

ROAD SIGNS

DETERMINATION OF SUPPORTS AND FOUNDATIONS

NOTE:

1. REFERENCE PLANS

THIS PLAN FORMS PART OF AND MUST BE READ IN CONJUNCTION WITH DRAWING N3TC-RS-02.

2. DESIGN LOADING

NOMINAL WIND LOAD ACTING ON THE SIGN FACE HAS BEEN ASSUMED AS FOLLOWS:-

AVERAGE SIGN HEIGHT $L < 2\text{m}$: 0,75 kPa

AVERAGE SIGN HEIGHT $L > 6\text{m}$: 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

- FROM TABLE 1 ON DRAWING N3TC-RS-02 DETERMINE FOR SIGN WIDTH W , THE NUMBER OF SUPPORTS N AND DIMENSIONS B AND C
- CALCULATE THE EFFECTIVE SIGN AREA $A = \frac{W \times H}{N}$ (m²) AND AVERAGE HEIGHT L (m)
- FROM DESIGN CHART 1 (FREE STANDING SUPPORT), DETERMINE THE FOLLOWING:-
 - THE TOP DIAMETER OF THE POLE
 - THE FOUNDATION DIAMETER AND DEPTH FOR THE APPLICABLE FOUNDING MATERIAL. (SEE NOTE 3)
- 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.
- DETERMINE FROM TABLE 2 THE DIAMETER OF HOLES TO BE DRILLED IN THE POLES AS SHOWN IN DETAIL "A"

