

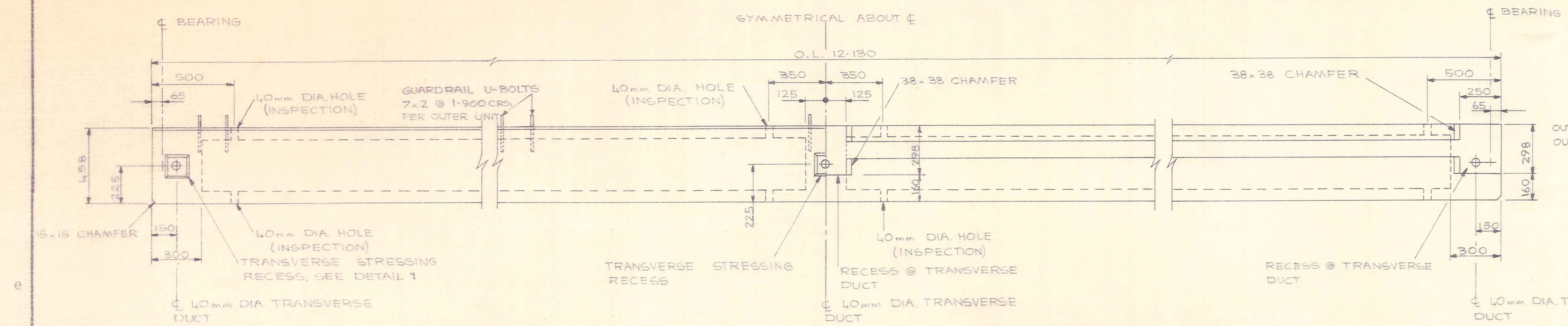
Notes
 1. Topsoil overlies loose gravel
 2. Erosion of gravel layers is causing collapse of topsoil into channel

~PLAN~
 Scale 1:500

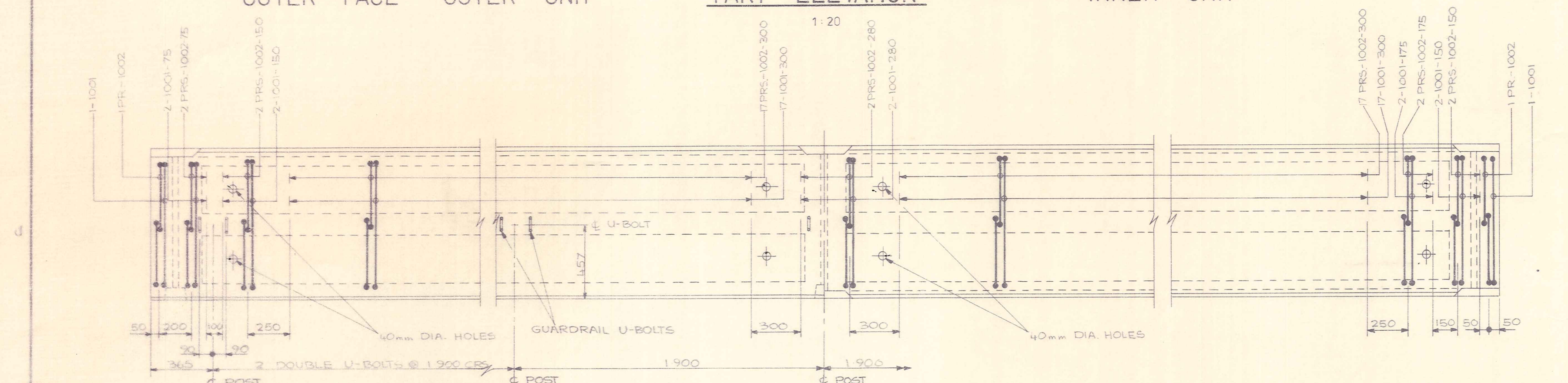


DUFFILL WATTS & KING LTD CONSULTING CIVIL & STRUCTURAL ENGINEERS <small>Dunedin P.O. Box 5269 Ph 77-133 Invercargill P.O. Box 576 Ph 83049 Balclutha P.O. Box 220 Phone 1425</small>	VINCENT COUNTY COUNCIL	BOUNDARY BRIDGE LAUDER CREEK	DATUM Assumed		AMENDMENTS		NAME DATE		JOB NO. 7633	Sheet No /
			ORIGIN Spike in Fence Post (117.5m)		NO BY DATE	Appvd	Surveyed Drawn Calculations Traced Checked Approved	B. Kinaston June '77 B. Kinaston June '77	Aug '78	File 156/7633

