



**THE SOUTH AFRICAN NATIONALROADS
AGENCY SOC LIMITED**
CONTRACT NRA 2025/0004

**THE PERIODIC MAINTENANCE (RESURFACING) OF NATIONAL
ROUTE 10 SECTION 10 FROM KEUKENDRAAI (KM 50.30) TO
GROBLERSHOOP (KM 55.59), NATIONAL ROUTE 10 SECTION 11
FROM GROBLERSHOOP (KM 0.00) TO UITKYK (KM 70.00) AND
NATIONAL ROUTE 8 SECTION 6 FROM GROBLERSHOOP (KM
0.00) TO ROOISAND (KM 8.18)**

**VOLUME 4
ROADWORKS DRAWINGS**

DATE: MAY 2025

PREPARED FOR:
CHIEF EXECUTIVE OFFICER
SOUTH AFRICAN NATIONAL ROADS AGENCY SOC LIMITED
48 TAMBOTIE AVENUE
VAL DE GRACE
PRETORIA, 0184

FOR TENDER PURPOSES ONLY

NRA 2025/0004 - INDEX PAGE

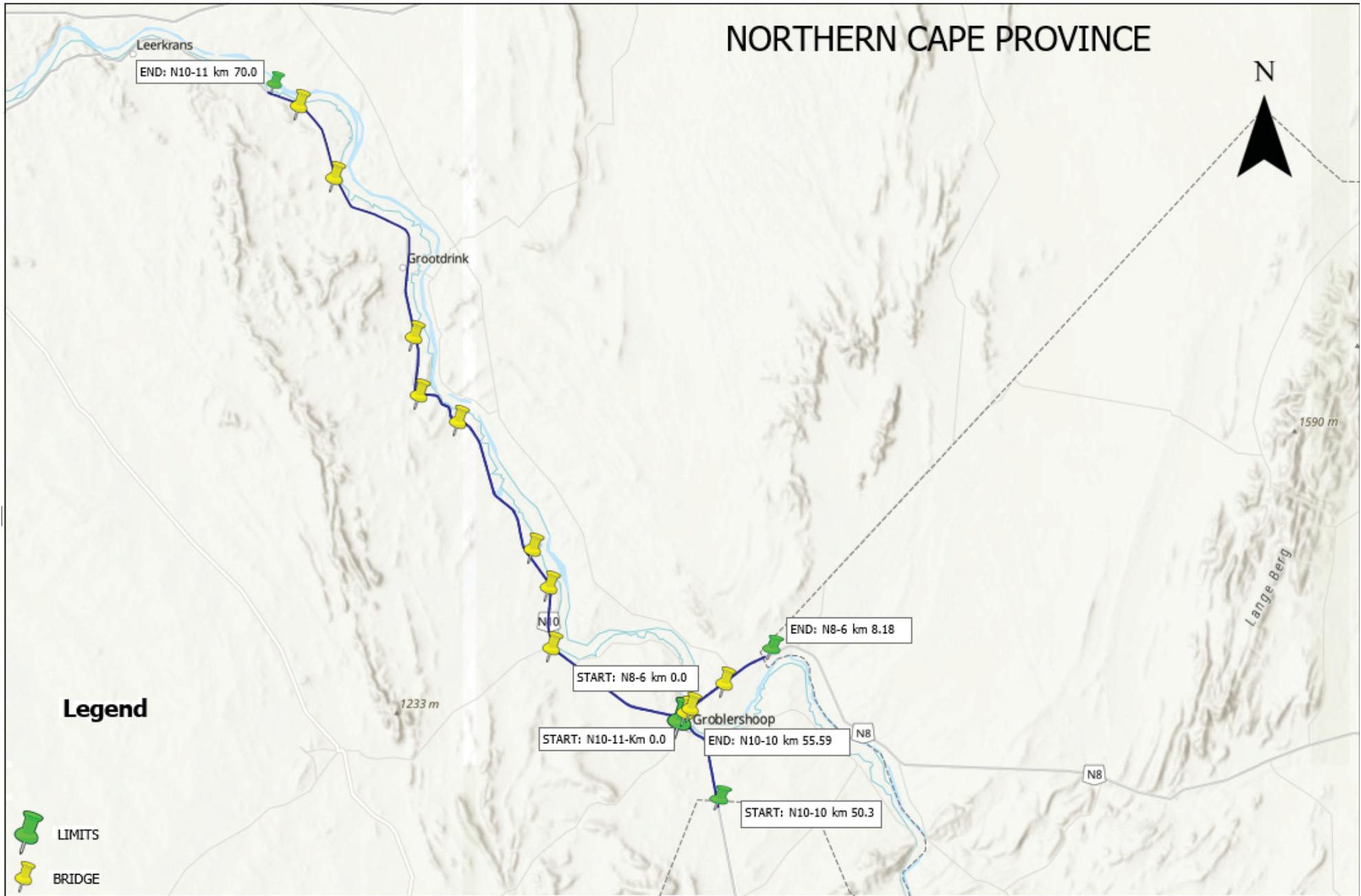
DESCRIPTION	SANRAL DOCUMENT #	DRAWING NUMBER
<i>N10 LOCALITY PLAN</i>	2025/0004-GA-01	AA243300-GA-01
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FOR TENDER PURPOSES ONLY

				CONSTRUCTION RECORD WORKS CONTRACT ENGINEER		DESIGNED BY		CONSULTANT APPROVAL		HEAD OFFICE		WESTERN REGION		ACCEPTANCE		PROJECT DESCRIPTION				PROJECT NUMBER		NRA 2025/0004			
				48 Tambora Avenue Val de Grace 0184		NAME Prof. Reg No.		NAME Prof. Reg No. Date		1 Haverenga Street Caledonia Baileville 7530		The acceptance is for PROCEEDURAL AND ADMINISTRATIVE PURPOSES ONLY AND DOES NOT ATTRACT LEGAL LIABILITY OF ANY KIND FORM WHATSOEVER CAUSE OR CONSEQUENCE ARISING		PERIODIC MAINTENANCE (RESURFACING) OF NATIONAL ROUTE 10 SECTION 10 FROM KENDURUMBAI (KM 58.30) TO GROBLERSHOOP (KM 55.99), NATIONAL ROUTE 10 SECTION 11 FROM GROBLERSHOOP (KM 0.00) TO UTKUYI (KM 70.00) AND NATIONAL ROUTE 8 SECTION 6 FROM GROBLERSHOOP (KM 0.00) TO ROOISAND (KM 0.00)				DRAWING LOCATION ROUTE - N10 SECTION - 10 ROUTE - N10 SECTION - 11 ROUTE - N8 SECTION - 6		START KM 50.30 KM 0.00 KM 0.00		END KM 55.59 KM 0.00 KM 8.18			
				SANRAL PROJECT MANAGER		CHECKED BY		DRAWING DESCRIPTION		Private Bag 3118 Baileville 7530		DRAWING REGISTER				CONSULTANT DRAWING				SANRAL DOCUMENT #		2025/0004-RA-01			
REV1				DEC 2024		FOR TENDER PURPOSES ONLY		NAME		PO Box 415 Pretoria 0001 South Africa		DATE: (021) 957 4000 Fax: (021) 910 1595				SCALE: AS SHOWN				SHEET 01 OF 01		V1			
V1				DATE		REVISION		CONSULT. ENG.		DATE		for CEO: SA NATIONAL ROADS AGENCY LTD													
				NAME		DRAWN BY		NAME																	

NORTHERN CAPE PROVINCE



FOR TENDER PURPOSES ONLY

				CONSTRUCTION RECORD WORKS CONTRACT ENGINEER		DESIGNED BY		CONSULTANT APPROVAL		HEAD OFFICE				WESTERN REGION		ACCEPTANCE		PROJECT DESCRIPTION				PROJECT NUMBER		NRA 2025/0004			
						NAME _____		NAME _____		48 Tambelle Street Val de Grace Bulweria 0184		Caledonia Bulweria 7530				THIS ACCEPTANCE IS FOR PROCEDURAL AND ADMINISTRATIVE REVIEW PURPOSES ONLY AND DOES NOT ATTRACT LEGAL LIABILITY OR LIABILITY OF ANY KIND FROM SANRAL OR CAUSE OR HOWSOEVER ARISING		PERIODIC MAINTENANCE (RESURFACING) OF NATIONAL ROUTE 10 SECTION 10 FROM KEUKENDRAAI (KM 50.30) TO GROBLERSHOOP (KM 55.59), NATIONAL ROUTE 10 SECTION 11 FROM GROBLERSHOOP (KM 0.00) TO UITSYK (KM 70.00) AND NATIONAL ROUTE 8, SECTION 6 FROM GROBLERSHOOP (KM 0.00) TO ROOIBAND (KM 8.18)				DRAWING LOCATION		START		END	
				Name: _____ Prof. Reg No: _____ Date: _____		Prof. Reg No: _____ CHECKED BY: _____ Date: _____		Name: _____ Prof. Reg No: _____ Date: _____				Private Bag X10 Bulweria 7530						DRAWING DESCRIPTION				KM 50.30		KM 55.59			
				SANRAL PROJECT MANAGER				THE ABOVE SIGNATORY CERTIFIES THAT THE DESIGNER AND CHECKER HAVE CONSENTED TO THEIR NAMES BEING INSERTED ON THIS DRAWING AND THAT THEY HAVE READ AND APPROVED THE DRAWING		PO Box 415 Pretoria 0001 South Africa Toll: (021) 950 4000								LOCALITY PLAN FOR				ROUTE 10 - SECTION - 11		KM 00.00		KM 70.00	
REV01 DEC 2024 FOR TENDER PURPOSES ONLY				ORIGINAL VERSION		NAME _____		DRAWN BY _____										N10 SECTIONS 10 AND 11				ROUTE 10 - SECTION - 6		KM 00.00		KM 8.18	
V1 START DATE				REVISION		CONSULT. ENG.		NAME _____										N8 SECTION 6				DRAWING TYPE		TYPICAL DRAWING-LOCALITY			
																		By Ref: SA NATIONAL ROADS AGENCY LTD				CONSULTANT DRAWING #		AA243300-GA-01		V1	
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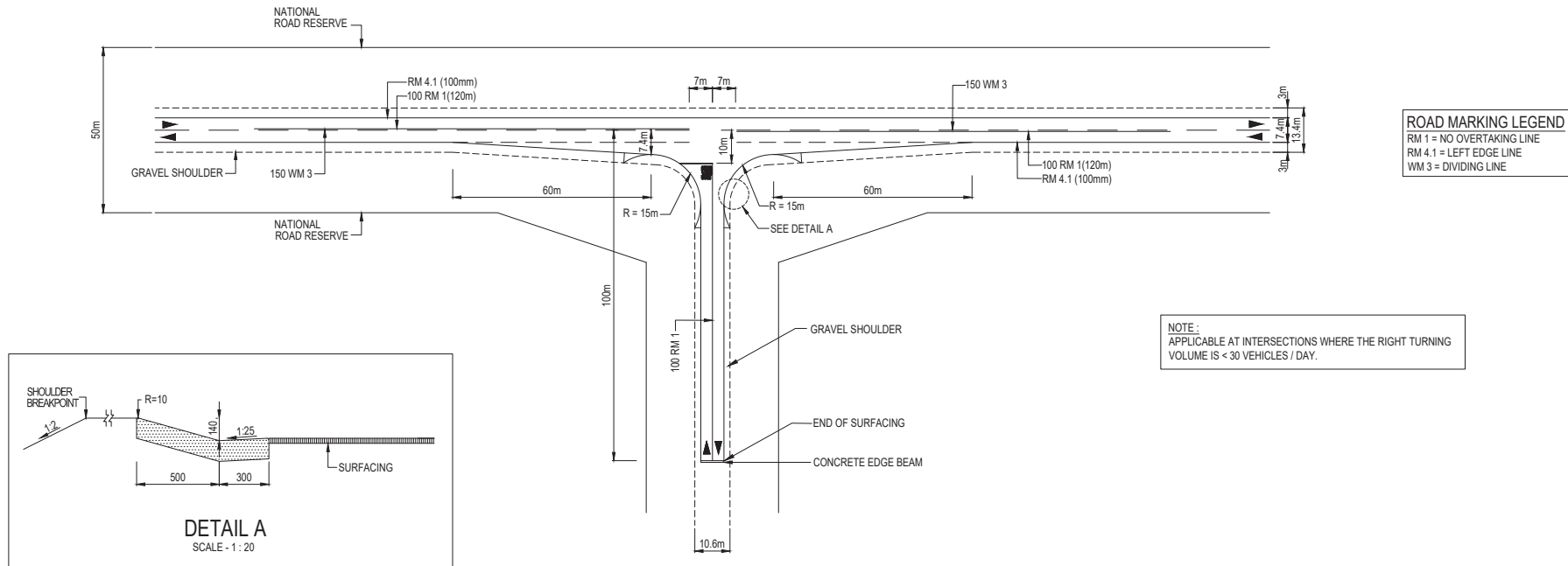


TABLE 1 SHOULDER SIGHT DISTANCE FOR STOP CONDITIONS	
DESIGN SPEED (THROUGH ROAD) (km/h)	SIGHT DISTANCE (D) (m)
50	150
60	180
70	210
80	240
90	270
100	300
110	330
120	360

NOTE

1. ϕ = DEFLECTION ANGLE SMALLER THAN SAFE ANGLE.
2. L = STOPPING SIGHT DISTANCE FOR DESIGN SPEED FOR LAST CURVE. MINIMUM LENGTH OF 155m IS DESIRABLE.
3. R = CORRESPONDING RADIUS FOR A SPEED 15km/h LOWER THAN THE DESIGN SPEED FOR THE REST OF THE ROAD.

NOTE:

THE CROSS FALL ON THE OUTSIDE OF THE CURVE SHOULD PREFERABLY NOT EXCEED 1:6 FOR AT LEAST 10m MEASURED FROM THE OUTSIDE EDGE OF THE CARRIAGEWAY.

SAFE ANGLES AND STOPPING SIGHT DISTANCE AT T-JUNCTIONS

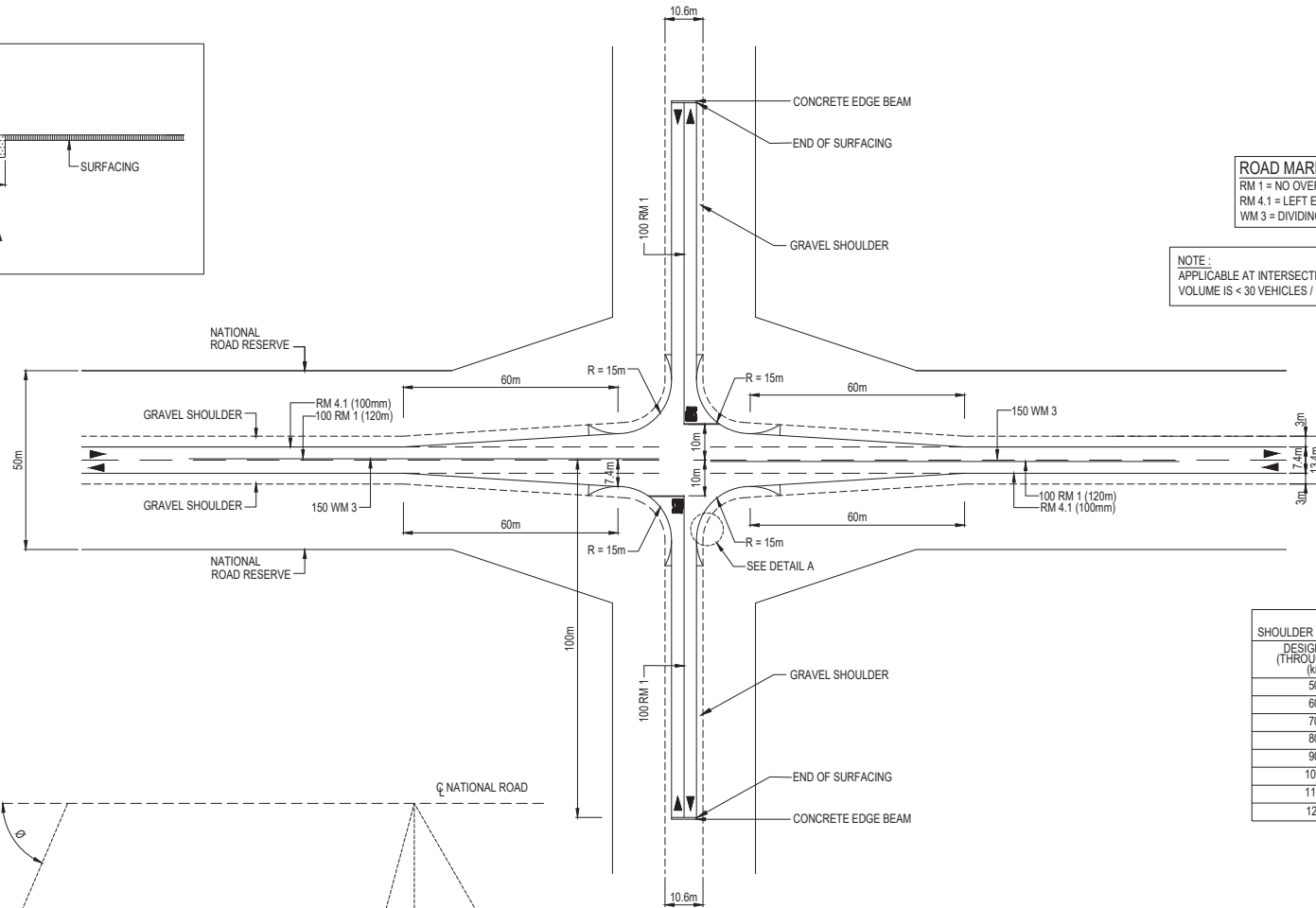
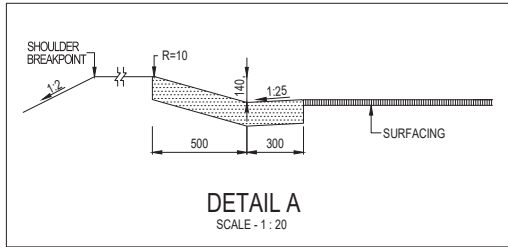
SCALE - N.T.S

NOTE:

1. GRADIENT ON BOTH ROADS SHOULD NOT EXCEED 3%, ESPECIALLY ON THE JUNCTION LEG.
2. TABLE 1 CAN BE USED AS A BASIC GUIDELINE ON CONDITION THAT THE GRADIENTS ON BOTH THE JUNCTION AND PRIMARY ROADS DO NOT EXCEED 2%. THE SIGHT DISTANCE MUST BE MEASURED FROM AN EYE LEVEL OF 1,05m FROM A POINT 2m BEFORE THE STOP LINE ON THE JUNCTION ROAD TO AN OBJECT HEIGHT ON THE CENTRE LINE OF THE NATIONAL ROAD OF 1,30m.
3. THE DESIRABLE MINIMUM SIGHT DISTANCE IS 300m.
4. FOR DETAIL OF ROAD MARKINGS REFER TO THE SADC ROAD TRAFFIC SIGNS MANUAL.
5. THIS PLAN SERVES AS A GUIDE LINE AND WELL MOTIVATED DEVIATIONS MAY BE CONSIDERED.
6. WHERE APPLICABLE CROSS-SECTION DIMENSIONS MUST BE ADJUSTED ACCORDING TO THE APPROVED TYPICAL CROSS-SECTION BEING USED.

FOR TENDER PURPOSES ONLY

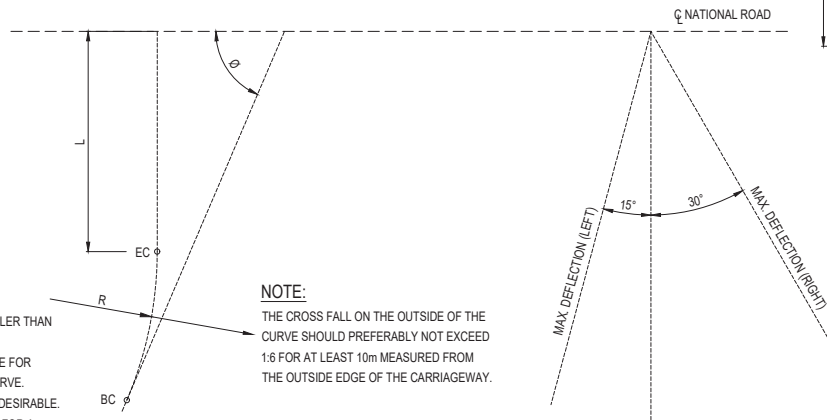
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				WORKS CONTRACT ENGINEER		NAME		Name		41 Tuckwell Avenue Vill Joazeiro Pretoria 0186		1 Haverkamp Street Cape Town 7800		THIS ACCEPTANCE IS FOR PROFESSIONAL AND ADMINISTRATIVE REVIEW PURPOSES ONLY. IT DOES NOT AFFIRM OR IMPLY THE LIABILITY OF ANY ROAD USER OR ROAD USER.		PERIODIC MAINTENANCE (RESURFACING) OF NATIONAL ROUTE 10 SECTION 10 FROM KEUKENDRAAI (KM 50.30) TO GROBLERSHOOP (KM 55.59), NATIONAL ROUTE 10 SECTION 11 FROM GROBLERSHOOP (KM 55.59) TO UTUKUYI (KM 70.00) AND NATIONAL ROUTE 8 SECTION 6 FROM GROBLERSHOOP (KM 0.00) TO ROOSAND (KM 8.18)		DRAWING LOCATION		START		END	
				Name		Prof. Reg No.		Prof. Reg No.		Private Bag 519 Maitland 7800		Private Bag 519 Maitland 7800				ROUTE - N10 SECTION - 10		KM 50.30		KM 55.59			
				Date		SANRAL PROJECT MANAGER		CHECKED BY		The above statement certifies that the design and construction have been completed to the standards and specifications required by the client and that the design and construction have been approved by the client.		PO Box 415 Pretoria 0001 South Africa		Tel: (011) 674 4800 Fax: (011) 674 1985		DRAWING DESCRIPTION		ROUTE - N10 SECTION - 11		KM 00.00		KM 70.00	
REV/01 DEC 2024 FOR TENDER PURPOSES ONLY				ORIGINAL VERSION		NAME		DRAWN BY		SANRAL TYPICAL DRAWINGS		To: CEO SA NATIONAL ROADS AGENCY LTD		Date: (012) 844 6000		T - JUNCTIONS & INTERSECTIONS T - JUNCTIONS WITH GRAVEL CLASS 2 ROADS		CONSULTANT DRAWING		AA243020-TD-J-01		V1	
V1 START DATE				REVISION		Name		NAME		Date: (012) 844 6000		Date: (012) 844 6000		Scale: AS SHOWN		SHEET 01 OF 01		SANRAL DOCUMENT #		2025/0004-TD-J-01			



ROAD MARKING LEGEND
RM 1 = NO OVERTAKING LINE
RM 4.1 = LEFT EDGE LINE
WM 3 = DIVIDING LINE

NOTE :
APPLICABLE AT INTERSECTIONS WHERE THE RIGHT TURNING VOLUME IS < 30 VEHICLES / DAY.

DESIGN SPEED (THROUGH ROAD) (km/h)	SIGHT DISTANCE (D) (m)
50	150
60	180
70	210
80	240
90	270
100	300
110	330
120	360



NOTE
θ = DEFLECTION ANGLE SMALLER THAN SAFE ANGLE.
L = STOPPING SIGHT DISTANCE FOR DESIGN SPEED FOR LAST CURVE.
MINIMUM LENGTH OF 155m IS DESIRABLE.
R = CORRESPONDING RADIUS FOR A SPEED 15km/h LOWER THAN THE DESIGN SPEED FOR THE REST OF THE ROAD.

NOTE:
THE CROSS FALL ON THE OUTSIDE OF THE CURVE SHOULD PREFERABLY NOT EXCEED 1:6 FOR AT LEAST 10m MEASURED FROM THE OUTSIDE EDGE OF THE CARRIAGEWAY.

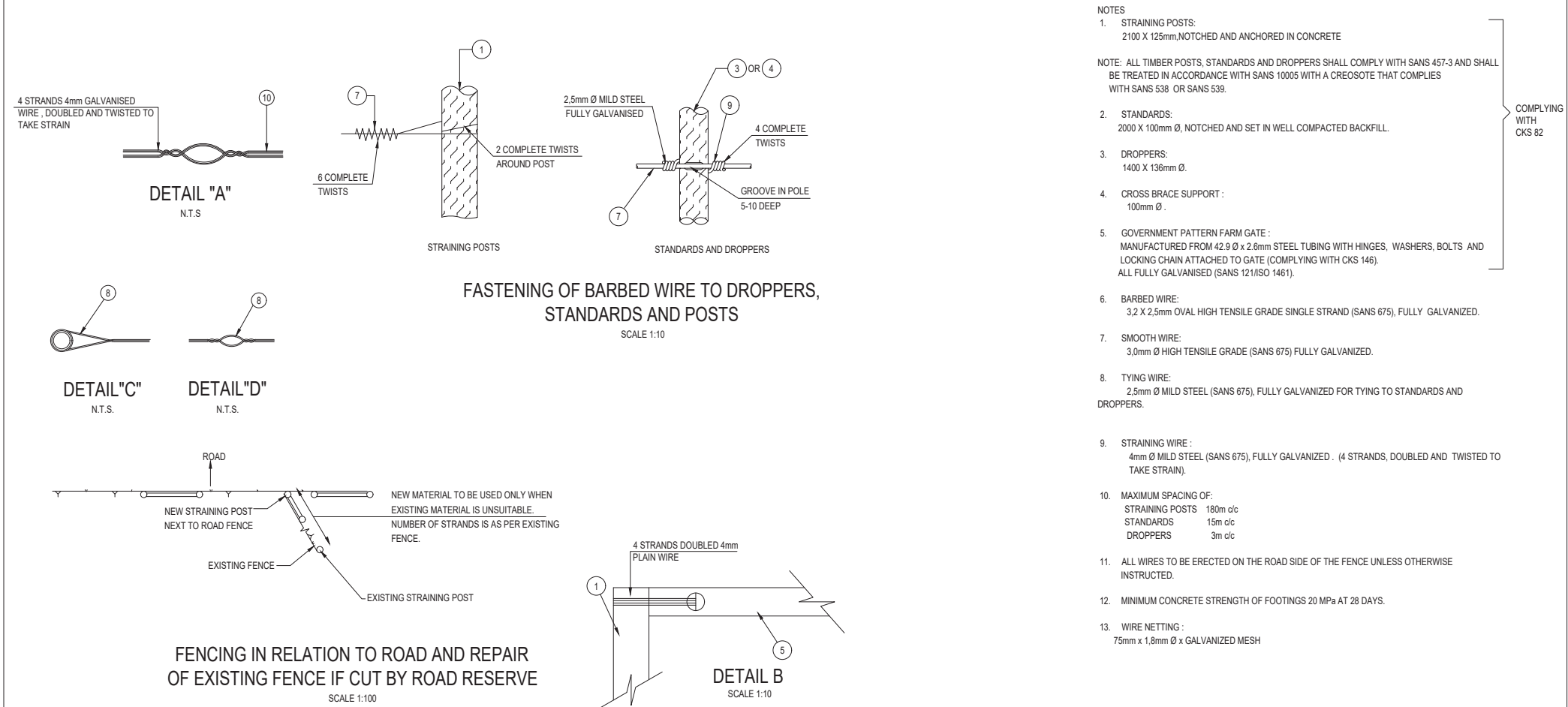
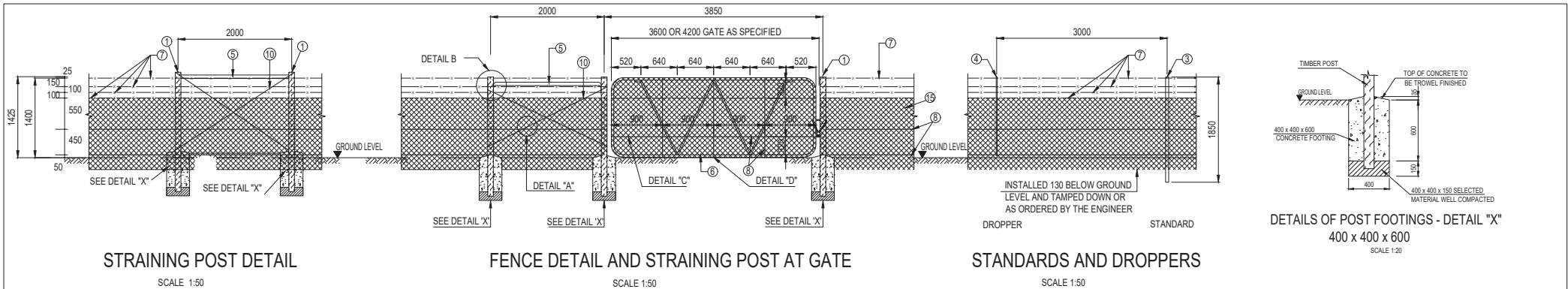
SAFE ANGLES AND STOPPING SIGHT DISTANCE AT T-JUNCTIONS

SCALE - N.T.S

- NOTE:**
- GRADIENT ON BOTH ROADS SHOULD NOT EXCEED 3%, ESPECIALLY ON THE JUNCTION LEG.
 - TABLE 1 CAN BE USED AS A BASIC GUIDELINE ON CONDITION THAT THE GRADIENTS ON BOTH THE JUNCTION AND PRIMARY ROADS DO NOT EXCEED 2%. THE SIGHT DISTANCE MUST BE MEASURED FROM AN EYE LEVEL OF 1,05m FROM A POINT 2m BEFORE THE STOP LINE ON THE JUNCTION ROAD TO AN OBJECT HEIGHT ON THE CENTRE LINE OF THE NATIONAL ROAD OF 1,30m.
 - THE DESIRABLE MINIMUM SIGHT DISTANCE IS 300m.
 - FOR DETAIL OF ROAD MARKINGS REFER TO THE SADC ROAD TRAFFIC SIGNS MANUAL.
 - THIS PLAN SERVES AS A GUIDE LINE AND WELL MOTIVATED DEVIATIONS MAY BE CONSIDERED.
 - WHERE APPLICABLE CROSS-SECTION DIMENSIONS MUST BE ADJUSTED ACCORDING TO THE APPROVED TYPICAL CROSS-SECTION BEING USED.

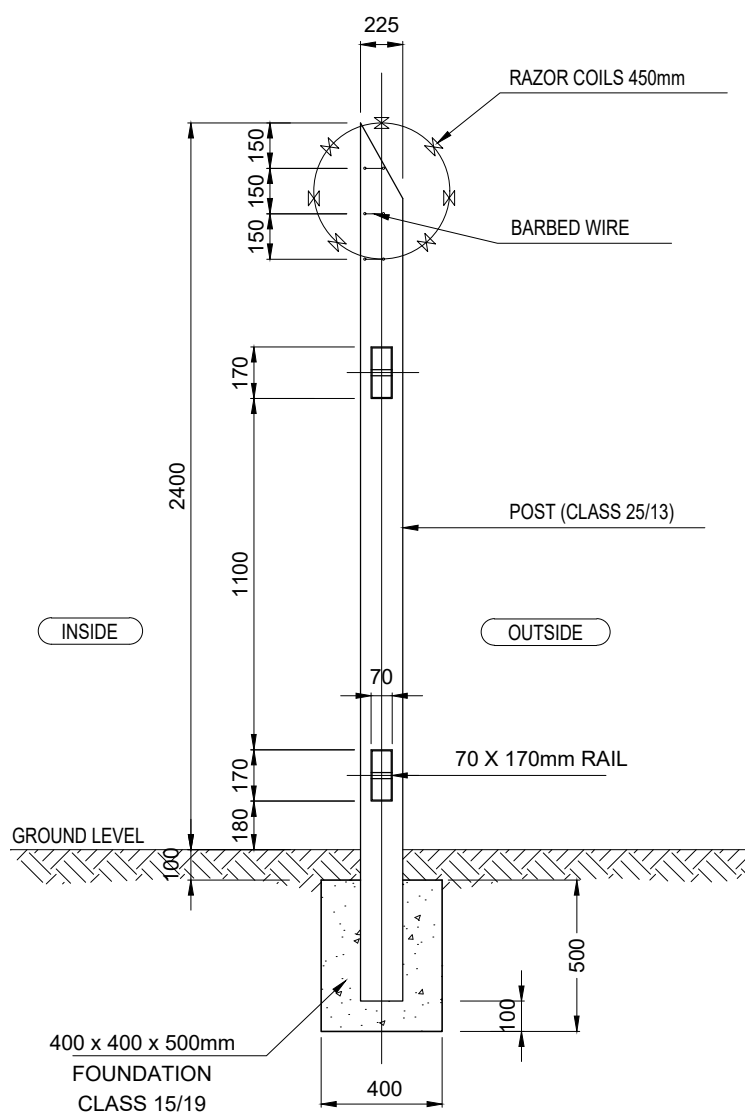
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CONSTRUCTION RECORD				DESIGNED BY		CONSULTANT APPROVAL		HEAD OFFICE		WESTERN REGION		ACCEPTANCE		PERIODIC MAINTENANCE (RESURFACING) OF NATIONAL ROUTE 10 SECTION 10 FROM KEUKENDRAAI (KM 50.30) TO GROBLERSHOOP (KM 55.59), NATIONAL ROUTE 10 SECTION 11 FROM GROBLERSHOOP (KM 6.00) TO LUTYKA (KM 71.00) AND NATIONAL ROUTE 8 SECTION 6 FROM GROBLERSHOOP (KM 6.00) TO ROOSDAM (KM 6.18)		PROJECT DESCRIPTION		DRAWING LOCATION		START		END	
Name: _____				Name: _____		Name: _____		46 Tenthred Avenue Up 46 Grace Pretoria 0184		1 Haverburg Street Gauteng Bulwer 7500		This acceptance is for procedural and administrative purposes only and does not attract legal liability on behalf of SANRAL for any and all consequences arising from the use of this drawing.		SANRAL TYPICAL DRAWINGS		ROUTE - N10 SECTION - 10		KM 50.30		KM 55.59		KM 55.59	
Date: _____				Date: _____		Date: _____		PO Box 415 Pretoria 0001 South Africa		Private Bag 110 Bulwer 7500		SANRAL PROJECT MANAGER		ROUTE - N10 SECTION - 11		KM 00.00		KM 70.00		KM 70.00		KM 70.00	
REV01 DEC 2024 FOR TENDER PURPOSES ONLY				Name: _____		Name: _____		The above statement certifies that the design and construction have been completed to the standards and specifications of the SANRAL design and construction standards and that they have been approved by the drawing.		Tel: (011) 927 4800 Fax: (011) 910 1886		SANRAL PROJECT MANAGER		ROUTE - N8 SECTION - 6		KM 00.00		KM 00.00		KM 00.00		KM 00.00	
No. DATE REVISION CONSULT. ENG.				Name: _____		Name: _____		PO Box 415 Pretoria 0001 South Africa		Tel: (011) 927 4800 Fax: (011) 910 1886		SANRAL PROJECT MANAGER		DRAWING TYPE		TYPICAL DRAWING ROADWORKS		CONSULTANT DRAWING		AAR3300-15-J-02		V1	
				Date: _____		Date: _____		Tel: (011) 927 4800 Fax: (011) 910 1886		Tel: (011) 927 4800 Fax: (011) 910 1886		SANRAL PROJECT MANAGER		INTERSECTION WITH GRAVEL CLASS 2 ROADS		SCALE: AS SHOWN		SHEET 01 OF 01		SANRAL DOCUMENT #		20250004-15-J-02	



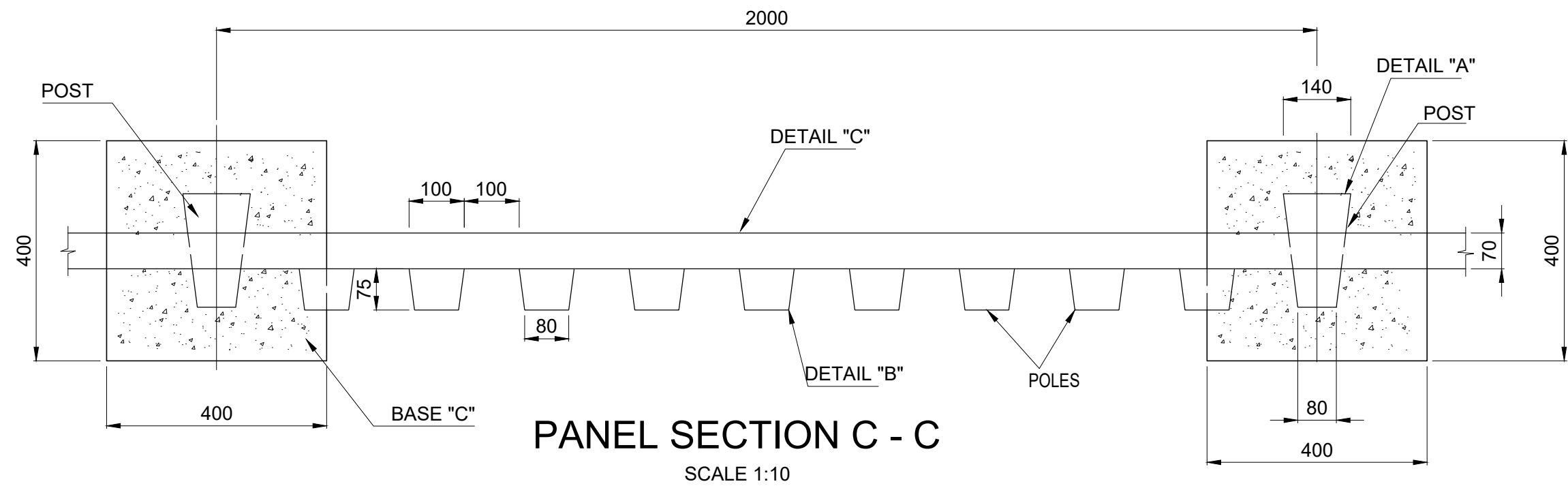
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CONSTRUCTION RECORD WORKS CONTRACT ENGINEER				DESIGNED BY		CONSULTANT APPROVAL		HEAD OFFICE	
Name : Post Reg No : Date :				Name : Post Reg No : Date :		Name : Post Reg No : Date :		45 Tumbula Avenue Via da Graaf Pretoria 0184	
SANRAL PROJECT MANAGER				CHECKED BY		THE ABOVE SIGNATORY CERTIFIES THAT THE DESIGNER HAS CHECKED AND CONFIRMED THAT THE DESIGN AND CONSTRUCTION OF THIS DRAWING ARE IN ACCORDANCE WITH THE REQUIREMENTS OF THE DRAWING		PG Box 415 Pretoria 0001 South Africa Tel: (012) 844 8800	
Name : Date :				DRAWN BY		SANRAL		WESTERN REGION 1 Humberg Street Cape Town 7800 Private Bag 819 Bellville 7800 Tel: (021) 857 4882 Fax: (021) 857 1882	
REV01 DEC 2024 FOR TENDER PURPOSES ONLY				NAME		PROJECT DESCRIPTION		PERIODIC MAINTENANCE (RESURFACING) OF NATIONAL ROUTE 10 FROM KUNENBURG (KM 50.30) TO GROBLERSHOOP (KM 55.58), NATIONAL ROUTE 10 SECTION 11 FROM GROBLERSHOOP (KM 55.58) TO LUTYK (KM 70.00) AND NATIONAL ROUTE 8 SECTION 6 FROM GROBLERSHOOP (KM 6.00) TO ROOSAND (KM 6.18)	
V1 START DATE ORIGINAL VERSION				NAME		DRAWING DESCRIPTION		SANRAL TYPICAL DRAWINGS	
No. DATE REVISION CONSULT. ENG.				NAME		FENCING & RELATED ITEM		VERMIN PROOF FENCING ON TIMBER POSTS	
				NAME		SCALE: AS SHOWN		SHEET 01 OF 01	
						PROJECT NUMBER		NRA 2025/0004	
						DRAWING LOCATION		START END	
						ROUTE - N10 SECTION - 10		KM 50.30 KM 55.58	
						ROUTE - N10 SECTION - 11		KM 00.00 KM 70.00	
						ROUTE - N8 SECTION - 6		KM 00.00 KM 6.18	
						DRAWING TYPE		TYPICAL DRAWING - ROADWORKS	
						CONSULTANT DRAWING		AA043300TD-FG-01	
						SANRAL DOCUMENT #		2025/0004-FG-01	
								V1	

CONSTRUCTION RECORD				DESIGNED BY		CONSULTANT APPROVAL		HEAD OFFICE		WESTERN REGION		ACCEPTANCE		PROJECT DESCRIPTION		PROJECT NUMBER		NRA 2025/0004			
ROADS CONTRACT ENGINEER				NAME		NAME		48 Tarkenton Avenue De la Graa Pretoria 0184				THIS ACCEPTANCE IS FOR PROCEDURAL AND ADMINISTRATIVE PURPOSES ONLY. IT DOES NOT EXPRESS THE SANRAL OR SANRAL ROAD DESIGNER'S LIABILITY OR LIABILITY OF ANY OTHER PARTY FOR THE DESIGN OR CONSTRUCTION OF THE PROJECT.		PERIODIC MAINTENANCE (REBURCING) OF NATIONAL ROUTE 19 SECTION 19 FROM REIDERSMAAI (KM 30.30) TO GROBLERSHOP (KM 58.58), NATIONAL ROUTE 19 SECTION 11 FROM GROBLERSHOP (KM 6.00) TO UITSKY (KM 70.60) AND NATIONAL ROUTE 8 SECTION 6 FROM GROBLERSHOP (KM 8.90) TO ROSSGARD (KM 8.18)		DRAWING LOCATION		START		END	
Name				Prof. Reg. No.		Name		Prof. Reg. No.		Date		CHECKED BY		DRAWING DESCRIPTION		ROUTE -10 SECTION -10		KM 50.30		KM 55.59	
Name				Prof. Reg. No.		Name		Prof. Reg. No.		Date		NAME		DRAWING TYPE		ROUTE -10 SECTION -11		KM 50.00		KM 58.59	
Name				Prof. Reg. No.		Name		Prof. Reg. No.		Date		NAME		DRAWING TYPE		ROUTE -10 SECTION -11		KM 50.00		KM 58.59	
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Name				Prof. Reg. No.																	

