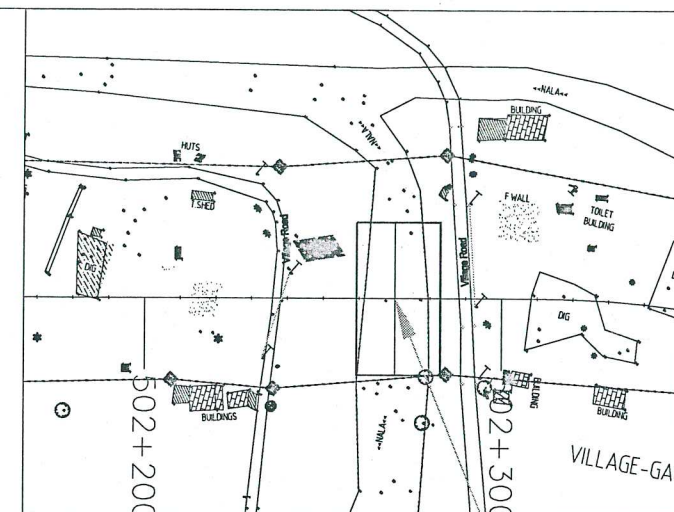
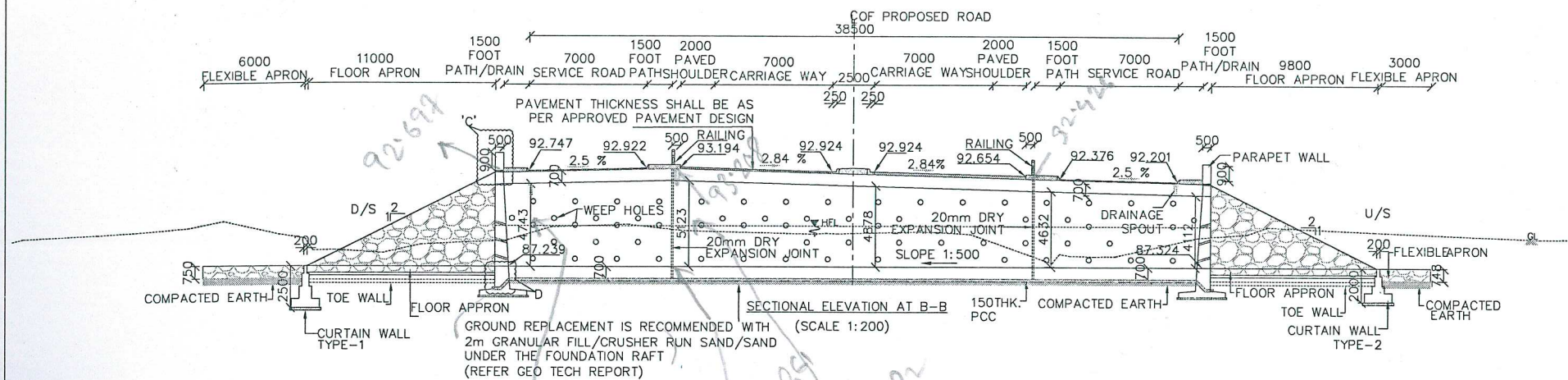