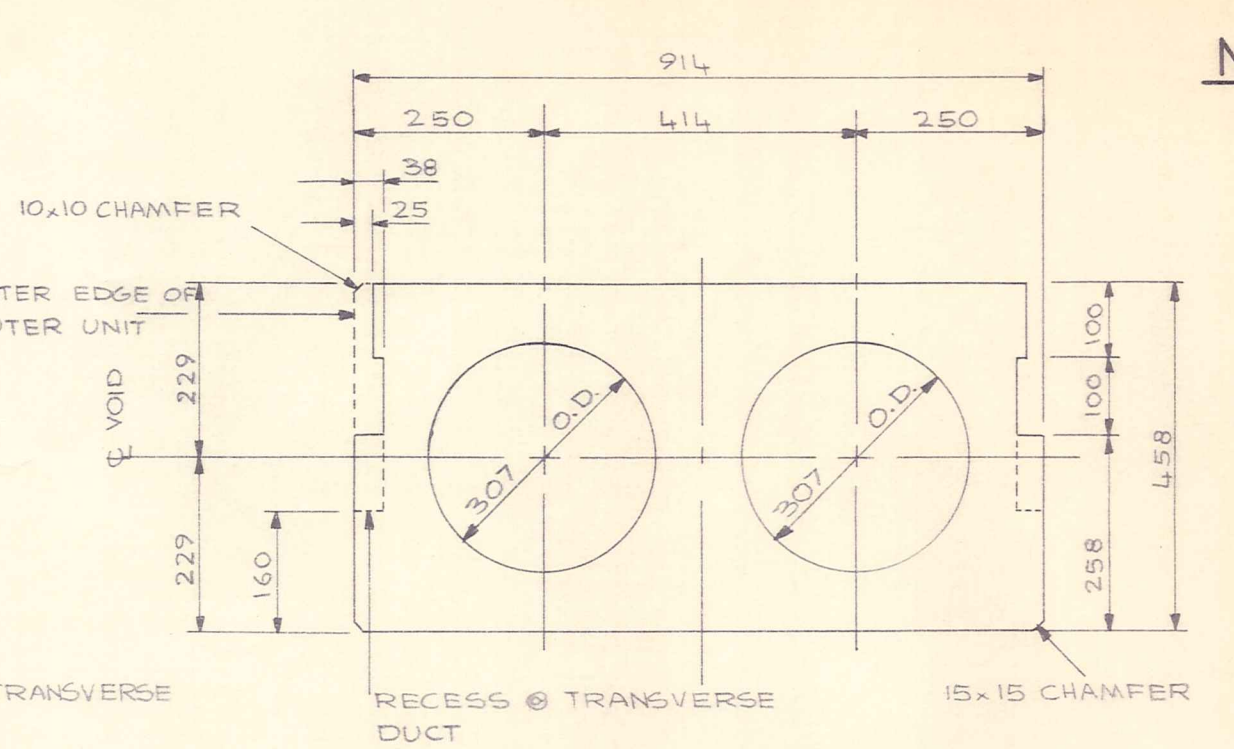
V.C.C. OFFICE COPY



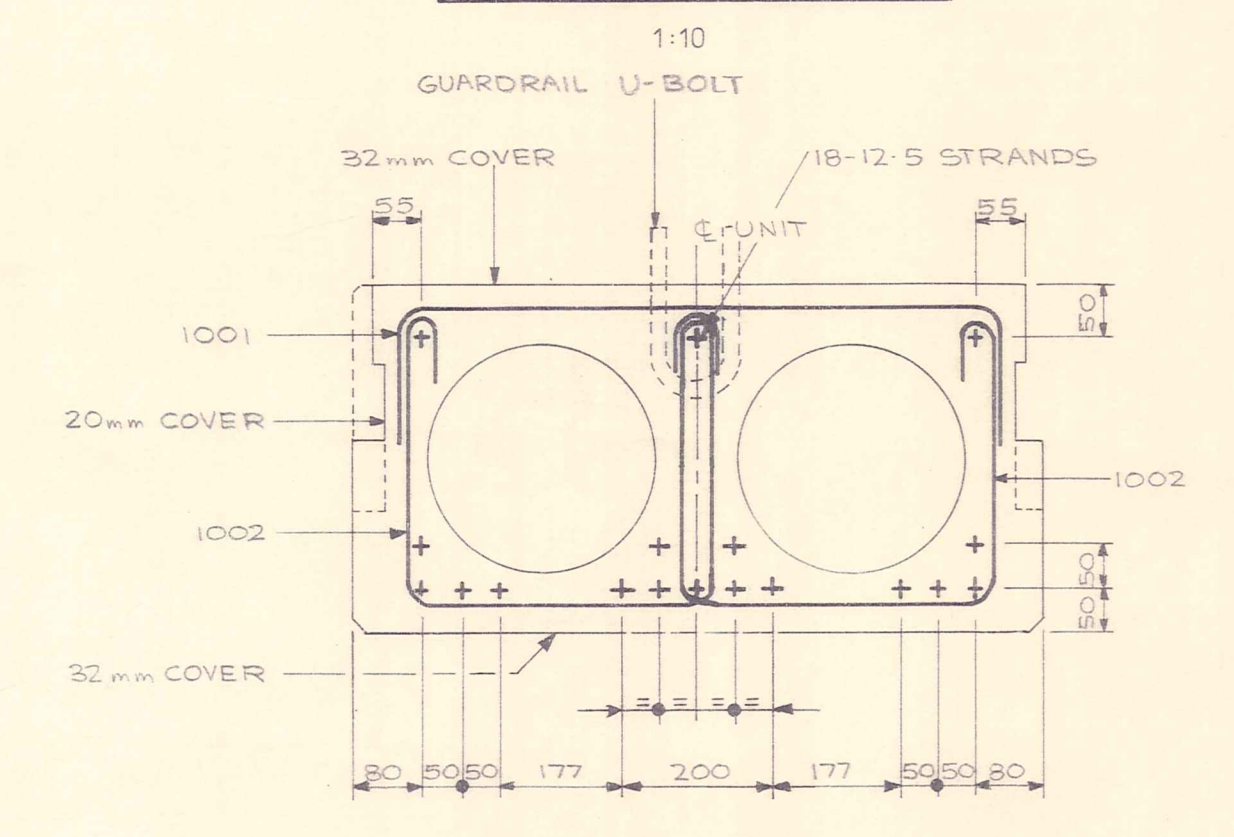
OUTER FACE - OUTER UNIT PART ELEVATION INNER UNIT



