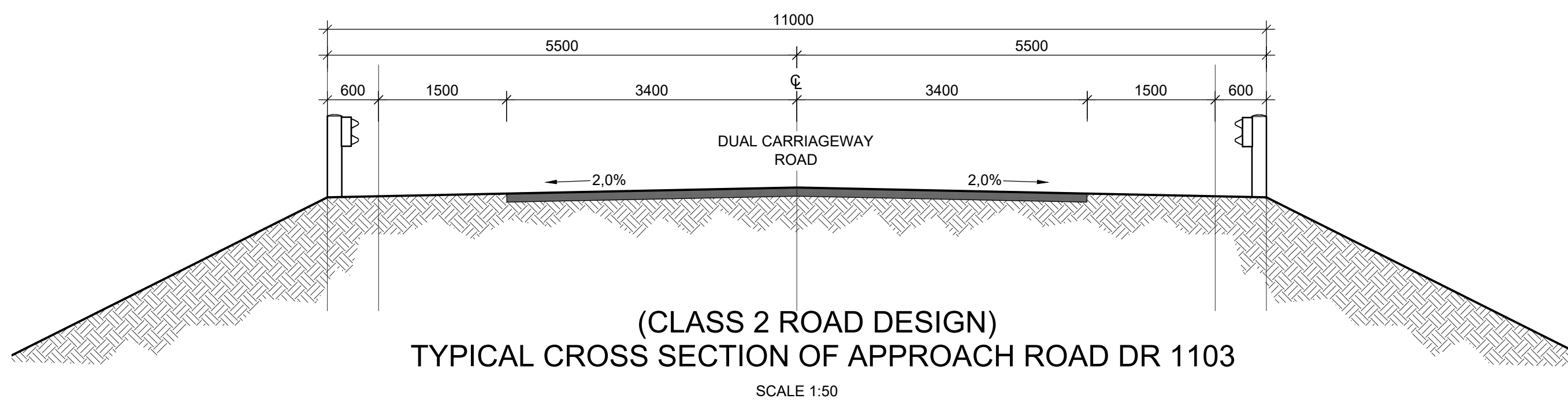
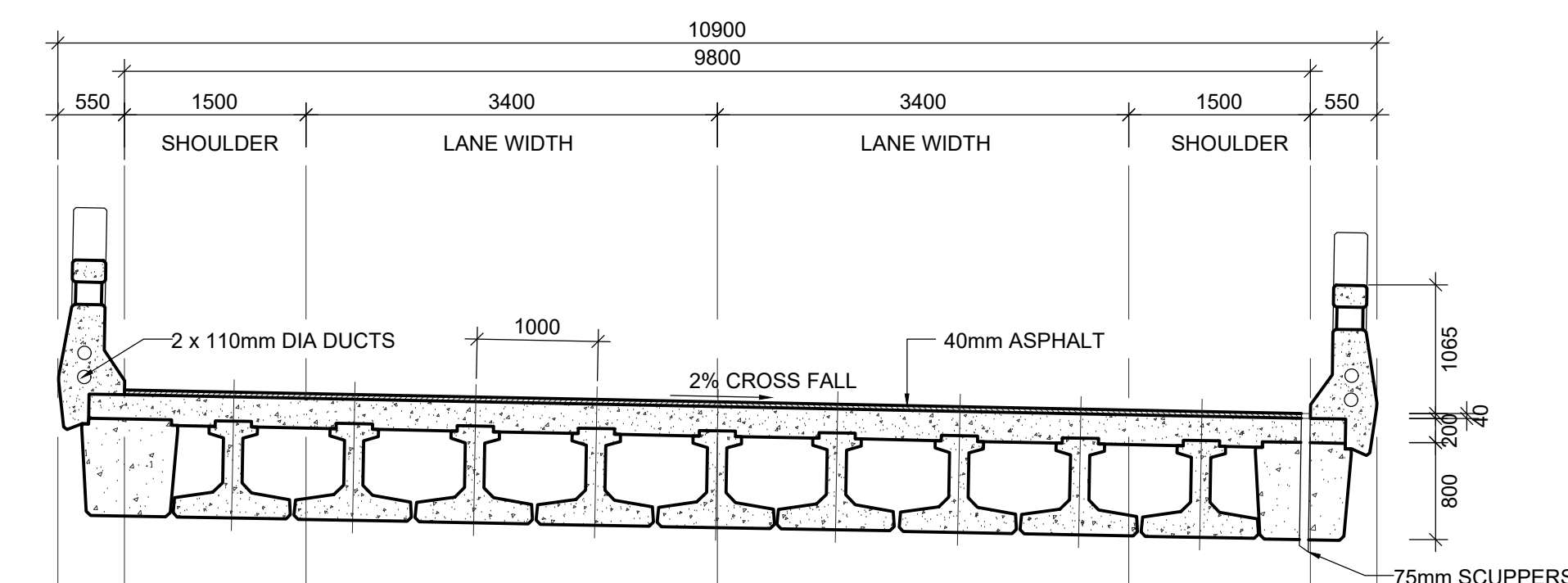