GOOD FOR CONSTRUCTION



### KEY PLAN

MINOR BRIDGE  
@ CH:502+270

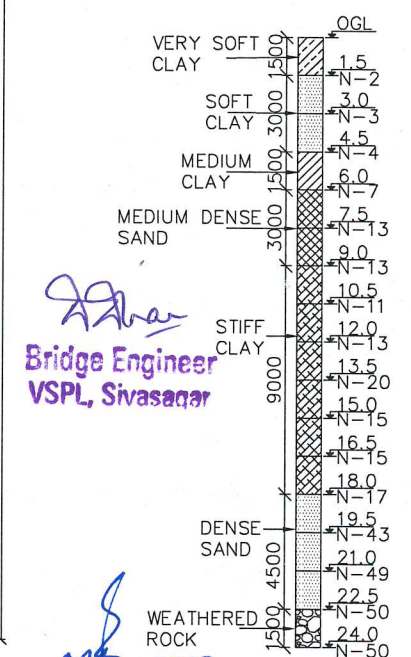
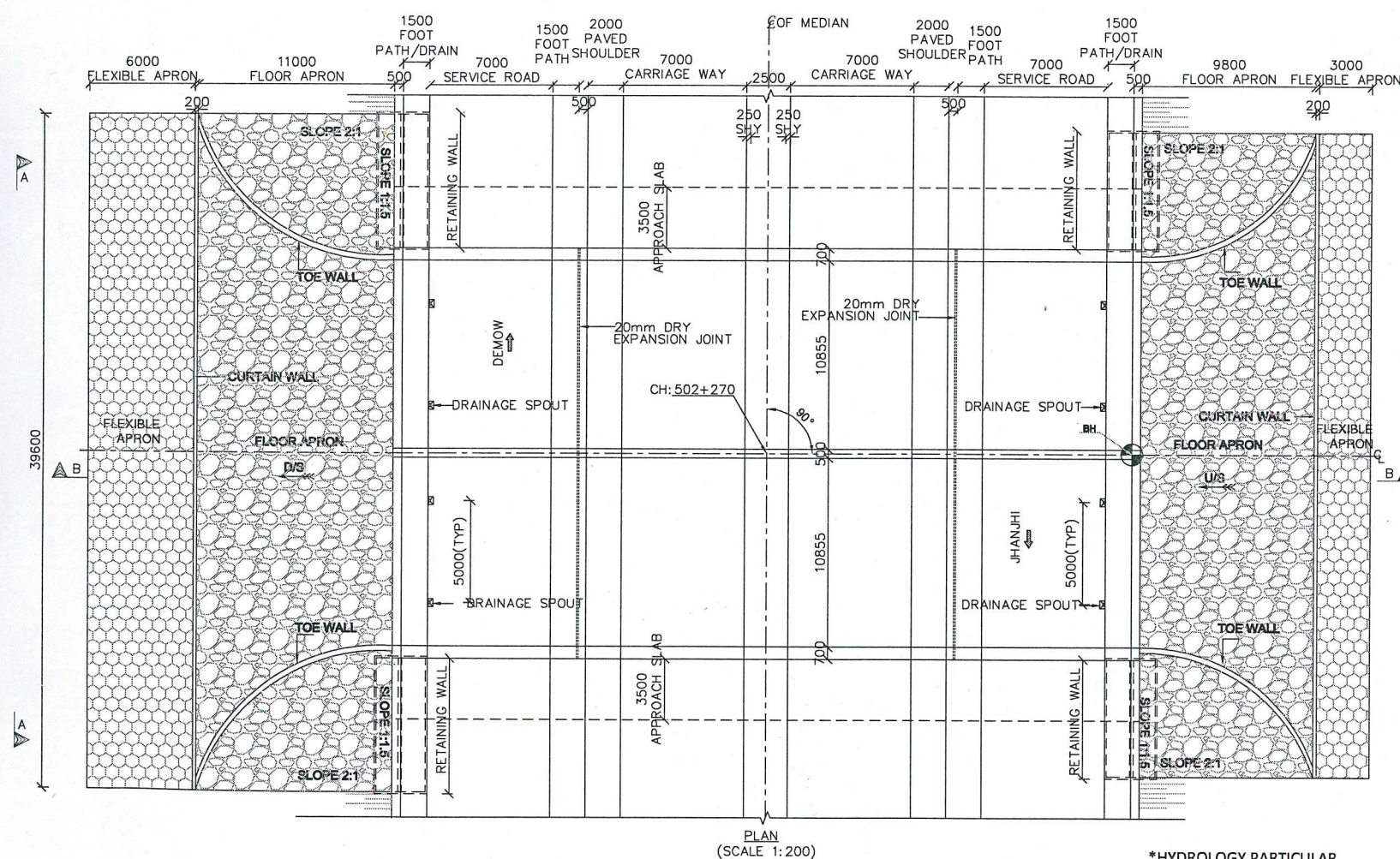
[illegible]

