 X BC	2 X BC	3 X PC	2 X BC	1 X BC
	SPAN / DIA	(mm)	1200	1200	900	1500	1500
	HEIGHT	(mm)	1200	600	-	600	600
	PIPE & BEDDING CLASS		150S	150S	100D/B	100S	100S
	SKEW ANGLE	°(DEG)	270	270	270	314	305
HYDROLOGICAL DATA	CATCHMENT AREA	(km^2)	2.574	1.457	0.638	0.423	0.161
	TIME OF CONCENTRATION (Tc)	(Hours)	1.468	1.388	1.248	1.210	1.219
	RAINFALL INTENSITY	(mm/h)	45.143	47.130	51.054	52.248	51.941
	CATCHMENT DISCHARGE AT INLET (SDF METHOD)	(m^3/s)	10.462	6.178	2.928	1.986	0.752
	CAPACITY	(m^3/s)	12.480	2.160	3.600	2.700	1.350
	Hw/D RATIO AT CAPACITY		1.200	1.200	1.200	1.200	1.200
	VELOCITY AT OUTLET**		2.270	4.206	4.400	4.413	3.342
ROAD DATA	ROAD LEVEL - LEFT SHOULDER	RL (m)	1160.838	1161.522	1162.877	1164.552	1166.043
	ROAD LEVEL - ROAD S/L	RM (m)	1160.853	1161.538	1162.894	1164.430	1165.829
	ROAD LEVEL - RIGHT SHOULDER	RR (m)	1160.827	1161.511	1162.867	1164.264	1165.691
	ROAD FORMATION WIDTH	F (m)	31.050	30.901	30.900	43.315	37.603
CULVERT DATA	FLOOR SLOPE	S (%)	0.960	0.680	2.220	2.510	1.971
	INVERT LEVEL - LEFT	IL (m)	1159.080	1159.550	1160.380	1161.880	1164.030
	INVERT LEVEL - RIGHT	IR (m)	1158.914	1159.426	1160.055	1161.329	1163.645
	EXISTING INVERT LEVEL LEFT	EIL (m)	1159.080	1159.690	1160.930	1162.740	1164.742
	EXISTING INVERT LEVEL RIGHT	EIR (m)	1159.080	1159.550	1160.380	1161.880	1164.030
	FILL HEIGHT - LEFT	HL (m)	0.764	1.595	1.868	2.069	1.370
	FILL HEIGHT - RIGHT	HR (m)	0.570	1.342	1.783	2.030	1.232
	LENGTH - LEFT TO ROAD S/L (MEDIAN)	LL (m)	18.323	18.820	19.803	27.147	23.756
	TOTAL LENGTH - INLET TO OUTLET	L (m)	36.369	38.936	39.390	56.194	47.410
	EXISTING LENGTH LEFT	ELL (m)	18.323	18.820	19.803	27.147	23.756
	EXISTING LENGTH RIGHT	ELR (m)	0.966	1.816	4.950	7.094	4.137
	ADDITION LEFT	AL (m)	0.000	0.000	0.000	0.000	0.000
	NUMBER OF UNITS (LEFT)	NUMBER	0.000	0.000	0.000	0.000	0.000
	ADDITION RIGHT	AR (m)	17.080	18.300	14.636	21.953	19.518
	NUMBER OF UNITS (RIGHT)	NUMBER	14.000	15.000	12.000	18.000	16.000
	INTERNAL CHAMBER DIMENSIONS	(m)	6.5 x 2.0		3.5 x 1.5		
	GRID INLET TYPE *		1 x TYPE "B" MEDIAN		1 x TYPE "B" MEDIAN		

NOTES

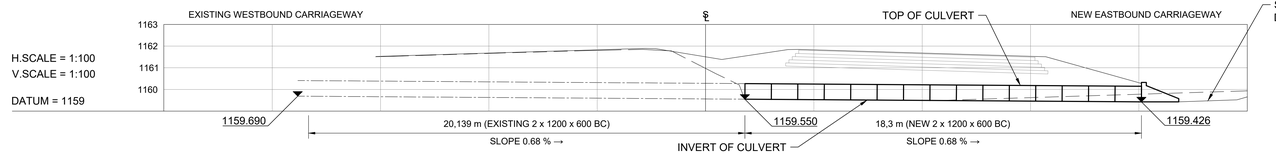
* GRID INLET TYPE "B" DIMENSIONS ARE 0.489 x 0.809

** ALL APRON SLABS AT OUTLETS ARE TO BE CONCRETE LINED WITH GABION MATTRESSES

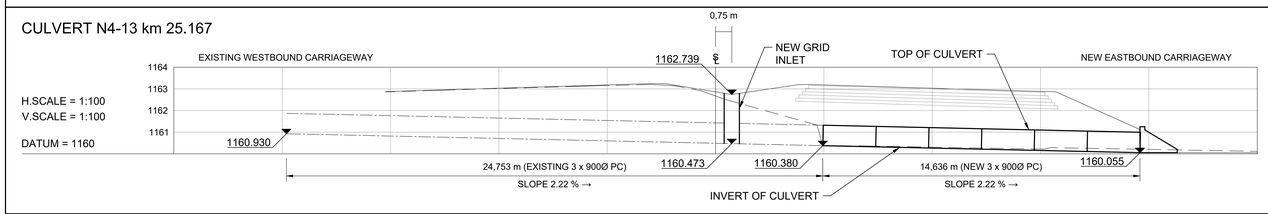
CULVERT N4-13 km 24.657



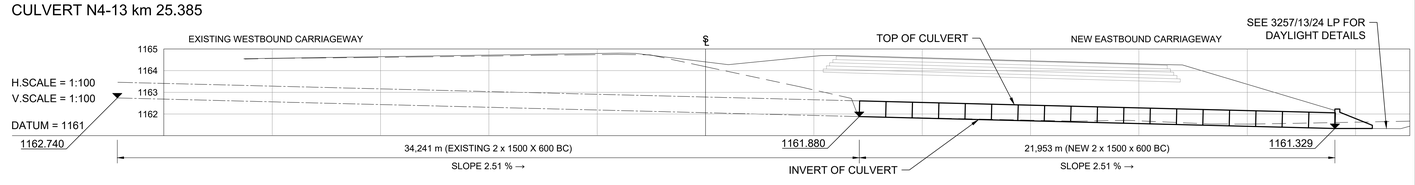
CULVERT N4-13 km 24.917



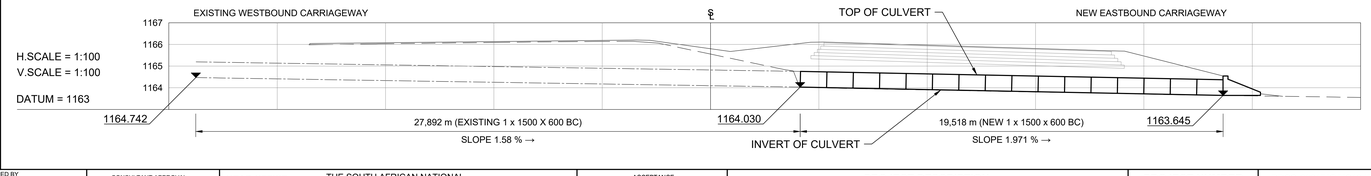
CULVERT N4-13 km 25.167



CULVERT N4-13 km 25.385



CULVERT N4-13 km 25.525



No.	DATE	REVISION	
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

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Southdowns Ridge Office park, 2nd Floor Unit 1A, Cnr John Vorster & Nellmapius Drive, Irene, Centurion
Tel: +27 11 519-0400, Fax: +27 11 519-0414

DESIGNED BY: NAME JG PEIRSON; Prof. Reg. No. -
CHECKED BY: NAME PL NGQUMSHE; Prof. Reg. No. 20080112
DRAWN BY: NAME JG PEIRSON

CONSULTANT APPROVAL: Name PL NGQUMSHE; Prof. Reg. No. : 20080112; Date : 17 / 07 / 2023

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Pretoria 0001
South Africa
Tel: (012) 844 8000

THE SOUTH AFRICAN NATIONAL ROADS AGENCY SOC LTD
Reg. No. 1998/009584/30

NORTHERN REGION
38 Ida Street
Menlo Park
Pretoria
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Private Bag X17
Lynnwood Ridge
0040
Tel: (012) 426 6200

ACCEPTANCE
THIS ACCEPTANCE IS FOR PROCEDURAL AND ADMINISTRATIVE REVIEW PURPOSES ONLY AND DOES NOT ATTRACT LEGAL LIABILITY OR LIABILITY OF ANY KIND FROM WHATSOEVER CAUSE OR HOWEVER ARISING
for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

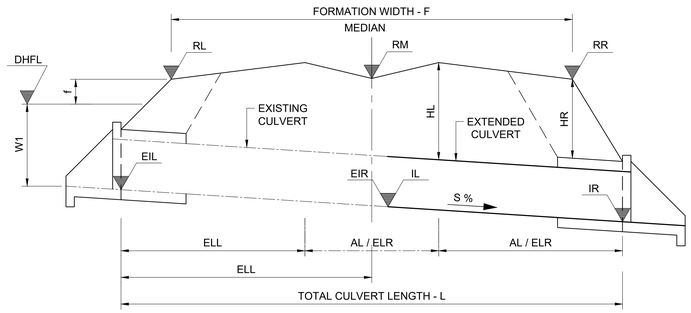
DRAWING DESCRIPTION
CULVERT SCHEDULE N4-13
CULVERTS BETWEEN km 24.657 TO 25.525

SCALE : AS SHOWN (A0) | SHEET 22 OF 40

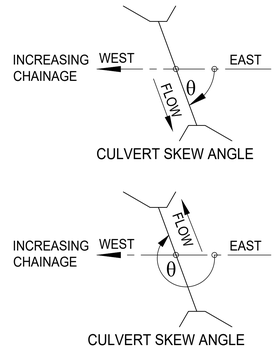
PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001		
DRAWING LOCATION DATA	START	END	
ROUTE	N 4	N 4	
SECTION	SECTION 13	SECTION 13	
DRAWING km DISTANCE	km 24.657	km 25.525	
DRAWING TYPE	ROADS - LAYOUTS		
BRIDGE/STRUCTURE No.	NA		
CONSULTANT DRAWING No.	FA	3257 / 23 / 22 CS	VER
SANRAL DOCUMENT #		- -	V0

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\07 - Culvert Schedule\3257-23-01-28CS-CULVERT SCHEDULE_20230717.dwg



TYPICAL LONGITUDINAL SECTION OF CULVERT
UNDER DOUBLE CARRIAGEWAY ROAD
SCALE: SCHEMATIC



NOTE:

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KEY TO CULVERT TYPES:

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SCI - SPECIAL CULVERT INLET
FA - FARM ACCESS
SDW - SIDE DRAIN WING WALL
DI - DROP INLET

LEGEND

EXISTING CULVERT
NEW CULVERT
EXISTING GROUND

TENDER

	ITEM NUMBER		106	107	108	109	110
CULVERT DESCRIPTION	ROAD KILOMETRE DISTANCE		25.626	25.847	26.234	26.487	26.727
	TYPE OF CULVERT		2 X BC	2 X BC	1 X BC	1 X PC	1 X BC
	SPAN / DIA	(mm)	900	1200	1200	675	1200
	HEIGHT	(mm)	600	600	1200	-	450
	PIPE & BEDDING CLASS		175S	150S	150S	100D/B	150S
	SKEW ANGLE	°(DEG)	307	272	315	308	300
HYDROLOGICAL DATA	CATCHMENT AREA	(km²)	0.393	0.548	0.681	0.102	0.182
	TIME OF CONCENTRATION (Tc)	(Hours)	1.210	1.252	1.195	0.820	1.012
	RAINFALL INTENSITY	(mm/h)	52.250	50.935	52.718	69.023	59.511
	CATCHMENT DISCHARGE AT INLET (SDF METHOD)	(m³/s)	1.846	2.509	3.228	0.633	0.977
	CAPACITY	(m³/s)	1.620	2.160	3.120	0.520	0.660
	Hw/D RATIO AT CAPACITY		1.200	1.200	1.200	1.200	1.200
	VELOCITY AT OUTLET**		3.799	3.872	4.982	3.479	4.241
ROAD DATA	ROAD LEVEL - LEFT SHOULDER	RL (m)	1167.041	1168.880	1172.542	1175.812	1178.737
	ROAD LEVEL - ROAD S/L	RM (m)	1166.856	1168.894	1172.272	1175.566	1178.531
	ROAD LEVEL - RIGHT SHOULDER	RR (m)	1166.714	1168.863	1172.115	1175.491	1178.506
	ROAD FORMATION WIDTH	F (m)	38.506	30.911	43.663	39.015	35.677
CULVERT DATA	FLOOR SLOPE	S (%)	1.590	1.260	1.280	1.650	2.050
	INVERT LEVEL - LEFT	IL (m)	1165.310	1167.300	1170.550	1174.020	1177.360
	INVERT LEVEL - RIGHT	IR (m)	1164.999	1167.070	1170.221	1173.657	1176.959
	EXISTING INVERT LEVEL LEFT	EIL (m)	1165.730	1167.530	1170.880	1174.440	1177.870
	EXISTING INVERT LEVEL RIGHT	EIR (m)	1165.310	1167.300	1170.550	1174.065	1177.360
	FILL HEIGHT - LEFT	HL (m)	1.148	1.222	0.732	1.140	0.957
	FILL HEIGHT - RIGHT	HR (m)	0.957	1.030	0.529	1.041	0.923
	LENGTH - LEFT TO ROAD S/L (MEDIAN)	LL (m)	22.456	17.142	25.065	22.655	22.586
	TOTAL LENGTH - INLET TO OUTLET	L (m)	45.868	36.604	51.305	47.361	44.363
	EXISTING LENGTH LEFT	ELL (m)	22.456	17.142	25.065	22.655	22.586
	EXISTING LENGTH RIGHT	ELR (m)	3.893	1.164	0.622	2.750	2.261
	ADDITION LEFT	AL (m)	0.000	0.000	0.000	0.000	0.000
	NUMBER OF UNITS (LEFT)	NUMBER	0.000	0.000	0.000	0.000	0.000
	ADDITION RIGHT	AR (m)	19.518	18.299	25.618	21.957	19.516
	NUMBER OF UNITS (RIGHT)	NUMBER	16.000	15.000	21.000	9.000	16.000
	INTERNAL CHAMBER DIMENSIONS	(m)	3.0 x 1.5		2.5 x 2.0		
	GRID INLET TYPE *		1 x TYPE "B" MEDIAN		1 x TYPE "B" MEDIAN		

NOTES

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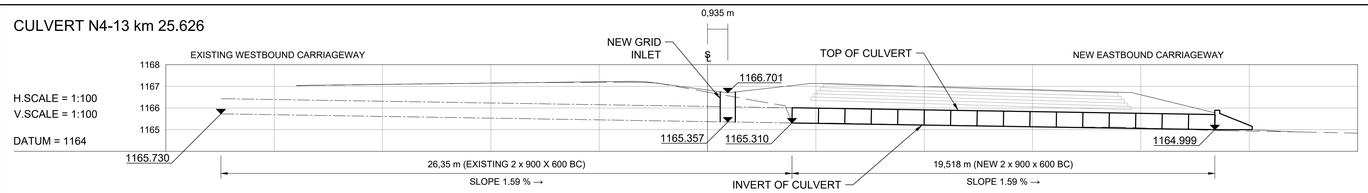
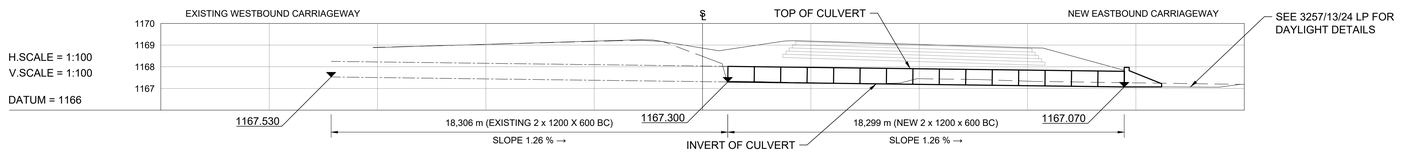
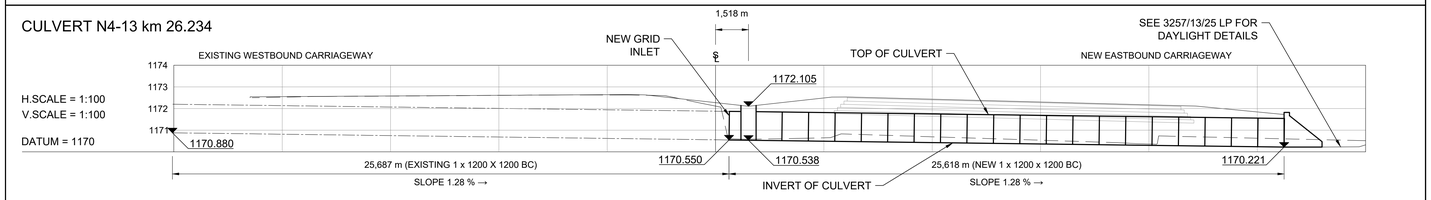
CULVERT N4-13 km 25.626



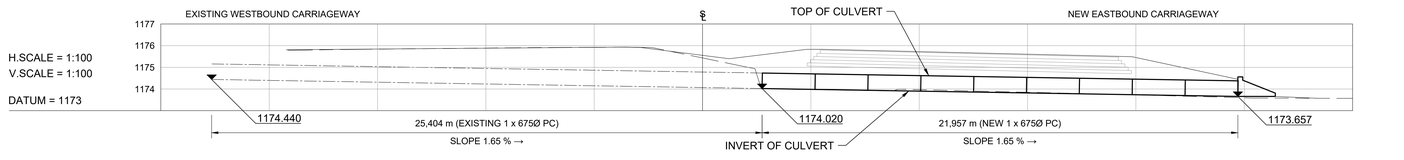
CULVERT N4-13 km 25.847



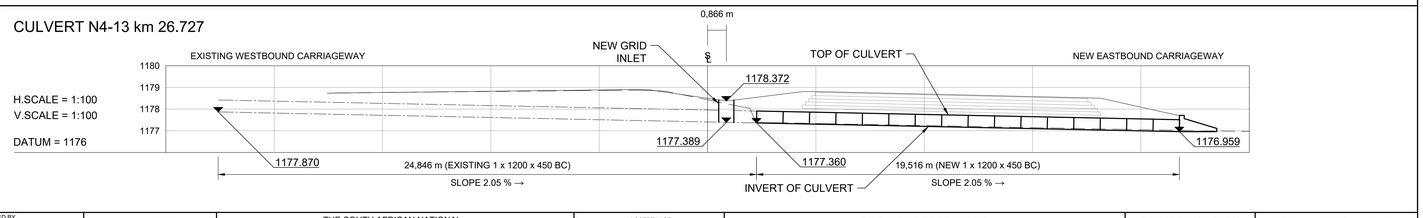
CULVERT N4-13 km 26.234



CULVERT N4-13 km 26.487



CULVERT N4-13 km 26.727



No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date :

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Fax: +27 11 807-1607
e-mail: johannesburg@jgafrika.com

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DESIGNED BY	
NAME	JG PEIRSON
Prof. Reg. No.	-
CHECKED BY	
NAME	PL NGQUMSHE
Prof. Reg. No.	20080112
DRAWN BY	
NAME	JG PEIRSON

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17 / 07 / 2023

HEAD OFFICE
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0184
PO Box 415
Pretoria 0001
South Africa
Tel: (012) 844 8000

THE SOUTH AFRICAN NATIONAL ROADS AGENCY SOC LTD
Reg. No. 1998/009584/30

NORTHERN REGION
38 Ida Street
Menlo Park
Pretoria
0081
Private Bag X17
Lynnwood Ridge
0040
Tel: (012) 426 6200

ACCEPTANCE
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for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

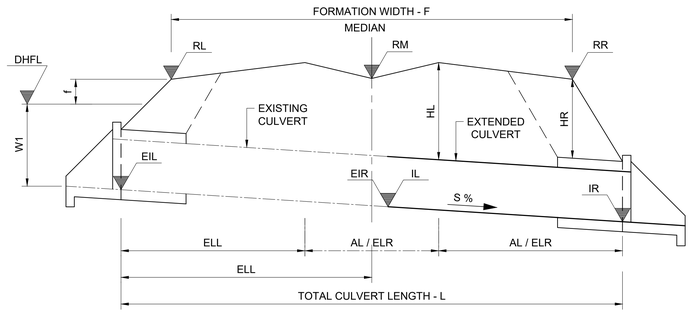
DRAWING DESCRIPTION
CULVERT SCHEDULE N4-13
CULVERTS BETWEEN km 25.626 TO 26.727

SCALE : AS SHOWN (A0) | SHEET 23 OF 40

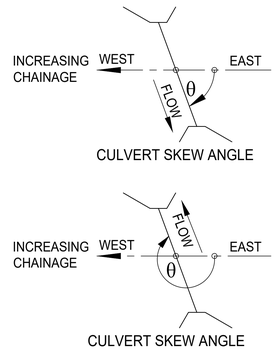
PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	SECTION 13	SECTION 13
DRAWING km DISTANCE	km 25.626	km 26.727
DRAWING TYPE	ROADS - LAYOUTS	
BRIDGE/STRUCTURE No.	NA	
CONSULTANT DRAWING No.	FA 3257 / 23 / 23 CS	VER V0
SANRAL DOCUMENT #	- -	

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\07 - Culvert Schedule\3257-23-01-28CS-CULVERT SCHEDULE_20230717.dwg



TYPICAL LONGITUDINAL SECTION OF CULVERT
UNDER DOUBLE CARRIAGEWAY ROAD
SCALE: SCHEMATIC



NOTE:

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KEY TO CULVERT TYPES:

PC - PIPE CULVERT (UNIT LENGTHS 2,44m)
BC - BOX CULVERT (UNIT LENGTHS 1,22m)
OC - OVAL CULVERT
IBC - IN-SITU BOX CULVERT
APC - ARMCO PIPE CULVERT
MH - MANHOLE
SI - SIDE INLET
SCI - SPECIAL CULVERT INLET
FA - FARM ACCESS
SDW - SIDE DRAIN WING WALL
DI - DROP INLET

LEGEND

EXISTING CULVERT
NEW CULVERT
EXISTING GROUND

TENDER

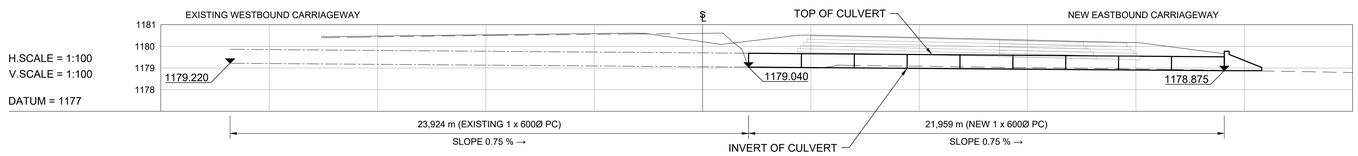
	ITEM NUMBER		111	112	113	114
CULVERT DESCRIPTION	ROAD KILOMETRE DISTANCE		26.877	27.277	27.476	27.600
	TYPE OF CULVERT		1 X PC	1 X PC	2 X PC	1 X PC
	SPAN / DIA	(mm)	600	600	600	600
	HEIGHT	(mm)	-	-	-	-
	PIPE & BEDDING CLASS		100D/B	100D/B	100D/B	100D/B
	SKEW ANGLE	°(DEG)	300	270	224	270
HYDROLOGICAL DATA	CATCHMENT AREA	(km^2)	0.153	0.198	0.127	0.002
	TIME OF CONCENTRATION (Tc)	(Hours)	1.017	0.977	0.972	1.598
	RAINFALL INTENSITY	(mm/h)	59.315	61.035	61.285	56.000
	CATCHMENT DISCHARGE AT INLET (SDF METHOD)	(m^3/s)	0.814	1.089	0.698	0.009
	CAPACITY	(m^3/s)	0.450	0.450	0.900	0.450
	Hw/D RATIO AT CAPACITY		1.200	1.200	1.200	1.200
	VELOCITY AT OUTLET**		2.400	3.300	3.069	0.028
ROAD DATA	ROAD LEVEL - LEFT SHOULDER	RL (m)	1180.445	1183.977	1183.777	1183.117
	ROAD LEVEL - ROAD S/L	RM (m)	1180.235	1183.948	1183.682	1183.000
	ROAD LEVEL - RIGHT SHOULDER	RR (m)	1180.168	1183.993	1183.570	1183.217
	ROAD FORMATION WIDTH	F (m)	37.739	30.402	46.162	11.600
CULVERT DATA	FLOOR SLOPE	S (%)	0.750	1.540	1.570	0.500
	INVERT LEVEL - LEFT	IL (m)	1179.040	1182.110	1181.740	1181.913
	INVERT LEVEL - RIGHT	IR (m)	1178.875	1181.433	1181.358	1181.821
	EXISTING INVERT LEVEL LEFT	EIL (m)	1179.220	1182.420	1182.177	-
	EXISTING INVERT LEVEL RIGHT	EIR (m)	1179.040	1182.110	1181.740	-
	FILL HEIGHT - LEFT	HL (m)	0.857	1.549	1.622	-
	FILL HEIGHT - RIGHT	HR (m)	0.630	1.837	1.481	0.640
	LENGTH - LEFT TO ROAD S/L (MEDIAN)	LL (m)	21.804	18.591	24.028	-
	TOTAL LENGTH - INLET TO OUTLET	L (m)	45.883	64.028	52.320	19.323
	EXISTING LENGTH LEFT	ELL (m)	21.804	18.591	24.028	-
	EXISTING LENGTH RIGHT	ELR (m)	2.120	1.523	3.894	-
	ADDITION LEFT	AL (m)	0.000	0.000	0.000	-
	NUMBER OF UNITS (LEFT)	NUMBER	0.000	0.000	0.000	-
	ADDITION RIGHT	AR (m)	21.959	43.915	24.397	19.323
	NUMBER OF UNITS (RIGHT)	NUMBER	9.000	18.000	10.000	8.000
	INTERNAL CHAMBER DIMENSIONS	(m)		0.9 x 0.9	2.0 x 1.5	0.9 x 0.9
	GRID INLET TYPE *			1 x TYPE "B" MEDIAN	1 x TYPE "B" MEDIAN	1 x TYPE "B" MEDIAN

NOTES

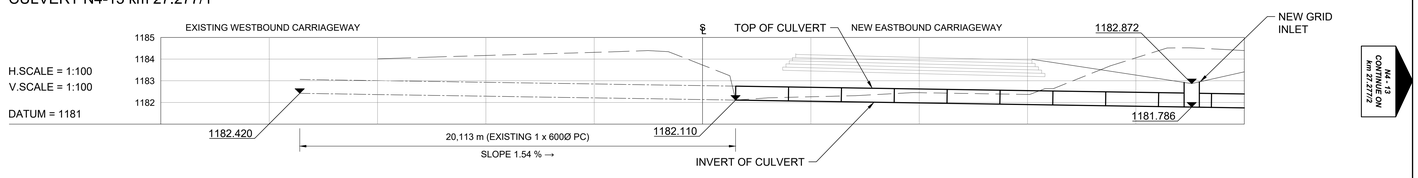
* GRID INLET TYPE "B" DIMENSIONS ARE 0.489 x 0.809

** ALL APRON SLABS AT OUTLETS ARE TO BE CONCRETE LINED WITH GABION MATTRESSES

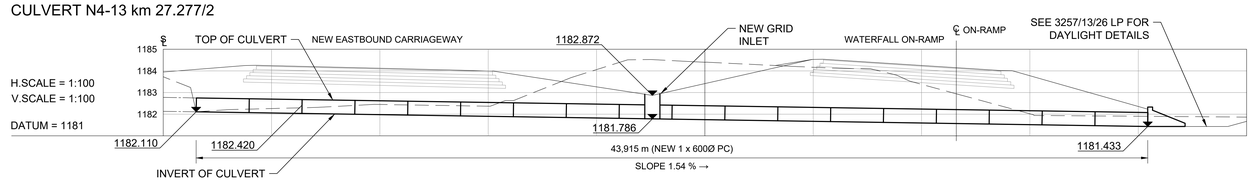
CULVERT N4-13 km 26.877



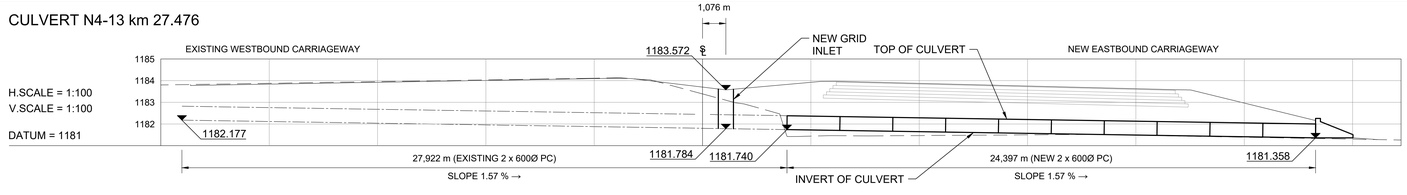
CULVERT N4-13 km 27.277/1



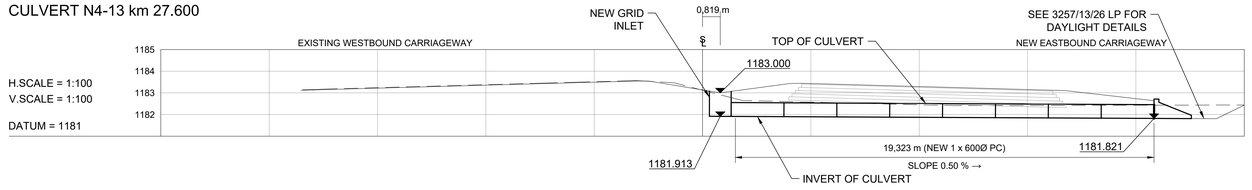
CULVERT N4-13 km 27.277/2



CULVERT N4-13 km 27.476



CULVERT N4-13 km 27.600



No.	DATE	REVISION	
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

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DESIGNED BY: JG PEIRSON
CHECKED BY: PL NGQUMSHE
DRAWN BY: JG PEIRSON

CONSULTANT APPROVAL
Name: PL NGQUMSHE
Prof. Reg. No.: 20080112
Date: 17 / 07 / 2023

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THE SOUTH AFRICAN NATIONAL ROADS AGENCY SOC LTD
Reg. No. 1998/009584/30

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Tel: (012) 426 6200

ACCEPTANCE
THIS ACCEPTANCE IS FOR PROCEDURAL AND ADMINISTRATIVE REVIEW PURPOSES ONLY AND DOES NOT ATTRACT LEGAL LIABILITY OR LIABILITY OF ANY KIND FROM WHATSOEVER CAUSE OR HOWEVER ARISING
for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

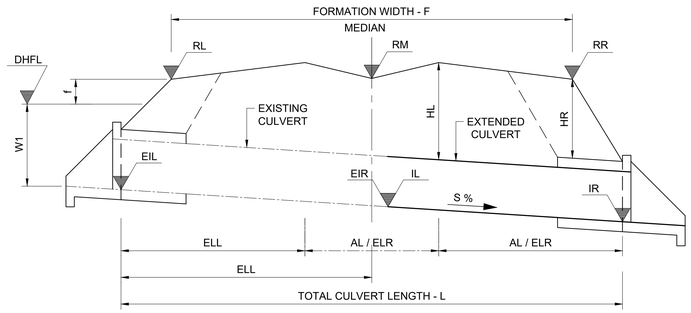
DRAWING DESCRIPTION
CULVERT SCHEDULE N4-13
CULVERTS BETWEEN km 26.877 TO 27.600

SCALE : AS SHOWN (A0) | SHEET 24 OF 40

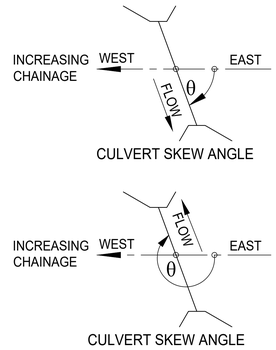
PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001		
DRAWING LOCATION DATA	START	END	
ROUTE	N 4	N 4	
SECTION	SECTION 13	SECTION 13	
DRAWING km DISTANCE	km 26.877	km 27.600	
DRAWING TYPE	ROADS - LAYOUTS		
BRIDGE/STRUCTURE No.	NA		
CONSULTANT DRAWING No.	FA	3257 / 23 / 24 CS	VER
SANRAL DOCUMENT #		- -	V0

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\07 - Culvert Schedule\3257-23-01-28CS-CULVERT SCHEDULE_20230717.dwg



TYPICAL LONGITUDINAL SECTION OF CULVERT
UNDER DOUBLE CARRIAGEWAY ROAD
SCALE: SCHEMATIC



NOTE:

1. CULVERT EXTENSIONS ON LEFT AND RIGHT HAND SIDE REQUIRED ONLY IF DIMENSIONS AL AND AR IN SCHEDULE = 0
2. GRID INLET DIMENSIONS ARE INSIDE DIMENSIONS

KEY TO CULVERT TYPES:

PC - PIPE CULVERT (UNIT LENGTHS 2,44m)
BC - BOX CULVERT (UNIT LENGTHS 1,22m)
OC - OVAL CULVERT
IBC - IN-SITU BOX CULVERT
APC - ARMCO PIPE CULVERT
MH - MANHOLE
SI - SIDE INLET
SCI - SPECIAL CULVERT INLET
FA - FARM ACCESS
SDW - SIDE DRAIN WING WALL
DI - DROP INLET

LEGEND

- EXISTING CULVERT
- NEW CULVERT
- EXISTING GROUND

TENDER

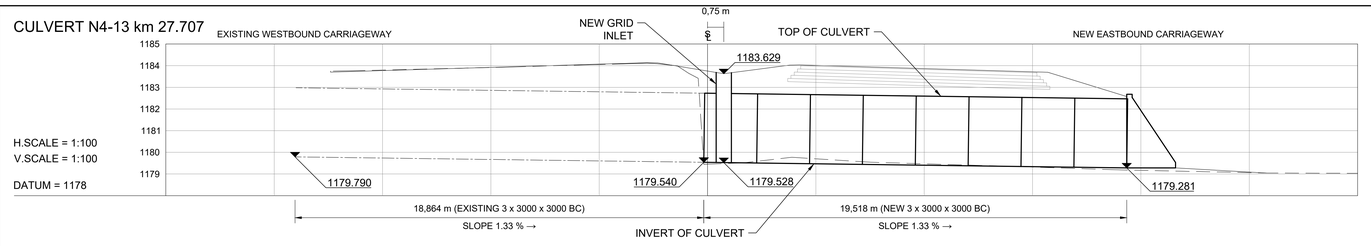
CULVERT DESCRIPTION	ITEM NUMBER		115	116	117	118
	ROAD KILOMETRE DISTANCE		27.707	28.147	28.612	29.627
	TYPE OF CULVERT		-	1 X PC	3 X PC	2 X PC
	SPAN / DIA	(mm)	-	600	900	900
	HEIGHT	(mm)	-	-	-	-
	PIPE & BEDDING CLASS		-	100D/B	100D/B	100D/B
	SKEW ANGLE	°(DEG)	-	270	302	269
HYDROLOGICAL DATA	CATCHMENT AREA	(km²)	-	0.175	0.171	0.136
	TIME OF CONCENTRATION (Tc)	(Hours)	-	0.512	0.585	0.467
	RAINFALL INTENSITY	(mm/h)	-	93.674	86.246	98.981
	CATCHMENT DISCHARGE AT INLET (SDF METHOD)	(m³/s)	-	1.480	1.074	0.368
	CAPACITY	(m³/s)	-	0.450	3.600	2.400
	Hw/D RATIO AT CAPACITY		-	1.200	1.200	1.200
	VELOCITY AT OUTLET**		-	4.050	4.441	4.158
ROAD DATA	ROAD LEVEL - LEFT SHOULDER	RL (m)	-	1199.113	1222.221	1235.522
	ROAD LEVEL - ROAD S/L	RM (m)	-	1199.017	1221.691	1235.464
	ROAD LEVEL - RIGHT SHOULDER	RR (m)	-	1198.975	1227.866	1236.124
	ROAD FORMATION WIDTH	F (m)	-	35.954	38.942	31.827
CULVERT DATA	FLOOR SLOPE	S (%)	-	3.310	3.310	3.310
	INVERT LEVEL - LEFT	IL (m)	-	1196.220	1218.580	1233.890
	INVERT LEVEL - RIGHT	IR (m)	-	1195.492	1217.207	1230.970
	EXISTING INVERT LEVEL LEFT	EIL (m)	-	1196.870	1219.781	1233.890
	EXISTING INVERT LEVEL RIGHT	EIR (m)	-	1196.220	1218.580	1230.889
	FILL HEIGHT - LEFT	HL (m)	-	2.501	2.430	2.860
	FILL HEIGHT - RIGHT	HR (m)	-	2.577	2.891	3.881
	LENGTH - LEFT TO ROAD S/L (MEDIAN)	LL (m)	-	21.291	27.690	20.194
	TOTAL LENGTH - INLET TO OUTLET	L (m)	-	46.746	72.236	45.341
	EXISTING LENGTH LEFT	ELL (m)	-	21.291	27.690	20.194
	EXISTING LENGTH RIGHT	ELR (m)	-	2.873	3.090	25.147
	ADDITION LEFT	AL (m)	-	0.000	0.000	0.000
	NUMBER OF UNITS (LEFT)	NUMBER	-	0.000	0.000	0.000
	ADDITION RIGHT	AR (m)	-	21.952	41.456	2.440
	NUMBER OF UNITS (RIGHT)	NUMBER	-	9.000	17.000	1.000
	INTERNAL CHAMBER DIMENSIONS	(m)	4.0 x 2.0	0.9 x 0.9	4.0 x 2.0	2.0 x 1.5
	GRID INLET TYPE *		1 x TYPE "B" MEDIAN	1 x TYPE "B" MEDIAN	1 x TYPE "B" MEDIAN	1 x TYPE "B" MEDIAN
	S4002 - FOR DETAILS SEE 3407/C4002/02-GA					

NOTES

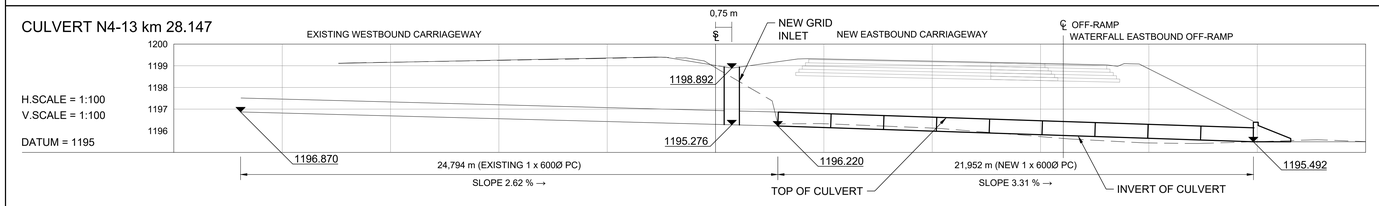
* GRID INLET TYPE "B" DIMENSIONS ARE 0.489 x 0.809

** ALL APRON SLABS AT OUTLETS ARE TO BE CONCRETE LINED WITH GABION MATTRESSES

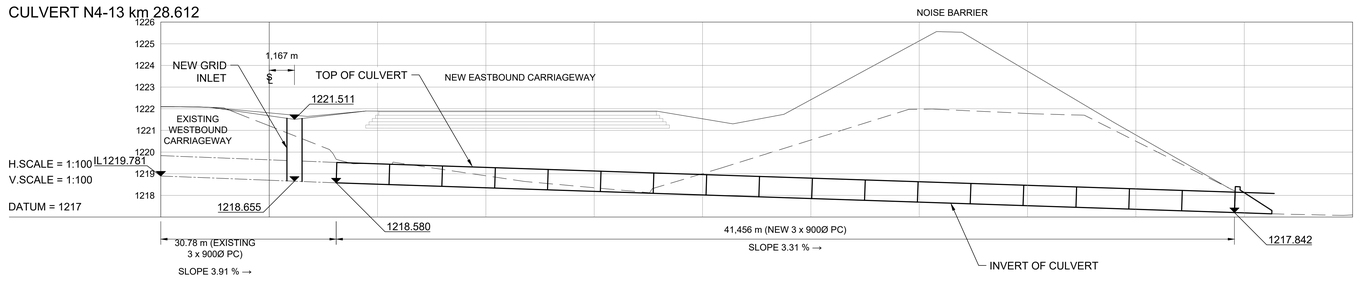
CULVERT N4-13 km 27.707



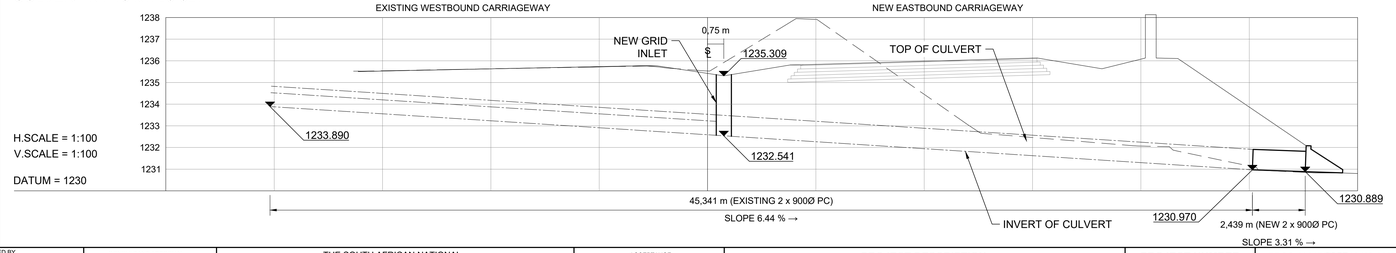
CULVERT N4-13 km 28.147



CULVERT N4-13 km 28.612



CULVERT N4-13 km 29.627



No.	DATE	REVISION	
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

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Fax: +27 11 519-0414

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date :

DESIGNED BY
NAME: JG PEIRSON
Prof. Reg. No.: -
CHECKED BY
NAME: PL NGQUMSHE
Prof. Reg. No.: 20080112
DRAWN BY
NAME: JG PEIRSON

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17 / 07 / 2023

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THE SOUTH AFRICAN NATIONAL ROADS AGENCY SOC LTD
Reg. No. 1998/009584/30

NORTHERN REGION
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ACCEPTANCE
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for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION
CULVERT SCHEDULE N4-13
CULVERTS BETWEEN km 27.707 TO 29.627

SCALE : AS SHOWN (A0) | SHEET 25 OF 40

PROJECT NUMBER	BPCC-2024/[illegible]318 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	SECTION 13	SECTION 13
DRAWING km DISTANCE	km 27.707	km 29.627
DRAWING TYPE	ROADS - LAYOUTS	
BRIDGE/STRUCTURE No.	NA	
CONSULTANT DRAWING No.	FA 3257 / 23 / 25 CS	VER V0
SANRAL DOCUMENT #	- -	

SANRAL DOCUMENT NUMBER :

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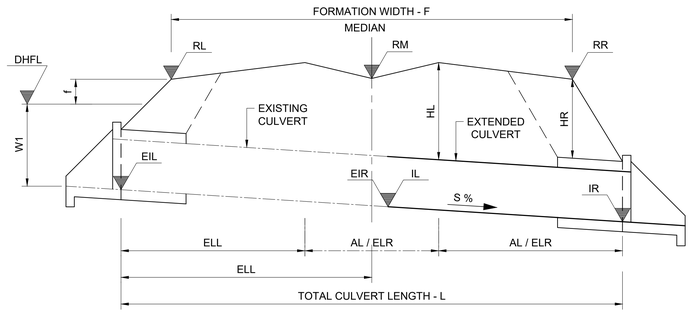
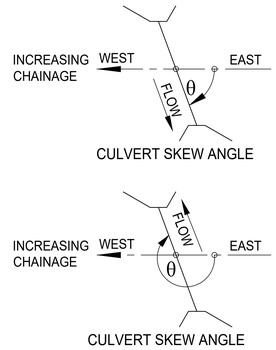


TYPICAL LONGITUDINAL SECTION OF CULVERT
UNDER DOUBLE CARRIAGEWAY ROAD
SCALE: SCHEMATIC



NOTE:

1. CULVERT EXTENSIONS ON LEFT AND RIGHT HAND SIDE REQUIRED ONLY IF DIMENSIONS AL AND AR IN SCHEDULE = 0
2. GRID INLET DIMENSIONS ARE INSIDE DIMENSIONS

KEY TO CULVERT TYPES:

PC - PIPE CULVERT (UNIT LENGTHS 2,44m)
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SCI - SPECIAL CULVERT INLET
FA - FARM ACCESS
SDW - SIDE DRAIN WING WALL
DI - DROP INLET

LEGEND

EXISTING CULVERT
NEW CULVERT
EXISTING GROUND

TENDER

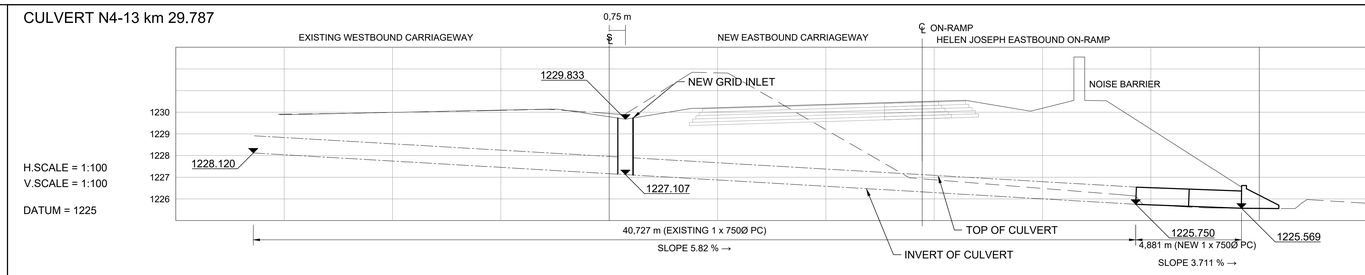
	ITEM NUMBER		119	120	121	122
CULVERT DESCRIPTION	ROAD KILOMETRE DISTANCE		29.787	29.997	30.187	30.367
	TYPE OF CULVERT		1 X PC	2 X PC	1 X PC	2 X PC
	SPAN / DIA	(mm)	750	750	900	750
	HEIGHT	(mm)	-	-	-	-
	PIPE & BEDDING CLASS		100D/B	100D/B	100D/B	100D/B
	SKEW ANGLE	°(DEG)	270	270	270	270
HYDROLOGICAL DATA	CATCHMENT AREA	(km^2)	0.040	0.117	0.062	0.023
	TIME OF CONCENTRATION (Tc)	(Hours)	0.548	0.464	0.513	0.499
	RAINFALL INTENSITY	(mm/h)	89.879	99.380	93.606	95.183
	CATCHMENT DISCHARGE AT INLET (SDF METHOD)	(m^3/s)	0.963	0.572	0.607	0.204
	CAPACITY	(m^3/s)	0.800	1.600	1.200	1.600
	Hw/D RATIO AT CAPACITY		1.200	1.200	1.200	1.200
	VELOCITY AT OUTLET**		5.950	3.685	4.690	2.296
ROAD DATA	ROAD LEVEL - LEFT SHOULDER	RL (m)	1229.886	1222.594	1218.307	1216.645
	ROAD LEVEL - ROAD S/L	RM (m)	1229.833	1222.665	1218.171	1216.384
	ROAD LEVEL - RIGHT SHOULDER	RR (m)	1230.549	1223.368	1219.075	1217.011
	ROAD FORMATION WIDTH	F (m)	32.146	36.352	40.151	30.202
CULVERT DATA	FLOOR SLOPE	S (%)	3.711	3.290	4.410	2.120
	INVERT LEVEL - LEFT	IL (m)	1228.120	1218.470	1213.890	1213.980
	INVERT LEVEL - RIGHT	IR (m)	1225.569	1217.989	1213.353	1213.566
	EXISTING INVERT LEVEL LEFT	EIL (m)	1228.120	1219.690	1215.690	1214.662
	EXISTING INVERT LEVEL RIGHT	EIR (m)	1225.750	1218.470	1213.890	1213.980
	FILL HEIGHT - LEFT	HL (m)	2.479	3.099	2.955	1.647
	FILL HEIGHT - RIGHT	HR (m)	3.783	4.124	4.448	2.139
	LENGTH - LEFT TO ROAD S/L (MEDIAN)	LL (m)	16.427	16.784	20.780	23.964
	TOTAL LENGTH - INLET TO OUTLET	L (m)	45.607	44.446	53.017	66.632
	EXISTING LENGTH LEFT	ELL (m)	16.427	16.784	20.780	23.964
	EXISTING LENGTH RIGHT	ELR (m)	24.300	20.346	20.048	17.152
	ADDITION LEFT	AL (m)	0.000	0.000	0.000	0.000
	NUMBER OF UNITS (LEFT)	NUMBER	0.000	0.000	0.000	0.000
	ADDITION RIGHT	AR (m)	4.880	14.632	12.188	19.516
	NUMBER OF UNITS (RIGHT)	NUMBER	2.000	6.000	5.000	8.000
	INTERNAL CHAMBER DIMENSIONS	(m)	1.2 x 0.9	2.0 x 1.5		2.0 x 1.5
	GRID INLET TYPE *		1 x TYPE "B" MEDIAN	1 x TYPE "B" MEDIAN		1 x TYPE "B" MEDIAN

NOTES

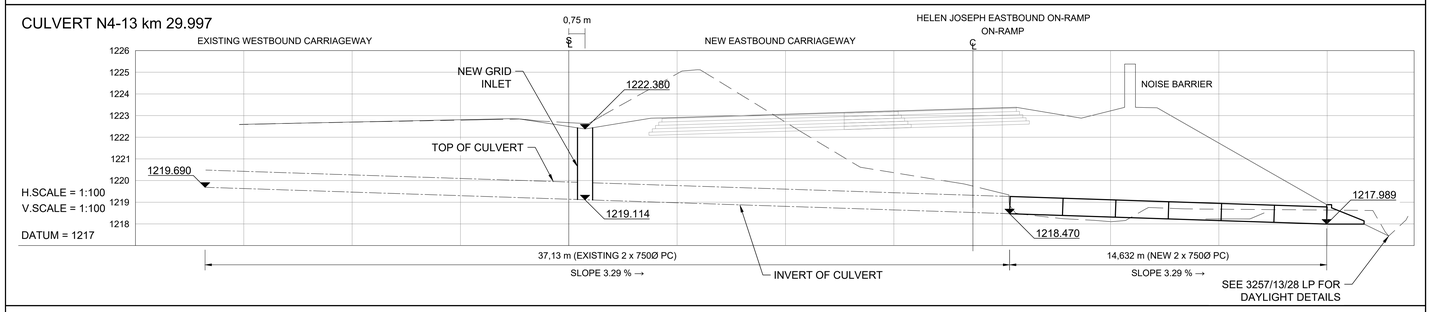
* GRID INLET TYPE "B" DIMENSIONS ARE 0.489 x 0.809

** ALL APRON SLABS AT OUTLETS ARE TO BE CONCRETE LINED WITH GABION MATTRESSES

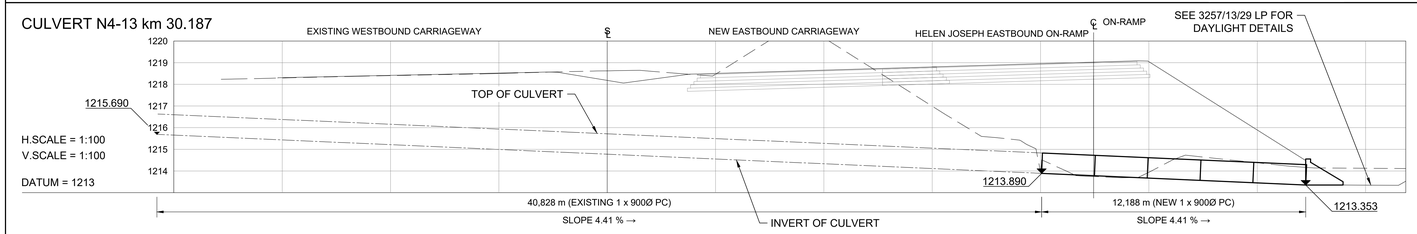
CULVERT N4-13 km 29.787



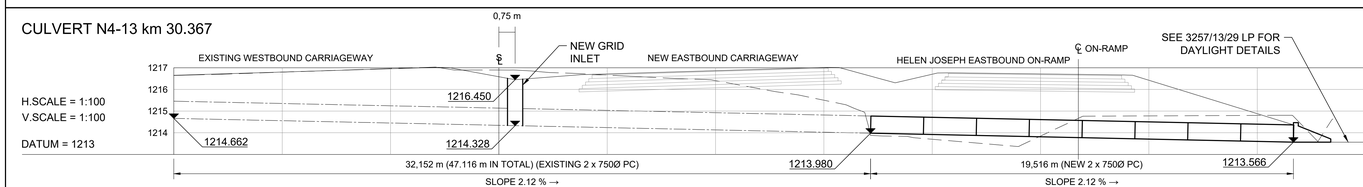
CULVERT N4-13 km 29.997



CULVERT N4-13 km 30.187



CULVERT N4-13 km 30.367



No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date :

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Prof. Reg. No.: -
CHECKED BY
NAME: PL NGQUMSHE
Prof. Reg. No.: 20080112
DRAWN BY
NAME: JG PEIRSON

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17 / 07 / 2023

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THE SOUTH AFRICAN NATIONAL ROADS AGENCY SOC LTD
Reg. No. 1998/009584/30

NORTHERN REGION
38 Ida Street
Menlo Park
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Lynnwood Ridge
0040
Tel: (012) 426 6200

ACCEPTANCE
THIS ACCEPTANCE IS FOR PROCEDURAL AND ADMINISTRATIVE REVIEW PURPOSES ONLY AND DOES NOT ATTRACT LEGAL LIABILITY OR LIABILITY OF ANY KIND FROM WHATSOEVER CAUSE OR HOWEVER ARISING
for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

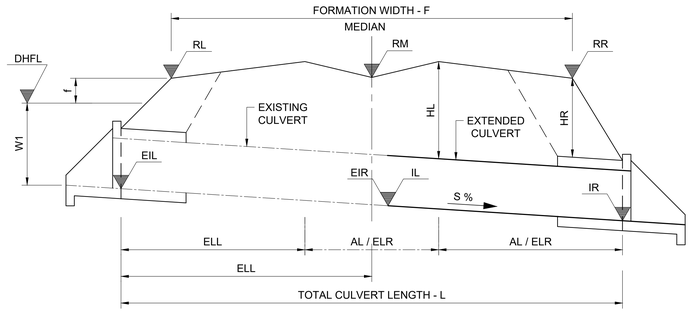
DRAWING DESCRIPTION
CULVERT SCHEDULE N4-13
CULVERTS BETWEEN km 29.787 TO 30.367

SCALE : AS SHOWN (A0) | SHEET 26 OF 40

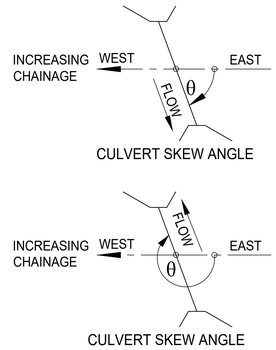
PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001		
DRAWING LOCATION DATA	START	END	
ROUTE	N 4	N 4	
SECTION	SECTION 13	SECTION 13	
DRAWING km DISTANCE	km 29.787	km 30.367	
DRAWING TYPE	ROADS - LAYOUTS		
BRIDGE/STRUCTURE No.	NA		
CONSULTANT DRAWING No.	FA	3257 / 23 / 26 CS	VER
SANRAL DOCUMENT #		- -	V0

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4 Roadworks\07 - Culvert Schedule\3257-23-01-26CS-CULVERT SCHEDULE_20230717.dwg



TYPICAL LONGITUDINAL SECTION OF CULVERT
UNDER DOUBLE CARRIAGEWAY ROAD
SCALE: SCHEMATIC



NOTE:

1. CULVERT EXTENSIONS ON LEFT AND RIGHT HAND SIDE REQUIRED ONLY IF DIMENSIONS AL AND AR IN SCHEDULE = 0
2. GRID INLET DIMENSIONS ARE INSIDE DIMENSIONS

KEY TO CULVERT TYPES:

PC - PIPE CULVERT (UNIT LENGTHS 2,44m)
BC - BOX CULVERT (UNIT LENGTHS 1,22m)
OC - OVAL CULVERT
IBC - IN-SITU BOX CULVERT
APC - ARMCO PIPE CULVERT
MH - MANHOLE
SI - SIDE INLET
SCI - SPECIAL CULVERT INLET
FA - FARM ACCESS
SDW - SIDE DRAIN WING WALL
DI - DROP INLET

LEGEND

EXISTING CULVERT
NEW CULVERT
EXISTING GROUND

TENDER

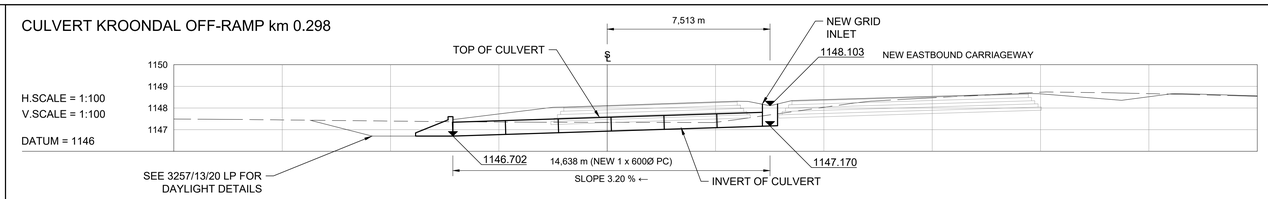
	ITEM NUMBER		123	124	125	126	127
CULVERT DESCRIPTION	ROAD KILOMETRE DISTANCE		0.298	0.493	0.139	0.045	30.807
	TYPE OF CULVERT		1 X PC	1 X PC	-	-	2 x PC
	SPAN / DIA	(mm)	600	600	-	-	675
	HEIGHT	(mm)	-	-	-	-	-
	PIPE & BEDDING CLASS		100D/B	100D/B	-	-	100D/B
	SKEW ANGLE	°(DEG)	270	270	-	-	270
HYDROLOGICAL DATA	CATCHMENT AREA	(km²)	-	-	-	-	0.178
	TIME OF CONCENTRATION (Tc)	(Hours)	-	-	-	-	0.967
	RAINFALL INTENSITY	(mm/h)	-	-	-	-	62.000
	CATCHMENT DISCHARGE AT INLET (SDF METHOD)	(m³/s)	-	-	-	-	1.108
	CAPACITY	(m³/s)	0.450	0.450	-	-	0.900
	Hw/D RATIO AT CAPACITY		1.200	1.200	-	-	1.200
	VELOCITY AT OUTLET**		1.970	2.296	-	-	1.959
ROAD DATA	ROAD LEVEL - LEFT SHOULDER	RL (m)	1148.033	1183.063	-	-	1216.980
	ROAD LEVEL - ROAD S/L	RM (m)	1148.111	1183.114	-	-	1216.646
	ROAD LEVEL - RIGHT SHOULDER	RR (m)	1148.314	1183.224	-	-	1217.315
	ROAD FORMATION WIDTH	F (m)	8.000	9.000	-	-	11.200
CULVERT DATA	FLOOR SLOPE	S (%)	3.200	1.630	-	-	1.098
	INVERT LEVEL - LEFT	IL (m)	1146.702	1181.761	-	-	1215.210
	INVERT LEVEL - RIGHT	IR (m)	1147.170	1182.000	-	-	1214.813
	EXISTING INVERT LEVEL LEFT	EIL (m)	-	-	-	-	1215.210
	EXISTING INVERT LEVEL RIGHT	EIR (m)	-	-	-	-	1215.000
	FILL HEIGHT - LEFT	HL (m)	0.535	0.588	-	-	1.074
	FILL HEIGHT - RIGHT	HR (m)	0.550	0.618	-	-	1.715
	LENGTH - LEFT TO ROAD S/L (MEDIAN)	LL (m)	7.120	7.018	-	-	18.022
	TOTAL LENGTH - INLET TO OUTLET	L (m)	14.638	14.638	-	-	36.379
	EXISTING LENGTH LEFT	ELL (m)	-	-	-	-	18.022
	EXISTING LENGTH RIGHT	ELR (m)	-	-	-	-	1.276
	ADDITION LEFT	AL (m)	7.120	7.018	-	-	-
	NUMBER OF UNITS (LEFT)	NUMBER	2.918	2.876	-	-	-
	ADDITION RIGHT	AR (m)	7.518	7.620	-	-	17.077
	NUMBER OF UNITS (RIGHT)	NUMBER	3.081	3.123	-	-	7
	INTERNAL CHAMBER DIMENSIONS	(m)	0.9 x 0.9	0.9 x 0.9			2.0 x 1.5
	GRID INLET TYPE *		1 x TYPE "B" MEDIAN	1 x TYPE "B" MEDIAN			1 x TYPE "B" MEDIAN
					S4001	S4000	

NOTES

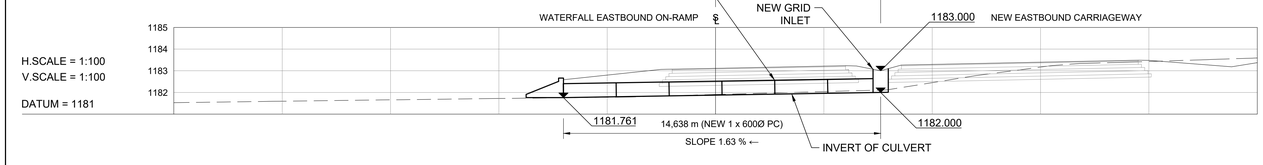
* GRID INLET TYPE "B" DIMENSIONS ARE 0.489 x 0.809

** ALL APRON SLABS AT OUTLETS ARE TO BE CONCRETE LINED WITH GABION MATTRESSES

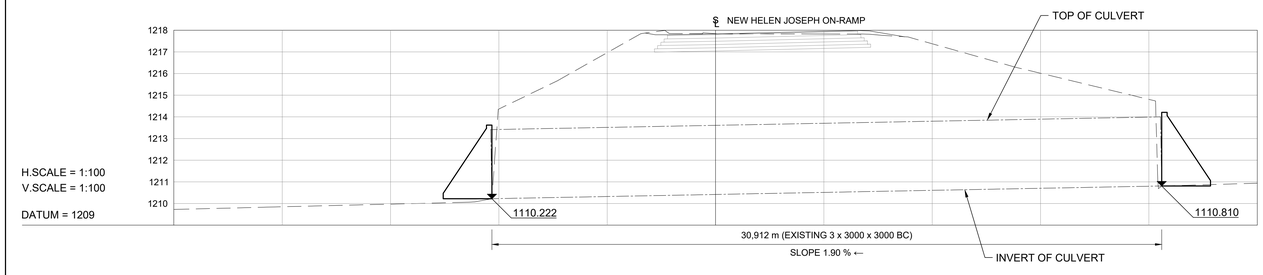
CULVERT KROONDAL OFF-RAMP km 0.298



CULVERT WATERFALL ON-RAMP km 0.493

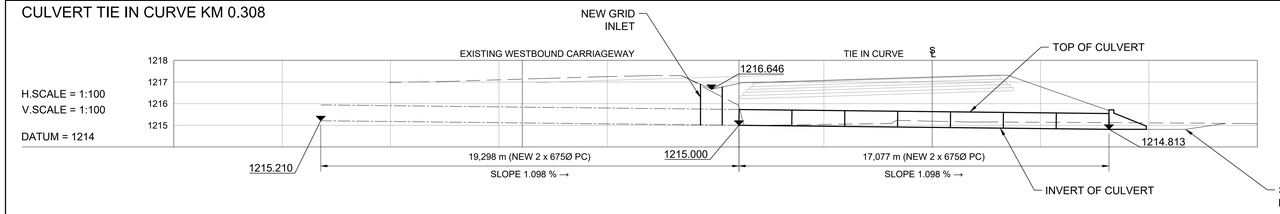


CULVERT HELEN JOSEPH ON-RAMP km 0.139



CULVERT TIE IN CURVE km 0.045 - S4000
- SEE DRAWING 3407/C4000/02-GA

CULVERT TIE IN CURVE KM 0.308



V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE	
No.	DATE	REVISION	CONSULT. ENG.	

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date :

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DESIGNED BY	
NAME	JG PEIRSON
Prof. Reg. No.	-
CHECKED BY	
NAME	PL NGQUMSHE
Prof. Reg. No.	20080112
DRAWN BY	
NAME	JG PEIRSON

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
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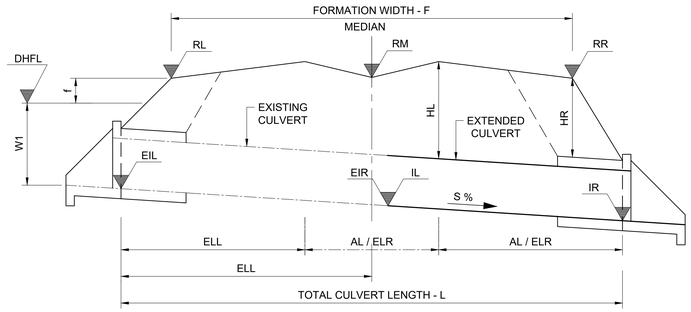
DRAWING DESCRIPTION
CULVERT SCHEDULE KROONDAL OFF-RAMP km 0.298, WATERFALL ON-RAMP km 0.493 & HELEN JOSEPH ON-RAMP CULVERT km 0.139

SCALE : AS SHOWN (A0) | SHEET 27 OF 40

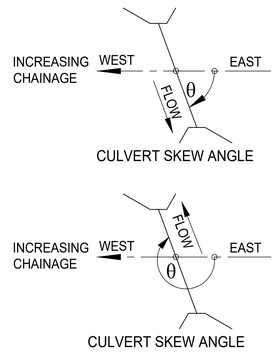
PROJECT NUMBER	BPCC-2024/U6[illegible]18 HS-20/001		
DRAWING LOCATION DATA	START	END	
ROUTE	N 4	N 4	
SECTION	-	-	
DRAWING km DISTANCE	-	-	
DRAWING TYPE	ROADS - LAYOUTS		
BRIDGE/STRUCTURE No.	NA		
CONSULTANT DRAWING No.	FA	3257 / 23 / 27 CS	VER
SANRAL DOCUMENT #		- -	V0

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\07 - Culvert Schedule\3257-23-01-28CS-CULVERT SCHEDULE_20230717.dwg



TYPICAL LONGITUDINAL SECTION OF CULVERT
UNDER DOUBLE CARRIAGEWAY ROAD
SCALE: SCHEMATIC



NOTE:

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SI - SIDE INLET
SCI - SPECIAL CULVERT INLET
FA - FARM ACCESS
SDW - SIDE DRAIN WING WALL
DI - DROP INLET

LEGEND

- EXISTING CULVERT
- NEW CULVERT
- EXISTING GROUND

TENDER

	ITEM NUMBER		128	129	130	131
CULVERT DESCRIPTION	ROAD KILOMETRE DISTANCE		0.500	3.520	4.100	21.800
	TYPE OF CULVERT		1 X PC	1 X PC	1 X PC	1 X PC
	SPAN / DIA	(mm)	600	600	600	600
	HEIGHT	(mm)	-	-	-	-
	PIPE & BEDDING CLASS		100D/B	100D/B	100D/B	100D/B
	SKEW ANGLE	°(DEG)	270	270	270	270
HYDROLOGICAL DATA	CATCHMENT AREA	(km²)	0.003	0.014	0.006	0.003
	TIME OF CONCENTRATION (Tc)	(Hours)	1.000	1.284	1.312	1.001
	RAINFALL INTENSITY	(mm/h)	79.000	66.000	65.000	79.000
	CATCHMENT DISCHARGE AT INLET (SDF METHOD)	(m³/s)	0.015	0.098	0.039	0.025
	CAPACITY	(m³/s)	0.450	0.450	0.450	0.450
	Hw/D RATIO AT CAPACITY		1.200	1.200	1.200	1.200
	VELOCITY AT OUTLET**		0.090	0.240	0.090	0.028
ROAD DATA	ROAD LEVEL - LEFT SHOULDER	RL (m)	1216.040	1223.396	1238.489	1148.691
	ROAD LEVEL - ROAD S/L	RM (m)	1215.827	1223.000	1238.145	1148.604
	ROAD LEVEL - RIGHT SHOULDER	RR (m)	1216.353	1223.253	1238.369	1148.752
	ROAD FORMATION WIDTH	F (m)	7.680	10.900	10.900	10.87
CULVERT DATA	FLOOR SLOPE	S (%)	0.500	0.500	0.500	2.000
	INVERT LEVEL - LEFT	IL (m)	1214.852	1221.730	1236.998	1142.076
	INVERT LEVEL - RIGHT	IR (m)	1214.793	1220.593	1236.861	1141.529
	EXISTING INVERT LEVEL LEFT	EIL (m)	-	-	-	-
	EXISTING INVERT LEVEL RIGHT	EIR (m)	-	-	-	-
	FILL HEIGHT - LEFT	HL (m)	-	-	-	-
	FILL HEIGHT - RIGHT	HR (m)	0.905	0.994	0.842	6.322
	LENGTH - LEFT TO ROAD S/L (MEDIAN)	LL (m)	-	-	-	-
	TOTAL LENGTH - INLET TO OUTLET	L (m)	12.183	26.828	26.828	26.828
	EXISTING LENGTH LEFT	ELL (m)	-	-	-	-
	EXISTING LENGTH RIGHT	ELR (m)	-	-	-	-
	ADDITION LEFT	AL (m)	-	-	-	-
	NUMBER OF UNITS (LEFT)	NUMBER	-	-	-	-
	ADDITION RIGHT	AR (m)	12.183	26.828	26.828	26.828
	NUMBER OF UNITS (RIGHT)	NUMBER	5.000	11.000	11.000	11.000
	INTERNAL CHAMBER DIMENSIONS	(m)	0.9 x 0.9	0.9 x 0.9	0.9 x 0.9	0.9 x 0.9
	GRID INLET TYPE *		1 x TYPE "B" MEDIAN	1 x TYPE "B" MEDIAN	1 x TYPE "B" MEDIAN	1 x TYPE "B" MEDIAN

NOTES

* GRID INLET TYPE "B" DIMENSIONS ARE 0.489 x 0.809

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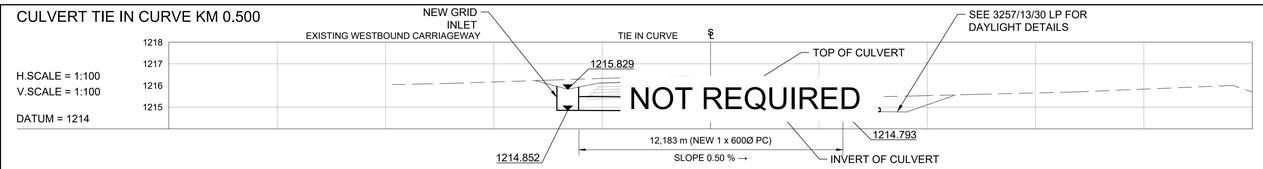
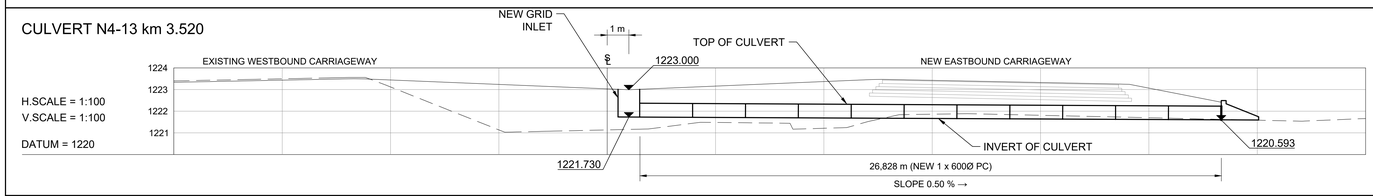
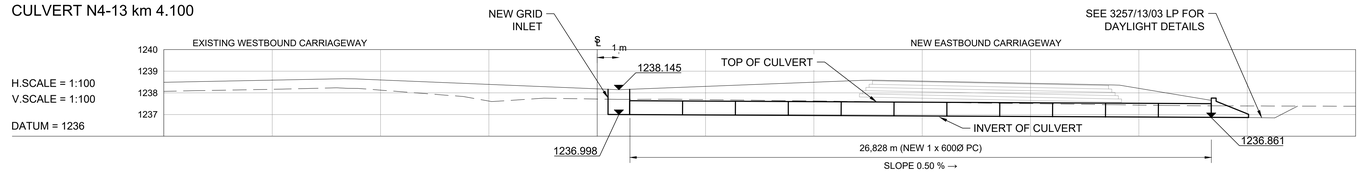
CULVERT TIE IN CURVE KM 0.500



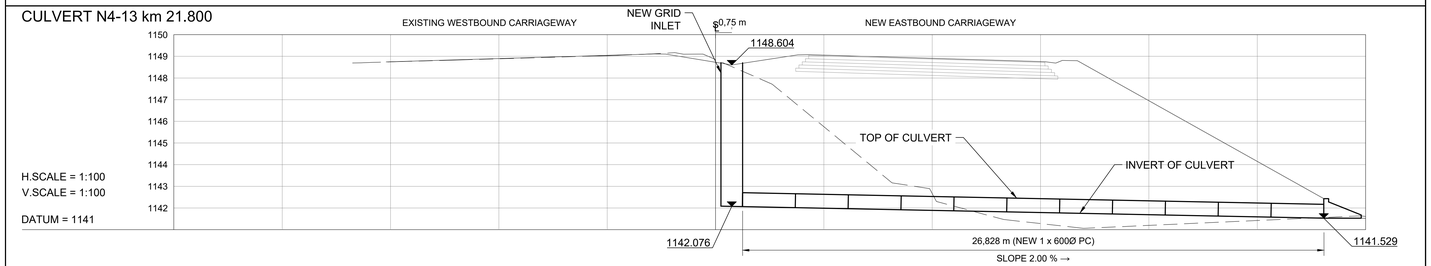
CULVERT N4-13 km 3.520



CULVERT N4-13 km 4.100



CULVERT N4-13 km 21.800



No.	DATE	REVISION	
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
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Date :

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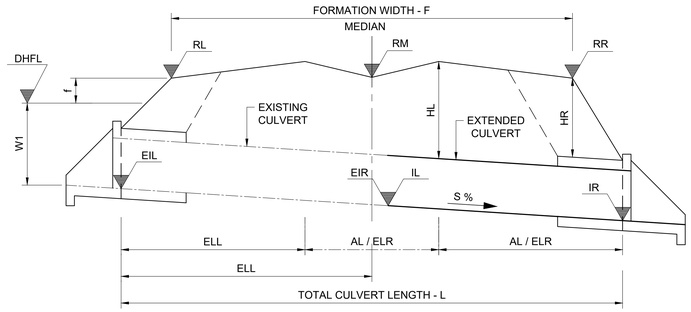
DRAWING DESCRIPTION
CULVERT SCHEDULE

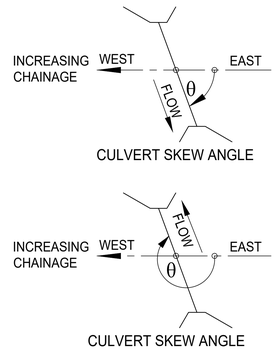
SCALE : AS SHOWN (A0) | SHEET 28 OF 40

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	-	-
DRAWING km DISTANCE	-	-
DRAWING TYPE	ROADS - LAYOUTS	
BRIDGE/STRUCTURE No.	NA	
CONSULTANT DRAWING No.	FA 3257 / 23 / 26 CS	VER
SANRAL DOCUMENT #	- -	V0

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\07 - Culvert Schedule\3257-23-01-26CS-CULVERT SCHEDULE_20230717.dwg





NOTE:

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KEY TO CULVERT TYPES:

PC - PIPE CULVERT (UNIT LENGTHS 2,44m)
BC - BOX CULVERT (UNIT LENGTHS 1,22m)
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SI - SIDE INLET
SCI - SPECIAL CULVERT INLET
FA - FARM ACCESS
SDW - SIDE DRAIN WING WALL
DI - DROP INLET

LEGEND

- EXISTING CULVERT
- NEW CULVERT
- EXISTING GROUND

TENDER

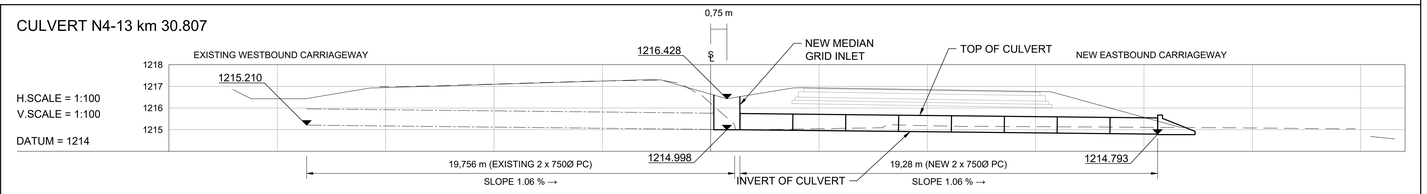
	ITEM NUMBER		1	2	3	4	5
CULVERT DESCRIPTION	ROAD KILOMETRE DISTANCE		30.807	31.310	31.810	32.060	32.310
	TYPE OF CULVERT		2 X PC	1 X BC	1 X BC	1 X PC	1 X PC
	SPAN / DIA	(mm)	750	750	750	600	600
	HEIGHT	(mm)	-	450	450	-	-
	PIPE & BEDDING CLASS		100D	100D	100D	100D	100D
	SKEW ANGLE	°(DEG)	269	270	90	90	90
HYDROLOGICAL DATA	CATCHMENT AREA	(km²)	1.300	0.010	0.006	0.010	0.010
	TIME OF CONCENTRATION (Tc)	(Hours)	1.128	0.996	0.982	0.564	0.604
	RAINFALL INTENSITY	(mm/h)	55.014	60.213	60.849	88.283	84.538
	CATCHMENT DISCHARGE AT INLET (SDF METHOD)	(m³/s)	6.445	0.074	0.050	0.092	0.129
	CAPACITY	(m³/s)	1.853	0.457	0.457	0.513	0.511
	Hw/D RATIO AT CAPACITY		1.200	1.200	1.200	1.200	1.200
	VELOCITY AT OUTLET**		0.524	1.400	1.400	0.454	0.452
ROAD DATA	ROAD LEVEL - LEFT SHOULDER	RL (m)	1216.937	1214.482	1212.457	1211.451	1210.152
	ROAD LEVEL - ROAD S/L	RM (m)	1216.428	1214.120	1211.620	1210.370	1209.120
	ROAD LEVEL - RIGHT SHOULDER	RR (m)	1216.761	1214.303	1211.803	1210.554	1209.303
	ROAD FORMATION WIDTH	F (m)	30.402	30.401	30.400	30.356	30.265
CULVERT DATA	FLOOR SLOPE	S (%)	1.063	0.500	0.500	0.550	0.500
	INVERT LEVEL - LEFT	IL (m)	1214.998	1213.293	1210.621	1209.284	1208.034
	INVERT LEVEL - RIGHT	IR (m)	1214.793	1213.205	1210.714	1209.376	1208.110
	EXISTING INVERT LEVEL LEFT	EIL (m)	1215.210	-	-	-	-
	EXISTING INVERT LEVEL RIGHT	EIR (m)	1215.000	-	-	-	-
	FILL HEIGHT - LEFT	HL (m)	1.222	0.902	1.040	0.982	0.912
	FILL HEIGHT - RIGHT	HR (m)	1.160	0.627	0.659	0.601	0.600
	LENGTH - LEFT TO ROAD S/L (MEDIAN)	LL (m)					
	TOTAL LENGTH - INLET TO OUTLET	L (m)	39.275	18.000	18.300	18.620	15.753
	EXISTING LENGTH LEFT	ELL (m)	18.646	-	-	-	-
	EXISTING LENGTH RIGHT	ELR (m)	1.111	-	-	-	-
	ADDITION LEFT	AL (m)	0.000	0.000	0.000	0.000	0.000
	NUMBER OF UNITS (LEFT)	NUMBER	0.000	0.000	0.000	0.000	0.000
	ADDITION RIGHT	AR (m)	19.280	18.000	18.300	18.620	15.753
	NUMBER OF UNITS (RIGHT)	NUMBER	7.902	7.377	7.500	7.631	6.456
	INTERNAL CHAMBER DIMENSIONS	(m)	1200x900	1200x900	1200x900	1200x900	1200x900
	GRID INLET TYPE *		1 X TYPE "B" MEDIAN	1 X TYPE "B" MEDIAN	1 X TYPE "B" MEDIAN	1 X TYPE "B" MEDIAN	1 X TYPE "B" MEDIAN

NOTES

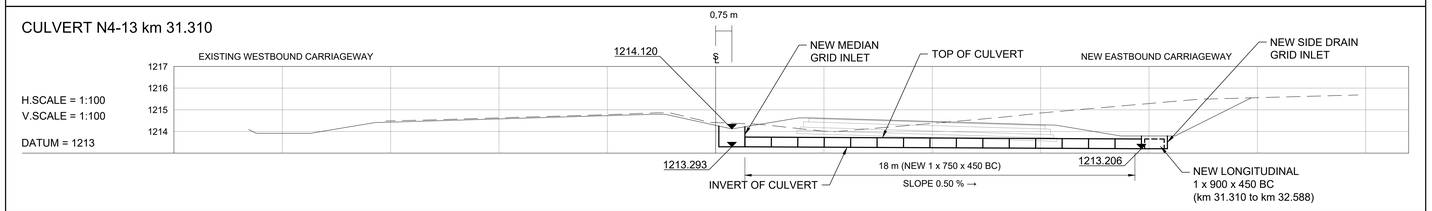
* GRID INLET TYPE "B" DIMENSIONS ARE 0.489 x 0.809

** ALL APRON SLABS AT OUTLETS ARE TO BE CONCRETE LINED

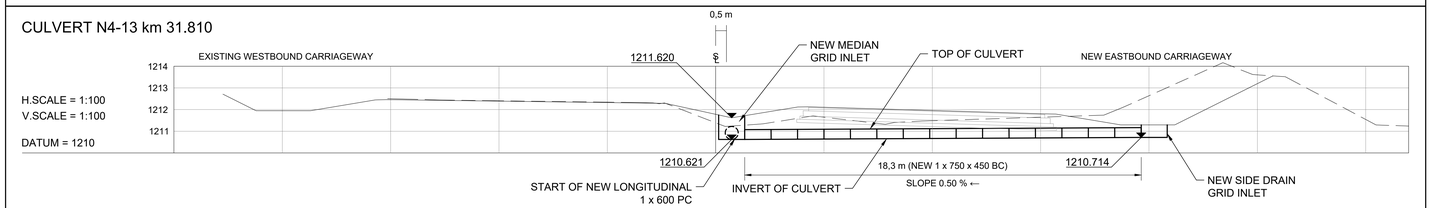
CULVERT N4-13 km 30.807



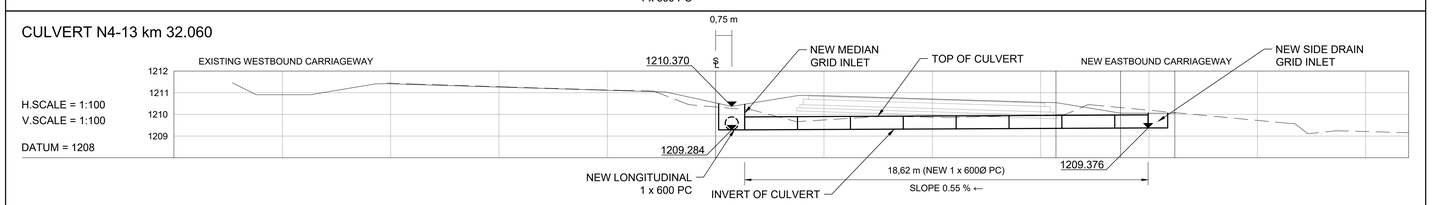
CULVERT N4-13 km 31.310



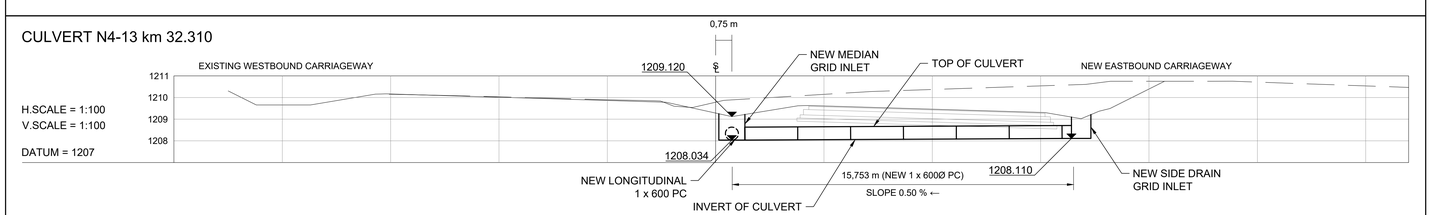
CULVERT N4-13 km 31.810



CULVERT N4-13 km 32.060



CULVERT N4-13 km 32.310



No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date

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DESIGNED BY
NAME: Z MASHININI
Prof. Reg. No. : -
CHECKED BY
NAME: PL NGQUMSHE
Prof. Reg. No. : 20080112
DRAWN BY
NAME: Z MASHININI

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17 / 07 / 2023

HEAD OFFICE
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THE SOUTH AFRICAN NATIONAL ROADS AGENCY SOC LTD
Reg. No. 1998/009584/30

NORTHERN REGION
38 Ida Street
Menlo Park
Pretoria
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Private Bag X17
Lynnwood Ridge
0040
Tel: (012) 426 6200

ACCEPTANCE
THIS ACCEPTANCE IS FOR PROCEDURAL AND ADMINISTRATIVE REVIEW PURPOSES ONLY AND DOES NOT ATTRACT LEGAL LIABILITY OR LIABILITY OF ANY KIND FROM WHATSOEVER CAUSE OR HOWEVER ARISING
for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

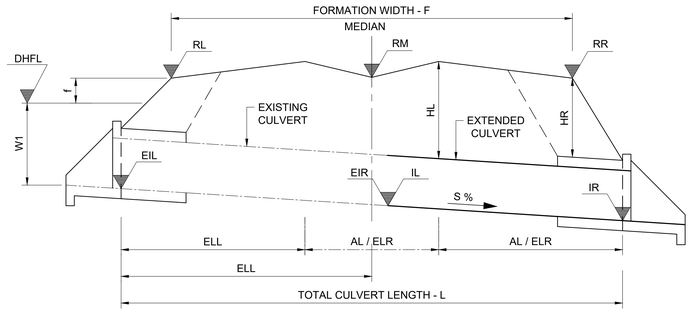
DRAWING DESCRIPTION
CULVERT SCHEDULE N4-13
CULVERTS BETWEEN km 30.807 TO km 32.310

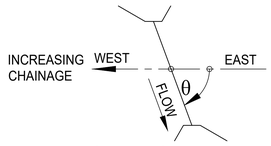
SCALE : AS SHOWN (A0) | SHEET 29 OF 40

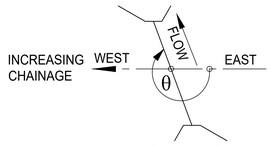
PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001		
DRAWING LOCATION DATA	START	END	
ROUTE	N 4	N 4	
SECTION	SECTION 13	SECTION 13	
DRAWING km DISTANCE	km 30.807	km 32.310	
DRAWING TYPE	ROADS - LAYOUTS		
BRIDGE/STRUCTURE No.	NA		
CONSULTANT DRAWING No.	FA	3257 / 23 / 29 CS	VER
SANRAL DOCUMENT #	- -		V0

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\07 - Culvert Schedule\3257-23-29-40CS-CULVERT SCHEDULE_20230717.dwg







NOTE:

1. CULVERT EXTENSIONS ON LEFT AND RIGHT HAND SIDE REQUIRED ONLY IF DIMENSIONS AL AND AR IN SCHEDULE = 0
2. GRID INLET DIMENSIONS ARE INSIDE DIMENSIONS

KEY TO CULVERT TYPES:

PC - PIPE CULVERT (UNIT LENGTHS 2,44m)
BC - BOX CULVERT (UNIT LENGTHS 1,22m)
OC - OVAL CULVERT
IBC - IN-SITU BOX CULVERT
APC - ARMCO PIPE CULVERT
MH - MANHOLE
SI - SIDE INLET
SCI - SPECIAL CULVERT INLET
FA - FARM ACCESS
SDW - SIDE DRAIN WING WALL
DI - DROP INLET

LEGEND

EXISTING CULVERT
NEW CULVERT
EXISTING GROUND

TENDER

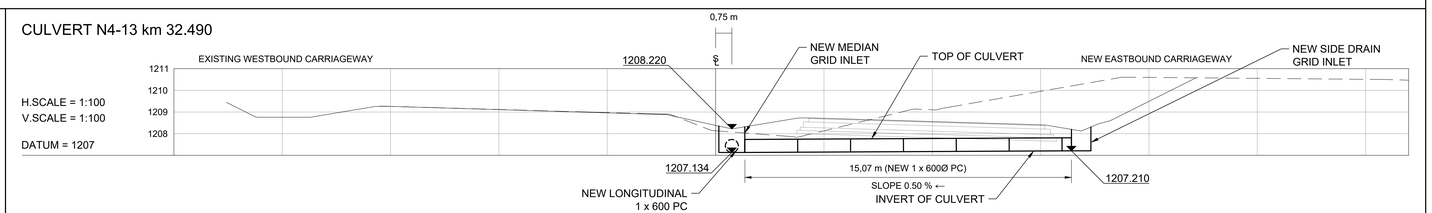
	ITEM NUMBER		6	7	8	9
CULVERT DESCRIPTION	ROAD KILOMETRE DISTANCE		32.490	32.680	33.300	33.459
	TYPE OF CULVERT		1 X PC	1 X PC	2 X PC	1 X PC
	SPAN / DIA	(mm)	600	600	600	900
	HEIGHT	(mm)	-	-	-	-
	PIPE & BEDDING CLASS		100D	100D	100D	100D
	SKEW ANGLE	°(DEG)	90	270	90.0000	
HYDROLOGICAL DATA	CATCHMENT AREA	(km²)	0.010	0.006	0.061	0.060
	TIME OF CONCENTRATION (Tc)	(Hours)	0.591	0.494	0.588	0.438
	RAINFALL INTENSITY	(mm/h)	85.756	95.743	113.887	102.759
	CATCHMENT DISCHARGE AT INLET (SDF METHOD)	(m³/s)	0.150	0.178	0.732	0.645
	CAPACITY	(m³/s)	0.511	0.511	1.095	1.509
	Hw/D RATIO AT CAPACITY		1.200	1.200	1.200	1.200
	VELOCITY AT OUTLET**		0.452	0.452	0.484	0.593
ROAD DATA	ROAD LEVEL - LEFT SHOULDER	RL (m)	1209.267	1208.421	1229.738	1236.511
	ROAD LEVEL - ROAD S/L	RM (m)	1208.220	1207.539	1228.871	1235.397
	ROAD LEVEL - RIGHT SHOULDER	RR (m)	1208.403	1207.790	1229.362	1235.572
	ROAD FORMATION WIDTH	F (m)	30.400	30.700	35.857	31.681
CULVERT DATA	FLOOR SLOPE	S (%)	0.500	5.665	2.000	2.000
	INVERT LEVEL - LEFT	IL (m)	1207.134	1206.177	1228.168	-
	INVERT LEVEL - RIGHT	IR (m)	1207.210	1205.211	1227.651	-
	EXISTING INVERT LEVEL LEFT	EIL (m)	-	-	-	1234.520
	EXISTING INVERT LEVEL RIGHT	EIR (m)	-	-	-	1233.784
	FILL HEIGHT - LEFT	HL (m)	0.981	1.507	1.149	-
	FILL HEIGHT - RIGHT	HR (m)	0.600	1.799	1.025	-
	LENGTH - LEFT TO ROAD S/L (MEDIAN)	LL (m)				
	TOTAL LENGTH - INLET TO OUTLET	L (m)	15.070	17.053	25.894	36.768
	EXISTING LENGTH LEFT	ELL (m)	-	-	-	19.959
	EXISTING LENGTH RIGHT	ELR (m)	-	-	-	16.809
	ADDITION LEFT	AL (m)	0.000	0.000	0.000	0.000
	NUMBER OF UNITS (LEFT)	NUMBER	0.000	0.000	0.000	0.000
	ADDITION RIGHT	AR (m)	15.070	17.080	25.894	0.000
	NUMBER OF UNITS (RIGHT)	NUMBER	6.176	7.000	10.612	0.000
	INTERNAL CHAMBER DIMENSIONS	(m)	1200x900	1200x900	1200x900	
	GRID INLET TYPE *		1 X TYPE "B" MEDIAN	1 X TYPE "B" MEDIAN	1 X TYPE "B" MEDIAN	

NOTES

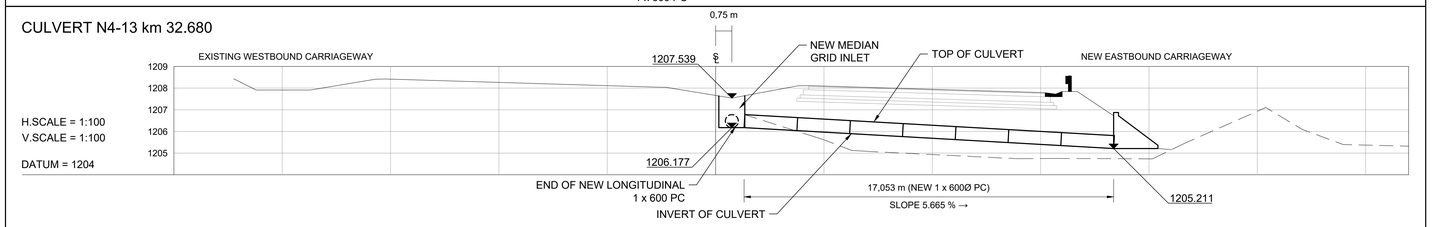
* GRID INLET TYPE "B" DIMENSIONS ARE 0.489 x 0.809

** ALL APRON SLABS AT OUTLETS ARE TO BE CONCRETE LINED

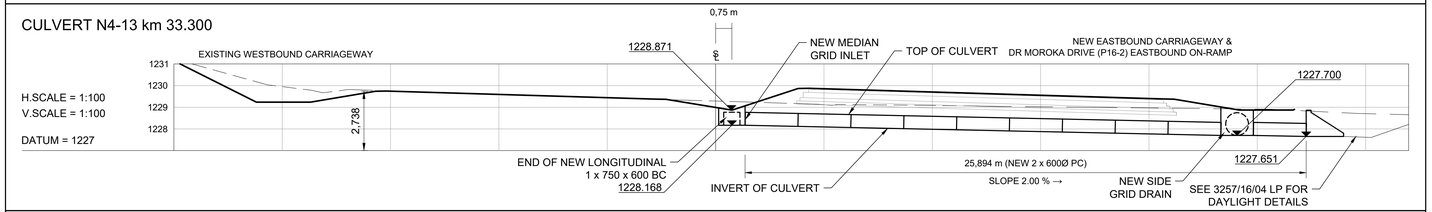
CULVERT N4-13 km 32.490



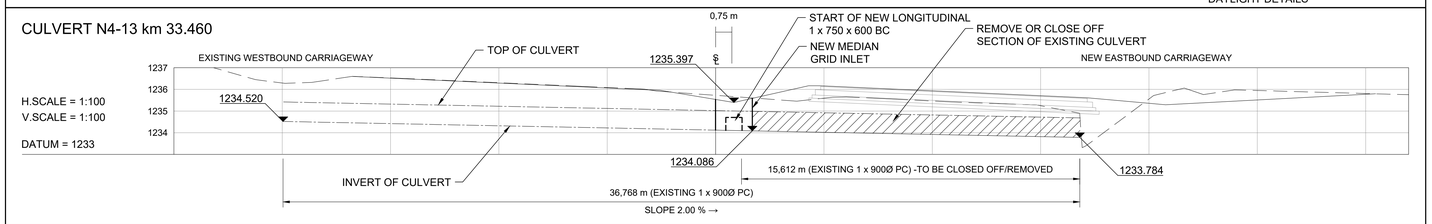
CULVERT N4-13 km 32.680



CULVERT N4-13 km 33.300



CULVERT N4-13 km 33.460



No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date :

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DESIGNED BY	
NAME	Z MASHININI
Prof. Reg. No.	-
CHECKED BY	
NAME	PL NGQUMSHE
Prof. Reg. No.	20080112
DRAWN BY	
NAME	Z MASHININI

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17 / 07 / 2023

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THE SOUTH AFRICAN NATIONAL ROADS AGENCY SOC LTD
Reg. No. 1998/009084/30

NORTHERN REGION
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Tel: (012) 426 6200

ACCEPTANCE

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for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION

THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION

CULVERT SCHEDULE N4-13
CULVERTS BETWEEN km 32.490 TO km 33.459

SCALE : AS SHOWN (A0) | SHEET 30 OF 40

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	SECTION 13	SECTION 13
DRAWING km DISTANCE	km 32.490	km 33.459
DRAWING TYPE	ROADS - LAYOUTS	
BRIDGE/STRUCTURE No.	NA	
CONSULTANT DRAWING No.	FA 3257 / 23 / 30 CS	VER V0
SANRAL DOCUMENT #	- -	

SANRAL DOCUMENT NUMBER :

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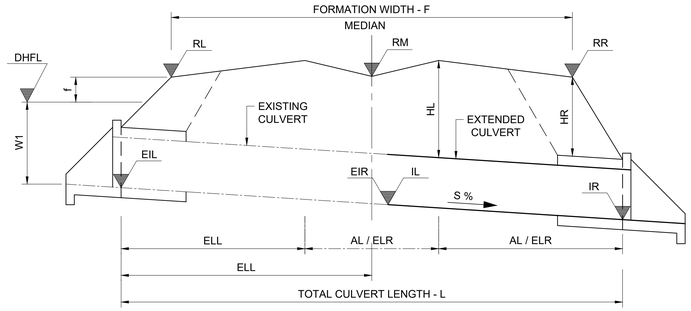

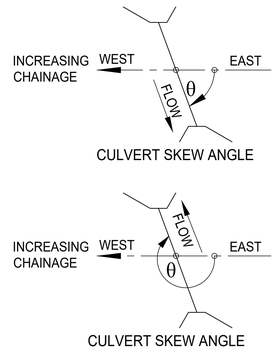

NOTE:

1. CULVERT EXTENSIONS ON LEFT AND RIGHT HAND SIDE REQUIRED ONLY IF DIMENSIONS AL AND AR IN SCHEDULE = 0
2. GRID INLET DIMENSIONS ARE INSIDE DIMENSIONS

KEY TO CULVERT TYPES:

PC - PIPE CULVERT (UNIT LENGTHS 2,44m)
BC - BOX CULVERT (UNIT LENGTHS 1,22m)
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MH - MANHOLE
SI - SIDE INLET
SCI - SPECIAL CULVERT INLET
FA - FARM ACCESS
SDW - SIDE DRAIN WING WALL
DI - DROP INLET

LEGEND

EXISTING CULVERT
NEW CULVERT
EXISTING GROUND

TENDER

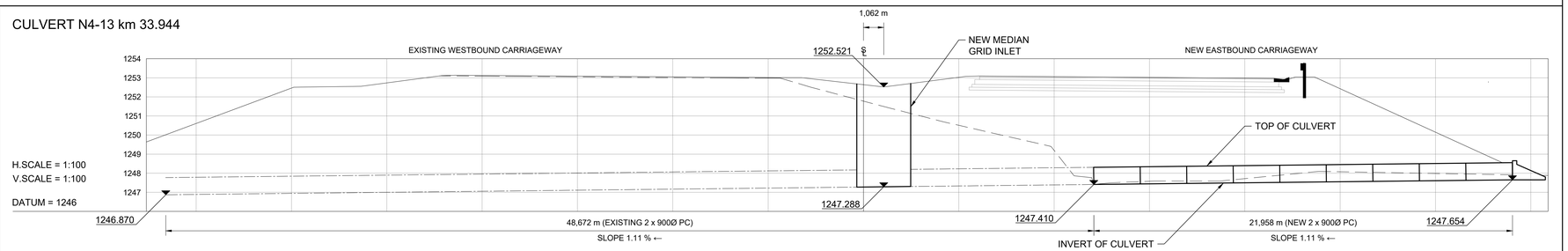
	ITEM NUMBER		10	11	12	13
CULVERT DESCRIPTION	ROAD KILOMETRE DISTANCE		33.944	34.153	34.857	34.987
	TYPE OF CULVERT		2 X PC	2 X PC	1 X PC	1 X PC
	SPAN / DIA	(mm)	900	1200	600	600
	HEIGHT	(mm)	-	-	-	-
	PIPE & BEDDING CLASS		100D	100D	100D	100D
	SKEW ANGLE	°(DEG)	45.0000	59.0000	270	270
HYDROLOGICAL DATA	CATCHMENT AREA	(km²)	0.523	0.543	0.031	0.195
	TIME OF CONCENTRATION (Tc)	(Hours)	0.887	0.917	0.629	0.671
	RAINFALL INTENSITY	(mm/h)	65.393	63.878	82.400	79.038
	CATCHMENT DISCHARGE AT INLET (SDF METHOD)	(m³/s)	3.121	3.211	0.263	1.425
	CAPACITY	(m³/s)	2.930	6.034	0.568	0.550
	Hw/D RATIO AT CAPACITY		1.200	1.200	1.200	1.200
	VELOCITY AT OUTLET**		0.576	0.667	0.503	0.486
ROAD DATA	ROAD LEVEL - LEFT SHOULDER	RL (m)	1253.135	1256.982	1271.487	1274.378
	ROAD LEVEL - ROAD S/L	RM (m)	1252.521	1256.229	1270.566	1273.450
	ROAD LEVEL - RIGHT SHOULDER	RR (m)	1252.968	1256.570	1270.755	1273.633
	ROAD FORMATION WIDTH	F (m)	42.953	35.567	30.404	30.401
CULVERT DATA	FLOOR SLOPE	S (%)	1.110	1.190	4.24/2.00	2.190
	INVERT LEVEL - LEFT	IL (m)	1247.410	1253.480	1269.403	1272.347
	INVERT LEVEL - RIGHT	IR (m)	1247.654	1253.727	1268.995	1271.973
	EXISTING INVERT LEVEL LEFT	EIL (m)	1246.870	1253.070	1270.210	1272.800
	EXISTING INVERT LEVEL RIGHT	EIR (m)	1247.410	1253.480	1269.420	1272.360
	FILL HEIGHT - LEFT	HL (m)	4.852	2.131	1.140	1.081
	FILL HEIGHT - RIGHT	HR (m)	4.553	1.721	1.040	0.993
	LENGTH - LEFT TO ROAD S/L (MEDIAN)	LL (m)				
	TOTAL LENGTH - INLET TO OUTLET	L (m)	70.630	49.214	38.944	37.745
	EXISTING LENGTH LEFT	ELL (m)	36.592	26.709	18.219	19.460
	EXISTING LENGTH RIGHT	ELR (m)	12.081	7.858	0.384	0.622
	ADDITION LEFT	AL (m)	0.000	0.000	0.000	0.000
	NUMBER OF UNITS (LEFT)	NUMBER	0.000	0.000	0.000	0.000
	ADDITION RIGHT	AR (m)	21.958	14.638	19.516	17.076
	NUMBER OF UNITS (RIGHT)	NUMBER	8.999	5.999	7.998	6.998
	INTERNAL CHAMBER DIMENSIONS	(m)	2000x1500	2000x1500	900x900	900x900
	GRID INLET TYPE *		1 X TYPE "B" MEDIAN	1 X TYPE "B" MEDIAN	1 X TYPE "B" MEDIAN	1 X TYPE "B" MEDIAN

NOTES

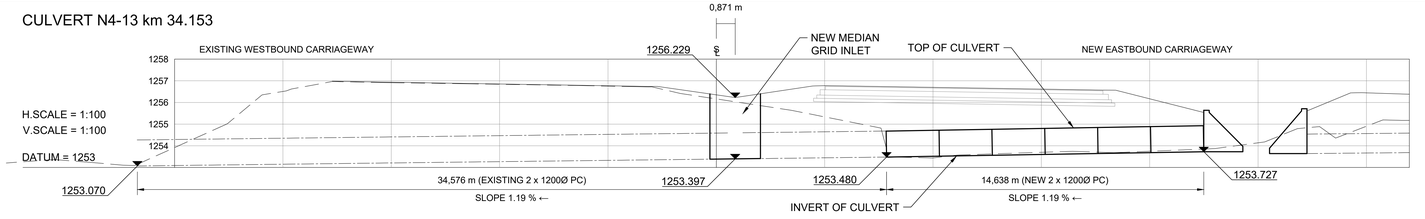
* GRID INLET TYPE "B" DIMENSIONS ARE 0.489 x 0.809

** ALL APRON SLABS AT OUTLETS ARE TO BE CONCRETE LINED

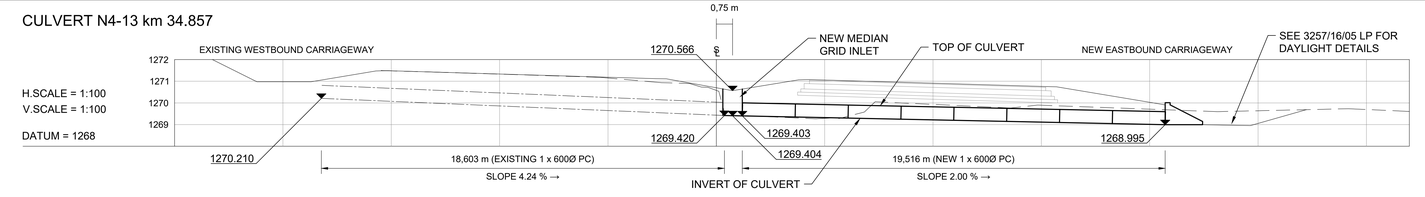
CULVERT N4-13 km 33.944



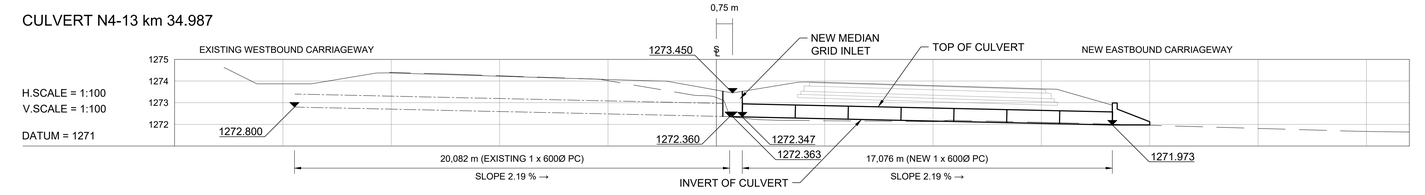
CULVERT N4-13 km 34.153



CULVERT N4-13 km 34.857



CULVERT N4-13 km 34.987



No.	DATE	REVISION	
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date :

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DESIGNED BY	
NAME	Z MASHININI
Prof. Reg. No.	-
CHECKED BY	
NAME	PL NGQUMSHE
Prof. Reg. No.	20080112
DRAWN BY	
NAME	Z MASHININI

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17 / 07 / 2023

HEAD OFFICE
48 Tambotie Avenue
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South Africa
Tel: (012) 844 8000

THE SOUTH AFRICAN NATIONAL ROADS AGENCY SOC LTD
Reg. No. 1998/009584/30

NORTHERN REGION
38 Ida Street
Menlo Park
Pretoria
0081
Private Bag X17
Lynnwood Ridge
0040
Tel: (012) 426 6200

ACCEPTANCE
THIS ACCEPTANCE IS FOR PROCEDURAL AND ADMINISTRATIVE REVIEW PURPOSES ONLY AND DOES NOT ATTRACT LEGAL LIABILITY OR LIABILITY OF ANY KIND FROM WHATSOEVER CAUSE OR HOWEVER ARISING
for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

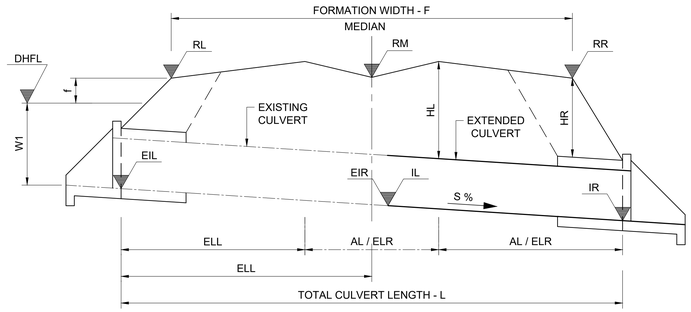
DRAWING DESCRIPTION
CULVERT SCHEDULE N4-13
CULVERTS BETWEEN km 33.944 TO km 34.987

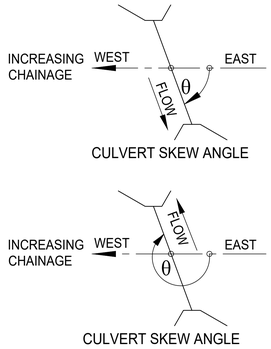
SCALE : AS SHOWN (A0) | SHEET 31 OF 40

PROJECT NUMBER		BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA		START	END
ROUTE		N 4	N 4
SECTION		SECTION 13	SECTION 13
DRAWING km DISTANCE		km 33.944	km 34.987
DRAWING TYPE		ROADS - LAYOUTS	
BRIDGE/STRUCTURE No.		NA	
CONSULTANT DRAWING No.	FA	3257 / 23 / 31 CS	VER
SANRAL DOCUMENT #		- -	V0

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\07 - Culvert Schedule\3257-23-29-40CS-CULVERT SCHEDULE_20230717.dwg





NOTE:

1. CULVERT EXTENSIONS ON LEFT AND RIGHT HAND SIDE REQUIRED ONLY IF DIMENSIONS AL AND AR IN SCHEDULE = 0
2. GRID INLET DIMENSIONS ARE INSIDE DIMENSIONS

KEY TO CULVERT TYPES:

PC - PIPE CULVERT (UNIT LENGTHS 2,44m)
BC - BOX CULVERT (UNIT LENGTHS 1,22m)
OC - OVAL CULVERT
IBC - IN-SITU BOX CULVERT
APC - ARMCO PIPE CULVERT
MH - MANHOLE
SI - SIDE INLET
SCI - SPECIAL CULVERT INLET
FA - FARM ACCESS
SDW - SIDE DRAIN WING WALL
DI - DROP INLET

LEGEND

EXISTING CULVERT
NEW CULVERT
EXISTING GROUND

TENDER

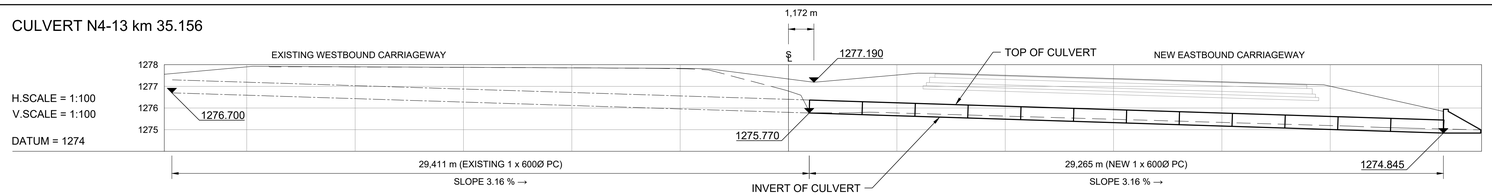
CULVERT DESCRIPTION	ITEM NUMBER		14	15	16	17
	ROAD KILOMETRE DISTANCE		35.156	35.226	35.497	35.967
	TYPE OF CULVERT		1 X PC	1 X BC	2 X BC	1 X PC
	SPAN / DIA	(mm)	600	1500	3600	600
	HEIGHT	(mm)	-	900	2800	-
	PIPE & BEDDING CLASS		100D	100S	75S	100D
	SKEW ANGLE	°(DEG)	321.0000	320	300	89.0000
HYDROLOGICAL DATA	CATCHMENT AREA	(km^2)	0.042	0.055	3.934	0.078
	TIME OF CONCENTRATION (Tc)	(Hours)	0.622	0.609	1.458	0.718
	RAINFALL INTENSITY	(mm/h)	83.019	84.112	45.388	75.520
	CATCHMENT DISCHARGE AT INLET (SDF METHOD)	(m^3/s)	0.314	0.437	16.098	0.548
	CAPACITY	(m^3/s)	0.560	2.583	68.043	0.536
	Hw/D RATIO AT CAPACITY		1.200	1.200	1.200	1.200
	VELOCITY AT OUTLET**		0.495	2.000	1.607	0.474
ROAD DATA	ROAD LEVEL - LEFT SHOULDER	RL (m)	1277.901	1279.463	1285.657	1299.502
	ROAD LEVEL - ROAD S/L	RM (m)	1277.190	1278.759	1285.126	1299.245
	ROAD LEVEL - RIGHT SHOULDER	RR (m)	1277.107	1278.678	1285.193	1299.646
	ROAD FORMATION WIDTH	F (m)	47.899	46.652	35.245	30.402
CULVERT DATA	FLOOR SLOPE	S (%)	3.160	0.90/3.00	0.90/4.00	1.330
	INVERT LEVEL - LEFT	IL (m)	1275.770	1277.411	1276.752	1298.120
	INVERT LEVEL - RIGHT	IR (m)	1274.845	1276.643	1275.840	1298.346
	EXISTING INVERT LEVEL LEFT	EIL (m)	1276.700	1277.680	1277.060	1297.820
	EXISTING INVERT LEVEL RIGHT	EIR (m)	1275.770	1277.430	1276.750	1298.120
	FILL HEIGHT - LEFT	HL (m)	1.418	0.981	6.014	1.121
	FILL HEIGHT - RIGHT	HR (m)	1.448	0.987	6.031	0.761
	LENGTH - LEFT TO ROAD S/L (MEDIAN)	LL (m)				
	TOTAL LENGTH - INLET TO OUTLET	L (m)	58.676	53.352	57.179	39.690
	EXISTING LENGTH LEFT	ELL (m)	28.456	27.095	27.524	19.790
	EXISTING LENGTH RIGHT	ELR (m)	0.955	0.649	6.860	2.822
	ADDITION LEFT	AL (m)	0.000	0.000	0.000	0.000
	NUMBER OF UNITS (LEFT)	NUMBER	0.000	0.000	0.000	0.000
	ADDITION RIGHT	AR (m)	29.265	25.608	22.795	17.078
	NUMBER OF UNITS (RIGHT)	NUMBER	11.994	20.990	In-situ	6.999
	INTERNAL CHAMBER DIMENSIONS	(m)		2500x2500		
	GRID INLET TYPE *			1 X TYPE "B" MEDIAN		

NOTES

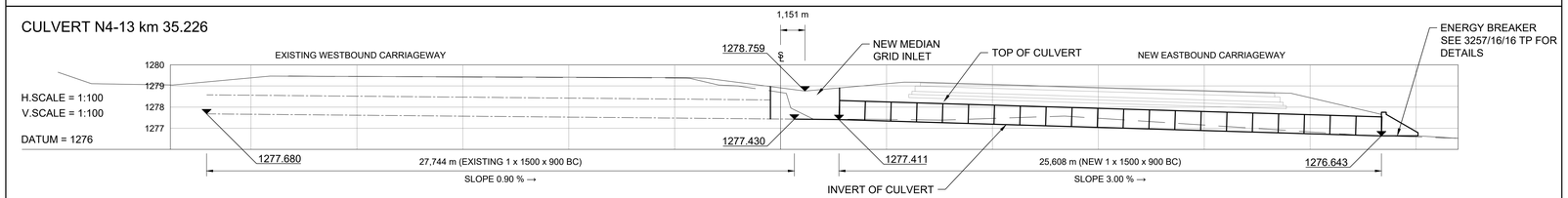
* GRID INLET TYPE "B" DIMENSIONS ARE 0.489 x 0.809

** ALL APRON SLABS AT OUTLETS ARE TO BE CONCRETE LINED

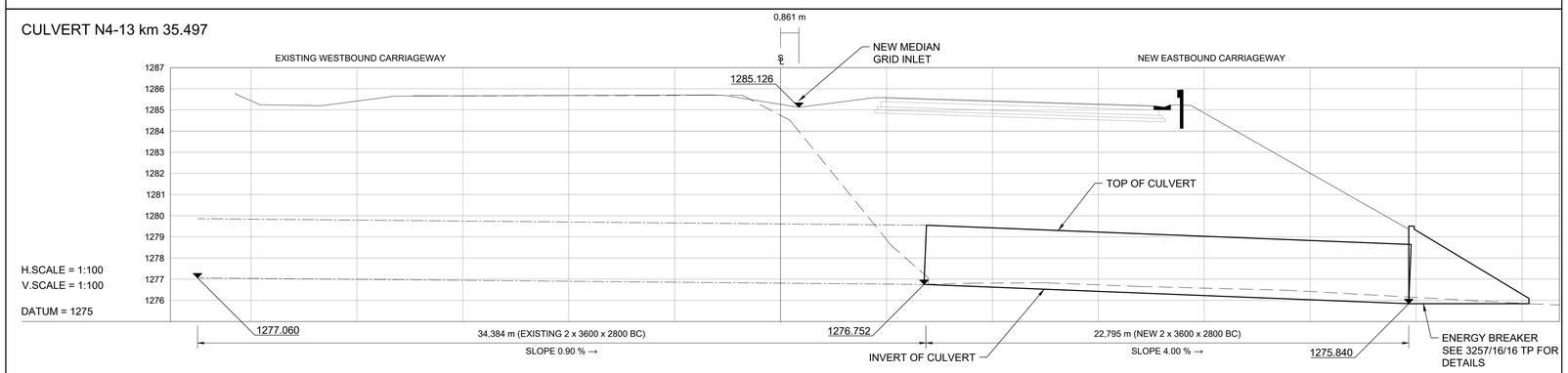
CULVERT N4-13 km 35.156



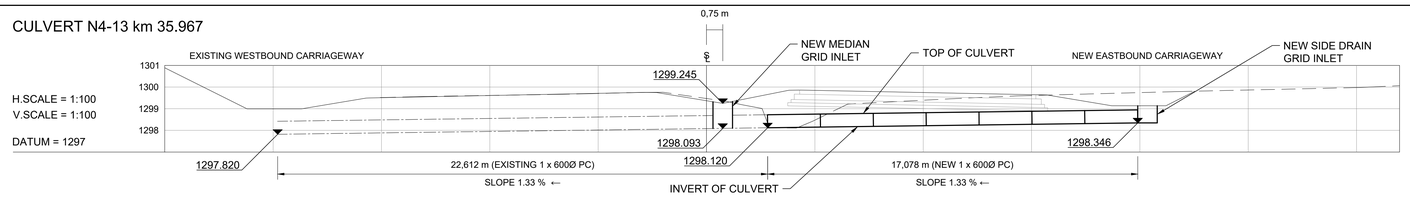
CULVERT N4-13 km 35.226



CULVERT N4-13 km 35.497



CULVERT N4-13 km 35.967



CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date :

No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSULTANT

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DESIGNED BY
NAME: Z MASHININI
Prof. Reg. No. : -
CHECKED BY
NAME: PL NGQUMSHE
Prof. Reg. No. : 20080112
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NAME: Z MASHININI

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DRAWING DESCRIPTION

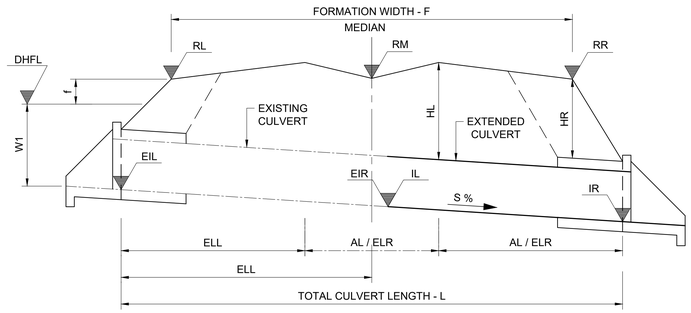
CULVERT SCHEDULE N4-13
CULVERTS BETWEEN km 35.156 TO km 35.967

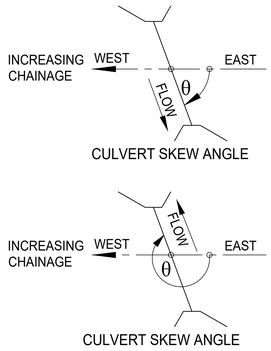
SCALE : AS SHOWN (A0) | SHEET 32 OF 40

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001		
DRAWING LOCATION DATA	START	END	
ROUTE	N 4	N 4	
SECTION	SECTION 13	SECTION 13	
DRAWING km DISTANCE	km 35.156	km 35.967	
DRAWING TYPE	ROADS - LAYOUTS		
BRIDGE/STRUCTURE No.	NA		
CONSULTANT DRAWING No.	FA	3257 / 23 / 32 CS	VER
SANRAL DOCUMENT #	- -		V0

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\07 - Culvert Schedule\3257-23-29-40CS-CULVERT SCHEDULE_20230717.dwg





NOTE:

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PC - PIPE CULVERT (UNIT LENGTHS 2,44m)
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MH - MANHOLE
SI - SIDE INLET
SCI - SPECIAL CULVERT INLET
FA - FARM ACCESS
SDW - SIDE DRAIN WING WALL
DI - DROP INLET

LEGEND

EXISTING CULVERT
NEW CULVERT
EXISTING GROUND

TENDER

	ITEM NUMBER		18	19	20	21	22
CULVERT DESCRIPTION	ROAD KILOMETRE DISTANCE		36.107	36.287	36.467	37.067	37.309
	TYPE OF CULVERT		1 X PC	1 X PC	1 X PC	1 X PC	1 X PC
	SPAN / DIA	(mm)	600	600	600	600	600
	HEIGHT	(mm)	-	-	-	-	-
	PIPE & BEDDING CLASS		100D	100D	100D	100D	100D
	SKEW ANGLE	°(DEG)	90	89.0000	90	91.0000	89.0000
HYDROLOGICAL DATA	CATCHMENT AREA	(km^2)	0.092	0.036	0.157	0.091	0.118
	TIME OF CONCENTRATION (Tc)	(Hours)	0.697	0.612	0.648	0.674	0.697
	RAINFALL INTENSITY	(mm/h)	77.051	83.861	80.846	78.774	77.016
	CATCHMENT DISCHARGE AT INLET (SDF METHOD)	(m^3/s)	0.656	0.291	1.173	0.667	0.843
	CAPACITY	(m^3/s)	0.542	0.547	0.560	0.546	0.548
	Hw/D RATIO AT CAPACITY		1.200	1.200	1.200	1.200	-
	VELOCITY AT OUTLET**		0.479	0.484	0.495	0.483	0.484
ROAD DATA	ROAD LEVEL - LEFT SHOULDER	RL (m)	1303.775	1309.267	1314.697	1315.481	1309.889
	ROAD LEVEL - ROAD S/L	RM (m)	1303.513	1309.011	1314.432	1315.226	1309.633
	ROAD LEVEL - RIGHT SHOULDER	RR (m)	1303.949	1309.502	1314.945	1315.655	1309.929
	ROAD FORMATION WIDTH	F (m)	30.401	30.402	30.401	30.406	30.432
CULVERT DATA	FLOOR SLOPE	S (%)	1.64/0.67	1.99/1.41	3.19/0.73	1.890	2.000
	INVERT LEVEL - LEFT	IL (m)	1302.630	1308.050	1313.650	1314.150	1307.786
	INVERT LEVEL - RIGHT	IR (m)	1302.744	1308.290	1313.756	1314.486	1307.981
	EXISTING INVERT LEVEL LEFT	EIL (m)	1302.260	1307.600	1312.930	1313.770	1307.160
	EXISTING INVERT LEVEL RIGHT	EIR (m)	1302.630	1308.050	1313.650	1314.150	1307.786
	FILL HEIGHT - LEFT	HL (m)	0.927	1.047	0.921	1.064	1.856
	FILL HEIGHT - RIGHT	HR (m)	0.636	0.694	0.602	0.600	1.423
	LENGTH - LEFT TO ROAD S/L (MEDIAN)	LL (m)					
	TOTAL LENGTH - INLET TO OUTLET	L (m)	39.700	39.674	37.214	34.750	41.057
	EXISTING LENGTH LEFT	ELL (m)	19.848	19.678	20.232	18.194	22.101
	EXISTING LENGTH RIGHT	ELR (m)	2.776	2.921	2.357	1.920	9.198
	ADDITION LEFT	AL (m)	0.000	0.000	0.000	0.000	0.000
	NUMBER OF UNITS (LEFT)	NUMBER	0.000	0.000	0.000	0.000	0.000
	ADDITION RIGHT	AR (m)	17.076	17.075	14.625	14.636	9.758
	NUMBER OF UNITS (RIGHT)	NUMBER	6.998	6.998	5.994	5.998	3.999
	INTERNAL CHAMBER DIMENSIONS	(m)	900x900	900x900	900x900	900x900	900x900
	GRID INLET TYPE *		1 X TYPE "B" MEDIAN	1 X TYPE "B" MEDIAN	1 X TYPE "B" MEDIAN	1 X TYPE "B" MEDIAN	1 X TYPE "B" MEDIAN

NOTES

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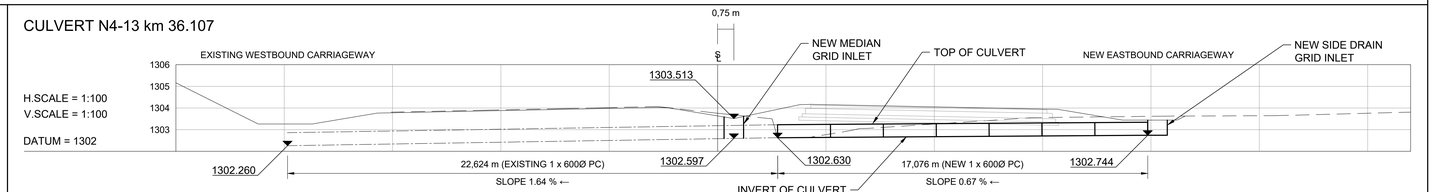
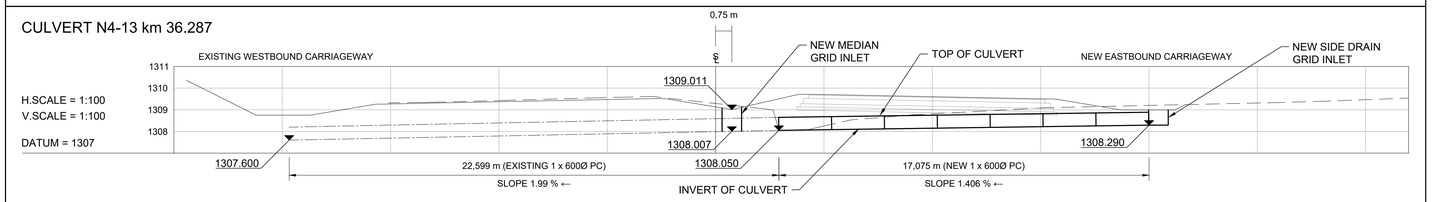
CULVERT N4-13 km 36.107



CULVERT N4-13 km 36.287



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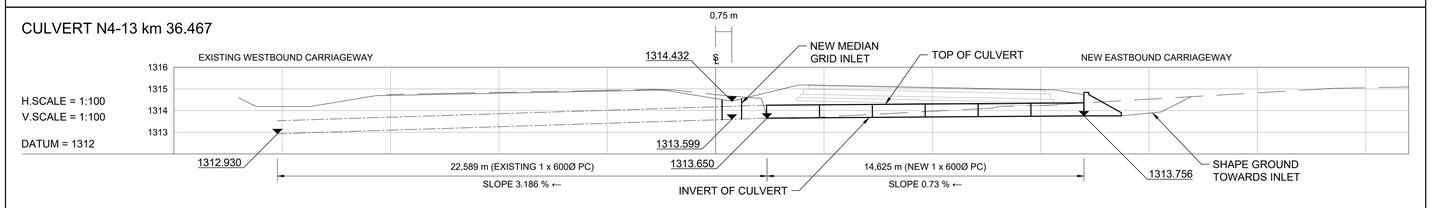
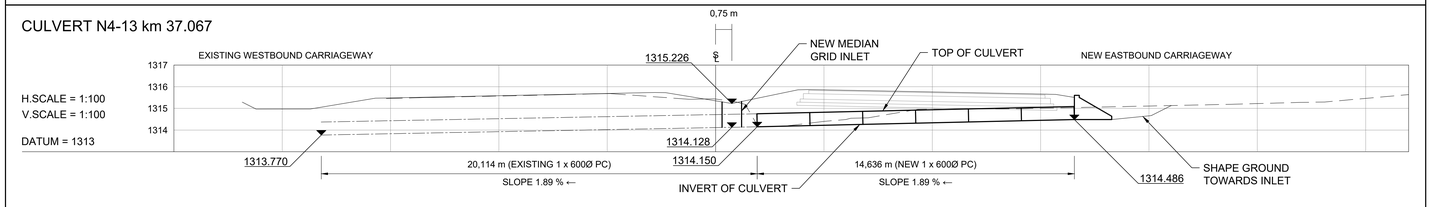
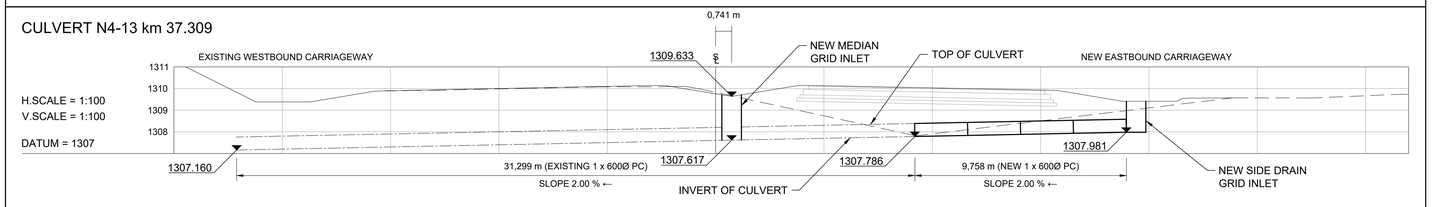


CULVERT N4-13 km 37.067



CULVERT N4-13 km 37.309



No.	DATE	REVISION	
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date :

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DESIGNED BY
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CONSULTANT APPROVAL
Name : PL NGQUMSHE
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Date : 17 / 07 / 2023

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Reg. No. 1998/009584/30

NORTHERN REGION
38 Ida Street
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for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

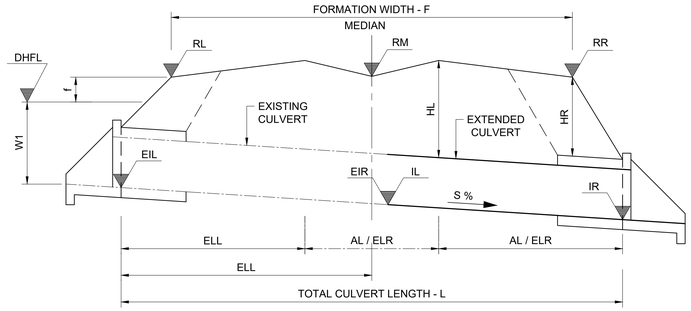
DRAWING DESCRIPTION
CULVERT SCHEDULE N4-13
CULVERTS BETWEEN km 36.107 TO km 37.309

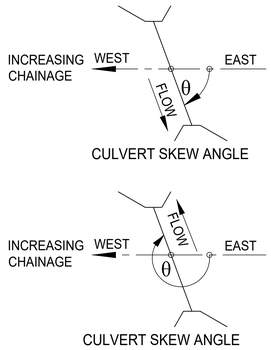
SCALE : AS SHOWN (A0) | SHEET 33 OF 40

PROJECT NUMBER	BPCC-2024/U625318 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	SECTION 13	SECTION 13
DRAWING km DISTANCE	km 36.107	km 37.309
DRAWING TYPE	ROADS - LAYOUTS	
BRIDGE/STRUCTURE No.	NA	
CONSULTANT DRAWING No.	FA 3257 / 23 / 33 CS	VER
SANRAL DOCUMENT #	- -	V0

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\07 - Culvert Schedule\3257-23-29-40CS-CULVERT SCHEDULE_20230717.dwg





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PC - PIPE CULVERT (UNIT LENGTHS 2,44m)
BC - BOX CULVERT (UNIT LENGTHS 1,22m)
OC - OVAL CULVERT
IBC - IN-SITU BOX CULVERT
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MH - MANHOLE
SI - SIDE INLET
SCI - SPECIAL CULVERT INLET
FA - FARM ACCESS
SDW - SIDE DRAIN WING WALL
DI - DROP INLET

LEGEND

EXISTING CULVERT
NEW CULVERT
EXISTING GROUND

TENDER

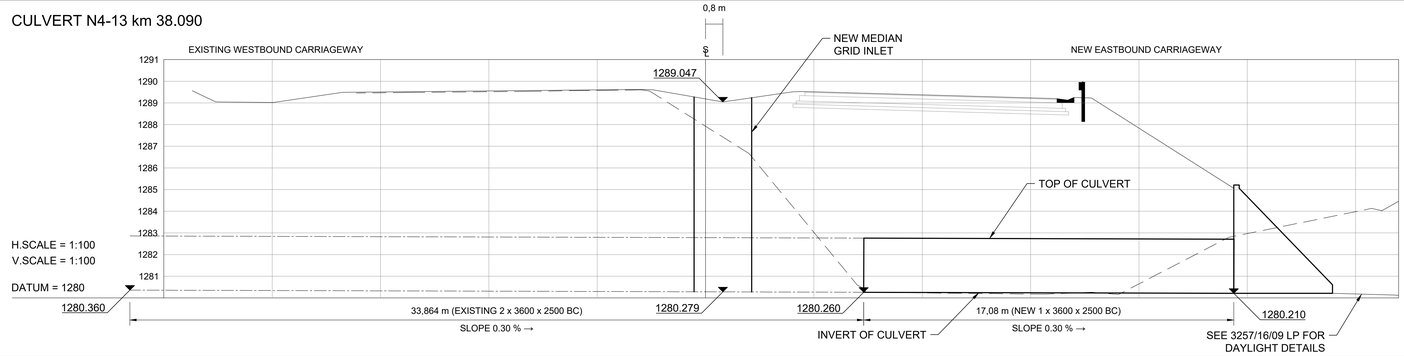
CULVERT DESCRIPTION	ITEM NUMBER		23	24	25
	ROAD KILOMETRE DISTANCE		38.090	38.607	38.808
	TYPE OF CULVERT		2 X BC	1 X PC	4 X PC
	SPAN / DIA	(mm)	3600	600	900
	HEIGHT	(mm)	2500	-	-
	PIPE & BEDDING CLASS		75S	100D	100D
	SKEW ANGLE	°(DEG)	250	270	227.0000
HYDROLOGICAL DATA	CATCHMENT AREA	(km^2)	2.766	1.447	0.107
	TIME OF CONCENTRATION (Tc)	(Hours)	1.212	1.063	0.838
	RAINFALL INTENSITY	(mm/h)	52.165	57.447	68.000
	CATCHMENT DISCHARGE AT INLET (SDF METHOD)	(m^3/s)	13.009	7.503	0.669
	CAPACITY	(m^3/s)	57.406	0.543	6.220
	Hw/D RATIO AT CAPACITY		1.200	1.200	1.200
	VELOCITY AT OUTLET**		1.460	0.480	0.611
ROAD DATA	ROAD LEVEL - LEFT SHOULDER	RL (m)	1289.496	1273.680	1267.644
	ROAD LEVEL - ROAD S/L	RM (m)	1289.047	1273.382	1266.876
	ROAD LEVEL - RIGHT SHOULDER	RR (m)	1289.197	1273.669	1266.749
	ROAD FORMATION WIDTH	F (m)	32.415	30.403	35.911
CULVERT DATA	FLOOR SLOPE	S (%)	0.300	1.680	3.66/4.87
	INVERT LEVEL - LEFT	IL (m)	1280.260	1271.760	1262.660
	INVERT LEVEL - RIGHT	IR (m)	1280.210	1271.473	1261.473
	EXISTING INVERT LEVEL LEFT	EIL (m)	1280.360	1272.140	1264.160
	EXISTING INVERT LEVEL RIGHT	EIR (m)	1280.260	1271.760	1262.660
	FILL HEIGHT - LEFT	HL (m)	6.754	1.569	3.722
	FILL HEIGHT - RIGHT	HR (m)	6.463	1.529	3.926
	LENGTH - LEFT TO ROAD S/L (MEDIAN)	LL (m)			
	TOTAL LENGTH - INLET TO OUTLET	L (m)	50.944	39.716	65.688
	EXISTING LENGTH LEFT	ELL (m)	26.566	20.585	35.456
	EXISTING LENGTH RIGHT	ELR (m)	7.298	2.053	5.861
	ADDITION LEFT	AL (m)	0.000	0.000	0.000
	NUMBER OF UNITS (LEFT)	NUMBER	0.000	0.000	0.000
	ADDITION RIGHT	AR (m)	17.080	17.078	24.371
	NUMBER OF UNITS (RIGHT)	NUMBER	14.000	6.999	9.988
	INTERNAL CHAMBER DIMENSIONS	(m)	2500x2500	900x900	2000x1500
	GRID INLET TYPE *		1 X TYPE "B" MEDIAN	1 X TYPE "B" MEDIAN	1 X TYPE "B" MEDIAN

NOTES

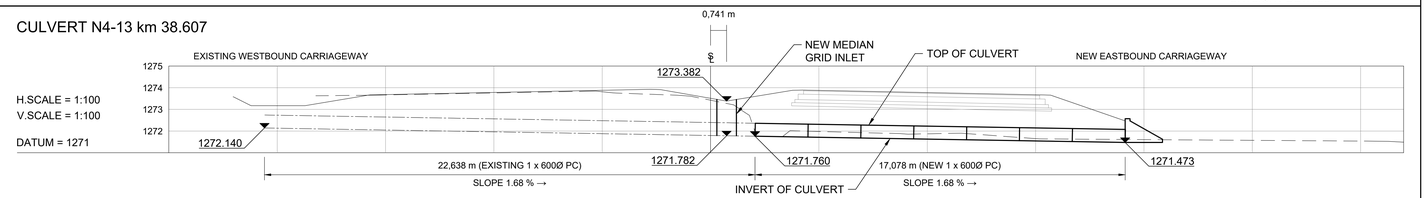
* GRID INLET TYPE "B" DIMENSIONS ARE 0.489 x 0.809

** ALL APRON SLABS AT OUTLETS ARE TO BE CONCRETE LINED

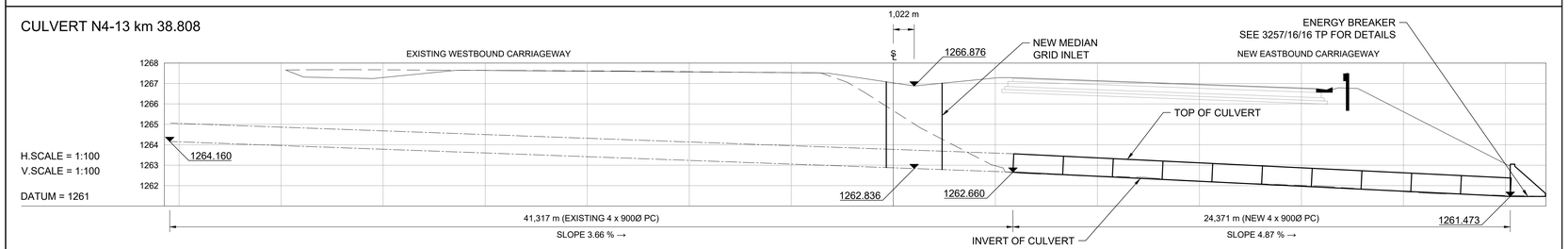
CULVERT N4-13 km 38.090



CULVERT N4-13 km 38.607



CULVERT N4-13 km 38.808



No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date

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NAME	Z MASHININI
Prof. Reg. No.	-
CHECKED BY	
NAME	PL NGQUMSHE
Prof. Reg. No.	20080112
DRAWN BY	
NAME	Z MASHININI

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17 / 07 / 2023

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THE SOUTH AFRICAN NATIONAL ROADS AGENCY SOC LTD
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ACCEPTANCE
THIS ACCEPTANCE IS FOR PROCEDURAL AND ADMINISTRATIVE REVIEW PURPOSES ONLY AND DOES NOT ATTRACT LEGAL LIABILITY OR LIABILITY OF ANY KIND FROM WHATSOEVER CAUSE OR HOWEVER ARISING
for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION
CULVERT SCHEDULE N4-13
CULVERTS BETWEEN km 38.090 TO km 38.808

SCALE : AS SHOWN (A0) | SHEET 34 OF 40

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	SECTION 13	SECTION 13
DRAWING km DISTANCE	km 38.090	km 38.808
DRAWING TYPE	ROADS - LAYOUTS	
BRIDGE/STRUCTURE No.	NA	
CONSULTANT DRAWING No.	FA 3257 / 23 / 34 CS	VER
SANRAL DOCUMENT #	- -	V0

SANRAL DOCUMENT NUMBER :

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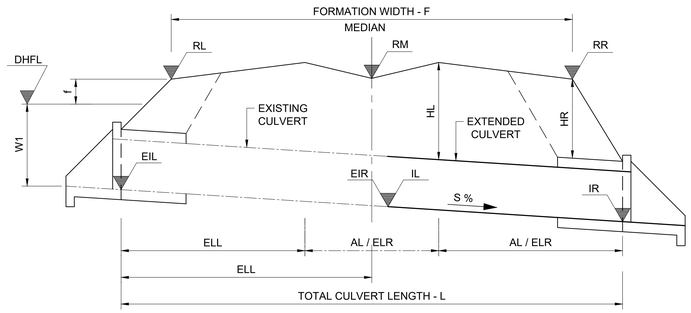
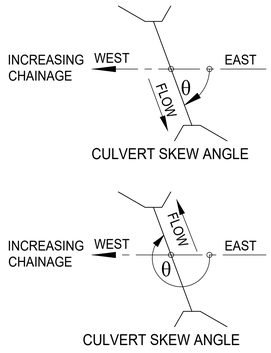




NOTE:

1. CULVERT EXTENSIONS ON LEFT AND RIGHT HAND SIDE REQUIRED ONLY IF DIMENSIONS AL AND AR IN SCHEDULE = 0
2. GRID INLET DIMENSIONS ARE INSIDE DIMENSIONS

KEY TO CULVERT TYPES:

PC - PIPE CULVERT (UNIT LENGTHS 2,44m)
BC - BOX CULVERT (UNIT LENGTHS 1,22m)
OC - OVAL CULVERT
IBC - IN-SITU BOX CULVERT
APC - ARMCO PIPE CULVERT
MH - MANHOLE
SI - SIDE INLET
SCI - SPECIAL CULVERT INLET
FA - FARM ACCESS
SDW - SIDE DRAIN WING WALL
DI - DROP INLET

LEGEND

- EXISTING CULVERT
- NEW CULVERT
- EXISTING GROUND

TENDER

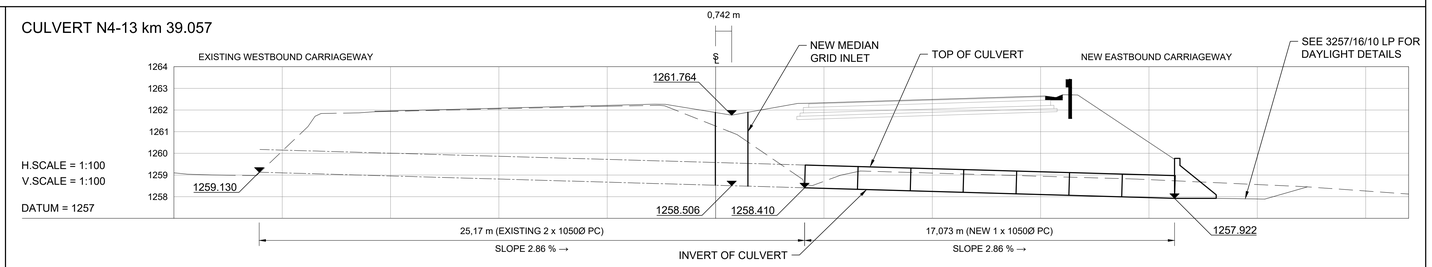
	ITEM NUMBER		26	27	28	29
CULVERT DESCRIPTION	ROAD KILOMETRE DISTANCE		39.057	39.297	39.707	39.787
	TYPE OF CULVERT		2 X PC	1 X BC	4 X PC	1 X PC
	SPAN / DIA	(mm)	1050	2400	600	750
	HEIGHT	(mm)	-	2400	-	-
	PIPE & BEDDING CLASS		100D	75S	100D	100D
	SKEW ANGLE	°(DEG)	273.0000	90	267.0000	269.0000
HYDROLOGICAL DATA	CATCHMENT AREA	(km²)	0.919	0.787	1.510	0.021
	TIME OF CONCENTRATION (Tc)	(Hours)	0.919	1.054	0.988	0.651
	RAINFALL INTENSITY	(mm/h)	63.768	57.821	60.576	86.168
	CATCHMENT DISCHARGE AT INLET (SDF METHOD)	(m³/s)	5.308	4.123	8.278	0.160
	CAPACITY	(m³/s)	4.516	17.999	2.156	0.953
	Hw/D RATIO AT CAPACITY		1.200	1.200	1.200	1.200
	VELOCITY AT OUTLET**		0.652	3.167	0.477	0.539
ROAD DATA	ROAD LEVEL - LEFT SHOULDER	RL (m)	1261.927	1260.609	1258.540	1258.126
	ROAD LEVEL - ROAD S/L	RM (m)	1261.764	1260.471	1258.287	1257.803
	ROAD LEVEL - RIGHT SHOULDER	RR (m)	1262.646	1261.326	1259.119	1258.639
	ROAD FORMATION WIDTH	F (m)	30.445	30.401	30.442	30.403
CULVERT DATA	FLOOR SLOPE	S (%)	2.860	2.000	1.460	1.850
	INVERT LEVEL - LEFT	IL (m)	1258.410	1256.836	1256.520	1255.980
	INVERT LEVEL - RIGHT	IR (m)	1257.922	1256.417	1256.270	1255.664
	EXISTING INVERT LEVEL LEFT	EIL (m)	1259.130	1257.360	1256.860	1256.400
	EXISTING INVERT LEVEL RIGHT	EIR (m)	1258.410	1256.836	1256.520	1255.980
	FILL HEIGHT - LEFT	HL (m)	2.858	1.865	1.702	1.605
	FILL HEIGHT - RIGHT	HR (m)	3.502	2.411	2.186	2.133
	LENGTH - LEFT TO ROAD S/L (MEDIAN)	LL (m)				
	TOTAL LENGTH - INLET TO OUTLET	L (m)	42.243	47.450	40.342	39.747
	EXISTING LENGTH LEFT	ELL (m)	21.062	25.960	20.802	19.557
	EXISTING LENGTH RIGHT	ELR (m)	4.108	0.000	2.462	3.113
	ADDITION LEFT	AL (m)	0.000	0.754	0.000	0.000
	NUMBER OF UNITS (LEFT)	NUMBER	0.000	0.618	0.000	0.000
	ADDITION RIGHT	AR (m)	17.073	20.736	17.078	17.077
	NUMBER OF UNITS (RIGHT)	NUMBER	6.997	16.997	6.999	6.999
	INTERNAL CHAMBER DIMENSIONS	(m)	1500X1200		900x900	
	GRID INLET TYPE *		1 X TYPE "B" MEDIAN		1 X TYPE "B" MEDIAN	

NOTES

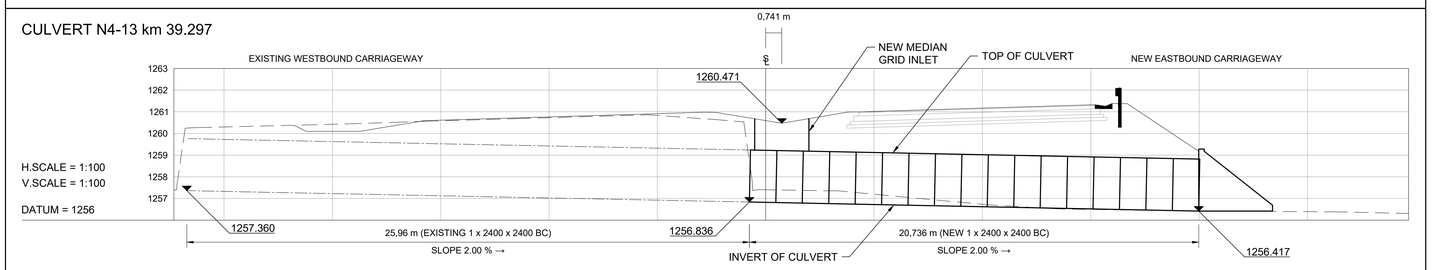
* GRID INLET TYPE "B" DIMENSIONS ARE 0.489 x 0.809

** ALL APRON SLABS AT OUTLETS ARE TO BE CONCRETE LINED

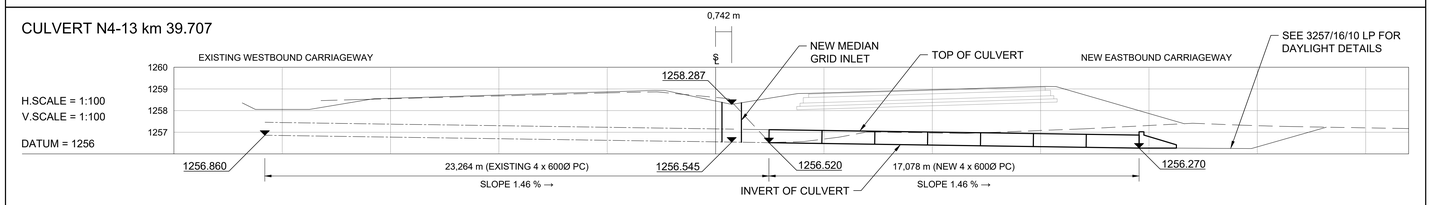
CULVERT N4-13 km 39.057



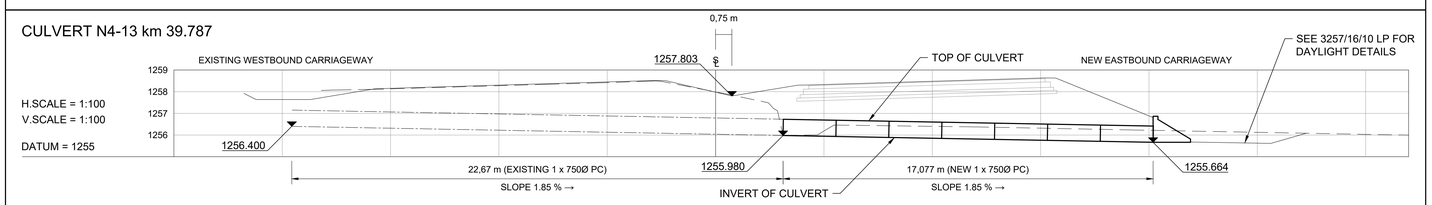
CULVERT N4-13 km 39.297



CULVERT N4-13 km 39.707



CULVERT N4-13 km 39.787



No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date :

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DESIGNED BY
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Prof. Reg. No. : 20080112
DRAWN BY
NAME : Z MASHININI

CONSULTANT APPROVAL
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for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION
CULVERT SCHEDULE N4-13
CULVERTS BETWEEN km 39.057 TO km 39.787

SCALE : AS SHOWN (A0) | SHEET 35 OF 40

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	SECTION 13	SECTION 13
DRAWING km DISTANCE	km 39.057	km 39.787
DRAWING TYPE	ROADS - LAYOUTS	
BRIDGE/STRUCTURE No.	NA	
CONSULTANT DRAWING No.	FA 3257 / 23 / 35 CS	VER
SANRAL DOCUMENT #	- -	V0

SANRAL DOCUMENT NUMBER :

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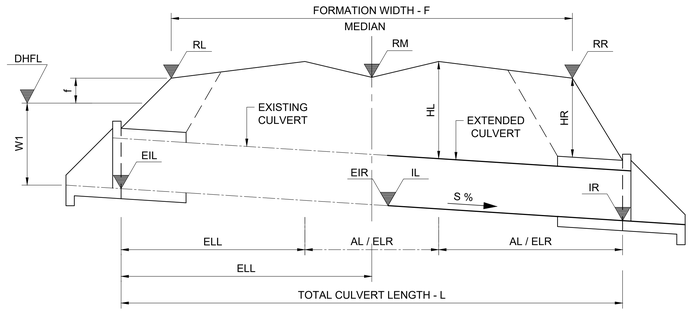

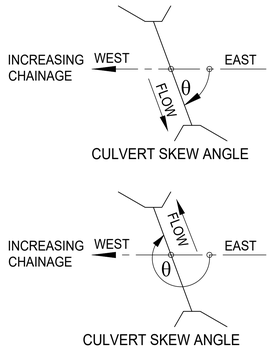

NOTE:

1. CULVERT EXTENSIONS ON LEFT AND RIGHT HAND SIDE REQUIRED ONLY IF DIMENSIONS AL AND AR IN SCHEDULE = 0
2. GRID INLET DIMENSIONS ARE INSIDE DIMENSIONS

KEY TO CULVERT TYPES:

PC - PIPE CULVERT (UNIT LENGTHS 2,44m)
BC - BOX CULVERT (UNIT LENGTHS 1,22m)
OC - OVAL CULVERT
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APC - ARMCO PIPE CULVERT
MH - MANHOLE
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SCI - SPECIAL CULVERT INLET
FA - FARM ACCESS
SDW - SIDE DRAIN WING WALL
DI - DROP INLET

LEGEND

- EXISTING CULVERT
- NEW CULVERT
- EXISTING GROUND

TENDER

CULVERT DESCRIPTION	ITEM NUMBER		30	31	32	33
	ROAD KILOMETRE DISTANCE		39.867	39.947	40.027	40.167
	TYPE OF CULVERT		1 X PC	1 X PC	2 X PC	2 X PC
	SPAN / DIA	(mm)	750	750	600	600
	HEIGHT	(mm)		-	-	-
	PIPE & BEDDING CLASS		100D	100D	100D	100D
	SKEW ANGLE	°(DEG)	271.0000	269.0000	272.0000	271.0000
HYDROLOGICAL DATA	CATCHMENT AREA	(km^2)	0.083	0.065	0.271	0.076
	TIME OF CONCENTRATION (Tc)	(Hours)	0.690	0.577	0.636	0.540
	RAINFALL INTENSITY	(mm/h)	77.553	87.013	81.844	90.660
	CATCHMENT DISCHARGE AT INLET (SDF METHOD)	(m^3/s)	0.607	0.521	2.056	0.631
	CAPACITY	(m^3/s)	0.949	0.947	1.065	1.117
	Hw/D RATIO AT CAPACITY		1.200	1.200	1.200	1.200
	VELOCITY AT OUTLET**		0.537	0.536	0.471	0.494
ROAD DATA	ROAD LEVEL - LEFT SHOULDER	RL (m)	1257.711	1257.393	1257.462	1258.991
	ROAD LEVEL - ROAD S/L	RM (m)	1257.321	1256.834	1256.903	1258.693
	ROAD LEVEL - RIGHT SHOULDER	RR (m)	1258.159	1257.335	1257.167	1258.901
	ROAD FORMATION WIDTH	F (m)	30.405	30.404	31.703	34.334
CULVERT DATA	FLOOR SLOPE	S (%)	1.720	1.64/2.99	1.14/2.61	2.96/2.00
	INVERT LEVEL - LEFT	IL (m)	1255.239	1255.750	1255.793	1256.390
	INVERT LEVEL - RIGHT	IR (m)	1255.307	1255.239	1255.284	1256.000
	EXISTING INVERT LEVEL LEFT	EIL (m)	1255.970	1256.080	1256.030	1257.140
	EXISTING INVERT LEVEL RIGHT	EIR (m)	1255.600	1255.750	1255.800	1256.390
	FILL HEIGHT - LEFT	HL (m)	1.480	0.955	1.100	2.213
	FILL HEIGHT - RIGHT	HR (m)	2.036	1.272	1.173	2.188
	LENGTH - LEFT TO ROAD S/L (MEDIAN)	LL (m)				
	TOTAL LENGTH - INLET TO OUTLET	L (m)	38.638	37.265	39.886	44.849
	EXISTING LENGTH LEFT	ELL (m)	19.552	19.624	19.773	21.107
	EXISTING LENGTH RIGHT	ELR (m)	2.009	0.563	0.600	4.231
	ADDITION LEFT	AL (m)	0.000	0.000	0.000	0.000
	NUMBER OF UNITS (LEFT)	NUMBER	0.000	0.000	0.000	0.000
	ADDITION RIGHT	AR (m)	17.077	17.078	19.513	19.511
	NUMBER OF UNITS (RIGHT)	NUMBER	6.999	6.999	7.997	7.996
	INTERNAL CHAMBER DIMENSIONS	(m)	1200x900		900x900	
	GRID INLET TYPE *		1 X TYPE "B" MEDIAN		1 X TYPE "B" MEDIAN	

NOTES

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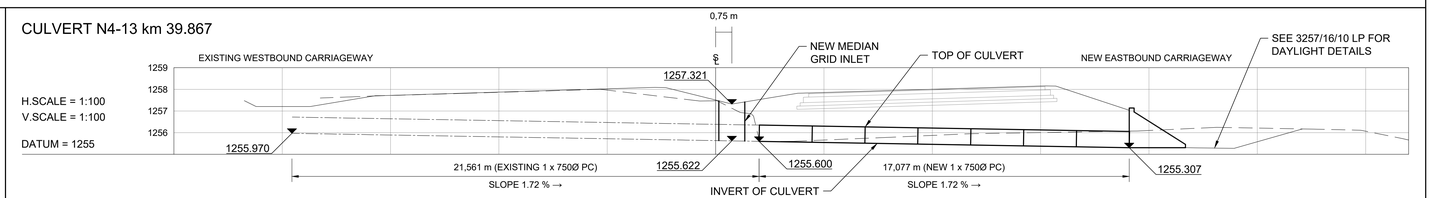
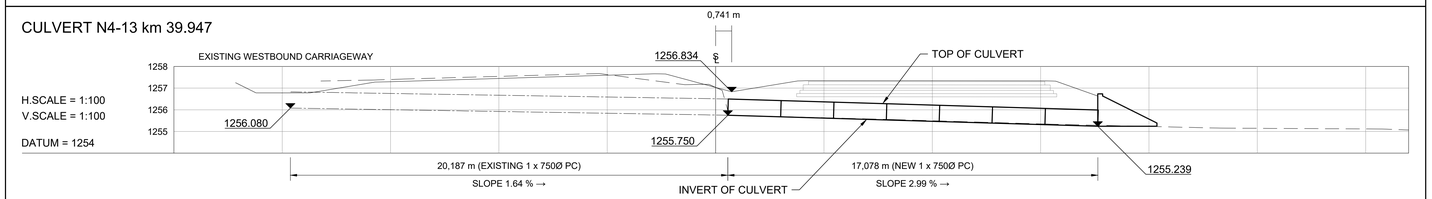
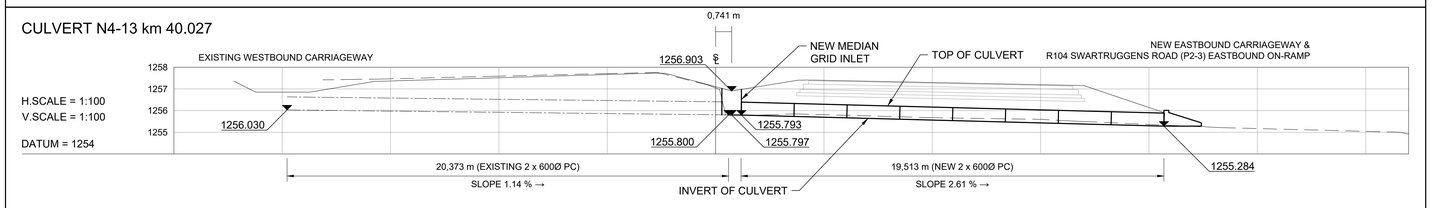
CULVERT N4-13 km 39.867



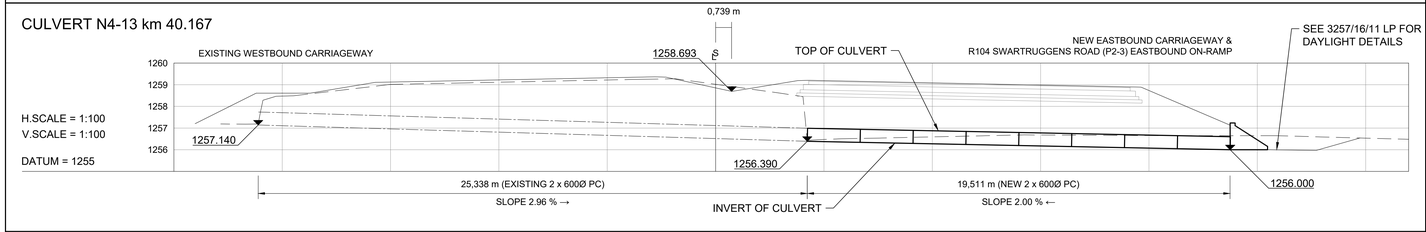
CULVERT N4-13 km 39.947



CULVERT N4-13 km 40.027



CULVERT N4-13 km 40.167



No.	DATE	REVISION	
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

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Prof. Reg. No.	-
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NAME	Z MASHININI

CONSULTANT APPROVAL
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for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

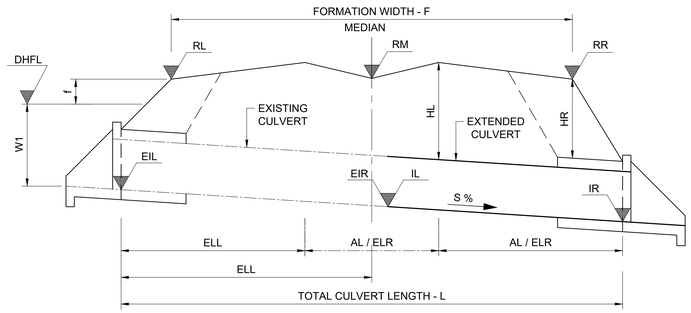
DRAWING DESCRIPTION
CULVERT SCHEDULE N4-13
CULVERTS BETWEEN km 39.867 TO km 40.167

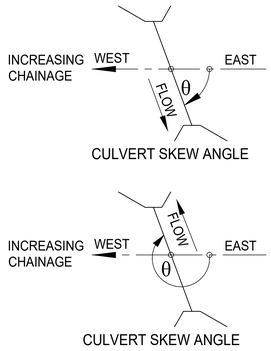
SCALE : AS SHOWN (A0) | SHEET 36 OF 40

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001		
DRAWING LOCATION DATA	START	END	
ROUTE	N 4	N 4	
SECTION	SECTION 13	SECTION 13	
DRAWING km DISTANCE	km 39.867	km 40.167	
DRAWING TYPE	ROADS - LAYOUTS		
BRIDGE/STRUCTURE No.	NA		
CONSULTANT DRAWING No.	FA	3257 / 23 / 36 CS	VER
SANRAL DOCUMENT #	- -		V0

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\07 - Culvert Schedule\3257-23-29-40CS-CULVERT SCHEDULE_20230717.dwg





NOTE:

1. CULVERT EXTENSIONS ON LEFT AND RIGHT HAND SIDE REQUIRED ONLY IF DIMENSIONS AL AND AR IN SCHEDULE = 0
2. GRID INLET DIMENSIONS ARE INSIDE DIMENSIONS

KEY TO CULVERT TYPES:

PC - PIPE CULVERT (UNIT LENGTHS 2,44m)
BC - BOX CULVERT (UNIT LENGTHS 1,22m)
OC - OVAL CULVERT
IBC - IN-SITU BOX CULVERT
APC - ARMCO PIPE CULVERT
MH - MANHOLE
SI - SIDE INLET
SCI - SPECIAL CULVERT INLET
FA - FARM ACCESS
SDW - SIDE DRAIN WING WALL
DI - DROP INLET

LEGEND

EXISTING CULVERT
NEW CULVERT
EXISTING GROUND

TENDER

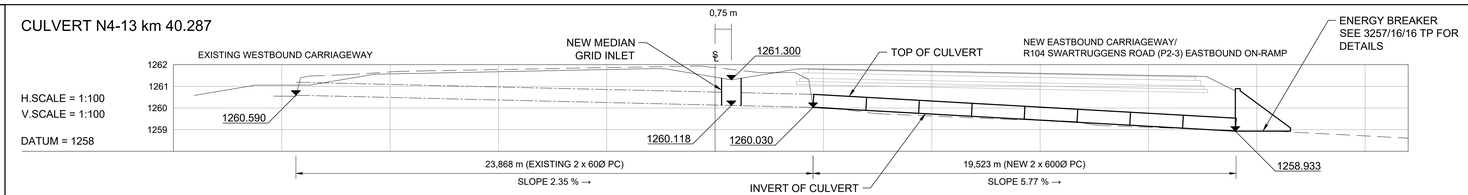
CULVERT DESCRIPTION	ITEM NUMBER		34	35	36	37
	ROAD KILOMETRE DISTANCE		40.287	40.706	40.767	40.887
	TYPE OF CULVERT		2 X PC	1 X PC	2 X PC	2 X PC
	SPAN / DIA	(mm)	600	600	900	900
	HEIGHT	(mm)	-	-	-	-
	PIPE & BEDDING CLASS		100D	100D	100D	100D
	SKEW ANGLE	°(DEG)	270	270	269.0000	270
HYDROLOGICAL DATA	CATCHMENT AREA	(km^2)	0.275	0.082	0.115	0.148
	TIME OF CONCENTRATION (Tc)	(Hours)	0.599	0.483	0.513	0.510
	RAINFALL INTENSITY	(mm/h)	85.034	97.060	93.584	93.974
	CATCHMENT DISCHARGE AT INLET (SDF METHOD)	(m^3/s)	2.135	0.758	0.990	1.289
	CAPACITY	(m^3/s)	1.104	0.548	3.043	3.084
	Hw/D RATIO AT CAPACITY		1.200	1.200	1.200	1.200
	VELOCITY AT OUTLET**		0.488	0.484	0.598	0.606
ROAD DATA	ROAD LEVEL - LEFT SHOULDER	RL (m)	1261.650	1267.692	1269.138	1269.688
	ROAD LEVEL - ROAD S/L	RM (m)	1261.300	1268.337	1268.764	1269.387
	ROAD LEVEL - RIGHT SHOULDER	RR (m)	1261.467	1267.629	1269.057	1269.680
	ROAD FORMATION WIDTH	F (m)	37.372	30.401	30.404	30.401
CULVERT DATA	FLOOR SLOPE	S (%)	2.35/5.77	2.00/5.17	1.47/5.58	3.10/2.87
	INVERT LEVEL - LEFT	IL (m)	1260.030	1267.749	1267.261	1267.377
	INVERT LEVEL - RIGHT	IR (m)	1258.933	1266.867	1266.578	1266.759
	EXISTING INVERT LEVEL LEFT	EIL (m)	1260.590	1268.280	1267.670	1268.040
	EXISTING INVERT LEVEL RIGHT	EIR (m)	1260.030	1267.749	1267.261	1267.290
	FILL HEIGHT - LEFT	HL (m)	1.176	0.681	1.103	1.712
	FILL HEIGHT - RIGHT	HR (m)	1.830	1.027	1.469	1.832
	LENGTH - LEFT TO ROAD S/L (MEDIAN)	LL (m)				
	TOTAL LENGTH - INLET TO OUTLET	L (m)	43.391	40.697	39.983	41.304
	EXISTING LENGTH LEFT	ELL (m)	19.347	22.899	22.843	20.069
	EXISTING LENGTH RIGHT	ELR (m)	4.521	0.741	4.959	4.114
	ADDITION LEFT	AL (m)	0.000	0.000	0.000	0.000
	NUMBER OF UNITS (LEFT)	NUMBER	0.000	0.000	0.000	0.000
	ADDITION RIGHT	AR (m)	19.523	17.057	12.181	19.923
	NUMBER OF UNITS (RIGHT)	NUMBER	8.001	6.991	4.992	8.165
	INTERNAL CHAMBER DIMENSIONS	(m)	900x900	900x900		1200x900
	GRID INLET TYPE *		1 X TYPE "B" MEDIAN	1 X TYPE "B" MEDIAN		1 X TYPE "B" MEDIAN

NOTES

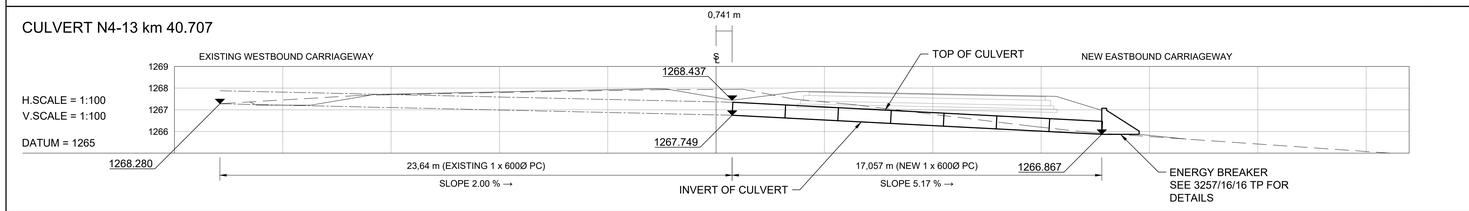
* GRID INLET TYPE "B" DIMENSIONS ARE 0.489 x 0.809

** ALL APRON SLABS AT OUTLETS ARE TO BE CONCRETE LINED

CULVERT N4-13 km 40.287



CULVERT N4-13 km 40.707



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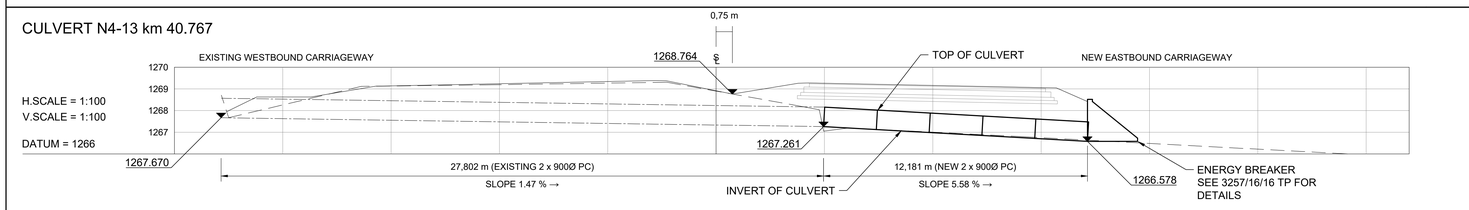
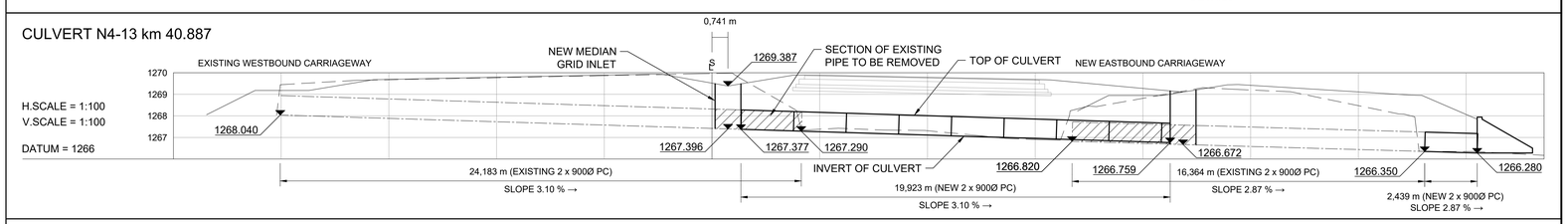


CULVERT N4-13 km 40.887



V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE	
No.	DATE	REVISION	CONSULT. ENG.	

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CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date :

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DESIGNED BY	
NAME	Z MASHININI
Prof. Reg. No.	-
CHECKED BY	
NAME	PL NGQUMSHE
Prof. Reg. No.	20080112
DRAWN BY	
NAME	Z MASHININI

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17 / 07 / 2023

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THE SOUTH AFRICAN NATIONAL ROADS AGENCY SOC LTD
Reg. No. 1998/009584/30

NORTHERN REGION
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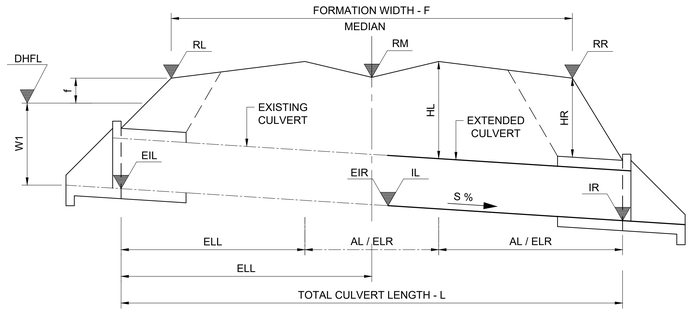
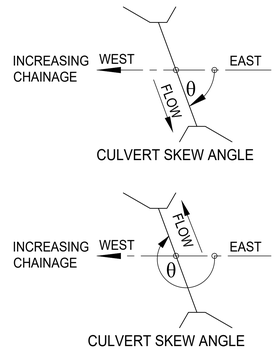
DRAWING DESCRIPTION
CULVERT SCHEDULE N4-13
CULVERTS BETWEEN km 40.287 TO km 40.887

SCALE : AS SHOWN (A0) | SHEET 37 OF 40

PROJECT NUMBER		BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END	
ROUTE	N 4	N 4	
SECTION	SECTION 13	SECTION 13	
DRAWING km DISTANCE	km 40.287	km 40.887	
DRAWING TYPE	ROADS - LAYOUTS		
BRIDGE/STRUCTURE No.	NA		
CONSULTANT DRAWING No.	FA	3257 / 23 / 37 CS	VER
SANRAL DOCUMENT #		- -	V0

SANRAL DOCUMENT NUMBER :





NOTE:

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FA - FARM ACCESS
SDW - SIDE DRAIN WING WALL
DI - DROP INLET

LEGEND

EXISTING CULVERT
NEW CULVERT
EXISTING GROUND

TENDER

CULVERT DESCRIPTION	ITEM NUMBER		38	39	40
	ROAD KILOMETRE DISTANCE		0.397	0.311	0.570
	TYPE OF CULVERT		4 X PC	1 X PC	2 X PC
	SPAN / DIA	(mm)	900	600	600
	HEIGHT	(mm)	-	-	-
	PIPE & BEDDING CLASS		100D	100D	100D
	SKEW ANGLE	°(DEG)	97.0000	268.0000	270.0000
HYDROLOGICAL DATA	CATCHMENT AREA	(km^2)	0.543	0.031	0.060
	TIME OF CONCENTRATION (Tc)	(Hours)	0.917	0.499	0.438
	RAINFALL INTENSITY	(mm/h)	63.878	95.122	102.759
	CATCHMENT DISCHARGE AT INLET (SDF METHOD)	(m^3/s)	3.211	0.270	0.870
	CAPACITY	(m^3/s)	5.816	0.548	1.095
	Hw/D RATIO AT CAPACITY		1.200	1.200	1.200
	VELOCITY AT OUTLET**		0.571	0.484	0.484
ROAD DATA	ROAD LEVEL - LEFT SHOULDER	RL (m)	1256.178	1238.640	1229.362
	ROAD LEVEL - ROAD S/L	RM (m)	1256.247	1236.391	1229.443
	ROAD LEVEL - RIGHT SHOULDER	RR (m)	1256.452	1238.124	1229.738
	ROAD FORMATION WIDTH	F (m)	8.053	8.007	16.375
CULVERT DATA	FLOOR SLOPE	S (%)	0.960	2.000	2.000
	INVERT LEVEL - LEFT	IL (m)	-	1236.330	1227.651
	INVERT LEVEL - RIGHT	IR (m)	-	1236.550	1228.168
	EXISTING INVERT LEVEL LEFT	EIL (m)	1253.785	-	-
	EXISTING INVERT LEVEL RIGHT	EIR (m)	1253.640	-	-
	FILL HEIGHT - LEFT	HL (m)	1.537	0.626	1.025
	FILL HEIGHT - RIGHT	HR (m)	1.843	1.012	1.149
	LENGTH - LEFT TO ROAD S/L (MEDIAN)	LL (m)			
	TOTAL LENGTH - INLET TO OUTLET	L (m)	15.185	12.198	25.894
	EXISTING LENGTH LEFT	ELL (m)	6.632	-	
	EXISTING LENGTH RIGHT	ELR (m)	8.553	-	
	ADDITION LEFT	AL (m)	-	3.079	8.590
	NUMBER OF UNITS (LEFT)	NUMBER	-	1.262	3.520
	ADDITION RIGHT	AR (m)	-	9.127	17.305
	NUMBER OF UNITS (RIGHT)	NUMBER	-	3.741	7.092
	INTERNAL CHAMBER DIMENSIONS	(m)		1200x900	1500x1200
	GRID INLET TYPE *			B	D

NOTES

* GRID INLET TYPE "B" DIMENSIONS ARE 0.489 x 0.809

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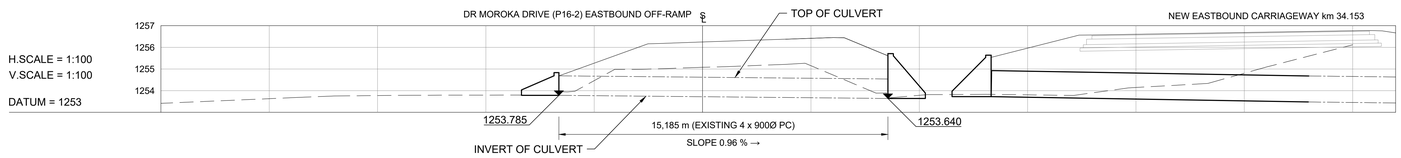
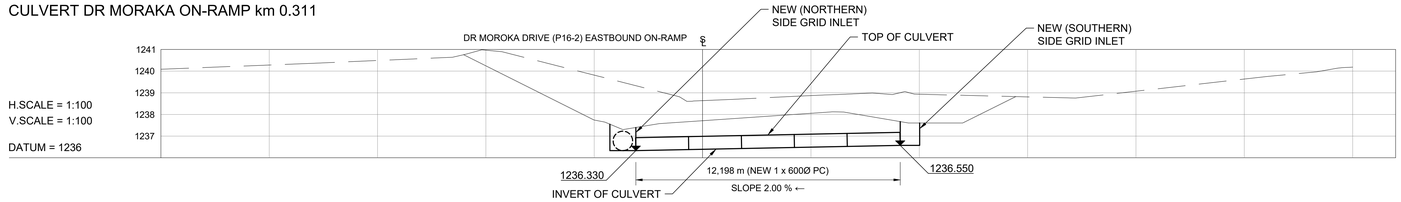
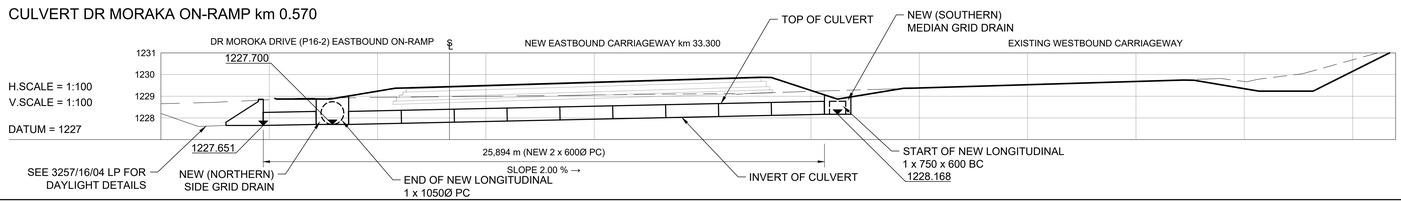
CULVERT DR MOROKA OFF-RAMP km 0.397



CULVERT DR MORAKA ON-RAMP km 0.311



CULVERT DR MORAKA ON-RAMP km 0.570



No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date

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DESIGNED BY
NAME: Z MASHININI
Prof. Reg. No. : -
CHECKED BY
NAME: PL NGQUMSHE
Prof. Reg. No. : 20080112
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NAME: Z MASHININI

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 13 / 12 / 2019

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for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
N4 UPGRADE PHASE 2 - DETAILED DESIGN

DRAWING DESCRIPTION
CULVERT SCHEDULE DR MOROKA OFF-RAMP km 0.397 & DR MOROKA ON-RAMP km 0.311 TO km 0.570

SCALE : AS SHOWN (A0) **SHEET 38 OF 40**

PROJECT NUMBER			
DRAWING LOCATION DATA	START	END	
ROUTE	N 4	N 4	
SECTION	SECTION 13	SECTION 13	
DRAWING km DISTANCE	-	-	
DRAWING TYPE	ROADS - LAYOUTS		
BRIDGE/STRUCTURE No.	NA		
CONSULTANT DRAWING No.	FA	3257 / 23 / 38 CS	VER
SANRAL DOCUMENT #		- -	V0

SANRAL DOCUMENT NUMBER :

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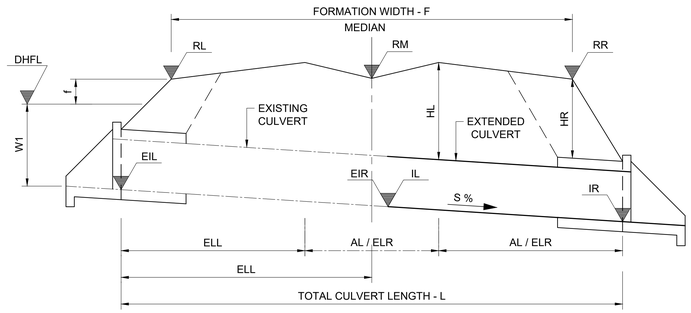

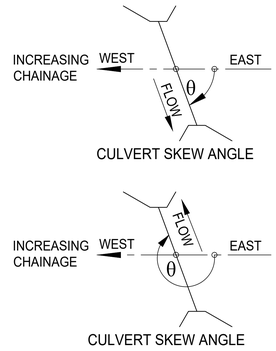

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FA - FARM ACCESS
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DI - DROP INLET

LEGEND

EXISTING CULVERT
NEW CULVERT
EXISTING GROUND

TENDER

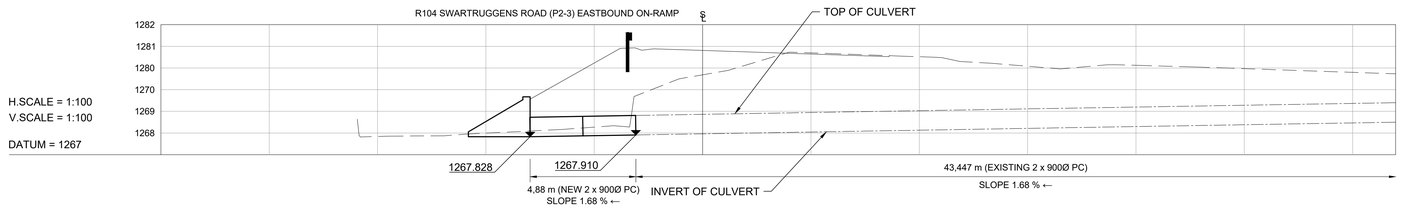
CULVERT DESCRIPTION	ITEM NUMBER		41	42	43	44
	ROAD KILOMETRE DISTANCE		0.267	0.421	0.414	0.864
	TYPE OF CULVERT		2 X PC	2 X PC	1 X PC	2 X PC
	SPAN / DIA	(mm)	900	900	650	600
	HEIGHT	(mm)	-	-	-	-
	PIPE & BEDDING CLASS		100D	100D	100D	100D
	SKEW ANGLE	°(DEG)	285	276	268	267.0000
HYDROLOGICAL DATA	CATCHMENT AREA	(km^2)	0.204	0.148	0.026	0.275
	TIME OF CONCENTRATION (Tc)	(Hours)	0.894	0.510	0.340	0.599
	RAINFALL INTENSITY	(mm/h)	66.606	93.974	118.136	85.034
	CATCHMENT DISCHARGE AT INLET (SDF METHOD)	(m^3/s)	1.210	1.279	0.296	2.135
	CAPACITY	(m^3/s)	2.991	3.073	0.702	1.104
	Hw/D RATIO AT CAPACITY		1.200	1.200	1.200	1.200
	VELOCITY AT OUTLET**		0.588	0.604	0.529	0.488
ROAD DATA	ROAD LEVEL - LEFT SHOULDER	RL (m)	1281.885	1268.962	1260.633	1261.467
	ROAD LEVEL - ROAD S/L	RM (m)	1281.813	1269.084	1260.778	1261.505
	ROAD LEVEL - RIGHT SHOULDER	RR (m)	1281.494	1269.451	1261.213	1261.811
	ROAD FORMATION WIDTH	F (m)	13.026	8.026	7.999	17.871
CULVERT DATA	FLOOR SLOPE	S (%)	1.680	2.870	5.210	2.35/5.48
	INVERT LEVEL - LEFT	IL (m)	1267.828	1266.280	1257.973	1258.828
	INVERT LEVEL - RIGHT	IR (m)	1267.910	1266.350	1266.350	1260.030
	EXISTING INVERT LEVEL LEFT	EIL (m)	1267.910	1266.350	1266.350	-
	EXISTING INVERT LEVEL RIGHT	EIR (m)	1268.640	1266.820	1266.820	-
	FILL HEIGHT - LEFT	HL (m)	3.061	1.693	1.748	1.803
	FILL HEIGHT - RIGHT	HR (m)	2.451	1.952	1.911	1.176
	LENGTH - LEFT TO ROAD S/L (MEDIAN)	LL (m)				
	TOTAL LENGTH - INLET TO OUTLET	L (m)	48.327	18.803	20.111	45.796
	EXISTING LENGTH LEFT	ELL (m)	3.079	2.650	4.574	-
	EXISTING LENGTH RIGHT	ELR (m)	40.368	13.714	13.100	23.868
	ADDITION LEFT	AL (m)	4.880	2.439	2.437	6.310
	NUMBER OF UNITS (LEFT)	NUMBER	2.000	1.000	0.999	2.586
	ADDITION RIGHT	AR (m)	0.000	0.000	0.000	15.618
	NUMBER OF UNITS (RIGHT)	NUMBER	0.000	0.000	0.000	6.401
	INTERNAL CHAMBER DIMENSIONS	(m)		1200x900		900x900
	GRID INLET TYPE *			1 X TYPE "B" MEDIAN		1 X TYPE "B" MEDIAN

NOTES

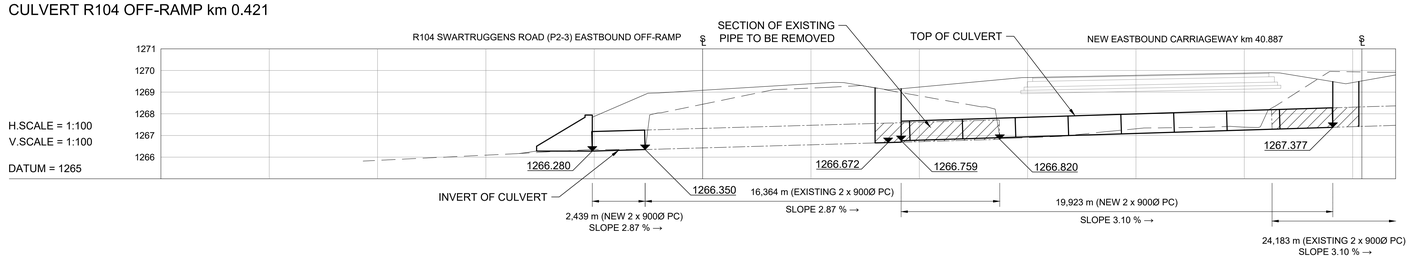
* GRID INLET TYPE "B" DIMENSIONS ARE 0.489 x 0.809

** ALL APRON SLABS AT OUTLETS ARE TO BE CONCRETE LINED

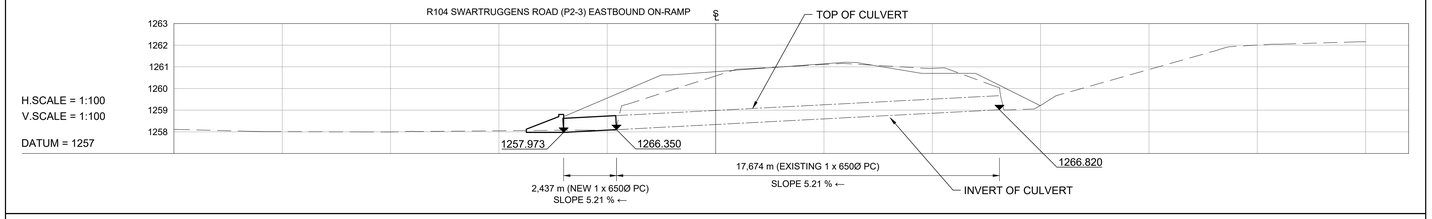
CULVERT R104 OFF-RAMP km 0.266



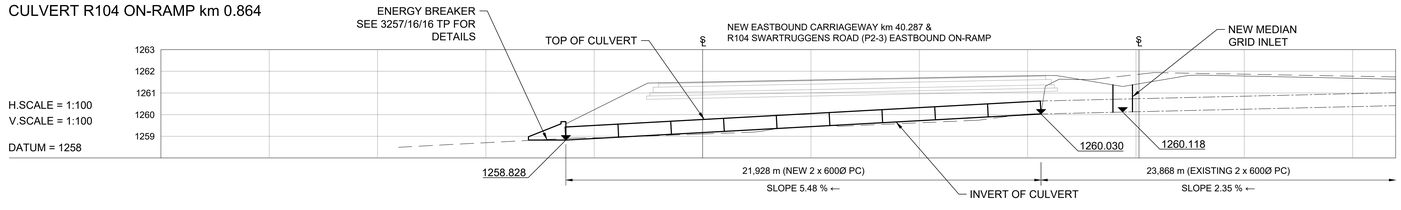
CULVERT R104 OFF-RAMP km 0.421



CULVERT R104 ON-RAMP km 0.414



CULVERT R104 ON-RAMP km 0.864



No.	DATE	REVISION	
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSULTANT: PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date :

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NAME	Z MASHININI
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CHECKED BY	
NAME	PL NGQUMSHE
Prof. Reg. No.	20080112
DRAWN BY	
NAME	Z MASHININI

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Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17 / 07 / 2023

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for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

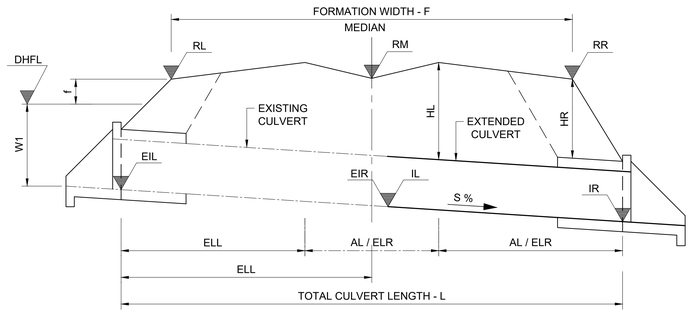
DRAWING DESCRIPTION
CULVERT SCHEDULE R104 (P2-3) OFF-RAMP km 0.266 TO km 0.421 & R104 (P2-3) ON-RAMP km 0.414 TO km 0.864

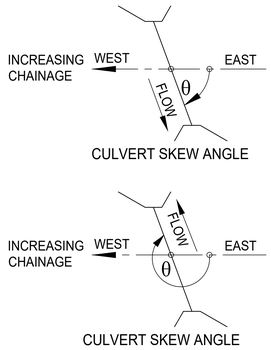
SCALE : AS SHOWN (A0) | SHEET 39 OF 40

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001		
DRAWING LOCATION DATA	START	END	
ROUTE	N 4	N 4	
SECTION	SECTION 13	SECTION 13	
DRAWING km DISTANCE	-	-	
DRAWING TYPE	ROADS - LAYOUTS		
BRIDGE/STRUCTURE No.	NA		
CONSULTANT DRAWING No.	FA	3257 / 23 / 39 CS	VER
SANRAL DOCUMENT #		- -	V0

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\07 - Culvert Schedule\3257-23-29-40CS-CULVERT SCHEDULE_20230717.dwg





NOTE:

1. CULVERT EXTENSIONS ON LEFT AND RIGHT HAND SIDE REQUIRED ONLY IF DIMENSIONS AL AND AR IN SCHEDULE = 0
2. GRID INLET DIMENSIONS ARE INSIDE DIMENSIONS

KEY TO CULVERT TYPES:

PC - PIPE CULVERT (UNIT LENGTHS 2,44m)
BC - BOX CULVERT (UNIT LENGTHS 1,22m)
OC - OVAL CULVERT
IBC - IN-SITU BOX CULVERT
APC - ARMCO PIPE CULVERT
MH - MANHOLE
SI - SIDE INLET
SCI - SPECIAL CULVERT INLET
FA - FARM ACCESS
SDW - SIDE DRAIN WING WALL
DI - DROP INLET

LEGEND

EXISTING CULVERT
NEW CULVERT
EXISTING GROUND

TENDER

CULVERT DESCRIPTION	ITEM NUMBER		45	46	47
	ROAD KILOMETRE DISTANCE		0.985	1.125	1.205
	TYPE OF CULVERT		2 X PC	2 X PC	1 X PC
	SPAN / DIA	(mm)	600	600	750
	HEIGHT	(mm)	-	-	-
	PIPE & BEDDING CLASS		100D	100D	100D
	SKEW ANGLE	°(DEG)	270	271.0000	268.0000
HYDROLOGICAL DATA	CATCHMENT AREA	(km^2)	0.076	0.271	0.065
	TIME OF CONCENTRATION (Tc)	(Hours)	0.540	0.636	0.577
	RAINFALL INTENSITY	(mm/h)	90.660	81.844	87.013
	CATCHMENT DISCHARGE AT INLET (SDF METHOD)	(m^3/s)	0.631	2.056	0.521
	CAPACITY	(m^3/s)	1.117	1.065	0.947
	Hw/D RATIO AT CAPACITY		1.200	1.200	1.200
	VELOCITY AT OUTLET**		0.494	0.471	0.536
ROAD DATA	ROAD LEVEL - LEFT SHOULDER	RL (m)	1258.901	1257.167	1257.335
	ROAD LEVEL - ROAD S/L	RM (m)	1258.941	1257.207	1257.337
	ROAD LEVEL - RIGHT SHOULDER	RR (m)	1259.202	1257.412	1257.344
	ROAD FORMATION WIDTH	F (m)	14.832	12.196	10.452
CULVERT DATA	FLOOR SLOPE	S (%)	2.00/2.96	1.14/2.58	1.64/3.13
	INVERT LEVEL - LEFT	IL (m)	1256.000	1255.290	1255.215
	INVERT LEVEL - RIGHT	IR (m)	1256.390	1255.793	1255.750
	EXISTING INVERT LEVEL LEFT	EIL (m)	-	-	-
	EXISTING INVERT LEVEL RIGHT	EIR (m)	-	-	-
	FILL HEIGHT - LEFT	HL (m)	2.208	1.168	1.259
	FILL HEIGHT - RIGHT	HR (m)	2.213	1.099	0.960
	LENGTH - LEFT TO ROAD S/L (MEDIAN)	LL (m)			
	TOTAL LENGTH - INLET TO OUTLET	L (m)	19.511	37.626	37.259
	EXISTING LENGTH LEFT	ELL (m)	-	-	-
	EXISTING LENGTH RIGHT	ELR (m)	-	18.112	20.187
	ADDITION LEFT	AL (m)	6.615	6.226	4.903
	NUMBER OF UNITS (LEFT)	NUMBER	2.711	2.552	2.009
	ADDITION RIGHT	AR (m)	12.896	13.288	12.169
	NUMBER OF UNITS (RIGHT)	NUMBER	5.285	5.446	4.987
	INTERNAL CHAMBER DIMENSIONS	(m)		900x900	
	GRID INLET TYPE *			1 X TYPE "B" MEDIAN	

NOTES

* GRID INLET TYPE "B" DIMENSIONS ARE 0.489 x 0.809

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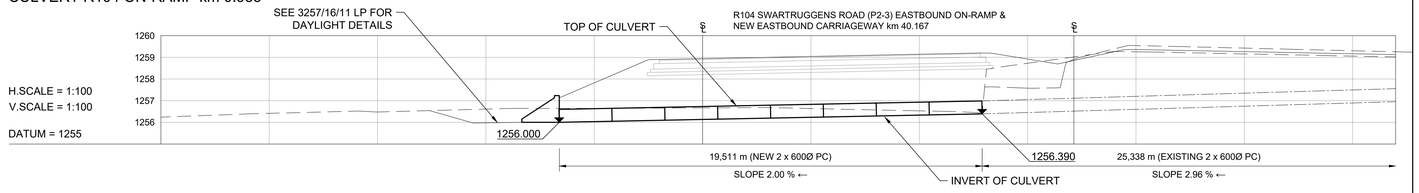
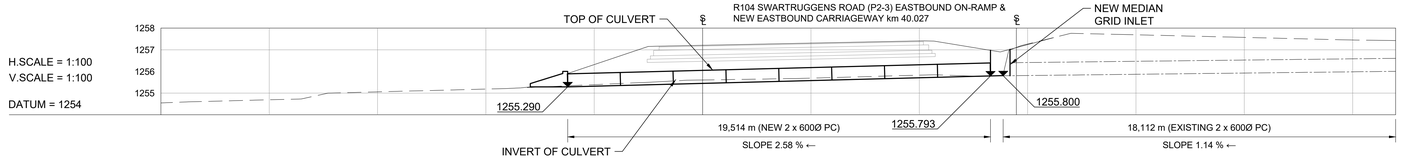
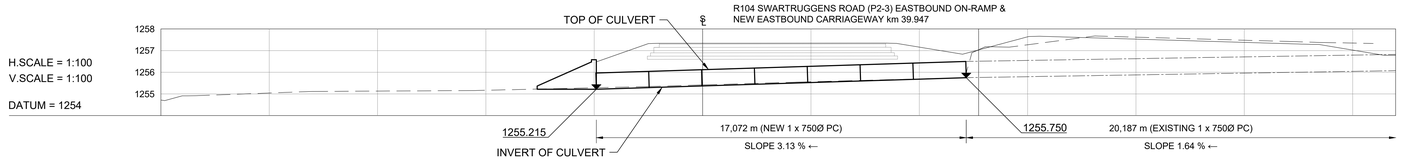
CULVERT R104 ON-RAMP km 0.985



CULVERT R104 ON-RAMP km 1.125



CULVERT R104 ON-RAMP km 1.205



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Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION
CULVERT SCHEDULE R104 (P2-3) ON-RAMP km 0.985 TO km 1.205

SCALE : AS SHOWN (A0) | SHEET 40 OF 40

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	SECTION 13	SECTION 13
DRAWING km DISTANCE	-	-
DRAWING TYPE	ROADS - LAYOUTS	
BRIDGE/STRUCTURE No.	NA	
CONSULTANT DRAWING No.	FA 3257 / 23 / 40 CS	VER V0
SANRAL DOCUMENT #	- -	

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\07 - Culvert Schedule\3257-23-29-40CS-CULVERT SCHEDULE_20230717.dwg

CONCRETE V-DRAIN LEVELS AND POSITIONS BETWEEN RAMP AND MAIN CARRIAGEWAY *(WGS 84 \ LO 29°)*

POINT	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	LEVEL (m)
D1	- 31 317.806	+ 2 847 022.543	1151.203
D2	- 31 335.435	+ 2 847 031.756	1151.396
D3	- 31 353.157	+ 2 847 040.791	1151.592
D4	- 31 370.938	+ 2 847 049.708	1151.789
D5	- 31 388.778	+ 2 847 058.507	1151.985
D6	- 31 406.677	+ 2 847 067.186	1152.182

LEGEND

- N4-13 TO BE CONSTRUCTED
- GRID INLET
- CONTOURS
- NEW CULVERTS
- EXISTING CULVERTS
- FLOW DIRECTION ARROW
- CONCRETE V-DRAINS
- CHUTES
- KERB INLET

BENCH MARKS *(WGS 84 \ LO 27°)*

STATION	Y CO-ORDINATES + 0.000	X CO-ORDINATES + 0.000	ELEVATION
BM65	- 31 200.799	+ 2 846 941.677	1 151.166
BM66	- 31 436.965	+ 2 847 023.327	1 150.946

Y - 31 200 (WGS 84 / LO 27°)
X + 2 846 800 (WGS 84 / LO 27°)
Y - 31 400 (WGS 84 / LO 27°)
X + 2 847 000 (WGS 84 / LO 27°)
L232
L110
NEW KERB INLET
BC1B
LIMIT OF CONSTRUCTION km 0.010 000
L112
L113
L111
L114
L115
BM66
KROONDAL
R104
NEW POSITION OF RELOCATED KERB OUTLET
EXISTING KERB OUTLET TO BE RELOCATED
R104 (P2 -4) KROONDAL ON RAMP EASTBOUND
EXTEND EXISTING CULVERT DAYLIGHT TOWARDS RIVER
SHAPE GROUND TO SLOPE TOWARDS GRID INLET
EXISTING KERB OUTLET TO BE REMOVED
NEW GRID INLET LEVEL 1149.600
KERB OUTLET TO BE REMOVED
BRIDGE B1684
km 20.863 686
N4 OVER SANDSPRUIT RIVER
θ = 22.517°
TO BE EXTENDED
BRITS
N4-13 EASTBOUND
N4-13 WESTBOUND
BM65
D1
D2
D3
D4
D5
D6
RUSTENBURG
R126
R125
R124
R123
R122
R121
R120
R119
R60
R61
R118
R117
R117X
R67
BRIDGE B2235
km 21,128 981
ROAD R104 OVER N4
θ = 210,000°
km 20,976 162
600mm PC
θ = 290,390°
km 20.719 658
1 x 600 PC
θ = 230,041°
A8985/1998
R104 (P2-4) KROONDAL OFF RAMP WESTBOUND
R104 (P2-4) KROONDAL ON RAMP WESTBOUND
R136
R137
R135
R134
SANDSPRUIT RIVER
BUFFELSPOORT
DR72
DR75
DR74
DR70
DR71
DR77
DR76
1150
1155

TENDER

5m 15m 25m 35m 45m
0m 10m 20m 30m 40m 50m
ORIGINAL SCALE 1 : 500 (A0)

No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

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NAME: PL NGQUMSHE
Prof. Reg. No.: 20080112
DRAWN BY
NAME: WB HARTMANN

CONSULTANT APPROVAL
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DRAWING DESCRIPTION
R104(P2-4) KROONDAL INTERCHANGE - EASTBOUND ON RAMP DRAINAGE PLAN

SCALE : 1 : 500 (A0) SHEET 01 OF 11

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	SECTION 13	SECTION 13
DRAWING km DISTANCE	km 20.7	km 21.1
DRAWING TYPE	ROADS - LAYOUTS	
BRIDGE/STRUCTURE No.	NA	
CONSULTANT DRAWING No.	FA 3257 / 23 / 01 DP	VER V0
SANRAL DOCUMENT #	- -	

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\08 - Drainage plans\3257-23-01 DP-Kroondal on ramp drainage_20230717.dwg

LEGEND

- N4-13 TO BE CONSTRUCTED
- GRID INLET
- CONTOURS
- NEW CULVERTS
- EXISTING CULVERTS
- FLOW DIRECTION ARROW
- CONCRETE V-DRAINS
- CHUTES
- KERB INLET

CONCRETE V-DRAIN LEVELS AND POSITIONS BETWEEN RAMP AND MAIN CARRIAGEWAY *(WGS 84 \ LO 27°)*

POINT	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	LEVEL (m)
D1	- 30 866.894	+ 2 846 765.089	1148.469
D2	- 30 867.522	+ 2 846 767.009	1148.156
D3	- 30 868.150	+ 2 846 762.928	1148.469
D4	- 30 849.604	+ 2 846 755.036	1148.432
D5	- 30 850.233	+ 2 846 753.955	1148.119
D6	- 30 850.861	+ 2 846 752.874	1148.432
D7	- 30 832.315	+ 2 846 744.982	1148.401
D8	- 30 832.944	+ 2 846 743.901	1148.088
D9	- 30 833.572	+ 2 846 742.820	1148.401
D10	- 30 815.026	+ 2 846 734.927	1148.375
D11	- 30 815.654	+ 2 846 733.847	1148.062
D12	- 30 816.283	+ 2 846 732.766	1148.375
D13	- 30 797.737	+ 2 846 724.873	1148.356
D14	- 30 798.365	+ 2 846 723.793	1148.043
D15	- 30 799.350	+ 2 846 722.099	1148.372

BENCH MARKS *(WGS 84 \ LO 27°)*

STATION	Y CO-ORDINATES + 0.000	X CO-ORDINATES + 0.000	ELEVATION
BM63	- 30 646.996	+ 2 846 610.405	1 146.813
BM64	- 30 902.323	+ 2 846 780.573	1 147.960

Y - 30 800 (WGS 84 / LO 27°)
X + 2 846 600 (WGS 84 / LO 27°)
Y - 31 000 (WGS 84 / LO 27°)
L62
L63
L96
L108
L109
L95
SERVITUDE
L94
L93
L92
R 104
KROONDAL
1155
1150
INTERSECTION BETWEEN R104 AND THE R104 (P2-4) KROONDAL OFF RAMP
θ = 210,000°
L98
L97
L101
L102
L99
L100
0.6
0.632 363
R104 (P2-4) KROONDAL OFF RAMP EASTBOUND
LIMIT OF CONSTRUCTION km 0,490 000
KROONDAL OFF RAMP TOLL PLAZA
0.5
BUFFELSPOORT
EXISTING KERB OUTLET
BRITS
S4028 RANDWATER CULVERT km 21,389 083
NEW CULVERT km 0,297 1 x 750 X 450 BC θ = 90° OUTLET TO BE SHAPED TO DRAIN TOWARDS THE HEX RIVER
NEW GRID INLET LEVEL 1147.900
NEW GRID INLET LEVEL 1147.460 OFFSET 19 m FROM SL
BM63
1147m
1148m
1146m
RUSTENBURG
N4-13 EASTBOUND
0.1
0.2
0.3
0.4
D15
D14
D13
D12
D11
D10
D9
D8
D7
D6
D5
D4
D3
D2
D1
BM64
21.7
21.6
21.5
21.4
21.3
21.2
N4-13 EASTBOUND
N4-13 WESTBOUND
km 21,540 000
1 x 600 PC
θ = 270°
km 21,403 063
1 x 600 PC
θ = 270,569°
1149m
A8985/1998
R 104 (P2-4) KROONDAL OFF RAMP WESTBOUND
R108
R115
R116
R116X
R113
R114
PTN.44

TENDER

5m 10m 15m 20m 25m 30m 35m 40m 45m 50m
ORIGINAL SCALE 1 : 500 (A0)

SANRAL DOCUMENT NUMBER :

No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

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Tel: (012) 426 6200

ACCEPTANCE
THIS ACCEPTANCE IS FOR PROCEDURAL AND ADMINISTRATIVE REVIEW PURPOSES ONLY AND DOES NOT ATTRACT LEGAL LIABILITY OR LIABILITY OF ANY KIND FROM WHATSOEVER CAUSE OR HOWEVER ARISING
for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION
R104 (P2-4) KROONDAL INTERCHANGE - EASTBOUND OFF RAMP DRAINAGE PLAN

SCALE : 1 : 500 (A0) SHEET 02 OF 11

PROJECT NUMBER		BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA		START	END
ROUTE		N 4	N 4
SECTION		SECTION 13	SECTION 13
DRAWING km DISTANCE		km 21.2	km 21.7
DRAWING TYPE		ROADS - DRAINAGE	
BRIDGE/STRUCTURE No.		NA	
CONSULTANT DRAWING No.	FA	3257 / 23 / 02 DP	VER
SANRAL DOCUMENT #		- -	V0

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\08 - Drainage plans\3257-23-02 DP-Kroondal off ramp drainage_20230717.dwg

LEGEND

- N4-13 TO BE CONSTRUCTED
- GRID INLET
- CONTOURS
- NEW CULVERTS
- EXISTING CULVERTS
- FLOW DIRECTION ARROW
- CONCRETE V-DRAINS
- CHUTES
- KERB INLET

CONCRETE V-DRAIN LEVELS AND POSITIONS BETWEEN RAMP AND MAIN CARRIAGEWAY *(WGS 84 \ LO 27°)*

POINT	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	LEVEL (m)
D1	- 25 904.975	+ 2 843 879.440	1183.253
D2	- 25 905.610	+ 2 843 878.363	1182.940
D3	- 25 906.232	+ 2 843 877.277	1183.253
D4	- 25 888.063	+ 2 843 868.738	1183.382
D5	- 25 888.691	+ 2 843 867.657	1183.069
D6	- 25 889.320	+ 2 843 866.575	1183.382
D7	- 25 871.150	+ 2 843 858.036	1183.515
D8	- 25 871.779	+ 2 843 856.954	1183.202
D9	- 25 872.408	+ 2 843 855.873	1183.515
D10	- 25 854.238	+ 2 843 847.333	1183.602
D11	- 25 854.867	+ 2 843 846.252	1183.289
D12	- 25 855.496	+ 2 843 845.170	1183.602
D13	- 25 837.376	+ 2 843 836.547	1183.664
D14	- 25 838.076	+ 2 843 835.511	1183.351
D15	- 25 838.635	+ 2 843 834.380	1183.664
D16	- 25 820.777	+ 2 843 825.303	1183.670
D17	- 25 821.407	+ 2 843 824.220	1183.357
D18	- 25 822.037	+ 2 843 823.137	1183.670

BENCH MARKS *(WGS 84 \ LO 27°)*

STATION	Y CO-ORDINATES + 0.000	X CO-ORDINATES + 0.000	ELEVATION
BM41	- 25 585.541	+ 2 843 713.186	1 183.780
BM42	- 25 884.258	+ 2 843 812.350	1 181.390

RUSTENBURG OOS-EINDE
RUSTENBURG
BRITS
N4-13 EASTBOUND
N4-13 WESTBOUND
EXISTING KERB OUTLET
km 0.110 000
2 X 600 PC
θ = 270.000°
INTERSECTION BETWEEN R24 (P16-1) RUSTENBURG (KRUGERSDORP) ON RAMP AND R24
θ = 243.000°
R24 (P16-1) RUSTENBURG (KRUGERSDORP) ON RAMP - EASTBOUND
CONSTRUCTION STARTS @ CHAINAGE 0.280
NEW KERB INLET
EXISTING CULVERT TO BE REMOVED
NEW CULVERT
Km 0.493
1 X 750 X 450 BC
θ = 90.000°
GRID INLET LEVEL = 1182.940 m
HOLDING 4
L81
BM42
BM41
km 27.600 000
2 X 600 PC
θ = 250.000°
km 27.476 134
2 X 600 PC
θ = 224,173°
km 27.276 972
1 x 600 PC
θ = 269,338°
ROAD P160-2 PROC. ADMIN. NOT. 1332/85 (1322/89)
BRIDGE B2229A
R24 OVER N4
km 27.538 000
EXTENDED UNDER
SEPARATE CONTRACT
BRIDGE B2229B
R24 OVER N4
km 27.538 000
CONSTRUCTED UNDER A
SEPARATE CONTRACT
R24 (P16-1) RUSTENBURG (KRUGERSDORP) OFF RAMP - WESTBOUND
R24 (P16-1) RUSTENBURG (KRUGERSDORP) ON RAMP - WESTBOUND
R.O.W. 15.74m WIDE
THIRD AVENUE
FOURTH AVENUE
WATERVAL SMALL HOLDINGS
WATERVAL 306-JQ
REMAINDER PTN.51
REMAINDER PTN.15
SEWER SERV. 6.0m WIDE
OLIFANTS NEK
R93
R95
R96
R98
R99
R100
R101
X + 2 843 600 (WGS 84 / LO 27°)
Y - 25 600 (WGS 84 / LO 27°)
Y - 25 800 (WGS 84 / LO 27°)
X + 2 843 800 (WGS 84 / LO 27°)
Y - 26 000 (WGS 84 / LO 27°)
X + 2 844 000 (WGS 84 / LO 27°)

TENDER

0m 5m 10m 15m 20m 25m 30m 35m 40m 45m 50m
ORIGINAL SCALE 1 : 500 (A0)

SANRAL DOCUMENT NUMBER :

No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
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Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date :

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CONSULTANT APPROVAL
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Prof. Reg. No. : 20080112
Date : 17 / 07 / 2023

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for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION
R24 (P16-1) RUSTENBURG (KRUGERSDORP) - EASTBOUND ON RAMP DRAINAGE PLAN

SCALE : 1 : 500 (A0) SHEET 03 OF 11

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	SECTION 13	SECTION 13
DRAWING km DISTANCE	km 27.1	km 27.6
DRAWING TYPE	ROADS - DRAINAGE PLAN	
BRIDGE/STRUCTURE No.	B2229A	
CONSULTANT DRAWING No.	FA 3257 / 23 / 03 DP	VER V0
SANRAL DOCUMENT #	- -	

W:\Roads\3257 - N4 Dual Carriageway (PL\N\03-Tender\03-Drawings\Volume 4-Roadworks\08 - Drainage plans\3257-23-03 DP-Waterfall on ramp drainage_20230717.dwg

PTN.105
PTN.104
PTN.113
REMAINDER PTN.54
REMAINDER PTN.51
WATERVAL 306-JQ
ROAD ACCESS PROC. ADMIN. NOT. 1331/85
R.O.W. 15.74m
R.O.W. 6.0m WIDE
R.O.W. 7.87m WIDE
SERVITUDE 4.0m WIDE
Y - 25 200 (WGS 84 / LO 27°)
Y - 25 400 (WGS 84 / LO 27°)
X + 2 843 400 (WGS 84 / LO 27°)
Y - 25 000 (WGS 84 / LO 27°)
X + 2 843 600 (WGS 84 / LO 27°)
Y - 25 200 (WGS 84 / LO 27°)
Y - 25 400 (WGS 84 / LO 27°)
X + 2 843 600 (WGS 84 / LO 27°)
R1
R91
R92
R93
L1
L78E
L79
DL26
BM40
RUSTENBURG OOS-EINDE
RUSTENBURG
BRITS
869 m LONG STONE-PITCH LINED DRAIN
km 28.146 866
1 x 600 PC
θ = 270,172°
INTERSECTION BETWEEN R24 (P16-1) RUSTENBURG (KRUGERSDORP) OFF RAMP AND R24
θ = 243.000°
(EXISTING) S4003
km 0.537 612
3 X 3000 X 3000 BC
θ = 299.829°
EXISTING KERB OUTLET
EXISTING KERB INLET TO REMAIN INSITU
NEW KERB INLET
R24 (P16-1) RUSTENBURG (KRUGERSDORP) OFF RAMP - EASTBOUND
LIMIT OF CONSTRUCTION
km 0.578 878
S4002 (TO BE EXTENDED)
km 27.707 000
3 X 3000 X 3000 BC
θ = 270.162°
N4-13 EASTBOUND
N4-13 WESTBOUND
0.1
0.2
0.3
0.4
0.5
0.6
0.623 164
28.1
28.0
27.9
27.8
27.7
1200m
1195m
1190m
1185m
1180m

LEGEND

- N4-13 TO BE CONSTRUCTED
- GRID INLET
- CONTOURS
- NEW CULVERTS
- EXISTING CULVERTS
- FLOW DIRECTION ARROW
- CONCRETE V-DRAINS
- CHUTES
- KERB INLET

BENCH MARKS (WGS 84 / LO 27°)

STATION	Y CO-ORDINATES + 0.000	X CO-ORDINATES + 0.000	ELEVATION
BM40	- 25 309.975	+ 2 843 481.477	1 186.727

TENDER

5m 15m 25m 35m 45m
0m 10m 20m 30m 40m 50m
ORIGINAL SCALE 1 : 500 (A0)

SANRAL DOCUMENT NUMBER :

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V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

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NAME: PL NGQUMSHE
Prof. Reg. No.: 20080112
DRAWN BY
NAME: WB HARTMANN

CONSULTANT APPROVAL
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Prof. Reg. No. : 20080112
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PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION
R24 (P16-1) RUSTENBURG (KRUGERSDORP) - EASTBOUND OFF RAMP DRAINAGE PLAN

SCALE : 1 : 500 (A0) SHEET 04 OF 11

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	SECTION 13	SECTION 13
DRAWING km DISTANCE	km 27.7	km 28.1
DRAWING TYPE	ROADS - DRAINAGE PLAN	
BRIDGE/STRUCTURE No.	NA	
CONSULTANT DRAWING No.	FA 3257 / 23 / 04 DP	VER V0
SANRAL DOCUMENT #	- -	

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\08 - Drainage plans\3257-23-04 DP-ED-Waterfall off ramp drainage_20230717.dwg

RUSTENBURG CBD

SWARTRUGGENS

BRITS

SAFARITUINE

N4 - 13
CONTINUE ON
3257 / 23 / 06 DP

HELEN JOSEPH DRIVE

INTERSECTION BETWEEN
HELEN JOSEPH DRIVE
AND N4 ON RAMP
Θ = 248.896°

X + 2 842 400 (WGS 84 / LO 27°)

X + 2 842 600 (WGS 84 / LO 27°)

Y - 22 800 (WGS 84 / LO 27°)

Y - 23 000 (WGS 84 / LO 27°)

Y - 23 200 (WGS 84 / LO 27°)

S4001 (REMAIN IN SITU)
km 0.138 864
3 X 3000 X 3000 BC
Θ = 244.820°

LIMIT OF CONSTRUCTION km 0.129 549

EXISTING KERB OUTLET

EXISTING KERB INLET

NEW KERB INLET & OUTLET PIPE

km 0.280 000
1 X 1800 X 1200 BC
Θ = 339.229°

km 30.367 333
2 x 750 PC
Θ = 270,144°

EXISTING
1 x 900 PC
TO BE REMOVED

km 30.187 044
1 x 900 PC
Θ = 270,391°

N4-13 EASTBOUND

N4-13 WESTBOUND

HELEN JOSEPH DRIVE ON RAMP EASTBOUND

HELEN JOSEPH DRIVE OFF RAMP WESTBOUND

BRIDGE B2227
km 30.664 240
HELEN JOSEPH DRIVE OVER N4
BRIDGE TO BE EXTENDED

S4000 (TO BE EXTENDED)
km 30.545.173
3 X 3000 X 3000 BC
Θ = 270.673°

EXISTING
1800 X 1800 BC
TO BE REMOVED

BOSCHDAL 309-JQ
SAFARIETUINE EXT.7

PROTEA PARK
SAFARITUINE EXT.6

RUSTENBURG EXT.3
PROTEA PARK

HENDRIK V.D. MERWE STREET 15,74m

BOVEN STREET 25,19m

VELD STREET 15,74m

368 PARK

PARK 1239

L4 L5 L10 L11 L12 L59 L60 L61

BM31 BM32

R66C R67 R68 R70

1215 1220 1212 1214.5 1216.5 1217 1217.5

30.6 30.5 30.4 30.3 30.2

0 0.1 0.2 0.3 0.4 0.5

1528 1530 1531 1532 1533 1534 1535 1536 1537 1538 1539 1540 1656 1657 1658 1659 1661 1663 1666 1696

1/1532 1/1533 1/1535 1/1536

24/2390 25/2390 26/2390 27/2390 2390 45/2390 44/2390

LEGEND

- N4-13 TO BE CONSTRUCTED
- GRID INLET
- CONTOURS
- NEW CULVERTS
- EXISTING CULVERTS
- FLOW DIRECTION ARROW
- CONCRETE V-DRAINS
- CHUTES
- KERB INLET

BENCH MARKS
(WGS 84 \ LO 27°)

STATION	Y CO-ORDINATES + 0.000	X CO-ORDINATES + 0.000	ELEVATION
BM 31	- 22 731.933	+ 2 842 418.789	1 223.169
BM 32	- 23 009.841	+ 2 842 511.659	1 214.941

TENDER

5m 10m 15m 20m 25m 30m 35m 40m 45m 50m
ORIGINAL SCALE 1 : 500 (A0)

No.	DATE	REVISION	
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE
			CONSULT. ENG.

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date

SANRAL PROJECT MANAGER
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Prof. Reg. No. :
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CONSULTANT APPROVAL
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Date : 17 / 07 / 2023

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Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

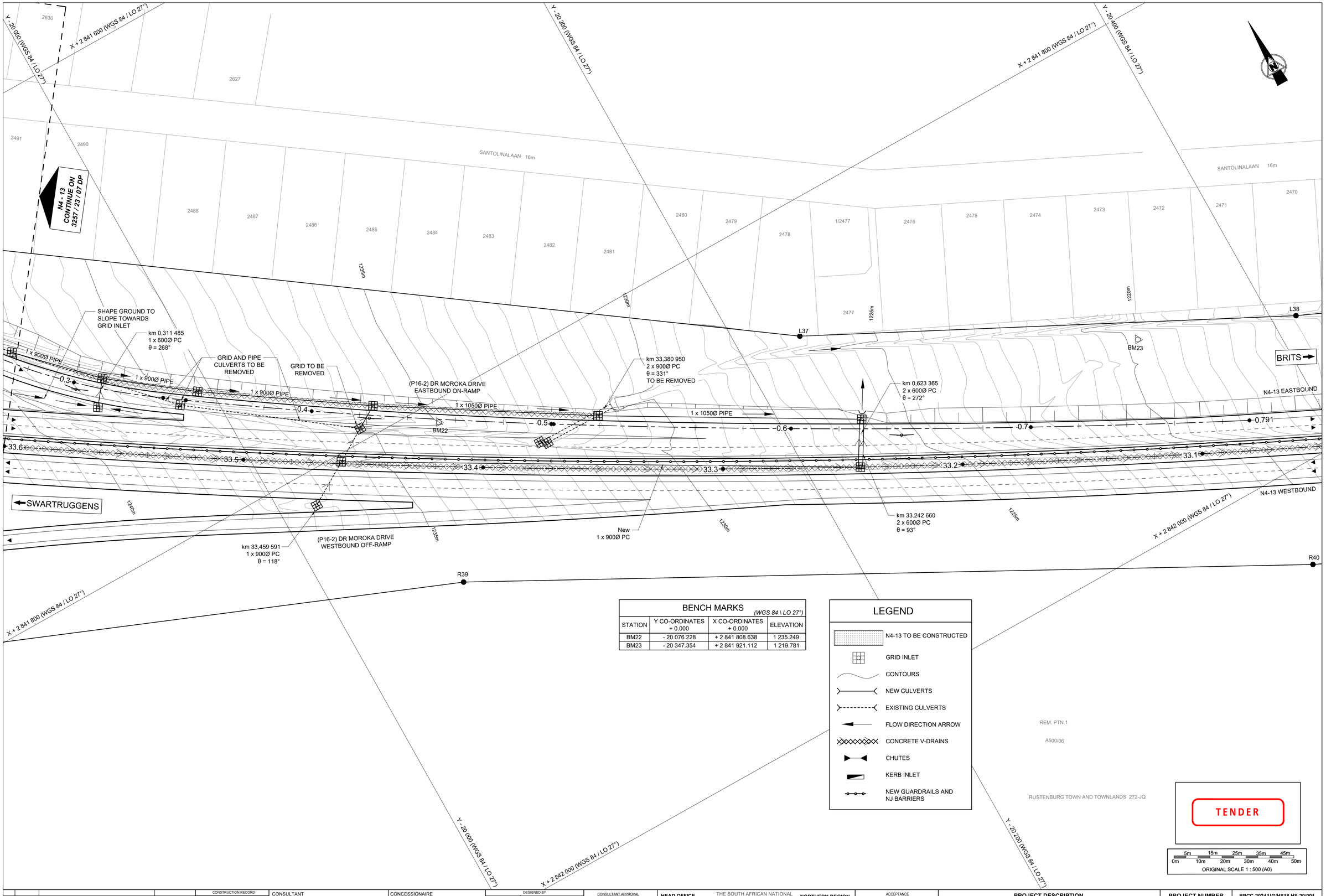
DRAWING DESCRIPTION
HELEN JOSEPH DRIVE - EASTBOUND ON RAMP DRAINAGE PLAN

SCALE : 1 : 500 (A0) SHEET 05 OF 11

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	SECTION 13	SECTION 13
DRAWING km DISTANCE	km 30.2	km 30.6
DRAWING TYPE	ROADS - LAYOUTS	
BRIDGE/STRUCTURE No.	B2227	
CONSULTANT DRAWING No.	FA 3257 / 23 / 05 DP	VER
SANRAL DOCUMENT #	- -	V0

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\08 - Drainage plans\3257-23-05 DP-ED-Helen Joseph on ramp drainage_20230717.dwg



BENCH MARKS

(WGS 84 \ LO 27°)

STATION	Y CO-ORDINATES + 0.000	X CO-ORDINATES + 0.000	ELEVATION
BM22	- 20 076.228	+ 2 841 808.638	1 235.249
BM23	- 20 347.354	+ 2 841 921.112	1 219.781

LEGEND

- N4-13 TO BE CONSTRUCTED
- GRID INLET
- CONTOURS
- NEW CULVERTS
- EXISTING CULVERTS
- FLOW DIRECTION ARROW
- CONCRETE V-DRAINS
- CHUTES
- KERB INLET
- NEW GUARDRAILS AND NJ BARRIERS

TENDER

5m 15m 25m 35m 45m
0m 10m 20m 30m 40m 50m
ORIGINAL SCALE 1 : 500 (A0)

No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

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NAME	PL NGQUMSHE
Prof. Reg. No.	20080112
DRAWN BY	
NAME	WB HARTMANN

CONSULTANT APPROVAL
Name : PL NGQUMSHE
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THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION
DRAINAGE PLAN
(P16-2) DR MOROKA INTERCHANGE
SHEET 01 OF 03

SCALE : 1 : 500 (A0) SHEET 06 OF 11

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	SECTION 13	SECTION 13
DRAWING km DISTANCE	km 33.100	km 33.600
DRAWING TYPE	ROADS - INTERCHANGES	
BRIDGE/STRUCTURE No.	NA	
CONSULTANT DRAWING No.	FA 3257 / 23 / 06 DP	VER
SANRAL DOCUMENT #	- -	V0

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\08 - Drainage plans\3257-23-06-08 DP-Dr Moroka Interchange Drainage_20230717.dwg

Y - 19 600 (WGS 84 / LO 27°)

X + 2 841 400 (WGS 84 / LO 27°)

Y - 19 600 (WGS 84 / LO 27°)

Y - 20 000 (WGS 84 / LO 27°)

X + 2 841 600 (WGS 84 / LO 27°)

REM. PTN 1

A500/06

N4 - 13
CONTINUE ON
3257 / 23 / 08 DP

INTERSECTION BETWEEN
(P16-2) DR MOROKA DRIVE
AND P16-2 OFF RAMP
θ = 75°

RUSTENBURG NORTH

INTERSECTION BETWEEN
(P16-2) DR MOROKA DRIVE
AND P16-2 ON RAMP
θ = 103°

N4 - 13
CONTINUE FROM
3257 / 23 / 06 DP

L34

L35

L33

L36

BM20

BM21

SWARTRUGGENS

(P16-2) DR MOROKA DRIVE
EASTBOUND OFF-RAMP

LIMIT OF
CONSTRUCTION
km 0.600 000

LIMIT OF
CONSTRUCTION
km 0.160 000

(P16-2) DR MOROKA DRIVE
EASTBOUND ON-RAMP

EC2A

SHAPE GROUND TO
SLOPE TOWARDS
CULVERT

OUTLET
STRUCTURE
TO BE REMOVED

SHAPE GROUND TO
SLOPE TOWARDS GRID
INLET

OUTLET STRUCTURE
TO BE REMOVED

N4-13 EASTBOUND

N4-13 WESTBOUND

BRITS

km 34,153 348
2 x 1200Ø PC
θ = 59°

km 33,944 111
2 x 900Ø PC
θ = 45°

BRIDGE B2223
(P16-2) DR MOROKA DRIVE UNDER N4
km 33,858 960
θ = 90°
TO BE EXTENDED

(P16-2) DR MOROKA DRIVE

R34

R35

R36

R37

R38

RUSTENBURG KLOOF

(P16-2) DR MOROKA DRIVE
WESTBOUND ON-RAMP

(P16-2) DR MOROKA DRIVE
WESTBOUND OFF-RAMP

LEGEND

- N4-13 TO BE CONSTRUCTED
- GRID INLET
- CONTOURS
- NEW CULVERTS
- EXISTING CULVERTS
- FLOW DIRECTION ARROW
- CONCRETE V-DRAINS
- CHUTES
- KERB INLET
- NEW GUARDRAILS AND NJ BARRIERS

BENCH MARKS

(WGS 84 \ LO 27°)

STATION	Y CO-ORDINATES + 0.000	X CO-ORDINATES + 0.000	ELEVATION
BM20	- 19 585.677	+ 2 841 386.085	1 249.953
BM21	- 19 852.172	+ 2 841 573.724	1 247.735

TENDER

5m 15m 25m 35m 45m
0m 10m 20m 30m 40m 50m
ORIGINAL SCALE 1 : 500 (A0)

SANRAL DOCUMENT NUMBER : :

No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date :

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Prof. Reg. No. : -
CHECKED BY
NAME: PL NGQUMSHE
Prof. Reg. No. : 20080112
DRAWN BY
NAME: WB HARTMANN

CONSULTANT APPROVAL
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Prof. Reg. No. : 20080112
Date : 17 / 07 / 2023

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ACCEPTANCE
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for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION
DRAINAGE PLAN
(P16-2) DR MOROKA INTERCHANGE
SHEET 02 OF 03

SCALE : 1 : 500 (A0) SHEET 09 OF 11

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	SECTION 13	SECTION 13
DRAWING km DISTANCE	km 33.600	km 34.100
DRAWING TYPE	ROADS - INTERCHANGES	
BRIDGE/STRUCTURE No.	NA	
CONSULTANT DRAWING No.	FA 3257 / 23 / 07 DP	VER V0
SANRAL DOCUMENT #	- -	

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\08 - Drainage plans\3257-23-06-08 DP-Dr Moroka Interchange Drainage_20230717.dwg

Y - 19 200 (WGS 84 / LO 27°)

X + 2 841 000 (WGS 84 / LO 27°)

Y - 19 400 (WGS 84 / LO 27°)

X + 2 841 200 (WGS 84 / LO 27°)

REM. PTN.1

A500/06

N4 - 13
CONTINUE FROM
3257 / 23 / 08 DP

BRITS

SWARTRUGGENS

1255m

L30

L31

BM19

L31B

L32

km 0,397 393
4 X 900Ø PC
θ = 97°

(P16-2) DR MOROKA DRIVE
EASTBOUNDOFF-RAMP

N4-13 EASTBOUND

0.000 BC1A 0.1 0.2 EC1A 0.3 BC2A 0.4

34.7 34.6 34.5 34.4 34.3 34.2

N4-13 WESTBOUND

1280m

(P16-2) DR MOROKA DRIVE
WESTBOUND ON-RAMP

R31 R32 R33 R33A R33X

PTN.12

A1355/16

LEGEND

- N4-13 TO BE CONSTRUCTED
- GRID INLET
- CONTOURS
- NEW CULVERTS
- EXISTING CULVERTS
- FLOW DIRECTION ARROW
- CONCRETE V-DRAINS
- CHUTES
- KERB INLET
- NEW GUARDRAILS AND NJ BARRIERS

BENCH MARKS (WGS 84 \ LO 27°)

STATION	Y CO-ORDINATES + 0.000	X CO-ORDINATES + 0.000	ELEVATION
BM19	- 19 338.356	+ 2 841 206.249	1 258.466

TENDER

5m 15m 25m 35m 45m
0m 10m 20m 30m 40m 50m
ORIGINAL SCALE 1 : 500 (A0)

No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
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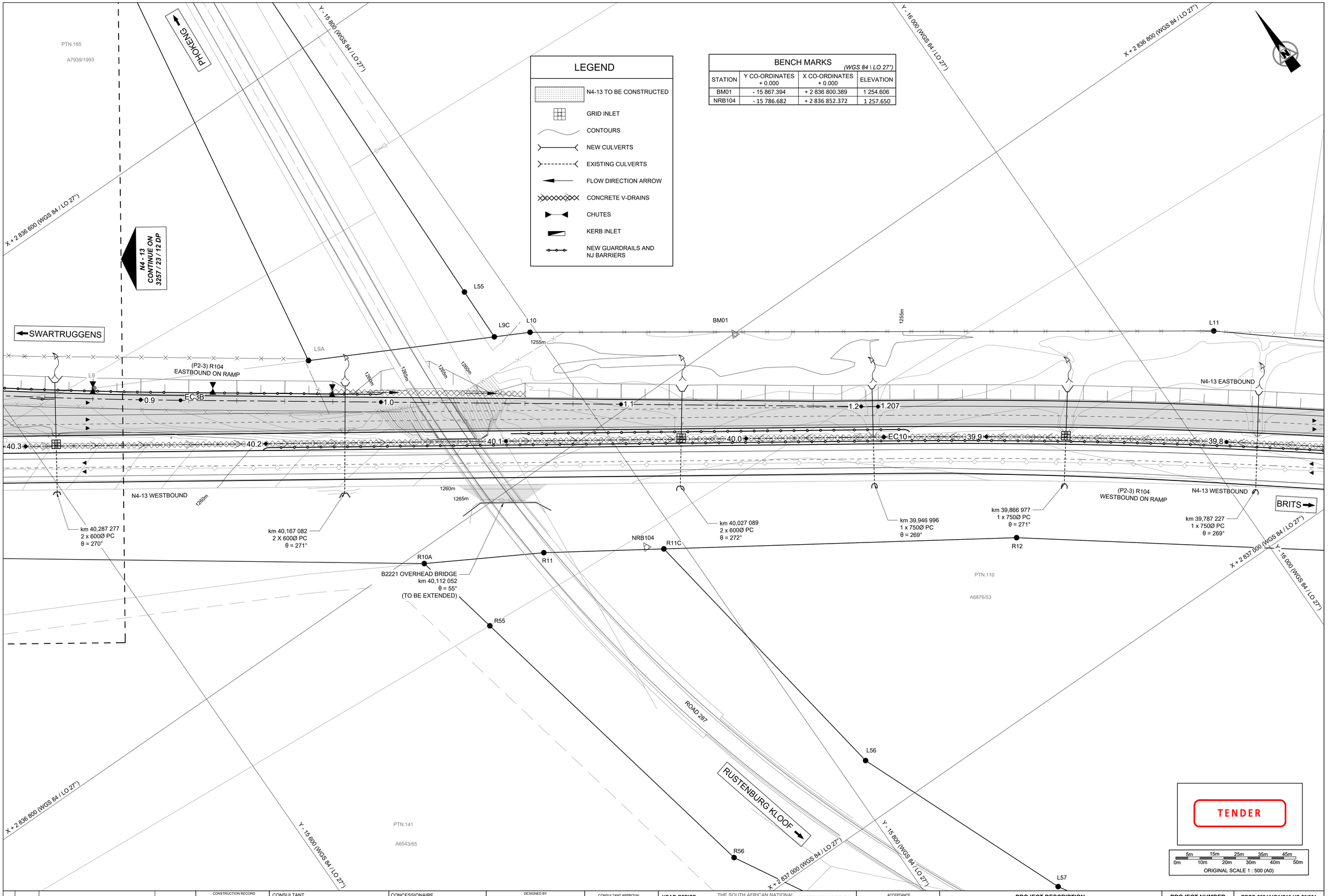
DRAWING DESCRIPTION
DRAINAGE PLAN
(P16-2) DR MOROKA INTERCHANGE
SHEET 03 OF 03

SCALE : 1 : 500 (A0) SHEET 08 OF 11

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	SECTION 13	SECTION 13
DRAWING km DISTANCE	km 34.200	km 34.700
DRAWING TYPE	ROADS - INTERCHANGES	
BRIDGE/STRUCTURE No.	NA	
CONSULTANT DRAWING No.	FA 3257 / 23 / 08 DP	VER V0
SANRAL DOCUMENT #	- -	

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\08 - Drainage plans\3257-23-06-08 DP-Dr Moroka Interchange Drainage_20230717.dwg



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THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

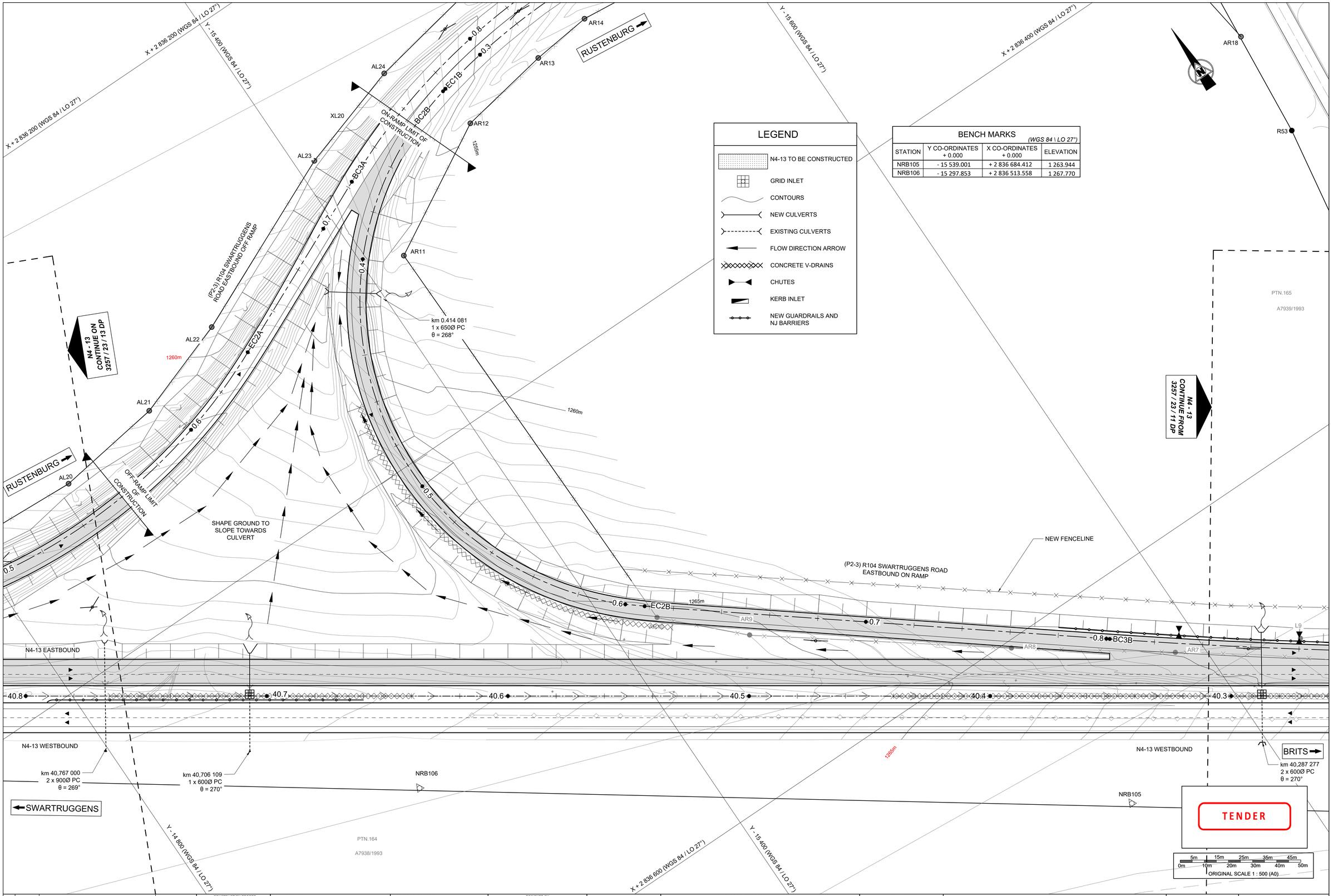
DRAWING DESCRIPTION
DRAINAGE PLAN
R104 (P2-3) INTERCHANGE
SHEET 01 OF 03

SCALE : 1 : 500 (A0) | SHEET 09 OF 11

PROJECT NUMBER		BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA		START	END
ROUTE		N 4	N 4
SECTION		SECTION 13	SECTION 13
DRAWING km DISTANCE		km 39.800	km 40.300
DRAWING TYPE		ROADS - INTERCHANGES	
BRIDGE/STRUCTURE No.		NA	
CONSULTANT DRAWING No.	FA	3257 / 23 / 09 DP	VER
SANRAL DOCUMENT #		- -	V0

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\23-Drawings\Volume 4-Roadwork\08 - Drainage plans\3257-23-09-11 DP-R104 (P2-3) Interchange Drainage_20230717.dwg



LEGEND

- N4-13 TO BE CONSTRUCTED
- GRID INLET
- CONTOURS
- NEW CULVERTS
- EXISTING CULVERTS
- FLOW DIRECTION ARROW
- CONCRETE V-DRAINS
- CHUTES
- KERB INLET
- NEW GUARDRAILS AND NJ BARRIERS

BENCH MARKS

(WGS 84 \ LO 27°)

STATION	Y CO-ORDINATES + 0.000	X CO-ORDINATES + 0.000	ELEVATION
NRB105	- 15 539.001	+ 2 836 684.412	1 263.944
NRB106	- 15 297.853	+ 2 836 513.558	1 267.770

TENDER

5m 15m 25m 35m 45m
0m 10m 20m 30m 40m 50m
ORIGINAL SCALE 1 : 500 (A0)

No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
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DRAWN BY	
NAME	WB HARTMANN

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THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION
DRAINAGE PLAN
R104 (P2-3) INTERCHANGE
SHEET 02 OF 03

SCALE : 1 : 500 (A0) | SHEET 10 OF 11

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	SECTION 13	SECTION 13
DRAWING km DISTANCE	km 40.300	km 40.800
DRAWING TYPE	ROADS - INTERCHANGES	
BRIDGE/STRUCTURE No.	NA	
CONSULTANT DRAWING No.	FA 3257 / 23 / 10 DP	VER
SANRAL DOCUMENT #	- -	V0

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\08 - Drainage plans\3257-23-09-11 DP-R104 (P2-3) Interchange Drainage_20230717.dwg

Y - 14 800 (WGS 84 / LO 27°)

Y - 15 000 (WGS 84 / LO 27°)

X + 2 836 200 (WGS 84 / LO 27°)

Y - 15 200 (WGS 84 / LO 27°)

N

SWARTRUGGENS

RUSTENBURG

BRITS

TIE-IN CURVE (EBC)

TIE-IN CURVE (WBC)

(P2-3) R104 SWARTRUGGENS ROAD EASTBOUND OFF RAMP

N4-13 EASTBOUND

N4-13 WESTBOUND

AL13 AL14 AL15 AL16 AL17 AL18 AL19 AL20

L1A

BC1A

BC1 EB

BC1 WB

EC1A

BC2A

0.0 0.1 0.2 0.3 0.4 0.5

41.3 41.2 41.1 41.0 40.9 40.8

1270m 1275m 1280m 1265m

R1A R2A R3A R4A

NRB108 NRB107

km 41,043 684
2 x 900Ø PC
θ = 103°

km 40,887 000
2 x 900Ø PC
θ = 271°

km 40,767 000
2 x 900Ø PC
θ = 269°

LIMIT OF CONSTRUCTION

SHAPE GROUND TO SLOPE TOWARDS GRID INLET

N4 - 13
CONTINUE FROM
3257 / 23 / 12 DP

OUTSPAN

A1199/60

LEGEND

- N4-13 TO BE CONSTRUCTED
- GRID INLET
- CONTOURS
- NEW CULVERTS
- EXISTING CULVERTS
- FLOW DIRECTION ARROW
- CONCRETE V-DRAINS
- CHUTES
- KERB INLET
- NEW GUARDRAILS AND NJ BARRIERS

BENCH MARKS

(WGS 84 \ LO 27°)

STATION	Y CO-ORDINATES + 0.000	X CO-ORDINATES + 0.000	ELEVATION
NRB107	- 15 060.738	+ 2 836 348.355	1 270.971
NRB108	- 14 797.227	+ 2 836 218.496	1 278.187

TENDER

5m 10m 15m 20m 25m 30m 35m 40m 45m 50m

ORIGINAL SCALE 1 : 500 (A0)

SANRAL DOCUMENT NUMBER :

No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD

WORKS CONTRACT ENGINEER

Name :
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Date :

SANRAL PROJECT MANAGER

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Date :

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NAME	PL NGQUMSHE
Prof. Reg. No.	20080112
DRAWN BY	
NAME	WB HARTMANN

CONSULTANT APPROVAL

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Date:

PROJECT DESCRIPTION

THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

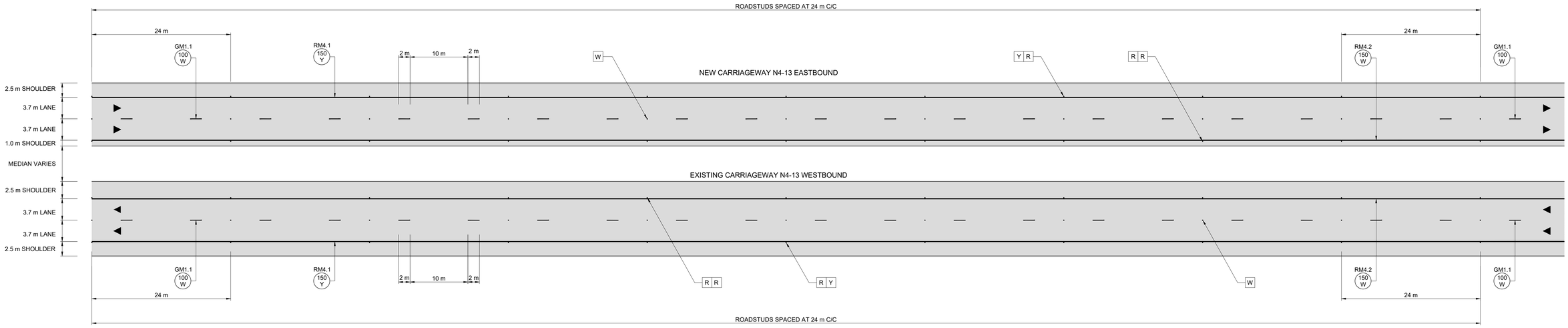
DRAWING DESCRIPTION

R104 (P2-3) INTERCHANGE
DRAINAGE PLAN
SHEET 03 OF 03

SCALE : 1 : 500 (A0) SHEET 11 OF 11

PROJECT NUMBER	BPCC-2024/U26518 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	SECTION 13	SECTION 13
DRAWING km DISTANCE	km 40.800	km 41.300
DRAWING TYPE	ROADS - INTERCHANGES	
BRIDGE/STRUCTURE No.	NA	
CONSULTANT DRAWING No.	FA 3257 / 23 / 11 DP	VER V0
SANRAL DOCUMENT #	- -	

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\23-Drawings\Volume 4-Roadworks\08 - Drainage plans\3257-23-09-11 DP-R104 (P2-3) Interchange Drainage_20230717.dwg



TYPICAL DETAIL OF ROAD PAINT MARKINGS N4-13

LEGEND:

MARKING No.
WIDTH /
COLOUR
LINE / GAP

WHERE

W = WHITE
Y = YELLOW
R = RED

LENGTH / GAP (12m MODULE) LINE TYPE

WM2.1	2.0m / 10.0m
WM2.2	2.0m / 4.0m
WM2.3	2.0m / 2.0m
GM1.1	2.0m / 10.0m
GM1.2	2.0m / 4.0m
GM1.3	2.0m / 2.0m
WM 3.1	4.0m / 8.0m

NOTES:

- ALL ROAD SIGNS, PAINT MARKINGS AND THEIR POSITIONS TO BE ACCORDING TO THE *"SADC ROAD TRAFFIC SIGNS MANUAL"* 3rd EDITION OR AMENDMENTS THEREAFTER
- ALL ROAD MARKINGS TO BE PAINTED WITH RETRO-REFLECTIVE ROAD MARKING PAINT SANS 731-1 OR 731-2
- ALL MARKINGS TO BE CHECKED AT PRE-MARKING STAGE
- ALL EXISTING OR CONFLICTING ROAD MARKINGS MUST BE REMOVED BY MEANS OF SANDBLASTING
- EXISTING ROAD MARKINGS TO BE REPAINTED, WILL BE DETERMINED BY THE ENGINEER ON SITE
- PAINT LAYOUT BASED ON 12m MODULE
- ALL LANE WIDTH DIMENSIONS ARE C/C OR LONGITUDINAL ROAD PAINT MARKINGS

ROAD STUD LEGEND:

1. [W] WHITE
2. [R R] RED / RED STUD
3. [Y R] YELLOW / RED STUD

LONGITUDINAL ROADSTUD SPACING:

NORMAL : 24 m C/C (CARRIAGEWAY)
INTERMEDIATE : 12 m C/C (ON / OFF RAMPS)
ABNORMAL : 6 m C/C (ON / OFF RAMPS)

NOTES:

1. WHITE / RED - WHITE FACING ONCOMING TRAFFIC.
2. RED / RED - NO CROSSING TRAFFIC.
3. YELLOW / RED - YELLOW FACING ONCOMING TRAFFIC
4. ROAD STUDS TO BE PLACED A MIN. OF 150 mm AWAY FROM RM4.1 AND RM4.2 EDGE LINE MARKING

TENDER

5m 15m 25m 35m 45m
0m 10m 20m 30m 40m 50m
ORIGINAL SCALE 1 : 500 (A0)

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Prof. Reg. No.: - -
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DRAWING DESCRIPTION
TYPICAL ROAD PAINT MARKINGS N4-13

SCALE : 1 : 250 (A0) SHEET 01 OF 21

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001		
DRAWING LOCATION DATA	START	END	
ROUTE	N 4	N 4	
SECTION	13	13	
DRAWING km DISTANCE	- -	- -	
DRAWING TYPE	ROADS - ROAD PAINT MARKINGS		
BRIDGE/STRUCTURE No.	- -		
CONSULTANT DRAWING No.	FA	3257 / 23 / 01 RM	VER
SANRAL DOCUMENT #	- -		V0

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\09 - Road Paint Markings\3257_23_01 RPM_Typical_20230718.dwg

R104 (P2-4) KROONDAL INTERCHANGE ON RAMP EASTBOUND CENTER LINE CO-ORDINATES

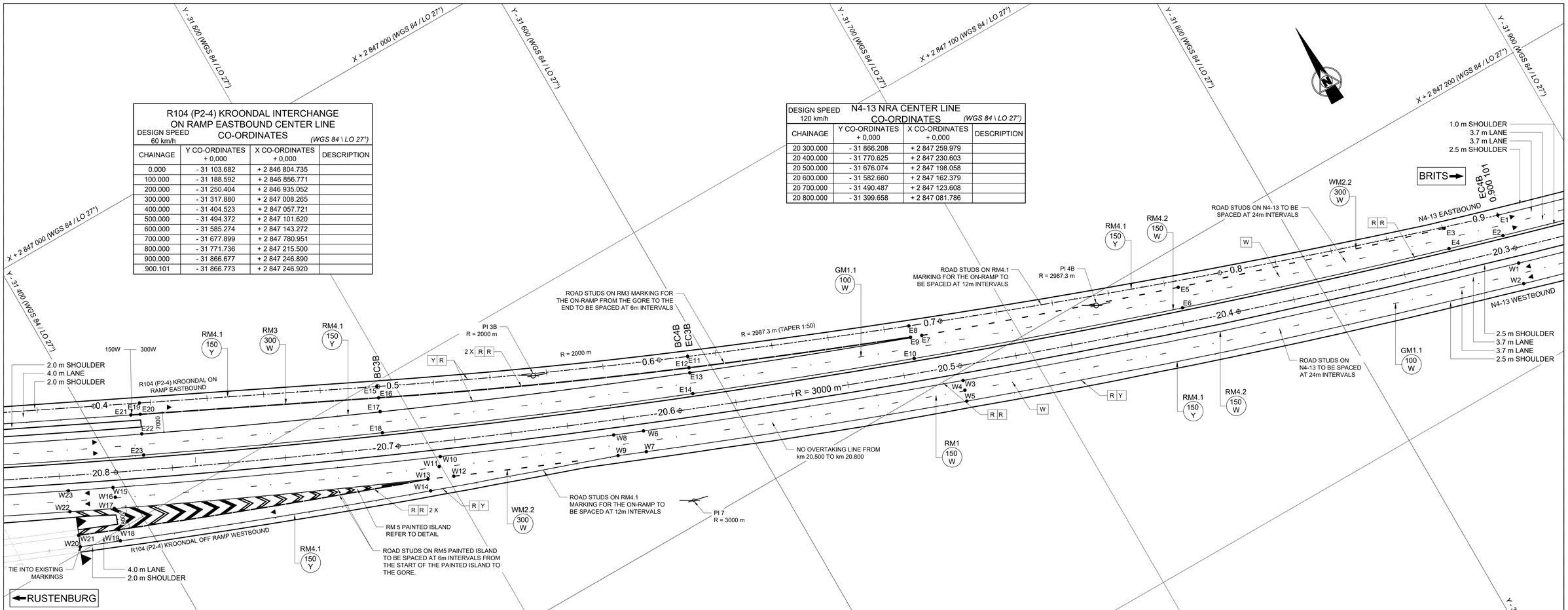
DESIGN SPEED 60 km/h — *(WGS 84 \ LO 27°)*

CHAINAGE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
0.000	- 31 103.682	+ 2 846 804.735	
100.000	- 31 188.592	+ 2 846 856.771	
200.000	- 31 250.404	+ 2 846 935.052	
300.000	- 31 317.880	+ 2 847 008.265	
400.000	- 31 404.523	+ 2 847 057.721	
500.000	- 31 494.372	+ 2 847 101.620	
600.000	- 31 585.274	+ 2 847 143.272	
700.000	- 31 677.899	+ 2 847 780.951	
800.000	- 31 771.736	+ 2 847 215.500	
900.000	- 31 866.677	+ 2 847 246.890	
900.101	- 31 866.773	+ 2 847 246.920	

N4-13 NRA CENTER LINE CO-ORDINATES

DESIGN SPEED 120 km/h — *(WGS 84 \ LO 27°)*

CHAINAGE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
20 300.000	- 31 866.208	+ 2 847 259.979	
20 400.000	- 31 770.625	+ 2 847 230.603	
20 500.000	- 31 676.074	+ 2 847 198.058	
20 600.000	- 31 582.660	+ 2 847 162.379	
20 700.000	- 31 490.487	+ 2 847 123.608	
20 800.000	- 31 399.658	+ 2 847 081.786	



N4 - 13
CONTINUE ON
3257 / 23 / 03 RM

LEGEND:

MARKING No.
WIDTH /
COLOUR
LINE / GAP

WHERE

W = WHITE
Y = YELLOW
R = RED

LENGTH / GAP (12m MODULE) LINE TYPE

WM2.1	2.0m / 10.0m
WM2.2	2.0m / 4.0m
WM2.3	2.0m / 2.0m
GM1.1	2.0m / 10.0m
GM1.2	2.0m / 4.0m
GM1.3	2.0m / 2.0m
WM 3.1	4.0m / 8.0m

NOTES:

- ALL ROAD SIGNS, PAINT MARKINGS AND THEIR POSITIONS TO BE ACCORDING TO THE *"SADC ROAD TRAFFIC SIGNS MANUAL"* 3rd EDITION OR AMENDMENTS THEREAFTER
- ALL ROAD MARKINGS TO BE PAINTED WITH RETRO-REFLECTIVE ROAD MARKING PAINT
- ALL MARKINGS TO BE CHECKED AT PRE-MARKING STAGE
- ALL EXISTING OR CONFLICTING ROAD MARKINGS MUST BE REMOVED BY MEANS OF SANDBLASTING
- EXISTING ROAD MARKINGS TO BE REPAINTED, WILL BE DETERMINED BY THE ENGINEER ON SITE
- PAINT LAYOUT BASED ON 12m MODULE
- ALL LANE WIDTH DIMENSIONS ARE C/C OR LONGITUDINAL ROAD PAINT MARKINGS

ROAD STUD LEGEND:

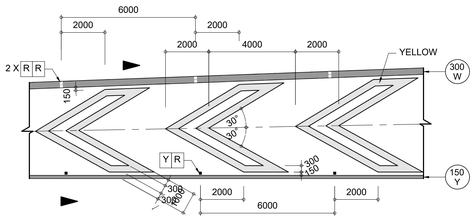
1. W — WHITE STUD
2. R R — RED / RED STUD
3. Y R — YELLOW / RED STUD

LONGITUDINAL ROADSTUD SPACING:

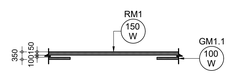
NORMAL : 24 m C/C (CARRIAGEWAY)
INTERMEDIATE : 12 m C/C (ON / OFF RAMPS)
ABNORMAL : 6 m C/C (ON / OFF RAMPS)

NOTES:

1. WHITE / RED - WHITE FACING ONCOMING TRAFFIC.
2. RED / RED - NO CROSSING TRAFFIC.
3. YELLOW / RED - YELLOW FACING ONCOMING TRAFFIC
4. ROAD STUDS TO BE PLACED A MIN. OF 150 mm AWAY FROM RM4.1 AND RM4.2 EDGE LINE MARKING



DETAIL OF RM 5 CHEVRON BARS OFF RAMP TREATMENT
NOT TO SCALE



NO OVERTAKING LINE
NOT TO SCALE

SARTSM - VOLUME 2 : PAINTED ISLAND DETAILS

- FOR LOCATION OF EXIT POINT REFER TO SARTSM - VOLUME 2 DETAIL 2.70.2.
- FOR GORE ISLAND REFER TO SARTSM - VOLUME 2 DETAIL 2.70.3.
- FOR START OF GORE ISLAND REFER TO SARTSM - VOLUME 2 DETAIL 2.70.5.
- FOR END OF CONTINUITY LINE WM2 REFER TO SARTSM - VOLUME 2 DETAIL 2.71.3.
- FOR END OF ON-RAMP GORE REFER TO SARTSM - VOLUME 2 DETAIL 2.71.4.

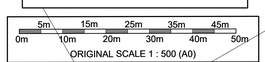
N4-13 NRA ROAD PAINT MARKING EASTBOUND CO-ORDINATES *(WGS 84 \ LO 27°)*

POINT	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
E1	- 31 866.775	+ 2 847 246.920	
E2	- 31 864.712	+ 2 847 254.027	
E3	- 31 848.077	+ 2 847 241.438	
E4	- 31 845.970	+ 2 847 248.520	
E5	- 31 756.521	+ 2 847 212.582	
E6	- 31 754.182	+ 2 847 219.610	
E7	- 31 669.731	+ 2 847 182.071	
E8	- 31 667.467	+ 2 847 176.887	
E9	- 31 665.981	+ 2 847 180.682	
E10	- 31 663.368	+ 2 847 187.765	
E11	- 31 594.573	+ 2 847 147.227	
E12	- 31 593.017	+ 2 847 150.912	
E13	- 31 592.352	+ 2 847 152.579	
E14	- 31 589.609	+ 2 847 159.451	
E15	- 31 494.373	+ 2 847 101.619	
E16	- 31 492.971	+ 2 847 105.386	
E17	- 31 490.989	+ 2 847 109.865	
E18	- 31 487.965	+ 2 847 116.701	
E19	- 31 419.038	+ 2 847 064.812	
E20	- 31 417.292	+ 2 847 068.386	
E21	- 31 414.316	+ 2 847 066.957	
E22	- 31 414.312	+ 2 847 074.638	
E23	- 31 411.167	+ 2 847 081.420	

N4-13 NRA ROAD PAINT MARKING WESTBOUND CO-ORDINATES *(WGS 84 \ LO 27°)*

POINT	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
W1	- 31 864.875	+ 2 847 264.589	
W2	- 31 862.795	+ 2 847 271.691	
W3	- 31 674.576	+ 2 847 202.620	
W4	- 31 673.326	+ 2 847 206.102	
W5	- 31 672.075	+ 2 847 209.584	
W6	- 31 568.162	+ 2 847 161.686	
W7	- 31 565.384	+ 2 847 168.545	
W8	- 31 556.734	+ 2 847 157.014	
W9	- 31 553.911	+ 2 847 163.854	
W10	- 31 501.631	+ 2 847 133.709	
W11	- 31 500.241	+ 2 847 136.894	
W12	- 31 502.308	+ 2 847 142.103	
W13	- 31 498.642	+ 2 847 140.559	
W14	- 31 497.133	+ 2 847 144.731	
W15	- 31 396.296	+ 2 847 085.490	
W16	- 31 395.182	+ 2 847 088.812	
W17	- 31 393.084	+ 2 847 092.113	
W18	- 31 390.399	+ 2 847 099.836	
W19	- 31 388.884	+ 2 847 103.630	
W20	- 31 375.638	+ 2 847 098.237	
W21	- 31 377.177	+ 2 847 094.477	
W22	- 31 378.910	+ 2 847 085.286	
W23	- 31 382.139	+ 2 847 078.626	

TENDER



ORIGINAL SCALE 1 : 500 (A0)

No.	DATE	REVISION	
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date

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CHECKED BY	
NAME	J FALKNER
Prof. Reg. No.	- -
DRAWN BY	
NAME	WB HARTMANN

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17 / 07 / 2023

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THE SOUTH AFRICAN NATIONAL ROADS AGENCY SOC LTD
Reg. No. 1998/009584/30

NORTHERN REGION
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Private Bag X17
Lynnwood Ridge
0040
Tel: (012) 426 6200

ACCEPTANCE
THIS ACCEPTANCE IS FOR PROCEDURAL AND ADMINISTRATIVE REVIEW PURPOSES ONLY AND DOES NOT ATTRACT LEGAL LIABILITY OR LIABILITY OF ANY KIND FROM WHATSOEVER CAUSE OR HOWEVER ARISING
for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION
ROAD PAINT MARKINGS
R104 (P2-4) KROONDAL INTERCHANGE

SCALE : 1 : 500 (A0) SHEET 01 OF 03

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	SECTION 13	SECTION 13
DRAWING km DISTANCE	km 20.280	km 20.820
DRAWING TYPE	ROADS - INTERCHANGES	
BRIDGE/STRUCTURE No.	B2235	
CONSULTANT DRAWING No.	FA 3257 / 23 / 02 RM	VER
SANRAL DOCUMENT #	- -	V0

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadwork\09 - Road Paint Markings\3257_23_02-04 RM Kroondal N4 Interchange Road Paint Markings_20230717.dwg

R104 (P2-4) KROONDAL INTERCHANGE EASTBOUND OFF RAMP CENTER LINE

DESIGN SPEED 60 km/h — CO-ORDINATES *(WGS 84 \ LO 27°)*

CHAINAGE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
0.000	- 30 523.105	+ 2 846 568.061	
100.000	- 30 611.352	+ 2 846 615.097	
200.000	- 30 699.600	+ 2 846 662.133	
300.000	- 30 9787.847	+ 2 846 709.170	
400.000	- 30 877.082	+ 2 846 754.154	
500.000	- 30 974.017	+ 2 846 778.149	
600.000	- 31 071.979	+ 2 846 798.235	
632.363	- 31 103.682	+ 2 846 804.735	

R104 (P2-4) KROONDAL INTERCHANGE ON RAMP EASTBOUND CENTER LINE

DESIGN SPEED 60 km/h — CO-ORDINATES *(WGS 84 \ LO 27°)*

CHAINAGE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
0.000	- 31 103.682	+ 2 846 804.735	
100.000	- 31 188.592	+ 2 846 856.771	
200.000	- 31 250.404	+ 2 846 935.052	
300.000	- 31 317.880	+ 2 847 008.265	
400.000	- 31 404.523	+ 2 847 057.721	
500.000	- 31 494.372	+ 2 847 101.620	
600.000	- 31 585.274	+ 2 847 143.272	
700.000	- 31 677.899	+ 2 847 780.951	
800.000	- 31 771.736	+ 2 847 215.500	
900.000	- 31 866.677	+ 2 847 246.890	
900.101	- 31 866.773	+ 2 847 246.920	

N4-13 NRA CENTER LINE

DESIGN SPEED 120 km/h — CO-ORDINATES *(WGS 84 \ LO 27°)*

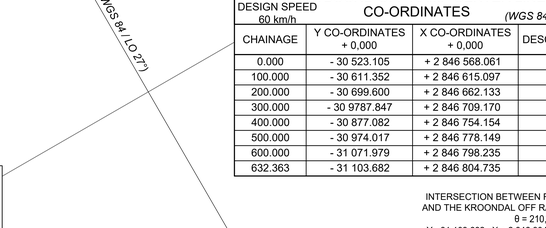
CHAINAGE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
20 800.000	- 31 399.658	+ 2 847 081.786	
20 900.000	- 31 310.272	+ 2 847 036.960	
21 000.000	- 31 222.431	+ 2 846 989.180	
21 100.000	- 31 135.879	+ 2 846 939.094	
21 200.000	- 31 049.433	+ 2 846 888.823	
21 300.000	- 30 962.987	+ 2 846 838.553	

N4-13 NRA ROAD PAINT MARKING EASTBOUND CO-ORDINATES *(WGS 84 \ LO 27°)*

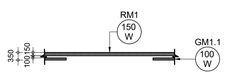
POINT	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
E24	- 31 370.455	+ 2 847 041.076	
E25	- 31 368.701	+ 2 847 044.666	
E26	- 31 304.769	+ 2 847 002.734	
E27	- 31 307.366	+ 2 846 999.692	
E28	- 31 253.324	+ 2 846 946.173	
E29	- 31 256.666	+ 2 846 943.828	
E30	- 31 218.956	+ 2 846 897.190	
E31	- 31 222.230	+ 2 846 894.910	
E32	- 31 184.142	+ 2 846 852.833	
E33	- 31 179.909	+ 2 846 854.479	
E34	- 31 136.906	+ 2 846 821.372	
E35	- 31 131.311	+ 2 846 823.035	
E36	- 31 304.914	+ 2 847 019.801	
E37	- 31 301.459	+ 2 847 026.345	
E38	- 31 197.889	+ 2 846 960.463	
E39	- 31 194.169	+ 2 846 966.860	
E40	- 30 909.830	+ 2 846 792.950	
E41	- 30 906.130	+ 2 846 799.359	
E42	- 30 964.223	+ 2 846 776.158	
E43	- 30 963.410	+ 2 846 780.075	
E44	- 30 924.321	+ 2 846 767.960	
E45	- 30 923.518	+ 2 846 771.879	

N4-13 NRA ROAD PAINT MARKING WESTBOUND CO-ORDINATES *(WGS 84 \ LO 27°)*

POINT	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
W24	- 31 343.681	+ 2 847 059.531	
W25	- 31 340.319	+ 2 847 066.124	
W26	- 31 194.001	+ 2 846 978.422	
W27	- 31 190.302	+ 2 846 984.831	
W28	- 31 055.664	+ 2 846 898.000	
W29	- 31 051.944	+ 2 846 904.397	
W30	- 30 900.751	+ 2 846 807.770	
W31	- 30 896.911	+ 2 846 814.386	



DETAIL OF RM 5 CHEVRON BARS OFF RAMP TREATMENT
NOT TO SCALE



NO OVERTAKING LINE
NOT TO SCALE

SARTSM - VOLUME 2 : PAINTED ISLAND DETAILS

- FOR LOCATION OF EXIT POINT REFER TO SARTSM - VOLUME 2 DETAIL 2.70.2.
- FOR GORE ISLAND REFER TO SARTSM - VOLUME 2 DETAIL 2.70.3.
- FOR START OF GORE ISLAND REFER TO SARTSM - VOLUME 2 DETAIL 2.70.5.
- FOR END OF CONTINUITY LINE WM2 REFER TO SARTSM - VOLUME 2 DETAIL 2.71.3.
- FOR END OF ON-RAMP GORE REFER TO SARTSM - VOLUME 2 DETAIL 2.71.4.

LEGEND:

MARKING No. WIDTH / COLOUR LINE / GAP

WHERE

W = WHITE
Y = YELLOW
R = RED

LENGTH / GAP (12m MODULE) LINE TYPE

WM2.1	2.0m / 10.0m
WM2.2	2.0m / 4.0m
WM2.3	2.0m / 2.0m
GM1.1	2.0m / 10.0m
GM1.2	2.0m / 4.0m
GM1.3	2.0m / 2.0m
WM 3.1	4.0m / 8.0m

NOTES:

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- ALL EXISTING OR CONFLICTING ROAD MARKINGS MUST BE REMOVED BY MEANS OF SANDBLASTING
- EXISTING ROAD MARKINGS TO BE REPAINTED, WILL BE DETERMINED BY THE ENGINEER ON SITE
- PAINT LAYOUT BASED ON 12m MODULE
- ALL LANE WIDTH DIMENSIONS ARE C/C OR LONGITUDINAL ROAD PAINT MARKINGS

ROAD STUD LEGEND:

1. W — WHITE STUD
2. R R — RED / RED STUD
3. Y R — YELLOW / RED STUD

LONGITUDINAL ROADSTUD SPACING:

NORMAL : 24 m C/C (CARRIAGEWAY)
INTERMEDIATE : 12 m C/C (ON / OFF RAMPS)
ABNORMAL : 6 m C/C (ON / OFF RAMPS)

NOTES:

1. WHITE / RED - WHITE FACING ONCOMING TRAFFIC.
2. RED / RED - NO CROSSING TRAFFIC.
3. YELLOW / RED - YELLOW FACING ONCOMING TRAFFIC
4. ROAD STUDS TO BE PLACED A MIN. OF 150 mm AWAY FROM RM4.1 AND RM4.2 EDGE LINE MARKING

TENDER

5m 15m 25m 35m 45m
0m 10m 20m 30m 40m 50m
ORIGINAL SCALE 1 : 500 (A0)

No.	DATE	REVISION	
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSULTANT ENG.

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date

CONSULTANT
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DESIGNED BY	
NAME	EF DAY
Prof. Reg. No.	20130622
CHECKED BY	
NAME	J FALKNER
Prof. Reg. No.	- -
DRAWN BY	
NAME	WB HARTMANN

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17 / 07 / 2023

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THE SOUTH AFRICAN NATIONAL ROADS AGENCY SOC LTD
Reg. No. 1998/009084/30

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Lynnwood Ridge
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ACCEPTANCE
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for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION
ROAD PAINT MARKINGS N4-13
R104 (P2-4) KROONDAL INTERCHANGE

SCALE : 1 : 500 (A0) — SHEET 02 OF 03

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	SECTION 13	SECTION 13
DRAWING km DISTANCE	km 20.860	km 21.380
DRAWING TYPE	ROADS - INTERCHANGES	
BRIDGE/STRUCTURE No.	B2235	
CONSULTANT DRAWING No.	FA 3257 / 23 / 03 RM	VER
SANRAL DOCUMENT #	- -	V0

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\09 - Road Paint Markings\3257_23_02-04 RM Kroondal N4 Interchange Road Paint Markings_20230717.dwg

Y - 30 500 (WGS 84 / LO 27°) | X + 2 846 400 (WGS 84 / LO 27°) | Y - 30 600 (WGS 84 / LO 27°) | Y - 30 700 (WGS 84 / LO 27°) | Y - 30 800 (WGS 84 / LO 27°) | X + 2 846 600 (WGS 84 / LO 27°) | Y - 30 900 (WGS 84 / LO 27°)

LEGEND:

MARKING No.
WIDTH / COLOUR
LINE / GAP

WHERE

W = WHITE
Y = YELLOW
R = RED

LENGTH / GAP (12m MODULE) LINE TYPE

WM2.1	2.0m / 10.0m
WM2.2	2.0m / 4.0m
WM2.3	2.0m / 2.0m
GM1.1	2.0m / 10.0m
GM1.2	2.0m / 4.0m
GM1.3	2.0m / 2.0m
WM 3.1	4.0m / 8.0m

NOTES:

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- EXISTING ROAD MARKINGS TO BE REPAINTED, WILL BE DETERMINED BY THE ENGINEER ON SITE
- PAINT LAYOUT BASED ON 12m MODULE
- ALL LANE WIDTH DIMENSIONS ARE C/C OR LONGITUDINAL ROAD PAINT MARKINGS

ROAD STUD LEGEND:

1. [W] WHITE STUD
2. [R R] RED / RED STUD
3. [Y R] YELLOW / RED STUD

LONGITUDINAL ROADSTUD SPACING:

NORMAL : 24 m C/C (CARRIAGEWAY)
INTERMEDIATE : 12 m C/C (ON / OFF RAMPS)
ABNORMAL : 6 m C/C (ON / OFF RAMPS)

NOTES:

1. WHITE / RED - WHITE FACING ONCOMING TRAFFIC.
2. RED / RED - NO CROSSING TRAFFIC.
3. YELLOW / RED - YELLOW FACING ONCOMING TRAFFIC
4. ROAD STUDS TO BE PLACED A MIN. OF 150 mm AWAY FROM RM4.1 AND RM4.2 EDGE LINE MARKING

N4-13 NRA CENTER LINE CO-ORDINATES (WGS 84 \ LO 27°)

DESIGN SPEED 120 km/h

CHAINAGE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
21 300.000	- 30 962.987	+ 2 846 838.553	
21 400.000	- 30 876.541	+ 2 846 788.283	
21 500.000	- 30 790.095	+ 2 846 738.013	
21 600.000	- 30 703.649	+ 2 846 687.742	
21 700.000	- 30 617.203	+ 2 846 637.472	
21 800.000	- 30 530.757	+ 2 846 587.202	

R104 (P2-4) KROONDAL INTERCHANGE EASTBOUND OFF RAMP CENTER LINE CO-ORDINATES (WGS 84 \ LO 27°)

DESIGN SPEED 60 km/h

CHAINAGE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
0.000	- 30 523.105	+ 2 846 568.061	
100.000	- 30 611.352	+ 2 846 615.097	
200.000	- 30 699.600	+ 2 846 662.133	
300.000	- 30 9787.847	+ 2 846 709.170	
400.000	- 30 877.082	+ 2 846 754.154	
500.000	- 30 974.017	+ 2 846 778.149	
600.000	- 31 071.979	+ 2 846 798.235	
632.363	- 31 103.682	+ 2 846 804.735	

N4 - 13
CONTINUE FROM
3257 / 23 / 03 RM

RUSTENBURG ← | → BRITS

1.0 m SHOULDER
3.7 m LANE
3.7 m LANE
2.5 m SHOULDER
N4-13 EASTBOUND

ROAD STUDS ON N4-13 TO BE SPACED AT 24m INTERVALS

NO OVERTAKING LINE FROM km 21.500 TO km 21.920

RM4.2 150 W | WM2.2 300 W

HEX RIVER

ROAD STUDS ON RM4.1 MARKING FOR THE OFF-RAMP TO BE SPACED AT 12m INTERVALS

RM4.1 150 Y

ROAD STUDS ON RM5 PAINTED ISLAND TO BE SPACED AT 6m INTERVALS FROM THE START OF THE PAINTED ISLAND TO THE GORE.

RM 5 PAINTED ISLAND REFER TO DETAIL

(TAPER 1:27)
R104 (P2-4) KROONDAL OFF RAMP EASTBOUND

300W | 150W

2.0 m SHOULDER
4.0 m LANE
2.0 m SHOULDER

BC1A | PI 1A R = 300 m | R = 300 m

GM1.1 100 W

E67 E68 E69 E65 E66 E64 E59 E61 E60 E62 E63 E58 E57 E52 E53 E54 E55 E56 E50 E51 E47 E46 E48 E49

0 | 0.1 | 0.2 | 0.3 | 0.4

21.9 | 21.8 | 21.7 | 21.6 | 21.5 | 21.4

W48 W46 W47 W49 W45 W44 W43 W42 W41 W40 W39 W38 W37 W36 W35 W34 W32 W33

N4-13 WESTBOUND
2.5 m SHOULDER
3.7 m LANE
3.7 m LANE
2.5 m SHOULDER

RM4.2 150 W | RM4.1 150 Y

ROAD STUDS ON RM4.1 MARKING FOR THE OFF-RAMP TO BE SPACED AT 12m INTERVALS

BRIDGE B1640
km 21,767 000
N4 OVER HEX RIVER
BRIDGE TO BE EXTENDED
θ = 15°

HEX RIVER

WM2.2 300 W

ROAD STUDS ON RM4.2 MARKING FOR THE ON-RAMP FROM THE GORE TO THE END TO BE SPACED AT 6m INTERVALS

ROAD STUDS ON N4-13 TO BE SPACED AT 24m INTERVALS

RM4.1 150 Y | RM3 300 W | GM1.1 100 W

2.0 m SHOULDER
4.0 m LANE
2.0 m SHOULDER

8000

TIE INTO EXISTING MARKINGS

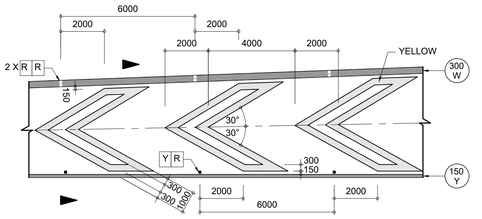
R104 (P2-4) KROONDAL ON RAMP WESTBOUND

N4-13 NRA ROAD PAINT MARKING EASTBOUND CO-ORDINATES (WGS 84 \ LO 27°)

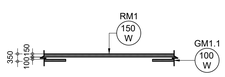
POINT	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
E46	- 30 882.846	+ 2 846 756.298	
E47	- 30 881.489	+ 2 846 760.061	
E48	- 30 875.837	+ 2 846 773.182	
E49	- 30 872.117	+ 2 846 779.579	
E50	- 30 843.468	+ 2 846 738.815	
E51	- 30 841.587	+ 2 846 742.345	
E52	- 30 796.961	+ 2 846 714.027	
E53	- 30 795.080	+ 2 846 717.557	
E54	- 30 791.439	+ 2 846 724.103	
E55	- 30 789.071	+ 2 846 727.267	
E56	- 30 787.719	+ 2 846 730.500	
E57	- 30 681.406	+ 2 846 656.968	
E58	- 30 683.287	+ 2 846 653.438	
E59	- 30 620.183	+ 2 846 619.803	
E60	- 30 618.301	+ 2 846 623.333	
E61	- 30 614.842	+ 2 846 621.324	
E62	- 30 616.290	+ 2 846 626.791	
E63	- 30 614.543	+ 2 846 629.795	
E64	- 30 535.284	+ 2 846 575.124	
E65	- 30 523.093	+ 2 846 568.085	
E66	- 30 519.386	+ 2 846 574.459	
E67	- 30 436.616	+ 2 846 517.766	
E68	- 30 434.643	+ 2 846 521.159	
E69	- 30 432.896	+ 2 846 524.163	

N4-13 NRA ROAD PAINT MARKING WESTBOUND CO-ORDINATES (WGS 84 \ LO 27°)

POINT	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
W32	- 30 874.128	+ 2 846 792.432	
W33	- 30 870.408	+ 2 846 798.829	
W34	- 30 803.486	+ 2 846 773.987	
W35	- 30 805.904	+ 2 846 770.777	
W36	- 30 804.432	+ 2 846 760.376	
W37	- 30 808.115	+ 2 846 754.044	
W38	- 30 740.785	+ 2 846 728.003	
W39	- 30 742.752	+ 2 846 724.595	
W40	- 30 594.838	+ 2 846 638.665	
W41	- 30 591.261	+ 2 846 641.282	
W42	- 30 591.356	+ 2 846 636.695	
W43	- 30 597.501	+ 2 846 631.568	
W44	- 30 506.700	+ 2 846 587.325	
W45	- 30 511.055	+ 2 846 581.297	
W46	- 30 433.254	+ 2 846 536.054	
W47	- 30 428.899	+ 2 846 542.082	
W48	- 30 416.035	+ 2 846 526.041	
W49	- 30 411.546	+ 2 846 531.995	



DETAIL OF RM 5 CHEVRON BARS OFF RAMP TREATMENT
NOT TO SCALE



NO OVERTAKING LINE
NOT TO SCALE

SARTSM - VOLUME 2 : PAINTED ISLAND DETAILS

- FOR LOCATION OF EXIT POINT REFER TO SARTSM - VOLUME 2 DETAIL 2.70.2.
- FOR GORE ISLAND REFER TO SARTSM - VOLUME 2 DETAIL 2.70.3.
- FOR START OF GORE ISLAND REFER TO SARTSM - VOLUME 2 DETAIL 2.70.5.
- FOR END OF CONTINUITY LINE WM2 REFER TO SARTSM - VOLUME 2 DETAIL 2.71.3.
- FOR END OF ON-RAMP GORE REFER TO SARTSM - VOLUME 2 DETAIL 2.71.4.