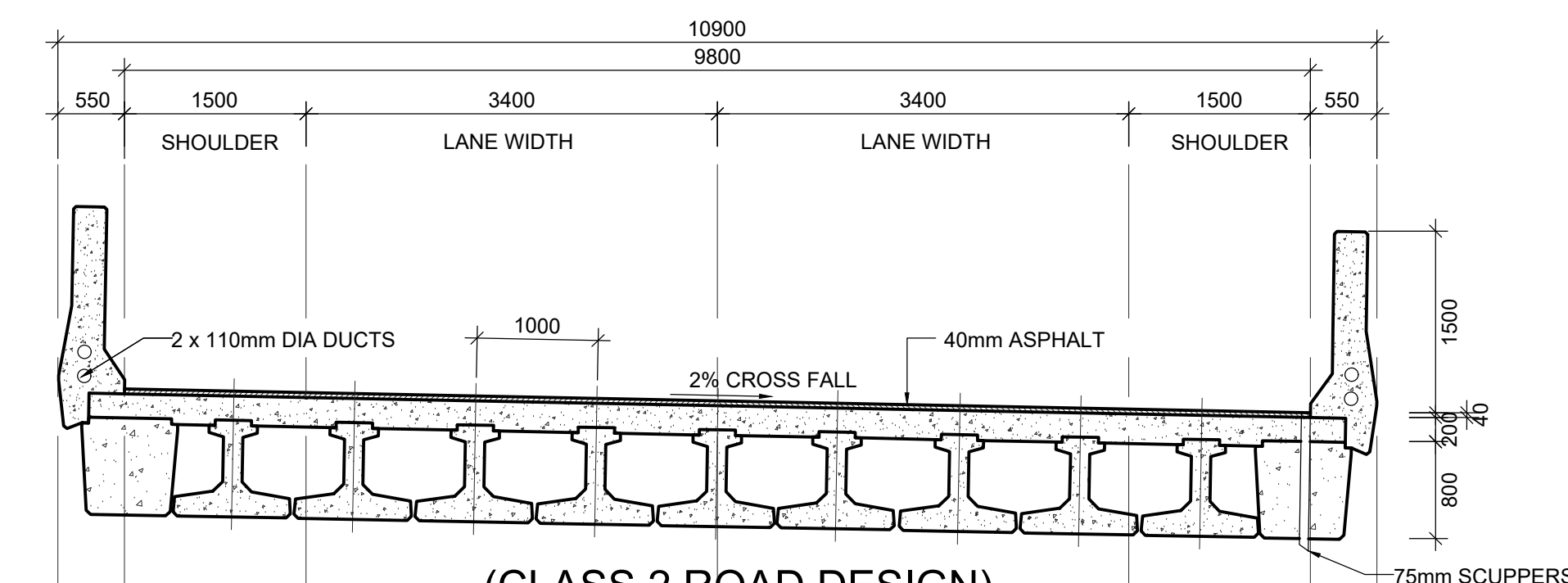
(CLASS 3 ROAD DESIGN)
TYPICAL CROSS SECTION OF DISTRICT ROAD DR 1103
SCALE 1:50



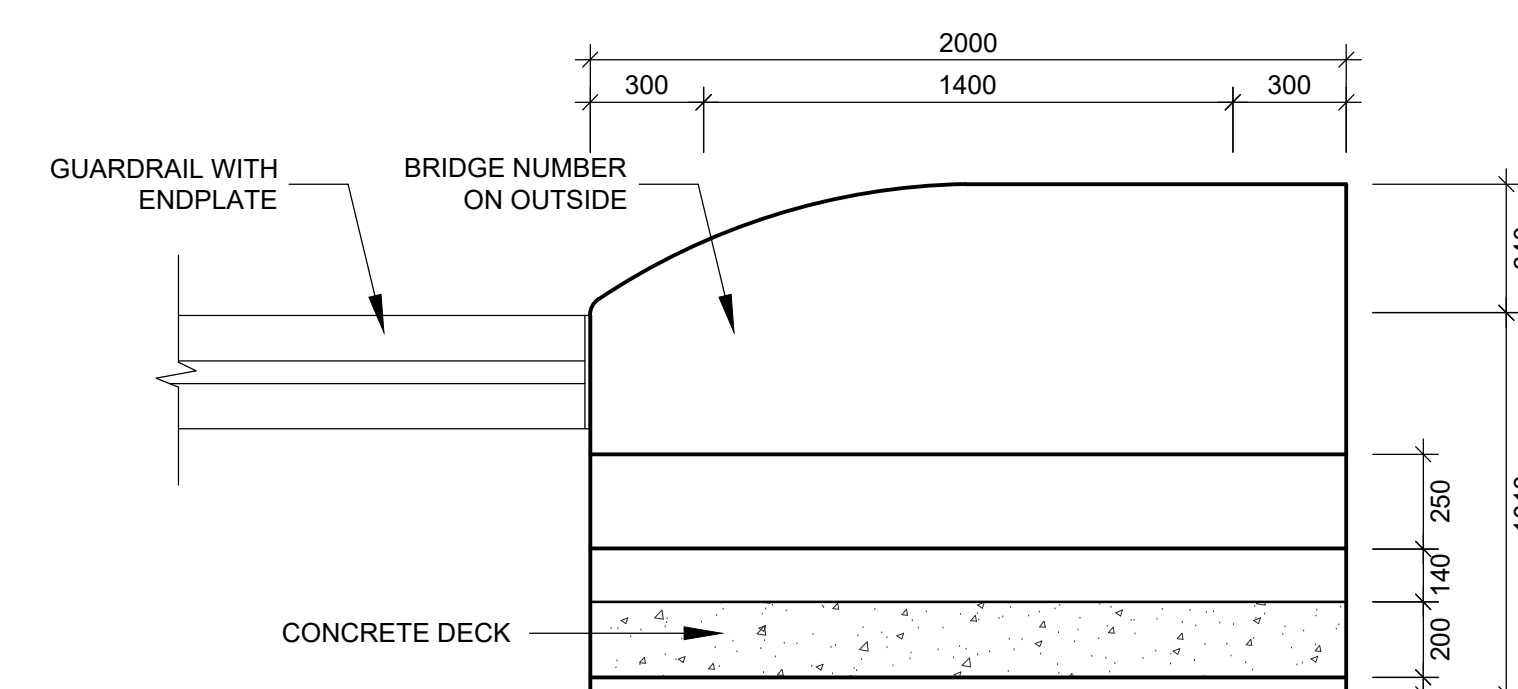
(CLASS 2 ROAD DESIGN)