OUTER UNIT PART PLAN - REINFORCEMENT INNER UNIT



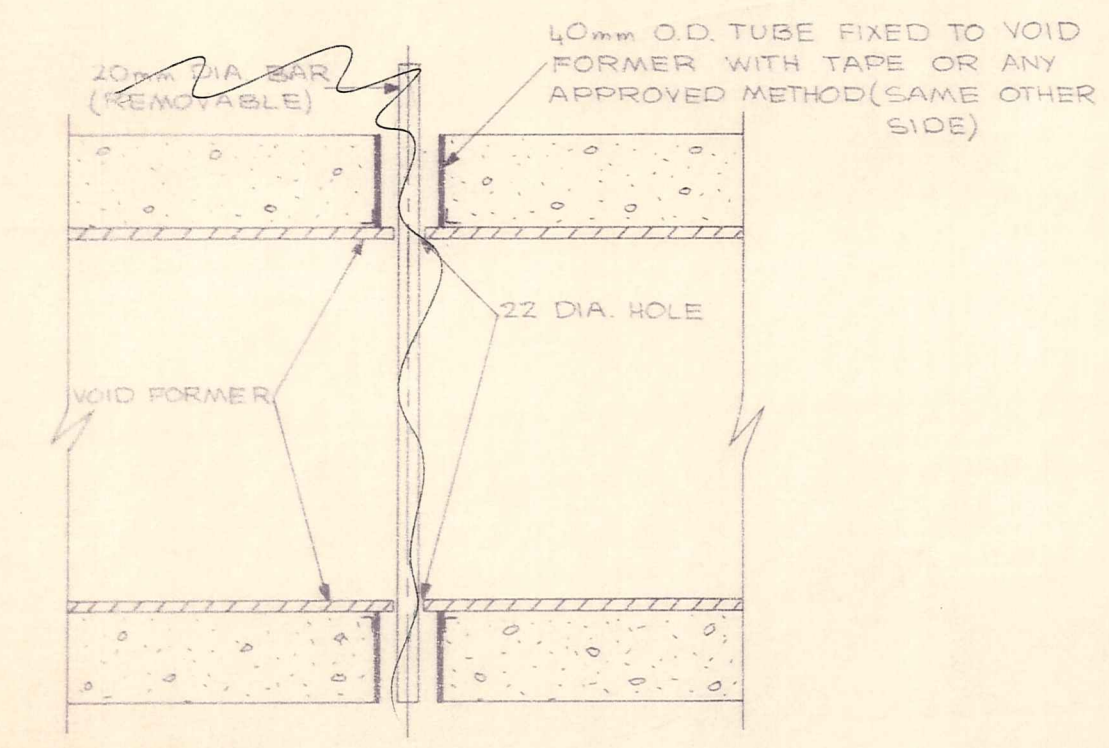
TYPICAL SECTION



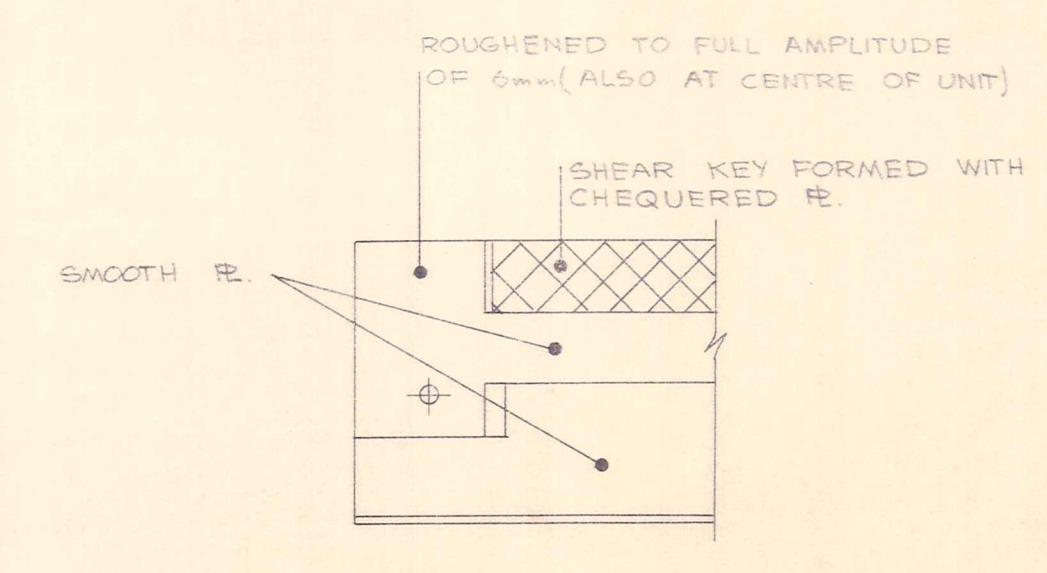
REINFORCEMENT & STRAND LAYOUT

NOTES:

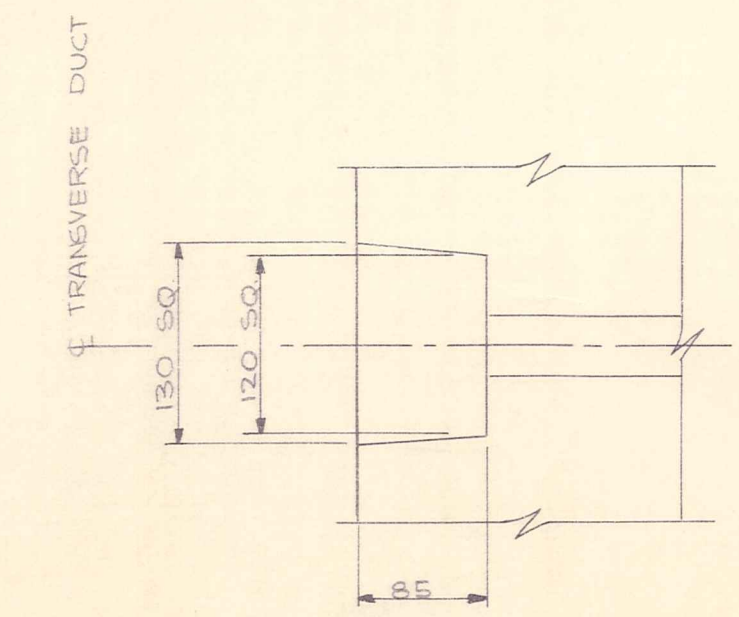
- 1) RECESS FOR TRANSVERSE STRESSING IN OUTER UNIT SHALL BE DIMENSIONED TO SUIT THE PRESTRESSING SUPPLIERS RECOMENDATIONS FOR THE SYSTEM USED
- 2) STRANDS SHALL BE RELEASED SLOWLY AND AFTER RELEASE SHALL BE CUT AND GROUND OFF FLUSH WITH THE CONCRETE AT THE END OF THE UNIT. A PROTECTIVE COATING OF COAL TAR EPOXY SHALL BE APPLIED AS SPECIFIED BEFORE THE UNIT LEAVES THE CASTING YARD
- 3) INSPECTION HOLES SHALL EXTEND TO THE VOID FORMER ONLY AND SHALL BE MORTARED UP AFTER FINAL INSPECTION OF THE UNITS. DRAINAGE HOLES SHALL EXTEND THROUGH THE VOID FORMERS AND INTO THE VOID
- 4) CONCRETE COVER TO ALL PRESTRESSING COMPONENTS-10mm COVER TO ALL REINFORCING STEEL-30mm OR AS SHOWN COVER ADJACENT TO CORED HOLES-10mm
- 5) DESIGN LOADING: HN-HO-72
- 6) SPECIFICATION: THIS DESIGN IS BASED ON MATERIALS AND WORKMANSHIP IN ACCORDANCE WITH THE CURRENT M.W.D. SPECIFICATION C.D.201
- 7) HANDLING:
 - OVERALL LENGTH 550
 - EXTREMES OF VERTICAL LIFTING POINTS OR GROUND SUPPORT SHOWN HATCHED. KEEP UNIT AS HORIZONTAL AS POSSIBLE
- 8) SURFACE FINISHES:
 - a) TOP SURFACE - BROOM FINISH AS SPECIFIED IN CLAUSE 6.6.6. OF C.D.101
 - b) SIDE AND UNDERSIDE SURFACE - SMOOTH FINISH EXCEPT SHEAR KEY. SEE DETAIL 2



INSPECTION & DRAINAGE HOLE DETAIL N.T.S.



DETAIL 2 N.T.S.



DETAIL 1 1:5

PRESTRESSING FORCES AT INITIAL TENSIONING

UNIT SPAN	12 m
TOTAL PER UNIT (kN)	2320

NOTE: 12.5mm STRAND IS ASSUMED TO HAVE A CHARACTERISTIC STRENGTH OF 165kN PER STRAND

TOLERANCES

DIMENSIONS AT TIME OF ERECTION

ACTUAL OVERALL LENGTH & SQUARENESS - THE UNIT END SURFACES SHALL LIE WITHIN THE TOLERANCE BOXES SHOWN IN DIAGRAM 'A'

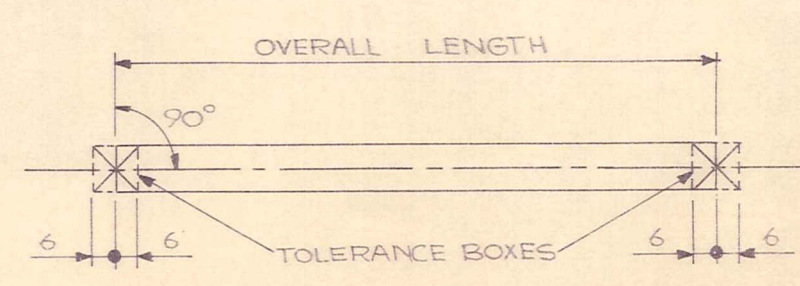


DIAGRAM 'A'