Y - 30 400 (WGS 84 / LO 27°) | X + 2 846 800 (WGS 84 / LO 27°) | Y - 30 600 (WGS 84 / LO 27°) | Y - 30 800 (WGS 84 / LO 27°)

TENDER

5m 15m 25m 35m 45m
0m 10m 20m 30m 40m 50m
ORIGINAL SCALE 1 : 500 (A0)

SANRAL DOCUMENT NUMBER :

No.	DATE	REVISION	
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date :

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CHECKED BY	
NAME	J FALKNER
Prof. Reg. No.	- -
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NAME	WB HARTMANN

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17 / 07 / 2023

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THE SOUTH AFRICAN NATIONAL ROADS AGENCY SOC LTD
Reg. No. 1998/009984/30

NORTHERN REGION
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Lynnwood Ridge
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Tel: (012) 426 6200

ACCEPTANCE
THIS ACCEPTANCE IS FOR PROCEDURAL AND ADMINISTRATIVE REVIEW PURPOSES ONLY AND DOES NOT ATTRACT LEGAL LIABILITY OR LIABILITY OF ANY KIND FROM WHATSOEVER CAUSE OR HOWEVER ARISING
for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION
ROAD PAINT MARKINGS N4-13
R104 (P2-4) KROONDAL INTERCHANGE

SCALE : 1 : 500 (A0) | SHEET 03 OF 03

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	SECTION 13	SECTION 13
DRAWING km DISTANCE	km 21.400	km 21.920
DRAWING TYPE	ROADS - INTERCHANGES	
BRIDGE/STRUCTURE No.	B2235	
CONSULTANT DRAWING No.	FA 3257 / 23 / 04 RM	VER
SANRAL DOCUMENT #	- -	V0

W:\Roads\3257 - N4 Dual Carriageway (PL\N13-Tender\03-Drawings\Volume 4-Roadworks\09 - Road Paint Markings\3257_23_02-04 RM Kroondal N4 Interchange Road Paint Markings_20230717.dwg

R24 (P16-1) RUSTENBURG (KRUGERSDORP) ON RAMP - EASTBOUND CENTER LINE CO-ORDINATES

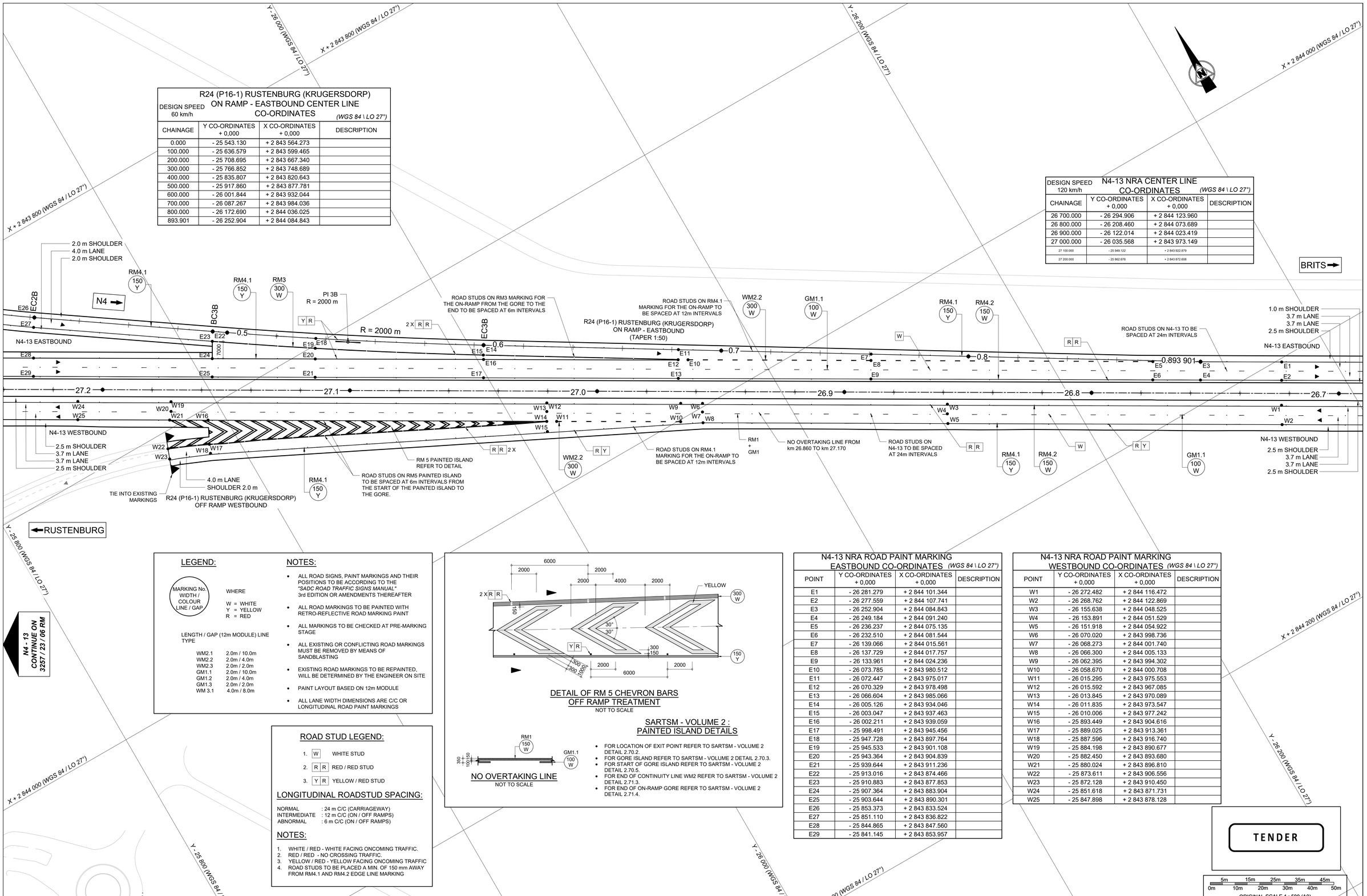
DESIGN SPEED 60 km/h — *(WGS 84 \ LO 27°)*

CHAINAGE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
0.000	- 25 543.130	+ 2 843 564.273	
100.000	- 25 636.579	+ 2 843 599.465	
200.000	- 25 708.695	+ 2 843 667.340	
300.000	- 25 766.852	+ 2 843 748.689	
400.000	- 25 835.807	+ 2 843 820.643	
500.000	- 25 917.860	+ 2 843 877.781	
600.000	- 26 001.844	+ 2 843 932.044	
700.000	- 26 087.267	+ 2 843 984.036	
800.000	- 26 172.690	+ 2 844 036.025	
893.901	- 26 252.904	+ 2 844 084.843	

N4-13 NRA CENTER LINE CO-ORDINATES

DESIGN SPEED 120 km/h — *(WGS 84 \ LO 27°)*

CHAINAGE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
26 700.000	- 26 294.906	+ 2 844 123.960	
26 800.000	- 26 208.460	+ 2 844 073.689	
26 900.000	- 26 122.014	+ 2 844 023.419	
27 000.000	- 26 035.568	+ 2 843 973.149	
27 100.000	- 25 949.122	+ 2 843 922.879	
27 200.000	- 25 862.676	+ 2 843 872.608	



LEGEND:

MARKING No. WIDTH / COLOUR LINE / GAP

WHERE
W = WHITE
Y = YELLOW
R = RED

LENGTH / GAP (12m MODULE) LINE TYPE

WM2.1	2.0m / 10.0m
WM2.2	2.0m / 4.0m
WM2.3	2.0m / 2.0m
GM1.1	2.0m / 10.0m
GM1.2	2.0m / 4.0m
GM1.3	2.0m / 2.0m
WM 3.1	4.0m / 8.0m

NOTES:

- ALL ROAD SIGNS, PAINT MARKINGS AND THEIR POSITIONS TO BE ACCORDING TO THE *"SADC ROAD TRAFFIC SIGNS MANUAL"* 3rd EDITION OR AMENDMENTS THEREAFTER
- ALL ROAD MARKINGS TO BE PAINTED WITH RETRO-REFLECTIVE ROAD MARKING PAINT
- ALL MARKINGS TO BE CHECKED AT PRE-MARKING STAGE
- ALL EXISTING OR CONFLICTING ROAD MARKINGS MUST BE REMOVED BY MEANS OF SANDBLASTING
- EXISTING ROAD MARKINGS TO BE REPAINTED, WILL BE DETERMINED BY THE ENGINEER ON SITE
- PAINT LAYOUT BASED ON 12m MODULE
- ALL LANE WIDTH DIMENSIONS ARE C/C OR LONGITUDINAL ROAD PAINT MARKINGS

ROAD STUD LEGEND:

1. W — WHITE STUD
2. R R — RED / RED STUD
3. Y R — YELLOW / RED STUD

LONGITUDINAL ROADSTUD SPACING:

NORMAL : 24 m C/C (CARRIAGEWAY)
INTERMEDIATE : 12 m C/C (ON / OFF RAMPS)
ABNORMAL : 6 m C/C (ON / OFF RAMPS)

NOTES:

1. WHITE / RED - WHITE FACING ONCOMING TRAFFIC.
2. RED / RED - NO CROSSING TRAFFIC.
3. YELLOW / RED - YELLOW FACING ONCOMING TRAFFIC
4. ROAD STUDS TO BE PLACED A MIN. OF 150 mm AWAY FROM RM4.1 AND RM4.2 EDGE LINE MARKING

DETAIL OF RM 5 CHEVRON BARS OFF RAMP TREATMENT
NOT TO SCALE

NO OVERTAKING LINE
NOT TO SCALE

SARTSM - VOLUME 2 : PAINTED ISLAND DETAILS

- FOR LOCATION OF EXIT POINT REFER TO SARTSM - VOLUME 2 DETAIL 2.70.2.
- FOR GORE ISLAND REFER TO SARTSM - VOLUME 2 DETAIL 2.70.3.
- FOR START OF GORE ISLAND REFER TO SARTSM - VOLUME 2 DETAIL 2.70.5.
- FOR END OF CONTINUITY LINE WM2 REFER TO SARTSM - VOLUME 2 DETAIL 2.71.3.
- FOR END OF ON-RAMP GORE REFER TO SARTSM - VOLUME 2 DETAIL 2.71.4.

N4-13 NRA ROAD PAINT MARKING EASTBOUND CO-ORDINATES *(WGS 84 \ LO 27°)*

POINT	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
E1	- 26 281.279	+ 2 844 101.344	
E2	- 26 277.559	+ 2 844 107.741	
E3	- 26 252.904	+ 2 844 084.843	
E4	- 26 249.184	+ 2 844 091.240	
E5	- 26 236.237	+ 2 844 075.135	
E6	- 26 232.510	+ 2 844 081.544	
E7	- 26 139.066	+ 2 844 015.561	
E8	- 26 137.729	+ 2 844 017.757	
E9	- 26 133.961	+ 2 844 024.236	
E10	- 26 073.785	+ 2 843 980.512	
E11	- 26 072.447	+ 2 843 975.017	
E12	- 26 070.329	+ 2 843 978.498	
E13	- 26 066.604	+ 2 843 985.066	
E14	- 26 005.126	+ 2 843 934.046	
E15	- 26 003.047	+ 2 843 937.463	
E16	- 26 002.211	+ 2 843 939.059	
E17	- 25 998.491	+ 2 843 945.456	
E18	- 25 947.728	+ 2 843 897.764	
E19	- 25 945.533	+ 2 843 901.108	
E20	- 25 943.364	+ 2 843 904.839	
E21	- 25 939.644	+ 2 843 911.236	
E22	- 25 913.016	+ 2 843 874.466	
E23	- 25 910.883	+ 2 843 877.853	
E24	- 25 907.364	+ 2 843 883.904	
E25	- 25 903.644	+ 2 843 890.301	
E26	- 25 853.373	+ 2 843 833.524	
E27	- 25 851.110	+ 2 843 836.822	
E28	- 25 844.865	+ 2 843 847.560	
E29	- 25 841.145	+ 2 843 853.957	

N4-13 NRA ROAD PAINT MARKING WESTBOUND CO-ORDINATES *(WGS 84 \ LO 27°)*

POINT	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
W1	- 26 272.482	+ 2 844 116.472	
W2	- 26 268.762	+ 2 844 122.869	
W3	- 26 155.638	+ 2 844 048.525	
W4	- 26 153.891	+ 2 844 051.529	
W5	- 26 151.918	+ 2 844 054.922	
W6	- 26 070.020	+ 2 843 998.736	
W7	- 26 068.273	+ 2 844 001.740	
W8	- 26 066.300	+ 2 844 005.133	
W9	- 26 062.395	+ 2 843 994.302	
W10	- 26 058.670	+ 2 844 000.708	
W11	- 26 015.295	+ 2 843 975.553	
W12	- 26 015.592	+ 2 843 967.085	
W13	- 26 013.845	+ 2 843 970.089	
W14	- 26 011.835	+ 2 843 973.547	
W15	- 26 010.006	+ 2 843 977.242	
W16	- 25 893.449	+ 2 843 904.616	
W17	- 25 889.025	+ 2 843 913.361	
W18	- 25 887.596	+ 2 843 916.740	
W19	- 25 884.198	+ 2 843 890.677	
W20	- 25 882.450	+ 2 843 893.680	
W21	- 25 880.024	+ 2 843 896.810	
W22	- 25 873.611	+ 2 843 906.556	
W23	- 25 872.128	+ 2 843 910.450	
W24	- 25 851.618	+ 2 843 871.731	
W25	- 25 847.898	+ 2 843 878.128	

TENDER

5m 15m 25m 35m 45m
0m 10m 20m 30m 40m 50m
ORIGINAL SCALE 1 : 500 (A0)

SANRAL DOCUMENT NUMBER :

No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date

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CHECKED BY	
NAME	J FALKNER
Prof. Reg. No.	- -
DRAWN BY	
NAME	W.B. HARTMANN

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17 / 07 / 2023

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ACCEPTANCE
THIS ACCEPTANCE IS FOR PROCEDURAL AND ADMINISTRATIVE REVIEW PURPOSES ONLY AND DOES NOT ATTRACT LEGAL LIABILITY OR LIABILITY OF ANY KIND FROM WHATSOEVER CAUSE OR HOWEVER ARISING
for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION
ROAD PAINT MARKINGS
R24 (P16-1) RUSTENBURG (KRUGERSDORP) INTERCHANGE

SCALE : 1 : 500 (A0) — SHEET 01 OF 03

PROJECT NUMBER		BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END	
ROUTE	N 4	N 4	
SECTION	SECTION 13	SECTION 13	
DRAWING km DISTANCE	km 26.700	km 27.240	
DRAWING TYPE	ROADS - INTERCHANGES		
BRIDGE/STRUCTURE No.	- -		
CONSULTANT DRAWING No.	FA	3257 / 23 / 05 RM	VER
SANRAL DOCUMENT #	- -		V0

W:\Roads\3257 - N4 Dual Carriageway (PLN)\ED-Tender\03-Drawings\Volume 4-Roadworks\09 - Road Paint Markings\3257_23_05-07 RM_Waterfall N4 Interchange Road Paint Markings_20230717.dwg

R24 (P16-1) RUSTENBURG (KRUGERSDORP) OFF RAMP - EASTBOUND CENTER LINE CO-ORDINATES

DESIGN SPEED 60 km/h — *(WGS 84 \ LO 27°)*

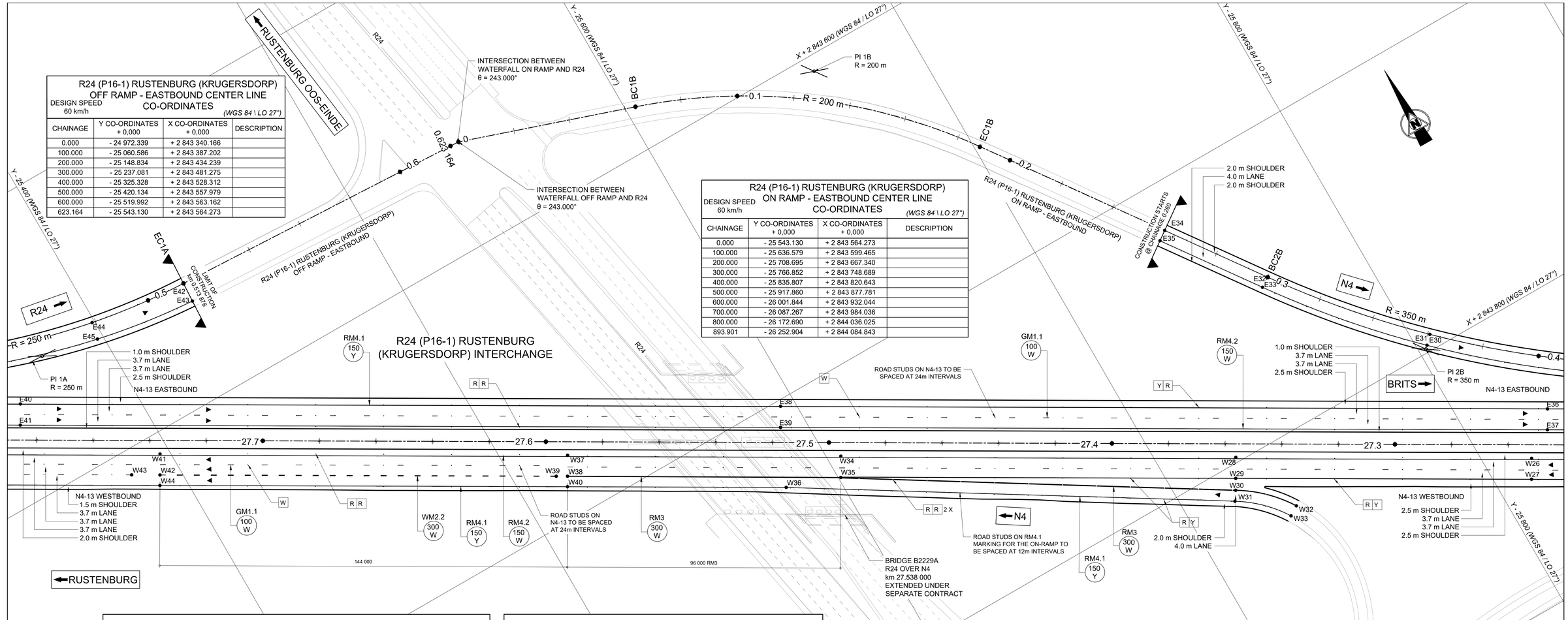
CHAINAGE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
0.000	- 24 972.339	+ 2 843 340.166	
100.000	- 25 060.586	+ 2 843 387.202	
200.000	- 25 148.834	+ 2 843 434.239	
300.000	- 25 237.081	+ 2 843 481.275	
400.000	- 25 325.328	+ 2 843 528.312	
500.000	- 25 420.134	+ 2 843 557.979	
600.000	- 25 519.992	+ 2 843 563.162	
623.164	- 25 543.130	+ 2 843 564.273	

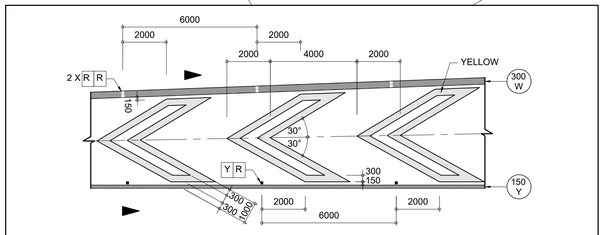
R24 (P16-1) RUSTENBURG (KRUGERSDORP) ON RAMP - EASTBOUND CENTER LINE CO-ORDINATES

DESIGN SPEED 60 km/h — *(WGS 84 \ LO 27°)*

CHAINAGE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
0.000	- 25 543.130	+ 2 843 564.273	
100.000	- 25 636.579	+ 2 843 599.465	
200.000	- 25 708.695	+ 2 843 667.340	
300.000	- 25 766.852	+ 2 843 748.689	
400.000	- 25 835.807	+ 2 843 820.643	
500.000	- 25 917.860	+ 2 843 877.781	
600.000	- 26 001.844	+ 2 843 932.044	
700.000	- 26 087.267	+ 2 843 984.036	
800.000	- 26 172.690	+ 2 844 036.025	
893.901	- 26 252.904	+ 2 844 084.843	

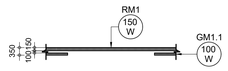
R24 (P16-1) RUSTENBURG (KRUGERSDORP) INTERCHANGE





DETAIL OF RM 5 CHEVRON BARS OFF RAMP TREATMENT

NOT TO SCALE



NO OVERTAKING LINE

NOT TO SCALE

SARTSM - VOLUME 2 : PAINTED ISLAND DETAILS

- FOR LOCATION OF EXIT POINT REFER TO SARTSM - VOLUME 2 DETAIL 2.70.2.
- FOR GORE ISLAND REFER TO SARTSM - VOLUME 2 DETAIL 2.70.3.
- FOR START OF GORE ISLAND REFER TO SARTSM - VOLUME 2 DETAIL 2.70.5.
- FOR END OF CONTINUITY LINE WM2 REFER TO SARTSM - VOLUME 2 DETAIL 2.71.3.
- FOR END OF ON-RAMP GORE REFER TO SARTSM - VOLUME 2 DETAIL 2.71.4.

LEGEND:

MARKING No. WIDTH / COLOUR LINE / GAP

WHERE

W = WHITE
Y = YELLOW
R = RED

LENGTH / GAP (12m MODULE) LINE TYPE

WM2.1	2.0m / 10.0m
WM2.2	2.0m / 4.0m
WM2.3	2.0m / 2.0m
GM1.1	2.0m / 10.0m
GM1.2	2.0m / 4.0m
GM1.3	2.0m / 2.0m
WM 3.1	4.0m / 8.0m

NOTES:

- ALL ROAD SIGNS, PAINT MARKINGS AND THEIR POSITIONS TO BE ACCORDING TO THE *"SADC ROAD TRAFFIC SIGNS MANUAL"* 3rd EDITION OR AMENDMENTS THEREAFTER
- ALL ROAD MARKINGS TO BE PAINTED WITH RETRO-REFLECTIVE ROAD MARKING PAINT
- ALL MARKINGS TO BE CHECKED AT PRE-MARKING STAGE
- ALL EXISTING OR CONFLICTING ROAD MARKINGS MUST BE REMOVED BY MEANS OF SANDBLASTING
- EXISTING ROAD MARKINGS TO BE REPAINTED, WILL BE DETERMINED BY THE ENGINEER ON SITE
- PAINT LAYOUT BASED ON 12m MODULE
- ALL LANE WIDTH DIMENSIONS ARE C/C OR LONGITUDINAL ROAD PAINT MARKINGS

ROAD STUD LEGEND:

1. W — WHITE STUD
2. R R — RED / RED STUD
3. Y R — YELLOW / RED STUD

LONGITUDINAL ROADSTUD SPACING:

NORMAL : 24 m C/C (CARRIAGEWAY)
INTERMEDIATE : 12 m C/C (ON / OFF RAMPS)
ABNORMAL : 6 m C/C (ON / OFF RAMPS)

NOTES:

1. WHITE / RED - WHITE FACING ONCOMING TRAFFIC.
2. RED / RED - NO CROSSING TRAFFIC.
3. YELLOW / RED - YELLOW FACING ONCOMING TRAFFIC
4. ROAD STUDS TO BE PLACED A MIN. OF 150 mm AWAY FROM RM4.1 AND RM4.2 EDGE LINE MARKING

N4-13 NRA CENTER LINE CO-ORDINATES

DESIGN SPEED 120 km/h — *(WGS 84 \ LO 27°)*

CHAINAGE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
27 200.000	- 25 862.676	+ 2 843 872.608	
27 300.000	- 25 776.230	+ 2 843 822.338	
27 400.000	- 25 689.784	+ 2 843 772.068	
27 500.000	- 25 603.338	+ 2 843 721.798	
27 600.000	- 25 516.892	+ 2 843 671.527	
27 700.000	- 25 430.446	+ 2 843 621.257	

N4-13 NRA ROAD PAINT MARKING EASTBOUND CO-ORDINATES *(WGS 84 \ LO 27°)*

POINT	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
E30	- 25 806.339	+ 2 843 794.806	
E31	- 25 803.537	+ 2 843 797.661	
E32	- 25 766.852	+ 2 843 748.689	
E33	- 25 763.476	+ 2 843 750.845	
E34	- 25 743.590	+ 2 843 716.151	
E35	- 25 740.329	+ 2 843 718.468	
E36	- 25 829.174	+ 2 843 838.435	
E37	- 25 825.454	+ 2 843 844.832	
E38	- 25 594.956	+ 2 843 702.145	
E39	- 25 591.199	+ 2 843 708.607	
E40	- 25 362.779	+ 2 843 567.129	
E41	- 25 359.021	+ 2 843 573.591	
E42	- 25 433.970	+ 2 843 559.029	
E43	- 25 433.607	+ 2 843 566.019	
E44	- 25 399.105	+ 2 843 554.886	
E45	- 25 397.809	+ 2 843 560.878	

N4-13 NRA ROAD PAINT MARKING WESTBOUND CO-ORDINATES *(WGS 84 \ LO 27°)*

POINT	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
W26	- 25 815.572	+ 2 843 850.769	
W27	- 25 811.852	+ 2 843 857.166	
W28	- 25 725.228	+ 2 843 798.232	
W29	- 25 721.508	+ 2 843 804.629	
W30	- 25 719.391	+ 2 843 808.270	
W31	- 25 717.208	+ 2 843 811.505	
W32	- 25 735.194	+ 2 843 823.739	
W33	- 25 731.804	+ 2 843 825.892	
W34	- 25 604.584	+ 2 843 728.074	
W35	- 25 600.788	+ 2 843 734.601	
W36	- 25 582.343	+ 2 843 727.982	
W37	- 25 521.125	+ 2 843 679.541	
W38	- 25 517.405	+ 2 843 685.938	
W39	- 25 513.947	+ 2 843 683.928	
W40	- 25 515.545	+ 2 843 689.137	
W41	- 25 396.643	+ 2 843 607.152	
W42	- 25 392.923	+ 2 843 613.549	
W43	- 25 384.278	+ 2 843 608.522	
W44	- 25 391.061	+ 2 843 616.747	

TENDER

5m 15m 25m 35m 45m
0m 10m 20m 30m 40m 50m
ORIGINAL SCALE 1 : 500 (A0)

No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date
SANRAL PROJECT MANAGER
Name
Prof. Reg. No. :
Date

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CHECKED BY
NAME J FALKNER
Prof. Reg. No. - -
DRAWN BY
NAME W.B HARTMANN

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17 / 07 / 2023

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THE SOUTH AFRICAN NATIONAL ROADS AGENCY SOC LTD
Reg. No. 1998/009584/30

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Private Bag X17
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Tel: (012) 426 6200

ACCEPTANCE
THIS ACCEPTANCE IS FOR PROCEDURAL AND ADMINISTRATIVE REVIEW PURPOSES ONLY AND DOES NOT ATTRACT LEGAL LIABILITY OR LIABILITY OF ANY KIND FROM WHATSOEVER CAUSE OR HOWEVER ARISING
for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION
ROAD PAINT MARKINGS
R24 (P16-1) RUSTENBURG (KRUGERSDORP) INTERCHANGE

SCALE : 1 : 500 (A0) — SHEET 02 OF 03

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	SECTION 13	SECTION 13
DRAWING km DISTANCE	km 27.260	km 27.780
DRAWING TYPE	ROADS - INTERCHANGES	
BRIDGE/STRUCTURE No.	B2229A	
CONSULTANT DRAWING No.	FA 3257 / 23 / 06 RM	VER V0
SANRAL DOCUMENT #	- -	

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\09 - Road Paint Markings\3257_23_05-07 RM_Waterfall N4 Interchange Road Paint Markings_20230717.dwg

X + 2 843 200 (WGS 84 / LO 27°)

Y - 25 000 (WGS 84 / LO 27°)

Y - 25 200 (WGS 84 / LO 27°)

X + 2 843 400 (WGS 84 / LO 27°)

Y - 25 400 (WGS 84 / LO 27°)

DESIGN SPEED 120 km/h — N4-13 NRA CENTER LINE CO-ORDINATES (WGS 84 \ LO 27°)			
CHAINAGE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
27 700.000	- 25 430.446	+ 2 843 621.257	
27 800.000	- 25 344.000	+ 2 843 570.987	
27 900.000	- 25 257.554	+ 2 843 520.717	
28 000.000	- 25 171.108	+ 2 843 470.446	
28 100.000	- 25 084.662	+ 2 843 420.176	
28 200.000	- 24 998.216	+ 2 843 369.906	

DESIGN SPEED 60 km/h — R24 (P16-1) RUSTENBURG (KRUGERSDORP) OFF RAMP - EASTBOUND CENTER LINE CO-ORDINATES (WGS 84 \ LO 27°)			
CHAINAGE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
0.000	- 24 972.339	+ 2 843 340.166	
100.000	- 25 060.586	+ 2 843 387.202	
200.000	- 25 148.834	+ 2 843 434.239	
300.000	- 25 237.081	+ 2 843 481.275	
400.000	- 25 325.328	+ 2 843 528.312	
500.000	- 25 420.134	+ 2 843 557.979	
600.000	- 25 519.992	+ 2 843 563.162	
623.164	- 25 543.130	+ 2 843 564.273	

RUSTENBURG

BRITS

R24

BC1A

1.0 m SHOULDER
3.7 m LANE
3.7 m LANE
2.5 m SHOULDER
N4-13 EASTBOUND

NO OVERTAKING LINE FROM km 28.340 TO km 27.920

GM1.1 100 W

RM4.1 150 Y

WM2.2 300 W

RM4.2 150 W

ROAD STUDS ON RM5 PAINTED ISLAND TO BE SPACED AT 6m INTERVALS FROM THE START OF THE PAINTED ISLAND TO THE GORE.

ROAD STUDS ON N4-13 TO BE SPACED AT 24m INTERVALS

RM 5 PAINTED ISLAND REFER TO DETAIL

R24 (P16-1) RUSTENBURG (KRUGERSDORP) OFF RAMP - EASTBOUND (TAPER 1:27)

ROAD STUDS ON RM4.1 MARKING FOR THE ON-RAMP TO BE SPACED AT 12m INTERVALS

2.0 m SHOULDER
4.0 m LANE
2.0 m SHOULDER

R = 250 m

N4-13 EASTBOUND

E69 E70 E71 E66 E67 E68 E65 E62 E63 E64 E61 E60 E56 E58 E57 E59 E55 E50 E51 E52 E53 E54 E47 E46 E48 E49

0 0.1 0.2 0.3 0.4

28.3 28.2 28.1 28.0 27.9 27.8

W49 W50 W47 W48 W45 W46

N4-13 WESTBOUND
1.5 m SHOULDER
3.7 m LANE
3.7 m LANE
3.7 m LANE
2.0 m SHOULDER

GM1.1 100 W

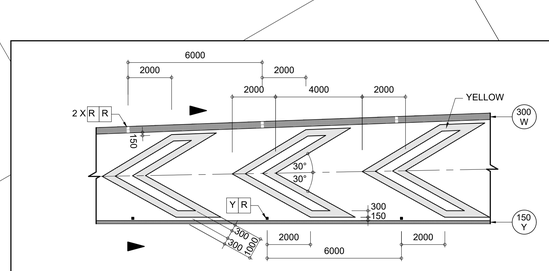
RM4.1 150 Y

RM4.2 150 W

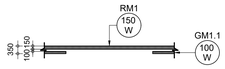
GM1.1 100 W

N4-13 WESTBOUND
1.5 m SHOULDER
3.7 m LANE
3.7 m LANE
3.7 m LANE
2.0 m SHOULDER

X + 2 843 600 (WGS 84 / LO 27°)



DETAIL OF RM 5 CHEVRON BARS OFF RAMP TREATMENT
NOT TO SCALE



NO OVERTAKING LINE
NOT TO SCALE

SARTSM - VOLUME 2 : PAINTED ISLAND DETAILS

- FOR LOCATION OF EXIT POINT REFER TO SARTSM - VOLUME 2 DETAIL 2.70.2.
- FOR GORE ISLAND REFER TO SARTSM - VOLUME 2 DETAIL 2.70.3.
- FOR START OF GORE ISLAND REFER TO SARTSM - VOLUME 2 DETAIL 2.70.5.
- FOR END OF CONTINUITY LINE WM2 REFER TO SARTSM - VOLUME 2 DETAIL 2.71.3.
- FOR END OF ON-RAMP GORE REFER TO SARTSM - VOLUME 2 DETAIL 2.71.4.

LEGEND:

MARKING No. WIDTH / COLOUR LINE / GAP

WHERE
W = WHITE
Y = YELLOW
R = RED

LENGTH / GAP (12m MODULE) LINE TYPE

WM2.1	2.0m / 10.0m
WM2.2	2.0m / 4.0m
WM2.3	2.0m / 2.0m
GM1.1	2.0m / 10.0m
GM1.2	2.0m / 4.0m
GM1.3	2.0m / 2.0m
WM 3.1	4.0m / 8.0m

NOTES:

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- PAINT LAYOUT BASED ON 12m MODULE
- ALL LANE WIDTH DIMENSIONS ARE C/C OR LONGITUDINAL ROAD PAINT MARKINGS

ROAD STUD LEGEND:

1. W — WHITE STUD
2. R R — RED / RED STUD
3. Y R — YELLOW / RED STUD

LONGITUDINAL ROADSTUD SPACING:

NORMAL : 24 m C/C (CARRIAGEWAY)
INTERMEDIATE : 12 m C/C (ON / OFF RAMPS)
ABNORMAL : 6 m C/C (ON / OFF RAMPS)

NOTES:

1. WHITE / RED - WHITE FACING ONCOMING TRAFFIC.
2. RED / RED - NO CROSSING TRAFFIC.
3. YELLOW / RED - YELLOW FACING ONCOMING TRAFFIC
4. ROAD STUDS TO BE PLACED A MIN. OF 150 mm AWAY FROM RM4.1 AND RM4.2 EDGE LINE MARKING

N4-13 NRA ROAD PAINT MARKING EASTBOUND CO-ORDINATES (WGS 84 \ LO 27°)			
POINT	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
E46	- 25 328.374	+ 2 843 529.935	
E47	- 25 326.323	+ 2 843 533.784	
E48	- 25 352.344	+ 2 843 561.147	
E49	- 25 348.624	+ 2 843 567.545	
E50	- 25 246.174	+ 2 843 486.122	
E51	- 25 244.292	+ 2 843 489.652	
E52	- 25 241.192	+ 2 843 496.510	
E53	- 25 239.229	+ 2 843 499.886	
E54	- 25 237.472	+ 2 843 502.907	
E55	- 25 166.483	+ 2 843 443.646	
E56	- 25 164.602	+ 2 843 447.176	
E57	- 25 162.390	+ 2 843 450.685	
E58	- 25 160.426	+ 2 843 454.062	
E59	- 25 158.670	+ 2 843 457.082	
E60	- 25 069.432	+ 2 843 391.918	
E61	- 25 067.551	+ 2 843 395.447	
E62	- 25 064.092	+ 2 843 393.439	
E63	- 25 065.549	+ 2 843 398.889	
E64	- 25 063.793	+ 2 843 401.909	
E65	- 24 984.530	+ 2 843 347.244	
E66	- 24 972.339	+ 2 843 340.166	
E67	- 24 970.375	+ 2 843 343.543	
E68	- 24 968.619	+ 2 843 346.563	
E69	- 24 886.764	+ 2 843 290.403	
E70	- 24 884.801	+ 2 843 293.779	
E71	- 24 883.044	+ 2 843 296.800	

N4-13 NRA ROAD PAINT MARKING WESTBOUND CO-ORDINATES (WGS 84 \ LO 27°)			
POINT	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
W45	- 25 345.298	+ 2 843 577.294	
W46	- 25 339.718	+ 2 843 586.890	
W47	- 25 108.183	+ 2 843 439.407	
W48	- 25 102.603	+ 2 843 449.002	
W49	- 24 878.342	+ 2 843 305.749	
W50	- 24 872.762	+ 2 843 315.344	

N4 - 13 CONTINUE ON 3257 / 23 / 06 RM

Y - 24 800 (WGS 84 / LO 27°)

Y - 25 000 (WGS 84 / LO 27°)

X + 2 843 600 (WGS 84 / LO 27°)

Y - 25 200 (WGS 84 / LO 27°)

TENDER

0m 5m 10m 15m 20m 25m 30m 35m 40m 45m 50m
ORIGINAL SCALE 1 : 500 (A0)

No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date :

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DESIGNED BY
NAME: EF DAY
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CHECKED BY
NAME: J FALKNER
Prof. Reg. No.: - -
DRAWN BY
NAME: W.B HARTMANN

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17 / 07 / 2023

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ACCEPTANCE
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for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION
ROAD PAINT MARKINGS N4-13
R24 (P16-1) RUSTENBURG (KRUGERSDORP) INTERCHANGE

SCALE : 1 : 500 (A0) SHEET 03 OF 03

PROJECT NUMBER	BPCC-2024/UG2818 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	SECTION 13	SECTION 13
DRAWING km DISTANCE	km 27.800	km 28.320
DRAWING TYPE	ROADS - INTERCHANGES	
BRIDGE/STRUCTURE No.	- -	
CONSULTANT DRAWING No.	FA 3257 / 23 / 07 RM	VER V0
SANRAL DOCUMENT #	- -	

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadwork\09 - Road Paint Markings\3257_23_05-07 RM_Waterfall N4 Interchange Road Paint Markings_20230717.dwg

X + 2 842 400 (WGS 84 / LO 27°)

Y - 23 400 (WGS 84 / LO 27°)

X + 2 842 600 (WGS 84 / LO 27°)

Y - 23 600 (WGS 84 / LO 27°)

LEGEND:

MARKING No.
WIDTH /
COLOUR
LINE / GAP

WHERE

W = WHITE
Y = YELLOW
R = RED

LENGTH / GAP (12m MODULE) LINE TYPE

WM2.1	2.0m / 10.0m
WM2.2	2.0m / 4.0m
WM2.3	2.0m / 2.0m
GM1.1	2.0m / 10.0m
GM1.2	2.0m / 4.0m
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WM 3.1	4.0m / 8.0m

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ROAD STUD LEGEND:

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3. Y R — YELLOW / RED STUD

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NORMAL : 24 m C/C (CARRIAGEWAY)
INTERMEDIATE : 12 m C/C (ON / OFF RAMPS)
ABNORMAL : 6 m C/C (ON / OFF RAMPS)

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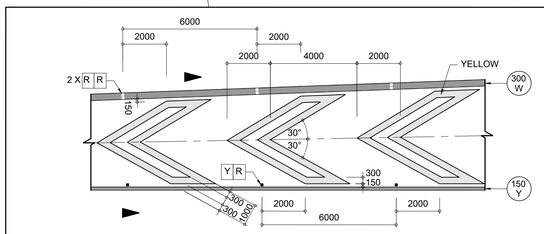
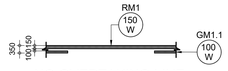


DETAIL OF RM 5 CHEVRON BARS
OFF RAMP TREATMENT
NOT TO SCALE



NO OVERTAKING LINE
NOT TO SCALE

SARTSM - VOLUME 2 : PAINTED ISLAND DETAILS

- FOR LOCATION OF EXIT POINT REFER TO SARTSM - VOLUME 2 DETAIL 2.70.2.
- FOR GORE ISLAND REFER TO SARTSM - VOLUME 2 DETAIL 2.70.3.
- FOR START OF GORE ISLAND REFER TO SARTSM - VOLUME 2 DETAIL 2.70.5.
- FOR END OF CONTINUITY LINE WM2 REFER TO SARTSM - VOLUME 2 DETAIL 2.71.3.
- FOR END OF ON-RAMP GORE REFER TO SARTSM - VOLUME 2 DETAIL 2.71.4.

N4-13 NRA CENTER LINE CO-ORDINATES

DESIGN SPEED 120 km/h — *(WGS 84 \ LO 27°)*

CHAINAGE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
29 700.000	- 23 649.968	+ 2 842 720.253	
29 800.000	- 23 554.851	+ 2 842 689.391	
29 900.000	- 23 459.198	+ 2 842 660.231	
30 000.000	- 23 363.040	+ 2 842 632.785	
30 100.000	- 23 266.407	+ 2 842 607.060	
30 200.000	- 23 169.330	+ 2 842 583.064	

HELEN JOSEPH DRIVE ON RAMP CENTER LINE CO-ORDINATES

DESIGN SPEED 60 km/h — *(WGS 84 \ LO 27°)*

CHAINAGE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
0.000	- 22 718.082	+ 2 842 391.521	
100.000	- 22 809.347	+ 2 842 429.398	
200.000	- 22 893.700	+ 2 842 482.786	
300.000	- 22 988.145	+ 2 842 514.945	
400.000	- 23 085.301	+ 2 842 538.624	
500.000	- 23 182.291	+ 2 842 562.970	
600.000	- 23 278.835	+ 2 842 589.027	
700.000	- 23 374.900	+ 2 842 616.800	

N4-13 NRA ROAD PAINT MARKING EASTBOUND CO-ORDINATES *(WGS 84 \ LO 27°)*

POINT	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
E1	- 23 715.702	+ 2 842 729.240	
E2	- 23 713.274	+ 2 842 736.231	
E3	- 23 653.996	+ 2 842 708.209	
E4	- 23 651.649	+ 2 842 715.228	
E5	- 23 630.869	+ 2 842 700.548	
E6	- 23 628.557	+ 2 842 707.563	
E7	- 23 540.204	+ 2 842 668.984	
E8	- 23 539.447	+ 2 842 671.258	
E9	- 23 537.210	+ 2 842 678.324	
E10	- 23 453.597	+ 2 842 640.944	
E11	- 23 452.373	+ 2 842 644.831	
E12	- 23 450.248	+ 2 842 652.075	
E13	- 23 326.163	+ 2 842 602.479	
E14	- 23 325.052	+ 2 842 606.321	
E15	- 23 324.308	+ 2 842 609.105	
E16	- 23 322.396	+ 2 842 616.253	
E17	- 23 209.842	+ 2 842 570.218	
E18	- 23 208.815	+ 2 842 574.084	
E19	- 23 207.559	+ 2 842 579.219	
E20	- 23 205.801	+ 2 842 586.407	

N4-13 NRA ROAD PAINT MARKING WESTBOUND CO-ORDINATES *(WGS 84 \ LO 27°)*

POINT	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
W1	- 23 724.069	+ 2 842 750.693	
W2	- 23 721.635	+ 2 842 757.681	
W3	- 23 600.995	+ 2 842 709.184	
W4	- 23 598.711	+ 2 842 716.223	
W5	- 23 515.257	+ 2 842 682.115	
W6	- 23 513.087	+ 2 842 689.190	
W7	- 23 419.468	+ 2 842 653.660	
W8	- 23 416.443	+ 2 842 660.492	
W9	- 23 323.403	+ 2 842 626.979	
W10	- 23 322.426	+ 2 842 630.547	
W11	- 23 321.474	+ 2 842 634.123	
W12	- 23 227.238	+ 2 842 602.105	
W13	- 23 225.437	+ 2 842 609.282	
W14	- 23 218.648	+ 2 842 599.978	
W15	- 23 216.860	+ 2 842 607.211	

RUSTENBURG

RM4.1 150 Y — 4.0 m LANE, 2.0 m SHOULDER — Y R

RM3 300 W

RM4.1 150 Y

ROAD STUDS ON RM3 MARKING FOR THE ON-RAMP FROM THE GORE TO THE END TO BE SPACED AT 6m INTERVALS

N4

E17 E18 E19 E20 — 0.6 — E14 E13 E15 — R = 5612.7 m — 0.7

PI 3B
R = 5612.7 m

GM1.1 100 W

2 X R R

ROAD STUDS ON RM4.1 MARKING FOR THE ON-RAMP TO BE SPACED AT 12m INTERVALS

HELEN JOSEPH DRIVE ON RAMP - EASTBOUND (TAPER 1:50)

W14 W15 W13 W12 — 30.1 — W9 W10 W11 — 30.0 — E10 E11 E12 — 0.8

WM2.2 300 W

R R — Y R — W — RM4.1 150 Y — RM4.2 150 W

E7 E9 — 0.9 — W5 W6 — 29.8 — W3 W4 — 0.98 — E5 E6 E3 E4 — 29.7 — W1 W2 — E1 E2

ROAD STUDS ON N4-13 TO BE SPACED AT 24m INTERVALS

PI 8
R = 5600 m

BRITS

GM1.1 100 W

1.0 m SHOULDER
3.7 m LANE
3.7 m LANE
2.5 m SHOULDER

N4-13 EASTBOUND

N4-13 WESTBOUND

2.5 m SHOULDER
3.7 m LANE
3.7 m LANE
2.5 m SHOULDER

RM1 150 W

GM1.1 100 W

R R

W

R Y

RM4.1 150 Y — RM4.2 150 W

ROAD STUDS ON N4-13 TO BE SPACED AT 24m INTERVALS

GM1.1 100 W

ECC3

Y - 23 200 (WGS 84 / LO 27°)

N4 - 13
CONTINUE ON
3257 / 23 / 09 RM

Y - 23 200 (WGS 84 / LO 27°)

Y - 23 400 (WGS 84 / LO 27°)

Y - 23 600 (WGS 84 / LO 27°)

TENDER

5m 15m 25m 35m 45m
0m 10m 20m 30m 40m 50m
ORIGINAL SCALE 1 : 500 (A0)

No.	DATE	REVISION	
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSULTANT. ENG.

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date

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CONSULTANT APPROVAL
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Prof. Reg. No.: 20080112
Date: 17 / 07 / 2023

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THE SOUTH AFRICAN NATIONAL ROADS AGENCY SOC LTD
Reg. No. 1998/009584/30

NORTHERN REGION
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Tel: (012) 426 6200

ACCEPTANCE
THIS ACCEPTANCE IS FOR PROCEDURAL AND ADMINISTRATIVE REVIEW PURPOSES ONLY AND DOES NOT ATTRACT LEGAL LIABILITY OR LIABILITY OF ANY KIND FROM WHATSOEVER CAUSE OR HOWEVER ARISING
for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION
ROAD PAINT MARKINGS
HELEN JOSEPH DRIVE INTERCHANGE

SCALE : 1 : 500 (A0) — SHEET 01 OF 02

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001		
DRAWING LOCATION DATA	START	END	
ROUTE	N 4	N 4	
SECTION	SECTION 13	SECTION 13	
DRAWING km DISTANCE	km 29.620	km 30.160	
DRAWING TYPE	ROADS - INTERCHANGES		
BRIDGE/STRUCTURE No.	- -		
CONSULTANT DRAWING No.	FA 3257 / 23 / 07 RM		VER
SANRAL DOCUMENT #	- -		V0

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume II-Roadworks\09 - Road Paint Markings\3257_23_08-09 RM_Helen Joseph N4 Interchange Road Paint Markings_20230717.dwg

RUSTENBURG CBD

Y - 22 800 (WGS 84 / LO 27°)

Y - 23 000 (WGS 84 / LO 27°)

X + 2 842 400 (WGS 84 / LO 27°)

Y - 23 200 (WGS 84 / LO 27°)

INTERSECTION BETWEEN HELEN JOSEPH DRIVE AND N4 ON RAMP
Θ = 248.896°

BC1B

PI 1B
R = 150 m

R = 150 m

EC1B

LIMIT OF CONSTRUCTION km 0.259 909

BC2B

HELEN JOSEPH DRIVE INTERCHANGE

2.0 m SHOULDER
4.0 m LANE
2.0 m SHOULDER

RUSTENBURG

RM4.1
150
Y

RM4.2
150
W

R = 400 m

PI 2B
R = 400 m

GM1.1
100
W

EC2B

ROADSTUDS ON RM4.1 AND RM4.2 MARKING FOR THE ON-RAMP TO BE SPACED AT 12m INTERVALS

N4

HELEN JOSEPH DRIVE ON RAMP - EASTBOUND

BC3B

2.0 m SHOULDER
4.0 m LANE
2.0 m SHOULDER

BRITS

4.0 m LANE
2.0 m SHOULDER
N4-13 EASTBOUND

N4-13 WESTBOUND

2.0 m SHOULDER
3.7 m LANE
3.7 m LANE
2.0 m SHOULDER

BRIDGE B2227
km 30.664 240
HELEN JOSEPH DRIVE OVER N4
BRIDGE TO BE EXTENDED

ECC8

HELEN JOSEPH DRIVE OFF RAMP - WESTBOUND

N4-13 WESTBOUND

ROADSTUDS ON N4-13 TO BE SPACED AT 24m INTERVALS

TIE INTO EXISTING MARKINGS

4.0 m LANE
2.0 m SHOULDER

RM4.1
150
Y

RM 5 PAINTED ISLAND REFER TO DETAIL

ROAD STUDS ON RM5 PAINTED ISLAND TO BE SPACED AT 6m INTERVALS FROM THE START OF THE PAINTED ISLAND TO THE GORE.

ROAD STUDS ON RM4.1 MARKING FOR THE ON-RAMP TO BE SPACED AT 12m INTERVALS

WM2.2
300
W

3.7 m LANE
3.7 m LANE
2.5 m SHOULDER

HELEN JOSEPH DRIVE

X + 2 842 600 (WGS 84 / LO 27°)

SAFARITUINE

Y - 22 600 (WGS 84 / LO 27°)

Y - 23 000 (WGS 84 / LO 27°)

N4 - 13
CONTINUE FROM
3257 / 23 / 08 RM

LEGEND:

MARKING No.
WIDTH / COLOUR
LINE / GAP

WHERE
W = WHITE
Y = YELLOW
R = RED

LENGTH / GAP (12m MODULE) LINE TYPE

WM2.1	2.0m / 10.0m
WM2.2	2.0m / 4.0m
WM2.3	2.0m / 2.0m
GM1.1	2.0m / 10.0m
GM1.2	2.0m / 4.0m
GM1.3	2.0m / 2.0m
WM 3.1	4.0m / 8.0m

NOTES:

- ALL ROAD SIGNS, PAINT MARKINGS AND THEIR POSITIONS TO BE ACCORDING TO THE *"SADC ROAD TRAFFIC SIGNS MANUAL"* 3rd EDITION OR AMENDMENTS THEREAFTER
- ALL ROAD MARKINGS TO BE PAINTED WITH RETRO-REFLECTIVE ROAD MARKING PAINT
- ALL MARKINGS TO BE CHECKED AT PRE-MARKING STAGE
- ALL EXISTING OR CONFLICTING ROAD MARKINGS MUST BE REMOVED BY MEANS OF SANDBLASTING
- EXISTING ROAD MARKINGS TO BE REPAINTED, WILL BE DETERMINED BY THE ENGINEER ON SITE
- PAINT LAYOUT BASED ON 12m MODULE
- ALL LANE WIDTH DIMENSIONS ARE C/C OR LONGITUDINAL ROAD PAINT MARKINGS

ROAD STUD LEGEND:

1. [W] WHITE STUD
2. [R R] RED / RED STUD
3. [Y R] YELLOW / RED STUD

LONGITUDINAL ROADSTUD SPACING:

NORMAL : 24 m C/C (CARRIAGEWAY)
INTERMEDIATE : 12 m C/C (ON / OFF RAMPS)
ABNORMAL : 6 m C/C (ON / OFF RAMPS)

NOTES:

1. WHITE / RED - WHITE FACING ONCOMING TRAFFIC.
2. RED / RED - NO CROSSING TRAFFIC.
3. YELLOW / RED - YELLOW FACING ONCOMING TRAFFIC
4. ROAD STUDS TO BE PLACED A MIN. OF 150 mm AWAY FROM RM4.1 AND RM4.2 EDGE LINE MARKING

N4-13 NRA CENTER LINE CO-ORDINATES (WGS 84 \ LO 27°)

DESIGN SPEED 120 km/h

CHAINAGE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
30 200.000	- 23 169.330	+ 2 842 583.064	
30 300.000	- 23 071.840	+ 2 842 560.806	
30 400.000	- 22 973.968	+ 2 842 540.292	
30 500.000	- 22 875.745	+ 2 842 521.529	
30 600.000	- 22 777.203	+ 2 842 504.523	
30 700.000	- 22 678.373	+ 2 842 489.279	

HELEN JOSEPH DRIVE ON RAMP CENTER LINE CO-ORDINATES (WGS 84 \ LO 27°)

DESIGN SPEED 60 km/h

CHAINAGE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
0.000	- 22 718.082	+ 2 842 391.521	
100.000	- 22 809.347	+ 2 842 429.398	
200.000	- 22 893.700	+ 2 842 482.786	
300.000	- 22 988.145	+ 2 842 514.945	
400.000	- 23 085.301	+ 2 842 538.624	
500.000	- 23 182.291	+ 2 842 562.970	
600.000	- 23 278.835	+ 2 842 589.027	
700.000	- 23 374.900	+ 2 842 616.800	

N4-13 NRA ROAD PAINT MARKING EASTBOUND CO-ORDINATES (WGS 84 \ LO 27°)

POINT	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
E21	- 23 119.328	+ 2 842 565.984	
E22	- 23 120.972	+ 2 842 558.769	
E23	- 23 122.540	+ 2 842 551.885	
E24	- 23 123.506	+ 2 842 548.003	
E25	- 23 096.208	+ 2 842 545.400	
E26	- 23 097.155	+ 2 842 541.513	
E27	- 22 972.082	+ 2 842 515.147	
E28	- 22 973.029	+ 2 842 511.261	
E29	- 22 898.333	+ 2 842 489.399	
E30	- 22 900.010	+ 2 842 485.768	
E31	- 22 833.314	+ 2 842 446.681	
E32	- 22 831.006	+ 2 842 449.912	
E33	- 22 876.693	+ 2 842 516.315	
E34	- 22 877.990	+ 2 842 509.055	
E35	- 22 778.058	+ 2 842 499.293	
E36	- 22 779.251	+ 2 842 491.989	
E37	- 22 679.135	+ 2 842 484.034	
E38	- 22 680.197	+ 2 842 476.711	

N4-13 NRA ROAD PAINT MARKING WESTBOUND CO-ORDINATES (WGS 84 \ LO 27°)

POINT	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
W16	- 23 168.258	+ 2 842 595.471	
W17	- 23 166.091	+ 2 842 587.232	
W18	- 23 165.293	+ 2 842 590.614	
W19	- 23 164.370	+ 2 842 594.532	
W20	- 23 163.270	+ 2 842 599.193	
W21	- 23 055.052	+ 2 842 562.076	
W22	- 23 054.310	+ 2 842 565.493	
W23	- 23 053.482	+ 2 842 569.308	
W24	- 23 051.921	+ 2 842 576.663	
W25	- 23 051.218	+ 2 842 580.853	
W26	- 23 040.458	+ 2 842 558.946	
W27	- 23 040.558	+ 2 842 562.521	
W28	- 23 038.914	+ 2 842 566.184	
W29	- 23 037.484	+ 2 842 574.367	
W30	- 23 036.816	+ 2 842 578.469	
W31	- 22 933.810	+ 2 842 537.290	
W32	- 22 932.409	+ 2 842 544.556	
W33	- 22 796.145	+ 2 842 512.518	
W34	- 22 794.926	+ 2 842 519.817	
W35	- 22 686.258	+ 2 842 499.029	
W36	- 22 677.791	+ 2 842 494.045	
W37	- 22 676.743	+ 2 842 501.371	

TENDER

5m 10m 15m 20m 25m 30m 35m 40m 45m 50m

ORIGINAL SCALE 1 : 500 (A0)

No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date

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NAME	J FALKNER
Prof. Reg. No.	- -
DRAWN BY	
NAME	W.B HARTMANN

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17 / 07 / 2023

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Reg. No. 1998/009584/30

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ACCEPTANCE
THIS ACCEPTANCE IS FOR PROCEDURAL AND ADMINISTRATIVE REVIEW PURPOSES ONLY AND DOES NOT ATTRACT LEGAL LIABILITY OR LIABILITY OF ANY KIND FROM WHATSOEVER CAUSE OR HOWEVER ARISING
for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION
ROAD PAINT MARKINGS
HELEN JOSEPH DRIVE INTERCHANGE

SCALE : 1 : 500 (A0) SHEET 02 OF 02

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	SECTION 13	SECTION 13
DRAWING km DISTANCE	km 30.180	km 30.700
DRAWING TYPE	ROADS - INTERCHANGES	
BRIDGE/STRUCTURE No.	B2227	
CONSULTANT DRAWING No.	FA 3257 / 23 / 09 RM	VER
SANRAL DOCUMENT #	- -	V0

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadwork\09 - Road Paint Markings\3257_23_08-09 RM_Helen Joseph N4 Interchange Road Paint Markings_20230717.dwg

LEGEND:

MARKING No.
WIDTH / COLOUR
LINE / GAP

WHERE

W = WHITE
Y = YELLOW
R = RED

LENGTH / GAP (12m MODULE) LINE TYPE

WM2.1	2.0m / 10.0m
WM2.2	2.0m / 4.0m
WM2.3	2.0m / 2.0m
GM1.0	2.0m / 10.0m
GM1.2	2.0m / 4.0m
GM1.3	2.0m / 2.0m
WM 3.1	4.0m / 8.0m

NOTES:

- ALL ROAD SIGNS, PAINT MARKINGS AND THEIR POSITIONS TO BE ACCORDING TO THE *"SADC ROAD TRAFFIC SIGNS MANUAL"* 3rd EDITION OR AMENDMENTS THEREAFTER
- ALL ROAD MARKINGS TO BE PAINTED WITH RETRO-REFLECTIVE ROAD MARKING PAINT SANS 731-1 OR 731-2
- ALL MARKINGS TO BE CHECKED AT PRE-MARKING STAGE
- ALL EXISTING OR CONFLICTING ROAD MARKINGS MUST BE REMOVED BY MEANS OF SANDBLASTING
- EXISTING ROAD MARKINGS TO BE REPAINTED, WILL BE DETERMINED BY THE ENGINEER ON SITE
- PAINT LAYOUT BASED ON 12m MODULE
- ALL LANE WIDTH DIMENSIONS ARE C/C OR LONGITUDINAL ROAD PAINT MARKINGS

ROAD STUD LEGEND:

1. W — WHITE
2. R R — RED / RED STUD
3. Y R — YELLOW / RED STUD

LONGITUDINAL ROADSTUD SPACING:

NORMAL : 24 m C/C (CARRIAGEWAY)
INTERMEDIATE : 12 m C/C (ON / OFF RAMPS)
ABNORMAL : 6 m C/C (ON / OFF RAMPS)

NOTES:

1. WHITE / RED - WHITE FACING ONCOMING TRAFFIC.
2. RED / RED - NO CROSSING TRAFFIC.
3. YELLOW / RED - YELLOW FACING ONCOMING TRAFFIC
4. ROAD STUDS TO BE PLACED A MIN. OF 150 mm AWAY FROM RM4.1 AND RM4.2 EDGE LINE MARKING

N4-13 NRA CENTER LINE COORDINATES *(WGS 84 \ LO 27°)*

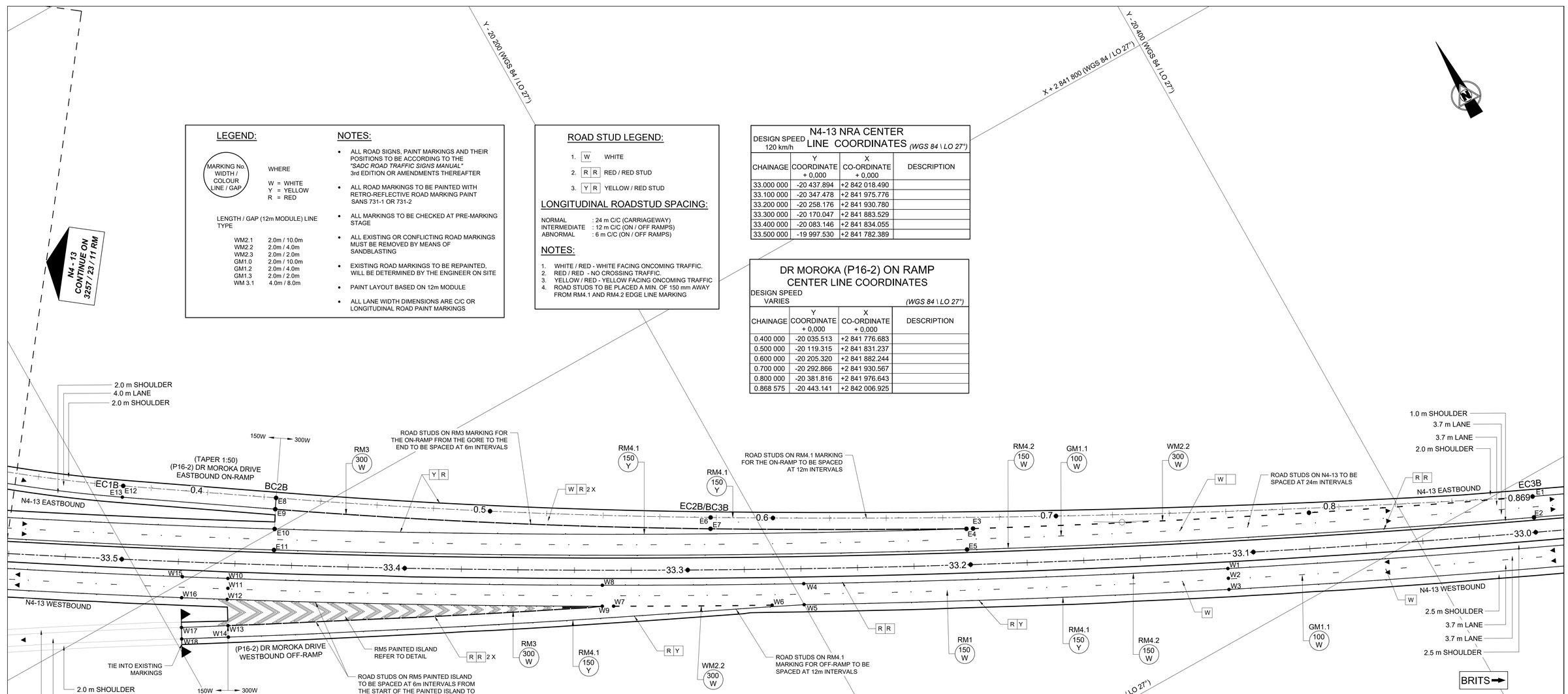
DESIGN SPEED 120 km/h

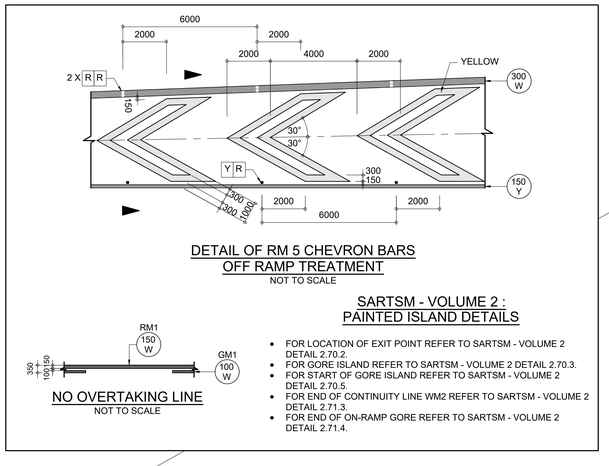
CHAINAGE	Y COORDINATE + 0,000	X CO-ORDINATE + 0,000	DESCRIPTION
33.000 000	-20 437.894	+2 842 018.490	
33.100 000	-20 347.478	+2 841 975.776	
33.200 000	-20 258.176	+2 841 930.780	
33.300 000	-20 170.047	+2 841 883.529	
33.400 000	-20 083.146	+2 841 834.055	
33.500 000	-19 997.530	+2 841 782.389	

DR MOROKA (P16-2) ON RAMP CENTER LINE COORDINATES

DESIGN SPEED VARIES *(WGS 84 \ LO 27°)*

CHAINAGE	Y COORDINATE + 0,000	X CO-ORDINATE + 0,000	DESCRIPTION
0.400 000	-20 035.513	+2 841 776.683	
0.500 000	-20 119.315	+2 841 831.237	
0.600 000	-20 205.320	+2 841 882.244	
0.700 000	-20 292.866	+2 841 930.567	
0.800 000	-20 381.816	+2 841 976.643	
0.868 575	-20 443.141	+2 842 006.925	





DETAIL OF RM 5 CHEVRON BARS
OFF RAMP TREATMENT
NOT TO SCALE

NO OVERTAKING LINE
NOT TO SCALE

SARTSM - VOLUME 2 : PAINTED ISLAND DETAILS

- FOR LOCATION OF EXIT POINT REFER TO SARTSM - VOLUME 2 DETAIL 2.70.2.
- FOR GORE ISLAND REFER TO SARTSM - VOLUME 2 DETAIL 2.70.3.
- FOR START OF GORE ISLAND REFER TO SARTSM - VOLUME 2 DETAIL 2.70.5.
- FOR END OF CONTINUITY LINE WM2 REFER TO SARTSM - VOLUME 2 DETAIL 2.71.3.
- FOR END OF ON-RAMP GORE REFER TO SARTSM - VOLUME 2 DETAIL 2.71.4.

N4-13 ROAD PAINT MARKING EASTBOUND CO-ORDINATES *(WGS 84 \ LO 27°)*

POINT	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
E1	-20 443.139	+2 842 006.928	
E2	-20 439.928	+2 842 013.595	
E3	-20 265.148	+2 841 920.090	
E4	-20 263.074	+2 841 919.012	
E5	-20 259.677	+2 841 925.515	
E6	-20 186.197	+2 841 871.303	EC2B/BC3B
E7	-20 184.200	+2 841 874.769	
E8	-20 055.664	+2 841 790.168	BC2B
E9	-20 053.457	+2 841 793.504	
E10	-20 049.849	+2 841 799.497	
E11	-20 046.031	+2 841 805.836	
E12	-20 010.633	+2 841 760.048	EC1B
E13	-20 008.407	+2 841 763.371	

N4-13 ROAD PAINT MARKING WESTBOUND CO-ORDINATES *(WGS 84 \ LO 27°)*

POINT	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
W1	-20 336.778	+2 841 976.439	
W2	-20 335.246	+2 841 979.559	
W3	-20 333.516	+2 841 983.082	
W4	-20 203.457	+2 841 907.804	
W5	-20 199.937	+2 841 914.333	
W6	-20 190.000	+2 841 908.938	
W7	-20 140.975	+2 841 881.874	
W8	-20 141.116	+2 841 873.465	
W9	-20 137.487	+2 841 879.914	
W10	-20 026.900	+2 841 806.651	
W11	-20 025.192	+2 841 809.679	
W12	-20 023.057	+2 841 812.975	
W13	-20 018.766	+2 841 821.183	
W14	-20 016.916	+2 841 824.796	
W15	-20 013.175	+2 841 798.271	
W16	-20 009.338	+2 841 804.599	
W17	-20 004.118	+2 841 813.741	
W18	-20 002.217	+2 841 817.300	

TENDER

5m 10m 15m 20m 25m 30m 35m 40m 45m 50m 0m
ORIGINAL SCALE 1 : 500 (A0)

No.	DATE	REVISION	
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

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CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name : Prof. Reg. No. : Date
SANRAL PROJECT MANAGER
Name : Prof. Reg. No. : Date

CONCESSIONAIRE: Bakwena N1N4 toll
Southdowns Ridge Office park, 2nd Floor Unit 1A, Cnr John Vorster & Nellmapius Drive
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DESIGNED BY	
NAME	Z MASHININI
Prof. Reg. No.	-
CHECKED BY	
NAME	PL NGQUMSHE
Prof. Reg. No.	20080112
DRAWN BY	
NAME	WB HARTMANN

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17 / 07 / 2023

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THE SOUTH AFRICAN NATIONAL ROADS AGENCY SOC LTD
Reg. No. 1998/009584/30

NORTHERN REGION
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ACCEPTANCE
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for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION
ROAD PAINT MARKINGS
(P16-2) DR MOROKA INTERCHANGE

SCALE : 1 : 500 (A0) SHEET 01 OF 03

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001		
DRAWING LOCATION DATA	START	END	
ROUTE	N 4	N 4	
SECTION	SECTION 13	SECTION 13	
DRAWING km DISTANCE	km 33.000	km 33.500	
DRAWING TYPE	ROADS - ROAD PAINT MARKINGS		
BRIDGE/STRUCTURE No.	NA		
CONSULTANT DRAWING No.	FA	3257 / 23 / 10 RM	VER
SANRAL DOCUMENT #		- -	V0

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadwork\09 - Road Paint Markings\3257_23_10-12-RM- Dr Moroka N4 Interchange Road Paint Markings_20230717.dwg

N4-13 ROAD PAINT MARKING EASTBOUND CO-ORDINATES *(WGS 84 \ LO 27°)*

POINT	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
E14	-19 898.703	+2 841 657.440	BC1B
E15	-19 895.583	+2 841 659.944	
E16	-19 535.501	+2 841 387.591	EC2A
E17	-19 533.874	+2 841 391.155	

N4-13 ROAD PAINT MARKING WESTBOUND CO-ORDINATES *(WGS 84 \ LO 27°)*

POINT	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
W19	-19 869.122	+2 841 705.522	
W20	-19 864.628	+2 841 711.369	
W21	-19 476.700	+2 841 619.443	
W22	-19 747.174	+2 841 625.365	
W23	-19 590.670	+2 841 499.257	
W24	-19 586.144	+2 841 505.114	

DR MOROKA (P16-2) OFF RAMP CENTER LINE COORDINATES

DESIGN SPEED VARIES *(WGS 84 \ LO 27°)*

CHAINAGE	Y COORDINATE + 0,000	X CO-ORDINATE + 0,000	DESCRIPTION
0.500 000	-19 572.618	+2 841 403.965	
0.600 000	-19 664.111	+2 841 444.326	
0.700 000	-19 755.604	+2 841 484.687	
0.707 502	-19 762.468	+2 841 487.715	

N4-13 NRA CENTER LINE COORDINATES *(WGS 84 \ LO 27°)*

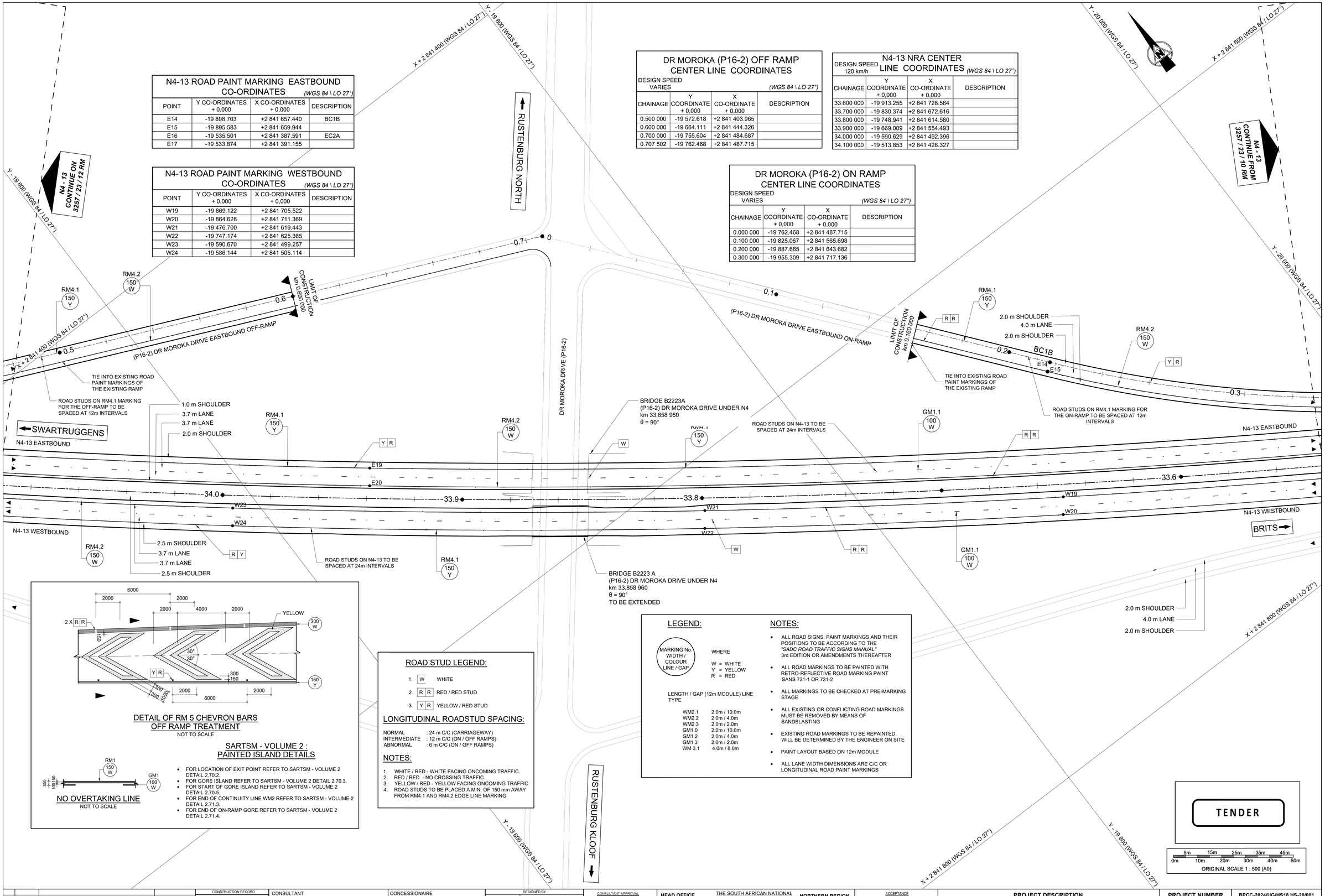
DESIGN SPEED 120 km/h

CHAINAGE	Y COORDINATE + 0,000	X CO-ORDINATE + 0,000	DESCRIPTION
33.600 000	-19 913.255	+2 841 728.564	
33.700 000	-19 830.374	+2 841 672.616	
33.800 000	-19 748.941	+2 841 614.580	
33.900 000	-19 669.009	+2 841 554.493	
34.000 000	-19 590.629	+2 841 492.396	
34.100 000	-19 513.853	+2 841 428.327	

DR MOROKA (P16-2) ON RAMP CENTER LINE COORDINATES

DESIGN SPEED VARIES *(WGS 84 \ LO 27°)*

CHAINAGE	Y COORDINATE + 0,000	X CO-ORDINATE + 0,000	DESCRIPTION
0.000 000	-19 762.468	+2 841 487.715	
0.100 000	-19 825.067	+2 841 565.698	
0.200 000	-19 887.665	+2 841 643.682	
0.300 000	-19 955.309	+2 841 717.136	



DETAIL OF RM 5 CHEVRON BARS OFF RAMP TREATMENT
NOT TO SCALE

NO OVERTAKING LINE
NOT TO SCALE

SARTSM - VOLUME 2 : PAINTED ISLAND DETAILS

- FOR LOCATION OF EXIT POINT REFER TO SARTSM - VOLUME 2 DETAIL 2.70.2.
- FOR GORE ISLAND REFER TO SARTSM - VOLUME 2 DETAIL 2.70.3.
- FOR START OF GORE ISLAND REFER TO SARTSM - VOLUME 2 DETAIL 2.70.5.
- FOR END OF CONTINUITY LINE WM2 REFER TO SARTSM - VOLUME 2 DETAIL 2.71.3.
- FOR END OF ON-RAMP GORE REFER TO SARTSM - VOLUME 2 DETAIL 2.71.4.

ROAD STUD LEGEND:

1. W WHITE
2. R R RED / RED STUD
3. Y R YELLOW / RED STUD

LONGITUDINAL ROADSTUD SPACING:

NORMAL : 24 m C/C (CARRIAGEWAY)
INTERMEDIATE : 12 m C/C (ON / OFF RAMPS)
ABNORMAL : 6 m C/C (ON / OFF RAMPS)

NOTES:

1. WHITE / RED - WHITE FACING ONCOMING TRAFFIC.
2. RED / RED - NO CROSSING TRAFFIC.
3. YELLOW / RED - YELLOW FACING ONCOMING TRAFFIC
4. ROAD STUDS TO BE PLACED A MIN. OF 150 mm AWAY FROM RM4.1 AND RM4.2 EDGE LINE MARKING

LEGEND:

MARKING No. WIDTH / COLOUR LINE / GAP

WHERE
W = WHITE
Y = YELLOW
R = RED

LENGTH / GAP (12m MODULE) LINE TYPE

WM2.1	2.0m / 10.0m
WM2.2	2.0m / 4.0m
WM2.3	2.0m / 2.0m
GM1.0	2.0m / 10.0m
GM1.2	2.0m / 4.0m
GM1.3	2.0m / 2.0m
WM 3.1	4.0m / 8.0m

NOTES:

- ALL ROAD SIGNS, PAINT MARKINGS AND THEIR POSITIONS TO BE ACCORDING TO THE *"SADC ROAD TRAFFIC SIGNS MANUAL"* 3rd EDITION OR AMENDMENTS THEREAFTER
- ALL ROAD MARKINGS TO BE PAINTED WITH RETRO-REFLECTIVE ROAD MARKING PAINT SANS 731-1 OR 731-2
- ALL MARKINGS TO BE CHECKED AT PRE-MARKING STAGE
- ALL EXISTING OR CONFLICTING ROAD MARKINGS MUST BE REMOVED BY MEANS OF SANDBLASTING
- EXISTING ROAD MARKINGS TO BE REPAINTED, WILL BE DETERMINED BY THE ENGINEER ON SITE
- PAINT LAYOUT BASED ON 12m MODULE
- ALL LANE WIDTH DIMENSIONS ARE C/C OR LONGITUDINAL ROAD PAINT MARKINGS

TENDER

5m 15m 25m 35m 45m
0m 10m 20m 30m 40m 50m
ORIGINAL SCALE 1 : 500 (A0)

No.	DATE	REVISION	CONSULT. ENG.
V0	17/01/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date
SANRAL PROJECT MANAGER
Name
Prof. Reg. No. :
Date

CONSULTANT
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NAME	PL NGQUMSHE	
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Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION
ROAD PAINT MARKINGS
(P16-2) DR MOROKA INTERCHANGE

SCALE : 1 : 500 (A0) SHEET 02 OF 03

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	SECTION 13	SECTION 13
DRAWING km DISTANCE	km 33.600	km 34.100
DRAWING TYPE	ROADS - ROAD PAINT MARKINGS	
BRIDGE/STRUCTURE No.	NA	
CONSULTANT DRAWING No.	FA 3257 / 23 / 11 RM	VER
SANRAL DOCUMENT #	- -	V0

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\09 - Road Paint Markings\3257_23_10-12 RM- Dr Moroka N4 Interchange Road Paint Markings_20230717.dwg

ROAD STUD LEGEND:

1. W — WHITE
2. R R — RED / RED STUD
3. Y R — YELLOW / RED STUD

LONGITUDINAL ROADSTUD SPACING:

NORMAL : 24 m C/C (CARRIAGEWAY)
INTERMEDIATE : 12 m C/C (ON / OFF RAMPS)
ABNORMAL : 6 m C/C (ON / OFF RAMPS)

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2. RED / RED - NO CROSSING TRAFFIC.
3. YELLOW / RED - YELLOW FACING ONCOMING TRAFFIC
4. ROAD STUDS TO BE PLACED A MIN. OF 150 mm AWAY FROM RM4.1 AND RM4.2 EDGE LINE MARKING

LEGEND:

MARKING No.
WIDTH / COLOUR
LINE / GAP

WHERE

W = WHITE
Y = YELLOW
R = RED

LENGTH / GAP (12m MODULE) LINE TYPE

WM2.1	2.0m / 10.0m
WM2.2	2.0m / 4.0m
WM2.3	2.0m / 2.0m
GM1.0	2.0m / 10.0m
GM1.2	2.0m / 4.0m
GM1.3	2.0m / 2.0m
WM 3.1	4.0m / 8.0m

NOTES:

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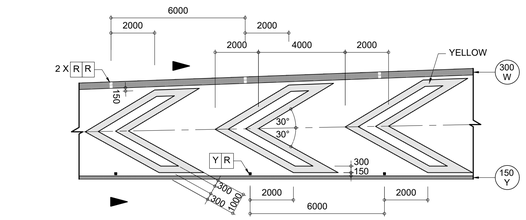
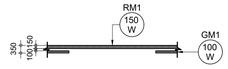


DETAIL OF RM 5 CHEVRON BARS
OFF RAMP TREATMENT
NOT TO SCALE



NO OVERTAKING LINE
NOT TO SCALE

SARTSM - VOLUME 2 : PAINTED ISLAND DETAILS

- FOR LOCATION OF EXIT POINT REFER TO SARTSM - VOLUME 2 DETAIL 2.70.2.
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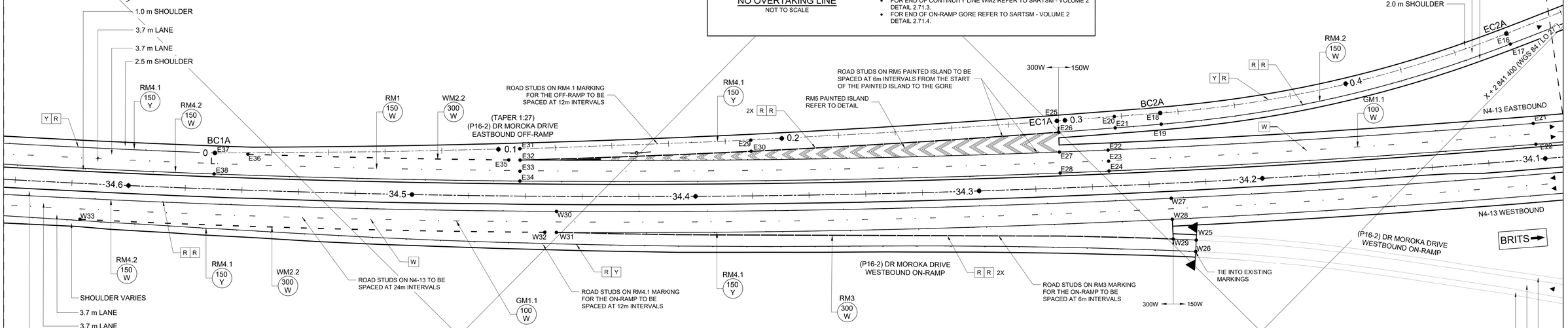

N4-13 ROAD PAINT MARKING EASTBOUND CO-ORDINATES *(WGS 84 \ LO 27°)*

POINT	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
E18	-19 429.735	+2 841 320.526	BC2A
E19	-19 427.211	+2 841 323.535	
E20	-19 417.482	+2 841 309.892	
E21	-19 414.864	+2 841 312.909	
E22	-19 407.546	+2 841 316.631	
E23	-19 404.884	+2 841 319.516	
E24	-19 402.517	+2 841 322.060	
E25	-19 402.146	+2 841 296.583	EC1A
E26	-19 399.755	+2 841 299.792	
E27	-19 394.961	+2 841 304.921	
E28	-19 389.909	+2 841 310.327	
E29	-19 321.423	+2 841 224.628	
E30	-19 318.705	+2 841 227.465	
E31	-19 261.957	+2 841 168.852	
E32	-19 259.204	+2 841 171.730	
E33	-19 256.389	+2 841 174.465	
E34	-19 253.895	+2 841 176.886	
E35	-19 256.418	+2 841 168.861	
E36	-19 193.177	+2 841 102.046	
E37	-19 185.277	+2 841 093.477	BC1A
E38	-19 179.829	+2 841 098.484	
E39	-19 099.183	+2 840 996.640	
E40	-19 096.207	+2 840 999.199	
E41	-19 093.572	+2 841 001.465	

N4-13 ROAD PAINT MARKING WESTBOUND CO-ORDINATES *(WGS 84 \ LO 27°)*

POINT	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
W25	-19 406.841	+2 841 361.053	
W26	-19 403.848	+2 841 363.741	
W27	-19 411.139	+2 841 344.417	
W28	-19 406.139	+2 841 349.873	
W29	-19 401.410	+2 841 355.033	
W30	-19 255.358	+2 841 193.574	
W31	-19 250.059	+2 841 198.753	
W32	-19 247.246	+2 841 195.838	
W33	-19 135.195	+2 841 076.102	
W34	-19 099.539	+2 841 024.572	
W35	-19 093.885	+2 841 029.422	

DR MOROKA (P16-2) OFF RAMP CENTER LINE COORDINATES

DESIGN SPEED VARIES *(WGS 84 \ LO 27°)*

CHAINAGE	Y COORDINATE + 0,000	X CO-ORDINATE + 0,000	DESCRIPTION
0.000 000	-19 185.277	+2 841 093.477	
0.100 000	-19 256.523	+2 841 163.645	
0.200 000	-19 329.534	+2 841 231.974	
0.300 000	-19 404.263	+2 841 298.420	
0.400 000	-19 483.001	+2 841 359.843	

N4-13 NRA CENTER LINE COORDINATES

DESIGN SPEED 120 km/h *(WGS 84 \ LO 27°)*

CHAINAGE	Y COORDINATE + 0,000	X CO-ORDINATE + 0,000	DESCRIPTION
34.100 000	-19 513.853	+2 841 428.327	
34.200 000	-19 438.729	+2 841 362.329	
34.300 000	-19 365.305	+2 841 294.443	
34.400 000	-19 293.630	+2 841 224.713	
34.500 000	-19 223.750	+2 841 153.186	
34.600 000	-19 155.710	+2 841 079.906	

TENDER

5m 15m 25m 35m 45m
0m 10m 20m 30m 40m 50m
ORIGINAL SCALE 1 : 500 (A0)

No.	DATE	REVISION	
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSULT. ENG.

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date

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DESIGNED BY
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NAME: WB HARTMANN

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for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION
ROAD PAINT MARKINGS
(P16-2) DR MOROKA INTERCHANGE

SCALE : 1 : 500 (A0) SHEET 03 OF 03

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001		
DRAWING LOCATION DATA	START	END	
ROUTE	N 4	N 4	
SECTION	SECTION 13	SECTION 13	
DRAWING km DISTANCE	km 34.100	km 34.600	
DRAWING TYPE	ROADS - ROAD PAINT MARKINGS		
BRIDGE/STRUCTURE No.	NA		
CONSULTANT DRAWING No.	FA	3257 / 23 / 12 RM	VER
SANRAL DOCUMENT #	- -		V0

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadwork\09 - Road Paint Markings\3257_23_10-12-RM- Dr Moroka N4 Interchange Road Paint Markings_20230717.dwg

N4-13 ROAD PAINT MARKING WESTBOUND CO-ORDINATES (WGS 84 \ LO 27°)

POINT	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
W1	-17 000.000	+2 838 125.200	
W2	-16 994.230	+2 838 129.853	
W3	-16 907.512	+2 837 996.170	
W4	-16 901.408	+2 838 000.356	
W5	-16 837.602	+2 837 898.638	
W6	-16 831.556	+2 837 902.905	
W7	-16 792.620	+2 837 835.884	
W8	-16 789.764	+2 837 838.249	
W9	-16 786.727	+2 837 840.363	
W10	-16 750.803	+2 837 777.545	
W11	-16 747.980	+2 837 779.613	
W12	-16 745.005	+2 837 782.105	
W13	-16 741.516	+2 837 784.199	

N4-13 ROAD PAINT MARKING EASTBOUND CO-ORDINATES (WGS 84 \ LO 27°)

POINT	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
E1	-16 610.610	+2 837 551.063	
E2	-16 604.553	+2 837 555.418	
E3	-16 842.935	+2 837 875.055	
E4	-16 836.919	+2 837 879.491	

ROAD STUD LEGEND:

1. [W] WHITE
2. [R R] RED / RED STUD
3. [Y R] YELLOW / RED STUD

LONGITUDINAL ROADSTUD SPACING:

NORMAL : 24 m C/C (CARRIAGEWAY)
INTERMEDIATE : 12 m C/C (ON / OFF RAMPS)
ABNORMAL : 6 m C/C (ON / OFF RAMPS)

NOTES:

1. WHITE / RED - WHITE FACING ONCOMING TRAFFIC.
2. RED / RED - NO CROSSING TRAFFIC.
3. YELLOW / RED - YELLOW FACING ONCOMING TRAFFIC
4. ROAD STUDS TO BE PLACED A MIN. OF 150 mm AWAY FROM RM4.1 AND RM4.2 EDGE LINE MARKING

LEGEND:

MARKING No.
WIDTH / COLOUR
LINE / GAP

WHERE
W = WHITE
Y = YELLOW
R = RED

LENGTH / GAP (12m MODULE) LINE TYPE

WM2.1	2.0m / 10.0m
WM2.2	2.0m / 4.0m
WM2.3	2.0m / 2.0m
GM1.0	2.0m / 10.0m
GM1.2	2.0m / 4.0m
GM1.3	2.0m / 2.0m
WM 3.1	4.0m / 8.0m

NOTES:

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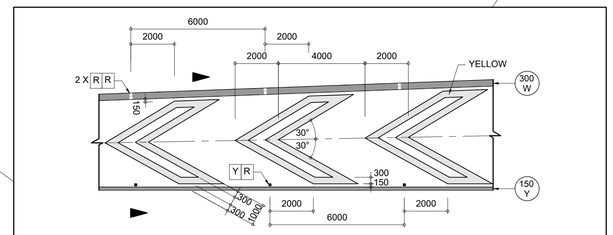
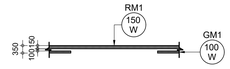
- ALL ROAD MARKINGS TO BE PAINTED WITH RETRO-REFLECTIVE ROAD MARKING PAINT SANS 731-1 OR 731-2
- ALL MARKINGS TO BE CHECKED AT PRE-MARKING STAGE
- ALL EXISTING OR CONFLICTING ROAD MARKINGS MUST BE REMOVED BY MEANS OF SANDBLASTING
- EXISTING ROAD MARKINGS TO BE REPAINTED, WILL BE DETERMINED BY THE ENGINEER ON SITE
- PAINT LAYOUT BASED ON 12m MODULE
- ALL LANE WIDTH DIMENSIONS ARE C/C OR LONGITUDINAL ROAD PAINT MARKINGS



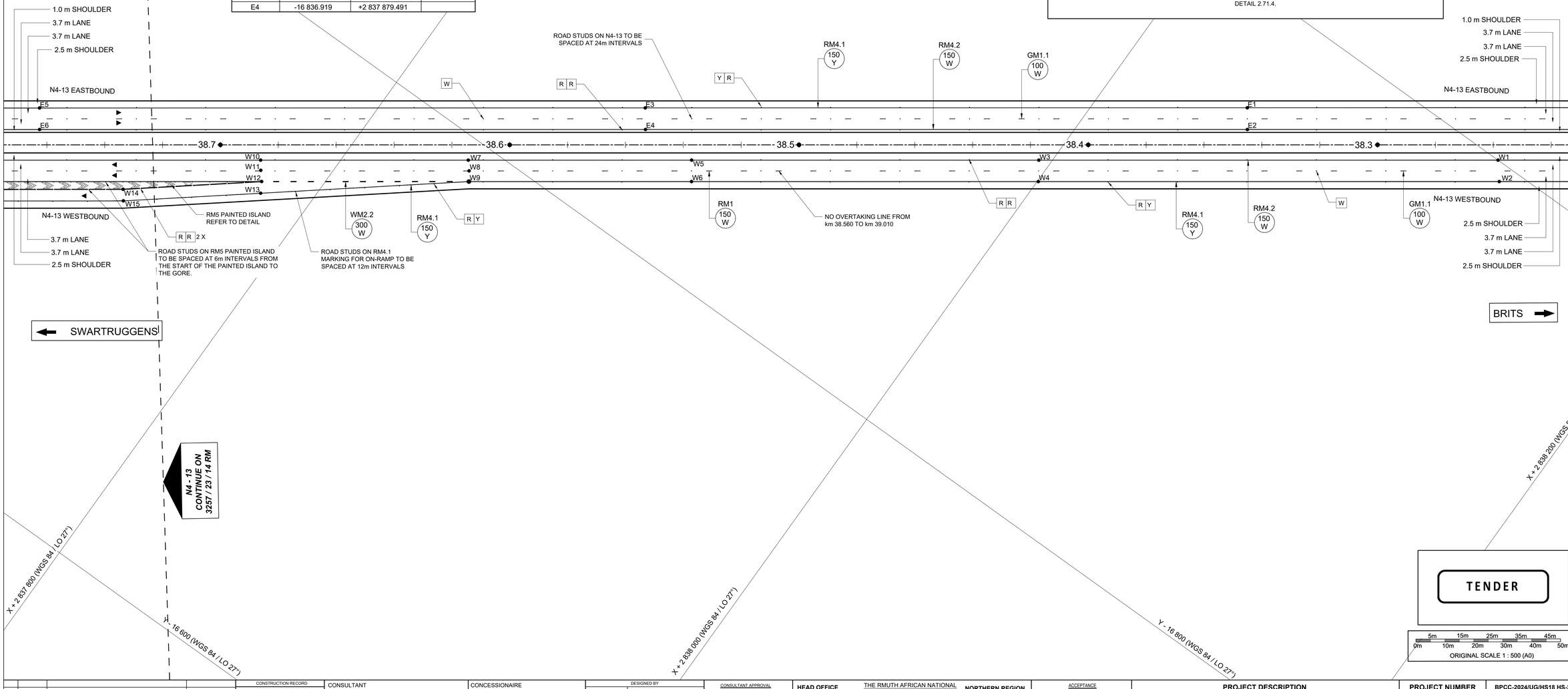
DETAIL OF RM 5 CHEVRON BARS
OFF RAMP TREATMENT
NOT TO SCALE



NO OVERTAKING LINE
NOT TO SCALE

SARTSM - VOLUME 2 : PAINTED ISLAND DETAILS

- FOR LOCATION OF EXIT POINT REFER TO SARTSM - VOLUME 2 DETAIL 2.70.2.
- FOR GORE ISLAND REFER TO SARTSM - VOLUME 2 DETAIL 2.70.3.
- FOR START OF GORE ISLAND REFER TO SARTSM - VOLUME 2 DETAIL 2.70.5.
- FOR END OF CONTINUITY LINE WM2 REFER TO SARTSM - VOLUME 2 DETAIL 2.71.3.
- FOR END OF ON-RAMP GORE REFER TO SARTSM - VOLUME 2 DETAIL 2.71.4.



TENDER

5m 10m 15m 20m 25m 30m 35m 40m 45m 50m
0m
ORIGINAL SCALE 1 : 500 (A0)

No.	DATE	REVISION	
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSULTANT. ENG.

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date

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DESIGNED BY
NAME: Z MASHININI
Prof. Reg. No.: -
CHECKED BY
NAME: PL NGQUMSHE
Prof. Reg. No.: 20080112
DRAWN BY
NAME: WB HARTMANN

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17 / 07 / 2023

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Reg. No. 1998/009584/30

NORTHERN REGION
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Tel: (012) 426 6200

ACCEPTANCE
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for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION
ROAD PAINT MARKINGS
R104 (P2-3) INTERCHANGE

SCALE : 1 : 500 (A0)
SHEET 01 OF 07

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001		
DRAWING LOCATION DATA	START	END	
ROUTE	N 4	N 4	
SECTION	SECTION 13	SECTION 13	
DRAWING km DISTANCE	km 38.300	km 38.700	
DRAWING TYPE	ROADS - ROAD PAINT MARKINGS		
BRIDGE/STRUCTURE No.	NA		
CONSULTANT DRAWING No.	FA	3257 / 23 / 13 RM	VER
SANRAL DOCUMENT #	- -		V0

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4 Roadwork\09 - Road Paint Markings\3257_23_13-19 RM - R104 N4 Interchange Road Paint Markings_20230717.dwg

ROAD STUD LEGEND:

1. W — WHITE
2. R R — RED / RED STUD
3. Y R — YELLOW / RED STUD

LONGITUDINAL ROADSTUD SPACING:

NORMAL : 24 m C/C (CARRIAGEWAY)
INTERMEDIATE : 12 m C/C (ON / OFF RAMPS)
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NOTES:

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4. ROAD STUDS TO BE PLACED A MIN. OF 150 mm AWAY FROM RM4.1 AND RM4.2 EDGE LINE MARKING

LEGEND:

MARKING No
WIDTH / COLOUR
LINE / GAP

WHERE
W = WHITE
Y = YELLOW
R = RED

LENGTH / GAP (12m MODULE) LINE TYPE

WM2.1	2.0m / 10.0m
WM2.2	2.0m / 4.0m
WM2.3	2.0m / 2.0m
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GM1.3	2.0m / 2.0m
WM 3.1	4.0m / 8.0m

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DETAIL OF RM 5 CHEVRON BARS
OFF RAMP TREATMENT
NOT TO SCALE

NO OVERTAKING LINE
NOT TO SCALE

SARTSM - VOLUME 2 : PAINTED ISLAND DETAILS

- FOR LOCATION OF EXIT POINT REFER TO SARTSM - VOLUME 2 DETAIL 2.70.2.
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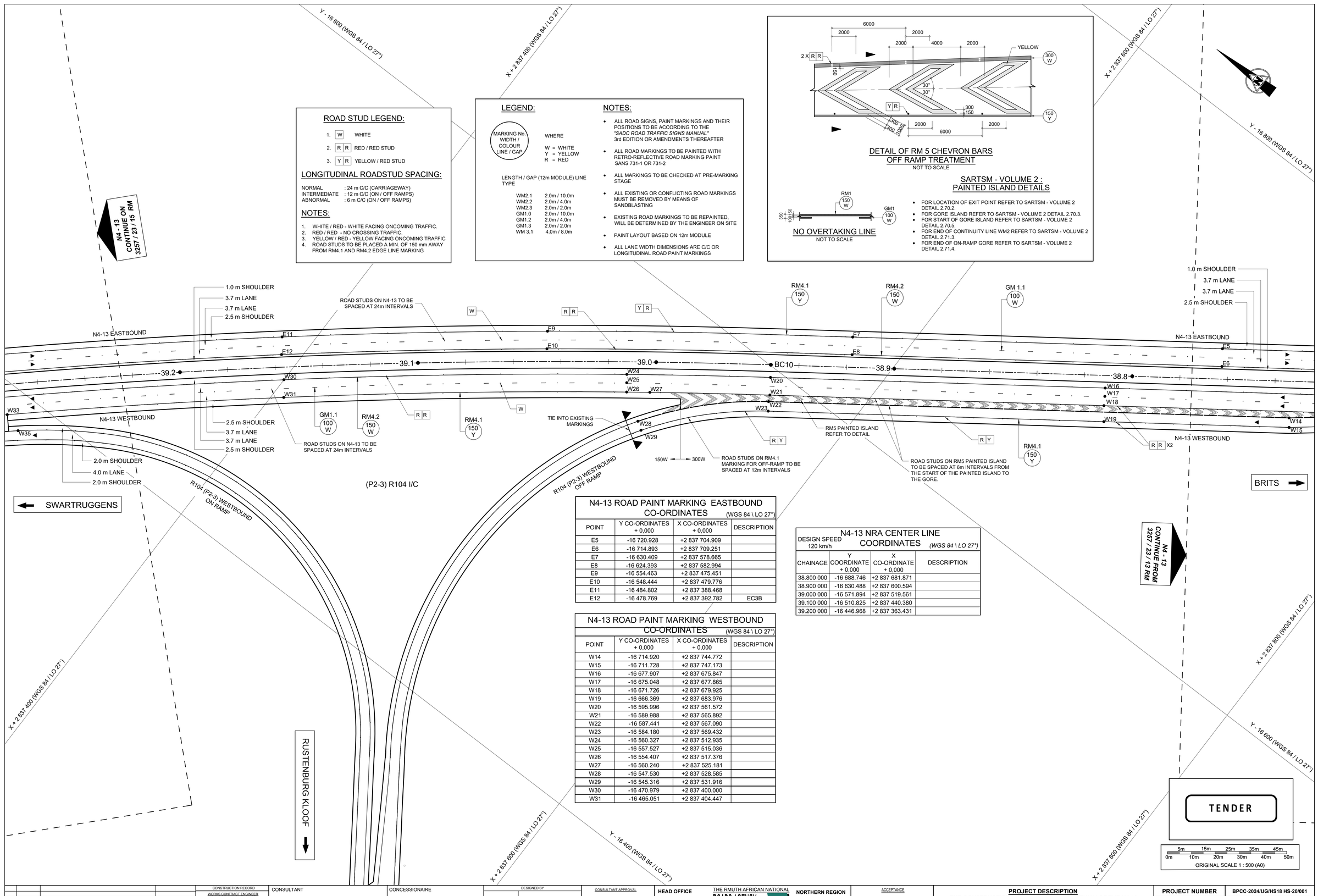

N4-13 ROAD PAINT MARKING EASTBOUND CO-ORDINATES (WGS 84 \ LO 27°)

POINT	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
E5	-16 720.928	+2 837 704.909	
E6	-16 714.893	+2 837 709.251	
E7	-16 630.409	+2 837 578.665	
E8	-16 624.393	+2 837 582.994	
E9	-16 554.463	+2 837 475.451	
E10	-16 548.444	+2 837 479.776	
E11	-16 484.802	+2 837 388.468	
E12	-16 478.769	+2 837 392.782	EC3B

N4-13 ROAD PAINT MARKING WESTBOUND CO-ORDINATES (WGS 84 \ LO 27°)

POINT	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
W14	-16 714.920	+2 837 744.772	
W15	-16 711.728	+2 837 747.173	
W16	-16 677.907	+2 837 675.847	
W17	-16 675.048	+2 837 677.865	
W18	-16 671.726	+2 837 679.925	
W19	-16 666.369	+2 837 683.976	
W20	-16 595.996	+2 837 561.572	
W21	-16 589.988	+2 837 565.892	
W22	-16 587.441	+2 837 567.090	
W23	-16 584.180	+2 837 569.432	
W24	-16 560.327	+2 837 512.935	
W25	-16 557.527	+2 837 515.036	
W26	-16 554.407	+2 837 517.376	
W27	-16 560.240	+2 837 525.181	
W28	-16 547.530	+2 837 528.585	
W29	-16 545.316	+2 837 531.916	
W30	-16 470.979	+2 837 400.000	
W31	-16 465.051	+2 837 404.447	

N4-13 NRA CENTER LINE COORDINATES (WGS 84 \ LO 27°)

DESIGN SPEED 120 km/h

CHAINAGE	Y COORDINATE + 0,000	X CO-ORDINATE + 0,000	DESCRIPTION
38.800 000	-16 688.746	+2 837 681.871	
38.900 000	-16 630.488	+2 837 600.594	
39.000 000	-16 571.894	+2 837 519.561	
39.100 000	-16 510.825	+2 837 440.380	
39.200 000	-16 446.968	+2 837 363.431	

No.	DATE	REVISION	
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSULT. ENG.

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
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Date
SANRAL PROJECT MANAGER
Name :
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DRAWING DESCRIPTION
ROAD PAINT MARKINGS
R104 (P2 - 3) INTERCHANGE

SCALE : 1 : 500 (A0)
SHEET 02 OF 07

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	SECTION 13	SECTION 13
DRAWING km DISTANCE	km 38.800	km 39.200
DRAWING TYPE	ROADS - ROAD PAINT MARKINGS	
BRIDGE/STRUCTURE No.	NA	
CONSULTANT DRAWING No.	FA 3257 / 23 / 14 RM	VER V0
SANRAL DOCUMENT #	- -	

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\09 - Road Paint Markings\3257_23_13-19 RM - R104 N4 Interchange Road Paint Markings_20230717.dwg

N4-13 ROAD PAINT MARKING EASTBOUND CO-ORDINATES

(WGS 84 \ LO 27°)

POINT	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
E13	-16 379.909	+2 837 269.653	
E14	-16 374.226	+2 837 274.401	BC3B
E15	-16 295.043	+2 837 182.659	
E16	-16 288.942	+2 837 187.020	
E17	-16 207.092	+2 837 099.945	
E18	-16 202.623	+2 837 105.862	EC2B
E19	-16 151.642	+2 837 051.296	
E20	-16 147.072	+2 837 057.112	
E21	-16 089.646	+2 836 999.844	
E22	-16 085.002	+2 837 005.593	

ROAD STUD LEGEND:

1. [W] WHITE
2. [R R] RED / RED STUD
3. [Y R] YELLOW / RED STUD

LONGITUDINAL ROADSTUD SPACING:

NORMAL : 24 m C/C (CARRIAGEWAY)
INTERMEDIATE : 12 m C/C (ON / OFF RAMPS)
ABNORMAL : 6 m C/C (ON / OFF RAMPS)

NOTES:

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2. RED / RED - NO CROSSING TRAFFIC.
3. YELLOW / RED - YELLOW FACING ONCOMING TRAFFIC
4. ROAD STUDS TO BE PLACED A MIN. OF 150 mm AWAY FROM RM4.1 AND RM4.2 EDGE LINE MARKING

LEGEND:

MARKING No.
WIDTH / COLOUR
LINE / GAP

WHERE

W = WHITE
Y = YELLOW
R = RED

LENGTH / GAP (12m MODULE) LINE TYPE

WM2.1	2.0m / 10.0m
WM2.2	2.0m / 4.0m
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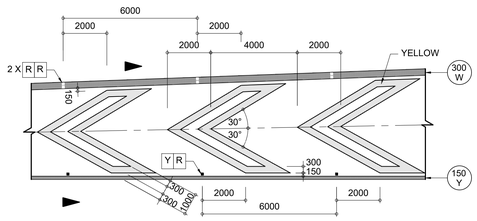
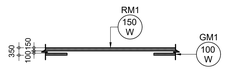


DETAIL OF RM 5 CHEVRON BARS
OFF RAMP TREATMENT
NOT TO SCALE



NO OVERTAKING LINE
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SARTSM - VOLUME 2 : PAINTED ISLAND DETAILS

- FOR LOCATION OF EXIT POINT REFER TO SARTSM - VOLUME 2 DETAIL 2.70.2.
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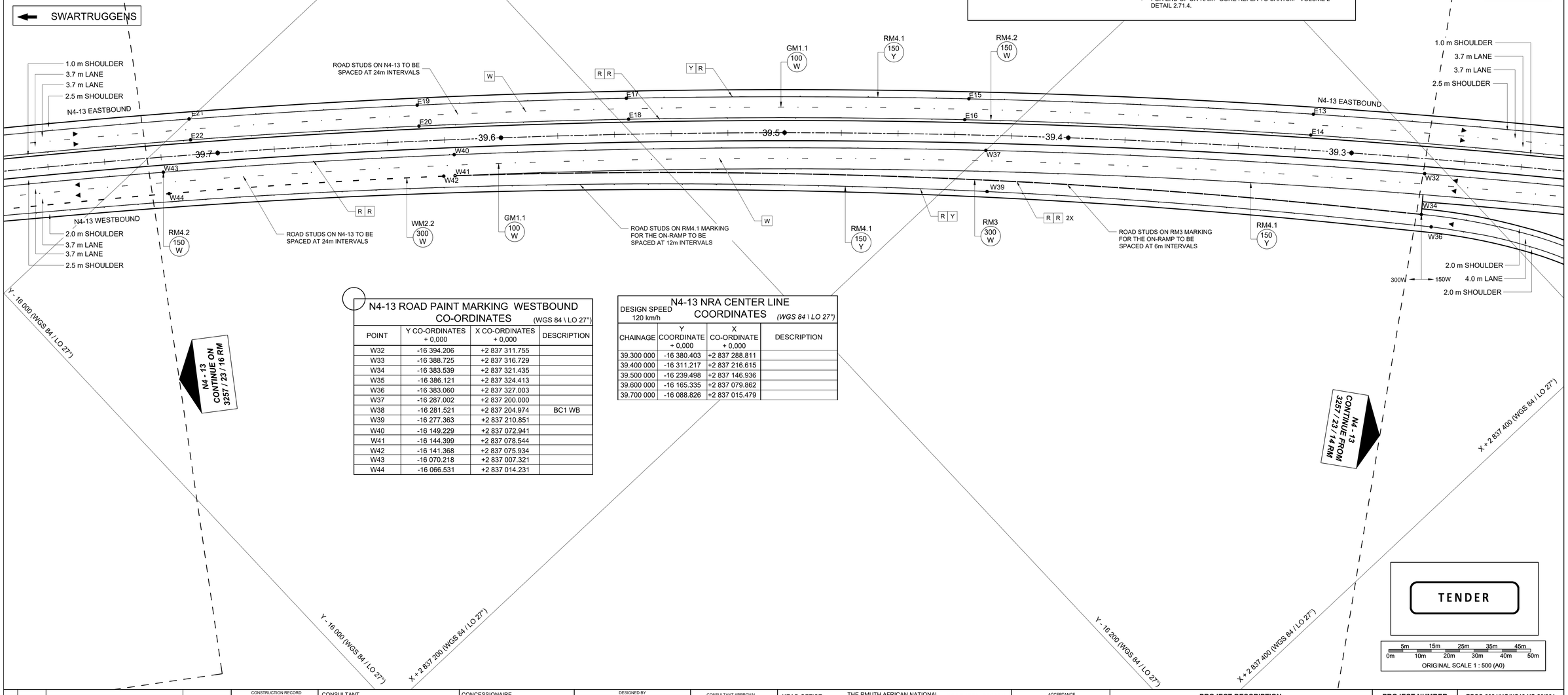

N4-13 ROAD PAINT MARKING WESTBOUND CO-ORDINATES

(WGS 84 \ LO 27°)

POINT	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
W32	-16 394.206	+2 837 311.755	
W33	-16 388.725	+2 837 316.729	
W34	-16 383.539	+2 837 321.435	
W35	-16 386.121	+2 837 324.413	
W36	-16 383.060	+2 837 327.003	
W37	-16 287.002	+2 837 200.000	
W38	-16 281.521	+2 837 204.974	BC1 WB
W39	-16 277.363	+2 837 210.851	
W40	-16 149.229	+2 837 072.941	
W41	-16 144.399	+2 837 078.544	
W42	-16 141.368	+2 837 075.934	
W43	-16 070.218	+2 837 007.321	
W44	-16 066.531	+2 837 014.231	

N4-13 NRA CENTER LINE COORDINATES

DESIGN SPEED 120 km/h

(WGS 84 \ LO 27°)

CHAINAGE	Y COORDINATE + 0,000	X CO-ORDINATE + 0,000	DESCRIPTION
39.300 000	-16 380.403	+2 837 288.811	
39.400 000	-16 311.217	+2 837 216.615	
39.500 000	-16 239.498	+2 837 146.936	
39.600 000	-16 165.335	+2 837 079.862	
39.700 000	-16 088.826	+2 837 015.479	

TENDER

5m 15m 25m 35m 45m
0m 10m 20m 30m 40m 50m
ORIGINAL SCALE 1 : 500 (A0)

SANRAL DOCUMENT NUMBER : :

No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
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Name :
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DRAWING DESCRIPTION
ROAD PAINT MARKINGS
R104 (P2 - 3) INTERCHANGE

SCALE : 1 : 500 (A0) SHEET 03 OF 07

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001		
DRAWING LOCATION DATA	START	END	
ROUTE	N 4	N 4	
SECTION	SECTION 13	SECTION 13	
DRAWING km DISTANCE	km 39.300	km 39.700	
DRAWING TYPE	ROADS - ROAD PAINT MARKINGS		
BRIDGE/STRUCTURE No.	NA		
CONSULTANT DRAWING No.	FA 3257 / 23 / 15 RM		VER V0
SANRAL DOCUMENT #	- -		

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadwork\09 - Road Paint Markings\3257_23_13-19 RM - R104 N4 Interchange Road Paint Markings_20230717.dwg

PHOKENG

SWARTRUGGENS

BRITS

X + 2 836 600 (WGS 84 / LO 27°)

Y - 15 800 (WGS 84 / LO 27°)

Y - 16 000 (WGS 84 / LO 27°)

Y - 15 600 (WGS 84 / LO 27°)

X + 2 837 000 (WGS 84 / LO 27°)

N4 - 13
CONTINUE ON
3257 / 23 / 17 RM

N4 - 13
CONTINUE FROM
3257 / 23 / 15 RM

ROAD 287

RUSTENBURG KLOOF

ROAD STUD LEGEND:

1. [W] WHITE
2. [R R] RED / RED STUD
3. [Y R] YELLOW / RED STUD

LONGITUDINAL ROADSTUD SPACING:

NORMAL : 24 m C/C (CARRIAGEWAY)
INTERMEDIATE : 12 m C/C (ON / OFF RAMPS)
ABNORMAL : 6 m C/C (ON / OFF RAMPS)

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2. RED / RED - NO CROSSING TRAFFIC.
3. YELLOW / RED - YELLOW FACING ONCOMING TRAFFIC
4. ROAD STUDS TO BE PLACED A MIN. OF 150 mm AWAY FROM RM4.1 AND RM4.2 EDGE LINE MARKING

LEGEND:

MARKING No.
WIDTH / COLOUR
LINE / GAP

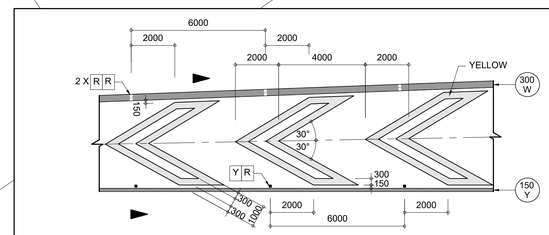
WHERE
W = WHITE
Y = YELLOW
R = RED

LENGTH / GAP (12m MODULE) LINE TYPE

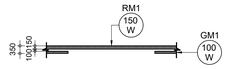
WM2.1	2.0m / 10.0m
WM2.2	2.0m / 4.0m
WM2.3	2.0m / 2.0m
GM1.0	2.0m / 10.0m
GM1.2	2.0m / 4.0m
GM1.3	2.0m / 2.0m
WM 3.1	4.0m / 8.0m

NOTES:

- ALL ROAD SIGNS, PAINT MARKINGS AND THEIR POSITIONS TO BE ACCORDING TO THE *"SADC ROAD TRAFFIC SIGNS MANUAL"* 3rd EDITION OR AMENDMENTS THEREAFTER
- ALL ROAD MARKINGS TO BE PAINTED WITH RETRO-REFLECTIVE ROAD MARKING PAINT SANS 731-1 OR 731-2
- ALL MARKINGS TO BE CHECKED AT PRE-MARKING STAGE
- ALL EXISTING OR CONFLICTING ROAD MARKINGS MUST BE REMOVED BY MEANS OF SANDBLASTING
- EXISTING ROAD MARKINGS TO BE REPAINTED, WILL BE DETERMINED BY THE ENGINEER ON SITE
- PAINT LAYOUT BASED ON 12m MODULE
- ALL LANE WIDTH DIMENSIONS ARE C/C OR LONGITUDINAL ROAD PAINT MARKINGS



DETAIL OF RM 5 CHEVRON BARS
OFF RAMP TREATMENT
NOT TO SCALE



NO OVERTAKING LINE
NOT TO SCALE

SARTSM - VOLUME 2 : PAINTED ISLAND DETAILS

- FOR LOCATION OF EXIT POINT REFER TO SARTSM - VOLUME 2 DETAIL 2.70.2.
- FOR GORE ISLAND REFER TO SARTSM - VOLUME 2 DETAIL 2.70.3.
- FOR START OF GORE ISLAND REFER TO SARTSM - VOLUME 2 DETAIL 2.70.5.
- FOR END OF CONTINUITY LINE WM2 REFER TO SARTSM - VOLUME 2 DETAIL 2.71.3.
- FOR END OF ON-RAMP GORE REFER TO SARTSM - VOLUME 2 DETAIL 2.71.4.

ROAD STUDS ON RM3 MARKING FOR THE ON-RAMP FROM THE GORE TO THE END TO BE SPACED AT 6m INTERVALS

ROAD STUDS ON RM4.1 MARKING FOR THE ON-RAMP TO BE SPACED AT 12m INTERVALS

(TAPER 1:50)
(P2-3) R104 EASTBOUND
ON-RAMP

ROAD STUDS ON N4-13 TO BE SPACED AT 24m INTERVALS

ROAD STUDS ON RM4.1 MARKING FOR THE ON-RAMP TO BE SPACED AT 12m INTERVALS

B2221 OVERHEAD BRIDGE
km 40,112 052
θ = 55°
(TO BE EXTENDED)

N4-13 EASTBOUND
1.0 m SHOULDER
3.7 m LANE
3.7 m LANE
2.5 m SHOULDER

N4-13 WESTBOUND
2.5 m SHOULDER
3.7 m LANE
3.7 m LANE
2.5 m SHOULDER

N4-13 WESTBOUND
2.0 m SHOULDER
3.7 m LANE
3.7 m LANE
2.5 m SHOULDER

0.9 EC3B1 1.0 1.1 1.2 1.207 EC10 39.9 39.8 40.0 40.1 40.2

E23 E24 E25 E26 E27 E28 E29 E30 E31 E32 E33 E34 E35 E36

W45 W46 W47 W48 W49 W50 W51 W52 W53

RM3 300 W
RM4.1 150 Y
RM4.2 150 W
WM2.2 300 W
GM1.1 100 W

N4-13 ROAD PAINT MARKING EASTBOUND CO-ORDINATES (WGS 84 \ LO 27°)

POINT	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
E23	-16 009.501	+2 836 937.595	
E24	-16 003.255	+2 836 942.153	BC3A
E25	-15 901.117	+2 836 860.433	
E26	-15 896.982	+2 836 866.542	EC2A
E27	-15 899.217	+2 836 859.127	
E28	-15 895.073	+2 836 865.250	
E29	-15 882.326	+2 836 847.693	
E30	-15 121.014	+2 836 312.141	BC2A
E31	-15 119.078	+2 836 315.576	
E32	-15 108.367	+2 836 323.833	
E33	-15 104.219	+2 836 329.961	
E34	-15 052.211	+2 836 271.345	
E35	-15 050.164	+2 836 274.807	
E36	-15 046.320	+2 836 281.836	
E37	-15 044.372	+2 836 284.714	

(P2-3) R104 SWARTRUGGENS ROAD EASTBOUND ON-RAMP CENTER LINE COORDINATES

DESIGN SPEED VARIES (WGS 84 \ LO 27°)

CHAINAGE	Y COORDINATE + 0,000	X CO-ORDINATE + 0,000	DESCRIPTION
0.900 000	-15 648.490	+2 836 681.938	
1.000 000	-15 730.132	+2 836 739.684	
1.100 000	-15 811.809	+2 836 797.381	
1.200 000	-15 893.485	+2 836 855.078	
1.207 009	-15 899.210	+2 836 859.122	

N4-13 NRA CENTER LINE COORDINATES

DESIGN SPEED 120 km/h (WGS 84 \ LO 27°)

CHAINAGE	Y COORDINATE + 0,000	X CO-ORDINATE + 0,000	DESCRIPTION
39.800 000	-16 010.066	+2 836 953.869	
39.900 000	-15 929.156	+2 836 895.110	
40.000 000	-15 846.526	+2 836 838.790	
40.100 000	-15 763.712	+2 836 782.737	
40.200 000	-15 680.898	+2 836 726.685	

N4-13 ROAD PAINT MARKING WESTBOUND CO-ORDINATES (WGS 84 \ LO 27°)

POINT	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
W45	-16 006.146	+2 836 957.575	
W46	-16 000.878	+2 836 963.452	
W47	-15 902.201	+2 836 891.736	
W48	-15 897.740	+2 836 879.882	
W49	-15 893.569	+2 836 886.005	
W5	-16 837.602	+2 837 898.638	
W50	-15 891.035	+2 836 875.329	
W51	-15 886.875	+2 836 881.474	
W52	-15 701.983	+2 836 747.356	
W53	-15 697.807	+2 836 753.495	

TENDER

5m 15m 25m 35m 45m
0m 10m 20m 30m 40m 50m
ORIGINAL SCALE 1 : 500 (A0)

No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date :

CONSULTANT
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DESIGNED BY
NAME Z MASHININI
Prof. Reg. No. -
CHECKED BY
NAME PL NGQUMSHE
Prof. Reg. No. 20080112
DRAWN BY
NAME WB HARTMANN

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17 / 07 / 2023

HEAD OFFICE
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RMuth Africa
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THE RMUTH AFRICAN NATIONAL ROADS AGENCY SOC LTD
Reg. No. 1998/009584/30

NORTHERN REGION
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Tel: (012) 426 6200

ACCEPTANCE
THIS ACCEPTANCE IS FOR PROCEDURAL AND ADMINISTRATIVE REVIEW PURPOSES ONLY AND DOES NOT ATTRACT LEGAL LIABILITY OR LIABILITY OF ANY KIND FROM WHATRMEVER CAUSE OR HOWEVER ARISING
for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

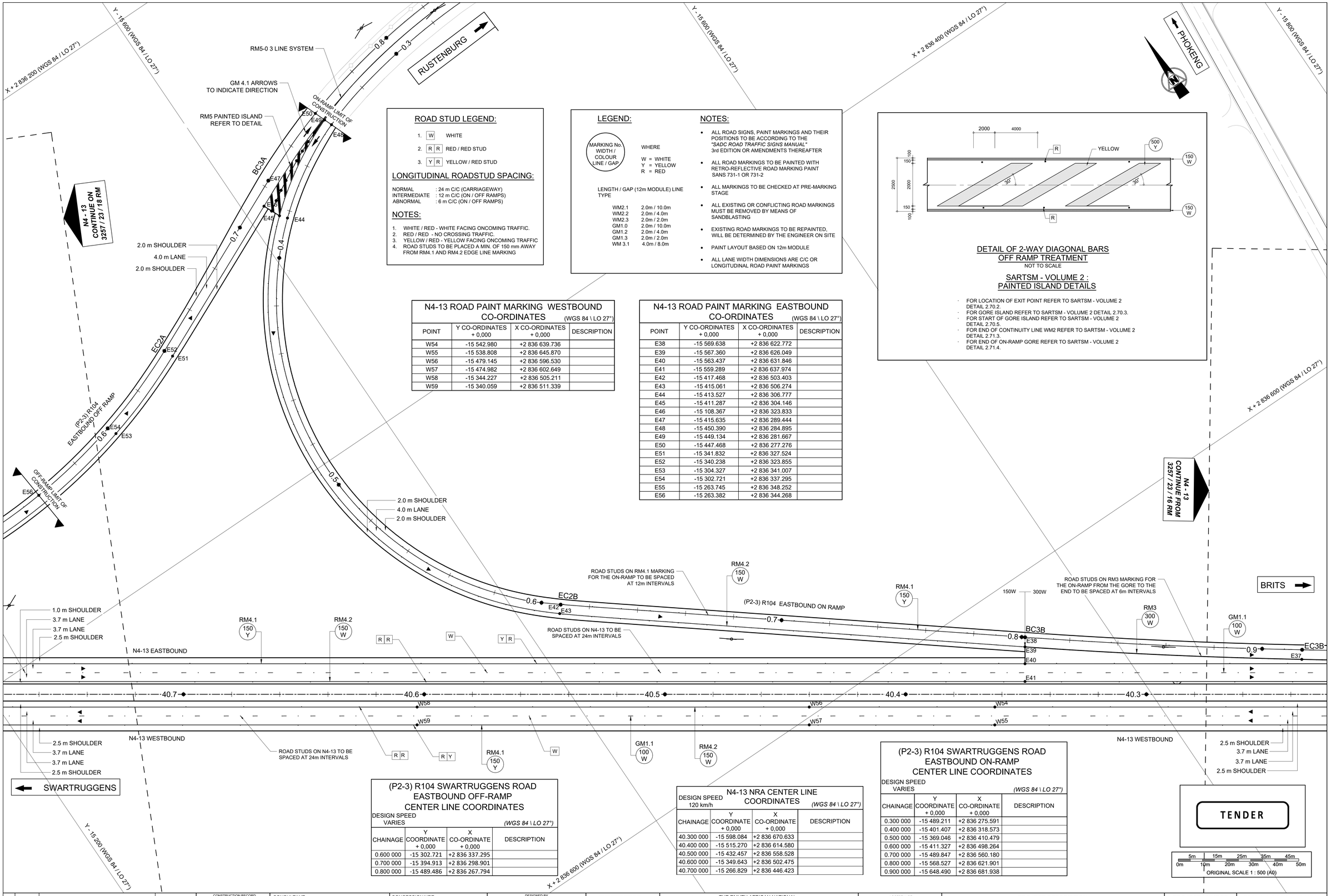
DRAWING DESCRIPTION
ROAD PAINT MARKINGS
R104 (P2 - 3) INTERCHANGE

SCALE : 1 : 500 (A0) SHEET 04 OF 07

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	SECTION 13	SECTION 13
DRAWING km DISTANCE	km 39.800	km 40.200
DRAWING TYPE	ROADS - ROAD PAINT MARKINGS	
BRIDGE/STRUCTURE No.	NA	
CONSULTANT DRAWING No.	FA 3257 / 23 / 16 RM	VER
SANRAL DOCUMENT #	- -	V0

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadwork\09 - Road Paint Markings\3257_23_13-19 RM - R104 N4 Interchange Road Paint Markings_20230717.dwg



ROAD STUD LEGEND:

1. W — WHITE
2. R R — RED / RED STUD
3. Y R — YELLOW / RED STUD

LONGITUDINAL ROADSTUD SPACING:

NORMAL : 24 m C/C (CARRIAGEWAY)
INTERMEDIATE : 12 m C/C (ON / OFF RAMPS)
ABNORMAL : 6 m C/C (ON / OFF RAMPS)

NOTES:

1. WHITE / RED - WHITE FACING ONCOMING TRAFFIC.
2. RED / RED - NO CROSSING TRAFFIC.
3. YELLOW / RED - YELLOW FACING ONCOMING TRAFFIC
4. ROAD STUDS TO BE PLACED A MIN. OF 150 mm AWAY FROM RM4.1 AND RM4.2 EDGE LINE MARKING

LEGEND:

MARKING No. WIDTH / COLOUR LINE / GAP

WHERE
W = WHITE
Y = YELLOW
R = RED

LENGTH / GAP (12m MODULE) LINE TYPE

WM2.1	2.0m / 10.0m
WM2.2	2.0m / 4.0m
WM2.3	2.0m / 2.0m
GM1.0	2.0m / 10.0m
GM1.2	2.0m / 4.0m
GM1.3	2.0m / 2.0m
WM 3.1	4.0m / 8.0m

NOTES:

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- PAINT LAYOUT BASED ON 12m MODULE
- ALL LANE WIDTH DIMENSIONS ARE C/C OR LONGITUDINAL ROAD PAINT MARKINGS

DETAIL OF 2-WAY DIAGONAL BARS OFF RAMP TREATMENT

NOT TO SCALE

SARTSM - VOLUME 2 : PAINTED ISLAND DETAILS

- FOR LOCATION OF EXIT POINT REFER TO SARTSM - VOLUME 2 DETAIL 2.70.2.
- FOR GORE ISLAND REFER TO SARTSM - VOLUME 2 DETAIL 2.70.3.
- FOR START OF GORE ISLAND REFER TO SARTSM - VOLUME 2 DETAIL 2.70.5.
- FOR END OF CONTINUITY LINE WM2 REFER TO SARTSM - VOLUME 2 DETAIL 2.71.3.
- FOR END OF ON-RAMP GORE REFER TO SARTSM - VOLUME 2 DETAIL 2.71.4.

N4-13 ROAD PAINT MARKING WESTBOUND CO-ORDINATES (WGS 84 \ LO 27°)

POINT	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
W54	-15 542.980	+2 836 639.736	
W55	-15 538.808	+2 836 645.870	
W56	-15 479.145	+2 836 596.530	
W57	-15 474.982	+2 836 602.649	
W58	-15 344.227	+2 836 505.211	
W59	-15 340.059	+2 836 511.339	

N4-13 ROAD PAINT MARKING EASTBOUND CO-ORDINATES (WGS 84 \ LO 27°)

POINT	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
E38	-15 569.638	+2 836 622.772	
E39	-15 567.360	+2 836 626.049	
E40	-15 563.437	+2 836 631.846	
E41	-15 559.289	+2 836 637.974	
E42	-15 417.468	+2 836 503.403	
E43	-15 415.061	+2 836 506.274	
E44	-15 413.527	+2 836 306.777	
E45	-15 411.287	+2 836 304.146	
E46	-15 108.367	+2 836 323.833	
E47	-15 415.635	+2 836 289.444	
E48	-15 450.390	+2 836 284.895	
E49	-15 449.134	+2 836 281.667	
E50	-15 447.468	+2 836 277.276	
E51	-15 341.832	+2 836 327.524	
E52	-15 340.238	+2 836 323.855	
E53	-15 304.327	+2 836 341.007	
E54	-15 302.721	+2 836 337.295	
E55	-15 263.745	+2 836 348.252	
E56	-15 263.382	+2 836 344.268	

(P2-3) R104 SWARTRUGGENS ROAD EASTBOUND OFF-RAMP CENTER LINE COORDINATES

DESIGN SPEED VARIES (WGS 84 \ LO 27°)

CHAINAGE	Y COORDINATE + 0,000	X CO-ORDINATE + 0,000	DESCRIPTION
0.600 000	-15 302.721	+2 836 337.295	
0.700 000	-15 394.913	+2 836 298.901	
0.800 000	-15 489.486	+2 836 267.794	

N4-13 NRA CENTER LINE COORDINATES

DESIGN SPEED 120 km/h (WGS 84 \ LO 27°)

CHAINAGE	Y COORDINATE + 0,000	X CO-ORDINATE + 0,000	DESCRIPTION
40.300 000	-15 598.084	+2 836 670.633	
40.400 000	-15 515.270	+2 836 614.580	
40.500 000	-15 432.457	+2 836 558.528	
40.600 000	-15 349.643	+2 836 502.475	
40.700 000	-15 266.829	+2 836 446.423	

(P2-3) R104 SWARTRUGGENS ROAD EASTBOUND ON-RAMP CENTER LINE COORDINATES

DESIGN SPEED VARIES (WGS 84 \ LO 27°)

CHAINAGE	Y COORDINATE + 0,000	X CO-ORDINATE + 0,000	DESCRIPTION
0.300 000	-15 489.211	+2 836 275.591	
0.400 000	-15 401.407	+2 836 318.573	
0.500 000	-15 369.046	+2 836 410.479	
0.600 000	-15 411.327	+2 836 498.264	
0.700 000	-15 489.847	+2 836 560.180	
0.800 000	-15 568.527	+2 836 621.901	
0.900 000	-15 648.490	+2 836 681.938	

TENDER

5m 15m 25m 35m 45m
0m 10m 20m 30m 40m 50m
ORIGINAL SCALE 1 : 500 (A0)

No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date :

CONSULTANT
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DESIGNED BY
NAME : Z MASHININI
Prof. Reg. No. : -
CHECKED BY
NAME : PL NGQUMSHE
Prof. Reg. No. : 20080112
DRAWN BY
NAME : WB HARTMANN

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17 / 07 / 2023

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THE RMUTH AFRICAN NATIONAL ROADS AGENCY SOC LTD
Reg. No. 1998/009584/30

NORTHERN REGION
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for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

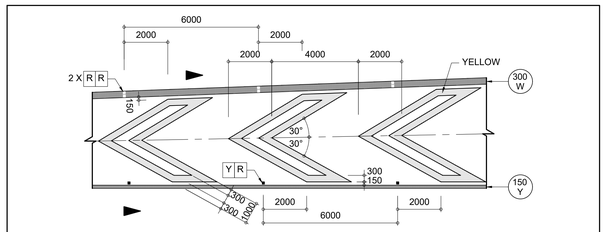
DRAWING DESCRIPTION
ROAD PAINT MARKINGS
R104 (P2 - 3) INTERCHANGE

SCALE : 1 : 500 (A0) SHEET 05 OF 07

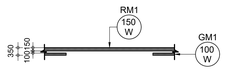
PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	SECTION 13	SECTION 13
DRAWING km DISTANCE	km 40.300	km 40.700
DRAWING TYPE	ROADS - ROAD PAINT MARKINGS	
BRIDGE/STRUCTURE No.	NA	
CONSULTANT DRAWING No.	FA 3257 / 23 / 17 RM	VER V0
SANRAL DOCUMENT #	- -	

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\09 - Road Paint Markings\3257_23_13-19 RM - R104 N4 Interchange Road Paint Markings_20230717.dwg



DETAIL OF RM 5 CHEVRON BARS
OFF RAMP TREATMENT
NOT TO SCALE



NO OVERTAKING LINE
NOT TO SCALE

SARTSM - VOLUME 2 : PAINTED ISLAND DETAILS

- FOR LOCATION OF EXIT POINT REFER TO SARTSM - VOLUME 2 DETAIL 2.70.2.
- FOR GORE ISLAND REFER TO SARTSM - VOLUME 2 DETAIL 2.70.3.
- FOR START OF GORE ISLAND REFER TO SARTSM - VOLUME 2 DETAIL 2.70.5.
- FOR END OF CONTINUITY LINE WM2 REFER TO SARTSM - VOLUME 2 DETAIL 2.71.3.
- FOR END OF ON-RAMP GORE REFER TO SARTSM - VOLUME 2 DETAIL 2.71.4.

LEGEND:

MARKING No.
WIDTH / COLOUR
LINE / GAP

WHERE

W = WHITE
Y = YELLOW
R = RED

LENGTH / GAP (12m MODULE) LINE TYPE

WM2.1	2.0m / 10.0m
WM2.2	2.0m / 4.0m
WM2.3	2.0m / 2.0m
GM1.0	2.0m / 10.0m
GM1.2	2.0m / 4.0m
GM1.3	2.0m / 2.0m
WM 3.1	4.0m / 8.0m

NOTES:

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- EXISTING ROAD MARKINGS TO BE REPAINTED, WILL BE DETERMINED BY THE ENGINEER ON SITE
- PAINT LAYOUT BASED ON 12m MODULE
- ALL LANE WIDTH DIMENSIONS ARE C/C OR LONGITUDINAL ROAD PAINT MARKINGS

ROAD STUD LEGEND:

1. W — WHITE
2. R R — RED / RED STUD
3. Y R — YELLOW / RED STUD

LONGITUDINAL ROADSTUD SPACING:

NORMAL : 24 m C/C (CARRIAGEWAY)
INTERMEDIATE : 12 m C/C (ON / OFF RAMPS)
ABNORMAL : 6 m C/C (ON / OFF RAMPS)

NOTES:

1. WHITE / RED - WHITE FACING ONCOMING TRAFFIC.
2. RED / RED - NO CROSSING TRAFFIC.
3. YELLOW / RED - YELLOW FACING ONCOMING TRAFFIC
4. ROAD STUDS TO BE PLACED A MIN. OF 150 mm AWAY FROM RM4.1 AND RM4.2 EDGE LINE MARKING

TIE IN SECTION WESTBOUND CENTER LINE COORDINATES

DESIGN SPEED 80 km/h — *(WGS 84 \ LO 27°)*

CHAINAGE	Y COORDINATE + 0,000	X CO-ORDINATE + 0,000	DESCRIPTION
40.900 000	-15 098.230	+2 836 338.709	
41.000 000	-15 015.374	+2 836 282.719	
41.100 000	-14 927.519	+2 836 235.196	
41.200 000	-14 832.998	+2 836 202.906	

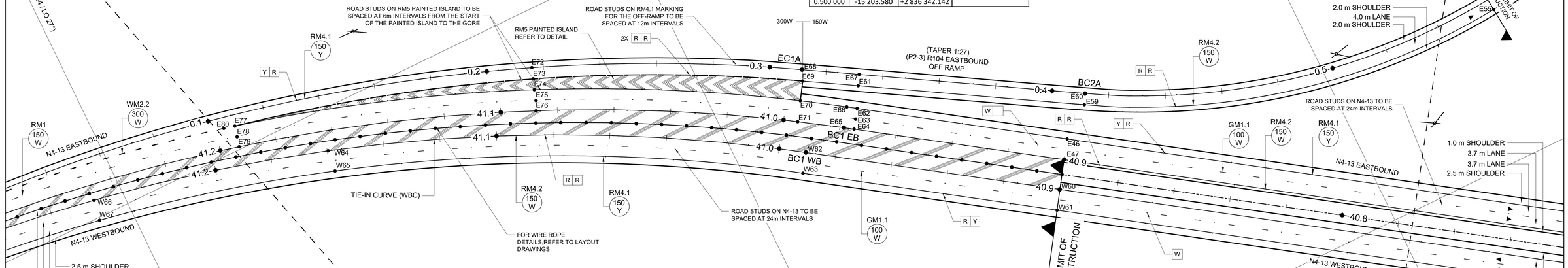
N4-13 ROAD PAINT MARKING WESTBOUND CO-ORDINATES (WGS 84 \ LO 27°)

POINT	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
W60	-15 098.230	+2 836 338.709	
W61	-15 094.203	+2 836 344.907	
W62	-15 023.281	+2 836 287.980	
W63	-15 019.136	+2 836 294.108	
W64	-14 871.771	+2 836 214.039	
W65	-14 870.859	+2 836 221.517	
W66	-14 789.735	+2 836 193.787	
W67	-14 788.446	+2 836 201.016	

(P2-3) R104 SWARTRUGGENS ROAD EASTBOUND OFF-RAMP CENTER LINE COORDINATES

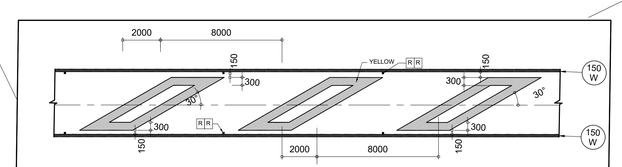
DESIGN SPEED VARIES — *(WGS 84 \ LO 27°)*

CHAINAGE	Y COORDINATE + 0,000	X CO-ORDINATE + 0,000	DESCRIPTION
0.000 000	-14 738.900	+2 836 175.080	
0.100 000	-14 838.170	+2 836 186.199	
0.200 000	-14 934.348	+2 836 213.180	
0.300 000	-15 024.916	+2 836 255.318	
0.400 000	-15 110.999	+2 836 306.206	
0.500 000	-15 203.580	+2 836 342.142	



N4-13 ROAD PAINT MARKING EASTBOUND CO-ORDINATES (WGS 84 \ LO 27°)

POINT	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
E57	-15 203.580	+2 836 342.142	
E58	-15 202.934	+2 836 346.090	
E59	-15 119.078	+2 836 315.576	
E60	-15 121.014	+2 836 312.141	
E61	-15 050.164	+2 836 274.807	
E62	-15 046.320	+2 836 281.836	
E63	-15 044.190	+2 836 285.029	
E64	-15 042.171	+2 836 287.966	
E65	-15 039.123	+2 836 285.900	
E66	-15 043.279	+2 836 279.778	
E67	-15 052.211	+2 836 271.345	
E68	-15 034.783	+2 836 261.043	
E69	-15 033.233	+2 836 264.797	
E70	-15 029.464	+2 836 270.699	
E71	-15 025.406	+2 836 276.958	
E72	-14 949.266	+2 836 218.922	
E73	-14 947.976	+2 836 222.715	
E74	-14 946.624	+2 836 226.291	
E75	-14 945.515	+2 836 229.999	
E76	-14 943.945	+2 836 233.280	
E77	-14 845.910	+2 836 191.845	
E78	-14 844.986	+2 836 195.572	
E79	-14 844.111	+2 836 199.096	
E80	-14 842.048	+2 836 190.871	



DETAIL OF 2 WAY DIAGONAL BARS
NOT TO SCALE

SARTSM - VOLUME 2 : PAINTED ISLAND DETAILS

- FOR LOCATION OF EXIT POINT REFER TO SARTSM - VOLUME 2 DETAIL 2.70.2.
- FOR GORE ISLAND REFER TO SARTSM - VOLUME 2 DETAIL 2.70.3.
- FOR START OF GORE ISLAND REFER TO SARTSM - VOLUME 2 DETAIL 2.70.5.
- FOR END OF CONTINUITY LINE WM2 REFER TO SARTSM - VOLUME 2 DETAIL 2.71.3.
- FOR END OF ON-RAMP GORE REFER TO SARTSM - VOLUME 2 DETAIL 2.71.4.

TENDER

5m 15m 25m 35m 45m
0m 10m 20m 30m 40m 50m
ORIGINAL SCALE 1 : 500 (A0)

No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
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Date :

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CHECKED BY
NAME PL NGQUMSHE
Prof. Reg. No. 20080112
DRAWN BY
NAME WB HARTMANN

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17 / 07 / 2023

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ACCEPTANCE
THIS ACCEPTANCE IS FOR PROCEDURAL AND ADMINISTRATIVE REVIEW PURPOSES ONLY AND DOES NOT ATTRACT LEGAL LIABILITY OR LIABILITY OF ANY KIND FROM WHATRMEVER CAUSE OR HOWEVER ARISING
for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION
ROAD PAINT MARKINGS
R104 (P2 - 3) INTERCHANGE

SCALE : 1 : 500 (A0) SHEET 06 OF 07

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	SECTION 13	SECTION 13
DRAWING km DISTANCE	km 40.800	km 41.200
DRAWING TYPE	ROADS - ROAD PAINT MARKINGS	
BRIDGE/STRUCTURE No.	NA	
CONSULTANT DRAWING No.	FA 3257 / 23 / 18 RM	VER V0
SANRAL DOCUMENT #	- -	

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\09 - Road Paint Markings\3257_23_13-19 RM - R104 N4 Interchange Road Paint Markings_20230717.dwg

TIE IN SECTION WESTBOUND CENTER LINE COORDINATES

DESIGN SPEED 80 km/h — *(WGS 84 \ LO 27°)*

CHAINAGE	Y COORDINATE + 0,000	X CO-ORDINATE + 0,000	DESCRIPTION
41.300 000	-14 734.430	+2 836 186.744	
41.400 000	-14 634.547	+2 836 187.158	
41.500 000	-14 536.116	+2 836 204.137	
41.600 000	-14 441.866	+2 836 237.210	
41.668 176	-14 380.249	+2 836 266.383	

TIE IN SECTION EASTBOUND CENTER LINE COORDINATES

DESIGN SPEED 80 km/h — *(WGS 84 \ LO 27°)*

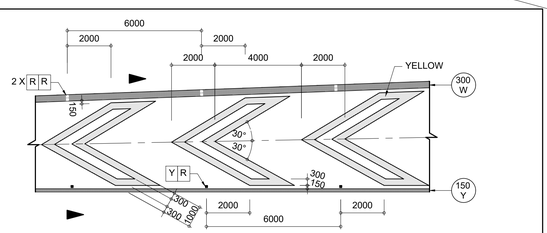
CHAINAGE	Y COORDINATE + 0,000	X CO-ORDINATE + 0,000	DESCRIPTION
41.300 000	-14 738.738	+2 836 182.481	
41.400 000	-14 638.859	+2 836 183.861	
41.500 000	-14 540.545	+2 836 201.524	
41.600 000	-14 446.432	+2 836 234.994	
41.673 249	-14 380.249	+2 836 266.383	

N4-13 ROAD PAINT MARKING WESTBOUND CO-ORDINATES *(WGS 84 \ LO 27°)*

POINT	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
W68	-14 686.970	+2 836 184.942	
W69	-14 686.970	+2 836 192.263	
W7	-16 792.620	+2 837 835.884	
W70	-14 568.653	+2 836 196.720	
W71	-14 570.640	+2 836 203.871	
W72	-14 432.042	+2 836 249.899	
W73	-14 428.857	+2 836 243.220	
W74	-14 383.419	+2 836 273.070	

N4-13 ROAD PAINT MARKING EASTBOUND CO-ORDINATES *(WGS 84 \ LO 27°)*

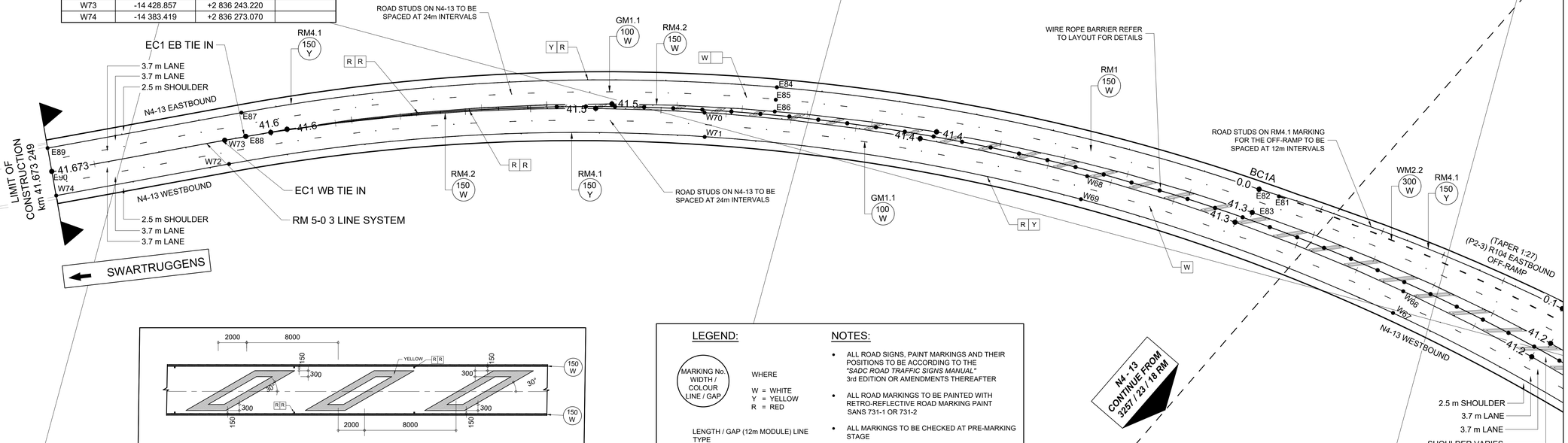
POINT	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
E81	-14 745.351	+2 836 175.605	
E82	-14 738.900	+2 836 175.080	
E83	-14 738.738	+2 836 182.481	
E84	-14 588.033	+2 836 183.401	
E85	-14 588.712	+2 836 187.180	
E86	-14 589.355	+2 836 190.757	
E87	-14 431.610	+2 836 233.721	
E88	-14 434.788	+2 836 240.394	
E89	-14 377.075	+2 836 259.699	
E90	-14 380.173	+2 836 266.276	



DETAIL OF RM 5 CHEVRON BARS OFF RAMP TREATMENT
NOT TO SCALE

SARTSM - VOLUME 2 : PAINTED ISLAND DETAILS

- FOR LOCATION OF EXIT POINT REFER TO SARTSM - VOLUME 2 DETAIL 2.70.2.
- FOR GORE ISLAND REFER TO SARTSM - VOLUME 2 DETAIL 2.70.3.
- FOR START OF GORE ISLAND REFER TO SARTSM - VOLUME 2 DETAIL 2.70.5.
- FOR END OF CONTINUITY LINE WM2 REFER TO SARTSM - VOLUME 2 DETAIL 2.71.3.
- FOR END OF ON-RAMP GORE REFER TO SARTSM - VOLUME 2 DETAIL 2.71.4.



DETAIL OF 2 WAY DIAGONAL BARS
NOT TO SCALE

SARTSM - VOLUME 2 : PAINTED ISLAND DETAILS

- FOR LOCATION OF EXIT POINT REFER TO SARTSM - VOLUME 2 DETAIL 2.70.2.
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- FOR END OF CONTINUITY LINE WM2 REFER TO SARTSM - VOLUME 2 DETAIL 2.71.3.
- FOR END OF ON-RAMP GORE REFER TO SARTSM - VOLUME 2 DETAIL 2.71.4.