TYPICAL CROSS SECTION OF APPROACH ROAD DR 1103
SCALE 1:50



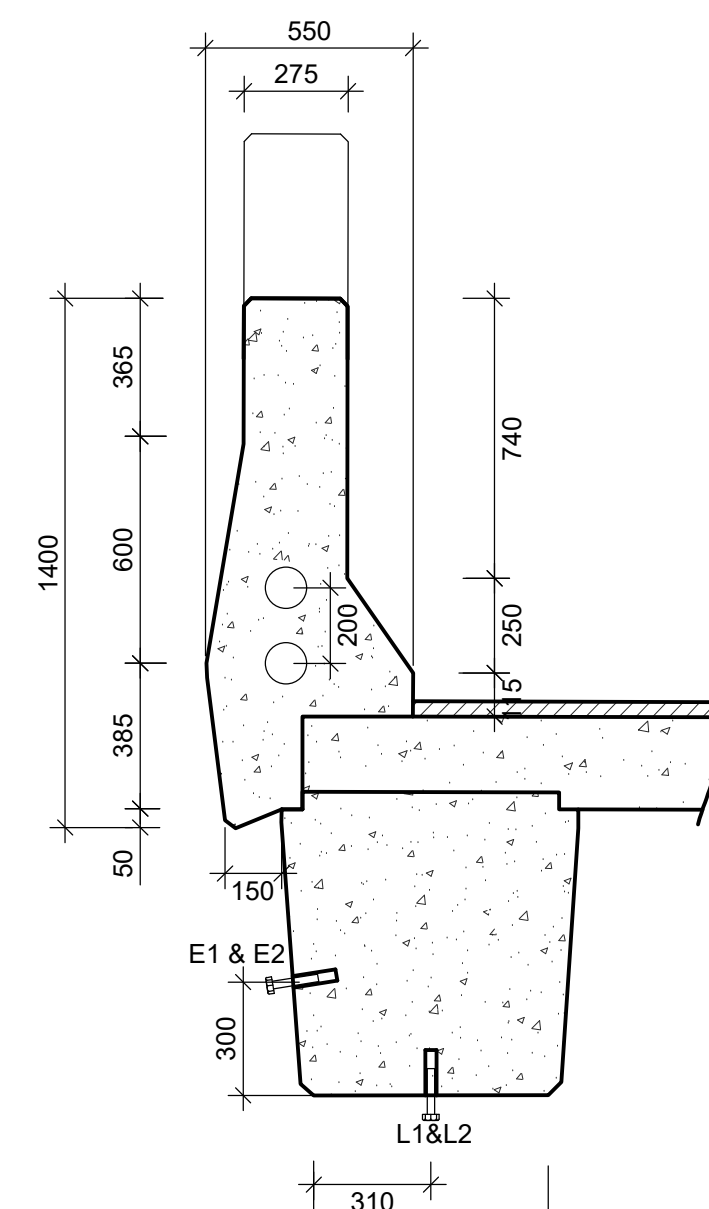
(CLASS 2 ROAD DESIGN)
SECTION B-B THROUGH DECK PERPENDICULAR TO CL OF ROAD SPAN 2 & 3
(SPANS OVER ROAD)
SCALE 1:50