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES AND LEVELS ARE IN METRES UNLESS OTHERWISE STATED. THE DRAWING SHALL NOT BE SCALED.
2. THE FOLLOWING GRADE OF CONCRETE SHALL BE USED FOR
  - a) RCC BOX – M35
  - b) PCC LEVELLING COURSE – M15
  - c) APPROACH SLAB – M30
  - d) RCC CRASH BARRIER – M40
  - e) RETAINING WALL – M30
3. GRANULAR FILLING MATERIAL CONFORMING TO IRC: 78-2000 SHALL BE USED WHEREVER APPLICABLE.
4. REINFORCEMENT BARS SHALL Fe500 BE HIGH YIELD STRENGTH DEFORMED BARS
5. WEEP HOLES OF 100Ø @1000C/C IS PROVIDED STAGGERED BOTH VERTICALLY AND HORIZONTALLY IN SIDE WALLS & RETAINING / RETURN WALLS
6. WEARING COAT SHALL BE 40mm BC OVER 25mm MASTIC ASPHALT
7. THE FRL, CROSS SLOPE AND LONGITUDINAL GRADIENT SHALL BE VERIFIED WITH APPROVED PLAN & PROFILE DRAWING BEFORE EXECUTION OF WORK.
8. THE SBC AT FOUNDING STRATA IS TAKEN AS 19.0 T/SQ.M AS PER GEOTECH REPORT.
9. THE SOIL STRATA AT THE SITE SHOWS ANY VARIATION FROM THE GIVEN DATA, IT SHALL BE INFORMED TO ENGINEER IN CHARGE.
10. PROPERLY GRADED FILTER MEDIA OF 0.6mm THK. SHALL BE PROVIDED BEHIND THE ABUTMENT AND SIDE WALL AS PER IRC 78:2000
11. BACK FILLING BEHIND ABUTMENT AND RETURN WALL SHALL CONSIST OF SELECTED EARTH CONFORMING TO APPENDIX 6 OF IRC 78:2000 HAVING PROPERTIES  $\phi > 30^\circ$ ,  $\gamma = 2.0 \text{ t/cum}$
12. MINIMUM DEPTH OF EMBEDMENT FOR FOUNDATION IN SOFT ROCK 1.5m AND HARD ROCK 0.6m.
13. ANY DISCREPANCY OBSERVED SHALL BE BROUGHT TO THE NOTICE OF ENGINEER INCHARGE BEFORE EXECUTION
14. FOR DETAILS OF DRAINAGE SPOUTS, CRASH BARRIER WITH SAFETY KERB REFER MISCELLANEOUS DRAWING.
15. COMPACTED EARTH SHOULD CONFORM TO CL.305.2.1.5 OF MOST SPECIFICATION.
16. TCS :REFER TCS 04

## DESIGN DIRECTOR

VASANTH KUMAR T.H.



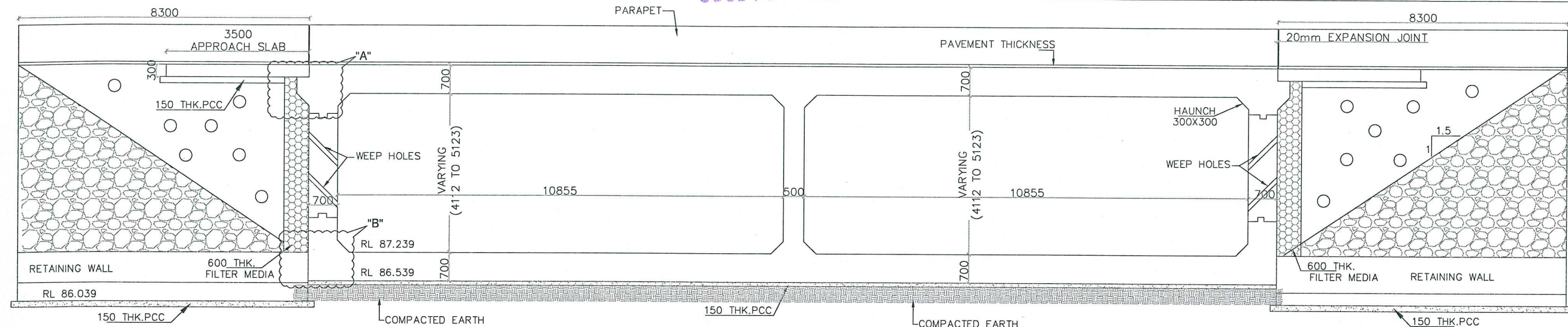
**HARBHARAN SINGH** BOR  
Team Leader (VSPL) (S  
Engineer (NHIDCL)