LEGEND:

MARKING No. WIDTH / COLOUR LINE / GAP

WHERE
W = WHITE
Y = YELLOW
R = RED

LENGTH / GAP (12m MODULE) LINE TYPE

WM2.1	2.0m / 10.0m
WM2.2	2.0m / 4.0m
WM2.3	2.0m / 2.0m
GM1.0	2.0m / 10.0m
GM1.2	2.0m / 4.0m
GM1.3	2.0m / 2.0m
WM 3.1	4.0m / 8.0m

NOTES:

- ALL ROAD SIGNS, PAINT MARKINGS AND THEIR POSITIONS TO BE ACCORDING TO THE *"SADC ROAD TRAFFIC SIGNS MANUAL"* 3rd EDITION OR AMENDMENTS THEREAFTER
- ALL ROAD MARKINGS TO BE PAINTED WITH RETRO-REFLECTIVE ROAD MARKING PAINT SANS 731-1 OR 731-2
- ALL MARKINGS TO BE CHECKED AT PRE-MARKING STAGE
- ALL EXISTING OR CONFLICTING ROAD MARKINGS MUST BE REMOVED BY MEANS OF SANDBLASTING
- EXISTING ROAD MARKINGS TO BE REPAINTED, WILL BE DETERMINED BY THE ENGINEER ON SITE
- PAINT LAYOUT BASED ON 12m MODULE
- ALL LANE WIDTH DIMENSIONS ARE C/C OR LONGITUDINAL ROAD PAINT MARKINGS

ROAD STUD LEGEND:

1. W — WHITE
2. R R — RED / RED STUD
3. Y R — YELLOW / RED STUD

LONGITUDINAL ROADSTUD SPACING:

NORMAL : 24 m C/C (CARRIAGEWAY)
INTERMEDIATE : 12 m C/C (ON / OFF RAMPS)
ABNORMAL : 6 m C/C (ON / OFF RAMPS)

NOTES:

1. WHITE / RED - WHITE FACING ONCOMING TRAFFIC.
2. RED / RED - NO CROSSING TRAFFIC.
3. YELLOW / RED - YELLOW FACING ONCOMING TRAFFIC
4. ROAD STUDS TO BE PLACED A MIN. OF 150 mm AWAY FROM RM4.1 AND RM4.2 EDGE LINE MARKING

TENDER

5m 15m 25m 35m 45m
0m 10m 20m 30m 40m 50m
ORIGINAL SCALE 1 : 500 (A0)

No.	DATE	REVISION	
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date

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NAME	Z MASHININI
Prof. Reg. No.	-
CHECKED BY	
NAME	PL NGQUMSHE
Prof. Reg. No.	20080112
DRAWN BY	
NAME	WB HARTMANN

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17 / 07 / 2023

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for CEO. SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION
ROAD PAINT MARKINGS
R104 (P2 - 3) INTERCHANGE & N4-13 TIE-IN SECTION

SCALE : 1 : 500 (A0) — SHEET 07 OF 07

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	SECTION 13	SECTION 13
DRAWING km DISTANCE	km 41.200	km 41.673
DRAWING TYPE	ROADS - ROAD PAINT MARKINGS	
BRIDGE/STRUCTURE No.	NA	
CONSULTANT DRAWING No.	FA 3257 / 23 / 19 RM	VER
SANRAL DOCUMENT #	- -	V0

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\09 - Road Paint Markings\3257_23_13-19 RM - R104 N4 Interchange Road Paint Markings_20230717.dwg

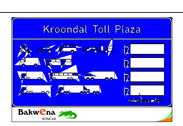
N4 - 13 DUAL CARRIAGEWAY SIGNAGE - WESTBOUND

SIGN No.	SIGN	SIZE & DESCRIPTION	CLASS	CHAINAGE	QUANTITY	REMARKS
WB-SIGN 1		GL4 2500 x 1000	3 / 3	2.78	1	
WB-SIGN 4		GA7 2400 x 1000	3 / 3	3.70	1	
WB SIGN 45		GA7P	3 / 3	10.26	1	
WB SIGN 46		IN24	3 / 3	10.5	1	
WB SIGN 61		GL7.2	3 / 3	12.24	1	
WB-SIGN 65		GA7 2300 x 1200	3 / 3	12.86	1	
WB-SIGN 110		GA2 4947 x 3200	3 / 3	19.62	1	
WB-SIGN 112		GA2/3 3850 X 2200	3 / 3	20.12	1	
WB-SIGN 124		GA7 2750 x 1200	3 / 3	22.80	1	
WB-SIGN 141		GA2 5434 x 3800	3 / 3	26.00	1	
WB-SIGN 146		GA2/3 3887 X 2600	3 / 3	26.50	1	
WB-SIGN 149		IN3 1200 X 700	3 / 3	26.66	1	
WB-SIGN 158		GA7 2850 X 1200	3 / 3	28.48	1	

N4 - 13 DUAL CARRIAGEWAY SIGNAGE - WESTBOUND

SIGN No.	SIGN	SIZE & DESCRIPTION	CLASS	CHAINAGE	QUANTITY	REMARKS
WB-SIGN 160		GS103 2400 X 1800 + IN11.3 (400m) 1800 X 600	3 / 3	29.10	1	
WB-SIGN 161		GA2 6131 X 3600	3 / 3	29.14	1	
WB-SIGN 162		GS103 2400 X 1800	3 / 3	29.50	1	

N4 - 13 DUAL CARRIAGEWAY SIGNAGE-EASTBOUND

SIGN No.	SIGN	SIZE & DESCRIPTION	CLASS	CHAINAGE	QUANTITY	REMARKS
EB-SIGN 1		GS152 2400 X 1800 + IN11.3 (800m) 1800 X 600	3 / 3	31.90	1	
EB-SIGN 2		GS152 2400 X 1800 + IN11.3 (400m) 1800 X 600	3 / 3	31.50	1	
EB-SIGN 13		GA2 5434 X 3800	3 / 3	28.94	1	
EB-SIGN 16		GA2/3 3887 X 2600	3 / 3	28.44	1	
EB-SIGN 17		IN3 1200 X 700	3 / 3	28.39	1	
EB-SIGN 28		GA7 2000 X 1200	3 / 3	26.26	1	
EB SIGN 31		GA8P	3 / 3	25.66	1	
EB SIGN 40		GA8P	3 / 3	23.90	1	
EB SIGN 46		IN24	3 / 3	22.88	1	
EB-SIGN 47		GA2 5072 X 3800	3 / 3	22.82	1	

NOTE:
ROAD SIGN DESIGNS ARE INCLUDED IN A SEPARATE BOOK TITLED:
ROAD TRAFFIC SIGNS N4-13 km 2.8 TO km 30.600

No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date :

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DESIGNED BY	
NAME	EF DAY
Prof. Reg. No.	20130622
CHECKED BY	
NAME	J FALKNER
Prof. Reg. No.	- -
DRAWN BY	
NAME	WB HARTMANN

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17/07/2023

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Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION
ROAD TRAFFIC SIGNS N4-13 WESTBOUND & EASTBOUND

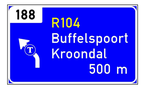
SCALE : N.T.S
SHEET 1 OF 2

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	SECTION 13	SECTION 13
DRAWING km DISTANCE	- -	- -
DRAWING TYPE	ROADS - ROAD SIGNS	
BRIDGE/STRUCTURE No.	N / A	
CONSULTANT DRAWING No.	FA 3257 / 23 / 01 RS	VER v0
SANRAL DOCUMENT #	- -	

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadwork\10 - Road Traffic Signs\3257_23_01-02_ RS - N4-13 Road Traffic Signs_20230717.dwg

N4 - 13 DUAL CARRIAGEWAY SIGNAGE - EASTBOUND

SIGN No.	SIGN	SIZE & DESCRIPTION	CLASS	CHAINAGE	QUANTITY	REMARKS
EB-SIGN 52		GA2/3 3650 X 2200	3 / 3	22.32	1	
EB-SIGN 55		IN3 1200 X 700	3 / 3	22.04	1	
EB-SIGN 56		IN2 1200 X 700	3 / 3	21.94	1	
EB-SIGN 65		GA7 2000 X 1200	3 / 3	19.86	1	
EB SIGN 109		GA7P	3 / 3	13.24	1	
EB SIGN 113		IN24	3 / 3	12.80	1	
EB SIGN 127		GL7.2	3 / 3	11.28	1	
EB SIGN 130		GA8P	3 / 3	11	1	
EB-SIGN 133		GA7 1950 X 1400	3 / 3	10.66	1	
EB-SIGN 171		GA2 5097 x 3200	3 / 3	3.76	1	
EB-SIGN 173		GA2/3 4550 x 2600	3 / 3	3.26	1	
EB-SIGN 175		IN3 1200 X 700	3 / 3	3.06	1	
EB-SIGN 176		IN2 1200 X 700	3 / 3	2.96	1	

N4 - 13 DUAL CARRIAGEWAY SIGNAGE-EASTBOUND

SIGN No.	SIGN	SIZE & DESCRIPTION	CLASS	CHAINAGE	QUANTITY	REMARKS
EB-SIGN 177		IN1 1200 X 700	3 / 3	2.86	1	
EB-SIGN 178		GL4 2500 x 1000	3 / 3	2.84	1	
EB-SIGN 180		GA3 4550 x 2200	3 / 3	2.76	1	

N4 - 13 DUAL CARRIAGEWAY REGULATORY & WARNING SIGNAGE

		R201-80 1200	3 / 3	AS SHOWN ON ISSUED LISTS	2	
		R201-100 1200	3 / 3	AS SHOWN ON ISSUED LISTS	2	
		R201-120 1200	3 / 3	AS SHOWN ON ISSUED LISTS	4	
		W401 1200 X 300	3 / 3	AS SHOWN ON ISSUED LISTS	271	
		W402 1200 X 300	3 / 3	AS SHOWN ON ISSUED LISTS	252	

NOTE:

ROAD SIGN DESIGNS ARE INCLUDED IN A SEPARATE BOOK TITLED:
ROAD TRAFFIC SIGNS N4-13 km 2.8 TO km 30.600

No.	DATE	REVISION	
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSULT. ENG.

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
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Prof. Reg. No. :
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Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17/07/2023

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THE SOUTH AFRICAN NATIONAL ROADS AGENCY SOC LTD
Reg. No. 1998/009584/30

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ACCEPTANCE
THIS ACCEPTANCE IS FOR PROCEDURAL AND ADMINISTRATIVE REVIEW PURPOSES ONLY AND DOES NOT ATTRACT LEGAL LIABILITY OR LIABILITY OF ANY KIND FROM WHATSOEVER CAUSE OR HOWEVER ARISING
for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION
ROAD TRAFFIC SIGNS N4-13
EASTBOUND, REGULATORY & WARNING SIGNS

SCALE : N.T.S | SHEET 2 OF 2

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	SECTION 13	SECTION 13
DRAWING km DISTANCE	- -	- -
DRAWING TYPE	ROADS - ROAD SIGNS	
BRIDGE/STRUCTURE No.	N / A	
CONSULTANT DRAWING No.	FA 3257 / 23 / 02 RS	VER
SANRAL DOCUMENT #	- -	V0

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadwork\10 - Road Traffic Signs\3257_23_01-02_ RS - N4-13 Road Traffic Signs_20230717.dwg

SIGN No. 45 (GA7P)
WESTBOUND (10.26 km)

&

SIGN No. 109 (GA7P)
EASTBOUND (13.24 km)

Border Radius: 120 mm
Border Color: White Class 1
Length: 3400 mm Height: 1400 mm Area: 4.76 m²

Stack colours and arrow types:

Stack 1: Stack Background: Blue Class 1 (Standard)
Arrow Type: None White Class 1-Standard

All materials to comply with SABS 1519 standards

Distance from left edge: 1265 mm Length: 870 mm Text Height: 210 mm Route Number Text Color: Yellow Class 3

Text DIN B: N 4

Spacing	150	195	135	90	300	
Accumulative	1415	1610	1745	1775	2135	

Distance from left edge: 210 mm Length: 1986 mm Text Height: 210 mm Color: White Class 3

Text DIN B: Marikana Plaza

Spacing	218	165	124	75	150	165	154	120	150	180	72	154	139	120
Accumulative	428	593	717	792	942	1107	1261	1381	1531	1711	1783	1937	2076	2196

Distance from left edge: 2355 mm Length: 835 mm Text Height: 210 mm Small Text Height: 175 mm Color: White Class 3

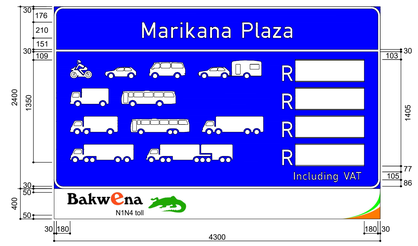
Text DIN B: 1 , 3 km

Spacing	124	89	104	150	158	210
Accumulative	2479	2568	2672	2822	2980	3190

SIGN No. 46 (IN24)
WESTBOUND (10.56 km)

&

SIGN No. 113 (IN24)
EASTBOUND (12.80 km)



Border Radius: 120 mm
Border Color: White Class 1
Length: 4300 mm Height: 2400 mm Area: 10.32 m²

Stack colours and arrow types:

Stack 1: Stack Background: Blue Class 1 (Standard)
Arrow Type: None White Class 1-Standard

Stack 2: Stack Background: Blue Class 1 (Standard)
Arrow Type: None White Class 1-Standard

All materials to comply with SABS 1519 standards
Distance from left edge: 1157 mm Length: 1986 mm Text Height: 210 mm Color: White Class 3

Text DIN B: Marikana Plaza

Spacing	218	165	124	75	150	165	154	120	150	180	72	154	139	120
Accumulative	1375	1540	1664	1739	1889	2054	2208	2328	2478	2658	2730	2884	3023	3143

Distance from left edge: 210 mm Length: 3880 mm Text Height: 210 mm Color: White Class 3

Text DIN B:

Spacing	2550	246
Accumulative	2760	3006

1084
4090

Distance from left edge: 3161 mm Length: 892 mm Text Height: 105 mm Color: White Class 3

Text DIN B: Including VAT

Spacing	39	79	75	42	81	85	38	81	60	75	77	85	75	
Accumulative	3200	3279	3354	3396	3477	3562	3600	3681	3741	3816	3893	3978	4053	

SIGN No. 61 (GL7.2)
WESTBOUND (12.24 km)

&

SIGN No. 127 (GL7.2)
EASTBOUND (11.28 km)

Border Radius: 120 mm
Border Color: Black Class 1
Length: 1800 mm Height: 1200 mm Area: 2.16 m²

Stack colours and arrow types:

Stack 1: Stack Background: White Class 1 (Standard)
Arrow Type: None Black Class 1-Standard

All materials to comply with SABS 1519 standards
Distance from left edge: 225 mm Length: 1337 mm Text Height: 210 mm Color: Black Semi Matt

Text DIN B: PLATINUM

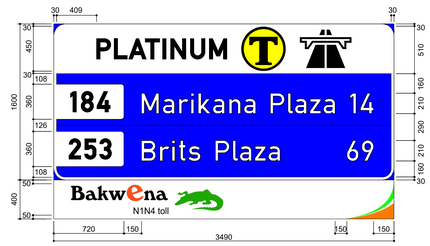
Spacing	180	150	169	179	81	203	195	180
Accumulative	405	555	724	903	984	1187	1382	1562

Distance from left edge: 338 mm Length: 1125 mm Text Height: 210 mm Small Text Height: 175 mm Color: White Class 3

Text DIN B:

Spacing	450	150	525
Accumulative	788	938	1463

SIGN No. 31 (GA8P)
EASTBOUND (25.66 km)



Border Radius: 120 mm
Border Color: White Class 1
Length: 3490 mm Height: 1600 mm Area: 5.58 m²

Stack colours and arrow types:

Stack 1: Interchange Background: White Class 1 (Standard)
Arrow Type: None

Stack 2: Stack Background: Blue Class 1 (Standard)
Arrow Type: None White Class 1-Standard

Stack 3: Stack Background: Blue Class 1 (Standard)
Arrow Type: None White Class 1-Standard

All materials to comply with SABS 1519 standards
Distance from left edge: 439 mm Length: 2612 mm Text Height: 210 mm
Color: Black Semi Matt

Text B MOD: PLATINUM

Accumulative	180	150	169	179	81	203	195	180	150	450	150	525
Spacing	619	769	938	1117	1198	1401	1596	1776	1926	2376	2526	3051

Distance from left edge: 172 mm Length: 406 mm Text Height: 210 mm
Color: Black Semi Matt

Text B MOD: 184

Accumulative	109	162	135
Spacing	281	443	578

Distance from left edge: 870 mm Length: 2410 mm Text Height: 210 mm
Color: White Class 3

Text DIN B: Marikana Plaza 14

Accumulative	218	165	124	75	150	165	154	120	150	180	72	154	139	120	184	105	135								
Spacing	1088	1253	1377	1452	1602	1767	1921	2041	2191	2371	2443	2597	2736	2856	3040	3145	3280								

Distance from left edge: 157 mm Length: 436 mm Text Height: 210 mm
Color: Black Semi Matt

Text B MOD: 253

Accumulative	158	154	124
Spacing	315	469	593

Distance from left edge: 870 mm Length: 2410 mm Text Height: 210 mm
Color: White Class 3

Text DIN B: Brits Plaza 69

Accumulative	188	124	72	94	128	150	180	72	154	139	120	715	154	120											
Spacing	1058	1182	1254	1348	1476	1626	1806	1878	2032	2171	2291	3006	3160	3280											

No.	DATE	REVISION	
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
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NAME	EF DAY
Prof. Reg. No.	20130622
CHECKED BY	
NAME	J FALKNER
Prof. Reg. No.	- -
DRAWN BY	
NAME	WB HARTMANN

CONSULTANT APPROVAL
Name : PL NGQUMSHE
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Date : 17/07/2023

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PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION
ROAD TRAFFIC SIGNS N4-13
SPECIAL DESIGN SIGNS

SCALE : N.T.S SHEET 1 OF 2

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	SECTION 13	SECTION 13
DRAWING km DISTANCE	- -	- -
DRAWING TYPE	ROADS - ROAD SIGNS	
BRIDGE/STRUCTURE No.	N / A	
CONSULTANT DRAWING No.	FA 3257 / 23 / 03 RS	VER
SANRAL DOCUMENT #	- -	V0

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\10 - Road Traffic Signs\3257_23_03-04_R5 - N4-13 Road Traffic Signs_20230717.dwg

SIGN No. 40 (GA8P)
EASTBOUND (23.90 km)

Border Radius: 120 mm
Border Color: White Class 1
Length: 4400 mm Height: 1600 mm Area: 7.04 m²
Stack colours and arrow types:
Stack 1: Interchange Background: White Class 1 (Standard)
Arrow Type: None
Stack 2: Stack Background: Blue Class 1 (Standard)
Arrow Type: None White Class 1-Standard
Stack 3: Stack Background: Blue Class 1 (Standard)
Arrow Type: None White Class 1-Standard

All materials to comply with SABS 1519 standards
Distance from left edge: 894 mm Length: 2612 mm Text Height: 210 mm
Color: Black Semi Matt

Text B MOD: P L A T I N U M

Accumulative	180	150	169	179	81	203	195	180	150	450	150	525
Spacing	1074	1224	1393	1572	1653	1856	2051	2231	2381	2831	2981	3506

Distance from left edge: 176 mm Length: 399 mm Text Height: 210 mm
Color: Black Semi Matt

Text B MOD: 1 8 8

Accumulative	109	162	128
Spacing	285	447	575

Distance from left edge: 870 mm Length: 3320 mm Text Height: 210 mm
Color: White Class 3

Text DIN B: K r o o n d a l R a m p P l a z a

Accumulative	188	117	162	165	162	158	162	53	150	180	165	255	120	150	180	72	154	139	120
Spacing	1058	1175	1337	1502	1664	1822	1984	2037	2187	2367	2532	2787	2907	3057	3237	3309	3463	3602	3722

Text DIN B: 2

Accumulative	348	120
Spacing	4070	4190

Distance from left edge: 172 mm Length: 406 mm Text Height: 210 mm
Color: Black Semi Matt

Text B MOD: 1 8 4

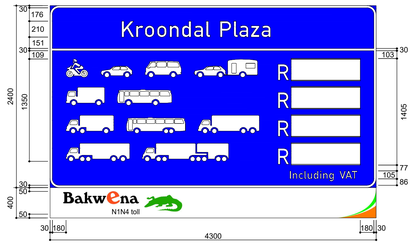
Accumulative	109	162	135
Spacing	281	443	578

Distance from left edge: 870 mm Length: 3320 mm Text Height: 210 mm
Color: White Class 3

Text DIN B: M a r i k a n a P l a z a 1 2

Accumulative	218	165	124	75	150	165	154	120	150	180	72	154	139	120	110	5	3961	109	120
Spacing	1088	1253	1377	1452	1602	1767	1921	2041	2191	2371	2443	2597	2736	2856			4070	4190	

SIGN No. 46 (IN24)
EASTBOUND (22.88 km)



Border Radius: 120 mm
Border Color: White Class 1
Length: 4300 mm Height: 2400 mm Area: 10.32 m²
Stack colours and arrow types:
Stack 1: Stack Background: Blue Class 1 (Standard)
Arrow Type: None White Class 1-Standard
Stack 2: Stack Background: Blue Class 1 (Standard)
Arrow Type: None White Class 1-Standard

All materials to comply with SABS 1519 standards
Distance from left edge: 854 mm Length: 2592 mm Text Height: 210 mm Color: White Class 3

Text DIN B: K r o o n d a l T o l l

Spacing	188	117	162	165	162	158	162	53	150	152	165	90	53
Accumulative	1042	1159	1321	1486	1648	1806	1968	2021	2171	2323	2488	2578	2631

P l a z a

Spacing	150	180	72	154	139	120
Accumulative	2781	2961	3033	3187	3326	3446

Distance from left edge: 210 mm Length: 3880 mm Text Height: 210 mm Color: White Class 3

Text DIN B:

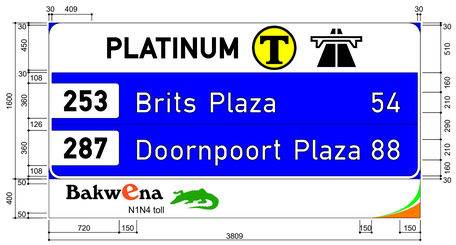
Spacing	2550	246	1084
Accumulative	2760	3006	4090

Distance from left edge: 3161 mm Length: 892 mm Text Height: 105 mm Color: White Class 3

Text DIN B: I n c l u d i n g V A T

Spacing	39	79	75	42	81	85	38	81	60	75	77	85	75
Accumulative	3200	3279	3354	3396	3477	3562	3600	3681	3741	3816	3893	3978	4053

SIGN No. 130 (GA8P)
EASTBOUND (11.00 km)



Border Radius: 120 mm
Border Color: White Class 1
Length: 3809 mm Height: 1600 mm Area: 6.09 m²
Stack colours and arrow types:
Stack 1: Interchange Background: White Class 1 (Standard)
Arrow Type: None
Stack 2: Stack Background: Blue Class 1 (Standard)
Arrow Type: None White Class 1-Standard
Stack 3: Stack Background: Blue Class 1 (Standard)
Arrow Type: None White Class 1-Standard

All materials to comply with SABS 1519 standards
Distance from left edge: 598 mm Length: 2612 mm Text Height: 210 mm
Color: Black Semi Matt

Text B MOD: P L A T I N U M

Accumulative	180	150	169	179	81	203	195	180	150	450	150	525
Spacing	778	928	1097	1276	1357	1560	1755	1935	2085	2535	2685	3210

Distance from left edge: 157 mm Length: 436 mm Text Height: 210 mm
Color: Black Semi Matt

Text B MOD: 2 5 3

Accumulative	158	154	124
Spacing	315	469	593

Distance from left edge: 870 mm Length: 2729 mm Text Height: 210 mm
Color: White Class 3

Text DIN B: B r i t s P l a z a 5 4

Accumulative	188	124	72	94	128	150	180	72	154	139	120	101	9	154	135		
Spacing	1058	1182	1254	1348	1476	1626	1806	1878	2032	2171	2291	3310		3464	3599		

Distance from left edge: 157 mm Length: 436 mm Text Height: 210 mm
Color: Black Semi Matt

Text B MOD: 2 8 7

Accumulative	154	162	120
Spacing	311	473	593

Distance from left edge: 870 mm Length: 2729 mm Text Height: 210 mm
Color: White Class 3

Text DIN B: D o o r n p o o r t P l a z a 8 8

Accumulative	188	162	165	124	165	158	162	165	117	68	150	180	72	154	139	120	150	162	128	
Spacing	1058	1220	1385	1509	1674	1832	1994	2159	2276	2344	2494	2674	2746	2900	3039	3159	3309	3471	3599	

No.	DATE	REVISION	
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSULT.

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\10 - Road Traffic Signs\3257_23_03-04_RS - N4-13 Road Traffic Signs_20230717.dwg

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
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Date
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Name
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NAME	EF DAY
Prof. Reg. No.	20130622
CHECKED BY	
NAME	J FALKNER
Prof. Reg. No.	- -
DRAWN BY	
NAME	WB HARTMANN

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17/07/2023

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Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION
ROAD TRAFFIC SIGNS N4-13
SPECIAL DESIGN SIGNS

SCALE : N.T.S SHEET 2 OF 2

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001		
DRAWING LOCATION DATA	START	END	
ROUTE	N 4	N 4	
SECTION	SECTION 13	SECTION 13	
DRAWING km DISTANCE	- -	- -	
DRAWING TYPE	ROADS - ROAD SIGNS		
BRIDGE/STRUCTURE No.	N / A		
CONSULTANT DRAWING No.	FA	3257 / 23 / 04 RS	VER
SANRAL DOCUMENT #	- -		V0

SANRAL DOCUMENT NUMBER :

X + 2 847 000 (WGS 84 / LO 27°)
Y - 31 600 (WGS 84 / LO 27°)
Y - 31 800 (WGS 84 / LO 27°)
X + 2 847 200 (WGS 84 / LO 27°)
X + 2 847 000 (WGS 84 / LO 27°)
Y - 31 400 (WGS 84 / LO 27°)

SIGN No.	SIGN	CHAINAGE
EB-SIGN 65	N4 T Brits 60 Pretoria 100	km 19.86

BRITS
N4-13 EASTBOUND
N4-13 WESTBOUND
0.9
0.8
0.7
0.6
0.5
0.4
20.3
20.4
20.5
20.6
20.7
20.8

KEB-SIGN 9: R201-120
120

KWB-SIGN 1:IN3
KM 20.35

KWB-SIGN 2:IN2
KM 20.45

KWB-SIGN 3:IN1
KM 20.55

SIGN No.	SIGN	CHAINAGE
WB-SIGN 110	188 N4 T R104 Kroondal Buffelspoort 1km	km 19.62
WB-SIGN 112	188 R104 Kroondal Buffelspoort 500 m	km 20.12

RUSTENBURG

KEB-SIGN 8:GS 402

R104 (P2-4) KROONDAL ON RAMP EASTBOUND

R104 (P2-4) KROONDAL OFF RAMP WESTBOUND

KWB-SIGN 5:
R201-60
+
R401-600
(END OF FREEWAY)

KWB-SIGN 4:GA3
KM 20.63
R104 Kroondal Buffelspoort
188

KWB-SIGN 6:GA4
KM 20.80
188

N4 - 13
CONTINUE ON
3257 / 13 / 06 RS

NOTE:

SEE DRAWIG 3257/23/08 RS
FOR SIGN DETAILS

5m 15m 25m 35m 45m
0m 10m 20m 30m 40m 50m
ORIGINAL SCALE 1 : 500 (A0)

No.	DATE	REVISION	
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
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NAME	J FALKNER
Prof. Reg. No.	- -
DRAWN BY	
NAME	WB HARTMANN

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THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

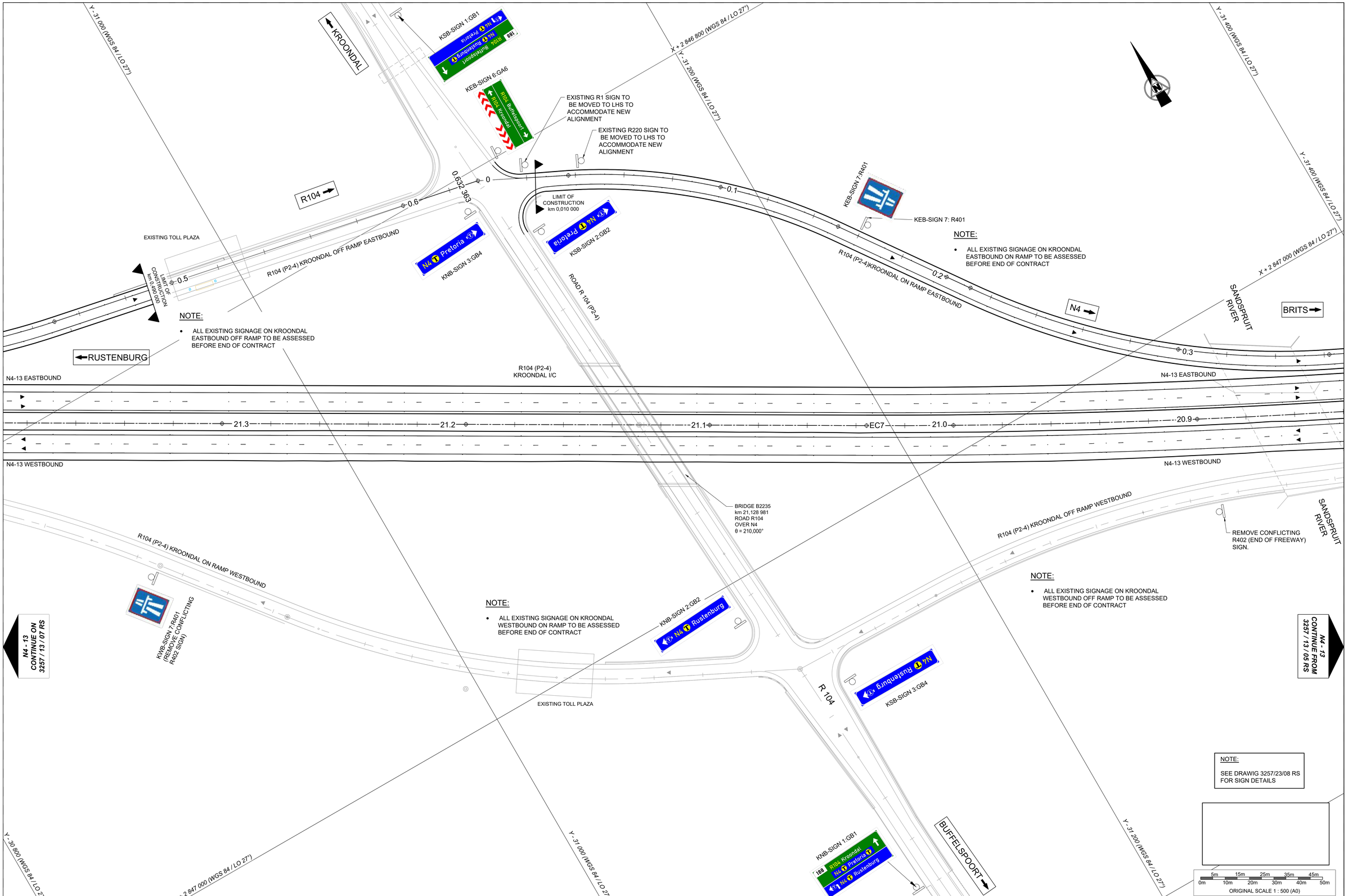
DRAWING DESCRIPTION
ROAD TRAFFIC SIGNS
R104 (P2-4) KROONDAL INTERCHANGE (188)

SCALE : 1 : 500 (A0) SHEET 1 OF 4

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001		
DRAWING LOCATION DATA	START	END	
ROUTE	N 4	N 4	
SECTION	SECTION 13	SECTION 13	
DRAWING km DISTANCE	km 20.280	km 20.820	
DRAWING TYPE	ROADS - INTERCHANGES		
BRIDGE/STRUCTURE No.	B2235		
CONSULTANT DRAWING No.	FA	3257 / 23 / 05 RS	VER
SANRAL DOCUMENT #	- -		V0

SANRAL DOCUMENT NUMBER : :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\10 - Road Traffic Signs\3257_23_05-08_ RS - Kroondal N4 Interchange Road Traffic Signs_20230717.dwg



No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date :

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DESIGNED BY
NAME : EF DAY
Prof. Reg. No. : 20130622
CHECKED BY
NAME : J FALKNER
Prof. Reg. No. : - -
DRAWN BY
NAME : WB HARTMANN

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17/07/2023

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THE SOUTH AFRICAN NATIONAL ROADS AGENCY SOC LTD
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Private Bag X17
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ACCEPTANCE
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for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION
ROAD TRAFFIC SIGNS
R104 (P2-4) KROONDAL INTERCHANGE (188)

SCALE : 1 : 500 (A0) SHEET 2 OF 4

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001		
DRAWING LOCATION DATA	START	END	
ROUTE	N 4	N 4	
SECTION	SECTION 13	SECTION 13	
DRAWING km DISTANCE	km 20.860	km 21.380	
DRAWING TYPE	ROADS - INTERCHANGES		
BRIDGE/STRUCTURE No.	B2235		
CONSULTANT DRAWING No.	FA	3257 / 23 / 06 RS	VER
SANRAL DOCUMENT #	- -		V0

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\10 - Road Traffic Signs\3257_23_05-08_ RS - Kroondal N4 Interchange Road Traffic Signs_20230717.dwg

X + 2 846 400 (WGS 84 / LO 27°)

Y - 30 600 (WGS 84 / LO 27°)

Y - 30 800 (WGS 84 / LO 27°)

X + 2 846 600 (WGS 84 / LO 27°)

SIGN No.	SIGN	CHAINAGE
EB-SIGN 40	PLATINUM 188 Kroondal Ramp Plaza 2 184 Marikana Plaza 12 BakwEna	km 23.90
EB-SIGN 46	Kroondal Ramp BakwEna	km 22.88
EB-SIGN 47	188 N4 R104 Buffelspoort Kroondal 1km	km 22.82

SIGN No.	SIGN	CHAINAGE
EB-SIGN 52	188 R104 Buffelspoort Kroondal 500 m	km 22.32
EB-SIGN 55		km 22.04
EB-SIGN 56		km 21.94

KEB-SIGN 2:GA3

KEB-SIGN 3:GL4

KEB-SIGN 4:
R201-60
+
R401-600
(END OF FREEWAY)

KEB-SIGN 5:GA4

RUSTENBURG

KEB-SIGN 1:IN1

BRITS

EXISTING GA7P SIGN TO BE MOVED TO LHS TO ACCOMMODATE NEW ALIGNMENT

EXISTING R132-RC-IN11.3 + R201-40 SIGN TO BE MOVED TO LHS TO ACCOMMODATE NEW ALIGNMENT

R104 (P2-4) KROONDAL OFF RAMP EASTBOUND

N4-13 EASTBOUND

0 0.1 0.2 0.3 0.4

21.9 21.8 21.7 21.6 21.5 21.4

N4-13 WESTBOUND

R104 (P2-4) KROONDAL ON RAMP WESTBOUND

HEX RIVER

HEX RIVER

BRIDGE B1640 A & B
km 21,767 000
N4 OVER HEX RIVER
BRIDGE TO BE EXTENDED
θ = 15°

KWB-SIGN 9:GL4

KWB-SIGN 10:R201-120

KWB-SIGN 8:GS 402

SIGN No.	SIGN	CHAINAGE
WB-SIGN 124	N4 Rustenburg 5 Swartruggens 64	km 22.80

N4 - 13
CONTINUE FROM
3257 / 13 / 06 RS

NOTE:

SEE DRAWIG 3257/23/08 RS
FOR SIGN DETAILS

5m 15m 25m 35m 45m
0m 10m 20m 30m 40m 50m
ORIGINAL SCALE 1 : 500 (A0)

SANRAL DOCUMENT NUMBER :

No.	DATE	REVISION	
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSULT. ENG.

CONSTRUCTION RECORD

WORKS CONTRACT ENGINEER

Name :
Prof. Reg. No. :
Date

SANRAL PROJECT MANAGER

Name :
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Date

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DRAWING DESCRIPTION

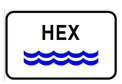
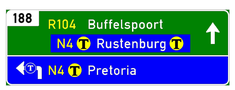
ROAD TRAFFIC SIGNS
R104 (P2-4) KROONDAL INTERCHANGE

SCALE : 1 : 500 (A0) | SHEET 3 OF 4

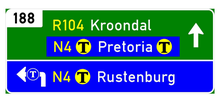
PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001		
DRAWING LOCATION DATA	START	END	
ROUTE	N 4	N 4	
SECTION	SECTION 13	SECTION 13	
DRAWING km DISTANCE	km 21.400	km 21.920	
DRAWING TYPE	ROADS - INTERCHANGES		
BRIDGE/STRUCTURE No.	B2235		
CONSULTANT DRAWING No.	FA	3257 / 23 / 07 RS	VER
SANRAL DOCUMENT #	- -		V0

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\10 - Road Traffic Signs\3257_23_05-08_ RS - Kroondal N4 Interchange Road Traffic Signs_20230717.dwg

N4 - 13 DUAL CARRIAGEWAY SIGNAGE - R104 (P2-4) KROONDAL INTERCHANGE

SIGN No.	SIGN	SIZE & DESCRIPTION	CLASS	CHAINAGE	QUANTITY	REMARKS
KWB-SIGN 1		IN3 1200 X 700	3 / 3	N4-13 km 20.35	1	
KWB-SIGN 2		IN2 1200 X 700	3 / 3	N4-13 km 20.45	1	
KWB-SIGN 3		IN1 1200 X 700	3 / 3	N4-13 km 20.55	1	
KWB-SIGN 4		GA3 3800 X 1800	3 / 3	N4-13 km 20.62	1	
KWB-SIGN 5		R201-60 + R401-600 900 X 675	3 / 3	AS SHOWN ON DWG: 3257/23/05 RS	1	
KWB-SIGN 6		GA4 2600 X 1600	3 / 3	N4-13 km 20.80	1	
KWB-SIGN 7		R401 900 X 675	3 / 3	AS SHOWN ON DWG: 3257/23/06 RS	1	
KWB-SIGN 8		GS402 2400 X 1800	3 / 3	N4-13 km 21.47	1	
KWB-SIGN 9		GL4 1600 X 1000	3 / 3	N4-13 km 21.72	1	
KWB-SIGN 10		R201-120 1200	3 / 3	N4-13 km 21.93	1	
KSB-SIGN 1		GB1 6000 X 2200	3 / 3	AS SHOWN ON DWG: 3257/23/06 RS	1	
KSB-SIGN 2		GB2 3000 X 600	3 / 3	AS SHOWN ON DWG: 3257/23/06 RS	1	
KSB-SIGN 3		GB4 3450 X 600	3 / 3	AS SHOWN ON DWG: 3257/23/06 RS	1	

N4 - 13 DUAL CARRIAGEWAY SIGNAGE - R104 (P2-4) KROONDAL INTERCHANGE

SIGN No.	SIGN	SIZE & DESCRIPTION	CLASS	CHAINAGE	QUANTITY	REMARKS
KEB-SIGN 1		IN1 1200 X 700	3 / 3	N4-13 km 21.92	1	
KEB-SIGN 2		GA3 3600 X 1800	3 / 3	N4-13 km 21.82	1	
KEB-SIGN 3		GL4 1600 X 1000	3 / 3	N4-13 km 21.80	1	
KEB-SIGN 4		R201-60 + R401-600 900 X 675	3 / 3	AS SHOWN ON DWG: 3257/23/07 RS	1	
KEB-SIGN 5		GA4 2600 X 1600	3 / 3	N4-13 km 21.52	1	
KEB-SIGN 6		GA6 3900 X 1800	3 / 3	AS SHOWN ON DWG: 3257/23/06 RS	1	
KEB-SIGN 7		R401 900 X 675	3 / 3	AS SHOWN ON DWG: 3257/23/06 RS	1	
KEB-SIGN 8		GS402 2400 X 1800	3 / 3	N4-13 km 20.80	1	
KEB-SIGN 9		R201-1200 1200	3 / 3	N4-13 km 20.54	1	
KNB-SIGN 1		GB1 5310 X 2200	3 / 3	AS SHOWN ON DWG: 3257/23/06 RS	1	
KNB-SIGN 2		GB2 3450 X 600	3 / 3	AS SHOWN ON DWG: 3257/23/06 RS	1	
KNB-SIGN 3		GB4 3000 X 600	3 / 3	AS SHOWN ON DWG: 3257/23/06 RS	1	
NOTE	ROAD SIGN DESIGNS ARE INCLUDED IN A SEPARATE BOOK TITLED: ROAD TRAFFIC SIGNS N4-13 km 2.8 TO km 30.600					

No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date :

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Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION
ROAD TRAFFIC SIGNS
R104 (P2-4) KROONDAL INTERCHANGE (188) SIGNAGE

SCALE : N.T.S | SHEET 4 OF 4

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	SECTION 13	SECTION 13
DRAWING km DISTANCE	--	--
DRAWING TYPE	ROADS - ROAD SIGNS	
BRIDGE/STRUCTURE No.	--	
CONSULTANT DRAWING No.	FA 3257 / 23 / 08 RS	VER V0
SANRAL DOCUMENT #	- -	

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\10 - Road Traffic Signs\3257_23_05-08_ RS - Kroondal N4 Interchange Road Traffic Signs_20230717.dwg

X + 2 843 800 (WGS 84 / LO 27°)

Y - 26 000 (WGS 84 / LO 27°)

X + 2 843 800 (WGS 84 / LO 27°)

Y - 26 200 (WGS 84 / LO 27°)

X + 2 844 000 (WGS 84 / LO 27°)

SIGN No.	SIGN	CHAINAGE
EB-SIGN 28	N4 T Brits 60 Pretoria 100	km 26.26

BRITS

WEB-SIGN 6:GS 402

N4

WEB-SIGN 7:R201-120

120

N4-13 EASTBOUND

0.5 0.6 R24 (P16-1) RUSTENBURG (KRUGERSDORP) ON RAMP - EASTBOUND 0.7 0.8 0.893 901

N4-13 EASTBOUND

27.2 27.1 27.0 26.9 26.8 26.7

N4-13 WESTBOUND

N4-13 WESTBOUND

R24 (P16-1) RUSTENBURG (KRUGERSDORP) OFF RAMP WESTBOUND

182

WWB-SIGN 5:GA4
KM 27.17

60

WEB -SIGN
4:R201-60
+
R401-600
(END OF FREEWAY)

182 RUSTENBURG
R24
Rustenburg
Krugersdorp

WWB-SIGN 3:GA3
KM 27.00

WWB-SIGN 2:IN1
KM 26.86

WWB-SIGN 1:IN2
KM 26.76

RUSTENBURG

NOTE:

- ALL EXISTING SIGNAGE ON R24 (P16-1) RUSTENBURG (KRUGERSDORP) WESTBOUND OFF RAMP TO BE ASSESSED BEFORE END OF CONTRACT

SIGN No.	SIGN	CHAINAGE
WB-SIGN 141	182 RUSTENBURG R24 Rustenburg Krugersdorp 1km N4 T	km 26.00
WB-SIGN 146	182 RUSTENBURG R24 Rustenburg Krugersdorp 500 m	km 26.50
WB-SIGN 149		km 26.66

X + 2 844 200 (WGS 84 / LO 27°)

N4 - 13
CONTINUE ON
3257 / 23 / 10 RS

X + 2 844 000 (WGS 84 / LO 27°)

Y - 25 800 (WGS 84 / LO 27°)

Y - 26 000 (WGS 84 / LO 27°)

X + 2 844 200 (WGS 84 / LO 27°)

Y - 26 200 (WGS 84 / LO 27°)

NOTE:

SEE DRAWIG 3257/23/12 RS
FOR SIGN DETAILS

5m 15m 25m 35m 45m
0m 10m 20m 30m 40m 50m

ORIGINAL SCALE 1 : 500 (A0)

No.	DATE	REVISION	
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
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Date :
SANRAL PROJECT MANAGER
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PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION
ROAD TRAFFIC SIGNS
R24 (P16-1) RUSTENBURG (KRUGERSDORP) INTERCHANGE (182)

SCALE : 1 : 500 (A0) SHEET 1 OF 4

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	SECTION 13	SECTION 13
DRAWING km DISTANCE	km 26.700	km 27.260
DRAWING TYPE	ROADS - INTERCHANGES	
BRIDGE/STRUCTURE No.	- -	
CONSULTANT DRAWING No.	FA 3257 / 23 / 09 RS	VER V0
SANRAL DOCUMENT #	- -	

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\10 - Road Traffic Signs\3257_23_09-12_RS-Waterfall N4 Interchange Road Traffic Signs_20230717.dwg

RUSTENBURG OOS-EINDE

WSB -SIGN 1:GB1 (SCHEMATIC POSITION NOT CORRECT MOVE TO EXISTING GB1 POSITION)

N4 Pretoria
R24 Krugersdorp
N4 Zeerust
182

X + 2 843 600 (WGS 84 / LO 27°)

Y - 25 800 (WGS 84 / LO 27°)

NOTE:

- ALL EXISTING SIGNAGE ON R24 (P16-1) RUSTENBURG (KRUGERSDORP) EAST BOUND ON RAMP TO BE ASSESSED BEFORE END OF CONTRACT

WEB-SIGN 5:R401

WSB -SIGN 2:GB2

N4 Pretoria

0.623 184

0 0.1 0.2 0.3 0.4 0.5 0.6

R24 (P16-1) RUSTENBURG (KRUGERSDORP) ON RAMP - EASTBOUND

CONSTRUCTION STARTS @ CHAINAGE 0.280

NOTE:

- ALL EXISTING SIGNAGE ON R24 (P16-1) RUSTENBURG (KRUGERSDORP) EAST BOUND OFF RAMP TO BE ASSESSED BEFORE END OF CONTRACT

Y - 25 400 (WGS 84 / LO 27°)

WNB -SIGN 3:GB4

N4 Pretoria

LIMIT OF CONSTRUCTION km 0.519 (RP)

R24 (P16-1) RUSTENBURG (KRUGERSDORP) OFF RAMP - EASTBOUND

N4

X + 2 843 800 (WGS 84 / LO 27°)

R24

R24 (P16-1) RUSTENBURG (KRUGERSDORP) INTERCHANGE

N4-13 EASTBOUND

BRITS

N4-13 EASTBOUND

27.7 27.6 27.5 27.4 27.3

N4-13 WESTBOUND

N4-13 WESTBOUND

RUSTENBURG

120

WWB-SIGN 8:R201-120

WSB-SIGN 3:GB1

N4 Zeerust
WATERFALL MALL
HOWICK AVE
182 R24 Krugersdorp

WWB-SIGN 7:GS212

NOTE:

- ALL EXISTING SIGNAGE ON R24 (P16-1) RUSTENBURG (KRUGERSDORP) WESTBOUND ON RAMP TO BE ASSESSED BEFORE END OF CONTRACT

WWB-SIGN 6:R401

R24

N4 - 13 CONTINUE ON 3257 / 23 / 11 RS

N4 - 13 CONTINUE ON 3257 / 23 / 09 RS

NOTE:

- ALL EXISTING SIGNAGE ON R24 (P16-1) RUSTENBURG (KRUGERSDORP) WESTBOUND OFF RAMP TO BE ASSESSED BEFORE END OF CONTRACT

WSB-SIGN 4:GB2

N4 Zeerust
WATERFALL MALL
HOWICK AVE
182 R24 Krugersdorp

WNB-SIGN 2:RGB2

N4 Zeerust

HOWICK AVENUE
WATERFALL MALL

OLIFANTS NEK

NOTE:

SEE DRAWIG 3257/23/12 RS FOR SIGN DETAILS

WNB-SIGN 1: GB1 (SCHEMATIC POSITION NOT CORRECT MOVE TO EXISITNG GB1 POSITION)

Y - 25 400 (WGS 84 / LO 27°)

X + 2 843 800 (WGS 84 / LO 27°)

0m 5m 10m 15m 20m 25m 30m 35m 40m 45m 50m

ORIGINAL SCALE 1 : 500 (A0)

No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

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DRAWING DESCRIPTION
ROAD TRAFFIC SIGNS
R24 (P16-1) RUSTENBURG (KRUGERSDORP) INTERCHANGE (182)

SCALE : 1 : 500 (A0) SHEET 2 OF 4

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	SECTION 13	SECTION 13
DRAWING km DISTANCE	km 27.260	km 27.780
DRAWING TYPE	ROADS - INTERCHANGES	
BRIDGE/STRUCTURE No.	B2229A	
CONSULTANT DRAWING No.	FA 3257 / 23 / 10 RS	VER V0
SANRAL DOCUMENT #	- -	

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\10 - Road Traffic Signs\3257_23_09-12_RS-Waterfall N4 Interchange Road Traffic Signs_20230717.dwg

X + 2 843 200 (WGS 84 / LO 27°)

Y - 25 000 (WGS 84 / LO 27°)

Y - 25 200 (WGS 84 / LO 27°)

X + 2 843 400 (WGS 84 / LO 27°)

Y - 25 400 (WGS 84 / LO 27°)

SIGN No.	SIGN	CHAINAGE
EB-SIGN 13	182 RUSTENBURG N4 R24 Krugersdorp Rustenburg 1km	km 28.94
EB-SIGN 16	182 RUSTENBURG R24 Krugersdorp Rustenburg 500 m	km 28.44
EB-SIGN 17		km 28.39

WEB -SIGM2:GA3

182 RUSTENBURG R24 Krugersdorp Rustenburg

WEB -SIGN 3:R201-60 + R401-600 (END OF FREEWAY)

WEB -SIGN 4:GA4

182

BRITS

EXISTING GA5 SIGN TO BE MOVED TO LHS TO ACCOMMODATE NEW ALIGNMENT

RUSTENBURG

WEB -SIGM:IN1

R24 (P16-1) RUSTENBURG (KRUGERSDORP) OFF RAMP - EASTBOUND

N4-13 EASTBOUND

0 0.1 0.2 0.3 0.4

28.3 28.2 28.1 28.0 27.9 27.8

N4-13 WESTBOUND

N4-13 EASTBOUND

N4-13 WESTBOUND

SIGN No.	SIGN	CHAINAGE
WB-SIGN 158	N4 Swartruggens 60 Zeerust 129	km 28.48

RUSTENBURG Helen Joseph Dr 2 Rustenburg Kloof 5 179 176

WWB -SIGN 9:GA8

X + 2 843 600 (WGS 84 / LO 27°)

X + 2 843 400 (WGS 84 / LO 27°)

Y - 24 800 (WGS 84 / LO 27°)

Y - 25 000 (WGS 84 / LO 27°)

N4 - 13 CONTINUE ON 3257 / 23 / 10 RS

NOTE:

SEE DRAWIG 3257/23/12 RS FOR SIGN DETAILS

5m 15m 25m 35m 45m
0m 10m 20m 30m 40m 50m

ORIGINAL SCALE 1 : 500 (A0)

No.	DATE	REVISION	
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
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NAME	J FALKNER
Prof. Reg. No.	- -
DRAWN BY	
NAME	WB HARTMANN

CONSULTANT APPROVAL
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Prof. Reg. No. : 20080112
Date : 17/07/2023

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ACCEPTANCE

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for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION

THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION

ROAD TRAFFIC SIGNS

R24 (P16-1) RUSTENBURG (KRUGERSDORP) INTERCHANGE (182)

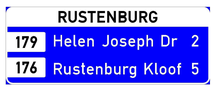
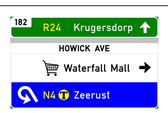
SCALE : 1 : 500 (A0) **SHEET 3 OF 4**

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	SECTION 13	SECTION 13
DRAWING km DISTANCE	km 27.800	km 28.340
DRAWING TYPE	ROADS - INTERCHANGES	
BRIDGE/STRUCTURE No.	- -	
CONSULTANT DRAWING No.	FA 3257 / 23 / 11 RS	VER
SANRAL DOCUMENT #	- -	V0

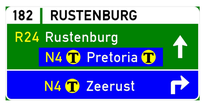
SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\10 - Road Traffic Signs\3257_23_09-12_RS-Waterfall N4 Interchange Road Traffic Signs_20230717.dwg

N4 - 13 DUAL CARRIAGEWAY SIGNAGE - R24 (P16-1) RUSTENBURG (KRUGERSDORP) INTERCHANGE

SIGN No.	SIGN	SIZE & DESCRIPTION	CLASS	CHAINAGE	QUANTITY	REMARKS
WWB-SIGN 1		IN2 1200 X 700	3 / 3	N4-13 km 26.76	1	
WWB-SIGN 2		IN1 1200 X 700	3 / 3	N4-13 km 26.86	1	
WWB-SIGN 3		GA3 3900 X 2200	3 / 3	N4-13 km 27.00	1	
WWB-SIGN 4		R201-60 + R401-600 900 X 675	3 / 3	AS SHOWN ON DWG: 3257/23/09 RS	1	
WWB-SIGN 5		GA4 2600 X 1600	3 / 3	N4-13 km 27.17	1	
WWB-SIGN 6		R401 900 X 675	3 / 3	AS SHOWN ON DWG: 3257/23/10 RS	1	
WWB-SIGN 7		GS212 1800 X 1600	3 / 3	N4-13 km 27.33	1	
WWB-SIGN 8		R201-120 1200	3 / 3	N4-13 km 27.60	1	
WWB-SIGN 9		GA8 3700 X 1400	3 / 3	N4-13 km 28.06	1	
WSB-SIGN 1		GB1 5400 X 4000	3 / 3	AS SHOWN ON DWG: 3257/23/10 RS	1	
WSB-SIGN 2		GB2 2850 X 600	3 / 3	AS SHOWN ON DWG: 3257/23/10 RS	1	
WSB-SIGN 3		GB1 5400 X 3400	3 / 3	AS SHOWN ON DWG: 3257/23/10 RS	1	
WSB-SIGN 4		GB2 5200 X 3400	3 / 3	AS SHOWN ON DWG: 3257/23/10 RS	1	

N4 - 13 DUAL CARRIAGEWAY SIGNAGE - R24 (P16-1) RUSTENBURG (KRUGERSDORP) INTERCHANGE

SIGN No.	SIGN	SIZE & DESCRIPTION	CLASS	CHAINAGE	QUANTITY	REMARKS
WEB-SIGN 1		IN1 1200 X 700	3 / 3	N4-13 km 28.30	1	
WEB-SIGN 2		GA3 3900 X 2200	3 / 3	N4-13 km 28.24	1	
WEB-SIGN 3		R201-60 + R401-600 900 X 675	3 / 3	AS SHOWN ON DWG: 3257/23/12 RS	1	
WEB-SIGN 4		GA4 2600 X 1600	3 / 3	N4-13 km 27.94	1	
WEB-SIGN 5		R401 900 X 675	3 / 3	AS SHOWN ON DWG: 3257/23/11 RS	1	
WEB-SIGN 6		GS402 2400 X 1800	3 / 3	N4-13 km 27.18	1	
WEB-SIGN 7		R201-120 1200	3 / 3	N4-13 km 26.74	1	
WNB-SIGN 1		GB1 6200 X 3800	3 / 3	AS SHOWN ON DWG: 3257/23/10 RS	1	
WNB-SIGN 2		GB2 2800 X 600	3 / 3	AS SHOWN ON DWG: 3257/23/10 RS	1	
WNB-SIGN 3		GB4 2850 X 600	3 / 3	AS SHOWN ON DWG: 3257/23/10 RS	1	
NOTE	ROAD SIGN DESIGNS ARE INCLUDED IN A SEPARATE BOOK TITLED: ROAD TRAFFIC SIGNS N4-13 km 2.8 TO km 30.600					

No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
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CHECKED BY
NAME : J FALKNER
Prof. Reg. No. : - -
DRAWN BY
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CONSULTANT APPROVAL
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ACCEPTANCE
THIS ACCEPTANCE IS FOR PROCEDURAL AND ADMINISTRATIVE REVIEW PURPOSES ONLY AND DOES NOT ATTRACT LEGAL LIABILITY OR LIABILITY OF ANY KIND FROM WHATSOEVER CAUSE OR HOWEVER ARISING
for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

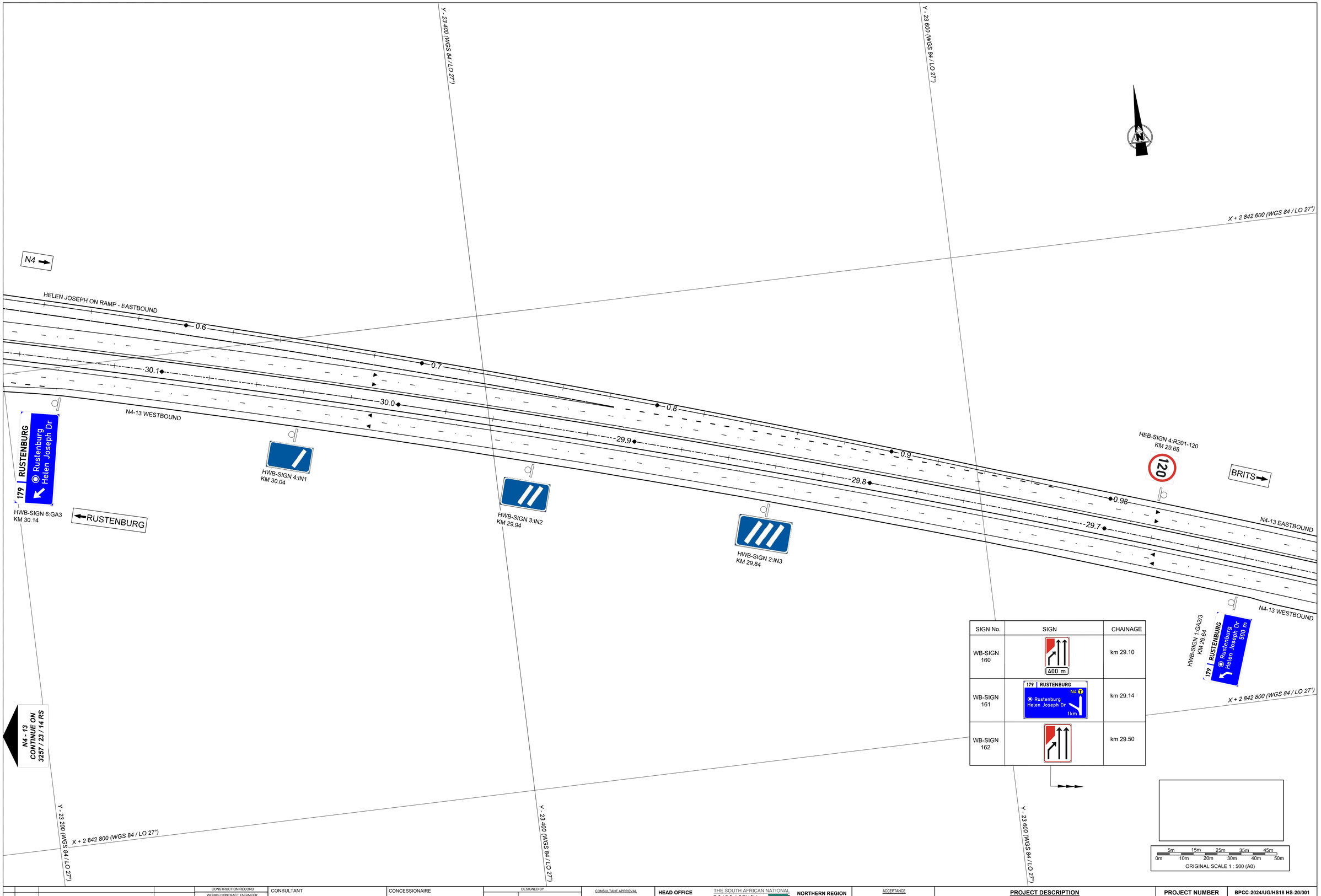
DRAWING DESCRIPTION
ROAD TRAFFIC SIGNS
R24 (P16-1) RUSTENBURG (KRUGERSDORP) INTERCHANGE (182) SIGNAGE

SCALE : N.T.S
SHEET 4 OF 4

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	SECTION 13	SECTION 13
DRAWING km DISTANCE	--	--
DRAWING TYPE	ROADS - ROAD SIGNS	
BRIDGE/STRUCTURE No.	- -	
CONSULTANT DRAWING No.	FA 3257 / 23 / 12 RS	VER V0
SANRAL DOCUMENT #	- -	

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\10 - Road Traffic Signs\3257_23_09-12_RS-Waterfall N4 Interchange Road Traffic Signs_20230717.dwg



SIGN No.	SIGN	CHAINAGE
WB-SIGN 160	400 m	km 29.10
WB-SIGN 161	179 RUSTENBURG N4 Rustenburg Helen Joseph Dr 1km	km 29.14
WB-SIGN 162		km 29.50

0m 5m 10m 15m 20m 25m 30m 35m 40m 45m 50m
ORIGINAL SCALE 1 : 500 (A0)

No.	DATE	REVISION	
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date
SANRAL PROJECT MANAGER
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CONSULTANT APPROVAL
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Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION
ROAD TRAFFIC SIGNS
HELEN JOSEPH INTERCHANGE (179)

SCALE : 1 : 500 (A0) SHEET 1 OF 4

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	SECTION 13	SECTION 13
DRAWING km DISTANCE	km 29.620	km 30.160
DRAWING TYPE	ROADS - INTERCHANGES	
BRIDGE/STRUCTURE No.	- -	
CONSULTANT DRAWING No.	FA 3257 / 23 / 13 RS	VER V0
SANRAL DOCUMENT #	- -	

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\10 - Road Traffic Signs\3257_23_13-16_RS -Helen Joseph N4 Interchange Road Traffic Signs_20230717.dwg

RUSTENBURG CBD

HSB-SIGN 1:GB1
179 Rustenburg
N4 Pretoria

HNB-SIGN 2:GB4
N4 Pretoria

HSB-SIGN 2:GB4
N4 Pretoria

Y - 22 800 (WGS 84 / LO 27°)

Y - 23 000 (WGS 84 / LO 27°)

X + 2 842 400 (WGS 84 / LO 27°)

Y - 23 200 (WGS 84 / LO 27°)

X + 2 842 400 (WGS 84 / LO 27°)

0

0.1

0.2

0.3

0.4

0.5

HEB-SIGN 2:R401

NOTE:

- ALL EXISTING SIGNAGE ON HELEN JOSEPH EASTBOUND ON RAMP TO BE ASSESSED BEFORE END OF CONTRACT

HELEN JOSEPH INTERCHANGE

RUSTENBURG

N4-13 EASTBOUND

HELEN JOSEPH ON RAMP - EASTBOUND

N4

HEB-SIGN 3:GS 402

BRITS

N4-13 EASTBOUND

0.2

0.1

0

0.5

30.7

30.6

30.5

30.4

30.3

30.2

N4-13 WESTBOUND

HWB-SIGN 9:GS101

HNB-SIGN 1:GB1
179 Rustenburg
N4 Pretoria

HELEN JOSEPH OFF RAMP - WESTBOUND

NOTE:

- ALL EXISTING SIGNAGE ON HELEN JOSEPH WESTBOUND OFF RAMP TO BE ASSESSED BEFORE END OF CONTRACT

REMOVE CONFLICTING R402 (END OF FREEWAY) SIGN.

HWB-SIGN 8:GS101+IN11.3(300m)
300 m

HWB-SIGN 7:GA4
KM 30.32
179

HWB-SIGN 5:R201-60 + R401-600 (END OF FREEWAY)
60

N4-13 WESTBOUND

HELEN JOSEPH DRIVE

X + 2 842 600 (WGS 84 / LO 27°)

N4 - 13
CONTINUE ON
3257 / 23 / 15 RS

SAFARITUINE

Y - 22 800 (WGS 84 / LO 27°)

Y - 23 000 (WGS 84 / LO 27°)

N4 - 13
CONTINUE FROM
3257 / 23 / 13 RS

5m 15m 25m 35m 45m
0m 10m 20m 30m 40m 50m
ORIGINAL SCALE 1 : 500 (A0)

No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
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Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
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DESIGNED BY
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CHECKED BY
NAME: PL NGQUMSHE
Prof. Reg. No. 20080112
DRAWN BY
NAME: WB HARTMANN

CONSULTANT APPROVAL
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Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION
ROAD TRAFFIC SIGNS
HELEN JOSEPH INTERCHANGE (179)

SCALE : 1 : 500 (A0) SHEET 2 OF 4

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	SECTION 13	SECTION 13
DRAWING km DISTANCE	km 30.180	km 30.700
DRAWING TYPE	ROADS - INTERCHANGES	
BRIDGE/STRUCTURE No.	B2227	
CONSULTANT DRAWING No.	FA 3257 / 23 / 14 RS	VER
SANRAL DOCUMENT #	- -	V0

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\10 - Road Traffic Signs\3257_23_13-16_RS -Helen Joseph N4 Interchange Road Traffic Signs_20230717.dwg

Y - 22 200 (WGS 84 / LO 27°)

Y - 22 400 (WGS 84 / LO 27°)

Y - 22 600 (WGS 84 / LO 27°)

X + 2 842 400 (WGS 84 / LO 27°)

X + 2 842 600 (WGS 84 / LO 27°)

SIGN No.	SIGN	CHAINAGE
HEB-SIGN AA GS	200 m	km 31.30
EB-SIGN BB	400 m	km 31.50

RUSTENBURG

BRITS

HEB-SIGN 1:GS 152

N4-13 EASTBOUND

N4-13 WESTBOUND

31.2 — 31.1 — 0.5 — 0.4 — 0.3

0.701 049 — 0.7 — 0.6 — 30.9 — 30.8

HEB-SIGN 4:R201-120
KM 31.20

N4 - 13
CONTINUE FROM
3257 / 23 / 14 RS

5m 15m 25m 35m 45m
0m 10m 20m 30m 40m 50m
ORIGINAL SCALE 1 : 500 (A0)

No.	DATE	REVISION	
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

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CHECKED BY	
NAME	PL NGQUMSHE
Prof. Reg. No.	20080112
DRAWN BY	
NAME	P STRYDOM

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PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION
ROAD TRAFFIC SIGNS
HELEN JOSEPH INTERCHANGE (179) - TIE IN CURVE

SCALE : 1 : 500 (A0) SHEET 3 OF 4

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	SECTION 13	SECTION 13
DRAWING km DISTANCE	km 30.720	km 30.260
DRAWING TYPE	ROADS - INTERCHANGES	
BRIDGE/STRUCTURE No.	- -	
CONSULTANT DRAWING No.	FA 3257 / 23 / 15 RS	VER
SANRAL DOCUMENT #	- -	V0

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\10 - Road Traffic Signs\3257_23_13-16_RS -Helen Joseph N4 Interchange Road Traffic Signs_20230717.dwg

N4 - 13 DUAL CARRIAGEWAY SIGNAGE - HELEN JOSEPH INTERCHANGE

SIGN No.	SIGN	SIZE & DESCRIPTION	CLASS	CHAINAGE	QUANTITY	REMARKS
HWB-SIGN 1		GA2/3 5500 X 2200	3 / 3	29.64	1	
HWB-SIGN 2		IN3 1200 X 700	3 / 3	29.84	1	
HWB-SIGN 3		IN2 1200 X 700	3 / 3	29.94	1	
HWB-SIGN 4		IN1 1200 X 700	3 / 3	30.04	1	
HWB-SIGN 5		R401-600 900 X 675	3 / 3	30.11	1	
HWB-SIGN 6		GA3 4300 X 1800	3 / 3	30.14	1	
HWB-SIGN 7		GA4 2600 X 1600	3 / 3	30.32	1	
HWB-SIGN 8		GS101 2400 X 1800 + IN11.3 1800 X 600	3 / 3	30.40	1	
HWB-SIGN 9		GS101 2400 X 1800	3 / 3	30.70	1	
HEB-SIGN 10		R201-120 1200	3	31.20	1	
HSB-SIGN 1		GB1 4000 X 2200	3 / 3	AS SHOWN	1	
HSB-SIGN 2		GB4 2850 X 600	3 / 3	AS SHOWN	1	

N4 - 13 DUAL CARRIAGEWAY SIGNAGE - HELEN JOSEPH INTERCHANGE

SIGN No.	SIGN	SIZE & DESCRIPTION	CLASS	CHAINAGE	QUANTITY	REMARKS
HEB-SIGN AA		GS152 + IN 11.3 2400 X 1800	3 / 3	31.50	1	
HEB-SIGN BB		GS152 2400 X 1800	3 / 3	31.30	1	
HEB-SIGN 1		GS152 2400 X 1800	3 / 3	31.10	1	
HEB-SIGN 2		R401 900 X 675	3 / 3	AS SHOWN	1	
HEB-SIGN 3		GS402 2400 X 1800	3 / 3	30.26	1	
HEB-SIGN 4		R201-120 1200	3	29.68	1	
HNB-SIGN 1		GB1 4000 X 2000	3 / 3	AS SHOWN	1	
HNB-SIGN 2		GB4 2850 X 600	3 / 3	AS SHOWN	1	

No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
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NAME	PL NGQUMSHE
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NAME	WB HARTMANN

CONSULTANT APPROVAL
Name : PL NGQUMSHE
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Date : 17/07/2023

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ACCEPTANCE
THIS ACCEPTANCE IS FOR PROCEDURAL AND ADMINISTRATIVE REVIEW PURPOSES ONLY AND DOES NOT ATTRACT LEGAL LIABILITY OR LIABILITY OF ANY KIND FROM WHATSOEVER CAUSE OR HOWEVER ARISING
for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION
ROAD TRAFFIC SIGNS
HELEN JOSEPH INTERCHANGE (179) SIGNAGE

SCALE : N.T.S | SHEET 4 OF 4

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	SECTION 13	SECTION 13
DRAWING km DISTANCE	--	--
DRAWING TYPE	ROADS - ROAD SIGNS	
BRIDGE/STRUCTURE No.	- -	
CONSULTANT DRAWING No.	FA 3257 / 23 / 16 RS	VER V0
SANRAL DOCUMENT #	- -	

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\10 - Road Traffic Signs\3257_23_13-16_RS -Helen Joseph N4 Interchange Road Traffic Signs_20230717.dwg

Y - 20 000 (WGS 84 / LO 27°)

X + 2 841 600 (WGS 84 / LO 27°)

Y - 20 200 (WGS 84 / LO 27°)

X + 2 841 800 (WGS 84 / LO 27°)

Y - 20 400 (WGS 84 / LO 27°)

N4 - 13
CONTINUE ON
3257 / 23 / 18 RS

176-H
GS 402

(P16-2) DR MOROKA DRIVE
EASTBOUND ON-RAMP

N4-13 EASTBOUND

0.3 0.4 0.5 0.6 0.7 0.8

N4-13 EASTBOUND

BRITS

33.5 33.4 33.3 33.2 33.1

N4-13 WESTBOUND

SWARTRUGGENS

(P16-2) DR MOROKA DRIVE
WESTBOUND OFF-RAMP

X + 2 841 800 (WGS 84 / LO 27°)

176-M+R201-60
+
R401-600

60

176-2.4:GA4
KM 33.44

176

176-2.3:GA3
KM 33.255

176
RUSTENBURG
Dr Moroka Dr

IN1:176-L
KM 33.150

N4-13 WESTBOUND

X + 2 842 000 (WGS 84 / LO 27°)

IN2:176-K
KM 33.055

SIGN No.	SIGN	CHAINAGE
176-G	120	km 32.5
176-1.7 GA7	N4 T Brits 65 Pretoria 110	km 32.330

SIGN No.	SIGN	CHAINAGE
176-2.1 GA2	176 RUSTENBURG N4 T Dr Moroka Dr 1 km	km 32.255
176-2.2 GA2/3	176 RUSTENBURG Dr Moroka Dr 500 m	km 32.755
176-J:IN3		km 32.955

NOTE:

SEE DRAWING 3257/23/20/21 RS
FOR SIGN DETAILS

Y - 20 000 (WGS 84 / LO 27°)

X + 2 842 000 (WGS 84 / LO 27°)

Y - 20 200 (WGS 84 / LO 27°)

5m 15m 25m 35m 45m
0m 10m 20m 30m 40m 50m
ORIGINAL SCALE 1 : 500 (A0)

No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
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SANRAL PROJECT MANAGER
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CHECKED BY
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Prof. Reg. No. 20080112
DRAWN BY
NAME: WB HARTMANN

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17/07/2023

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ACCEPTANCE
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for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

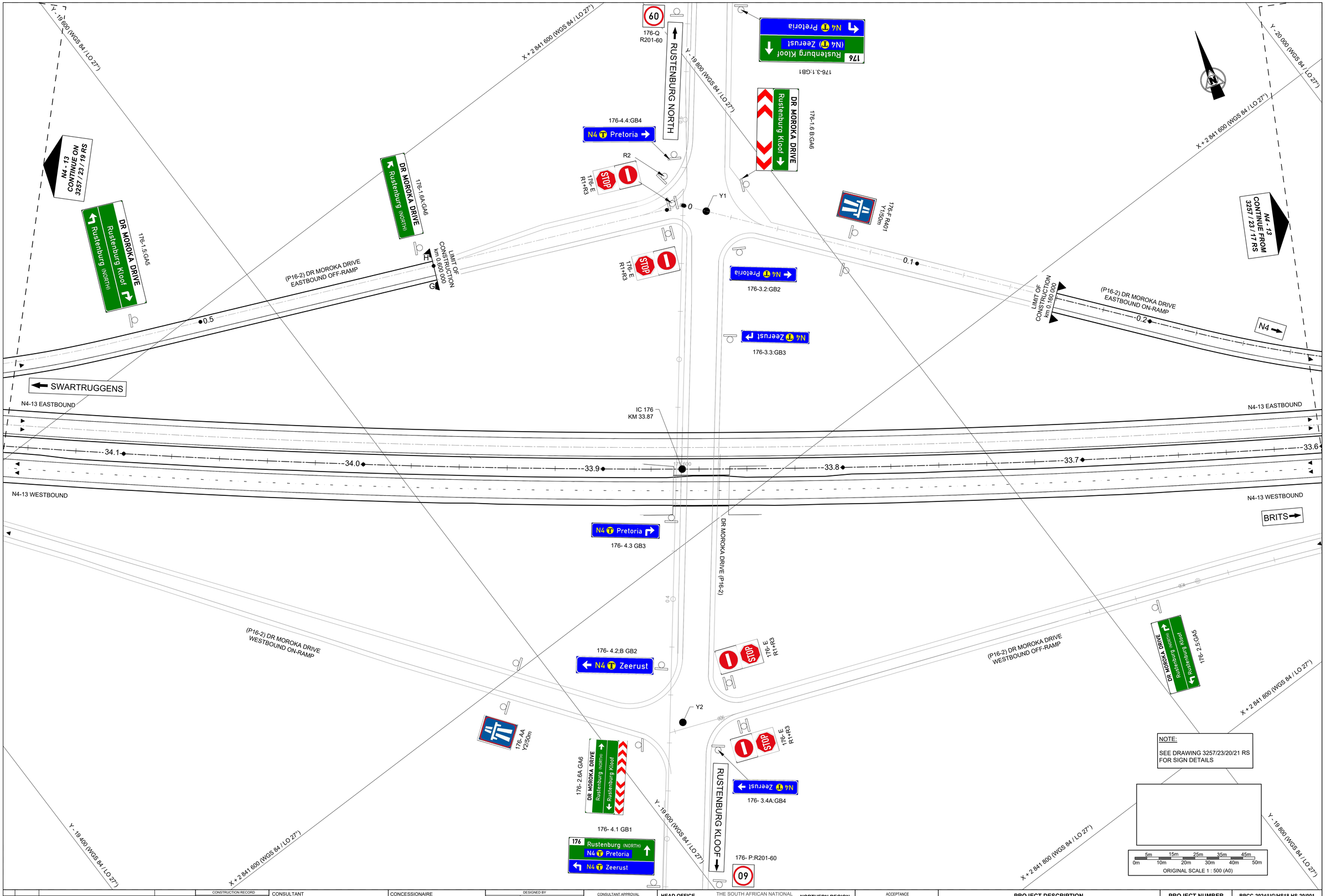
DRAWING DESCRIPTION
ROAD TRAFFIC SIGNS
(P16-2) DR MOROKA INTERCHANGE 176

SCALE : 1 : 500 (A0) SHEET 01 OF 05

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	SECTION 13	SECTION 13
DRAWING km DISTANCE	km 33.100	km 33.600
DRAWING TYPE	ROADS - ROAD SIGNS	
BRIDGE/STRUCTURE No.	NA	
CONSULTANT DRAWING No.	FA 3257 / 23 / 17 RS	VER
SANRAL DOCUMENT #	- -	V0

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\10 - Road Traffic Signs\3257_23_17-21_RS - Dr Moroka N4 Interchange Road Traffic Signs_20230717.dwg



No.	DATE	REVISION	
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
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Name :
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DESIGNED BY	
NAME	Z MASHININI
Prof. Reg. No.	-
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Prof. Reg. No.	20080112
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NAME	WB HARTMANN

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for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION
ROAD TRAFFIC SIGNS
(P16-2) DR MOROKA INTERCHANGE 176

SCALE : 1 : 500 (A0) | SHEET 02 OF 05

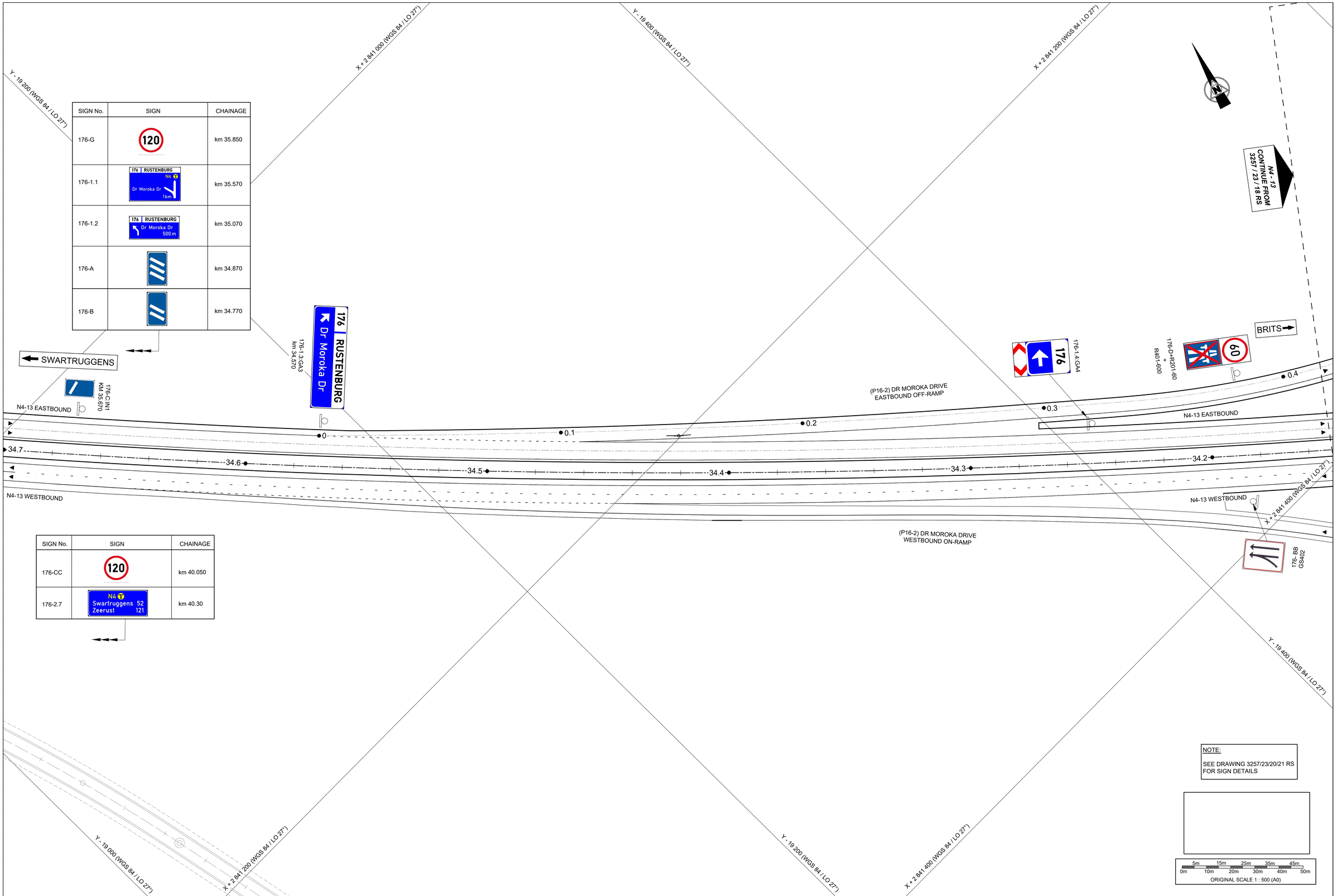
PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	SECTION 13	SECTION 13
DRAWING km DISTANCE	km 33.600	km 34.100
DRAWING TYPE	ROADS - ROAD SIGNS	
BRIDGE/STRUCTURE No.	NA	
CONSULTANT DRAWING No.	FA 3257 / 23 / 18 RS	VER V0
SANRAL DOCUMENT #	- -	

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\23-Drawings\Volume 4-Roadworks\10 - Road Traffic Signs\3257_23_17-21_RS - Dr Moroka N4 Interchange Road Traffic Signs_20230717.dwg

SIGN No.	SIGN	CHAINAGE
176-G	120	km 35.850
176-1.1	176 RUSTENBURG N4 Dr Moroka Dr 1km	km 35.570
176-1.2	176 RUSTENBURG Dr Moroka Dr 500 m	km 35.070
176-A		km 34.870
176-B		km 34.770

SIGN No.	SIGN	CHAINAGE
176-CC	120	km 40.050
176-2.7	N4 Swartruggens 52 Zeerust 121	km 40.30



NOTE:

SEE DRAWING 3257/23/20/21 RS FOR SIGN DETAILS

5m 15m 25m 35m 45m
0m 10m 20m 30m 40m 50m
ORIGINAL SCALE 1 : 500 (A0)

No.	DATE	REVISION	
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSULT. ENG.

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
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DESIGNED BY
NAME: Z MASHININI
Prof. Reg. No.: -
CHECKED BY
NAME: PL NGQUMSHE
Prof. Reg. No.: 20080112
DRAWN BY
NAME: WB HARTMANN

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17/07/2023

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Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION
ROAD TRAFFIC SIGNS
(P16-2) DR MOROKA INTERCHANGE 176

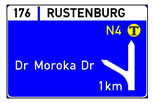
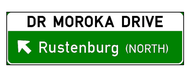
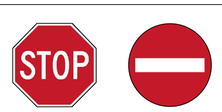
SCALE : 1 : 500 (A0) SHEET 03 OF 05

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	SECTION 13	SECTION 13
DRAWING km DISTANCE	km 34.200	km 34.700
DRAWING TYPE	ROADS - ROAD SIGNS	
BRIDGE/STRUCTURE No.	NA	
CONSULTANT DRAWING No.	FA 3257 / 23 / 19 RS	VER V0
SANRAL DOCUMENT #	- -	

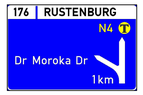
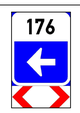
SANRAL DOCUMENT NUMBER : :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\10 - Road Traffic Signs\3257_23_17-21_RS - Dr Moroka N4 Interchange Road Traffic Signs_20230717.dwg

N4 - 13 UPGRADE INTERCHANGE 176 DR MOROKA INTERCHANGE

SIGN No.	SIGN	SIZE & DESCRIPTION	CLASS	CHAINAGE	QUANTITY	REMARKS
176-1.1		GA2 3600 X 5438	3 / 3	km 35.570	1	
176-1.2		GA2/3 2200 X 4860	3 / 3	km 35.070	1	
176-A		IN3 1200 X 700	3 / 3	km 34.870	1	
176-B		IN2 1200 X 700	3 / 3	km 34.770	1	
176-C		IN1 1200 X 700	3 / 3	km 34.670	1	
176-1.3		GA3 1600 X 4860	3 / 3	km 34.570	1	
176-D		R201-60 Ø1200 + R401-600 1200 X 900	3	SEE LAYOUT	2	
176-1.4		GA4 2600 X 1600	3 / 3	km 34.240	1	
176-1.5		GA5 2200 X 5070	3 / 3	SEE LAYOUT	1	
176-1.6A		GA6 1000 X 3136	3 / 3	SEE LAYOUT	1	
176-1.6B		GA6 1600 X 3208	3 / 3	SEE LAYOUT	1	
176-E		R1+R3 Ø1200	3	SEE LAYOUT	2	
176-F		R401 1200 X 900	3	SEE LAYOUT	2	

N4 - 13 UPGRADE INTERCHANGE 176 DR MOROKA INTERCHANGE

SIGN No.	SIGN	SIZE & DESCRIPTION	CLASS	CHAINAGE	QUANTITY	REMARKS
176-G		R201-120 Ø1200	3 / 3	SEE LAYOUT	4	
176-H		GS 402 2400 X 1800	3	SEE LAYOUT	1	
176-1.7		GA7 1200 X 1946	3	km 32.330	1	
176-2.1		GA2 3600 X 5438	3 / 3	km 32.255	1	
176-2.2		GA2/3 2200 X 4860	3 / 3	km 32.755	1	
176-J		IN3 1200 X 700	3 / 3	km 32.995	1	
176-K		IN2 1200 X 700	3 / 3	km 33.055	1	
176-L		IN1 1200 X 700	3 / 3	km 33.150	1	
176-2.3		GA3 1600 X 4860	3 / 3	km 33.255	1	
176-2.4		GA4 1600 X 2600	3 / 3	km 33.440	1	
176-M		R201-60 Ø1200 + R401-600 1200 X 900	3	SEE LAYOUT	2	
		R2 1500	3	SEE LAYOUT	1	

NOTE

ROAD SIGN DESIGNS ARE INCLUDED IN A SEPARATE BOOK TITLED:
N4-13 KM 30.500 (HELEN JOSEPH DRIVE I/C) TO N4 KM 41.673(R401,P2-3,I/C)

No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
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Date :
SANRAL PROJECT MANAGER
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DESIGNED BY	
NAME	Z MASHININI
Prof. Reg. No.	-
CHECKED BY	
NAME	PL NGQUMSHE
Prof. Reg. No.	20080112
DRAWN BY	
NAME	WB HARTMANN

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17/07/2023

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Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION
ROAD TRAFFIC SIGNS
(P16-2) DR MOROKA INTERCHANGE 176

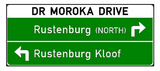
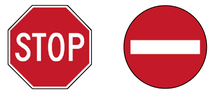
SCALE : N.T.S | SHEET 04 OF 05

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001		
DRAWING LOCATION DATA	START	END	
ROUTE	N 4	N 4	
SECTION	SECTION 13	SECTION 13	
DRAWING km DISTANCE	--	--	
DRAWING TYPE	ROADS - ROAD SIGNS		
BRIDGE/STRUCTURE No.	NA		
CONSULTANT DRAWING No.	PD 3257 / 23 / 20 RS		VER V0
SANRAL DOCUMENT #	- -		

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\10 - Road Traffic Signs\3257_23_17-21_RS - Dr Moroka N4 Interchange Road Traffic Signs_20230717.dwg

N4 - 13 UPGRADE INTERCHANGE 176 DR MOROKA INTERCHANGE

SIGN No.	SIGN-FACE	REF. NO and AREA	MATERIAL CLASS	km	QUANTITY	REMARKS
176-2.5		GA5 2200 X 5070	3 / 3	SEE LAYOUT	1	
176-2.6A		GA6 1000 X 3144	3 / 3	SEE LAYOUT	1	
176-N		R1+R3 Ø1200	3	SEE LAYOUT	2	
176-AA		R401 1200 X 900	3	SEE LAYOUT	2	
176-BB		GS 402 2400 X 1800	3	SEE LAYOUT	1	
176-CC		R201-120 Ø1200	3 / 3	SEE LAYOUT	2	
176-2.7		GA7 1200 X 2592	3 / 3	40.30 KM	1	
176-3.1		GB1 2200 X 5110	3 / 3	SEE LAYOUT	1	
176-3.2		GB2 600 X 2804	3 / 3	SEE LAYOUT	1	
176-3.3		GB3 600 X 3445	3 / 3	SEE LAYOUT	1	
176-3.4		GB4 600 X 2766	3 / 3	SEE LAYOUT	1	
176-P		R201-60 Ø1200	3	SEE LAYOUT	1	
176-4.1		GB1 2200 X 5107	3 / 3	SEE LAYOUT	1	

N4 - 13 UPGRADE INTERCHANGE 176 DR MOROKA INTERCHANGE

SIGN No.	SIGN-FACE	REF. NO and AREA	MATERIAL CLASS	km	QUANTITY	REMARKS
176-4.2		GB2 600 X 2766	3 / 3	SEE LAYOUT	1	
176-4.3		GB3 1000 X 3815	3 / 3	SEE LAYOUT	1	
176-4.4		GB4 600 X 2804	3 / 3	SEE LAYOUT	1	
176-Q		R201-60 Ø1200	3	SEE LAYOUT	1	

NOTE

ROAD SIGN DESIGNS ARE INCLUDED IN A SEPARATE BOOK TITLED:
N4-13 KM 30.500 (HELEN JOSEPH DRIVE I/C) TO N4 KM 41.673(R401,P2-3,I/C)

No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date :

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NAME	Z MASHININI
Prof. Reg. No.	-
CHECKED BY	
NAME	PL NGQUMSHE
Prof. Reg. No.	20080112
DRAWN BY	
NAME	WB HARTMANN

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17/07/2023

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ACCEPTANCE
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for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION
ROAD TRAFFIC SIGNS
(P16-2) DR MOROKA INTERCHANGE 176

SCALE : 1 : 500 (A0) SHEET 05 OF 05

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001		
DRAWING LOCATION DATA	START	END	
ROUTE	N 4	N 4	
SECTION	SECTION 13	SECTION 13	
DRAWING km DISTANCE	--	--	
DRAWING TYPE	ROADS - ROAD SIGNS		
BRIDGE/STRUCTURE No.	NA		
CONSULTANT DRAWING No.	PD 3257 / 23 / 21 RS		VER V0
SANRAL DOCUMENT #	- -		

SANRAL DOCUMENT NUMBER : :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\10 - Road Traffic Signs\3257_23_17-21_RS - Dr Moroka N4 Interchange Road Traffic Signs_20230717.dwg

X + 2 838 800 (WGS 84 / LO 27°)

Y - 17 000 (WGS 84 / LO 27°)

X + 2 838 000 (WGS 84 / LO 27°)

Y - 16 800 (WGS 84 / LO 27°)

N4 T ZEERUST

N4-13 EASTBOUND

N4 T PRETORIA

N4-13 EASTBOUND

38.7 | 38.6 | 38.5 | 38.4 | 38.3

Y - 17 000 (WGS 84 / LO 27°)

N4-13 WESTBOUND

60

171-D:GA4
R201-60
+
R401-600

N4 - 13
CONTINUE ON
3257 / 23 / 23 RS

171-2.3:GA
KM 38.615

171
R104 Phokeng
(R565) Sun City

171-C:IN1
KM 38.515

171-B:IN2
KM 38.415

171-A:IN3
KM 38.315

N4-13 WESTBOUND

SIGN No.	SIGN	CHAINAGE
171-2.1	171 N4 R104 Phokeng (R565) Sun City 1km	km 37.615
171-2.2	171 R104 Phokeng (R565) Sun City 500 m	km 38.115

X + 2 838 800 (WGS 84 / LO 27°)

Y - 16 600 (WGS 84 / LO 27°)

X + 2 838 800 (WGS 84 / LO 27°)

Y - 16 800 (WGS 84 / LO 27°)

X + 2 838 200 (WGS 84 / LO 27°)

NOTE:

SEE DRAWING 3257/23/30-32 RS
FOR SIGN DETAILS

5m 15m 25m 35m 45m
0m 10m 20m 30m 40m 50m
ORIGINAL SCALE 1 : 500 (A0)

No.	DATE	REVISION	
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSULT. ENG.

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\10 - Road Traffic Signs\3257_23_22-32_RS02 - R104 N4 Interchange Road Traffic Signs_20230717.dwg

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
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NAME	PL NGQUMSHE
Prof. Reg. No.	20080112
DRAWN BY	
NAME	WB HARTMANN

CONSULTANT APPROVAL
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Prof. Reg. No. : 20080112
Date : 17/07/2023

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for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION
ROAD TRAFFIC SIGNS
(P2-3) R104 INTERCHANGE 171

SCALE : 1 : 500 (A0) **SHEET 01 OF 08**

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	SECTION 13	SECTION 13
DRAWING km DISTANCE	km 38.300	38.700
DRAWING TYPE	ROADS - ROAD SIGNS	
BRIDGE/STRUCTURE No.	NA	
CONSULTANT DRAWING No.	FA 3257 / 23 / 06 RS	VER V1
SANRAL DOCUMENT #	- -	

SANRAL DOCUMENT NUMBER :

N4-13 EASTBOUND

N4 T ZEERUST

X + 2 837 400 (WGS 84 / LO 27°)

Y - 16 600 (WGS 84 / LO 27°)

X + 2 837 600 (WGS 84 / LO 27°)

N4 T PRETORIA

N4-13 EASTBOUND

Y - 16 400 (WGS 84 / LO 27°)

39.2

39.1

39.0

38.9

38.8

N4-13 WESTBOUND

N4-13 WESTBOUND

ROAD 287 WESTBOUND OFF RAMP

N4-13 WESTBOUND

171-J
GS402

ROAD 287 WESTBOUND ON RAMP

171-G
12xW406
@20m C/C

171

171-F
11xW406
@20m C/C

171-DB
W205
+
IN11.3

171

171-2.4 GA4

171-DA
W205
+
IN11.3

200 m

60

171-D:GA4
R201-60
+
R401-600

N4 - 13
CONTINUE FROM
3257 / 23/ 22 RS

N4 - 13
CONTINUE ON
3257 / 23 / 24 RS

X + 2 837 400 (WGS 84 / LO 27°)

172-EA
R103+W402

09

171-E
R201-60

LIMIT OF
CONSTRUCTION

R104 Rustenburg Kloof

R104 Phokeng (R565) Sun City

Magaliesberg

172-3.1
GD2

172-FG
R401

171-EC
R103+W402

172-3.EB
R3

172-1.2A
GA2

172-1.1
GD1

N4 Zeerust

R104 Rustenburg Kloof

172-4.1
GD1

N4 Zeerust

R104 Rustenburg Kloof

R104 Phokeng

Magaliesberg

172-1.2B
GB2

Y - 16 200 (WGS 84 / LO 27°)

PHOKENG
R104 (R565)SUN CITY

172

ROAD 287 (37.78m) PROC. ADMIN. NOT. 222/69

172-2.2A
GD2

N4 Zeerust

Magaliesberg

172-3.2A
GD2

Rustenburg Kloof

R104 Phokeng (R565) Sun City

Magaliesberg

Phokeng
R104 (R565) Sun City

N4 Zeerust

Magaliesberg

172-2.1
GD2

R104 RUSTENBURG KLOOF

X + 2 838 800 (WGS 84 / LO 27°)

Y - 16 600 (WGS 84 / LO 27°)

Y - 16 400 (WGS 84 / LO 27°)

X + 2 838 800 (WGS 84 / LO 27°)

NOTE:

SEE DRAWING 3257/23/30-32 RS
FOR SIGN DETAILS

5m 15m 25m 35m 45m
0m 10m 20m 30m 40m 50m
ORIGINAL SCALE 1 : 500
(A0)

No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
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Date :

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Prof. Reg. No.	20080112
DRAWN BY	
NAME	WB HARTMANN

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17/07/2023

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for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

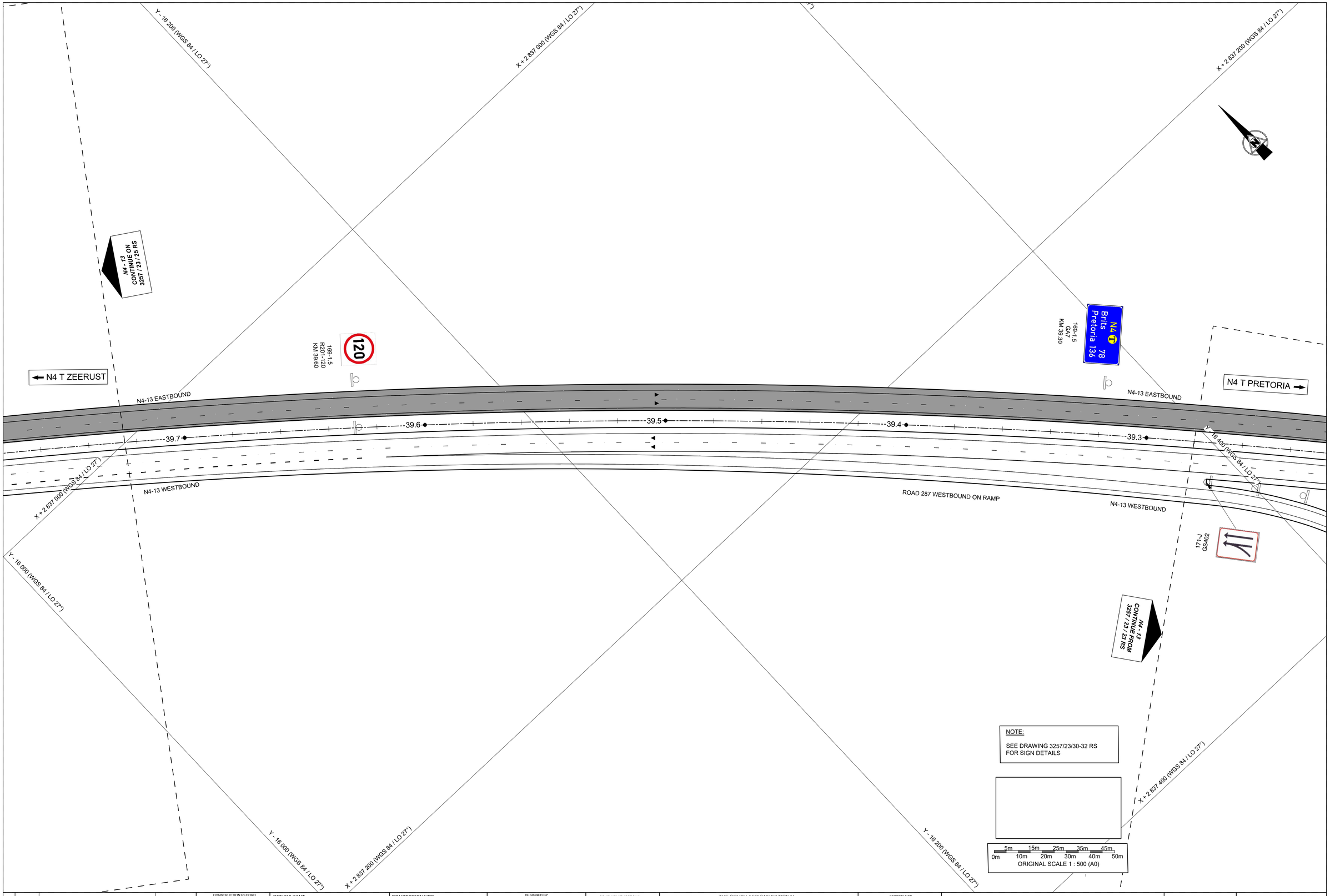
DRAWING DESCRIPTION
ROAD TRAFFIC SIGNS
(P2-3) R104 INTERCHANGE 171 & 172

SCALE : 1 : 500 (A0) SHEET 02 OF 08

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001		
DRAWING LOCATION DATA	START	END	
ROUTE	N 4	N 4	
SECTION	SECTION 13	SECTION 13	
DRAWING km DISTANCE	km 38.800	km 39.200	
DRAWING TYPE	ROADS - ROAD SIGNS		
BRIDGE/STRUCTURE No.	NA		
CONSULTANT DRAWING No.	FA	3257 / 23 / 07 RS	VER
SANRAL DOCUMENT #		- -	V1

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PJV)\03-Tender\03-Drawings\Volume 4-Roadworks\10 - Road Traffic Signs\3257_23_22-32_R002 - R104 N4 Interchange Road Traffic Signs_20230717.dwg



No.	DATE	REVISION	
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSULT. ENG.

CONSTRUCTION RECORD

WORKS CONTRACT ENGINEER

Name :
Prof. Reg. No. :
Date

SANRAL PROJECT MANAGER

Name :
Prof. Reg. No. :
Date

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Prof. Reg. No.	-
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NAME	PL NGQUMSHE
Prof. Reg. No.	20080112
DRAWN BY	
NAME	WB HARTMANN

CONSULTANT APPROVAL

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Prof. Reg. No. : 20080112
Date : 17/07/2023

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Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

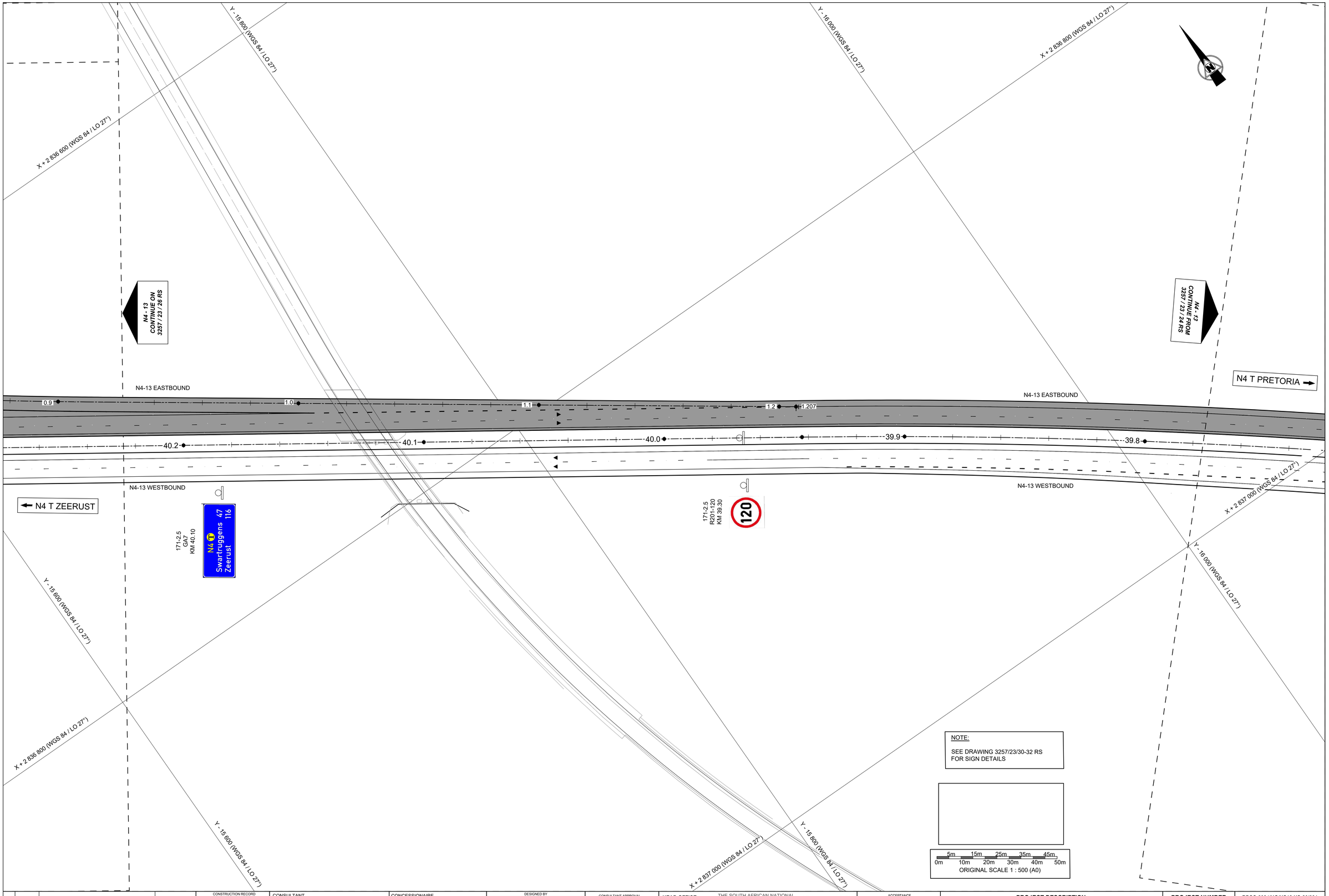
DRAWING DESCRIPTION
ROAD TRAFFIC SIGNS
(P2-3) R104 INTERCHANGE 171 & 172

SCALE : 1 : 500 (A0) SHEET 03 OF 08

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	SECTION 13	SECTION 13
DRAWING km DISTANCE	km 33.100	km 33.600
DRAWING TYPE	ROADS - ROAD SIGNS	
BRIDGE/STRUCTURE No.	NA	
CONSULTANT DRAWING No.	FA 3257 / 23 / 08 RS	VER
SANRAL DOCUMENT #	- -	V1

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\10 - Road Traffic Signs\3257_23_23-32_R022 - R104 N4 Interchange Road Traffic Signs_20230717.dwg



No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD

WORKS CONTRACT ENGINEER

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Prof. Reg. No. :
Date :

SANRAL PROJECT MANAGER

Name :
Prof. Reg. No. :
Date :

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Date:

PROJECT DESCRIPTION

THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION

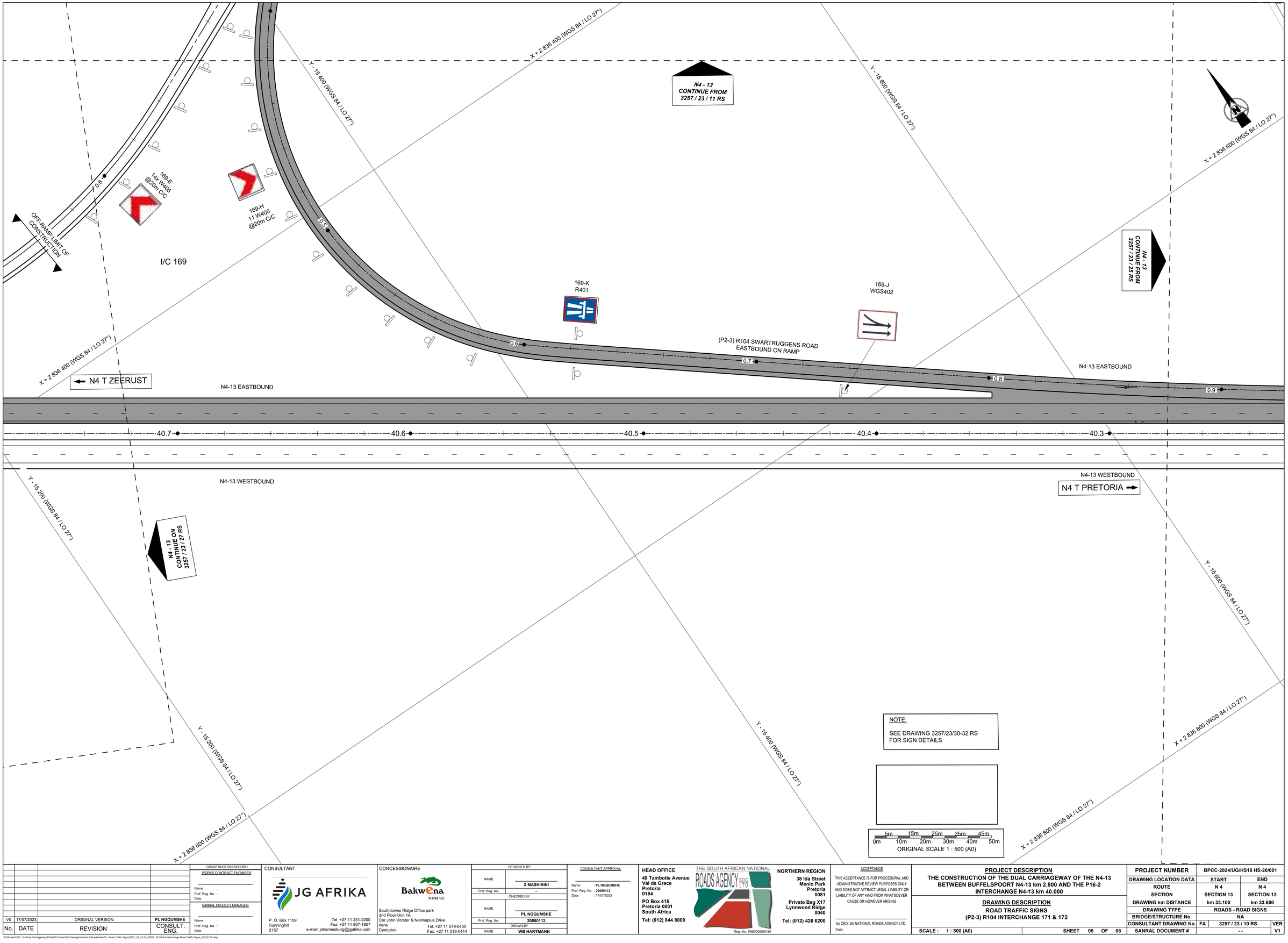
ROAD TRAFFIC SIGNS
(P2-3) R104 INTERCHANGE 171 & 172

SCALE : 1 : 500 (A0) SHEET 04 OF 08

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	SECTION 13	SECTION 13
DRAWING km DISTANCE	km 33.100	km 33.600
DRAWING TYPE	ROADS - ROAD SIGNS	
BRIDGE/STRUCTURE No.	NA	
CONSULTANT DRAWING No.	FA 3257 / 23 / 09 RS	VER V1
SANRAL DOCUMENT #	- -	

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\10 - Road Traffic Signs\3257_23_23-32_RS02 - R104 N4 Interchange Road Traffic Signs_20230717.dwg



No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD

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Date:

PROJECT DESCRIPTION

THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION

ROAD TRAFFIC SIGNS
(P2-3) R104 INTERCHANGE 171 & 172

SCALE : 1 : 500 (A0) SHEET 05 OF 08

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001		
DRAWING LOCATION DATA	START	END	
ROUTE	N 4	N 4	
SECTION	SECTION 13	SECTION 13	
DRAWING km DISTANCE	km 33.100	km 33.600	
DRAWING TYPE	ROADS - ROAD SIGNS		
BRIDGE/STRUCTURE No.	NA		
CONSULTANT DRAWING No.	FA	3257 / 23 / 10 RS	VER
SANRAL DOCUMENT #		- -	V1

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\23-Drawings\Volume 4-Roadworks\10 - Road Traffic Signs\3257_23_22-32_R0S2 - R104 N4 Interchange Road Traffic Signs_20230717.dwg

X + 2 836 000 (WGS 84 / LO 27°)
Y - 15 600 (WGS 84 / LO 27°)
X + 2 836 200 (WGS 84 / LO 27°)
Y - 15 800 (WGS 84 / LO 27°)
X + 2 836 400 (WGS 84 / LO 27°)
Y - 15 400 (WGS 84 / LO 27°)

R104 Rustenburg
N4 Pretoria
Rustenburg Kloof
R104 Rustenburg
170-3.1
GB4

N4 Pretoria
Phokeng
Rustenburg Kloof
R104
(N4 Zeerust)
170-2.1
GB2

R104 Rustenburg
170-3.2A
GB4

PHOKENG

R104 Rustenburg Kloof
170-1.2A
GD2

INTERCHANGE 170

R104 RUSTENBURG
(R565) SUN CITY

I/C 170

R104 Rustenburg
(R565) Sun City
170-4.2 B
GB2

1.100
0.0

N4 Pretoria
170-3.2B
GB4

R104 Rustenburg Kloof
(N4 Zeerust)
170-2.2A
GB2

Phokeng
170-1.2B
GA6

1.0
0.1

Phokeng
N4 Pretoria
170-2.2B
GA42

170-1.1
GD1
R104 Rustenburg
R104 (R565) Sun City
R104 Rustenburg Kloof
Phokeng

0.9
0.2

N4 Pretoria
170-4.2B
GB2

169-F
R201-60
W212
60

0.8
0.3

N4 Pretoria
170-2.3
GB2

169-L
R3

ON-RAMP LIMIT OF CONSTRUCTION

N4 - 13
CONTINUE FROM
3257 / 23 / 28 RS

169-J
R105-RD

N4 T PRETORIA

0.7
0.4

N4 - 13
CONTINUE FROM
3257 / 23/ 26 RS

RUSTENBURG KLOOF
N4 T ZEERUST

NOTE:

SEE DRAWING 3257/23/30-32 RS
FOR SIGN DETAILS

5m 15m 25m 35m 45m
0m 10m 20m 30m 40m 50m
ORIGINAL SCALE 1 : 500
(A0)

170-4.1
GD1
Phokeng
R104 Rustenburg
(R565) Sun City
N4 Pretoria

No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date :

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DESIGNED BY	
NAME	Z MASHININI
Prof. Reg. No.	-
CHECKED BY	
NAME	PL NGQUMSHE
Prof. Reg. No.	20080112
DRAWN BY	
NAME	WB HARTMANNI

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17/07/2023

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THE SOUTH AFRICAN NATIONAL ROADS AGENCY SOC LTD
Reg. No. 1998/009584/30

NORTHERN REGION
38 Ida Street
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Lynnwood Ridge
0040
Tel: (012) 426 6200

ACCEPTANCE
THIS ACCEPTANCE IS FOR PROCEDURAL AND ADMINISTRATIVE REVIEW PURPOSES ONLY AND DOES NOT ATTRACT LEGAL LIABILITY OR LIABILITY OF ANY KIND FROM WHATSOEVER CAUSE OR HOWEVER ARISING
for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION
ROAD TRAFFIC SIGNS
(P2-3) R104 INTERCHANGE 169 & 170

SCALE : 1 : 500 (A0) SHEET 06 OF 08

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	SECTION 13	SECTION 13
DRAWING km DISTANCE	km 33.100	km 33.600
DRAWING TYPE	ROADS - ROAD SIGNS	
BRIDGE/STRUCTURE No.	NA	
CONSULTANT DRAWING No.	PD 3257 / 23 / 11 RS	VER V1
SANRAL DOCUMENT #	- -	

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\10 - Road Traffic Signs\3257_23_22-32_R502 - R104 N4 Interchange Road Traffic Signs_20230717.dwg

Y - 15 000 (WGS 84 / LO 27°)

Y - 15 200 (WGS 84 / LO 27°)

X + 2 836 200 (WGS 84 / LO 27°)

Y - 14 800 (WGS 84 / LO 27°)

169-1.4GA4
KM 40.960

169

(P2-3) R104 SWARTRUGGENS
ROAD EASTBOUND OFF RAMP

R104 RUSTENBURG
(R565) SUN CITY

169-D
R201-80

80

OFF-RAMP LIMIT OF
CONSTRUCTION

N4 - 13
CONTINUE FROM
3257 / 23/ 21 RS

N4 T ZEERUST

N4-13 EASTBOUND

N4 T PRETORIA

N4-13 EASTBOUND

0.1
0.2
0.3
0.4
0.5
41.1
41.0
41.1
41.0
41.2
41.2
40.9
40.9
40.8

LIMIT OF
CONSTRUCTION

X + 2 836 400 (WGS 84 / LO 27°)

N4-13 WESTBOUND

N4-13 WESTBOUND

400 m

169-Q: GS146 +
IN11.3
KM 41.20

N4 - 13
CONTINUE ON
3257/ 23/ 29 RS

Y - 15 200 (WGS 84 / LO 27°)

Y - 14 800 (WGS 84 / LO 27°)

X + 2 836 400 (WGS 84 / LO 27°)

Y - 15 000 (WGS 84 / LO 27°)

NOTE:

SEE DRAWING 3257/23/30-32 RS
FOR SIGN DETAILS

5m 15m 25m 35m 45m
0m 10m 20m 30m 40m 50m
ORIGINAL SCALE 1 : 500 (A0)

No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date :

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DESIGNED BY
NAME: Z MASHININI
Prof. Reg. No.: -
CHECKED BY
NAME: PL NGQUMSHE
Prof. Reg. No.: 20080112
DRAWN BY:
NAME: WB HARTMANN

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17/07/2023

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for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION
ROAD TRAFFIC SIGNS
(P2-3) R104 INTERCHANGE 169

SCALE : 1 : 500 (A0) SHEET 07 OF 08

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001		
DRAWING LOCATION DATA	START	END	
ROUTE	N 4	N 4	
SECTION	SECTION 13	SECTION 13	
DRAWING km DISTANCE	km 33.100	km 33.600	
DRAWING TYPE	ROADS - ROAD SIGNS		
BRIDGE/STRUCTURE No.	NA		
CONSULTANT DRAWING No.	FA	3257 / 23 / 12 RS	VER
SANRAL DOCUMENT #	- -		V1

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4 Roadworks\10 - Road Traffic Signs\3257_23_23-32_R002 - R104 N4 Interchange Road Traffic Signs_20230717.dwg

SIGN No.	SIGN	CHAINAGE
169-1.1	169 N4 R104 Rustenburg (R565) Sun City 1km	km 42.30
169-O	400 m	km 42.00
169-1.2	169 R104 Rustenburg (R565) Sun City 500 m	km 41.80
169-P	200 m	km 41.70

X + 2 836 200 (WGS 84 / LO 27°)

Y - 14 600 (WGS 84 / LO 27°)

Y - 14 800 (WGS 84 / LO 27°)

X + 2 836 400 (WGS 84 / LO 27°)

Y - 14 400 (WGS 84 / LO 27°)

169-N:GS145
KM 41.60

169-A:IN3
KM 41.60

169-A:IN2
KM 41.50

169-G
KM 41.50

169-A:IN1
KM 41.40

169-J:GS3
KM 41.30

169-L:GS146
KM 41.60

169-M: GS146 + IN11.3
KM 41.40

169-O: GS146 + IN11.3
KM 41.20

41.6 41.6 41.5 41.5 41.4 41.4 41.3 41.3 41.2 41.2

41.673

0.0 0.1

LIMIT OF CONSTRUCTION KM 41.673

N4 T ZEERUST

N4 T PRETORIA

N4-13 EASTBOUND

N4-13 WESTBOUND

N4 - 13 CONTINUE FROM 3257 / 23 / 20 RS

NOTE:

SEE DRAWING 3257/23/30-32 RS FOR SIGN DETAILS

5m 15m 25m 35m 45m
0m 10m 20m 30m 40m 50m
ORIGINAL SCALE 1 : 500 (A0)

No.	DATE	REVISION	
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadwork\10 - Road Traffic Signs\3257_23_22-32_RS02 - R104 N4 Interchange Road Traffic Signs_20230717.dwg

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date

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NAME	Z MASHININI
Prof. Reg. No.	-
CHECKED BY	
NAME	PL NGQUMSHE
Prof. Reg. No.	20080112
DRAWN BY	
NAME	WB HARTMANN

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17/07/2023

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Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

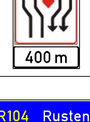
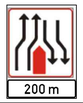
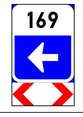
DRAWING DESCRIPTION
ROAD TRAFFIC SIGNS
(P2-3) R104 INTERCHANGE 169

SCALE : 1 : 500 (A0) SHEET 08 OF 08

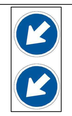
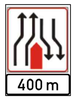
PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001		
DRAWING LOCATION DATA	START	END	
ROUTE	N 4	N 4	
SECTION	SECTION 13	SECTION 13	
DRAWING km DISTANCE	km 33.100	km 33.600	
DRAWING TYPE	ROADS - ROAD SIGNS		
BRIDGE/STRUCTURE No.	NA		
CONSULTANT DRAWING No.	FA	3257 / 23 / 13 RS	VER
SANRAL DOCUMENT #	- -		V1

SANRAL DOCUMENT NUMBER :

N4 - 13 DUAL CARRIAGEWAY UPGRADE - INTERCHANGE 169

SIGN No.	SIGN	SIZE & DESCRIPTION	CLASS	CHAINAGE	QUANTITY	REMARKS
169-1.1		GA2 3200 X 6367	3 / 3	km 42.30	1	
169-O		GS145 + IN11.3	3	km 42.00	1	
169-1.2		GA2/3 2200 X 5767	3 / 3	km 41.80	1	
169-P		GS145 + IN11.3	3	km 42.00	1	
169-A		IN3 1200 X 700	3 / 3	km 41.60	1	
169-B		IN2 1200 X 700	3 / 3	km 41.50	1	
169-C		IN1 1200 X 700	3 / 3	km 41.40	1	
169-1.3		GA3 1800 X 5767	3 / 3	km 41.30	1	
169-1.4		GA4 2600 X 1600	3 / 3	km 40.960	1	
169-D		R201-80 Ø1200	3 / 3	SEE LAYOUT	2	
169-E		W406 600 X 600	3	SEE LAYOUT	14	
169-F		R201-60 + W212 1500	3 / 3	SEE LAYOUT	1	
169-FA		R3	3	SEE LAYOUT	1	

N4 - 13 DUAL CARRIAGEWAY UPGRADE - INTERCHANGE 169

SIGN No.	SIGN	SIZE & DESCRIPTION	CLASS	CHAINAGE	QUANTITY	REMARKS
169-FB		R201-120 Ø 1200	2	SEE LAYOUT		
169-1.5		GA7 1200 X 1987	3 / 3	km 39.30	1	
169-FB		R103 + R103	3	SEE LAYOUT	1	
169-G		R103 + W402	3	km 41.5	1	
169-H		W406 600 X 600	3	SEE LAYOUT	11	
169-J		GS 402 2400 X 1800	3	SEE LAYOUT	1	
169-K		R401 1200 X 900	3	SEE LAYOUT	2	
169-N		GS145 1500	3	km 41.600	1	
169-L		GS146 1500	3	km 41.600	1	
169-M		GS146 1500	3	km 41.400	1	
169-Q		GS146 1500	3	km 41.200	1	

NOTE

ROAD SIGN DESIGNS ARE INCLUDED IN A SEPARATE BOOK TITLED:
N4-13 KM 30.500 (HELEN JOSEPH DRIVE I/C) TO N4 KM 41.673(R401,P2-3,I/C)

No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date :

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DESIGNED BY
NAME: Z MASHININI
Prof. Reg. No.: -
CHECKED BY
NAME: PL NGQUMSHE
Prof. Reg. No.: 20080112
DRAWN BY
NAME: WB HARTMANN

CONSULTANT APPROVAL
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Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION
ROAD TRAFFIC SIGNS
INTERCHANGE 169

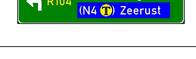
SCALE : N.T.S
SHEET 01 OF 03

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001		
DRAWING LOCATION DATA	START	END	
ROUTE	N 4	N 4	
SECTION	SECTION 13	SECTION 13	
DRAWING km DISTANCE	km 33.100	km 33.600	
DRAWING TYPE	ROADS - ROAD SIGNS		
BRIDGE/STRUCTURE No.	NA		
CONSULTANT DRAWING No.	FA 3257 / 23 / 14 RS		VER V1
SANRAL DOCUMENT #	- -		

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4 Roadworks\10 - Road Traffic Signs\3257_23_23-32_R002 - R104 N4 Interchange Road Traffic Signs_20230717.dwg

N4 - 13 DUAL CARRIAGEWAY UPGRADE - INTERCHANGE 170

SIGN No.	SIGN	SIZE & DESCRIPTION	CLASS	CHAINAGE	QUANTITY	REMARKS
170-1.1		GD1 2800 X 4708	3 / 3	km 0.800	1	
170-1.2A		GD2 1000 X 3948	3 / 3	SEE LAYOUT	1	
170-1.2B		GD2 1940 X 600	3 / 3	km 0, 960	1	
170-2.1		GD1 2800 X 4930	3 / 3	SEE LAYOUT	1	
170-2.2A		GD2 3716 X 1000	3 / 3	SEE LAYOUT	1	
170-2.2B		GD2 1200 X 2874	3 / 3	SEE LAYOUT	1	
170-2.3		GD2 2774 X 600	3 / 3	SEE LAYOUT	1	

N4 - 13 DUAL CARRIAGEWAY UPGRADE - INTERCHANGE 170

SIGN No.	SIGN	SIZE & DESCRIPTION	CLASS	CHAINAGE	QUANTITY	REMARKS
170-3.1		GD1 6230 X 2800	3 / 3	SEE LAYOUT	1	
170-3.2A		GD2 3068 X 600	3 / 3	SEE LAYOUT	1	
170-3.2B		GD2 2804 X 600	3 / 3	SEE LAYOUT	1	
170-4.1		GD1 2800 X 5132	3 / 3	SEE LAYOUT	1	
170-4.2A		GD1 2740 X 600	3 / 3	SEE LAYOUT	1	
170-4.2B		GD2 3255 X 1000	3 / 3	SEE LAYOUT	1	

NOTE

ROAD SIGN DESIGNS ARE INCLUDED IN A SEPARATE BOOK TITLED:

N4-13 KM 30.500 (HELEN JOSEPH DRIVE I/C) TO N4 KM 41.673(R401,P2-3,I/C)

No.	DATE	REVISION	
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
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DESIGNED BY	
NAME	Z MASHININI
Prof. Reg. No.	-
CHECKED BY	
NAME	PL NGQUMSHE
Prof. Reg. No.	20080112
DRAWN BY	
NAME	WB HARTMANN

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17/07/2023

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Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION
ROAD TRAFFIC SIGNS
INTERCHANGE 170

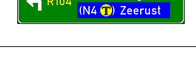
SCALE : N.T.S
SHEET 02 OF 03

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001		
DRAWING LOCATION DATA	START	END	
ROUTE	N 4	N 4	
SECTION	SECTION 13	SECTION 13	
DRAWING km DISTANCE	km 33.100	km 33.600	
DRAWING TYPE	ROADS - ROAD SIGNS		
BRIDGE/STRUCTURE No.	NA		
CONSULTANT DRAWING No.	FA	3257 / 23 / 15 RS	VER V1
SANRAL DOCUMENT #	- -		

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLA)\03-Tender\03-Drawings\volume 4-Roadworks\10 - Road Traffic Signs\3257_23_22-32_R002 - R104 N4 Interchange Road Traffic Signs_20230717.dwg

N4 - 13 DUAL CARRIAGEWAY UPGRADE - INTERCHANGE 170

SIGN No.	SIGN	SIZE & DESCRIPTION	CLASS	CHAINAGE	QUANTITY	REMARKS
170-1.1		GD1 2800 X 4708	3 / 3	km 0.800	1	
170-1.2A		GD2 1000 X 3948	3 / 3	SEE LAYOUT	1	
170-1.2B		GD2 1940 X 600	3 / 3	km 0, 960	1	
170-2.1		GD1 2800 X 4930	3 / 3	SEE LAYOUT	1	
170-2.2A		GD2 3716 X 1000	3 / 3	SEE LAYOUT	1	
170-2.2B		GD2 1200 X 2874	3 / 3	SEE LAYOUT	1	
170-2.3		GD2 2774 X 600	3 / 3	SEE LAYOUT	1	

N4 - 13 DUAL CARRIAGEWAY UPGRADE - INTERCHANGE 170

SIGN No.	SIGN	SIZE & DESCRIPTION	CLASS	CHAINAGE	QUANTITY	REMARKS
170-3.1		GD1 6230 X 2800	3 / 3	SEE LAYOUT	1	
170-3.2A		GD2 3068 X 600	3 / 3	SEE LAYOUT	1	
170-3.2B		GD2 2804 X 600	3 / 3	SEE LAYOUT	1	
170-4.1		GD1 2800 X 5132	3 / 3	SEE LAYOUT	1	
170-4.2A		GD1 2740 X 600	3 / 3	SEE LAYOUT	1	
170-4.2B		GD2 3255 X 1000	3 / 3	SEE LAYOUT	1	

NOTE

ROAD SIGN DESIGNS ARE INCLUDED IN A SEPARATE BOOK TITLED:

N4-13 KM 30.500 (HELEN JOSEPH DRIVE I/C) TO N4 KM 41.673(R401,P2-3,I/C)

No.	DATE	REVISION	
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date :

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NAME	Z MASHININI
Prof. Reg. No.	-
CHECKED BY	
NAME	PL NGQUMSHE
Prof. Reg. No.	20080112
DRAWN BY	
NAME	WB HARTMANN

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17/07/2023

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ACCEPTANCE
THIS ACCEPTANCE IS FOR PROCEDURAL AND ADMINISTRATIVE REVIEW PURPOSES ONLY AND DOES NOT ATTRACT LEGAL LIABILITY OR LIABILITY OF ANY KIND FROM WHATSOEVER CAUSE OR HOWEVER ARISING
for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

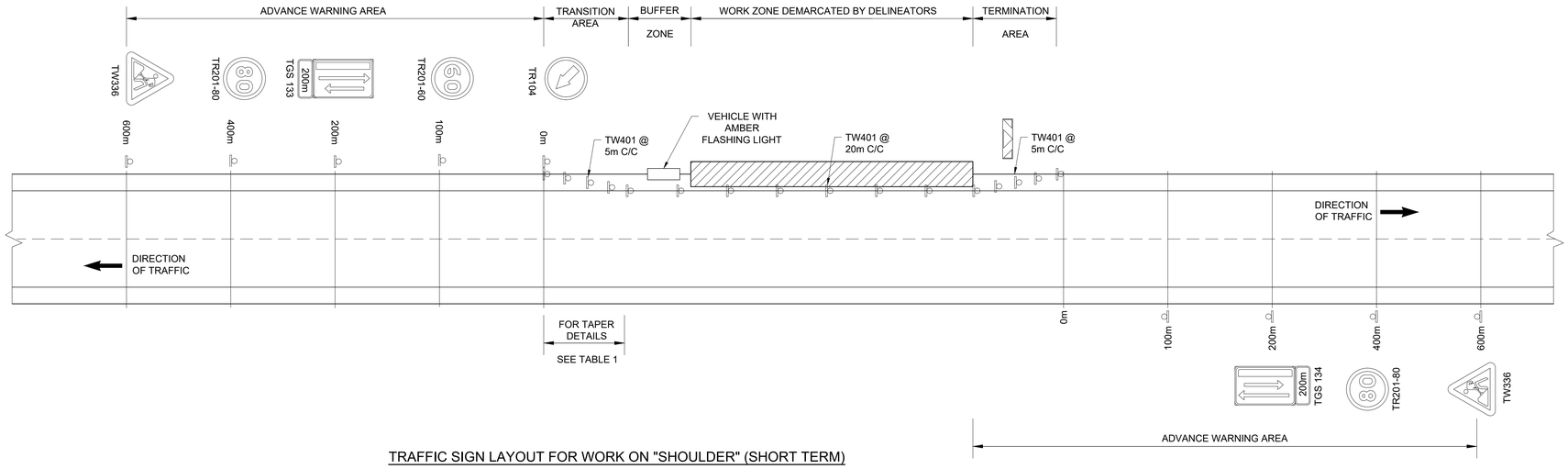
DRAWING DESCRIPTION
ROAD TRAFFIC SIGNS
INTERCHANGE 170

SCALE : N.T.S
SHEET 02 OF 03

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001		
DRAWING LOCATION DATA	START	END	
ROUTE	N 4	N 4	
SECTION	SECTION 13	SECTION 13	
DRAWING km DISTANCE	km 33.100	km 33.600	
DRAWING TYPE	ROADS - ROAD SIGNS		
BRIDGE/STRUCTURE No.	NA		
CONSULTANT DRAWING No.	FA	3257 / 23 / 15 RS	VER V1
SANRAL DOCUMENT #	- -		

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLA)\03-Tender\03-Drawings\volume 4-Roadworks\10 - Road Traffic Signs\3257_23_22-32_R002 - R104 N4 Interchange Road Traffic Signs_20230717.dwg



TRAFFIC SIGN LAYOUT FOR WORK ON "SHOULDER" (SHORT TERM)

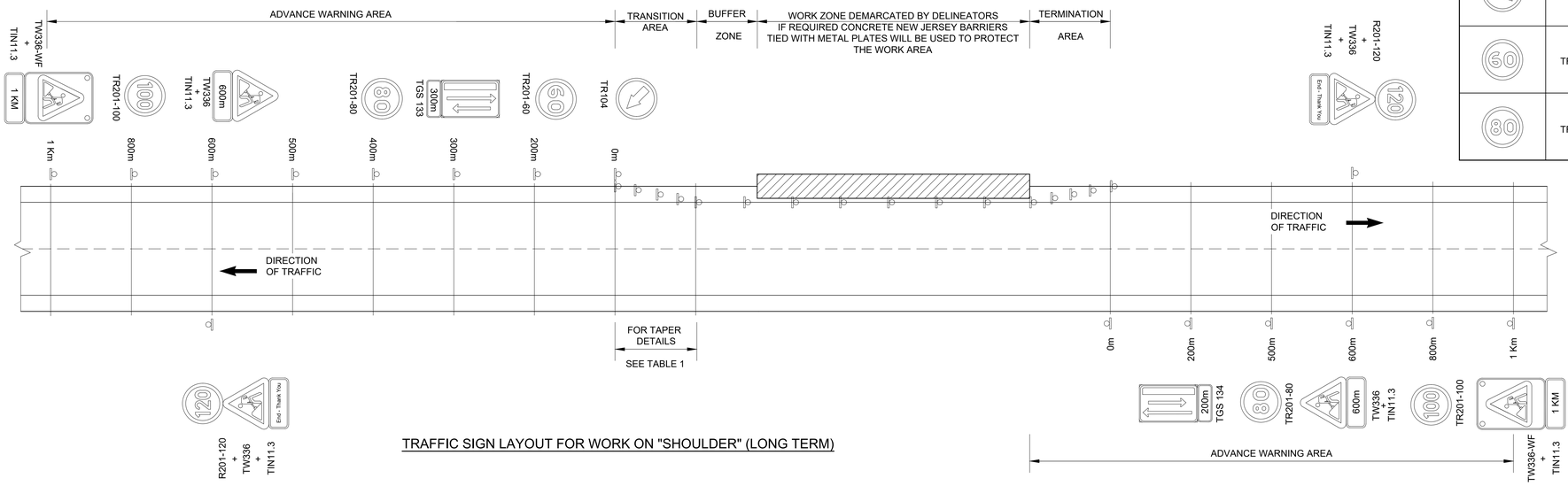
SHORT TERM			
SIGN	NUMBER	SIZE (mm)	QUANTITY
	TW336	1500	2
	TR104	1200	1
	TW401	800x200	TAPERS: 10mc/c WORKZONE: 120mc/c
200m	TGS133 + IN11.3	2400 x 1800 + 1800 x 400	1
200m	TGS134 + IN11.3	2400 x 1800 + 1800 X 400	1
	TR201-60	1200	1
	TR201-80	1200	2

TABLE 1		
TAPER RATES AT ROADWORKS		
APPROACH SPEED	TAPER RATE	ROUNDED LENGTH
TRANSITION TAPERS		
120 Km/h - 80 Km/h	1 in 50 to 1 in 40	200m to 150m
80 Km/h - 60 Km/h	1 in 30 to 1 in 20	120m to 60m
TERMINATION TAPERS		
ALL	1 IN 10	40m

NOTES:

1. TRAFFIC SIGNS SHALL COMPLY WITH THE REQUIREMENTS OF THE:
(i) SOUTH AFRICAN ROADS TRAFFIC SIGNS MANUAL (SARTSM).
(ii) CHAPTER 13 OF SARTSM - VOLUME 2.
(iii) SADC VOL 1 & 4
2. SIGN SIZES: TGS- SERIES: 1600mm x 1200mm
R- AND TR- SERIES: 1200mm
TW- AND W- SERIES: 1500mm SIDE
3. LETTER SIZE: TIN SERIES: 210mm UNLESS OTHERWISE SPECIFIED.
4. AVERAGE WAIT TIME ON SIGNS TO BE ADJUSTED TO SUIT SITE CONDITIONS.
5. SIGNS SHALL BE POLE MOUNTED 1.5m OFF SHOULDER BREAKPOINT UNLESS OTHERWISE SPECIFIED.
6. REFLECTIVE STRIPS (MIN. 150mm x 50mm) AT BACK OF ALL SIGNS.
7. THE DIMENSION W = WIDTH OF THE SURFACED SHOULDER MINUS 0.5m.
8. ALL COMPONENTS OF DELINEATORS SHALL BE OF DURABLE PLASTIC MATERIAL.
9. ALL TEMPORARY SIGNS TO BE CLASS 3 RETRO REFLECTIVE MATERIAL.