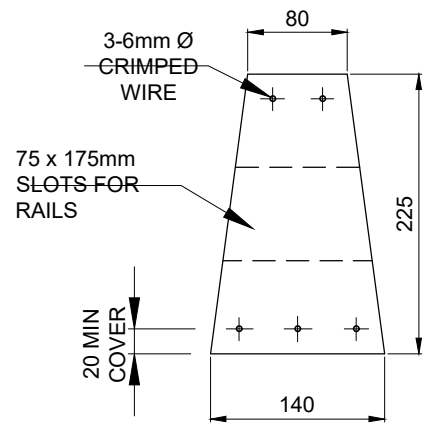


SECTION A - A
POST SCALE 1:20

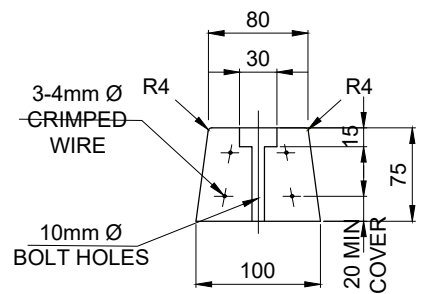
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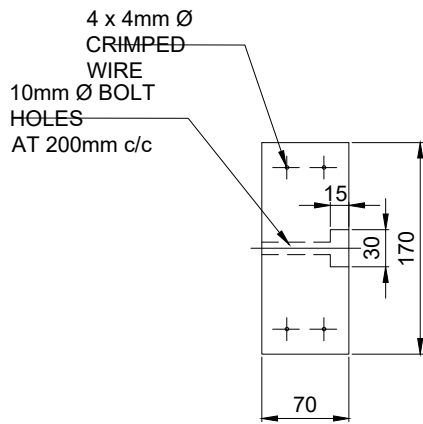
PANEL SECTION C - C
SCALE 1:10



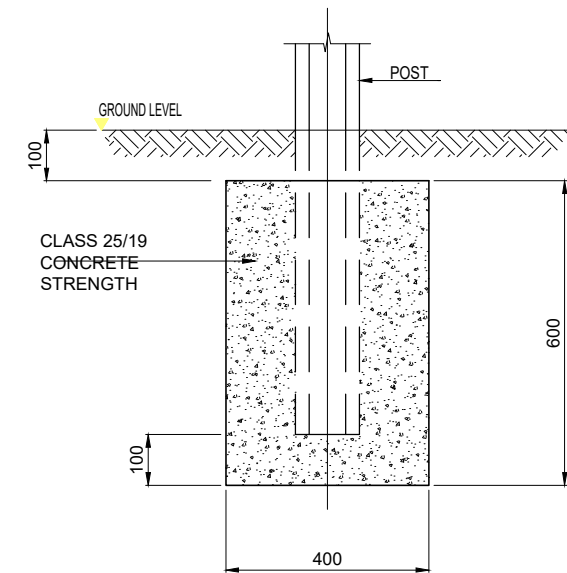
DETAIL "A"
POST SCALE 1:5



DETAIL "B" POLE
SCALE 1:5



DETAIL "C"
RAIL SCALE 1:5



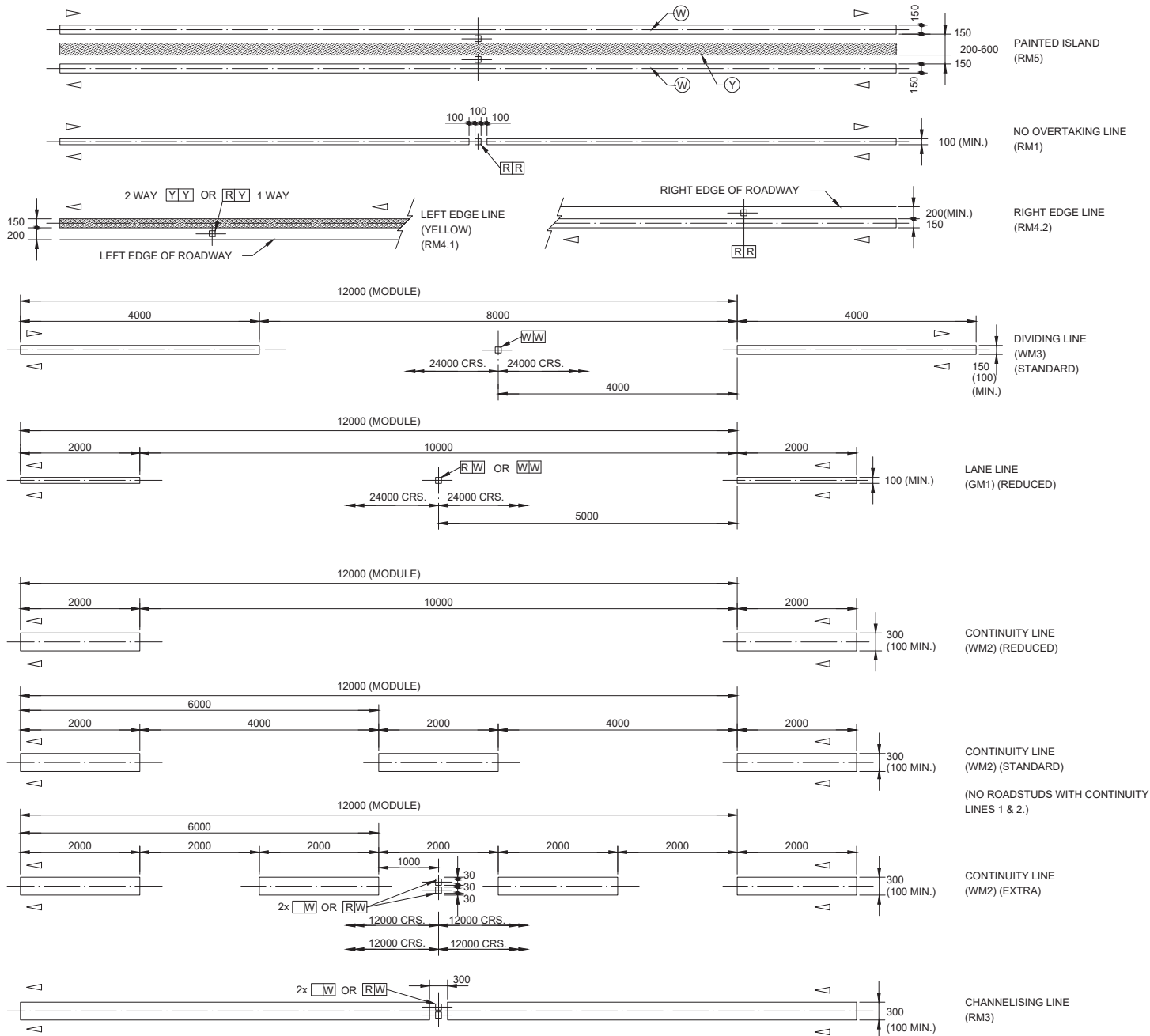
DETAILS OF POST FOOTING - DETAIL "X"
SCALE 1:10

SECTIONS OF
PRECAST
CONCRETE
COMPONENTS

										FOR TENDER PURPOSES ONLY		
CONSTRUCTION RECORD				DESIGNED BY		CONSULTANT APPROVAL		WESTERN REGION		PROJECT DESCRIPTION		
WORKS CONTRACT ENGINEER				NAME		NAME		1 HAVENGA STREET		THE PERIODIC MAINTENANCE (RESURFACING) OF NATIONAL ROUTE SECTION FROM KEUKENDRAAI		
NAME				PROF. REG. NO.		NAME		OAKDALE, BELLVILLE		(KM 50.30) TO GROBLERSHOOP (KM 55.99) NATIONAL ROUTE SECTION FROM GROBLERSHOOP (KM 0.00) TO		
DATE				CHECKED BY		NAME		WESTERN CAPE		UTRYK (KM 70.00) AND NATIONAL ROUTE 8 SECTION 6 FROM GROBLERSHOOP (KM 0.00) TO ROOISAND (KM 8.18)		
SANRAL PROJECT MANAGER				NAME		NAME		7530		DRAWING DESCRIPTION:		
NAME				PROF. REG. NO.		NAME		PRIVATE BAG X19		SANRAL TYPICAL DRAWINGS		
DATE				DRAWN BY		NAME		BELLVILLE 7535		FENCING AND RELATED ITEMS		
CONSULT. ENG.				NAME		NAME		SOUTH AFRICA		PALLISADE FENCING CONCRETE		
No.				DATE		DATE		Tel: (021) 957 4600		FOR THE SA NATIONAL ROADS AGENCY SOC LTD		
DATE				REVISION		DATE		Tel: (021) 914 2833		DATE:		
REVISION				CONSULT. ENG.		DATE		Tel: (021) 914 2833		SCALE :		
CONSULT. ENG.				DATE		DATE		Tel: (021) 914 2833		SHEET 02 OF 02		
DATE				REVISION		DATE		Tel: (021) 914 2833		SANRAL DOCUMENT #		
REVISION				CONSULT. ENG.		DATE		Tel: (021) 914 2833		VER		
CONSULT. ENG.				DATE		DATE		Tel: (021) 914 2833		VER		



				CONSTRUCTION RECORD WORKS CONTRACT ENGINEER		DESIGNED BY		CONSULTANT APPROVAL		HEAD OFFICE		WESTERN REGION		ACCEPTANCE		PROJECT DESCRIPTION				PROJECT NUMBER		NRA 2025/004			
				Name _____ Print Ref No: _____ Date _____		Name _____ Print Ref No: _____ Date _____		Name _____ Print Ref No: _____ Date _____		48 Taborade Avenue Cape Town 7800		1 Hanyassa Street Cape Town 7800		THIS ACCEPTANCE IS FOR PROCEDURAL AND ADMINISTRATIVE PURPOSES ONLY. IT DOES NOT ATTRACT LEGAL LIABILITY OR LIABILITY OF ANY KIND FROM SANRAL TO THE CAUSE OR OTHERWISE ARISING		Periodic Maintenance (Resurfacing) Of National Route 9 Section 18 From Klenkandani (Km 10.30) To Gredenhoe (Km 15.58), National Route 10 Section 11 From Gredenhoe (Km 1.00) To Uitenhage (Km 70.00) And National Route 1 Section 5 From Gredenhoe (Km 0.00) To Roodkand (Km 1.16)				DRAWING LOCATION		START		END	
				CHECKED BY		DRAWN BY		DRAWN BY		Private Bag 310 Brixton 7950				DRAWING DESCRIPTION				ROUTE - N10 SECTION - 10		KM 50.30		KM 55.59			
				NAME _____		NAME _____		NAME _____		P.O. Box 415 Pretoria 0001 South Africa				PROPOSED FENCING SPECIFICATION				ROUTE - N10 SECTION - 11		KM 00.00		KM 70.00			
				NAME _____		NAME _____		NAME _____		Tel: (012) 967 4000 Fax: (012) 910 1966				DRAWING TYPE				ROUTE - N8 SECTION - 8		KM 00.00		KM 8.18			
				DRAWN BY		DRAWN BY		DRAWN BY		Tel: (012) 967 4000 Fax: (012) 910 1966				CONSULTANT DRAWING				DRAWING TYPE		TYPICAL DRAWING-STRUCTURE		AA243300-TD-FG-05			
				NAME _____		NAME _____		NAME _____		Tel: (012) 967 4000 Fax: (012) 910 1966				SCALE: AS SHOWN				SHEET 01 OF 01		CONSULTANT DOCUMENT #					
				NAME _____		NAME _____		NAME _____		Tel: (012) 967 4000 Fax: (012) 910 1966				SCALE: AS SHOWN				SHEET 01 OF 01		CONSULTANT DOCUMENT #					
				NAME _____		NAME _____		NAME _____		Tel: (012) 967 4000 Fax: (012) 910 1966				SCALE: AS SHOWN				SHEET 01 OF 01		CONSULTANT DOCUMENT #					
				NAME _____		NAME _____		NAME _____		Tel: (012) 967 4000 Fax: (012) 910 1966				SCALE: AS SHOWN				SHEET 01 OF 01		CONSULTANT DOCUMENT #					
				NAME _____		NAME _____		NAME _____		Tel: (012) 967 4000 Fax: (012) 910 1966				SCALE: AS SHOWN				SHEET 01 OF 01		CONSULTANT DOCUMENT #					
				NAME _____		NAME _____		NAME _____		Tel: (012) 967 4000 Fax: (012) 910 1966				SCALE: AS SHOWN				SHEET 01 OF 01		CONSULTANT DOCUMENT #					
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				NAME _____		NAME _____		NAME _____		Tel: (012) 967 4000 Fax: (012) 910 1966				SCALE: AS SHOWN				SHEET 01 OF 01		CONSULTANT DOCUMENT #					
				NAME _____		NAME _____		NAME _____		Tel: (012) 967 4000 Fax: (012) 910 1966				SCALE: AS SHOWN				SHEET 01 OF 01		CONSULTANT DOCUMENT #					
				NAME _____		NAME _____		NAME _____		Tel: (012) 967 4000 Fax: (012) 910 1966				SCALE: AS SHOWN				SHEET 01 OF 01		CONSULTANT DOCUMENT #					
				NAME _____		NAME _____		NAME _____		Tel: (012) 967 4000 Fax: (012) 910 1966				SCALE: AS SHOWN				SHEET 01 OF 01		CONSULTANT DOCUMENT #					
				NAME _____		NAME _____		NAME _____		Tel: (012) 967 4000 Fax: (012) 910 1966				SCALE: AS SHOWN				SHEET 01 OF 01		CONSULTANT DOCUMENT #					
				NAME _____		NAME _____		NAME _____		Tel: (012) 967 4000 Fax: (012) 910 1966				SCALE: AS SHOWN				SHEET 01 OF 01		CONSULTANT DOCUMENT #					
				NAME _____		NAME _____		NAME _____		Tel: (012) 967 4000 Fax: (012) 910 1966				SCALE: AS SHOWN				SHEET 01 OF 01		CONSULTANT DOCUMENT #					
				NAME _____		NAME _____		NAME _____		Tel: (012) 967 4000 Fax: (012) 910 1966				SCALE: AS SHOWN				SHEET 01 OF 01		CONSULTANT DOCUMENT #					
				NAME _____		NAME _____		NAME _____		Tel: (012) 967 4000 Fax: (012) 910 1966				SCALE: AS SHOWN				SHEET 01 OF 01		CONSULTANT DOCUMENT #					
				NAME _____		NAME _____		NAME _____		Tel: (012) 967 4000 Fax: (012) 910 1966				SCALE: AS SHOWN				SHEET 01 OF 01		CONSULTANT DOCUMENT #					
				NAME _____		NAME _____		NAME _____		Tel: (012) 967 4000 Fax: (012) 910 1966				SCALE: AS SHOWN				SHEET 01 OF 01		CONSULTANT DOCUMENT #					
				NAME _____		NAME _____		NAME _____		Tel: (012) 967 4000 Fax: (012) 910 1966				SCALE: AS SHOWN				SHEET 01 OF 01		CONSULTANT DOCUMENT #					
				NAME _____		NAME _____		NAME _____		Tel: (012) 967 4000 Fax: (012) 9															



NOTES:

1. DIRECTION OF TRAFFIC MOVEMENT WITH RESPECT TO LINE MARKING INDICATED THUS ▷ OR ◁.
2. PAINTED ISLAND MARKINGS SHALL BE USED AS A STANDARD DIVIDING MARKING ON ALL 4-LANE 2-WAY ROADWAYS. (SEE URBAN LONGITUDINAL LINE TYPES)
3. A NO OVERTAKING LINE MAY BE USED TO REPLACE A DIVIDING LINE MARKING ON MINOR ROADS OR TO MATCH PROVINCIAL ROAD MARKING POLICY ON AN INTERSECTING ROADWAY AS APPROPRIATE. A NO OVERTAKING LINE MAY BE USED IN COMBINATION WITH A LANE LINE (NORMALLY ON A FREEWAY CARRIAGEWAY).
4. A LEFT EDGE LINE MARKING SHALL NOT EXTEND ACROSS THE POINT OF DEPARTURE FROM A THROUGH PORTION OF ROADWAY.
5. A RIGHT EDGE LINE MARKING IS ONLY REQUIRED TO DEMARCATÉ AN UNKERBED MEDIAN (A MEDIAN GUARDRAIL OR CONCRETE SEPARATOR BARRIER DOES NOT CONSTITUTE A KERBED MEDIAN).
6. THE DIVIDING LINE MARKING REPLACES THE PREVIOUS "CENTRE LINE" MARKING AND SHALL ONLY BE USED BETWEEN LANES CARRYING OPPOSING TRAFFIC FLOWS WHERE OVERTAKING IS PERMITTED.
7. A CONTINUITY LINE MAY BE SPECIFIED IN ONE OF THREE DENSITIES - 1. REDUCED, 2. STANDARD OR 3. EXTRA. A CONTINUITY LINE MAY BE USED TO DEFINE THE LIMIT OF THE THROUGH PORTION OF A ROADWAY, EITHER AT A HIGH SPEED EXIT (OFF-RAMP OR SLIP ROAD), A DEDICATED EXIT LANE ON A FREEWAY, OR AT-GRADE ROAD (RIGHT OR LEFT TURN).
8. A CHANNELIZING LINE MAY BE USED AS AN EXTENSION OF A CONTINUITY LINE FOR CERTAIN APPLICATIONS ON THE APPROACH TO AN AT-GRADE SLIP ROAD GORE AREA.
9. A LANE LINE, CONTINUITY LINE OR CHANNELIZING LINE SHALL NOT BE USED BETWEEN OPPOSING TRAFFIC MOVEMENTS.
10. THE WIDTHS OF LINES SHOWN ARE RECOMMENDATIONS ONLY. (SEE LONGITUDINAL LINE COMBINATIONS.)

LEGEND:

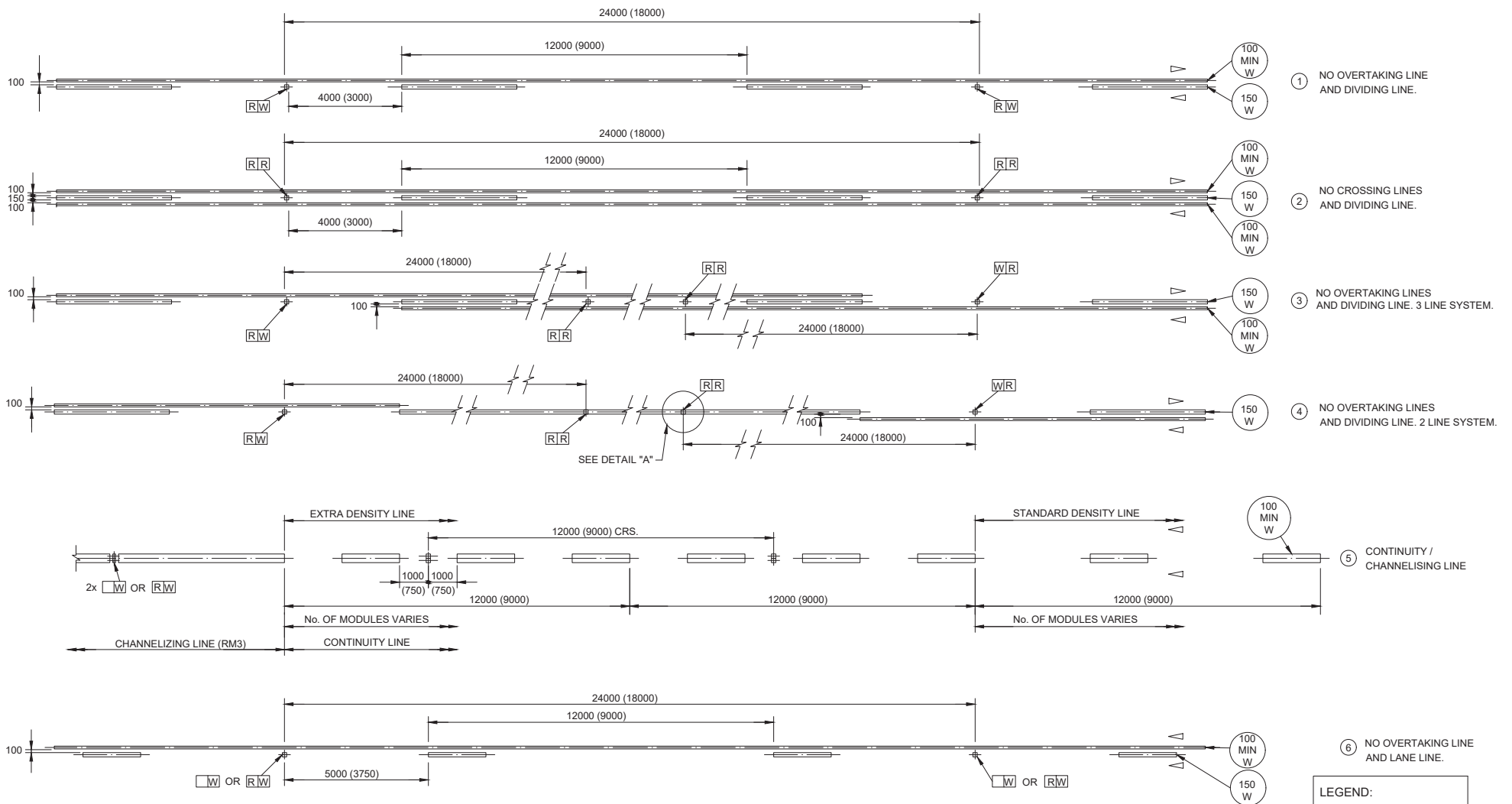
R = RED
W = WHITE
Y = YELLOW

ROAD MARKINGS - RURAL LONGITUDINAL LINE TYPE

SCALE 1 : 50

FOR TENDER PURPOSES ONLY

				CONSTRUCTION RECORD		DESIGNED BY		CONSULTANT APPROVAL		HEAD OFFICE		WESTERN REGION		ACCEPTANCE		PROJECT DESCRIPTION		PROJECT NUMBER		NRA 2025/0004			
				WORKS CONTRACT ENGINEER		NAME		Name		48 Tambotie Avenue West of Grace Pretoria		1 Havengood Street Bellefontaine Bellefontaine		THIS ACCEPTANCE IS FOR PROCEDURAL AND ADMINISTRATIVE REVIEW PURPOSES ONLY AND DOES NOT ATTRACT LEGAL LIABILITY OF ANY KIND FROM WHATEVER CAUSE OR REMEDY ARISING		PERIODIC MAINTENANCE (RESURFACING) OF NATIONAL ROUTE 10 SECTION 10 FROM KEUKENDRAAI (KM 55.30) TO GROBLERSHOOP (KM 55.30), NATIONAL ROUTE 19 SECTION 11 FROM GROBLERSHOOP (KM 5.80) TO UTUKUY (KM 71.00) AND NATIONAL ROUTE 8 SECTION 6 FROM GROBLERSHOOP (KM 5.80) TO ROSSDALE (KM 6.18)		PROJECT NUMBER		NRA 2025/0004			
				SANDAL PROJECT MANAGER		CHECKED BY		Prof. Reg No.		PO Box 415 Pretoria 0001 South Africa		Private Bag X19 Bellefontaine 7305				DRAWING DESCRIPTION		DRAWING LOCATION		START		END	
						NAME		Date		THE ABOVE SIGNATORY CERTIFIES THAT THE PROJECTS AND CHECKER WERE CONSENTED TO THEIR NAMES BEING SUBMITTED ON THE DRAWING AND ARE NOT IN ANY WAY SECURE AND APPROVED THE DRAWING		Tel: (012) 957 4600		for CEO: SA NATIONAL ROADS AGENCY LTD		SANRAL TYPICAL DRAWINGS		ROUTE - N10 SECTION - 10		KM 55.30		KM 55.59	
						DRAWN BY		Date				Tel: (021) 910 1966				DRAWING TYPE		ROUTE - N10 SECTION - 11		KM 00.00		KM 70.00	
						NAME						Tel: (021) 957 4600				RURAL LONGITUDINAL LINE TYPES		ROUTE - N8 SECTION - 6		KM 00.00		KM 18.18	
																SCALE: AS SHOWN		CONSULTANT DRAWING		SANRAL DOCUMENT #		2025/0004-TD-RM-01	
																SHEET 01 OF 01						V1	



NOTES:

- DIRECTION OF TRAFFIC MOVEMENT WITH RESPECT TO THE MARKING INDICATED THUS ▷ OR <
- FOR FULL LONGITUDINAL DIMENSIONS OF COMPONENT MARKINGS SEE RURAL AND URBAN LONGITUDINAL LINE TYPES.
- COMBINATION MARKINGS ① TO ④ ARE FOR TWO WAY TRAFFIC AND ARE APPLICABLE TO NATIONAL NON- FREEWAY ROUTES WHICH INTERSECT FREEWAYS.

- COMBINATION MARKING ⑤ SHALL BE USED TO INDICATE THE DIVISIONS BETWEEN THE THROUGH ROADWAY AND ANY EXCLUSIVE EXIT/TURN LANES. WHEREVER POSSIBLE A CONTINUITY LINE SHOULD LEAD TO, OR TERMINATE IN A CHANNELIZING LINE WHICH MAY BE SHORT. RECOMMENDED MINIMUM LENGTH IS 12m FOR RURAL AND 9m FOR URBAN APPLICATIONS.
- FOR MARKINGS ① TO ④ ROADSTUDS SHOULD BE LOCATED ON CENTRE LINE OF THE DIVIDING LINE (OR SINGLE NO OVERTAKING LINE MARKING ④)

- WHERE POSSIBLE THE LENGTH OF CHANNELIZING MARKING SHOULD BE ADJUSTED SO THAT THE CONTINUITY LINE ROADSTUDS MATCH OTHER ROADSTUDS ON CROSS-SECTION AND FALL IN THE CENTRE OF A GAP IN THE CONTINUITY LINE.
- DIMENSIONS FOR URBAN APPLICATIONS ARE INDICATED IN BRACKETS.
- ROADSTUDS ON THE SINGLE NO OVERTAKING LINE IN MARKING ④ MAY BE COVERED DURING LINE MARKING OR PLACED AS INDICATED IN DETAIL "A".

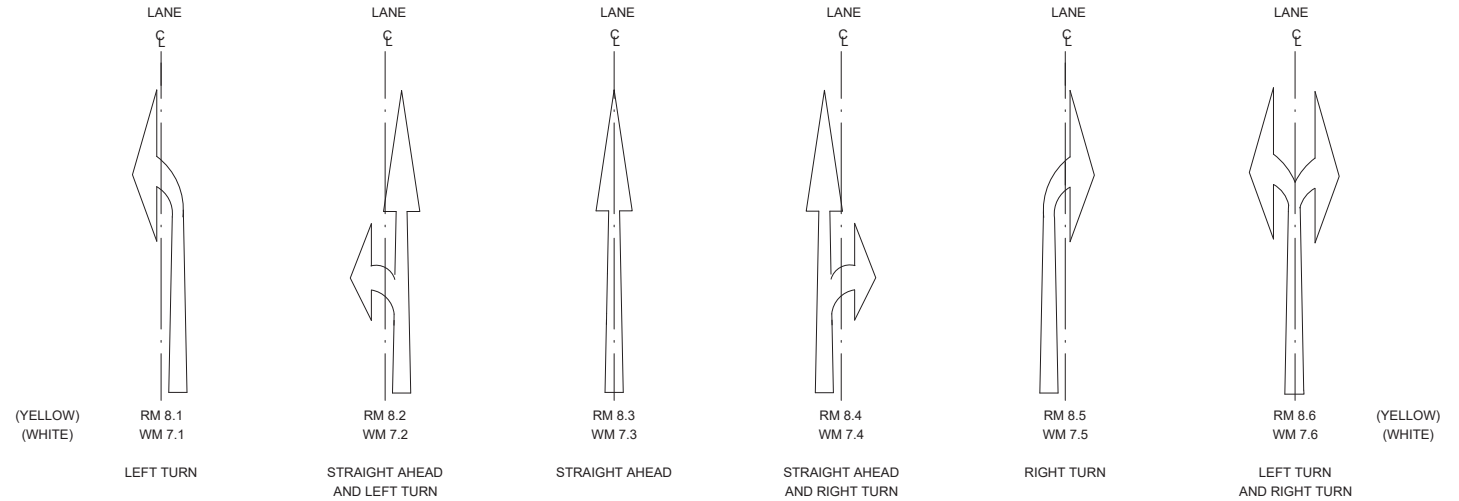
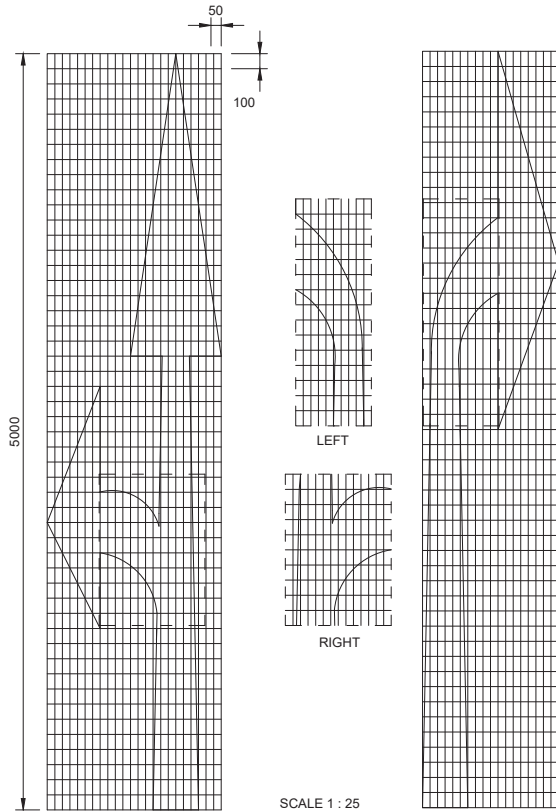
ROAD MARKINGS - RURAL LONGITUDINAL LINE COMBINATIONS

SCALE 1 : 100

FOR TENDER PURPOSES ONLY

CONSTRUCTION RECORD				DESIGNED BY		CONSULTANT APPROVAL		HEAD OFFICE		WESTERN REGION		ACCEPTANCE		PROJECT DESCRIPTION		PROJECT NUMBER	
WORKS CONTRACT ENGINEER				NAME		NAME		48 Tumbola Avenue		1 Harewood Street		THIS ACCEPTANCE IS FOR PROCEDURAL AND ADMINISTRATIVE REVIEW PURPOSES ONLY. AND DOES NOT ATTRACT LEGAL LIABILITY OR LIABILITY OF ANY KIND FROM WHATEVER CAUSE OR OTHERWISE ARISING.		PERIODIC MAINTENANCE (RESURFACING) OF NATIONAL ROUTE 10 SECTION 10 FROM KEURGERIAH (KM 55.30) TO GROBLERSHOOP (KM 55.30), NATIONAL ROUTE 10 SECTION 11 FROM GROBLERSHOOP (KM 55.30) TO UTKYK (KM 71.00) AND NATIONAL ROUTE 8 SECTION 6 FROM GROBLERSHOOP (KM 5.00) TO ROOSDAM (KM 8.10)		NRA 2025/0004	
SARIAL PROJECT MANAGER				Prof Reg No		Date		PO Box 415		Private Bag 310		for CEO: SA NATIONAL ROAD AGENCY LTD		DRAWING DESCRIPTION		DRAWING LOCATION	
				NAME		NAME		Pretoria 0001		Boksburg		Date		SANRAL TYPICAL DRAWINGS		ROUTE - N10 SECTION - 10	
				DRAWN BY		DRAWING		South Africa		7535		Road Markings		RURAL LONGITUDINAL LINE COMBINATIONS		ROUTE - N10 SECTION - 11	
								(012) 844 8000		(021) 957 4000		Scale		ROAD MARKINGS		ROUTE - N8 SECTION - 6	
												AS SHOWN		SANRAL TYPICAL DRAWINGS		TYPICAL DRAWING-ROADWORKS	
												SHEET 01 OF 01		CONSULTANT DRAWING		AA24330-TD-RM-02	
														SANRAL DOCUMENT #		2025/0004-TD-RM-02	
																V1	

ROAD MARKINGS - MANDATORY DIRECTION ARROWS AND DIRECTION ARROW AHEAD



APPLICATIONS

DIMENSIONS (mm)

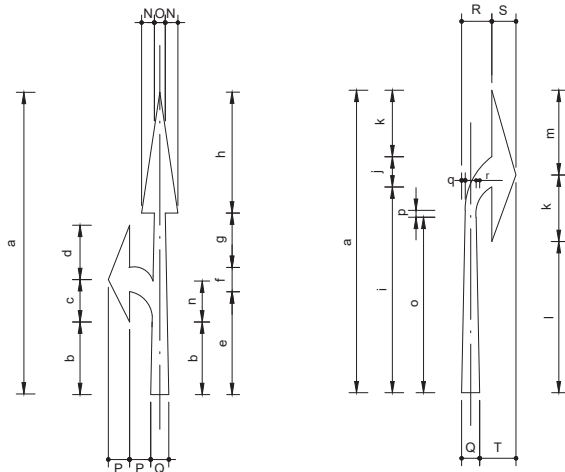
OPERATING SPEED km/h	TYPICAL APPLICATIONS	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r
30 - 40	CITY CENTRE	2500	600	350	450	884	200	417	1000	1700	250	550	1250	700	380	1450	58	30	29
50 - 90	URBAN/RURAL EXPRESSWAY	4000	960	560	720	1406	320	666	1600	2720	400	880	2000	1120	608	2320	93	48	46
100 - 120	RURAL AND FREEWAYS	5000	1200	700	900	1767	400	833	2000	3400	500	1100	2500	1400	760	2900	116	60	58
ALL	SPECIAL APPLICATIONS	7500	1800	1050	1350	2651	600	1250	3000	5100	750	1650	3750	2100	1140	4350	174	90	87

ALL OPERATING SPEEDS	N	O	P	Q	R	S	T
AND APPLICATIONS	210	180	350	300	500	400	600

NOTES:

- THESE ARROWS MAY BE USED IN LANES TO INDICATE THAT DRIVERS SHALL PROCEED ONLY IN THE DIRECTION OR DIRECTIONS SHOWN. THEY SHOULD ONLY BE USED IF THE JUNCTION CONCERNED REQUIRED TURNING MOVEMENT CONTROL BY LANE.
- THE FINAL ARROW NEAREST THE POINT OF TURN OR STRAIGHT ON MOVEMENT SHALL BE YELLOW. ANY ARROWS MARKED IN ADVANCE OF THIS POINT TO WARN DRIVERS OF THE MANDATORY MOVEMENT AHEAD SHALL BE WHITE.
- A MANDATORY OR WARNING DIRECTION ARROW SHALL NOT BE USED IN ADVANCE OF A WIDENING OF THE ROADWAY TO A GREATER NUMBER OF LANES. THIS SHALL BE INDICATED IF NECESSARY, BY USING FURCATION ARROWS.

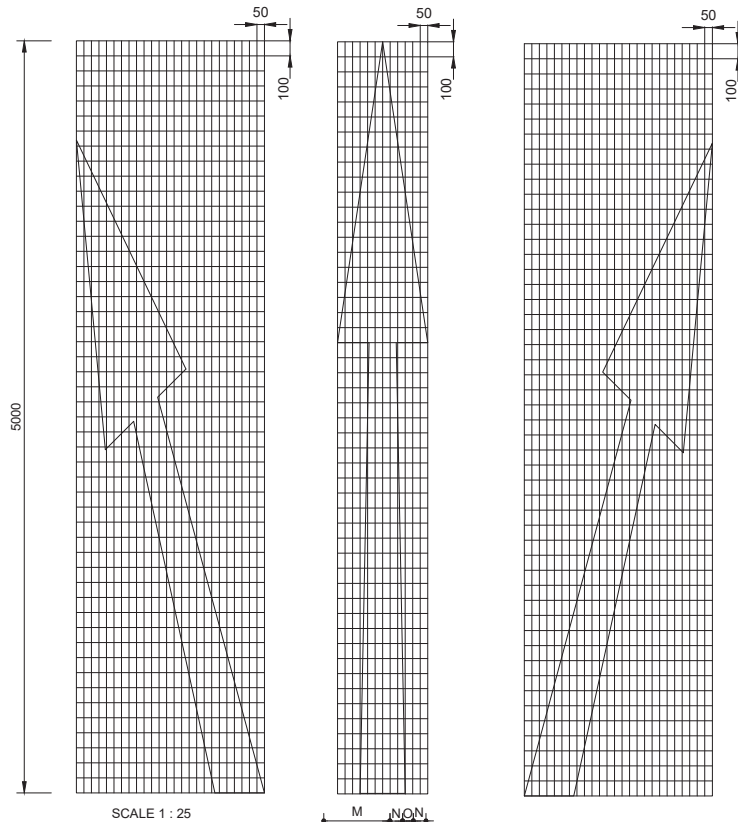
ARROW AREA (m²)				
a	RM8.1/RM8.5 WM7.1/WM7.5	RM8.2/RM8.4 WM7.2/WM7.4	RM8.3 WM7.3	RM8.6 WM7.6
2500	0.67	0.89	0.66	1.03
4000	1.14	1.43	1.06	1.68
5000	1.45	1.78	1.32	2.12
7500	2.23	2.66	1.98	3.20



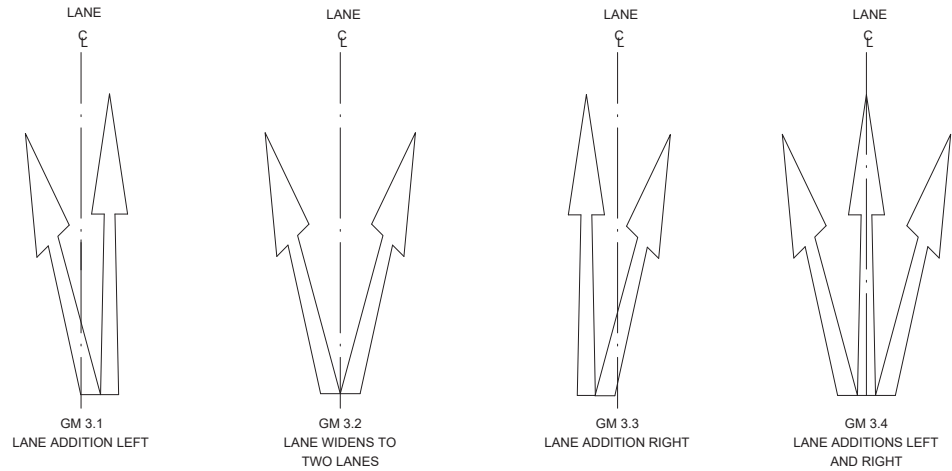
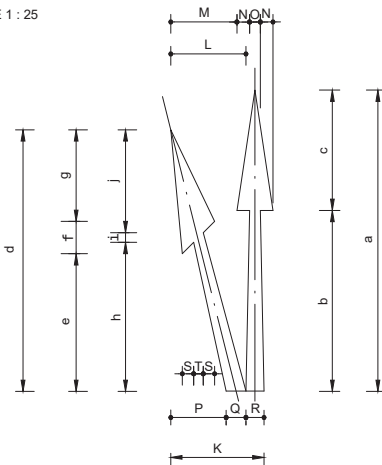
FOR TENDER PURPOSES ONLY

CONSTRUCTION RECORD WORKS CONTRACT ENGINEER				DESIGNED BY		CONSULTANT APPROVAL		HEAD OFFICE		WESTERN REGION		ACCEPTANCE		PROJECT DESCRIPTION		PROJECT NUMBER	
Name: _____ Prof. Reg No: _____ Date: _____				Name: _____ Prof. Reg No: _____ Date: _____		Name: _____ Prof. Reg No: _____ Date: _____		48 Tumbolia Avenue Val de Grace Pretoria 0184		1 Havenga Street Cantabile Boksburg 7530		THIS ACCEPTANCE IS FOR PROCEDURAL AND ADMINISTRATIVE REVIEW PURPOSES ONLY AND DOES NOT ATTRACT LEGAL LIABILITY OR LIABILITY OF ANY KIND FROM SANRAL/DEVELOPER CAUSE OR OTHERWISE ARISING		PERIODIC MAINTENANCE (RESURFACING) OF NATIONAL ROUTE 19 SECTION 10 FROM KENEDUNDAI (KM 50.30) TO GROBLERSHOOP (KM 55.98), NATIONAL ROUTE 19 SECTION 11 FROM GROBLERSHOOP (KM 55.98) TO UTKUY (KM 70.00) AND NATIONAL ROUTE 19 SECTION 6 FROM GROBLERSHOOP (KM 55.98) TO ROOSSIG (KM 8.18)		MRA 2025/0004	
SANRAL PROJECT MANAGER				Name: _____ Prof. Reg No: _____ Date: _____		Name: _____ Prof. Reg No: _____ Date: _____		PO Box 415 Pretoria 001 South Africa		Private Bag 519 Boksburg 7535		for CEO: SA NATIONAL ROADS AGENCY LTD		DRAWING DESCRIPTION ROAD MARKINGS MANDATORY DIRECTION ARROWS		DRAWING LOCATION ROUTE - N10 SECTION - 10 ROUTE - N10 SECTION - 11 ROUTE - N8 SECTION - 6	
Name: _____ Date: _____				Name: _____ Date: _____		Name: _____ Date: _____		The above statutory certificates that the designer and checker have considered to their names being inserted on this drawing and that they have been approved and approved this drawing		The above statutory certificates that the designer and checker have considered to their names being inserted on this drawing and that they have been approved and approved this drawing		for CEO: SA NATIONAL ROADS AGENCY LTD		SANRAL TYPICAL DRAWINGS ROAD MARKINGS MANDATORY DIRECTION ARROWS		CONSULTANT DRAWING AA243300-TD-RM-03	
No. _____ DATE _____				Name: _____ Date: _____		Name: _____ Date: _____		PO Box 415 Pretoria 001 South Africa		Private Bag 519 Boksburg 7535		for CEO: SA NATIONAL ROADS AGENCY LTD		SCALE: AS SHOWN		SHEET 01 OF 01	
REVISION				CONSULT. ENG.		SANRAL PROJECT MANAGER		BUILDING SOUTH AFRICA THROUGH BETTER ROADS		BUILDING SOUTH AFRICA THROUGH BETTER ROADS		for CEO: SA NATIONAL ROADS AGENCY LTD		TYPICAL DRAWING-ROADWORKS		SANRAL DOCUMENT #	
REV01 DEC 2024 FOR TENDER PURPOSES ONLY				Name: _____ Date: _____		Name: _____ Date: _____		PO Box 415 Pretoria 001 South Africa		Private Bag 519 Boksburg 7535		for CEO: SA NATIONAL ROADS AGENCY LTD		CONSULTANT DRAWING		2025/0004-TD-RM-03	
No. _____ DATE _____				Name: _____ Date: _____		Name: _____ Date: _____		PO Box 415 Pretoria 001 South Africa		Private Bag 519 Boksburg 7535		for CEO: SA NATIONAL ROADS AGENCY LTD		SCALE: AS SHOWN		SHEET 01 OF 01	
No. _____ DATE _____				Name: _____ Date: _____		Name: _____ Date: _____		PO Box 415 Pretoria 001 South Africa		Private Bag 519 Boksburg 7535		for CEO: SA NATIONAL ROADS AGENCY LTD		SCALE: AS SHOWN		SHEET 01 OF 01	

ROAD MARKINGS - BIFURCATION ARROWS



SCALE 1 : 25



APPLICATIONS

DIMENSIONS (mm)

OPERATING SPEED km/h	TYPICAL APPLICATIONS	a	b	c	d	e	f	g	h	i	j
30 - 40	CITY CENTRE	2500	1500	1000	2170	1141	268	761	1235	81	855
50 - 60	URBAN ROADS	4000	2400	1600	3472	1826	429	1218	1976	129	1367
70 - 90	URBAN ARTERIAL ROADS/ RURAL EXPRESSWAYS	5000	3000	2000	4340	2282	536	1522	2470	161	1709
100 - 120	RURAL ROADS AND FREEWAYS	7500	4500	3000	6510	3423	804	2283	3705	242	2564

ALL OPERATING SPEEDS	K	L	M	N	O	P	Q	R	S	T
AND APPLICATIONS	1700	1250	1100	210	180	921	329	300	188	161

NOTES:

- THESE ARROWS MAY BE USED TO INDICATE THAT THE NUMBER OF LANES ARE INCREASING AHEAD. ONLY ONE SET OF ARROWS SHOULD BE USED UNLESS A LEFT AND RIGHT TURN LANE ARE ADDED TO A MULTI-LANE ROADWAY AT THE SAME POINT WHERE TWO SETS MAY BE USED.
- DIRECTION ARROWS AHEAD SHALL NOT BE USED TO INDICATE THE ADDITION OF LANES AHEAD.
- AS A GENERAL RULE BIFURCATION ARROWS SHOULD BE LOCATED TWO TO THREE MARKING MODULES BEFORE THE START OF THE LANE GENERATING TAPER OR CURVE.

ARROW AREA (m²)

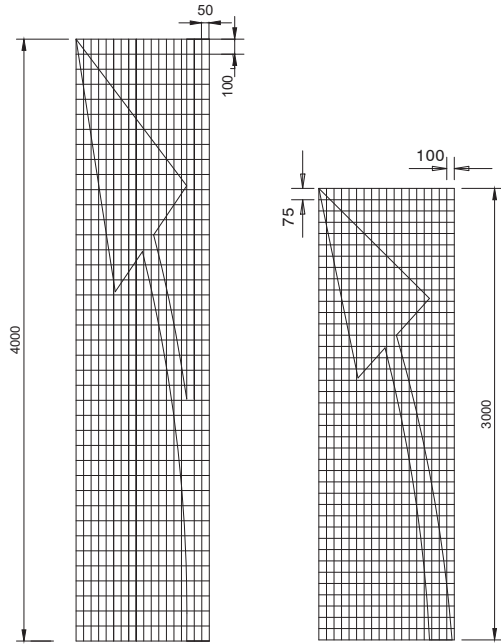
a	GM3.1/GM3.3	GM3.2	GM3.4
2500	1.30	1.27	1.93
4000	2.07	2.04	3.09
5000	2.59	2.55	3.87
7500	3.89	3.82	5.80

FOR TENDER PURPOSES ONLY

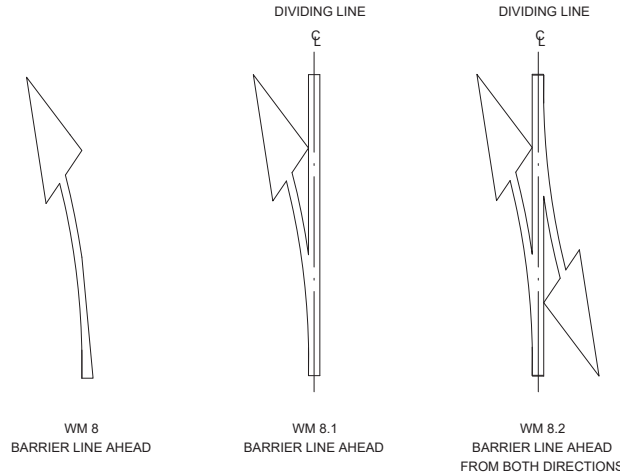
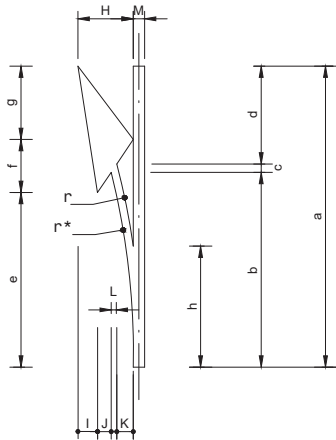
				CONSTRUCTION RECORD WORKS CONTRACT ENGINEER		DESIGNED BY		CONSULTANT APPROVAL		HEAD OFFICE		WESTERN REGION		ACCEPTANCE		PROJECT DESCRIPTION				PROJECT NUMBER		NRA 2025/0004			
				Name: _____ Prof. Reg. No.: _____ Date: _____		NAME: _____ Prof. Reg. No.: _____ Date: _____		Name: _____ Prof. Reg. No.: _____ Date: _____		48 Tambora Avenue Val de Grace Pretoria 0184		1 Henings Street Oakdale Bellville 7530		THIS ACCEPTANCE IS FOR PROCEDURAL AND ADMINISTRATIVE REVIEW PURPOSES ONLY AND DOES NOT ATTRACT LEGAL LIABILITY OR LIABILITY OF ANY KIND FOR WHATEVER CAUSE OR HOWSOEVER ARISING.		PERIODIC MAINTENANCE (RESURFACING) OF NATIONAL ROUTE 18 SECTION 10 FROM HEUNINGRAAI (KM 14.30) TO GROBLERSHOOP (KM 15.50), NATIONAL ROUTE 18 SECTION 11 FROM GROBLERSHOOP (KM 8.00) TO UTUKUY (KM 70.00) AND NATIONAL ROUTE 6 SECTION 6 FROM GROBLERSHOOP (KM 8.00) TO KODDERSAND (KM 8.18)				DRAWING LOCATION		START		END	
				SANRAL PROJECT MANAGER		NAME: _____ Prof. Reg. No.: _____ Date: _____		THE ABOVE SIGNATORY CERTIFIES THAT THE DESIGNER AND CHECKER HAVE CONSENTED TO THEIR NAMES BEING ADVERTISED ON THIS DRAWING AND THAT THEY HAVE SEEN AND APPROVED THE DRAWING.		PO Box 415 Pretoria 0001 South Africa		Private Bag X719 Bellville 7535		for CEO: SA NATIONAL ROADS AGENCY LTD		DRAWING DESCRIPTION				ROUTE - N10 SECTION - 11		KM 50.30		KM 55.59	
						NAME: _____ Prof. Reg. No.: _____ Date: _____				BUILDING SOUTH AFRICA THROUGH BETTER ROADS		Tel: (021) 957 4600 Fax: (021) 950 1586		Date: _____		SANRAL TYPICAL DRAWINGS				ROUTE - N10 SECTION - 11		KM 50.00		KM 70.00	
						NAME: _____ Prof. Reg. No.: _____ Date: _____										ROAD MARKINGS				ROUTE - N8 SECTION - 6		KM 80.00		KM 8.18	
						NAME: _____ Prof. Reg. No.: _____ Date: _____										BIFURCATION ARROWS				DRAWING TYPE		TYPICAL DRAWING - ROADWORKS			
						NAME: _____ Prof. Reg. No.: _____ Date: _____										SCALE: AS SHOWN				CONSULTANT DRAWING		JA243300-TD-RM-04			
						NAME: _____ Prof. Reg. No.: _____ Date: _____										SHEET 01 OF 01				SANRAL DOCUMENT #		2025/0004-TD-RM-04		V1	

BARRIER LINE AHEAD ARROWS

LEGEND:	
R = RED	
W = WHITE	
Y = YELLOW	



SCALE 1 : 25

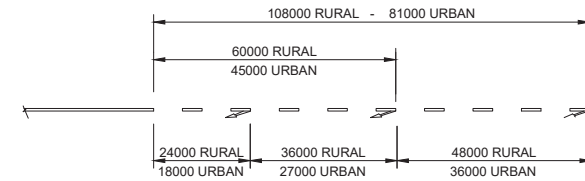


APPLICATIONS
SCALE 1 : 50

DIMENSIONS (mm)

TYPICAL APPLICATIONS	a	b	c	d	e	f	g	h	r	r*
URBAN	3000	1941	83	976	1741	528	731	1206	5620	5820
RURAL	4000	2588	111	1301	2321	704	975	1608	9900	10000

ALL APPLICATIONS	H	I	J	K	L	M
	735	260	181	219	75	100 or 150



MARKING SPACING

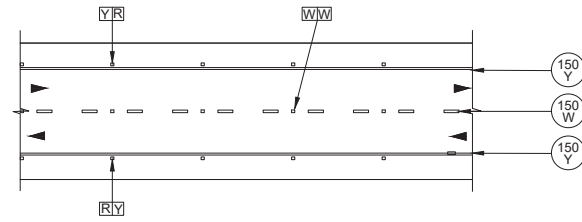
ARROW AREA / (m) ²	
a	PER ARROW
3000	0.62
4000	0.82

NOTES: (BARRIER LINE AHEAD ARROWS)

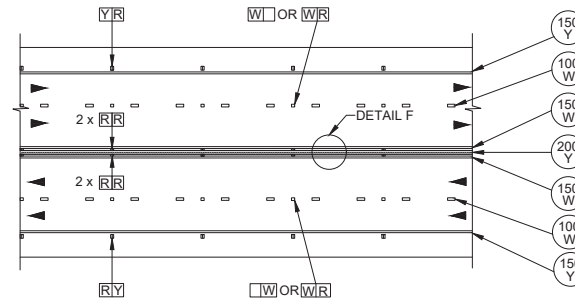
- THESE ARROWS SHOULD BE USED IN MULTIPLES OF THREE (AT LEAST) IN ADVANCE OF THE START OF A SECTION OF NO OVERTAKING LINE, NO CROSSING LINE OR PAINTED ISLAND WHEN SUCH BARRIER LINES REPLACE A DIVIDING LINE.
- THE ARROWS MAY BE MARKED ON TOP OF EXISTING DIVIDING LINE MARKINGS (IF THE EXISTING LINE IS A CENTRE LINE TO A 12m OR 7.2m MODULE THE POINT OF THE ARROW SHOULD BE LINED UP WITH THE FORWARD END OF THE LINE).
- WHEN OVERTAKING SECTIONS ARE REGULARLY INTERSPERSED WITH NO OVERTAKING SECTIONS AND ARE SHORT IN LENGTH MARKING WM 8.2 MAY BE USED AT THE CENTRE OF THE OVERTAKING SECTION.