\*HYDROLOGY PARTICULAR  
DISCHARGE : 51.774 Cum  
HIGH FLOOD LEVEL : 89.523 mtr  
MAX SCOUR LEVEL : 87.378mtr

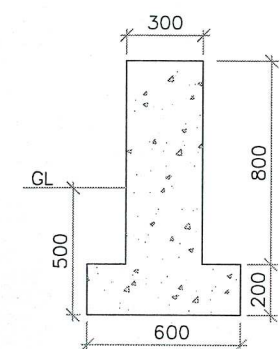
PROJECT  FOUR LANING OF JHANJHI TO DEMOW SECTION OF NH-37 FROM EXISTING CH. Km 491+050 TO Km 535+250 (DESIGN CH. Km 490+800 TO Km 534+800) IN THE STATE OF ASSAM UNDER EPC MODE.	CLIENT  National Highways Infrastructure Development Corporation Ltd.   Ministry of Road Transport & Highways, Government of India Branch office : House No.1, Panipath, Ambikagiri Nagar , Zoo road, Guwahati-24	CONTRACTOR   Cannon Dunkerley & Co. Ltd. 88A, TOPSIA ROAD (SOUTH) HAUTE STREET , 7th FLOOR KOLKATA - 700045	DESIGN CONSULTANT   PROFESSIONAL CIVIL INFRA PVT. LTD. # 1833, GROUND FLOOR, SIR. M VISVESWARAYA LAYOUT, NAGADEVANAHALLI, BANGALORE - 560 056	PROOF CONSULTANT   CHETAN INFRA-TECH CONSULTANTS (P) LTD. 7/11, 1ST FLOOR, 13TH MAIN, SRINAGAR, OPP.PES COLLEGE, BENGALURU-560050	SAFETY CONSULTANT   SMART SAFETY SERVICES # 3-6-6 & 7, HARI HARA NIVAS, KANDANANDA COLONY, HYDERGUDA, HYDERABAD - 500048	AUTHORITY ENGINEER   VOYANTS SOLUTIONS PVT. LTD. 403, 4th Floor, BFTT Park Centre, Block A, Jal Vayu Vihar, Sector-30 Gurgaon, Haryana 122001	MAX SCOUR LEVEL : 87.378mtr		REVISED DESIGN CH : 502+270	FOR APPROVAL		
							DESIGN DIRECTOR	NAME	SHEET SIZE	TITLE: GENERAL ARRANGEMENT DRAWING OF MINOR BRIDGE AT REVISED DESIGN CH 502+270	DRAWING No. PC/PL/NH-37/J-D/STR/MNB/06	REV. 00
							PROOF CONSULTANT		A2			
SAFETY CONSULTANT		SCALE										
AUTHORITY CONSULTANT		AS SHOWN										
		SHEET No.										
		01 OF 02										