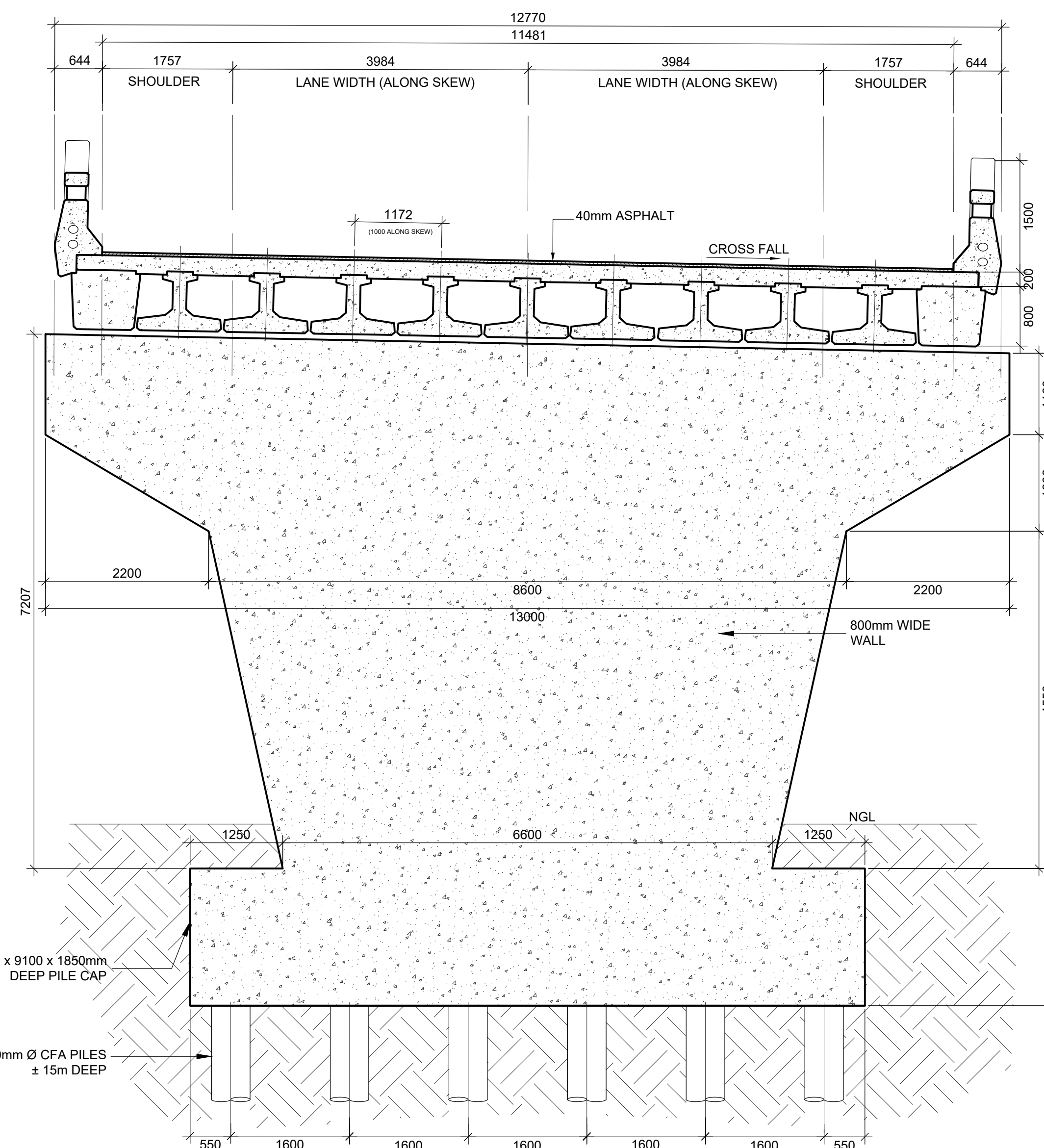
(CLASS 2 ROAD DESIGN)
SECTION C-C THROUGH DECK PERPENDICULAR TO CL OF ROAD SPAN 1
(SPAN OVER RAIL)
SCALE 1:50