FOR TENDER PURPOSES ONLY

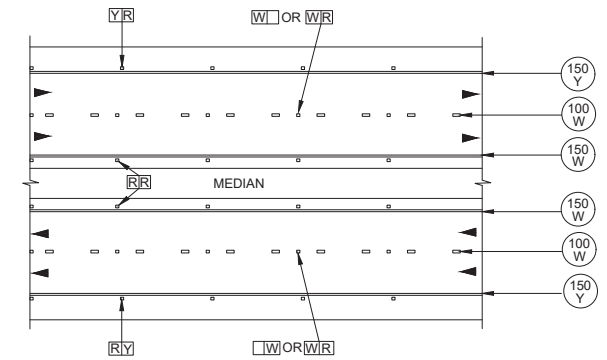
CONSTRUCTION RECORD WORKS CONTRACT ENGINEER Name: _____ Prof. Reg No.: _____ Date: _____				DESIGNED BY NAME: _____ Prof. Reg No.: _____ Date: _____ CHECKED BY NAME: _____ Date: _____ DRAWN BY NAME: _____		CONSULTANT APPROVAL Name: _____ Prof. Reg No.: _____ Date: _____ THE ABOVE SIGNATORY CERTIFIES THAT THE DESIGNER AND CHECKER HAVE CONSENTED TO THEIR NAMES BEING REPORTED ON THIS DRAWING AND THAT THEY HAVE SEEN AND APPROVED THE DRAWING		HEAD OFFICE 48 Tamboke Avenue Val de Grace Pretoria 0184 PO Box 415 Pretoria 0001 South Africa Tel: (012) 844 8000		SANRAL SOUTH AFRICAN NATIONAL ROADS AGENCY LTD BUILDING SOUTH AFRICA THROUGH BETTER ROADS		WESTERN REGION 1 Hananiga Street Grahamstown Buffalo 7530 Private Bag X19 Buffalo 7535 Tel: (021) 957 4600 Fax: (021) 957 1998		ACCEPTANCE THIS ACCEPTANCE IS FOR PROCEDURAL AND ADMINISTRATIVE REVIEW PURPOSES ONLY AND DOES NOT ATTRACT LEGAL LIABILITY OR LIABILITY OF ANY KIND TO THE ROAD USER OR CAUSE OF ANY DAMAGE ARISING		PROJECT DESCRIPTION PERIODIC MAINTENANCE (RESURFACING) OF NATIONAL ROUTE 19 SECTION 19 FROM KEUKENDRAAI (KM 59.36) TO GROBLERSHOOP (KM 55.59), NATIONAL ROUTE 19 SECTION 11 FROM GROBLERSHOOP (KM 55.59) TO UTHUKYI (KM 70.68) AND NATIONAL ROUTE 8 SECTION 8 FROM GROBLERSHOOP (KM 8.89) TO ROOSSAND (KM 8.16)		PROJECT NUMBER NRA 2025/0004 DRAWING LOCATION ROUTE - N10 SECTION - 10 ROUTE - N10 SECTION - 11 ROUTE - N8 SECTION - 6 DRAWING TYPE SANRAL TYPICAL DRAWINGS ROAD MARKINGS BARRIER LINE AHEAD ARROWS		CONSULTANT DRAWING AA24330-TD-RM-05 SANRAL DOCUMENT # 2025/0004-TD-RM-05		SCALE: AS SHOWN SHEET 01 OF 01 V1	
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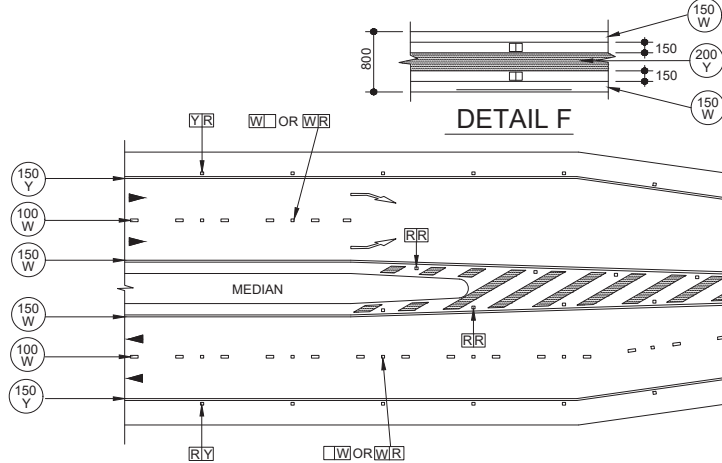
DETAIL A : 2-LANE 2-WAY



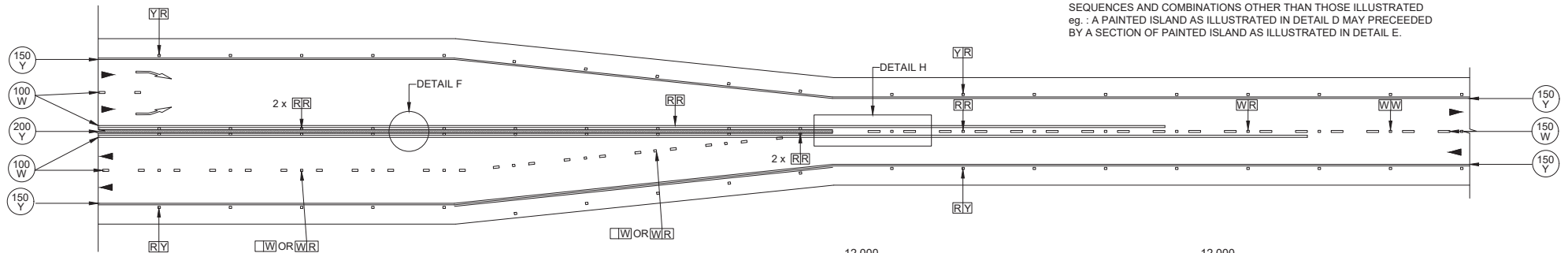
DETAIL B : 4-LANE 2-WAY



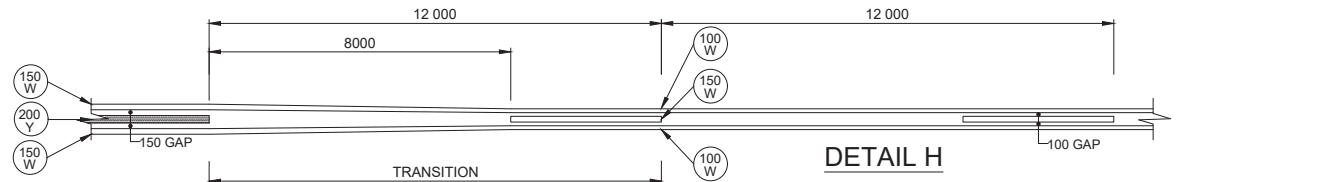
DETAIL C : 4-LANE DUAL CARRIAGEWAY ROAD



DETAIL D : PAINTED ISLAND/MEDIAN ISLAND



DETAIL E : 2-LANE 2-WAY TO 4-LANE 2-WAY

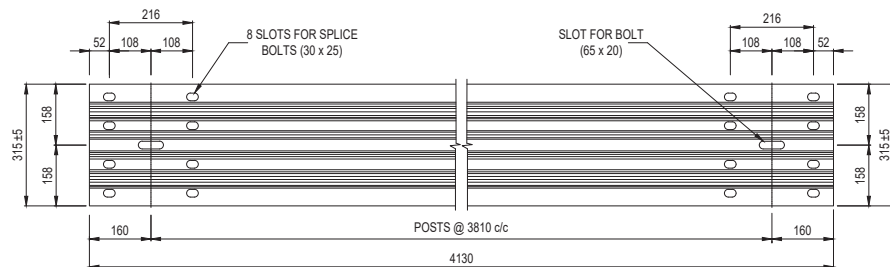


DETAIL H

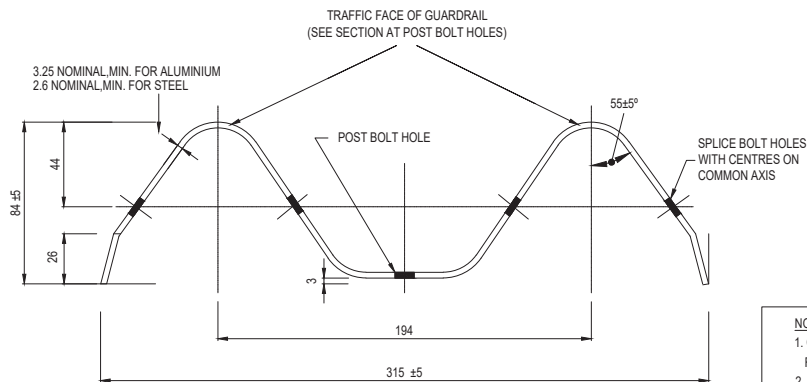
NOTES

1. THE DETAILS SHOW ROAD CROSS-SECTIONS ILLUSTRATING APPROPRIATE COLOUR CODES OF ROAD STUDS.
2. DETAILS D AND E SHOW TYPICAL CHANGES IN CROSS-SECTION. THE DETAILS SHOULD NOT BE USED TO ASSESS ROADSTUD QUANTITIES SINCE SPECIFIC GEOMETRIC AND SITE CONDITIONS WILL AFFECT QUANTITIES.
3. VARIOUS DIVIDING LINE AND PAINTED ISLAND TYPES MAY BE USED IN SEQUENCES AND COMBINATIONS OTHER THAN THOSE ILLUSTRATED eg. : A PAINTED ISLAND AS ILLUSTRATED IN DETAIL D MAY PRECEDE BY A SECTION OF PAINTED ISLAND AS ILLUSTRATED IN DETAIL E.

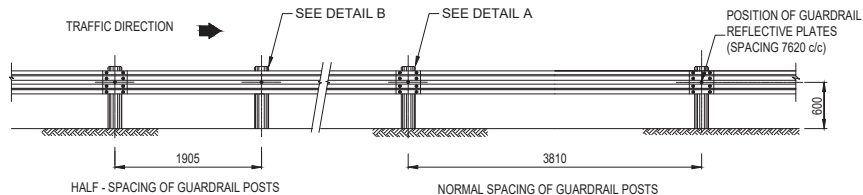
				CONSTRUCTION RECORD		DESIGNED BY		CONSULTANT APPROVAL		HEAD OFFICE		WESTERN REGION		ACCEPTANCE		PROJECT DESCRIPTION				PROJECT NUMBER		NRA 2025/0004			
				WORKS CONTRACT ENGINEER		NAME		NAME		48 Taborade Avenue Private Bag 415 Bellville 7804		1 Hastings Street Bellville 7805		THIS ACCEPTANCE IS FOR PROCEDURAL AND ADMINISTRATIVE REVIEW PURPOSES ONLY AND DOES NOT ATTRACT LEGAL LIABILITY OF ANY KIND FOR WHATEVER CAUSE OR HOWSOEVER ARISING.		PERIODIC MAINTENANCE (RESURFACING) OF NATIONAL ROUTE 19 SECTION 19 FROM KEEKENDRAAR (KM 58.30) TO GROBLERSHOP (KM 55.50), NATIONAL ROUTE 19 SECTION 11 FROM GROBLERSHOP (KM 55.50) TO UTKUY (KM 75.00) AND NATIONAL ROUTE SECTION 6 FROM GROBLERSHOP (KM 55.50) TO ROSSANG (KM 8.18)				DRAWING LOCATION		START		END	
				Name		Prof. Reg No. : _____		Name		Prof. Reg No. : _____		Private Bag 415 Bellville 7805				DRAWING DESCRIPTION				ROUTE - N10 SECTION - 10		KM 50.30		KM 55.59	
				Date		CHECKED BY		Date								SANRAL TYPICAL DRAWINGS				ROUTE - N10 SECTION - 11		KM 00.00		KM 70.00	
REV01				DEC 2024		FOR TENDER PURPOSES ONLY				PO Box 415 Private Bag 001 South Africa Tel: (021) 844 8000		Tel: (021) 957 4000 Fax: (021) 951 5960		for CEO: SA NATIONAL ROADS AGENCY LTD		ROADSTUDS - COLOUR CODES - BASIC EXAMPLES				ROUTE - N8 SECTION - 6		KM 00.00		KM 78.18	
V1				START DATE		ORIGINAL VERSION										ROAD MARKINGS				DRAWING TYPE		TYPICAL DRAWING - ROADMARKING			
NO				DATE		REVISION		DRAWN BY								SCALE: AS SHOWN				SHEET 01		OF 01			
				CONSULT. ENG.				NAME												CONSULTANT DRAWING		AA243300-TD-RM-07			
								NAME												SANRAL DOCUMENT #		2025/0004-TD-RM-07		V1	



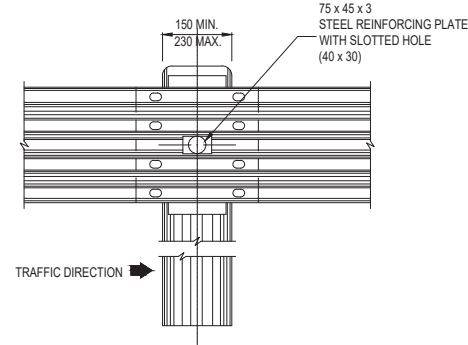
TYPICAL GUARDRAIL SECTION
SCALE: 1 : 10



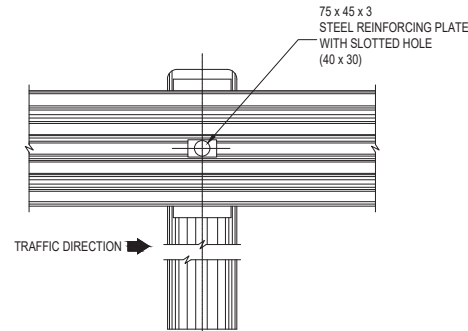
SECTION THROUGH GUARDRAIL
SCALE: 1 : 2



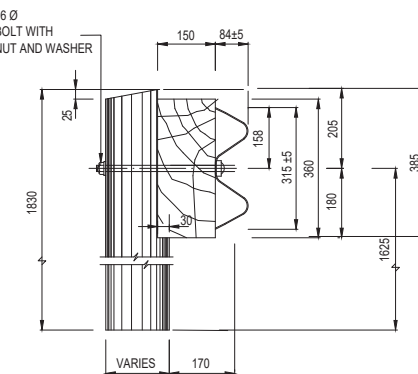
SPACING OF POSTS AND POSITION OF REFLECTIVE PLATES
SCALE: 1 : 50



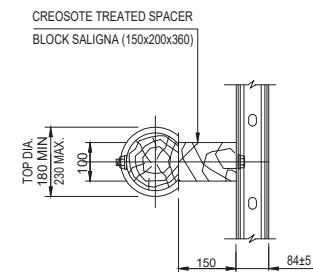
**DETAIL A : FRONT ELEVATION
NORMAL SPACING OF POSTS**
SCALE: 1 : 10



**DETAIL B : FRONT ELEVATION
HALF SPACING OF POSTS**
SCALE: 1 : 10



ELEVATION OF GUARDRAIL
SCALE: 1 : 10



PLAN
SCALE: 1 : 10

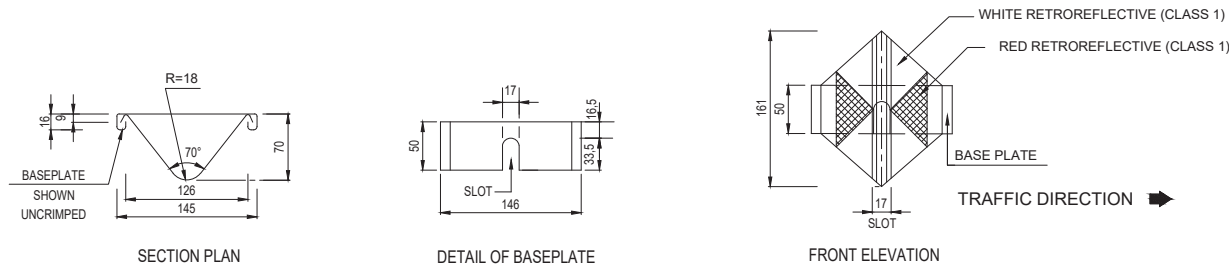
SPECIFICATIONS

- 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:**
180 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

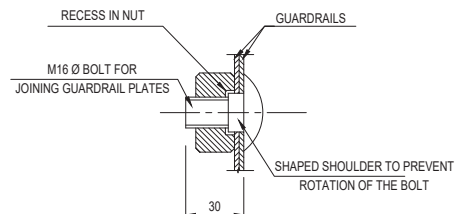
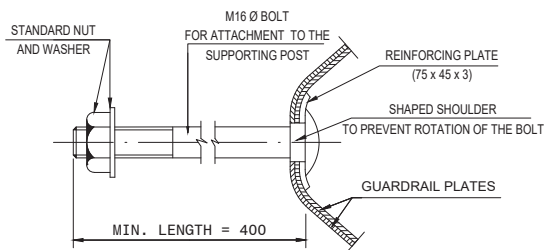
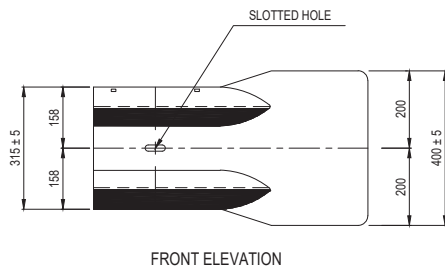
FOR TENDER PURPOSES ONLY

CONSTRUCTION RECORD				DESIGNED BY		CONSULTANT APPROVAL		HEAD OFFICE		WESTERN REGION		ACCEPTANCE		PROJECT DESCRIPTION		PROJECT NUMBER		DRAWING LOCATION		START		END	
WORKS CONTRACT ENGINEER				NAME		NAME		48 Tardis Avenue		1 Haverly Street		THIS ACCEPTANCE IS FOR PROCEDURAL AND ADMINISTRATIVE PURPOSES ONLY AND DOES NOT IMPLY ANY LIABILITY ON THE PART OF THE CONSULTANT OR SANRAL		PERIODIC MAINTENANCE (RESURFACING) OF NATIONAL ROUTE 10 SECTION 10 FROM KENKENDRAAI (KM 50.30) TO GROBLERSHOOP (KM 55.59), NATIONAL ROUTE 10 SECTION 11 FROM GROBLERSHOOP (KM 5.80) TO UTOPIA (KM 15.80) AND NATIONAL ROUTE 8 SECTION 6 FROM GROBLERSHOOP (KM 0.80) TO ROOIBAND (KM 8.18)		NRA 2025/0004		DRAWING LOCATION		START		END	
SANRAL PROJECT MANAGER				Prof. Reg No.		Prof. Reg No.		P.O. Box 415		P.O. Box 415		SANRAL TYPICAL DRAWINGS		ROUTE - N10 SECTION - 10		KM 50.30		KM 55.59		KM 50.00		KM 70.00	
REV01 DEC 2024 FOR TENDER PURPOSES ONLY				Date		Date		Private Bag 910		Private Bag 910		DRAWING DESCRIPTION		ROUTE - N10 SECTION - 11		KM 00.00		KM 00.00		KM 00.00		KM 00.00	
V1 START DATE ORIGINAL VERSION				Name		Name		PO Box 415		PO Box 415		GUARDRAILS		ROUTE - N8 SECTION - 6		KM 00.00		KM 00.00		KM 00.00		KM 00.00	
No. DATE REVISION CONSULT. ENC.				Date		Date		Tel: (012) 844 6000		Tel: (012) 844 6000		SANRAL ELEMENT AND MOUNTING DETAILS SHEET 1 OF 2		CONSULTANT DRAWING		AA243300-TD-GR-01		AA243300-TD-GR-01		2025/0004-TD-GR-01		V1	

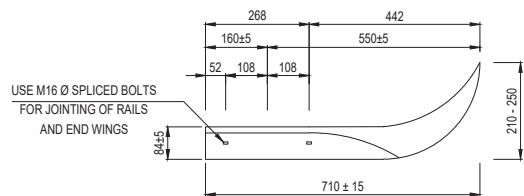


NOTE :
V-SHAPED REFLECTIVE PLATES
ATTACHED TO EACH
ALTERNATE POST- 7620 c/c.

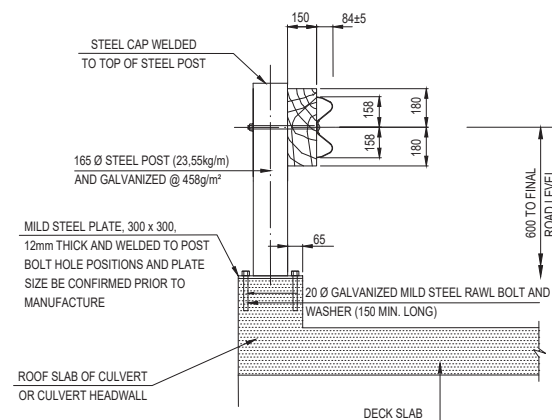
DETAIL OF GUARDRAIL REFLECTIVE PLATES
SCALE 1:4



TYPICAL BOLTS
SCALE 1:2



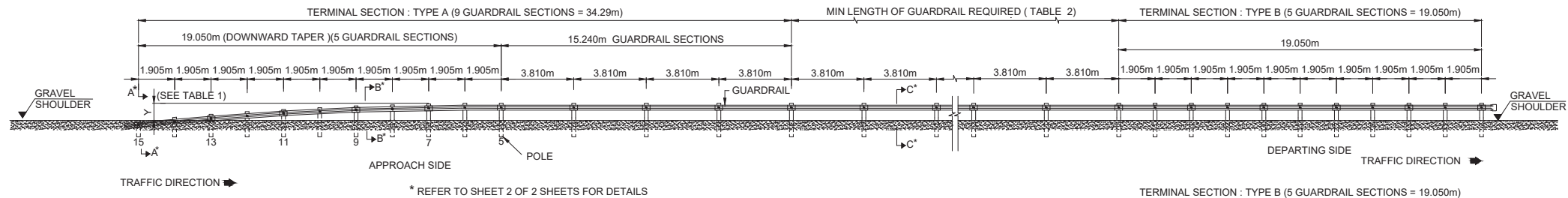
STANDARD FLARED END WING
SCALE 1:10



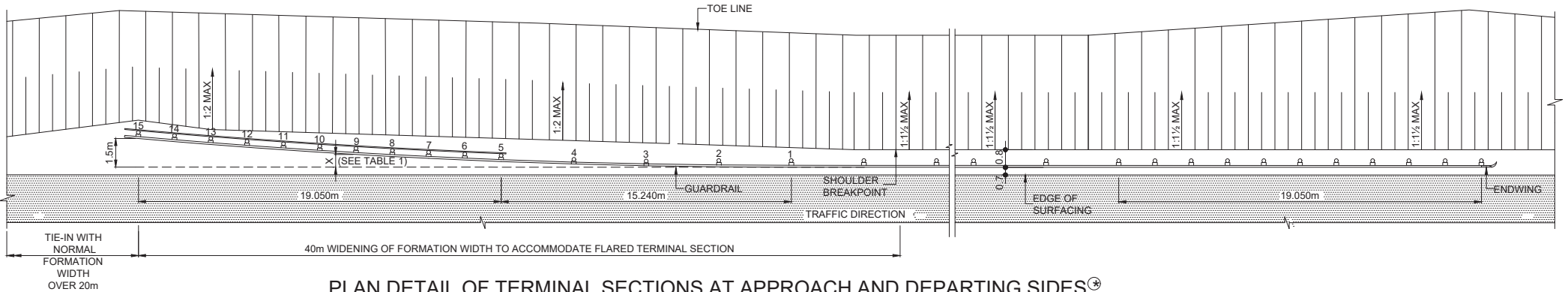
DETAIL OF STEEL GUARDRAIL POST
SCALE 1:20

FOR TENDER PURPOSES ONLY

				CONSTRUCTION RECORD				DESIGNED BY				CONSULTANT APPROVAL				HEAD OFFICE				WESTERN REGION				ACCEPTANCE				PROJECT DESCRIPTION				PROJECT NUMBER				NRA 2025/0004																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
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				Name _____				Prof. Reg No. _____				Name _____				Prof. Reg No. _____				43 Tarboeke Avenue Van der Graaf Pekaanga 7150				1 Pekaanga Street ADVENTURE HOUSE FOR PROCEEDINGS AND ADMINISTRATIVE PURPOSES ONLY PO BOX 415 PEKAANGA 7150 PRIVATE BAG 415 PEKAANGA 7150								THIS ACCEPTANCE IS FOR PROCEDURAL AND ADMINISTRATIVE REVIEW PURPOSES ONLY AND DOES NOT ATTRACT LEGAL LIABILITY FOR QUALITY OF ANY AND FORMS WHATSOEVER CASE OF FURTHER REVIEW				PERIODIC MAINTENANCE (RESURFACING) OF NATIONAL ROUTE 10 SECTION 10 FROM KEUKENDRAAI (KM 50.30) TO GROBLERSHOOP (KM 55.99), NATIONAL ROUTE 10 SECTION 11 FROM GROBLERSHOOP (KM 6.00) TO UTUTYK (KM 19.00) AND NATIONAL ROUTE 8 SECTION 6 FROM GROBLERSHOOP (KM 8.00) TO ROOSBAND (KM 8.18)				DRAWING LOCATION				START				END																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
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FRONT ELEVATION



PLAN DETAIL OF TERMINAL SECTIONS AT APPROACH AND DEPARTING SIDES

TABLE 1

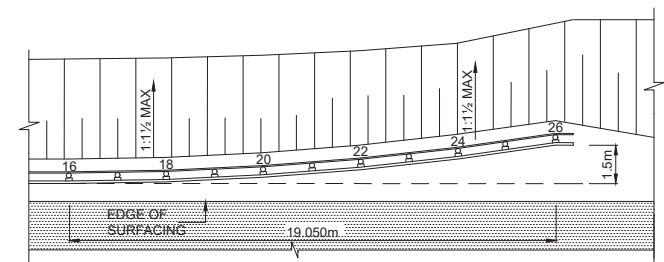
SETTING OUT POSITIONS OF GUARDRAIL POSTS				
APPROACH SIDE (34.29m)			DEPARTING SIDE (19.05m)	
POST No.	HORIZONTAL OFF-SET X(mm)	VERTICAL OFF-SET Y(mm)	POST No.	HORIZONTAL OFF-SET X(mm)
1	0	0	16	0
2	19	0	17	15
3	74	0	18	60
4	167	0	19	135
5	296	0	20	240
6	-	-	21	375
7	463	36	22	540
8	-	-	23	735
9	667	144	24	960
10	-	-	25	1215
11	907	324	26	1500
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 INSTALLED IF INSTRUCTED BY THE ENGINEER



FOR TENDER PURPOSES ONLY

CONSTRUCTION RECORD				DESIGNED BY		CONSULTANT APPROVAL		HEAD OFFICE		WESTERN REGION		ACCEPTANCE		PROJECT DESCRIPTION		PROJECT NUMBER	
WORKS CONTRACT ENGINEER				NAME		Name		48 Terellville Avenue		1 Haverigg Street		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 HOWSOEVER ARISING		PERIODIC MAINTENANCE (RESURFACING) OF NATIONAL ROUTE 19 SECTION 10 FROM KEURMENDRAAI (KM 92.30) TO GROBLERSHOOP (KM 15.50), NATIONAL ROUTE 19 SECTION 11 FROM GROBLERSHOOP (KM 6.00) TO UTUKYI (KM 75.00) AND NATIONAL ROUTE 8 SECTION 6 FROM GROBLERSHOOP (KM 6.00) TO ROOSAND (KM 8.10)		NRA 2025/0004	
SANRAL PROJECT MANAGER				CHECKED BY		Date		PO Box 415		Private Bag X159		SANRAL TYPICAL DRAWINGS		DRAWING DESCRIPTION		DRAWING LOCATION	
REV01 DEC 2024 FOR TENDER PURPOSES ONLY				NAME		Date		Pretoria 0001		7535		DETAIL OF TERMINAL SECTIONS SHEET 1 OF 2		ROUTE - N10 SECTION - 10		START	
V1 START DATE ORIGINAL VERSION				DRAWN BY		Date		South Africa		7535		GUARDRAILS		ROUTE - N10 SECTION - 11		KM 50.30	
No. DATE REVISION				NAME		Date		Tel: (012) 844 8000		Tel: (021) 957 4800		SANRAL DOCUMENT #		ROUTE - N8 SECTION - 6		KM 00.00	
CONSULT. ENG.				NAME		Date		Fax: (021) 910 1066		for CEO: SA NATIONAL ROADS AGENCY LTD		CONSULTANT DRAWING		KM 8.10		END	
												AA243300-TD-GR-03		TYPICAL DRAWING-ROADWORKS		KM 55.59	
												2025/0004-TD-GR-03				V1	



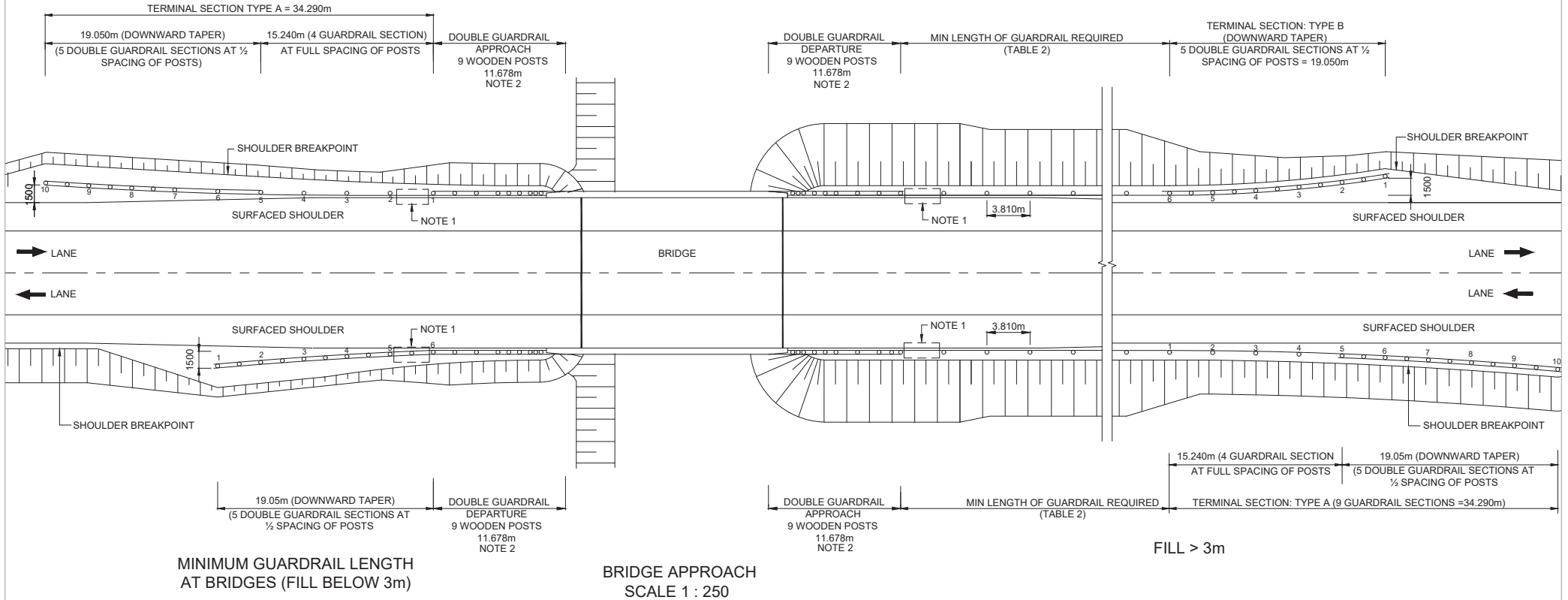
1. LENGTH OF GUARDRAIL = 4 130
2. NORMAL SPACING OF POSTS = 3 810

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.

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.

				CONSTRUCTION RECORD WORKS CONTRACT ENGINEER		DESIGNED BY		CONSULTANT APPROVAL		HEAD OFFICE				WESTERN REGION		ACCEPTANCE		PROJECT DESCRIPTION				PROJECT NUMBER		NRA 2025/0004	
				Name _____ Prof. Reg. No. _____ Date _____		NAME _____ Prof. Reg. No. _____ Date _____		Name _____ Prof. Reg. No. _____ Date _____		Tel 016 616 6166 Fax 016 616 6166 Cell 016 616 6166		1 Nanking Street Tel 016 616 6166 Fax 016 616 6166 Cell 016 616 6166		THIS ACCEPTANCE IS FOR PROCEDURAL AND ADMINISTRATIVE PURPOSES ONLY. IT DOES NOT CONSTITUTE A GUARANTEE OF THE QUALITY OF ANY WORK OR INSURANCE OR COVER FOR THE CONSTRUCTION OF THE PROJECT.		PERIODIC MAINTENANCE (RESURFACING OF NATIONAL ROUTE 10 SECTION 10 FROM KENKENDRAAM KM 30.30 TO GROBLERSHOOP KM 55.95, NATIONAL ROUTE 10 SECTION 11 FROM GROBLERSHOOP KM 6.80 TO JUTIKW (KM 75.80) AND NATIONAL ROUTE SECTION 6 FROM GROBLERSHOOP (KM 5.80) TO ROODSAND (KM 1.16))				DRAWING LOCATION		START		END	
				SANRAL PROJECT MANAGER		NAME _____		NAME _____		PO Box 615 Pretoria 0001 South Africa Tel: (012) 607 4000 Fax: (012) 607 4000		Private Bag 173 Bellefleur 7950 Tel: (017) 957 4000 Fax: (017) 957 4000		DRAWING DESCRIPTION				ROUTE - N10 SECTION - 10 ROUTE - N10 SECTION - 11 ROUTE - N8 SECTION - 6		KM 50.30 KM 00.00 KM 00.00		KM 55.99 KM 70.00 KM 18			
REV01 DEC 2024 FOR TENDER PURPOSES ONLY				SANRAL PROJECT MANAGER		NAME _____		NAME _____		PO Box 615 Pretoria 0001 South Africa Tel: (012) 607 4000 Fax: (012) 607 4000		Private Bag 173 Bellefleur 7950 Tel: (017) 957 4000 Fax: (017) 957 4000		DRAWING DESCRIPTION				ROUTE - N10 SECTION - 10 ROUTE - N10 SECTION - 11 ROUTE - N8 SECTION - 6		KM 50.30 KM 00.00 KM 00.00		KM 55.99 KM 70.00 KM 18			
V1 START DATE ORIGINAL VERSION				SANRAL PROJECT MANAGER		NAME _____		NAME _____		PO Box 615 Pretoria 0001 South Africa Tel: (012) 607 4000 Fax: (012) 607 4000		Private Bag 173 Bellefleur 7950 Tel: (017) 957 4000 Fax: (017) 957 4000		DRAWING DESCRIPTION				ROUTE - N10 SECTION - 10 ROUTE - N10 SECTION - 11 ROUTE - N8 SECTION - 6		KM 50.30 KM 00.00 KM 00.00		KM 55.99 KM 70.00 KM 18			
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V1 DATE REVISION CONSULT. ENG.				SANRAL PROJECT MANAGER		NAME _____		NAME _____		PO Box 615 Pretoria 0001 South Africa Tel: (012) 607 4000 Fax: (



MINIMUM GUARDRAIL LENGTH
AT BRIDGES (FILL BELOW 3m)

BRIDGE APPROACH
SCALE 1 : 250

TABLE 1 : SETTING OUT POSITIONS
OF GUARDRAIL POSTS

TERMINAL SECTION: TYPE A : L=34.29m			TERMINAL SECTION: TYPE B : L=19.050m		
POST No.	HORIZONTAL OFF-SET X(mm)	VERTICAL OFF-SET Y(mm)	POST No.	HORIZONTAL OFF-SET X(mm)	VERTICAL OFF-SET Y(mm)
1	0	0	6	0	0
2	19	0	5	60	36
3	74	0	4	240	144
4	167	0	3	540	324
5	296	0	2	960	576
6	463	36	1	1500	900
7	667	144			
8	907	324			
9	1185	576			

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)

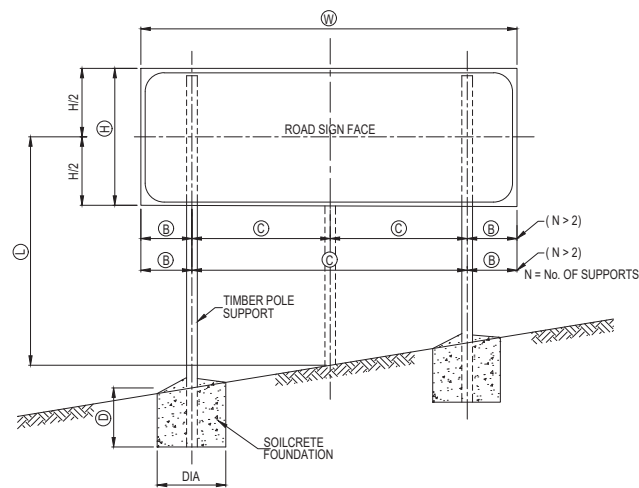
FILL > 3m

NOTES

- CLOSEST PERMISSIBLE POSITION OF CATCHPIT TO ENDBLOCK
ie. NO CATCHPIT PERMITTED BETWEEN POST No. 1 AND ENDBLOCK.
- REFER TO SANRAL TYPICAL DRAWING TD-S-P-5003-1-V1 FOR DETAILS
OF GUARDRAIL TO ENDBLOCK CONNECTION AND GUARDRAIL
APPROACH AND DEPARTURE DETAILS.
- GUARDRAIL SPACING = 3.810m.

FOR TENDER PURPOSES ONLY

				CONSTRUCTION RECORD WORKS CONTRACT ENGINEER		DESIGNED BY		CONSULTANT APPROVAL		HEAD OFFICE		WESTERN REGION		ACCEPTANCE		PROJECT DESCRIPTION		PROJECT NUMBER		NRA 2025/0004			
				Name: _____ Prof. Reg No: _____ Date: _____		Name: _____ Prof. Reg No: _____ Date: _____		Name: _____ Prof. Reg No: _____ Date: _____		48 Tamboke Avenue Val de Grace Pretoria 0184		1 Haverenga Street Oakdale Bathurst 7535		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 HOWSOEVER ARISING.		PERIODIC MAINTENANCE (RESURFACING) OF NATIONAL ROUTE 19 SECTION 10 FROM KEURMENDRAAL (KM 50.30) TO GROBLERSHOOP (KM 55.59), NATIONAL ROUTE 19 SECTION 11 FROM GROBLERSHOOP (KM 55.59) TO UTUTUK (KM 70.00) AND NATIONAL ROUTE 8 SECTION 6 FROM GROBLERSHOOP (KM 5.00) TO ROODAND (KM 5.10)		DRAWING LOCATION		START END			
				Name: _____ Prof. Reg No: _____ Date: _____		Name: _____ Prof. Reg No: _____ Date: _____		Name: _____ Prof. Reg No: _____ Date: _____		PO Box 415 Pretoria 0001 South Africa		Private Bag X15 Bathurst 7535				DRAWING DESCRIPTION		ROUTE - N10 SECTION - 10 ROUTE - N10 SECTION - 11		KM 50.30 KM 00.00		KM 55.59 KM 70.00	
				Name: _____ Prof. Reg No: _____ Date: _____		Name: _____ Prof. Reg No: _____ Date: _____		Name: _____ Prof. Reg No: _____ Date: _____		Tel: (012) 844 8000		Tel: (021) 957 4800 Fax: (021) 950 1866		for CEO: SA NATIONAL ROADS AGENCY LTD		SANRAL TYPICAL DRAWINGS GUARDRAILS - PLACING DETAILS AT BRIDGE APPROACHES AND HIGH FILL (SINGLE CARRIAGEWAY)		DRAWING TYPE		TYPICAL DRAWING-ROADWORKS			
				Name: _____ Prof. Reg No: _____ Date: _____		Name: _____ Prof. Reg No: _____ Date: _____		Name: _____ Prof. Reg No: _____ Date: _____		Tel: (012) 844 8000		Tel: (021) 957 4800 Fax: (021) 950 1866				CONSULTANT DRAWING		AA243300-TD-GR-05					
				Name: _____ Prof. Reg No: _____ Date: _____		Name: _____ Prof. Reg No: _____ Date: _____		Name: _____ Prof. Reg No: _____ Date: _____		Tel: (012) 844 8000		Tel: (021) 957 4800 Fax: (021) 950 1866				SANRAL DOCUMENT #		20250004-TD-GR-05				V1	
				Name: _____ Prof. Reg No: _____ Date: _____		Name: _____ Prof. Reg No: _____ Date: _____		Name: _____ Prof. Reg No: _____ Date: _____		Tel: (012) 844 8000		Tel: (021) 957 4800 Fax: (021) 950 1866				SCALE: AS SHOWN		SHEET 01 OF 01					
				Name: _____ Prof. Reg No: _____ Date: _____		Name: _____ Prof. Reg No: _____ Date: _____		Name: _____ Prof. Reg No: _____ Date: _____		Tel: (012) 844 8000		Tel: (021) 957 4800 Fax: (021) 950 1866											
				Name: _____ Prof. Reg No: _____ Date: _____		Name: _____ Prof. Reg No: _____ Date: _____		Name: _____ Prof. Reg No: _____ Date: _____		Tel: (012) 844 8000		Tel: (021) 957 4800 Fax: (021) 950 1866											
				Name: _____ Prof. Reg No: _____ Date: _____		Name: _____ Prof. Reg No: _____ Date: _____		Name: _____ Prof. Reg No: _____ Date: _____		Tel: (012) 844 8000		Tel: (021) 957 4800 Fax: (021) 950 1866											
				Name: _____ Prof. Reg No: _____ Date: _____		Name: _____ Prof. Reg No: _____ Date: _____		Name: _____ Prof. Reg No: _____ Date: _____		Tel: (012) 844 8000		Tel: (021) 957 4800 Fax: (021) 950 1866											
				Name: _____ Prof. Reg No: _____ Date: _____		Name: _____ Prof. Reg No: _____ Date: _____		Name: _____ Prof. Reg No: _____ Date: _____		Tel: (012) 844 8000		Tel: (021) 957 4800 Fax: (021) 950 1866											
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ELEVATION

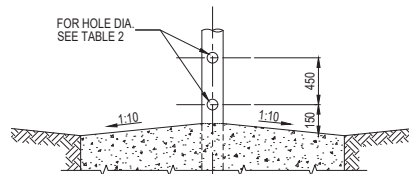
FREE STANDING SUPPORT

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

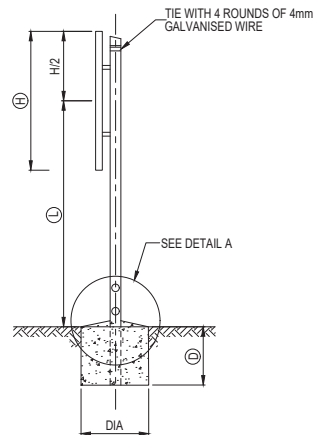


DETAIL A

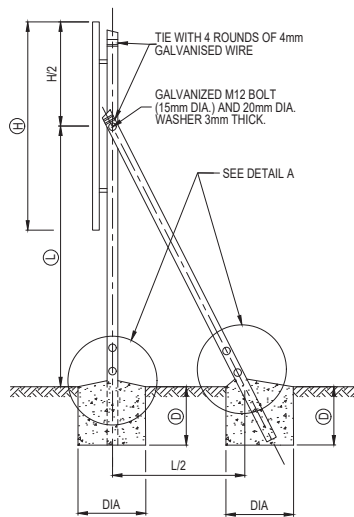
SCALE - N.T.S

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



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 "ANALITH 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.

FOR TENDER PURPOSES ONLY

				CONSTRUCTION RECORD (WORKS CONTRACT ENGINEER)		DESIGNED BY		CONSULTANT APPROVAL		HEAD OFFICE		WESTERN REGION		ACCEPTANCE		PROJECT DESCRIPTION		PROJECT NUMBER		NRA 2025/0004	
				Name: _____ Prof. Reg No: _____ Date: _____		NAME _____ Prof. Reg No _____ Date _____		Name _____ Prof. Reg No _____ Date _____		48 Tumbula Avenue Val de Grace Pretoria 0184		1 Hlanga Street Culbake Durban 7030		THIS ACCEPTANCE IS FOR PRELIMINARY AND ADMINISTRATIVE REVIEW PURPOSES ONLY AND DOES NOT ATTRACT LEGAL LIABILITY OR LIABILITY OF ANY KIND FOR OVERSIGHT OR CARE OF THE WORKING DRAWING		PERIODIC MAINTENANCE (RESURFACING) OF NATIONAL ROUTE 19 SECTION 10 FROM KEIKENDRAAI (KM 58.36) TO GROBLERSHOOP (KM 55.99), NATIONAL ROUTE 19 SECTION 11 FROM GROBLERSHOOP (KM 6.86) TO UTKYK (KM 75.86) AND NATIONAL ROUTE 6 SECTION 6 FROM GROBLERSHOOP (KM 6.86) TO ROOSBAND (KM 8.18)		DRAWING LOCATION		START END	
				SANRAL PROJECT MANAGER		CHECKED BY		DRAWN BY		PO Box 415 Pretoria 0001 South Africa Tels: (011) 567 4800 Fax: (011) 510 1585		Private Bag 519 Durban 7030		DRAWING DESCRIPTION SANRAL TYPICAL DRAWINGS ROAD SIGNS SUPPORTS AND FOUNDATIONS GENERAL DETAILS SHEET 1 OF 2		ROUTE - N10 SECTION - 10 ROUTE - N10 SECTION - 11 ROUTE - N8 SECTION - 6		KM 50.30 KM 00.00 KM 00.00		KM 55.99 KM 78.00 KM 10.18	
REV01	DEC 2024	FOR TENDER PURPOSES ONLY																			
V1	START DATE	ORIGINAL VERSION																			
V1	DATE	REVISION		CONSULT. ENGS.																	
				Name: _____ Date: _____		NAME _____ Date: _____		NAME _____ Date: _____						for CEO: SA NATIONAL ROADS AGENCY LTD Date: _____		DRAWING TYPE TYPICAL DRAWING ROADWORKS		CONSULTANT DRAWING SANRAL DOCUMENT #		AA243302-DR-S-01 2025/0004-DR-S-01	

ROAD SIGNS
DETERMINATION OF SUPPORTS AND FOUNDATIONS

NOTE:

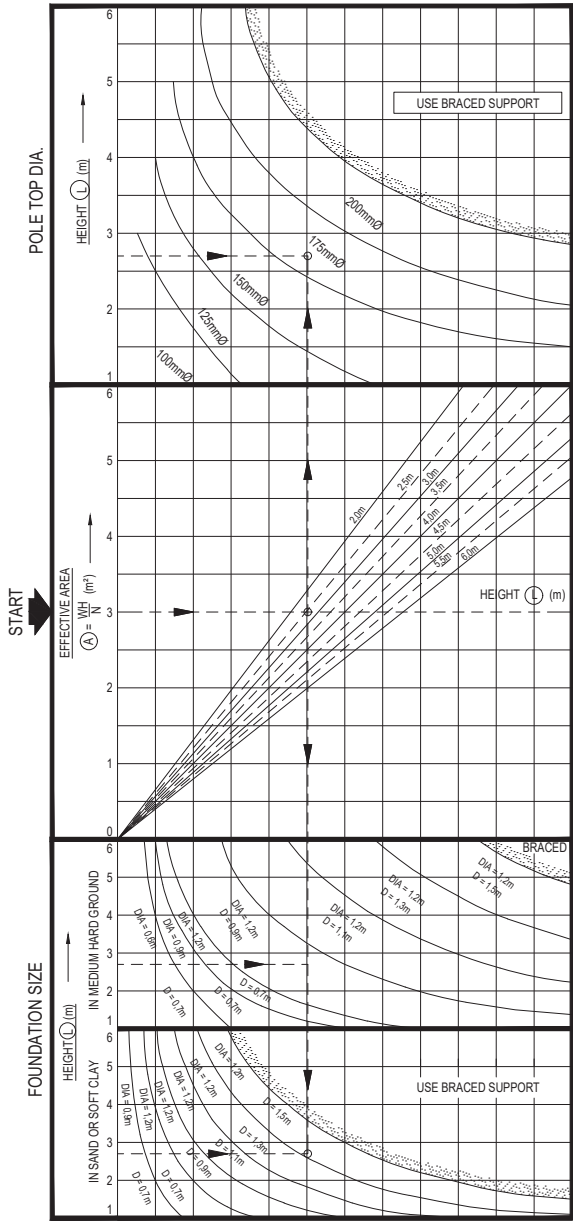
1. REFERENCE PLANS
THIS PLAN FORMS PART OF AND MUST BE READ IN CONJUNCTION WITH DRAWING TD-RS-001
2. DESIGN LOADING
NOMINAL WIND LOAD ACTING ON THE SIGN FACE HAS BEEN ASSUMED AS FOLLOWS:-
AVERAGE SIGN HEIGHT $L < 2m$: 0,75 kPa
AVERAGE SIGN HEIGHT $L > 6m$: 1,25 kPa
WIND LOADING IS ASSUMED TO VARY LINEARLY 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 $A = W \times H$ (m²) AND AVERAGE HEIGHT L (m)
 N
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)
 $W = 5m$ $H = 1,8m$ $L = 2,7m$

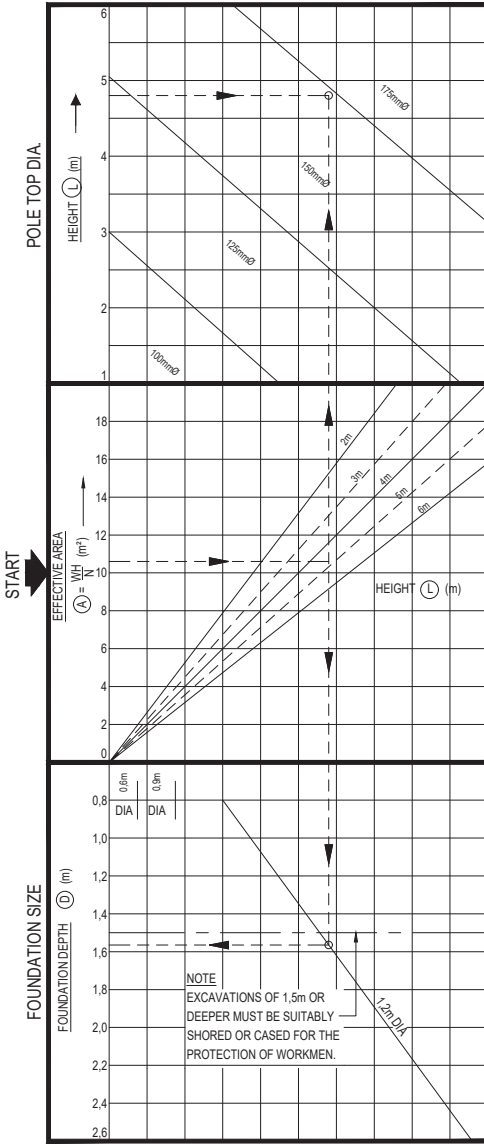
FROM TABLE 1
 $N = 3m$ $B = 0,830m$ $C = 1,670m$
 $A = \frac{5 \times 1,8}{3} = 3,0m^2$

FROM DESIGN CHART 1
FOR $A = 3,0m^2$ 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.)