LONG TERM							
SIGN	NUMBER	SIZE (mm)	QUANTITY	SIGN	NUMBER	SIZE (mm)	QUANTITY
	TW336-WF	2000 x 1600	2		R201-100	1200	2
	TW336	1500	4		R201-120	1200	2
	TGS133	2400 x 1800	1		TW401	800x200	TAPERS: 10mc/c WORKZONE: 120mc/c
	TGS134	2400 x 1800	1	200m 300m	TIN11.3 TIN11.3	1800 1800	1 1
	TR104	1200	1	600m	TIN11.3	1500	2
	TR201-60	1200	2 (REPEAT EVERY 1 KILOMETRE)	1 km	TIN11.3	1600	2
	TR201-80	1200	2	End - Thank You	TIN11.4	1500	2



TRAFFIC SIGN LAYOUT FOR WORK ON "SHOULDER" (LONG TERM)

TENDER

No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date :

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DESIGNED BY	
NAME	EF DAY
Prof. Reg. No.	20130622
CHECKED BY	
NAME	J FALKNER
Prof. Reg. No.	- -
DRAWN BY	
NAME	WB HARTMANN

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17/07/2023

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ACCEPTANCE
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for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

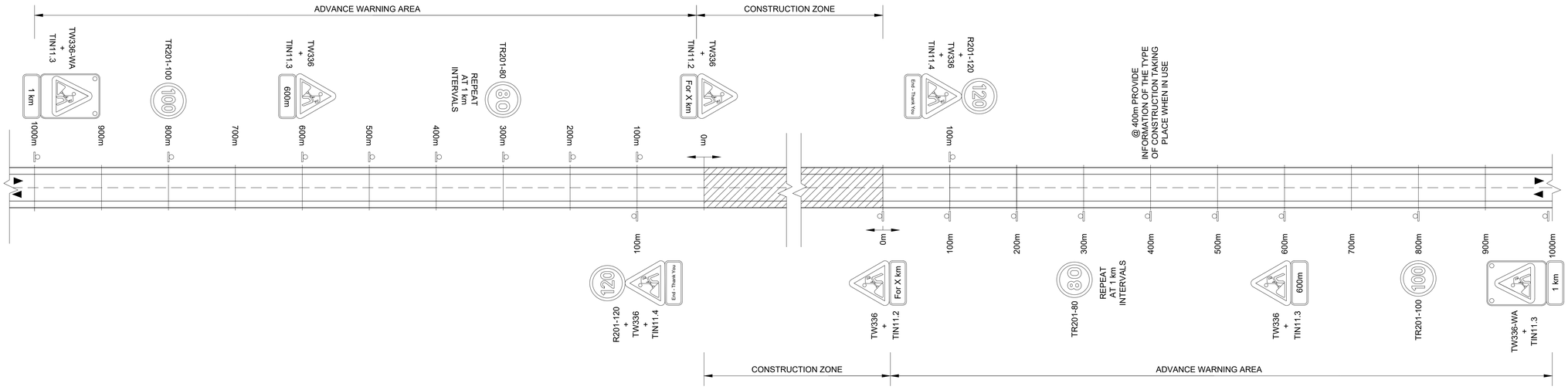
DRAWING DESCRIPTION
TRAFFIC ACCOMMODATION WORK ON SHOULDER

SCALE : NOT TO SCALE | SHEET 1 OF 1

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	13	13
DRAWING km DISTANCE	- -	- -
DRAWING TYPE	ROADS - TRAFFIC ACC.	
BRIDGE/STRUCTURE No.	NA	
CONSULTANT DRAWING No.	FA 3257 / 23 / 01 TA	VER
SANRAL DOCUMENT #	- -	V0

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\12 - Traffic Accommodation\3257-23-01 TA - Work on Shoulder_20230717.dwg



GENERAL CONSTRUCTION ZONE

NOTES:

1. TRAFFIC SIGNS SHALL COMPLY WITH THE REQUIREMENTS OF THE:
(i) SOUTH AFRICAN ROADS TRAFFIC SIGNS MANUAL (SARTSM).
(ii) CHAPTER 13 OF SARTSM - VOLUME 2.
(iii) SADC VOL 1 & 4
2. SIGN SIZES: TGS- SERIES: 1600mm x 1200mm
R- AND TR- SERIES: 1200mm
TW- AND W- SERIES: 1500mm SIDE
3. LETTER SIZE: TIN SERIES: 210mm UNLESS OTHERWISE SPECIFIED.
4. AVERAGE WAIT TIME ON SIGNS TO BE ADJUSTED TO SUIT SITE CONDITIONS.
5. SIGNS SHALL BE POLE MOUNTED 1.5m OFF SHOULDER BREAKPOINT UNLESS OTHERWISE SPECIFIED.
6. REFLECTIVE STRIPS (MIN. 150mm x 50mm) AT BACK OF ALL SIGNS.
7. THE DIMENSION W = WIDTH OF THE SURFACED SHOULDER MINUS 0.5m.
8. ALL COMPONENTS OF DELINEATORS SHALL BE OF DURABLE PLASTIC MATERIAL.
9. ALL TEMPORARY SIGNS TO BE CLASS 3 RETRO REFLECTIVE MATERIAL

LONG TERM

SIGN	NUMBER	SIZE (mm)	QUANTITY
	TW336-WA	1200 X 1600	2
	TW336	1500	6
	TR201-80 TR201-100	1200 1200	2 REPEAT AT 1 km INTERVALS 2
	R201-120	1200	2
For X km	TIN11.2	1500	2
1 km	TIN11.3	1200 1500	2 2
End - Thank You	TIN11.4	1500	2

TENDER

No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date :

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DESIGNED BY	
NAME	EF DAY
Prof. Reg. No.	20130622
CHECKED BY	
NAME	J FALKNER
Prof. Reg. No.	- -
DRAWN BY	
NAME	WB HARTMANN

CONSULTANT APPROVAL
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Prof. Reg. No. : 20080112
Date : 15 / 01 / 2019

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ACCEPTANCE
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for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION
TRAFFIC ACCOMMODATION
GENERAL CONSTRUCTION ZONE

SCALE : NOT TO SCALE | SHEET 01 OF 01

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001		
DRAWING LOCATION DATA	START	END	
ROUTE	N 4	N 4	
SECTION	13	13	
DRAWING km DISTANCE	- -	- -	
DRAWING TYPE	ROADS - TRAFFIC ACC.		
BRIDGE/STRUCTURE No.	NA		
CONSULTANT DRAWING No.	FA	3257 / 23 / 02 TA	VER
SANRAL DOCUMENT #		- -	V0

SANRAL DOCUMENT NUMBER :

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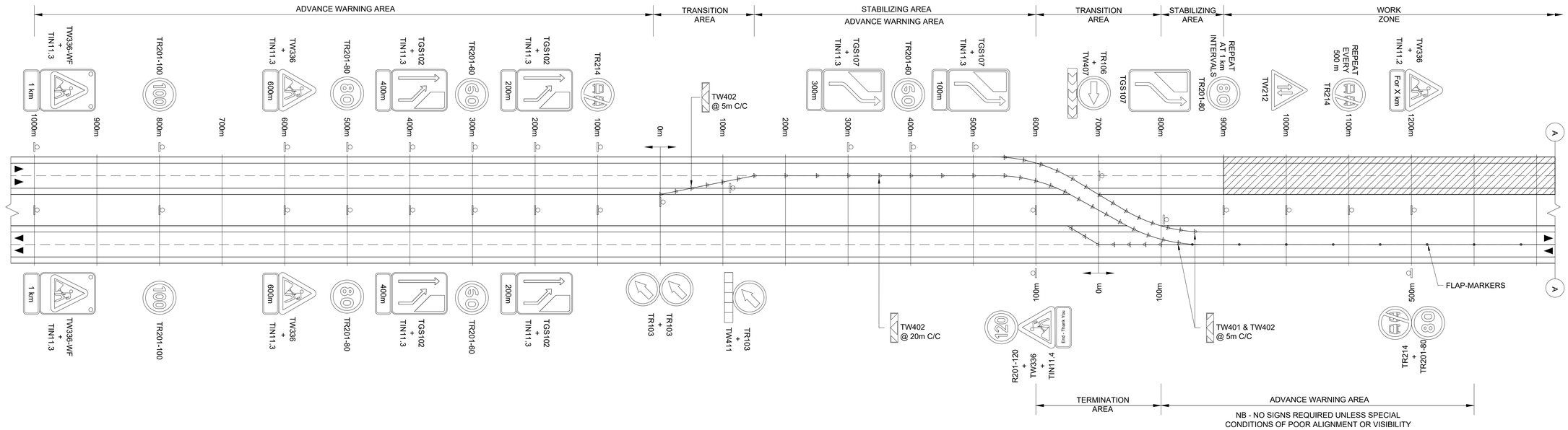

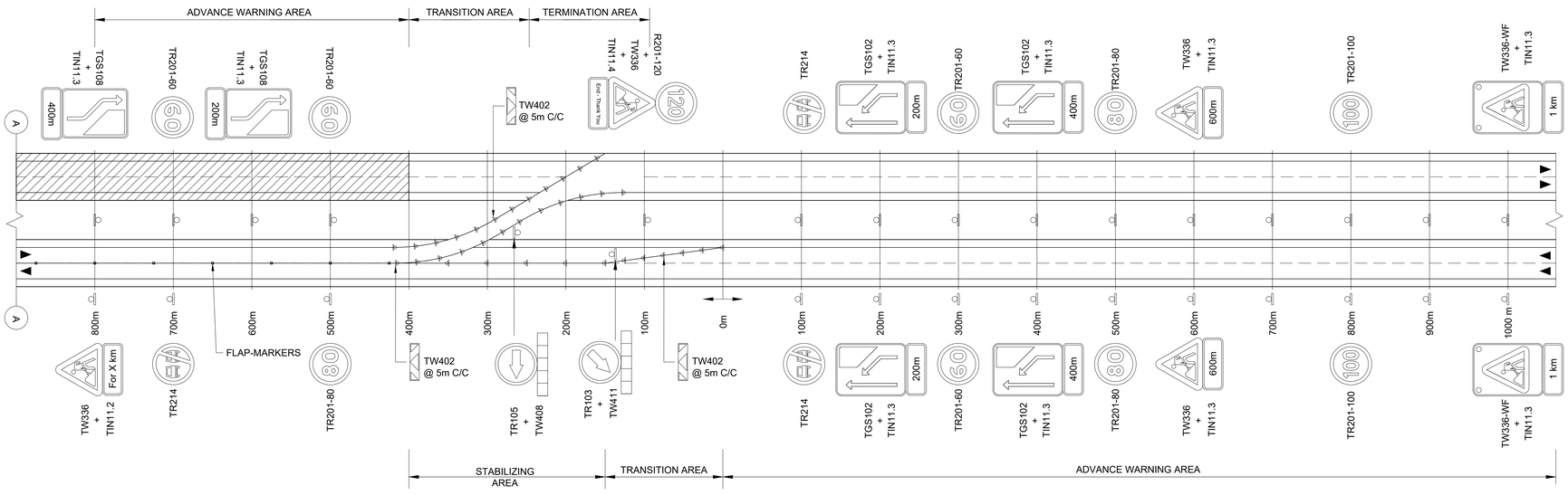

TRAFFIC SIGN LAYOUT FOR CARRIAGEWAY CLOSURE
2 LANE / 2 WAY

TABLE 1		
TAPER RATES AT ROADWORKS		
APPROACH SPEED	TAPER RATE	ROUNDED LENGTH
TRANSITION TAPERS		
120 Km/h - 80 Km/h	1 in 50 to 1 in 40	200m to 150m
80 Km/h - 60 Km/h	1 in 30 to 1 in 20	120m to 60m
TERMINATION TAPERS		
ALL	1 IN 10	40m

NOTES:

1. TRAFFIC SIGNS SHALL COMPLY WITH THE REQUIREMENTS OF THE:
(i) SOUTH AFRICAN ROADS TRAFFIC SIGNS MANUAL (SARTSM).
(ii) CHAPTER 13 OF SARTSM - VOLUME 2.
(iii) SADC VOL 1 & 4
2. SIGN SIZES: TGS- SERIES: 1600mm x 1200mm
R- AND TR- SERIES: 1200mm
TW- AND W- SERIES: 1500mm SIDE
3. LETTER SIZE: TIN SERIES: 210mm UNLESS OTHERWISE SPECIFIED.
4. AVERAGE WAIT TIME ON SIGNS TO BE ADJUSTED TO SUIT SITE CONDITIONS.
5. SIGNS SHALL BE POLE MOUNTED 1.5m OFF SHOULDER BREAKPOINT UNLESS OTHERWISE SPECIFIED.
6. REFLECTIVE STRIPS (MIN. 150mm x. 50mm) AT BACK OF ALL SIGNS.
7. THE DIMENSION W = WIDTH OF THE SURFACED SHOULDER MINUS 0.5m.
8. ALL COMPONENTS OF DELINEATORS SHALL BE OF DURABLE PLASTIC MATERIAL.
9. THE NUMBER OF SIGNS DEPENDS ON THE LENGTH OF THE WORK AREA
10. ALL TEMPORARY SIGNS TO BE CLASS 3 RETRO REFLECTIVE MATERIAL

TENDER

SIGN	NUMBER	SIZE (mm)	QUANTITY
	TW212	1500	1
	TR105	1200	1
	TR106	1200	1
	TW407	600 x 100	1
	TW408	600 x 100	1

LONG TERM			
SIGN	NUMBER	SIZE (mm)	QUANTITY
	TW336-WF	1200 X 1600	4
	TW336	1500	8
	TGS102	1200 X 1600	8
	TGS107	1200 X 1600	3
	TGS108	1200 X 1600	2
	TR201-60 TR201-80 TR201-100	1200 1200 1200	7 7 MIN 4
	R201-120	1200	2
	TR214	1200	4 MIN
	TR103	1200	4
	TW411	400 X 2400	2
For X km	TIN11.2	1500	2
1 km	TIN11.3	1200 1500	18 2
End - Thank You	TIN11.4	1500	4
	TW401 + TW402	800x200	TAPERS: 5m C/C WORKZONE: 120m C/C

No.	DATE	REVISION	
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
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Date :

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NAME	WB HARTMANN

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17/07/2023

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Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION
TRAFFIC ACCOMMODATION
CARRIAGEWAY CLOSURE - CONTRAFLOW (2 LANE / 2 WAY)

SCALE : NOT TO SCALE | SHEET 01 OF 01

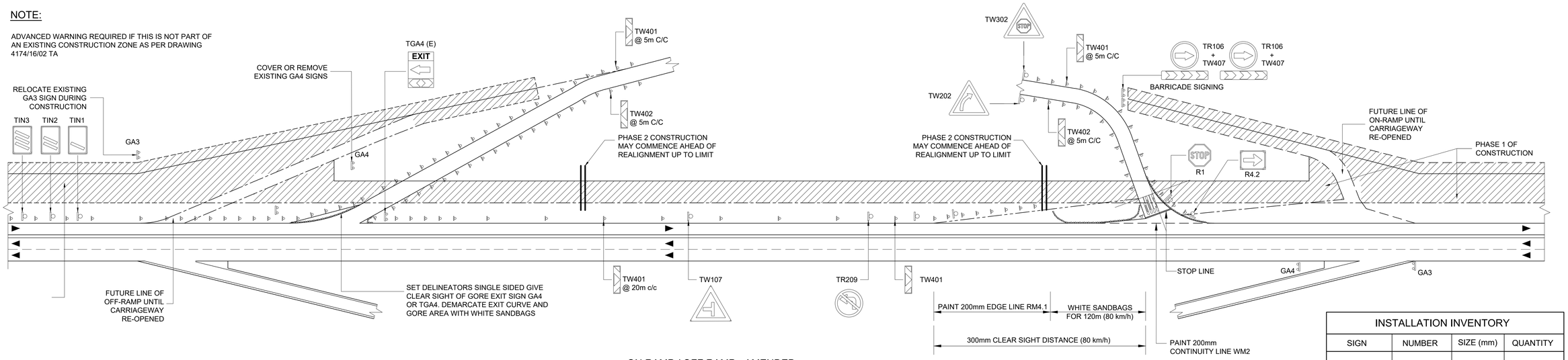
PROJECT NUMBER		BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA		START	END
ROUTE		N 4	N 4
SECTION		13	13
DRAWING km DISTANCE		- -	- -
DRAWING TYPE		ROADS - TRAFFIC ACC.	
BRIDGE/STRUCTURE No.		NA	
CONSULTANT DRAWING No.	FA	3257 / 23 / 03 TA	VER
SANRAL DOCUMENT #		- -	V0

SANRAL DOCUMENT NUMBER :

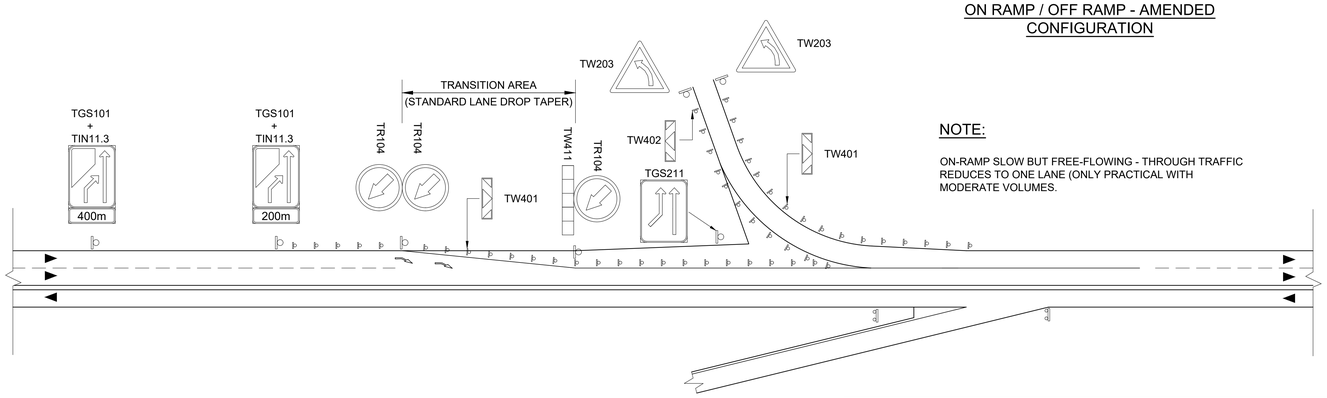
W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\12 - Traffic Accommodation\3257-23-03 TA - Carriageway Closure_20230717.dwg

NOTE:

ADVANCED WARNING REQUIRED IF THIS IS NOT PART OF AN EXISTING CONSTRUCTION ZONE AS PER DRAWING 4174/16/02 TA



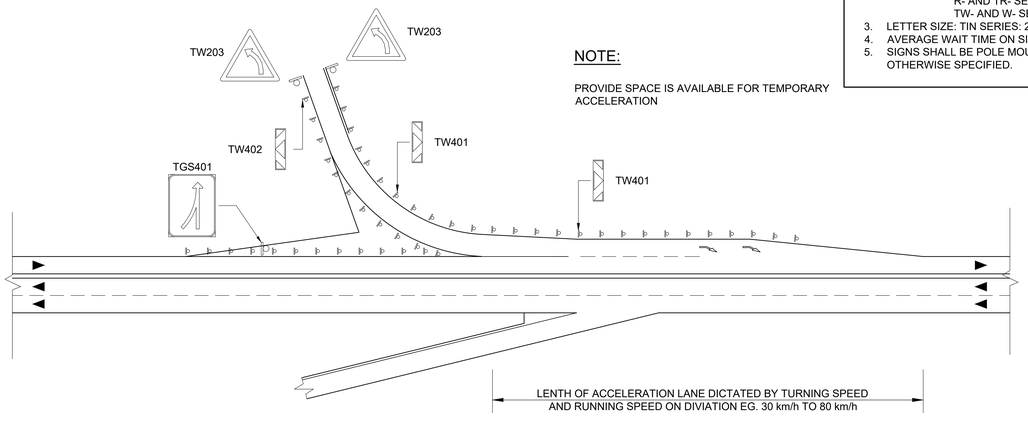
ON RAMP / OFF RAMP - AMENDED CONFIGURATION



NOTE:

ON-RAMP SLOW BUT FREE-FLOWING - THROUGH TRAFFIC REDUCES TO ONE LANE (ONLY PRACTICAL WITH MODERATE VOLUMES.

ALTERNATIVE TREATMENT IF 3 LANE CONFIGURATION PERMITS



NOTE:

PROVIDE SPACE IS AVAILABLE FOR TEMPORARY ACCELERATION

ALTERNATIVE TREATMENT TO IMPROVE ON-RAMP CAPACITY

NOTES:

1. TRAFFIC SIGNS SHALL COMPLY WITH THE REQUIREMENTS OF THE:
(i) SOUTH AFRICAN ROADS TRAFFIC SIGNS MANUAL (SARTSM).
(ii) CHAPTER 13 OF SARTSM - VOLUME 2.
(iii) SADC VOL 1 & 4
2. SIGN SIZES: TGS- SERIES: 1600mm x 1200mm
R- AND TR- SERIES: 1200mm
TW- AND W- SERIES: 1500mm SIDE
3. LETTER SIZE: TIN SERIES: 210mm UNLESS OTHERWISE SPECIFIED.
4. AVERAGE WAIT TIME ON SIGNS TO BE ADJUSTED TO SUIT SITE CONDITIONS.
5. SIGNS SHALL BE POLE MOUNTED 1.5m OFF SHOULDER BREAKPOINT UNLESS OTHERWISE SPECIFIED.
6. REFLECTIVE STRIPS (MIN. 150mm x 50mm) AT BACK OF ALL SIGNS.
7. THE DIMENSION W = WIDTH OF THE SURFACED SHOULDER MINUS 0.5m.
8. ALL COMPONENTS OF DELINEATORS SHALL BE OF DURABLE PLASTIC MATERIAL.
9. ALL TEMPORARY SIGNS TO BE CLASS 3 RETRO REFLECTIVE MATERIAL

TABLE 1

TAPER RATES AT ROADWORKS

APPROACH SPEED	TAPER RATE	ROUNDED LENGTH
TRANSITION TAPERS		
120 Km/h - 80 Km/h	1 in 50 to 1 in 40	200m to 150m
80 Km/h - 60 Km/h	1 in 30 to 1 in 20	120m to 60m
TERMINATION TAPERS		
ALL	1 IN 10	40m

INSTALLATION INVENTORY

SIGN	NUMBER	SIZE (mm)	QUANTITY
	TW401 + TW402	800 X 200	TAPERS: 10mc/c WORKZONE: 120mc/c
	TW407	400 X 2400	2
	TW411	400 X 2400	1
	TR104	1200	3
	TR106	1200	2
	TR209	1200	1
	TW202	1500	1
	TW203	1500	4
	TIN 1	1200 X 700	1
	TW107	1500	1
	TIN 2	1200 X 700	1
STOP	TW302	1500	1
	TIN 3	1200 X 700	1
STOP	R1	1200	1
	TGS101	1600 X 2600	2
EXIT	TGA4 (E)	1600 X 2600	1
200m / 400m	TIN11.3	1600 X 400	1 1
	TGS401	1600 X 2600	1
	WHITE SANDBAGS		AS REQUIRED ON SITE
	TGS211	1600 X 2600	1

INSTALLATION INVENTORY

SIGN	NUMBER	SIZE (mm)	QUANTITY
	TW401 @ 20m c/c		
	TW107		
	TR209		
	TW401		

TENDER

No.	DATE	REVISION	
V0	17/07/2023	IE COMMENTS INCORPORATED	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
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Date
SANRAL PROJECT MANAGER
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NAME Z MASHININI
Prof. Reg. No. - -
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NAME J FALKNER
Prof. Reg. No. - -
DRAWN BY
NAME WB HARTMANN

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17/07/2023

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THE SOUTH AFRICAN NATIONAL ROADS AGENCY SOC LTD
Reg. No. 1998/009584/30

NORTHERN REGION
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Tel: (012) 426 6200

ACCEPTANCE
THIS ACCEPTANCE IS FOR PROCEDURAL AND ADMINISTRATIVE REVIEW PURPOSES ONLY AND DOES NOT ATTRACT LEGAL LIABILITY OR LIABILITY OF ANY KIND FROM WHATSOEVER CAUSE OR HOWEVER ARISING
for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

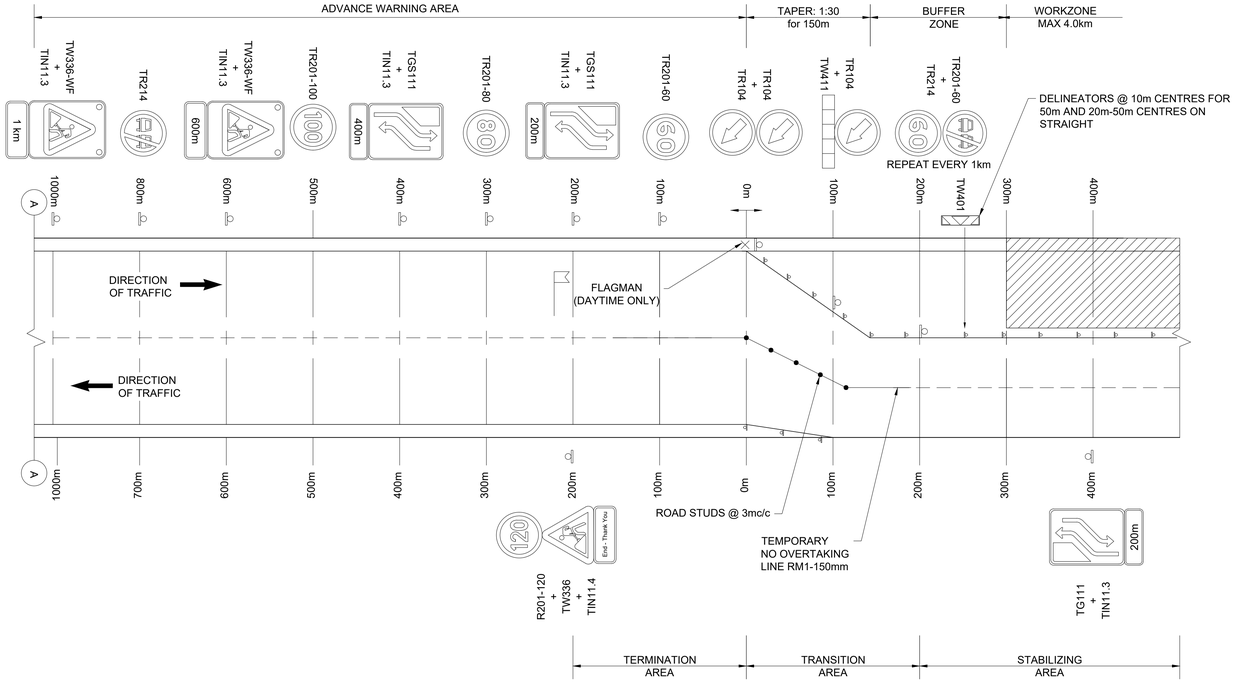
DRAWING DESCRIPTION
TRAFFIC ACCOMMODATION
ON / OFF RAMP AMENDED CONFIGURATION

SCALE : NOT TO SCALE | SHEET 01 OF 01

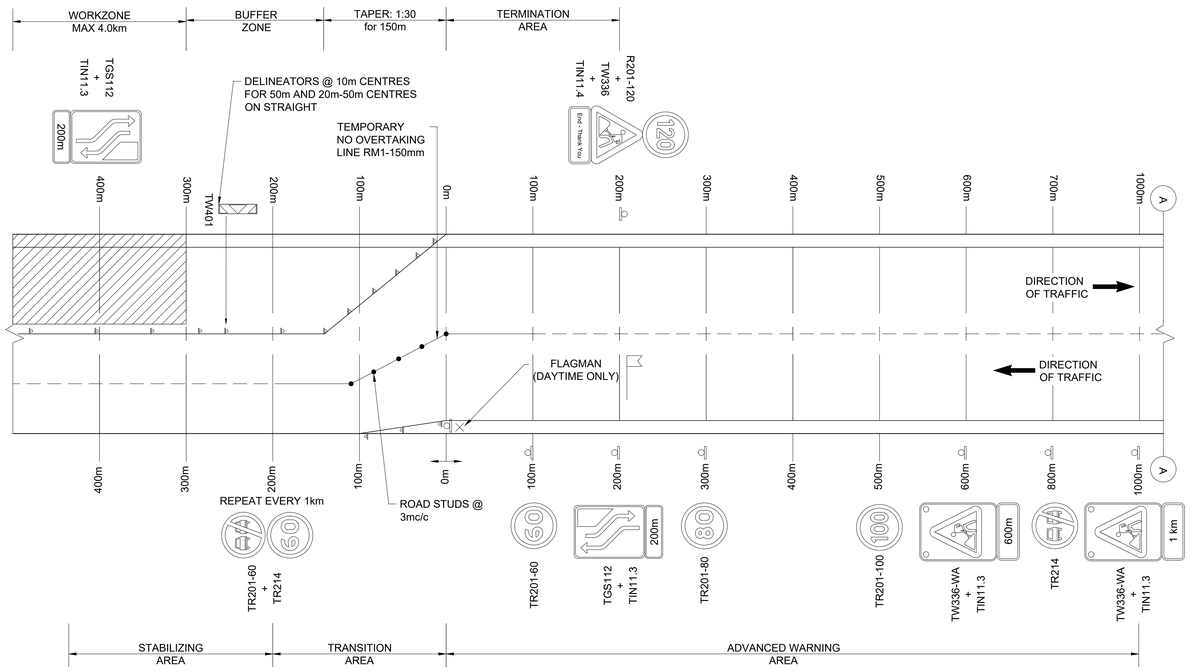
PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	13	13
DRAWING km DISTANCE	- -	- -
DRAWING TYPE	ROADS - TRAFFIC ACC.	
BRIDGE/STRUCTURE No.	NA	
CONSULTANT DRAWING No.	FA 3257 / 23 / 04 TA	VER V0
SANRAL DOCUMENT #	- -	

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\12 - Traffic Accommodation\3257-23-04 TA - On-Off Ramp _20230717.dwg



TEMPORARY LANE CLOSURE TRAFFIC SIGN LAYOUT (WORK ZONE LEFT)



LONG TERM			
SIGN	NUMBER	SIZE (mm)	QUANTITY
	TW336-WF	1200X1600	4
	TW336	1500	2
	TGS111 TGS112	1200 x 1600	3 2
	TR104	1200	3
	TR214	1200	4
	TR201-60	1200	5 MIN (REPEAT EVERY 1 KM)
	TR201-80	1200	2
	TR201-100	1200	2
	R201-120	1200	2 OPTIONAL
1 km / End - Thank You	TIN 11.3 TIN 11.4	1200	9 2
	TW401 TW402	200 x 800	TAPERS: 10mc/c WORKZONE: 120mc/c
	TW441	400 X 2400	1
	FLAGS	600 X 600	2

TENDER

NOTES:

1. TRAFFIC SIGNS SHALL COMPLY WITH THE REQUIREMENTS OF THE:
   (i) SOUTH AFRICAN ROADS TRAFFIC SIGNS MANUAL (SARTSM).
   (II) CHAPTER 13 OF SARTSM - VOLUME 2.
   (iii) SADC VOL 1 & 4
2. SIGN SIZES: TGS- SERIES: 1600mm x 1200mm
   R- AND TR- SERIES: 1200mm
   TW- AND W- SERIES: 1500mm SIDE
3. LETTER SIZE: TIN SERIES: 210mm UNLESS OTHERWISE SPECIFIED.
4. AVERAGE WAIT TIME ON SIGNS TO BE ADJUSTED TO SUIT SITE CONDITIONS.
5. SIGNS SHALL BE POLE MOUNTED 1.5m OFF SHOULDER BREAKPOINT UNLESS OTHERWISE SPECIFIED.
6. REFLECTIVE STRIPS (MIN. 150mm x 50mm) AT BACK OF ALL SIGNS.
7. THE DIMENSION W = WIDTH OF THE SURFACED SHOULDER MINUS 0.5m.
8. ALL COMPONENTS OF DELINEATORS SHALL BE OF DURABLE PLASTIC MATERIAL.
9. ALL TEMPORARY SIGNS TO BE CLASS 3 RETRO REFLECTIVE MATERIAL.

No.	DATE	REVISION	
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSULTANT ENG.

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date

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Prof. Reg. No.	20130622
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NAME	J FALKNER
Prof. Reg. No.	- -
DRAWN BY	
NAME	WB HARTMANN

CONSULTANT APPROVAL
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Prof. Reg. No. : 20080112
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PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION
TRAFFIC ACCOMMODATION HALF WIDTH CONSTRUCTION

SCALE : NOT TO SCALE | SHEET 01 OF 01

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	13	13
DRAWING km DISTANCE	- -	- -
DRAWING TYPE	ROADS - TRAFFIC ACC.	
BRIDGE/STRUCTURE No.	NA	
CONSULTANT DRAWING No.	FA 3257 / 23 / 05 TA	VER
SANRAL DOCUMENT #	- -	V0

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN3\03-Tender\03-Drawings\Volume 4-Roadworks\12 - Traffic Accommodation\3257-23-05 TA - Half Width Construction_20230717.dwg

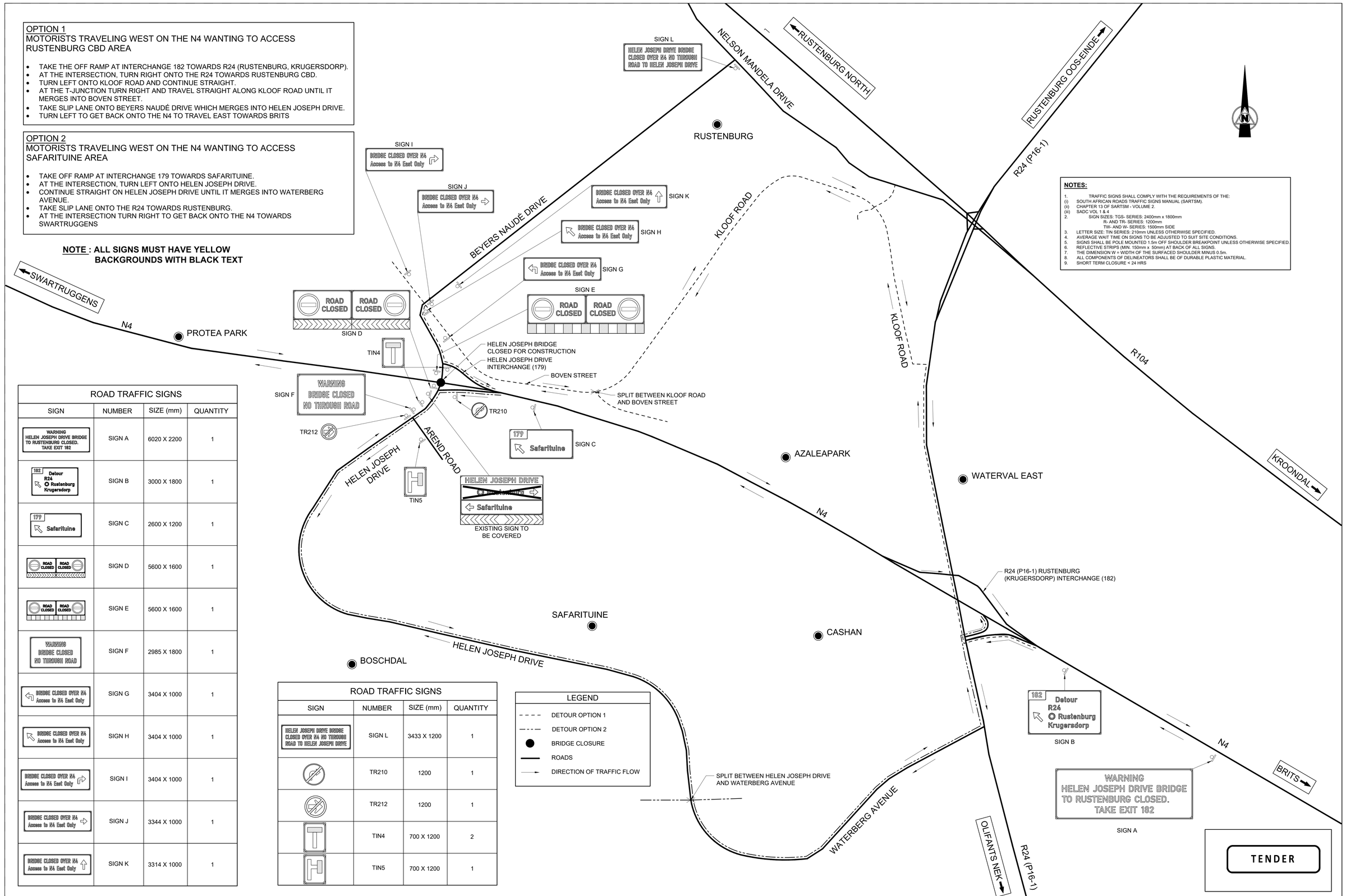
OPTION 1
MOTORISTS TRAVELING WEST ON THE N4 WANTING TO ACCESS RUSTENBURG CBD AREA

- TAKE THE OFF RAMP AT INTERCHANGE 182 TOWARDS R24 (RUSTENBURG, KRUGERSDORP).
- AT THE INTERSECTION, TURN RIGHT ONTO THE R24 TOWARDS RUSTENBURG CBD.
- TURN LEFT ONTO KLOOF ROAD AND CONTINUE STRAIGHT.
- AT THE T-JUNCTION TURN RIGHT AND TRAVEL STRAIGHT ALONG KLOOF ROAD UNTIL IT MERGES INTO BOVEN STREET.
- TAKE SLIP LANE ONTO BEYERS NAUDÉ DRIVE WHICH MERGES INTO HELEN JOSEPH DRIVE.
- TURN LEFT TO GET BACK ONTO THE N4 TO TRAVEL EAST TOWARDS BRITS

OPTION 2
MOTORISTS TRAVELING WEST ON THE N4 WANTING TO ACCESS SAFARITUINE AREA

- TAKE OFF RAMP AT INTERCHANGE 179 TOWARDS SAFARITUINE.
- AT THE INTERSECTION, TURN LEFT ONTO HELEN JOSEPH DRIVE.
- CONTINUE STRAIGHT ON HELEN JOSEPH DRIVE UNTIL IT MERGES INTO WATERBERG AVENUE.
- TAKE SLIP LANE ONTO THE R24 TOWARDS RUSTENBURG.
- AT THE INTERSECTION TURN RIGHT TO GET BACK ONTO THE N4 TOWARDS SWARTRUGGENS

NOTE : ALL SIGNS MUST HAVE YELLOW BACKGROUNDS WITH BLACK TEXT



NOTES:

1. TRAFFIC SIGNS SHALL COMPLY WITH THE REQUIREMENTS OF THE:
   (i) SOUTH AFRICAN ROADS TRAFFIC SIGNS MANUAL (SARTSM).
   (ii) CHAPTER 13 OF SARTSM - VOLUME 2.
   (iii) SADC VOL 1 & 4
2. SIGN SIZES: TGS- SERIES: 2400mm x 1800mm
   R- AND TR- SERIES: 1200mm
   TW- AND W- SERIES: 1500mm SIDE
3. LETTER SIZE: TIN SERIES: 210mm UNLESS OTHERWISE SPECIFIED.
4. AVERAGE WAIT TIME ON SIGNS TO BE ADJUSTED TO SUIT SITE CONDITIONS.
5. SIGNS SHALL BE POLE MOUNTED 1.5m OFF SHOULDER BREAKPOINT UNLESS OTHERWISE SPECIFIED.
6. REFLECTIVE STRIPS (MIN. 150mm x 50mm) AT BACK OF ALL SIGNS.
7. THE DIMENSION W = WIDTH OF THE SURFACED SHOULDER MINUS 0.5m.
8. ALL COMPONENTS OF DELINEATORS SHALL BE OF DURABLE PLASTIC MATERIAL.
9. SHORT TERM CLOSURE < 24 HRS

ROAD TRAFFIC SIGNS

SIGN	NUMBER	SIZE (mm)	QUANTITY
WARNING HELEN JOSEPH DRIVE BRIDGE TO RUSTENBURG CLOSED. TAKE EXIT 182	SIGN A	6020 X 2200	1
182 Detour R24 Rustenburg Krugersdorp	SIGN B	3000 X 1800	1
179 Safarituine	SIGN C	2600 X 1200	1
ROAD CLOSED / ROAD CLOSED	SIGN D	5600 X 1600	1
ROAD CLOSED / ROAD CLOSED	SIGN E	5600 X 1600	1
WARNING BRIDGE CLOSED NO THROUGH ROAD	SIGN F	2985 X 1800	1
BRIDGE CLOSED OVER N4 Access to N4 East Only	SIGN G	3404 X 1000	1
BRIDGE CLOSED OVER N4 Access to N4 East Only	SIGN H	3404 X 1000	1
BRIDGE CLOSED OVER N4 Access to N4 East Only	SIGN I	3404 X 1000	1
BRIDGE CLOSED OVER N4 Access to N4 East Only	SIGN J	3344 X 1000	1
BRIDGE CLOSED OVER N4 Access to N4 East Only	SIGN K	3314 X 1000	1

ROAD TRAFFIC SIGNS

SIGN	NUMBER	SIZE (mm)	QUANTITY
HELEN JOSEPH DRIVE BRIDGE CLOSED OVER N4 NO THROUGH ROAD TO HELEN JOSEPH DRIVE	SIGN L	3433 X 1200	1
	TR210	1200	1
	TR212	1200	1
	TIN4	700 X 1200	2
	TIN5	700 X 1200	1

LEGEND

- DETOUR OPTION 1
- DETOUR OPTION 2
- BRIDGE CLOSURE
- ROADS
- DIRECTION OF TRAFFIC FLOW

No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date :

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DRAWN BY
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CONSULTANT APPROVAL
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Prof. Reg. No. : 20080112
Date : 17/07/2023

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Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION
CLOSURE OF HELEN JOSEPH BRIDGE
DETOUR VIA R24 (P16-1) BRIDGE

SCALE : NOT TO SCALE | SHEET 01 OF 01

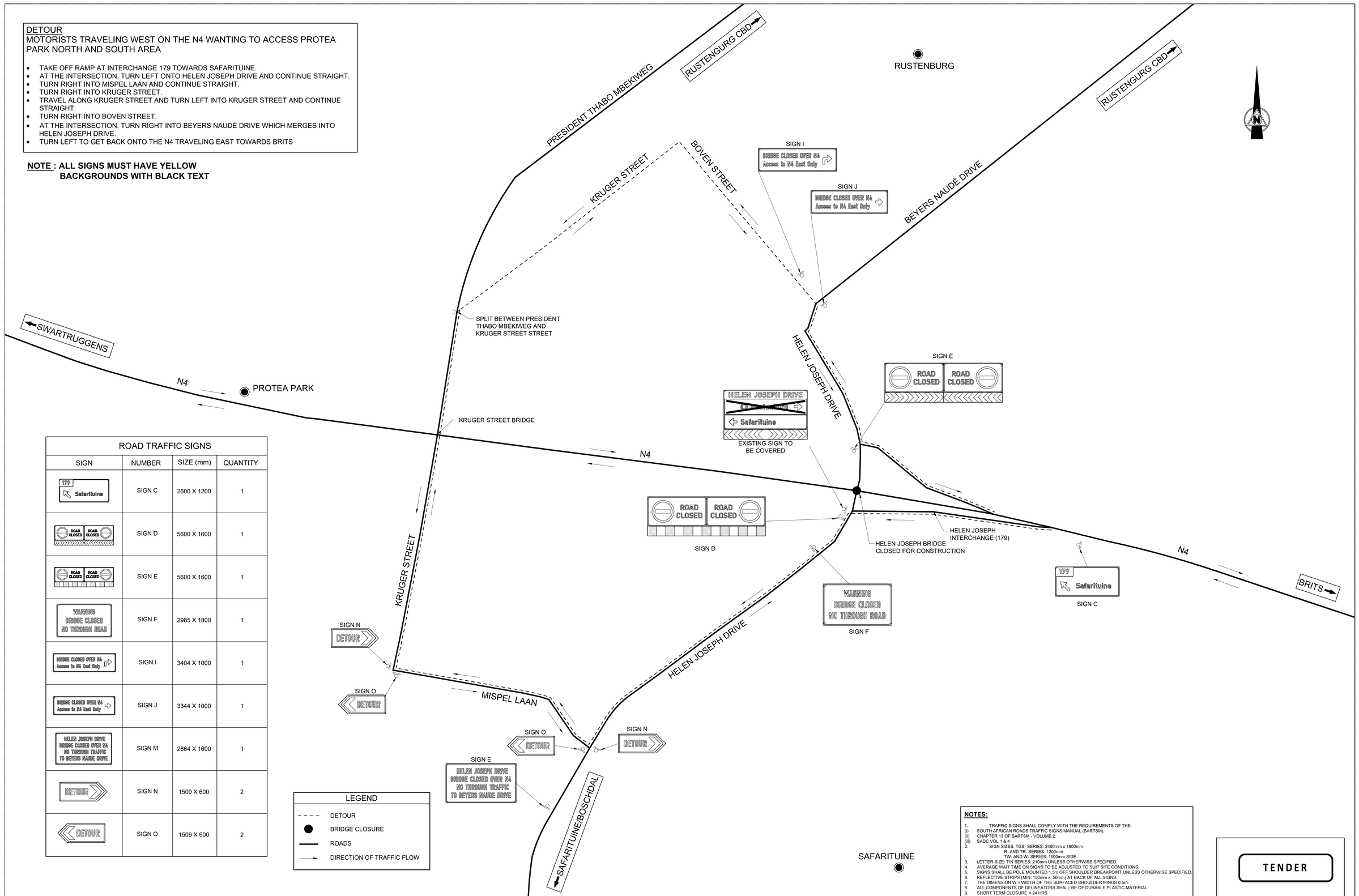
PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	13	13
DRAWING km DISTANCE	- -	- -
DRAWING TYPE	ROADS - TRAFFIC ACC.	
BRIDGE/STRUCTURE No.	NA	
CONSULTANT DRAWING No.	FA 3257 / 23 / 06 TA	VER V0
SANRAL DOCUMENT #	- -	

SANRAL DOCUMENT NUMBER : :

DETOUR
MOTORISTS TRAVELING WEST ON THE N4 WANTING TO ACCESS PROTEA PARK NORTH AND SOUTH AREA

- TAKE OFF RAMP AT INTERCHANGE 179 TOWARDS SAFARITUINE.
- AT THE INTERSECTION, TURN LEFT ONTO HELEN JOSEPH DRIVE AND CONTINUE STRAIGHT.
- TURN RIGHT INTO MISPEL LAAN AND CONTINUE STRAIGHT.
- TURN RIGHT INTO KRUGER STREET.
- TRAVEL ALONG KRUGER STREET AND TURN LEFT INTO KRUGER STREET AND CONTINUE STRAIGHT.
- TURN RIGHT INTO BOVEN STREET.
- AT THE INTERSECTION, TURN RIGHT INTO BEYERS NAUDÉ DRIVE WHICH MERGES INTO HELEN JOSEPH DRIVE.
- TURN LEFT TO GET BACK ONTO THE N4 TRAVELING EAST TOWARDS BRITS

NOTE : ALL SIGNS MUST HAVE YELLOW BACKGROUNDS WITH BLACK TEXT



ROAD TRAFFIC SIGNS			
SIGN	NUMBER	SIZE (mm)	QUANTITY
179 Safarituine	SIGN C	2600 X 1200	1
ROAD CLOSED ROAD CLOSED	SIGN D	5600 X 1600	1
ROAD CLOSED ROAD CLOSED	SIGN E	5600 X 1600	1
WARNING BRIDGE CLOSED NO THROUGH ROAD	SIGN F	2985 X 1800	1
BRIDGE CLOSED OVER N4 Access to N4 East Only	SIGN I	3404 X 1000	1
BRIDGE CLOSED OVER N4 Access to N4 East Only	SIGN J	3344 X 1000	1
HELEN JOSEPH DRIVE BRIDGE CLOSED OVER N4 NO THROUGH TRAFFIC TO BEYERS NAUDE DRIVE	SIGN M	2864 X 1600	1
DETOUR	SIGN N	1509 X 600	2
DETOUR	SIGN O	1509 X 600	2

LEGEND
- DETOUR
- BRIDGE CLOSURE
- ROADS
- DIRECTION OF TRAFFIC FLOW

NOTES:

1. TRAFFIC SIGNS SHALL COMPLY WITH THE REQUIREMENTS OF THE:
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(iii) SADC VOL 1 & 4
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4. AVERAGE WAIT TIME ON SIGNS TO BE ADJUSTED TO SUIT SITE CONDITIONS.
5. SIGNS SHALL BE POLE MOUNTED 1.5m OFF SHOULDER BREAKPOINT UNLESS OTHERWISE SPECIFIED.
6. REFLECTIVE STRIPS (MIN. 150mm x 50mm) AT BACK OF ALL SIGNS.
7. THE DIMENSION W = WIDTH OF THE SURFACED SHOULDER MINUS 0.5m.
8. ALL COMPONENTS OF DELINEATORS SHALL BE OF DURABLE PLASTIC MATERIAL.
9. SHORT TERM CLOSURE < 24 HRS

TENDER

No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date :

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DRAWN BY
NAME: WB HARTMANN

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17/07/2023

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Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION
CLOSURE OF HELEN JOSEPH BRIDGE
DETOUR VIA KRUGER STREET BRIDGE

SCALE : NOT TO SCALE | SHEET 01 OF 01

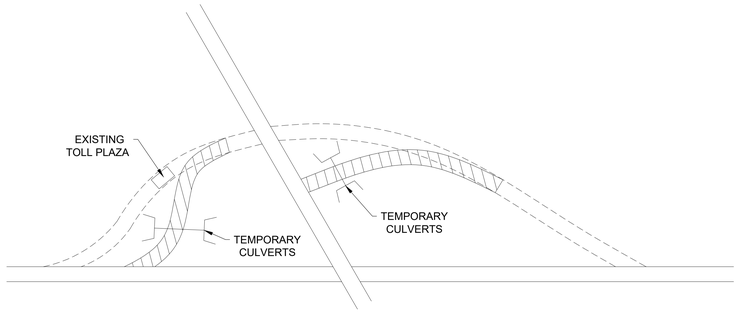
PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	13	13
DRAWING km DISTANCE	- -	- -
DRAWING TYPE	ROADS - TRAFFIC ACC.	
BRIDGE/STRUCTURE No.	NA	
CONSULTANT DRAWING No.	FA 3257 / 23 / 07 TA	VER
SANRAL DOCUMENT #	- -	V0

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PA)\03-Tender\03-Drawings\Volume 4-Roadworks\12 - Traffic Accommodation\3257-23-07 TA - Closure of Helen Joseph_20230717.dwg

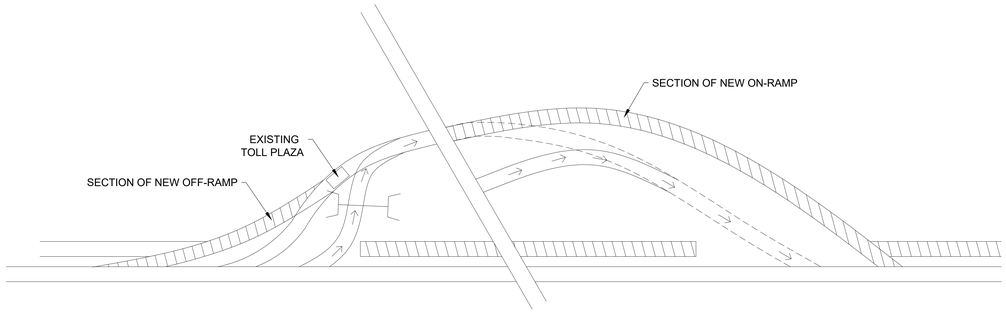
STEP 1

1. CONSTRUCT TEMPORARY CULVERTS.
2. CONSTRUCT TEMPORARY ON-RAMP & OFF-RAMP AND TIE INTO EXISTING RAMPS
3. TEMPORARILY CLOSE TOLL PLAZA.



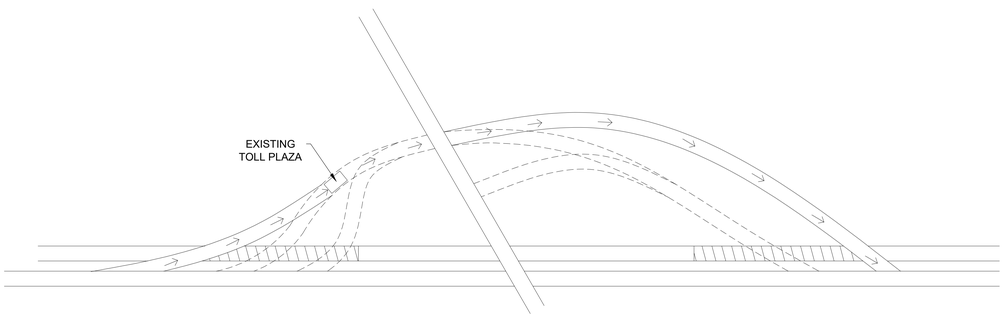
STEP 2

1. MOVE TRAFFIC ONTO TEMPORARY ON-RAMP AND OFF-RAMP.
2. CONSTRUCT NEW RAMPS AND EXTEND TO TIE INTO EXISTING WESTBOUND CARRIAGEWAY.
3. RE-OPEN TOLL PLAZA.



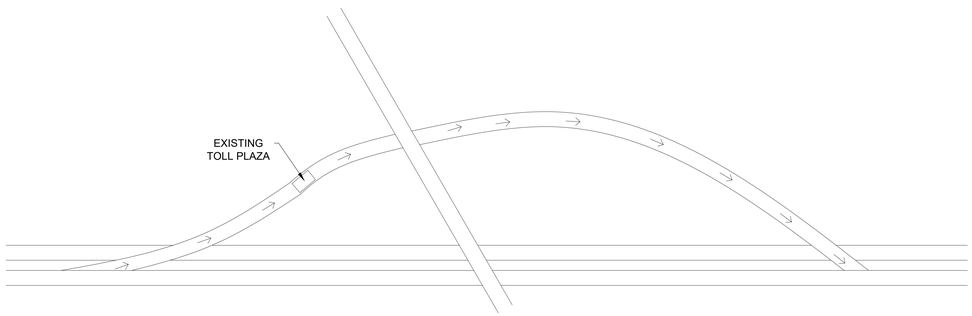
STEP 3

1. MOVE TRAFFIC ONTO NEW ON-RAMP AND OFF-RAMP.
2. COMPLETE THE CONSTRUCTION OF NEW EASTBOUND CARRIAGEWAY.



STEP 4

1. REMOVE SECTIONS OF OLD ON-RAMP AND OFF-RAMP NOT FORMING PART OF NEW RAMPS.



LEGEND

- CONSTRUCTION ZONE
- TRAFFIC DIRECTION
- CULVERT

R104 (P2-4) KROONDAL INTERCHANGE
PHASED TRAFFIC ACCOMMODATION
N.T.S

TENDER

No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
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Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

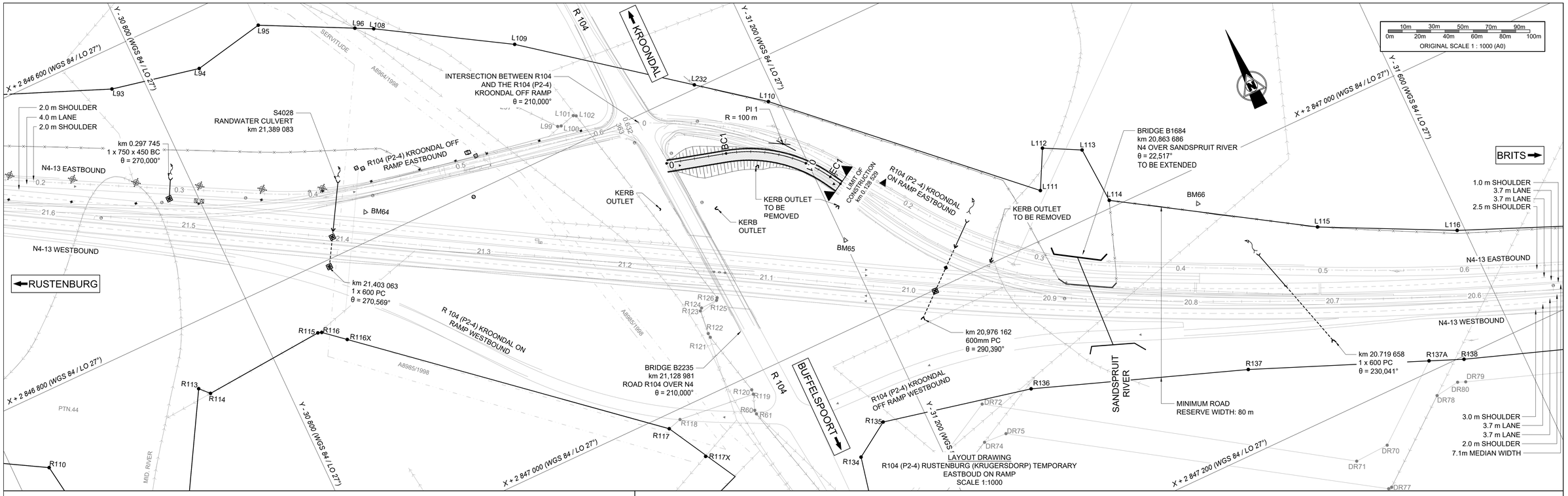
DRAWING DESCRIPTION
TRAFFIC ACCOMMODATION
PHASE CONSTRUCTION AT R104 (P2-4) KROONDAL INTERCHANGE

SCALE : NOT TO SCALE | SHEET 1 OF 3

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001		
DRAWING LOCATION DATA	START	END	
ROUTE	N 4	N 4	
SECTION	13	13	
DRAWING km DISTANCE	- -	- -	
DRAWING TYPE	ROADS - TRAFFIC ACC.		
BRIDGE/STRUCTURE No.	NA		
CONSULTANT DRAWING No.	FA	3257 / 23 / 08 TA	VER
SANRAL DOCUMENT #		- -	V0

SANRAL DOCUMENT NUMBER :

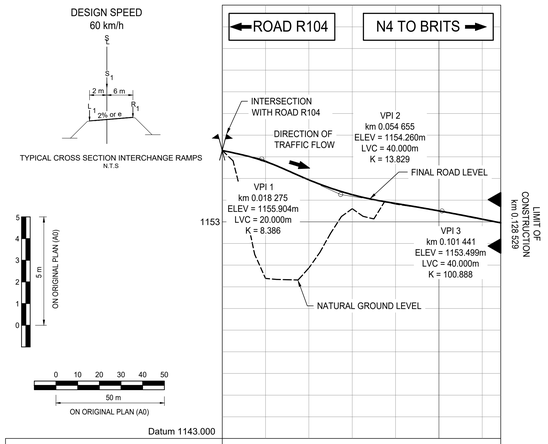
W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\12 - Traffic Accommodation\3257-23-08 TA - Interchange_20230717.dwg

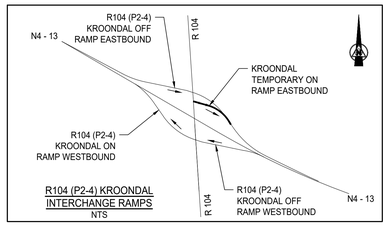


LAYOUT DRAWING
R104 (P2-4) RUSTENBURG (KRUGERSDORP) TEMPORARY EASTBOUD ON RAMP
SCALE 1:1000

DESIGN SPEED
60 km/h

TYPICAL CROSS SECTION INTERCHANGE RAMPS
N.T.S





Peg levels (C/L)	1156.294	1150.387	1150.869	1153.606	1153.819	1153.510	1153.108	1152.951
Design Road levels — Left Edge	1156.266	1155.757	1154.967	1154.311	1153.908	1153.565	1153.176	1152.974
Design Road levels — Centre line	1156.294	1155.785	1154.933	1154.251	1153.848	1153.505	1153.123	1152.951
Design Road levels — Right Edge	1156.378	1155.869	1154.830	1154.071	1153.668	1153.325	1152.966	1152.883
Grades	18.275 -2.134 %	1155.904	-4.519 %	54.655	1154.260 -1.627 %	101.441	1153.499 -2.023 %	
Vertical Curves	8.275	20.000m VC K = 8.386	28.275	34.655	40.000m VC K = 13.829	74.655	81.441	40.000m VC K = 100.888 121.441
Superelevation (%)	1.400 -1.400				-3.000		3.000	
Horizontal Curves	Direction 285°31'26"		42.586 BCC		Curve 1 Right Radius=100.000 l= 44.13.26		ECC 116.771	Direction 329°44'52"
Chainages (m)	0	20	40	60	80	100	120	128.529

BENCH MARKS

(WGS 84 \ LO 27°)

STATION	Y CO-ORDINATES + 0.000	X CO-ORDINATES + 0.000	ELEVATION
BM64	- 30 902.323	+ 2 846 780.573	1 147.960
BM65	- 31 200.799	+ 2 846 941.677	1 151.166
BM66	- 31 436.965	+ 2 847 023.327	1 150.946

R104 (P2-4) KROONDAL TEMPORARY ON RAMP EASTBOUND CENTER LINE CO-ORDINATES

DESIGN SPEED 60 km/h

(WGS 84 \ LO 27°)

CHAINAGE	Y CO-ORDINATES + 0.000	X CO-ORDINATES + 0.000	DESCRIPTION
0.000	- 31 109.453	+ 2 846 839.203	
100.000	- 31 198.493	+ 2 846 880.613	
128.529	- 31 214.515	+ 2 846 904.137	

R104 (P2-4) KROONDAL TEMPORARY EASTBOUND ON RAMP

km 0.000 TO km 0.128 529

(WGS 84 \ LO 27°)

CURVE	DESCRIPTION	CURVE LENGTH	CURVE RADIUS	POINT	CHAINAGE DISTANCE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
				START	0.000	- 31 109.453	+ 2 846 839.203
1	RIGHT HAND CIRCULAR	77.185 m	100.000m	BC 1	42.586	- 31 150.485	+ 2 846 850.601
				PI 1	-	- 31 189.633	+ 2 846 861.475
				EC 1	119.771	- 31 210.103	+ 2 846 896.572
				END	128.529	- 31 214.515	+ 2 846 904.137

LEGEND

	TEMPORARY RAMP TO BE CONSTRUCTED		NEW SINGLE STREET LIGHT
	FENCE		RELOCATE STREET LIGHT
	BUILDING		NEW DOUBLE STREET LIGHT
	CONCRETE		FLOOD LIGHT
V	VALVE		TELEPHONE POLE
	GRID INLET		FARM PORTIONS
	BRIDGE PILLARS		CONTOURS
	KERB INLET		BATTER
	ELECTRIC BOX		BENCH MARK
	POWERLINES		WALL
	RIVER BRIDGE		GAURDRAILS AND NJ BARRIERS
MH	MANHOLE		NEW CULVERTS
TS	TRAFFIC SIGN		EXISTING CULVERTS
	ELECTRIC POLES		NEW ROAD RESERVE
	REMOVE STREET LIGHT		FLOW DIRECTION ARROW

TENDER

No.	DATE	REVISION	
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date

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NAME: Z MASHININI
Prof. Reg. No. : - -
CHECKED BY
NAME: PL NGQUMSHE
Prof. Reg. No. : 20080112
DRAWN BY
NAME: WB HARTMANN

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17 / 07 / 2023

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THE SOUTH AFRICAN NATIONAL ROADS AGENCY SOC LTD
Reg. No. 1998/009584/30

NORTHERN REGION
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Private Bag X17
Lynnwood Ridge
0040
Tel: (012) 426 6200

ACCEPTANCE
THIS ACCEPTANCE IS FOR PROCEDURAL AND ADMINISTRATIVE REVIEW PURPOSES ONLY AND DOES NOT ATTRACT LEGAL LIABILITY OR LIABILITY OF ANY KIND FROM WHATSOEVER CAUSE OR HOWEVER ARISING
for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

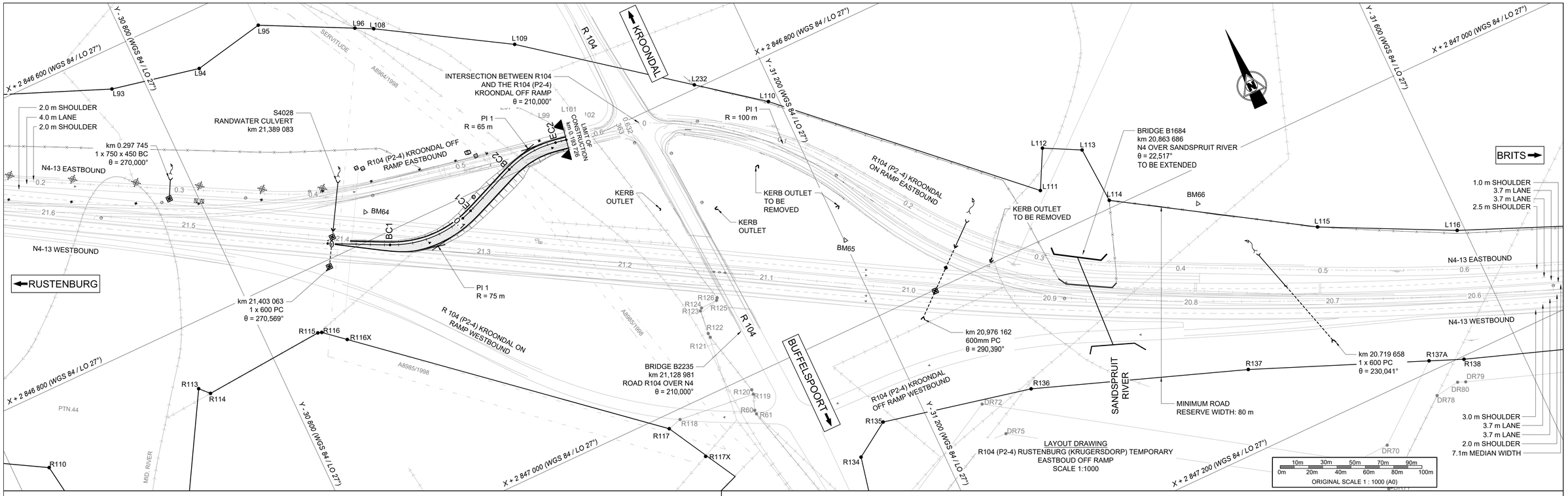
DRAWING DESCRIPTION
TRAFFIC ACCOMMODATION
R104 (P2-4) KROONDAL TEMPORARY EASTBOUND ON RAMP

SCALE : AS SHOWN (A0) SHEET 02 OF 03

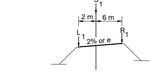
PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001		
DRAWING LOCATION DATA	START	END	
ROUTE	N 4	N 4	
SECTION	13	13	
DRAWING km DISTANCE	km 20.6	km 21.6	
DRAWING TYPE	ROADS - TRAFFIC ACC.		
BRIDGE/STRUCTURE No.	NA		
CONSULTANT DRAWING No.	FA	3257 / 23 / 09 TA	VER
SANRAL DOCUMENT #		- -	V0

SANRAL DOCUMENT NUMBER :

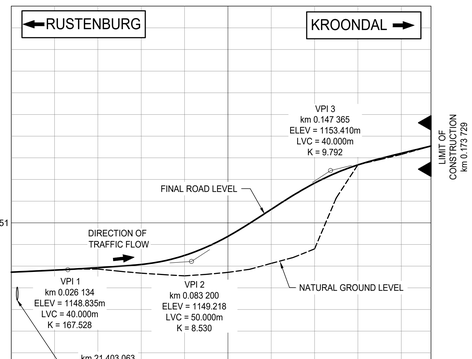
W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\12 - Traffic Accommodation\3257-23-09 TA - Kroondal On Ramp_20230717.dwg

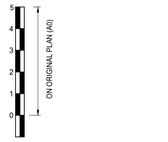


DESIGN SPEED
60 km/h



TYPICAL CROSS SECTION INTERCHANGE RAMPS
N.T.S



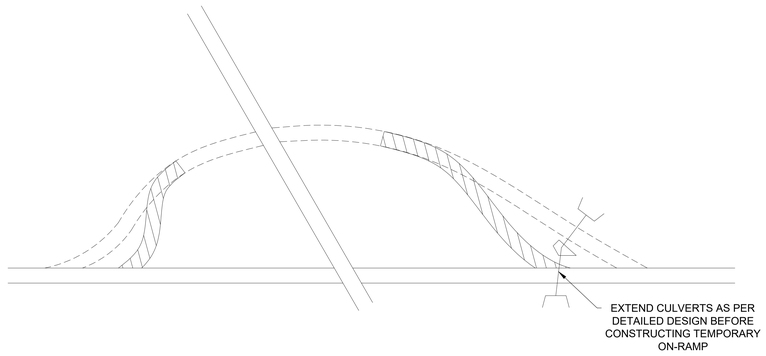


Datum 1141.000

| | | |

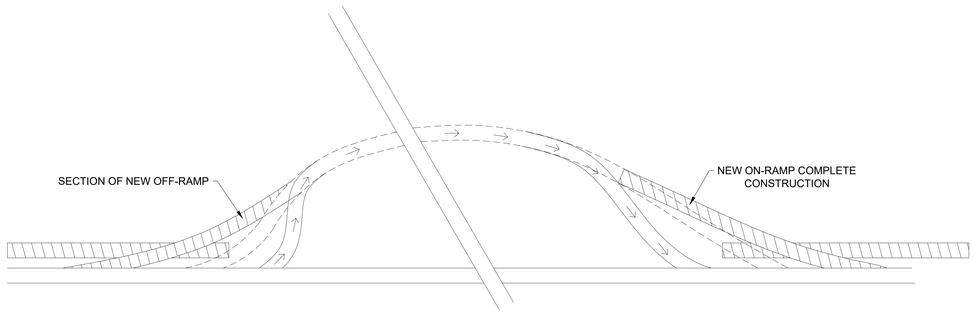
STEP 1

1. EXTEND CULVERTS AT km 27.276 AS PER DETAILED DESIGN.
2. CONSTRUCT TEMPORARY ON-RAMP AND OFF-RAMP. TIE INTO EXISTING RAMPS .



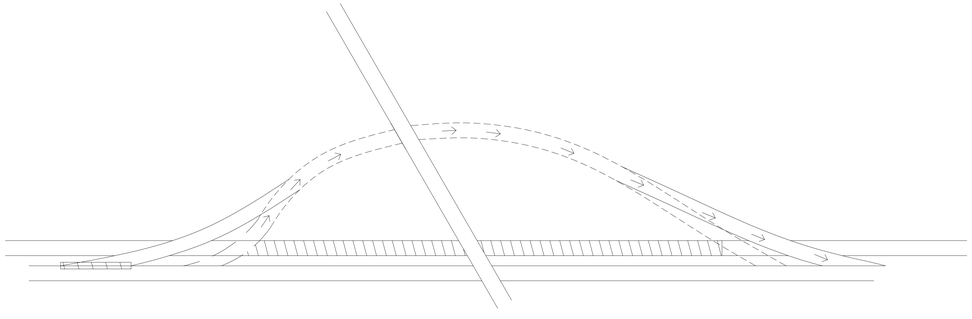
STEP 2

1. MOVE TRAFFIC ONTO TEMPORARY ON-RAMP OR OFF-RAMP.
2. CONSTRUCT NEW RAMPS AND EXTEND TO TIE INTO EXISTING WESTBOUND CARRIAGEWAY.



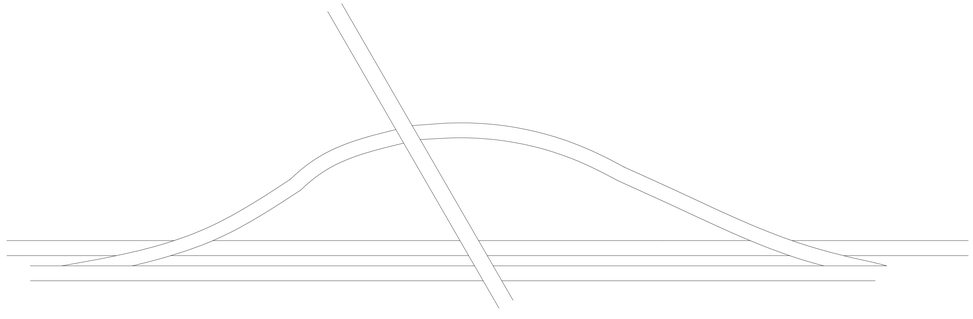
STEP 3

1. MOVE TRAFFIC ONTO NEW ON-RAMP.
2. USE HALF WIDTH CONSTRUCTION TO TIE-IN THE NEW OFF RAMP.
3. COMPLETE CONSTRUCTION OF NEW EASTBOUND CARRIAGEWAY.



STEP 4

1. REMOVE SECTIONS OF OLD ON-RAMP AND OFF-RAMP NOT FORMING PART OF NEW RAMPS



LEGEND

- CONSTRUCTION ZONE
- TRAFFIC DIRECTION
- CULVERT

R24 (P16-1) RUSTENBURG (KRUGERSDORP) INTERCHANGE.
PHASED TRAFFIC ACCOMMODATION
N.T.S

TENDER

No.	DATE	REVISION	
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date :

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DESIGNED BY	
NAME	Z. MASHININI
Prof. Reg. No.	- -
CHECKED BY	
NAME	PL NGQUMSHE
Prof. Reg. No.	20080112
DRAWN BY	
NAME	WB HARTMANN

CONSULTANT APPROVAL
Name : PL NGQUMSHE
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Date : 17/07/2023

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PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

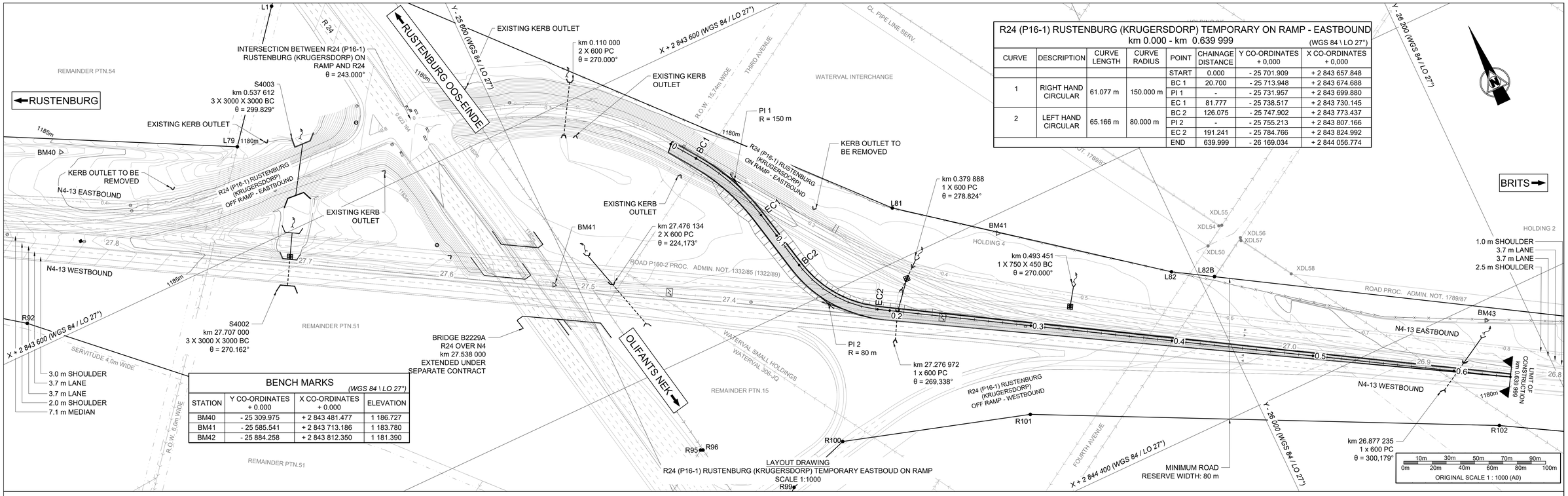
DRAWING DESCRIPTION
TRAFFIC ACCOMMODATION
R24 (P16-1) RUSTENBURG (KRUGERSDORP) INTERCHANGE

SCALE : NOT TO SCALE | SHEET 01 OF 03

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001		
DRAWING LOCATION DATA	START	END	
ROUTE	N 4	N 4	
SECTION	13	13	
DRAWING km DISTANCE	- -	- -	
DRAWING TYPE	ROADS - TRAFFIC ACC.		
BRIDGE/STRUCTURE No.	NA		
CONSULTANT DRAWING No.	FA	3257 / 23 / 11 TA	VER
SANRAL DOCUMENT #		- -	V0

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\12 - Traffic Accommodation\3257-23-11 TA - Interchange_20230717.dwg



LAYOUT DRAWING
R24 (P16-1) RUSTENBURG (KRUGERSDORP) TEMPORARY EASTBOUD ON RAMP
SCALE 1:1000

R24 (P16-1) RUSTENBURG (KRUGERSDORP) TEMPORARY ON RAMP - EASTBOUND
km 0.000 - km 0.639 999 (WGS 84 \ LO 27°)

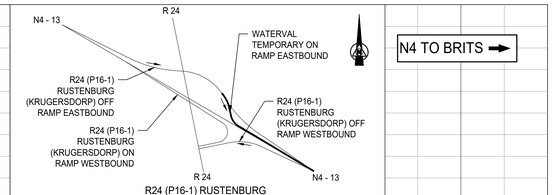
CURVE	DESCRIPTION	CURVE LENGTH	CURVE RADIUS	POINT	CHAINAGE DISTANCE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
				START	0.000	- 25 701.909	+ 2 843 657.848
1	RIGHT HAND CIRCULAR	61.077 m	150.000 m	BC 1	20.700	- 25 713.948	+ 2 843 674.688
				PI 1	-	- 25 731.957	+ 2 843 699.880
				EC 1	81.777	- 25 738.517	+ 2 843 730.145
2	LEFT HAND CIRCULAR	65.166 m	80.000 m	BC 2	126.075	- 25 747.902	+ 2 843 773.437
				PI 2	-	- 25 755.213	+ 2 843 807.166
				EC 2	191.241	- 25 784.766	+ 2 843 824.992
				END	639.999	- 26 169.034	+ 2 844 056.774

BENCH MARKS
(WGS 84 \ LO 27°)

STATION	Y CO-ORDINATES + 0.000	X CO-ORDINATES + 0.000	ELEVATION
BM40	- 25 309.975	+ 2 843 481.477	1 186.727
BM41	- 25 585.541	+ 2 843 713.186	1 183.780
BM42	- 25 884.258	+ 2 843 812.350	1 181.390

DESIGN SPEED
60 km/h

TYPICAL CROSS SECTION INTERCHANGE RAMPS
N.T.S



Peg levels (C/L)	1186.433	1186.067	1185.744	1185.531	1184.378	1181.936	1182.053	1182.425	1182.919	1183.624	1183.150	1184.263	1184.173	1183.805	1184.033	1183.820	1183.567	1183.370	1183.128	1182.917	1182.717	1182.540	1182.325	1182.118	1181.911	1181.684	1181.429	1181.242	1181.026	1180.796	1180.576	1180.356	1180.127
Design Road levels — Left Edge	1186.473	1186.164	1185.853	1185.539	1185.354	1185.191	1185.001	1184.829	1184.698	1184.668	1184.537	1184.408	1184.296	1184.171	1184.045	1183.863	1183.672	1183.473	1183.266	1183.055	1182.844	1182.633	1182.422	1182.212	1181.991	1181.761	1181.530	1181.300	1181.070	1180.839	1180.609	1180.378	1180.148
Design Road levels — Centre line	1186.433	1186.151	1185.868	1185.585	1185.330	1185.151	1185.019	1184.889	1184.758	1184.628	1184.497	1184.368	1184.246	1184.131	1184.005	1183.823	1183.632	1183.433	1183.226	1183.015	1182.804	1182.593	1182.382	1182.172	1181.951	1181.721	1181.490	1181.260	1181.030	1180.799	1180.569	1180.338	1180.108
Design Road levels — Right Edge	1186.313	1186.110	1185.913	1185.724	1185.261	1185.031	1185.074	1185.069	1184.938	1184.598	1184.360	1184.238	1184.122	1184.013	1183.893	1183.717	1183.532	1183.340	1183.139	1182.934	1182.730	1182.525	1182.320	1182.116	1181.901	1181.677	1181.453	1181.229	1181.005	1180.781	1180.556	1180.332	1180.108
Grades	82.962 1185.261	-1.413 %					-0.653 %					228.668 1184.310	-0.572 %		279.001 1184.022	-0.949 %		333.605 1183.504	-1.054 %					470.290 1182.063	-1.152 %									
Vertical Curves	BVC 62.962	40.000m VC K = 52.631	EVC 102.462							BVC 208.668	40.000m VC K = 496.926	EVC 248.668	BVC 269.001	20.000m VC K = 53.127	EVC 289.001	BVC 308.605	50.000m VC K = 473.483	EVC 358.605					BVC 460.290	20.000m VC K = 204.660	EVC 480.290								
Superelevation (%)	2.000	-2.000		3.000	-3.000	2.000	-2.000															2.000	-2.000										
Horizontal Curves	Direction 324°26'23"	20.000 BCC	Curve 1 Right Radius=150.000 l= 23.19.47	ECC 81.777	Direction 347°46'10"	126.074 BCC	Curve 2 Left Radius=80.000 l= 46.40.19	ECC 191.240	Direction 301°05'51"																								
Chainages (m)	0	20	40	60	80	100	120	140	160	180	200	220	240	260	280	300	320	340	360	380	400	420	440	460	480	500	520	540	560	580	600	620	639.999

LEGEND

	TEMPORARY RAMP TO BE CONSTRUCTED		NEW SINGLE STREET LIGHT
	FENCE		RELOCATE STREET LIGHT
	BUILDING		NEW DOUBLE STREET LIGHT
	CONCRETE		FLOOD LIGHT
V	VALVE		TELEPHONE POLE
	GRID INLET		FARM PORTIONS
	BRIDGE PILLARS		CONTOURS
	KERB INLET		BATTER
	ELECTRIC BOX		BENCH MARK
	POWERLINES		WALL
	RIVER BRIDGE		GAURDRAILS AND NJ BARRIERS
MH	MANHOLE		NEW CULVERTS
TS	TRAFFIC SIGN		EXISTING CULVERTS
	ELECTRIC POLES		NEW ROAD RESERVE
	REMOVE STREET LIGHT		FLOW DIRECTION ARROW

R24 (P16-1) RUSTENBURG (KRUGERSDORP) TEMPORARY ON RAMP - EASTBOUND
CENTER LINE CO-ORDINATES

DESIGN SPEED 60 km/h (WGS 84 \ LO 27°)

CHAINAGE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
0.000	- 25 701.909	+ 2 843 657.848	
100.000	- 25 742.377	+ 2 843 747.953	
200.000	- 25 792.266	+ 2 843 829.515	
300.000	- 25 877.895	+ 2 843 881.165	
400.000	- 25 963.524	+ 2 843 932.814	
500.000	- 26 049.153	+ 2 843 984.464	
600.000	- 26 134.782	+ 2 843 036.114	
639.999	- 26 169.034	+ 2 844 056.774	

TENDER

No.	DATE	REVISION	
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date :
CONSULT. ENG.

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DESIGNED BY
NAME: Z MASHININI
Prof. Reg. No. : - -
CHECKED BY
NAME: PL NGQUMSHE
Prof. Reg. No. : 20080112
DRAWN BY
NAME: WB HARTMANN

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17/07/2023

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Tel: (012) 844 8000

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Reg. No. 1998/009584/30

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Tel: (012) 426 6200

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Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

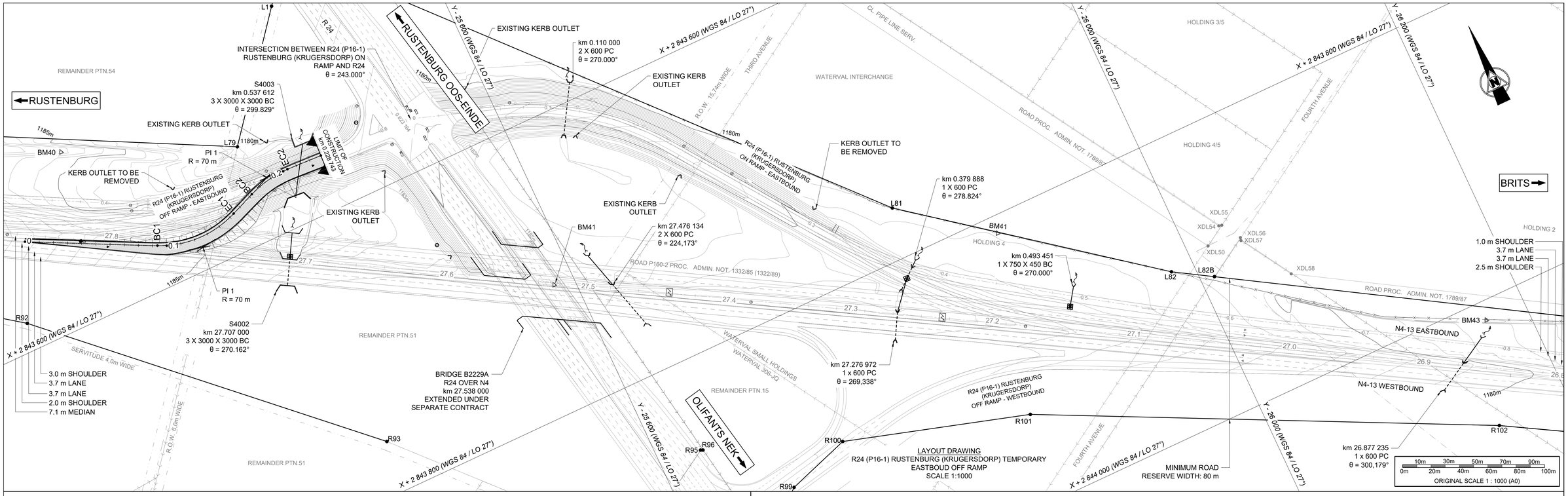
DRAWING DESCRIPTION
TRAFFIC ACCOMMODATION
R24 (P16-1) RUSTENBURG (KRUGERSDORP) TEMPORARY EASTBOUND ON RAMP

SCALE : AS SHOWN (A0) SHEET 02 OF 03

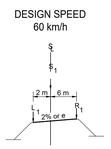
PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	13	13
DRAWING km DISTANCE	km 26.8	km 27.8
DRAWING TYPE	ROADS - TRAFFIC ACC.	
BRIDGE/STRUCTURE No.	NA	
CONSULTANT DRAWING No.	FA 3257 / 23 / 12 TA	VER V0
SANRAL DOCUMENT #	- -	

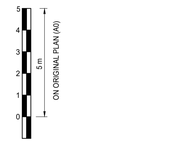
SANRAL DOCUMENT NUMBER :

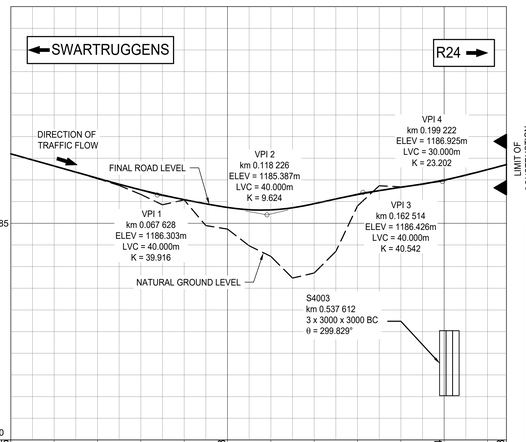
W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4 Roadworks\12 - Traffic Accommodation\3257-23-12 TA - Watervat On-Ramp_20230717.dwg

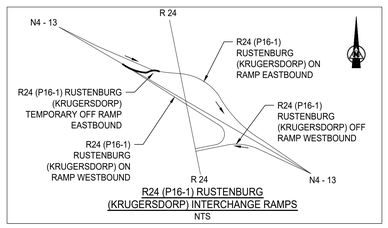


LAYOUT DRAWING
R24 (P16-1) RUSTENBURG (KRUGERSDORP) TEMPORARY EASTBOUD OFF RAMP
SCALE 1:1000







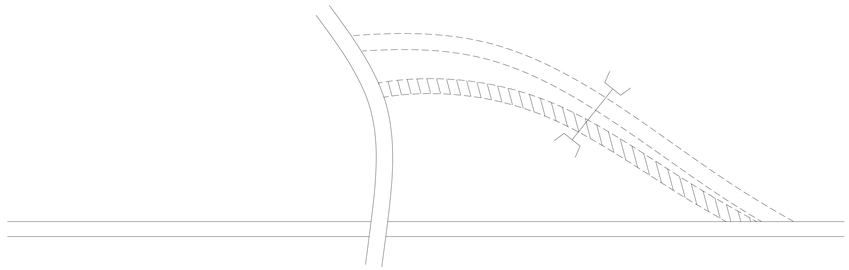


R24 (P16-1) RUSTENBURG (KRUGERSDORP) INTERCHANGE RAMPS
NTS

| | | |

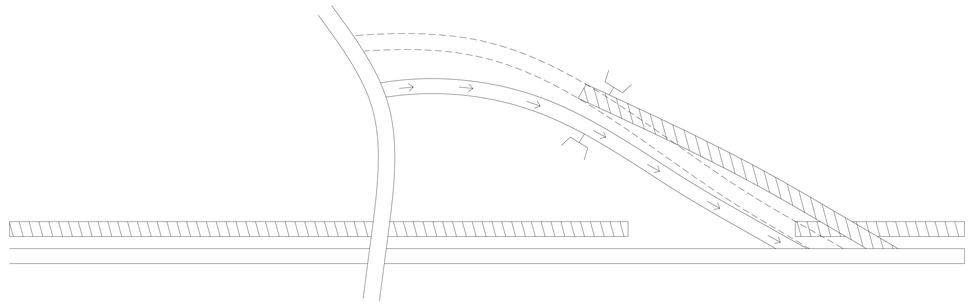
STEP 1

1. CONSTRUCT TEMPORARY ON-RAMP.



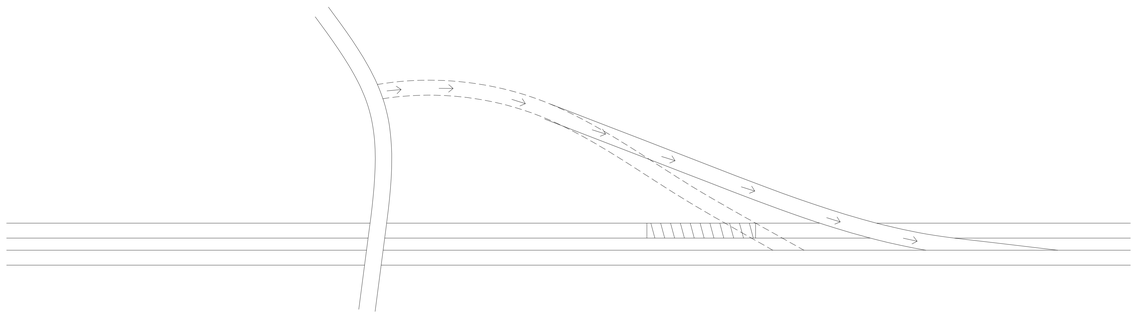
STEP 2

1. MOVE TRAFFIC ONTO TEMPORARY ON-RAMP.
2. CONSTRUCT NEW ON-RAMP AND EXTEND TO TIE-INTO EXISTING WESTBOUND CARRIAGEWAY.



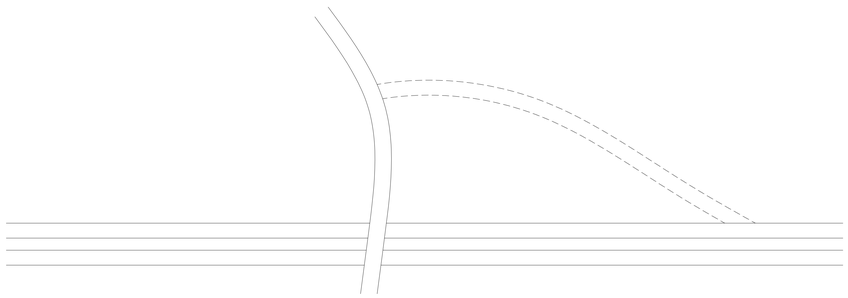
STEP 3

1. COMPLETE CONSTRUCTION OF EASTBOUND CARRIAGEWAY.



STEP 4

1. REMOVE SECTIONS OF OLD ON-RAMP NOT FORMING PART OF NEW ON-RAMP



LEGEND

- CONSTRUCTION ZONE
- TRAFFIC DIRECTION
- CULVERT

HELEN JOSEPH DRIVE INTERCHANGE
PHASED TRAFFIC ACCOMMODATION
N.T.S

TENDER

No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD

WORKS CONTRACT ENGINEER

Name :
Prof. Reg. No. :
Date :

SANRAL PROJECT MANAGER

Name :
Prof. Reg. No. :
Date :

CONSULTANT

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NAME	Z. MASHININI
Prof. Reg. No.	- -
CHECKED BY	
NAME	PL NGQUMSHE
Prof. Reg. No.	20080112
DRAWN BY	
NAME	WB HARTMANN

CONSULTANT APPROVAL

Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17/07/2023

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Tel: (012) 426 6200

ACCEPTANCE

THIS ACCEPTANCE IS FOR PROCEDURAL AND ADMINISTRATIVE REVIEW PURPOSES ONLY. AND DOES NOT ATTRACT LEGAL LIABILITY OR LIABILITY OF ANY KIND FROM WHATSOEVER CAUSE OR HOWEVER ARISING

for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION
TRAFFIC ACCOMMODATION
HELEN JOSEPH DRIVE INTERCHANGE

SCALE : NOT TO SCALE | **SHEET 01 OF 02**

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001		
DRAWING LOCATION DATA	START	END	
ROUTE	N 4	N 4	
SECTION	13	13	
DRAWING km DISTANCE	- -	- -	
DRAWING TYPE	ROADS - TRAFFIC ACC.		
BRIDGE/STRUCTURE No.	NA		
CONSULTANT DRAWING No.	FA	3257 / 23 / 14 TA	VER
SANRAL DOCUMENT #		- -	V0

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\12 - Traffic Accommodation\3257-23-14 TA - Interchange_20230717.dwg

HELEN JOSEPH DRIVE TEMPORARY ON RAMP - EASTBOUND
km 0.000 - km 0.724 883 *(WGS 84 \ LO 27°)*

CURVE	DESCRIPTION	CURVE LENGTH	CURVE RADIUS	POINT	CHAINAGE DISTANCE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
				START	0.000	- 22 727.591	+ 2 842 415.955
1	RIGHT HAND CIRCULAR	53.872 m	100.000m	BC 1	24.422	- 22 751.951	+ 2 842 417.693
				PI 1	-	- 22 779.488	+ 2 842 419.657
				EC 1	78.294	- 22 802.117	+ 2 842 435.470
2	LEFT HAND CIRCULAR	177.849 m	490.000m	BC 2	139.079	- 22 851.942	+ 2 842 470.289
				PI 2	-	- 22 925.643	+ 2 842 521.792
				EC 2	316.928	- 23 012.829	+2 842 543.773
3	RIGHT HAND CIRCULAR	248.143 m	5000.000m	BC 3	455.875	- 23 147.559	+2 84 2577.741
				PI 3	-	- 23 267.891	+ 2 842 608.079
				EC 3	704.018	- 23 386.569	+ 2 842 644.349
				END	724.883	- 23 406.523	+ 2 842 650.447

BENCH MARKS
(WGS 84 \ LO 27°)

STATION	Y CO-ORDINATES + 0.000	X CO-ORDINATES + 0.000	ELEVATION
BM 31	- 22 731.933	+ 2 842 418.789	1 223.169
BM 32	- 23 009.841	+ 2 842 511.659	1 214.941
BM 33	- 23 314.896	+ 2 842 582.033	1 216.493
BM 34	- 22 607.572	+ 2 842 677.780	1 217.284

LAYOUT DRAWING
HELEN JOSEPH DRIVE TEMPORARY EASTBOUND ON RAMP
SCALE 1:1000

HELEN JOSEPH DRIVE INTERCHANGE
NTS

LEGEND

	TEMPORARY RAMP TO BE CONSTRUCTED		NEW SINGLE STREET LIGHT
	FENCE		RELOCATE STREET LIGHT
	BUILDING		NEW DOUBLE STREET LIGHT
	CONCRETE		FLOOD LIGHT
V	VALVE		TELEPHONE POLE
	GRID INLET		FARM PORTIONS
	BRIDGE PILLARS		CONTOURS
	KERB INLET		BATTER
	ELECTRIC BOX		BENCH MARK
	POWERLINES		WALL
	RIVER BRIDGE		GAURDRAILS AND NJ BARRIERS
MH	MANHOLE		NEW CULVERTS
TS	TRAFFIC SIGN		EXISTING CULVERTS
	ELECTRIC POLES		NEW ROAD RESERVE
	REMOVE STREET LIGHT		FLOW DIRECTION ARROW

HELEN JOSEPH DRIVE TEMPORARY ON-RAMP CENTER LINE CO-ORDINATES
DESIGN SPEED 60 km/h *(WGS 84 \ LO 27°)*

CHAINAGE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000	DESCRIPTION
0.000	- 22 727.591	+ 2 842 415.955	
100.000	- 22 819.909	+ 2 842 447.904	
200.000	- 22 903.916	+ 2 842 501.995	
300.000	- 22 996.489	+ 2 842 539.352	
400.000	- 23 093.370	+ 2 842 564.123	
500.000	- 23 190.296	+ 2 842 588.721	
600.000	- 23 286.784	+ 2 842 614.984	
700.000	- 23 382.726	+ 2 842 643.176	
724.883	- 23 406.523	+ 2 842 650.447	

TENDER

SANRAL DOCUMENT NUMBER :

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
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Prof. Reg. No. :
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CHECKED BY	
NAME	PL NGQUMSHE
Prof. Reg. No.	20080112
DRAWN BY	
NAME	WB HARTMANN

CONSULTANT APPROVAL
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Prof. Reg. No. : 20080112
Date : 17/07/2023

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for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION
TRAFFIC ACCOMMODATION
HELEN JOSEPH DRIVE TEMPORARY ON RAMP

SCALE : AS SHOWN (A0) | SHEET 02 OF 02

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	13	13
DRAWING km DISTANCE	km 29.8	km 30.8
DRAWING TYPE	ROADS - TRAFFIC ACC.	
BRIDGE/STRUCTURE No.	NA	
CONSULTANT DRAWING No.	FA 3257 / 23 / 15 TA	VER
SANRAL DOCUMENT #	- -	V0

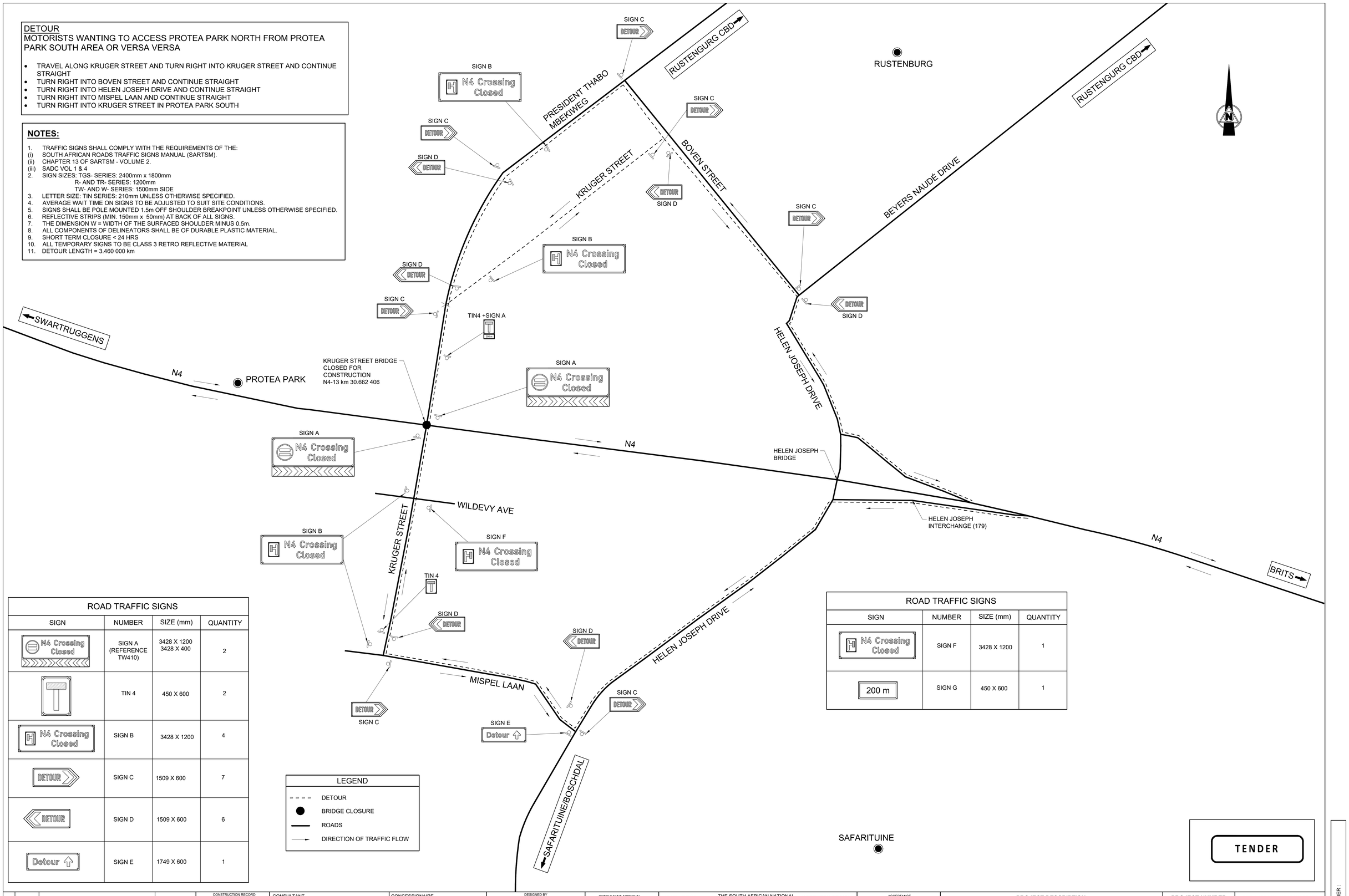
- Joseph On-ramp_20230717.dwg

DETOUR
MOTORISTS WANTING TO ACCESS PROTEA PARK NORTH FROM PROTEA PARK SOUTH AREA OR VERSA VERSA

- TRAVEL ALONG KRUGER STREET AND TURN RIGHT INTO KRUGER STREET AND CONTINUE STRAIGHT
- TURN RIGHT INTO BOVEN STREET AND CONTINUE STRAIGHT
- TURN RIGHT INTO HELEN JOSEPH DRIVE AND CONTINUE STRAIGHT
- TURN RIGHT INTO MISPEL LAAN AND CONTINUE STRAIGHT
- TURN RIGHT INTO KRUGER STREET IN PROTEA PARK SOUTH

NOTES:

1. TRAFFIC SIGNS SHALL COMPLY WITH THE REQUIREMENTS OF THE:
(i) SOUTH AFRICAN ROADS TRAFFIC SIGNS MANUAL (SARTSM).
(ii) CHAPTER 13 OF SARTSM - VOLUME 2.
(iii) SADC VOL 1 & 4
2. SIGN SIZES: TGS- SERIES: 2400mm x 1800mm
R- AND TR- SERIES: 1200mm
TW- AND W- SERIES: 1500mm SIDE
3. LETTER SIZE: TIN SERIES: 210mm UNLESS OTHERWISE SPECIFIED.
4. AVERAGE WAIT TIME ON SIGNS TO BE ADJUSTED TO SUIT SITE CONDITIONS.
5. SIGNS SHALL BE POLE MOUNTED 1.5m OFF SHOULDER BREAKPOINT UNLESS OTHERWISE SPECIFIED.
6. REFLECTIVE STRIPS (MIN. 150mm x 50mm) AT BACK OF ALL SIGNS.
7. THE DIMENSION W = WIDTH OF THE SURFACED SHOULDER MINUS 0.5m.
8. ALL COMPONENTS OF DELINEATORS SHALL BE OF DURABLE PLASTIC MATERIAL.
9. SHORT TERM CLOSURE < 24 HRS
10. ALL TEMPORARY SIGNS TO BE CLASS 3 RETRO REFLECTIVE MATERIAL
11. DETOUR LENGTH = 3.460 000 km



ROAD TRAFFIC SIGNS			
SIGN	NUMBER	SIZE (mm)	QUANTITY
N4 Crossing Closed	SIGN A (REFERENCE TW410)	3428 X 1200 3428 X 400	2
	TIN 4	450 X 600	2
N4 Crossing Closed	SIGN B	3428 X 1200	4
DETOUR	SIGN C	1509 X 600	7
DETOUR	SIGN D	1509 X 600	6
Detour	SIGN E	1749 X 600	1

ROAD TRAFFIC SIGNS			
SIGN	NUMBER	SIZE (mm)	QUANTITY
N4 Crossing Closed	SIGN F	3428 X 1200	1
200 m	SIGN G	450 X 600	1

LEGEND
- DETOUR
- BRIDGE CLOSURE
- ROADS
- DIRECTION OF TRAFFIC FLOW

TENDER

No.	DATE	REVISION	
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date :

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CHECKED BY	
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DRAWN BY	
NAME	WB HARTMANN

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17/07/2023

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for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION
CLOSURE OF KRUGER STREET
DETOUR VIA HELEN JOSEPH DRIVE

SCALE : NOT TO SCALE | SHEET 01 OF 01

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001		
DRAWING LOCATION DATA	START	END	
ROUTE	N 4	N 4	
SECTION	13	13	
DRAWING km DISTANCE	- -	- -	
DRAWING TYPE	ROADS - TRAFFIC ACC.		
BRIDGE/STRUCTURE No.	NA		
CONSULTANT DRAWING No.	FA	3257 / 23 / 16 TA	VER
SANRAL DOCUMENT #		- -	V0

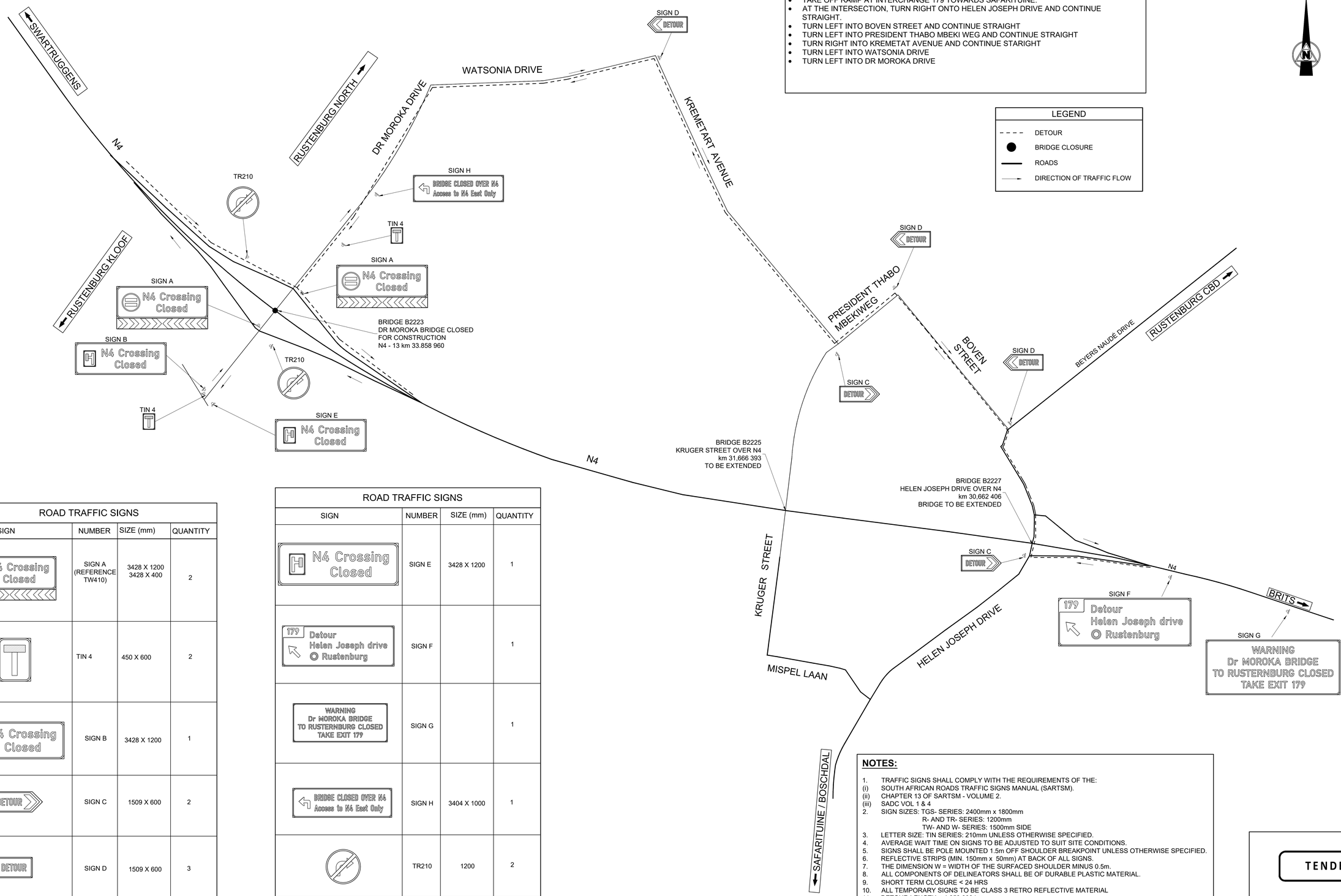
SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadwork\12 - Traffic Accommodation\3257-23-16 TA - Closure of Kruger at Detour via Helen Joseph.dwg

DETOUR
MOTORISTS TRAVELING WEST ON THE N4 WANTING TO ACCESS PROTEA PARK

- TAKE OFF RAMP AT INTERCHANGE 179 TOWARDS SAFARITUINE.
- AT THE INTERSECTION, TURN RIGHT ONTO HELEN JOSEPH DRIVE AND CONTINUE STRAIGHT.
- TURN LEFT INTO BOVEN STREET AND CONTINUE STRAIGHT
- TURN LEFT INTO PRESIDENT THABO MBEKI WEG AND CONTINUE STRAIGHT
- TURN RIGHT INTO KREMETAT AVENUE AND CONTINUE STARIGHT
- TURN LEFT INTO WATSONIA DRIVE
- TURN LEFT INTO DR MOROKA DRIVE

LEGEND
- DETOUR
- BRIDGE CLOSURE
- ROADS
- DIRECTION OF TRAFFIC FLOW



ROAD TRAFFIC SIGNS

SIGN	NUMBER	SIZE (mm)	QUANTITY
N4 Crossing Closed	SIGN A (REFERENCE TW410)	3428 X 1200 3428 X 400	2
TIN 4	TIN 4	450 X 600	2
N4 Crossing Closed	SIGN B	3428 X 1200	1
DETOUR	SIGN C	1509 X 600	2
DETOUR	SIGN D	1509 X 600	3

ROAD TRAFFIC SIGNS

SIGN	NUMBER	SIZE (mm)	QUANTITY
N4 Crossing Closed	SIGN E	3428 X 1200	1
179 Detour Helen Joseph drive Rustenburg	SIGN F		1
WARNING Dr MOROKA BRIDGE TO RUSTERNBURG CLOSED TAKE EXIT 179	SIGN G		1
BRIDGE CLOSED OVER N4 Access to N4 East Only	SIGN H	3404 X 1000	1
	TR210	1200	2

NOTES:

1. TRAFFIC SIGNS SHALL COMPLY WITH THE REQUIREMENTS OF THE:
(i) SOUTH AFRICAN ROADS TRAFFIC SIGNS MANUAL (SARTSM).
(ii) CHAPTER 13 OF SARTSM - VOLUME 2.
(iii) SADC VOL 1 & 4
2. SIGN SIZES: TGS- SERIES: 2400mm x 1800mm
R- AND TR- SERIES: 1200mm
TW- AND W- SERIES: 1500mm SIDE
3. LETTER SIZE: TIN SERIES: 210mm UNLESS OTHERWISE SPECIFIED.
4. AVERAGE WAIT TIME ON SIGNS TO BE ADJUSTED TO SUIT SITE CONDITIONS.
5. SIGNS SHALL BE POLE MOUNTED 1.5m OFF SHOULDER BREAKPOINT UNLESS OTHERWISE SPECIFIED.
6. REFLECTIVE STRIPS (MIN. 150mm x 50mm) AT BACK OF ALL SIGNS.
7. THE DIMENSION W = WIDTH OF THE SURFACED SHOULDER MINUS 0.5m.
8. ALL COMPONENTS OF DELINEATORS SHALL BE OF DURABLE PLASTIC MATERIAL.
9. SHORT TERM CLOSURE < 24 HRS
10. ALL TEMPORARY SIGNS TO BE CLASS 3 RETRO REFLECTIVE MATERIAL
11. DETOUR LENGTH = 4.650 000 km

TENDER

No.	DATE	REVISION	
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSULT. ENG.

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date :

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Prof. Reg. No. : -
CHECKED BY
NAME: E DAY
Prof. Reg. No. : 20130622
DRAWN BY
NAME: WB HARTMANN

CONSULTANT APPROVAL
Name : PL NGQUMSHE
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Date : 17/07/2023

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for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

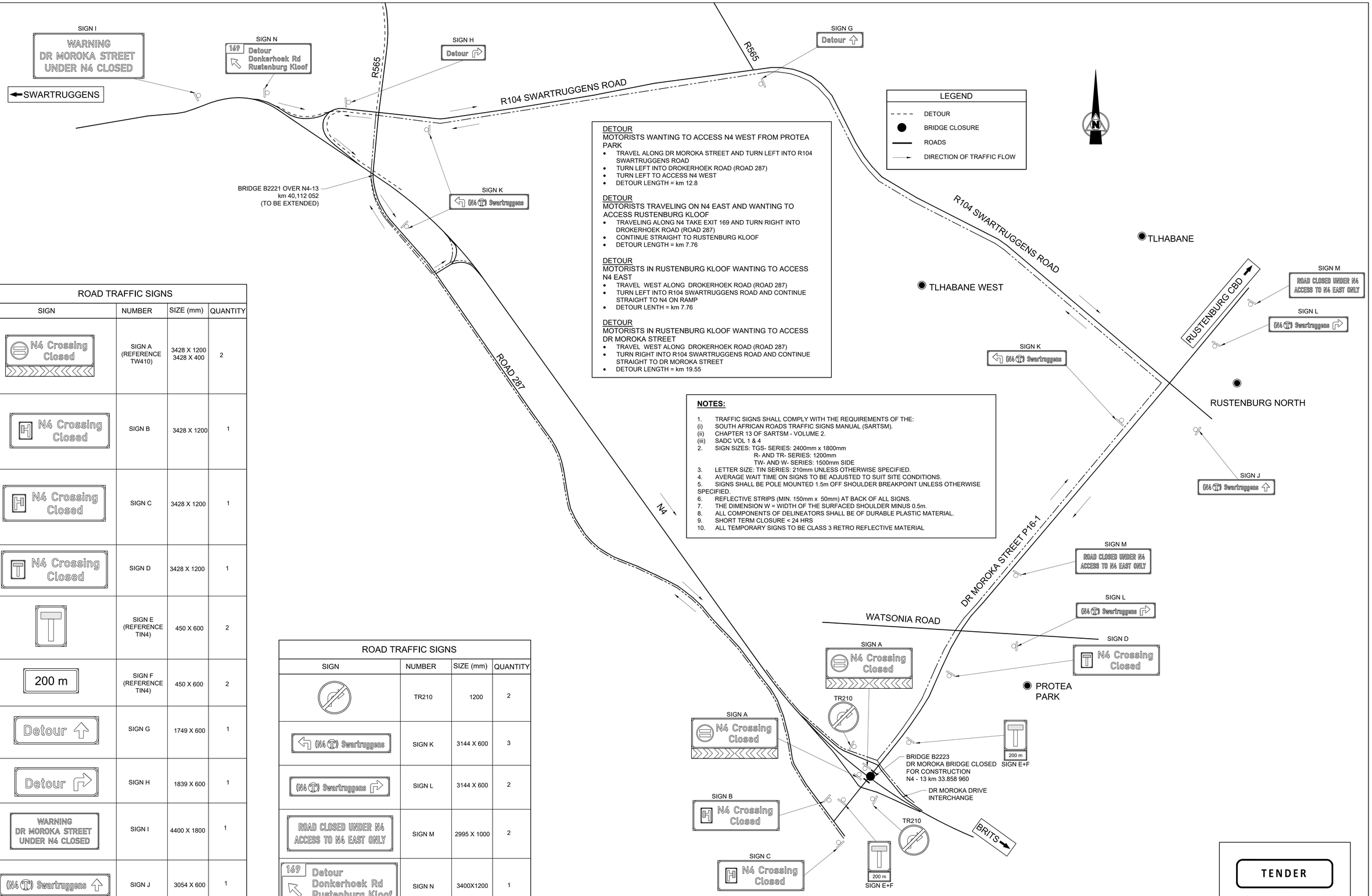
DRAWING DESCRIPTION
CLOSURE OF DR MOROKA STREET
DETOUR VIA KRUGER STREET AND HELEN JOSEPH DRIVE

SCALE : 1 : 1000 (A0) SHEET 01 OF 02

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	13	13
DRAWING km DISTANCE	-	-
DRAWING TYPE	ROADS - TRAFFIC ACC.	
BRIDGE/STRUCTURE No.	NA	
CONSULTANT DRAWING No.	FA 3257 / 23 / 17 TA	VER V0
SANRAL DOCUMENT #	- -	

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\12 - Traffic Accommodation\3257-23-17 TA - Closure of Dr Moroka st Detour via Helen Jseg



NOTES:

1. TRAFFIC SIGNS SHALL COMPLY WITH THE REQUIREMENTS OF THE:
   (i) SOUTH AFRICAN ROADS TRAFFIC SIGNS MANUAL (SARTSM).
   (ii) CHAPTER 13 OF SARTSM - VOLUME 2.
   (iii) SADC VOL 1 & 4
2. SIGN SIZES: TGS- SERIES: 2400mm x 1800mm
   R- AND TR- SERIES: 1200mm
   TW- AND W- SERIES: 1500mm SIDE
3. LETTER SIZE: TIN SERIES: 210mm UNLESS OTHERWISE SPECIFIED.
4. AVERAGE WAIT TIME ON SIGNS TO BE ADJUSTED TO SUIT SITE CONDITIONS.
5. SIGNS SHALL BE POLE MOUNTED 1.5m OFF SHOULDER BREAKPOINT UNLESS OTHERWISE SPECIFIED.
6. REFLECTIVE STRIPS (MIN. 150mm x 50mm) AT BACK OF ALL SIGNS.
7. THE DIMENSION W = WIDTH OF THE SURFACED SHOULDER MINUS 0.5m.
8. ALL COMPONENTS OF DELINEATORS SHALL BE OF DURABLE PLASTIC MATERIAL.
9. SHORT TERM CLOSURE < 24 HRS
10. ALL TEMPORARY SIGNS TO BE CLASS 3 RETRO REFLECTIVE MATERIAL

ROAD TRAFFIC SIGNS

SIGN	NUMBER	SIZE (mm)	QUANTITY
N4 Crossing Closed	SIGN A (REFERENCE TW410)	3428 X 1200 3428 X 400	2
N4 Crossing Closed	SIGN B	3428 X 1200	1
N4 Crossing Closed	SIGN C	3428 X 1200	1
N4 Crossing Closed	SIGN D	3428 X 1200	1
	SIGN E (REFERENCE TIN4)	450 X 600	2
200 m	SIGN F (REFERENCE TIN4)	450 X 600	2
Detour	SIGN G	1749 X 600	1
Detour	SIGN H	1839 X 600	1
WARNING DR MOROKA STREET UNDER N4 CLOSED	SIGN I	4400 X 1800	1
(N4) Swartruggens	SIGN J	3054 X 600	1

ROAD TRAFFIC SIGNS

SIGN	NUMBER	SIZE (mm)	QUANTITY
	TR210	1200	2
(N4) Swartruggens	SIGN K	3144 X 600	3
(N4) Swartruggens	SIGN L	3144 X 600	2
ROAD CLOSED UNDER N4 ACCESS TO N4 EAST ONLY	SIGN M	2995 X 1000	2
169 Detour Donkerhoek Rd Rustenburg Kloof	SIGN N	3400X1200	1

TENDER

No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date

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NAME	M PHOPHI
Prof. Reg. No.	- -
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NAME	E DAY
Prof. Reg. No.	20130622
DRAWN BY	
NAME	WB HARTMANN

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17/07/2023

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ACCEPTANCE
THIS ACCEPTANCE IS FOR PROCEDURAL AND ADMINISTRATIVE REVIEW PURPOSES ONLY AND DOES NOT ATTRACT LEGAL LIABILITY OR LIABILITY OF ANY KIND FROM WHATSOEVER CAUSE OR HOWEVER ARISING
for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN DR MOROKA (P16-2) AND THE P16-2 INTERCHANGE N4-13 km 40.000
UPGRADES PHASE 1 PRELIMINARY DESIGN

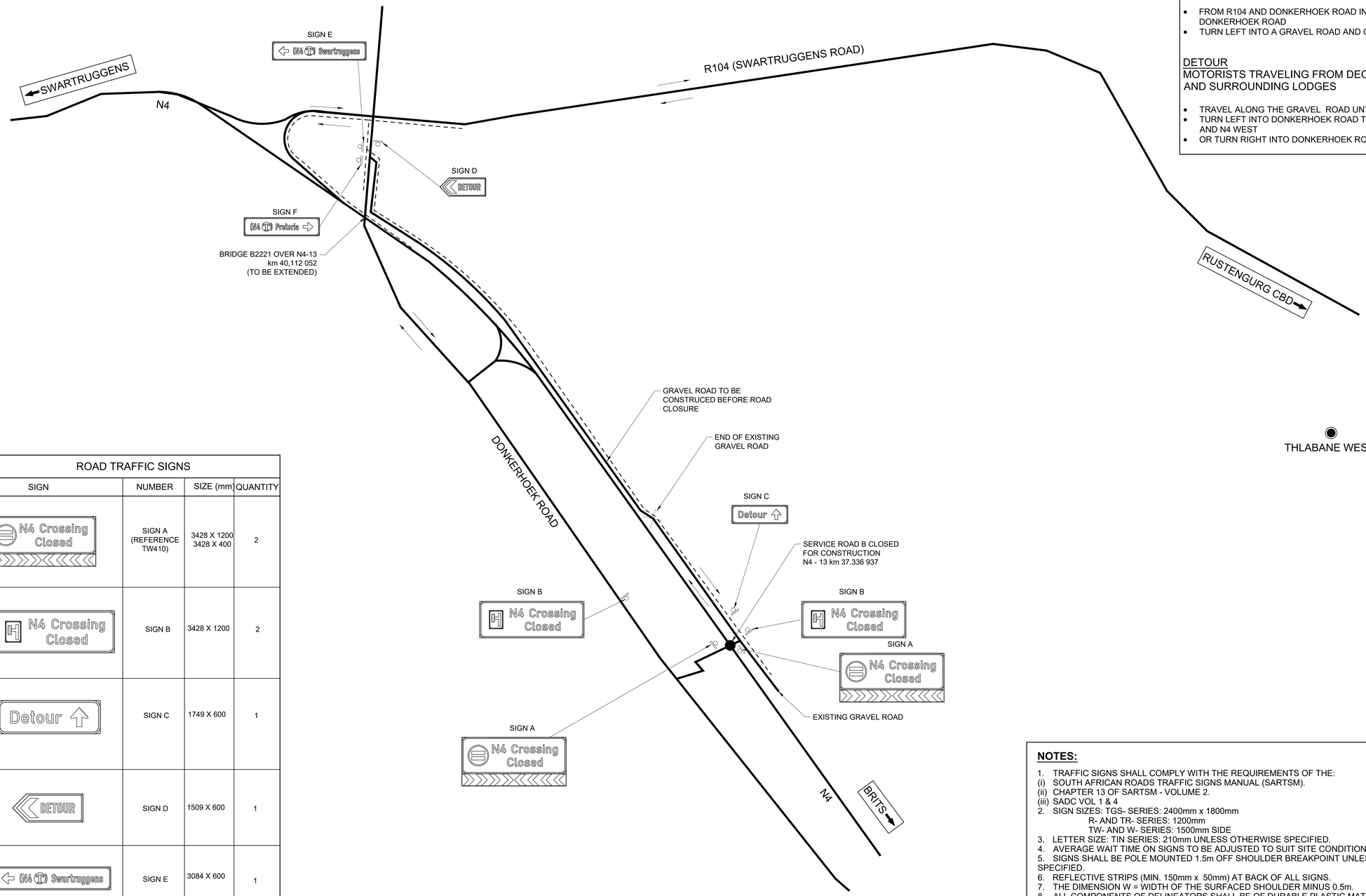
DRAWING DESCRIPTION
CLOSURE OF DR MOROKA (P16-2) BRIDGE
DETOUR VIA R104 (P2-3)

SCALE : NOT TO SCALE
SHEET 02 OF 02

PROJECT NUMBER	BPCC-2024/U2318 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	13	13
DRAWING km DISTANCE	- -	- -
DRAWING TYPE	ROADS - TRAFFIC ACC.	
BRIDGE/STRUCTURE No.	NA	
CONSULTANT DRAWING No.	PD 3257 / 16 / 18 TA	VER
SANRAL DOCUMENT #	- -	V0

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\12 - Traffic Accommodation\3257-23-18 TA - Closure of Dr Moroka st Detour via R104.dwg



DETOUR
MOTORISTS TRAVELING TO DEO VOLENTE, THABA LEGAE AND SURROUNDING LODGES

- FROM R104 AND DONKERHOEK ROAD INTERSECTION, TURN INTO DONKERHOEK ROAD
- TURN LEFT INTO A GRAVEL ROAD AND CONTINUE STRAIGHT

DETOUR
MOTORISTS TRAVELING FROM DEO VOLENTE, THABA LEGAE AND SURROUNDING LODGES

- TRAVEL ALONG THE GRAVEL ROAD UNTIL DONKERHOEK ROAD
- TURN LEFT INTO DONKERHOEK ROAD TO ACCESS RUSTENBURG KLOOF AND N4 WEST
- OR TURN RIGHT INTO DONKERHOEK ROAD TO ACCESS N4 EAST

LEGEND	
- - - -	DETOUR
●	BRIDGE CLOSURE
———	ROADS
——→	DIRECTION OF TRAFFIC FLOW

ROAD TRAFFIC SIGNS

SIGN	NUMBER	SIZE (mm)	QUANTITY
N4 Crossing Closed	SIGN A (REFERENCE TW410)	3428 X 1200 3428 X 400	2
N4 Crossing Closed	SIGN B	3428 X 1200	2
Detour	SIGN C	1749 X 600	1
DETOUR	SIGN D	1509 X 600	1
(N4) Swartruggens	SIGN E	3084 X 600	1
(N4) Pretoria	SIGN F	2481 X 600	1

NOTES:

1. TRAFFIC SIGNS SHALL COMPLY WITH THE REQUIREMENTS OF THE:
(i) SOUTH AFRICAN ROADS TRAFFIC SIGNS MANUAL (SARTSM).
(ii) CHAPTER 13 OF SARTSM - VOLUME 2.
(iii) SADC VOL 1 & 4
2. SIGN SIZES: TGS- SERIES: 2400mm x 1800mm
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TW- AND W- SERIES: 1500mm SIDE
3. LETTER SIZE: TIN SERIES: 210mm UNLESS OTHERWISE SPECIFIED.
4. AVERAGE WAIT TIME ON SIGNS TO BE ADJUSTED TO SUIT SITE CONDITIONS.
5. SIGNS SHALL BE POLE MOUNTED 1.5m OFF SHOULDER BREAKPOINT UNLESS OTHERWISE SPECIFIED.
6. REFLECTIVE STRIPS (MIN. 150mm x 50mm) AT BACK OF ALL SIGNS.
7. THE DIMENSION W = WIDTH OF THE SURFACED SHOULDER MINUS 0.5m.
8. ALL COMPONENTS OF DELINEATORS SHALL BE OF DURABLE PLASTIC MATERIAL.
9. SHORT TERM CLOSURE < 24 HRS
10. ALL TEMPORARY SIGNS TO BE CLASS 3 RETRO REFLECTIVE MATERIAL
11. DETOUR LENGTH = 3.060 000 km

TENDER

No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

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NAME: M PHOPHI
Prof. Reg. No. : - -
CHECKED BY
NAME: E DAY
Prof. Reg. No. : 20130622
DRAWN BY:
NAME: WB HARTMANN

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17/07/2023

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Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

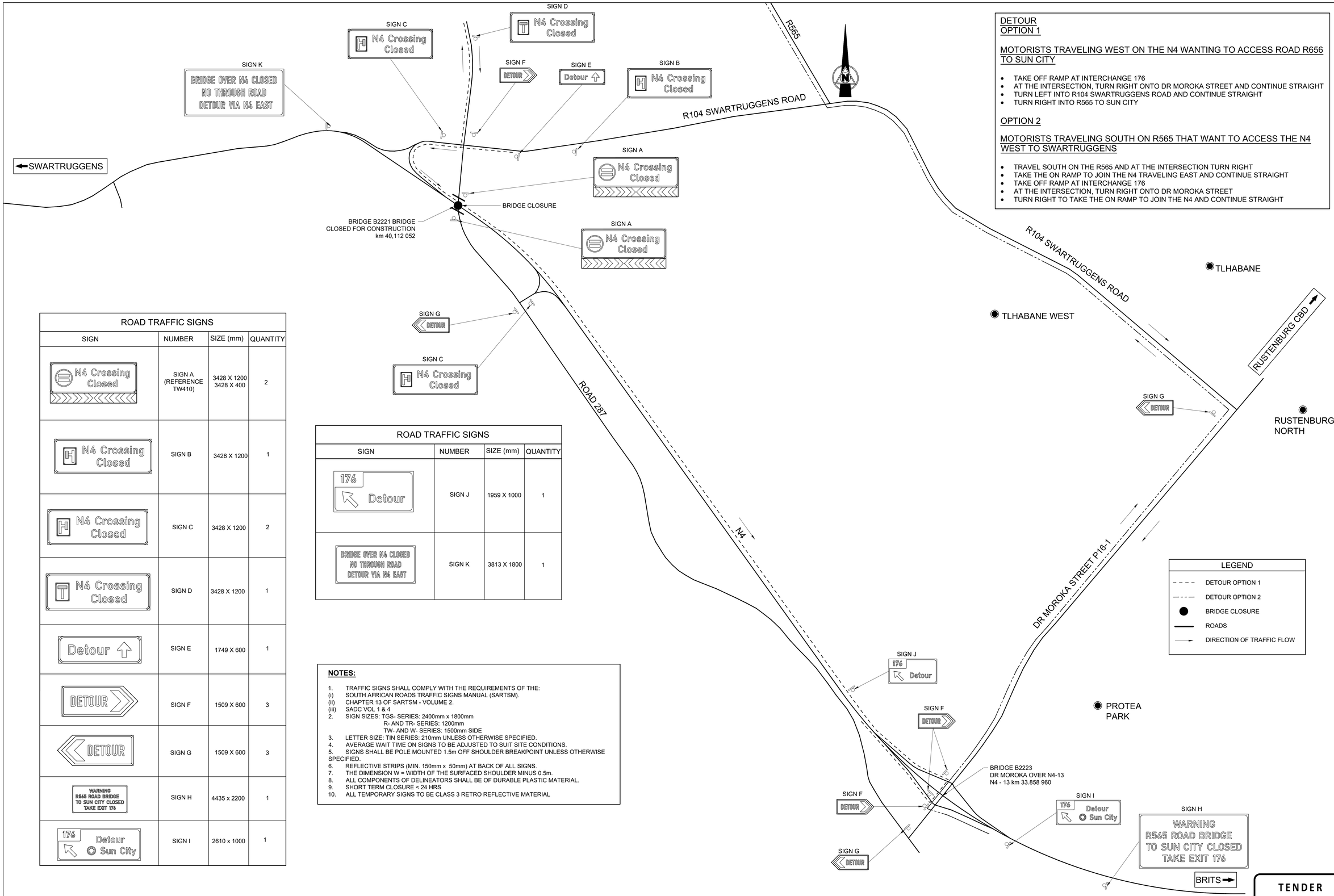
DRAWING DESCRIPTION
CLOSURE OF SERVICE ROAD B
DETOUR VIA NEW GRAVEL ROUTE

SCALE : NOT TO SCALE | SHEET 01 OF 01

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	13	13
DRAWING km DISTANCE	- -	- -
DRAWING TYPE	ROADS - TRAFFIC ACC.	
BRIDGE/STRUCTURE No.	NA	
CONSULTANT DRAWING No.	FA 3257 / 23 / 19 TA	VER V0
SANRAL DOCUMENT #	- -	

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4 Roadworks\12 - Traffic Accommodation\3257-23-19 TA - Closure of service road B Detour New gravel route.dwg



DETOUR
OPTION 1

MOTORISTS TRAVELING WEST ON THE N4 WANTING TO ACCESS ROAD R656 TO SUN CITY

- TAKE OFF RAMP AT INTERCHANGE 176
- AT THE INTERSECTION, TURN RIGHT ONTO DR MOROKA STREET AND CONTINUE STRAIGHT
- TURN LEFT INTO R104 SWARTRUGGENS ROAD AND CONTINUE STRAIGHT
- TURN RIGHT INTO R565 TO SUN CITY

OPTION 2

MOTORISTS TRAVELING SOUTH ON R565 THAT WANT TO ACCESS THE N4 WEST TO SWARTRUGGENS

- TRAVEL SOUTH ON THE R565 AND AT THE INTERSECTION TURN RIGHT
- TAKE THE ON RAMP TO JOIN THE N4 TRAVELING EAST AND CONTINUE STRAIGHT
- TAKE OFF RAMP AT INTERCHANGE 176
- AT THE INTERSECTION, TURN RIGHT ONTO DR MOROKA STREET
- TURN RIGHT TO TAKE THE ON RAMP TO JOIN THE N4 AND CONTINUE STRAIGHT

LEGEND

- DETOUR OPTION 1
- DETOUR OPTION 2
- BRIDGE CLOSURE
- ROADS
- DIRECTION OF TRAFFIC FLOW

ROAD TRAFFIC SIGNS

SIGN	NUMBER	SIZE (mm)	QUANTITY
N4 Crossing Closed	SIGN A (REFERENCE TW410)	3428 X 1200 3428 X 400	2
N4 Crossing Closed	SIGN B	3428 X 1200	1
N4 Crossing Closed	SIGN C	3428 X 1200	2
N4 Crossing Closed	SIGN D	3428 X 1200	1
Detour	SIGN E	1749 X 600	1
DETOUR	SIGN F	1509 X 600	3
DETOUR	SIGN G	1509 X 600	3
WARNING R565 ROAD BRIDGE TO SUN CITY CLOSED TAKE EXIT 176	SIGN H	4435 x 2200	1
176 Detour Sun City	SIGN I	2610 x 1000	1

ROAD TRAFFIC SIGNS

SIGN	NUMBER	SIZE (mm)	QUANTITY
176 Detour	SIGN J	1959 X 1000	1
BRIDGE OVER N4 CLOSED NO THROUGH ROAD DETOUR VIA N4 EAST	SIGN K	3813 X 1800	1

NOTES:

1. TRAFFIC SIGNS SHALL COMPLY WITH THE REQUIREMENTS OF THE:
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9. SHORT TERM CLOSURE < 24 HRS
10. ALL TEMPORARY SIGNS TO BE CLASS 3 RETRO REFLECTIVE MATERIAL

TENDER

No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date :

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Fax: +27 11 519-0414

DESIGNED BY	
NAME	M PHOPHI
Prof. Reg. No.	- - -
CHECKED BY	
NAME	E DAY
Prof. Reg. No.	20130622
DRAWN BY	
NAME	WB HARTMANN

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17/07/2023

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Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION
CLOSURE OF ROAD 287 BRIDGE
DETOUR VIA DR MOROKA (P16-2) BRIDGE

SCALE : NOT TO SCALE | SHEET 01 OF 01

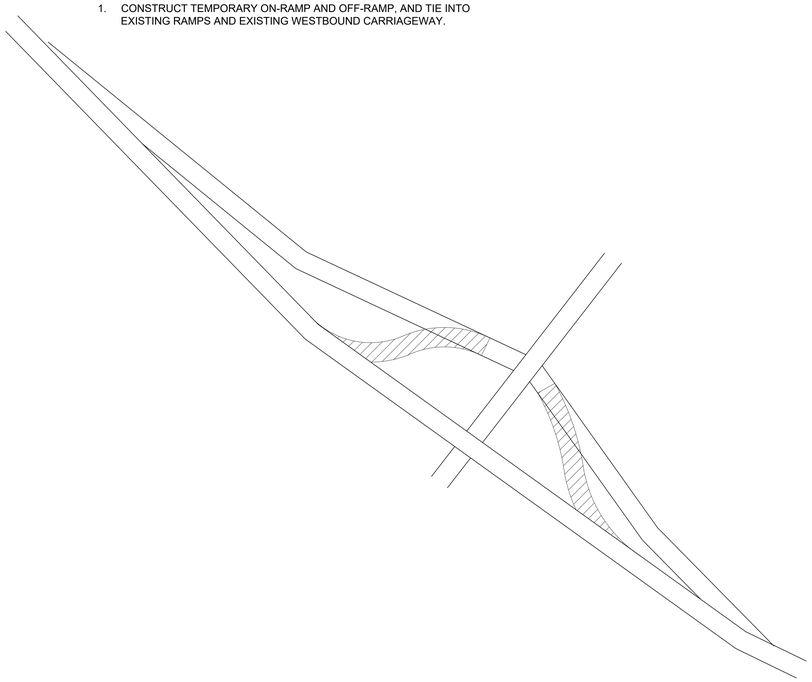
PROJECT NUMBER		BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA		START	END
ROUTE		N 4	N 4
SECTION		13	13
DRAWING km DISTANCE		- -	- -
DRAWING TYPE		ROADS - TRAFFIC ACC.	
BRIDGE/STRUCTURE No.		NA	
CONSULTANT DRAWING No.	PD	3257 / 23 / 20 TA	VER
SANRAL DOCUMENT #		- -	V0

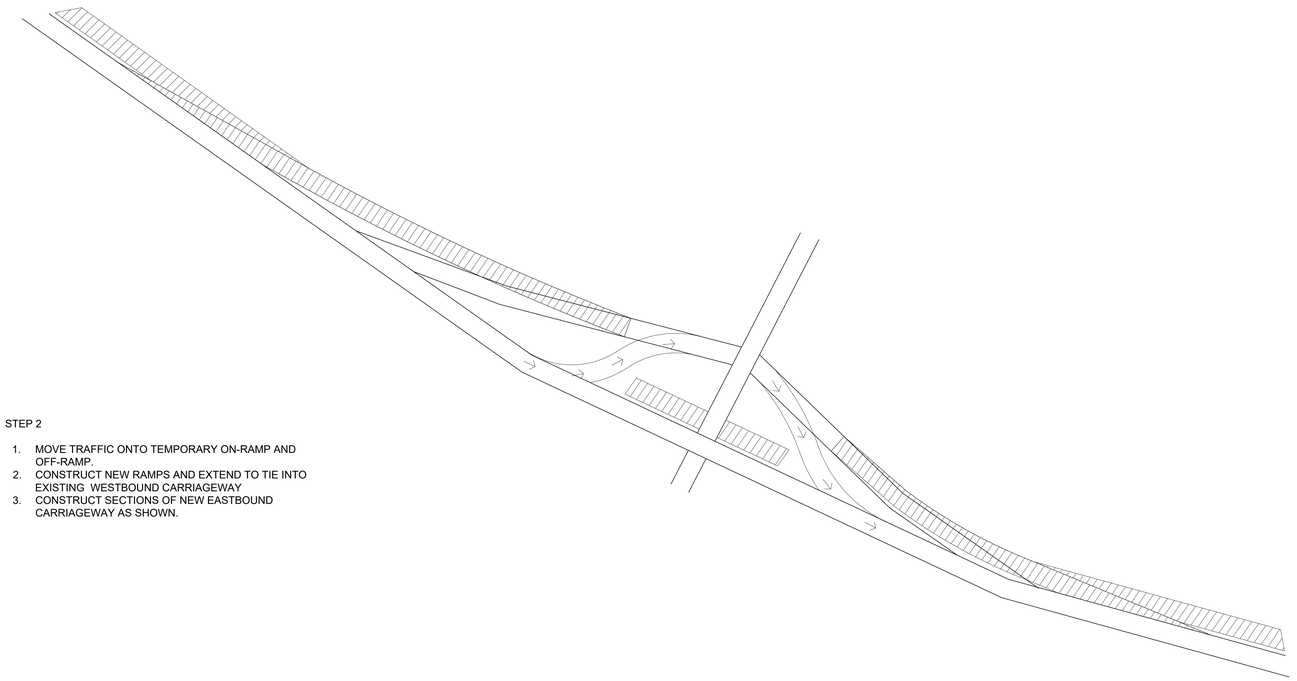
SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\12 - Traffic Accommodation\3257-23-20 TA \ Closure of R565 Road Bridge Detour via Moroka.dwg

STEP 1

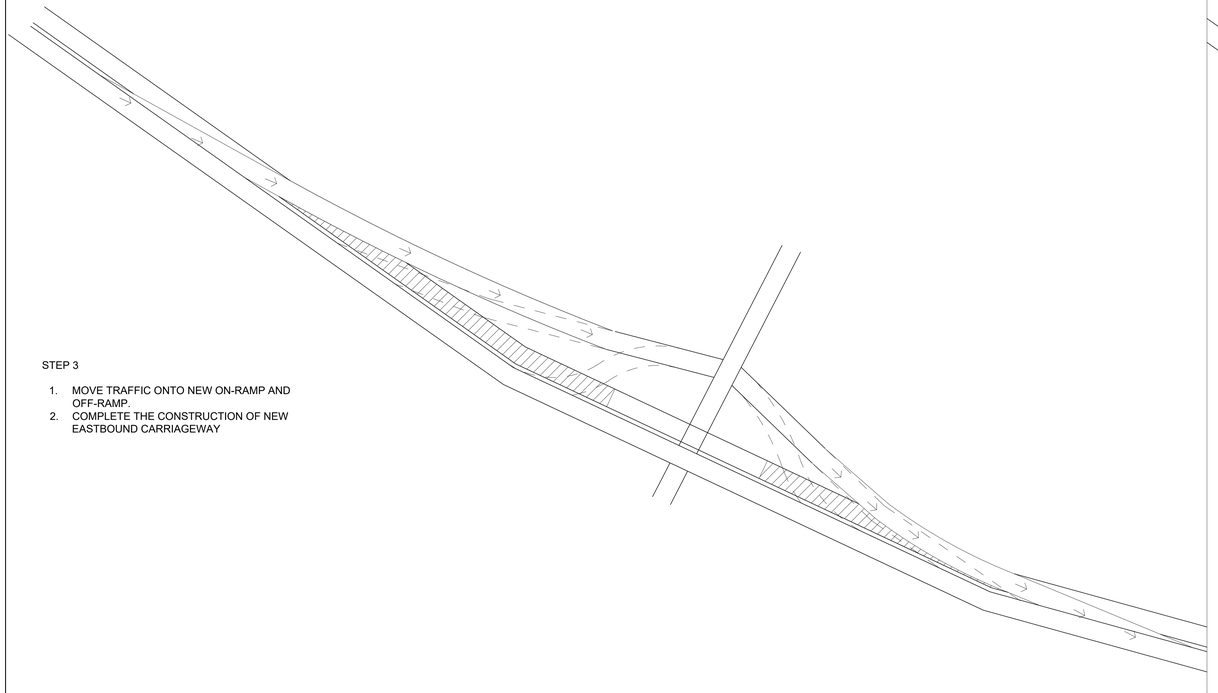
1. CONSTRUCT TEMPORARY ON-RAMP AND OFF-RAMP, AND TIE INTO EXISTING RAMPS AND EXISTING WESTBOUND CARRIAGEWAY.





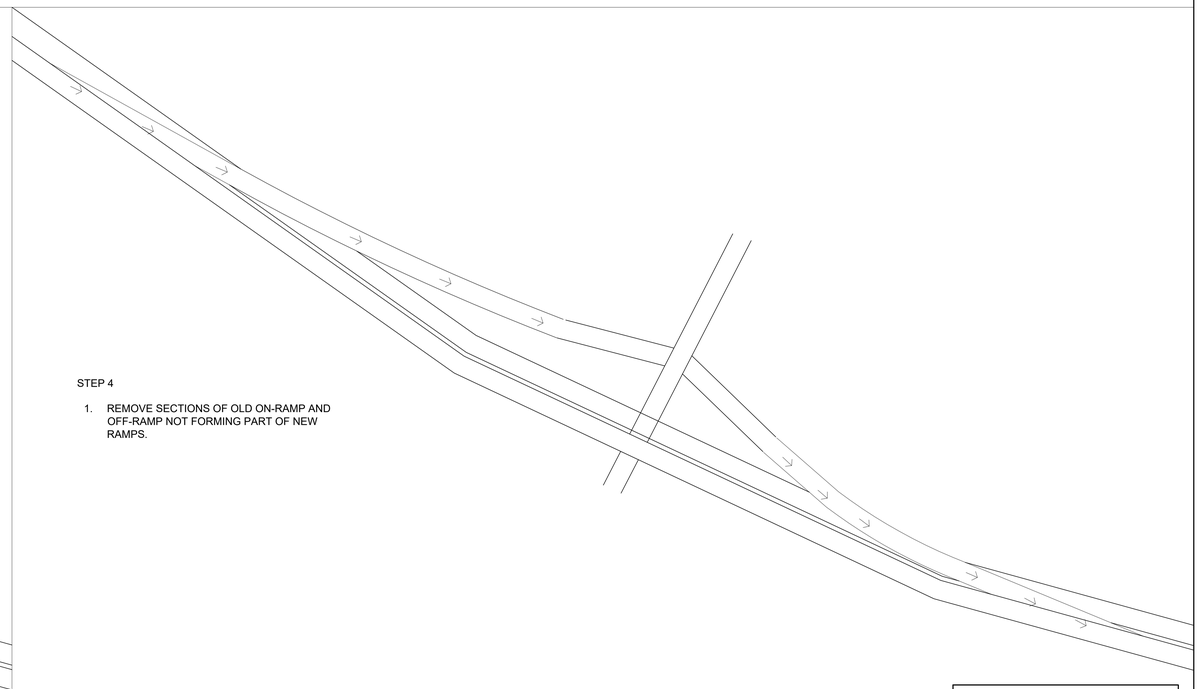
STEP 2

1. MOVE TRAFFIC ONTO TEMPORARY ON-RAMP AND OFF-RAMP.
2. CONSTRUCT NEW RAMPS AND EXTEND TO TIE INTO EXISTING WESTBOUND CARRIAGEWAY
3. CONSTRUCT SECTIONS OF NEW EASTBOUND CARRIAGEWAY AS SHOWN.