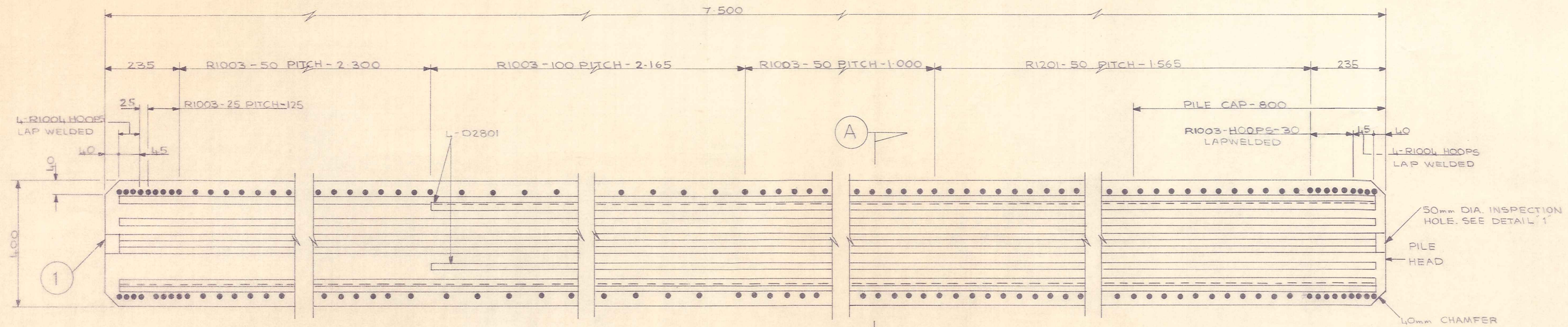
- OVERALL LENGTH - ±12mm
- PLANE SURFACE-DEVIATION FROM 1500mm STRAIGHT EDGE - ±6mm
- ALL CROSS SECTIONAL DIMENSIONS - ±6mm
- DIFFERENCE IN LEVEL OF TOP SURFACE BETWEEN ADJACENT UNITS IN PLACE - ±6mm
- HORIZONTAL DEVIATION (SEE SPECIFICATION) - ±6mm
- SMALLEST WEB THICKNESS - ±6mm-4mm
- SMALLEST FLANGE THICKNESS - ±6mm
- DIAPHRAM THICKNESS - ±12mm
- HOGGING VARIATION (SEE SPECIFICATION) - ±12mm

LOCATION OF STEEL AND CAST-IN SYSTEM

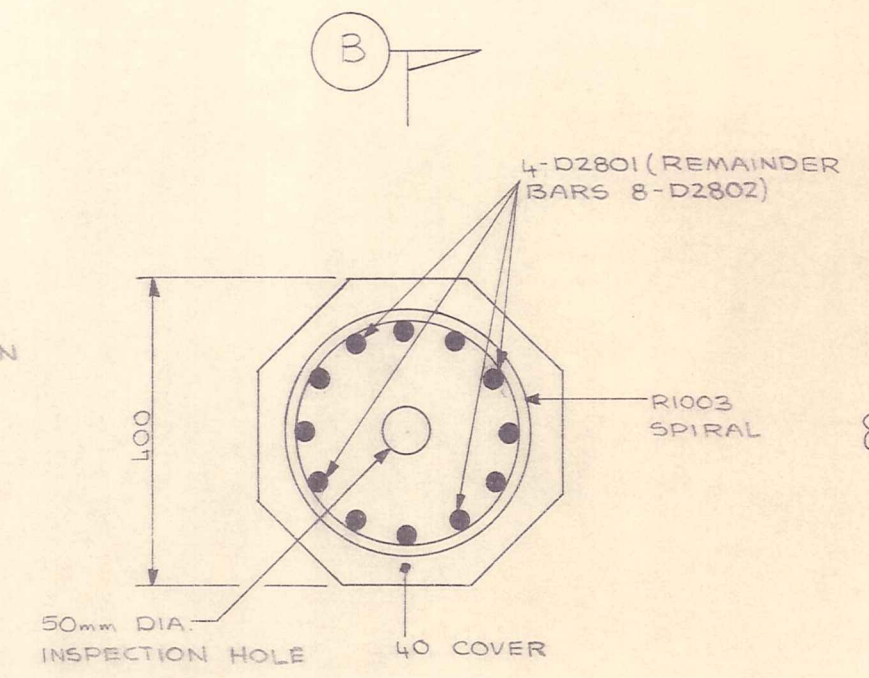
- PRESTRESSING STRANDS IN ANY DIRECTION - ±3mm
- LOCATION OF AN ITEM IN RELATION TO ANY OTHER ITEM WITHIN ITS GROUP - ±10mm
- TRANSVERSE DUCT POSITION - ±6mm

REINFORCEMENT SCHEDULE (for one unit)				
MARK	NO. OFF	LENGTH	SHAPE (N.T.S.)	NOTES:
1001	46	1.130		a) MARK DESIGNATION OF BARS 10 = DIAMETER IN mm 01 = 1st BAR MARK IN UNIT b) ALL BENDS SHALL COMPLY WITH C.D. 103 c) ALL DIMENSIONS ARE FROM OUTSIDE TO OUTSIDE UNLESS SHOWN OTHERWISE d) ALL BARS SHALL BE PLAIN ROUND STEEL, GRADE 275
1002	92	1.360		

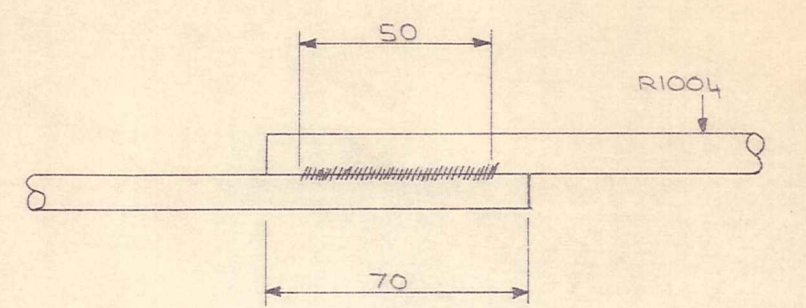
UNIT DETAILS		
UNIT DEPTH		458mm
UNIT SPAN		12 m
OVERALL LENGTH (m)		12.130
12.5 mm STRANDS	NUMBER	18
	TOTAL LENGTH (m)	225.0
REINFORCEMENT	TOTAL WEIGHT (kg)	109
CONCRETE VOLUME PER UNIT	INNER UNIT (m³)	3.24
	OUTER UNIT (m³)	3.32
HANDLING MASS	INNER UNIT (tonnes)	8.40
	OUTER UNIT (tonnes)	8.60