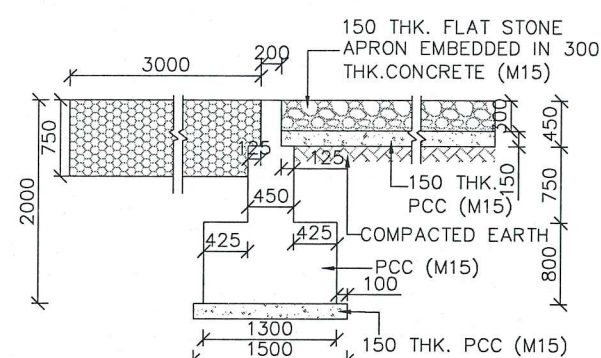
## GOOD FOR CONSTRUCTION



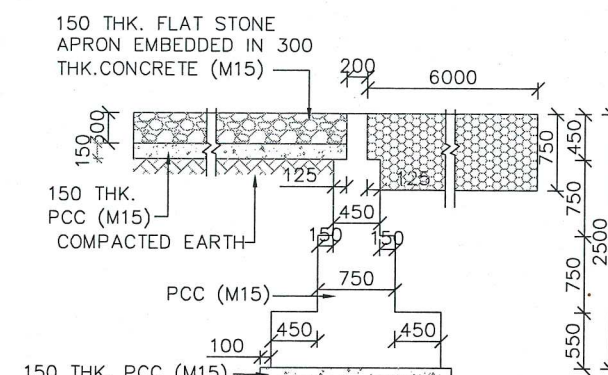
**VIEW A-A**  
(SCALE 1:75)



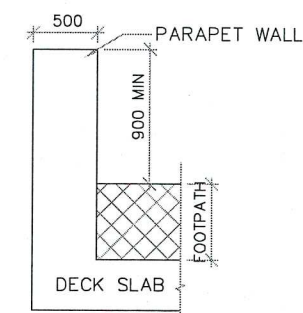
DETAIL OF TOEWALL  
USE M20 GRADE CONCRETE  
(SCALE 1: 20)



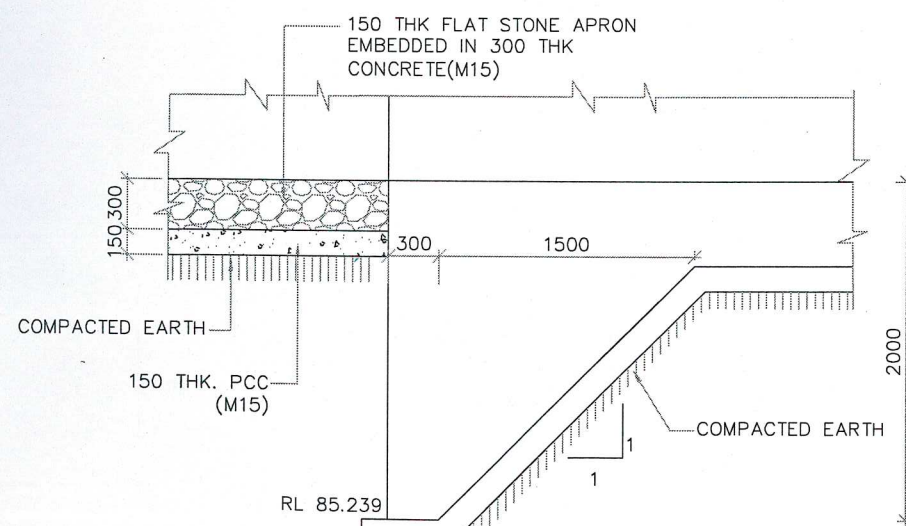
TYPICAL CROSS SECTION OF  
CURTAIN WALL TYPE 2  
(SCALE 1:50)



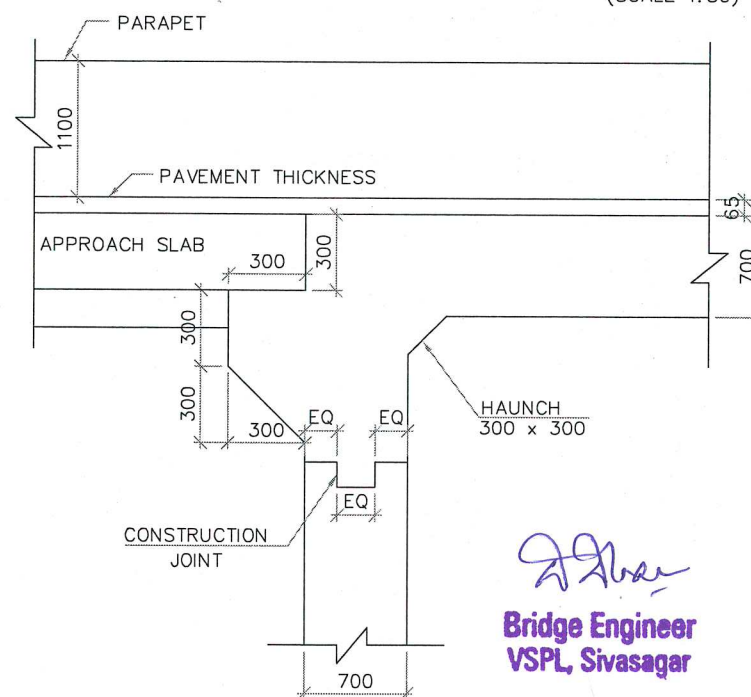
TYPICAL CROSS SECTION OF  
CURTAIN WALL TYPE 1  
(SCALE 1:50)