STEP 3

1. MOVE TRAFFIC ONTO NEW ON-RAMP AND OFF-RAMP.
2. COMPLETE THE CONSTRUCTION OF NEW EASTBOUND CARRIAGEWAY



STEP 4

1. REMOVE SECTIONS OF OLD ON-RAMP AND OFF-RAMP NOT FORMING PART OF NEW RAMPS.

DR MOROKA INTERCHANGE
PHASED TRAFFIC ACCOMMODATION
N.T.S

TENDER

No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
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Prof. Reg. No. :
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Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

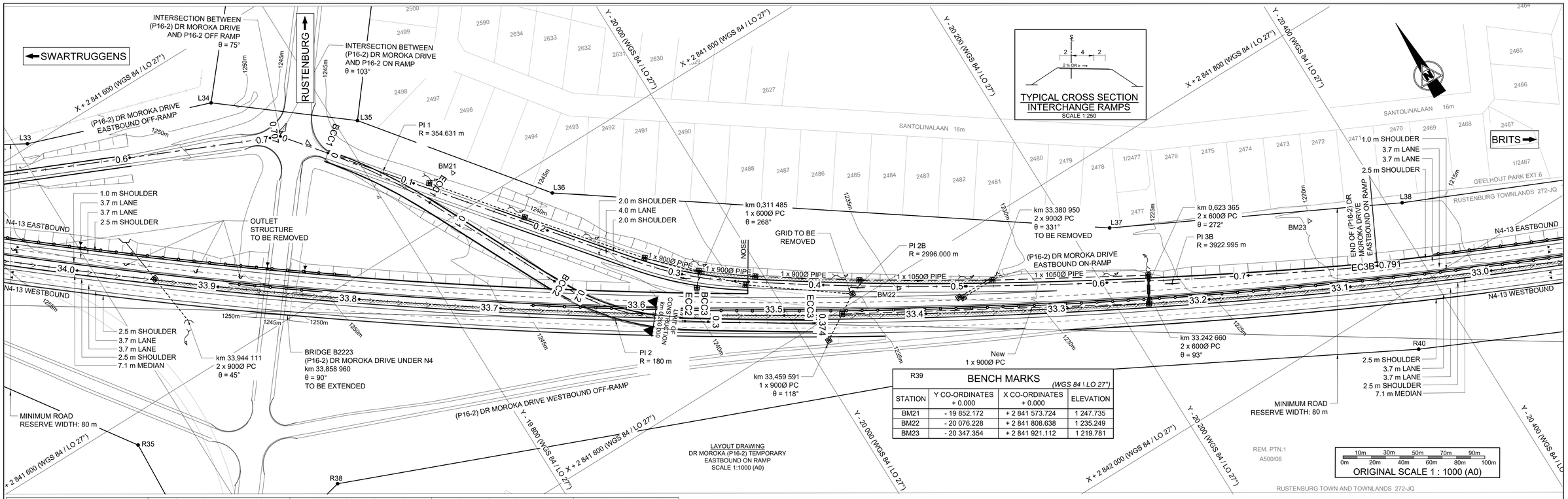
DRAWING DESCRIPTION
TRAFFIC ACCOMODATION
PHASE CONSTRUCTION AT DR MOROKA INTERCHANGE

SCALE : NOT TO SCALE | **SHEET 01 OF 03**

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001		
DRAWING LOCATION DATA	START	END	
ROUTE	N 4	N 4	
SECTION	13	13	
DRAWING km DISTANCE	- -	- -	
DRAWING TYPE	ROADS - TRAFFIC ACC.		
BRIDGE/STRUCTURE No.	NA		
CONSULTANT DRAWING No.	FA	3257 / 23 / 21 TA	VER
SANRAL DOCUMENT #	- -		V0

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\12 - Traffic Accommodation\3257-23-21 TA 1 OF 3 Phase construction at Dr Moroka.dwg



TYPICAL CROSS SECTION INTERCHANGE RAMPS
SCALE 1:250

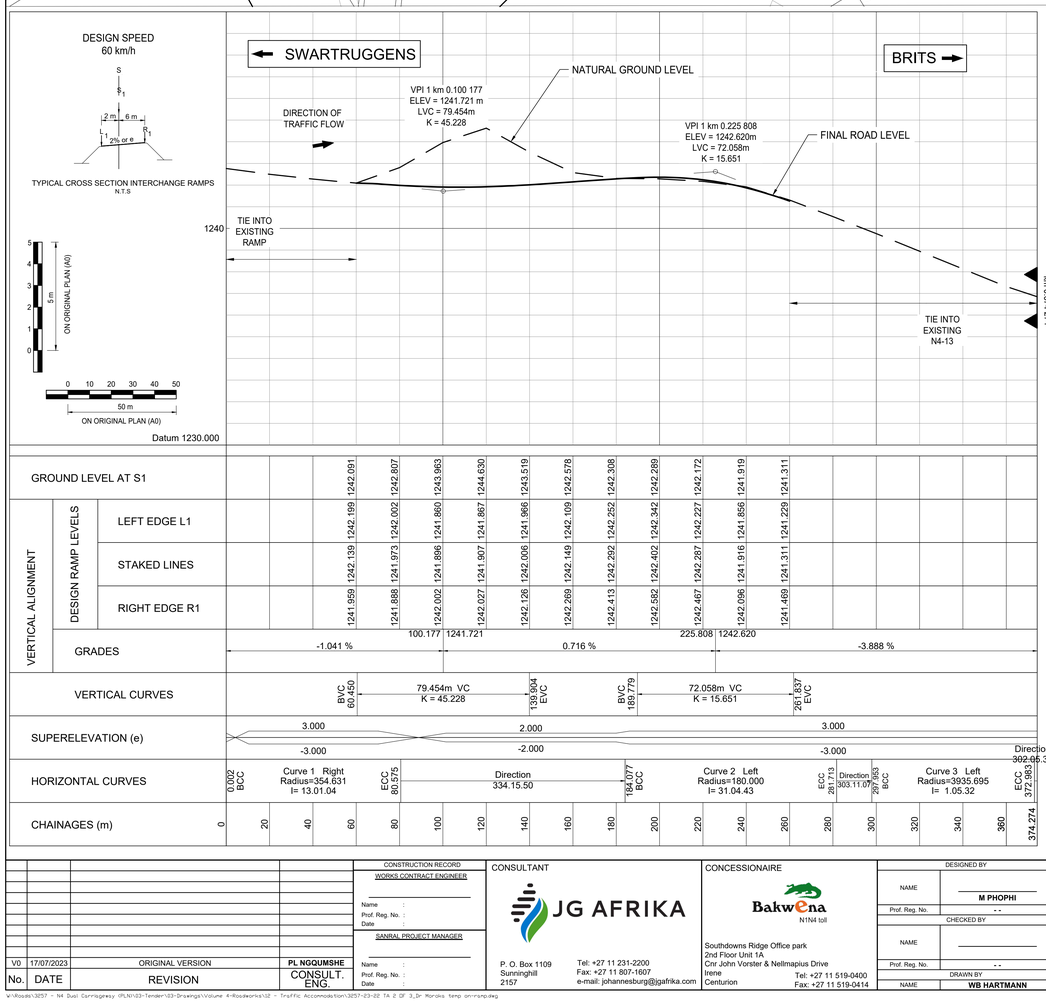
LAYOUT DRAWING
DR MOROKA (P16-2) TEMPORARY EASTBOUND ON RAMP
SCALE 1:1000 (A0)

10m 30m 50m 70m 90m
0m 20m 40m 60m 80m 100m
ORIGINAL SCALE 1 : 1000 (A0)

BENCH MARKS
(WGS 84 \ LO 27°)

R39

STATION	Y CO-ORDINATES + 0.000	X CO-ORDINATES + 0.000	ELEVATION
BM21	- 19 852.172	+ 2 841 573.724	1 247.735
BM22	- 20 076.228	+ 2 841 808.638	1 235.249
BM23	- 20 347.354	+ 2 841 921.112	1 219.781



LEGEND

N4-13 TO BE CONSTRUCTED	NEW DOUBLE STREET LIGHT
FENCE	FLOOD LIGHT
BUILDING	TELEPHONE POLE
CONCRETE	FARM PORTIONS
VALVE	CONTOURS
GRID INLET	BATTER
BRIDGE PILLARS	BENCH MARK
KERB INLET	WALL
ELECTRIC BOX	NEW GUARDRAILS AND NJ BARRIERS
POWERLINES	EXISTING GUARDRAILS
MANHOLE	NEW CULVERTS
TRAFFIC SIGN	EXISTING CULVERTS
ELECTRIC POLES	ROAD RESERVE
REMOVE STREET LIGHT	FLOW DIRECTION ARROW
NEW SINGLE STREET LIGHT	CHUTES
RELOCATE STREET LIGHT	DIRECTION OF FLOW (MEDIAN DRAIN)
DIRECTION OF FLOW (SIDE DRAIN)	

DR MOROKA STREET TEMPORARY ON RAMP
(WGS 84 \ LO 27°)

CURVE	DESCRIPTION	CURVE LENGTH	CURVE RADIUS	POINT	CHAINAGE DISTANCE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
				START	0.000	-19 784.535	+2 841 515.205
1	RIGHT HAND CIRCULAR	80.573 m	354.631 m	BCC 1	0.002	-19 784.537	+2 841 515.207
				PI 1	-	-19 809.864	+2 841 546.760
				ECC 1	80.575	-19 827.433	+2 841 583.207
2	LEFT HAND CIRCULAR	97.636 m	180.000 m	BCC 2	184.077	-19 872.376	+2 841 676.442
				PI 2	-	-19 894.110	+2 841 721.529
				ECC 2	281.713	-19 935.998	+2 841 748.925
3	LEFT HAND CIRCULAR	75.030 m	3935.695 m	BCC 3	297.953	-19 949.590	+2 841 757.814
				PI 3	-	-19 980.987	+2 841 778.348
				ECC 3	372.983	-20 012.770	+2 841 798.280
				END	374.274	-20 011.676	+2 841 797.594

DR MOROKA DRIVE (P16-2) TEMPORARY ON RAMP EASTBOUND CENTER LINE COORDINATES
DESIGN SPEED 60 km/h
(WGS 84 \ LO 27°)

CHAINAGE	Y COORDINATE + 0,000	X CO-ORDINATE + 0,000	DESCRIPTION
0.000	-19 784.535	+2 841 515.205	
100.000	-19 835.868	+2 841 600.705	
200.000	-19 879.916	+2 841 690.462	
300.000	-19 951.303	+2 841 758.934	
374.274	-20 011.676	+2 841 797.594	

TENDER

No.	DATE	REVISION	
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date

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DESIGNED BY
NAME: M PHOPHI
Prof. Reg. No.: - -
CHECKED BY
NAME:
Prof. Reg. No.: - -
DRAWN BY
NAME: WB HARTMANN

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17/07/2023

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THE SOUTH AFRICAN NATIONAL ROADS AGENCY SOC LTD
Reg. No. 1998/009584/30

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Tel: (012) 426 6200

ACCEPTANCE
THIS ACCEPTANCE IS FOR PROCEDURAL AND ADMINISTRATIVE REVIEW PURPOSES ONLY AND DOES NOT ATTRACT LEGAL LIABILITY OR LIABILITY OF ANY KIND FROM WHATSOEVER CAUSE OR HOWEVER ARISING
for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

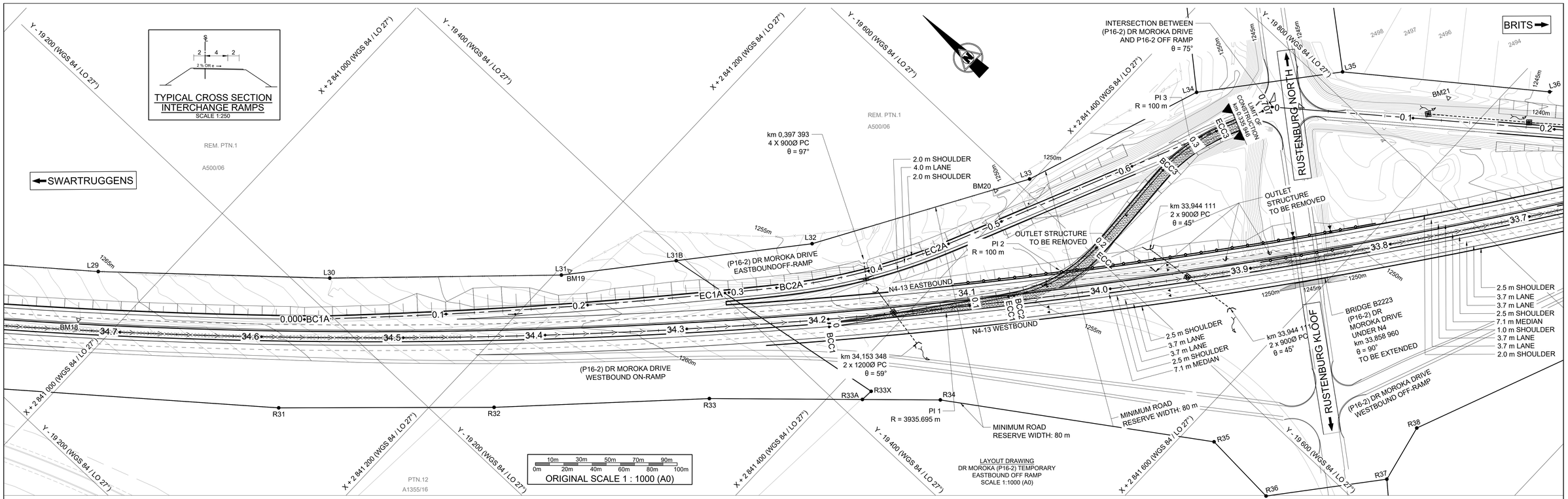
DRAWING DESCRIPTION
TRAFFIC ACCOMODATION
DR MOROKA TEMPORARY ON-RAMP KM 0.000 TO KM 0.350 133

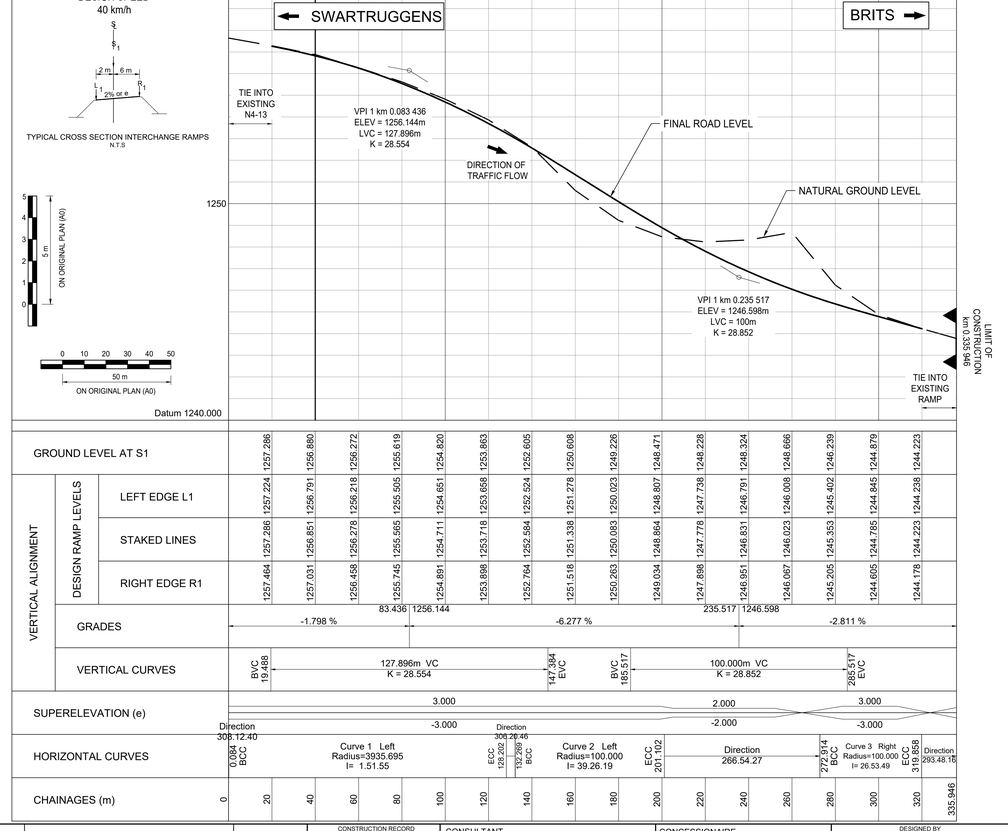
SCALE : AS SHOWN (A0) | SHEET 02 OF 03

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	13	13
DRAWING km DISTANCE	km 33.0	km 34.0
DRAWING TYPE	ROADS - TRAFFIC ACC.	
BRIDGE/STRUCTURE No.	NA	
CONSULTANT DRAWING No.	FA 3257 / 23 / 22 TA	VER V0
SANRAL DOCUMENT #	- -	

SANRAL DOCUMENT NUMBER :

M:\Roads\3257 - N4 Dual Carriageway (PLN)\23-Tender\23-Drawings\Volume 4-Roadworks\12 - Traffic Accomodation\3257-23-22 TA 2 OF 3_Dr Moroka temp on-ramp.dwg





LEGEND

TEMPORARY OFF RAMP TO BE CONSTRUCTED	NEW DOUBLE STREET LIGHT
FENCE	FLOOD LIGHT
BUILDING	TELEPHONE POLE
CONCRETE	FARM PORTIONS
VALVE	CONTOURS
GRID INLET	BATTER
BRIDGE PILLARS	BENCH MARK
KERB INLET	WALL
ELECTRIC BOX	NEW GUARDRAILS AND NJ BARRIERS
POWERLINES	EXISTING GUARDRAILS
MANHOLE	NEW CULVERTS
TRAFFIC SIGN	EXISTING CULVERTS
ELECTRIC POLES	NEW ROAD RESERVE
REMOVE STREET LIGHT	FLOW DIRECTION ARROW
NEW SINGLE STREET LIGHT	CONCRETE V-DRAINS
RELOCATE STREET LIGHT	CHUTES
DIRECTION OF FLOW (SIDE DRAIN)	DIRECTION OF FLOW
	EARTH LINED MEDIAN DRAINS

DR MOROKA STREET TEMPORARY OFF RAMP km 0.000 000 - km 0.335 950

(WGS 84 \ LO 27°)

CURVE	DESCRIPTION	CURVE LENGTH	CURVE RADIUS	POINT	CHAINAGE DISTANCE	Y CO-ORDINATES + 0,000	X CO-ORDINATES + 0,000
				START	0.000	-19435.18	+2841366.27
1	LEFT HAND CIRCULAR	128.118 m	3935.695 m	BCC 1	0.08	-19435.25	+2841366.32
				PI 1	-	-19485.58	+2841405.95
				ECC 1	128.20	-19537.19	+2841443.91
2	LEFT HAND CIRCULAR	68.833 m	100.000 m	BCC 2	132.27	-19540.46	+2841446.33
				PI 2	-	-19569.33	+2841467.57
				ECC 2	201.10	-19605.12	+2841465.63
3	RIGHT HAND CIRCULAR	46.944 m	100.000 m	BCC 3	272.91	-19676.83	+2841461.76
				PI 3	-	-19700.71	+2841460.47
				ECC 3	319.86	-19722.59	+2841470.12
				END	335.95	-19737.31	+2841476.62

BENCH MARKS

(WGS 84 \ LO 27°)

STATION	Y CO-ORDINATES + 0.000	X CO-ORDINATES + 0.000	ELEVATION
BM17	- 18 917.283	+ 2 840 720.117	1 272.289
BM18	- 19 075.888	+ 2 840 977.630	1 266.671
BM19	- 19 338.356	+ 2 841 206.249	1 258.466
BM20	- 19 585.677	+ 2 841 386.085	1 249.953

DR MOROKA DRIVE (P16-2) TEMPORARY OF RAMP EASTBOUND CENTER LINE COORDINATES

DESIGN SPEED 40 km/h — *(WGS 84 \ LO 27°)*

CHAINAGE	Y COORDINATE + 0,000	X CO-ORDINATE + 0,000	DESCRIPTION
0.000	-19 435.181	+2 841 366.266	
100.000	-19 514.513	+2 841 427.119	
200.000	-19 604.022	+2 841 465.688	
300.00	-19 703.744	+2 841 463.957	
335.946	-19 737.306	+2 841 476.615	

TENDER

No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date
SANRAL PROJECT MANAGER
Name
Prof. Reg. No. :
Date

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NAME	M PHOPHI
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CHECKED BY	
NAME	
Prof. Reg. No.	- -
DRAWN BY	
NAME	WB HARTMANN

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17/07/2023

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for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION
TRAFFIC ACCOMODATION
DR MOROKA TEMPORARY OFF-RAMP KM 0.000 TO KM 0.335 946

SCALE : AS SHOWN (A0) — SHEET 03 OF 03

PROJECT NUMBER		BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END	
ROUTE	N 4	N 4	
SECTION	13	13	
DRAWING km DISTANCE	km 33.7	km 34.7	
DRAWING TYPE	ROADS - TRAFFIC ACC.		
BRIDGE/STRUCTURE No.	NA		
CONSULTANT DRAWING No.	FA	3257 / 23 / 23 TA	VER
SANRAL DOCUMENT #		- -	V0

SANRAL DOCUMENT NUMBER :

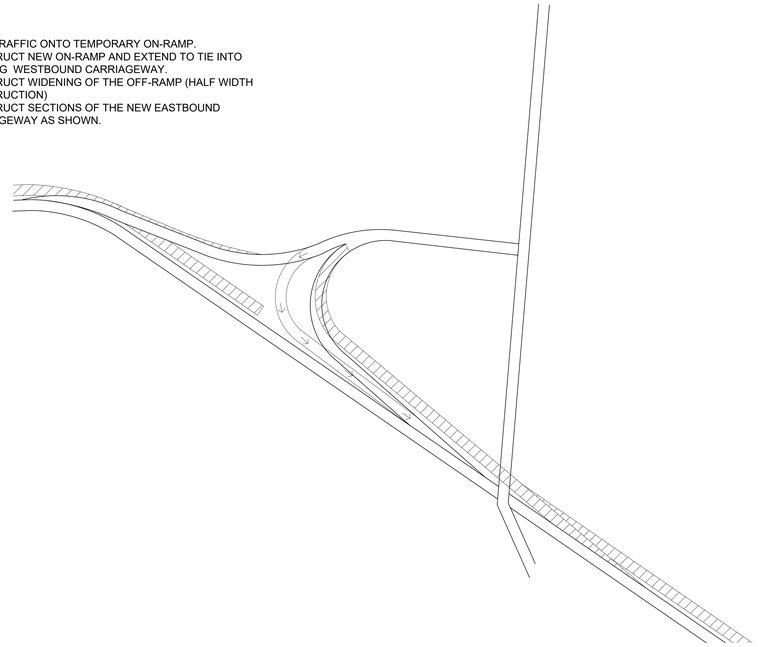
W:\Roads\3257 - N4 Dual Carriageway OFLN\03-Tender\03-Drawings\Volume 4-Roadworks\02 - Traffic Accomodation\3257-23-23 TA 3 OF 3_Dr Moroka temp off-ramp.dwg

STEP 1

1. CONSTRUCT TEMPORARY ON-RAMP AND TIE INTO EXISTING OFF- RAMP AND ON-RAMP.

STEP 2

1. MOVE TRAFFIC ONTO TEMPORARY ON-RAMP.
2. CONSTRUCT NEW ON-RAMP AND EXTEND TO TIE INTO EXISTING WESTBOUND CARRIAGEWAY.
3. CONSTRUCT WIDENING OF THE OFF-RAMP (HALF WIDTH CONSTRUCTION)
4. CONSTRUCT SECTIONS OF THE NEW EASTBOUND CARRIAGEWAY AS SHOWN.



STEP 3

1. MOVE TRAFFIC ONTO NEW ON-RAMP.
2. COMPLETE THE CONSTRUCTION OF NEW EASTBOUND CARRIAGEWAY.

STEP 4

1. REMOVE SECTIONS OF OLD ON-RAMP NOT FORMING PART OF NEW RAMPS.

R104 (P2-3) INTERCHANGE
PHASED TRAFFIC ACCOMMODATION
N.T.S

TENDER

No.	DATE	REVISION	
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
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Date :

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DESIGNED BY
NAME: M PHOPHI
Prof. Reg. No.: - -
CHECKED BY
NAME: E DAY
Prof. Reg. No.: 20130622
DRAWN BY
NAME: WB HARTMANN

CONSULTANT APPROVAL
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PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

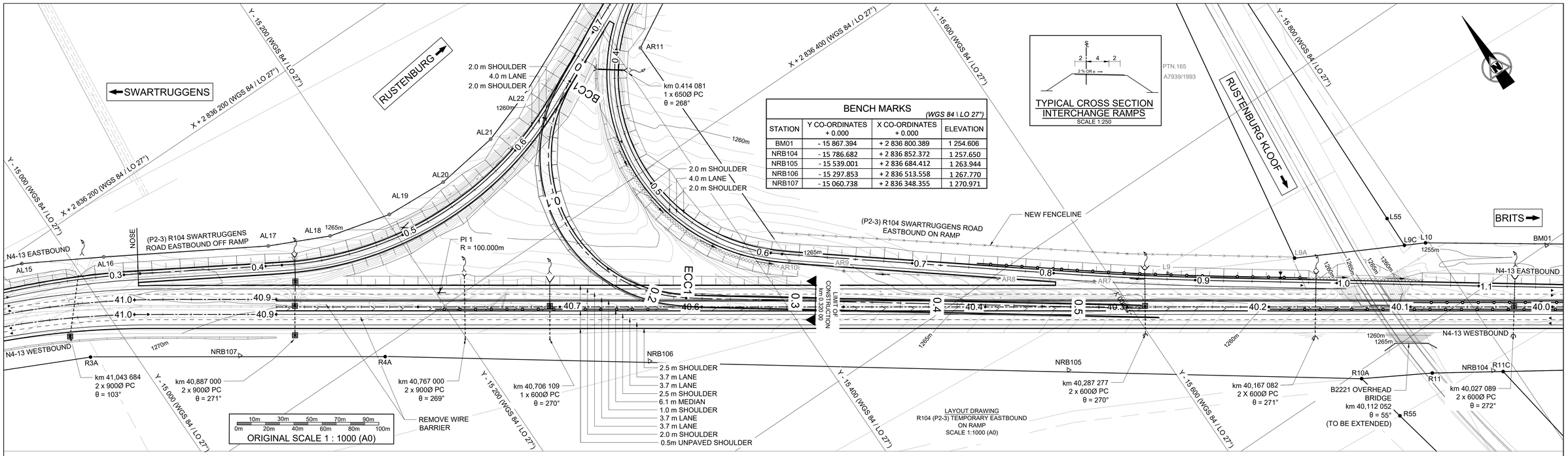
DRAWING DESCRIPTION
TRAFFIC ACCOMMODATION
PHASE CONSTRUCTION AT R104 (P2-3) INTERCHANGE

SCALE : NOT TO SCALE | SHEET 01 OF 02

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001		
DRAWING LOCATION DATA	START	END	
ROUTE	N 4	N 4	
SECTION	13	13	
DRAWING km DISTANCE	- -	- -	
DRAWING TYPE	ROADS - TRAFFIC ACC.		
BRIDGE/STRUCTURE No.	NA		
CONSULTANT DRAWING No.	FA	3257 / 23 / 24 TA	VER
SANRAL DOCUMENT #		- -	V0

SANRAL DOCUMENT NUMBER :

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\volume 4-Roadworks\12 - Traffic Accommodation\3257-23-24 TA 1 OF 2_Phase construction at R104 (P2-3).dwg



BENCH MARKS (WGS 84 \ LO 27°)

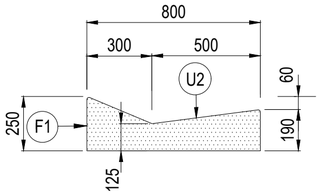
STATION	Y CO-ORDINATES + 0.000	X CO-ORDINATES + 0.000	ELEVATION
BM01	- 15 867.394	+ 2 836 800.389	1 254.606
NRB104	- 15 786.682	+ 2 836 852.372	1 257.650
NRB105	- 15 539.001	+ 2 836 684.412	1 263.944
NRB106	- 15 297.853	+ 2 836 513.558	1 267.770
NRB107	- 15 060.738	+ 2 836 348.355	1 270.971

PTN.165
A7939/1993

TYPICAL CROSS SECTION INTERCHANGE RAMPS
SCALE 1:250

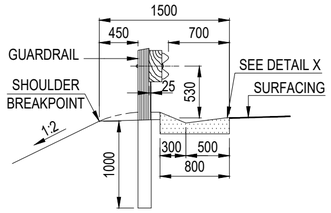
LAYOUT DRAWING
R104 (P2-3) TEMPORARY EASTBOUND ON RAMP
SCALE 1:1000 (A0)

| | | |



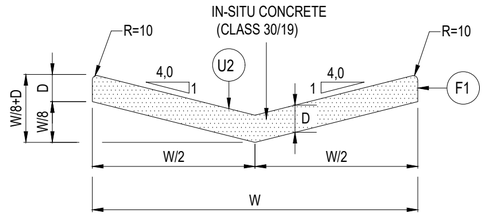
CROSS SECTION OF TYPE 'A' CONCRETE SIDE DRAIN

SCALE 1:20



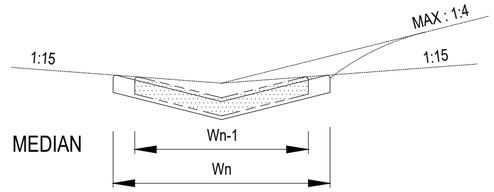
POSITION OF TYPE 'A' CONCRETE SIDE DRAIN

SCALE 1:50



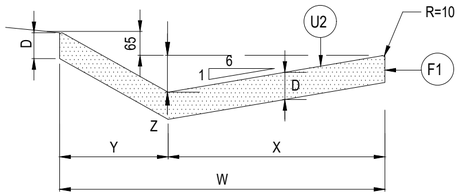
CROSS SECTION OF TYPE 'E' CONCRETE CHANNEL

N.T.S



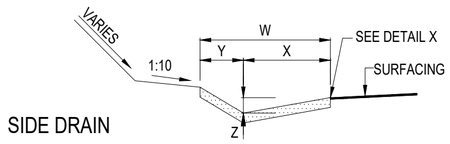
POSITION OF TYPE 'E' CONCRETE CHANNEL

N.T.S



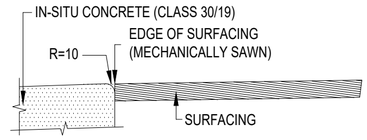
CROSS SECTION OF TYPE 'F' CONCRETE SIDE CHANNEL

N.T.S.



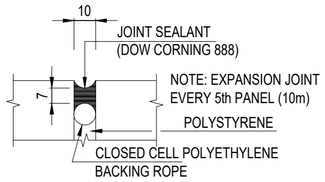
POSITION OF TYPE 'F' CONCRETE SIDE CHANNEL

N.T.S.



DETAIL X

SCALE 1:5



EXPANSION JOINT

N.T.S.

W	W/2	W/8	W/8+D	D REINFORCED
2000	1000	250	400	100

DIMENSIONS OF TYPE 'E' CONCRETE CHANNELS

W	X	Y	Z	D REINFORCED
2500	1670	830	280	100

DIMENSIONS OF TYPE 'F' CONCRETE CHANNELS

TENDER

NOTES :

1. ALL CONCRETE CHANNELS AND OTHER DRAINAGE STRUCTURES ON THIS PLAN TO BE CAST USING CLASS 30/19 CONCRETE.
2. TYPES 'E' AND 'F' CONCRETE MUST BE CAST IN ALTERNATIVE LENGTHS OF 2.0m MAXIMUM WITH EXPANSION JOINTS EVERY 5th PANEL (10 m)
3. ALL EXPOSED CORNERS MUST BE ROUNDED OF TO A MINIMUM RADIUS OF 10mm.
4. THE TYPE OF SURFACE FINISH IS INDICATED AS F1 & U2.
   F - FORMED SURFACES
   U - UNFORMED SURFACES
5. ONLY REINFORCED CONCRETE TO BE USED, MESH REF. 395

No.	DATE	REVISION	CONSULT. ENG.
V0	15/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
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Prof. Reg. No. :
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DESIGNED BY
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Prof. Reg. No. 20130622
CHECKED BY
NAME PL NGQUMSHE
Prof. Reg. No. 20080112
DRAWN BY
NAME WB HARTMANN

CONSULTANT APPROVAL
Name PL NGQUMSHE
Prof. Reg. No. 20080112
Date 18/07/2023

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Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

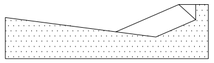
PROJECT DESCRIPTION
ROAD SURFAC DRAINAGE
TYPICAL DRAIN TYPES

SCALE : AS SHOWN (A2) SHEET 01 OF 01

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001		
DRAWING LOCATION DATA	START	END	
ROUTE	N 4	N 4	
SECTION	13	13	
DRAWING km DISTANCE	- -	- -	
DRAWING TYPE	ROADS - TYPICAL		
BRIDGE/STRUCTURE No.	NA		
CONSULTANT DRAWING No.	FA	3257 / 13 / 01 TP	VER
SANRAL DOCUMENT #		TD-D-RD-001-V1	V0

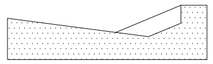
SANRAL DOCUMENT NUMBER : TD-D-RD-001-V1

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\12 - Typicals\3257_23_01 TP - RD SURFACE DRAINAGE - TYPICAL DRAIN TYPES SHEET_20230717.dwg

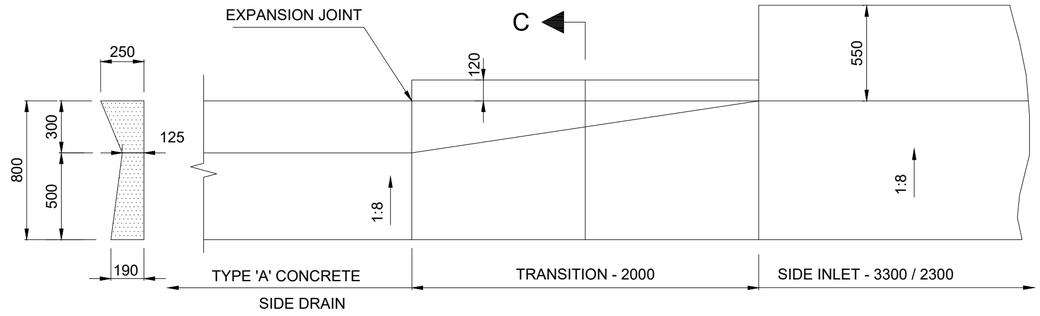


SECTION A-A
SCALE : 1:20

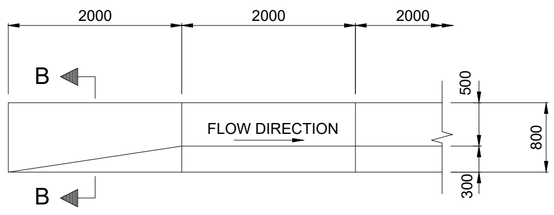
SECTION B-B
SCALE : 1:20



SECTION C-C
SCALE : 1:20

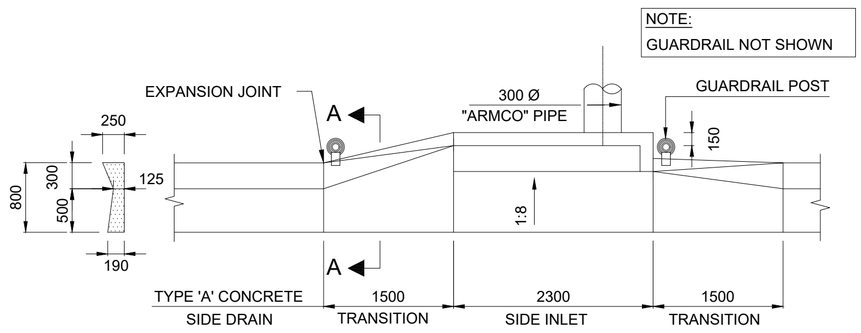


PLAN OF TRANSITION AND SIDE INLET FOR TYPE 'A' SIDE DRAIN
SCALE : 1:25



START OF TYPE 'A' CONCRETE SIDE DRAIN
SCALE : 1:50

NOTE:
GUARDRAIL NOT SHOWN



PLAN OF TRANSITION AND SIDE INLET FOR TYPE 'A' SIDE DRAIN
SCALE : 1:50

TENDER

NOTES :

1. REFER GENERAL NOTES REGARDING CONCRETE DRAINS ON SHEET 1 OF 7 (TR-D-RD-001)
2. DETAILS OF EXPANSION JOINTS IN CONCRETE DRAINS AND FINISHING OF SURFACING EDGE NEXT TO CONCRETE DRAINS SHOWN AS "DETAIL X" ON SHEET 1 OF 7 (TR-D-RD-001) APPLY TO ALL RELATED TYPICAL DRAWINGS.
3. MESH REF. 395 FOR DRAIN

No.	DATE	REVISION	
V0	15/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSULT. ENG.

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date :

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DESIGNED BY	
NAME	EF DAY
Prof. Reg. No.	20130622
CHECKED BY	
NAME	PL NGQUMSHE
Prof. Reg. No.	20080112
DRAWN BY	
NAME	WB HARTMANN

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 15/07/2023

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for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

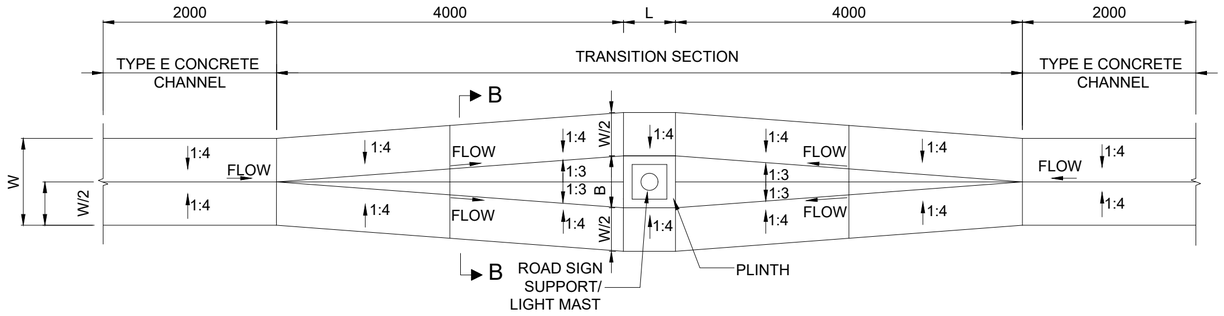
DRAWING DESCRIPTION
RD SURFACE DRAINAGE
TRANSITION AT SIDE INLETS - TYPE 'A' KERBS

SCALE : AS SHOWN (A2) SHEET 01 OF 01

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001		
DRAWING LOCATION DATA	START	END	
ROUTE	N 4	N 4	
SECTION	13	13	
DRAWING km DISTANCE	- -	- -	
DRAWING TYPE	ROADS - TYPICAL		
BRIDGE/STRUCTURE No.	NA		
CONSULTANT DRAWING No.	FA	3257 / 23 / 02 TP	VER
SANRAL DOCUMENT #		TD-D-RD-003-V1	V0

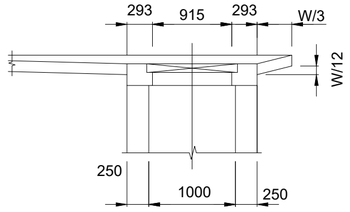
SANRAL DOCUMENT NUMBER : TD-D-RD-004-V1

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\12 - Typicals\3257_23_02 TP - RD SURFACE DRAINAGE - TYPICAL DRAIN TYPES SHEET_20230717.dwg



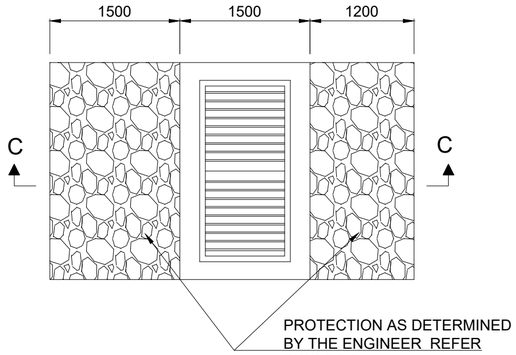
MEDIAN CHANNEL TRANSITION AROUND PIERS, LIGHT MAST AND ROAD SIGN SUPPORTS

SCALE 1:50



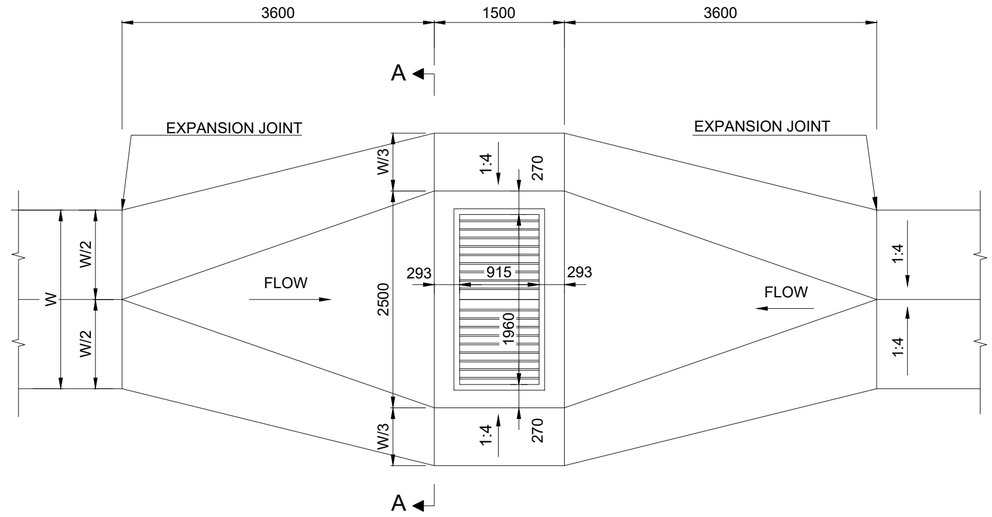
SECTION B-B

SCALE 1:50



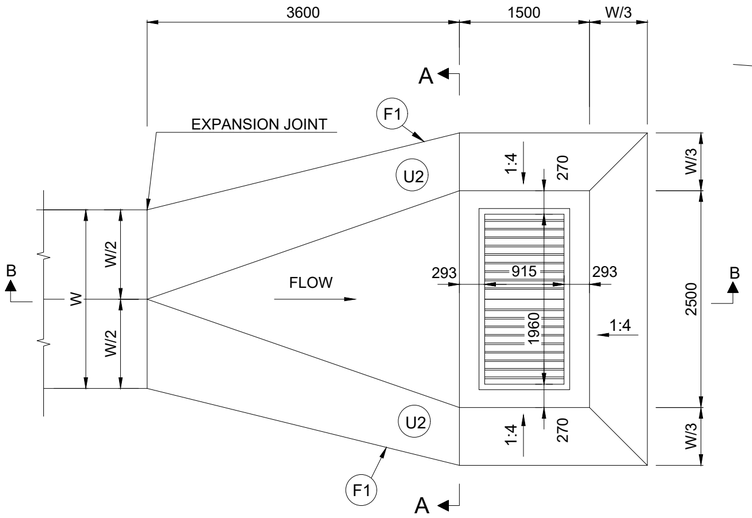
MEDIAN CATCHPIT

SCALE 1:50



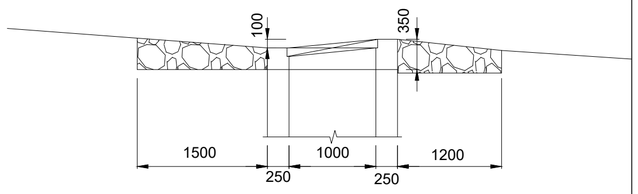
MEDIAN CATCHPIT WHERE CONCRETE DRAIN CONTINUES AT LOW POINT

SCALE 1:50



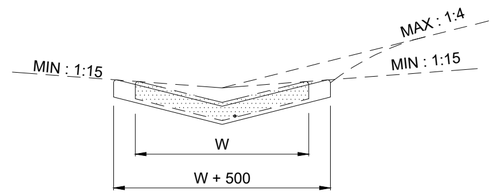
MEDIAN CATCHPIT AT END OF CONCRETE DRAIN

SCALE 1:50



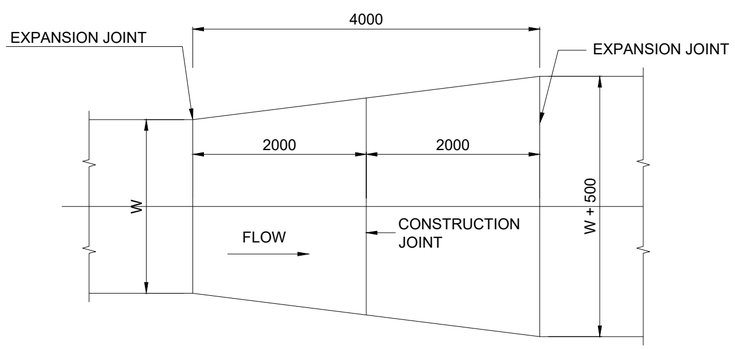
SECTION C-C

SCALE 1:50



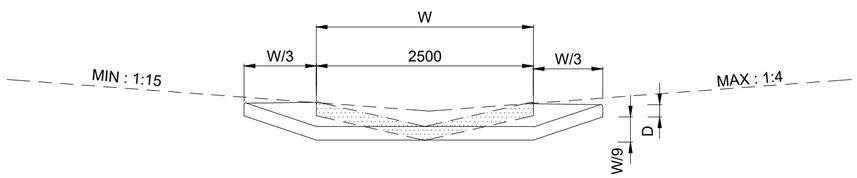
POSITION OF TYPE 'E' CONCRETE CHANNEL

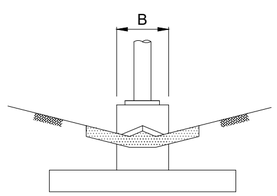
SCALE 1:50



TYPICAL TRANSITION FOR TYPE 'E' CHANNELS IN MEDIAN DRAINS

SCALE 1:50





SECTION B-B

SCALE 1:50

TENDER

NOTES :

1. ALL CONCRETE CHANNELS AND OTHER DRAINAGE STRUCTURES ON THIS PLAN TO BE CAST USING CLASS 30/19 CONCRETE.
2. TYPES 'E' AND 'F' CONCRETE MUST BE CAST IN ALTERNATIVE LENGTHS OF 2.0m MAXIMUM WITH EXPANSION JOINTS EVERY 5th PANEL (10 m)
3. ALL EXPOSED CORNERS MUST BE ROUNDED OF TO A MINIMUM RADIUS OF 10mm.
4. THE TYPE OF SURFACE FINISH IS INDICATED AS F1 & U2.
   F - FORMED SURFACES
   U - UNFORMED SURFACES
5. REFER GENERAL NOTES REGARDING CONCRETE DRAINS ON SHEET 1 OF 7 (TD-D-RD-001)
6. DETAILS OF EXPANSION JOINTS IN CONCRETE DRAINS AND FINISHING OF SURFACING EDGE NEXT TO CONCRETE DRAINS SHOWN AS "DETAIL X" ON SHEET 1 OF 7 (TD-D-RD-001) APPLY TO ALL RELATED TYPICAL DRAWINGS.

No.	DATE	REVISION	
V0		ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date :

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DESIGNED BY	
NAME	EF DAY
Prof. Reg. No.	20130622
CHECKED BY	
NAME	PL NGQUMSHE
Prof. Reg. No.	20080112
DRAWN BY	
NAME	WB HARTMANN

CONSULTANT APPROVAL
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Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

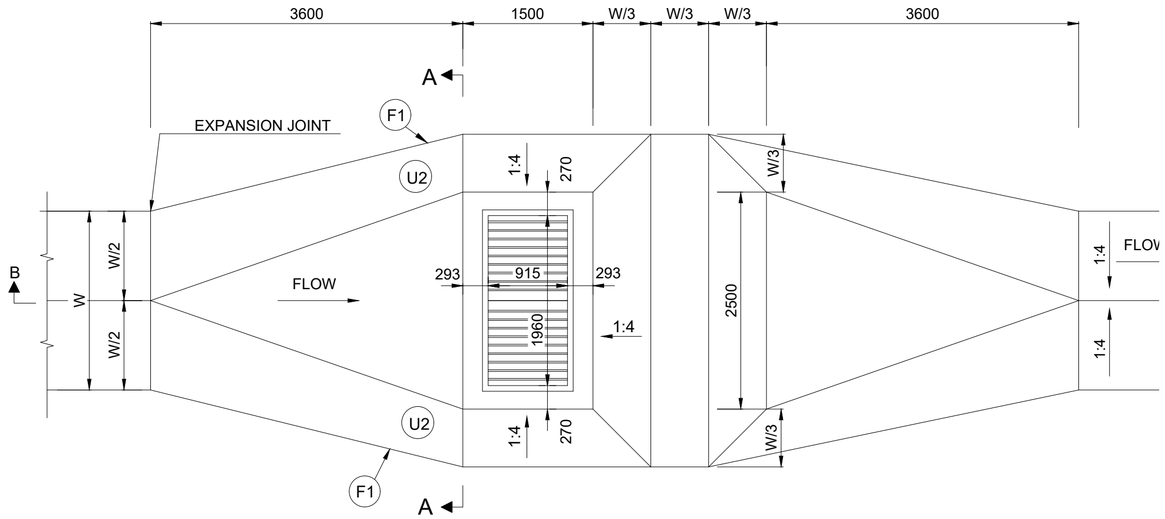
DRAWING DESCRIPTION
ROAD SURFACE DRAINAGE
TYPE 'E' CONCRETE CHANNELS IN MEDIANS

SCALE : AS SHOWN (A2) | SHEET 01 OF 02

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	13	13
DRAWING km DISTANCE	- -	- -
DRAWING TYPE	ROADS - TYPICAL	
BRIDGE/STRUCTURE No.	NA	
CONSULTANT DRAWING No.	FA 3257 / 23 / 03 TP	VER
SANRAL DOCUMENT #	TD-D-RD-005-V1	V0

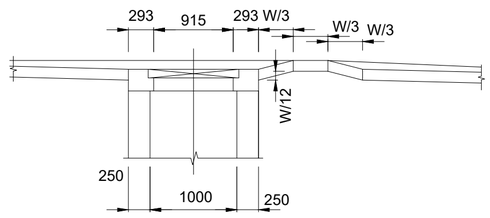
SANRAL DOCUMENT NUMBER : TD-D-RD-005-V1

W:\Roads\3257 - N4 Dual Carriageway (PL\N03-Tender\03-Drawings\Volume 4-Roadworks\12 - Typicals\3257_23_03 TP - RD SURFACE DRAINAGE - TYPE 'E' CONCRETE CHANNELS 1 OF 2_20230717.dwg



MEDIAN CATCHPIT WHERE CONCRETE DRAIN CONTINUES

SCALE 1:50



SECTION B-B

SCALE 1:50

NOTES :

1. ALL CONCRETE CHANNELS AND OTHER DRAINAGE STRUCTURES ON THIS PLAN TO BE CAST USING CLASS 30/19 CONCRETE.
2. TYPES 'E' AND 'F' CONCRETE MUST BE CAST IN ALTERNATIVE LENGTHS OF 2.0m MAXIMUM WITH EXPANSION JOINTS EVERY 5th PANEL (10 m)
3. ALL EXPOSED CORNERS MUST BE ROUNDED OF TO A MINIMUM RADIUS OF 10mm.
4. THE TYPE OF SURFACE FINISH IS INDICATED AS F1 & U2.
   F - FORMED SURFACES
   U - UNFORMED SURFACES
5. REFER GENERAL NOTES REGARDING CONCRETE DRAINS ON SHEET 1 OF 7 (TD-D-RD-001)
6. DETAILS OF EXPANSION JOINTS IN CONCRETE DRAINS AND FINISHING OF SURFACING EDGE NEXT TO CONCRETE DRAINS SHOWN AS "DETAIL X" ON SHEET 1 OF 2 (TD-D-RD-001) APPLY TO ALL RELATED TYPICAL DRAWINGS.

TENDER

No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
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CONSULTANT APPROVAL
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Prof. Reg. No. : 20080112
Date : 17/07/2023

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PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

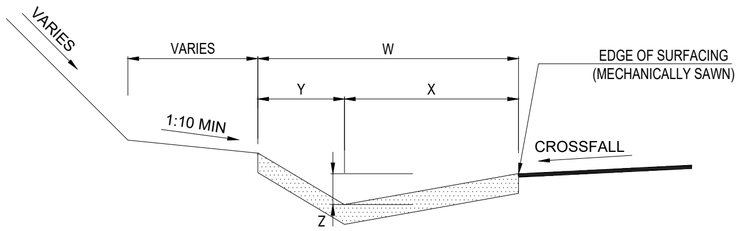
DRAWING DESCRIPTION
ROAD SURFACE DRAINAGE
TYPE 'E' CONCRETE CHANNELS IN MEDIANS

SCALE : AS SHOWN (A2) | SHEET 02 OF 02

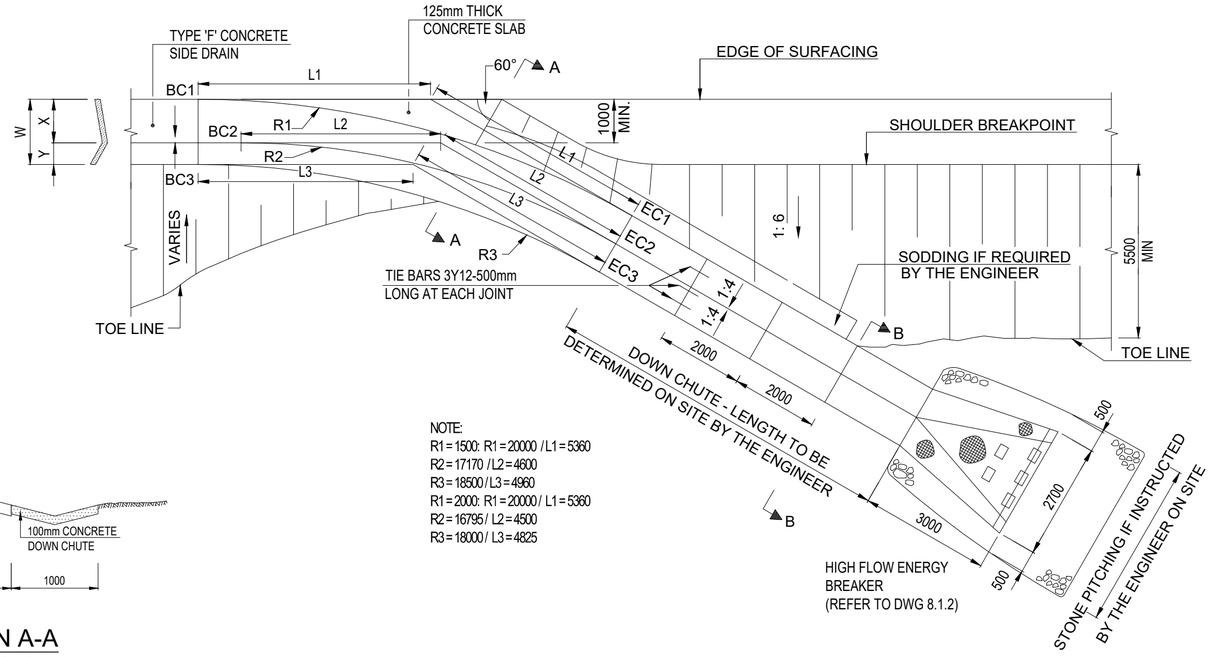
PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001		
DRAWING LOCATION DATA	START	END	
ROUTE	N 4	N 4	
SECTION	13	13	
DRAWING km DISTANCE	- -	- -	
DRAWING TYPE	ROADS - TYPICAL		
BRIDGE/STRUCTURE No.	NA		
CONSULTANT DRAWING No.	FA	3257 / 23 / 04 TP	VER
SANRAL DOCUMENT #		TD-D-RD-005-V1	V0

SANRAL DOCUMENT NUMBER : TD-D-RD-005-V1

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\12 - Typicals\3257_23_04 TP - RD SURFACE DRAINAGE - TYPE 'E' CONCRETE CHANNELS 2 OF 2_20230717.dwg

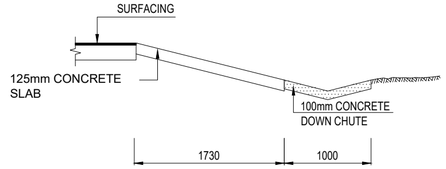


POSITION OF TYPE 'F' CONCRETE CHANNEL
N.T.S.

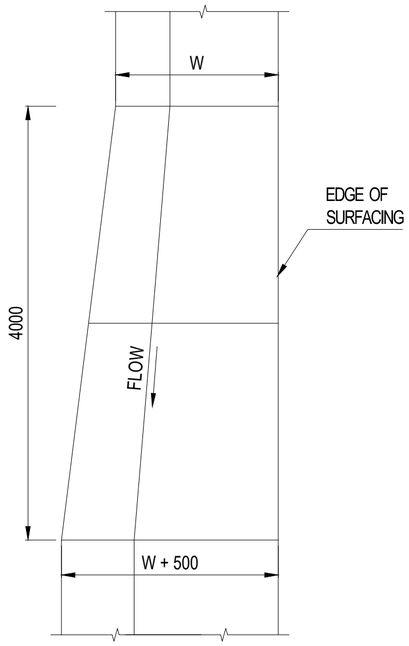


NOTE:
R1 = 1500: R1 = 20000 / L1 = 5360
R2 = 17170 / L2 = 4600
R3 = 18500 / L3 = 4960
R1 = 2000: R1 = 20000 / L1 = 5360
R2 = 16795 / L2 = 4500
R3 = 18000 / L3 = 4825

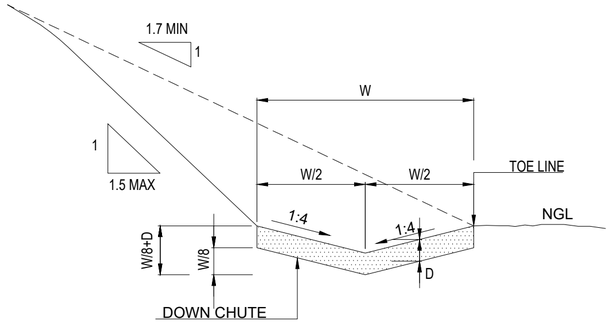
TRANSITION AND DOWN CHUTE FOR TYPE 'F' CONCRETE SIDE DRAIN
SCALE: 1:100



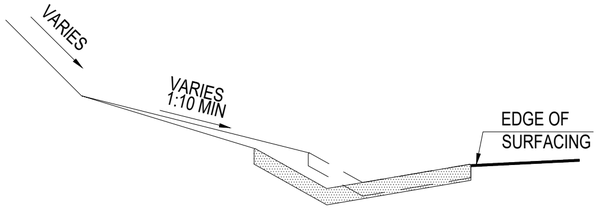
SECTION A-A
SCALE: 1:50



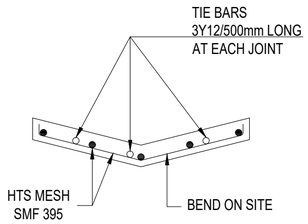
PLAN
N.T.S.



SECTION B-B
SCALE: 1:20



SECTION
TRANSITION IN TYPE 'F' CHANNELS
N.T.S.



SECTION B-B
(MESH DETAIL)
SCALE: 1:20

TENDER

NOTES :

1. ALL CONCRETE CHANNELS AND OTHER DRAINAGE STRUCTURES ON THIS PLAN TO BE CAST USING CLASS 30/19 CONCRETE.
2. ALL CONCRETE CHANNELS MUST BE CAST IN ALTERNATIVE LENGTHS OF 2.0m MAXIMUM WITH EXPANSION JOINTS EVERY 5th PANEL (10 m)
3. ALL EXPOSED CORNERS MUST BE ROUNDED OF TO A MINIMUM RADIUS OF 10mm OR BE CHAMFERED 25mm x 25mm.
4. THE TYPE OF SURFACE FINISH IS INDICATED AS F1, F2 & U2.
   F - FORMED SURFACES
   U - UNFORMED SURFACES
5. MINIMUM CONCRETE COVER TO MAIN REINFORCEMENT IS 50mm.
6. ALL EXPOSED CORNERS MUST BE ROUNDED OF TO A MINIMUM RADIUS OF 10mm OR BE CHAMFERED 25mm x 25mm.
7. REFER GENERAL NOTES REGARDING CONCRETE DRAINS ON SHEET 1 OF 7 (8.1.1)
8. DETAILS OF EXPANSION JOINTS IN CONCRETE DRAINS AND FINISHING OF SURFACING EDGE NEXT TO CONCRETE DRAINS SHOWN AS "DETAIL X" ON SHEET 1 OF 7 (8.1.1) APPLY TO ALL RELATED TYPICAL DRAWINGS.

No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

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ACCEPTANCE
THIS ACCEPTANCE IS FOR PROCEDURAL AND ADMINISTRATIVE REVIEW PURPOSES ONLY AND DOES NOT ATTRACT LEGAL LIABILITY OR LIABILITY OF ANY KIND FROM WHATSOEVER CAUSE OR HOWEVER ARISING
for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

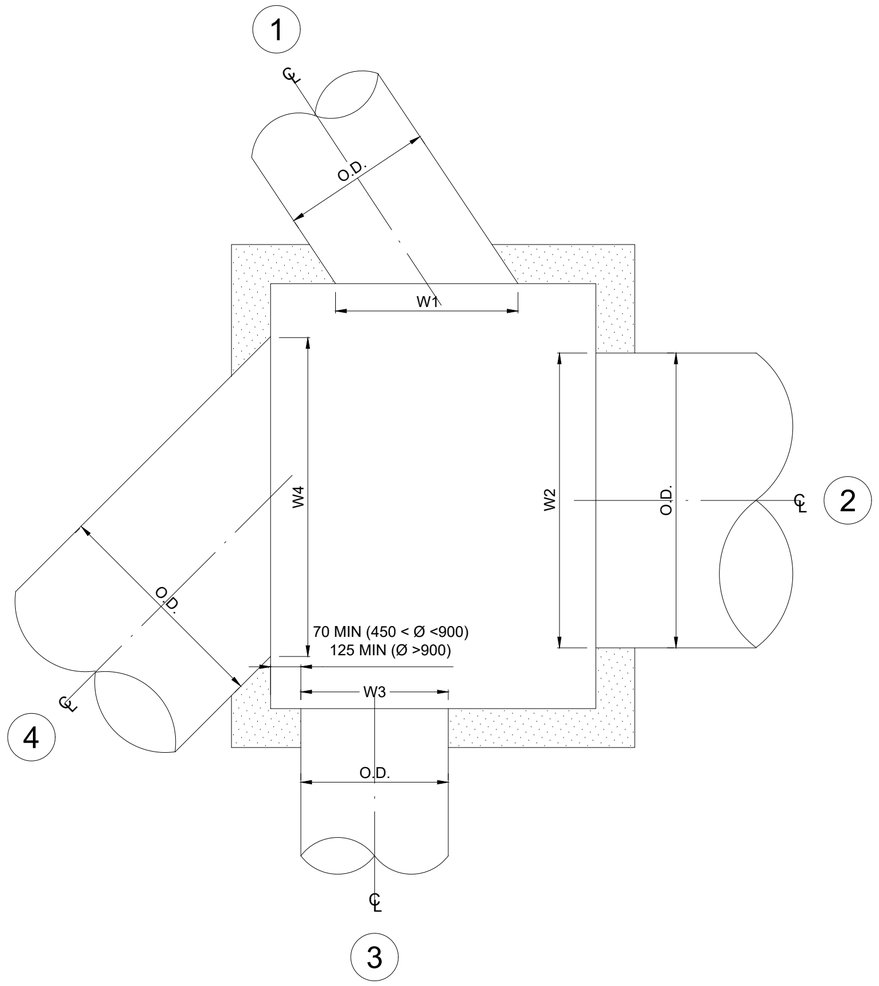
DRAWING DESCRIPTION
ROAD SURFACE DRAINAGE - TYPE 'F' CONCRETE CHANNELS OUTLET DETAILS

SCALE : AS SHOWN (A2) SHEET 01 OF 01

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001		
DRAWING LOCATION DATA	START	END	
ROUTE	N 4	N 4	
SECTION	13	13	
DRAWING km DISTANCE	- -	- -	
DRAWING TYPE	ROADS - TYPICAL		
BRIDGE/STRUCTURE No.	NA		
CONSULTANT DRAWING No.	FA	3257 / 23 / 05 TP	VER
SANRAL DOCUMENT #		TD-D-RD-007-V1	V0

SANRAL DOCUMENT NUMBER : TD-D-RD-007-V1

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\12 - Typicals\3257_23_05 TP - RD SURFACE DRAINAGE - TYPE 'F' CONCRETE CHANNELS_20230717.dwg



LAYOUT OF CHAMBER

TABLE 2

SELECT PIPE DIAM. WITH LARGEST VALUE OF W_1 OR W_3

SELECT PIPE DIAM. WITH LARGEST VALUE OF W_2 OR W_4	Ø	450				600				750				900				1050				1200				1350			
	Θ°	0	15	30	45	0	15	30	45	0	15	30	45	0	15	30	45	0	15	30	45	0	15	30	45	0	15	30	45
450	0	A	A	A	A	A	A	B	B	B	B	B	D	B	B	D	F	D	D	F	F	F	F	F	H	F	F	F	H
	15	A	A	A	A	A	A	B	B	B	B	B	D	B	B	D	F	D	D	F	F	F	F	F	H	F	F	F	H
	30	A	A	A	A	A	A	B	B	B	B	B	D	B	B	D	F	D	D	F	F	F	F	F	H	F	F	F	H
	45	A	A	A	A	A	A	B	B	B	B	B	D	B	B	D	F	D	D	F	F	F	F	F	H	F	F	F	H
600	0	A	A	A	A	A	A	B	B	B	B	B	D	B	B	D	F	D	D	F	F	F	F	F	H	F	F	F	H
	15	A	A	A	A	A	A	B	B	B	B	B	D	B	B	D	F	D	D	F	F	F	F	F	H	F	F	F	H
	30	B	B	B	B	B	B	C	C	C	C	C	D	C	C	D	F	D	D	F	F	F	F	F	H	F	F	F	H
	45	B	B	B	B	B	B	C	C	C	C	C	D	C	C	D	F	D	D	F	F	F	F	F	H	F	F	F	H
750	0	B	B	B	B	B	B	C	C	C	C	C	D	C	C	D	F	D	E	F	F	F	F	F	H	F	F	F	H
	15	B	B	B	B	B	B	C	C	C	C	C	D	C	C	D	F	D	E	F	F	F	F	F	H	F	F	F	H
	30	B	B	B	B	B	B	C	C	C	C	C	D	C	C	D	F	E	E	F	F	F	F	F	H	F	F	F	H
	45	D	D	D	D	D	D	D	D	D	D	D	E	D	D	E	F	E	E	F	F	F	F	F	H	F	F	F	H
900	0	B	B	B	B	B	B	C	C	C	C	C	D	C	C	D	F	E	E	F	F	F	F	F	H	F	F	F	H
	15	B	B	B	B	B	B	C	C	C	C	C	D	C	C	D	F	E	E	F	F	F	F	F	H	F	F	F	H
	30	D	D	D	D	D	D	D	D	D	D	D	E	D	D	E	F	E	E	F	F	F	F	F	H	F	F	F	H
	45	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	G	F	F	G	G	G	G	G	H	G	G	G	H
1050	0	D	D	D	D	D	D	D	D	D	D	E	E	D	D	E	F	E	E	F	F	F	F	F	H	F	F	F	H
	15	D	D	D	D	D	D	D	D	E	E	E	E	D	D	E	F	E	E	F	F	F	F	F	H	F	F	F	H
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1200	0	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	G	F	F	G	G	G	G	G	H	G	G	G	H
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	30	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	G	F	F	G	G	G	G	G	H	G	G	G	H
	45	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	I	H	H	H	I
1350	0	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	G	F	F	G	G	G	G	G	H	G	G	G	H
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	30	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	G	F	F	G	G	G	G	G	H	G	G	G	H
	45	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	I	H	H	H	I

CHAMBER TYPE	INTERNAL CHAMBER SIZE
A	900 x 900
B	1200 x 900
C	1200 x 1200
D	1500 x 1200
E	1500 x 1500
F	2000 x 1500
G	2000 x 2000
H	2500 x 2000
I	2500 x 2500
J*	2000 x 1000

INTERNAL CHAMBER SIZES

TABLE 1

NOMINAL DIAMETER	ANGLE OF SKEW Θ			
	0°	15°	30°	45°
450 Ø	533	552	615	754
600 Ø	699	724	807	989
750 Ø	870	901	1005	1230
900 Ø	1029	1065	1188	1455
1050 Ø	1194	1236	1379	1689
1200 Ø	1359	1407	1569	1922
1350 Ø	1524	1578	1760	2155

VALUES OF EXTERNAL PIPE ENTRY / EXIT WIDTHS (Wx) FOR DIFFERENT PIPE DIAMETERS (Ø)

TENDER

PROCEDURE:

1. CONSIDER PIPES 1 AND/OR 3 FROM TABLE 1, DETERMINE WHICH PIPE HAS THE LARGEST EXTERNAL PIPE ENTRY / EXIT WIDTH (Wx).
2. REPEAT THE PROCEDURE FOR 2 AND / OR 4.
3. USING THE TWO PIPES WITH THE LARGEST EXTERNAL PIPE ENTRY / EXIT WIDTH, READ FROM TABLE 2 THE SIZE OF THE CHAMBER REQUIRED.
4. IN CASE EITHER PIPES 1 AND 2 OR 2 AND 4 DO NOT EXIST, SELECT THE CHAMBER TYPE FROM THE COLUMN OR ROW FOR A 450 Ø PIPE AT 0° SKEW FROM TABLE 2.
5. REFER TO DRAWING NO: TD-D-MC-002 FOR CHAMBER DIMENSIONS.
6. SMALLER CHAMBERS THAN TYPE 'A' FOR USE AT MISCELLANEOUS INLET STRUCTURES MAY BE CONSIDERED.

LEGEND:

Ø = NOMINAL DIAMETER OF PIPE
Θ = SKEW ANGLE
Wx = PIPE ENTRY / EXIT WIDTH
O.D. = OUTSIDE DIAMETER

NOTES:

1. TABLE 1 IS CALCULATED USING CLASS 100 "D" PIPES.
2. TYPE J* CHAMBERS FOR USE AT MEDIAN CATCHPITS (INLET TYPE 3)

No.	DATE	REVISION	
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSULT. ENG.

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
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Prof. Reg. No. :
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SANRAL PROJECT MANAGER
Name :
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NAME: PL NGQUMSHE
Prof. Reg. No.: 20080112
DRAWN BY
NAME: WB HARTMANN

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17/07/2023

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PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION
MANHOLES AND GRID INLET CHAMBERS
DETERMINATION OF CHAMBER SIZES

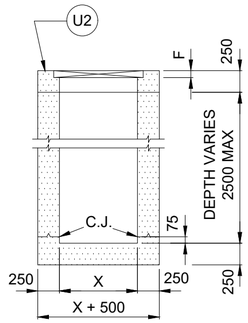
SCALE : NOT TO SCALE | SHEET 01 OF 01

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001		
DRAWING LOCATION DATA	START	END	
ROUTE	N 4	N 4	
SECTION	13	13	
DRAWING km DISTANCE	- -	- -	
DRAWING TYPE	ROADS - TYPICAL		
BRIDGE/STRUCTURE No.	NA		
CONSULTANT DRAWING No.	FA	3257 / 23 / 06 TP	VER
SANRAL DOCUMENT #		TD-D-MC-001-V1	V0

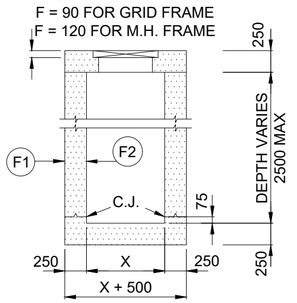
SANRAL DOCUMENT NUMBER: TD-D-MC-001-V1

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\12 - Typicals\3257_23_06 TP - MANHOLES AND GRID INLET CHAMBERS - DETERMINATION_20190510.dwg

FRAME CAST IN SLAB

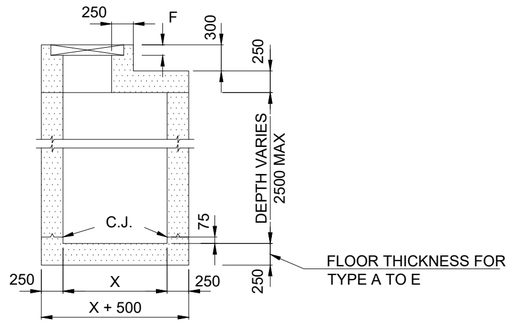


SECTION A-A
SCALE 1:50

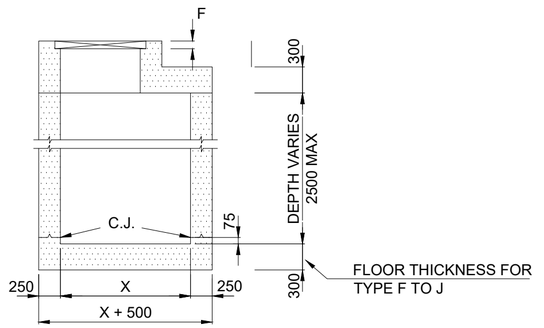


SECTION B-B
SCALE 1:50

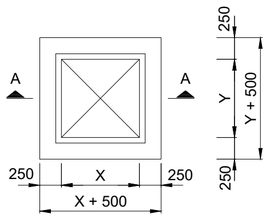
TYPICAL 300 mm SHAFT ON COVER SLAB



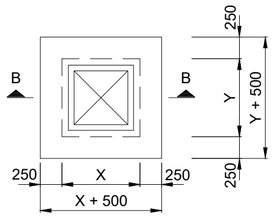
SECTION C-C
SCALE 1:50



SECTION D-D
SCALE 1:50

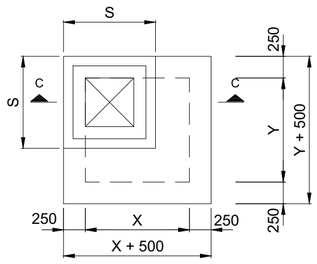


POSITION 1
SCALE 1:50

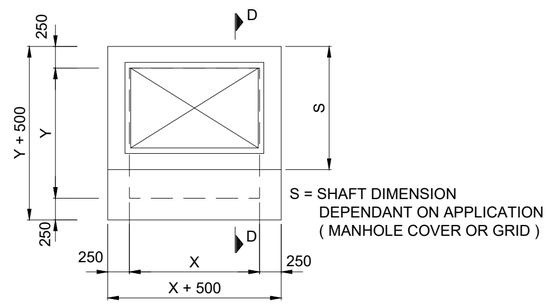


POSITION 2
SCALE 1:50

S = SHAFT DIMENSION
DEPENDANT ON APPLICATION
(MANHOLE COVER OR GRID)



POSITION 3
SCALE 1:50



S = SHAFT DIMENSION
DEPENDANT ON APPLICATION
(MANHOLE COVER OR GRID)

POSITION 4
(DOUBLE GRID INLET)
SCALE 1:50

TYPICAL POSITION OF FRAME ON COVER SLAB FOR MANHOLES AND GRID INLETS

CHAMBER TYPE	DIMENSION					MANHOLES		INLETS WITH SINGLE GRID		INLETS WITH DOUBLE GRID	
	CHAMBER		EXTERNAL		FLOOR	Position of frame	300mm shaft on cover slab	Position of frame	300mm shaft on cover slab	Position of frame	300mm shaft on cover slab
	X	Y	X+500	Y+500							
A	900	900	1400	1400	250	2	NO	1	NO	NOT APPLICABLE (N/A)	
B	1200	900	1700	1400	250	3	NO	4	NO		
C	1200	1200	1700	1700	250	3	YES	2	NO		
D	1500	1200	2000	1700	250	3	YES	3	YES		
E	1500	1500	2000	2000	250	3	YES	3	YES		
F	2000	1500	2500	2000	300	3	YES	3	YES	4	YES
G	2000	2000	2500	2500	300	3	YES	3	YES	4	YES
H	2500	2000	3000	2500	300	3	YES	3	YES	4	YES
I	2500	2500	3000	3000	300	3	YES	3	YES	3	YES
J	2000	1000	2500	1500	300	N/A		N/A		2	NO

NOTES

1. CONCRETE FOR CHAMBERS TO BE REINFORCED.
2. FOR TRAFFIC LOADING REFER TO TMH 7 PART 1 AND 2, LATEST REVISION 3.
3. DETAILS OF REINFORCEMENT AND CONCRETE CLASS TO BE PROVIDED BY THE DESIGN CONSULTANT.
4. 840 x 840 x 120 RECESS TO ACCOMMODATE MANHOLE COVER AND FRAME TYPE 2A ACCORDING TO SABS 558.
5. FOR GRID DETAILS REFER TO DRAWING NO. TD-D-SG-001 AND TD-D-SG-002.
6. FOR SELECTION OF CHAMBER SIZE REFER TO DRAWING NO: TD-D-MC-001.

TENDER

No.	DATE	REVISION	
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSULTANT ENG.

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
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SANRAL PROJECT MANAGER
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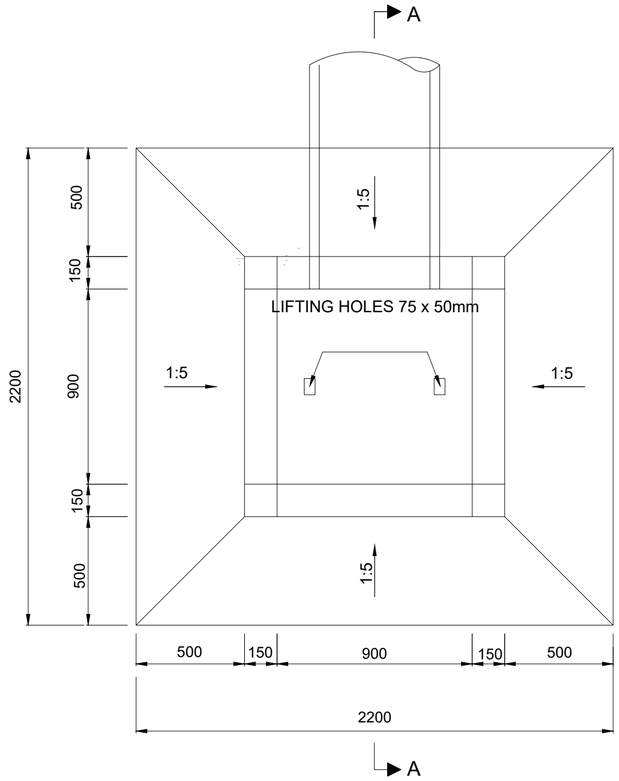
DRAWING DESCRIPTION
MANHOLES AND GRID INLET CHAMBERS
GENERAL ARRANGEMENT OF CHAMBERS

SCALE : AS SHOWN (A2) | SHEET 02 OF 02

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001		
DRAWING LOCATION DATA	START	END	
ROUTE	N 4	N 4	
SECTION	13	13	
DRAWING km DISTANCE	- -	- -	
DRAWING TYPE	ROADS - TYPICAL		
BRIDGE/STRUCTURE No.	NA		
CONSULTANT DRAWING No.	FA	3257 / 23 / 07 TP	VER
SANRAL DOCUMENT #	TD-D-MC-002-V1		V0

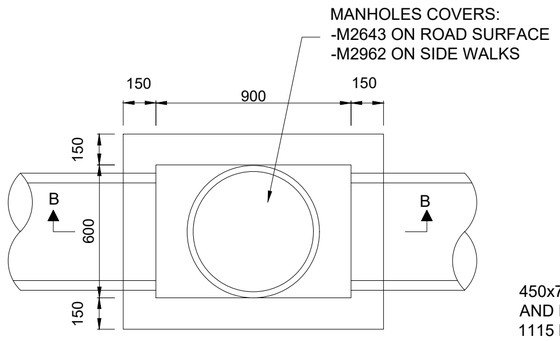
SANRAL DOCUMENT NUMBER : TD-D-MC-002-V1

W:\Roads\3257 - N4 Dual Carriageway (PL\N3\3-Tender\03-Drawings\Volume 4-Roadworks\12 - Typicals\3257_23_07 TP- MANHOLES AND GRID INLET CHAMBERS - GENERAL ARRAN_20160510.dwg



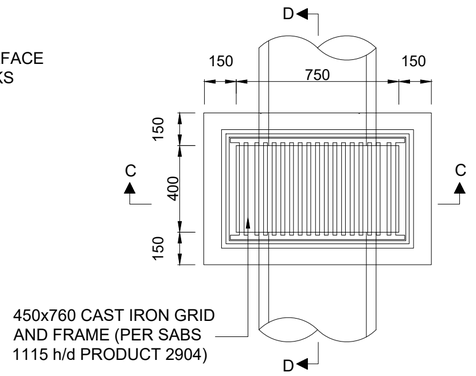
PLAN VIEW: FIELD INLET

SCALE 1:20



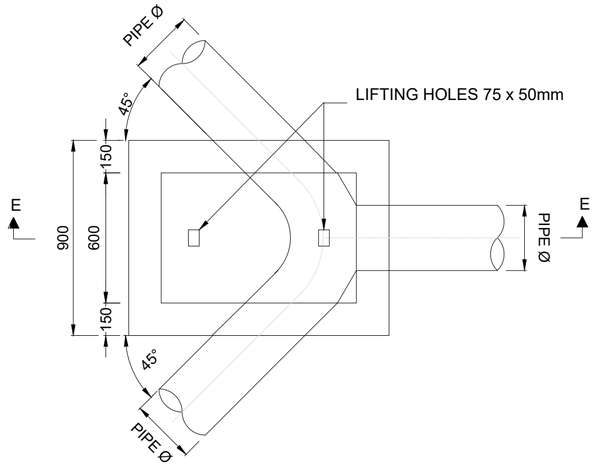
PLAN VIEW: MANHOLE 900 X 600

SCALE 1:20



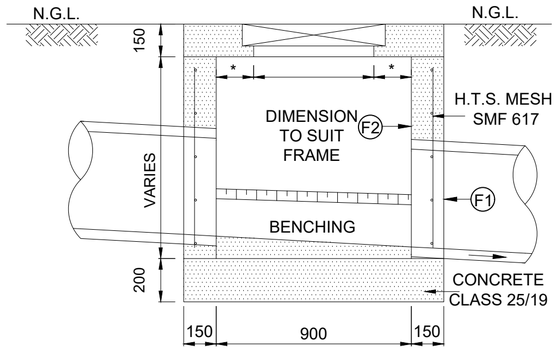
PLAN VIEW: GRID INLET

SCALE 1:20



PLAN VIEW : JUNCTION BOX

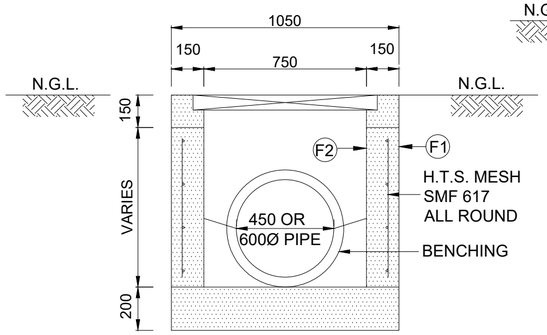
SCALE 1:20



* - EQUAL IN DIMENSION AND
DEPENDS ON FRAME SIZE

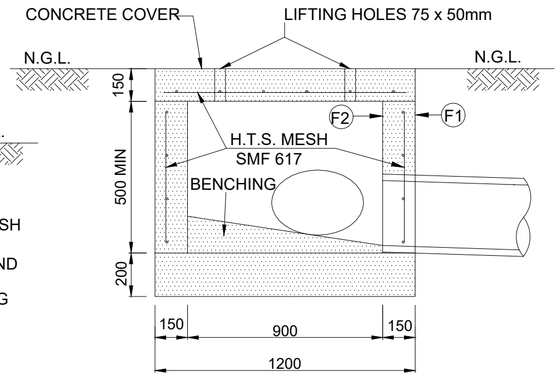
SECTION B-B

SCALE 1:20



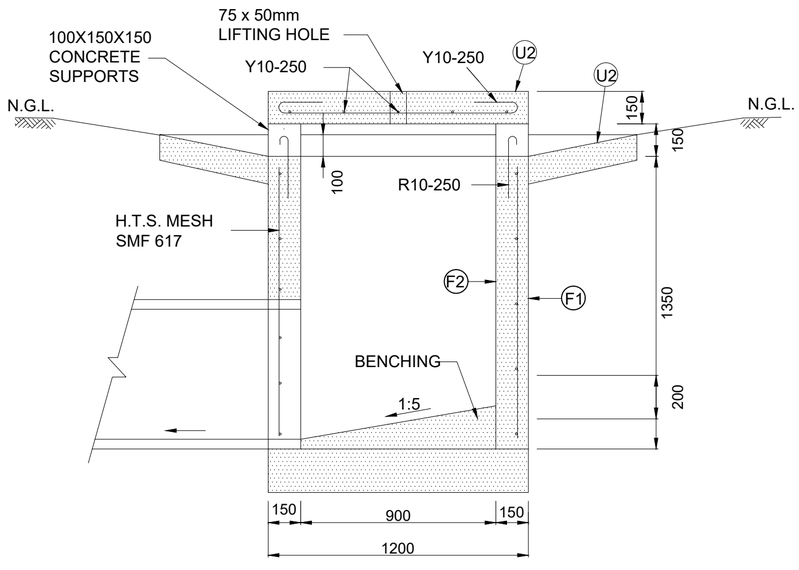
SECTION C-C

SCALE 1:20



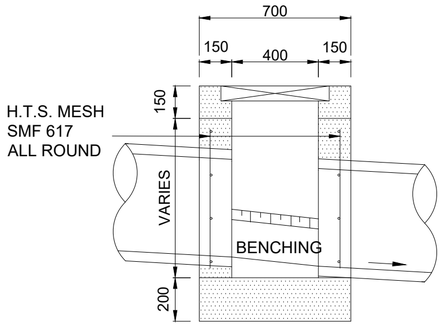
SECTION E-E

SCALE 1:20



SECTION A-A

SCALE 1:20



SECTION D-D

SCALE 1:20

TENDER

NOTES:

1. REINFORCEMENT :
   SABS 920 (LATEST REVISION)
   HIGH TENSILE STEEL.
   WORKING STRESS - 210 MPa 2.
2. CONCRETE :
   STRUCTURES - CLASS 30/19
   BENCHING - CLASS 10/19
3. SURFACE FINISH :
   FORMED SURFACES - F1,F2.
   UNFORMED SURFACES - U2.
4. MINIMUM CONCRETE COVER IS 40 mm.
5. ALL EXPOSED CORNERS MUST BE ROUNDED OFF TO A RADIUS OF 10 mm OR MUST BE CHAMFERED 25 mm x 25 mm.
6. FIELD INLET NOT FOR USE CLOSER THAN 9m FROM TRAFFICKED LANE.

No.	DATE	REVISION	
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date :

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DESIGNED BY	
NAME	EF DAY
Prof. Reg. No.	20130622
CHECKED BY	
NAME	PL NGQUMSHE
Prof. Reg. No.	20080112
DRAWN BY	
NAME	WB HARTMANN

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17/07/2023

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THE SOUTH AFRICAN NATIONAL ROADS AGENCY SOC LTD
Reg. No. 1998/009584/30

NORTHERN REGION
38 Ida Street
Menlo Park
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0081
Private Bag X17
Lynnwood Ridge
0040
Tel: (012) 426 6200

ACCEPTANCE
THIS ACCEPTANCE IS FOR PROCEDURAL AND ADMINISTRATIVE REVIEW PURPOSES ONLY AND DOES NOT ATTRACT LEGAL LIABILITY OR LIABILITY OF ANY KIND FROM WHATSOEVER CAUSE OR HOWEVER ARISING
for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

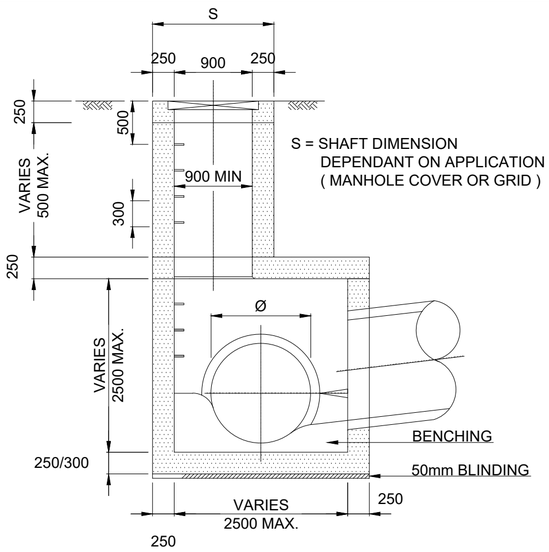
DRAWING DESCRIPTION
MANHOLES AND GRID INLET CHAMBERS
GENERAL ARRANGEMENT AND REINFORCEMENT

SCALE : AS SHOWN (A2) | SHEET 01 OF 01

PROJECT NUMBER		BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END	
ROUTE	N 4	N 4	
SECTION	13	13	
DRAWING km DISTANCE	- -	- -	
DRAWING TYPE	ROADS - TYPICAL		
BRIDGE/STRUCTURE No.	NA		
CONSULTANT DRAWING No.	FA	3257 / 23 / 08 TP	VER
SANRAL DOCUMENT #			V0

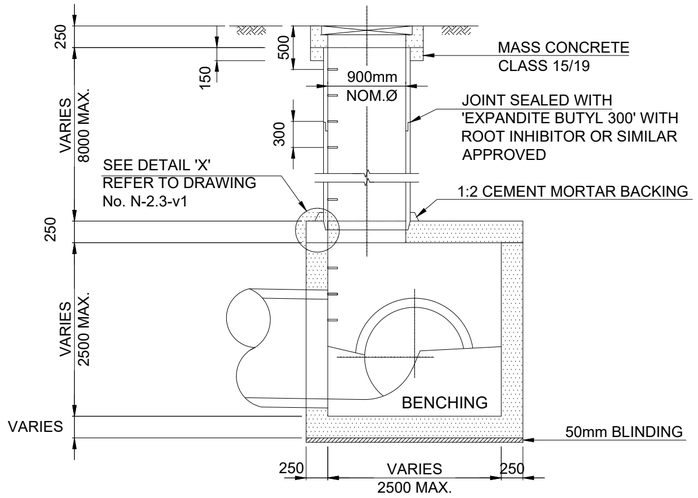
SANRAL DOCUMENT NUMBER : --

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\12 - Typicals\3257_23_08 TP - MANHOLES AND GRID INLET CHAMBERS - REINFORCING_20190515.dwg



SECTIONAL ELEVATION

SCALE 1:50



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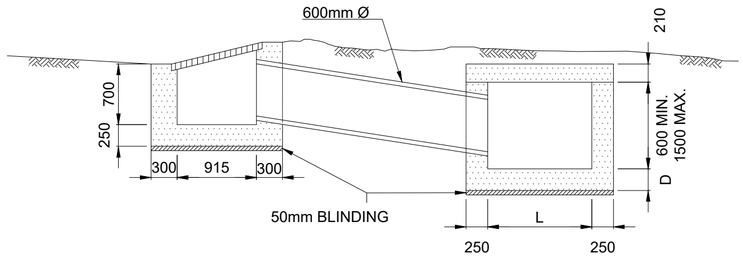
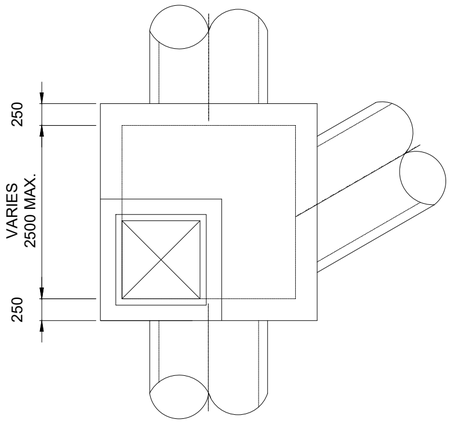


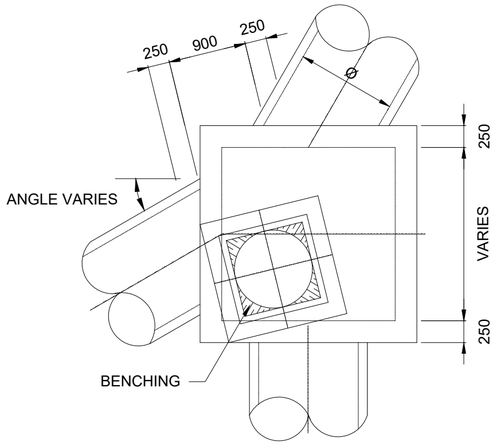
SECTIONAL ELEVATION

SCALE 1:50



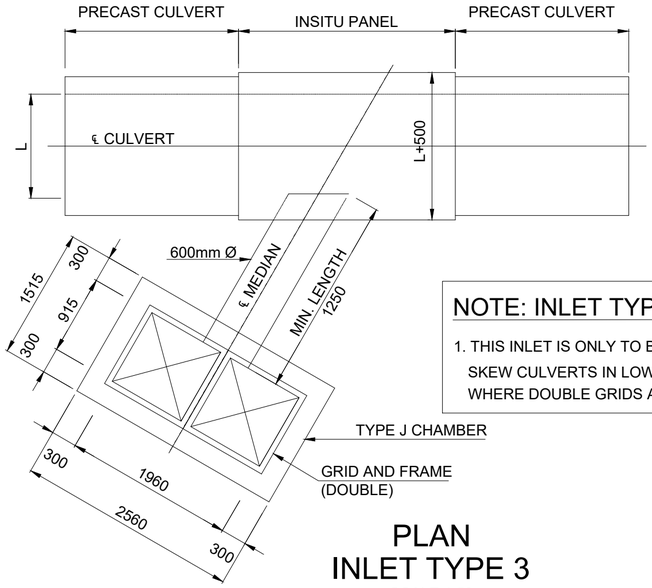
PLAN
INLET TYPE 1

SCALE 1:50



PLAN
INLET TYPE 2

SCALE 1:50



PLAN
INLET TYPE 3

SCALE 1:50

NOTE: INLET TYPE 1

1. THIS INLET IS ONLY TO BE USED FOR SIZE C TO I CHAMBERS INCLUSIVE, AS DETERMINED BY THE PROCEDURE ON DRAWING No. TD-D-MC-001

NOTES: INLET TYPE 2

1. PRECAST SHAFT TO BE REPLACED BY A TYPE 1 INLET SHAFT IF A STORM WATER PIPE DISCHARGES INTO THE INLET CHAMBER AT A LEVEL CLOSE TO THE TOP OF THE SHAFT
2. INLET TYPE 2 CAN BE USED FOR ALL CHAMBER SIZES AS DETERMINED ON DRAWING No. TD-D-MC-001

HEIGHT INLET ABOVE INVERT	CHAMBER SIZE INLET								
	A	B	C	D	E	F	G	H	I
2.50m - 4.50m	2	2	1	1	1	1	1	1	1
4.50m - 10.00m	2	2	2	2	2	2	2	2	2

TYPE OF INLET TO BE USED WITH EACH CHAMBER SIZE

CHAMBER SIZES

A - 900 x 900
B - 900 x 1200
C - 1200 x 1200
D - 1200 x 1500
E - 1500 x 1500
F - 1500 x 2000
G - 2000 x 2000
H - 2000 x 2500
I - 2500 x 2500
J - 2500 x 1500

NOTE: INLET TYPE 3

1. THIS INLET IS ONLY TO BE USED FOR SKEW CULVERTS IN LOW OR HIGH FILLS WHERE DOUBLE GRIDS ARE REQUIRED

TENDER

NOTES:

1. THIS TYPICAL DRAWING DEPICTS THE LAYOUT TO BE USED FOR INLET TYPES 1 & 2 ON HIGH FILLS. ALTHOUGH THE REINFORCEMENT DETAILS OF THESE CHAMBERS MUST BE DESIGNED TO SUIT THE INDIVIDUAL CONDITIONS PERTAINING TO THE INLET
2. FOR GENERAL ARRANGEMENT REFER TO DRAWING No. TD-D-MC-002.
3. FOR GRID INLET DETAILS REFER TO DRAWING No. TD-D-SG-001 & TD-D-SG-002
4. TYPE J* CHAMBER FOR USE AT MEDIAN CATCHPITS (INLET TYPE 3)

No.	DATE	REVISION	
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
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Date :
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date :

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NAME: EF DAY
Prof. Reg. No. 20130622
CHECKED BY
NAME: PL NGQUMSHE
Prof. Reg. No. 20080112
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NAME: WB HARTMANN

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17/07/2023

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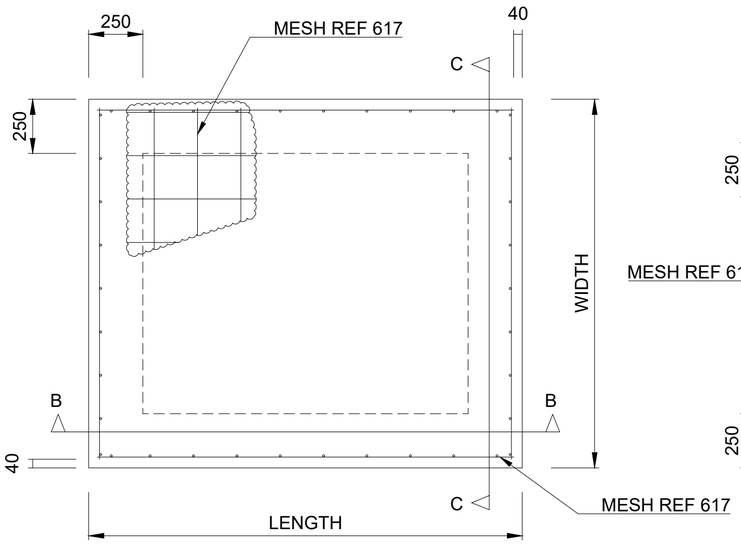
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION
MANHOLES AND GRID INLET CHAMBERS
INLETS FOR HIGH FILLS AND SKEW CULVERTS

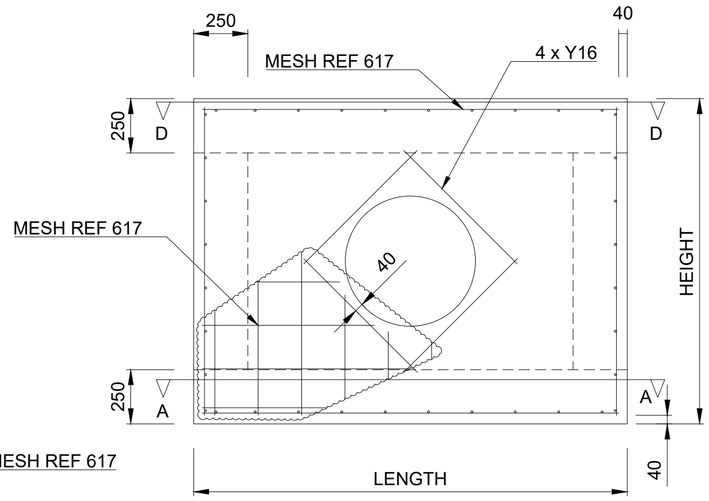
SCALE : AS SHOWN (A2) | SHEET 01 OF 02

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001		
DRAWING LOCATION DATA	START	END	
ROUTE	N 4	N 4	
SECTION	13	13	
DRAWING km DISTANCE	- -	- -	
DRAWING TYPE	ROADS - TYPICAL		
BRIDGE/STRUCTURE No.	NA		
CONSULTANT DRAWING No.	FA	3257 / 23 / 09 TP	VER
SANRAL DOCUMENT #	TD-D-MC-004-V1		V0

SANRAL DOCUMENT NUMBER : TD-D-MC-004-V1

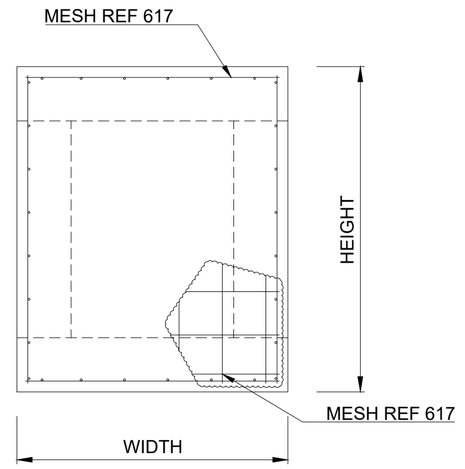


SECTION A-A
FLOOR SLAB
SCALE 1:20

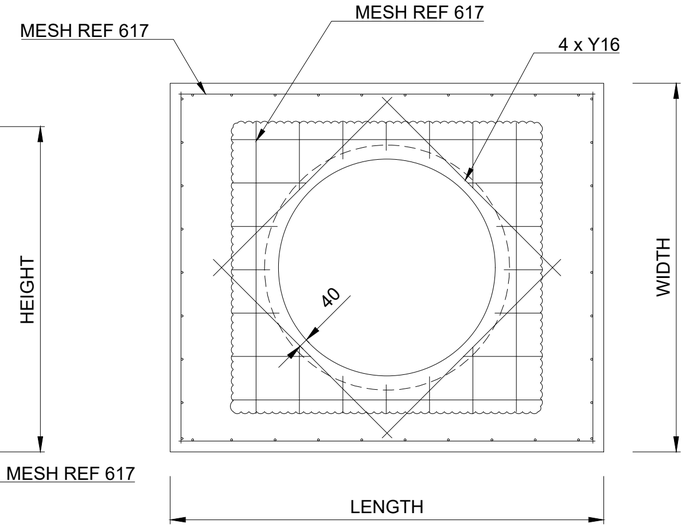


SECTION B-B
LONG WALL
SCALE 1:20

NOTE: REINFORCEMENT TO BE CUT ON SITE TO SUIT STORMWATER PIPE ENTERING CHAMBER

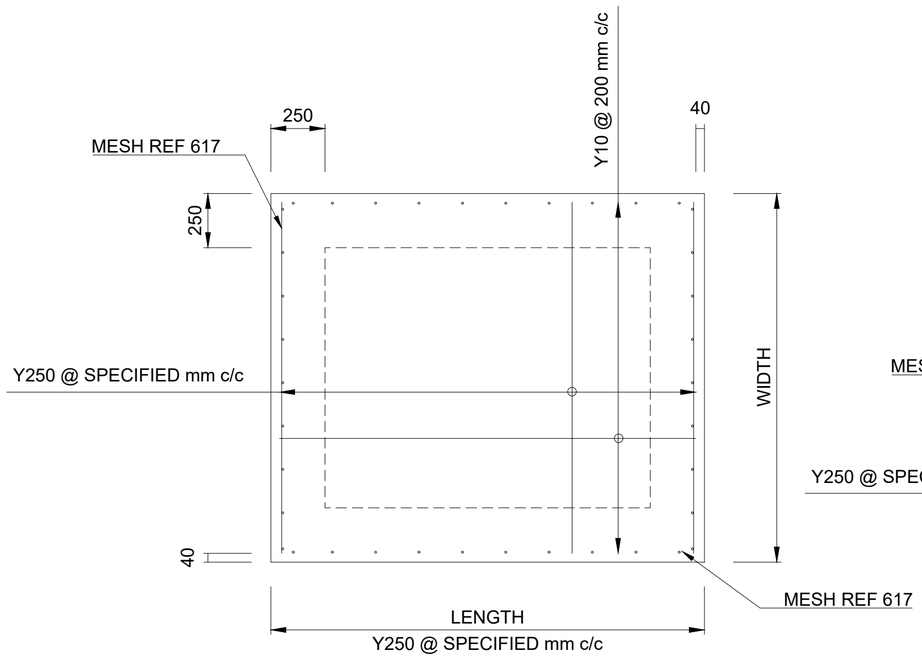


SECTION C-C
SHORT WALL
SCALE 1:20

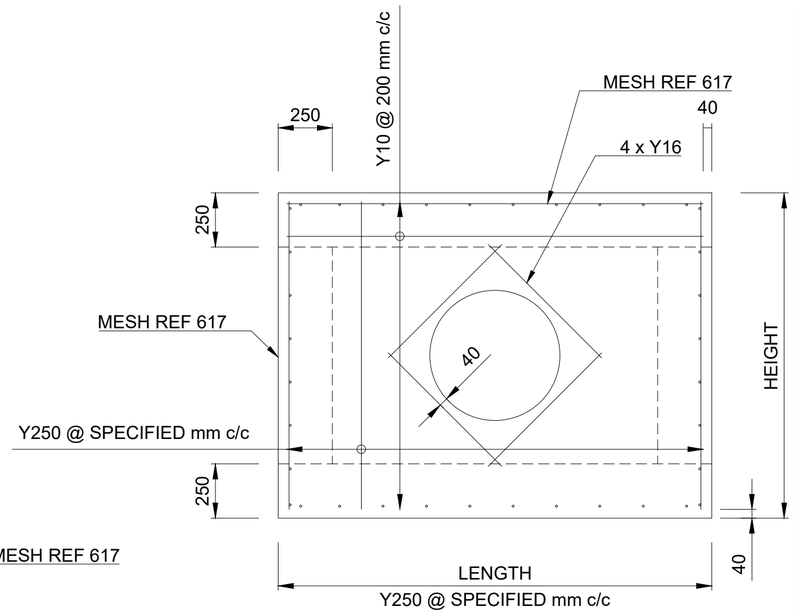


SECTION D-D
ROOF SLAB
SCALE 1:20

NOTE: REINFORCEMENT TO BE CUT ON SITE TO SIZE OF ACCESS TO MANHOLE



FLOOR SLAB - BAR REINFORCEMENT
SCALE 1:20



LONG WALL - BAR REINFORCEMENT
SCALE 1:20

NOTE: REINFORCEMENT TO BE CUT ON SITE TO SUIT STORMWATER PIPE ENTERING CHAMBER

REINFORCING DETAILS

INTERNAL DIM 1 (m)	INTERNAL DIM 2 (m)	LONG WALL STEEL (BENDING / DISTRIBUTION)	BASE SLAB STEEL (BENDING / DISTRIBUTION)	SHORT WALL / ROOF STEEL
0.9	0.9	617 REF MESH	617 REF MESH	617 REF MESH
1.2	0.9	617 REF MESH	617 REF MESH	617 REF MESH
1.5	1.2	617 REF MESH	617 REF MESH	617 REF MESH
1.8	0.9	617 REF MESH	617 REF MESH	617 REF MESH
2	1.5	617 REF MESH	617 REF MESH	617 REF MESH
2.4	0.9	617 REF MESH	617 REF MESH	617 REF MESH
2.7	0.9	617 REF MESH	617 REF MESH	617 REF MESH
3.6	0.9	Y12 @ 250 mm c/c / Y10 @ 200 mm c/c	617 REF MESH	617 REF MESH
4	1.5	Y12 @ 250 mm c/c / Y10 @ 200 mm c/c	617 REF MESH	617 REF MESH
4	1.8	Y12 @ 250 mm c/c / Y10 @ 200 mm c/c	617 REF MESH	617 REF MESH
5	1.5	Y12 @ 200 mm c/c / Y10 @ 200 mm c/c	Y12 @ 250 mm c/c / Y10 @ 200 mm c/c	617 REF MESH
7.5	2	617 REF MESH	617 REF MESH	617 REF MESH

TENDER

No.	DATE	REVISION	
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date :
CONSULT. ENG.

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NAME	WB HARTMANN

CONSULTANT APPROVAL
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THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

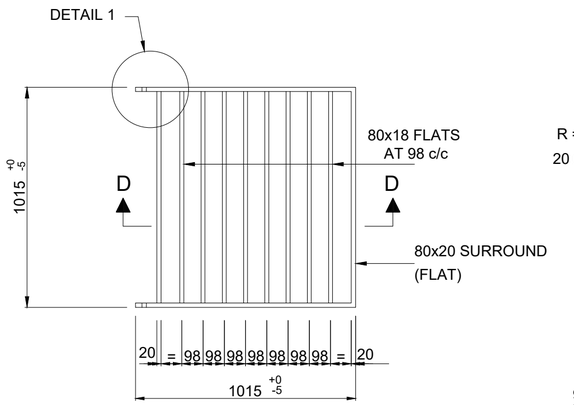
DRAWING DESCRIPTION
MANHOLES AND GRID INLET CHAMBERS
INLETS FOR HIGH FILLS AND SKEW CULVERTS - REINFORCEMENT

SCALE : AS SHOWN (A2) SHEET 02 OF 02

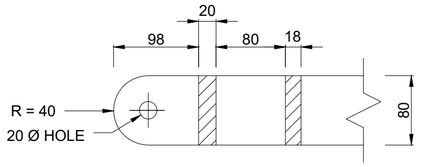
PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	13	13
DRAWING km DISTANCE	- -	- -
DRAWING TYPE	ROADS - TYPICAL	
BRIDGE/STRUCTURE No.	NA	
CONSULTANT DRAWING No.	FA 3257 / 23 / 10 TP	VER
SANRAL DOCUMENT #	--	V0

SANRAL DOCUMENT NUMBER : --

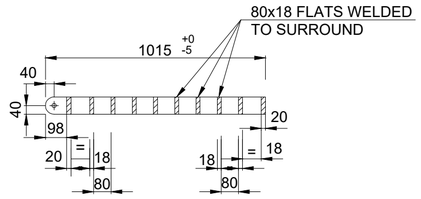
W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\12 - Typicals\3257_23_10 TP - MANHOLES AND GRID INLET CHAMBERS - HIGH FILLS AND SKEW CULVERTS REINFORCEMENT_20190515.dwg



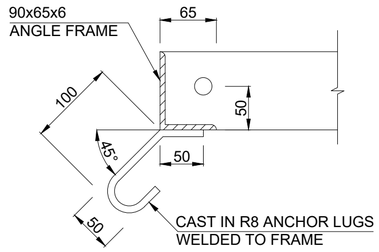
PLAN
GRID DETAIL
SCALE 1:20



DETAIL 1
SCALE 1:5

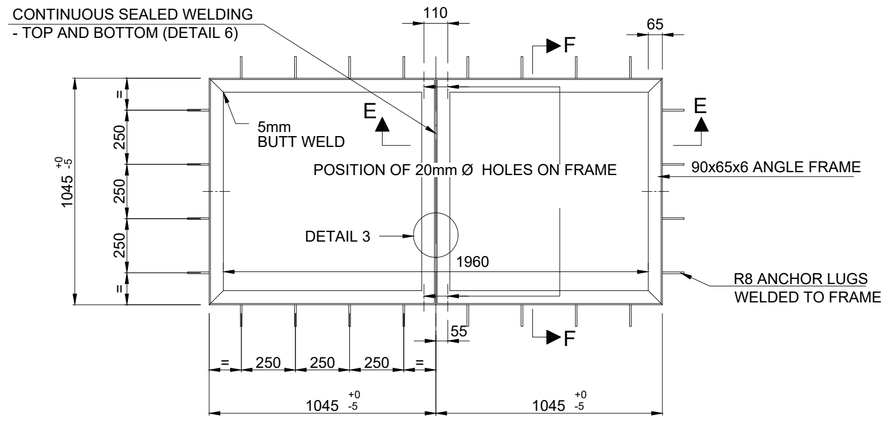


SECTION D-D
SCALE 1:20

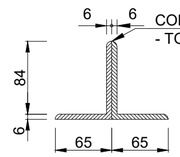


DETAIL 2
SCALE 1:5

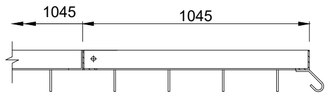
GRID AND FRAME - TYPE A
(USAGE:- INLETS FOR MEDIAN AND SIDE DRAINS)



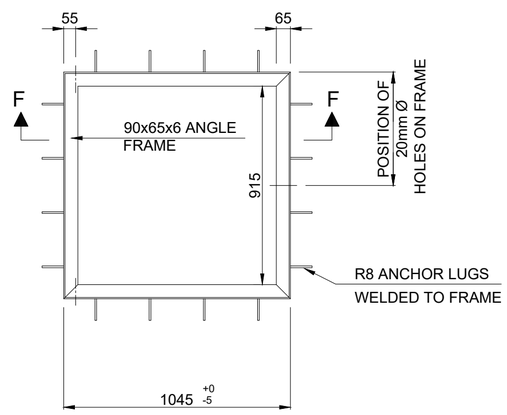
PLAN
FRAME DETAIL (DOUBLE)
SCALE 1:20



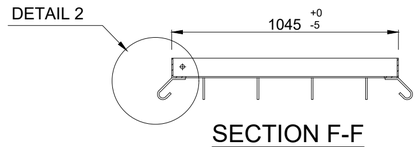
DETAIL 3
SCALE 1:5



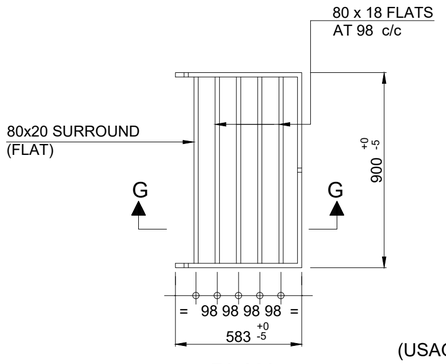
SECTION E-E
SCALE 1:20



PLAN
FRAME DETAIL (SINGLE)
SCALE 1:20

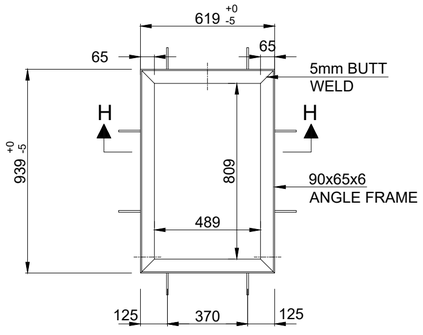


SECTION F-F
SCALE 1:20

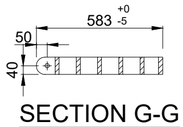


PLAN
GRID DETAIL
SCALE 1:20

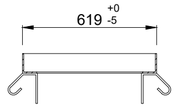
GRID AND FRAME - TYPE B
(USAGE:- INLETS AT NOSES AND SIDE DRAINS)



PLAN
FRAME DETAIL (SINGLE)
SCALE 1:20



SECTION G-G
SCALE 1:20



SECTION H-H
SCALE 1:20

TENDER

NOTES:

1. GRID AND FRAME TYPES A AND B TO BE MANUFACTURED FROM MILD STEEL GRADE: 350 IN COMPLIANCE WITH THE REQUIREMENTS OF BS 4360 PART 2.
2. THE MANUFACTURING, ASSEMBLY AND FIXING OF THE GRIDS AND FRAMES SHALL COMPLY WITH SANS 0162.
3. ALL WELDING SHALL BE FULL-JOINT PENETRATION CONTINUOUS BUTT-JOINTS (GRIDS AND FRAMES), CONTINUOUS FILLET WELDS (ANCHOR LUGS TO FRAME) CARRIED OUT IN ACCORDANCE WITH THE REQUIREMENTS OF BS 5135.
4. STEEL MEMBERS SHALL BE HOT-DIP GALVANISED WITH AN 85µ COATING IN ACCORDANCE WITH SANS 763, ONLY AFTER ALL THE MEMBERS HAVE BEEN WELDED TOGETHER.
5. %ULOADING GRID TYPES A AND B = 40 kN WHEEL LOAD.
6. %UREFERENCE DRAWINGS THIS DRAWING FORMS PART OF AND MUST BE READ WITH TYPICAL DRAWINGS FOR INLETS No.s TD-D-MC-001 TO TD-D-MC-004 AND No.s TD-D-IS-001 TO TD-D-IS-006.

No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date :

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NAME	EF DAY
Prof. Reg. No.	20130622
CHECKED BY	
NAME	PL NGQUMSHE
Prof. Reg. No.	20080112
DRAWN BY	
NAME	WB HARTMANN

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17/07/2023

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THE SOUTH AFRICAN NATIONAL ROADS AGENCY SOC LTD
Reg. No. 1998/009584/30

NORTHERN REGION
38 Ida Street
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Tel: (012) 426 6200

ACCEPTANCE
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for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

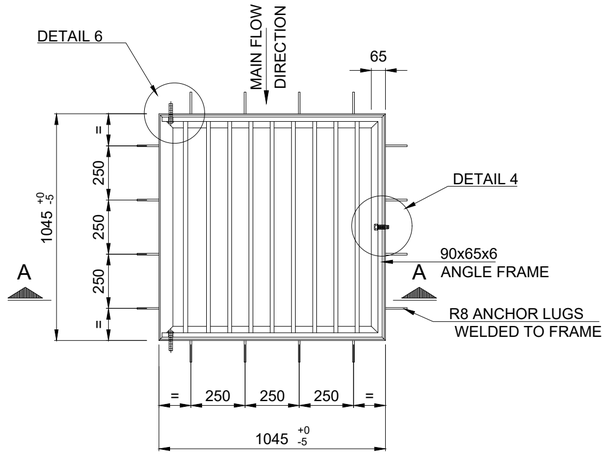
DRAWING DESCRIPTION
WELDED STEEL GRIDS FOR MEDIANS, ETC GRID AND FRAME DETAILS

SCALE : AS SHOWN (A2) SHEET 01 OF 02

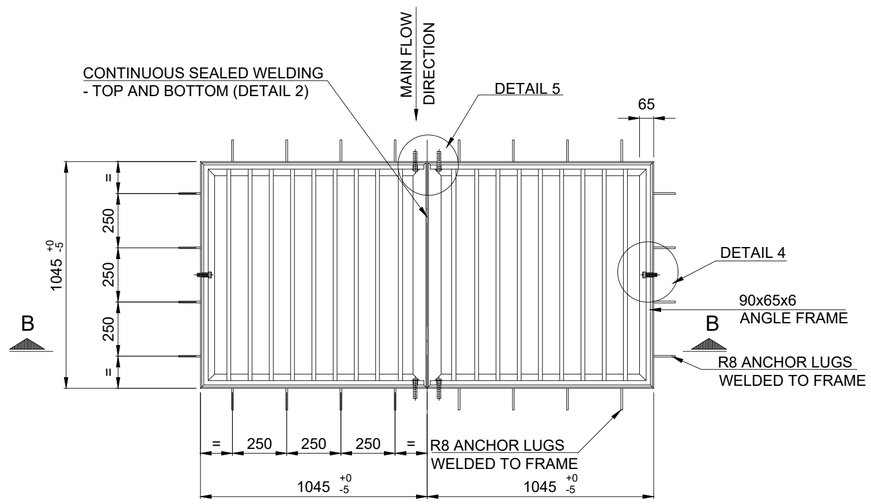
PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001		
DRAWING LOCATION DATA	START	END	
ROUTE	N 4	N 4	
SECTION	13	13	
DRAWING km DISTANCE	- -	- -	
DRAWING TYPE	ROADS - TYPICAL		
BRIDGE/STRUCTURE No.	NA		
CONSULTANT DRAWING No.	FA	3257 / 23 / 11 TP	VER
SANRAL DOCUMENT #		TD-D-SG-001-V1	V0

SANRAL DOCUMENT NUMBER : TD-D-SG-001-V1

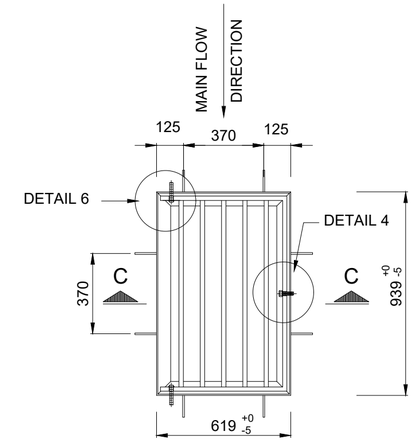
W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\12 - Typicals\3257_23_11 TP - WELDED STEEL GRIDS FOR MEDIANS, ETC - GRID AND F_20190515.dwg



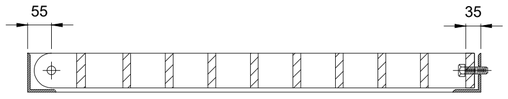
GRID WITH FRAME DETAIL (SINGLE)
SCALE 1:20



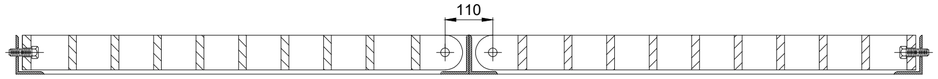
GRID WITH FRAME DETAIL (DOUBLE)
SCALE 1:20



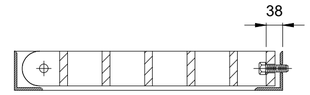
GRID WITH FRAME DETAIL
SCALE 1:20



SECTION A-A
SCALE 1:10



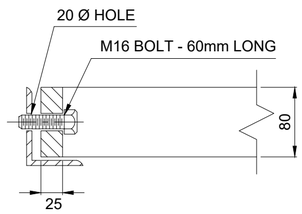
SECTION B-B
SCALE 1:10



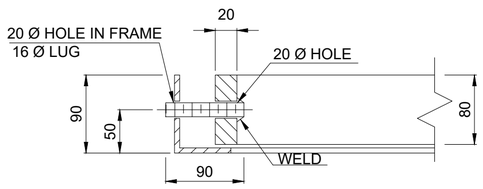
SECTION C-C
SCALE 1:10

GRID AND FRAME - TYPE A
(USAGE:- INLETS FOR MEDIAN AND SIDE DRAINS)

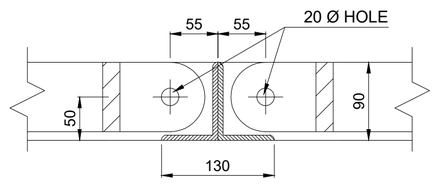
GRID AND FRAME - TYPE B
(USAGE : INLETS AT NOSES AND SIDE DRAINS)



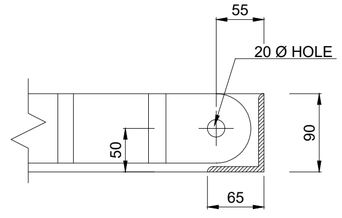
DETAIL 4
ANTI THEFT LOCK
SCALE 1:5



SECTION AT HINGE
SCALE 1:5



DETAIL 5
SCALE 1:5



DETAIL 6
SCALE 1:5

TENDER

No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

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NAME	EF DAY
Prof. Reg. No.	20130622
CHECKED BY	
NAME	PL NGQUMSHE
Prof. Reg. No.	20080112
DRAWN BY	
NAME	WB HARTMANN

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THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

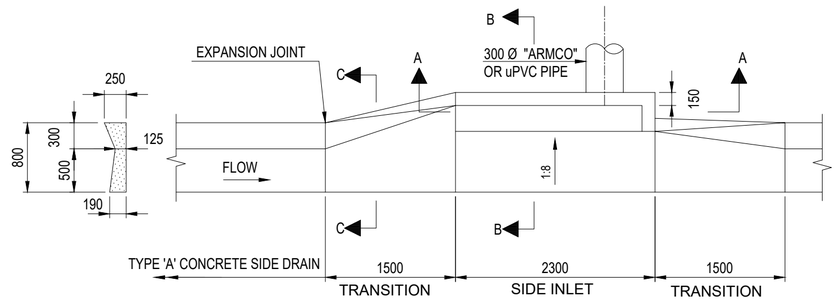
DRAWING DESCRIPTION
WELDED STEEL GRIDS FOR MEDIANS, ETC ASSEMBLY DETAILS

SCALE : AS SHOWN (A2) **SHEET 02 OF 02**

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	13	13
DRAWING km DISTANCE	- -	- -
DRAWING TYPE	ROADS - TYPICAL	
BRIDGE/STRUCTURE No.	NA	
CONSULTANT DRAWING No.	FA 3257 / 23 / 12 TP	VER
SANRAL DOCUMENT #	TD-D-SG-002-V1	V0

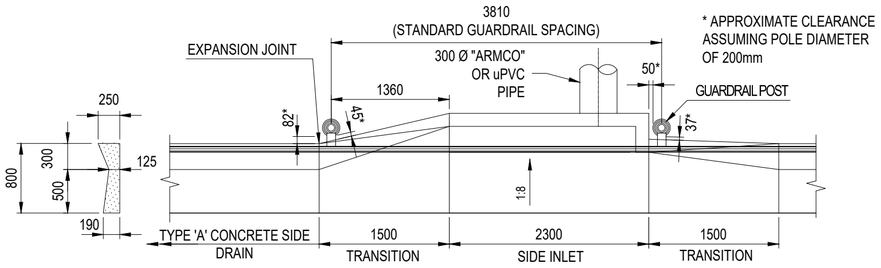
SANRAL DOCUMENT NUMBER : TD-D-SG-002-V1

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\12 - Typicals\3257_23_12 TP- WELDED STEEL GRIDS FOR MEDIANS, ETC - ASSEMBLY D_20190515.dwg



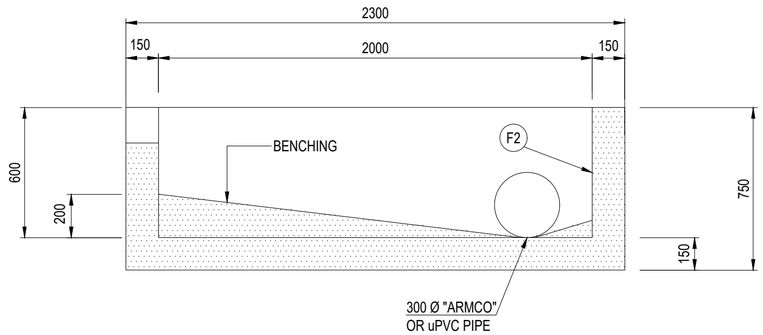
PLAN OF TRANSITION AND SIDE INLET FOR TYPE 'A' SIDE DRAIN

SCALE 1:50



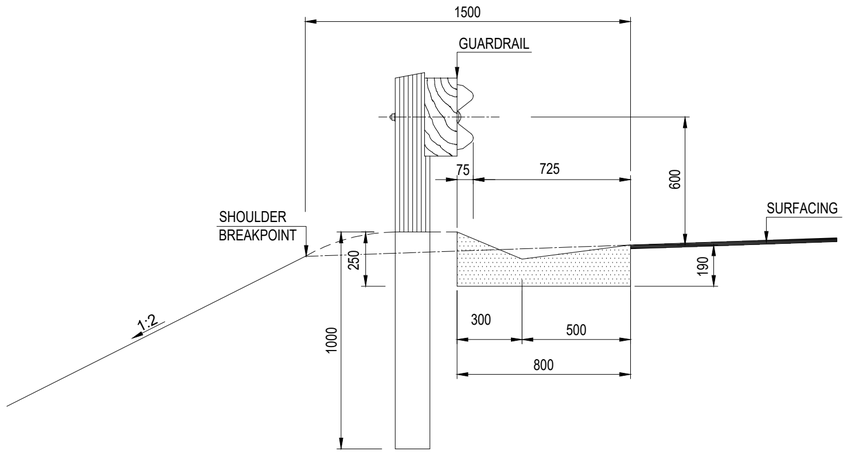
POSITION OF GUARDRAILS AT SIDE INLETS

SCALE 1:50



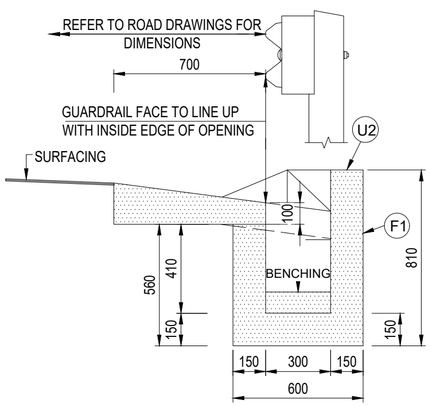
SECTION A-A

SCALE 1:20



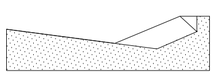
POSITION OF GUARDRAILS AT TYPE 'A' SIDE INLETS

SCALE 1:20



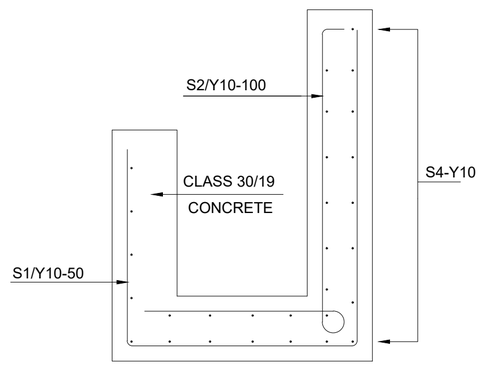
SECTION B-B

SCALE 1:20



SECTION C-C

SCALE 1:20



SECTION THROUGH SIDE INLET REINFORCEMENT

SCALE 1:10

TENDER

NOTES:

1. MATERIAL:
1.1 REINFORCEMENT: SABS 920, LATEST REVISION.
1.2 CONCRETE: (CAST IN SITU)
: SIDE DRAINS AND TRANSITIONS - CLASS 30/19.
: SIDE INLETS AND MANHOLES - CLASS 30/19.
: ENERGY BREAKERS - CLASS 30/19.
: ANCHOR BLOCKS - CLASS 30/19.
: BENCHING - CLASS 15/19.
2. THE TYPE OF SURFACE FINISH IS INDICATED AS F1, F2 & U2.
F - FORMED SURFACES.
U - UNFORMED SURFACES.
3. MINIMUM CONCRETE COVER TO MAIN REINFORCEMENT IS 40mm.
4. ALL EXPOSED CORNERS MUST BE ROUNDED OFF TO A MINIMUM RADIUS OF 10mm OR BE CHAMFERED 25mm x 25mm.

No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
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Name :
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Date :
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THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

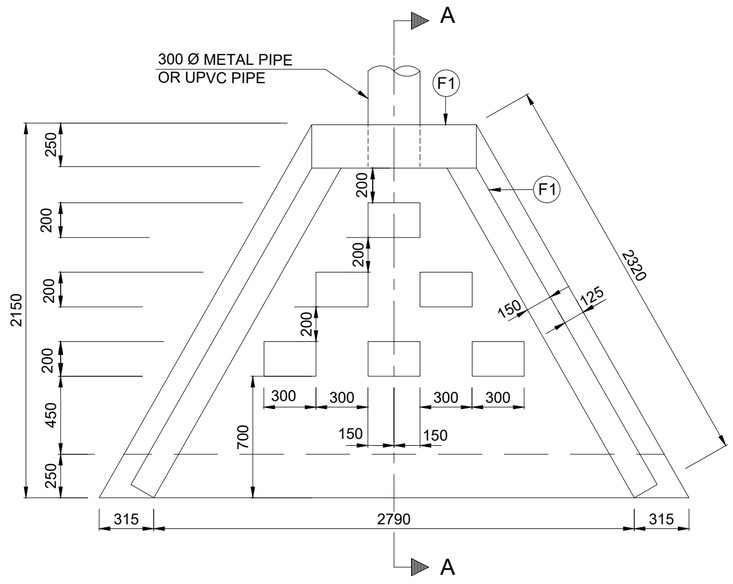
DRAWING DESCRIPTION
INLET STRUCTURES
SIDE INLETS ON TYPE "A" DRAINS

SCALE : AS SHOWN (A2) SHEET 01 OF 02

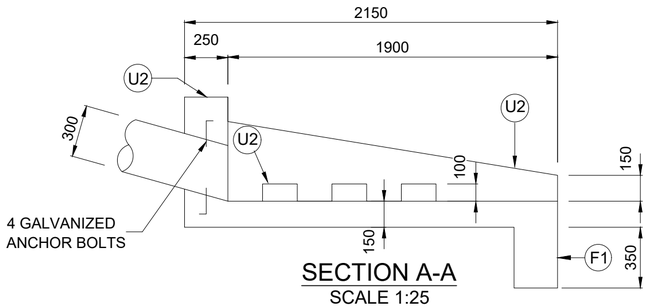
PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	13	13
DRAWING km DISTANCE	- -	- -
DRAWING TYPE	ROADS - TYPICAL	
BRIDGE/STRUCTURE No.	NA	
CONSULTANT DRAWING No.	FA 3257 / 23 / 13 TP	VER
SANRAL DOCUMENT #	TD-D-IS-001-V1	V0

SANRAL DOCUMENT NUMBER : TD-D-IS-001-V1

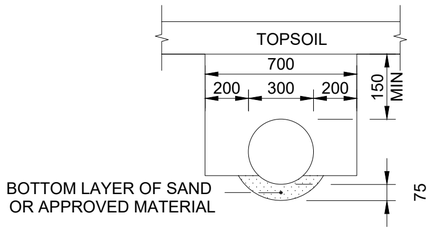
W:\Roads\3257 - N4 Dual Carriageway (PL)\003-Tender\03-Drawings\Volume 4-Roadworks\12 - Typicals\3257_23_13 TP- INLET STRUCTURES - SIDE INLETS ON TYPE A DRAINS_20190515.dwg



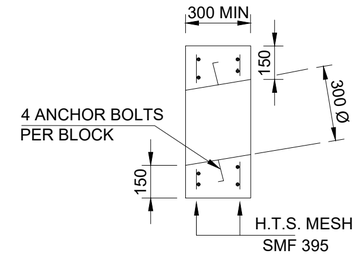
PLAN OF ENERGY BREAKER
SCALE 1:25



SECTION A-A
SCALE 1:25



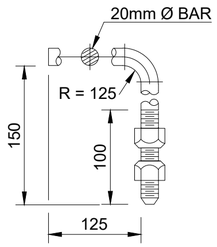
BEDDING FOR DOWN PIPES
SCALE 1:10



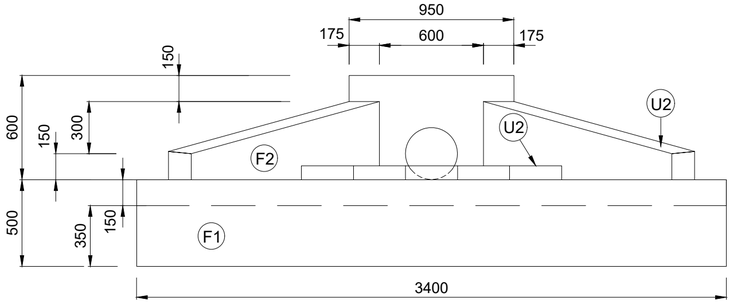
SECTIONAL VIEW OF ANCHOR BLOCK
SCALE : SCHEMATIC

NOTES FOR ANCHOR BLOCKS

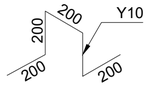
1. "ARMCO" PIPE LENGTH = L.
   FOR L = 0m 10m : 1 ANCHOR BLOCK.
   FOR L = 10m 15m : 2 ANCHOR BLOCKS.
   FOR L = 15m 20m : 3 ANCHOR BLOCKS.
   FOR L = 20m 30m : 4 ANCHOR BLOCKS.
2. ANCHOR BLOCKS MUST BE SPACED AT EQUAL DISTANCES.
3. ANCHOR BLOCKS TO BE CAST AGAINST NEAT EXCAVATION. (NO FORMWORK)



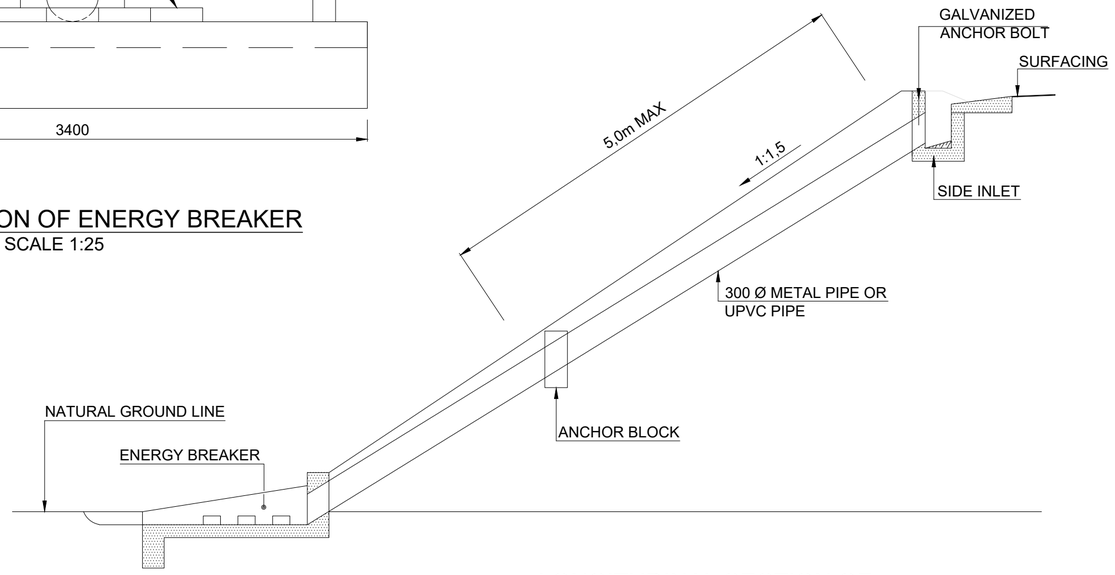
GALVANIZED ANCHOR BOLT
N.T.S.



FRONT ELEVATION OF ENERGY BREAKER
SCALE 1:25

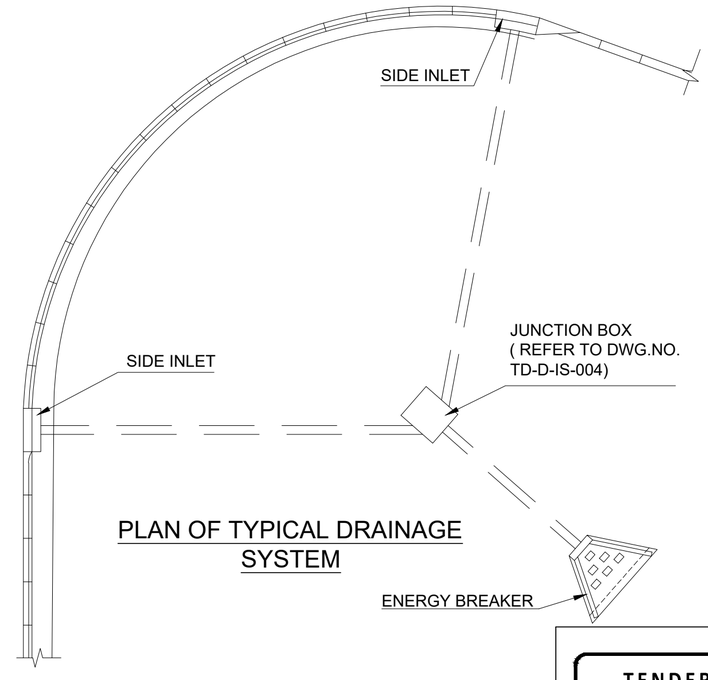


FIXING BAR
(2 PER BLOCK)
SCALE 1:20



PROVIDE EROSION PROTECTION
IF FLOW VELOCITY > 1.5m/s
(REFER TO DWG. NO.
TD-D-ER-002)

LONGITUDINAL SECTION OF
DOWN PIPE AND ENERGY BREAKER
SCALE 1:50



PLAN OF TYPICAL DRAINAGE SYSTEM

TENDER

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V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSULTANT, ENG.

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DESIGNED BY	
NAME	EF DAY
Prof. Reg. No.	20130622
CHECKED BY	
NAME	PL NGQUMSHE
Prof. Reg. No.	20080112
DRAWN BY	
NAME	WB HARTMANN

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17/07/2023

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THE SOUTH AFRICAN NATIONAL ROADS AGENCY SOC LTD
Reg. No. 1998/009584/30

NORTHERN REGION
38 Ida Street
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Tel: (012) 426 6200

ACCEPTANCE
THIS ACCEPTANCE IS FOR PROCEDURAL AND ADMINISTRATIVE REVIEW PURPOSES ONLY AND DOES NOT ATTRACT LEGAL LIABILITY OR LIABILITY OF ANY KIND FROM WHATSOEVER CAUSE OR HOWEVER ARISING
for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

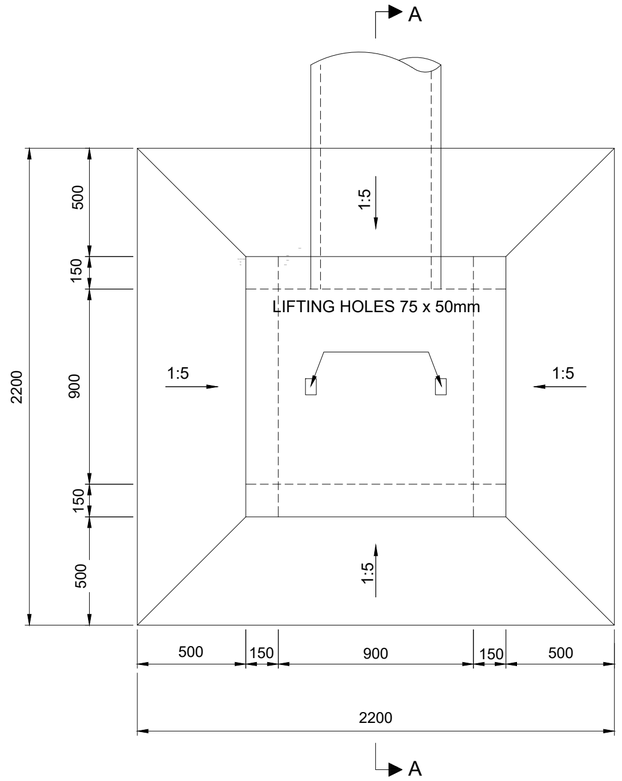
DRAWING DESCRIPTION
DOWN PIPES
FOR INLET STRUCTURES

SCALE : AS SHOWN (A2) SHEET 02 OF 02

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	13	13
DRAWING km DISTANCE	- -	- -
DRAWING TYPE	ROADS - TYPICAL	
BRIDGE/STRUCTURE No.	NA	
CONSULTANT DRAWING No.	FA 3257 / 23 / 14 TP	VER
SANRAL DOCUMENT #	TD-D-IS-002-V1	V0

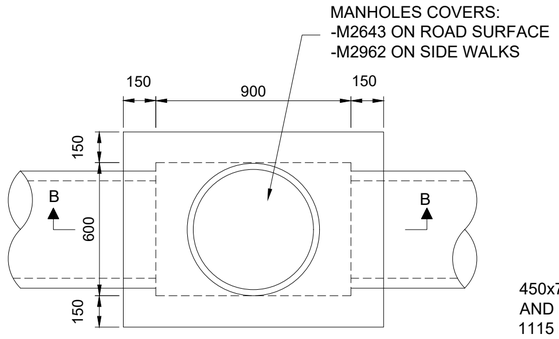
SANRAL DOCUMENT NUMBER : TD-D-IS-002-V1

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\12 - Typicals\3257_23_14 TP - INLET STRUCTURES - DOWN PIPES FOR SIDE INLETS SH_20190515.dwg



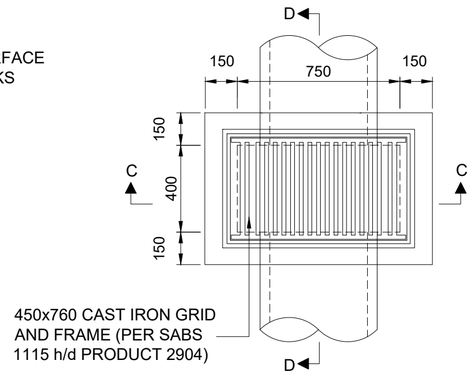
PLAN VIEW: FIELD INLET

SCALE 1:20



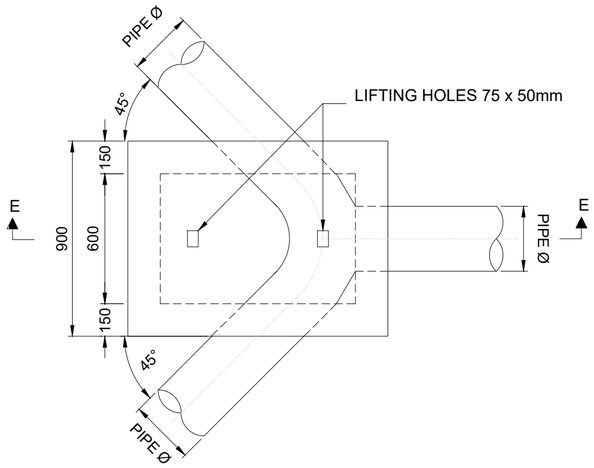
PLAN VIEW: MANHOLE 900 X 600

SCALE 1:20



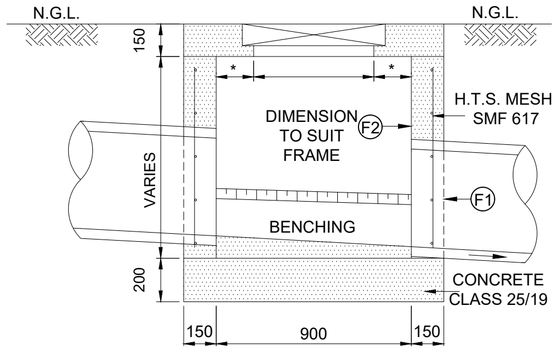
PLAN VIEW: GRID INLET

SCALE 1:20



PLAN VIEW : JUNCTION BOX

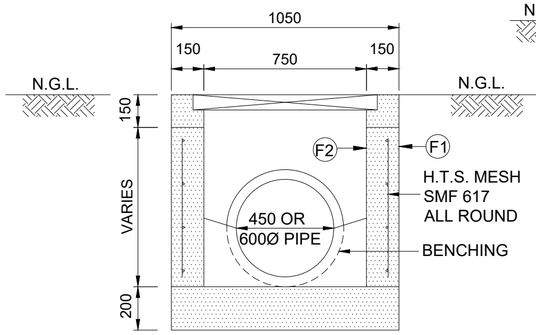
SCALE 1:20



* - EQUAL IN DIMENSION AND DEPENDS ON FRAME SIZE

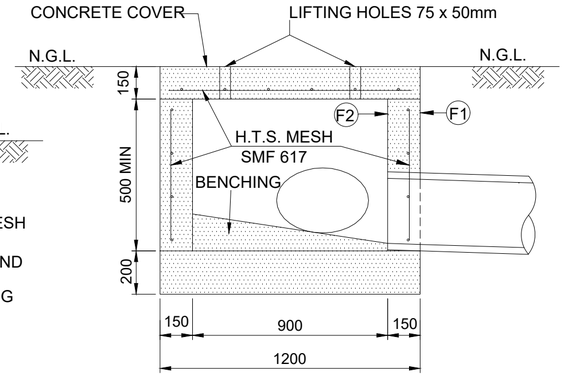
SECTION B-B

SCALE 1:20



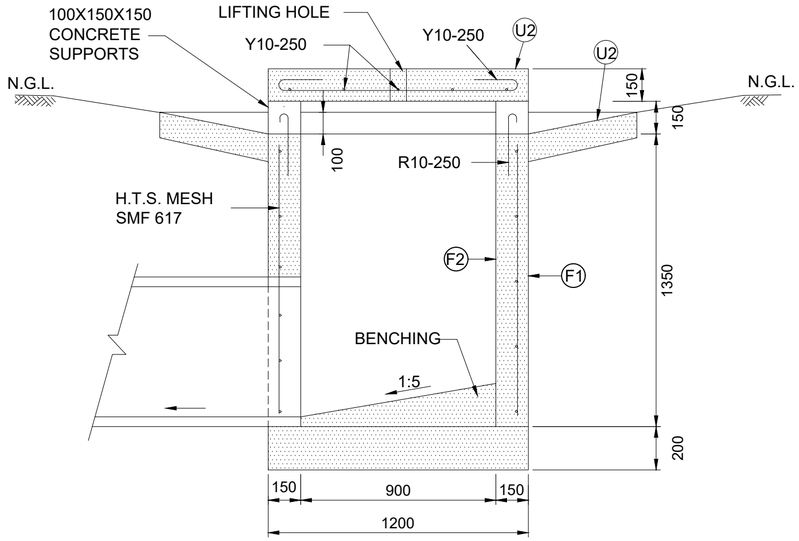
SECTION C-C

SCALE 1:20



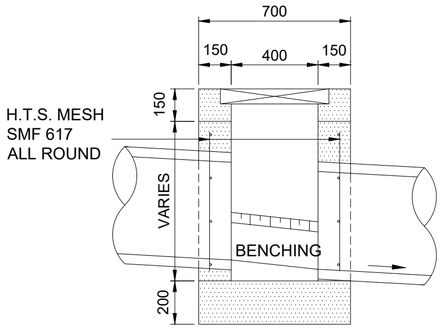
SECTION E-E

SCALE 1:20



SECTION A-A

SCALE 1:20



SECTION D-D

SCALE 1:20

NOTES:

1. REINFORCEMENT :
   SABS 920 (LATEST REVISION)
   HIGH TENSILE STEEL.
   WORKING STRESS - 210 MPa 2.
2. CONCRETE :
   STRUCTURES - CLASS 30/19
   BENCHING - CLASS 10/19
3. SURFACE FINISH :
   FORMED SURFACES - F1,F2.
   UNFORMED SURFACES - U2.
4. MINIMUM CONCRETE COVER IS 40 mm.
5. ALL EXPOSED CORNERS MUST BE ROUNDED OFF TO A RADIUS OF 10 mm OR MUST BE CHAMFERED 25 mm x 25 mm.
6. FIELD INLET NOT FOR USE CLOSER THAN 9m FROM TRAFFICKED LANE.