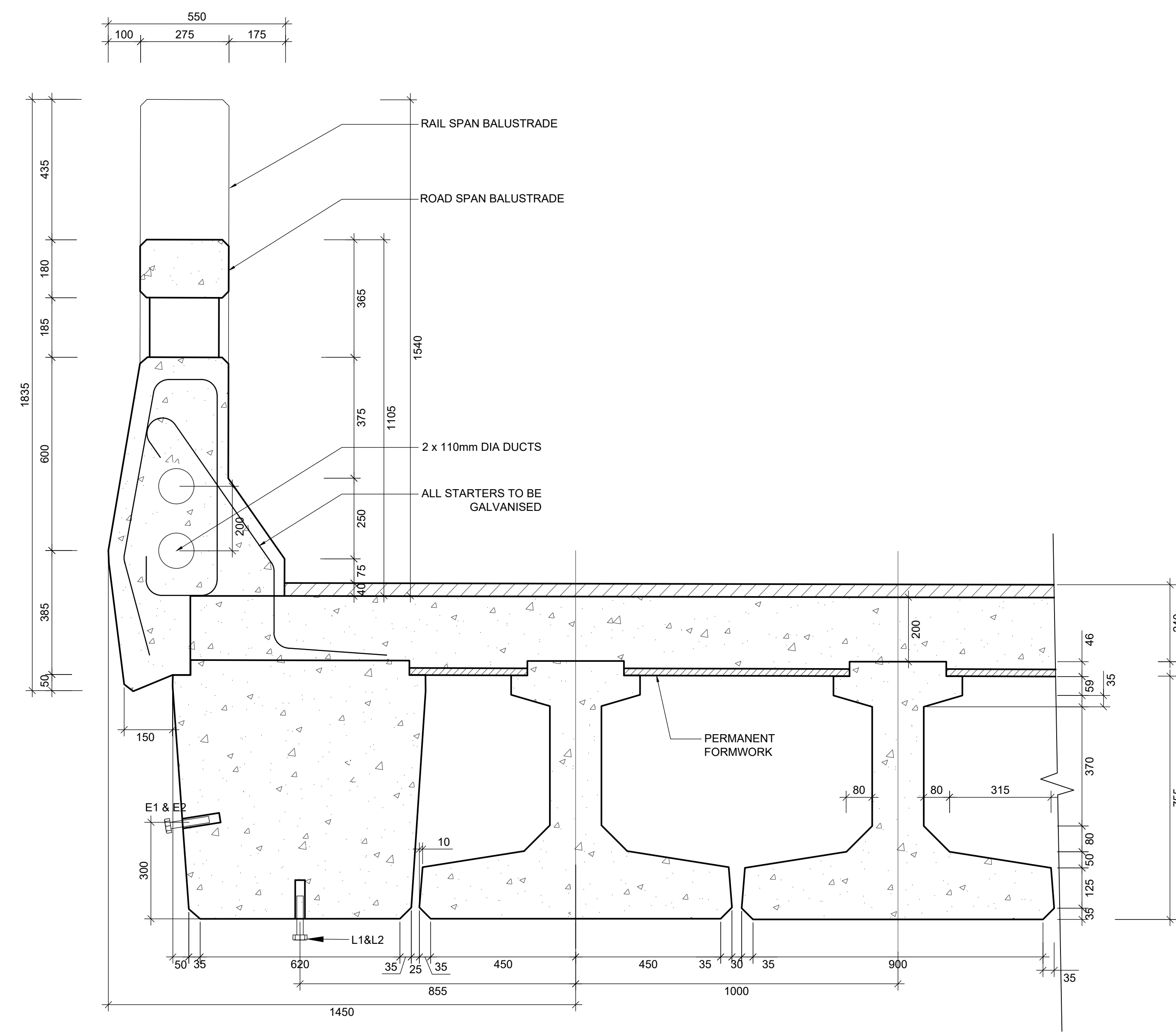
END BLOCK DETAIL
SCALE 1:20