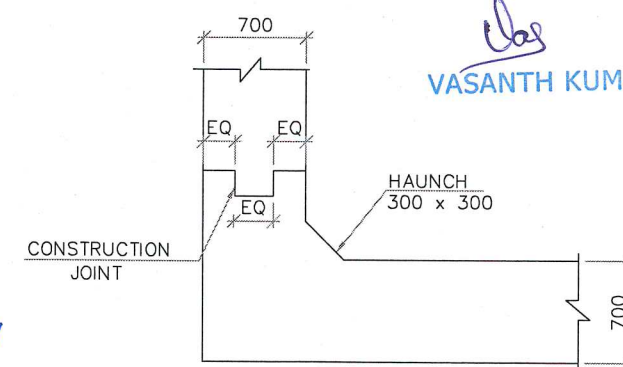
DETAIL-C  
(SCALE 1:40)



DETAIL AT 'D'  
(SCALE 1:30)



DETAIL AT 'A'  
(SCALE 1:20)



DETAIL AT 'B'  
(SCALE 1:20)

## DESIGN DIRECTOR

VASANTH KUMAR T.H.







**Bridge Engineer**  
**VSPL, Sivasagar**

**HARBHAJAN SING**  
Team Leader (VSPL)  
Authority Engineer (NHIDCL)

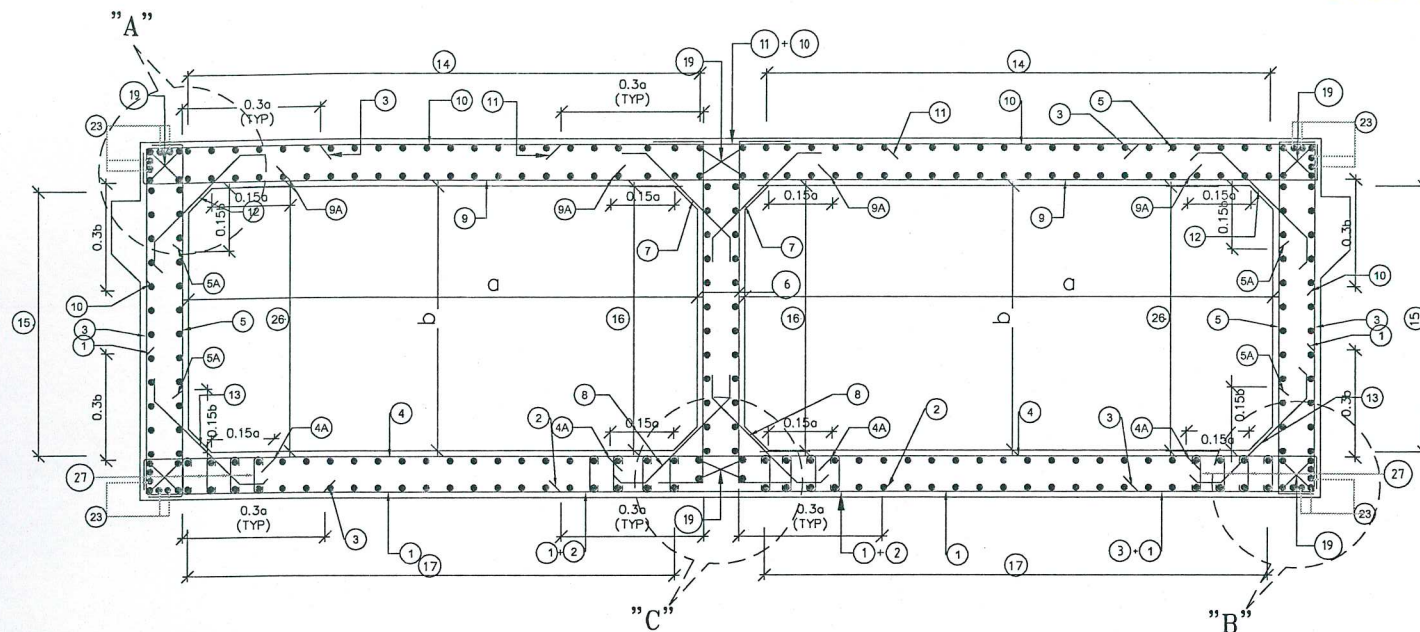
REFERENCE DRAWING  
REINFORCEMENT: PCIPL/NH-37/JD/STR/MNB/REIN/06  
MISCELLANEOUS: PCIPL/NH-37/JD/STR/RCC-MIS/01  
RETAINING WALL: PCIPL/NH-37/JD/STR/RW/01