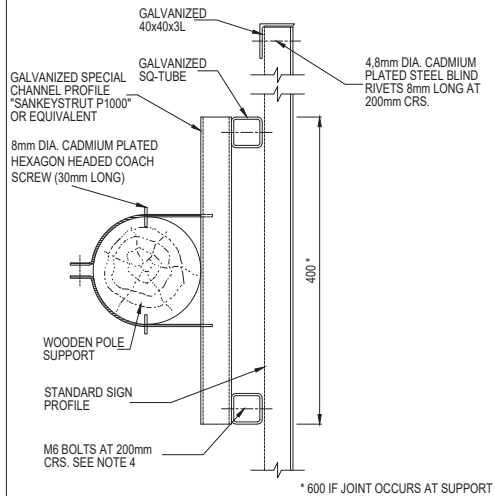
DESIGN CHART 1
FREE STANDING SUPPORT
SCALE - N.T.S



DESIGN CHART 2
BRACED SUPPORT
SCALE - N.T.S

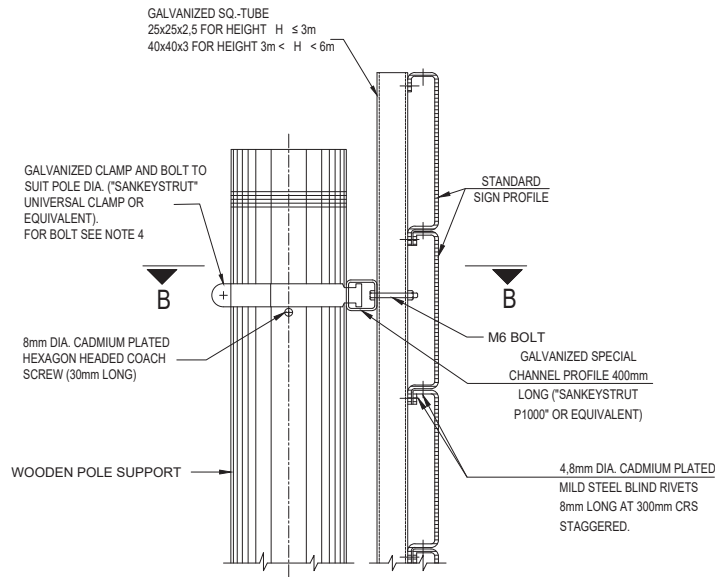
FOR TENDER PURPOSES ONLY

CONSTRUCTION RECORD				DESIGNED BY		CONSULTANT APPROVAL		HEAD OFFICE		WESTERN REGION		ACCEPTANCE		PROJECT DESCRIPTION		PROJECT NUMBER		DRAWING DESCRIPTION	
WORKS CONTRACT ENGINEER				NAME		Name		48 Tumbulo Avenue Val de Grace Pretoria 0184		1 Havelock Street Cape Town 7801		THIS ACCEPTANCE IS FOR PROFESSIONAL AND ADMINISTRATIVE REVIEW PURPOSES ONLY AND DOES NOT IMPLY LEGAL LIABILITY OR LIABILITY OF ANY KIND FOR UNANTICIPATED CHANGES OR OMISSIONS.		PERIODIC MAINTENANCE (RESURFACING) OF NATIONAL ROUTE 10 SECTION 10 FROM NEUKENBOM (KM 50,30) TO GROBLERHOOP (KM 55,56), NATIONAL ROUTE 10 SECTION 11 FROM GROBLERHOOP (KM 55,56) TO UTUKUY (KM 70,00) AND NATIONAL ROUTE 8 SECTION 6 FROM GROBLERHOOP (KM 55,56) TO ROOSAND (KM 8,18)		NRA 2025/0004		DRAWING DESCRIPTION	
SANRAL PROJECT MANAGER				CHECKED BY		Date		Private Bag 415 Pretoria 0184		Private Bag 415 Cape Town 7801		FOR CEO: SA NATIONAL ROADS AGENCY LTD		ROUTE - N10 SECTION - 10 ROUTE - N10 SECTION - 11 ROUTE - N8 SECTION - 6		START		SANRAL TYPICAL DRAWINGS	
NAME				DRAWN BY		THE ABOVE SIGNATORY CERTIFIES THAT THE DESIGNER HAS REVIEWED THE DESIGN AND APPROVED THE DESIGN.		PO Box 415 Pretoria 0184 South Africa Tel: (012) 644 8000		Tel: (021) 957 4800 Fax: (021) 957 1988		ROAD SIGNS		KM 50,30 KM 00,00 KM 55,56 KM 8,18		END		ROADWORKS	
DATE				CONSULT. ENG.		DATE		DATE		DATE		DATE		TYPICAL DRAWING WORKS		DRAWING TYPE		CONSULTANT DRAWING	
REVISION				NAME		NAME		PO Box 415 Pretoria 0184 South Africa Tel: (012) 644 8000		PO Box 415 Cape Town 7801 Tel: (021) 957 4800 Fax: (021) 957 1988		DATE		SUPPORTS AND FOUNDATION GENERAL DETAILS SHEET 2 OF 2		2025/0004-TD-RS-02		SANRAL DOCUMENT #	
REV01 DEC 2024 FOR TENDER PURPOSES ONLY				DATE		DATE		DATE		DATE		DATE		SCALE: AS SHOWN		SHEET 01 OF 01		V1	



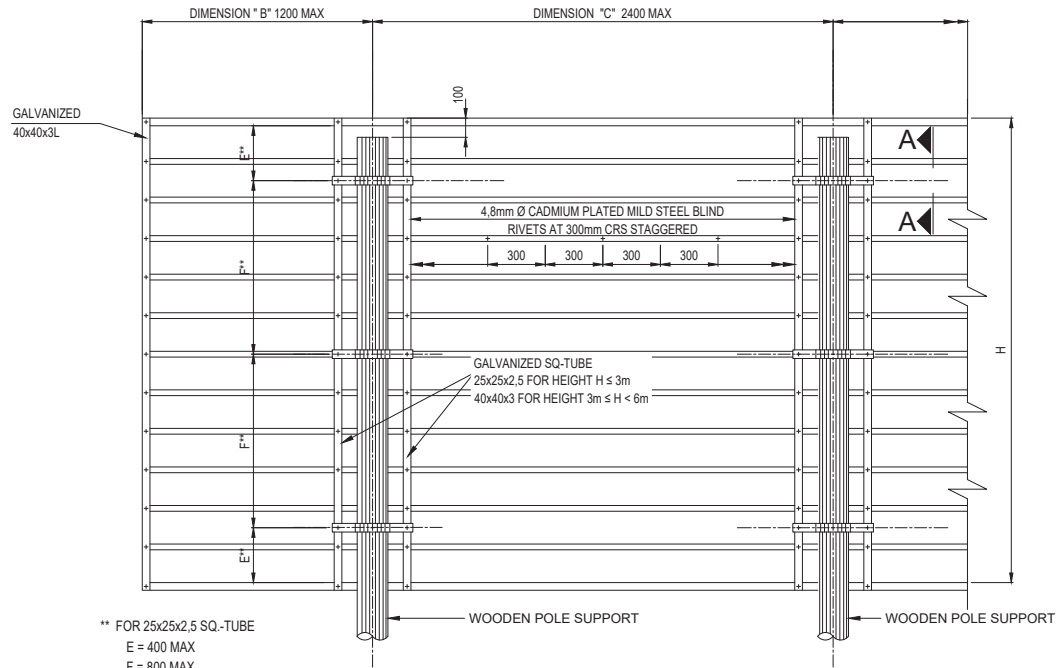
SECTION B - B

SCALE - 1 : 5



ELEVATION A-A

SCALE 1:5



REAR ELEVATION

SCALE 1:20

NOTES :

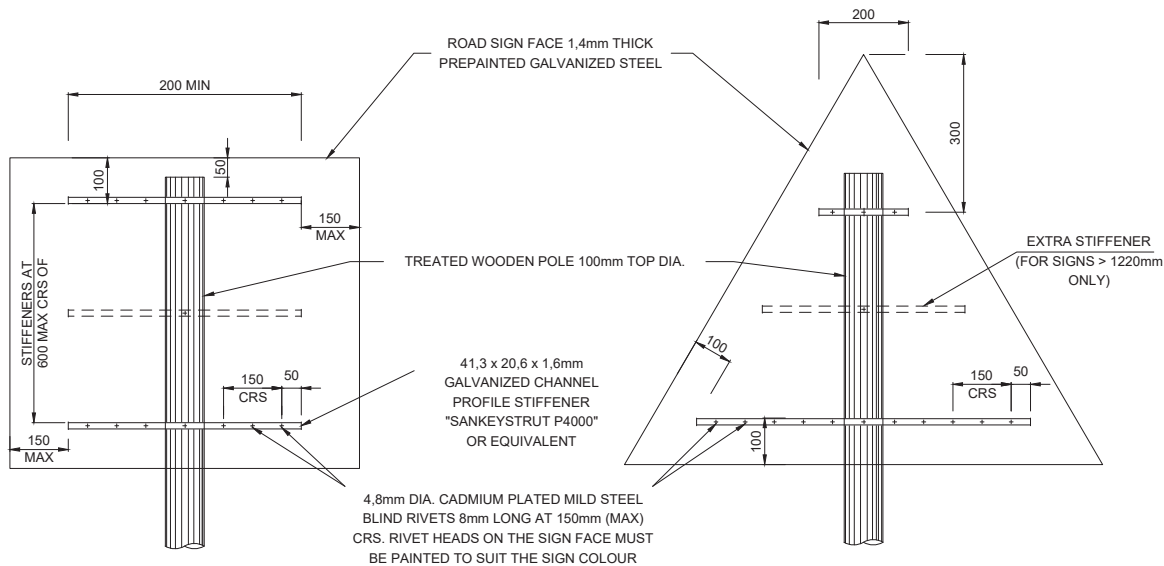
THE ROAD SIGN FACES SHALL BE MANUFACTURED AND ERECTED IN ACCORDANCE WITH THE FOLLOWING REQUIREMENTS :

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.

KM 0.00
TYPICAL DRAWING - ROADWORKS
TD-R-RS-100

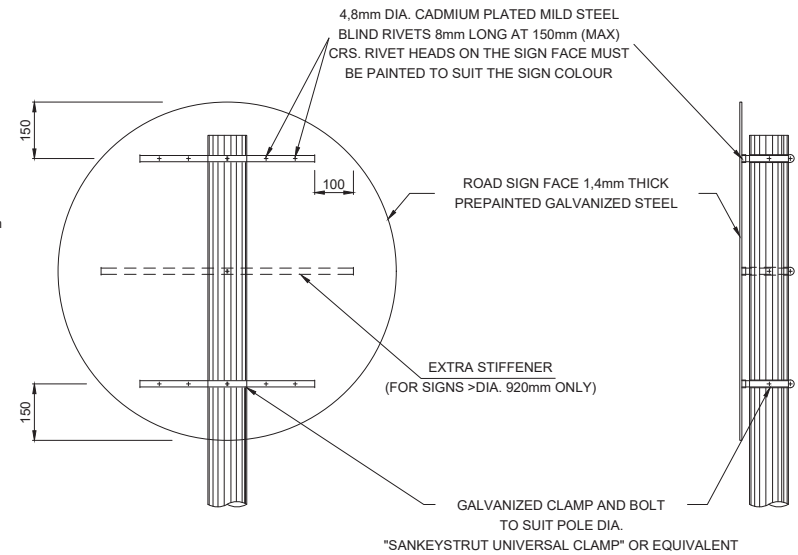
FOR TENDER PURPOSES ONLY

CONSTRUCTION RECORD				DESIGNED BY		CONSULTANT APPROVAL		HEAD OFFICE		WESTERN REGION		ACCEPTANCE		PROJECT DESCRIPTION		PROJECT NUMBER	
WORKS CONTRACT ENGINEER				NAME		Name		48 Tumbula Avenue		1 Hanning Street		THIS ACCEPTANCE IS FOR PROCEDURAL AND ADMINISTRATIVE REVIEW PURPOSES ONLY AND DOES NOT ATTRACT LEGAL LIABILITY OR LIABILITY OF ANY ROAD FORM MANUFACTURER OR CONTRACTOR.		PERIODIC MAINTENANCE (RESURFACING) OF NATIONAL ROUTE 10 SECTION 10 FROM KEIKENBURAI (KM 50.30) TO GROBLERSHOOP (KM 55.59), NATIONAL ROUTE 10 SECTION 11 FROM GROBLERSHOOP (KM 55.59) TO UITYIK (KM 75.00) AND NATIONAL ROUTE 10 SECTION 6 FROM GROBLERSHOOP (KM 55.59) TO ROOSBAND (KM 8.18)		NRA 2025/0004	
Name				Prof. Reg. No. :		Date		Val de Grace		Odendaal		DRAWING DESCRIPTION		DRAWING LOCATION		START	
Date				CHECKED BY		Date		Pretoria		Bakula		SANRAL TYPICAL DRAWINGS		ROUTE - N10 SECTION - 10		KM 50.30	
SANRAL PROJECT MANAGER				NAME		Date		Private Bag 1719		Bakula		ROAD SIGNS		ROUTE - N10 SECTION - 11		KM 55.59	
Name				DRAWN BY		Date		PO Box 415		Private Bag 1719		DETAIL OF ROAD SIGN FACE SHEET 1 OF 2		ROUTE - N8 SECTION - 6		KM 00.00	
Date				NAME		Date		Pretoria 0001		Bakula		CONSULTANT DRAWING		TYPICAL DRAWING - ROADWORKS		KM 8.18	
REVISION				NAME		Date		South Africa		Tumbula		SANRAL DOCUMENT #		AA243300-TD-RS-03		V1	
CONSULT. ENG.				NAME		Date		Tel: (012) 844 8000		Tel: (021) 927 4600		SCALE: AS SHOWN		SHEET 01 OF 01		2025/0004-TD-RS-03	
REV01 DEC 2024 FOR TENDER PURPOSES ONLY				NAME		Date		Fax: (021) 910 560		Tel: (021) 927 4600		SCALE: AS SHOWN		SHEET 01 OF 01		2025/0004-TD-RS-03	
No. DATE				NAME		Date		Fax: (021) 910 560		Tel: (021) 927 4600		SCALE: AS SHOWN		SHEET 01 OF 01		2025/0004-TD-RS-03	
REVISION				NAME		Date		Fax: (021) 910 560		Tel: (021) 927 4600		SCALE: AS SHOWN		SHEET 01 OF 01		2025/0004-TD-RS-03	
CONSULT. ENG.				NAME		Date		Fax: (021) 910 560		Tel: (021) 927 4600		SCALE: AS SHOWN		SHEET 01 OF 01		2025/0004-TD-RS-03	



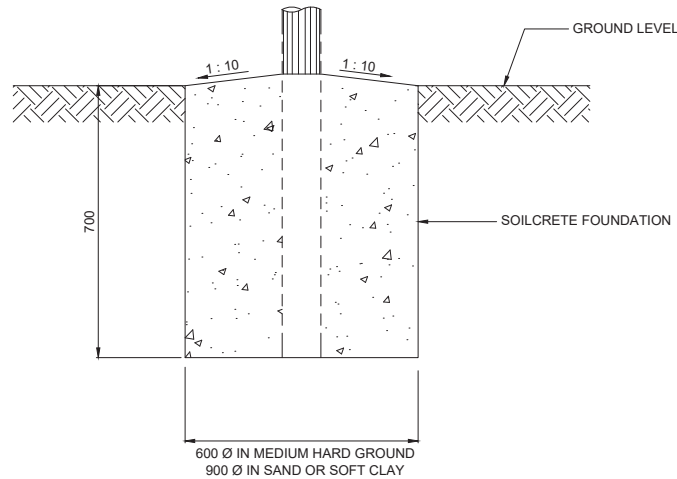
REAR ELEVATION

REAR ELEVATION



REAR ELEVATION

TYPICAL SIDE ELEVATION



TYPICAL FOUNDATION

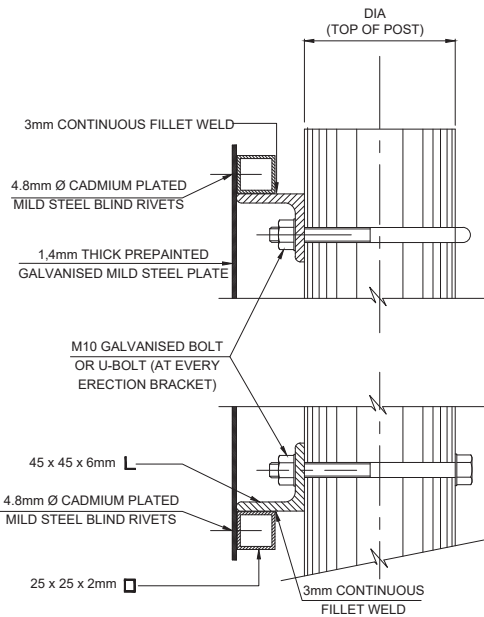
NOTES :

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.

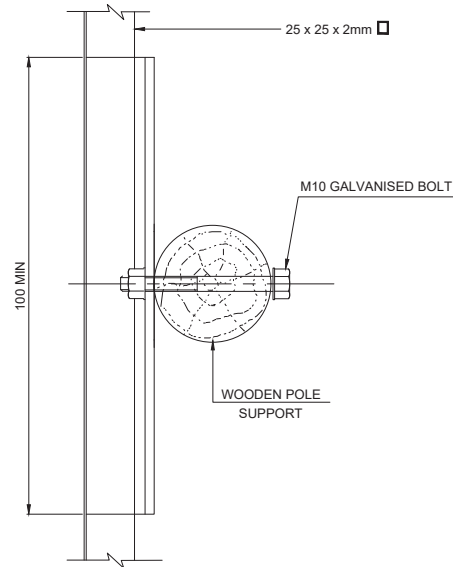
FOR TENDER PURPOSES ONLY

				CONSTRUCTION RECORD		DESIGNED BY		CONSULTANT APPROVAL		HEAD OFFICE		WESTERN REGION		ACCEPTANCE		PROJECT DESCRIPTION		PROJECT NUMBER		NRA 2025/0004			
				WORKS CONTRACT ENGINEER		NAME		NAME		48 Tambora Avenue Pretoria Private Bag 7530 Date		1 Havenga Street Pretoria Private Bag 415 Date		THIS ACCEPTANCE IS FOR PROCEDURAL AND ADMINISTRATIVE REVIEW PURPOSES ONLY AND DOES NOT ATTRACT LEGAL LIABILITY OR LIABILITY OF ANY KIND FROM WHATEVER CAUSE OR HOWEVER ARISING		PERIODIC MAINTENANCE (RESURFACING) OF NATIONAL ROUTE 10 SECTION 10 FROM KEUKENDRAAI (KM 55.35) TO GROBLERSHOOP (KM 55.55), NATIONAL ROUTE 10 SECTION 11 FROM GROBLERSHOOP (KM 55.55) TO UTUKU (KM 70.00) AND NATIONAL ROUTE 6 SECTION 6 FROM GROBLERSHOOP (KM 55.55) TO ROOSDAM (KM 8.18)		DRAWING LOCATION		START		END	
				NAME		Prof. Reg No.		Prof. Reg No.		7530		Private Bag 415 Pretoria Date				SANRAL TYPICAL DRAWINGS		ROUTE - N10 SECTION - 10		KM 50.30		KM 55.59	
				Date		CHECKED BY		CHECKED BY		7530						DRAWING DESCRIPTION		ROUTE - N10 SECTION - 11		KM 00.00		KM 70.00	
				SANRAL PROJECT MANAGER		NAME		NAME		7530						SANRAL TYPICAL DRAWINGS		ROUTE - N8 SECTION - 6		KM 00.00		KM 1.18	
						THE ABOVE DECLARATION CERTIFIES THAT THE DESIGNER AND CHECKER HAVE CONSENTED TO THEIR NAMES BEING INSERTED ON THIS DRAWING AND THAT THEY HAVE REVIEWED AND APPROVED THE DRAWING		THE ABOVE DECLARATION CERTIFIES THAT THE DESIGNER AND CHECKER HAVE CONSENTED TO THEIR NAMES BEING INSERTED ON THIS DRAWING AND THAT THEY HAVE REVIEWED AND APPROVED THE DRAWING		PO Box 415 Pretoria South Africa Date		PO Box 415 Pretoria South Africa Date		FOR CEO & NATIONAL ROADS AGENCY LTD		ROAD SIGNS		DRAWING TYPE		TYPICAL DRAWING-ROADWORKS			
						DRAWN BY		DRAWN BY		(021) 864 8000		(021) 864 8000				SMALLER ROAD SIGNS DETAIL		CONSULTANT DRAWING		AAS3300-TR-SG-05			
REV/1				DEC 2024		FOR TENDER PURPOSES ONLY		ORIGINAL VERSION								SCALE: AS SHOWN		SHEET 01 OF 01		SANRAL DOCUMENT #		20250004-TR-SG-05	
V1				START DATE																			
N1				DATE		REVISION		CONSULT. ENG.															
								</															



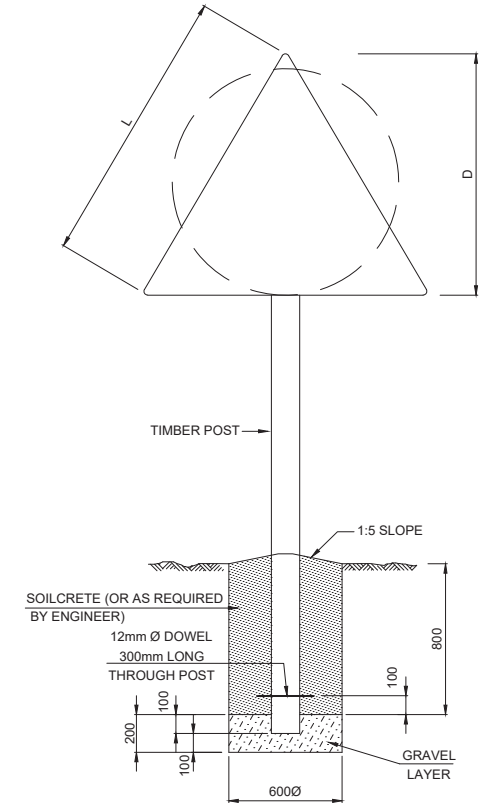
SIDE ELEVATION

SCALE 1 : 2,5



SIDE ELEVATION

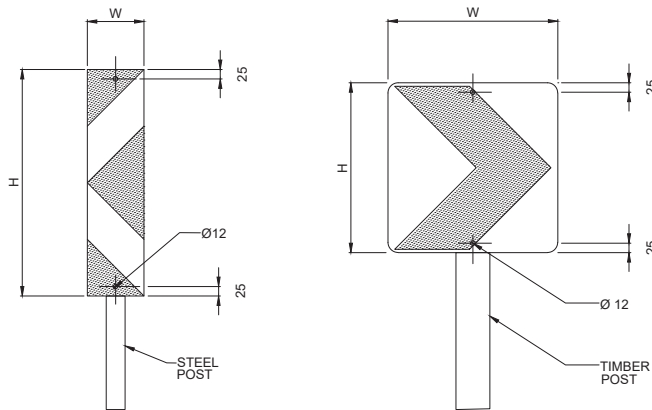
SCALE 1 : 2



FOUNDATION DETAIL

L ≤ 1200 AND D ≤ 900

SCALE 1 : 20



HAZARD MARKER SIGN

HAZARD MARKER SIGN

MOUNTING HOLES FOR HAZARD MARKER
SIGNS WITHOUT FRAMEWORK

SCALE 1 : 10

HAZARD MARKER SIGNS		
	HAZARD MARKER SIGN	HAZARD MARKER SIGN
	W401-RIGHT W402-LEFT	W405-RIGHT W406-LEFT
OPERATING SPEED (km/h)	SIZE H x W (mm)	SIZE H x W (mm)
120	800 x 200	600 x 600
100	800 x 200	600 x 600
80	600 x 150	450 x 450
60	600 x 150	450 x 450

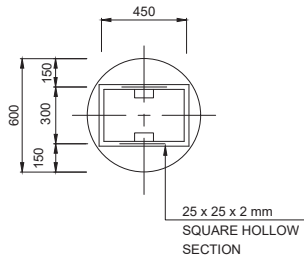
NOTES :

THE ROAD SIGN FACES SHALL BE MANUFACTURED AND ERECTED IN ACCORDANCE WITH THE FOLLOWING REQUIREMENTS :

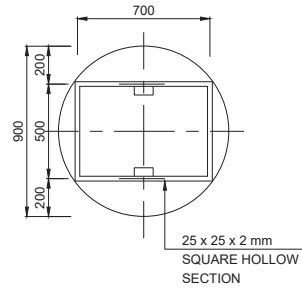
- STRUCTURAL STEEL SECTIONS SHALL BE MILD STEEL CONFORMING TO THE REQUIREMENTS OF SANS 1431, GRADE 300W. RECTANGULAR HOLLOW SECTION AND SPECIAL CHANNEL PROFILES MAY BE COLD FORMED OF COMMERCIAL QUALITY MILD STEEL. ALL SECTIONS SHALL BE HOT-DIP GALVANISED IN ACCORDANCE WITH THE REQUIREMENTS OF SANS 121 : 2000 (ISO 1461 : 1999).
- TIMBER POLE SUPPORTS SHALL COMPLY WITH THE REQUIREMENTS SHOWN ON DRAWING TD-R-RS-001 & TD-R-RS-002
- 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).
- BLIND RIVETS SHALL BE 4.8mm DIA CADMIUM PLATED MILD STEEL.

FOR TENDER PURPOSES ONLY

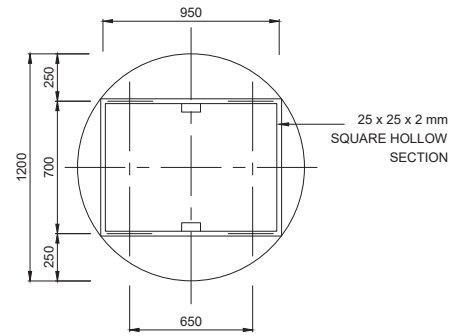
CONSTRUCTION RECORD				DESIGNED BY		CONSULTANT APPROVAL		HEAD OFFICE		WESTERN REGION		ACCEPTANCE		PROJECT DESCRIPTION		PROJECT NUMBER		DRAWING LOCATION		START		END	
WORKS CONTRACT ENGINEER				NAME		Name		48 Tembisa Avenue New Brixton Pretoria 0184		1 Havana Street Cape Town Bathurst		THIS ACCEPTANCE IS FOR PROCEDURAL AND ADMINISTRATIVE REVIEW PURPOSES ONLY AND DOES NOT ATTRACT LEGAL LIABILITY OF ANY KIND FORM WHATEVER CAUSE OR HOWEVER ARISING		PERIODIC MAINTENANCE (RESURFACING) OF NATIONAL ROUTE 10 SECTION 10 FROM KEUKENDRAAI (KM 50.30) TO GROBLERSHOOP (KM 55.59), NATIONAL ROUTE 10 SECTION 11 FROM GROBLERSHOOP (KM 55.59) TO UTUKY (KM 70.00) AND NATIONAL ROUTE 8 SECTION 6 FROM GROBLERSHOOP (KM 6.00) TO ROOSDAM (KM 8.18)		NRA 2025/0004		ROUTE - N10 SECTION - 10		KM 50.30		KM 55.59	
SANRAL PROJECT MANAGER				CHECKED BY		Date		Private Bag 9119 Bathurst		Private Bag X719 Bathurst				DRAWING DESCRIPTION				ROUTE - N10 SECTION - 11		KM 00.00		KM 70.00	
NAME				NAME		THE ABOVE SIGNATORY CERTIFIES THAT THE DESIGNER AND CHECKER HAVE CONSENTED TO THEIR NAMES BEING INSERTED ON THIS DRAWING AND THAT THEY HAVE BEEN AND APPROVED THE DRAWING.		PO Box 415 Pretoria 0001 South Africa Tel: (012) 644 8000		PO Box 415 Pretoria 0001 South Africa Tel: (021) 957 4800 Fax: (021) 910 1988		SA NED: SA NATIONAL ROADS AGENCY LTD Date: (2025)06-01		SANRAL TYPICAL DRAWINGS		TYPICAL DRAWING: ROADWORKS		ROUTE - N8 SECTION - 6		KM 00.00		KM 70.00	
DATE				DATE		DATE		South Africa		Tembisa		DATE		SMALLER ROAD SIGNS ATTACHMENT AND FIXING DETAILS SHEET 1 OF 2		CONSULTANT DRAWING		ROUTE - N8 SECTION - 6		KM 00.00		KM 70.00	
REVISION				REVISION		REVISION		South Africa		Tembisa		DATE		SMALLER ROAD SIGNS ATTACHMENT AND FIXING DETAILS SHEET 1 OF 2		SANRAL DOCUMENT #		ROUTE - N8 SECTION - 6		KM 00.00		KM 70.00	
No.				No.		No.		Tel: (012) 644 8000		Tel: (021) 957 4800		DATE		SMALLER ROAD SIGNS ATTACHMENT AND FIXING DETAILS SHEET 1 OF 2		SANRAL DOCUMENT #		ROUTE - N8 SECTION - 6		KM 00.00		KM 70.00	
DATE				DATE		DATE		Fax: (021) 910 1988		Fax: (021) 910 1988		DATE		SMALLER ROAD SIGNS ATTACHMENT AND FIXING DETAILS SHEET 1 OF 2		SANRAL DOCUMENT #		ROUTE - N8 SECTION - 6		KM 00.00		KM 70.00	
REVISION				REVISION		REVISION		South Africa		Tembisa		DATE		SMALLER ROAD SIGNS ATTACHMENT AND FIXING DETAILS SHEET 1 OF 2		SANRAL DOCUMENT #		ROUTE - N8 SECTION - 6		KM 00.00		KM 70.00	
No.				No.		No.		Tel: (012) 644 8000		Tel: (021) 957 4800		DATE		SMALLER ROAD SIGNS ATTACHMENT AND FIXING DETAILS SHEET 1 OF 2		SANRAL DOCUMENT #		ROUTE - N8 SECTION - 6		KM 00.00		KM 70.00	
DATE				DATE		DATE		Fax: (021) 910 1988		Fax: (021) 910 1988		DATE		SMALLER ROAD SIGNS ATTACHMENT AND FIXING DETAILS SHEET 1 OF 2		SANRAL DOCUMENT #		ROUTE - N8 SECTION - 6		KM 00.00		KM 70.00	
REVISION				REVISION		REVISION		South Africa		Tembisa		DATE		SMALLER ROAD SIGNS ATTACHMENT AND FIXING DETAILS SHEET 1 OF 2		SANRAL DOCUMENT #		ROUTE - N8 SECTION - 6		KM 00.00		KM 70.00	
No.				No.		No.		Tel: (012) 644 8000		Tel: (021) 957 4800		DATE		SMALLER ROAD SIGNS ATTACHMENT AND FIXING DETAILS SHEET 1 OF 2		SANRAL DOCUMENT #		ROUTE - N8 SECTION - 6		KM 00.00		KM 70.00	
DATE				DATE		DATE		Fax: (021) 910 1988		Fax: (021) 910 1988		DATE		SMALLER ROAD SIGNS ATTACHMENT AND FIXING DETAILS SHEET 1 OF 2		SANRAL DOCUMENT #		ROUTE - N8 SECTION - 6		KM 00.00		KM 70.00	
REVISION				REVISION		REVISION		South Africa		Tembisa		DATE		SMALLER ROAD SIGNS ATTACHMENT AND FIXING DETAILS SHEET 1 OF 2		SANRAL DOCUMENT #		ROUTE - N8 SECTION - 6		KM 00.00		KM 70.00	
No.				No.		No.		Tel: (012) 644 8000		Tel: (021) 957 4800		DATE		SMALLER ROAD SIGNS ATTACHMENT AND FIXING DETAILS SHEET 1 OF 2		SANRAL DOCUMENT #		ROUTE - N8 SECTION - 6		KM 00.00		KM 70.00	
DATE				DATE		DATE		Fax: (021) 910 1988		Fax: (021) 910 1988		DATE		SMALLER ROAD SIGNS ATTACHMENT AND FIXING DETAILS SHEET 1 OF 2		SANRAL DOCUMENT #		ROUTE - N8 SECTION - 6		KM 00.00		KM 70.00	
REVISION				REVISION		REVISION		South Africa		Tembisa		DATE		SMALLER ROAD SIGNS ATTACHMENT AND FIXING DETAILS SHEET 1 OF 2		SANRAL DOCUMENT #		ROUTE - N8 SECTION - 6		KM 00.00		KM 70.00	
No.				No.		No.		Tel: (012) 644 8000		Tel: (021) 957 4800		DATE		SMALLER ROAD SIGNS ATTACHMENT AND FIXING DETAILS SHEET 1 OF 2		SANRAL DOCUMENT #		ROUTE - N8 SECTION - 6		KM 00.00		KM 70.00	
DATE				DATE		DATE		Fax: (021) 910 1988		Fax: (021) 910 1988		DATE		SMALLER ROAD SIGNS ATTACHMENT AND FIXING DETAILS SHEET 1 OF 2		SANRAL DOCUMENT #		ROUTE - N8 SECTION - 6		KM 00.00		KM 70.00	
REVISION				REVISION		REVISION		South Africa		Tembisa		DATE		SMALLER ROAD SIGNS ATTACHMENT AND FIXING DETAILS SHEET 1 OF 2		SANRAL DOCUMENT #		ROUTE - N8 SECTION - 6		KM 00.00		KM 70.00	
No.				No.		No.		Tel: (012) 644 8000		Tel: (021) 957 4800		DATE		SMALLER ROAD SIGNS ATTACHMENT AND FIXING DETAILS SHEET 1 OF 2		SANRAL DOCUMENT #		ROUTE - N8 SECTION - 6		KM 00.00		KM 70.00	
DATE				DATE		DATE		Fax: (021) 910 1988		Fax: (021) 910 1988		DATE		SMALLER ROAD SIGNS ATTACHMENT AND FIXING DETAILS SHEET 1 OF 2		SANRAL DOCUMENT #		ROUTE - N8 SECTION - 6		KM 00.00		KM 70.00	
REVISION				REVISION		REVISION		South Africa		Tembisa		DATE		SMALLER ROAD SIGNS ATTACHMENT AND FIXING DETAILS SHEET 1 OF 2		SANRAL DOCUMENT #		ROUTE - N8 SECTION - 6		KM 00.00		KM 70.00	
No.				No.		No.		Tel: (012) 644 8000		Tel: (021) 957 4800		DATE		SMALLER ROAD SIGNS ATTACHMENT AND FIXING DETAILS SHEET 1 OF 2		SANRAL DOCUMENT #		ROUTE - N8 SECTION - 6		KM 00.00		KM 70.00	
DATE				DATE		DATE		Fax: (021) 910 1988		Fax: (021) 910 1988		DATE		SMALLER ROAD SIGNS ATTACHMENT AND FIXING DETAILS SHEET 1 OF 2		SANRAL DOCUMENT #		ROUTE - N8 SECTION - 6		KM 00.00		KM 70.00	
REVISION				REVISION		REVISION		South Africa		Tembisa		DATE		SMALLER ROAD SIGNS ATTACHMENT AND FIXING DETAILS SHEET 1 OF 2		SANRAL DOCUMENT #		ROUTE - N8 SECTION - 6		KM 00.00		KM 70.00	
No.				No.		No.		Tel: (012) 644 8000		Tel: (021) 957 4800		DATE		SMALLER ROAD SIGNS ATTACHMENT AND FIXING DETAILS SHEET 1 OF 2		SANRAL DOCUMENT #		ROUTE - N8 SECTION - 6		KM 00.00		KM 70.00	
DATE				DATE		DATE		Fax: (021) 910 1988		Fax: (021) 910 1988		DATE		SMALLER ROAD SIGNS ATTACHMENT AND FIXING DETAILS SHEET 1 OF 2		SANRAL DOCUMENT #		ROUTE - N8 SECTION - 6		KM 00.00		KM 70.00	
REVISION				REVISION		REVISION		South Africa		Tembisa		DATE		SMALLER ROAD SIGNS ATTACHMENT AND FIXING DETAILS SHEET 1 OF 2		SANRAL DOCUMENT #		ROUTE - N8 SECTION - 6		KM 00.00		KM 70.00	
No.				No.		No.		Tel: (012) 644 8000		Tel: (021) 957 4800		DATE		SMALLER ROAD SIGNS ATTACHMENT AND FIXING DETAILS SHEET 1 OF 2		SANRAL DOCUMENT #		ROUTE - N8 SECTION - 6		KM 00.00		KM 70.00	
DATE				DATE		DATE		Fax: (021) 910 1988		Fax: (021) 910 1988		DATE		SMALLER ROAD SIGNS ATTACHMENT AND FIXING DETAILS SHEET 1 OF 2		SANRAL DOCUMENT #		ROUTE - N8 SECTION - 6		KM 00.00		KM 70.00	
REVISION				REVISION		REVISION		South Africa		Tembisa		DATE		SMALLER ROAD SIGNS ATTACHMENT AND FIXING DETAILS SHEET 1 OF 2		SANRAL DOCUMENT #		ROUTE - N8 SECTION - 6		KM 00.00		KM 70.00	
No.				No.		No.		Tel: (012) 644 8000		Tel: (021) 957 4800		DATE		SMALLER ROAD SIGNS ATTACHMENT AND FIXING DETAILS SHEET 1 OF 2		SANRAL DOCUMENT #		ROUTE - N8 SECTION - 6		KM 00.00		KM 70.00	
DATE				DATE		DATE		Fax: (021) 910 1988		Fax: (021) 910 1988		DATE		SMALLER ROAD SIGNS ATTACHMENT AND FIXING DETAILS SHEET 1 OF 2		SANRAL DOCUMENT #		ROUTE - N8 SECTION - 6		KM 00.00		KM 70.00	
REVISION				REVISION		REVISION		South Africa		Tembisa		DATE		SMALLER ROAD SIGNS ATTACHMENT AND FIXING DETAILS SHEET 1 OF 2		SANRAL DOCUMENT #		ROUTE - N8 SECTION - 6		KM 00.00		KM 70.00	
No.				No.		No.		Tel: (012) 644 8000		Tel: (021) 957 4800		DATE		SMALLER ROAD SIGNS ATTACHMENT AND FIXING DETAILS SHEET 1 OF 2		SANRAL DOCUMENT #		ROUTE - N8 SECTION - 6		KM 00.00		KM 70.00	
DATE				DATE		DATE		Fax: (021) 910 1988		Fax: (021) 910 1988		DATE		SMALLER ROAD SIGNS ATTACHMENT AND FIXING DETAILS SHEET 1 OF 2		SANRAL DOCUMENT #		ROUTE - N8 SECTION - 6		KM 00.00		KM 70.00	
REVISION				REVISION		REVISION		South Africa		Tembisa		DATE		SMALLER ROAD SIGNS ATTACHMENT AND FIXING DETAILS SHEET 1 OF 2		SANRAL DOCUMENT #		ROUTE - N8 SECTION - 6		KM 00.00		KM 70.00	
No.				No.		No.		Tel: (012) 644 8000		Tel: (021) 957 4800		DATE		SMALLER ROAD SIGNS ATTACHMENT AND FIXING DETAILS SHEET 1 OF 2		SANRAL DOCUMENT #		ROUTE - N8 SECTION - 6		KM 00.00		KM 70.00	
DATE				DATE		DATE		Fax: (021) 910 1988		Fax: (021) 910 1988		DATE		SMALLER ROAD SIGNS ATTACHMENT AND FIXING DETAILS SHEET 1 OF 2		SANRAL DOCUMENT #		ROUTE - N8 SECTION - 6		KM 00.00		KM 70.00	
REVISION				REVISION		REVISION		South Africa		Tembisa		DATE		SMALLER ROAD SIGNS ATTACHMENT AND FIXING DETAILS SHEET 1 OF 2		SANRAL DOCUMENT #		ROUTE - N8 SECTION - 6		KM 00.00		KM 70.00	
No.				No.		No.		Tel: (012) 644 8000		Tel: (021) 957 4800		DATE		SMALLER ROAD SIGNS ATTACHMENT AND FIXING DETAILS SHEET 1 OF 2		SANRAL DOCUMENT #		ROUTE - N8 SECTION - 6		KM 00.00		KM 70.00	
DATE				DATE		DATE		Fax: (021) 910 1988		Fax: (021) 910 1988		DATE		SMALLER ROAD SIGNS ATTACHMENT AND FIXING DETAILS SHEET 1 OF 2		SANRAL DOCUMENT #		ROUTE - N8 SECTION - 6		KM 00.00		KM 70.00	
REVISION				REVISION		REVISION		South Africa		Tembisa		DATE		SMALLER ROAD SIGNS ATTACHMENT AND FIXING DETAILS SHEET 1 OF 2		SANRAL DOCUMENT #		ROUTE - N8 SECTION - 6		KM 00.00		KM 70.00	
No.				No.		No.		Tel: (012) 644 8000		Tel: (021) 957 4800		DATE		SMALLER ROAD SIGNS ATTACHMENT AND FIXING DETAILS SHEET 1 OF 2		SANRAL DOCUMENT #		ROUTE - N8 SECTION - 6		KM 00.00		KM 70.00	
DATE				DATE		DATE		Fax: (021) 910 1988		Fax: (021) 910 1988		DATE		SMALLER ROAD SIGNS ATTACHMENT AND FIXING DETAILS SHEET 1 OF 2		SANRAL DOCUMENT #		ROUTE - N8 SECTION - 6		KM 00.00		KM 70.00	
REVISION				REVISION		REVISION		South Africa		Tembisa		DATE		SMALLER ROAD SIGNS ATTACHMENT AND FIXING DETAILS SHEET 1 OF 2		SANRAL DOCUMENT #		ROUTE - N8 SECTION - 6		KM 00.00		KM 70.00	
No.				No.		No.		Tel: (012) 644 8000		Tel: (021) 957 4800		DATE		SMALLER ROAD SIGNS ATTACHMENT AND FIXING DETAILS SHEET 1 OF 2		SANRAL DOCUMENT #		ROUTE - N8 SECTION - 6		KM 00.00		KM 70.00	
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REVISION				REVISION		REVISION		South Africa		Tembisa		DATE		SMALLER ROAD SIGNS ATTACHMENT AND FIXING DETAILS SHEET 1 OF 2		SANRAL DOCUMENT #		ROUTE - N8 SECTION - 6		KM 00.00		KM 70.00	
No.				No.		No.		Tel: (012) 644 8000		Tel: (021) 957 4800		DATE		SMALLER ROAD SIGNS ATTACHMENT AND FIXING DETAILS SHEET 1 OF 2		SANRAL DOCUMENT #		ROUTE - N8 SECTION - 6		KM 00.00		KM 70.00	
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REVISION				REVISION		REVISION		South Africa		Tembisa		DATE		SMALLER ROAD SIGNS ATTACHMENT AND FIXING DETAILS SHEET 1 OF 2		SANRAL DOCUMENT #		ROUTE - N8 SECTION - 6		KM 00.00		KM 70.00	
No.				No.		No.		Tel: (012) 644 8000		Tel: (021) 957 4800		DATE		SMALLER ROAD SIGNS ATTACHMENT AND FIXING DETAILS SHEET 1 OF 2		SANRAL DOCUMENT #		ROUTE - N8 SECTION - 6		KM 00.00		KM 70.00	
DATE				DATE		DATE		Fax: (021) 910 1988		Fax: (021) 910 1988		DATE		SMALLER ROAD SIGNS ATTACHMENT AND FIXING DETAILS SHEET 1 OF 2		SANRAL DOCUMENT #		ROUTE - N8 SECTION - 6		KM 00.00		KM 70.00	
REVISION				REVISION		REVISION		South Africa		Tembisa		DATE		SMALLER ROAD SIGNS ATTACHMENT AND FIXING DETAILS SHEET 1 OF 2		SANRAL DOCUMENT #		ROUTE - N8 SECTION - 6		KM 00.00		KM 70.00	
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REVISION				REVISION		REVISION		South Africa		Tembisa		DATE		SMALLER ROAD SIGNS ATTACHMENT AND FIXING DETAILS SHEET 1 OF 2		SANRAL DOCUMENT #		ROUTE - N8 SECTION - 6		KM 00.00		KM 70.00	
No.				No.		No.		Tel: (012) 644 8000		Tel: (021) 957 4800		DATE		SMALLER ROAD SIGNS ATTACHMENT AND FIXING DETAILS SHEET 1 OF 2		SANRAL DOCUMENT #		ROUTE - N8 SECTION - 6		KM 00.00		KM 70.00	
DATE				DATE		DATE		Fax: (021) 910 1988		Fax: (021) 910 1988		DATE		SMALLER ROAD SIGNS ATTACHMENT AND FIXING DETAILS SHEET 1 OF 2		SANRAL DOCUMENT #		ROUTE - N8 SECTION - 6		KM 00.00		KM 70.00	
REVISION				REVISION		REVISION		South Africa		Tembisa		DATE		SMALLER ROAD SIGNS ATTACHMENT AND FIXING DETAILS SHEET 1 OF 2		SANRAL DOCUMENT #		ROUTE - N8 SECTION - 6		KM 00.00		KM 70.00	
No.				No.		No.		Tel: (012) 644 8000		Tel: (021) 957 4800		DATE		SMALLER ROAD SIGNS ATTACHMENT AND FIXING DETAILS SHEET 1 OF 2		SANRAL DOCUMENT #		ROUTE - N8 SECTION - 6		KM 00.00		KM 70.00	
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REVISION				REVISION		REVISION		South Africa		Tembisa		DATE		SMALLER ROAD SIGNS ATTACHMENT AND FIXING DETAILS SHEET 1 OF 2		SANRAL DOCUMENT #		ROUTE - N8 SECTION - 6		KM 00.00		KM 70.00	
No.				No.		No.		Tel: (012) 644 8000		Tel: (021) 957 4800		DATE		SMALLER ROAD SIGNS ATTACHMENT AND FIXING DETAILS SHEET 1 OF 2		SANRAL DOCUMENT #		ROUTE - N8 SECTION - 6		KM 00.00		KM 70.00	
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REVISION				REVISION		REVISION		South Africa		Tembisa		DATE		SMALLER ROAD SIGNS ATTACHMENT AND FIXING DETAILS SHEET 1 OF 2		SANRAL DOCUMENT #		ROUTE - N8 SECTION - 6		KM 00.00		KM 70.00	
No.				No.		No.		Tel: (012) 644 8000		Tel: (021) 957 4800		DATE		SMALLER ROAD SIGNS ATTACHMENT AND FIXING DETAILS SHEET 1 OF 2		SANRAL DOCUMENT #		ROUTE - N8 SECTION - 6		KM 00.00		KM 70.00	
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REVISION				REVISION		REVISION		South Africa		Tembisa		DATE		SMALLER ROAD SIGNS ATTACHMENT AND FIXING DETAILS SHEET 1 OF 2		SANRAL DOCUMENT #		ROUTE - N8 SECTION - 6		KM 00.00		KM 70.00	
No.				No.		No.		Tel: (012) 644 8000		Tel: (021) 957 4800		DATE		SMALLER ROAD SIGNS ATTACHMENT AND FIXING DETAILS SHEET 1 OF 2		SANRAL DOCUMENT #		ROUTE - N8 SECTION - 6		KM 00.00		KM 70.00	
DATE				DATE		DATE		Fax: (021) 910 1988		Fax: (02													