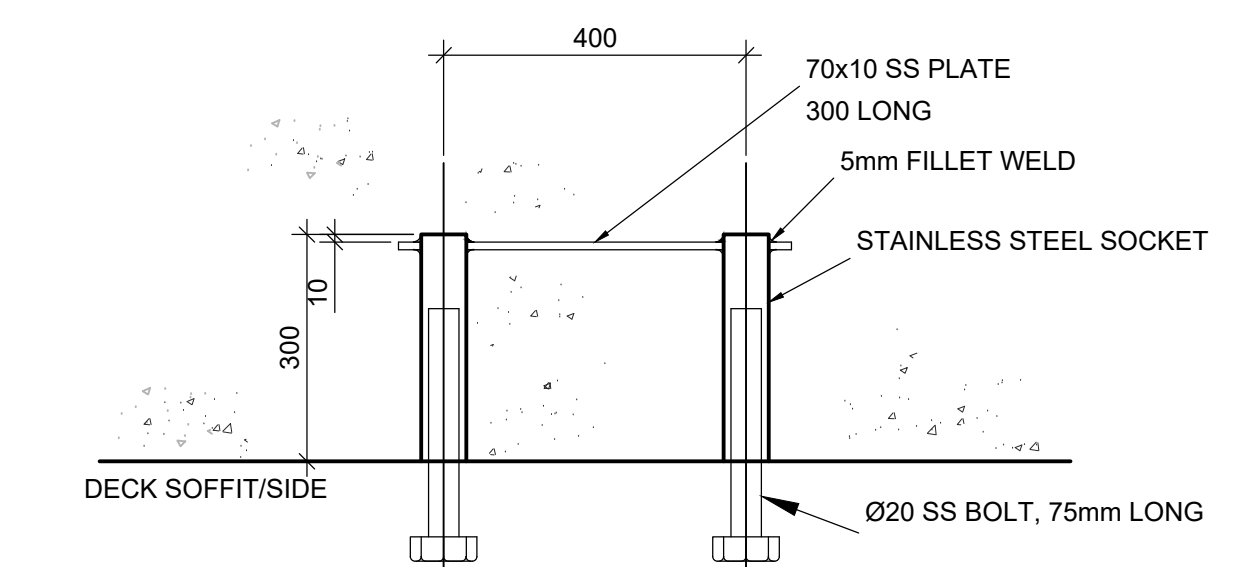
TYPICAL SECTION THROUGH END BLOCK
SCALE 1:20