EXISTING CH AS PER SCHEDULE-B : 502+610  
DESIGN CH AS PER SCHEDULE-B : 502+265  
REVISED DESIGN CH : 502+270

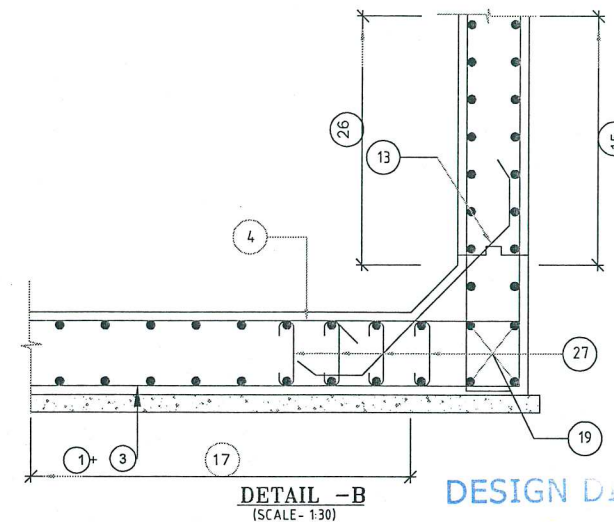
**FOR APPROVAL**

PROJECT	CLIENT	CONTRACTOR	DESIGN CONSULTANT	PROOF CONSULTANT	SAFETY CONSULTANT	AUTHORITY ENGINEER	FOR APPROVAL					
FOUR LANING OF JHANJHI TO DEMOW SECTION OF NH-37 FROM EXISTING CH. Km 491+050 TO Km 535+250 (DESIGN CH. Km 490+800 TO Km 534+800) IN THE STATE OF ASSAM UNDER EPC MODE.	National Highways Infrastructure Development Corporation Ltd.  Ministry of Road Transport & Highways, Government of India Branch office : House No.1, Panipath, Ambikagiri Nagar , Zoo road, Guwahati-24	Gannon Dunkerley & Co. Ltd.  08A, TOPSIA ROAD (SOUTH) HAUTE STREET , 7th FLOOR KOLKATA - 700048	PROFESSIONAL CIVIL INFRA PVT. LTD.  # 1688, GROUND FLOOR, SIR. CIVILSWARAYA LAYOUT, NAGADEVANAHALLI, BANGALORE - 560 056	CHETAN INFRA-TECH CONSULTANTS (P) LTD.,  7/11, 1ST FLOOR, 13TH MAIN, SRINAGAR, SIR. CIVILSWARAYA LAYOUT, BANGALURU-560056	SMART SAFETY SERVICES  # 3-5-8-7, HARI HARA NVAS, GUMMAKONDA COLONY, HYDERGUDA, HYDERABAD - 500048	VOYANTS SOLUTIONS PVT. LTD.  403, 4th Floor, BHTPT Park Centre, BSVKA, Jai Vayu Vihar, Sector 30, Gurgaon, Haryana 122001	REMAINING WALL: PCIP/LNH-37/JD/STR/RW/01	DESIGN DIRECTOR	NAME	SHEET SIZE	TITLE:	
									A2	GENERAL ARRANGEMENT DRAWING OF MINOR BRIDGE AT REVISED DESIGN CH 502+270		
								PROOF CONSULTANT	SCALE		DRAWING No.	REV.
								SAFETY CONSULTANT	AS SHOWN			
								AUTHORITY CONSULTANT	SHEET No.	02 OF 02	PCIP/LNH-37/J-D/STR/MNB/06	00