LONGITUDINAL PILE-SECTION (B)
1:10

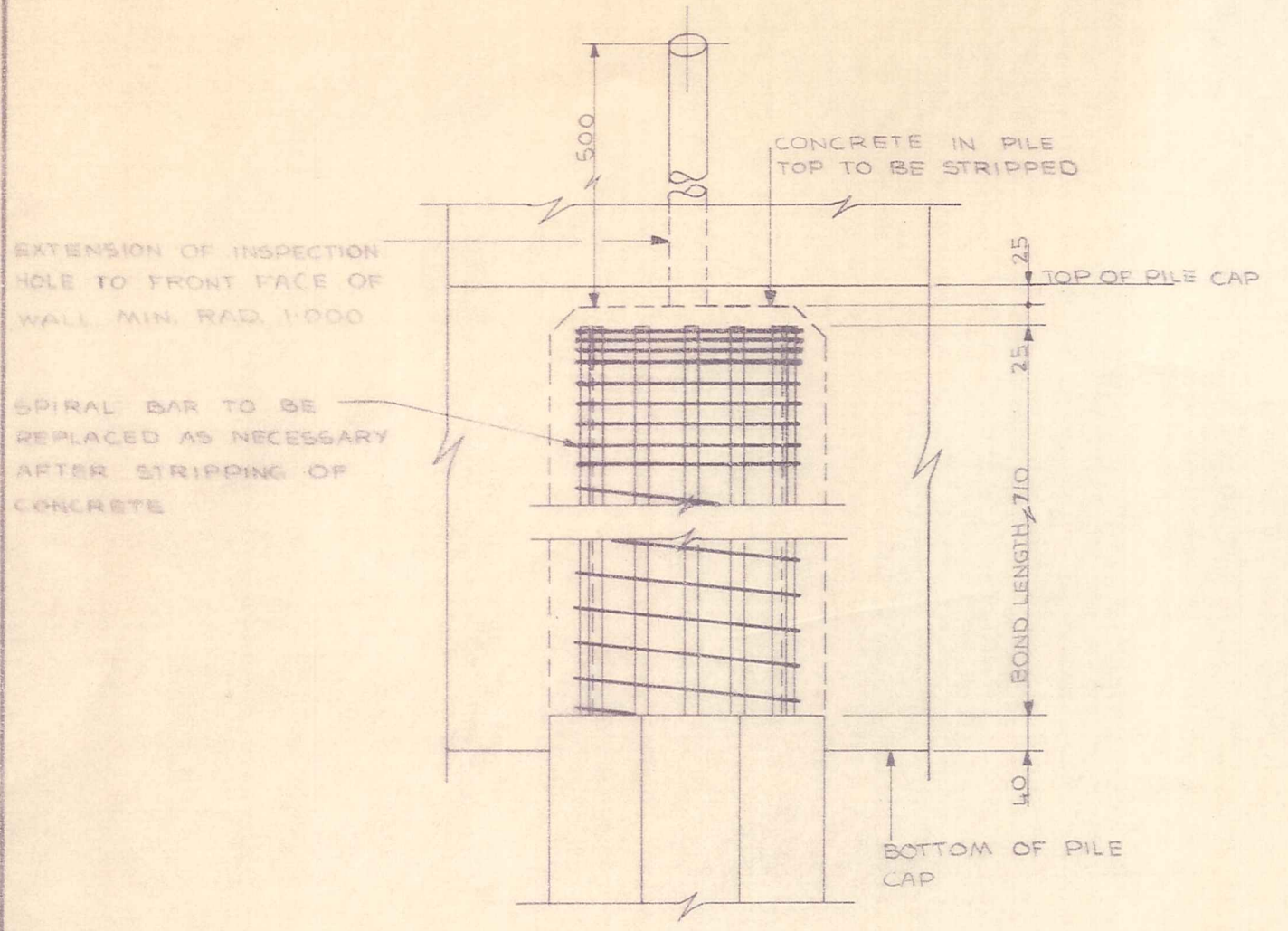


SECTION (A)
1:10



BAR WELD DETAIL
1:2

NOTES: PILE MAY BE LIFTED FROM ANY POINT
NO. OF PILES = 10



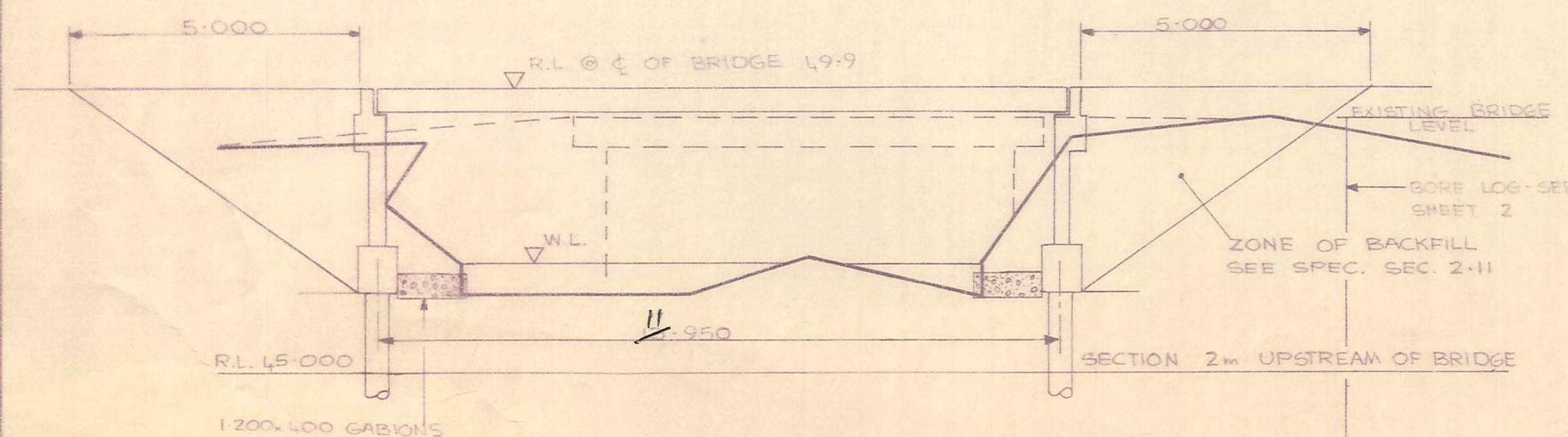
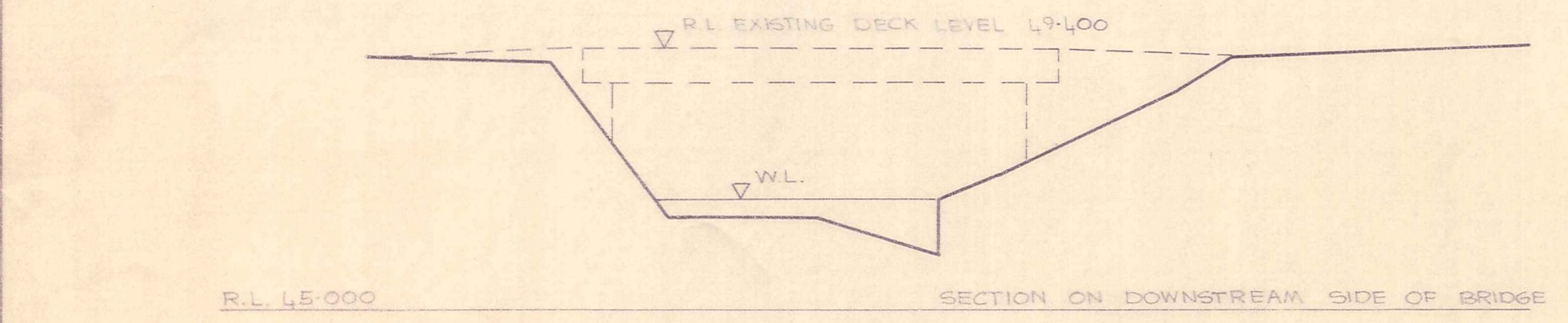
STRIPPING PILE HEAD
1:10

NOTE: ALL PILES DRIVEN FULL DEPTH.