SINGLE SUPPORT



SINGLE SUPPORT

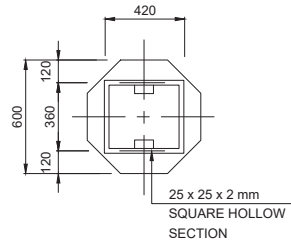


DOUBLE SUPPORT

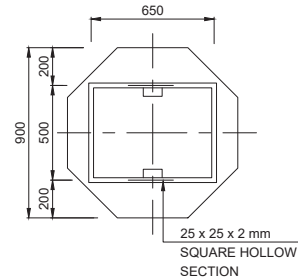
MINIMUM REGULATORY SIGN SIZES			
	OPERATING SPEED (km/h)		
	100 - 120	70 - 90	60
CIRCULAR SIGN DIAMETER (mm)	1200	900	600
RECTANGULAR SIGN WxH (mm)	1200 x 900	900 x 675	600 x 450
TRIANGULAR SIGN SIDE LENGTH (mm)	1500	1200	900

REINFORCEMENT FOR CIRCULAR ROAD SIGNS

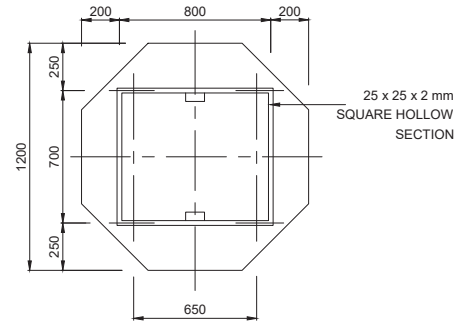
SCALE 1 : 20



SINGLE SUPPORT



SINGLE SUPPORT

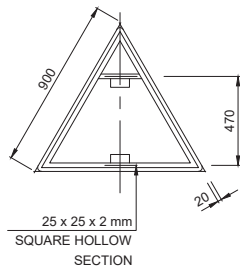


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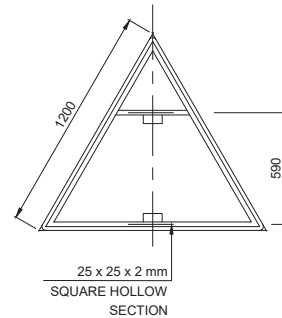
ADVANCE WARNING SIGN LOCATION AND SIZE		
OPERATING SPEED (km/h)	LOCATION (DISTANCE FROM HAZARD) (m)	SIZE (mm)
120	330	1500
100	240	1500
80	160	1200
60	120	900

REINFORCEMENT FOR STOP SIGNS

SCALE 1 : 20

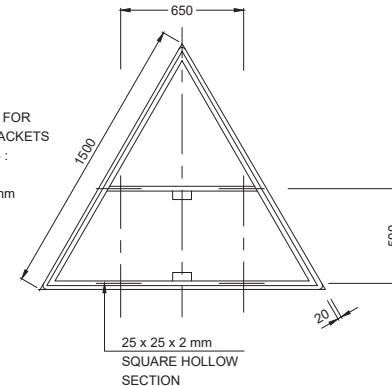


SINGLE SUPPORT



SINGLE SUPPORT

NOTE:
MINIMUM SIZE FOR
ERECTION BRACKETS
ON R/W SIGNS :
L 45 x 45 x 6
LENGTH : 100mm



DOUBLE SUPPORT

REINFORCEMENT FOR TRIANGULAR ROAD SIGNS

SCALE 1 : 20

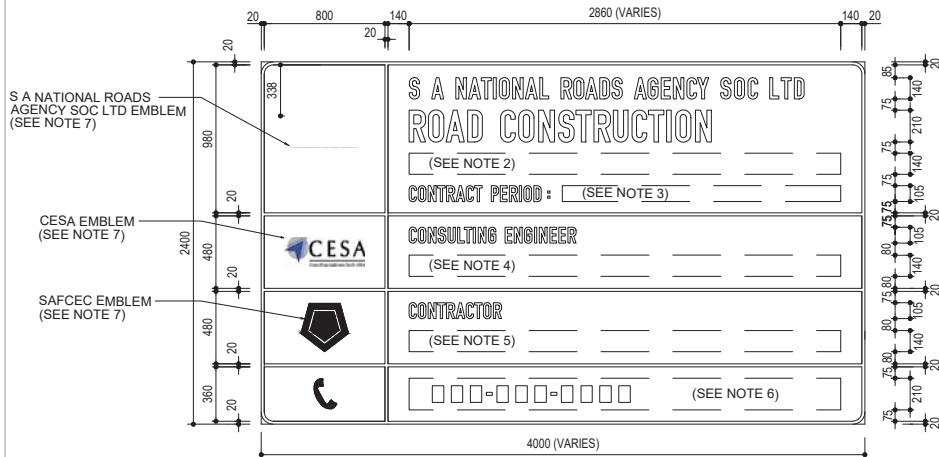
NOTES :

THE ROAD SIGN FACES SHALL BE MANUFACTURED AND ERECTED IN ACCORDANCE WITH THE FOLLOWING REQUIREMENTS :

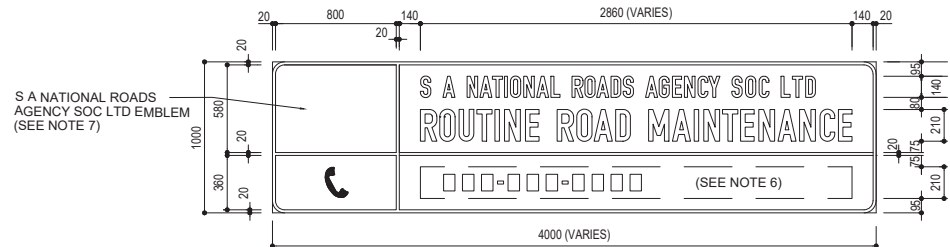
- DETAILS ON THIS DRAWING ARE APPLICABLE TO ROAD SIGNS SMALLER THAN 1,5m² REQUIRING DOUBLE / SINGLE SUPPORTS.
- STRUCTURAL STEEL SECTIONS SHALL BE MILD STEEL CONFORMING TO THE REQUIREMENTS OF SANS 1431, GRADE 300W. RECTANGULAR HOLLOW SECTION AND SPECIAL CHANNEL PROFILES MAY BE COLD FORMED OF COMMERCIAL QUALITY MILD STEEL. ALL SECTIONS SHALL BE HOT-DIP GALVANISED IN ACCORDANCE WITH THE REQUIREMENTS OF SANS 121 : 2000 (ISO 1461 : 1999).

FOR TENDER PURPOSES ONLY

CONSTRUCTION RECORD				DESIGNED BY		CONSULTANT APPROVAL		HEAD OFFICE		WESTERN REGION		ACCEPTANCE		PROJECT DESCRIPTION		PROJECT NUMBER	
WORKS CONTRACT ENGINEER				NAME		Name		48 Tumbula Avenue		1 Haverburg Street		THIS ACCEPTANCE IS FOR PROCEDURAL AND ADMINISTRATIVE REVIEW PURPOSES ONLY. SANRAL ACCEPTS NO LIABILITY OF ANY KIND FOR WHATEVER CAUSE OR OTHERWISE ARISING.		PERIODIC MAINTENANCE (RESURFACING) OF NATIONAL ROUTE 19 FROM HEUNENBURG (KM 50.30) TO GROBLERSHOOP (KM 55.59), NATIONAL ROUTE 18 SECTION 11 FROM GROBLERSHOOP (KM 6.80) TO UTOYIK (KM 70.80) AND NATIONAL ROUTE 1 SECTION 4 FROM GROBLERSHOOP (KM 6.80) TO ROOSBAND (KM 8.18)		NRA 2025/0004	
Prof. Reg No. : Date : SANRAL PROJECT MANAGER				Prof. Reg No. : Date : CHECKED BY		Prof. Reg No. : Date : DRAWN BY		PO Box 415 Pretoria 0001 South Africa Tel: (012) 844 8000		Private Bag X13 Belleville 7535 Tel: (021) 957 4600 Fax: (021) 910 1986		for CEO: SA NATIONAL ROADS AGENCY LTD Date :		DRAWING DESCRIPTION SANRAL TYPICAL DRAWINGS ROAD SIGNS SMALLER ROAD SIGNS ATTACHMENT AND FIXING DETAILS SHEET 2 OF 2		DRAWING LOCATION ROUTE - N10 SECTION - 10 ROUTE - N10 SECTION - 11 ROUTE - N8 SECTION - 6	
REV01 DEC 2024 FOR TENDER PURPOSES ONLY				NAME		NAME		BUILDING SOUTH AFRICA THROUGH BETTER ROADS		ROAD SIGNS		ROAD SIGNS		START KM 50.30		END KM 55.59	
V1 START DATE ORIGINAL VERSION				NAME		NAME				CONSULTANT DRAWING		CONSULTANT DRAWING		KM 00.00		KM 70.00	
No. DATE REVISION CONSULT. ENG.				NAME		NAME				SANRAL DOCUMENT #		SANRAL DOCUMENT #		KM 00.00		KM 8.18	
										SCALE: AS SHOWN		SHEET 01 OF 01		20250004-TD-RS-07		V1	



SIGN BOARD : TYPE 1
ELEVATION
SCALE 1 : 25



SIGN BOARD : TYPE 2
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).

REMOVAL : TYPE 2 : AFTER MAJOR CENTRES OR APPROX. 50km APART.
(AS APPROVED BY THE ENGINEER).

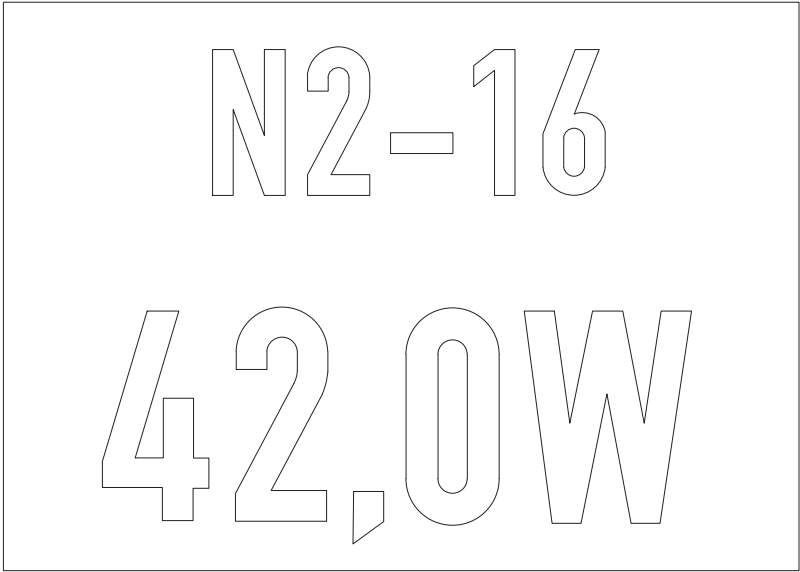
REMOVAL : THE ROAD SIGN INFORMATION BOARDS SHALL BE REMOVED BEFORE A TAKING-OVER CERTIFICATE FOR THE ENTIRE WORKS IS ISSUED.

NOTES

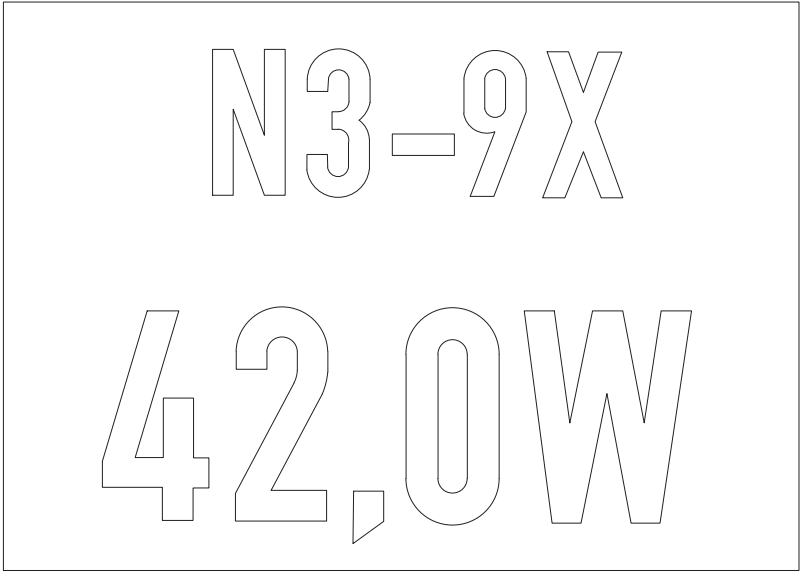
- USE AN APPROPRIATE DESCRIPTION FOR THE TYPE OF WORKS eg. ROAD CONSTRUCTION, ROUTINE ROAD MAINTENANCE, ROAD REHABILITATION, TOLL PLAZA UPGRADING OR BRIDGE REHABILITATION.
- USE A BRIEF DESCRIPTION OF THE EXTENT OF THE WORKS : eg. N1-21 : BEN SCHOEMAN TO RIGEL AVE . OR N11 : LADYSMITH TO VOLKSRUST.
- USE THE COMMENCEMENT AND DUE COMPLETION DATES (MONTH / YEAR).
- NAME OF CONSULTING ENGINEER.
- REGISTERED NAME OF CONTRACTOR.
- AN ALL HOURS CONTACT TELEPHONE / CELL NUMBER SHALL BE SUPPLIED FOR THE SITE SAFETY OFFICER OR FOR A RESPONSIBLE PERSON APPROVED BY THE ENGINEER.
- EMBLEMS MAY ONLY BE USED BY MEMBERS AND MUST BE DISPLAYED IN FULL COLOUR, EMBLEMS ARE AVAILABLE FROM THE RELEVANT ORGANISATIONS.

FOR TENDER PURPOSES ONLY

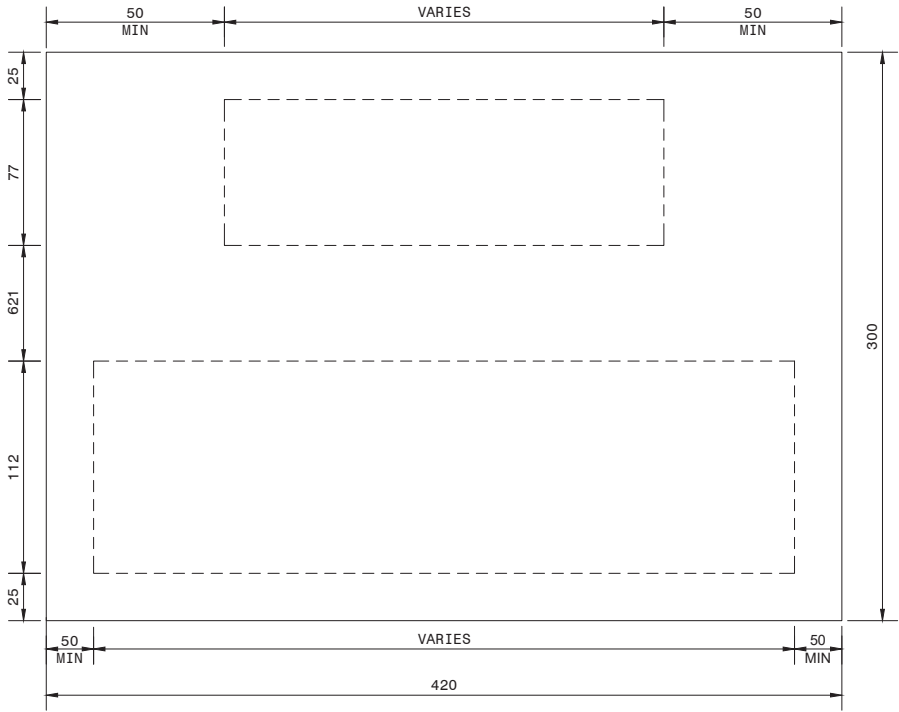
CONSTRUCTION RECORD				DESIGNED BY		CONSULTANT APPROVAL		HEAD OFFICE		WESTERN REGION		ACCEPTANCE		PROJECT DESCRIPTION		PROJECT NUMBER	
WORKS CONTRACT ENGINEER				NAME		NAME		48 Tumbula Avenue		1 Haverop Street		THIS ACCEPTANCE IS FOR PROFESSIONAL AND ADMINISTRATIVE REVIEW PURPOSES ONLY AND DOES NOT ATTEST TO THE LIABILITY OR LIABILITY OF ANY ROAD USER WHATSOEVER		PERIODIC MAINTENANCE (RESURFACING) OF NATIONAL ROUTE 10 SECTION 10 FROM KEMENBURRAAI (KM 50.30) TO GROBLERSHOOP (KM 55.59), NATIONAL ROUTE 10 SECTION 11 FROM GROBLERSHOOP (KM 5.00) TO LUTYK (KM 70.00) AND NATIONAL ROUTE 6 SECTION 6 FROM GROBLERSHOOP (KM 0.00) TO ROOSAND (KM 6.18)		NRA 2025/0004	
Name				Print Reg No		Print Reg No		Postcode		Postcode		Date		DRAWING DESCRIPTION		DRAWING LOCATION	
Date				CHECKED BY		Date		Private Bag 6119		Private Bag 6119		Date		SANRAL TYPICAL DRAWINGS		START	
SANRAL PROJECT MANAGER				NAME		NAME		Postcode		Postcode		Date		ROAD SIGNS		END	
Name				DRAWN BY		Date		Private Bag 6119		Private Bag 6119		Date		INFORMATION BOARD DETAILS		ROUTE - N10 SECTION - 10	
Date				NAME		Date		Postcode		Postcode		Date		SANRAL DOCUMENT #		ROUTE - N10 SECTION - 11	
REV01 DEC 2024 FOR TENDER PURPOSES ONLY				NAME		Date		Private Bag 6119		Private Bag 6119		Date		DRAWING TYPE		ROUTE - N10 SECTION - 6	
V1 START DATE ORIGINAL VERSION				NAME		Date		Private Bag 6119		Private Bag 6119		Date		CONSULTANT DRAWING		ROUTE - N6 SECTION - 6	
No. DATE REVISION				NAME		Date		Private Bag 6119		Private Bag 6119		Date		SANRAL DOCUMENT #		TYPICAL DRAWING-ROADWORKS	
CONSULT. ENG.				NAME		Date		Private Bag 6119		Private Bag 6119		Date		AA243300-TD-RS-08		Y1	
				NAME		Date		Private Bag 6119		Private Bag 6119		Date		2025/0004-TD-RS-08			



TYPE 1: REFERENCE MARKER BOARD FOR NATIONAL ROADS



TYPE 2: REFERENCE MARKER BOARD FOR TEMPORARILY PROCLAIMED NATIONAL ROADS



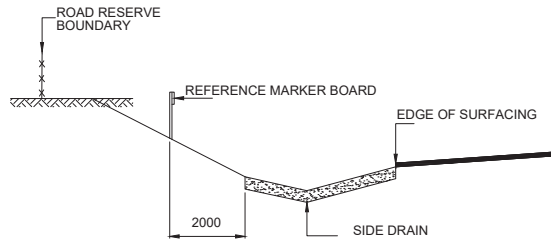
NOTES

- FOR MOUNTING AND LOCATION DETAILS DRAWING TD-R-RS-200
- STANDARD SIZES OF REFERENCE MARKER BOARD TO BE 420x300x1.4mm THICK PREPAINTED GALVANISED MILD STEEL PLATE.
- ALL MARKER BOARDS SHALL BE MANUFACTURED USING CLASS 1 WHITE RETROREFLECTIVE MATERIAL ON A BLUE SEMI-MATT BACKGROUND.
- THE LEGEND SHALL BE DIN 1451 PART 2 STYLE "A" LETTERING AND NUMBERS SO THAT THE TOP LINE IS 77mm HIGH AND THE BOTTOM LINE IS 112mm HIGH.
- THE LEGEND SHALL BE ARRANGED AS FOLLOWS -
TOP LINE -
"N" FOR NATIONAL ROUTE, AND
THE APPROPRIATE ROUTE NUMBER e.g. N2 AND
THE APPROPRIATE SECTION NUMBER e.g. N2-16 (TYPE 1); OR
THE APPROPRIATE SECTION NUMBER AND AN "X" SUFFIX FOR
A TEMPORARILY PROCLAIMED NATIONAL ROUTE,
e.g. N3-9X (TYPE 2)

BOTTOM LINE -
KILOMETRE 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.

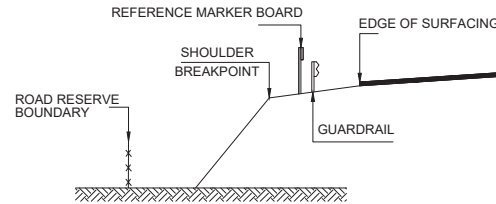
FOR TENDER PURPOSES ONLY

CONSTRUCTION RECORD				DESIGNED BY		CONSULTANT APPROVAL		HEAD OFFICE		WESTERN REGION		ACCEPTANCE		PROJECT DESCRIPTION		PROJECT NUMBER	
WORKS CONTRACT ENGINEER				NAME		NAME		48 Tarrade Avenue Val de Grace Pretoria 0184		1 Hanning Street Durbanville 7630		THIS ACCEPTANCE IS FOR PROCEDURAL AND ADMINISTRATIVE PURPOSES ONLY. LIABILITY OF ANY KIND FROM WHATEVER CAUSE OR HOWEVER ARISING.		PERIODIC MAINTENANCE (RESURFACING) OF NATIONAL ROUTE 18 SECTION 18 FROM KHEUNERAN (KM 50.30 TO GROBLERSHOOP (KM 55.59), NATIONAL ROUTE 18 SECTION 11 FROM GROBLERSHOOP (KM 5.80) TO UTKUY (KM 70.00) AND NATIONAL ROUTE 18 SECTION 4 FROM GROBLERSHOOP (KM 5.80) TO ROOSDAM (KM 8.18)		NRA 2025/0004	
SANRAL PROJECT MANAGER				CHECKED BY		DATE		PO Box 415 Pretoria 0001 South Africa Tel: (012) 844 8000		Private Bag X15 Durbanville 7630		for CEO: SA NATIONAL ROADS AGENCY LTD		DRAWING DESCRIPTION		DRAWING LOCATION	
ORIGINAL VERSION				NAME		DATE		THE ABOVE SIGNATORY CERTIFIES THAT THE DESIGNER AND CHECKER HAVE CONSENTED TO THEIR NAMES BEING INSERTED ON THIS DRAWING AND THAT THEY HAVE BEEN AND APPROVED THE DRAWING		SANRAL TYPICAL DRAWINGS		ROAD SIGNS		ROUTE - N10 SECTION - 10		START	
CONSULT. ENG.				DRAWN BY		DATE		BUILDING SOUTH AFRICA THROUGH BETTER ROADS		REFERENCE MARKER BOARD SHEET 1 OF 2		CONSULTANT DRAWING		ROUTE - N10 SECTION - 11		KM 50.30	
No.				NAME		DATE		Date: (021) 957 4800 Fax: (021) 910 1995		SCALE: AS SHOWN		SANRAL DOCUMENT #		ROUTE - N8 SECTION - 6		KM 00.00	
DATE				NAME		DATE		2025/0004-TD-RS-09		SHEET 01 OF 01		V1		KM 55.59		KM 70.00	
REVISION				NAME		DATE		2025/0004-TD-RS-09		SCALE: AS SHOWN		V1		KM 8.18		TYPICAL DRAWING: ROADWORKS	
REV01				NAME		DATE		2025/0004-TD-RS-09		SCALE: AS SHOWN		V1		KM 8.18		TYPICAL DRAWING: ROADWORKS	
DEC 2024				NAME		DATE		2025/0004-TD-RS-09		SCALE: AS SHOWN		V1		KM 8.18		TYPICAL DRAWING: ROADWORKS	
FOR TENDER PURPOSES ONLY				NAME		DATE		2025/0004-TD-RS-09		SCALE: AS SHOWN		V1		KM 8.18		TYPICAL DRAWING: ROADWORKS	



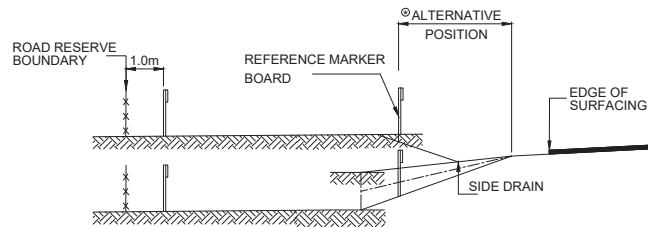
DETAIL 1 : SIGN POSITIONING-DEEP CUT

SCALE 1:100



DETAIL 2 : SIGN POSITIONING-HIGH FILL

SCALE 1:100



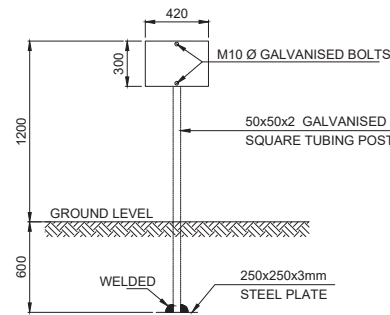
DETAIL 3 : SIGN POSITIONING-LOW FILL / SHALLOW CUT

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

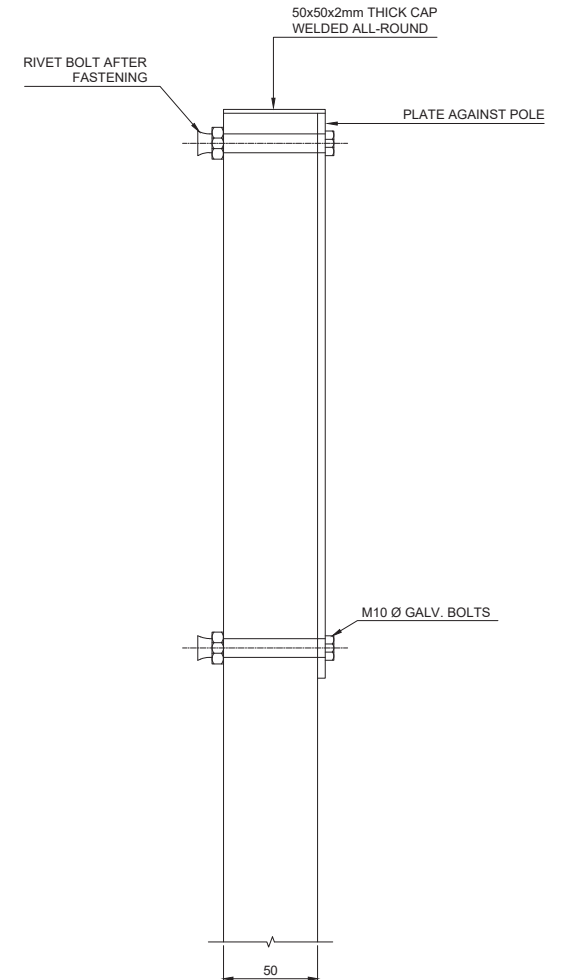
NOTES:

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.



FRONT ELEVATION

SCALE 1:100



MOUNTING DETAIL

SCALE 1:2

FOR TENDER PURPOSES ONLY

				CONSTRUCTION RECORD WORKS CONTRACT ENGINEER		DESIGNED BY		CONSULTANT APPROVAL		HEAD OFFICE		WESTERN REGION		ACCEPTANCE		PROJECT DESCRIPTION				PROJECT NUMBER		NRA 2025/0004	
				Name _____ Prof. Reg. No. _____ Date _____		NAME _____ Prof. Reg. No. _____ Date _____		Name _____ Prof. Reg. No. _____ Date _____		48 Tumbale Avenue Val de Grace Pretoria 0184		1 Heugens Street Capeville Bellville 7830		THIS ACCEPTANCE IS FOR PROCEDURAL AND ADMINISTRATIVE REVIEW PURPOSES ONLY AND DOES NOT ATTRACT LEGAL LIABILITY OR LIABILITY OF ANY KIND FOR WHATEVER CAUSE OR FOR EVER ARISING		PERIODIC MAINTENANCE (RESURFACING) OF NATIONAL ROUTE 10 SECTION 10 FROM KEUKENDRAAI (KM 58.30) TO GROBLERSHOOP (KM 55.59), NATIONAL ROUTE 10 SECTION 11 FROM GROBLERSHOOP (KM 5.00) TO UTUKUY (KM 76.96) AND NATIONAL ROUTE 6 SECTION 6 FROM GROBLERSHOOP (KM 8.00) TO ROOSAND (KM 8.18)		DRAWING LOCATION		START		END	
				SANRAL PROJECT MANAGER		CHECKED BY		THE ABOVE SIGNATORY CERTIFIES THAT THE DESIGNER AND CHECKER HAVE CONSENTED TO THEIR NAMES BEING INSERTEED ON THE DRAWING AND THAT THEY HAVE SEEN AND APPROVED THE DRAWING		PO Box 415 Pretoria 0001 South Africa Tel: (012) 844 8000		Private Bag X 19 Bellville 7830 Tel: (021) 957 4800 Fax: (021) 910 1995		for CEO: SA NATIONAL ROADS AGENCY LTD		DRAWING DESCRIPTION SANRAL TYPICAL DRAWINGS ROAD SIGNS REFERENCE MARKER BOARD SHEET 2 OF 2		ROUTE - N10 SECTION - 10		KM 50.30		KM 55.59	
REV01 DEC 2024 FOR TENDER PURPOSES ONLY						ROUTE - N10 SECTION - 11												KM 00.00		KM 70.00			
V1 START DATE ORIGINAL VERSION						ROUTE - N8 SECTION - 6												KM 00.00		KM 8.18			
No.		DATE		REVISION		NAME		DRAWN BY										CONSULTANT DRAWING		SANRAL DOCUMENT #		A241330-TD-RS-10	
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																				2025/0004-TD-RS-10			



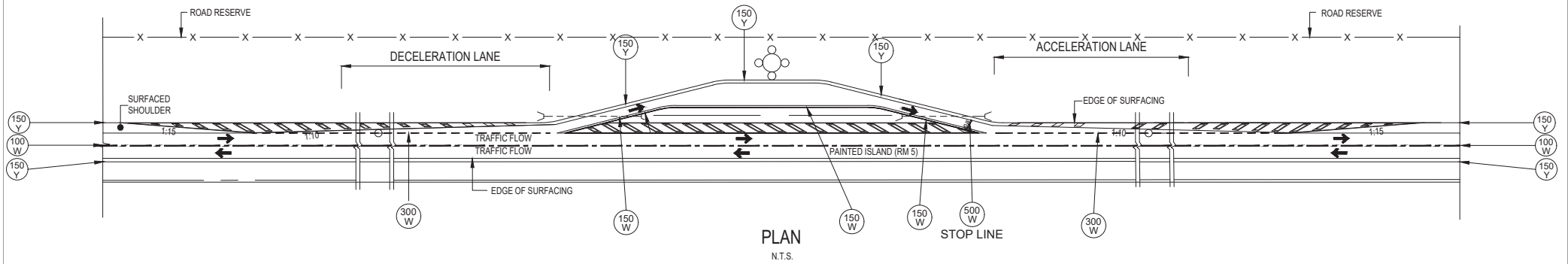
N.T.S

SCALE: 1:10

SCALE:1:20

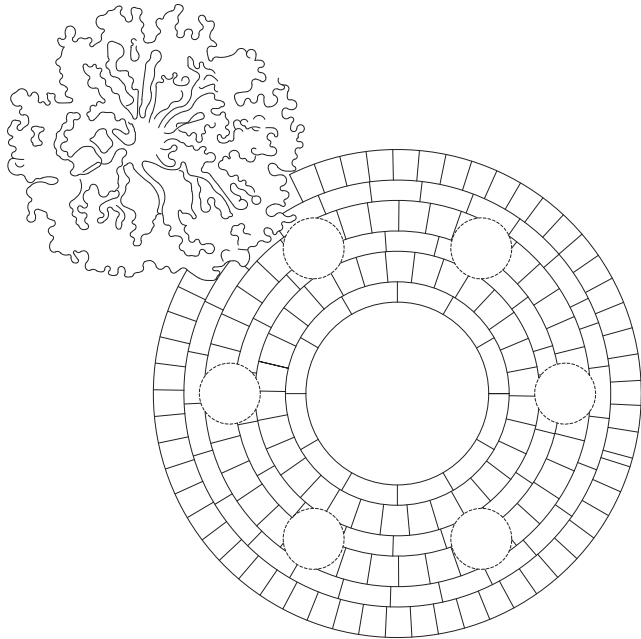


				CONSTRUCTION RECORD		DESIGNED BY		CONSULTANT APPROVAL		HEAD OFFICE		WESTERN REGION		ACCEPTANCE		PROJECT DESCRIPTION				PROJECT NUMBER		NRA 2025/0004			
				WORKS CONTRACT ENGINEER		NAME		NAME		48 Tumbato Avenue Tafelberg, Cape Town 7805		11 Haverburg Street Kleinmond, Cape Town 7231		THE ACCEPTANCE IS FOR PROCEDURAL AND ADMINISTRATIVE PURPOSES ONLY AND DOES NOT ATTRACT LEGAL LIABILITY ON EITHER OF THE ABOVE OR THE CONTRACTOR OR FOR THE CONTRACTOR'S NEGLIGENCE OR OTHERWISE ARISING		PERIODIC MAINTENANCE (RESURFACING) OF NATIONAL ROUTE 10 SECTION 10 FROM KEURBANDER (KM 50.30) TO GROBLERSHOOP (KM 55.95), NATIONAL ROUTE 10 SECTION 11 FROM GROBLERSHOOP (KM 4.80) TO UTRECHT (KM 70.00) AND NATIONAL ROUTE 10 SECTION 6 FROM GROBLERSHOOP (KM 6.00) TO ROOIBAND (KM 1.81)				DRAWING LOCATION		START		END	
				Name		Date		Date		Private Bag X19 Buitersig 7530						ROUTE - N10 SECTION - 1 ROUTE - N10 SECTION - 11 ROUTE - N6 SECTION - 6				KM 50.30		KM 55.95			
				Reg No.		Date		Date								DRAWING DESCRIPTION				KM 00.00		KM 7.00			
				SANRAL PROJECT MANAGER		NAME		VISITER		PO Box 415 Pretoria 0001 South Africa Tel: (012) 844 8400		PO Box 415 Pretoria 0001 South Africa Tel: (012) 957 4000 Fax: (012) 910 1998				SANRAL TYPICAL DRAWINGS MISCELLANEOUS PAINT LINES, ROAD STUDS AND RUMBLE STRIPS				CONSULTANT DRAWING		A24/0300-DM45-01			
REV01 DEC 2024 FOR TENDER PURPOSES ONLY				ORIGINAL VERSION		DRAWN BY		NAME						I/c CEO SA NATIONAL ROADS AGENCY LTD		DRAWING TITLE				SANRAL DOCUMENT #		2025/0004-DM45-01		V1	
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CONSULT ENG.				CONSULT ENG.																					

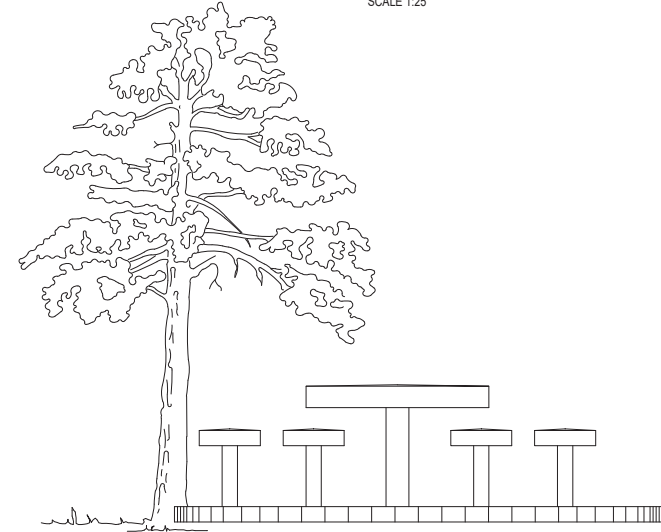


FOR TENDER PURPOSES ONLY

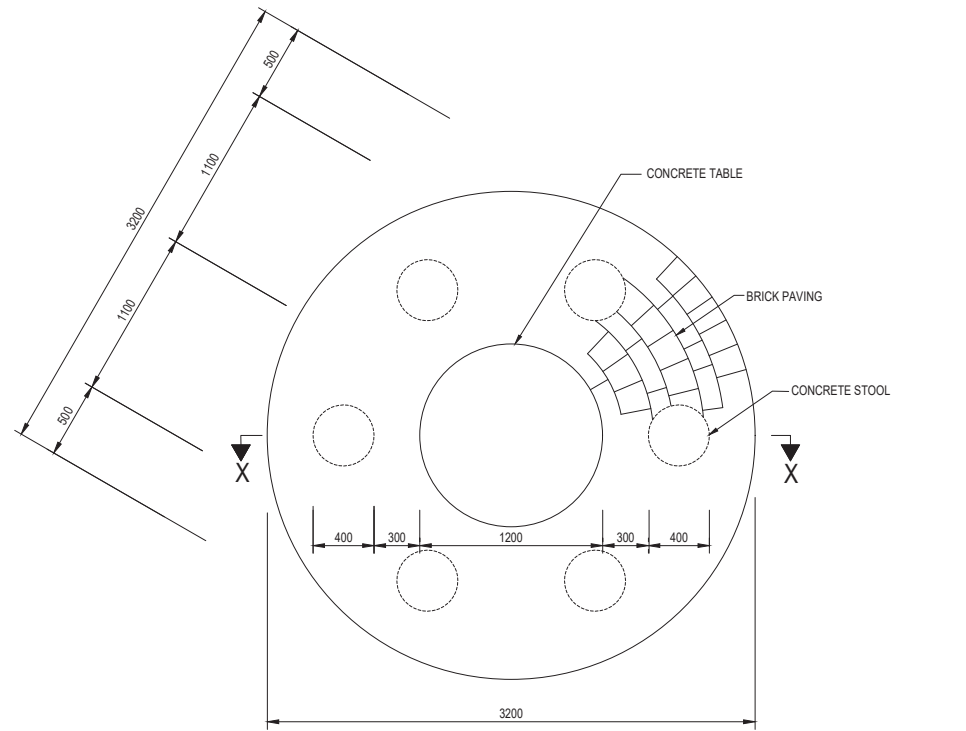
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				Name: _____		NAME		Name		48 Tumbula Avenue		1 Newbridge Street		THIS ACCEPTANCE IS FOR PROCEDURAL AND ADMINISTRATIVE PURPOSES ONLY. THE SIGNATORY DOES NOT ATTRACT LEGAL LIABILITY OF ANY FUTURE WORKS DONE FOR OR ON BEHALF OF SANRAL.		PERIODIC MAINTENANCE (RESURFACING) OF NATIONAL ROUTE 10 SECTION 10 FROM KEUKENDRAAI (KM 50.30) TO GROBLERSHOOP (KM 55.59), NATIONAL ROUTE 10 SECTION 11 FROM GROBLERSHOOP (KM 0.00) TO UTUKUYI (KM 70.00) AND NATIONAL ROUTE 6 SECTION 6 FROM GROBLERSHOOP (KM 0.00) TO ROOSDAM (KM 0.18)		DRAWING LOCATION		START		END	
				Prof. Reg No: _____		Prof. Reg No: _____		Prof. Reg No: _____		Van der Graaf		Cape Town		7530				ROUTE - N10 SECTION - 10		KM 50.30		KM 55.59	
				Date: _____		Date: _____		Date: _____		Pretoria		7530						ROUTE - N8 SECTION - 11		KM 00.00		KM 70.00	
REV01 DEC 2024				FOR TENDER PURPOSES ONLY		SANRAL PROJECT MANAGER		CHECKED BY		Name		Private Bag 610				DRAWING DESCRIPTION		SANRAL TYPICAL DRAWINGS		SECTION - 6		KM 0.00	
V1				START DATE		ORIGINAL VERSION		NAME		The above signatory certifies that the SIGNATORY HAS CERTIFIED THAT THE DRAWING AND CONTENTS ARE CORRECT AND TRUE TO THE INFORMATION PROVIDED TO THEM AND ARE BEING ISSUED TO THE SIGNATURES AND THAT THE DRAWING HAS BEEN CHECKED AND APPROVED BY THE SIGNATORY.		PO Box 415		Bulwer		MISCELLANEOUS		TYPICAL DRAWING-ROADWORKS		DRAWING TYPE		TYPICAL DRAWING-ROADWORKS	
No. _____				DATE		REVISION		DRAWN BY		NAME		Tel: (012) 844 8000		Fax: (021) 957 4655		c/o SANRAL NATIONAL REGIONAL AGENTS LTD		SCALE: AS SHOWN		SHEET 01 OF 01		CONSULTANT DRAWING	
																		SANRAL DOCUMENT #		AQA3305-TD-M5-02		V1	



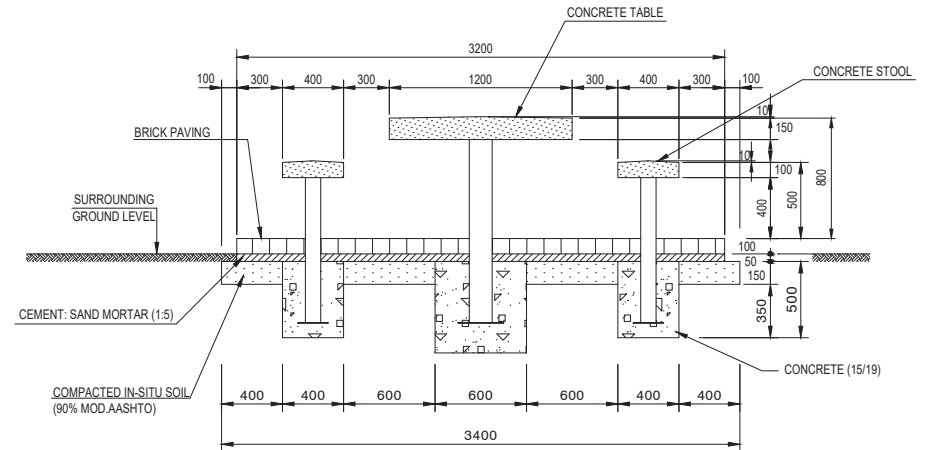
PLAN
SCALE 1:25



SIDE ELEVATION
SCALE 1:25



PLAN
SCALE 1:25



SECTION X-X
SCALE 1:25

FOR TENDER PURPOSES ONLY

				CONSTRUCTION RECORD		DESIGNED BY		CONSULTANT APPROVAL		HEAD OFFICE		SOUTHERN REGION		ACCEPTANCE		PROJECT DESCRIPTION		PROJECT NUMBER		DRAWING LOCATION		START		END	
				WORKS CONTRACT ENGINEER		NAME		NAME		48 Tarkenton Avenue Val de Grace 6514		Book C Southern Sub-Region 72 2nd Avenue Nelson Mandela Park Port Elizabeth 6001		THIS ACCEPTANCE IS FOR PROCEDURAL AND ADMINISTRATIVE REVIEW PURPOSES ONLY AND DOES NOT ATTRACT LEGAL LIABILITY OR LIABILITY OF ANY KIND FOR ANY DEFECTS OR DAMAGE CAUSED OR FORBIDDEN ARISING		PERIODIC MAINTENANCE (RESURFACING) OF NATIONAL ROUTE 19 SECTION 10 FROM KEUKENDRAAI (KM 56.30) TO GROBLERSHOOP (KM 55.56), NATIONAL ROUTE 19 SECTION 11 FROM GROBLERSHOOP (KM 55.56) TO UTUKU (KM 71.00) AND NATIONAL ROUTE 6 SECTION 4 FROM GROBLERSHOOP (KM 5.00) TO ROOIBAND (KM 8.18)		NRA 2025/0004		ROUTE - N10 SECTION - 10		KM 50.30		KM 55.59	
				NAME		CHECKED BY		CHECKED BY		PO Box 415 Pretoria 0001		PO Box 2730 Glenwood 8502				DRAWING DESCRIPTION				ROUTE - N10 SECTION - 11		KM 00.00		KM 70.00	
				NAME		CHECKED BY		CHECKED BY		PO Box 415 Pretoria 0001		PO Box 2730 Glenwood 8502		PO BOX 34100 SOUTH AFRICA BUILDING SOUTH AFRICA THROUGH BETTER ROADS				SANRAL TYPICAL DRAWINGS		ROUTE - N8 SECTION - 6		KM 00.00		KM 8.18	
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				NAME		CHECKED BY		CHECKED BY		PO BOX 34100 SOUTH AFRICA		PO BOX 34100 SOUTH AFRICA		PO BOX 34100 SOUTH AFRICA		TABLE UNITS AND STOOLS SHEET 1 OF 3		SANRAL TYPICAL DRAWINGS		ROUTE - N8 SECTION - 6		KM 00.00		KM 8.18	
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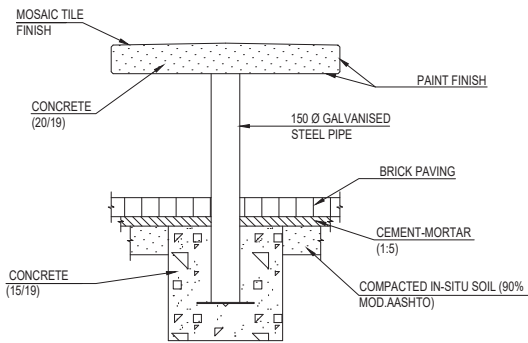