5. EXAMPLE (FREE STANDING SUPPORT)

$W = 5\text{m}$ $H = 1,8\text{m}$ $L = 2,7\text{m}$

FROM TABLE 1

$N = 3\text{m}$ $B = 0,830\text{m}$ $C = 1,670\text{m}$

$A = \frac{5 \times 1,8}{3} = 3,0\text{m}^2$

3

FROM DESIGN CHART 1

FOR $A = 3,0\text{m}^2$ AND $L = 2,7\text{m}$

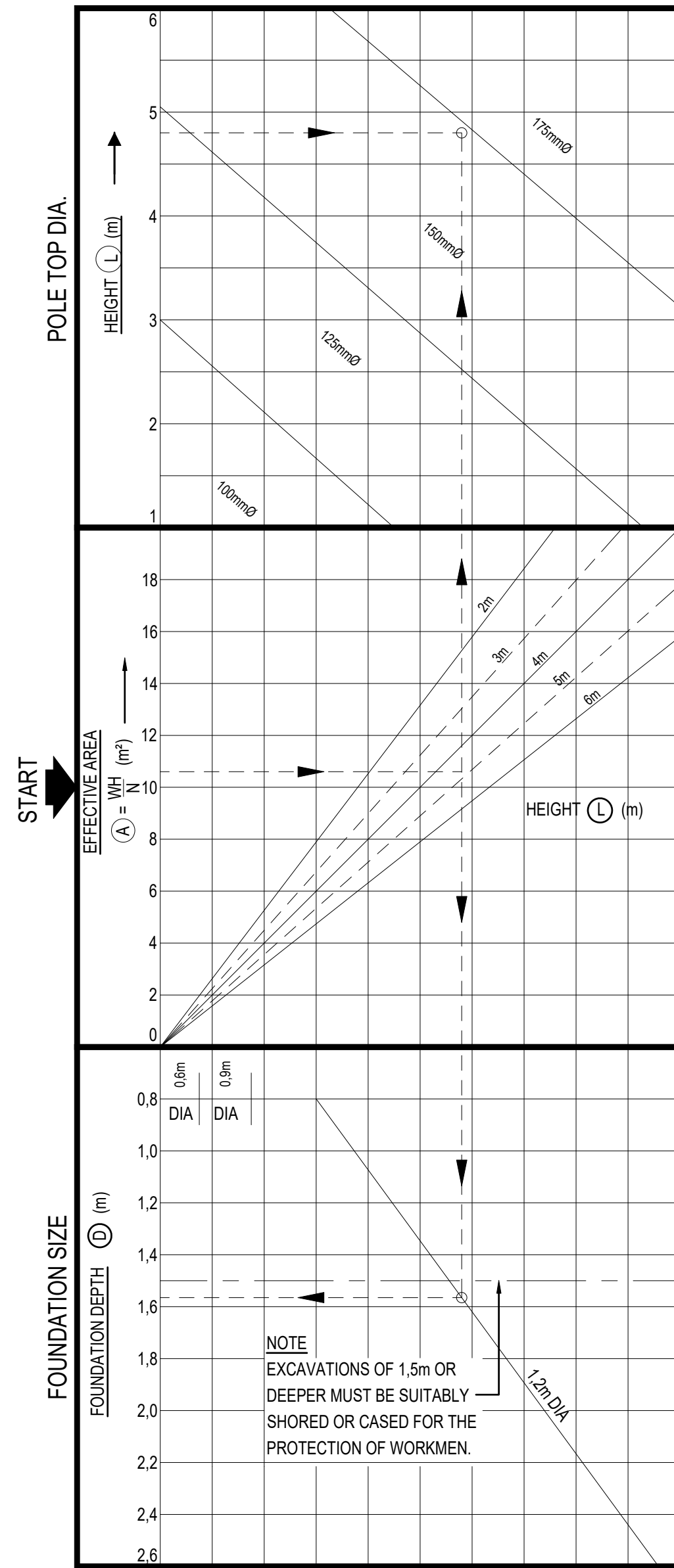
POLE TOP DIA. = 175mm

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 2

BRACED SUPPORT

SCALE - N.T.S

CONSTRUCTION RECORD (AS-BUILT)				DESIGNED BY				CONSULTANT APPROVAL				ACCEPTANCE				PROJECT DESCRIPTION				PROJECT NUMBER				CONTRACT N3TC/RM-2021-600			
WORKS CONTRACT ENGINEER				NAME				NAME				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				ROUTINE ROAD MAINTENANCE OF NATIONAL ROUTE 3: N3 TOLL ROAD BETWEEN CEDARA AND HEIDELBERG SOUTH INTERCHANGE				DRAWING LOCATION DATA				START			
Name				J.C. MARKRAM				J.C. MARKRAM				Date:				ROUTE				N3				END			
Prof. Reg. No. :				980187				980187				Date:				SECTION				4				11			
Date				2020/12/01				2020/12/01				Date:				DRAWING km DISTANCE				0				415			
N3TC PROJECT MANAGER				NAME				D.D. ROBERTSON				for N3TC CONCESSIONAIRE				DRAWING TYPE				ROADS - TYPICAL DETAIL							
Name				J.C. MARKRAM				J.C. MARKRAM				Date:				BRIDGE/STRUCTURE No.				N3TC-RS-03				VER			
Date				2020/12/01				2020/12/01				Date:				CONSULTANT DRAWING No.				N3TC-RS-03				V1			
ORIGINAL VERSION				J.C. MARKRAM				J.C. MARKRAM				for SA NATIONAL ROADS AGENCY LTD.				SCALE: AS SHOWN				SHEET 2 OF 2				SANRAL DOCUMENT #			
REVISION				CONSULT. ENG.				CONSULT. ENG.				Date:															
No.				DATE				NAME				Date:															

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

CONSTRUCTION RECORD (AS-BUILT)

WORKS CONTRACT ENGINEER

NAME

Prof. Reg. No. :

Date

N3TC PROJECT MANAGER

NAME

Date

ORIGINAL VERSION

REVISION

No.

DATE

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ACCEPTANCE

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

for N3TC CONCESSIONAIRE

Date:

for SA NATIONAL ROADS AGENCY LTD.

Date:

PROJECT DESCRIPTION

ROUTINE ROAD MAINTENANCE OF NATIONAL ROUTE 3: N3 TOLL ROAD BETWEEN CEDARA AND HEIDELBERG SOUTH INTERCHANGE

DRAWING DESCRIPTION

ROAD SIGNS

SUPPORTS AND FOUNDATIONS

DETERMINATION SHEET 2 OF 2

PROJECT NUMBER

DRAWING LOCATION DATA

ROUTE

SECTION

DRAWING km DISTANCE

DRAWING TYPE

BRIDGE/STRUCTURE No.

CONSULTANT DRAWING No.

SCALE: AS SHOWN

SHEET 2 OF 2

SANRAL DOCUMENT #

CONTRACT N3TC/RM-2021-600

START

N3

4

0

ROADS - TYPICAL DETAIL

N3TC-RS-03

VER

V1

DRAWING No.

N3TC-RS-08