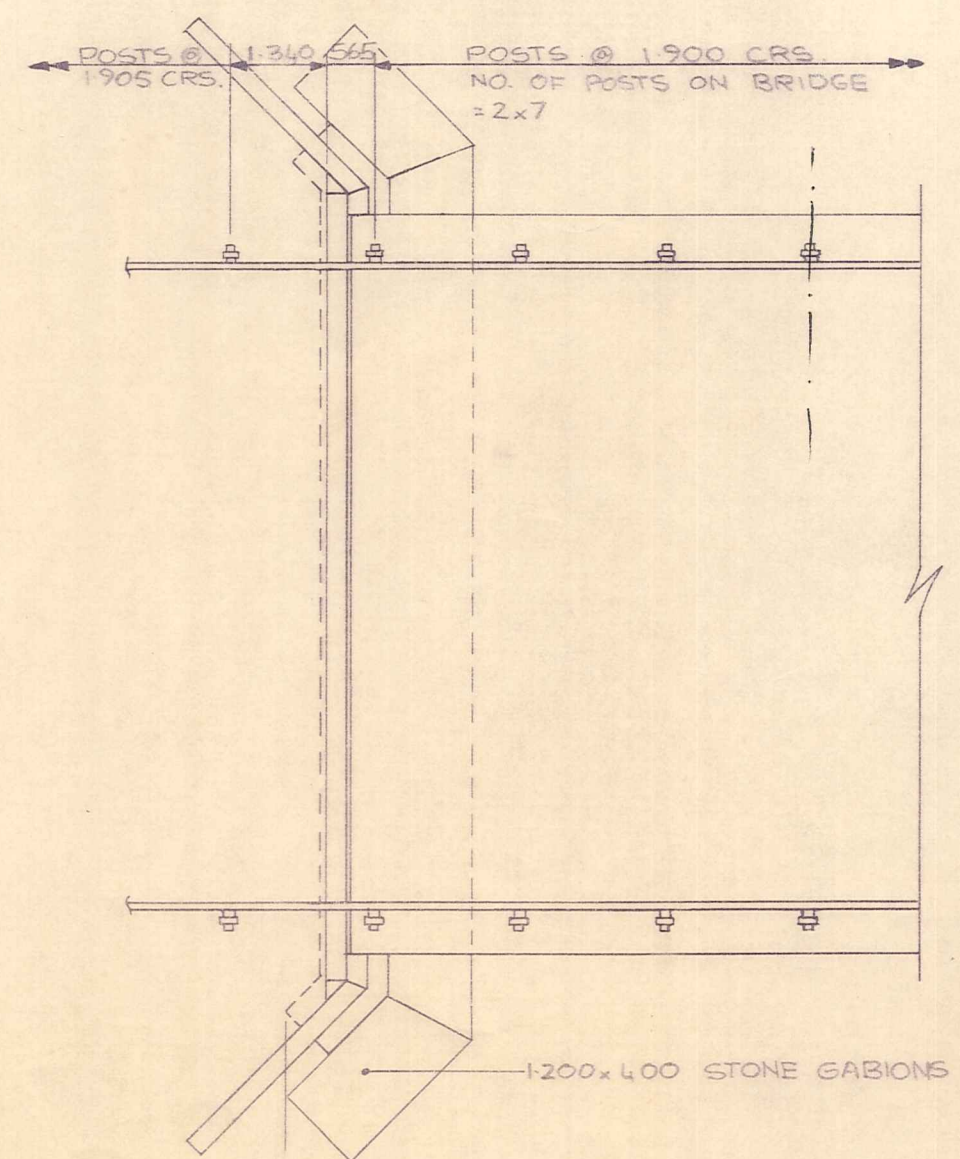
DETAIL (1)
1:5

NOTES FOR MANUFACTURE OF PILES

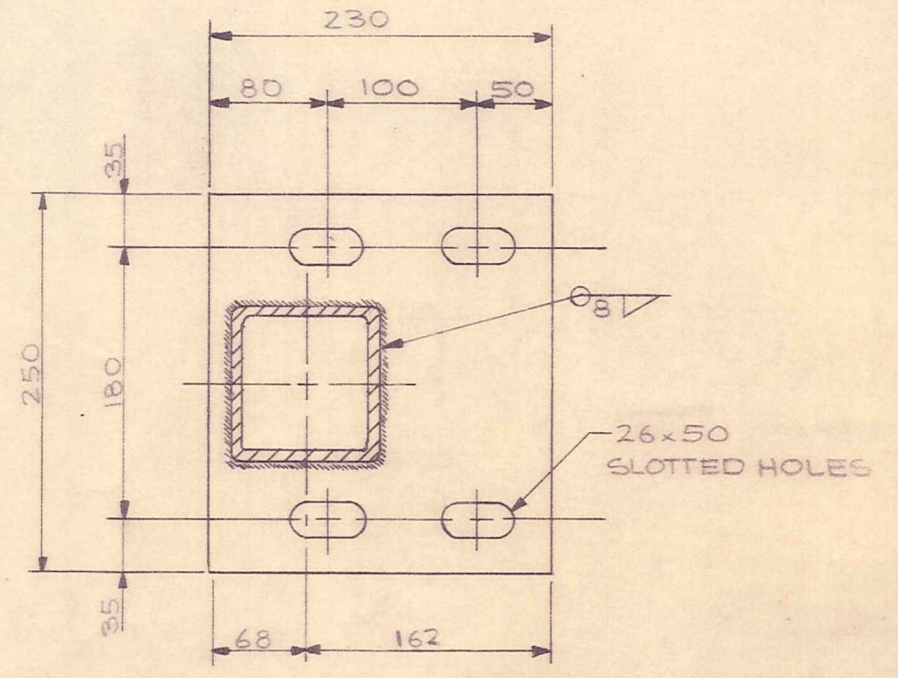
- 1/ THIS DESIGN IS BASED ON MATERIALS & WORK BEING IN ACCORDANCE WITH THE SPECIFICATION
- 2/ DISTANCE FROM PILE TIP TO BE MARKED @ 2m INTERVALS
- 3/ SPECIFIED CONCRETE COMPRESSIVE STRENGTH AT 28 DAYS = 30 MPa
- 4/ ALL REINFORCING STEEL TO BE GRADE 275 TO NZS 3402P:873
- 5/ SPLICES IN SPIRAL STEEL SHALL BE SINGLE FLARE LAP WELDED AS IN DETAIL.
- 6/ PILE HEAD TO BE INDICATED NEAR THE TOP OF THE PILE