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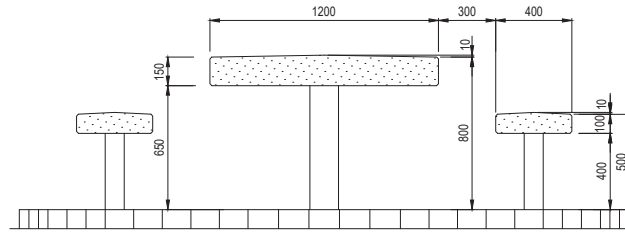
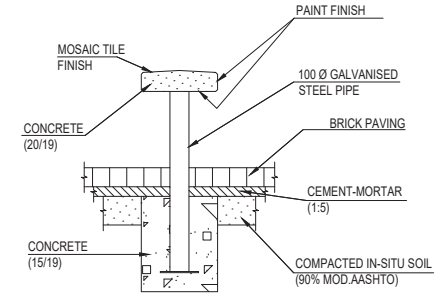


TABLE AND STOOL
SCALE:1 : 20



STOOL
SCALE:1 : 20

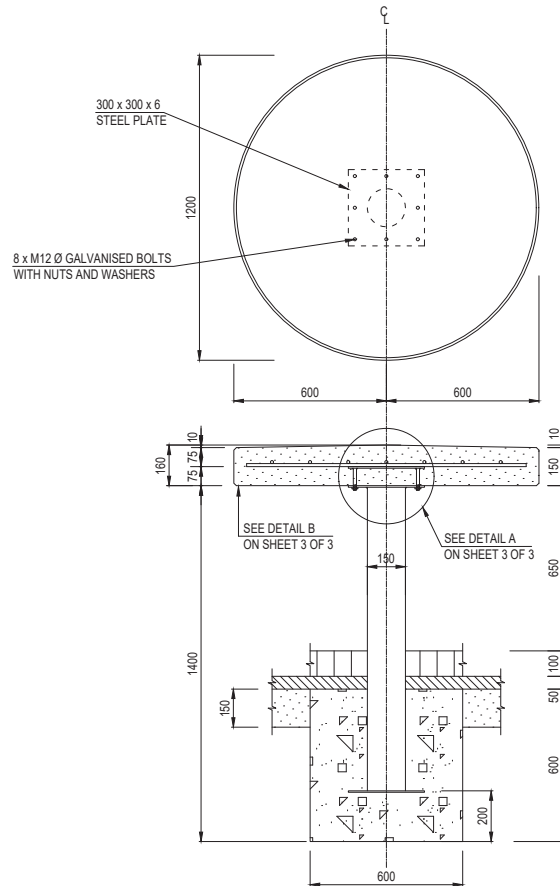
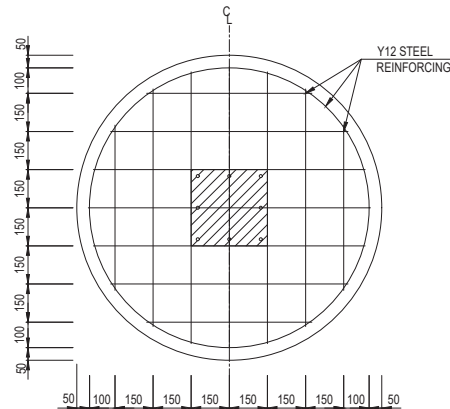
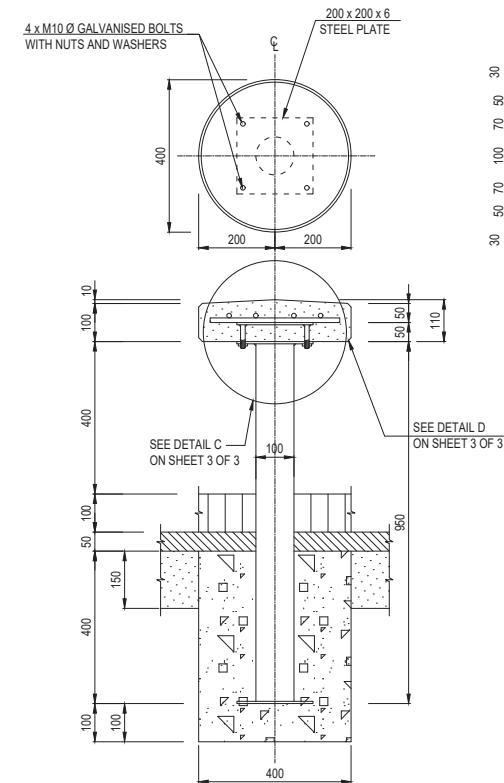


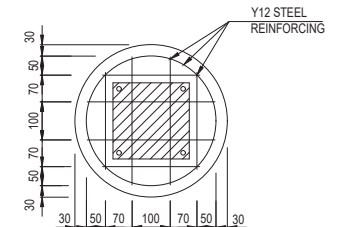
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SCALE 1:15



REINFORCING DETAIL :
TABLE TOP
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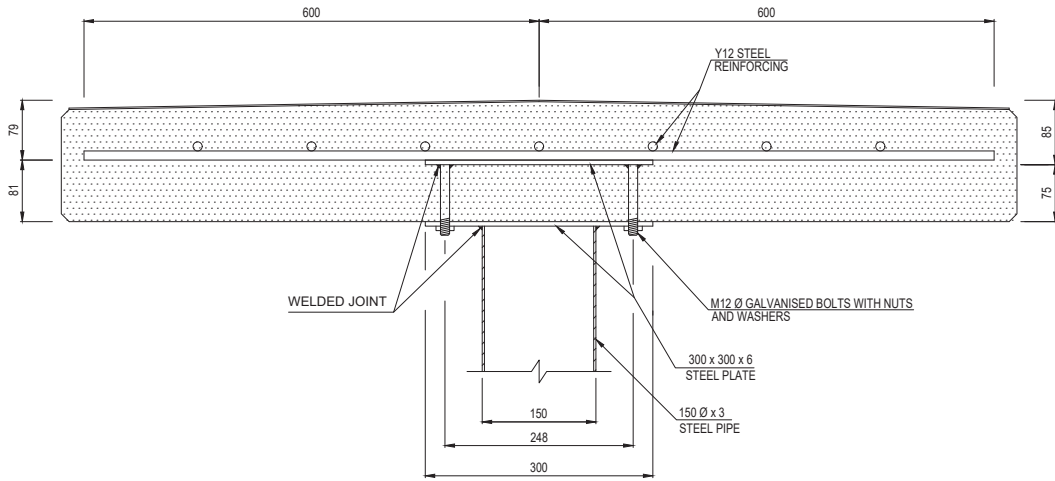
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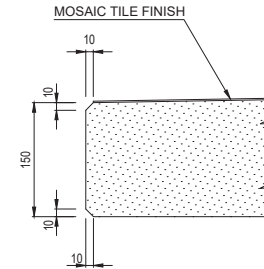
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FOR TENDER PURPOSES ONLY

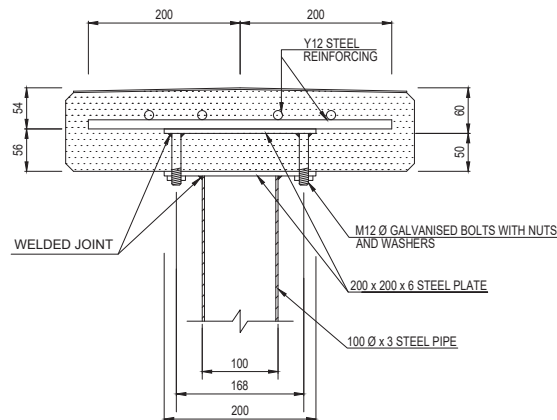
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				WORKS CONTRACT ENGINEER		NAME		NAME		48 Turfbo Avenue Km 48, Oude Pretoria		Blank C Southern Ltd Gardens 70 2nd Avenue Mandela Park Port Elizabeth 6001		THIS ACCEPTANCE IS FOR PERIODICAL AND ADDITIONAL REVIEW PURPOSES ONLY AND DOES NOT IMPLY ANY LIABILITY ON CONTRACTOR'S PART FOR ANY DEFECTS OR CAUSE OF FURTHER WORK		PERIODIC MAINTENANCE (RESURFACING) OF NATIONAL ROUTE 10 SECTION 10 FROM KEUKENDRAAI (KM 50.30) TO GROBLERSHOOP (KM 55.30), NATIONAL ROUTE 10 SECTION 11 FROM GROBLERSHOOP (KM 55.30) TO LITKOP (KM 70.00) AND NATIONAL ROUTE 6 SECTION 6 FROM GROBLERSHOOP (KM 6.00) TO ROOISAND (KM 8.18)		DRAWING LOCATION		START		END	
				Name: _____ Prof. Reg No.: _____ Date: _____		CHECKED BY		Name: _____ Prof. Reg No.: _____ Date: _____		PO Box 415 Pretoria 001 South Africa Tel: (012) 844 8000		PO Box 27235 Orenburg 6001		In CEO SAN NATIONAL ROADS AGENCY LTD		DRAWING DESCRIPTION SANRAL TYPICAL DRAWINGS MISCELLANEOUS - REST AND SERVICE AREAS DETAIL OF TABLE UNITS AND STOOLS SHEET 2 OF 3		ROUTE - N10 SECTION - 10 ROUTE - N10 SECTION - 11 ROUTE - N6 SECTION - 6		KM 50.30 KM 00.00 KM 00.00		KM 55.30 KM 70.00 KM 8.18	
				SANRAL PROJECT MANAGER		NAME		THE ABOVE SIGNATORY CERTIFIES THAT THE DESIGNER AND CHECKER HAVE CONSENTED TO THEIR NAMES BEING INSERTED ON THE DRAWING AND THAT THEY HAVE BEEN AND APPROVED THE DRAWING.		NAME		CHECKED BY				DRAWING TYPE TYPICAL DRAWING-ROADWORKS		CONSULTANT DRAWING		AA243300-TD-MS-04		V1	
				Name: _____ Date: _____		NAME				NAME						SCALE: AS SHOWN		SHEET 01 OF 01		SANRAL DOCUMENT #		2025/0004-TD-MS-04	
				REV01 DEC 2024 FOR TENDER PURPOSES ONLY		ORIGINAL VERSION		HVSBER		CONSULT. ENG.		REVISION		DATE		SCALE: AS SHOWN		SHEET 01 OF 01		SANRAL DOCUMENT #		2025/0004-TD-MS-04	



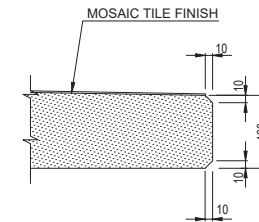
DETAIL A - TABLE
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DETAIL B
SCALE 1:5



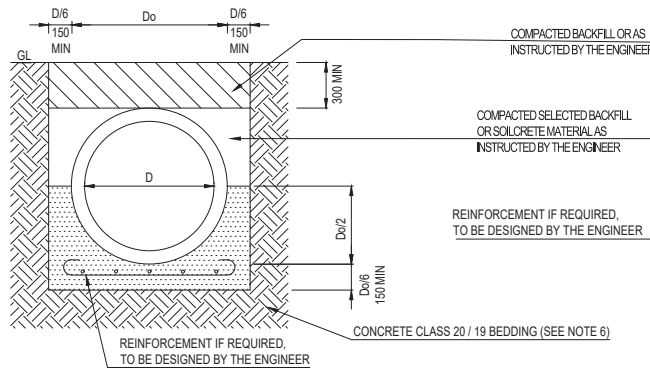
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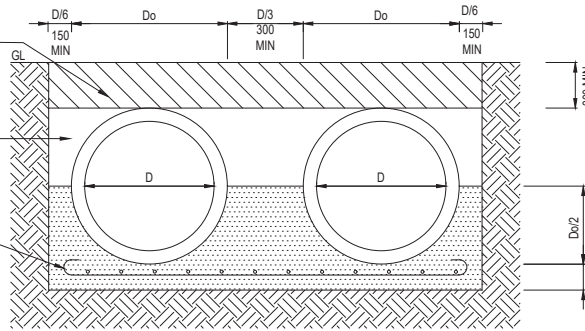
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FOR TENDER PURPOSES ONLY

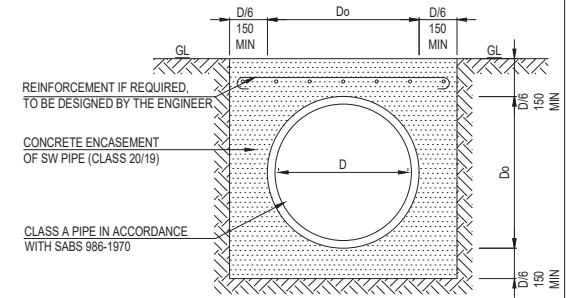
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				WORKS CONTRACT ENGINEER														DRAWING LOCATION		START		END	
				Name		Name		Name		41 Tarkenton Avenue 101 36 3rd Avenue Pretoria		Block C Southern L&A Division 710 2nd Avenue Nieuwe Park Post Box 27330 Channing		THE ACCEPTANCE IS FOR PROCEEDING AND ADHERING TO THE RULES AND REGULATIONS OF THE ROAD AND TRAFFIC ACT (ACT 93 OF 1988) AND THE ROAD AND TRAFFIC REGULATIONS (REGULATIONS OF 1988 AND 1989)		PERIODIC MAINTENANCE (RESURFACING) OF NATIONAL ROUTE 10 SECTION 10 FROM KEUKENDRAAI (KM 50.30 TO GROBLERSHOOP (KM 50.30), NATIONAL ROUTE 10 SECTION 11 FROM GROBLERSHOOP (KM 50.30 TO GROBLERSHOOP (KM 50.30), NATIONAL ROUTE 10 SECTION 11 FROM GROBLERSHOOP (KM 50.30 TO GROBLERSHOOP (KM 50.30), NATIONAL ROUTE 10 SECTION 11 FROM GROBLERSHOOP (KM 50.30 TO GROBLERSHOOP (KM 50.30), NATIONAL ROUTE 10 SECTION 11 FROM GROBLERSHOOP (KM 50.30 TO GROBLERSHOOP (KM 50.30), NATIONAL ROUTE 10 SECTION 11 FROM GROBLERSHOOP (KM 50.30 TO GROBLERSHOOP (KM 50.30), NATIONAL ROUTE 10 SECTION 11 FROM GROBLERSHOOP (KM 50.30 TO GROBLERSHOOP (KM 50.30), NATIONAL ROUTE 10 SECTION 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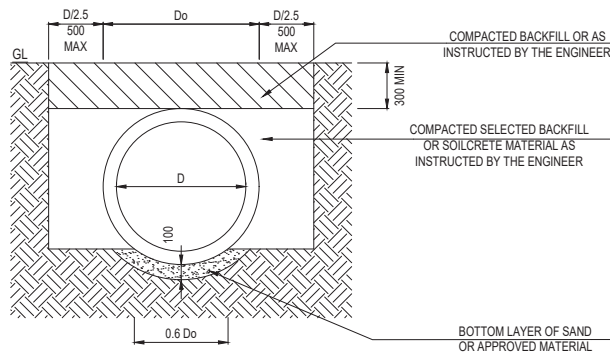
**CLASS "A" BEDDING
FOR SOFT EXCAVATIONS (SINGLE PIPE)**
N.T.S.



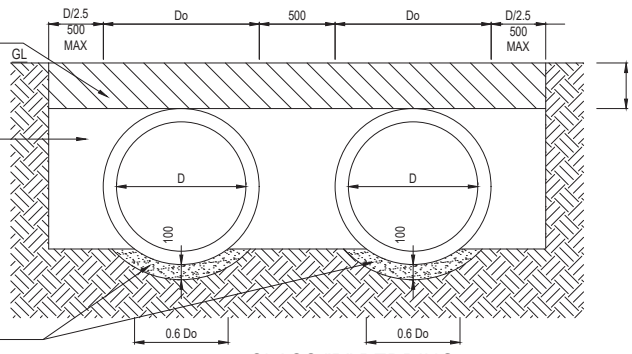
**CLASS "A" BEDDING
FOR SOFT EXCAVATIONS (DOUBLE PIPE)**
N.T.S.



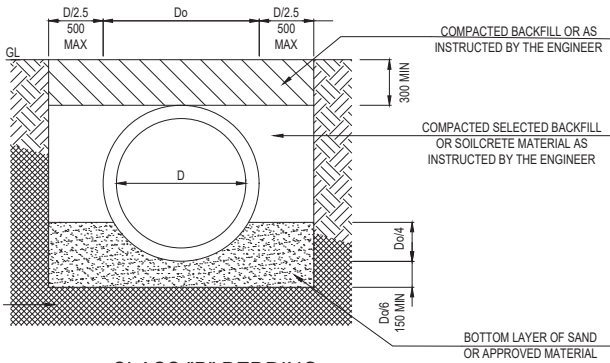
CONCRETE ENCASEMENT OF PIPES
SCALE : N.T.S.



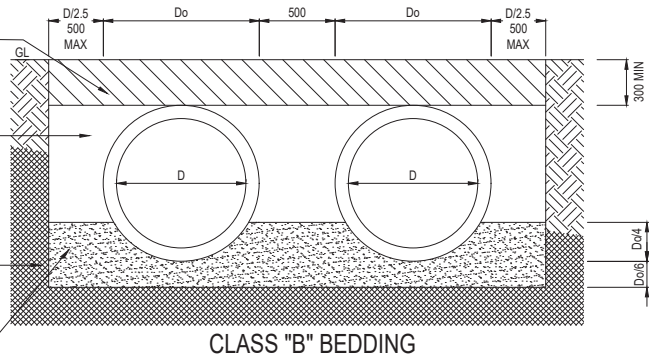
**CLASS "B" BEDDING
FOR SOFT EXCAVATIONS (SINGLE PIPE)**
N.T.S.



**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 $H < 600$ MM 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 150min	BEDDING	
			CLASS A Do/6 150min	CLASS B Do/2.5 150max
600	700	150	150	275
750	870	150	150	350
900	1030	175	175	400
1050	1195	200	200	500
1200	1360	225	225	500
1350	1525	250	250	500
1500	1680	300	300	500

FOR TENDER PURPOSES ONLY

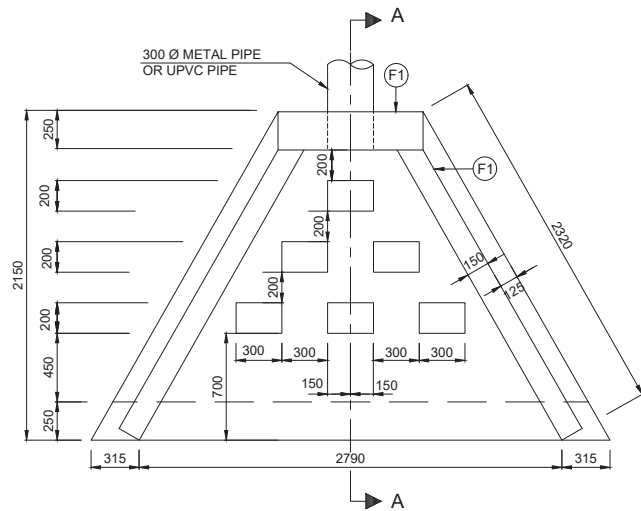
CONSTRUCTION RECORD WORKS CONTRACT ENGINEER Name: _____ Post: Reg No: _____ Date: _____				DESIGNED BY Name: _____ Post: Reg No: _____ Date: _____				CONSULTANT APPROVAL Name: _____ Post: Reg No: _____ Date: _____				HEAD OFFICE 48 Tardieu Avenue Yorkdale, Gauteng 2091 Tel: (011) 857 4000 Fax: (011) 857 4000				WESTERN REGION 1 Haverigg Street Sandton, Gauteng 2008 Tel: (011) 857 4000 Fax: (011) 857 4000				ACCEPTANCE THIS ACCEPTANCE IS FOR PROCEEDING AND AGREEMENTS FOR THE WORKS ONLY AND DOES NOT AFFECT THE LIABILITY OF SANRAL OR ANY OTHER PARTY INVOLVED IN THE WORKS.				PROJECT DESCRIPTION PERIODIC MAINTENANCE (RESURFACING) OF NATIONAL ROUTE 19 SECTION 11 FROM KEURMORAN (KM 50.30) TO GROBLERSHOOP (KM 55.99), NATIONAL ROUTE 19 SECTION 11 FROM GROBLERSHOOP (KM 55.99) TO GROBLERSHOOP (KM 70.00) AND NATIONAL ROUTE 19 SECTION 11 FROM GROBLERSHOOP (KM 70.00) TO GROBLERSHOOP (KM 8.18).				PROJECT NUMBER DRAWING LOCATION ROUTE - N10 SECTION - 10 ROUTE - N10 SECTION - 11 ROUTE - N8 SECTION - 6 CONSULTANT DRAWING SANRAL DOCUMENT #				NRA 2025/0004 START END KM 50.30 KM 55.99 KM 70.00 KM 8.18 DRAWING TYPE TYPICAL DRAWING - ROADWORKS AS242300-TO-M5-06 2025/0004-TO-M5-06			
BANRAL PROJECT MANAGER Name: _____ Post: Reg No: _____ Date: _____				CHECKED BY Name: _____ Post: Reg No: _____ Date: _____				DRAWN BY Name: _____ Post: Reg No: _____ Date: _____				PO Box 415 Pretoria 0001 South Africa Tel: (012) 844 8000				SANRAL BUILDING SOUTH AFRICA THROUGH BETTER ROADS				FOR TENDER PURPOSES ONLY															

SCALE: AS SHOWN

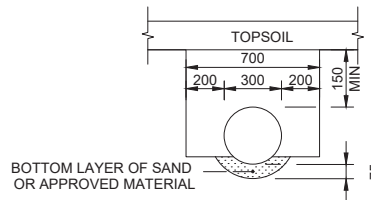
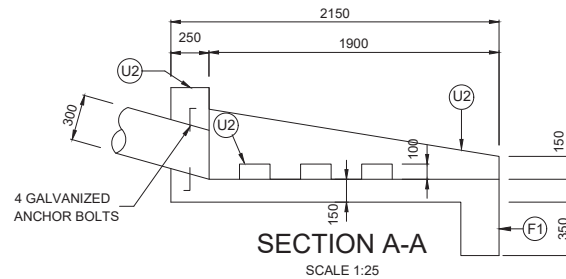
SHEET 01 OF 01

2025/0004-TO-M5-06

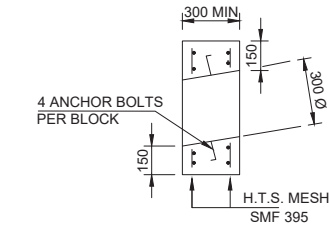
V1



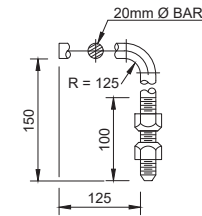
PLAN OF ENERGY BREAKER
SCALE 1:25



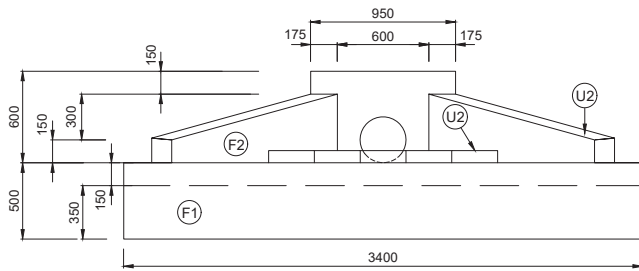
BEDDING FOR DOWN PIPES
SCALE 1:10



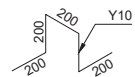
SECTIONAL VIEW OF ANCHOR BLOCK
SCALE : SCHEMATIC



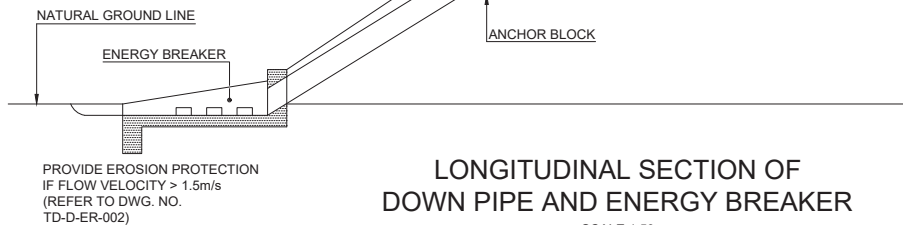
GALVANIZED ANCHOR BOLT
N.T.S.



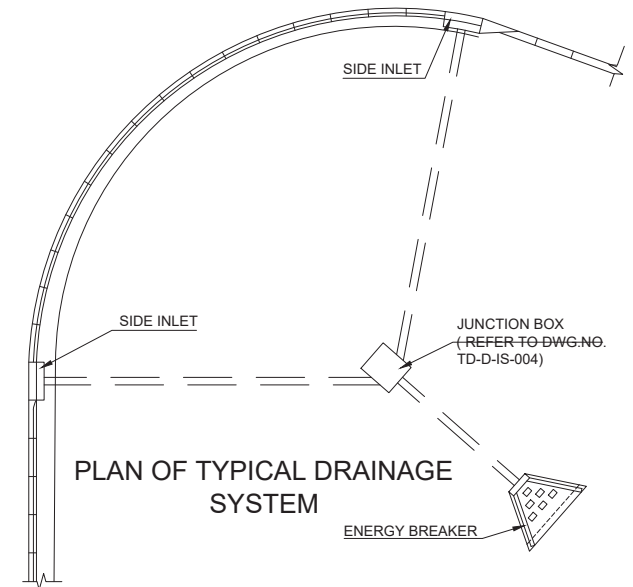
FRONT ELEVATION OF ENERGY BREAKER
SCALE 1:25



FIXING BAR
(2 PER BLOCK)
SCALE 1:20



LONGITUDINAL SECTION OF
DOWN PIPE AND ENERGY BREAKER
SCALE 1:50



PLAN OF TYPICAL DRAINAGE
SYSTEM

- NOTES FOR ANCHOR BLOCKS
- "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.
 - ANCHOR BLOCKS MUST BE SPACED AT EQUAL DISTANCES.
 - ANCHOR BLOCKS TO BE CAST AGAINST NEAT EXCAVATION. (NO FORMWORK)

				CONSTRUCTION RECORD		DESIGNED BY		CONSULTANT APPROVAL		HEAD OFFICE		WESTERN REGION		ACCEPTANCE		PROJECT DESCRIPTION		PROJECT NUMBER		NRA 2025/0004					
				WORKS CONTRACT ENGINEER		NAME		NAME		48 Tumbula Avenue Pretoria 0001 Tel: (012) 964 8400		1 Haverford Street Pretoria 0001 Tel: (012) 964 8400		THIS ACCEPTANCE IS FOR PROCEDURAL AND ADMINISTRATIVE REVIEW PURPOSES ONLY AND DOES NOT ATTRACT LEGAL LIABILITY OF ANY KIND FROM WHATEVER CAUSE OR HOWSOEVER ARISING		PERIODIC MAINTENANCE (RESURFACING) OF NATIONAL ROUTE 10 SECTION 10 FROM KHEUNENBARR (KM 50.30) TO GROBLERSHOOP (KM 55.59), NATIONAL ROUTE 10 SECTION 11 FROM GROBLERSHOOP (KM 55.59) TO LITIKY (KM 70.00) AND NATIONAL ROUTE 8 SECTION 6 FROM GROBLERSHOOP (KM 5.00) TO ROOSAND (KM 8.18)		DRAWING LOCATION		START		END			
				Name		Prof. Reg. No.		Date		PO Box 415 Pretoria 0001 Tel: (012) 964 8400		Private Bag X19 Pretoria 0001 Tel: (012) 964 8400				SANRAL TYPICAL DRAWINGS		ROUTE - N10 SECTION - 10		KM 50.30		KM 55.59			
				SANRAL PROJECT MANAGER		CHECKED BY		Date		The ABOVE SIGNATORY CERTIFIES THAT THE DESIGNER AND CHECKER HAVE CONSENTED TO THEIR NAMES BEING INSERTED ON THIS DRAWING AND THAT THEY HAVE GIVEN AND APPROVED THE DRAWING		PO Box 415 Pretoria 0001 South Africa Tel: (012) 964 8400				DRAWING DESCRIPTION		ROUTE - N10 SECTION - 11		KM 00.00		KM 70.00			
				Name		DRAWN BY		Date				Tel: (012) 967 4600 Fax: (012) 961 1996		for GEO: SA NATIONAL ROADS AGENCY LTD		INLET STRUCTURES		ROUTE - N8 SECTION - 6		KM 00.00		KM 8.18			
				Name		NAME		Date								TYPICAL DRAWING ROADWORKS		DRAWING TYPE		CONSULTANT DRAWING		A243300-TD-D-WW-03			
				ORIGINAL VERSION												DOWN FOR SIDE INLETS SHEET 2 OF 6		SANRAL DOCUMENT #		2025/0004-TD-D-WW-03				V1	
				No.		DATE		REVISION		CONSULT. ENG.						SCALE: AS SHOWN		SHEET 01 OF 01							

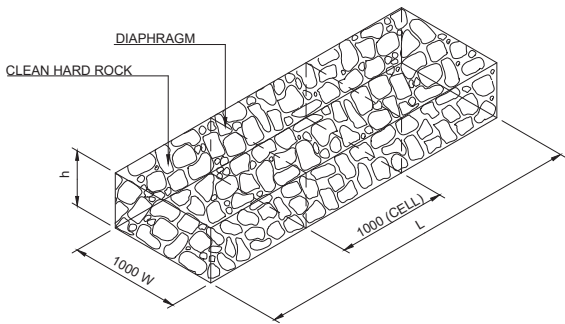


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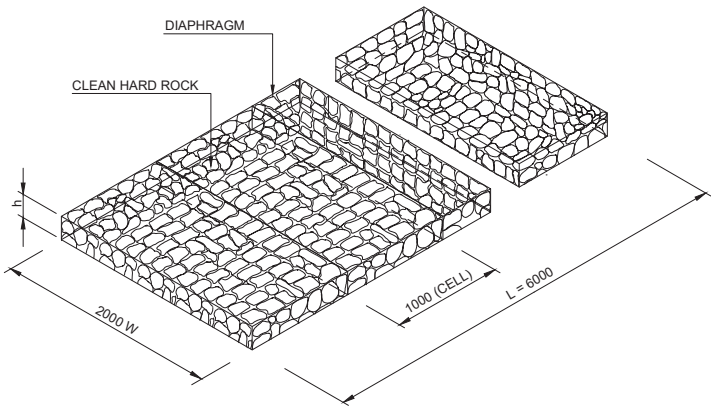
$$R = t + 100 \text{ (INSITU BARREL SLAB THICKNESS)}$$

				CONSTRUCTION RECORD		DESIGNED BY		CONSULTANT APPROVAL		HEAD OFFICE				WESTERN REGION		ACCEPTANCE		PROJECT DESCRIPTION				PROJECT LOCATION		NRA 2025/0004	
				WORKS CONTRACT ENGINEER		NAME		NAME		AS Tembeka Avenue Vlaai Gracie Pretoria 0184				THIS ACCEPTANCE IS FOR PROCESSIONAL AND ADMINISTRATIVE REVIEW PURPOSES ONLY AND DOES NOT IMPLY LEGAL LIABILITY OR LIABILITY OF ANY KIND AND WHATSOEVER GRADE OR COVERED AMOUNT		PERIODIC MAINTENANCE (RESURFACING OF NATIONAL ROUTE 19 SECTION 19 FROM KESKUNGGARAI KM 58.90 TO GROBLERSHOOP KM 58.90, NATIONAL ROUTE 19 SECTION 19 FROM GROBLERSHOOP (KM 5.85) TO UITYIKYI KM 75.00) AND NATIONAL ROUTE 19 SECTION 19 FROM GROBLERSHOOP (KM 5.85) TO KOOBANDAM KM 5.85)				DRAWING LOCATION		START		END	
				Name		Prof. Reg. No.		Name		Prof. Reg. No.		Date		SANRAL TYPICAL DRAWINGS		PRECAST CLAVERTY WALL WALLS				DRAWING TYPE		TYPICAL DRAWING/ROADWORKS			
				Prof. Reg. No.		CHECKED BY		NAME		PO Box 415 Pretoria 0001 South Africa Tel: (012) 844 8600		Private Bag 7318 Pretoria 0001 South Africa Tel: (021) 967 4600 Fax: (021) 910 1986		THE ABOVE SIGNATORY CERTIFIES THAT THE DESIGNER AND CHECKER HAVE CONSIDERED THE DRAWING AND THAT THEY HAVE BEEN AND APPROVED THE DRAWING		SANRAL TYPICAL DRAWINGS PRECAST CLAVERTY WALL WALLS DIMENSIONS SHEET 1 OF 2				ROUTE - N10 SECTION - 10 ROUTE - N10 SECTION - 11 ROUTE - N10 SECTION - 12 ROUTE - N10 SECTION - 13 ROUTE - N10 SECTION - 14 ROUTE - N10 SECTION - 15 ROUTE - N10 SECTION - 16 ROUTE - N10 SECTION - 17 ROUTE - N10 SECTION - 18 ROUTE - N10 SECTION - 19 ROUTE - N10 SECTION - 20 ROUTE - N10 SECTION - 21 ROUTE - N10 SECTION - 22 ROUTE - N10 SECTION - 23 ROUTE - N10 SECTION - 24 ROUTE - N10 SECTION - 25 ROUTE - N10 SECTION - 26 ROUTE - N10 SECTION - 27 ROUTE - N10 SECTION - 28 ROUTE - N10 SECTION - 29 ROUTE - N10 SECTION - 30 ROUTE - N10 SECTION - 31 ROUTE - N10 SECTION - 32 ROUTE - N10 SECTION - 33 ROUTE - N10 SECTION - 34 ROUTE - N10 SECTION - 35 ROUTE - N10 SECTION - 36 ROUTE - N10 SECTION - 37 ROUTE - N10 SECTION - 38 ROUTE - N10 SECTION - 39 ROUTE - N10 SECTION - 40 ROUTE - N10 SECTION - 41 ROUTE - N10 SECTION - 42 ROUTE - N10 SECTION - 43 ROUTE - N10 SECTION - 44 ROUTE - N10 SECTION - 45 ROUTE - N10 SECTION - 46 ROUTE - N10 SECTION - 47 ROUTE - N10 SECTION - 48 ROUTE - N10 SECTION - 49 ROUTE - N10 SECTION - 50 ROUTE - N10 SECTION - 51 ROUTE - N10 SECTION - 52 ROUTE - N10 SECTION - 53 ROUTE - N10 SECTION - 54 ROUTE - N10 SECTION - 55 ROUTE - N10 SECTION - 56 ROUTE - N10 SECTION - 57 ROUTE - N10 SECTION - 58 ROUTE - N10 SECTION - 59 ROUTE - N10 SECTION - 60 ROUTE - N10 SECTION - 61 ROUTE - N10 SECTION - 62 ROUTE - N10 SECTION - 63 ROUTE - N10 SECTION - 64 ROUTE - N10 SECTION - 65 ROUTE - N10 SECTION - 66 ROUTE - N10 SECTION - 67 ROUTE - N10 SECTION - 68 ROUTE - N10 SECTION - 69 ROUTE - N10 SECTION - 70 ROUTE - N10 SECTION - 71 ROUTE - N10 SECTION - 72 ROUTE - N10 SECTION - 73 ROUTE - N10 SECTION - 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GABIONS

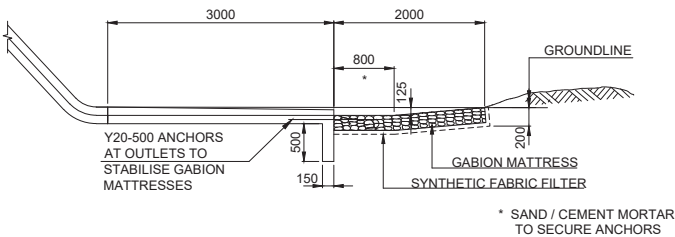
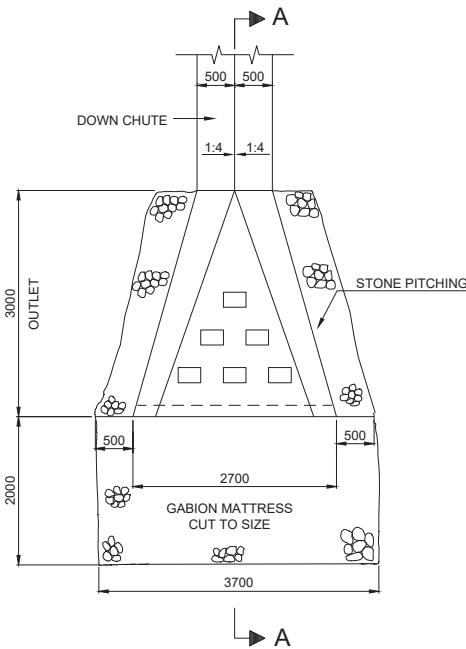


BOXES
SCALE: 1 : 50



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			



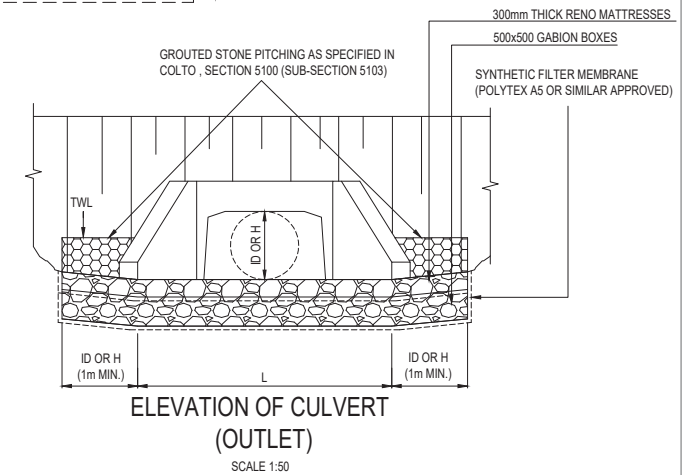
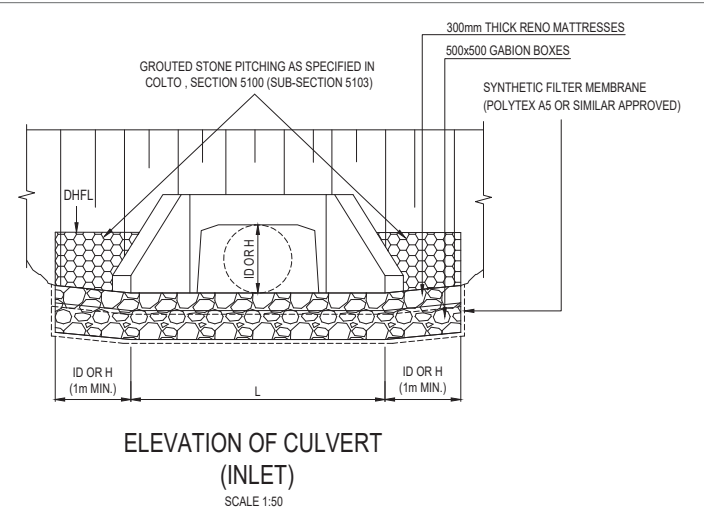
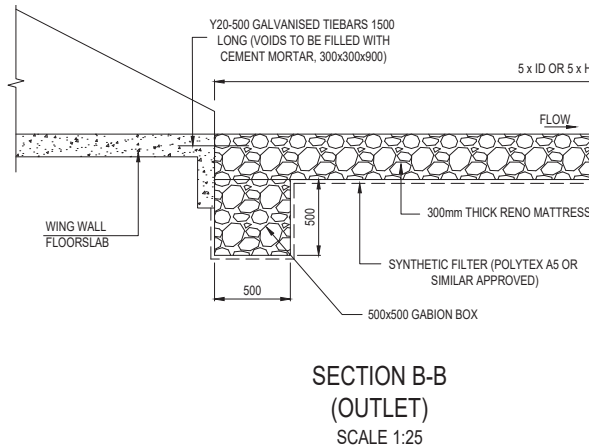
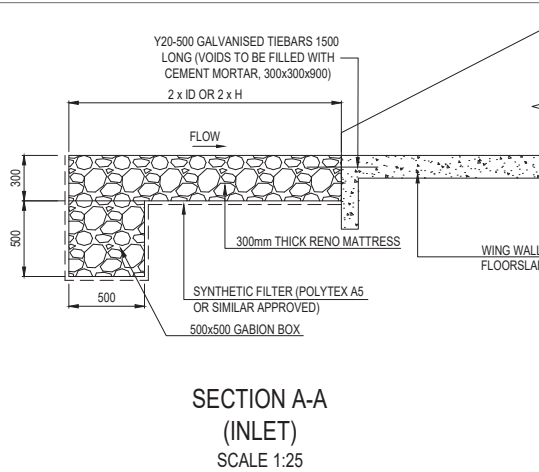
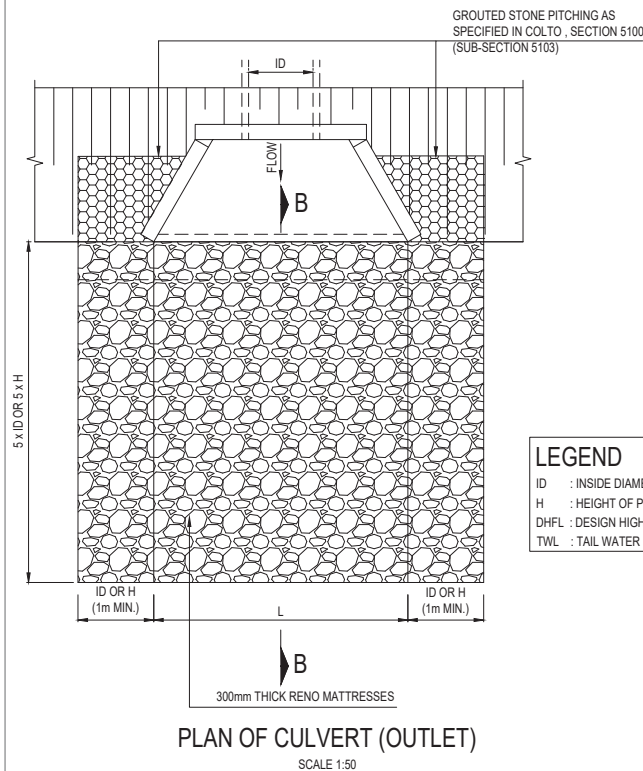
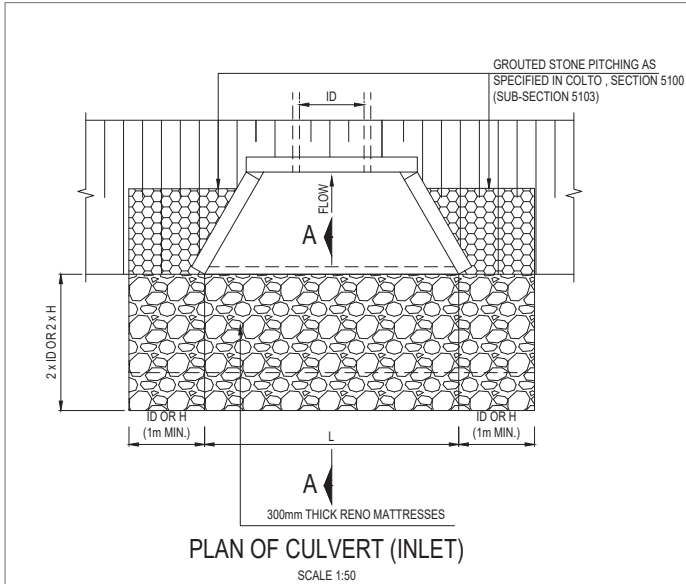
SECTION A-A
SCALE: 1 : 50

PLAN OF DOWN CHUTE AND ENERGY BREAKER
(REFER TO DWG No. TD-D-RD-002)

SCALE: 1: 50

FOR TENDER PURPOSES ONLY

CONSTRUCTION RECORD				DESIGNED BY		CONSULTANT APPROVAL		HEAD OFFICE		WESTERN REGION		ACCEPTANCE		PROJECT DESCRIPTION		PROJECT NUMBER	
NORTH CONTRACT ENGINEER				NAME		Name		48 Tamboe Avenue Val de Grace Pretoria 0184		1 Havenga Street Oudtshoorn 7530		THIS ACCEPTANCE IS FOR PROCEDURAL AND ADMINISTRATIVE REVIEW PURPOSES ONLY AND DOES NOT ATTRACT LEGAL LIABILITY OR LIABILITY OF ANY THIRD PARTY WHATSOEVER CAUSE OR HOWSOEVER ARISING		PERIODIC MAINTENANCE (RESURFACING) OF NATIONAL ROUTE 18 SECTION 10 FROM KEURMENDRAAI (KM 50.30) TO GROBLERSHOOP (KM 54.98), NATIONAL ROUTE 18 SECTION 11 FROM GROBLERSHOOP (KM 54.98) TO LUTYK (KM 70.00) AND NATIONAL ROUTE 8 SECTION 8 FROM GROBLERSHOOP (KM 8.00) TO ROSSAND (KM 8.18)		NRA 2025/0004	
SANRAL PROJECT MANAGER				Prof. Reg No. : Date		Prof. Reg No. : Date		PO Box 415 Pretoria 0001 South Africa		Private Bag X119 Riverside 7535		DRAWING DESCRIPTION		DRAWING LOCATION		START	
CONSULT. ENG.				NAME		Name		BUILDING SOUTH AFRICA THROUGH BETTER ROADS		Tel: (021) 950 4000 Fax: (021) 950 1968		SANRAL TYPICAL DRAWINGS		ROUTE - N10 SECTION - 10		KM 50.30	
No.				NAME		Name		EROSION CONTROL - STONE PITCHING AND GABIONS		SHEET 01 OF 01		ROUTE - N10 SECTION - 11		KM 00.00		KM 55.30	
DATE				NAME		Name		SHEET 01 OF 2		SCALE: AS SHOWN		ROUTE - N8 SECTION - 6		KM 00.00		KM 70.00	
REVISION				NAME		Name		SANRAL DOCUMENT #		2025/0004-TD-EC-01		DRAWING TYPE		TYPICAL DRAWING-ROADWORKS		END	
V1				NAME		Name		V1				CONSULTANT DRAWING		AA243300-TD-EC-01			
FOR TENDER PURPOSES ONLY				NAME		Name						SCALE: AS SHOWN					



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

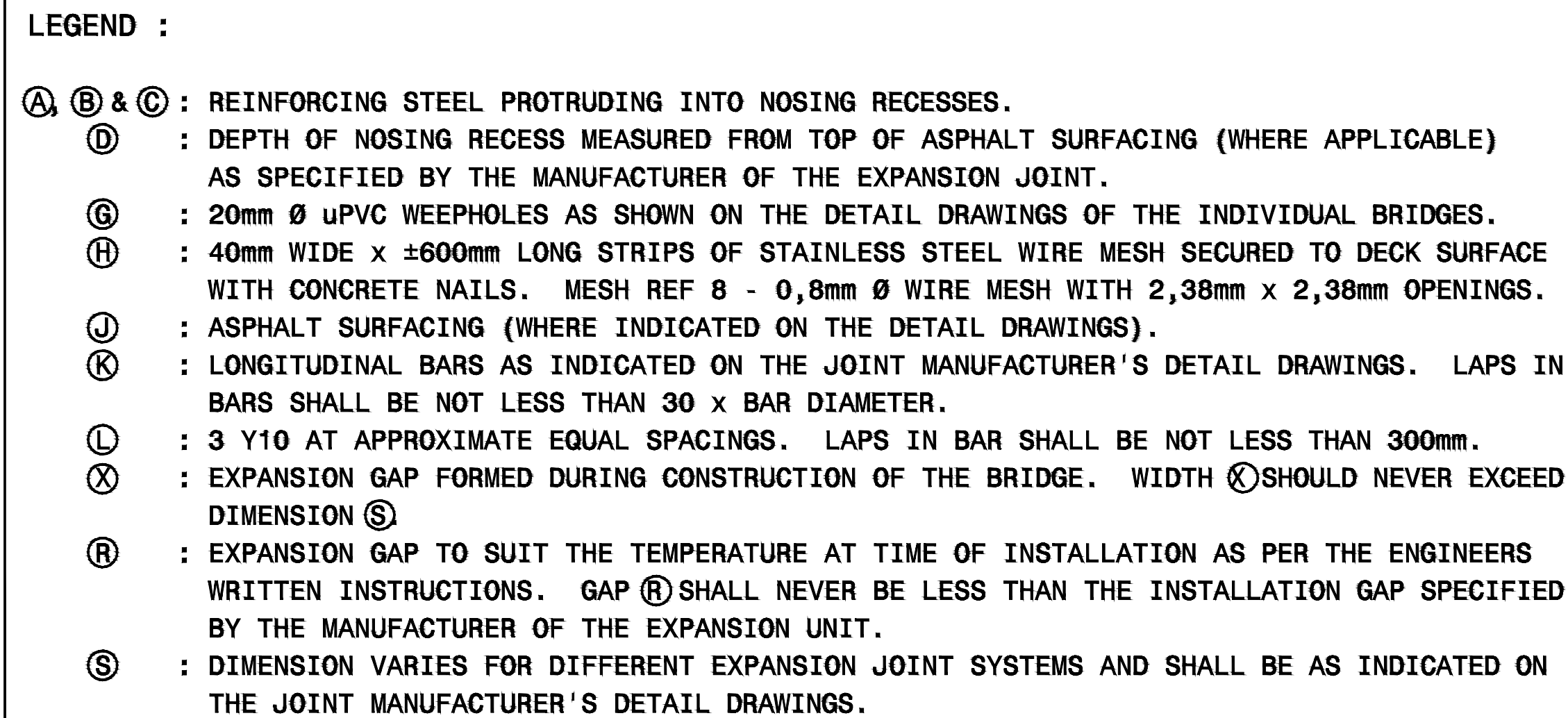
GUIDELINE FLOW VELOCITY (m/s)	PROTECTION MEASURE*
$V < 1.5$	FIELD GRASS
$1.5 < V < 3.5$	GRASS SODS
$3.5 < V < 6.5$	GABION MATTRESS (300mm)
$6.58 < V < 8$	GABIONS (500mm MIN)

FOR TENDER PURPOSES ONLY

NOTE

- GABION BOXES AND RENO MATTRESSES (MACCAFERRI SA OR SIMILAR APPROVED) DIMENSIONS, SPECIFICATIONS AND ASSEMBLY DETAILS AS PER MANUFACTURERS REQUIREMENTS.
- FOR GRASS, STONE PITCHING, CONCRETE AND STILLING BASIN EROSION PROTECTIVE MEASURES REFER TO CHAPTER 7 OF THE ROAD DRAINAGE MANUAL, 5th EDITION, 2006.