No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date :

CONSULTANT
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DESIGNED BY	
NAME	EF DAY
Prof. Reg. No.	20130622
CHECKED BY	
NAME	PL NGQUMSHE
Prof. Reg. No.	20080112
DRAWN BY	
NAME	WB HARTMANN

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 15 / 01 / 2019

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Date:

PROJECT DESCRIPTION
N4 UPGRADE PHASE 2 - DETAILED DESIGN

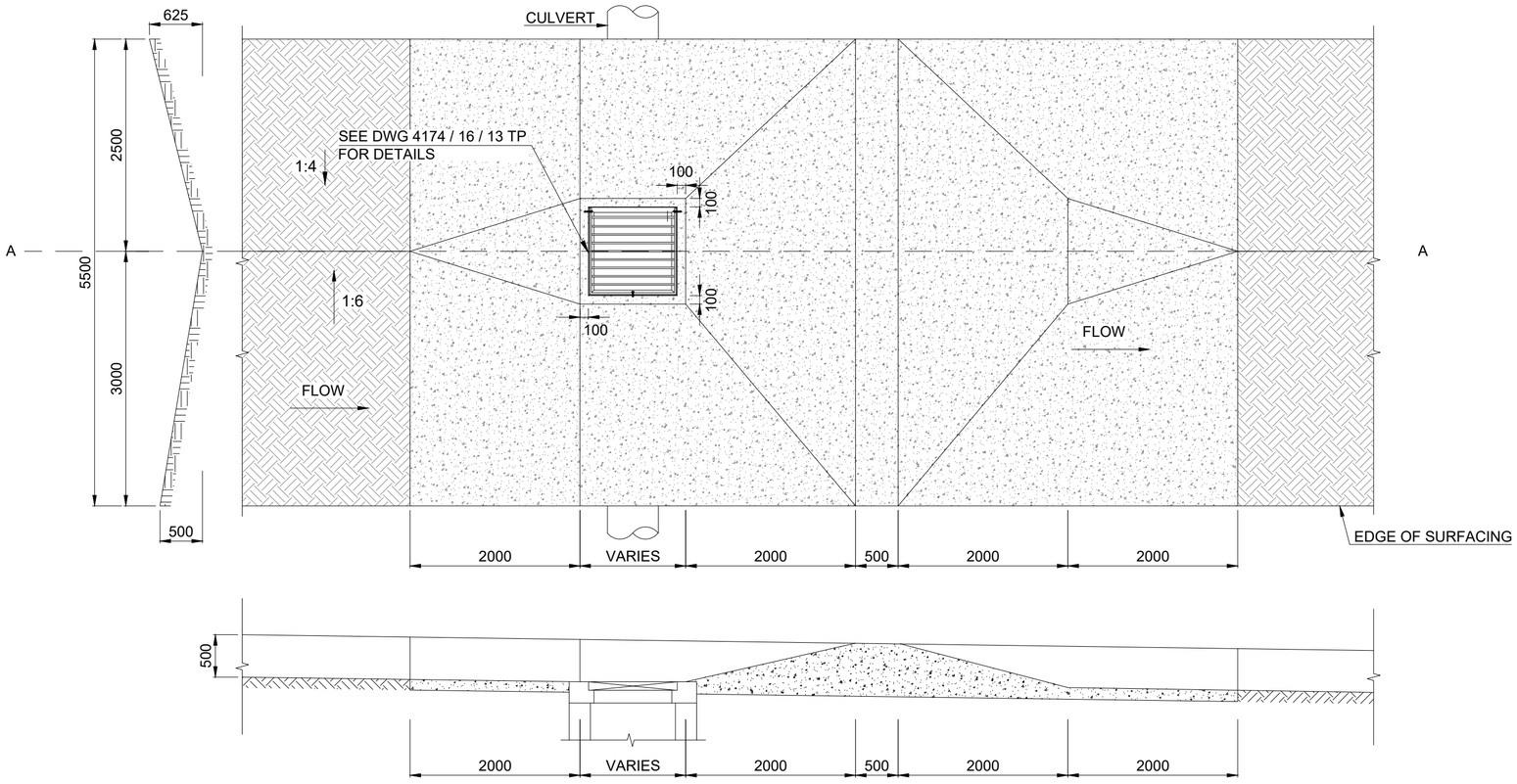
DRAWING DESCRIPTION
INLET STRUCTURES
FIELD AND GRID INLETS - MANHOLES

SCALE : AS SHOWN (A2) | SHEET 01 OF 01

PROJECT NUMBER	3257		
DRAWING LOCATION DATA	START	END	
ROUTE	N 4	N 4	
SECTION	13	13	
DRAWING km DISTANCE	- -	- -	
DRAWING TYPE	ROADS - TYPICAL		
BRIDGE/STRUCTURE No.	NA		
CONSULTANT DRAWING No.	FA	3257 / 13 / 15 TP	VER
SANRAL DOCUMENT #	TD-D-IS-004-V1		V0

SANRAL DOCUMENT NUMBER : TD-D-IS-002-V1

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\12 - Typicals\3257_23_15 TP - INLET STRUCTURES - FIELD AND GRID INLETS - MANHOLES_20190515.dwg



SECTION A - A

NOTES :

1. REFER GENERAL NOTES REGARDING CONCRETE DRAINS ON SHEET 1 OF 7 (TR-D-RD-001)
2. DETAILS OF EXPANSION JOINTS IN CONCRETE DRAINS AND FINISHING OF SURFACING EDGE NEXT TO CONCRETE DRAINS SHOWN AS "DETAIL X" ON SHEET 1 OF 7 (TR-D-RD-001) APPLY TO ALL RELATED TYPICAL DRAWINGS.
3. MESH REF. 395 FOR DRAIN
4. MATERIAL:

4.1 REINFORCEMENT: SABS 920, LATEST REVISION.

4.2 CONCRETE: (CAST IN SITU)

: MEDIAN DRAINS AND TRANSITIONS - CLASS 30/19.
: MEDIAN INLETS AND MANHOLES - CLASS 30/19.
: ENERGY BREAKERS - CLASS 30/19.
: ANCHOR BLOCKS - CLASS 30/19.
: BENCHING - CLASS 15/19.

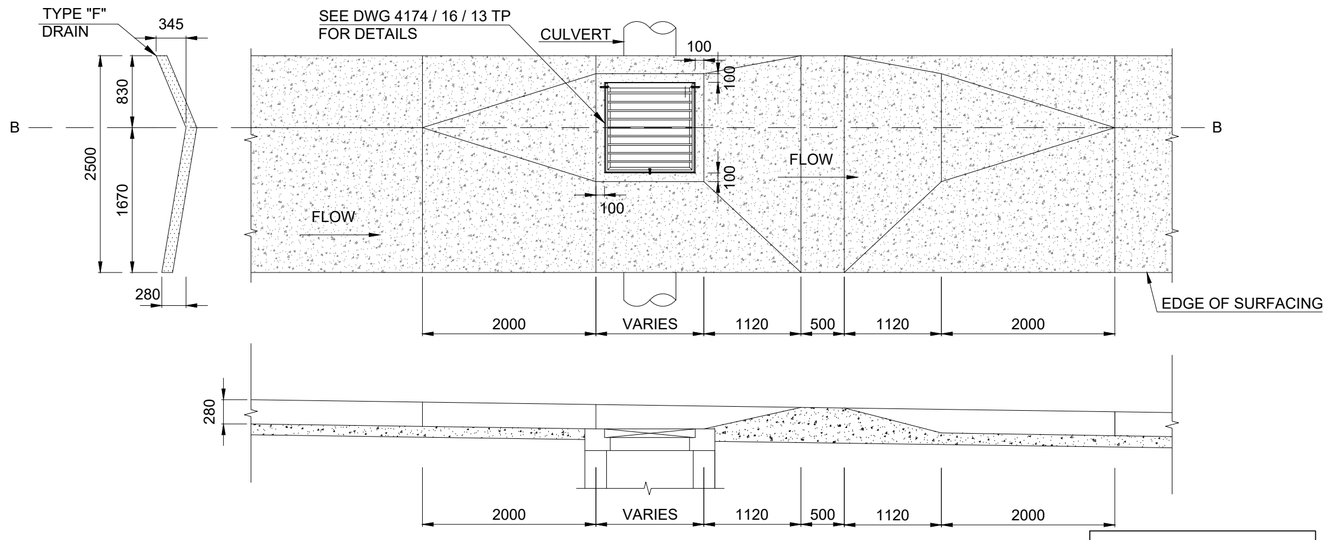
5. THE TYPE OF SURFACE FINISH IS INDICATED AS F1, F2 & U2.
   F - FORMED SURFACES.
   U - UNFORMED SURFACES.
6. MINIMUM CONCRETE COVER TO MAIN REINFORCEMENT IS 40mm.
7. ALL EXPOSED CORNERS MUST BE ROUNDED OFF TO A MINIMUM RADIUS OF 10mm OR BE CHAMFERED 25mm x 25mm.

PLAN OF GRID INLET FOR EARTHLINED DRAINS

SCALE 1:50

PLAN OF GRID INLET FOR SIDE DRAINS

SCALE 1:50



SECTION B - B

TENDER

SANRAL DOCUMENT NUMBER :

No.	DATE	REVISION	
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date :

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DESIGNED BY	
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Prof. Reg. No.	20130622
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NAME	PL NGQUMSHE
Prof. Reg. No.	20080112
DRAWN BY	
NAME	WB HARTMANN

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17/07/2023

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Date:

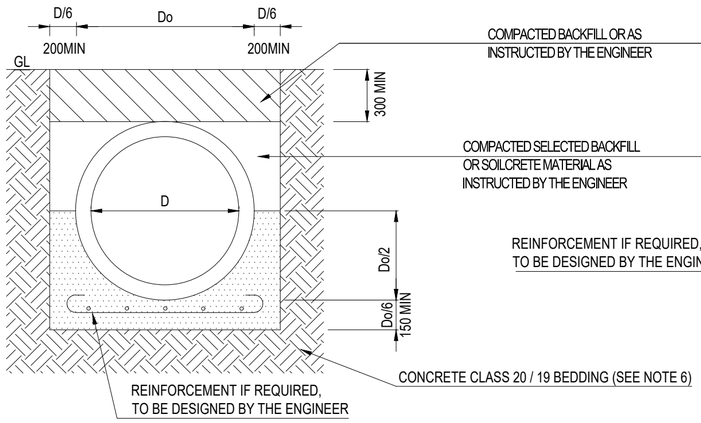
PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION
INLET STRUCTURES
DISH AND BERM INLETS

SCALE : AS SHOWN (A2) | SHEET 01 OF 01

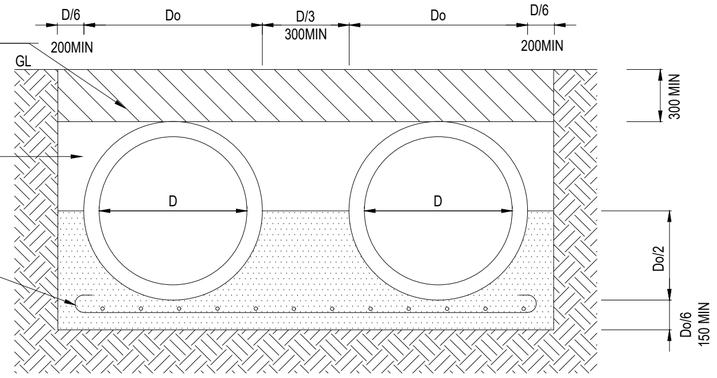
PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	13	13
DRAWING km DISTANCE	- -	- -
DRAWING TYPE	ROADS - TYPICAL	
BRIDGE/STRUCTURE No.	NA	
CONSULTANT DRAWING No.	FA 3257 / 23 / 16 TP	VER
SANRAL DOCUMENT #	--	V0

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\12 - Typicals\3257_23_16 TP- INLET STRUCTURES - DISH AND BERM INLETS 20190515.dwg



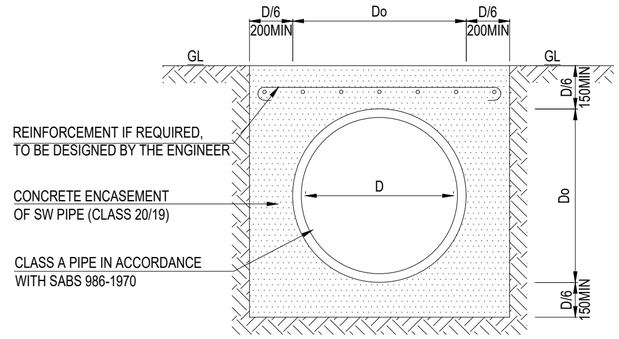
CLASS "A" BEDDING
FOR SOFT EXCAVATIONS (SINGLE PIPE)

N.T.S.



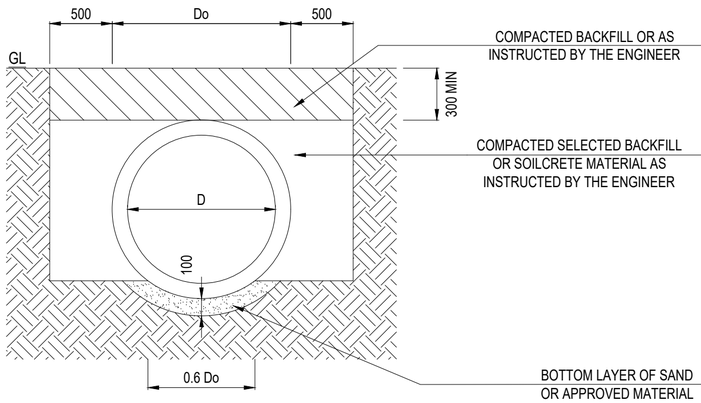
CLASS "A" BEDDING
FOR SOFT EXCAVATIONS (DOUBLE PIPE)

N.T.S.



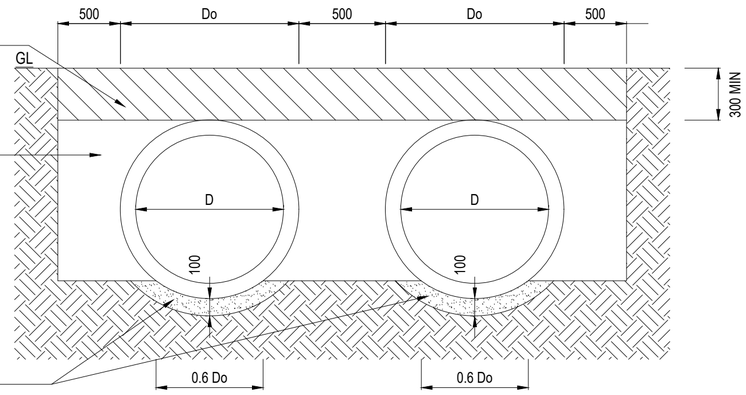
CONCRETE ENCASEMENT OF PIPES

SCALE : N.T.S.



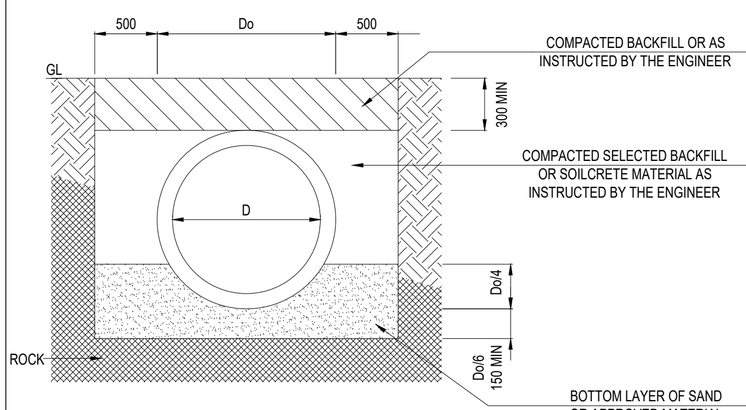
CLASS "B" BEDDING
FOR SOFT EXCAVATIONS (SINGLE PIPE)

N.T.S.



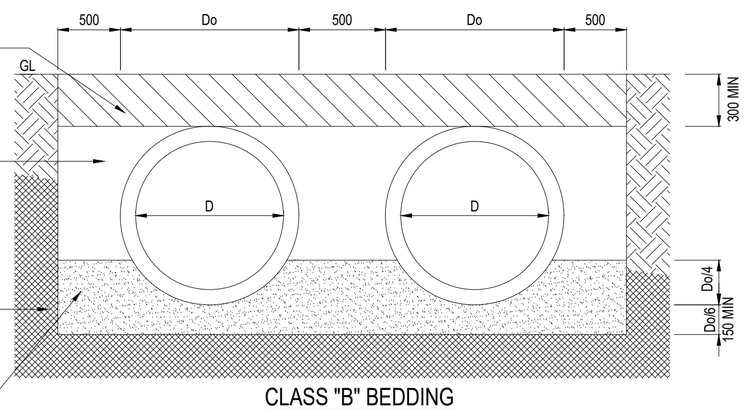
CLASS "B" BEDDING
FOR SOFT EXCAVATIONS (DOUBLE PIPE)

N.T.S.



CLASS "B" BEDDING
FOR HARD EXCAVATIONS (SINGLE PIPE)

N.T.S.



CLASS "B" BEDDING
FOR HARD EXCAVATIONS (DOUBLE PIPE)

N.T.S.

LEGEND:

H = TOTAL COVER OVER THE PIPE BELOW THE FINAL ROAD LEVEL
D = INTERNAL BARREL DIMENSION
Do = OUTSIDE BARREL DIMENSION
GL = GROUND LEVEL MEANING EITHER OF THE FOLLOWING:
AN INTERMEDIATED FILL LEVEL IN ORDER TO PROVIDE
THE MINIMUM COVER OVER THE PIPE FOR A TRENCH CONDITION OR
THE UNDERSIDE OF THE SELECTED SUBGRADE OR SUBBASE.

NOTES:

1. ALL CONCRETE PIPES SHALL COMPLY WITH THE REQUIREMENTS OF SANS 667 - 1986, STANDARD SPECIFICATIONS FOR NON-PRESSURE PIPES.
2. THE BEDDING TYPE SHALL BE DESIGNED IN ACCORDANCE WITH SANS 0102 PART II - 1987 IN CONJUNCTION WITH THE CONCRETE PIPE AND PORTAL CULVERT HANDBOOK (2006 REVISION) OF THE CONCRETE MANUFACTURERS
3. THE PIPE CLASS MUST BE DETERMINED FROM THE WEIGHT OF THE PRISM OF FILL ABOVE THE CULVERT PLUS THE SNABC LOADINGS IN ACCORDANCE WITH TMH 7 (PARTS 1 & 2) "CODE OF PRACTICE FOR THE DESIGN OF HIGHWAY BRIDGES AND CULVERTS IN SOUTH AFRICA".
4. THE MAXIMUM WHEEL LOAD ALLOWED ON THE PIPE IS 90 KN WITH A MINIMUM FILL OF 300MM ON TOP OF THE PIPE.
5. CONCRETE IN CLASS A BEDDING AND IN CONCRETE ENCASEMENT SHALL BE CLASS 20/19.
6. CONCRETE IN CLASS A BEDDING CAN EITHER BE REINFORCED OR UN-REINFORCED DEPENDING ON THE PREVAILING CONDITIONS.
7. MINIMUM 300MM SELECTED BACKFILL OR SOILCRETE MATERIAL OVER PIPES.
8. IN CASES WHERE H < 600MM THE PIPE SHALL BE ENCASED IN CLASS 20/19 CONCRETE AS SHOWN

NOMINAL PIPE DIA (D) Ø	DIA OUTSIDE (Do) (approx)	SIDE ALLOWANCE PER SIDE		
		ENCASE 200min	BEDDING	
			CLASS A Do/6 200min	CLASS B Do/2.5 500min
600	700	200	200	500
750	870	200	200	500
900	1030	200	200	500
1050	1195	200	200	500
1200	1360	225	225	500
1350	1525	250	250	500
1500	1680	300	300	500

TENDER

No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
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PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

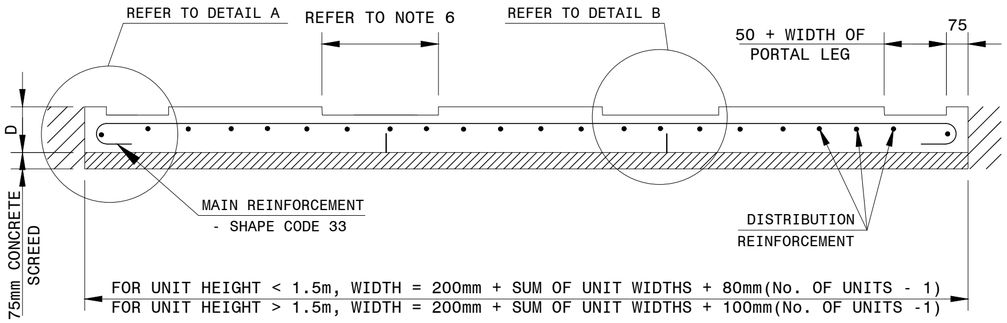
DRAWING DESCRIPTION
MISCELLANEOUS PIPE LAYING DETAIL

SCALE : NOT TO SCALE
SHEET 01 OF 01

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	13	13
DRAWING km DISTANCE	- -	- -
DRAWING TYPE	ROADS - TYPICAL	
BRIDGE/STRUCTURE No.	NA	
CONSULTANT DRAWING No.	FA 3257 / 23 / 17 TP	VER
SANRAL DOCUMENT #	TD-D-MS-001-V1	V0

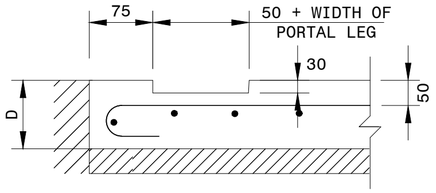
SANRAL DOCUMENT NUMBER : TD-D-MS-001-V1

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\12 - Typicals\3257_23_17 TP - MISCELLANEOUS - PIPE LAYING DETAILS_20180315.dwg



TYPICAL SECTION THROUGH CULVERT SHOWING FLOOR SLAB REINFORCEMENT

SCALE : SCHEMATIC



DETAIL A

SCALE : SCHEMATIC

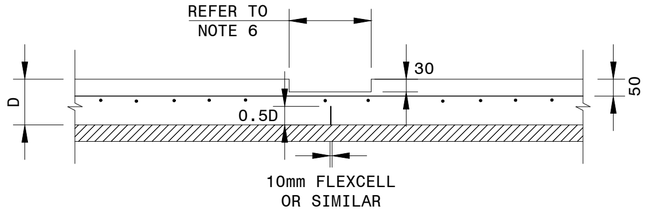
NOTES:

1. CONCRETE CLASS 30/19.
2. MINIMUM COVER TO REINFORCEMENT IS 50mm.
3. ALL MAIN REINFORCEMENT TO BE FULLY ANCHORED BOTH SIDES.
4. STOOLS SHALL BE PROVIDED TO SUPPORT THE REINFORCEMENT WHERE THE SPAN OF THE PORTAL IS GREATER THAN 1 200mm.
5. THE COMBINATIONS OF FOUNDATION AND INSTALLATION CONDITIONS USED ARE DEFINED AS FOLLOWS:

   CONDITION 1: CULVERTS IN TRENCH ON UNYIELDING FOUNDATION WITH NO PROJECTION.
   CONDITION 2: CULVERTS UNTRENCHED ON YIELDING FOUNDATION.
   CONDITION 3: CULVERTS UNTRENCHED ON UNYIELDING FOUNDATION FOR h > 1.7 x b.
   CONDITION 4: CULVERTS UNTRENCHED ON UNYIELDING FOUNDATION FOR h < 1.7 x b.

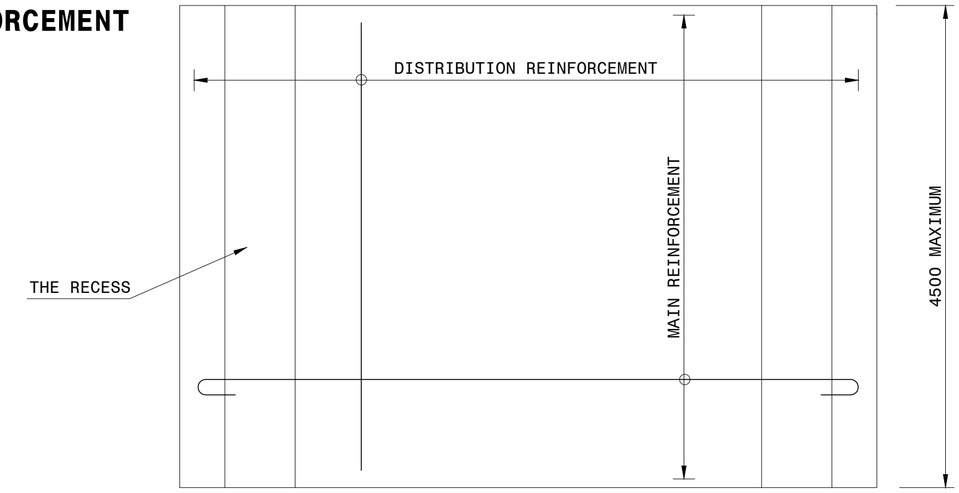
   WHERE h = FILL HEIGHT IN METRES
   b = OVERALL TRENCH WIDTH OR, IF UNTRENCHED, OVERALL CULVERT WIDTH, IN METRES.

6. FOR H < 1.5m, THE WIDTH = 130mm + 2 x WIDTH OF PORTAL LEG,
   FOR H > 1.5m, THE WIDTH = 150mm + 2 x WIDTH OF PORTAL LEG.



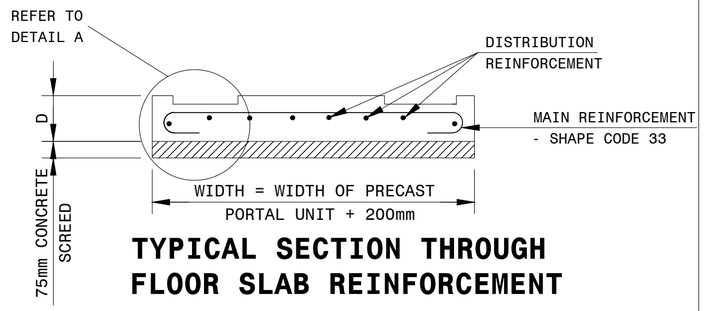
DETAIL B

SCALE : SCHEMATIC



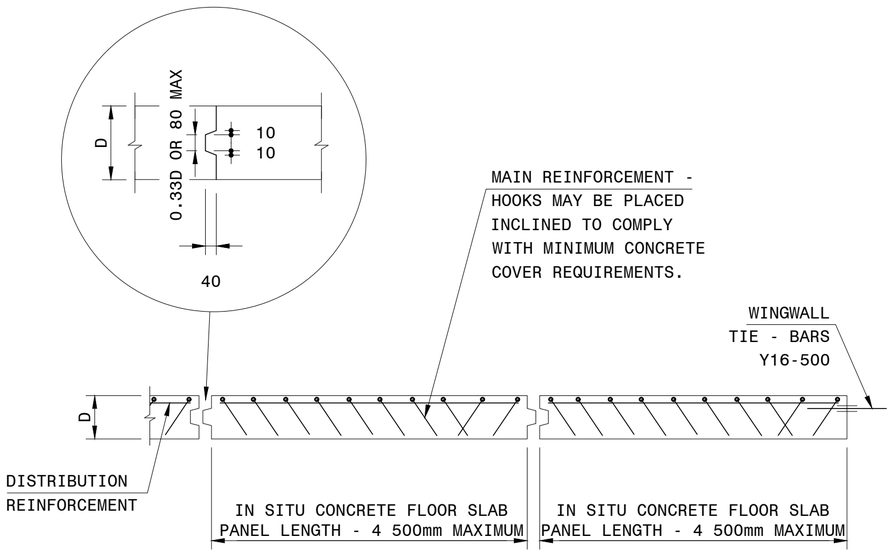
PLAN VIEW FOR SLAB REINFORCEMENT

SCALE : SCHEMATIC



TYPICAL SECTION THROUGH FLOOR SLAB REINFORCEMENT

SCALE : SCHEMATIC



JOINT DETAILS BETWEEN FLOOR SLAB SECTIONS

SCALE : SCHEMATIC

	FOUNDATION CONDITIONS 1 & 2				FOUNDATION CONDITIONS 3 & 4			
	TRENCHED ON UNYIELDING AND UNTRENCHED ON YIELDING				UNTRENCHED ON UNYIELDING			
SPAN (mm)	CLASS	FLOOR THICKNESS D - (mm)	MAIN REINFORCEMENT	DISTRIBUTION REINFORCEMENT	CLASS	FLOOR THICKNESS D - (mm)	MAIN REINFORCEMENT	DISTRIBUTION REINFORCEMENT
600	200 S	150	Y12-150	Y10-250	200 S	150	Y10-200	Y10-250
750	175 S	150	Y12-150	Y10-250	175 S	150	Y10-200	Y10-250
900	175 S	150	Y12-120	Y10-250	175 S	150	Y10-200	Y10-250
1200	150 S	160	Y12-100	Y10-200	150 S	160	Y12-200	Y10-200
1500	100 S	175	Y12-100	Y10-200	100 S	175	Y12-200	Y10-200
1800	75 S	190	Y12-100	Y10-200	75 S	190	Y12-200	Y10-200
2100	75 S	220	Y12-100	Y10-200	75 S	220	Y12-200	Y10-200
2400	75 S	260	Y12-100	Y10-200	75 S	260	Y12-100	Y10-200
3000	75 S	320	Y16-120	Y10-200	75 S	320	Y16-200	Y10-200
3600	75 S	330	Y16-100	Y10-200	75 S	330	Y16-200	Y10-200

TENDER

REFERENCE DRAWINGS

THIS DRAWING FORMS PART OF AND MUST BE READ IN CONJUNCTION WITH TYPICAL DRAWINGS TD-S-C-002

No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
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THIS ACCEPTANCE IS FOR PROCEDURAL AND ADMINISTRATIVE REVIEW PURPOSES ONLY AND DOES NOT ATTRACT LEGAL LIABILITY OR LIABILITY OF ANY KIND FROM WHATSOEVER CAUSE OR HOWEVER ARISING
for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

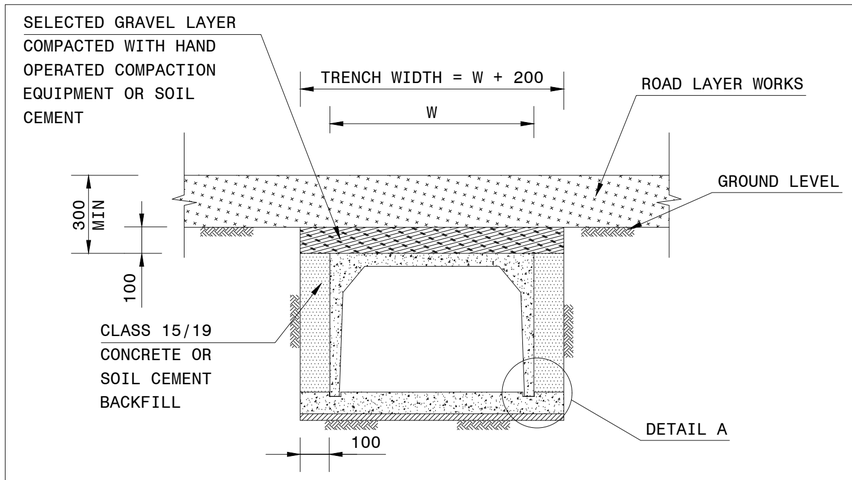
DRAWING DESCRIPTION
PRECAST PORTAL CULVERT
BASE SLAB

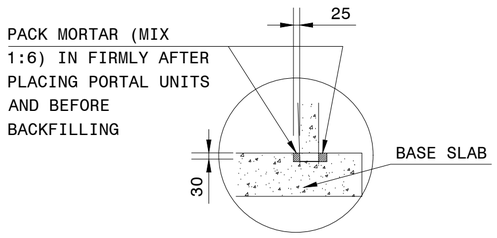
SCALE : NOT TO SCALE | SHEET 01 OF 02

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	13	13
DRAWING km DISTANCE	- -	- -
DRAWING TYPE	ROADS - TYPICAL	
BRIDGE/STRUCTURE No.	NA	
CONSULTANT DRAWING No.	FA 3257 / 23 / 18 TP	VER
SANRAL DOCUMENT #	TD-S-C-001-V1	V1

SANRAL DOCUMENT NUMBER : TD-S-C-001-V1

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\12 - Typicals\3257_23_18 TP- PRECAST CULVERT DETAILS SHEET 1 OF 2_20190515.dwg

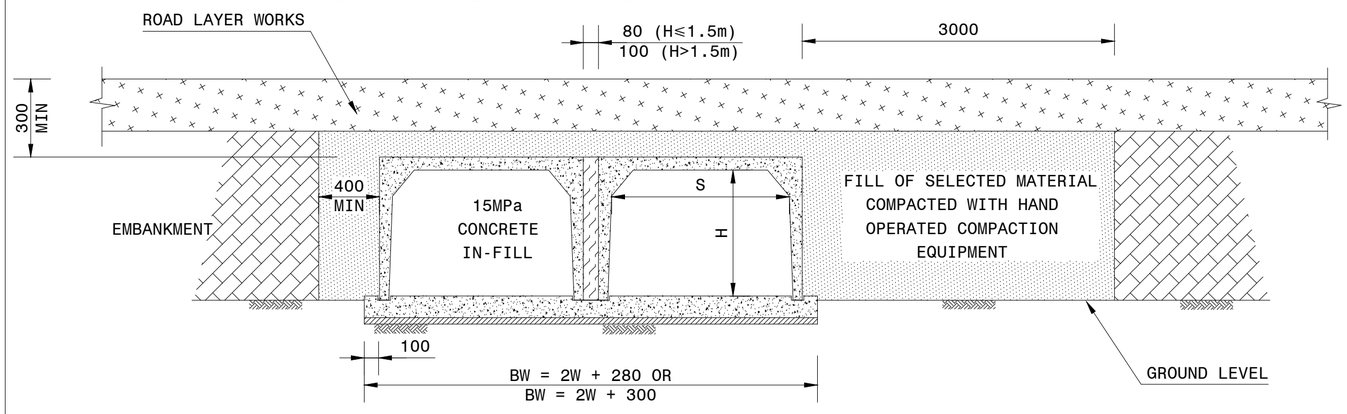




DETAIL A

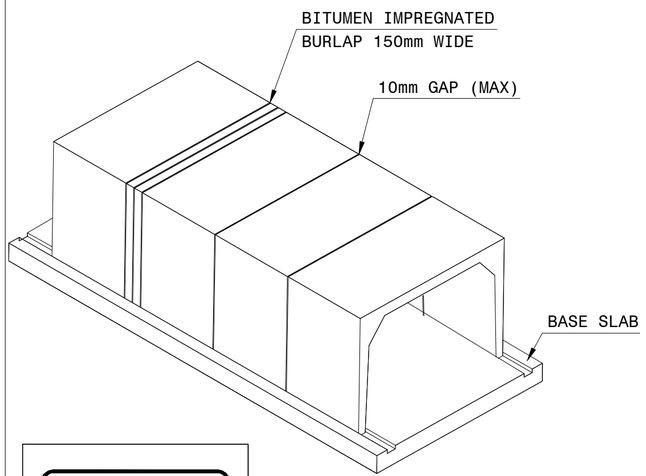
NOTE:
PLACE UNITS ON A THIN MORTAR BED OF 1:6 CEMENT : SAND

TRENCHED INSTALLATION



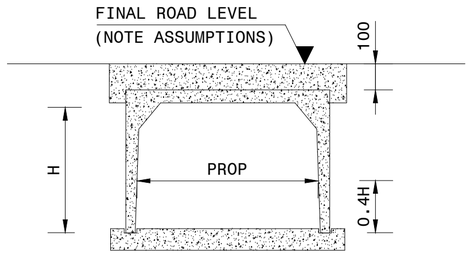
INSTALLATION AFTER CONSTRUCTION OF EMBANKMENT | INSTALLATION BEFORE CONSTRUCTION OF EMBANKMENT

EMBANKMENT INSTALLATION



TENDER

CULVERT AND BASE CONFIGURATION



NOTE :
FOR H≥1.5m PROVIDE HORIZONTAL PROPS AT 0.4 x HEIGHT ABOVE BASE DURING BACKFILLING AND COMPACTION. ONE PROP PER PRECAST UNIT

TEMPORARY PROPPING ARRANGEMENT

CULVERT SIZE.			FOUNDATION CONDITIONS 1 & 2		FOUNDATION CONDITIONS 3 & 4	
SPAN		HEIGHT	CLASS	FILL	CLASS	FILL
(mm)	x	(mm)		(m)		(m)
600	x	300		10.2		5.6
600	x	450	200 S	11.0	200 S	6.0
600	x	600		12.0		6.4
750	x	300		8.7		4.9
750	x	450	175 S	9.2	175 S	5.2
750	x	600		10.0		5.5
750	x	750		10.5		5.8
900	x	300		8.6		4.8
900	x	450		9.0		5.1
900	x	600	175 S	9.5	175 S	5.3
900	x	750		10.0		5.6
900	x	900		10.2		5.8
1200	x	300		7.1		4.1
1200	x	450		7.4		4.3
1200	x	600	150 S	7.7	150 S	4.4
1200	x	900		8.2		4.7
1200	x	1200		8.8		5.0
1500	x	300		4.5		2.9
1500	x	450		4.7		3.0
1500	x	600	100 S	4.9	100 S	3.1
1500	x	900		5.3		3.3
1500	x	1200		5.6		3.5
1500	x	1500		6.0		3.7
1800	x	600		3.3		2.4
1800	x	900		3.6		2.5
1800	x	1200	75 S	3.8	75 S	2.7
1800	x	1500		4.0		2.8
1800	X	1800		4.3		2.9
2100	x	600		3.3		2.4
2100	x	900		3.5		2.6
2100	x	1200	75 S	3.7	75 S	2.7
2100	x	1500		3.9		2.8
2100	x	1800		4.1		2.9
2100	x	2100		4.3		3.0
2400	x	600		3.2		2.4
2400	x	900		3.4		2.5
2400	x	1200	75 S	3.5	75 S	2.1
2400	x	1500		3.7		2.9
2400	x	1800		3.8		2.8
2400	x	2400		4.0		3.0
3000	x	600		3.1		2.4
3000	x	900		3.2		2.5
3000	x	1200		3.3		2.6
3000	x	1500	75 S	3.4	75 S	2.7
3000	x	1800		3.5		2.7
3000	x	2400		3.7		2.9
3000	X	3000		3.1		2.7
3600	x	600		3.1		2.4
3600	x	900		3.1		2.5
3600	x	1200		3.2		2.6
3600	x	1500	75 S	3.3	75 S	2.6
3600	x	1800		3.3		2.7
3600	x	2400		3.5		2.8
3600	X	3000		3.5		2.7

TABLE 1. Maximum fill height on S-load culverts under SNABC traffic loading

REFERENCE DRAWINGS

THIS DRAWING FORMS PART OF AND MUST BE READ IN CONJUNCTION WITH TYPICAL DRAWINGS TD-S-C-001 & TD-S-C-002

NOTES

PERMISSIBLE FILL HEIGHTS

THE RELATIONSHIP BETWEEN THE S-LOAD CULVERT CLASSES DEFINED IN SANS 986 AND THE CORRESPONDING MAXIMUM PERMISSIBLE FILL HEIGHTS TO MEET THE TMH7 REQUIREMENT WAS CALCULATED AND IS GIVEN IN TABLE 1. IF CULVERTS ARE TO BE PLACED UNDER HIGHER FILLS THAN THOSE GIVEN IN THIS TABLE THEN A HIGHER S-LOAD CLASS MUST BE SPECIFIED.

DEFINITIONS

YIELDING FOUNDATION CONDITIONS OCCUR WHEN THE FOUNDING MATERIAL AND THE FILL MATERIAL ARE EXPECTED TO SETTLE AT EQUAL RATES (COMPRESSIBLE MATERIAL). THE LOADING IS CALCULATED IN ACCORDANCE WITH TMH7 PART 2 CLAUSE 2.3.3.2(2).

UNYIELDING FOUNDATION CONDITIONS OCCUR WHEN THE FOUNDATION MATERIAL IS INCOMPRESSIBLE (SOFT ROCK OR OTHER HARDER MATERIAL). THE LOADING IS CALCULATED IN ACCORDANCE WITH TMH7 PART 2 CLAUSE 2.3.3.2(3) AND (4).

TRENCH CONDITION OCCURS WHEN CULVERTS ARE LAID IN A NARROW EXCAVATION AND BACKFILLED TO GROUND LEVEL

EMBANKMENT (UNTRENCHED) CONDITION OCCURS WHEN CULVERTS ARE LAID AT GROUND LEVEL AND BACKFILLED TO FINAL FORMATION LEVEL

THE COMBINATIONS OF FOUNDATION AND INSTALLATION CONDITIONS USED IN TMH7 ARE DEFINED AS:

CONDITION 1: CULVERTS IN TRENCH IN UNYIELDING FOUNDATION WITH NO PROJECTION.
CONDITION 2: CULVERTS UNTRENCHED ON YIELDING FOUNDATION.
CONDITION 3: CULVERTS UNTRENCHED ON UNYIELDING FOUNDATION FOR h > 1.7b
CONDITION 4: CULVERTS UNTRENCHED ON UNYIELDING FOUNDATION FOR h ≤ 1.7b

WHERE h = FILL HEIGHT IN METRES (ABOVE UNIT)
b = OVERALL TRENCH WIDTH OR, IF UNTRENCHED, OVERALL CULVERT WIDTH, IN METRES.

ASSUMPTIONS

THE FOLLOWING ASSUMPTIONS AND CLAUSES OF TMH7 PART 1 AND 2 WERE USED TO COMPILE TABLE 1

- A MINIMUM FILL HEIGHT OF 300mm OVER THE CULVERT UNITS. WHERE THIS CANNOT BE ACHIEVED A 100mm REINFORCED CONCRETE SLAB MUST BE USED.
- STANDARD TRAFFIC LOADING (SNABC) AS DESCRIBED IN CLAUSE 2.6.1.2.
- FILL MATERIAL UNIT WEIGHT 20kN/m³[CLAUSE 2.3.1]
- CONCRETE UNIT WEIGHT 24kN/m³[CLAUSE 2.2.1]
- HORIZONTAL EARTH PRESSURE 7.8kN/m² PER METRE DEPTH [CLAUSE 2.4.2]
- ULTIMATE LIMIT STATE LOAD FACTORS TABLE 7.

No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

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NAME	WB HARTMANN

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Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

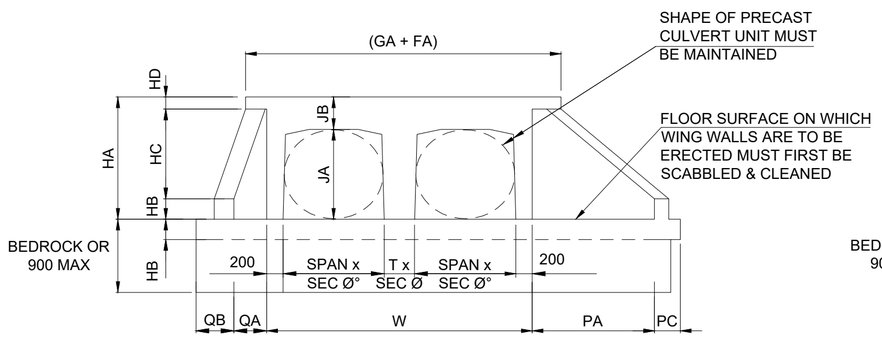
DRAWING DESCRIPTION
PRECAST PORTAL CULVERT BASE SLAB

SCALE : NOT TO SCALE | SHEET 02 OF 02

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001		
DRAWING LOCATION DATA	START	END	
ROUTE	N 4	N 4	
SECTION	13	13	
DRAWING km DISTANCE	- -	- -	
DRAWING TYPE	ROADS - TYPICAL		
BRIDGE/STRUCTURE No.	NA		
CONSULTANT DRAWING No.	FA	3257 / 23 / 19 TP	VER
SANRAL DOCUMENT #		TD-S-C-002-V1	V0

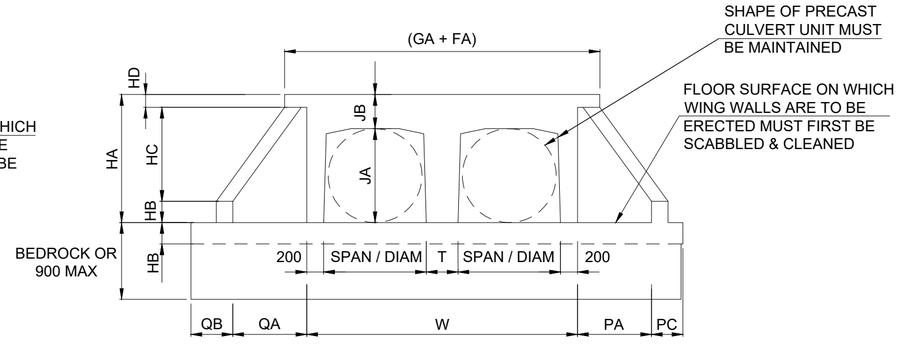
SANRAL DOCUMENT NUMBER : TD-S-C-002-V1

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\12 - Typicals\3257_03_19 TP- PRECAST CULVERT DETAILS SHEET 2 OF 2_20190515.dwg



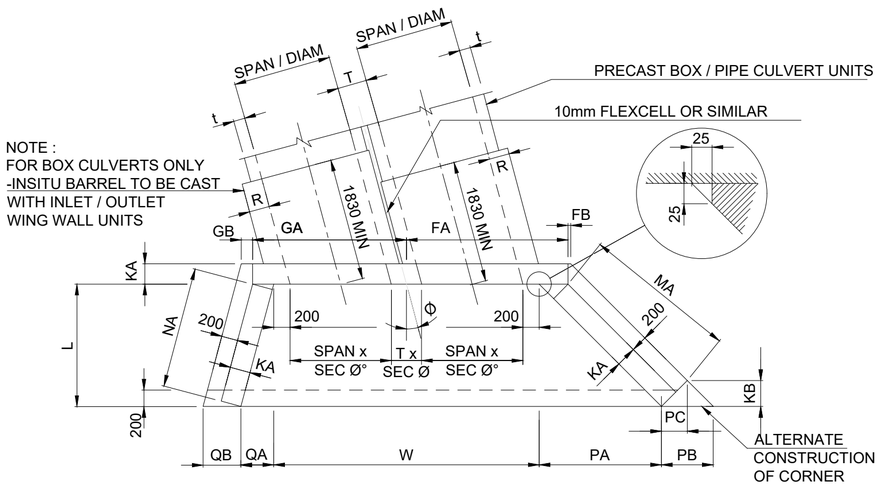
TYPICAL ELEVATION OF INLET / OUTLET WING WALLS - MAX Ø = 30°

N.T.S.



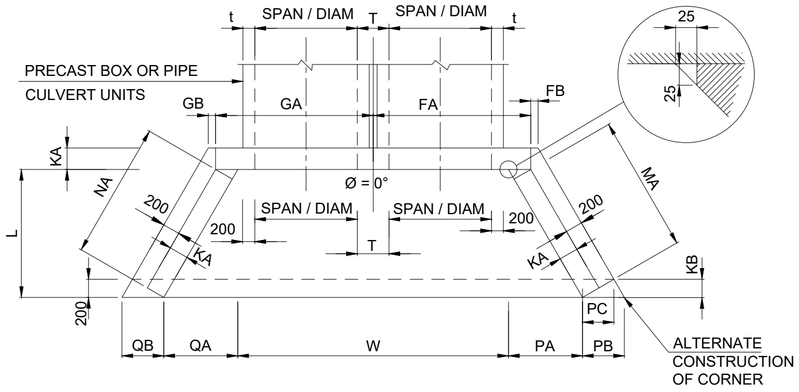
TYPICAL ELEVATION OF INLET / OUTLET WING WALLS - Ø = 0° (SQUARE)

N.T.S.



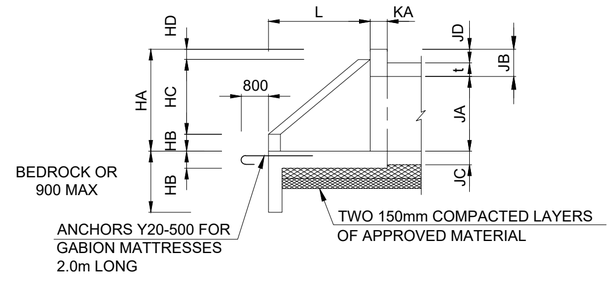
TYPICAL PLAN OF INLET / OUTLET WING WALLS - MAX Ø = 30°

N.T.S.



TYPICAL PLAN OF INLET / OUTLET WING WALLS - Ø = 0° (SQUARE)

N.T.S.



TYPICAL END-ELEVATION OF INLET / OUTLET WING WALLS - MAX Ø = 30°

N.T.S.

DATA SHEET AND FORMULAE

VERTICAL HEIGHT OF CULVERT	HB	HD	KA	JB
JA < 900	150	150	225	300
JA > 900	250	150	250	400

INSITU FLOOR SLAB (JC) AND PRECAST UNIT DECK THICKNESS (t)		
	JC	t
900mm SPAN	150mm	110mm
1200mm SPAN	160mm	125mm
1500mm SPAN	175mm	145mm
1800mm SPAN	190mm	150mm
2100mm SPAN	220mm	155mm
2400mm SPAN	260mm	170mm

All dimensions in mm

FORMULAE

L = HC x S (min.1500mm) S = BATTER SLOPE

QA = L x TAN(Ø-30) Ø = CULVERT SKEW ANGLE

PA = L x TAN(Ø+30) t = PRECAST WALL THICKNESS

NA = L x SEC(Ø-30) - KA x TAN(Ø-30)

MA = L x SEC(Ø+30) - KA x TAN(Ø+30)

T = t x 2 + 80

QB = (KA + 200) x SEC(Ø - 30)

PB = (KA + 200) x SEC(Ø + 30)

KB = (KA + 200) x SIN(Ø + 30)

PC = (KA + 200) x COS(Ø + 30)

GA = W/2 + KA x SEC(Ø -30)

GB = {[200 x COSEC(Ø - 30)] - KA} x TAN(Ø - 30)

FA = W/2 + KA x SEC(Ø +30)

FB = {[200 x COSEC(Ø + 30)] - KA} x TAN(Ø + 30)

R = t + 100 (INSITU BARREL SLAB THICKNESS)

TENDER

No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
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NAME	PL NGQUMSHE
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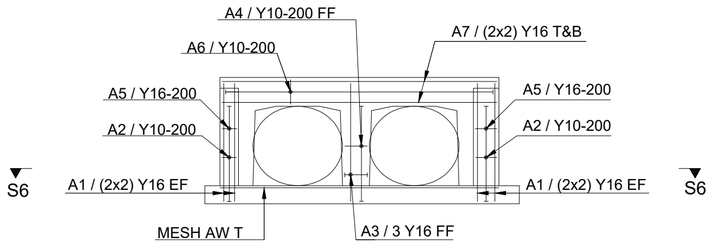
DRAWING DESCRIPTION
WING WALLS FOR PRECAST CULVERTS DIMENSIONS

SCALE : NOT TO SCALE | SHEET 01 OF 02

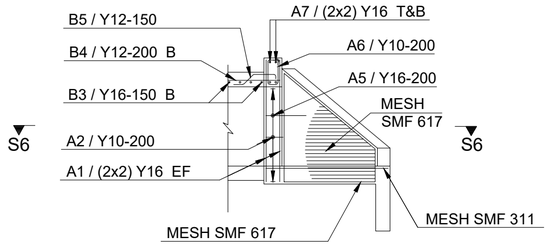
PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	13	13
DRAWING km DISTANCE	- -	- -
DRAWING TYPE	ROADS - TYPICAL	
BRIDGE/STRUCTURE No.	NA	
CONSULTANT DRAWING No.	FA 3257 / 23 / 20 TP	VER
SANRAL DOCUMENT #	TD-D-WW-001-V1	V0

SANRAL DOCUMENT NUMBER : TD-D-WW-001-V1

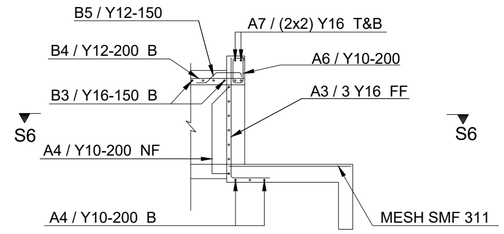
W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\12 - Typicals\3257_23_20 TP - PRECAST CULVERT WING WALLS - DIMENSIONS SHEET 1_20190515.dwg



SECTION S1-S1 - INLET / OUTLET WING WALLS HEADWALL & COLUMNS - REINFORCEMENT



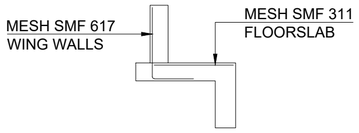
SECTION S2-S2 - INLET / OUTLET WING WALLS HEADWALL & WING WALLS - REINFORCEMENT



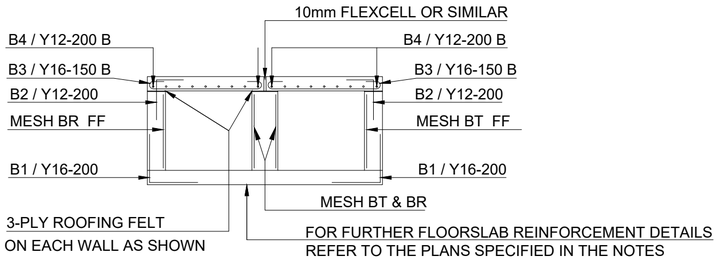
SECTION S3-S3 - INLET / OUTLET WING WALLS HEADWALL & COLUMNS - REINFORCEMENT

NOTE:

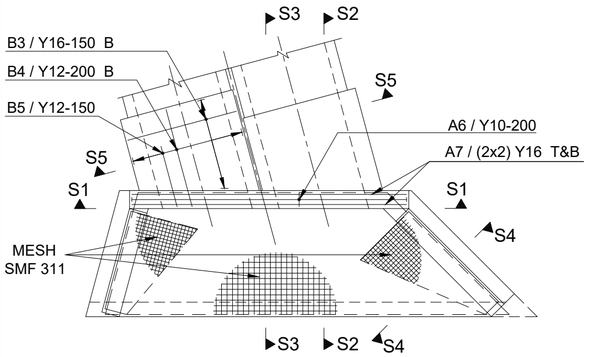
MESH REINFORCEMENT ONLY
FOR CULVERTS WHERE
VERTICAL OPENING, JA > 900



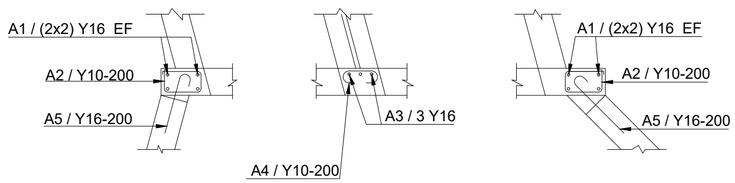
SECTION S4-S4 - INLET / OUTLET WING WALLS WING WALLS & FLOORSLAB - REINFORCEMENT



SECTION S5-S5 - INLET / OUTLET WING WALLS INSITU BARREL (BOX CULVERTS ONLY) - REINFORCEMENT



TYPICAL REINFORCEMENT PLAN OF INLET / OUTLET WING WALLS - MAX Ø = 30°



SECTION S6-S6 - INLET/OUTLET WING WALLS HEADWALL COLUMNS - REINFORCEMENT

NOTES FOR INLET / OUTLET WING WALLS:

1. DESIGN CRITERIA

1.01 THE WING WALLS ARE DESIGNED AS CANTILEVERS FIXED TO THE BASE AND SUPPORTED BY THE HEADWALL.
1.02 THE WING WALLS ARE DESIGNED FOR A SURCHARGE OF 750mm AND A MAXIMUM SLOPE OF 1:1,5 FOR ANY FILL HEIGHT.
1.03 THE DENSITY OF SOIL = 20 kN/m.
1.04 SOIL PRESSURES DETERMINED USING RANKINE'S THEORY.
1.05 CONCRETE: WING WALL INSITU BARREL
CHARACTERISTIC STRENGTH (MPa) 30 30
CLASS CONCRETE 30 / 19 30 / 19
1.06 REINFORCEMENT ACCORDING TO SABS 920 - LATEST REVISION.
CHARACTERISTIC STRENGTH OF HIGH TENSILE STEEL = 450 MPa.
CHARACTERISTIC STRENGTH OF HIGH TENSILE STEEL MESH = 450 MPa.
1.07 A LINEAR SOIL PRESSURE DISTRIBUTION IS ASSUMED.
1.08 THE INSITU BARREL IS DESIGNED FOR SNABC TRAFFIC LOADING IN ACCORDANCE WITH TMH 7 PARTS 1,2&3 (AS AMENDED 1988) "CODE OF PRACTICE FOR THE DESIGN OF HIGHWAY BRIDGES AND CULVERTS IN SOUTH AFRICA".

2. GENERAL

2.01 THE REQUIRED CLASS OF SURFACE FINISH IS F2 FOR ALL VISIBLE SURFACES.
2.02 ALL VISIBLE CORNERS MUST HAVE A 25 x 25 mm CHAMFER.
2.03 TWO 150 mm LAYERS OF APPROVED MATERIAL, COMPACTED TO 93% MODIFIED A.A.S.H.T.O. DENSITY, ARE REQUIRED UNDER THE INLETS AND OUTLETS.
2.04 MINIMUM CONCRETE COVER TO REINFORCEMENT IS 40mm.
2.05 FURTHER INFORMATION REGARDING SPECIFIC CULVERTS APPEAR ON THE DRAINAGE SCHEDULES, OF THE ROAD.
2.06 THE INLET AND OUTLET UNITS ARE DESIGNED TO ACT AS INDEPENDENT UNITS WHEN USED TOGETHER WITH PIPES, PRECAST BARRELS, AS WELL AS INSITU BARREL UNITS.
2.07 REINFORCEMENT DETAILS OF THE FLOOR SLAB SUPPORTING THE CULVERT BARRELS APPEAR ON THE TYPICAL PLAN FOR PRECAST PORTAL CULVERTS BASE SLABS.
2.08 THE HEADWALLS MUST BE ALIGNED PARALLEL TO THE ROAD SHOULDER.

TENDER

No.	DATE	REVISION	
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
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CHECKED BY	
NAME	PL NGQUMSHE
Prof. Reg. No.	20080112
DRAWN BY	
NAME	WB HARTMANN

CONSULTANT APPROVAL
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Date : 17/07/2023

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ACCEPTANCE
THIS ACCEPTANCE IS FOR PROCEDURAL AND ADMINISTRATIVE REVIEW PURPOSES ONLY AND DOES NOT ATTRACT LEGAL LIABILITY OR LIABILITY OF ANY KIND FROM WHATSOEVER CAUSE OR HOWEVER ARISING
for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION
PRECAST CULVERT WING WALL REINFORCEMENT

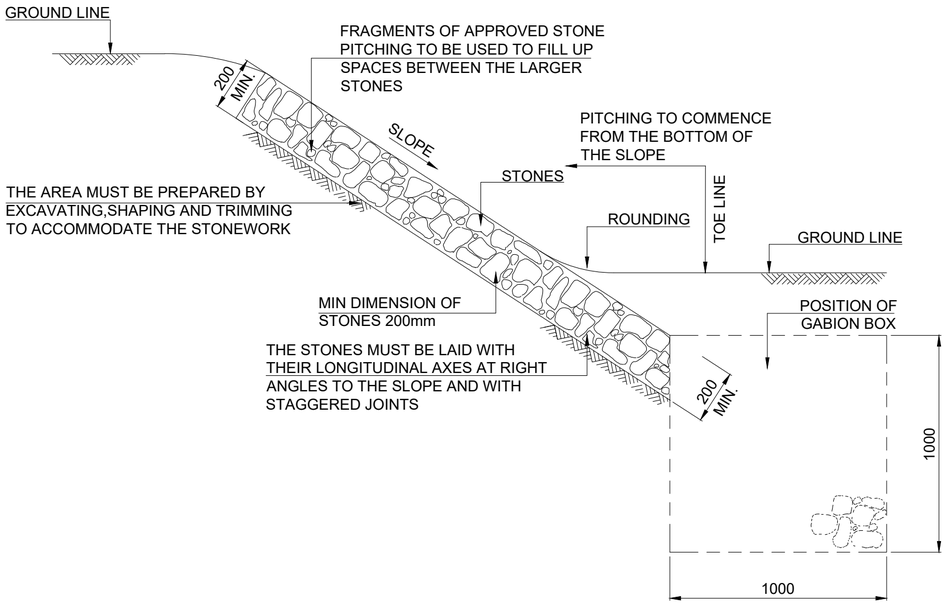
SCALE : NOT TO SCALE SHEET 02 OF 02

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	13	13
DRAWING km DISTANCE	- -	- -
DRAWING TYPE	ROADS - TYPICAL	
BRIDGE/STRUCTURE No.	NA	
CONSULTANT DRAWING No.	FA 3257 / 23 / 21 TP	VER
SANRAL DOCUMENT #	TD-D-WW-002-V1	V0

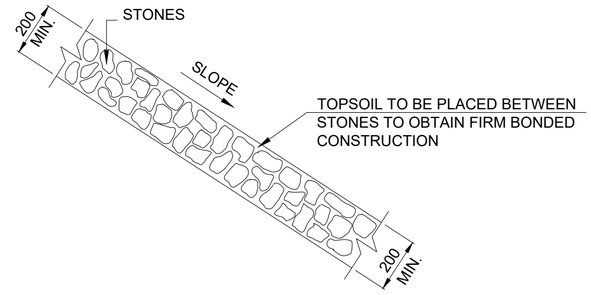
SANRAL DOCUMENT NUMBER : TD-D-WW-002-V1

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\12 - Typicals\3257_23_21 TP - PRECAST CULVERT WING WALLS - REINFORCEMENT SHEET_20190515.dwg

STONE PITCHING



PLAIN STONE PITCHING
METHOD 1
SCALE: 1 : 20

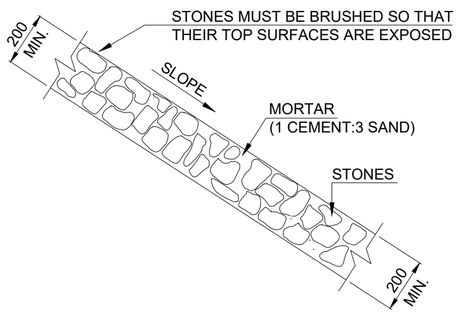


PLAIN STONE PITCHING
METHOD 2
SCALE: 1 : 20

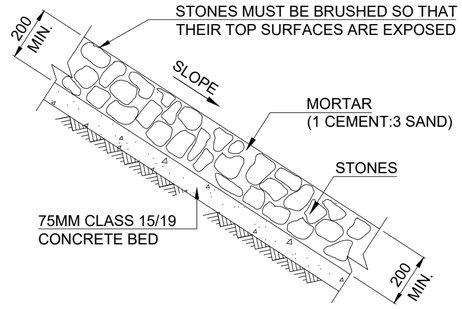
NOTES FOR GROUTED STONE PITCHING:

THE TECHNIQUE AND REQUIREMENTS LAID DOWN IN METHOD 1 SHALL APPLY WITH THE FOLLOWING EXCEPTION:

1. THE SPACES BETWEEN THE STONES SHALL BE FILLED WITH MORTAR.



GROUTED STONE PITCHING
SCALE: 1 : 20



GROUTED STONE PITCHING ON A CONCRETE BED
SCALE: 1 : 20

NOTES FOR METHOD 2:

THE TECHNIQUE AND REQUIREMENTS LAID DOWN IN METHOD 1 SHALL APPLY WITH THE FOLLOWING EXCEPTIONS:

1. NO SMALL STONES SHALL BE USED TO FILL THE SPACES BETWEEN THE LARGER STONES.
2. TOPSOIL SHALL BE INTRODUCED BETWEEN INDIVIDUAL STONES SIMULTANEOUSLY WITH PLACING OF STONES.
3. ROOTED GRASS OR GRASS TUFTS SHALL THEN BE PLACED IN THE TOPSOIL.

TENDER

No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
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NAME	PL NGQUMSHE
Prof. Reg. No.	20080112
DRAWN BY	
NAME	WB HARTMANN

CONSULTANT APPROVAL
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Prof. Reg. No. : 20080112
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Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION
EROSION CONTROL
STONE PITCHING AND GABIONS

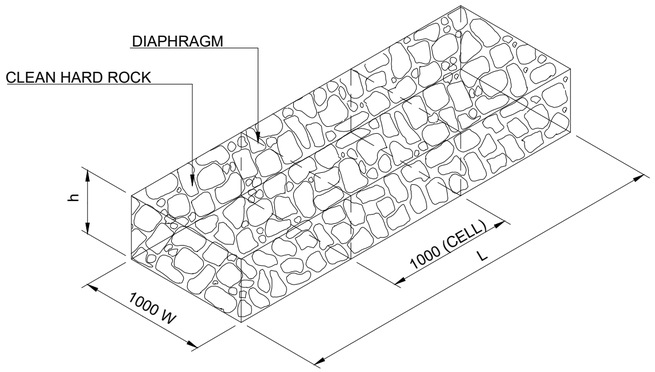
SCALE : AS SHOWN (A2) | **SHEET 01 OF 03**

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	13	13
DRAWING km DISTANCE	- -	- -
DRAWING TYPE	ROADS - TYPICAL	
BRIDGE/STRUCTURE No.	NA	
CONSULTANT DRAWING No.	FA 3257 / 23 / 22 TP	VER
SANRAL DOCUMENT #	TD-D-ER-001-V1	V0

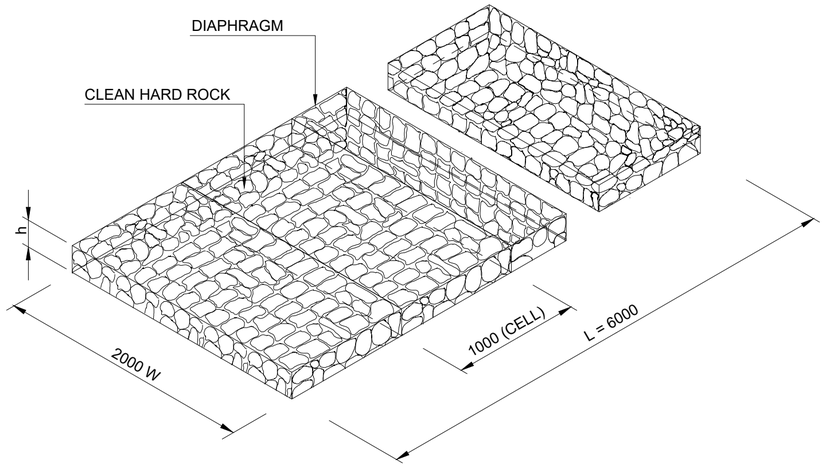
SANRAL DOCUMENT NUMBER : TD-D-ER-001-V1

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\12 - Typicals\3257_23_22 TP - EROSION CONTROL - STONE PITCHING AND GABIONS SHE SHEET 1 OF 3_20190515.dwg

GABIONS

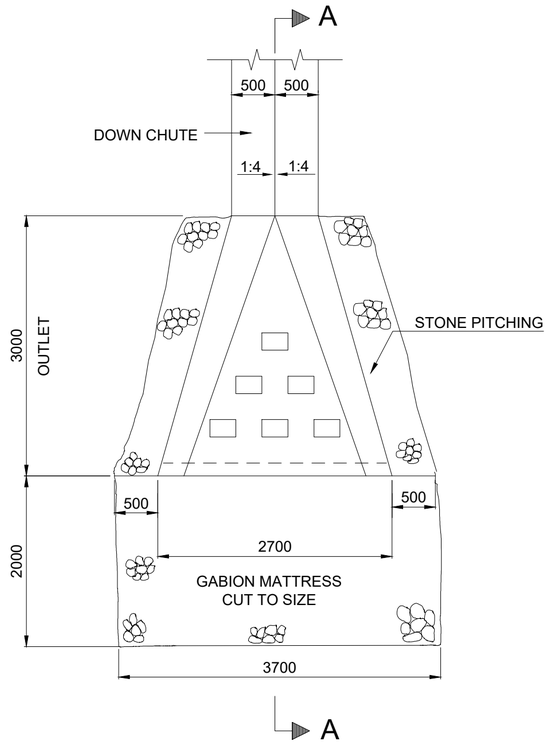


BOXES
SCALE: 1 : 50

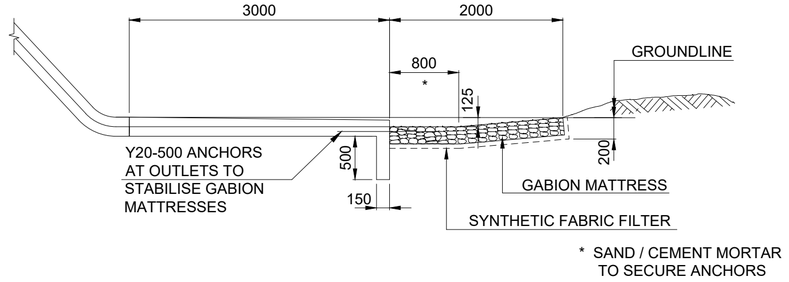


MATTRESSES
SCALE: 1 : 50

DESIGN INFORMATION FOR GABIONS				
STANDARD SIZES FOR BOXES (mm)				
LENGTH (L)	1000	2000	3000	4000
WIDTH (W)	1000			
DEPTH (H)	500	1000		
DIAPHRAGM SPACING	1000			
STANDARD SIZES FOR MATTRESSES (mm)				
LENGTH (L)	6000			
WIDTH (W)	2000			
DEPTH (H)	170	230	300	
MESH SIZE AND WIRE DIAMETER FOR CAGES (mm)				
DEPTH OF GABION	MESH SIZE	WIRE DIA.		
500 mm AND OVER	80 x 100	2.7		
200 mm TO 300 mm	80 x 100	2.5		
ROCK SIZES FOR FILLING CAGES (mm)				
DEPTH OF CAGE	MIN.	MAX.		
230	100	125		
300	100	200		
500	100	250		
1000	100	300		
GALVANISED STEEL ANCHORS FOR MATTRESSES				
1500mm				
MATTRESSES	Y10 - 1500 x 1500mm			
INLETS AND OUTLETS	Y20 - 500mm			



PLAN OF DOWN CHUTE AND ENERGY BREAKER
(REFER TO DWG No. TD-D-RD-002)
SCALE: 1: 50



SECTION A-A
SCALE: 1 : 50

TENDER

No.	DATE	REVISION	
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
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Prof. Reg. No. :
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SANRAL PROJECT MANAGER
Name :
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THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION
EROSION CONTROL
STONE PITCHING AND GABIONS

SCALE : AS SHOWN (A2) | SHEET 02 OF 03

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001		
DRAWING LOCATION DATA	START	END	
ROUTE	N 4	N 4	
SECTION	13	13	
DRAWING km DISTANCE	- -	- -	
DRAWING TYPE	ROADS - TYPICAL		
BRIDGE/STRUCTURE No.	NA		
CONSULTANT DRAWING No.	FA	3257 / 23 / 23 TP	VER
SANRAL DOCUMENT #		TD-D-ER-002-V1	V0

SANRAL DOCUMENT NUMBER : TD-D-ER-002-V1

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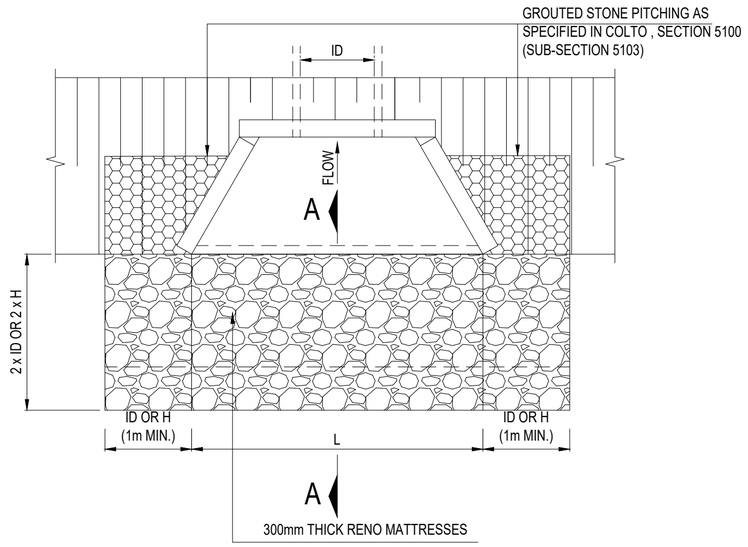
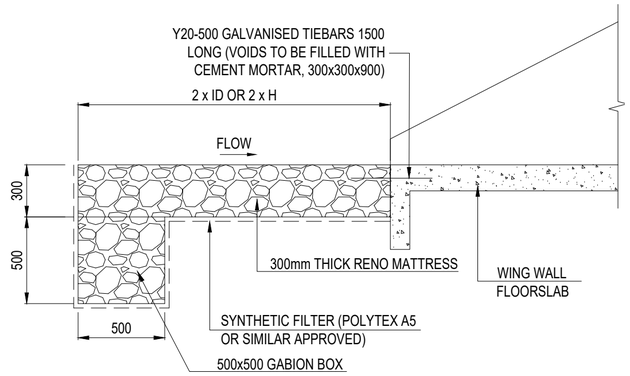
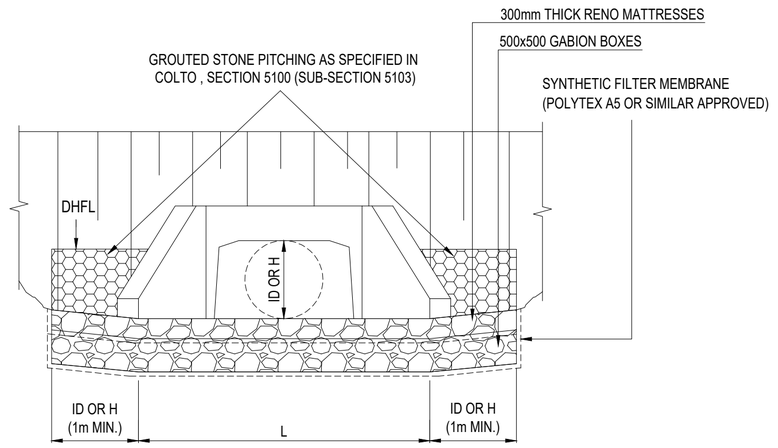


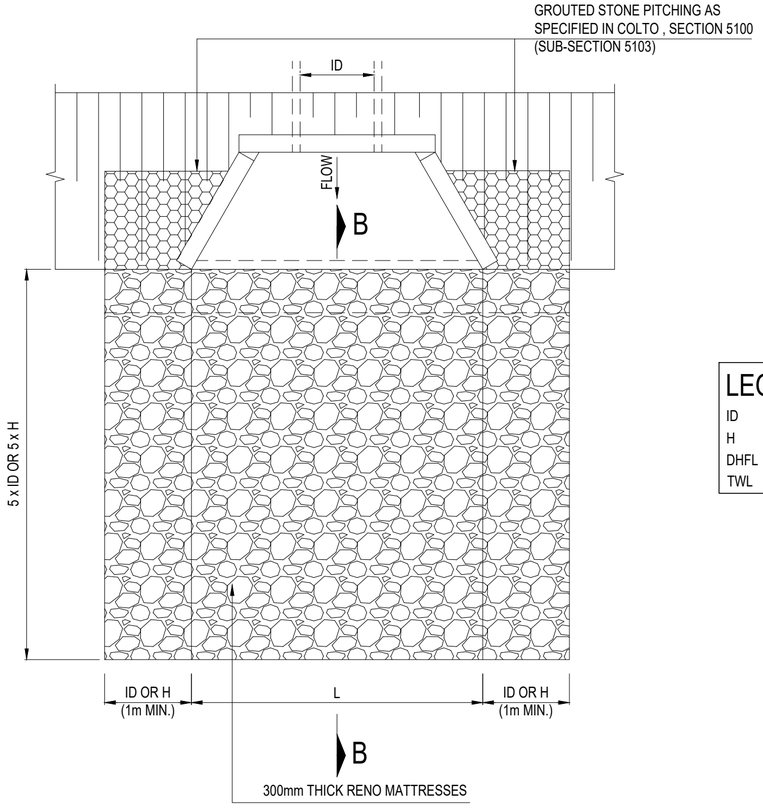
PLAN OF CULVERT (INLET)
SCALE 1:50



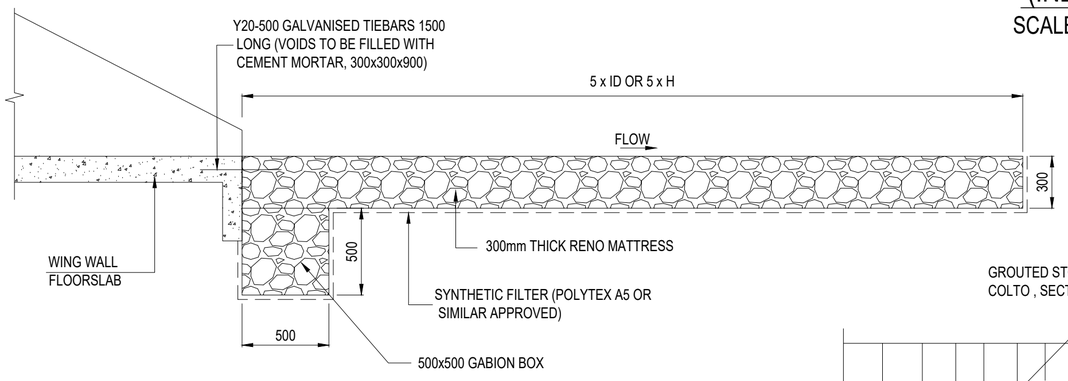
SECTION A-A (INLET)
SCALE 1:25



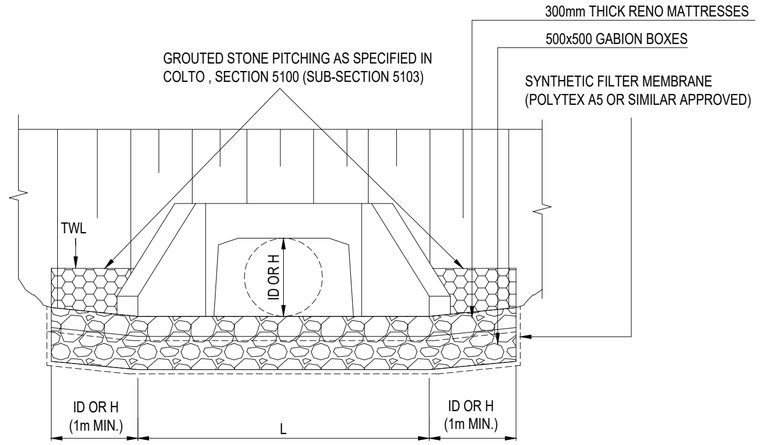
ELEVATION OF CULVERT (INLET)
SCALE 1:50



PLAN OF CULVERT (OUTLET)
SCALE 1:50



SECTION B-B (OUTLET)
SCALE 1:25



ELEVATION OF CULVERT (OUTLET)
SCALE 1:50

LEGEND

ID : INSIDE DIAMETER OF PIPE CULVERT.
H : HEIGHT OF PORTAL CULVERT.
DHFL : DESIGN HIGH FLOOD LEVEL.
TWL : TAIL WATER LEVEL.

EROSION PROTECTION AT STORMWATER OUTLET STRUCTURE

GUIDELINE FLOW VELOCITY (m/s)	PROTECTION MEASURE*
V < 3.5	GRASS SODS
3.5 < V < 6.5	GABION MATTRESS (300mm)
6.5 < V < 8	GABIONS (500mm MIN)

TENDER

NOTE:

1. GABION BOXES AND RENO MATTRESSES (MACCAFERRI SA OR SIMILAR APPROVED) DIMENSIONS, SPECIFICATIONS AND ASSEMBLY DETAILS AS PER MANUFACTURERS REQUIREMENTS.
2. REFER TO CULVERT CROSS SECTION DRAWINGS 3257 / 13 / 01 CS TO 3257 / 13 / 28 CS FOR DETAILS OF EROSION PROTECTION AT EACH CULVERT

No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

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NAME	PL NGQUMSHE
Prof. Reg. No.	20080112
DRAWN BY	
NAME	WB HARTMANN

CONSULTANT APPROVAL
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Prof. Reg. No. : 20080112
Date : 17/07/2023

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THE SOUTH AFRICAN NATIONAL ROADS AGENCY SOC LTD
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ACCEPTANCE
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for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

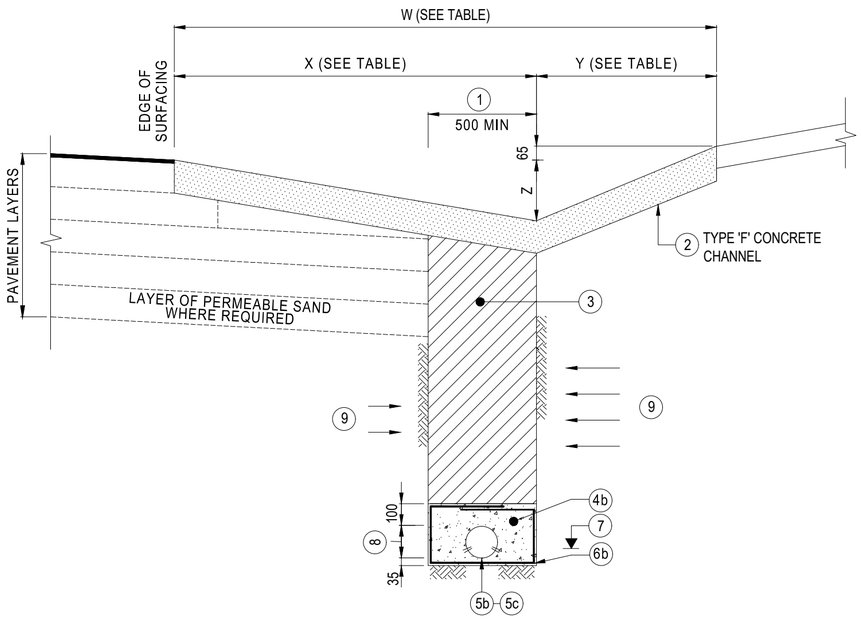
DRAWING DESCRIPTION
EROSION CONTROL
STONE PITCHING AND GABIONS

SCALE : AS SHOWN (A2) | SHEET 03 OF 03

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	13	13
DRAWING km DISTANCE	- -	- -
DRAWING TYPE	ROADS - TYPICAL	
BRIDGE/STRUCTURE No.	NA	
CONSULTANT DRAWING No.	FA 3257 / 23 / 24 TP	VER
SANRAL DOCUMENT #	TD-D-ER-003-V1	V0

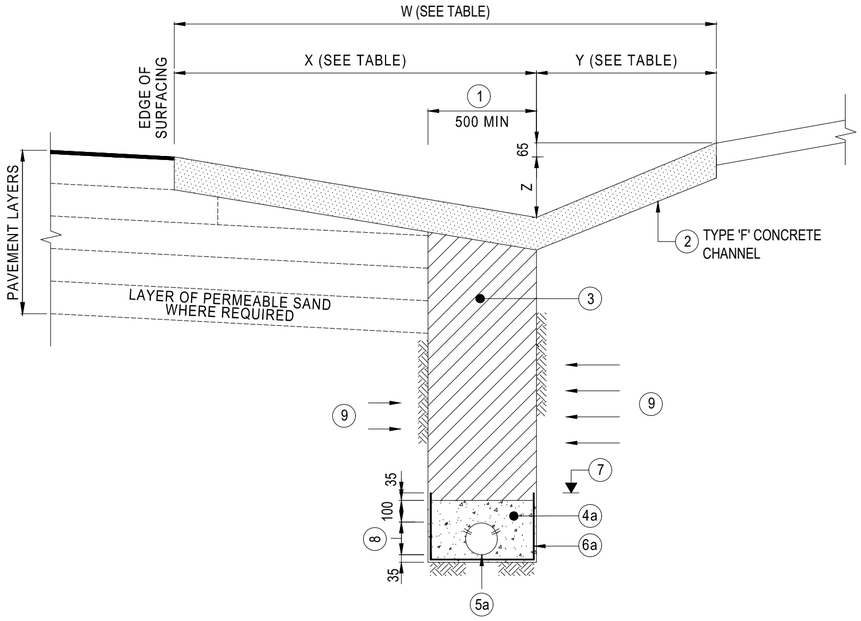
SANRAL DOCUMENT NUMBER : TD-D-ER-003-V1

W:\Roads\3257 - N4 Dual Carriageway (PLN003-Tender\03-Drawings\Volume 4-Roadworks\12 - Typicals\3257_23_24 TP- EROSION CONTROL - STONE PITCHING AND GABIONS SHEET 3 OF 3_20180515.dwg



SUBSOIL DRAIN WITH SYNTHETIC FIBRE FILTER FABRIC

SCALE 1:20



SUBSOIL DRAIN WITH POLYETHYLENE LINING

SCALE 1:20

W	X	Y	Z	D UNREINFORCED	D REINFORCED
1000	670	330	110	125	100
1500	1000	500	170	125	100
2000	1330	670	220	150	100
2500	1670	830	280	150	100

DIMENSIONS OF TYPE 'F' CONCRETE CHANNEL

No	DESCRIPTION
1	THIS DIMENSION MAY BE REDUCED TO A MINIMUM OF PIPE DIAMETER + 200mm PROVIDED THAT THE CROSS-SECTIONAL AREA IS ADEQUATE (SEE SUBCLAUSE 2104(b) OF THE STANDARD SPECIFICATIONS).
2	IMPERMEABLE BACKFILL MATERIAL. (MIN 150mm THICK) TAKEN TO TOP OF WATER BEARING LAYER IN CASES WHERE NO CONCRETE SIDE DRAIN IS PROVIDED.
3	FILTER SAND OF APPROVED SOURCE AND GRADE.
4a 4b	FILTER STONE: FINE OR COARSE GRADE AS REQUIRED. (SEE SUBCLAUSE 2104(a)(ii) OF THE STANDARD SPECIFICATIONS).
5a 5b 5c	PERFORATED / SLOTTED SUBSOIL DRAINAGE PIPES. (POSITION OF PERFORATIONS INDICATED).
6a	POLYETHYLENE 0.15mm THICKNESS.
6b	SYNTHETIC FIBRE FILTER FABRIC WITH 200mm OVERLAP (GRADE 2 OR APPROVED EQUIVALENT).
7	LEVEL TO WHICH SURROUNDING AREA IS TO BE DRAINED.
8	INTERNAL PIPE DIAMETER: 110mm OR 150mm.
9	WATER BEARING STRATA.

NOTES:

1. ALL CRITERIA ASSUMES THAT FILTER SAND AND FILTER STONE ARE CONTINUOUSLY GRADED FROM COARSE TO FINE.
2. USE THE ENVELOPE CURVES FOR THE WATER BEARING STRATA, FILTER SAND AND FILTER STONE GRADINGS AND APPLY TO MOST CRITICAL COMBINATIONS.
3. IF REQUIRED BY THE ENGINEER, SUBSOIL DRAINAGE MUST ALSO BE PROVIDED ON THE INSIDE OF BENCHING, WHERE USED.
4. WHERE SUBSOIL DRAINAGE IS INSTALLED IN SOLID ROCK THE POLYETHYLENE LINING MAY BE OMITTED.
5. TYPE A OUTLET PREFERABLY TO BE USED WHERE THE NATURAL GROUND LEVELS ALLOW IT. OUTLETS MAY ALSO BE COMBINED WITH CULVERT IN- OR OUTLETS.
6. ALL CONCRETE SHALL BE CLASS 20/19.
7. SPACING OF CLEANING EYES TO BE AS FOLLOWS:
   (a) 100m MAX ON STRAIGHT SECTIONS.
   (b) AT ALL BENDS.
   (c) OR AS DIRECTED BY THE ENGINEER.
8. TRANSVERSE SUBSOIL DRAINAGE TO BE PROVIDED AT ALL CUT TO FILL TRANSITIONS.
9. PLATE WITH THE INSCRIPTION "CLEANING EYE FOR SUBSOIL DRAIN". STAMPED ON TO BE AFFIXED TO CONCRETE COVER.
10. LETTER SIZE ON PLATE: 10mm SERIES C, CAPITAL LETTERS.
11. SYNTHETIC FIBRE FILTER FABRIC TO BE REPLACED WITH POLYETHYLENE LINING IN THE FOLLOWING INSTANCES:
    (a) WHERE THE SURROUNDING SOIL IS VERY PERMIOUS.
    (b) WHERE THE SURROUNDING SOIL HAS A HIGH FINES CONTENT WHICH COULD LEAD TO CLOGGING OF FILTER FABRICS.
12. STEEL PLATE TO BE FIXED TO TOP PORTION OF FENCE LINE OPPOSITE THE SUBSOIL OUTLET STRUCTURE.
13. BACKGROUND : MATT-WHITE
    TEXT: DIN A, MATT-BLACK

FILTER CRITERIA:

A. "D x" IS THE SIZE OF SIEVE THROUGH WHICH x % OF THE FILTER MATERIAL WILL PASS.
O_{50}(GF) = AVERAGE SIZE OF THE OPENINGS OF THE SYNTHETIC FIBRE FILTER FABRIC.

B. FILTER SAND (FS) IN RELATION TO WATER BEARING STRATA (WS)

1. FOR D_{85}(WS) > 0.05mm:
   (a) TO PREVENT BLOCKING OF FILTER SAND:
   D_{15} (FS) < 5 x D_{85} (WS)
   D_{50} (FS) < 25 x D_{50} (WS)
   (b) FOR PERMEABILITY OF FILTER SAND:
   D_{15} (FS) > 5 x D_{15} (WS)
2. FOR D_{85} (WS) < 0.05mm:
   (a) TO PREVENT BLOCKING OF FILTER SAND:
   D_{15} (FS) < 0.25mm
   D_{05} (FS) > 0.075mm
   (b) PERMEABILITY REQUIREMENTS NOT NECESSARY

C. FILTER STONE (FSN) IN RELATION TO FILTER SAND (FS)

(a) TO PREVENT BLOCKING OF FILTER STONE:
D_{15} (FSN) < 5 x D_{85}(FS)
D_{50} (FSN) < 25 x D_{50}(FS)
(b) PERMEABILITY: FILTER STONE MUST BE COARSER THAN SAND AT ALL PERCENTAGES

D. FILTER STONE (FSN) IN RELATION TO PERFORATIONS IN PIPES

TO PREVENT BLOCKING OF PERFORATIONS IN PIPES:
D_{85} (FSN) > 1.2 x DIAMETER OF ROUND PERFORATIONS
D_{85} (FSN) > 1.2 x WIDTH OF SLOTS

E. SYNTHETIC FIBRE FILTER FABRIC (SF) IN RELATION TO FILTER SAND (FS)

(a) TO PREVENT CLOGGING OF SYNTHETIC FIBRE FILTER FABRIC:
O_{50}(SF) < D_{85}(FS)
(b) FOR PERMEABILITY OF SYNTHETIC FIBRE FILTER FABRIC:
O_{50}(SF) > D_{15}(FS)

TENDER

No.	DATE	REVISION	
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date :

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NAME	PL NGQUMSHE
Prof. Reg. No.	20080112
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THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION
SUBSURFACE DRAINAGE

SCALE : AS SHOWN (A2) | SHEET 01 OF 03

PROJECT NUMBER		BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START		END
ROUTE	N 4		N 4
SECTION	13		13
DRAWING km DISTANCE	--		--
DRAWING TYPE	ROADS - TYPICAL		
BRIDGE/STRUCTURE No.	NA		
CONSULTANT DRAWING No.	FA	3257 / 23 / 25 TP	VER
SANRAL DOCUMENT #		TD-D-SD-001-V1	V0

SANRAL DOCUMENT NUMBER : TD-D-SD-001-V1

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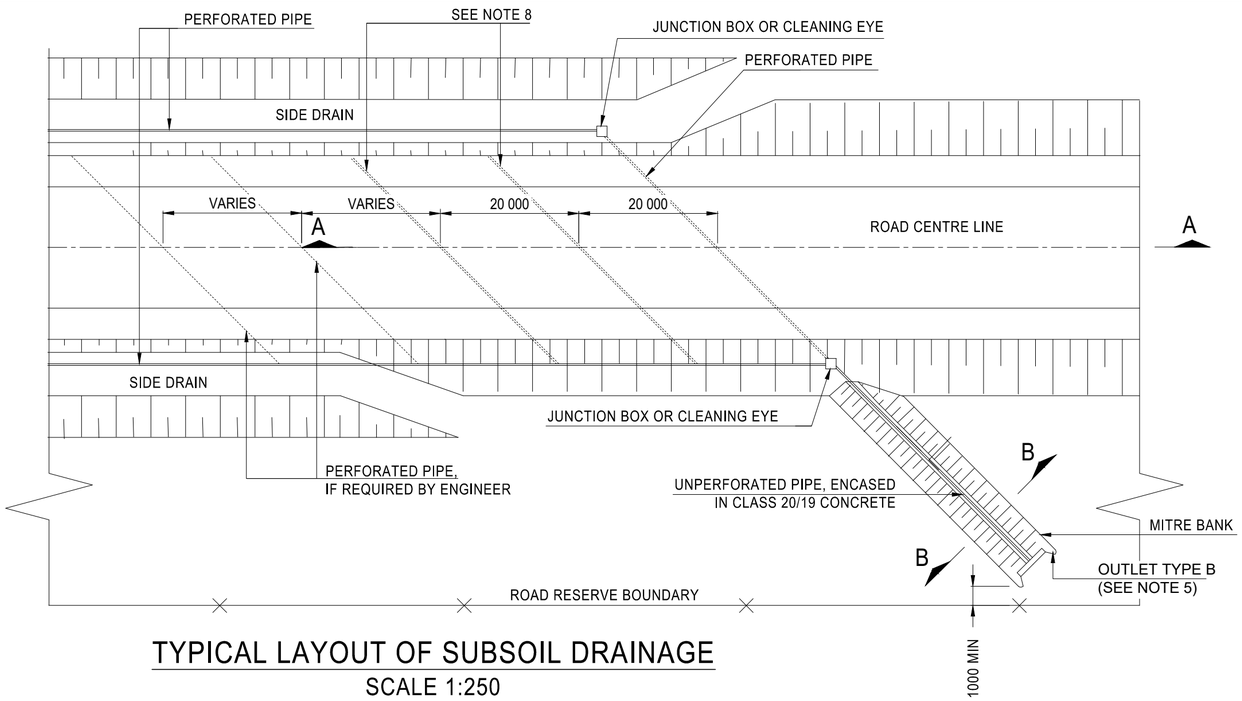
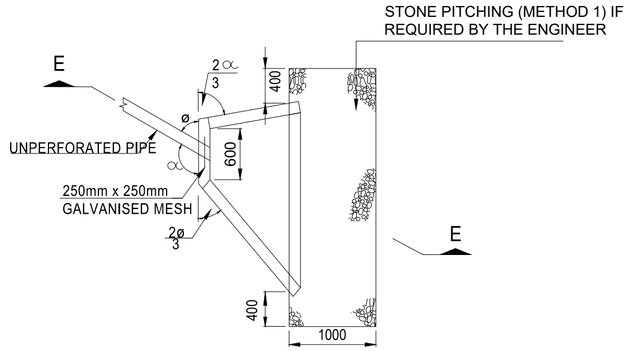
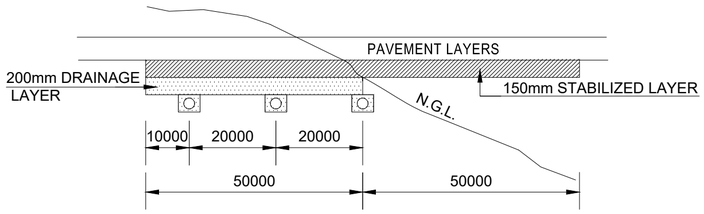


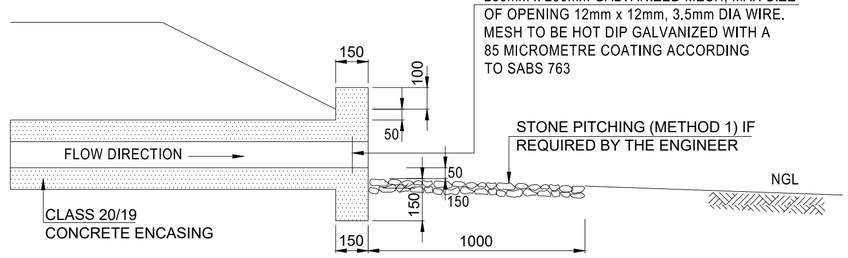
TYPICAL LAYOUT OF SUBSOIL DRAINAGE
SCALE 1:250



PLAN
SCALE 1:50

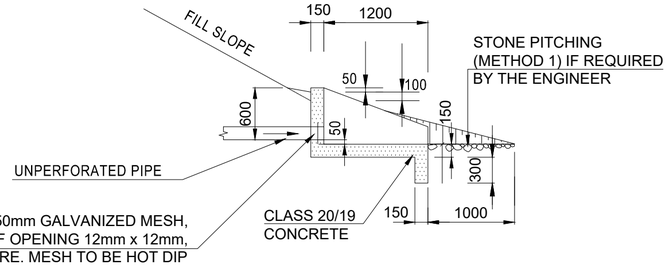


SECTION A-A
SUBGRADE DRAINAGE AT CUT TO FILL TRANSITION
SCALE: 1 : 50

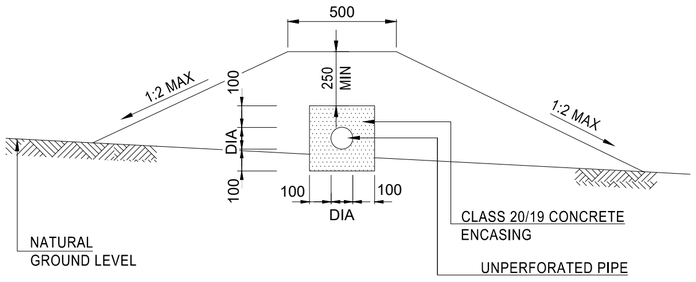


FRONT ELEVATION
(OUTLET TYPE B)
(SEE NOTE 5 ON SHEET 3)
SCALE 1:20

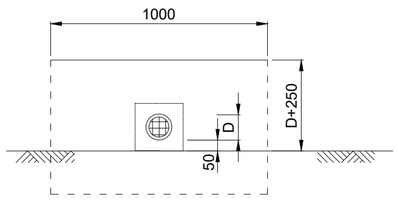
OUTLET TYPE A
(SEE NOTE 5 ON SHEET 3)



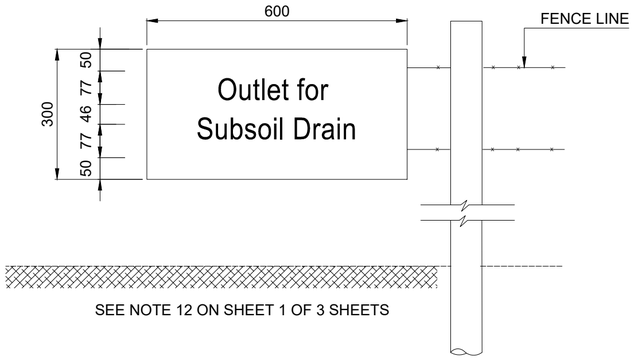
SECTION E-E
(WHERE ∝ = 90°)
SCALE 1:50



SECTION B-B
SCALE 1:20



FRONT ELEVATION
(TYPE B OUTLET STRUCTURE)
SCALE 1:20



SUBSOIL OUTLET MARKER BOARD
SCALE 1:10

TENDER

No.	DATE	REVISION	
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
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Name :
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Prof. Reg. No.	20080112
DRAWN BY	
NAME	WB HARTMANN

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PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION
SUBSURFACE DRAINAGE

SCALE : AS SHOWN (A2) | SHEET 02 OF 03

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001		
DRAWING LOCATION DATA	START	END	
ROUTE	N 4	N 4	
SECTION	13	13	
DRAWING km DISTANCE	- -	- -	
DRAWING TYPE	ROADS - TYPICAL		
BRIDGE/STRUCTURE No.	NA		
CONSULTANT DRAWING No.	FA	3257 / 23 / 26 TP	VER
SANRAL DOCUMENT #		TD-D-SD-002-V1	V0

SANRAL DOCUMENT NUMBER : TD-D-SD-002-V1

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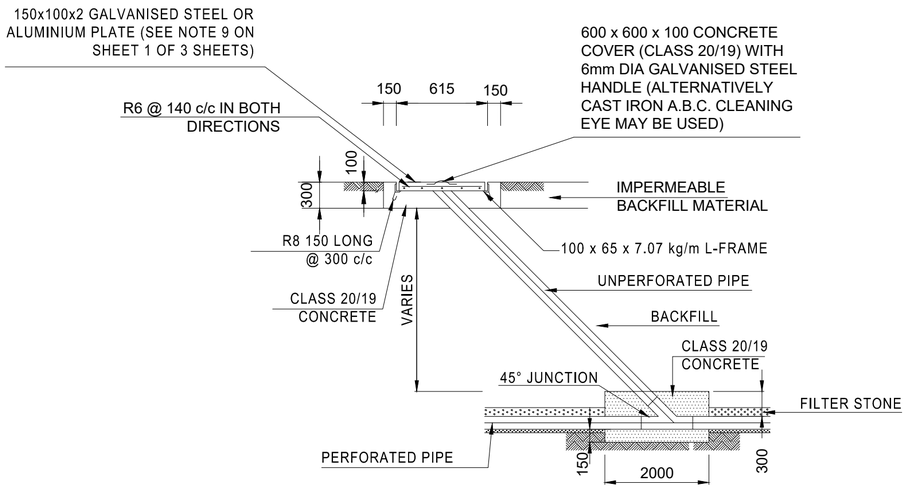
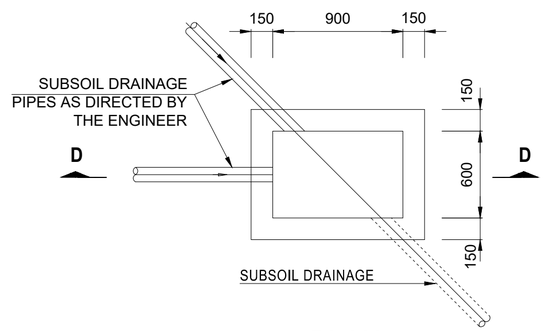
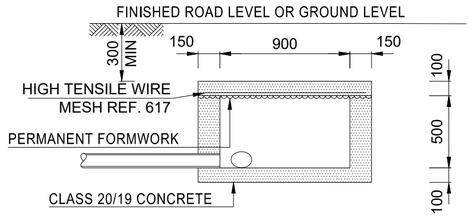


CLEANING EYE IN SUBSOIL DRAIN
SCALE 1:50

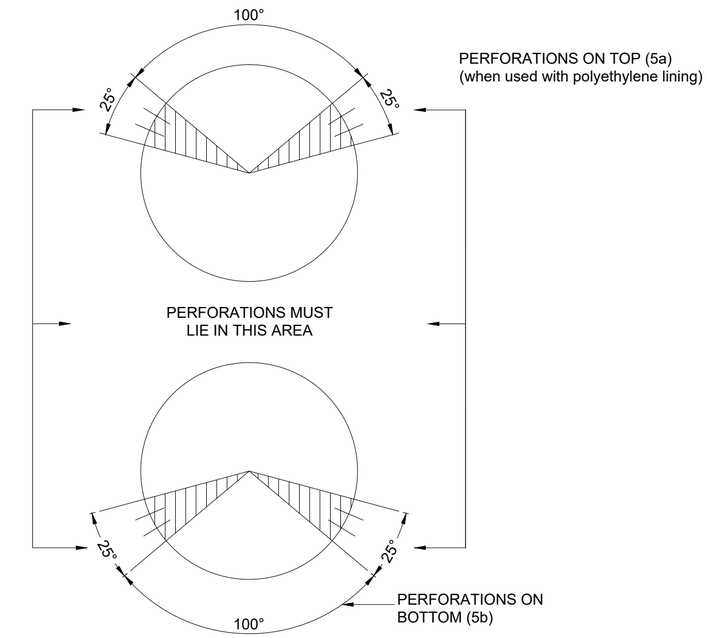
JUNCTION BOX

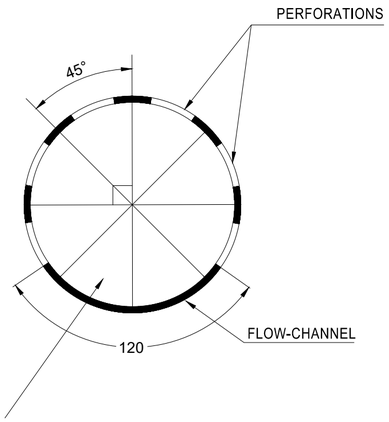


PLAN
SCALE 1:30



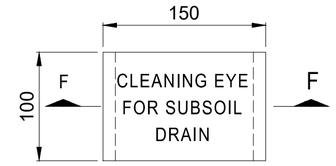
SECTION D-D
SCALE 1:30





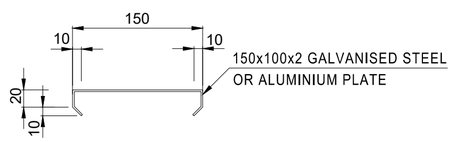
(8 SECTORS OF 45°) WITH PERFORATIONS IN 6 OF THE 8 AS INDICATED.
POSITION OF PERFORATIONS (HDPE - PIPES) (5c) (CAN BE USED FOR BOTH POLYETHYLENE LININGS OR SYNTHETIC FIBRE FILTER FABRIC)

POSITION OF PERFORATIONS IN SUBSOIL DRAINAGE PIPES
(WHEN USED WITH SYNTHETIC FIBRE FILTER FABRIC)
SCALE 1;2



(SEE NOTE 10 ON SHEET 1 OF 3 SHEETS)

PLAN
SCALE 1:5



SECTION F-F
SCALE 1:5

TENDER

No.	DATE	REVISION	
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
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PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

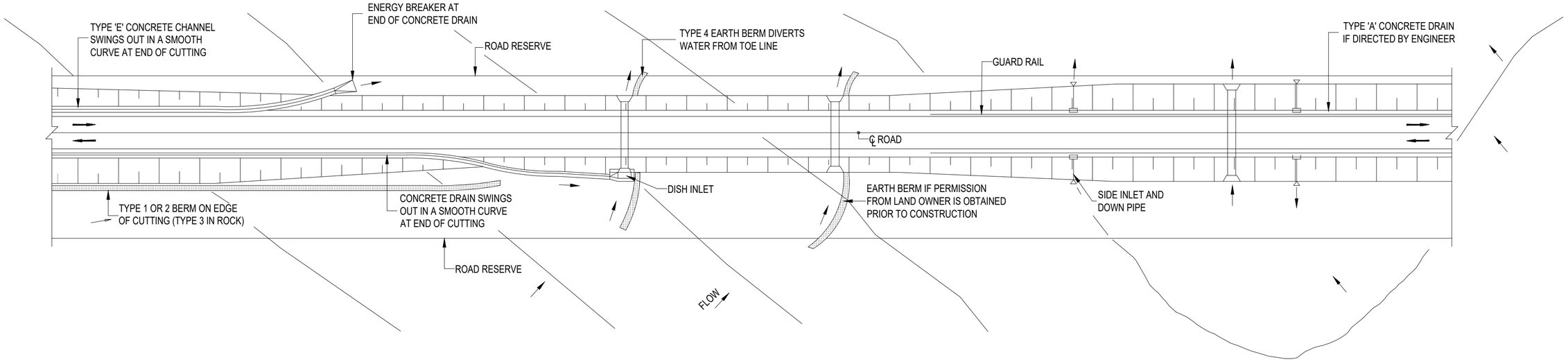
DRAWING DESCRIPTION
SUBSURFACE DRAINAGE

SCALE : AS SHOWN (A2) | SHEET 03 OF 03

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001		
DRAWING LOCATION DATA	START	END	
ROUTE	N 4	N 4	
SECTION	13	13	
DRAWING km DISTANCE	- -	- -	
DRAWING TYPE	ROADS - TYPICAL		
BRIDGE/STRUCTURE No.	NA		
CONSULTANT DRAWING No.	FA 3257 / 23 / 27 TP		VER
SANRAL DOCUMENT #	TD-D-SD-003-V1		V0

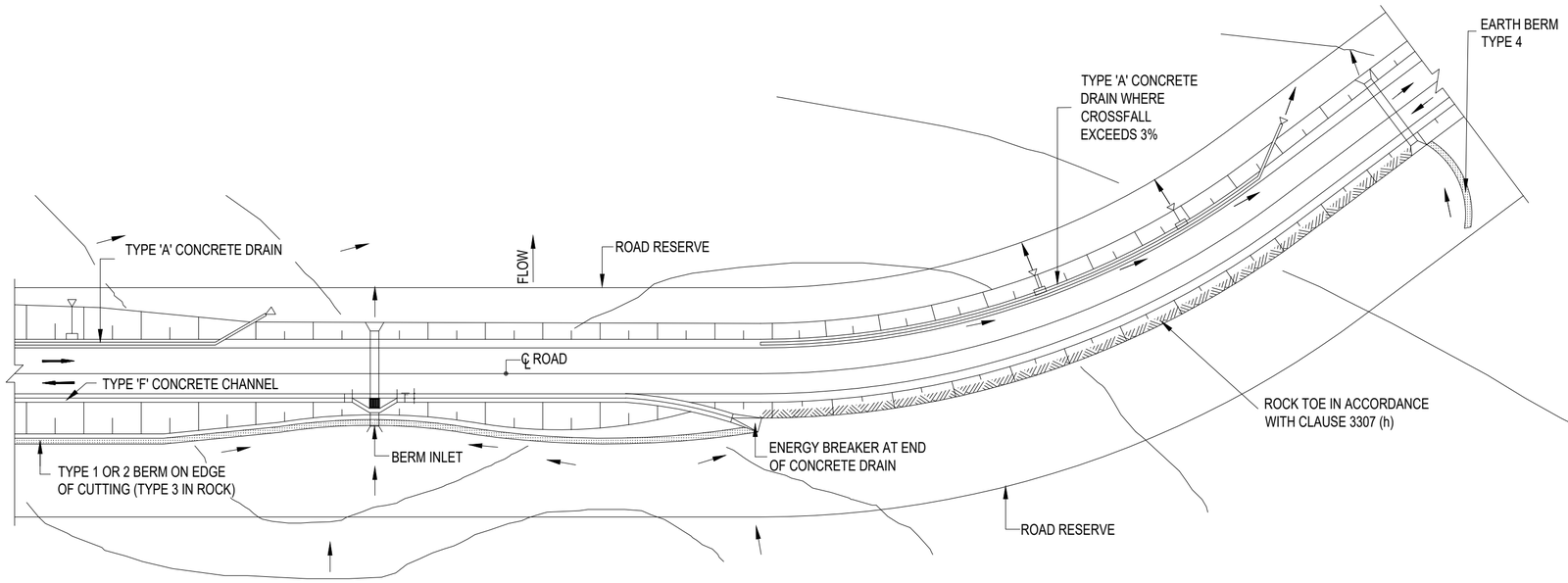
SANRAL DOCUMENT NUMBER - TD-D-SD-003-V1

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\12 - Typicals\3257_23_27 TP- SUBSURFACE DRAINAGE SHEET 3 OF 3_20191615.dwg



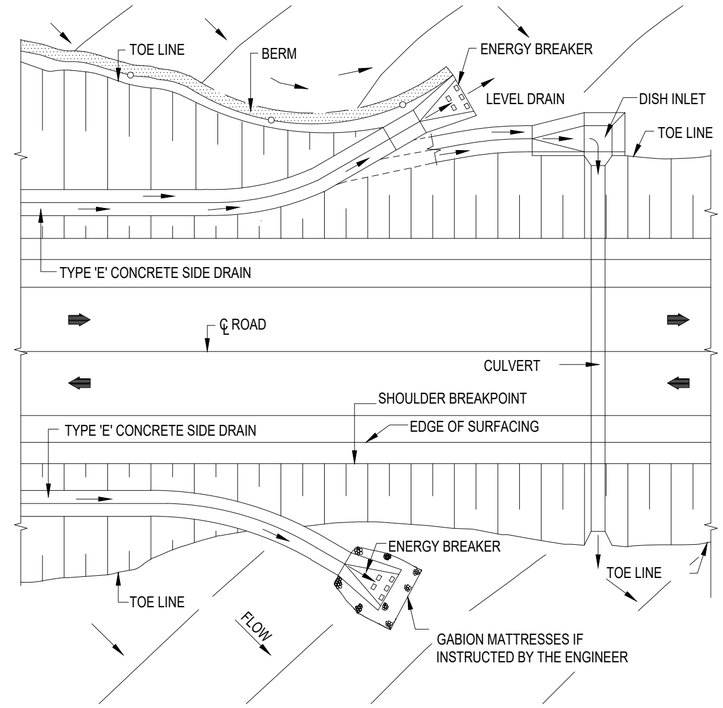
SCHEMATIC COMPOSITION OF DRAINAGE ELEMENTS

SCALE : SCHEMATIC



SCHEMATIC COMPOSITION OF DRAINAGE ELEMENTS

SCALE : SCHEMATIC



ARRANGEMENT OF ENERGY BREAKERS AND DISH INLETS

SCALE : SCHEMATIC

TENDER

No.	DATE	REVISION	
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSULT. ENG.

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date :

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DESIGNED BY	
NAME	EF DAY
Prof. Reg. No.	20130622
CHECKED BY	
NAME	PL NGQUMSHE
Prof. Reg. No.	20080112
DRAWN BY	
NAME	WB HARTMANN

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17/07/2023

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Reg. No. 1998/009584/30

NORTHERN REGION
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Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

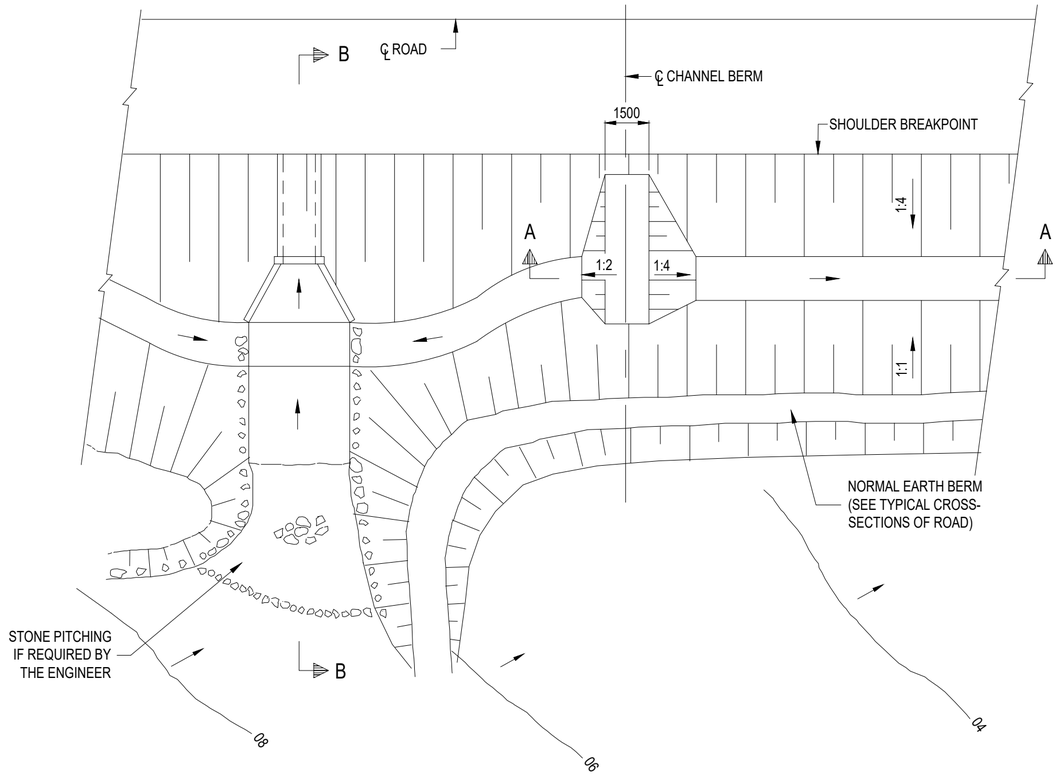
DRAWING DESCRIPTION
ROAD RESERVE FINISHING

SCALE : AS SHOWN (A2) | **SHEET 01 OF 02**

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	13	13
DRAWING km DISTANCE	- -	- -
DRAWING TYPE	ROADS - TYPICAL	
BRIDGE/STRUCTURE No.	NA	
CONSULTANT DRAWING No.	FA 3257 / 23 / 28 TP	VER
SANRAL DOCUMENT #	TD-D-RF-001-V1	V0

SANRAL DOCUMENT NUMBER : TD-D-RF-001-V1

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\12 - Typicals\3257_23_28 TP- ROAD RESERVE FINISHING SHEET 1 OF 2_20180514.dwg



PLAN OF CHANNEL BERM
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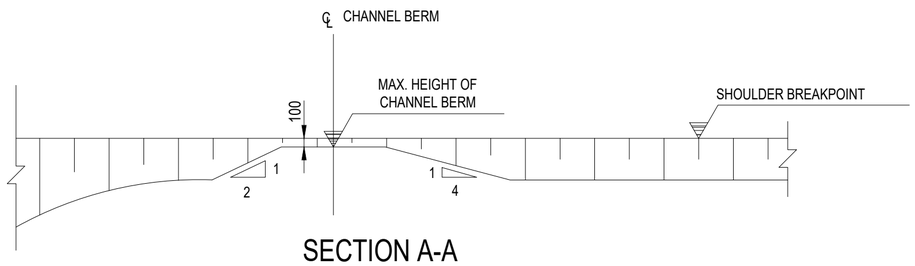

SECTION A-A
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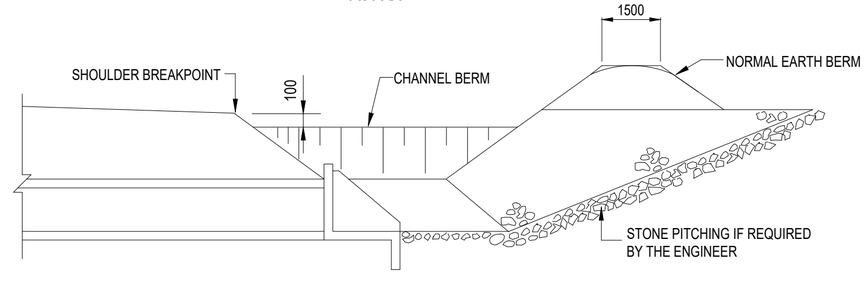

SECTION B-B
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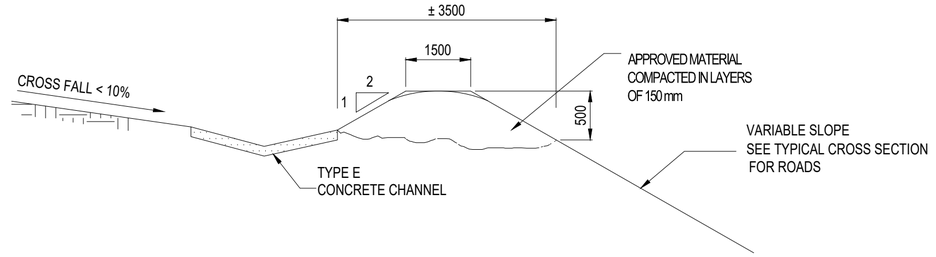
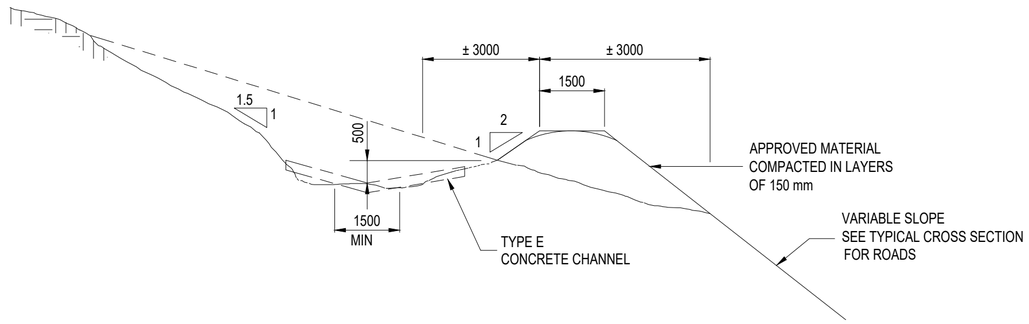


TYPE 1 BERM
CUTTING IN SOFT MATERIAL WITH FLAT CROSS FALL
N.T.S.



TYPE 2 BERM
CUTTING IN SOFT MATERIAL WITH STEEP CROSS FALL
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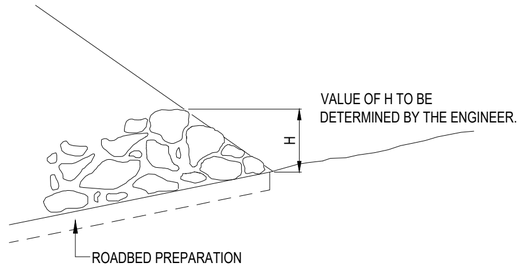
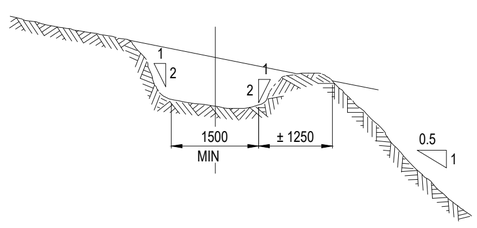
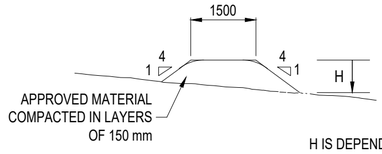


ROCK TOE
N.T.S.



TYPE 3
CUTTING IN ROCK MATERIAL
N.T.S.



H IS DEPENDANT ON DESIGN
MAXIMUM FLOOD LEVEL AT INLET

TYPE 4 BERM
EARTH BERM AT CULVERT INLET AND OUTLET
N.T.S.

TENDER

No.	DATE	REVISION	
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

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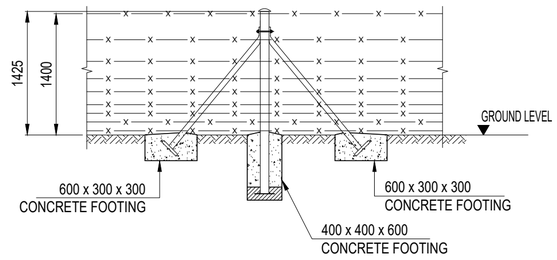
DRAWING DESCRIPTION
ROAD RESERVE FINISHING

SCALE : NOT TO SCALE | SHEET 02 OF 02

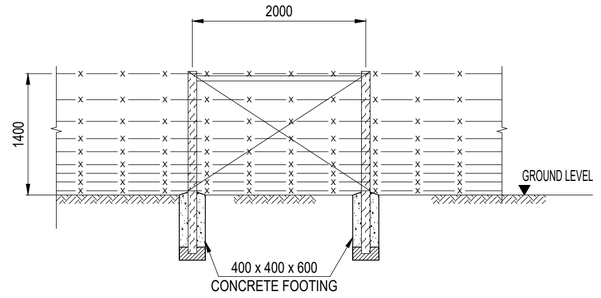
PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001		
DRAWING LOCATION DATA	START	END	
ROUTE	N 4	N 4	
SECTION	13	13	
DRAWING km DISTANCE	- -	- -	
DRAWING TYPE	ROADS - TYPICAL		
BRIDGE/STRUCTURE No.	NA		
CONSULTANT DRAWING No.	FA	3257 / 23 / 29 TP	VER
SANRAL DOCUMENT #		TD-D-RF-002-V1	V0

SANRAL DOCUMENT NUMBER : TD-D-RF-002-V1



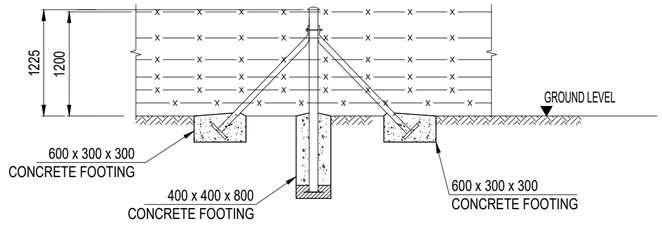
STOCKPROOF FENCING 9 STRANDS ON STEEL POSTS

SCALE 1:50



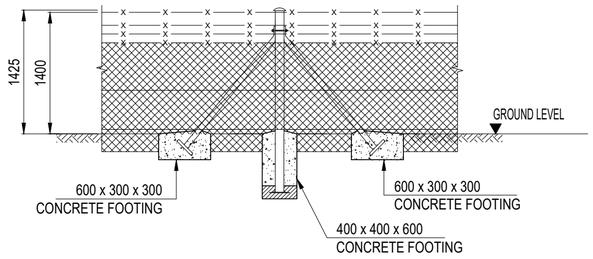
STOCKPROOF FENCING 9 STRANDS ON TIMBER POSTS

SCALE 1:50



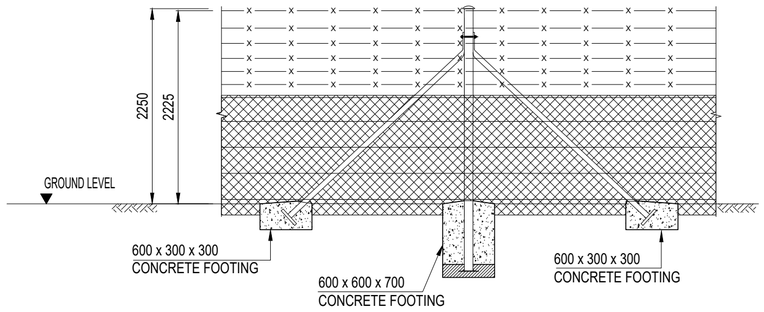
STOCKPROOF FENCING 6 STRANDS ON STEEL POSTS

SCALE 1:50



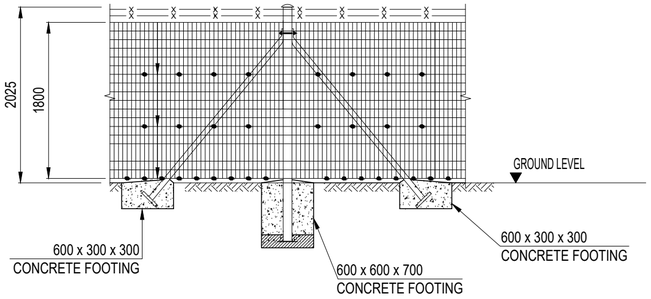
VERMIN PROOF STEEL

SCALE 1:50



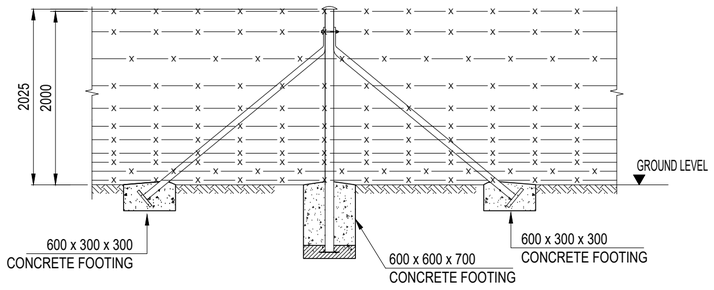
GAME PROOF FENCING ON STEEL POSTS

SCALE 1:50



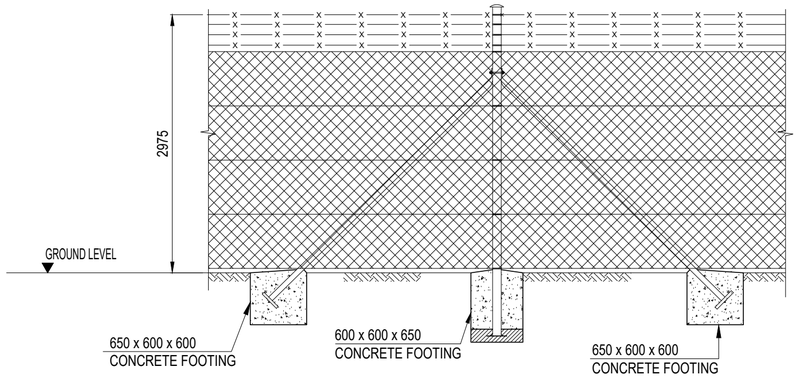
PEDESTRIAN FENCING WELDED MESH ON STEEL POSTS

SCALE 1:50



PEDESTRIAN FENCING BARBED WIRE ON STEEL POSTS

SCALE 1:50



SECURITY FENCING ON STEEL POSTS

SCALE 1:50

TENDER

No.	DATE	REVISION	
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

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DRAWING DESCRIPTION
FENCING & RELATED ITEMS
FENCING TYPES

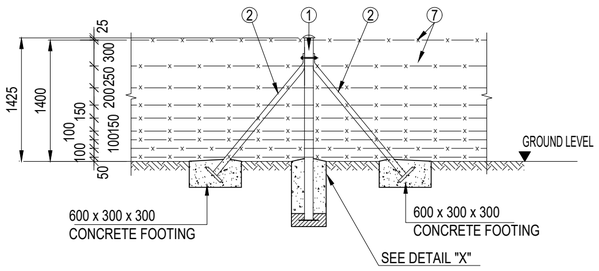
SCALE : AS SHOWN (A2) | SHEET 01 OF 04

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001		
DRAWING LOCATION DATA	START	END	
ROUTE	N 4	N 4	
SECTION	13	13	
DRAWING km DISTANCE	- -	- -	
DRAWING TYPE	ROADS - TYPICAL		
BRIDGE/STRUCTURE No.	NA		
CONSULTANT DRAWING No.	FA	3257 / 23 / 30 TP	VER
SANRAL DOCUMENT #		TD-R-FG-001-V1	V0

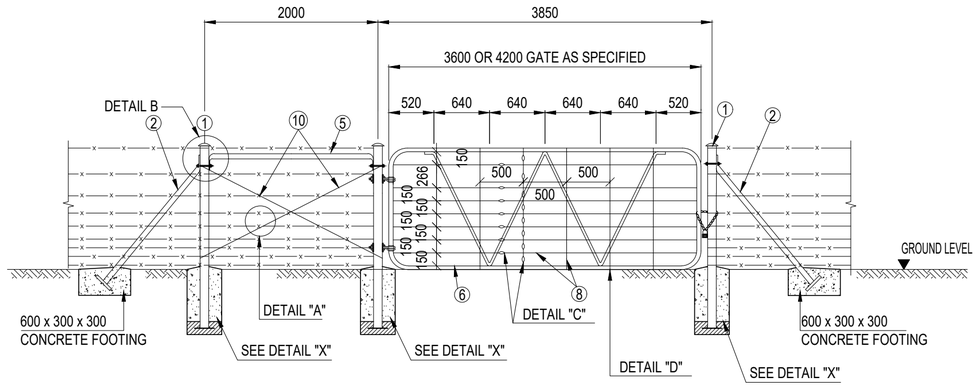
SANRAL DOCUMENT NUMBER : TD-R-FG-001-V1

W:\Roads\3257 - N4 Dual Carriageway (PLN023-Tender\03-Drawings\Volume 4-Roadworks\12 - Typicals\3257_23_30 TP- FENCING & RELATED ITEMS - FENCING TYPES_20180315.dwg

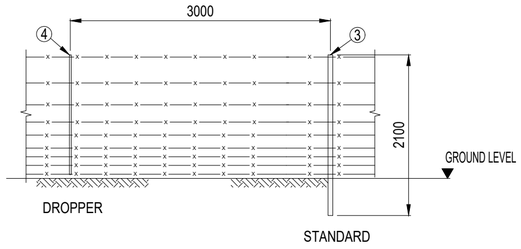
TENDER



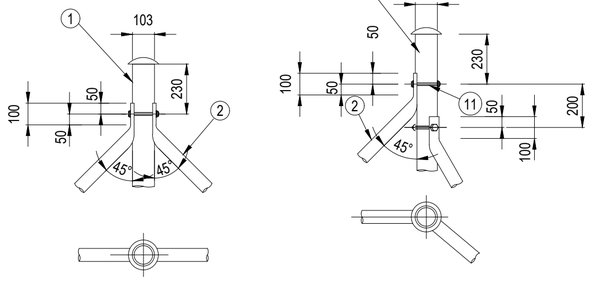
STRAINING POST DETAIL
SCALE 1:50



FENCE AND STRAINING POST DETAIL AT GATE
SCALE 1:50

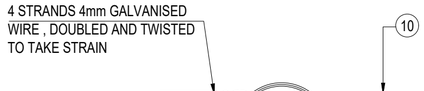


STANDARDS AND DROPPERS
SCALE 1:50



ON STRAIGHT AT CHANGE IN DIRECTION

DETAIL OF STRAINING POSTS
SCALE 1:20



DETAIL "A"
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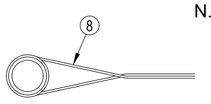

DETAIL "D"
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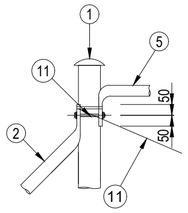
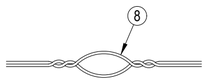
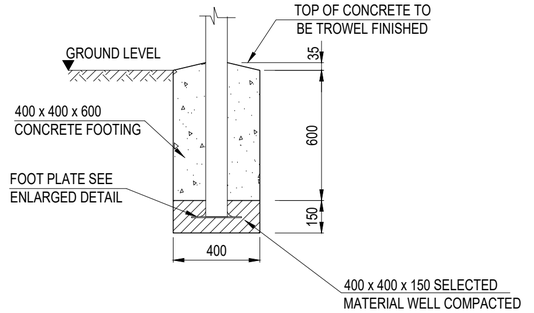


DETAIL B
SCALE 1:20



DETAIL "C"
N.T.S

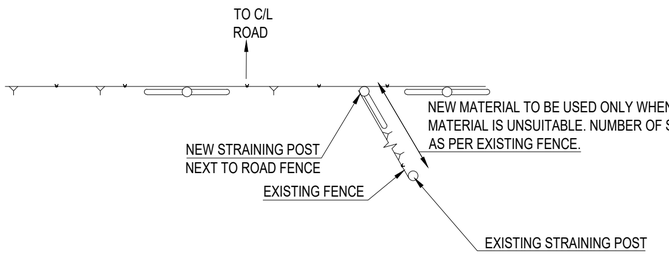


DETAILS OF POST FOOTINGS - DETAIL "X" 400 x 400 x 600
SCALE 1:20

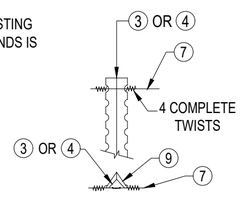
NOTES

1. POSTS:
   2130 X 100 Ø X 3mm MILD STEEL TUBING WITH STEEL CAP AND 230 X 230 X 3mm BASE PLATE, FULLY GALVANIZED (SANS 121/ISO 1461) (WITHOUT HOLES FOR WIRES).
2. STAYS:
   2130 X 60 Ø X 3mm MILD STEEL TUBING WITH 230 X 230 X 3mm BASE PLATE, FULLY GALVANIZED (SANS 121/ISO1461).
3. STANDARDS:
   1850 X 2,5 kg/m "Y" SECTION COMPLETE WITH HOLES AT 50mm CENTRES. FULLY GALVANIZED (SANS 121/ISO1461) IF WITHIN 25 km FROM THE COAST.
4. DROPPERS:
   1200 X 0,56mm kg/m RIDGEBACK PATTERN (SANS 121/ISO1461), FULLY GALVANIZED IF WITHIN 25km FROM THE COAST.
5. CROSS BRACE SUPPORT :
   2400 X 60 Ø X 3mm MILD STEEL TUBING BENT AND FLATTENED AS SHOWN, FULLY GALVANIZED (SANS 121/ISO 1461). ENDS PRESSED FLAT TO ± 8mm.
6. GOVERNMENT PATTERN FARM GATE :
   MANUFACTURED FROM 42.9 Ø x 2.6mm STEEL TUBING WITH HINGES, WASHERS, BOLTS AND LOCKING CHAIN ATTACHED TO GATE (COMPLYING WITH CKS 146).
   ALL FULLY GALVANIZED (SANS 121/ISO 1461).
7. BARBED WIRE:
   3,2 X 2,5mm OVAL HIGH TENSILE GRADE SINGLE STRAND (SANS 675), FULLY GALVANISED.
8. SMOOTH WIRE:
   3,0mm Ø HIGH TENSILE GRADE (SANS 675) FULLY GALVANIZED.
9. TYING WIRE:
   2,5mm Ø MILD STEEL (SANS 675), FULLY GALVANIZED FOR TYING TO STANDARDS AND DROPPERS.
10. STRAINING WIRE :
    4mm Ø MILD STEEL (SANS 675), FULLY GALVANIZED . (4 STRANDS, DOUBLED AND TWISTED TO TAKE STRAIN).
11. BOLTS FOR STAYS:
    12mm Ø MILD STEEL , INCLUDING NUTS AND WASHERS, FULLY GALVANIZED.
12. MAXIMUM SPACING OF:
    STRAINING POSTS 180m c/c
    STANDARDS 15m c/c
    DROPPERS 3m c/c
13. ALL WIRES TO BE ERECTED ON THE ROAD SIDE OF THE FENCE UNLESS OTHERWISE INSTRUCTED.
14. MINIMUM CONCRETE STRENGTH OF FOOTINGS 20 MPa AT 28 DAYS.