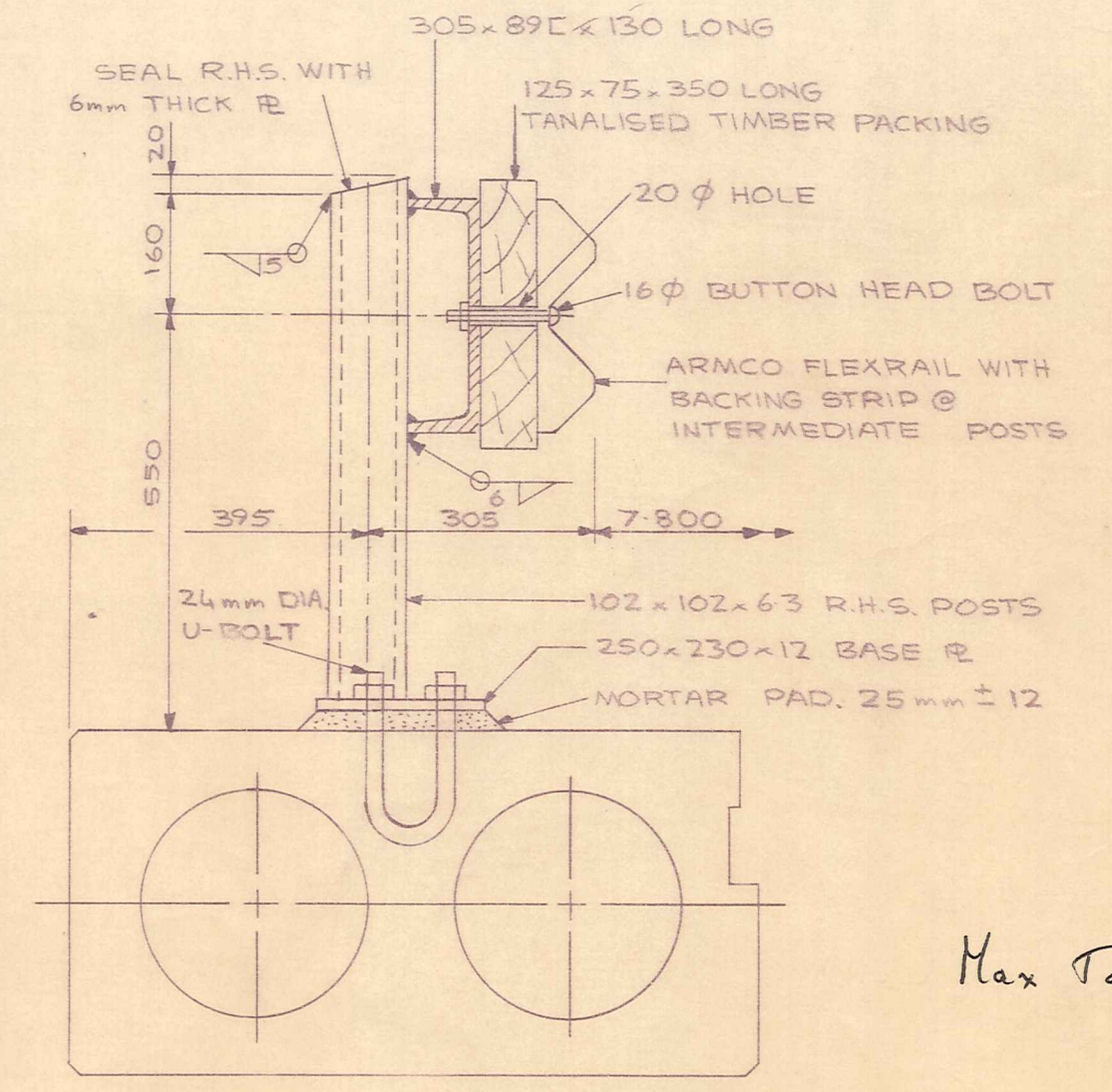
CROSS-SECTIONS OF RIVER
1:100



GUARDRAIL POST SPACING
1:100



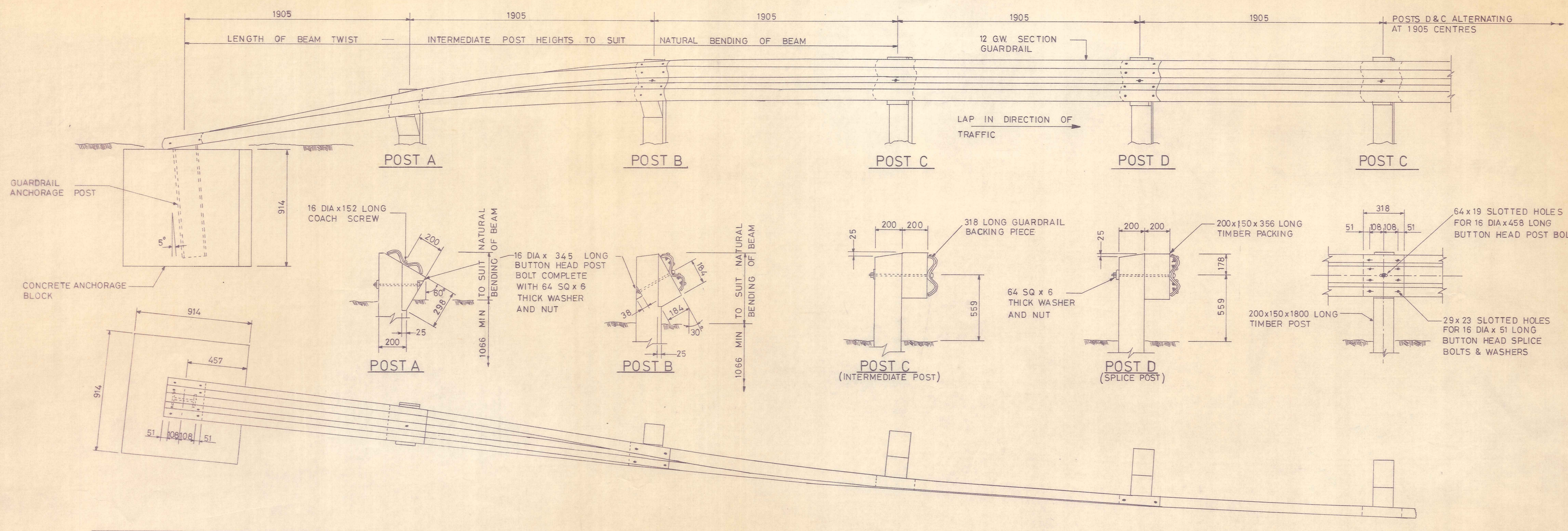
GUARDRAIL BASEPLATE
1:5



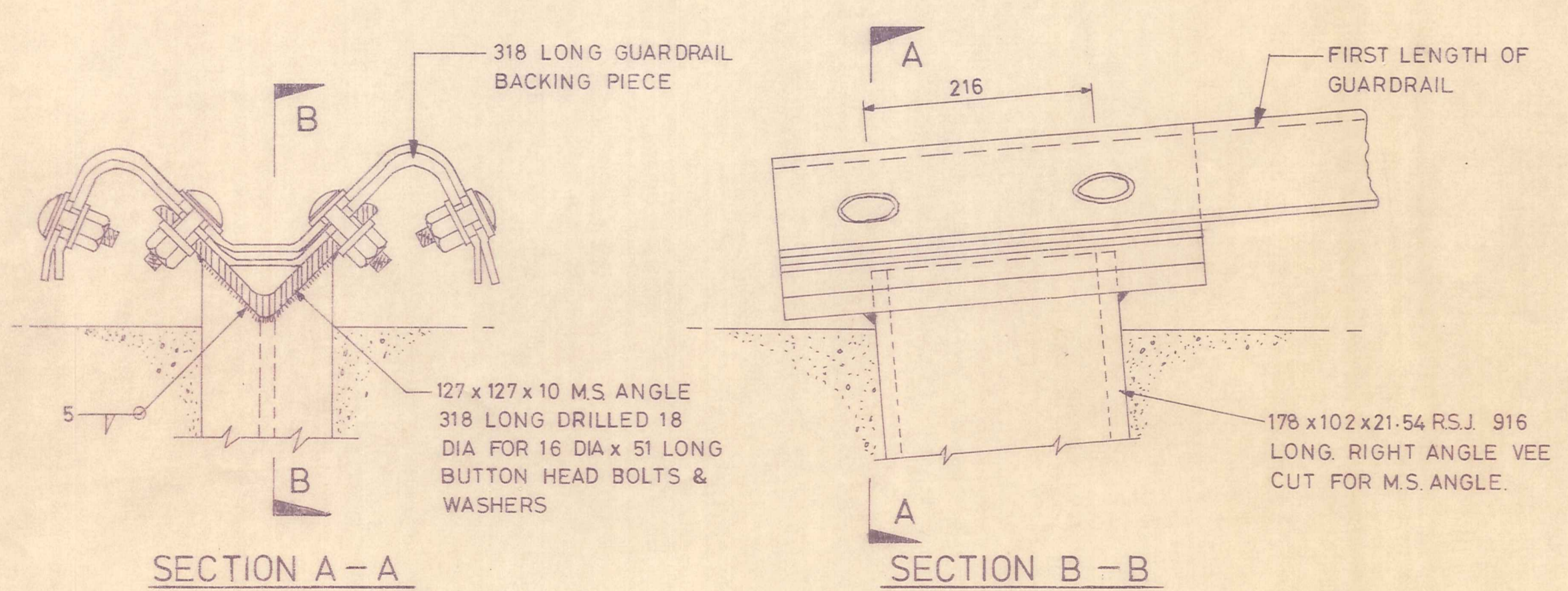
GUARDRAIL DETAIL
1:10

Max Taylor, Factory Manager

AMENDMENTS			NAME	DATE	JOB NO.	Sheet No.
NO.	BY	DATE			7633	4 of 5 sheets
			Appvd: Surveyed			
			Drawn: C.C. SUDHARY	June 1978		
			Calculations: E.L. BLAKIE			
			Traced: C.C. SUDHARY			
			Checked: E.L. BLAKIE		File 156	L.B.