CONSTRUCTION RECORD				DESIGNED BY		CONSULTANT APPROVAL		HEAD OFFICE		WESTERN REGION		ACCEPTANCE		PROJECT DESCRIPTION		PROJECT NUMBER		NRA 2025/0004			
WORKS CONTRACT ENGINEER				NAME		Name		48 Tumbula Avenue Off 4th Floor Pretoria 0181		1 Tumbula Street Pretoria 0181		THIS ACCEPTANCE IS FOR PROFESSIONAL AND ADMINISTRATIVE REVIEW PURPOSES ONLY AND DOES NOT ATTRACT LEGAL LIABILITY OF ANY KIND FROM WHATEVER CAUSE OR OTHERWISE ARISING.		PERIODIC MAINTENANCE (RESURFACING) OF NATIONAL ROUTE 19 SECTION 10 FROM KEURUNRAAI (KM 50.30) TO GROBLERSHOOP (KM 58.90), NATIONAL ROUTE 19 SECTION 11 FROM GROBLERSHOOP (KM 58.90) TO LUTKYN (KM 70.80) AND NATIONAL ROUTE 8 SECTION 6 FROM GROBLERSHOOP (KM 58.90) TO ROOSBAND (KM 8.18)		DRAWING LOCATION		START		END	
Name				Prof. Reg No.		Date		Private Bag 410 Pretoria 0181		Private Bag 410 Pretoria 0181		Date		DRAWING DESCRIPTION		ROUTE - N10 SECTION - 10		KM 50.30		KM 55.59	
SANRAL PROJECT MANAGER				NAME		Date		PO Box 415 Pretoria 0181		PO Box 415 Pretoria 0181		Date		SANRAL TYPICAL DRAWINGS		ROUTE - N10 SECTION - 11		KM 00.00		KM 70.00	
Name				Prof. Reg No.		Date		SANRAL PROJECT MANAGER		SANRAL PROJECT MANAGER		Date		DRAWING TYPE		ROUTE - N8 SECTION - 6		KM 00.00		KM 8.18	
Date				NAME		DRAWN BY		The ABOVE SIGNATORY CERTIFIES THAT THE ENGINEER AND/OR ARCHITECT HAS/ HAVE CONSENTED TO THEIR NAMES BEING ENTERED ON THE DRAWING AND ARE THEREFORE RESPONSIBLE TO THE DRAWING AND THE DRAWING.		The ABOVE SIGNATORY CERTIFIES THAT THE ENGINEER AND/OR ARCHITECT HAS/ HAVE CONSENTED TO THEIR NAMES BEING ENTERED ON THE DRAWING AND ARE THEREFORE RESPONSIBLE TO THE DRAWING AND THE DRAWING.		Date		EROSION CONTROL - STONE PITCHING AND GABIONS		CONSULTANT DRAWING		TYPICAL DRAWING ROADWORKS			
V1 START DATE ORIGINAL VERSION				Name		Date		SANRAL PROJECT MANAGER		SANRAL PROJECT MANAGER		Date		DRAWING TYPE		CONSULTANT DRAWING		TYPICAL DRAWING ROADWORKS			
No. DATE REVISION				Name		Date		SANRAL PROJECT MANAGER		SANRAL PROJECT MANAGER		Date		DRAWING TYPE		CONSULTANT DRAWING		TYPICAL DRAWING ROADWORKS			
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SCALE 1 : 5

THIS DRAWING FORMS PART OF AND MUST
BE READ IN CONJUNCTION WITH TYPICAL
DRAWINGS TD-S-J-501 - TD-S-J-503

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										NRA 2025/0004									
										DRAWING LOCATION DATA									
										START END KM 50.30 KM 55.50 KM 0.00 KM 70.00 KM 0.00 KM 8.18									
										TYPICAL DRAWINGS									
										CONSULTANT DRAWING No. AA243300-TD-J1									
										SARL DOCUMENT # TD-S-J-501									
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4.3 ROUND BAR USED FOR ANCHORAGES SHALL BE MILD STEEL BARS COMPLYING WITH THE REQUIREMENTS OF SANS 920 (fy = 250MPa)

4.4 THE EXPANSION UNITS MAY BE MANUFACTURED IN LENGTHS TO SUIT THE MANUFACTURER AND THE CONTRACTOR PROVIDED THE FOLLOWING ARE COMPLIED WITH :

4.4.1 EXPANSION UNITS WITH A TOTAL LENGTH LESS THAN 6.0m SHALL BE MANUFACTURED AND SUPPLIED IN ONE CONTINUOUS LENGTH.

4.4.2 EXPANSION UNITS WITH A TOTAL LENGTH BETWEEN 6.0m AND 12.0m MAY BE MANUFACTURED IN TWO EQUAL LENGTHS AND COUPLED.

4.4.3 EXPANSION UNITS WITH A TOTAL LENGTH IN EXCESS OF 18.0m MAY BE MANUFACTURED IN EQUAL LENGTHS OF NOT LESS THAN 6.0m AND COUPLED

4.5 ANCHORAGES OF THE JOINT PROFILES SHALL BE NORMAL TO THE CENTRE LINE OF THE JOINT WITH THE EXCEPTION OF THE ANCHORAGES LOCATED OVER SIDEWALKS AND MEDIANS FOR SKEW BRIDGES WHERE SERVICE DUCTS AND OTHER DETAILS PROHIBIT THE ABOVE. THE ANCHORAGES AND JOINT PROFILES SHALL BE TO THE INDIVIDUAL MANUFACTURER'S DETAILS.

5. CORROSION PROTECTION

5.1 ALL STEEL SURFACES OF THE DECK EXPANSION UNITS (EXCLUDING STAINLESS STEEL AND CORROSION RESISTANT STEEL (3CR12), LOCATED WITHIN 50mm OF THE EXPOSED STEEL AND/OR EXPOSED CONCRETE FACES SHALL BE PROTECTED AGAINST CORROSION.

THE DETAILS OF THE CORROSION PROTECTION SHALL BE AS SPECIFIED ON THE DETAIL DRAWINGS OF THE JOINT MANUFACTURER AND GUARANTEED BY THE CONTRACTOR FOR FIVE YEARS AFTER EXPIRY OF THE MAINTENANCE LIABILITY PERIOD AND SHALL COMPLY WITH THE FOLLOWING :

THE DESIGN AND DETAILS OF THE MANUFACTURER SHALL MAKE FULL ALLOWANCE FOR THE LOSS IN BOND BETWEEN THE ANCHORAGES OF THE DECK EXPANSION UNITS AND THE CONCRETE NOSINGS RESULTING FROM THE CORROSION PROTECTIVE COATINGS.

5.2 THE SYSTEMS SPECIFIED IN 5.2.1 AND 5.2.2 ARE SUGGESTED PROTECTIVE SYSTEMS WHICH GIVE AN INDICATION OF THE MINIMUM REQUIREMENTS.

5.2.1 PAINTING

THE SURFACE PREPARATION AND CORROSION PROTECTION OF THE STEEL SURFACES (EXCLUDING STAINLESS STEEL SURFACES) SHALL COMPLY WITH THE REQUIREMENTS OF SUBCLAUSES 6603(F) OF THE STANDARD SPECIFICATIONS, THE MANUFACTURER'S REQUIREMENTS AND THE FOLLOWING :

(a) EXPANSION UNIT ANCHORAGES

ABRASIVE BLASTING FOLLOWED WITHIN TWO HOURS BY ZINC METAL (THERMAL) SPRAY IN ACCORDANCE WITH SANS 1391 PART 1, GRADE ZN 150 COVERAGE TO ALL SURFACES.

(b) ALL OTHER AREAS

ABRASIVE BLASTING FOLLOWED WITHIN TWO HOURS BY ZINC METAL (THERMAL) SPRAY IN ACCORDANCE WITH SANS 1391 PART 1, GRADE ZN 150 COVERAGE TO ALL SURFACES. IMMEDIATELY AFTER COMPLETION OF SPRAYING, APPLY ONE COAT OF TWO COMPONENT METAL ETCH PRIMER COMPLYING WITH SANS 723. AFTER CURING, APPLY ONE COAT OF TWO COMPONENT EPOXY PRIMER, SUCH AS CARBOLINE 193 PRIMER, AT A DRY FILM THICKNESS OF 80 ±10 MICRONS, FOLLOWED BY ONE COAT OF TWO COMPONENT EPOXY FINISH SUCH AS CARBOLINE 193 FINISH AT A DRY FILM THICKNESS OF 80 ±10 MICRONS. TOTAL COATING THICKNESS SHALL NOT BE LESS THAN 275 MICRONS.

REFERENCE DRAWINGS

THIS DRAWING FORMS PART OF AND MUST BE READ IN CONJUNCTION WITH TYPICAL DRAWINGS TD-S-J-501 - TD-S-J-503

5.2.2 GALVANISING

ALL STRUCTURAL STEEL MEMBERS (EXCLUDING STAINLESS STEEL MEMBERS) SHALL BE FABRICATED IN ACCORDANCE WITH THE RECOMMENDATIONS OF SANS 8214. NOTE THE APPENDIX DEALING WITH THE EFFECT OF CHEMICAL COMPOSITION OF STEEL ON THE GALVANISING PROCESS. MEMBERS SHALL BE HOT DIP GALVANISED IN ACCORDANCE WITH SANS 763 TO THE THICKNESSES INDICATED BELOW FOR THE FOLLOWING APPLICATIONS :

(a) AREAS NOT CORROSIVE TO STEEL (INLAND AREAS WITH MODERATE AIR POLLUTION)

GALVANISED COATING NOT LESS THAN 85 MICRONS THICK.

(b) AREAS CORROSIVE TO STEEL (NEAR COAST AND/OR POLLUTED AIR CONDITIONS) (WHEN SPECIFIED IN THE PROJECT SPECIFICATIONS OR DETAIL DRAWINGS OF THE BRIDGE)

HEAVY DUTY GALVANISED COATING NOT LESS THAN 105 MICRON THICKNESS WITH ALL AREAS LOCATED WITHIN 50mm OF THE EXPOSED STEEL AND/OR EXPOSED CONCRETE FACES "DUPLEX COATED" IN ACCORDANCE WITH SAHDGA 01-1990 (THE SOUTH AFRICAN HOT-DIP GALVANISERS ASSOCIATION).

PREPARATION SURFACES TO BE PAINTED SHALL BE VERY THOROUGHLY DEGREASED BY THE USE OF 'PLASCON AQUASOLV' OR EQUAL APPROVED WATER MISCIBLE SOLVENT BASED DEGREASER APPLIED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS, FOLLOWED BY WASHING WITH CLEAN POTABLE WATER. IF THE SURFACE IS NOT 'WATER BREAK FREE' THE CLEANING PROCESS SHALL BE REPEATED.

PRIMING APPLY AN APPROVED TWO COMPONENT EPOXY PRIMER DESIGNED FOR APPLICATION TO GALVANISED STEEL TO A DRY FILM THICKNESS OF 80 ±20 MICRONS.

TOP COAT APPLY ONE COAT OF TWO COMPONENT ACRYLIC MODIFIED ALIPHATIC POLYURETHANE IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS TO A DRY FILM THICKNESS OF 35 ±10 MICRONS. THE COLOUR OF THE TOP COAT SHALL BE G29 LIGHT GREY TO SANS 1091.

ALL DAMAGED GALVANISED SURFACES LOCATED WITHIN 50mm OF THE EXPOSED STEEL AND/OR EXPOSED CONCRETE FACES SHALL BE REPAIRED BY THE APPLICATION OF NOT LESS THAN TWO COATS OF EPOXY ESTER BASED ZINC RICH PRIMER TO A TOTAL COATING THICKNESS OF NOT LESS THAN 150 MICRONS AFTER THOROUGH ABRASIVE CLEANING. THE PREPARATION OF THE SURFACES, APPLICATION AND CURING TIMES BETWEEN COATS SHALL BE IN ACCORDANCE WITH THE PAINT MANUFACTURER'S REQUIREMENTS.

6. WATERTIGHTNESS TEST (WHEN DIRECTED BY THE ENGINEER)

SELECTED SECTIONS OF THE COMPLETED EXPANSION JOINT INCLUDING THE KERB TURN-UPS SHALL BE DYKED AND PONDED WITH WATER TO A DEPTH OF NOT LESS THAN 50mm FOR FOUR HOURS. THE JOINT SHALL BE DEEMED TO HAVE PASSED THE TEST WHEN NO VISIBLE SIGNS OF LEAKAGE ARE DETECTED.

7. MEASUREMENT AND PAYMENT

7.1 THE MANUFACTURE AND INSTALLATION OF THE EXPANSION UNIT SHALL BE MEASURED AND PAID UNDER THE APPLICABLE PAY ITEM IN THE STANDARD AND PROJECT SPECIFICATIONS.


7.2 NO SEPARATE PAYMENT WILL BE MADE FOR THE FOLLOWING :

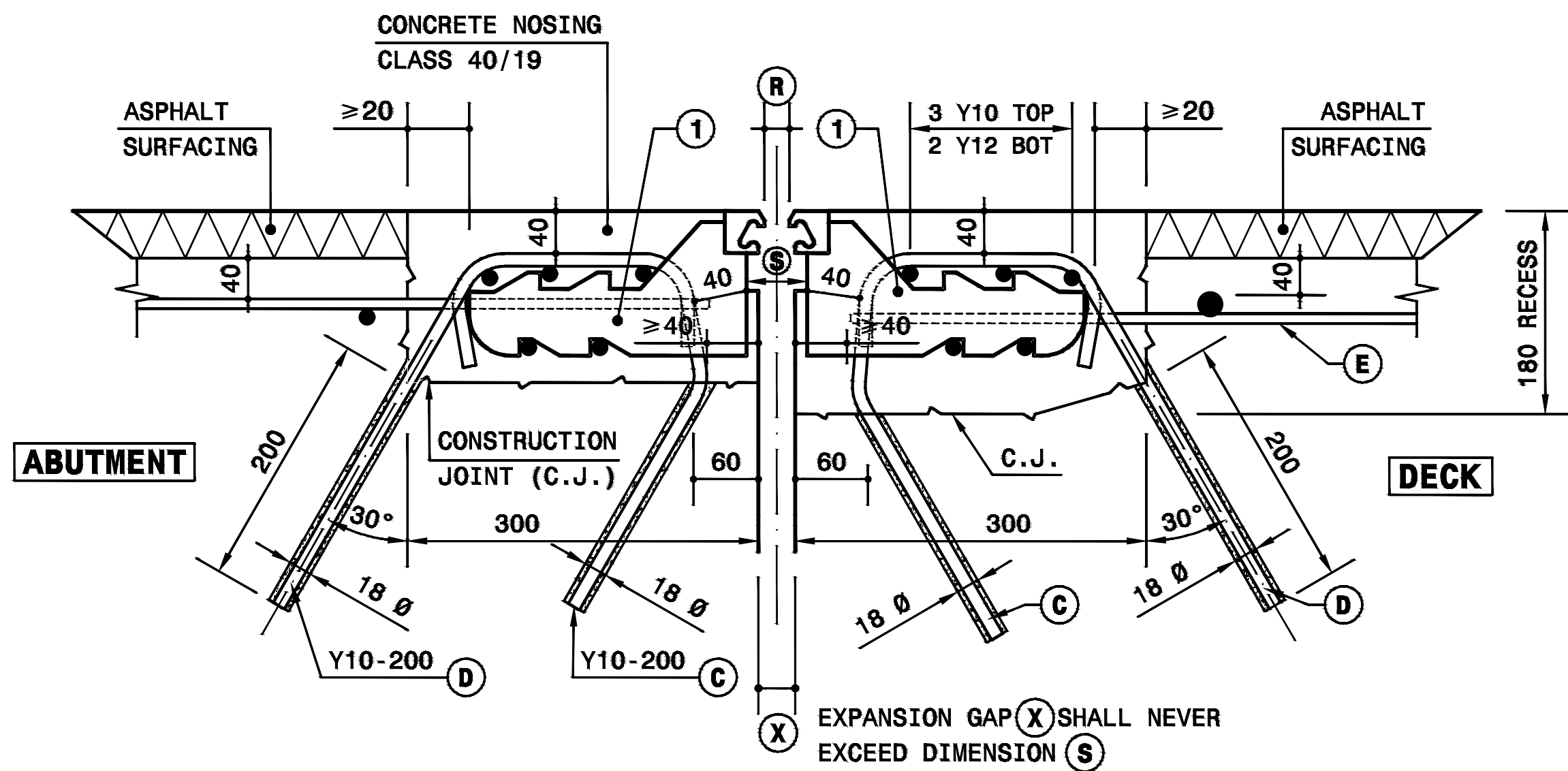
7.2.1 MANUFACTURE, SUPPLY, INSTALLATION AND PAINTING OF THE COVER PLATES. ALL COSTS SHALL BE DEEMED TO BE INCLUDED IN THE TENDERED RATES.

7.2.2 SUPPLY AND INSTALLATION OF THE LONGITUDINAL REINFORCEMENT (BARS K AND L) CAST INTO THE CONCRETE NOSINGS.

7.3 PAYMENT FOR THE WATERTIGHTNESS TEST SHALL BE MADE UNDER THE APPLICABLE CLAUSE.

					FOR TENDER PURPOSES ONLY				
					CONSTRUCTION RECORD				
					WORKS CONTRACT ENGINEER				
					PROF. REG. NO. : DATE :				
					SANRAL PROJECT MANAGER				
					NAME : DATE :				
REV 01	MARCH 2025	FOR TENDER PURPOSES ONLY							
V1	START DATE	ORIGINAL VERSION							
No.	DATE	REVISION	CONSULT.	ENG.					

DESIGNED BY		CONSULTANT APPROVAL	WESTERN REGION 1 HAVENGA STREET OAKDALE, BELLVILLE WESTERN CAPE 7530 PRIVATE BAG X19 BELLVILLE 7535 SOUTH AFRICA Tel: (021) 957 4600	 SOUTH AFRICAN NATIONAL ROADS AGENCY SOC LTD INGENROP CAPE TOWN SUITE 209, TYGERLAKE 2 NIAGARA RD BELLVILLE 7535 Tel: (021) 914 2833	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 THE SA NATIONAL ROADS AGENCY SOC LTD DATE:	PROJECT DESCRIPTION		PROJECT NUMBER NRA 2025/0004	DRAWING LOCATION DATA ROUTE- N10 SECTION- 10 ROUTE- N10 SECTION- 11 ROUTE- N8 SECTION- 6		TYPICAL DRAWINGS		
CHECKED BY						DRAWING DESCRIPTION:							
NAME		NAME : PROF. REG. NO. : DATE :	DRAWN BY	V. SEWSUNKER		JOINTS- ARMoured NOSING TYPE: SINGLE & MULTI ELEMENT		CONSULTANT DRAWING No.	AA243300-TD-J2	V1			
PROF. REG. NO.						SCALE : 1:1000							
NAME		NAME : PROF. REG. NO. : DATE :	SHEET 2 OF 2			SANRAL DOCUMENT #		TDS-J-502					



**TYPICAL CROSS SECTION
EXISTING JOINT REPLACEMENT**

SCALE 1 : 5

LEGEND :

- ⊗ : EXPANSION GAP FORMED DURING CONSTRUCTION OF THE BRIDGE. WIDTH ⊗ SHOULD NEVER EXCEED DIMENSION Ⓢ
- Ⓡ : EXPANSION GAP TO SUIT THE TEMPERATURE AT TIME OF INSTALLATION AS PER THE ENGINEERS WRITTEN INSTRUCTIONS. GAP Ⓡ SHALL NEVER BE LESS THAN THE INSTALLATION GAP SPECIFIED BY THE MANUFACTURER OF THE EXPANSION UNIT.
- Ⓐ TO Ⓔ : REINFORCING STEEL PROTRUDING INTO NOSING. (SEE NOTE 2.3 & 2.6)
- ① : ANCHORAGES
- ② : PROFILES

NOTES:

1. GENERAL

- 1.1 THE MATERIAL, WORK AND INSTALLATION OF THE EXPANSION UNITS SHALL COMPLY WITH ALL THE RELEVANT CLAUSES OF THE STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE WORKS, PROJECT SPECIFICATIONS, REQUIREMENTS OF SANRAL STANDARD PLAN NO TD-S-J-501 AND AS DESCRIBED BELOW.
- 1.2 BEFORE COMMENCING WITH ANY WORK, SAMPLES OF THE CONSTITUENT MATERIALS AND A STATEMENT OF THE MIX PROPORTIONS OF THE CONCRETE TO BE USED IN THE NOSINGS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

- CONCRETE - CLASS W40/13 (CLASS W40/19 MAY BE USED WHERE RECESSES ARE DEEPER THAN 180mm).
- SLUMP - NOT LESS THAN 40mm, NOT GREATER THAN 60mm.
- CEMENT CONTENT - NOT MORE THAN 500kg PER CUBIC METRE.
- LOW SHRINKAGE DESIGN MIX

2. CONSTRUCTION PROCEDURE

- 2.1 REMOVE THE EXISTING EXPANSION JOINT AND COVER PLATES IF PROVIDED AND ESTABLISH THE PRESENCE AND DEPTH OF EXISTING REINFORCEMENT WITHIN THE CONFINES OF THE PROPOSED NEW CONCRETE NOSINGS.
- 2.2 IN THE CASES WHERE OPEN SERVICE DUCTS ARE PRESENT AT SIDEWALKS AND THE PAVING SLABS EXTEND OVER THE EXPANSION JOINT WITHOUT EDGE BEAMS, CONCRETE NOSING SHALL BE PROVIDED TO FORM EDGE BEAMS.
- 2.3 SAW-CUT AND REMOVE A STRIP OF ASPHALT SURFACING AND/OR CONCRETE CENTRED OVER THE JOINT AND CORRESPONDING TO THE WIDTHS AND DEPTHS OF THE PROPOSED NEW CONCRETE NOSINGS.

- 2.4 "WEAK" CONCRETE EXPOSED IN THE RECESSES SHALL BE REMOVED AND/OR REPAIRED AS DESCRIBED IN THE PROJECT SPECIFICATIONS OR AS INSTRUCTED BY THE ENGINEER.

- 2.5 CLEAR THE EXPANSION GAP OF ALL JOINTING AND/OR FOREIGN MATERIAL OVER THE FULL WIDTH AND DEPTH OF THE DECK SLAB.

- 2.6 WHERE EXISTING REINFORCEMENT EXPOSED IN THE NOSING RECESSES DOES NOT COMPLY WITH THE DETAILS OR IS LESS THAN THE SPECIFIED AREAS OVER ANY ONE METRE LENGTH OF THE JOINT, Y10 ANCHOR BARS SHALL BE INSTALLED AS DESCRIBED BELOW EXCEPT WHERE OTHERWISE SPECIFIED IN THE PROJECT SPECIFICATIONS.

- DRILL 14mm TO 20mm Ø BY 200mm DEEP HOLES FOR Y10 ANCHOR BARS.
- CLEAR THE HOLES OF DRILL SPOIL AND ENSURE THAT THE HOLES ARE SOUND, DRY AND FREE OF GREASE, OIL OR ANY FOREIGN MATTER.
- TEST-FIT THE PRE-BENT Y10 ANCHOR BARS AND ADJUST THE LENGTH AND/OR SHAPE OF THE BARS WHERE NECESSARY.
- PRIME THE HOLES AND PLACE SUFFICIENT GROUTING COMPOUND IN EACH HOLE TO ENSURE THAT THE HOLES ARE FILLED TO THEIR FULL DEPTHS ON INSTALLATION OF THE Y10 ANCHOR BARS WITHOUT SUBSEQUENT TOPPING UP.
- INSTALL THE Y10 ANCHOR BARS ENSURING THAT THE BARS EXTEND TO THE FULL DEPTHS OF THE DRILLED HOLES. FOR BARS NOT PRE-BENT (SEE NOTE 2.6 c) THE GROUT SHALL BE ALLOWED TO CURE BEFORE BENDING TO FORM STIRRUPS.

- ANCHOR BARS - Y10 HIGH-YIELD-STRESS-STEEL DEFORMED BARS TO SANS 920

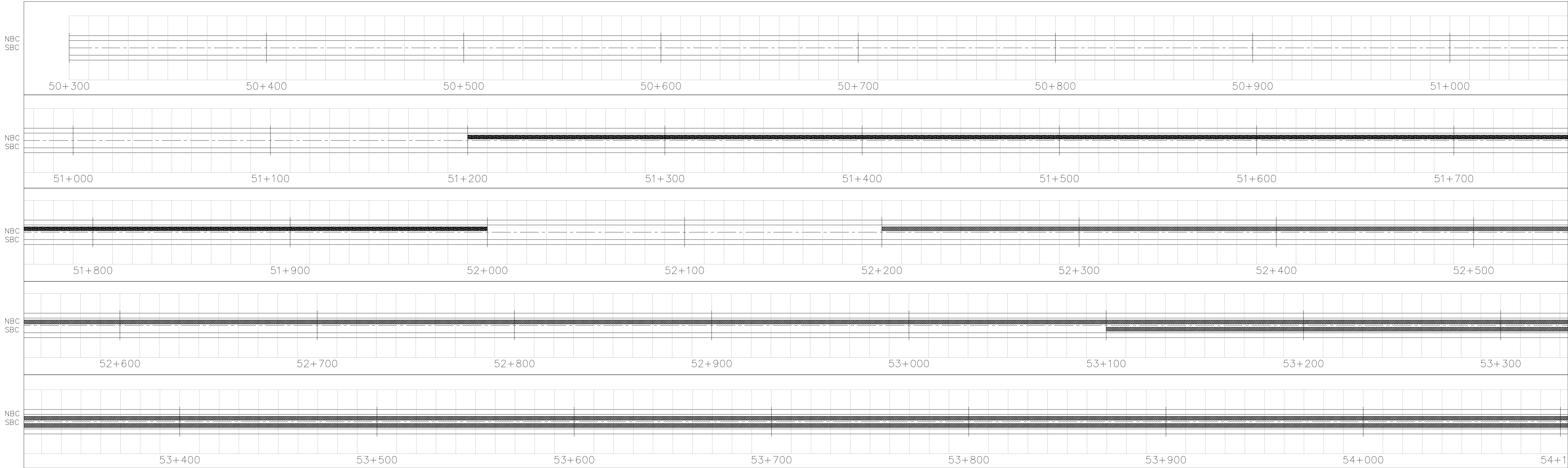
- 2.7 PROCEED WITH THE PREPARATION OF THE RECESSES, INSTALLATION OF THE EXPANSION UNITS, CONCRETING AND CURING OF THE CONCRETE NOSINGS AND INSTALLATION OF THE STEEL COVER PLATES AS DESCRIBED FOR NEW INSTALLATIONS.




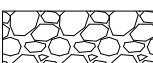
- 2.8 WHERE SPECIFIED IN THE PROJECT SPECIFICATIONS THE CONCRETE NOSINGS SHALL BE PROTECTED BY TEMPORARY STEEL BRIDGING SYSTEMS AS DIRECTED BY THE ENGINEER. THE COVER PLATES SHALL NOT BE REMOVED BEFORE THE CONCRETE IN THE NOSINGS HAS ATTAINED A CHARACTERISTIC CUBE STRENGTH OF 30MPa.

REFERENCE DRAWINGS

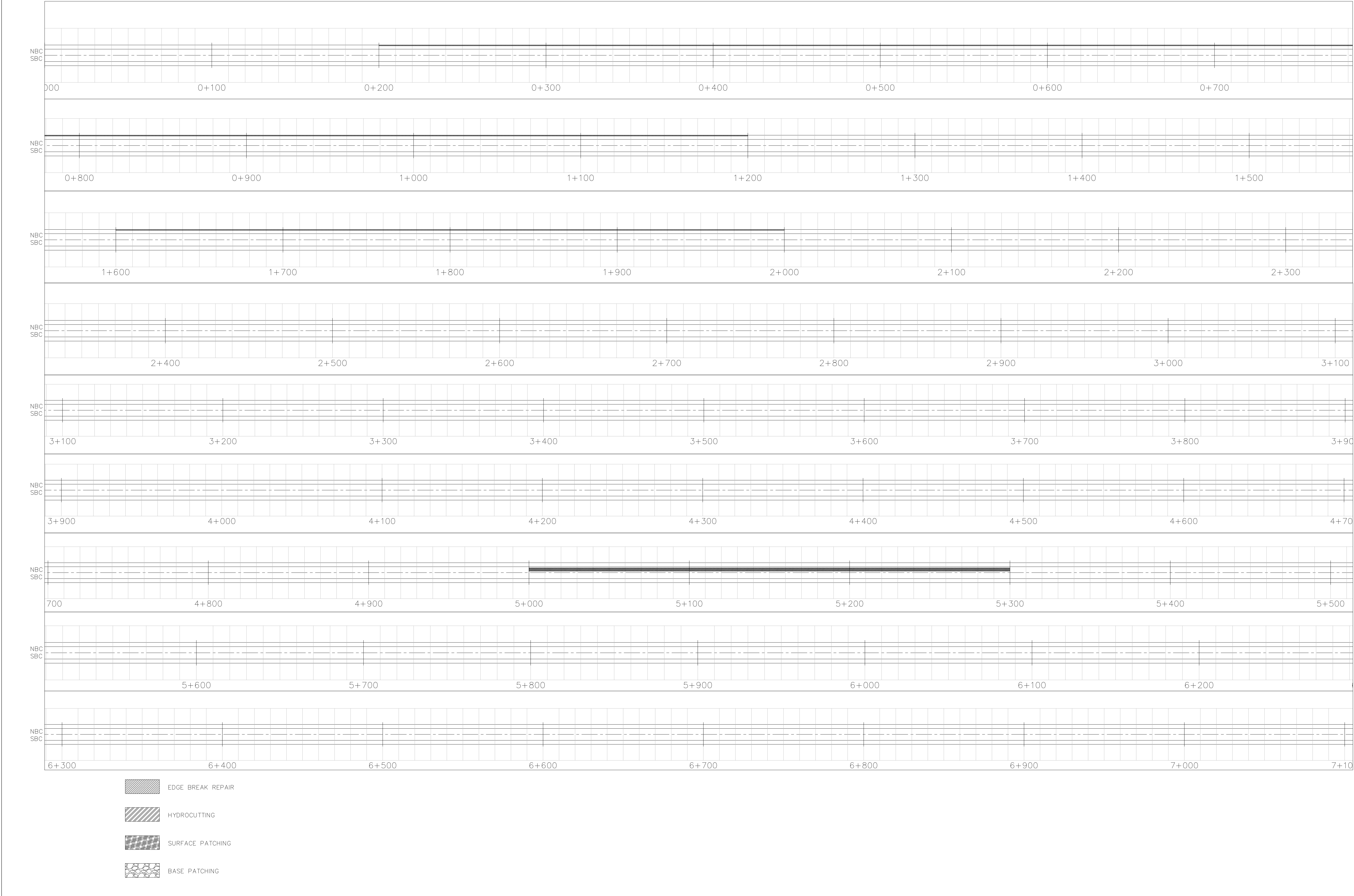
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										FOR TENDER PURPOSES ONLY			
CONSTRUCTION RECORD										NRA 2025/0004			
WORKS CONTRACT ENGINEER										START		END	
PROF. REG. NO. : DATE : SANRAL PROJECT MANAGER										ROUTE- N10 SECTION- 10		KM 50.30	
NAME : DATE : CONSULT. ENG.										ROUTE- N10 SECTION- 11		KM 55.59	
NAME : DATE : V. SEWUNGER										ROUTE- N8 SECTION- 6		KM 0.00	
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- EDGE BREAK REPAIR
- HYDROCUTTING
- SURFACE PATCHING
- BASE PATCHING

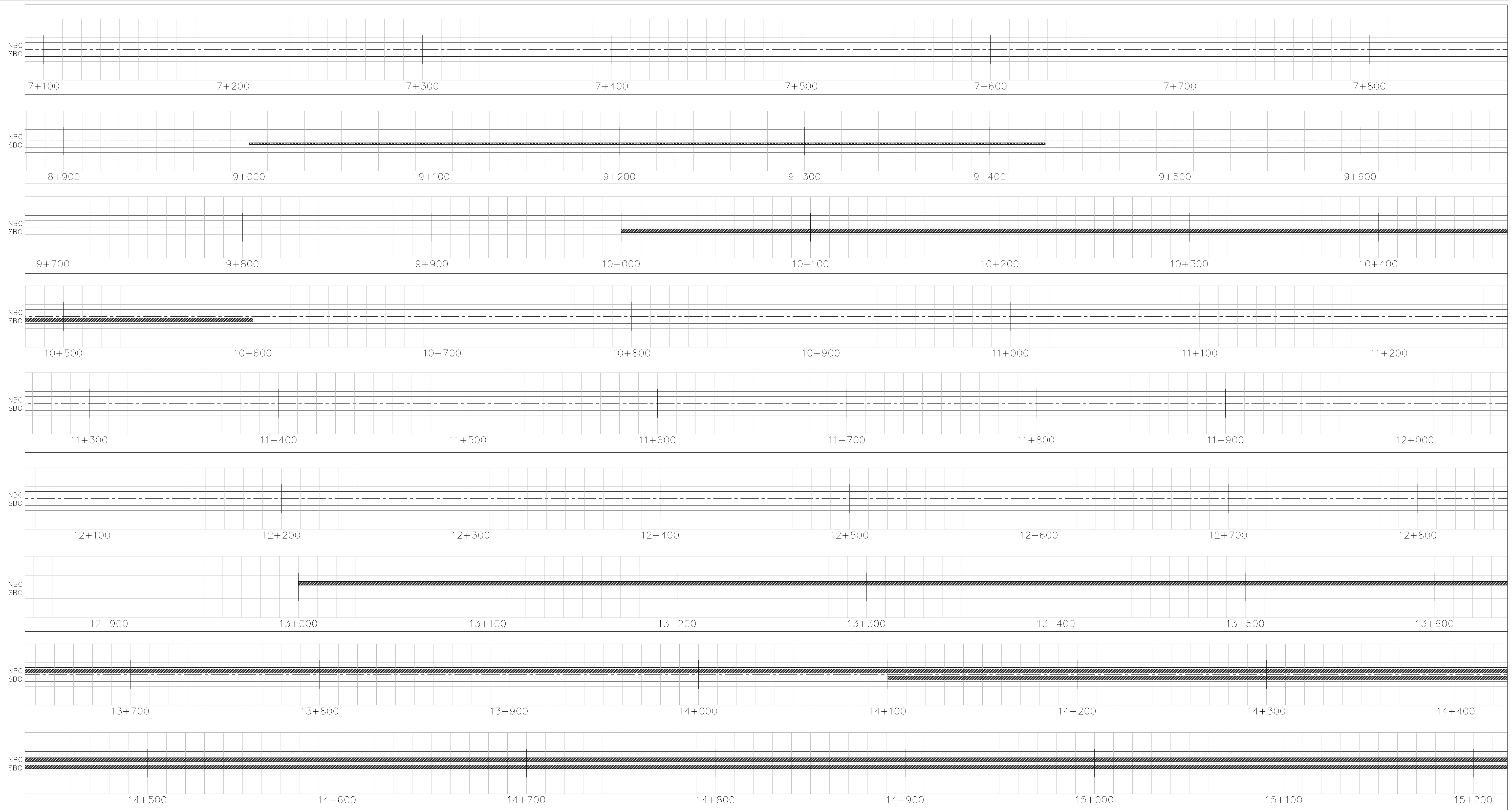
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				WORKS CONTRACT ENGINEER		NAME		CONSULTANT APPROVAL		1 HAVENGA STREET		SUITE 209, TYGERLAKE		THIS ACCEPTANCE IS FOR PROCEDURAL AND ADMINISTRATIVE REVIEW PURPOSES ONLY AND DOES NOT ATTRACT LEGAL LIABILITY OR LIABILITY OF ANY KIND FROM WHATSOEVER CAUSE OR HOWEVER ARISING		DRAWING LOCATION DATA		START		END	
				NAME		PROF. REG. NO.		CHECKED BY		OWKDALE, BELLVILLE		2 NIAGRA RD BELLVILLE				ROUTE		N10		N10	
				DATE						WESTERN CAPE		7535				SECTION		10		10	
				SANRAL PROJECT MANAGER						7530						DRAWING km DISTANCE		50.30		55.59	
						NAME		NAME		PRIVATE BAG X19		SANRAL PROJECT MANAGER				DRAWING TYPE					
						PROF. REG. NO.		PROF. REG. NO.		BELLVILLE 7535						BRIDGE/STRUCTURE No.					
						DATE		DATE		SOUTH AFRICA						CONSULTANT DRAWING No.					
										Tel: (021) 957 4600						SANRAL DOCUMENT #					








				CONSTRUCTION RECORD WORKS CONTRACT ENGINEER				FOR TENDER PURPOSES ONLY	
				NAME : _____				PROJECT NUMBER NRA2025/0004	
				PROF. REG. NO. : _____				DRAWING LOCATION DATA	
				DATE : _____				START N10	
				SANRAL PROJECT MANAGER				ROUTE N10	
				NAME : _____				SECTION 11	
				DATE : _____				DRAWING km DISTANCE 0.00	
								DRAWING TYPE 11	
								BRIDGE/STRUCTURE No.	
								CONSULTANT DRAWING No.	
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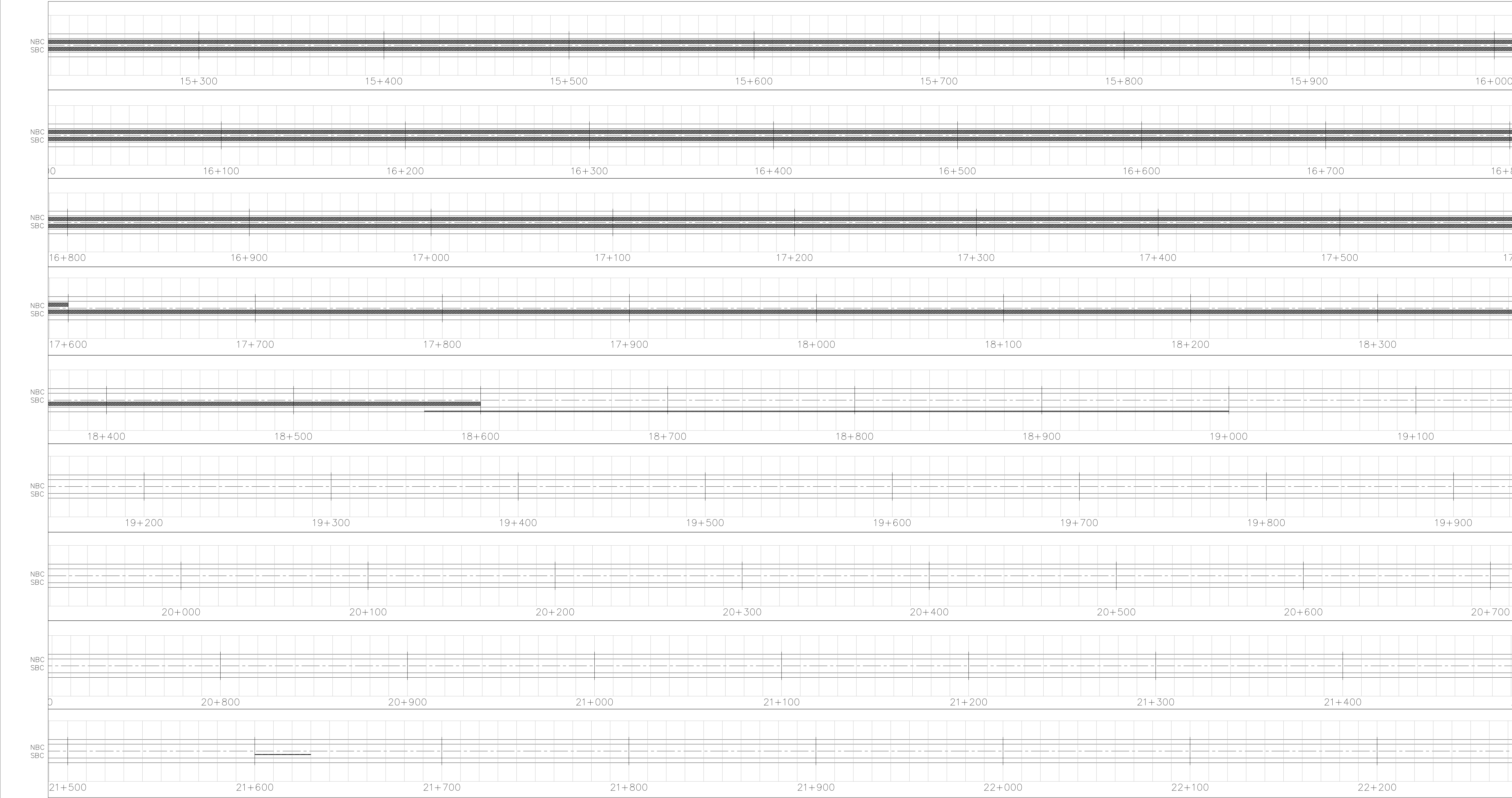
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				NAME : _____		NAME : _____		1 HAVENGA STREET		SOUTH AFRICAN NATIONAL ROADS AGENCY SOC LTD		SUITE 209, TYGERLAKE		THIS ACCEPTANCE IS FOR PROCEDURAL AND		SECTION 10 FROM KEUKENDRAAI (KM 50.30) TO GROBLERSHOOP (KM		NRA2025/0004	
				PROF. REG. NO. : _____		NAME : _____		OWKDALE, BELLVILLE		Reg No. 1980300000000000		2 NIAGRA RD BELLVILLE		ADMINISTRATIVE REVIEW PURPOSES ONLY		55.59), NATIONAL ROUTE 10 SECTION 11 FROM GROBLERSHOOP (KM 0.00)		DRAWING LOCATION DATA	
				CHECKED BY		NAME : _____		WESTERN CAPE		BUILDING SOUTH AFRICA		7530		AND DOES NOT ATTRACT LEGAL LIABILITY OR		TO UITKYK (KM 70.00) AND NATIONAL ROUTE 8 SECTION 6 FROM		ROUTE	
				DRAWN BY		NAME : _____		SOUTH AFRICA		THROUGH BETTER ROADS		7535		LIABILITY OF ANY KIND FROM WHATSOEVER		GROBLERSHOOP (KM 0.00) TO ROOISAND (KM 6.18)		SECTION	
				V. SEWSUNKER		NAME : _____				Tel: (021) 957 4600				CAUSE OR HOWEVER ARISING				DRAWING km DISTANCE	
						NAME : _____												DRAWING TYPE	
						DATE : _____												BRIDGE/STRUCTURE No.	
																		CONSULTANT DRAWING No.	
																		SANRAL DOCUMENT #	
																		VER	
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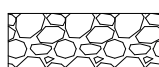
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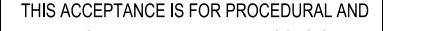
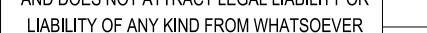