PERPENDICULAR CROSS SECTION D-D THROUGH CENTRE PIER
SCALE 1:50



CROSS SECTIONAL DETAIL OF TYPE M3 AND EDGE
PRECAST PRESTRESSED BEAMS AND IN-SITU BALUSTRADE
SCALE 1:10



NOTE: STAINLESS STEEL TO BE BS 970 GRADE 304 OR ANSI 304
FIXING BOLTS L1, L2, E1 & E2 FOR BRACKETS
SCALE 1:10

NOTES

GENERAL DESIGN NOTES

- STRUCTURAL SYSTEM: SIMPLY SUPPORTED PRESTRESSED M3 BEAMS WITH IN-SITU CONCRETE BRIDGE DECK OVER FORMING 3 SIMPLY SUPPORTED SPANS.
- DESIGN METHOD: LIMIT STATE DESIGN ACCORDING TO TMH7.
- THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH TMH7 "CODE OF PRACTICE FOR THE DESIGN OF HIGHWAY BRIDGES AND CULVERTS IN SOUTH AFRICA" AS WELL AS "SOUTH AFRICAN TRANSPORT SERVICES BRIDGE CODE 1983"

DESIGN NOTES:

- TRAFFIC LOADING: ACCORDING TO TMH7 PART 2 AS AMENDED 1988
 - LIVE LOADINGS: (1) NA (2) NB36 (3) NC30
- THE IMPACT LOADING ON THE SUBSTRUCTURE IS IN ACCORDANCE WITH CLAUSE 3.7 OF THE TMH7 CODE AND CLAUSE B3.2.2 OF THE BRIDGE CODE
- THE IMPACT LOADING ON THE PARAPETS IS IN ACCORDANCE WITH CLAUSE 3.5 OF THE TMH7 CODE
- DEAD LOADS: REINFORCED CONCRETE 2500kg/m³
- SUPERIMPOSED DEAD LOADS: BITUMEN SURFACING 2300kg/m³ (40mm ALLOWED FOR)
- SOIL PRESSURE: DENSITY OF FILL MATERIAL = 1800kg/m³ INTERNAL FRICTION ANGLE OF FILL MATERIAL = 30°
- TEMPERATURE EFFECTS AS SPECIFIED IN TMH7
- CRITICAL LOADINGS: LONGITUDINALLY = TBC TRANSVERSELY = TBC
- BALUSTRADE TYPE: SOLID 1.5m OVER RAIL SPAN, STANDARD TYPE B OVER ROAD SPANS
- FOR MAXIMUM CALCULATED DECK DEFLECTIONS REFER TO DECK PLAN

JOINTS

BSP 65A

BEARINGS

- ELASTOMERIC BEARING PADS AT ALL SUPPORTS. THE BEARINGS SHALL BE LAMINATED. THE REINFORCING PLATES SHALL BE OF 3CR12 STEEL AND HAVE A LATERAL ELASTOMER COVER OF MINIMUM 5MM.

