PROJ. REFERENCE NO.	SHEET NO.
R-977A	2-K

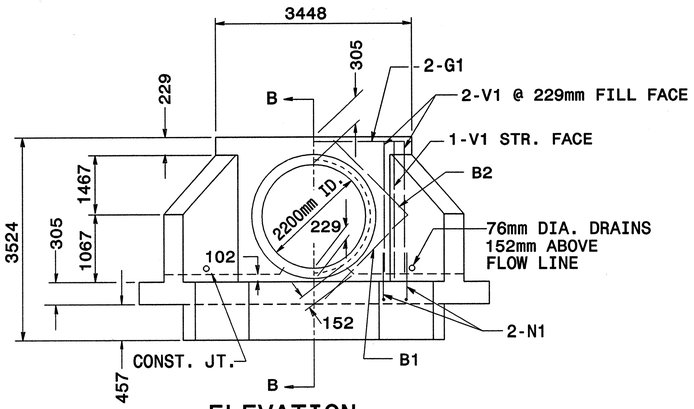
METRIC

STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

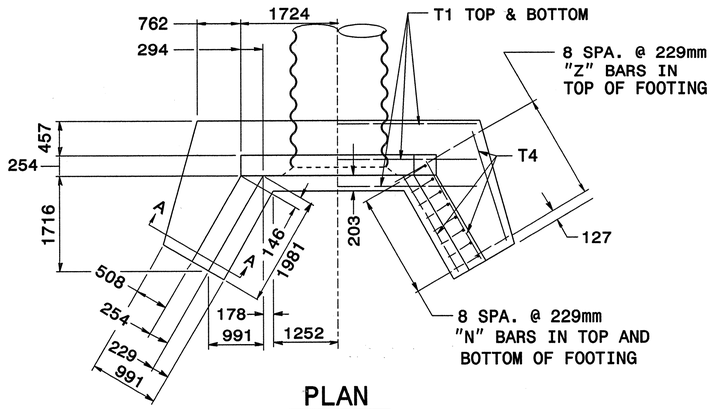
METRIC DETAIL DRAWING FOR REINFORCED CONCRETE ENDWALL FOR SINGLE 2200mm PIPE 90° SKEW

SHEET 1 OF 1

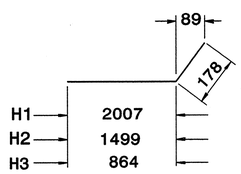
838D39



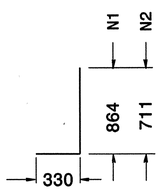
ELEVATION



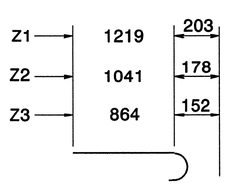
PLAN



"H" BARS



"N" BARS

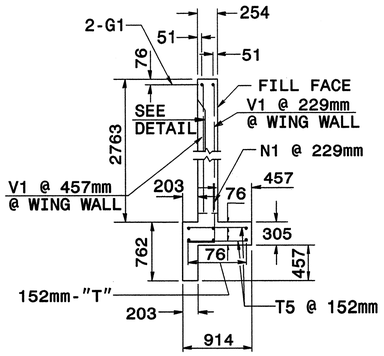


"Z" BARS

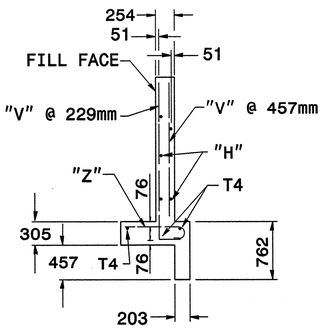
Note:
This drawing is dimensioned in millimeters unless otherwise depicted within the drawing.

GENERAL NOTES:

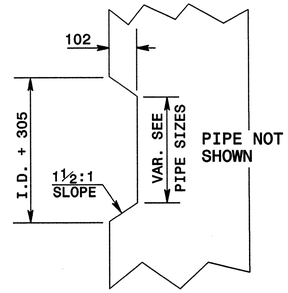
ALL CONCRETE SHALL BE CLASS 'A'.
ALL EXPOSED CORNERS SHALL BE CHAMFERED 25mm.
ALL DIMENSIONS RELATIVE TO PLACEMENT OF REINFORCING STEEL ARE TO CENTERS OF BARS.
A STONE DRAIN CONSISTING OF 0.028 CUBIC METERS OF NUMBER 78M STONE CONTAINED IN A POROUS FABRIC SHALL BE PLACED AT EACH WEEP HOLE. SUBDRAIN FINE AGGREGATE SHALL BE PLACED BENEATH, AROUND AND OVER THE STONE DRAIN SO THE STONE DRAIN IS COMPLETELY COVERED BY A LAYER OF SUBDRAIN FINE AGGREGATE AT LEAST 300mm THICK. WHERE THERE IS MORE THAN ONE WEEP HOLE IN A WING WALL, A HORIZONTAL DRAIN OF SUBDRAIN FINE AGGREGATE AT LEAST 300mm SQUARE IN CROSS SECTION SHALL BE PLACED TO CONNECT ALL STONE DRAINS. A VERTICAL DRAIN OF SUBDRAIN FINE AGGREGATE AT LEAST 300mm SQUARE IN CROSS SECTION SHALL BE PLACED AT EACH WEEP HOLE TO AN ELEVATION OF 600mm BELOW THE SURFACE OF THE EMBANKMENT.



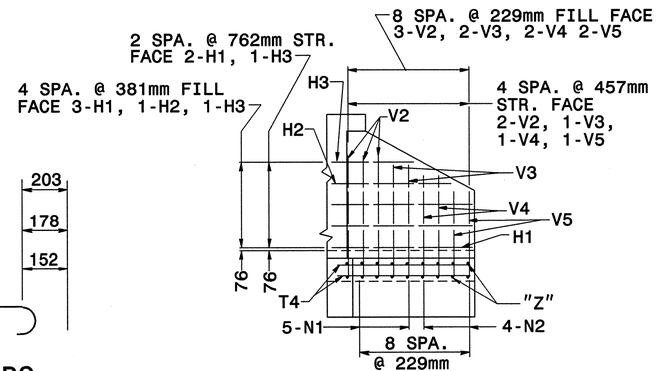
SECTION B-B
PIPE NOT SHOWN



SECTION A-A



TAPER DETAIL



WING ELEVATION

BILL OF MATERIAL FOR ENDWALL				
REINFORCING STEEL				
BAR	SIZE	LENGTH	NO.	WEIGHT
B1	#13	2317	4	9
B2	#13	1772	4	7
G1	#22	3346	2	20
H1	#13	2184	10	22
H2	#13	1676	2	3
H3	#13	1041	4	4
N1	#16	1194	14	26
N2	#13	1041	8	8
T1	#13	4820	6	29
T4	#13	2057	6	12
T5	#13	762	40	30
V1	#13	2610	6	16
V2	#13	2066	10	21
V3	#13	1700	6	10
V4	#13	1334	6	8
V5	#13	965	6	6
Z1	#19	1422	6	19
Z2	#16	1219	6	11
Z3	#13	1016	6	6
REINF. STEEL kg.				267
CON./C.S. m^3				7.2

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FOR SINGLE 2200mm PIPE 90° SKEW

SHEET 1 OF 1

838D39

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER JOEL S. HOWERTON
12/22/04

DESIGN SERVICES UNIT
STANDARDS AND SPECIAL DESIGN
Office 919-250-4128 FAX 919-250-4119

SEE PLATE FOR TITLE

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