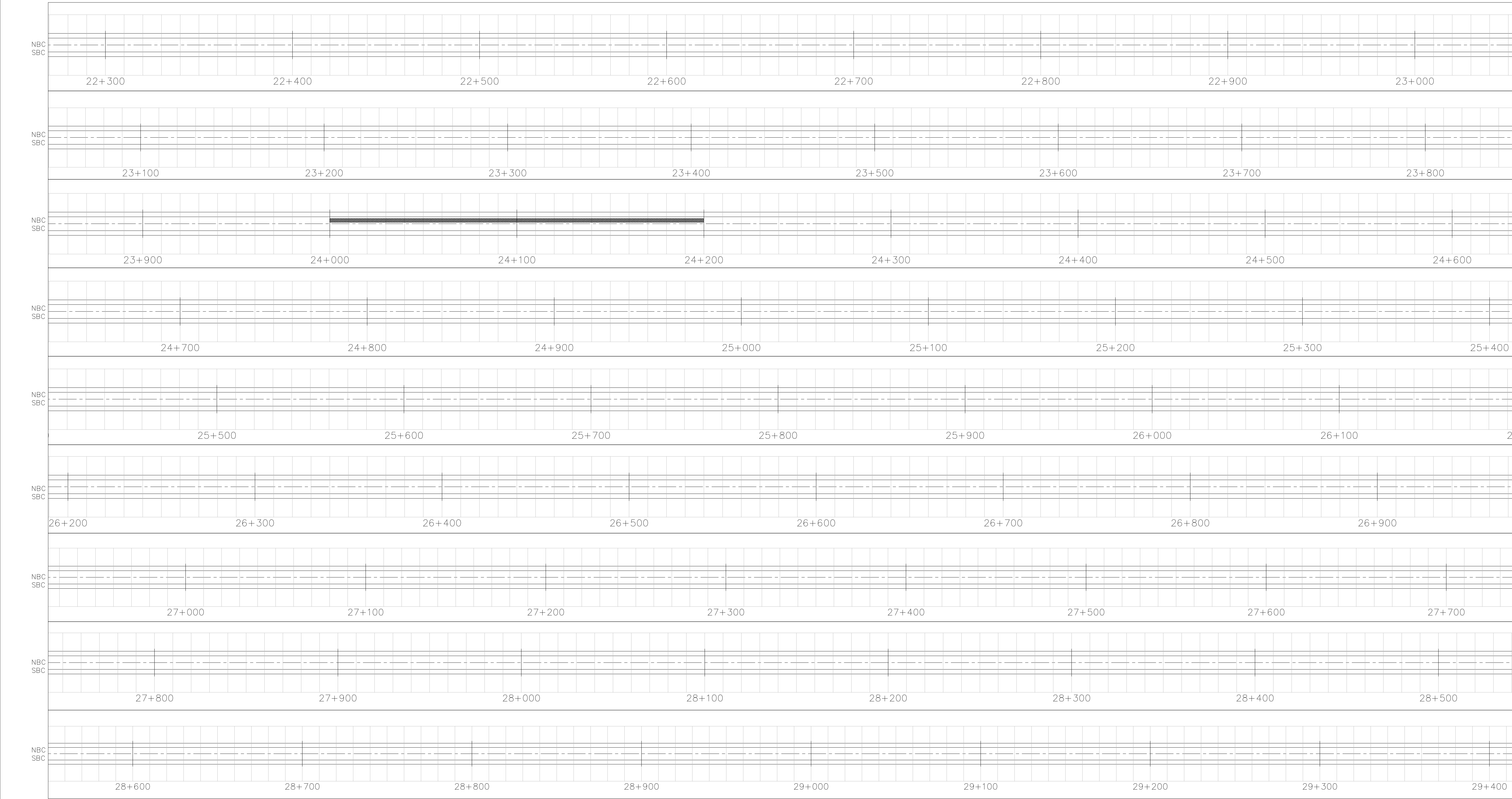
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	HYDROCUTTING
	SURFACE PATCHING
	BASE PATCHING




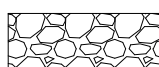
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				NAME : PROF. REG. NO. : DATE :		CONSULTANT APPROVAL				1 HAVENGA STREET GARDALE, BELLVILLE WESTERN CAPE 7530		SUITE 209, TYGERLAKE 2 NIGRA RD BELLVILLE 7535		THIS ACCEPTANCE IS FOR PROCEDURAL AND ADMINISTRATIVE REVIEW PURPOSES ONLY AND DOES NOT ATTRACT LEGAL LIABILITY OR LIABILITY OF ANY KIND FROM WHATSOEVER CAUSE OR HOWEVER ARISING		DRAWING LOCATION DATA		START		END			
				SANRAL PROJECT MANAGER		CHECKED BY				PRIVATE BAG X19 BELLVILLE 7535 SOUTH AFRICA						ROUTE SECTION		N10 11		N10 11			
						NAME : PROF. REG. NO. : DATE :				DRAWING km DISTANCE						DRAWING TYPE							
						DRAWN BY				BRIDGE/STRUCTURE No.						CONSULTANT DRAWING No.							
No.	DATE	REVISION	CONSULT. ENG.	NAME : DATE :		V. SEWSUNNER				Tel: (021) 957 4600		Tel: (021) 914 2833		FOR THE SA NATIONAL ROADS AGENCY SOC LTD. DATE:		SCALE : 1:1000		SHEET 3 OF 13		VER			
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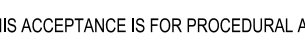


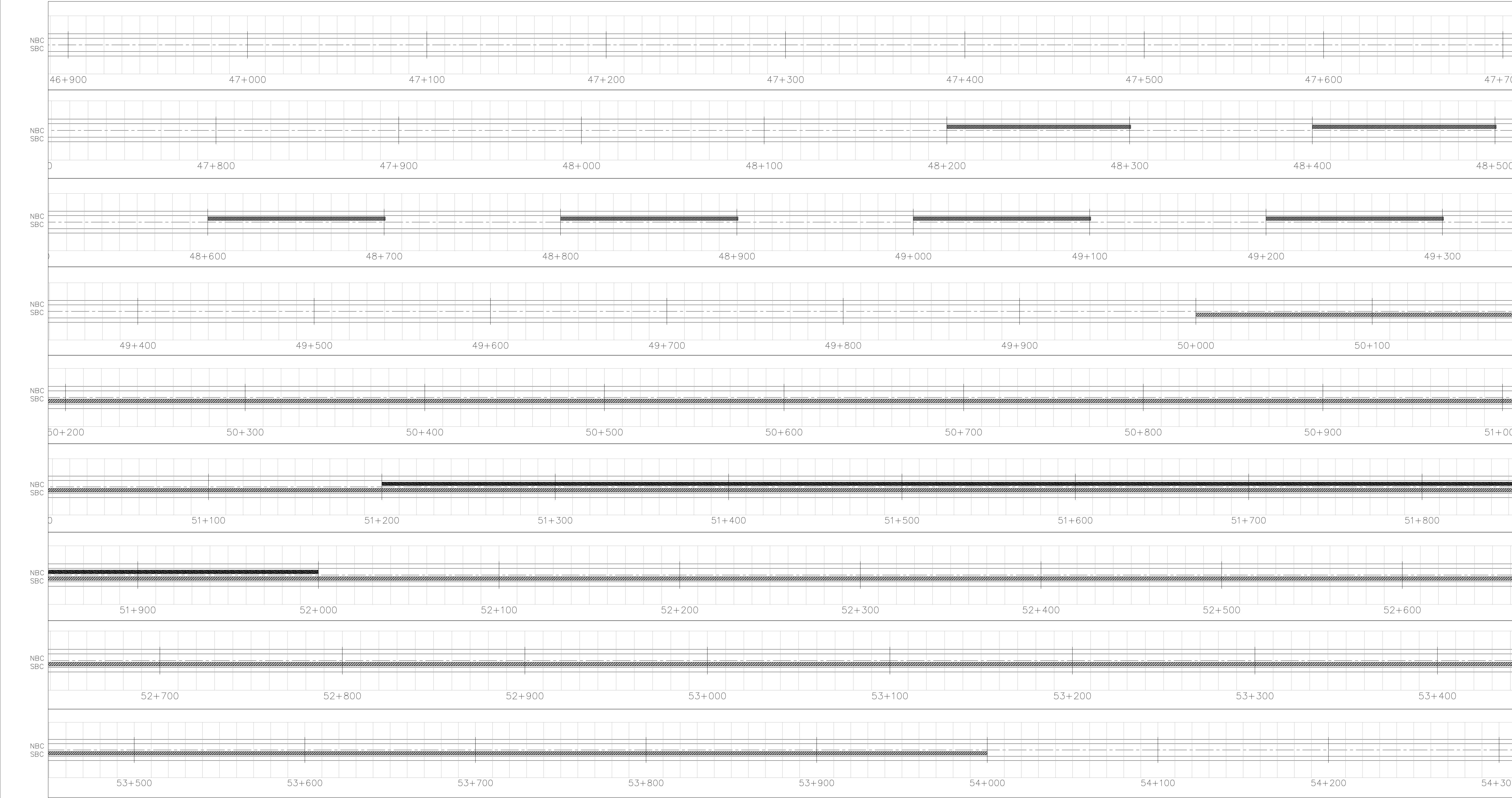
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-  HYDROCUTTING
-  SURFACE PATCHING
-  BASE PATCHING




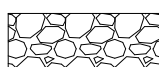
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						NAME				CONSULTANT APPROVAL		1 HAVENGA STREET OKWADALE, BELLVILLE WESTERN CAPE 7530				SUITE 209, TYGERLAKE 2 NIAGRA RD BELLVILLE 7535		THIS ACCEPTANCE IS FOR PROCEDURAL AND ADMINISTRATIVE REVIEW PURPOSES ONLY AND DOES NOT ATTRACT LEGAL LIABILITY OR LIABILITY OF ANY KIND FROM WHATSOEVER CAUSE OR HOWEVER ARISING						DRAWING LOCATION DATA START END	
				NAME : PROF. REG. NO. : DATE :		PROF. REG. NO.														ROUTE N10 N10					
						CHECKED BY														SECTION 11 11					
				SANRAL PROJECT MANAGER		NAME		NAME		NAME		PRIVATE BAG X19 BELLVILLE 7535 SOUTH AFRICA						DRAWING DESCRIPTION: DRAWING TYPE DRAWING km DISTANCE BRIDGE/STRUCTURE No. CONSULTANT DRAWING No.		DRAWING TYPE 0.00 70.00					
						PROF. REG. NO.		PROF. REG. NO. : DATE		PROF. REG. NO. : DATE		Tel: (021) 957 4600		BUILDING SOUTH AFRICA THROUGH BETTER ROADS		Tel: (021) 914 2833		FOR THE SA NATIONAL ROADS AGENCY SOC LTD. DATE:		SCALE : 1:1000 SHEET 4 OF 13					
No.	DATE	REVISION	CONSULT. ENG.	NAME : DATE :		DRAWN BY V. SEWSUNKER																	VER		

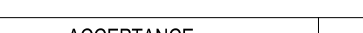
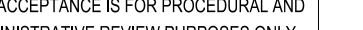


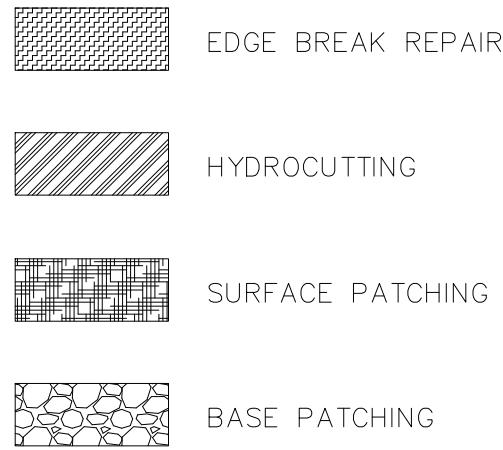
-  EDGE BREAK REPAIR
-  HYDROCUTTING
-  SURFACE PATCHING
-  BASE PATCHING


															FOR TENDER PURPOSES ONLY						
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						NAME		CONSULTANT APPROVAL		1 HAVENGA STREET OWKDALE, BELLVILLE WESTERN CAPE 7530		 SOUTH AFRICAN NATIONAL ROADS AGENCY SOC LTD		SUITE 209, TYGERLAKE 2 NIAGRA RD BELLVILLE 7535		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		DRAWING DESCRIPTION: REMEDIAL WORK LAYOUT			
				NAME : PROF. REG. NO. : DATE :		PROF. REG. NO.		CHECKED BY		PRIVATE BAG X19 BELLVILLE 7535 SOUTH AFRICA		 SOUTH AFRICA		Tel: (021) 957 4600		FOR THE SA NATIONAL ROADS AGENCY SOC LTD. DATE:		SCALE : 1:1000 SHEET 5 OF 13			
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				SANRAL PROJECT MANAGER		NAME		DRAWN BY		V. SEWSUNKER								CONSULTANT DRAWING No. AA243300-SP-05 VER			
No.	DATE	REVISION	CONSULT. ENG.	NAME : DATE :		PROF. REG. NO.		DRAWN BY		V. SEWSUNKER								SANRAL DOCUMENT # 2025/0004-SP-05			

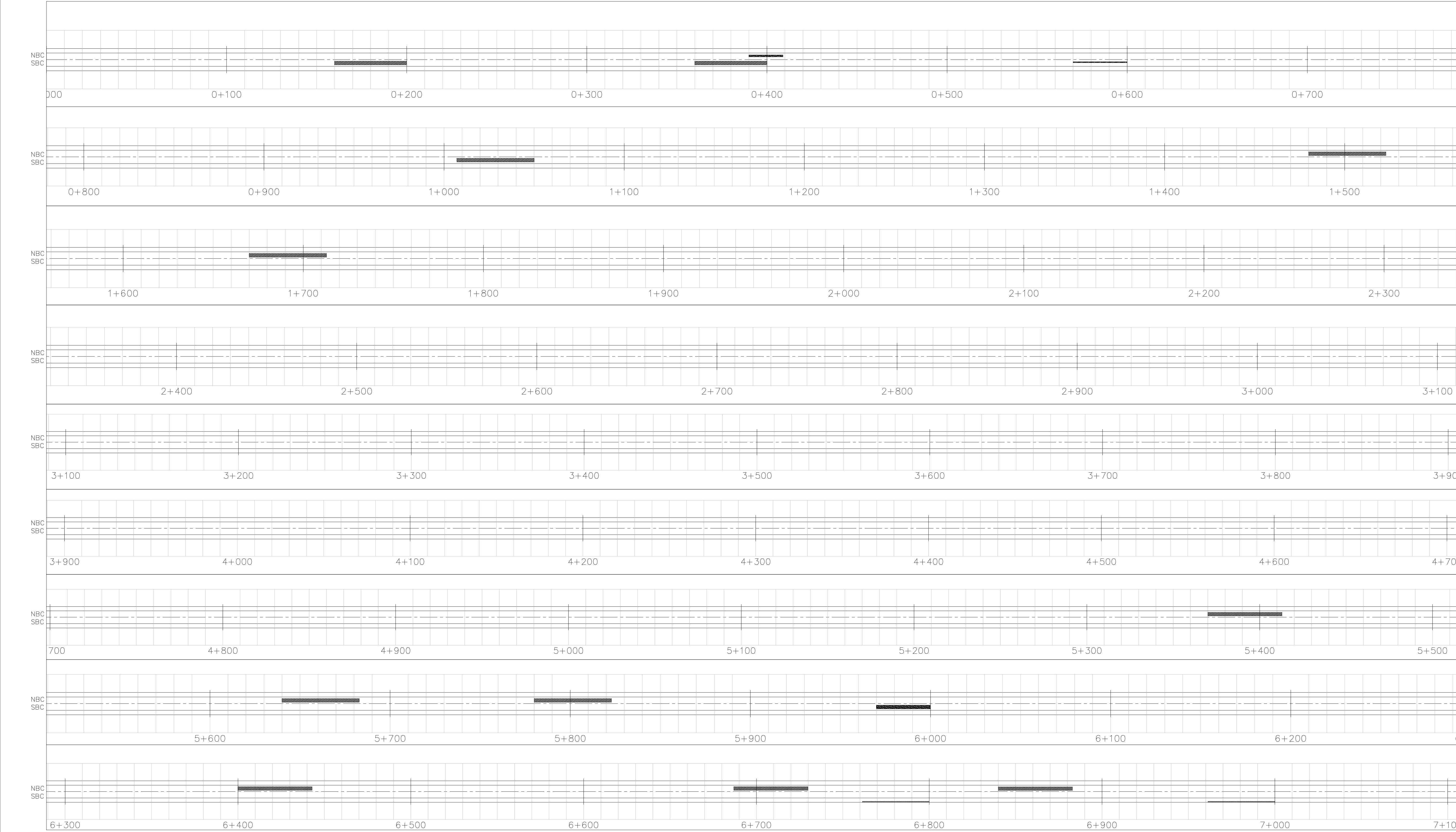





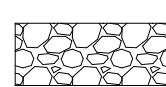
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-  HYDROCUTTING
-  SURFACE PATCHING
-  BASE PATCHING

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				CONSTRUCTION RECORD WORKS CONTRACT ENGINEER		DESIGNED BY						WESTERN REGION		 SOUTH AFRICAN NATIONAL ROADS AGENCY SOC LTD BUILDING SOUTH AFRICA THROUGH BETTER ROADS		INGEROP CAPE TOWN		ACCEPTANCE		THE PERIODIC MAINTENANCE (RESURFACING) OF NATIONAL ROUTE 10 SECTION 10 FROM KEUKENDRAAI (KM 50.30) TO GROBLERSHOOP (KM 55.59), NATIONAL ROUTE 10 SECTION 11 FROM GROBLERSHOOP (KM 0.00) TO UITKYK (KM 70.00) AND NATIONAL ROUTE 8 SECTION 6 FROM GROBLERSHOOP (KM 0.00) TO ROOSAND (KM 6.18)				PROJECT NUMBER NRA2025/0004	
						NAME				CONSULTANT APPROVAL		1 HAVENGA STREET OKKDALE, BELLVILLE WESTERN CAPE 7530		 SOUTH AFRICAN NATIONAL ROADS AGENCY SOC LTD BUILDING SOUTH AFRICA THROUGH BETTER ROADS		SUITE 209, TYGERLAKE 2 NIAGRA RD BELLVILLE 7535		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						DRAWING LOCATION DATA START END	
				NAME : PROF. REG. NO. : DATE : SANRAL PROJECT MANAGER		PROF. REG. NO.		CHECKED BY				NAME : PROF. REG. NO. : DATE :								ROUTE N10 N10					
						NAME														SECTION 11 11					
						PROF. REG. NO.														DRAWING km DISTANCE 0.00 70.00					
						NAME														BRIDGE/STRUCTURE No.					
						DRAWN BY V. SEWSUNKER														CONSULTANT DRAWING No.		AA243300-SP-08			
																				SANRAL DOCUMENT #		2025/0004-SP-08			
No.	DATE	REVISION	CONSULT. ENG.	NAME : DATE :									Tel: (021) 957 4600		Tel: (021) 914 2833		FOR THE SA NATIONAL ROADS AGENCY SOC LTD. DATE:			SCALE : 1:1000	SHEET 8 OF 13	VER			



											FOR TENDER PURPOSES ONLY				
				CONSTRUCTION RECORD WORKS CONTRACT ENGINEER		DESIGNED BY		WESTERN REGION		INGEROP CAPE TOWN	ACCEPTANCE	THE PERIODIC MAINTENANCE (RESURFACING) OF NATIONAL ROUTE 10 SECTION 10 FROM KEUKENDRAAI (KM 50.30) TO GROBLERSHOOP (KM 55.59), NATIONAL ROUTE 10 SECTION 11 FROM GROBLERSHOOP (KM 0.00) TO UITKYK (KM 70.00) AND NATIONAL ROUTE 8 SECTION 6 FROM GROBLERSHOOP (KM 0.00) TO ROOISAND (KM 8.18)	PROJECT NUMBER	NRA2025/0004	
				NAME : PROF. REG. NO. : DATE :		CONSULTANT APPROVAL	1 HAVENGA STREET OWAKALE, BELLVILLE WESTERN CAPE 7530		SUITE 209, TYGERLAKE 2 NIAGRA RD BELLVILLE 7535		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	DRAWING LOCATION DATA	START	END	
				SANRAL PROJECT MANAGER		CHECKED BY	PRIVATE BAG X19 BELLVILLE 7535 SOUTH AFRICA					ROUTE	N10	N10	
				NAME : DATE :		DRAWN BY						SECTION	11	11	
												DRAWING km DISTANCE	0.00	70.00	
												DRAWING TYPE			
												BRIDGE/STRUCTURE No.			
No.	DATE	REVISION	CONSULT. ENG.	NAME : DATE :	V. SEWUNKER		Tel: (021) 957 4600		Tel: (021) 914 2833	FOR THE SA NATIONAL ROADS AGENCY SOC LTD.	DRAWING DESCRIPTION: REMEDIAL WORK LAYOUT	CONSULTANT DRAWING No.	AA243300-SP-11 2025/0004-SP-11	VER	
												SCALE : 1:1000	SHEET 11 OF 13		



-  EDGE BREAK REPAIR
-  HYDROCUTTING
-  SURFACE PATCHING
-  BASE PATCHING

				CONSTRUCTION RECORD				DESIGNED BY				WESTERN REGION		SANRAL		INGEROP CAPE TOWN		ACCEPTANCE		THE PERIODIC MAINTENANCE (RESURFACING) OF NATIONAL ROUTE 10		PROJECT NUMBER		FOR TENDER PURPOSES ONLY	
				WORKS CONTRACT ENGINEER				NAME		CONSULTANT APPROVAL		1 HAVENGA STREET		SOUTH AFRICAN NATIONAL ROADS AGENCY SOC LTD		SUITE 209, TYGERLAKE		THIS ACCEPTANCE IS FOR PROCEDURAL AND		SECTION 10 FROM KEUKENDRAAI (KM 50.30) TO GROBLERSHOOP (KM		DRAWING LOCATION DATA		NRA2025/0004	
				NAME				PROF. REG. NO.				OWKDALE, BELLVILLE		2 NIAGRA RD BELLVILLE		ADMINISTRATIVE REVIEW PURPOSES ONLY		55.59), NATIONAL ROUTE 10 SECTION 11 FROM GROBLERSHOOP (KM 0.00)		ROUTE		START		END	
				DATE				CHECKED BY				WESTERN CAPE		7535		AND DOES NOT ATTRACT LEGAL LIABILITY OR		TO UITKYK (KM 70.00) AND NATIONAL ROUTE 8 SECTION 6 FROM		SECTION		N8		N8	
				SANRAL PROJECT MANAGER				NAME				PRIVATE BAG X19		REG DOL-1789020000000000		LIABILITY OF ANY KIND FROM WHATSOEVER		GROBLERSHOOP (KM 0.00) TO ROOISAND (KM 8.18)		DRAWING km DISTANCE		0.00		8.20	
				NAME				PROF. REG. NO.				BELLVILLE 7535		BUILDING SOUTH AFRICA		CAUSE OR HOWEVER ARISING		DRAWING DESCRIPTION:		DRAWING TYPE					
				DATE				DRAWN BY				SOUTH AFRICA		THROUGH BETTER ROADS		FOR THE SA NATIONAL ROADS AGENCY SOC LTD.		REMEDIAL WORK LAYOUT		BRIDGE/STRUCTURE No.					
								NAME				Tel: (021) 957 4600				DATE:				CONSULTANT DRAWING No.		AA243300-SP-12		VER	
								V. SEWSUNKER												SANRAL DOCUMENT #		2025/0004-SP-12			
No.	DATE	REVISION	CONSULT. ENG.																	SCALE :		1:1000		SHEET 12 OF 13	



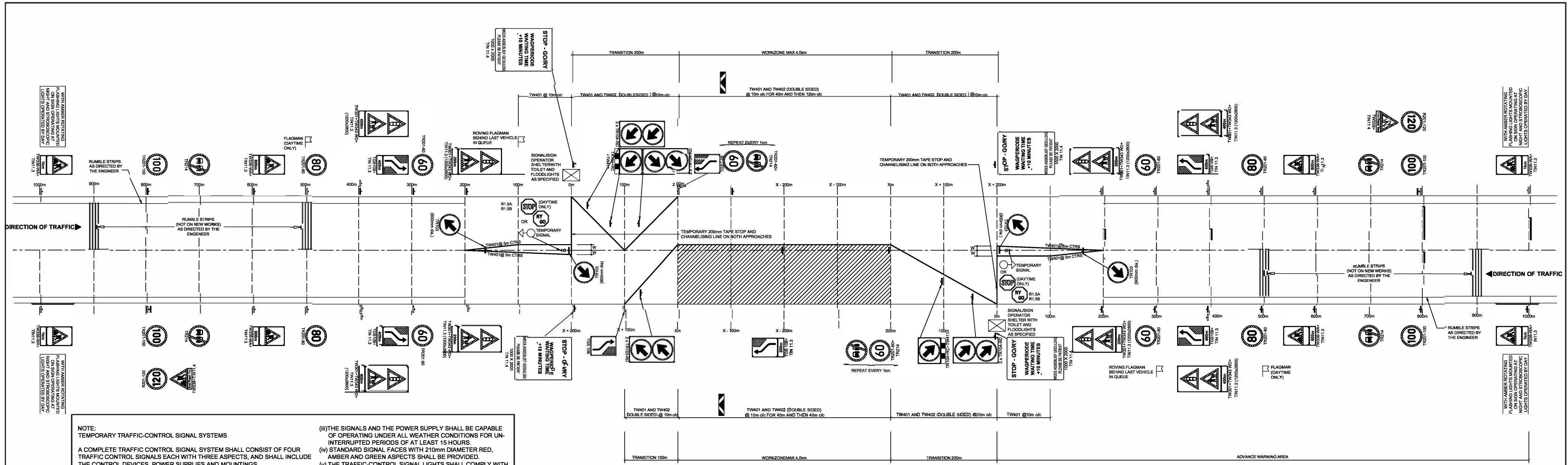


FIG. 4 - TEMPORARY SINGLE LANE TRAFFIC SIGN LAYOUT (WORK ZONE RIGHT)

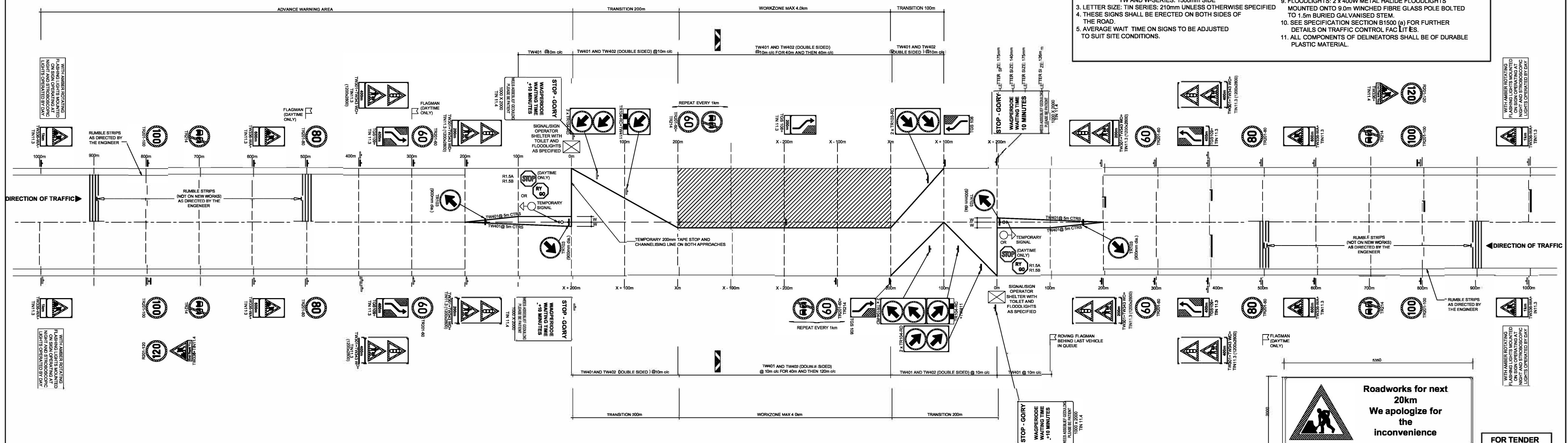


FIG. 5 - TEMPORARY SINGLE LANE TRAFFIC SIGN LAYOUT (WORK ZONE LEFT)

CONSTRUCTION RECORD				DESIGNED BY		CONSULTANT APPROVAL		CONSULTANT APPROVAL		HEAD OFFICE		SOUTHERN REGION		ACCEPTANCE		PROJECT DESCRIPTION			
WORKS CONTRACT ENGINEER				NAME		NAME		NAME		AS Tenders Avenue V&G de Graaf Pretoria 0154		Block C Southern L&G Gardens 2nd Avenue Meyerton Park Port Elizabeth 6045		THIS ACCEPTANCE IS FOR PROCEDURAL AND ADMINISTRATIVE PURPOSES ONLY AND DOES NOT ATTRACT LEGAL LIABILITY OR LIABILITY OF ANY KIND OR OTHERWISE CAUSE OR HOWEVER ARISING		PERIODIC MAINTENANCE (RESURFACING) OF NATIONAL ROUTE 10 SECTION 10 FROM KEUKENDRAAI (KM 50.30) TO GROBLERSHOOP (KM 55.59), NATIONAL ROUTE 10 SECTION 11 FROM GROBLERSHOOP (KM 60.00) TO UTUKWY (KM 70.00) AND NATIONAL ROUTE 8 SECTION 6 FROM GROBLERSHOOP (KM 6.00) TO ROOISAND (KM 8.18)			
SANRAL PROJECT MANAGER				CHECKED BY		DATE		DATE		PO Box 415 Pretoria 2001 South Africa Tel: (012) 944 8000		PO Box 2720 Grahamstown 6057 Tel: (041) 338 8000		for CEO SANATIONAL ROADS AGENCY LTD		DRAWING DESCRIPTION SANRAL TYPICAL DRAWINGS MISCELLANEOUS - REST AND SERVICE AREAS DETAIL OF TABLE UNITS AND STOODS SHEET 1 OF 3			
REV01 DEC 2024 FOR TENDER PURPOSES ONLY				NAME		NAME		NAME		No.		No.		No.		PROJECT NUMBER NRA 2025/0004			
V1 START DATE ORIGINAL VERSION				DRAWN BY		DATE		DATE		DATE		DATE		DATE		DRAWING LOCATION ROUTE - N10 SECTION - 10 ROUTE - N10 SECTION - 11 ROUTE - N8 SECTION - 6			
No. DATE REVISION CONSULT. ENG.				NAME		NAME		NAME		No.		No.		No.		DRAWING TYPE ROAD TRAFFIC ACCOMMODATION			
																CONSULTANT DRAWING SANRAL DOCUMENT #			
																SCALE: AS SHOWN SHEET 01 OF 01			
																FOR TENDER PURPOSES ONLY			
																2025/0004-TD-TA-01			



NOTES:

- 1.5 ALL WINDOWS FITTED WITH VENETIAN BLINDS.

- 2 WINDOW DETAIL (GENERAL):

3. C1.4.1.1 (CONFERENCE ROOM) SHALL BE SUPPLIED WITH THE FOLLOWING

4. C1.4.1.2 (OFFICE UNIT TYPE A) SHALL BE SUPPLIED WITH THE FOLLOWING:

- [illegible]

NOTES:

5. C1.4.1.3 (OFFICE UNIT: TYPE B) SHALL BE SUPPLIED WITH THE FOLLOWING:

- 5.1 A PROPER APPROVED WOODEN OFFICE DESK WITH A DESKTOP OF AT LEAST (1800 x 900mm) AND SIX DRAWERS - TWO LOCKABLE - 1" OFFICE SWIVEL CHAIR, 2" OFFICE CHAIRS.
- 5.2 A CARPETED FLOOR WITH A MINIMUM THICKNESS OF SURFACE OF AT LEAST 1.5" AND A VOLUME OF 0.72". FURNISHED WITH A LOCK AND TWO KEYS.
- 5.3 A CLOSET WITH A MINIMUM THICKNESS OF SURFACE OF AT LEAST 1.5" AND A VOLUME OF 0.72". FURNISHED WITH A LOCK AND TWO KEYS.
- 5.4 A CABINET MUST BE 1300mm HIGH, 450mm wide and 1000mm LONG (FRONT TO BACK).
- 5.5 A CUBICLE MUST BE 1300mm HIGH, 450mm wide and 1000mm LONG (FRONT TO BACK).
- 5.6 ALL THE NECESSARY ELECTRICAL POWER POINTS, TELEPHONE LINES AND FLOOR TILING.
- 5.7 LIGHTS MUST CONSIST OF A TOTAL OF 1.5 m TUBE LIGHTS (MINIMUM OUTPUT OF 60 W EACH), A MINIMUM OF 100 CM IN HEIGHT IN ORDER TO BE USED IN THE OFFICE.
- 5.8 THE OFFICE MUST BE SUPPLIED WITH A CEILING WITH INSULATION.
- 5.9 A HATCH OF 15 IN HEIGHT IN ORDER TO BE USED IN THE OFFICE.
- 5.10 THE ENTIRE INSIDE OF THE OFFICE IS TO BE PROVIDED WITH SOUNDBOARD PANNELLING FOR THE PURPOSES OF SOUND PROOFING. THE SOUNDBOARD IS TO BE PAINTED TO THE COLOUR OF THE ENGINEER (MIN. SIZE 1.2m x 2m).
- 5.11 ONE WHITE BOARD MIN. 1.2m x 1.0m.
6. C14.8 (SEALATION UNIT) SHALL BE SUPPLIED WITH THE FOLLOWING:
 - 6.1 THE LATRINES MUST BE WELL VENTILATED, PARTITIONED AND SUPPLIED WITH A GLASS ENAMEL FLUSH PAN WITH P.V.C SEALS, LID, CISTERN AND TOILET PAPER ROLL, EACH.
 - 6.2 ALL NECESSARY TAPS, SEWER, WARM- AND COLD WATER CONNECTIONS MUST BE SUPPLIED.
 - 6.3 ALL WARM WATER BAINS SHALL BE PROVIDED WITH CONNECTION TO HOT AND COLD WATER.
 7. C1.7.1 (HOT TILING UNIT- TYPE A) SHALL BE SUPPLIED WITH THE FOLLOWING:
 - 7.1 ONE 210 LITER (MIN) FRIDGE AND ONE 210 LITER (MIN) FREEZER, ALTERNATIVELY A COMBINED UNIT WITH A MINIMUM TOTAL VOLUME OF MORE THAN 300 LITRES.
 - 7.2 ONE 42 LITER (MINIMUM) MICROFRIDGE.
 - 7.3 ONE APPROVED STAINLESS STEEL CUPBUSTIN.
 - 7.4 TWO CUPBUSTIN, 200 IN SIZE WITH WARM WATER AND FORMALIC TOP.
 - 7.5 SINGLE CHUTE SINK AND AT LEAST 1" 67 CM CEMENT WORK SLAB.
 - 7.6 ONE CUPBUSTIN, 200 IN SIZE WITH HOT AND COLD WATER AND HOT AND COLD WATER CONNECTIONS.
 - 7.7 LIGHTS MUST CONSIST OF A TOTAL OF 2.0 15w NEON TUBE LIGHT FITTINGS (MIN 50W EACH), A MINIMUM OF OUTPUT OF 150w/m² IS USED WITH NOT LESS THAN ONE UNIT PER ROOM.



FLOOR AREA:
SITE OFFICES

OFFICE UNIT TYPE A	= 20.0m ²
OFFICE UNIT TYPE B	= 13.4m ²

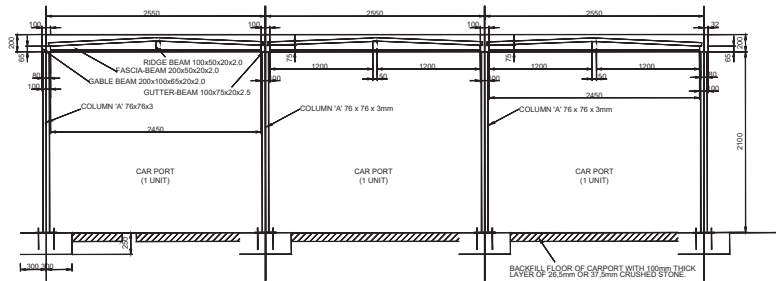
OTHER:

CONFERENCE ROOM	= 20.0m ²
CONCRETE FLOOR SLAB	= 6.7m ²

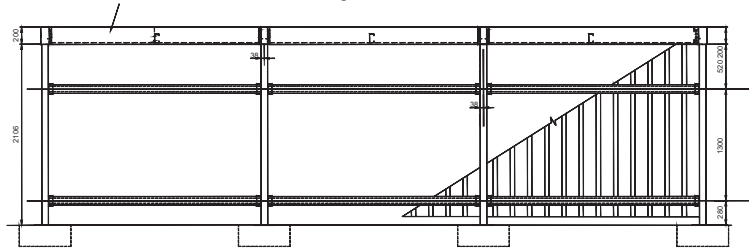
ABLUTION UNIT = 5.0m²
CONCRETE FLOOR SLAB = 2.5m²

KITCHEN UNIT TYPE A = 13.4m²

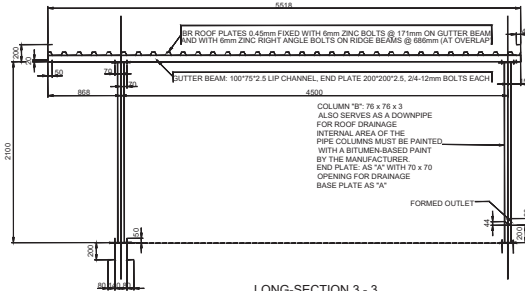
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		NAME		NAME		NAME		48 Tumbana Avenue Val de Grace Pretoria 0194		1 Humberg Street Chibambala Pretoria 0194		THIS ACCEPTANCE IS FOR PROCEDURAL AND ADMINISTRATIVE PURPOSES ONLY. THE CONTRACTOR ACCEPTS FULL LIABILITY OF ANY TYPE OF LOSS OR DAMAGE FROM WHATEVER CAUSE OR OTHERWISE ARISING		PERIODIC MAINTENANCE (RESURFACING) OF NATIONAL ROUTE 10 SECTION 10 FROM KILNENBURGH (KM 9.26) TO GROBLERSHOOP (KM 25.26), NATIONAL ROUTE 10 SECTION 11 FROM GROBLERSHOOP (KM 0.00) TO LITIKYK (KM 75.00) AND NATIONAL ROUTE 8 SECTION 6 FROM GROBLERSHOOP (KM 0.00) TO ROOSDAM (KM 19.00)		DRAWING LOCATION		START		END	
		Print, Reg No. / Date		Print, Reg No. / Date		Print, Reg No. / Date								ROUTE 10 - SECTION 10 ROUTE 10 - SECTION 11 ROUTE 10 - SECTION 6		KM 50.00 KM 0.00 KM 0.00		KM 50.00 KM 0.00 KM 0.00			
		SANRAL PROJECT MANAGER		NAME		NAME		PO Box 415 Pretoria 0001 South Africa		Private Bag X19 Butha Buthe Pretoria 0194				DRAWING DESCRIPTION TYPICAL DRAWING, SITE OFFICE N/A SECTION 10 AND 11 IN SECTION 6		DRAWING TYPE CONSULTANT DRAWING		TYPICAL DRAWING			
		ORIGINAL VERSION		NAME		NAME				Tel: (021) 957 4000 Fax: (021) 913 1994		In CEO: SA NATIONAL ROADS AGENCY LTD		SHEET 04 OF 04		CONSULTANT DRAWING NRA 2025/0004-GA-01		TYPICAL DRAWING AA24300-GA-01 2025/0004-GA-01			
No.		DATE		REVISION		CONSULT. ENG.		Name		Name		Name		Name		Name		Name		Name	



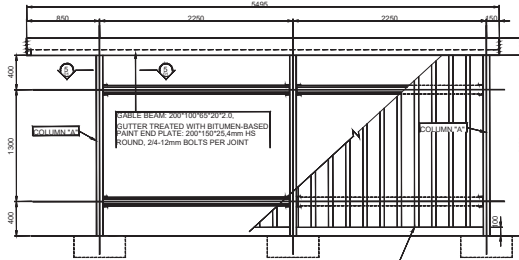
FASCIA BEAM: 200 x 50 x 20 x 2.0 ON GABLE BEAM 4-10mm BOLTS,
BOLTED ONTO GABLE BEAM 4-10mm BOLTS
BOLTED ONTO GABLE BEAM 4-10mm BOLTS
BOLTED ONTO GABLE BEAM 4-10mm BOLTS



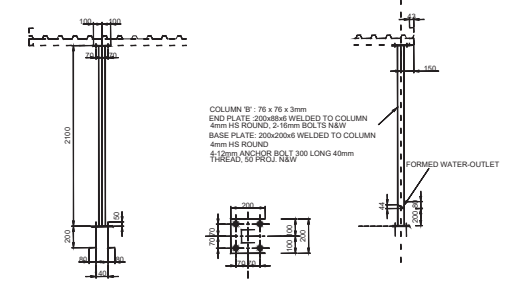
FRONT ELEVATION 1 - 1
SCALE 1:20



LONG-SECTION 3 - 3
SCALE 1:20



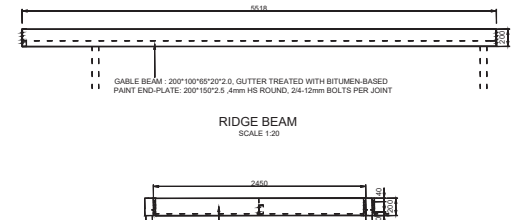
GABLE ELEVATION 4 - 4
SCALE 1:20



COLUMN "A"
SCALE 1:20

BASE PLATE
SCALE 1:10

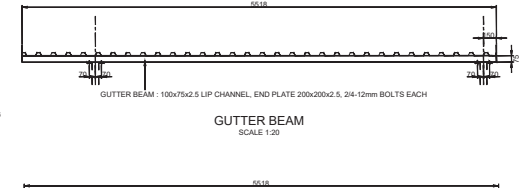
COLUMN "B"
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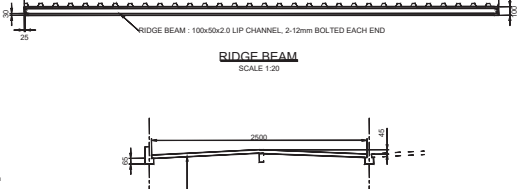
RIDGE BEAM
SCALE 1:20



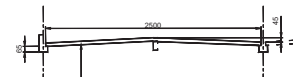
FASCIA BEAM
SCALE 1:20



GUTTER BEAM
SCALE 1:20



RIDGE BEAM
SCALE 1:20



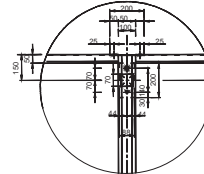
IBR ROOF PLATE
SCALE 1:20

SPECIFICATIONS

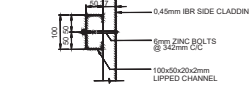
- ERECTION DETAIL:
 - CAST BASE PLATE WITH ANCHOR BOLTS ACCURATELY IN POSITION.
 - RAISE THE COLUMNS AND HOLD VERTICALLY IN POSITION WITHOUT TIGHTENING THE BOLTS. USE STEEL PACERS UNDER THE BASE PLATE. FIX ROOF BEAMS IN THE FOLLOWING ORDER:
 - GUTTER AND GABLE BEAMS ON TOP OF COLUMNS.
 - FASCIA BEAMS ON GUTTER AND GABLE BEAMS.
 - RIDGE BEAMS BETWEEN THE FASCIA BEAMS.
 - AFTER COLUMNS AND BEAMS ARE SQUARE AND ARE DRAWN INTO LINE THE BOLTS ARE TO BE FINALLY TIGHTENED.
 - FOR THE LONG CARPORTS THE ERECTION MUST BE STARTED IN THE MIDDLE AND EACH SET OF COLUMNS AND ROOFS MUST BE CONSECUTIVELY SQUARED AND BOLTED INTO LINE.
- ROOF PLATES TO BE FIXED WITH ZINC BOLTS TO THE BEAMS. WALKING PLANKS MUST BE USED WHEN WALKING OR WORKING ON THE ROOF TO PREVENT DAMAGE.

SPECIFICATIONS

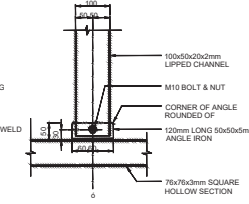
- FOUNDATION MATERIAL MUST BE ABLE TO WITHSTAND A PRESSURE OF 100kPa.
- CONCRETE BASE PLATES MUST BE CAST FROM CLASS C40/50 CONCRETE (CUBE STRENGTH AFTER 28 DAYS) CLAMPED TO THE REINFORCED CONCRETE FOUNDATION BY VIBRATION AND COVERED ACCORDING TO SANS SPECIFICATIONS.
- ANCHOR BOLTS MUST BE ACCURATELY POSITIONED. PROVIDE 10mm 1:3 CEMENT / SAND GROUTING UNDER BASE PLATE (STIFF).
- STEELWORK: ALL STEELWORK TO BE PAINTED WITH ONE BASE LAYER OF RED LEAD OXIDE. ALL GUTTER BEAMS AND GABLE BEAMS MUST BE TREATED WITH ONE LAYER BITUMEN-BASED PAINT AS WELL AS THE INSIDE SURFACE OF ALL COLUMNS USED AS GUTTER PIPES (COLUMN "B").
- ALL BOLTS, WASHERS AND SCREWS (EXCEPT ANCHOR BOLTS) MUST BE GALVANISED.



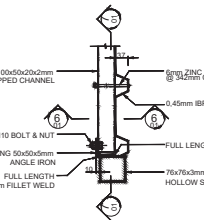
DETAIL - COLUMN BEAM
SCALE 1:10



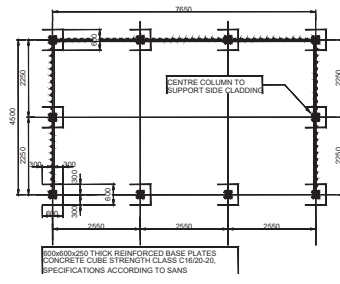
SECTION 6 - 6
SCALE 1:5



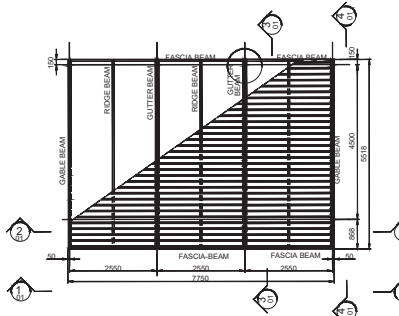
SECTION 7 - 7
SCALE 1:5



SECTION 5 - 5
SCALE 1:5



PLAN: BASE PLATES
SCALE 1:50



PLAN: ROOF
SCALE 1:50

FOR TENDER PURPOSES ONLY

CONSTRUCTION RECORD				DESIGNED BY				CONSULTANT APPROVAL				HEAD OFFICE				WESTERN REGION				APPROVAL				PROJECT DESCRIPTION				PROJECT NUMBER				NRA 2025/0004			
WORKS CONTRACT ENGINEER				NAME				Name				48 Tumbour Avenue				1 Haverhill Street				THIS ACCEPTANCE IS FOR PROCEDURAL AND ADMINISTRATIVE REVIEW PURPOSES ONLY AND DOES NOT ATTRACT LEGAL LIABILITY OR LIABILITY OF ANY KIND FOR WATERWORKS OR CIVIL OR HIGHWAY WORKING				PERIODIC MAINTENANCE (RESURFACING) OF NATIONAL ROUTE 10 SECTION 10 FROM KEUKENDRAAI (KM 50.30) TO GROBLERSHOOP (KM 55.59), NATIONAL ROUTE 10 SECTION 11 FROM GROBLERSHOOP (KM 5.00) TO UITYIK (KM 78.00) AND NATIONAL ROUTE 8, SECTION 6 FROM GROBLERSHOOP (KM 0.00) TO ROOSAND (KM 8.18)				PROJECT NUMBER				START			
Name				Prof Reg No.				Prof Reg No.				Vat No				Private Bag 910				Date				ROUTE - N10 SECTION - 10				ROUTE - N10 SECTION - 11				ROUTE - N8 SECTION - 4			
SANRAL PROJECT MANAGER				NAME				PO Box 415				Phakiso 0801				Bulweria				The above signatory certifies that the drawings and specifications are correct and approved for construction				DRAWING TYPE				CONSULTANT DRAWING				SANRAL DOCUMENT #			
ORIGINAL VERSION				NAME				PO Box 415				Phakiso 0801				Bulweria				The above signatory certifies that the drawings and specifications are correct and approved for construction				DRAWING TYPE				CONSULTANT DRAWING				SANRAL DOCUMENT #			
No.	DATE	REVISION	CONSULT. ENG.	NAME				PO Box 415				Phakiso 0801				Bulweria				The above signatory certifies that the drawings and specifications are correct and approved for construction				DRAWING TYPE				CONSULTANT DRAWING				SANRAL DOCUMENT #			