MATERIAL SPECIFICATION

CONCRETE IN:	CLASS	CHARACTERISTIC STRENGTH (MPa)	YOUNG'S MODULUS (MPa)	TEMP EXPANSION COEFF. (PER °C)
ALL FOOTINGS	30/19	30	28 000	12 E-6
ABUTMENTS	35/19	35	28 000	12 E-6
PIERS	35/19	35	28 000	12 E-6
DECK	40/19	40	28 000	12 E-6
BALUSTRADE	40/19	40	28 000	12 E-6
MASS CONCRETE	15/19	15	24 000	12 E-6

REINFORCEMENT (SABS 920-1985)

TYPE	YIELD STRENGTH (MPa)	YOUNG'S MODULUS (MPa)
a) MILD STEEL BARS	250	200 000
b) HIGH TENSILE STEEL BARS	450	200 000

FOUNDING

- TYPE: 600mm DIAMETER CFA PILES
- FOUNDING MATERIAL: AS PER SITE PLAN GEOTECHNICAL INFORMATION
- ALLOWABLE BEARING PRESSURE: N/A
- FOUNDING LEVELS MUST BE APPROVED BY THE ENGINEER.

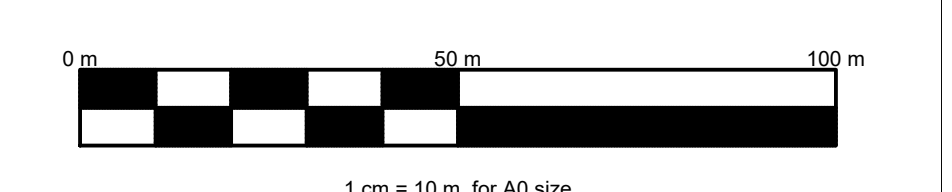
CONSTRUCTION

- ALL VISIBLE CORNERS MUST BE CHAMFERED 20mm x 20mm
- 75mm MIN. MASS CONCRETE (CONCRETE CLASS 15/19) MUST BE CAST UNDER ALL FOOTINGS AND APPROACH SLAB (BLINDING)
- CONCRETE COVER:
 - PILE CAPS & FOUNDATIONS: 75mm
 - ABUTMENT/SOIL FACES: 60mm
 - ABUTMENTS AND PIERS: 40mm
 - DECK: 40mm
 - BALUSTRADE: 40mm
 - PRECAST BEAMS: 30mm

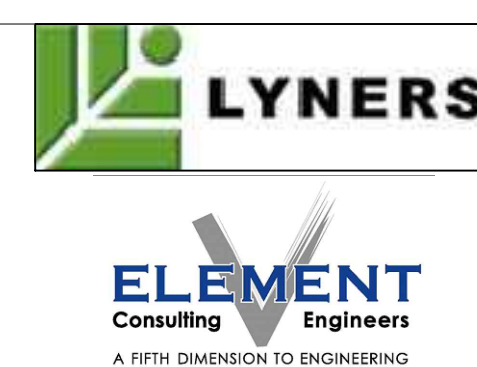
PRE-STRESSED BEAMS

- SEE PRE-STRESSED BEAMS DRAWING FOR RELEVANT NOTES.

FOR TENDER
(TENDER APPROVAL ONLY)



NO.	DATE	ADDITIONS AND AMENDMENTS	APPROVED CONS.	PRE	DESIGNED BY:	CW
A	29.02.2016	FOR PRELIMINARY COMMENT			CHECKED BY:	LDT
B	31.10.2017	FOR CONCEPT APPROVAL			DRAWN BY:	CW
C	13.02.2018	FOR TENDER APPROVAL			CHECKED BY:	BZ



CONSULTING ENGINEERS
DATE: _____

WESTERN CAPE GOVERNMENT
DEPARTMENT OF TRANSPORT AND PUBLIC WORKS

APPROVED
THIS APPROVAL IS FOR PROCEDURAL AND ADMINISTRATIVE REVIEW PURPOSES ONLY AND DOES NOT ATTRACT LEGAL LIABILITY OF ANY KIND FROM WHATSOEVER OR HOWEVER ARISING
PROVINCIAL ROADS ENGINEER
DATE: _____

**PROPOSED ROAD OVER RAIL BRIDGE No. 6048 ON
DR 1103 OVER KLAPMUTS-PAARL RAIL NEAR SIMONSVLEI**
GENERAL ARRANGEMENT 2

P.R.E.'S FILE NO.	SCALE
970123	AS SHOWN
CONTRACT NO.	WCG STRUCTURE PLAN
TPW 16/6/4/1/4-C0850.01	
CONSULTANTS DWG NO.	WCG INDEX NO.
150049/S/003	A93/16