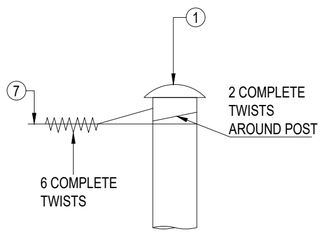
COMPLYING WITH CKS 82



FENCING IN RELATION TO ROAD AND REPAIR OF EXISTING FENCE IF CUT BY ROAD RESERVE
SCALE 1:100

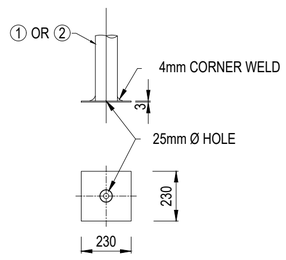


STANDARDS AND DROPPERS



STRAINING POSTS

FASTENING OF BARBED WIRE TO STANDARDS, DROPPERS AND POSTS
SCALE 1:10



DETAIL OF FOOT PLATE
SCALE 1:20

No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
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DESIGNED BY	
NAME	EF DAY
Prof. Reg. No.	20130622
CHECKED BY	
NAME	PL NGQUMSHE
Prof. Reg. No.	20080112
DRAWN BY	
NAME	WB HARTMANN

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17/07/2023

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PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

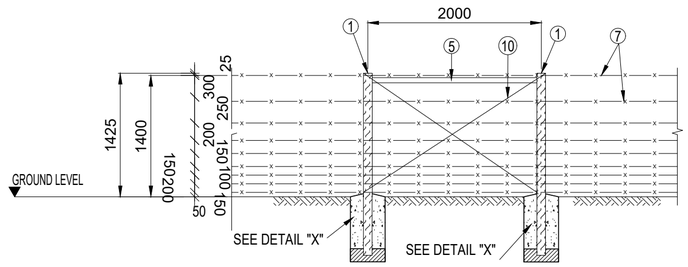
DRAWING DESCRIPTION
FENCING & RELATED ITEMS
STOCK PROOF FENCING
9 STRANDS ON STEEL POSTS

SCALE : AS SHOWN (A2) SHEET 02 OF 04

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	13	13
DRAWING km DISTANCE	- -	- -
DRAWING TYPE	ROADS - TYPICAL	
BRIDGE/STRUCTURE No.	NA	
CONSULTANT DRAWING No.	FA 3257 / 23 / 31 TP	VER
SANRAL DOCUMENT #	TD-R-FG-002-V1	V0

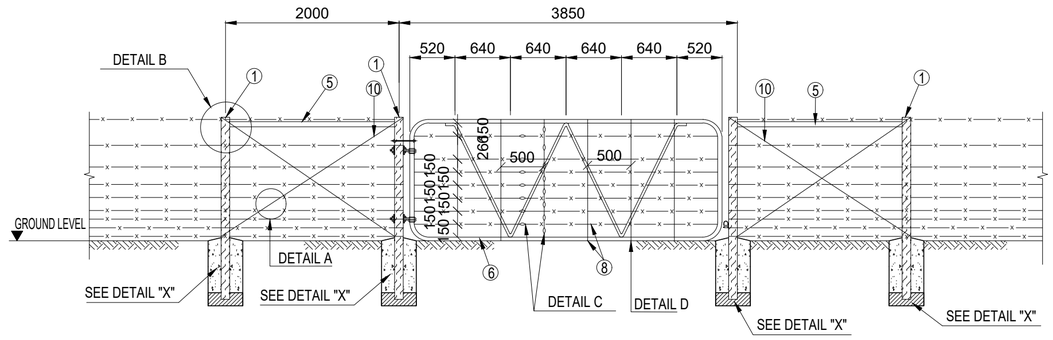
SANRAL DOCUMENT NUMBER: TD-R-FG-002-V1

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\12 - Typicals\3257_23_31 TP - FENCING & RELATED ITEMS - STOCK PROOF FENCING_20180515.dwg



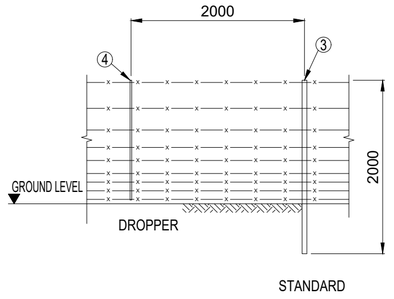
STRAINING POST DETAIL

SCALE 1:50



FENCE DETAIL AT GATE

SCALE 1:50



STANDARDS AND DROPPERS

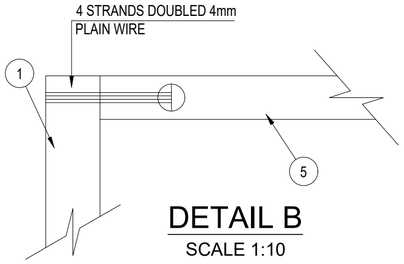
SCALE 1:50

DETAIL A

N.T.S

DETAIL C

N.T.S

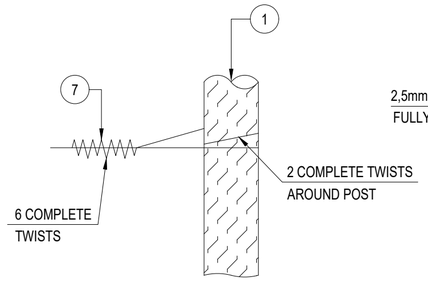


DETAIL B

SCALE 1:10

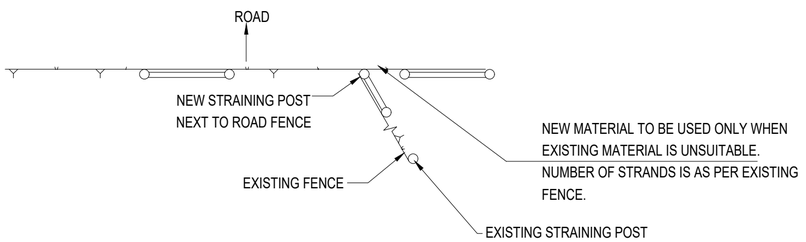
DETAIL D

N.T.S



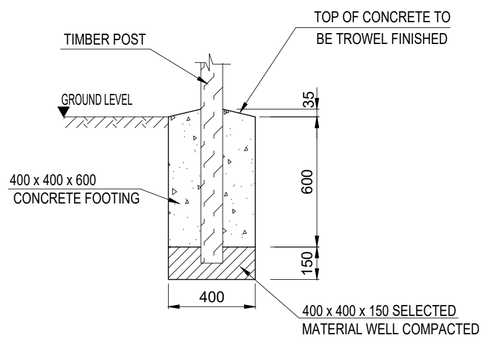
FASTENING OF BARBED WIRE TO DROPPERS, STANDARDS AND POSTS

SCALE 1:10



FENCING IN RELATION TO ROAD AND REPAIR OF EXISTING FENCE IF CUT BY ROAD RESERVE

SCALE 1:100



DETAILS OF POST FOOTINGS - DETAIL "X" 400 x 400 x 600

SCALE 1:20

NOTES :

1. STRAINING POSTS:
   2100 X 125mm,NOTCHED AND ANCHORED IN CONCRETE
2. ALL TIMBER POSTS, STANDARDS AND DROPPERS SHALL COMPLY WITH SANS 457-3 AND SHALL BE TREATED IN ACCORDANCE WITH SANS 10005 WITH A CREOSOTE THAT COMPLIES WITH SANS 538 OR SANS 539.
3. STANDARDS:
   2000 X 100mm Ø, NOTCHED AND SET IN WELL COMPACTED BACKFILL.
4. DROPPERS:
   1400 X 136mm Ø.
5. CROSS BRACE SUPPORT :
   100mm Ø .
6. GOVERNMENT PATTERN FARM GATE :
   MANUFACTURED FROM 42.9 Ø x 2.6mm STEEL TUBING WITH HINGES, WASHERS, BOLTS AND LOCKING CHAIN ATTACHED TO GATE (COMPLYING WITH CKS 146).
   ALL FULLY GALVANIZED (SANS 121/ISO 1461).
7. BARBED WIRE:
   3,2 X 2,5mm OVAL HIGH TENSILE GRADE SINGLE STRAND (SANS 675), FULLY GALVANIZED.
8. SMOOTH WIRE:
   3,0mm Ø HIGH TENSILE GRADE (SANS 675) FULLY GALVANIZED.
9. TYING WIRE:
   2,5mm Ø MILD STEEL (SANS 675), FULLY GALVANIZED FOR TYING TO STANDARDS AND DROPPERS.
10. STRAINING WIRE :
    4mm Ø MILD STEEL (SANS 675), FULLY GALVANIZED . (4 STRANDS, DOUBLED AND TWISTED TO TAKE STRAIN).
11. BOLTS FOR STAYS: NONE
12. MAXIMUM SPACING OF:
    STRAINING POSTS 180m c/c
    STANDARDS 18m c/c
    DROPPERS 2m c/c
13. ALL WIRES TO BE ERECTED ON THE ROAD SIDE OF THE FENCE UNLESS OTHERWISE INSTRUCTED.
14. MINIMUM CONCRETE STRENGTH OF FOOTINGS 20 MPa AT 28 DAYS.

COMPLYING WITH CKS 82

TENDER

No.	DATE	REVISION	
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NAME	PL NGQUMSHE
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NAME	WB HARTMANN

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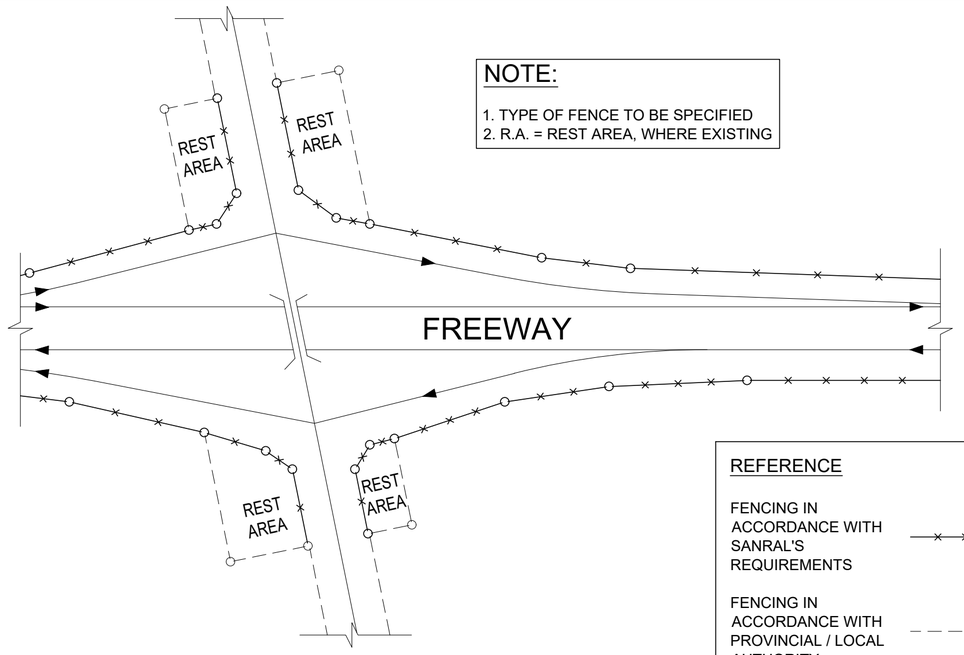
DRAWING DESCRIPTION
FENCING & RELATED ITEMS
STOCK PROOF FENCING
9 STRANDS ON TIMBER POSTS

SCALE : AS SHOWN (A2) SHEET 03 OF 04

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	13	13
DRAWING km DISTANCE	- -	- -
DRAWING TYPE	ROADS - TYPICAL	
BRIDGE/STRUCTURE No.	NA	
CONSULTANT DRAWING No.	FA 3257 / 23 / 32 TP	VER
SANRAL DOCUMENT #	TD-R-FG-003-V1	V0

SANRAL DOCUMENT NUMBER : TD-R-FG-003-V1

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\12 - Typicals\3257_23_32 TP- FENCING & RELATED ITEMS - STOCK PROOF FENCING_20180510.dwg



NOTE:

1. TYPE OF FENCE TO BE SPECIFIED
2. R.A. = REST AREA, WHERE EXISTING

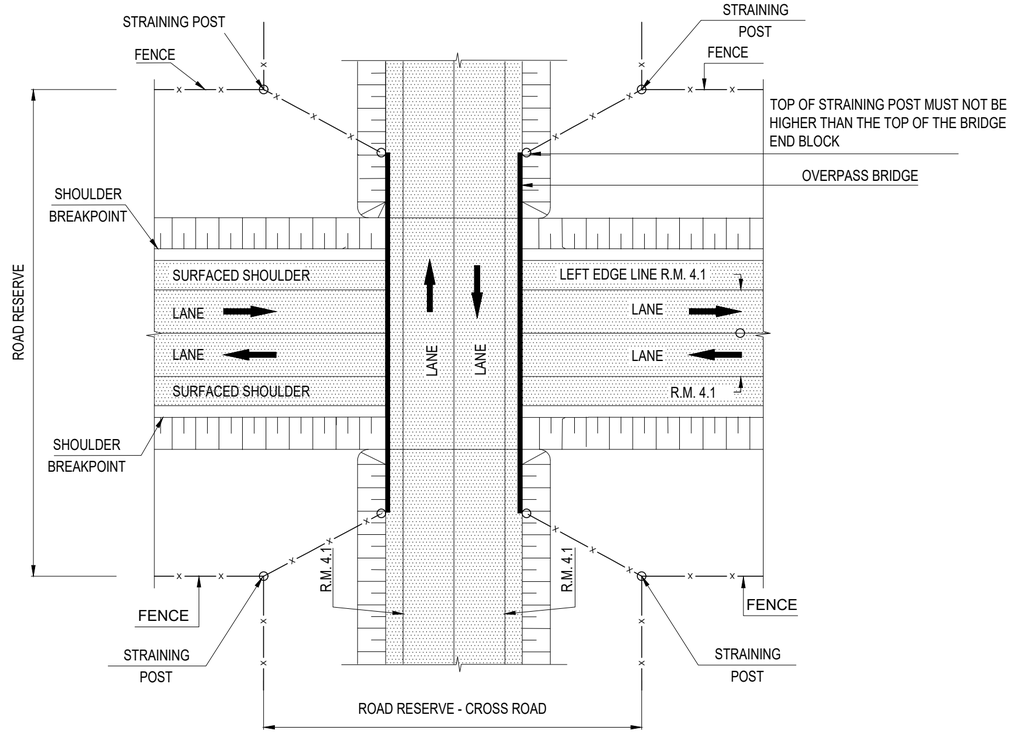
REFERENCE

FENCING IN ACCORDANCE WITH SANRAL'S REQUIREMENTS

FENCING IN ACCORDANCE WITH PROVINCIAL / LOCAL AUTHORITY.

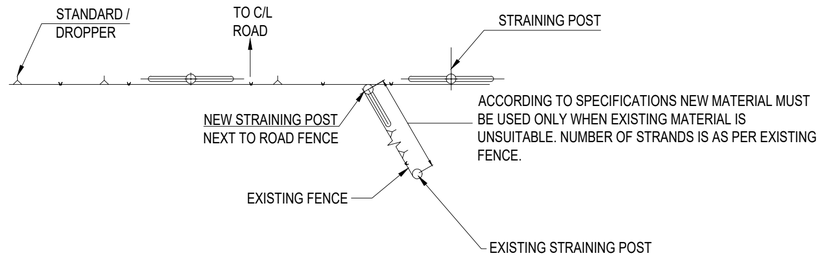
DETAIL OF FENCING AT INTERCHANGES

N.T.S



DETAIL AT BRIDGE OVERPASSES

N.T.S



FENCING IN RELATION TO ROAD AND REPAIR OF EXISTING FENCE IF CUT BY ROAD RESERVE

SCALE 1:100

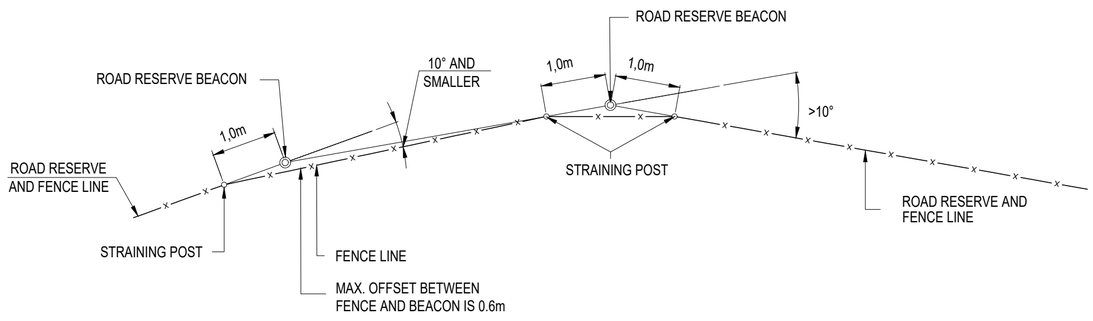


DIAGRAM FOR FENCING AT ROAD RESERVE BEACON

N.T.S.

TENDER

No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
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SANRAL PROJECT MANAGER
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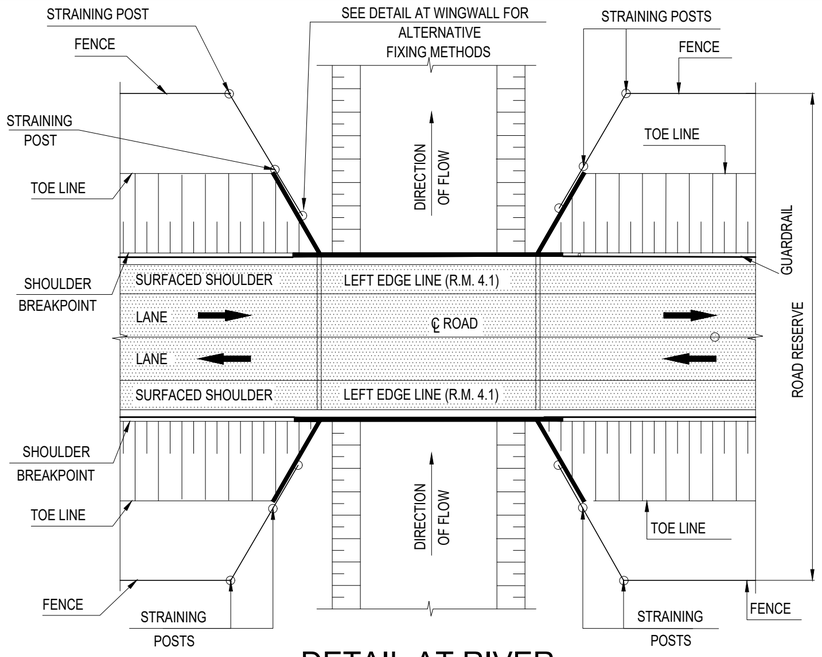
DRAWING DESCRIPTION
FENCING & RELATED ITEMS
FENCING DETAIL AT INTERCHANGES, RESERVE BEACONS AND AT BRIDGE OVERPASSES

SCALE : AS SHOWN (A2) | SHEET 01 OF 02

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001		
DRAWING LOCATION DATA	START	END	
ROUTE	N 4	N 4	
SECTION	13	13	
DRAWING km DISTANCE	- -	- -	
DRAWING TYPE	ROADS - TYPICAL		
BRIDGE/STRUCTURE No.	NA		
CONSULTANT DRAWING No.	FA	3257 / 23 / 33 TP	VER
SANRAL DOCUMENT #	TD-R-FG-101-V1		V0

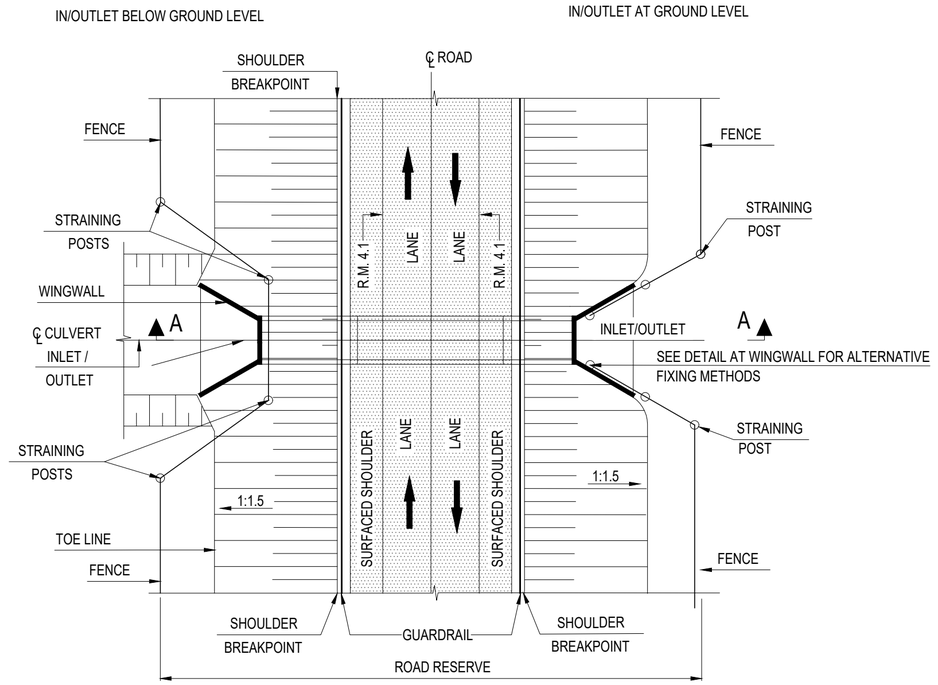
SANRAL DOCUMENT NUMBER : TD-R-FG-101-V1

W:\Roads\3257 - N4 Dual Carriageway (PLNGQS-Tender\03-Drawings\Volume 4-Roadworks\12 - Typicals\3257_23_33 TP- FENCING & RELATED ITEMS - FENCING DETAIL AT INTERCHANGES.dwg



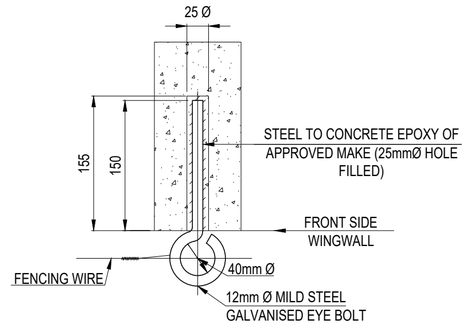
DETAIL AT RIVER BRIDGES PLAN

N.T.S.



PLAN : DETAIL AT CULVERTS AND CATTLE CREEPS

N.T.S.

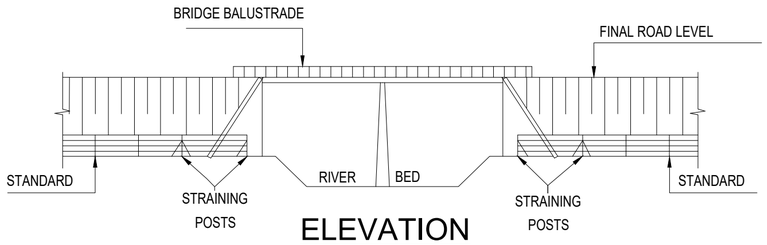


DETAIL "A" RING BOLT DETAIL

SCALE 1 : 5

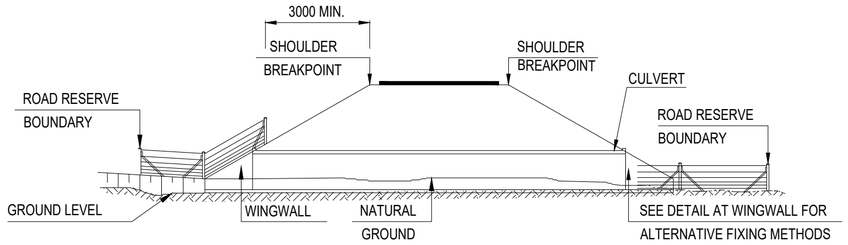
NOTES ON RING BOLT INSTALLATION :

1. EPOXY PASTE TO BE PLACED AT THE BACK OF THE HOLE PRIOR TO INSERTION OF THE BOLT.
2. CAVITY AROUND THE BOLT MUST BE COMPLETELY FILLED WITH EPOXY ADHESIVE.
3. THE SWIRLING OF A THICK LAYER OF EPOXY ADHESIVE AROUND THE BOLT BEFORE PLACING IT IN THE HOLE SHALL NOT BE PERMITTED.



ELEVATION

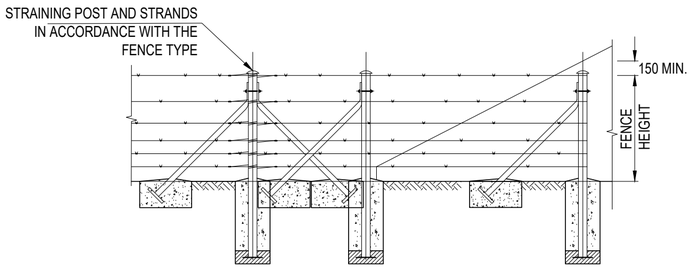
N.T.S.



SECTION A - A

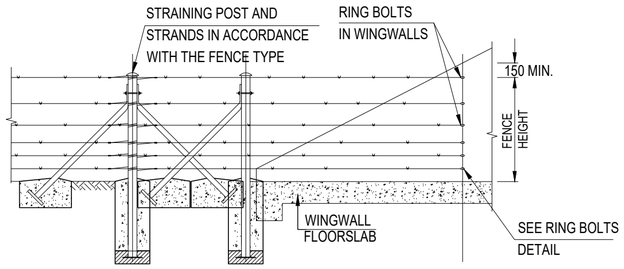
N.T.S.

TENDER



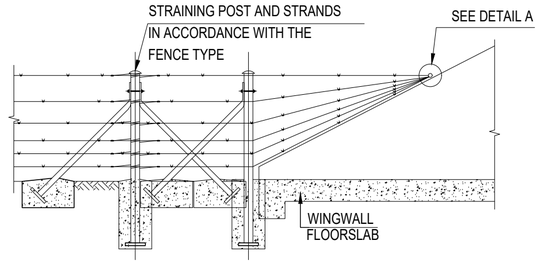
DETAIL AT WINGWALL : ALTERNATIVE 1 BRIDGE STRUCTURES WITH NO CONCRETE FLOOR

SCALE 1 : 50



DETAIL AT WINGWALL : ALTERNATIVE 2 RINGBOLTS IN WINGWALLS AT CULVERTS WITH CONCRETE FLOOR SLAB

SCALE 1 : 50



DETAIL AT WINGWALL : ALTERNATIVE 3 RINGBOLT PLACED IN TOP OF WINGWALL AT CULVERT WITH CONCRETE FLOOR SLAB

SCALE 1 : 50

No.	DATE	REVISION	
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSULT. ENG.

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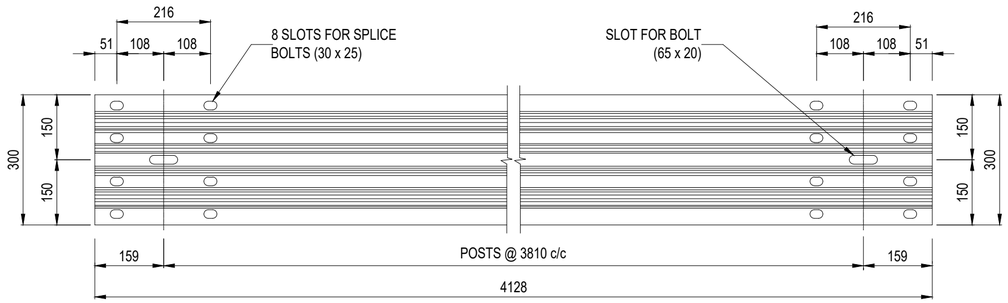
DRAWING DESCRIPTION
FENCING & RELATED ITEMS
FENCING DETAIL AT RIVER BRIDGES AND DRAINAGE CULVERTS

SCALE : AS SHOWN (A2) SHEET 02 OF 02

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001		
DRAWING LOCATION DATA	START	END	
ROUTE	N 4	N 4	
SECTION	13	13	
DRAWING km DISTANCE	- -	- -	
DRAWING TYPE	ROADS - TYPICAL		
BRIDGE/STRUCTURE No.	NA		
CONSULTANT DRAWING No.	FA	3257 / 23 / 34 TP	VER
SANRAL DOCUMENT #		TD-R-FG-102-V1	V0

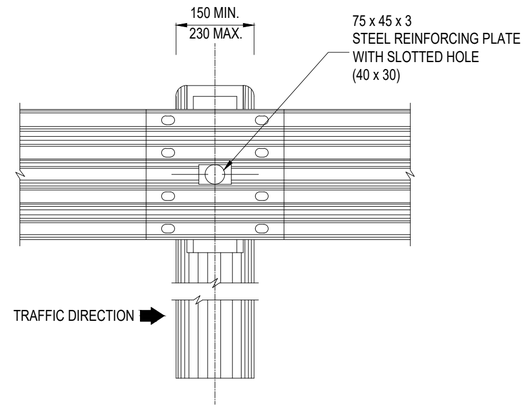
SANRAL DOCUMENT NUMBER : TD-R-FG-102-V1

W:\Roads\3257 - N4 Dual Carriageway (PLNGQS-Tender\03-Drawings\Volume 4-Roadworks\12 - Typicals\3257_23_34 TP- FENCING & RELATED ITEMS - FENCING DETAIL AT RIVE_20160510.dwg



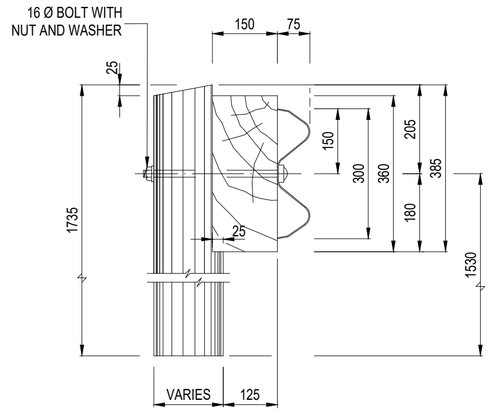
TYPICAL GUARDRAIL SECTION

SCALE 1:10



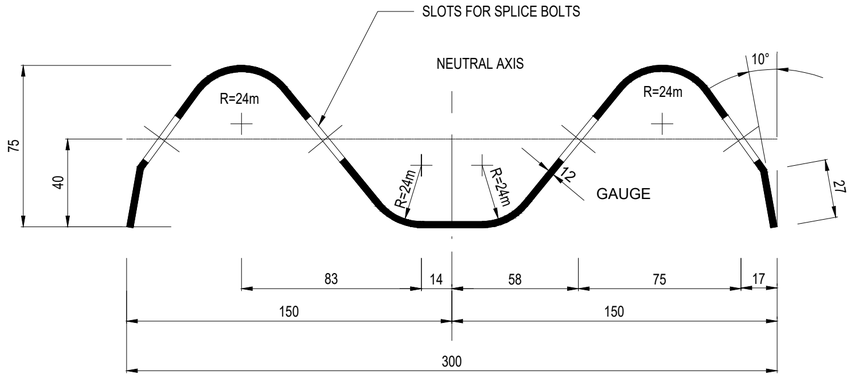
DETAIL A : FRONT ELEVATION
NORMAL SPACING OF POSTS

SCALE 1:10



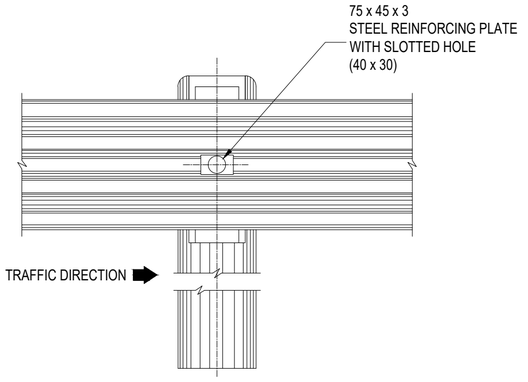
ELEVATION OF GUARDRAIL

SCALE 1:10



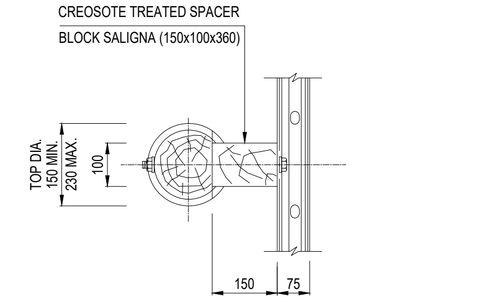
SECTION THROUGH GUARDRAIL

SCALE: 1 : 2



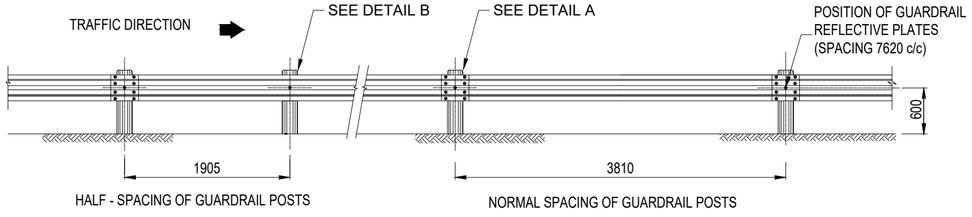
DETAIL B : FRONT ELEVATION
HALF SPACING OF POSTS

SCALE 1:10



PLAN

SCALE 1:10



SPACING OF POSTS AND
POSITION OF REFLECTIVE PLATES

SCALE 1:50

NOTE:
1. GUARDRAILS SHALL ONLY BE PLACED WHERE REQUIRED BY THE ENGINEER.
2. ALL GUARDRAILS MUST BE GALVANIZED AS SPECIFIED (NOT PAINTED).

TENDER

SPECIFICATIONS:

1.BOLT:
HIGH TENSILE STEEL 16 Ø
2.WASHERS:
3mm THICK
3.SPACER BLOCK:
PINE OR GUM, PRESSURE IMPREGNATED IN ACCORDANCE WITH SANS 100005 WITH CREOSOTE WHICH COMPLIES WITH SANS 538 OR 539
4.POSTS:
150 Ø MIN - 230 Ø MAX, SALIGNA (BLUEGUM), PRESSURE IMPREGNATED IN ACCORDANCE WITH SANS 100005 WITH CREOSOTE WHICH COMPLIES WITH SANS 538 OR SANS 539.
5.GALVANIZING:
GUARDRAILS:(SANS 121/ISO 1461):TYPE A1 ARTICLES.
BOLTS AND WASHERS: (SANS 121/ISO 1461) TYPE C1 ARTICLES.
6.TIMBER POSTS:
POSTS SHALL COMPLY WITH THE REQUIREMENTS OF SANS 457 AND SHALL CARRY THE SANS MARK.
7.REFLECTIVE PLATES:
THE OUTER SURFACES SHALL BE COATED WITH ENGINEERING GRADE RETRO-REFLECTIVE MATERIAL WHICH COMPLIES WITH THE PROVISIONS OF CKS 191 IN THE COLOURS SHOWN ON DRAWING TD-R-GR-002

No.	DATE	REVISION	
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date

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DESIGNED BY
NAME: EF DAY
Prof. Reg. No.: 20130622
CHECKED BY
NAME: PL NGQUMSHE
Prof. Reg. No.: 20080112
DRAWN BY
NAME: WB HARTMANN

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17/07/2023

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for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

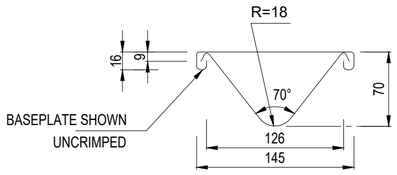
DRAWING DESCRIPTION
GUARDRAILS
GUARDRAIL ELEMENT AND MOUNTING DETAILS

SCALE : AS SHOWN (A2) | SHEET 01 OF 02

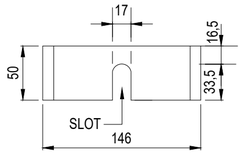
PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	13	13
DRAWING km DISTANCE	- -	- -
DRAWING TYPE	ROADS - TYPICAL	
BRIDGE/STRUCTURE No.	NA	
CONSULTANT DRAWING No.	FA 3257 / 23 / 35 TP	VER
SANRAL DOCUMENT #	TD-R-GR-001-V1	V0

SANRAL DOCUMENT NUMBER : TD-R-GR-001-V1

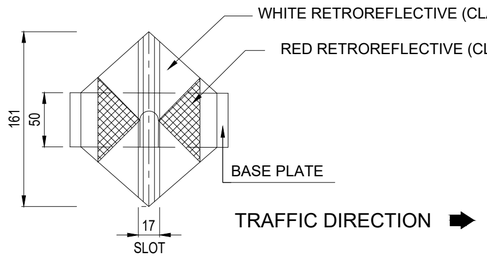
W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadwork\12 - Typicals\3257_23_35 TP- GUARDRAILS - GUARDRAIL ELEMENT AND MOUNTING DETA_20190516.dwg



SECTION PLAN



DETAIL OF BASEPLATE



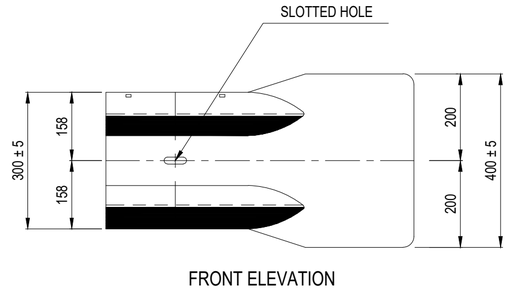
FRONT ELEVATION

NOTE :

V-SHAPED REFLECTIVE PLATES ATTACHED TO EACH ALTERNATE POST- 7620 c/c.

DETAIL OF GUARDRAIL REFLECTIVE PLATES

SCALE 1:4



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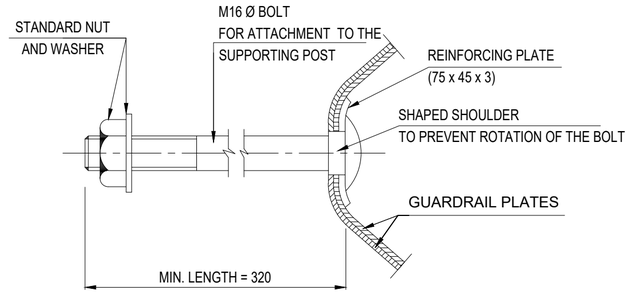
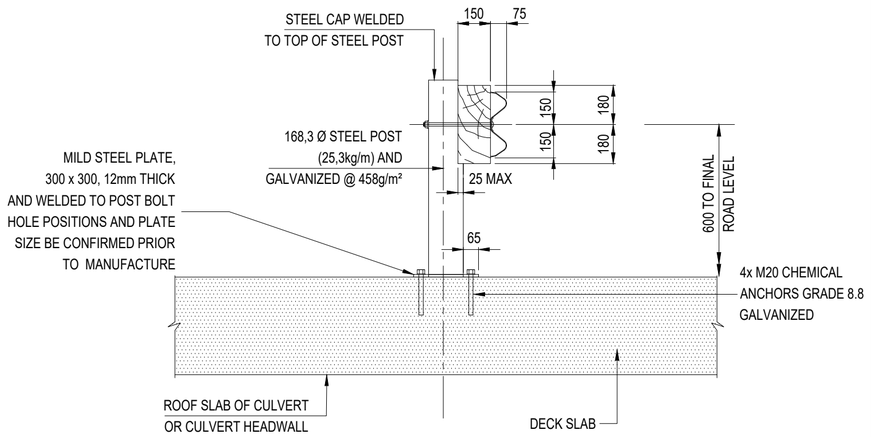
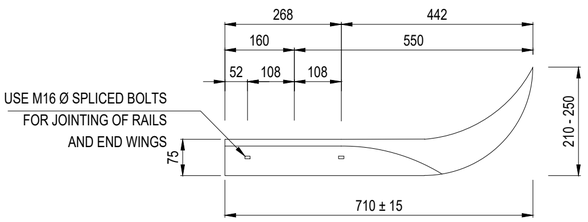




DETAIL OF STEEL GUARDRAIL POST

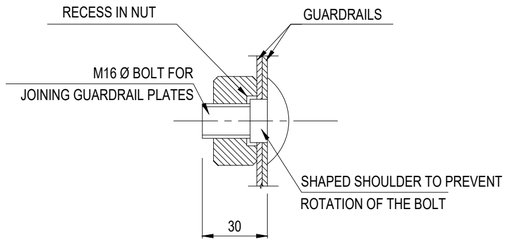
SCALE 1:20



PLAN

STANDARD FLARED END WING

SCALE 1:10



TYPICAL BOLTS

SCALE 1:2

TENDER

No.	DATE	REVISION	
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

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NAME	EF DAY
Prof. Reg. No.	20130622
CHECKED BY	
NAME	PL NGQUMSHE
Prof. Reg. No.	20080112
DRAWN BY	
NAME	WB HARTMANN

CONSULTANT APPROVAL
Name : PL NGQUMSHE
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Date : 17/07/2023

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DRAWING DESCRIPTION
GUARDRAILS
GUARDRAIL ELEMENT AND MOUNTING DETAILS

SCALE : AS SHOWN (A2) SHEET 02 OF 02

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001		
DRAWING LOCATION DATA	START	END	
ROUTE	N 4	N 4	
SECTION	13	13	
DRAWING km DISTANCE	- -	- -	
DRAWING TYPE	ROADS - TYPICAL		
BRIDGE/STRUCTURE No.	NA		
CONSULTANT DRAWING No.	FA	3257 / 23 / 36 TP	VER
SANRAL DOCUMENT #	TD-R-GR-002-V1		V0

SANRAL DOCUMENT NUMBER : TD-R-GR-002-V1

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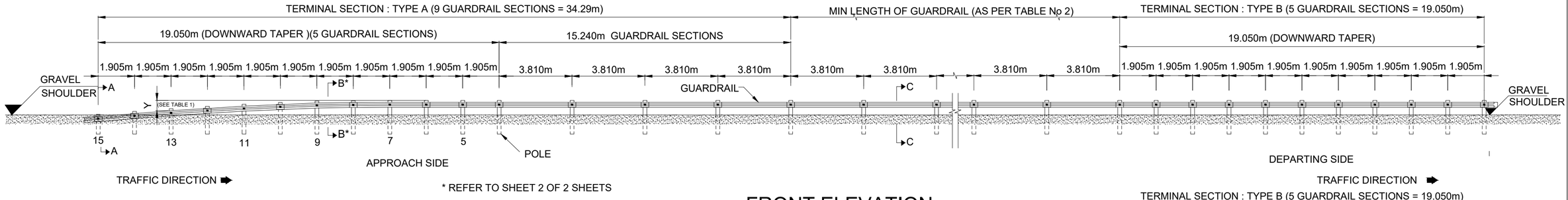
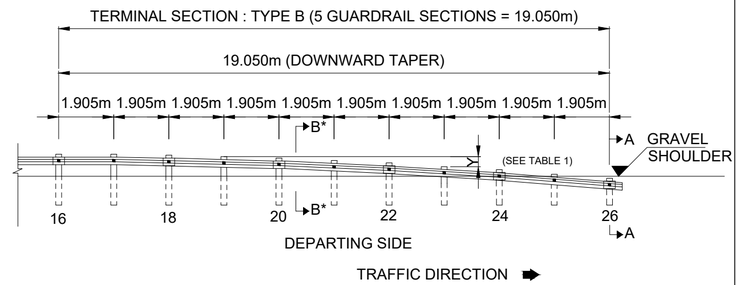


FRONT ELEVATION



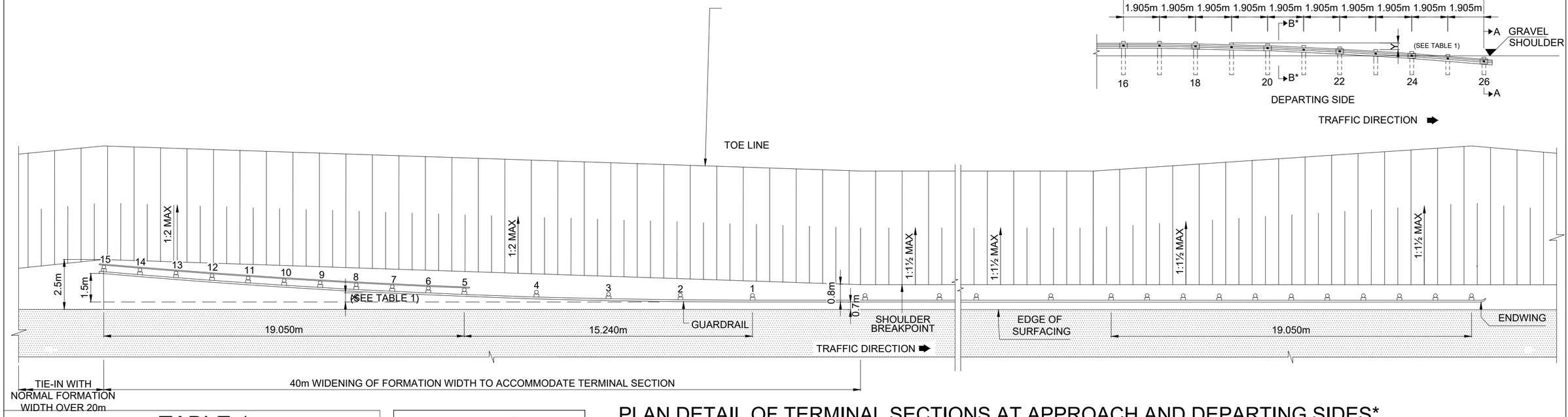


TABLE 1

SETTING OUT POSITIONS OF GUARDRAIL POSTS

	POST No.	HORIZONTAL OFF-SET X(mm)	VERTICAL OFF-SET Y(mm)		POST No.	HORIZONTAL OFF-SET X(mm)	VERTICAL OFF-SET Y(mm)
APPROACH SIDE (34.29 m)	1	0	0	DEPARTING SIDE(19.05 m)	16	0	0
	2	19	0		17	15	-
	3	74	0		18	60	36
	4	167	0		19	135	-
	5	296	0		20	240	144
	6	-	-		21	375	-
	7	463	36		22	540	324
	8	-	-		23	735	-
	9	667	144		24	960	576
	10	-	-		25	1215	-
	11	907	324		26	1500	900
	12	-	-				
	13	1185	576				
	14	-	-				
	15	1500	900				

TABLE 2

MIN LENGTH OF GUARDRAIL REQUIRED (EXCLUDING TERMINAL SECTIONS)

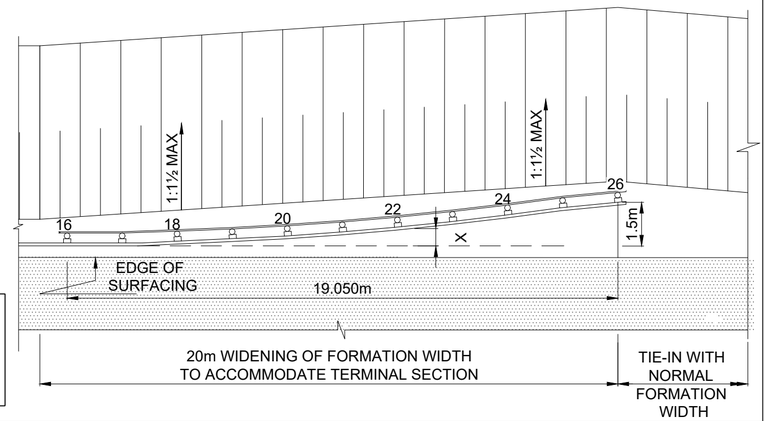
DESIGN SPEED Km/h	MIN LENGTH
60	12 SECTIONS (45.72m)
70	14 SECTIONS (53.34m)
80	16 SECTIONS (60.96m)
90	20 SECTIONS (76.20m)
100	23 SECTIONS (87.63m)
110	27 SECTIONS (102.87m)
120	29 SECTIONS (110.49m)
130	32 SECTIONS (121.92m)
140	35 SECTIONS (133.35m)

*NOTES

GUARDRAIL ONLY TO BE ERECTED IF INSTRUCTED BY THE ENGINEER

PLAN DETAIL OF TERMINAL SECTIONS AT APPROACH AND DEPARTING SIDES*

SCALE 1:75



TENDER

No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

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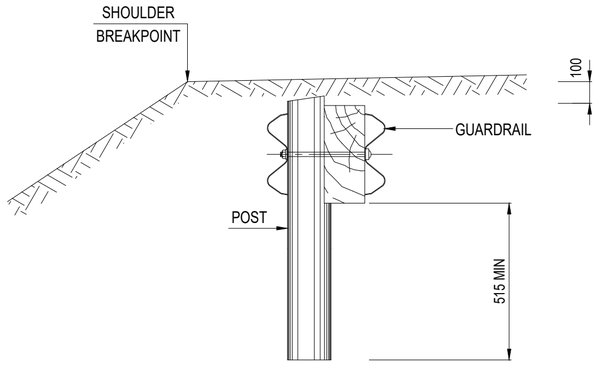
DRAWING DESCRIPTION
GUARDRAILS
DETAIL OF TERMINAL SECTION

SCALE : AS SHOWN (A2) | SHEET 01 OF 02

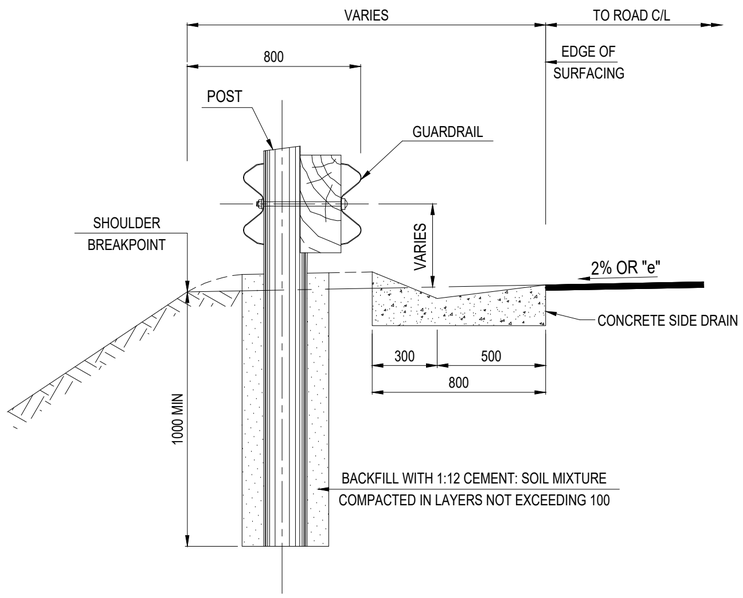
PROJECT NUMBER		BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END	
ROUTE	N 4	N 4	
SECTION	13	13	
DRAWING km DISTANCE	- -	- -	
DRAWING TYPE	ROADS - TYPICAL		
BRIDGE/STRUCTURE No.	NA		
CONSULTANT DRAWING No.	FA	3257 / 23 / 37 TP	VER
SANRAL DOCUMENT #		TD-R-GR-100-V1	V0

SANRAL DOCUMENT NUMBER : TD-R-GR-100-V1

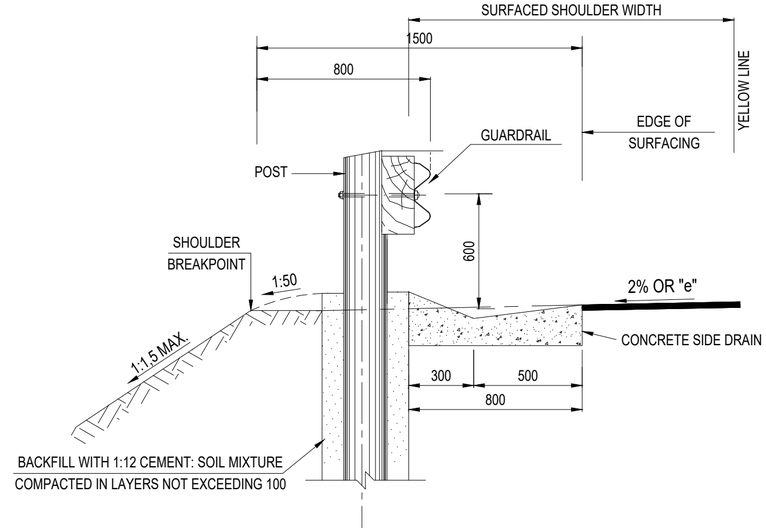
W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\12 - Typicals\3257_23_37 TP- GUARDRAILS - DETAIL OF TERMINAL SECTIONS SHEET 1_20190515.dwg



SECTION A - A
SCALE 1:20



SECTION B - B
SCALE 1:20



SECTION C - C
WITH CONCRETE SIDE DRAIN
SCALE 1:20

NOTE:
1. LENGTH OF GUARDRAIL = 4 130
2. NORMAL SPACING OF POSTS = 3 810

NOTES ON ERECTION DETAILS

1. THE HOLES FOR TIMBER POSTS SHALL BE OF SUFFICIENT SIZE TO PERMIT PROPER SETTING OF THE POSTS AND TO ALLOW SUFFICIENT ROOM FOR BACKFILLING.
2. AT LEAST 1,0m OF POST SHALL BE EMBEDDED IN THE GROUND
3. HOLES FOR TIMBER POSTS SHALL BE SPACED TO SUIT THE STANDARD LENGTH OF GUARDRAIL SUPPLIED.
4. HOLES SHALL BE BACKFILLED WITH (12:1) SOIL CEMENT MIXTURE AT OPTIMUM MOISTURE CONTENT IN COMPACTED LAYERS NOT EXCEEDING 100mm.
5. WHERE JOINTED, THE END OF THE GUARDRAIL WHICH OVERLAPS ON THE SIDE OF THE TRAFFIC SHALL POINT IN THE DIRECTION OF THE TRAFFIC MOVEMENT.

GUARDRAIL WARRANT

1. WHERE THE ROAD IS IN FILL > 3.0m.
2. WHERE THERE IS PERMANENT WATER ADJACENT TO THE ROADWAY.
3. ON ALL BRIDGE APPROACHES.
4. AT OBSTRUCTIONS 1.0m AWAY FROM THE SHOULDER BREAKPOINT.
5. AT ANY DANGER POINT WHERE THE OFF-SHOULDER HAZARD IS GREATER THAN THE HAZARD OF THE GUARDRAIL.

THE ABOVE CRITERIA ARE TO BE APPLIED WITH DISCRETION AND THE POSITION OF ALL GUARDRAILS MUST BE CONFIRMED WITH THE ENGINEER PRIOR TO THE ERECTION THEREOF.

TENDER

No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

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for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION
GUARDRAILS
DETAIL OF TERMINAL SECTION

SCALE : AS SHOWN (A2) SHEET 02 OF 02

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001		
DRAWING LOCATION DATA	START	END	
ROUTE	N 4	N 4	
SECTION	13	13	
DRAWING km DISTANCE	- -	- -	
DRAWING TYPE	ROADS - TYPICAL		
BRIDGE/STRUCTURE No.	NA		
CONSULTANT DRAWING No.	FA	3257 / 23 / 38 TP	VER
SANRAL DOCUMENT #		TD-R-GR-101-V1	V0

SANRAL DOCUMENT NUMBER : TD-R-GR-101-V1

W:\Roads\3257 - N4 Dual Carriageway (PL\N303-Tender\03-Drawings\Volume 4-Roadworks\12 - Typicals\3257_23_38 TP- GUARDRAILS - DETAIL OF TERMINAL SECTIONS SHEET 2_20190515.dwg

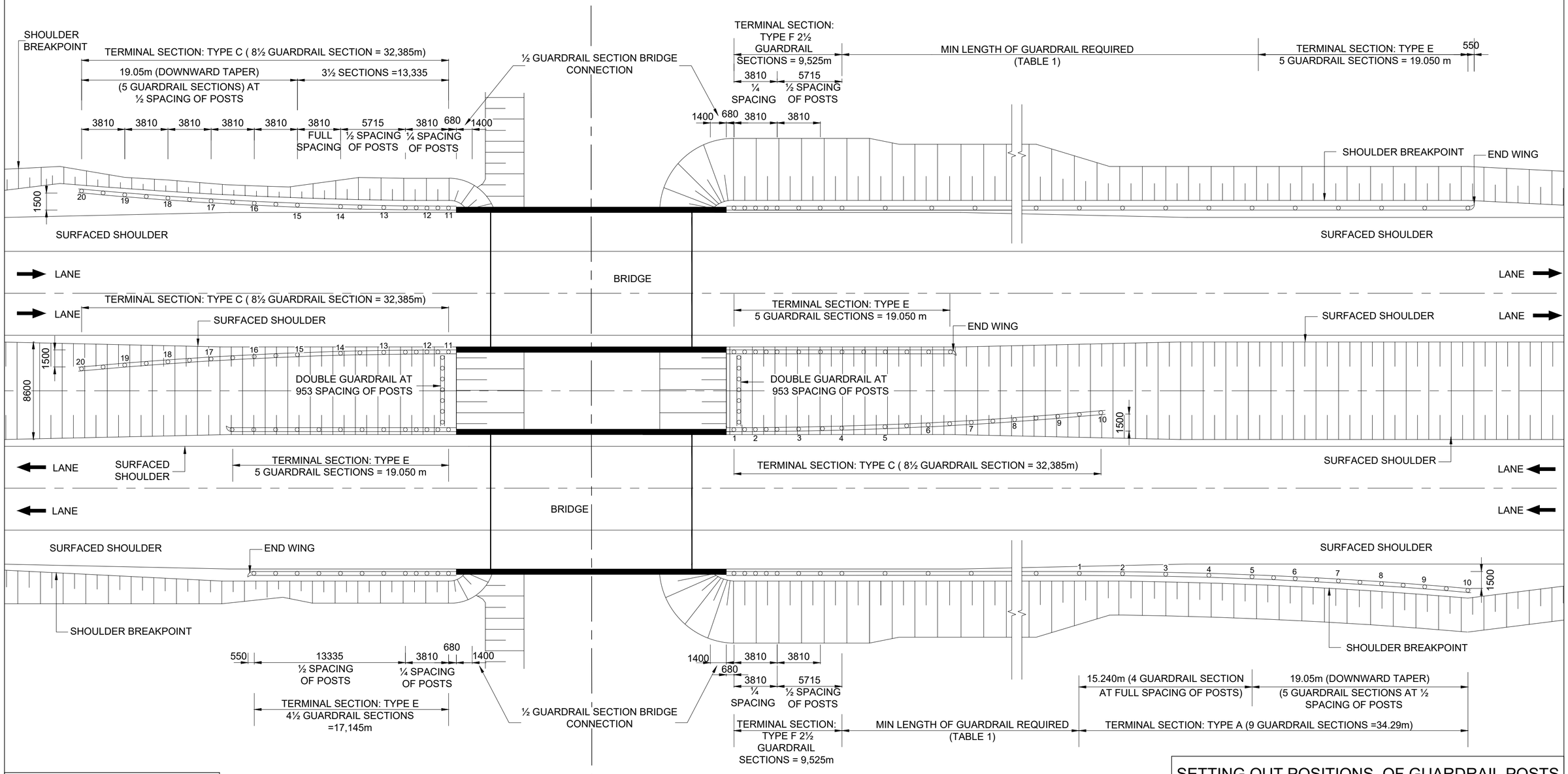

TABLE 1

MIN LENGTH OF GUARDRAIL REQUIRED (EXCLUDING TERMINAL SECTIONS)

DESIGN SPEED km/h	MIN LENGTH
60	12 SECTIONS (45.72m)
70	14 SECTIONS (53.34m)
80	16 SECTIONS (60.96m)
90	20 SECTIONS (76.20m)
100	23 SECTIONS (87.63m)
110	27 SECTIONS (102.87m)
120	29 SECTIONS (110.49m)
130	32 SECTIONS (121.92m)
140	35 SECTIONS (133.35m)

MINIMUM GUARDRAIL LENGTH AT BRIDGES (FILL BELOW 3m)

MINIMUM GUARDRAIL LENGTH AT BRIDGES (FILL > 3m)

BRIDGE APPROACH

SCALE 1 : 250

TENDER

SETTING OUT POSITIONS OF GUARDRAIL POSTS

	TERMINAL SECTION TYPE A			TERMINAL SECTION: TYPE C		
	POST No.	HORIZONTAL OFF-SET X(mm)	VERTICAL OFF-SET Y(mm)	POST No.	HORIZONTAL OFF-SET X(mm)	VERTICAL OFF-SET Y(mm)
APPROACH SIDE	1	0	0	11	0	0
	2	19	0	12	0	0
	3	74	0	13	23	0
	4	164	0	14	94	0
	5	296	0	15	211	0
	6	463	33	16	375	33
	7	667	133	17	586	133
	8	907	299	18	844	299
	9	1185	531	19	1148	531
	10	1500	830	20	1500	830

No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

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THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION
GUARDRAILS
PLACING DETAIL AT BRIDGE APPROACHES AND HIGH FILL (DUAL CARRIAGEWAY)

SCALE : AS SHOWN (A2) | SHEET 01 OF 01

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001
DRAWING LOCATION DATA	START / END
ROUTE	N 4 / N 4
SECTION	13 / 13
DRAWING km DISTANCE	- - / - -
DRAWING TYPE	ROADS - TYPICAL
BRIDGE/STRUCTURE No.	NA
CONSULTANT DRAWING No.	FA 3257 / 23 / 39 TP VER
SANRAL DOCUMENT #	TD-R-GR-200-V1 V0

SANRAL DOCUMENT NUMBER : TD-R-GR-200-V1

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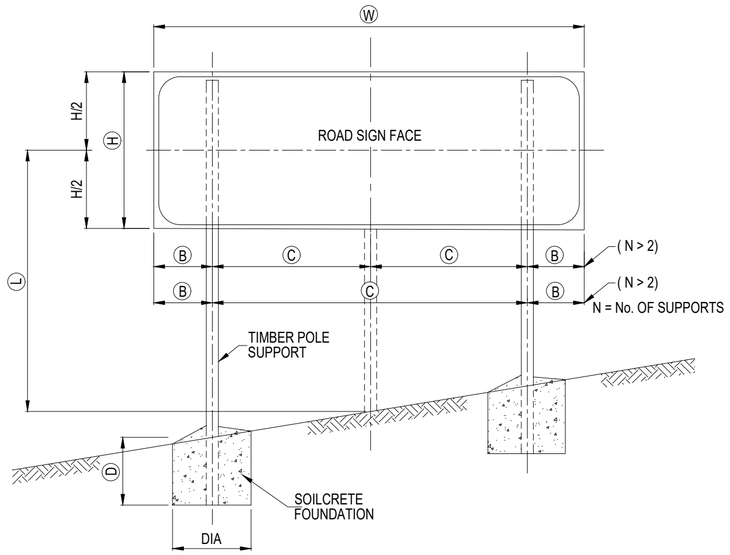

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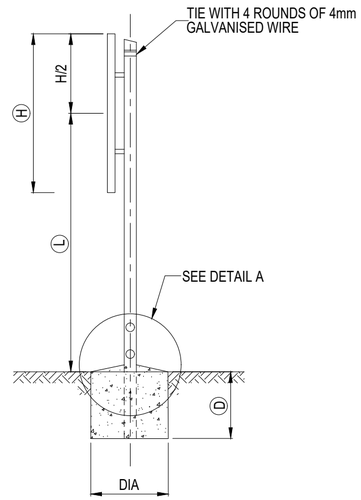


TYPICAL SECTION

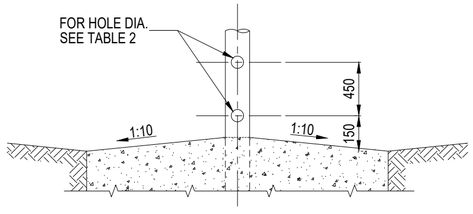
FREE STANDING SUPPORT

SCALE - N.T.S

TABLE 1

WIDTH OF SIGN	No. OF SUPPORTS	DIMENSIONS	
(W)	(N)	(B)	(C)
1,2m OR LESS	1	W/2	-
1,2m - 4,0m	2	W/5	3W/5
4,0m - 7,2m	3	W/2N	W/N
7,2m - 9,6m	4		
9,6m - 12,0m	5		

NOTE : MAXIMUM DISTANCE BETWEEN SUPPORTS = 2,4 m

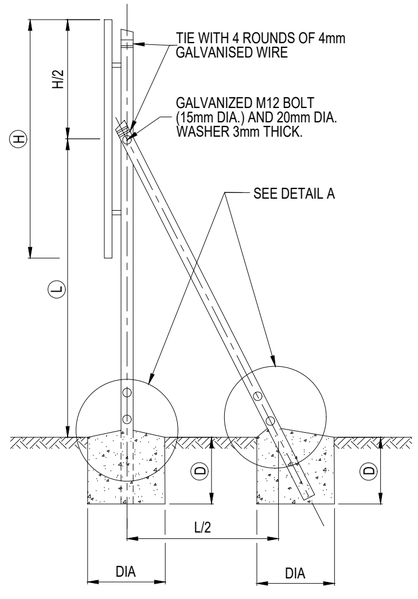


DETAIL A

SCALE - N.T.S

TABLE 2

TIMBER POLE DIA. AT GROUND LEVEL (mm)	HOLE DIA. (mm)
⩽ 140	NONE
141 - 170	40
171 - 200	50
201 - 225	65



TYPICAL SECTION BRACED SUPPORT

SCALE - N.T.S

GENERAL NOTES

SIZE AND SPACING OF ROAD SIGN SUPPORTS AND FOUNDATIONS

SIZE AND SPACING OF SUPPORTS AND FOUNDATIONS SHALL BE DETERMINED FROM INFORMATION SHOWN ON PLAN AND ON THE DESIGN CHARTS SHOWN ON DRAWING TD-R-RS-002. THE SIZES AND SPACING OBTAINED ARE FOR USE WITH THE SIGN FACE SHOWN ON DRAWING TD-R-RS-100. DETAILS OF SINGLE POLE SIGNS (LESS THAN 1,5m² IN AREA) ARE SHOWN ON DRAWING TD-R-RS-200.

POSITION

ROAD SIGNS SHALL BE ERECTED IN THE POSITIONS SHOWN ON THE DRAWINGS OR INDICATED BY THE ENGINEER. STANDARD CLEARANCES ARE SHOWN IN THE SADC ROAD TRAFFIC SIGNS MANUAL.

EXCAVATION

EXCAVATIONS FOR FOUNDATIONS MUST BE MADE TO THE NEAT DIMENSIONS SPECIFIED. WHERE THE FOUNDATION DEPTH
IS 1,5m OR GREATER, EXCAVATIONS MUST BE SUITABLY SHORED FOR THE PROTECTION OF WORKMEN.

TIMBER POLE SUPPORTS

TIMBER SUPPORTS SHALL BE STRAIGHT ROUND POLES COMPLYING WITH THE REQUIREMENTS OF SANS 457-3 AND SHALL NOT EXHIBIT EXCESSIVE CRACKING AT THE ENDS

· LENGTH:
WHEREVER POSSIBLE POLE LENGTHS CORRESPONDING TO AVAILABLE NOMINAL LENGTHS SHALL BE USED.

· CUTTING:
WHERE CUTTING TO LENGTH AFTER PRESERVATIVE TREATMENT IS UNAVOIDABLE, ONLY ONE CUT PER POLE SHALL BE ALLOWED. THE CUT SHALL BE NEAR THE TOP END OF THE POLE AND THE EXPOSED SURFACE SHALL BE TREATED WITH TWO COATS OF THE APPLICABLE PRESERVATIVE AND THE POLE BANDED IN ACCORDANCE WITH SANS 457-3.

· PRESERVATIVE TREATMENT:
THE POLES SHALL BE TREATED WITH EITHER A MIXTURE OF COPPER-CHROMIUM-ARSENIC COMPOUNDS COMPLYING WITH THE
REQUIREMENTS OF TYPE II OF SANS 673 (HICKSONS "TANALITH C" OR EQUAL) OR WITH CREOSOTE THAT COMPLIES WITH SANS 538 OR SANS 539.

· ERECTION:
POLES SHALL BE SELECTED FOR STRAIGHTNESS AND ERECTED AT AN ORIENTATION WHICH WILL PERMIT THE SIGN FACE TO BE FASTENED IN A VERTICAL PLANE WITHOUT UNDUE DISTORTION.

· BREAKAWAY HOLES:
ALL TIMBER POLES HAVING A DIAMETER >140mm SHALL BE DRILLED WITH TWO HOLES PERPENDICULAR TO THE DIRECTION OF TRAFFIC AS SHOWN IN DETAIL A. THE EXPOSED TIMBER SURFACES SHALL BE TREATED WITH TWO COATS OF THE
APPLICABLE PRESERVATIVE.

SOILCRETE FOUNDATIONS

SOILCRETE SHALL CONSIST OF 12 PARTS APPROVED GRANULAR SOIL OR GRAVEL MIXED WITH 1 PART PORTLAND CEMENT
AND ONLY SUFFICIENT WATER TO GIVE IT A CONSISTENCY THAT WILL PERMIT THE SOILCRETE TO BE VIBRATED OR TAMPED TO EXCLUDE VOIDS. TIMBER SUPPORT POLES SHALL BE SET VERTICAL AND FIRMLY PROPPED IN POSITION PRIOR TO PLACING OF THE SOILCRETE. PROPS SHALL REMAIN IN POSITION FOR A MINIMUM OF 12 HOURS AFTER PLACING THE SOILCRETE. THE SURFACE OF THE SOILCRETE SHALL BE NEATLY FINISHED WITH SUFFICIENT FALL TO ENSURE PROPER DRAINAGE. CONCRETE SHALL NOT BE SUBSTITUTED FOR SOILCRETE.TOPPING OF SOILCRETE FOUNDATION TO BE STEEL FLOATED.

BOLTS, NUTS AND WASHERS

EXCEPT WHERE OTHERWISE SPECIFIED STEEL BOLTS AND NUTS SHALL CONFORM TO SANS 135 OR SANS 1143 AND ALL COMPONENTS SHALL HAVE A HOT-DIP (GALVANIZED) ZINC COATING THAT COMPLIES WITH THE REQUIREMENTS OF SANS 121 : 2000 (ISO 1461 : 1999) FOR COATINGS ON TYPE C1 ARTICLES.

ROAD SIGN FACES

ROAD SIGN FACES SHALL BE MANUFACTURED STRICTLY IN ACCORDANCE WITH THE DETAILS SHOWN ON DRAWING TD-R-RS-100. TRANSPORTATION AND ERECTION OF SIGN FACES SHALL BE CARRIED OUT IN SUCH A WAY THAT DAMAGE TO THE SIGN IS PREVENTED. THE LOWER EDGE OF SIGN FACES SHALL BE HORIZONTAL AFTER COMPLETION OF ERECTION. THE MONTH AND YEAR OF ERECTION OF THE ROAD SIGN SHALL BE INDICATED BY MEANS OF WHITE PAINT ON THE BACK OF THE SIGN IN THE BOTTOM RIGHT HAND CORNER. THE LETTERS AND FIGURES SHALL BE 25mm HIGH.

TENDER

No.	DATE	REVISION	
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

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THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION
ROAD SIGNS
SUPPORTS AND FOUNDATIONS
GENERAL DETAILS

SCALE : AS SHOWN (A2) | SHEET 01 OF 02

PROJECT NUMBER		BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END	
ROUTE	N 4	N 4	
SECTION	13	13	
DRAWING km DISTANCE	- -	- -	
DRAWING TYPE	ROADS - TYPICAL		
BRIDGE/STRUCTURE No.	NA		
CONSULTANT DRAWING No.	FA	3257 / 23 / 40 TP	VER
SANRAL DOCUMENT #		TD-R-RS-001-V1	V0

SANRAL DOCUMENT NUMBER : TD-R-RS-001-V1

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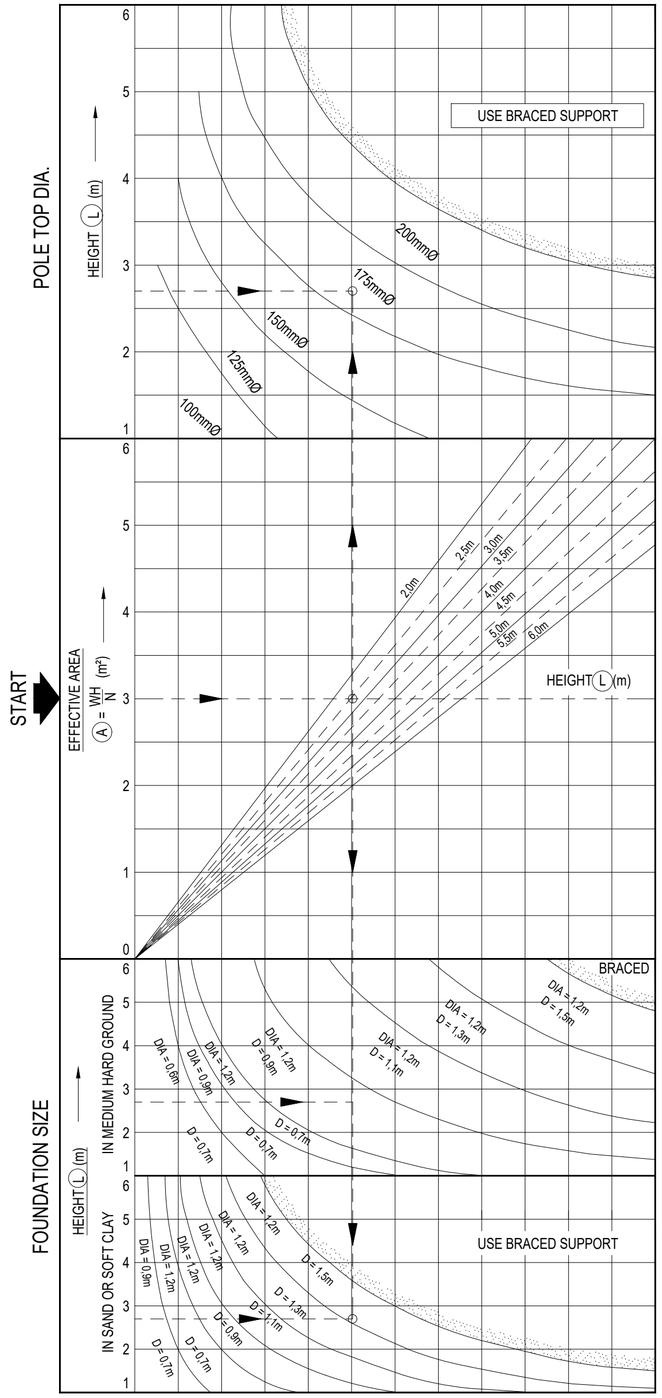
ROAD SIGNS
DETERMINATION OF SUPPORTS AND FOUNDATIONS



NOTE:

1. REFERENCE PLANS

   THIS PLAN FORMS PART OF AND MUST BE READ IN CONJUNCTION WITH DRAWING TD-R-RS-001

2. DESIGN LOADING

   NOMINAL WIND LOAD ACTING ON THE SIGN FACE HAS BEEN ASSUMED AS FOLLOWS:-

   AVERAGE SIGN HEIGHT L < 2m : 0,75 kPa

   AVERAGE SIGN HEIGHT L > 6m : 1,25 kPa

   WIND LOADING IS ASSUMED TO VARY LINEARLY FOR AVERAGE SIGN HEIGHTS FALLING BETWEEN THE ABOVE LIMITS.

3. FOUNDING MATERIAL

   FOUNDATIONS FOR FREE STANDING SUPPORTS DEPEND ON SOIL TYPE ENCOUNTERED.

   THE GRAPHS FOR "MEDIUM HARD GROUND" ARE APPLICABLE FOR ANY MATERIAL WHICH REQUIRES A PICK FOR EXCAVATION.

   FOR SOFTER FOUNDING MATERIAL THE GRAPH FOR "SAND OR SOFT CLAY" MUST BE USED.

   FOUNDATIONS FOR SIGNS USING BRACED SUPPORTS ARE INDEPENDENT OF FOUNDING MATERIAL TYPE.

   FOUNDATIONS FOR SIGNS LOCATED IN HARD ROCK MAY REQUIRE SPECIAL DESIGNS.

4. DESIGN PROCEDURE

   i) FROM TABLE 1 ON PLAN No. C-02-v1 DETERMINE FOR SIGN WIDTH W , THE NUMBER OF SUPPORTS N AND DIMENSIONS B AND C

   ii) CALCULATE THE EFFECTIVE SIGN AREA A = $\frac{W \times H}{N}$ (m²) AND AVERAGE HEIGHT L (m)

   iii) FROM DESIGN CHART 1 (FREE STANDING SUPPORT), DETERMINE THE FOLLOWING:-

   a) THE TOP DIAMETER OF THE POLE

   b) THE FOUNDATION DIAMETER AND DEPTH FOR THE APPLICABLE FOUNDING MATERIAL. (SEE NOTE 3)

   iv) WHERE THE EFFECTIVE SIGN AREA EXCEEDS 6m² OR WHERE NECESSARY AS INDICATED ON DESIGN CHART 1 , CHART 2 FOR BRACED SUPPORTS MUST BE USED. IN THIS CASE THE POLE TOP DIAMETER AND FOUNDATION SIZES OBTAINED ARE APPLICABLE TO BOTH THE UPRIGHT AND DIAGONAL BRACE MEMBERS.

   v) DETERMINE FROM TABLE 2 THE DIAMETER OF HOLES TO BE DRILLED IN THE POLES AS SHOWN IN DETAIL "A"

5. EXAMPLE (FREE STANDING SUPPORT)

   W = 5m H = 1,8m L = 2,7m

   FROM TABLE 1

   N = 3m B = 0,830m C = 1,670m

   A = $\frac{5 \times 1,8}{3}$ = 3,0m²

   FROM DESIGN CHART 1

   FOR A = 3,0m² AND L = 2,7m

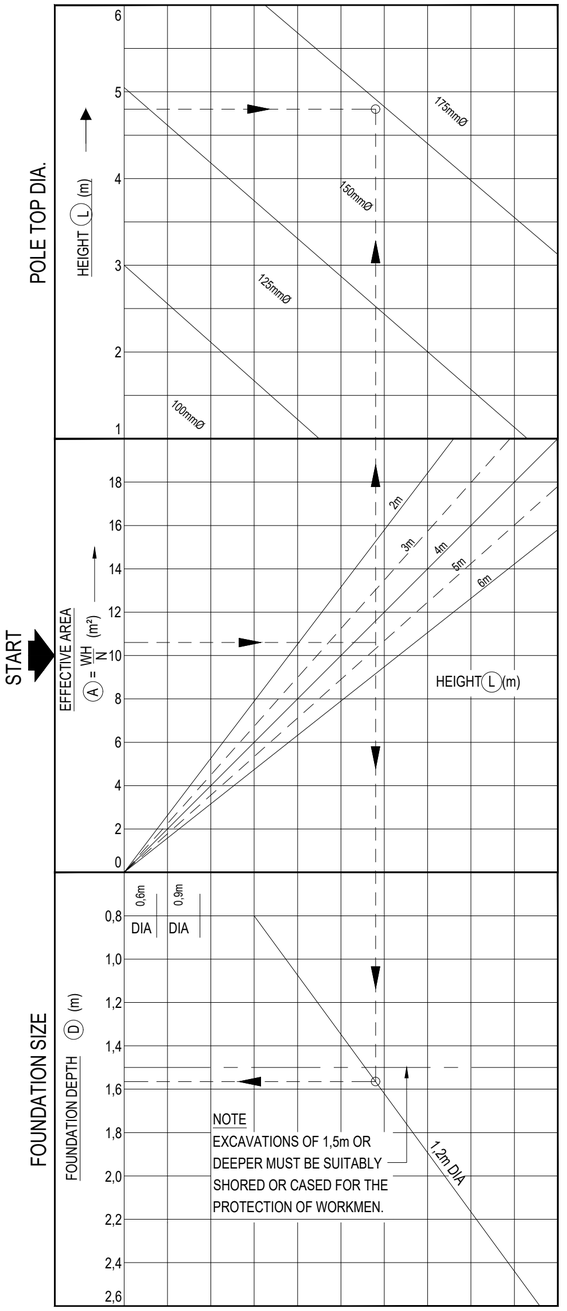
   POLE TOP DIA. = 175mm

   FOUNDATION SIZE = 1,2m DIA. 0,9m DEEP (MEDIUM HARD GROUND)

   OR 1,2m DIA. 1,5m DEEP (SAND OR SOFT CLAY)

   FROM TABLE 2

   HOLES TO BE DRILLED (DETAIL A = 40mm DIA.)



DESIGN CHART 1
FREE STANDING SUPPORT
SCALE - N.T.S

TENDER

DESIGN CHART 2
BRACED SUPPORT
SCALE - N.T.S

No.	DATE	REVISION	
V0	17/07/223	ORIGINAL VERSION	PL NGQUMSHE

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DRAWING DESCRIPTION
ROAD SIGNS
SUPPORTS AND FOUNDATIONS
DETERMINATION

SCALE : AS SHOWN (A2) SHEET 02 OF 02

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001		
DRAWING LOCATION DATA	START	END	
ROUTE	N 4	N 4	
SECTION	13	13	
DRAWING km DISTANCE	- -	- -	
DRAWING TYPE	ROADS - TYPICAL		
BRIDGE/STRUCTURE No.	NA		
CONSULTANT DRAWING No.	FA	3257 / 23 / 41 TP	VER
SANRAL DOCUMENT #	TD-R-RS-002-V1		V0

SANRAL DOCUMENT NUMBER : TD-R-RS-002-V1

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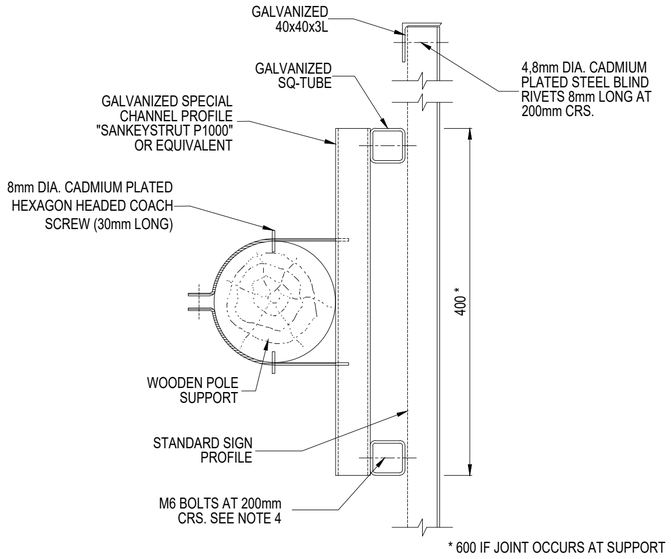
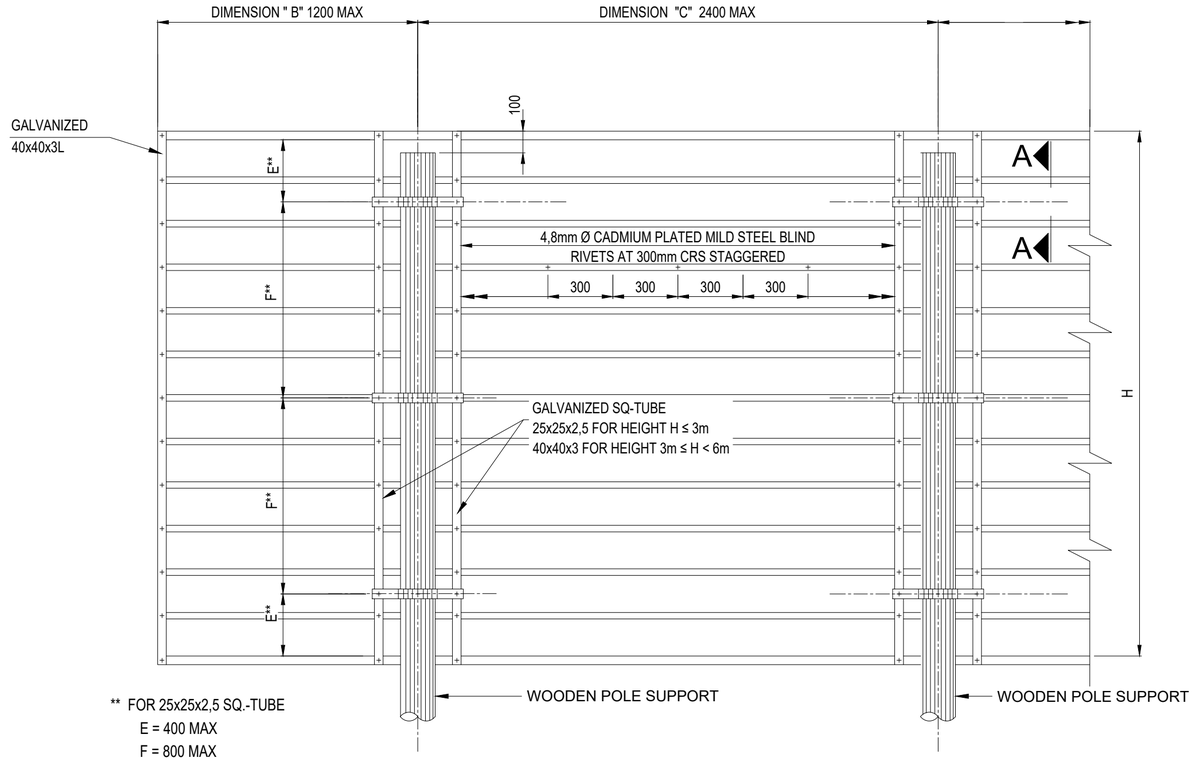


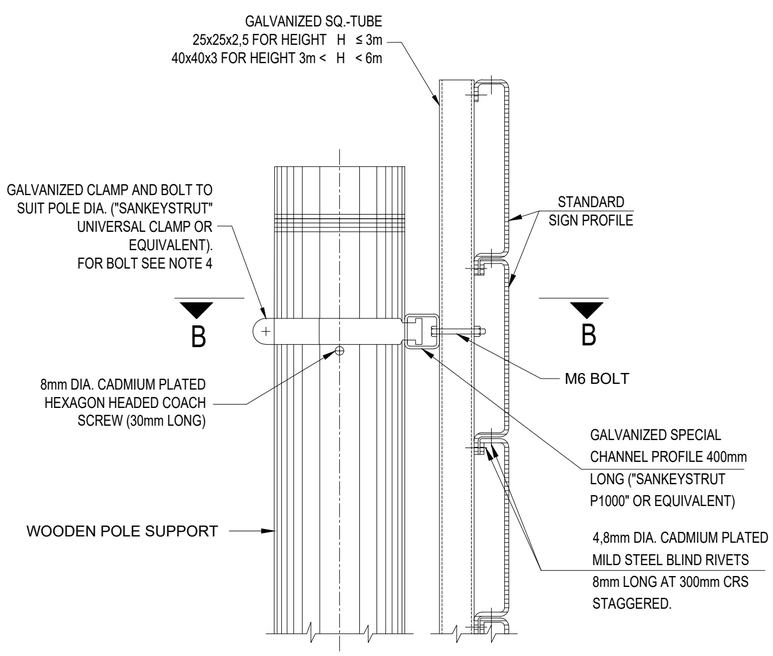
SECTION B - B

SCALE - 1 : 5



REAR ELEVATION

SCALE 1:20



ELEVATION A-A

SCALE 1:5

TENDER

NOTES :

THE ROAD SIGN FACES SHALL BE MANUFACTURED AND ERECTED IN ACCORDANCE WITH THE FOLLOWING REQUIREMENTS :

1. THE STANDARD SIGN PROFILE IF APPLICABLE SHALL BE MADE IN ACCORDANCE WITH THE DETAILS SHOWN ON DRAWING TD-R-RS-101.
2. A SIGN FACE WHICH EXCEEDS 6m LENGTH MAY BE MANUFACTURED IN TWO SECTIONS. THE JOINT SHALL BE MADE IN ACCORDANCE WITH DETAILS SHOWN ON DRAWING TD-R-RS-101.
3. STRUCTURAL STEEL SECTIONS SHALL BE MILD STEEL CONFORMING TO THE REQUIREMENTS OF SANS 1431, GRADE 300W. RECTANGULAR HOLLOW SECTION AND SPECIAL CHANNEL PROFILES MAY BE COLD FORMED OF COMMERCIAL QUALITY MILD STEEL. ALL SECTIONS SHALL BE HOT-DIP GALVANISED IN ACCORDANCE WITH THE REQUIREMENTS OF SANS 121 : 2000 (ISO 1461 : 1999).
4. BOLTS, WASHERS AND NUTS SHALL COMPLY WITH THE REQUIREMENTS OF SANS 1700-5-1 AND SHALL BE GALVANISED IN ACCORDANCE WITH THE REQUIREMENTS OF SANS 121 : 2000 (ISO 1461 : 1999).
5. BLIND RIVETS SHALL BE 4.8mm DIA CADMIUM PLATED MILD STEEL.
6. REFERENCE MUST BE MADE TO THE RELEVANT ROAD SIGNS DETAIL DRAWING FOR DETAILS OF THE ROAD SYMBOLS AND LEGEND FOR EACH INDIVIDUAL SIGN.

No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

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DESIGNED BY	
NAME	EF DAY
Prof. Reg. No.	20130622
CHECKED BY	
NAME	PL NGQUMSHE
Prof. Reg. No.	20080112
DRAWN BY	
NAME	WB HARTMANN

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17/07/2023

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THE SOUTH AFRICAN NATIONAL ROADS AGENCY SOC LTD
Reg. No. 1998/009584/30

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ACCEPTANCE
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for CEO: SA NATIONAL ROADS AGENCY LTD.
Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

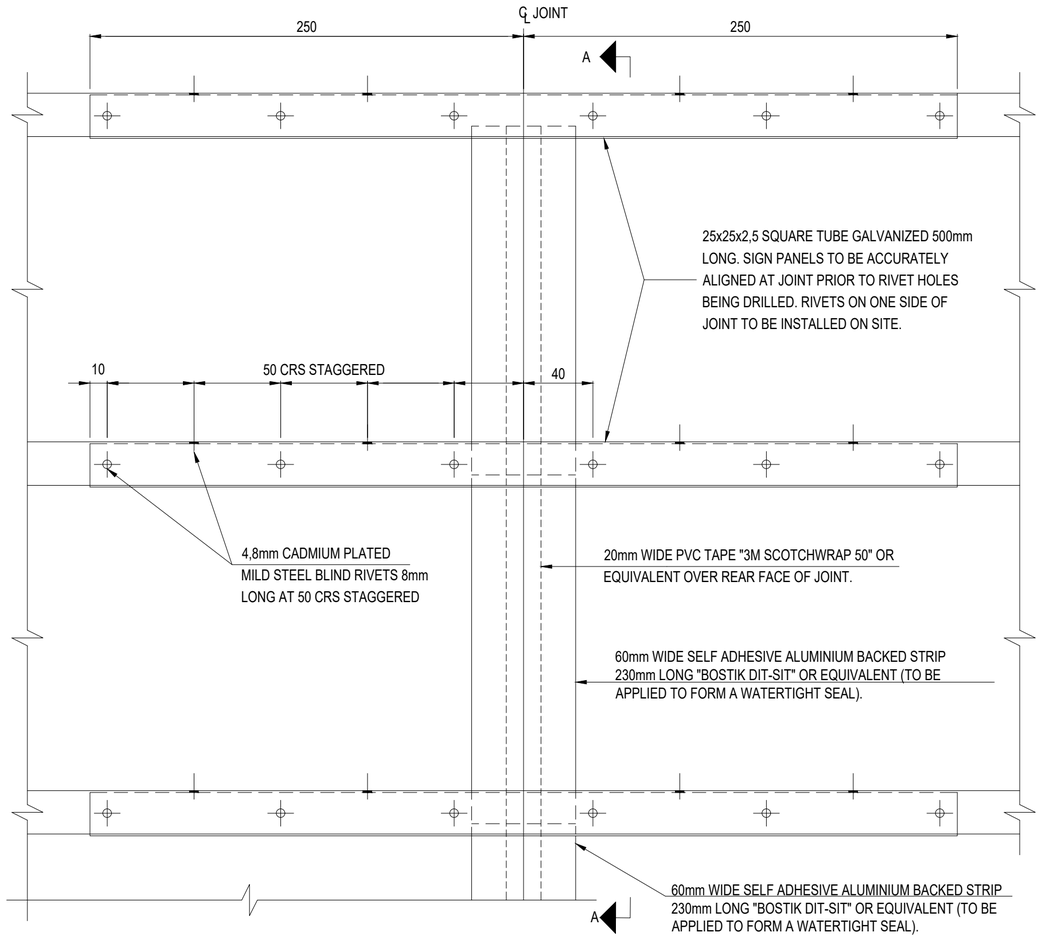
DRAWING DESCRIPTION
ROAD SIGNS
DETAIL OF ROAD SIGN
SIGN FACE

SCALE : AS SHOWN (A2) SHEET 01 OF 02

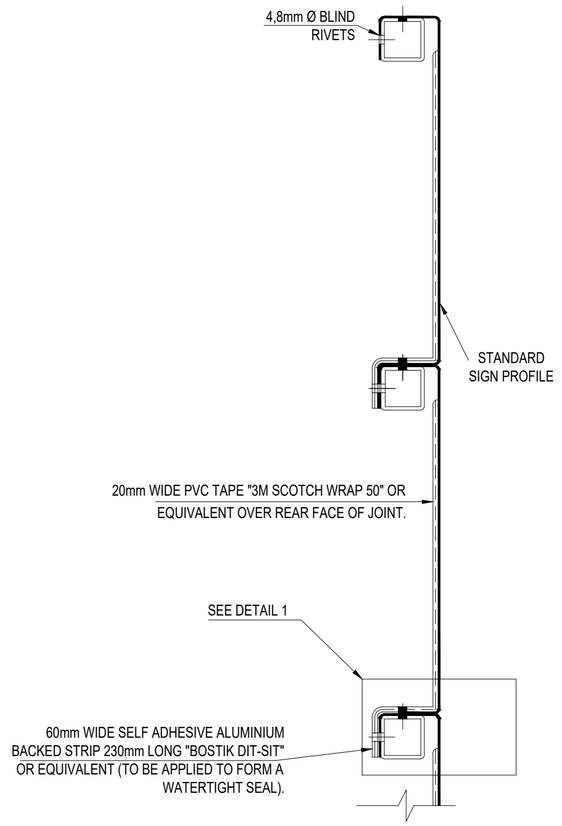
PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	13	13
DRAWING km DISTANCE	- -	- -
DRAWING TYPE	ROADS - TYPICAL	
BRIDGE/STRUCTURE No.	NA	
CONSULTANT DRAWING No.	FA 3257 / 23 / 42 TP	VER
SANRAL DOCUMENT #	TD-R-RS-100-V1	V0

SANRAL DOCUMENT NUMBER : TD-R-RS-100-V1

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\12 - Typicals\3257_23_42 TP - ROAD SIGNS - DETAIL OF ROAD SIGN - SIGN FACE SHE_20160515.dwg

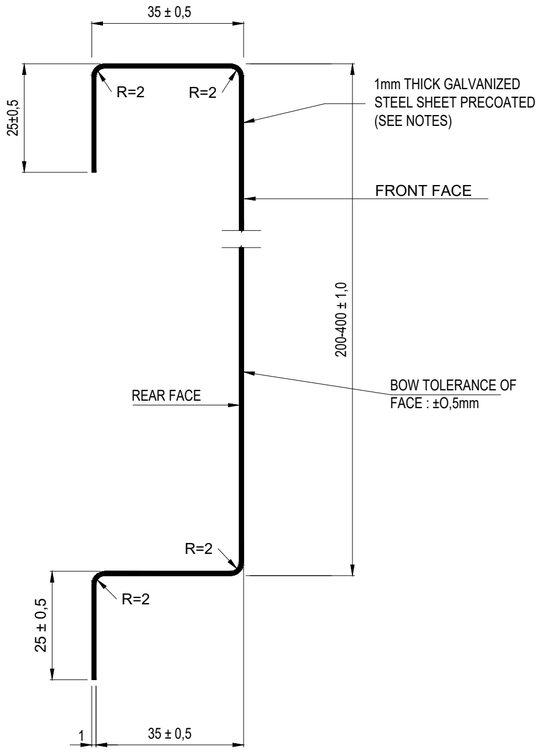


REAR ELEVATION



SECTION A-A

SCALE 1:2.5



STANDARD SIGN PROFILE

SCALE 1:1

NOTES :

STANDARD SIGN PROFILE

1. THE STANDARD SIGN PROFILE SHALL BE MADE FROM 1mm THICK PREPAINTED GALVANIZED MILD STEEL PLATE.

2. THE BACK FACE OF THE SIGN PROFILE SHALL BE GRAY IN COLOUR : G29 TO SANS 1091 OR SIMILAR.

3. THE PREPAINTED STEEL SHALL BE CUT TO LENGTH TO A TOLERANCE OF ±2mm PRIOR TO PROFILING.

4. WHERE STANDARD SIGN PROFILES ARE TO BE FACED WITH RETRO-REFLECTIVE BACKGROUND MATERIAL, IT SHALL BE APPLIED IN ADVANCE TO INDIVIDUAL SECTIONS BEFORE ASSEMBLY, WITH THE MATERIAL TAKEN AROUND THE FACE EDGES OF EACH SECTION FOR AT LEAST 10mm.

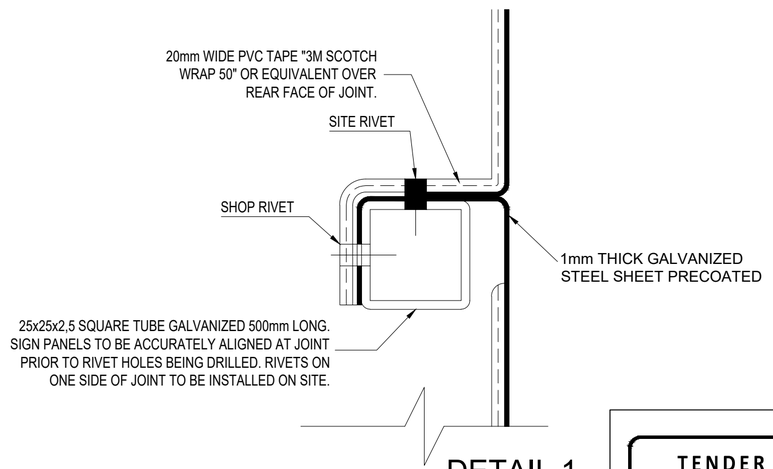
JOINT

1. THE JOINT SHALL BE ACCURATELY ALIGNED PRIOR TO DRILLING RIVET HOLES.

2. THE CAP BETWEEN THE ADJOINING HALVES OF THE SIGN SHALL AT NO POINT EXCEED 2mm.

3. THE COMPLETED SECTION SHALL BE ASSEMBLED IN THE SHOP PRIOR TO DELIVERY TO SITE TO ENSURE THAT ALL SECTIONS FIT TOGETHER PROPERLY AND THAT LEGENDS ARE PROPERLY SPACED AND ALIGNED.

4. ON SITE THE TWO SECTIONS SHALL AGAIN BE ALIGNED AND FASTENED TOGETHER BY MEANS OF RIVETS PLACED IN THE PRE-DRILLED HOLES.



DETAIL 1

SCALE 1:1

TENDER

No.	DATE	REVISION	
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date :

CONSULTANT
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Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

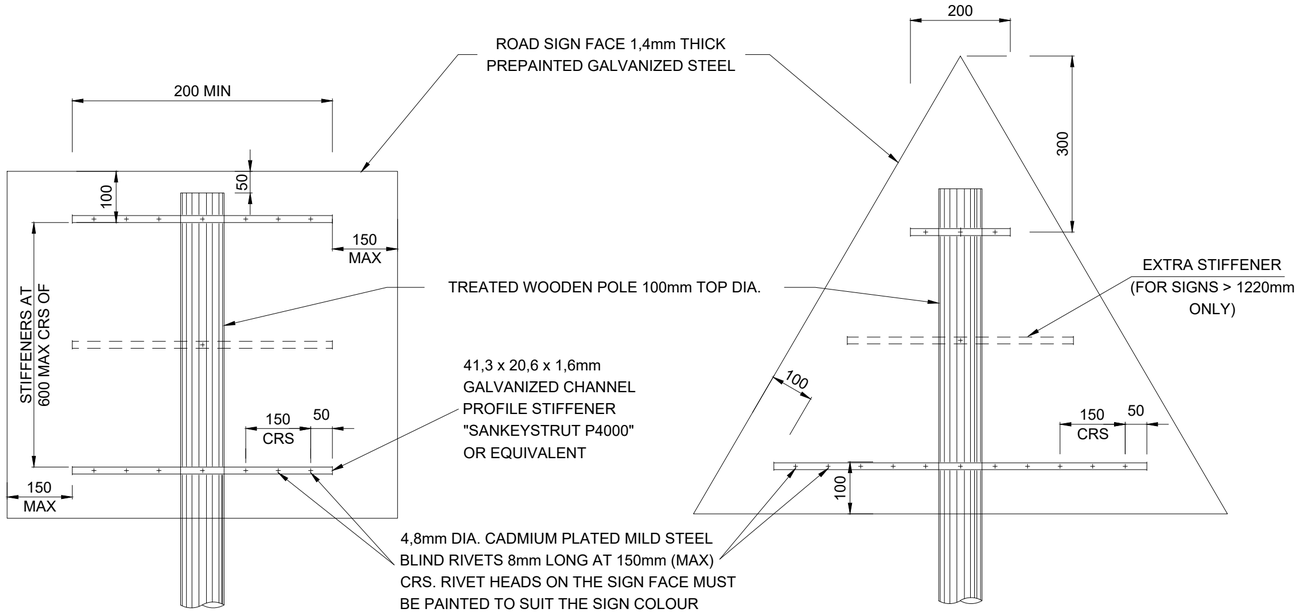
DRAWING DESCRIPTION
ROAD SIGNS
DETAIL OF ROAD SIGN
PROFILE AND JOINT

SCALE : AS SHOWN (A2) | SHEET 02 OF 02

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001		
DRAWING LOCATION DATA	START	END	
ROUTE	N 4	N 4	
SECTION	13	13	
DRAWING km DISTANCE	- -	- -	
DRAWING TYPE	ROADS - TYPICAL		
BRIDGE/STRUCTURE No.	NA		
CONSULTANT DRAWING No.	FA	3257 / 13 / 43 TP	VER
SANRAL DOCUMENT #	TD-R-RS-101-V1		V0

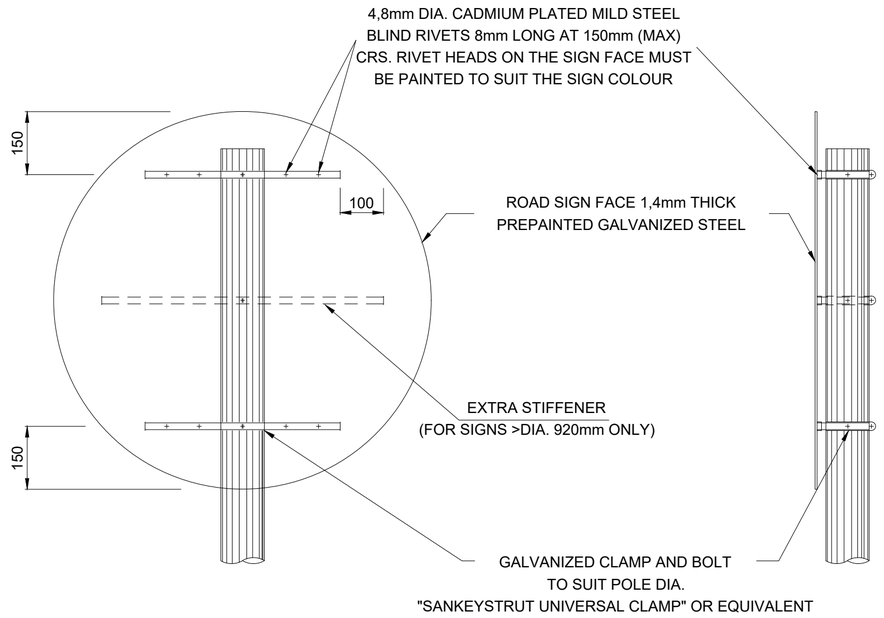
SANRAL DOCUMENT NUMBER : TD-R-RS-101-V1

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\12 - Typicals\3257_23_43 TP- ROAD SIGNS - DETAIL OF ROAD SIGN - PROFILE AND J_20150515.dwg



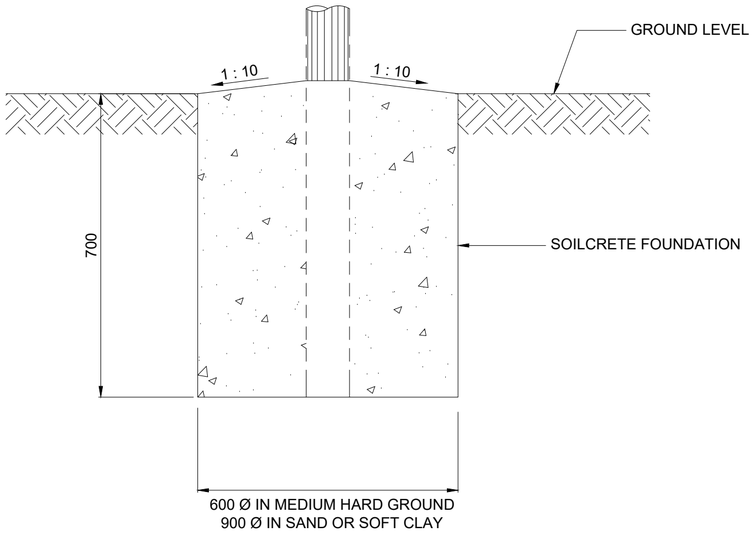
REAR ELEVATION

REAR ELEVATION



REAR ELEVATION

TYPICAL SIDE ELEVATION



TYPICAL FOUNDATION

NOTES :

THE ROAD SIGN FACES SHALL BE MANUFACTURED AND ERECTED IN ACCORDANCE WITH THE FOLLOWING REQUIREMENTS :

1. DETAILS ON THIS DRAWING ARE APPLICABLE TO ROAD SIGNS SMALLER THAN 1,5m² REQUIRING DOUBLE / SINGLE SUPPORTS.
2. BOLTS, WASHERS AND NUTS SHALL COMPLY WITH THE REQUIREMENTS OF SANS 1700-5-1 AND SHALL BE GALVANISED IN ACCORDANCE WITH THE REQUIREMENTS OF SANS 121 : 2000 (ISO 1461 : 1999).
3. BLIND RIVETS SHALL BE 4.8mm DIA CADMIUM PLATED MILD STEEL.
4. REFERENCE MUST BE MADE TO THE RELEVANT ROAD SIGNS DETAIL DRAWING FOR DETAILS OF THE ROAD SIGN SYMBOLS AND LEGEND FOR EACH INDIVIDUAL SIGN.

TENDER

SANRAL DOCUMENT NUMBER : TD-R-RS-200-V1

No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date :

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DESIGNED BY
NAME : EF DAY
Prof. Reg. No. : 20130622
CHECKED BY
NAME : PL NGQUMSHE
Prof. Reg. No. : 20080112
DRAWN BY
NAME : WB HARTMANN

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17/07/2023

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Date:

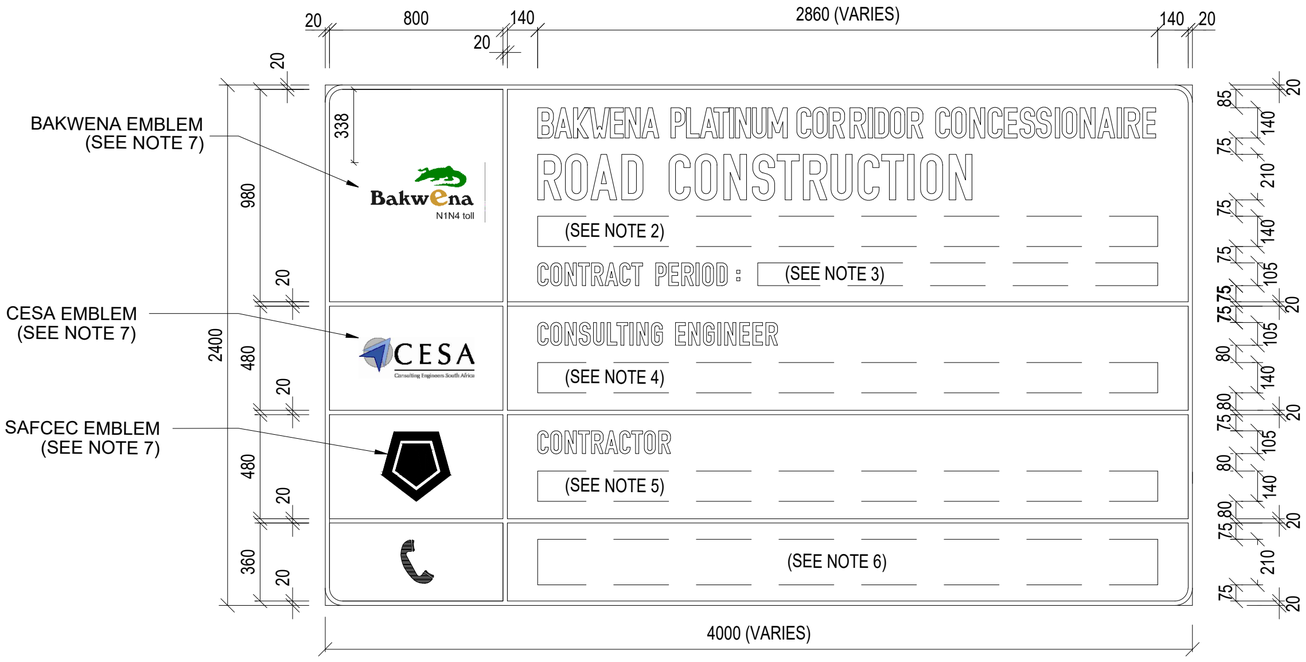
PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION
ROAD SIGNS
SMALLER ROAD SIGNS

SCALE : AS SHOWN (A2) SHEET 01 OF 01

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001		
DRAWING LOCATION DATA	START	END	
ROUTE	N 4	N 4	
SECTION	13	13	
DRAWING km DISTANCE	- -	- -	
DRAWING TYPE	ROADS - TYPICAL		
BRIDGE/STRUCTURE No.	NA		
CONSULTANT DRAWING No.	FA	3257 / 23 / 44 TP	VER
SANRAL DOCUMENT #		TD-R-RS-200-V1	V0

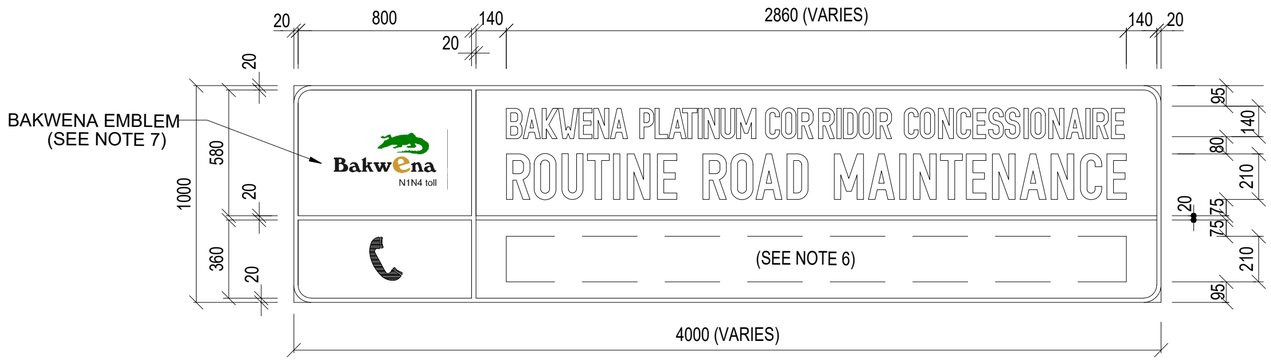
W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\12 - Typicals\3257_23_44 TP- ROAD SIGNS - SMALLER ROAD SIGNS - DETAIL_20190515.dwg



SIGN BOARD : TYPE 1
ELEVATION
SCALE 1 : 25

ROAD SIGN INFORMATION BOARD

BACKGROUND	: WHITE REFLECTORISED CLASS 1.
BORDER	: 20mm GREEN REFLECTORISED CLASS 1.
MATERIAL	: RETRO-REFLECTIVE MATERIAL TO COMPLY WITH SANS 1519.
REAR SIDE	: DARK GREY (SANS 1091 : G13).
TEXT	: CAPITAL LETTERS : DIN A, MATT-BLACK. TELEPHONE NUMBER : DIN B MOD, MATT- BLACK.
SUBSTRATE	: 1.0mm THICK "ISCOR CHROMADEK" OR SIMILAR.
MANUFACTURING	: 200mm STANDARD ROAD SIGN PROFILES TO THE DETAILS ON TYPICAL DRAWINGS TD-R-RS-100 AND TD-R-RS-101.
FLATNESS TOLERANCE OF ASSEMBLED BOARD	: 3mm MEASURED UNDER A 1m STRAIGHTEDGE.
LENGTH	: ADJUSTED TO SUIT LENGTH OF DESCRIPTION.
SUPPORTS	: 2 OR 3 WITH 200mm MIN. TOP END DIAMETER TIMBER POSTS.
ERECTION POSITION	: ON SITE AT POSITIONS APPROVED BY THE ENGINEER.
No. REQUIRED	: TYPE 1 : AT EACH END OF THE WORKS. (OR AS APPROVED BY THE ENGINEER). : TYPE 2 : AFTER MAJOR CENTRES OR APPROX. 50km APART. (AS APPROVED BY THE ENGINEER).
REMOVAL	: THE ROAD SIGN INFORMATION BOARDS SHALL BE REMOVED BEFORE A TAKING-OVER CERTIFICATE FOR THE ENTIRE WORKS IS ISSUED.



SIGN BOARD : TYPE 2
ELEVATION
SCALE 1 : 25

NOTES

1. USE AN APPROPRIATE DESCRIPTION FOR THE TYPE OF WORKS eg. ROAD CONSTRUCTION, ROUTINE ROAD MAINTENANCE, ROAD REHABILITATION, TOLL PLAZA UPGRADING OR BRIDGE REHABILITATION.
2. USE A BRIEF DESCRIPTION OF THE EXTENT OF THE WORKS : egSCHOEMAN TO N1-21 : BEN RIGEL AVE . OR N11 : LADYSMITH TO VOLKSRUST.
3. USE THE COMMENCEMENT AND DUE COMPLETION DATES (MONTH / YEAR).
4. NAME OF CONSULTING ENGINEER.
5. REGISTERED NAME OF CONTRACTOR.
6. AN ALL HOURS CONTACT TELEPHONE NUMBER SHALL BE SUPPLIED FOR THE SITE SAFETY OFFICER OR FOR A RESPONSIBLE PERSON APPROVED BY THE ENGINEER.
7. EMBLEMS MAY ONLY BE USED BY MEMBERS AND MUST BE DISPLAYED IN FULL COLOUR, EMBLEMS ARE AVAILABLE FROM THE RELEVANT ORGANISATIONS.

TENDER

No.	DATE	REVISION	
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSULT. ENG.

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date :

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Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

DRAWING DESCRIPTION
ROAD SIGNS INFORMATION BOARD DETAILS

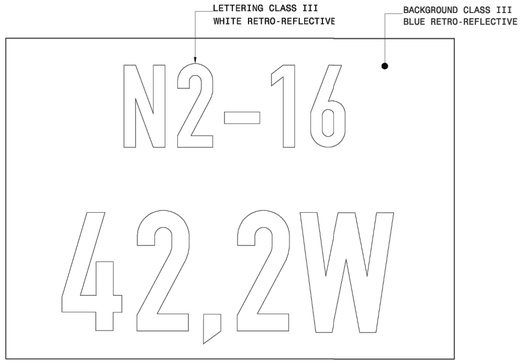
SCALE : AS SHOWN (A2) | SHEET 01 OF 01

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001		
DRAWING LOCATION DATA	START	END	
ROUTE	N 4	N 4	
SECTION	13	13	
DRAWING km DISTANCE	- -	- -	
DRAWING TYPE	ROADS - TYPICAL		
BRIDGE/STRUCTURE No.	NA		
CONSULTANT DRAWING No.	FA	3257 / 23 / 45 TP	VER
SANRAL DOCUMENT #	TD-R-RS-300-V1		V0

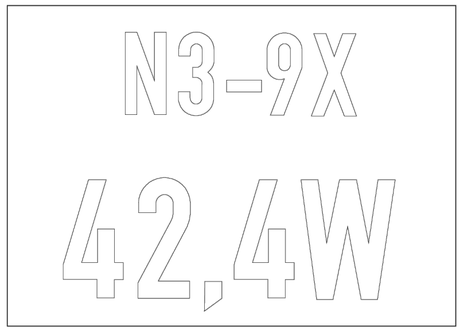
SANRAL DOCUMENT NUMBER : TD-R-RS-300-V1

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\12 - Typicals\3257_23_45 TP- ROAD SIGNS - INFORMATION BOARD DETAILS_20190515.dwg

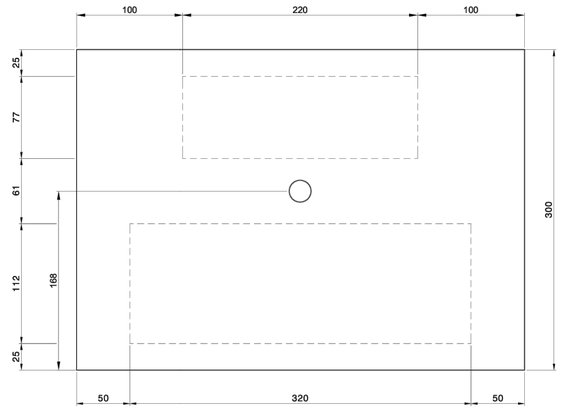
ROAD SIGNS: REFERENCE MARKER BOARD



TYPE 1: REFERENCE MARKER BOARD FOR NATIONAL ROADS
(EVERY 200m, EXCLUDING FULL KILOMETRE DISTANCES)



TYPE 2: REFERENCE MARKER BOARD FOR TEMPORARILY
PROCLAIMED NATIONAL ROADS

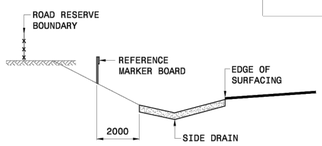


IN-BETWEEN SIGNS DIMENSIONS

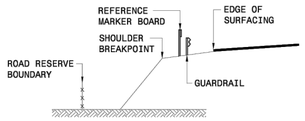
NOTES:

1. STANDARD SIZES OF REFERENCE MARKER BOARD TO BE 430X300 OR 600X800 AND 3mm THICK ALUMINIUM COMPOSITE MATERIAL
2. MATERIAL CLASSES AND COLORS SHALL BE AS INDICATED.
3. BACKSIDE SHALL BE PAINTED BATTLESHIP GREY
4. TEXT SHALL BE MOD B LETTERING FOR FULL km BOARDS
5. FOR IN-BETWEEN SIGNS TEXT SHALL BE DIN 1451 PART 2 STYLE "A" LETTERING (SIZES AS INDICATED)
6. THE LEGEND SHALL BE ARRANGED AS FOLLOWS -
   TOP LINE -
   "N" FOR NATIONAL ROUTE, AND
   THE APPROPRIATE ROUTE NUMBER e.g. N4 AND
   THE APPROPRIATE SECTION NUMBER e.g. N4-5 (TYPE 1); OR
   THE APPROPRIATE SECTION NUMBER AND AN "X" SUFFIX FOR
   A TEMPORARILY PROCLAIMED NATIONAL ROUTE, e.g. N4-5X (TYPE 2).
   BOTTOM LINE -
   KILOMETER DISTANCE FROM THE START OF A SECTION TO ONE DECIMAL, FOR EVERY 0,2km
   AND
   E FOR AN EASTBOUND CARRIAGEWAY
   W FOR A WESTBOUND CARRIAGEWAY
   N FOR A NORTHBOUND CARRIAGEWAY
   S FOR A SOUTHBOUND CARRIAGEWAY.
7. THE SIGN SHALL BE MADE OF 3mm ALUMINIUM COMPOSITE MATERIAL WITH A MINIMUM OF 0.3mm ALUMINIUM COVERING ON BOTH SIDES.
8. BOARDS THAT ARE PRINTED USING UV INKS ARE TO BE LAMINATED USING A 10YR LAMINATE.

TENDER



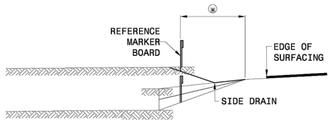
DETAIL 1
SIGN POSITIONING-DEEP CUT
SCALE 1:100



DETAIL 2
SIGN POSITIONING-HIGH FILL
SCALE 1:100

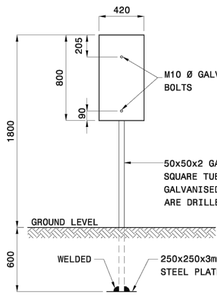
POSITION OF THE MARKER BOARD :

- 3.0m FROM THE SHOULDER BREAKPOINT OR
- 5.0m FROM THE EDGE OF SURFACING WITH GRAVEL SHOULDERS

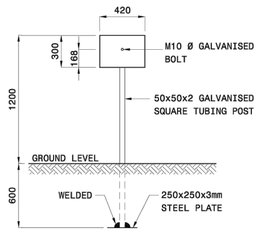


DETAIL 3
SIGN POSITIONING-
LOW FILL / SHALLOW CUT
SCALE 1:100

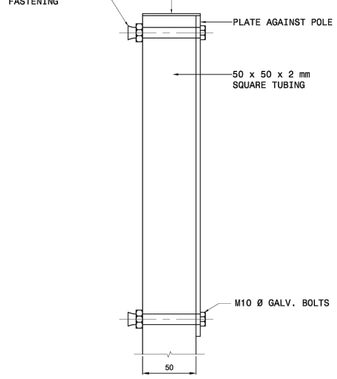
TYPE 3: DETAIL OF HELPLINE MARKER BOARD AT FULL KILOMETER DISTANCES



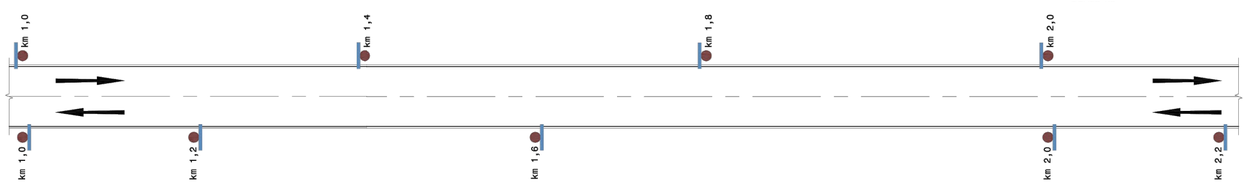
FRONT ELEVATION
(FOR FULL KM SIGNS)
SCALE 1:20



FRONT ELEVATION
(FOR IN-BETWEEN SIGNS)
SCALE 1:20



MOUNTING DETAIL
SCALE 1:2



PLACEMENT DETAIL ON SINGLE CARRIAGEWAY ROADS
SCALE : N.T.S.

No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date :

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DESIGNED BY	
NAME	EF DAY
Prof. Reg. No.	20130622
CHECKED BY	
NAME	PL NGQUMSHE
Prof. Reg. No.	20080112
DRAWN BY	
NAME	WB HARTMANN

CONSULTANT APPROVAL
Name : PL NGQUMSHE
Prof. Reg. No. : 20080112
Date : 17/07/2023

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ACCEPTANCE
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Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

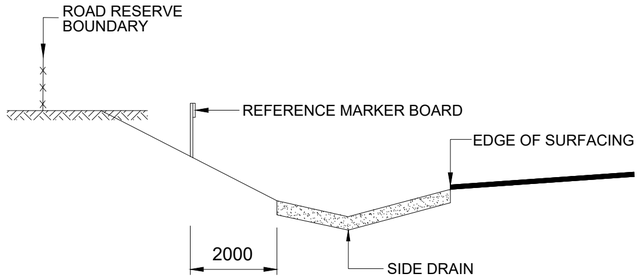
DRAWING DESCRIPTION
ROAD SIGNS REFERENCE MARKER BOARD

SCALE : NOT TO SCALE | SHEET 01 OF 02

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	13	13
DRAWING km DISTANCE	- -	- -
DRAWING TYPE	ROADS - TYPICAL	
BRIDGE/STRUCTURE No.	NA	
CONSULTANT DRAWING No.	FA 3257 / 13 / 46 TP	VER
SANRAL DOCUMENT #	TD-R-RS-400-V1	V0

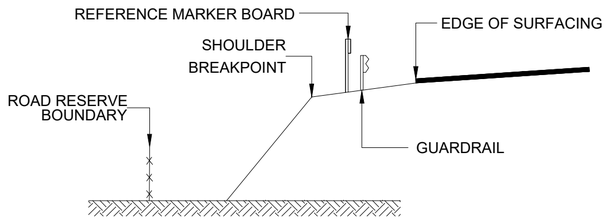
SANRAL DOCUMENT NUMBER : TD-R-RS-400-V1

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\12 - Typicals\3257_23_46 TP- REFERENCE MARKER BOARD SHEET 1 OF 2_20190515.dwg



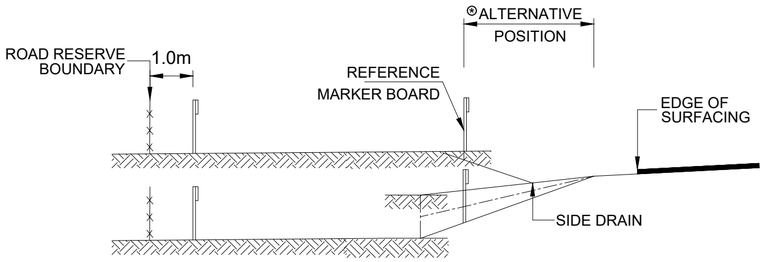
DETAIL 1 : SIGN POSITIONING-DEEP CUT

SCALE 1:100



DETAIL 2 : SIGN POSITIONING-HIGH FILL

SCALE 1:100

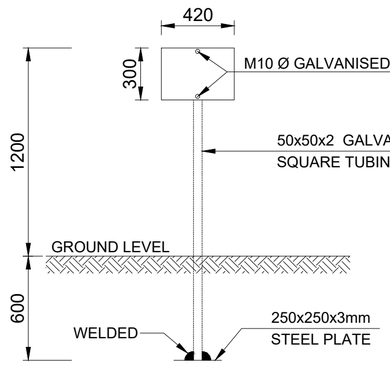


DETAIL 3 : SIGN POSITIONING-LOW FILL / SHALLOW CUT

SCALE 1:100

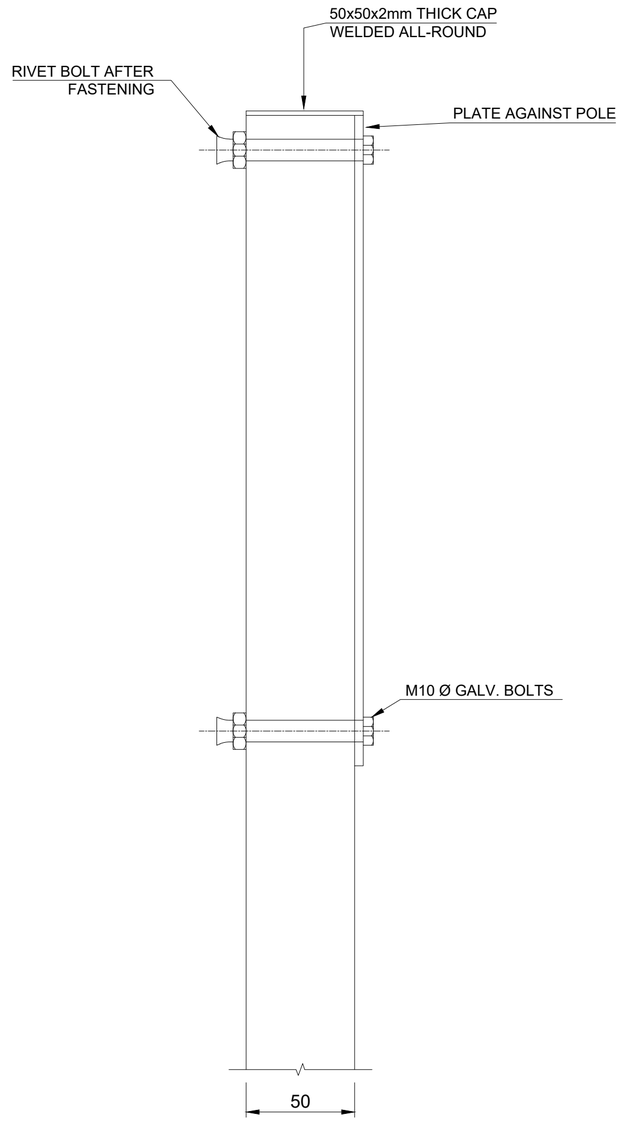
ⓐWHERE THE FULL WIDTH OF THE VERGE IS NOT MOVED (eg. IN FYNBOS) THE FOLLOWING SHALL APPLY TO THE POSITION OF THE MARKER BOARD :

- 3.0m FROM THE SHOULDER BREAKPOINT OR
- 5.0m FROM THE EDGE OF SURFACING WITH GRAVEL SHOULDERS



FRONT ELEVATION

SCALE 1:100



MOUNTING DETAIL

SCALE 1:2

NOTES:

1. THE REFERENCE MARKER BOARD SHALL BE USED TO INDICATE THE PROGRESSIVE DISTANCE FROM THE BEGINNING OF EACH SECTION OF A NATIONAL ROAD. MARKER BOARDS SHALL BE PROVIDED ON BOTH SIDES OF THE ROADWAY AT 200 METRE INTERVALS FOR DUAL CARRIAGEWAY ROADS, BUT ON ONE SIDE ONLY FOR SINGLE CARRIAGEWAY ROADS.
2. MARKER BOARDS SHALL BE MOUNTED ON 50x50x2mm THICK SQUARE TUBING POST. THE POSTS MUST BE GALVANIZED AFTER DRILLING OF HOLES AND WELDING ON OF BASE PLATE.
3. THE MARKER BOARDS SHALL BE PLACED WITH THE FACE AT 45° TO THE DIRECTION OF TRAVEL FOR DUAL CARRIAGEWAY ROADS AND PARALLEL FOR SINGLE CARRIAGEWAY ROADS.
4. THE MARKER BOARD SHOULD BE LOCATED IN ONE OF THREE POSITIONS AS INDICATED BY DETAILS 1, 2 AND 3, ACCORDING TO THE PROFILE OF THE ROAD CROSS-SECTION.
5. THE ENGINEER SHALL ENSURE THAT ALL MARKER BOARDS HAVE BEEN PLACED IN ACCORDANCE WITH THESE DIRECTIVES BEFORE ACCEPTING CONSTRUCTION OR WORK AS COMPLETED.

TENDER

No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
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Prof. Reg. No. :
Date
SANRAL PROJECT MANAGER
Name :
Prof. Reg. No. :
Date

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Prof. Reg. No. : 20130622
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NAME : PL NGQUMSHE
Prof. Reg. No. : 20080112
DRAWN BY
NAME : WB HARTMANN

CONSULTANT APPROVAL
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Date : 17/07/2023

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PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

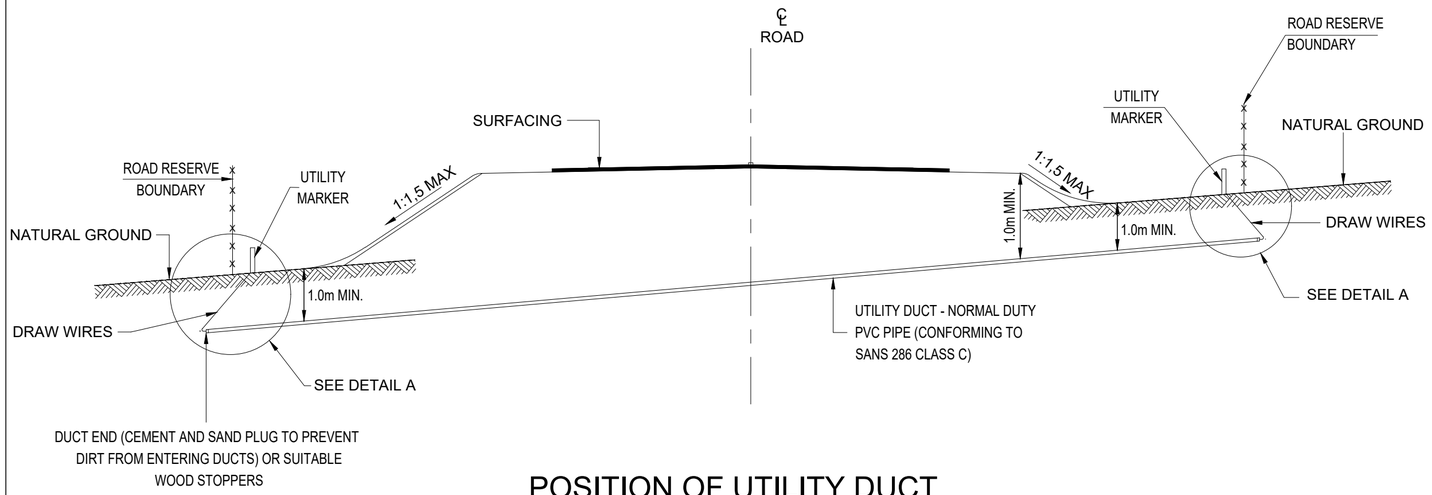
DRAWING DESCRIPTION
ROAD SIGNS REFERENCE MARKER BOARD

SCALE : AS SHOWN (A2) | SHEET 02 OF 02

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001		
DRAWING LOCATION DATA	START	END	
ROUTE	N 4	N 4	
SECTION	13	13	
DRAWING km DISTANCE	- -	- -	
DRAWING TYPE	ROADS - TYPICAL		
BRIDGE/STRUCTURE No.	NA		
CONSULTANT DRAWING No.	FA	3257 / 23 / 47 TP	VER
SANRAL DOCUMENT #		TD-R-RS-401-V1	V0

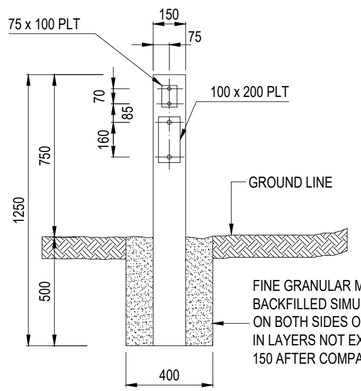
SANRAL DOCUMENT NUMBER : TD-R-RS-401-V1

W:\Roads\3257 - N4 Dual Carriageway (PLN)\03-Tender\03-Drawings\Volume 4-Roadworks\12 - Typicals\3257_23_47 TP- ROAD SIGNS - REFERENCE MARKER BOARD SHEET 2 OF 2_20190515.dwg



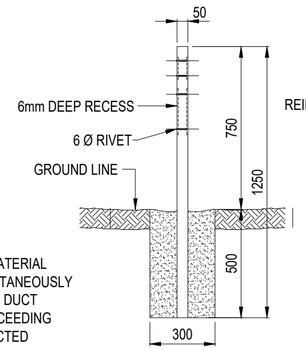
POSITION OF UTILITY DUCT WITH ROAD IN FILL

SCALE 1: 50



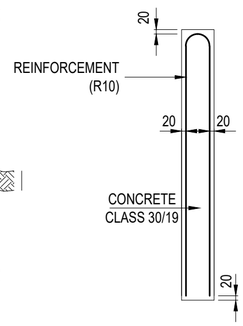
ELEVATION

SCALE 1: 20



SIDE ELEVATION

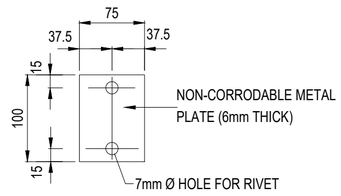
SCALE : 1: 20

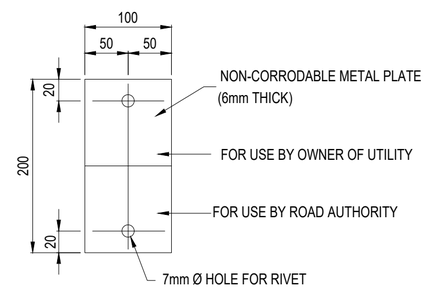


DETAIL REINFORCING

SCALE 1: 20

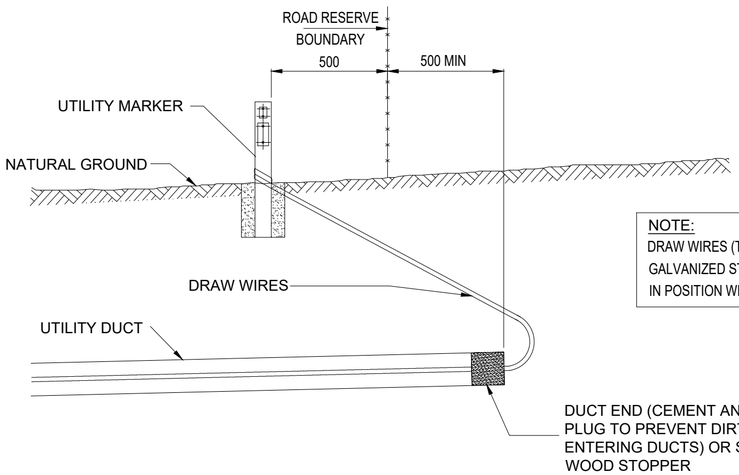
UTILITY MARKER





DETAIL OF UTILITY PLATE

SCALE 1: 2.5



NOTE:
DRAW WIRES (TWO STRANDS OF 2,5 GALVANIZED STEEL WIRE) WEDGED IN POSITION WITH UTILITY MARKER.

DETAIL A

SCALE 1: 20

REFERENCE TO SYMBOLS ON UTILITY PLATE

W	-	WATER PIPE
T	-	TELKOM
G	-	GAS
P	-	PETROLEUM PRODUCTS
E	-	ELECTRICITY
R	-	SEWER
S	-	STORMWATER
I	-	IRRIGATION WATER

INFORMATION ON PLATE

1. OWNER OF UTILITY
2. SIZE OF UTILITY e.g. PIPE DIA. etc.
3. DATE OF INSTALLATION/RELOCATION
4. DEPTH BELOW DATUM LEVEL

TENDER

No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

CONSTRUCTION RECORD
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date :
SANRAL PROJECT MANAGER
Name :
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Date :

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CHECKED BY	
NAME	PL NGQUMSHE
Prof. Reg. No.	20080112
DRAWN BY	
NAME	WB HARTMANN

CONSULTANT APPROVAL
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Date : 17/07/2023

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Date:

PROJECT DESCRIPTION
THE CONSTRUCTION OF THE DUAL CARRIAGEWAY OF THE N4-13 BETWEEN BUFFELSPOORT N4-13 km 2.800 AND THE P16-2 INTERCHANGE N4-13 km 40.000

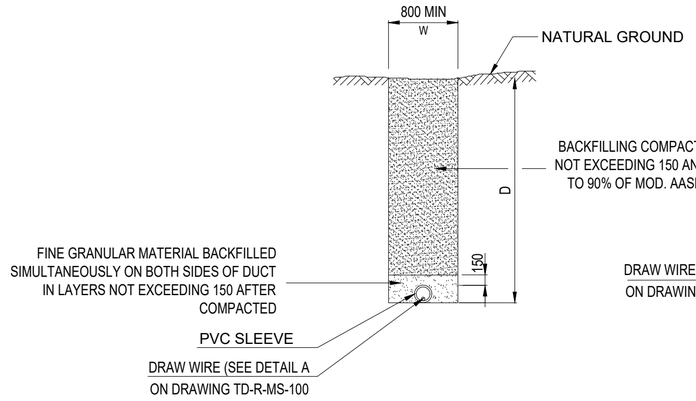
DRAWING DESCRIPTION
MISCELLANEOUS
TYPICAL DETAIL OF UTILITY DUCTS & SERVICE MARKERS

SCALE : AS SHOWN (A2) | SHEET 01 OF 02

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001		
DRAWING LOCATION DATA	START	END	
ROUTE	N 4	N 4	
SECTION	13	13	
DRAWING km DISTANCE	- -	- -	
DRAWING TYPE	ROADS - TYPICAL		
BRIDGE/STRUCTURE No.	NA		
CONSULTANT DRAWING No.	FA	3257 / 23 / 48 TP	VER
SANRAL DOCUMENT #	TD-R-MS-100-V1		V0

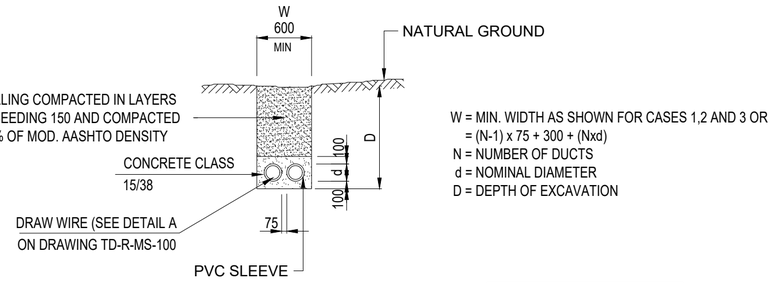
SANRAL DOCUMENT NUMBER : TD-R-MS-100-V1

W:\Roads\3257 - N4 Dual Carriageway (PL\ND23-Tender\03-Drawings\Volume 4-Roadworks\12 - Typicals\3257_23_48 TP- MISCELLANEOUS - TYPICAL DETAIL OF UTILITY DUCTS SHEET 1 OF 2_20190515.dwg



CASE 1 (D > 1.5m)

SCALE : 1: 50

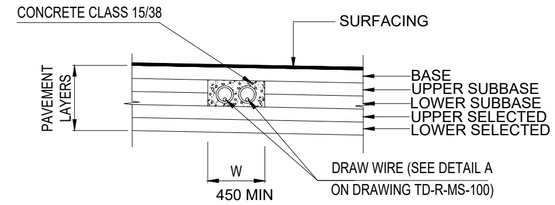


W = MIN. WIDTH AS SHOWN FOR CASES 1,2 AND 3 OR
= (N-1) x 75 + 300 + (Nxd)
N = NUMBER OF DUCTS
d = NOMINAL DIAMETER
D = DEPTH OF EXCAVATION

CASE 2 (D < 1.5m)

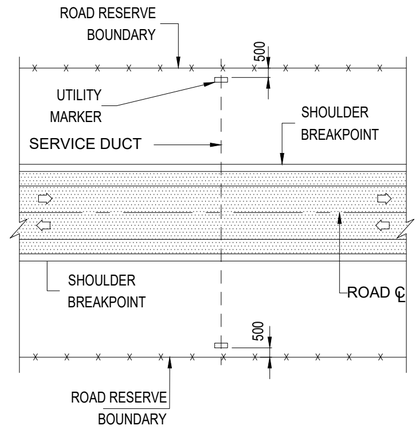
SCALE : 1: 50

NOTE: EXCAVATION MATERIAL TO BE USED FOR BACKFILLING IF FOUND TO BE SUITABLE



CASE 3 (ONLY FOR EXCEPTIONAL CASES)

SCALE : 1: 50



PLACING OF SERVICE MARKER

N.T.S.

TENDER

No.	DATE	REVISION	CONSULT. ENG.
V0	17/07/2023	ORIGINAL VERSION	PL NGQUMSHE

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DRAWING DESCRIPTION
MIISCELLANEOUS
TYPICAL DETAIL OF UTILITY DUCTS & SERVICE MARKERS

SCALE : AS SHOWN (A2) SHEET 02 OF 02

PROJECT NUMBER	BPCC-2024/UG/HS18 HS-20/001	
DRAWING LOCATION DATA	START	END
ROUTE	N 4	N 4
SECTION	13	13
DRAWING km DISTANCE	- -	- -
DRAWING TYPE	ROADS - TYPICAL	
BRIDGE/STRUCTURE No.	NA	
CONSULTANT DRAWING No.	FA 3257 / 23 / 49 TP	VER
SANRAL DOCUMENT #	TD-R-MS-101-V1	V0

SANRAL DOCUMENT NUMBER : TD-R-MS-101-V1

W:\Roads\3257 - N4 Dual Carriageway (PLN)\23-Tender\23-Drawings\Volume 4-Roadworks\12 - Typicals\3257_23_49 TP- MISCELLANEOUS - TYPICAL DETAIL OF UTILITY DUCTS SHEET 2 OF 2_20190515.dwg