			Approved: [Signature]		F.B.	

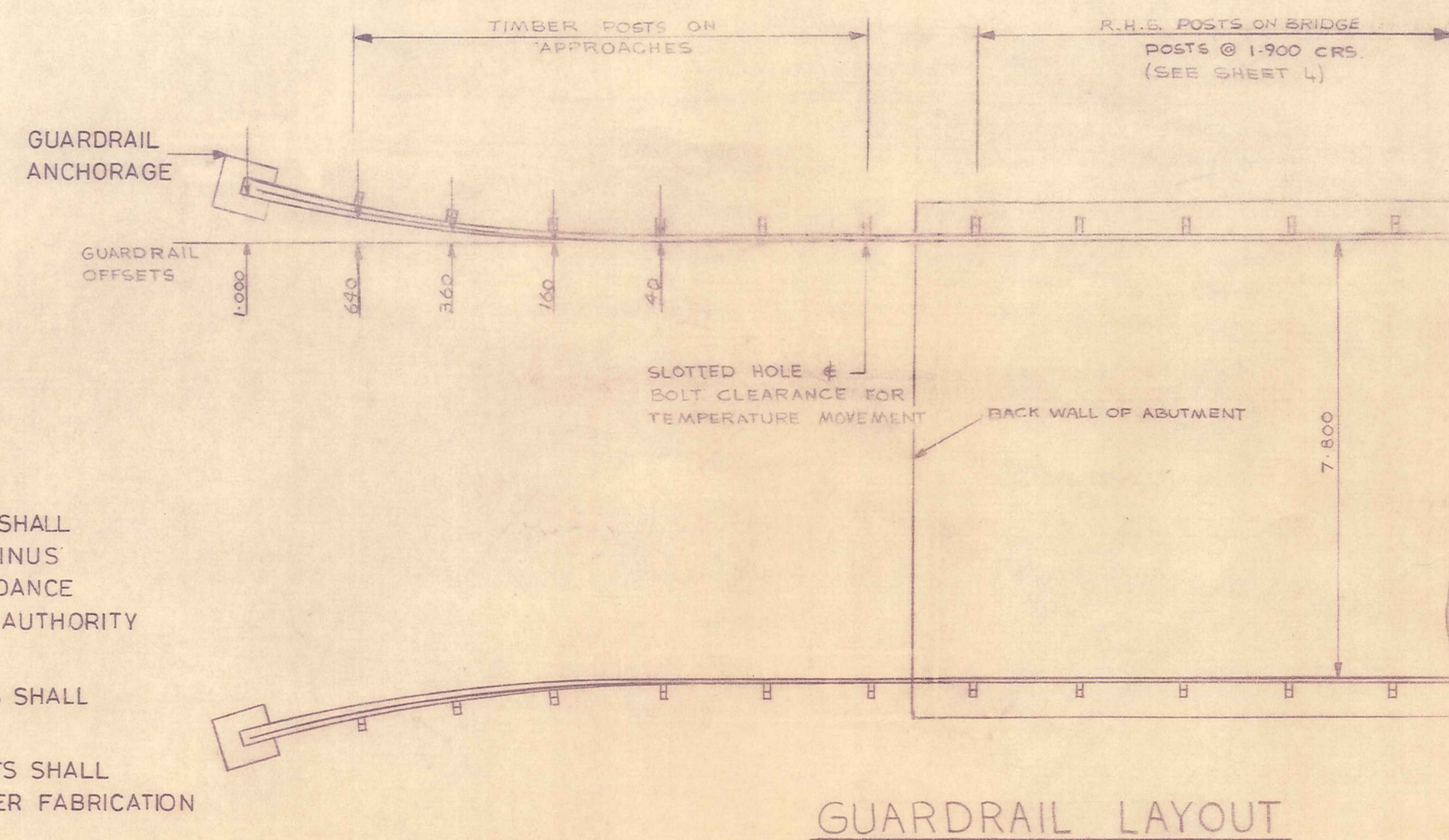


PLAN & ELEVATIONS
Scale=1:16



GUARDRAIL ANCHORAGE POST
Scale=1:25

- NOTES
- 1/ TIMBER POSTS AND PACKING SHALL BE MERCHANTABLE GRADE PINUS RADIATA TREATED IN ACCORDANCE WITH TIMBER PRESERVATION AUTHORITY SPECIFICATION C3.
 - 2/ ALL NUTS, BOLTS & WASHERS SHALL BE HOT DIPPED GALVANISED.
 - 3/ GUARDRAIL ANCHORAGE POSTS SHALL BE HOT DIP GALVANISED AFTER FABRICATION.



GUARDRAIL LAYOUT