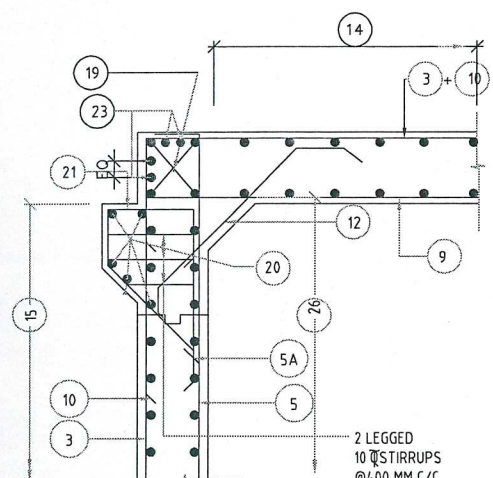
### REINFORCEMENT DETAILS OF DOUBLE CELL BOX CULVERT



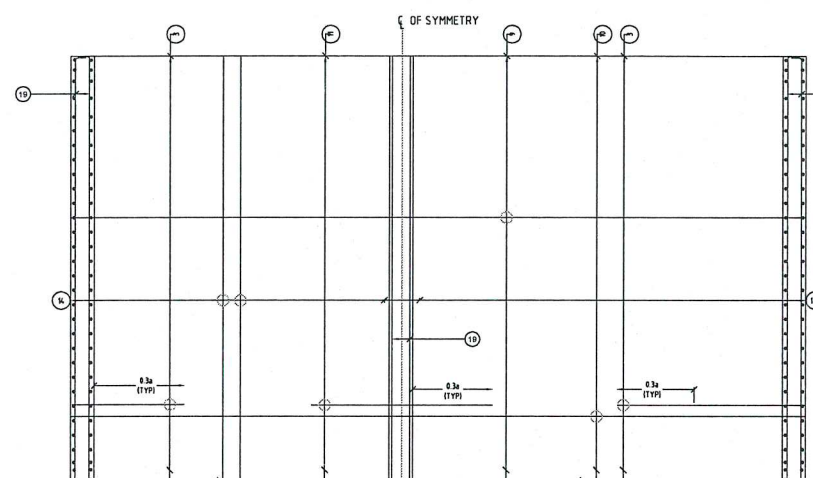
DETAIL -B  
(SCALE - 1:30)

## DESIGN DIRECTOR

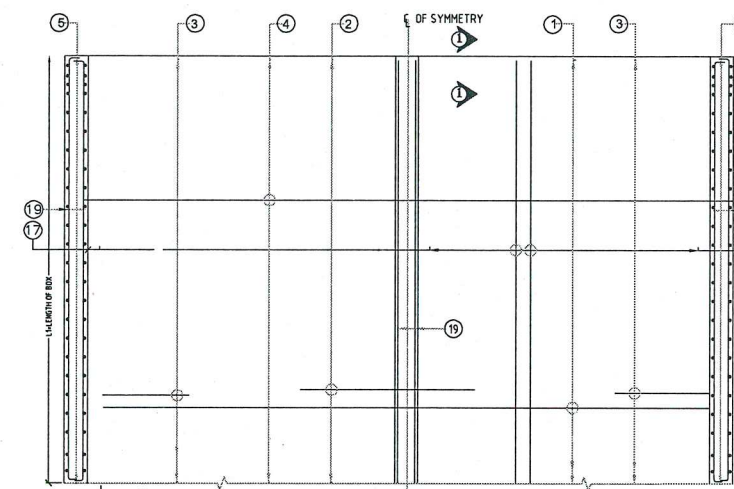
VASANTH KUMAR T.H.



DETAIL - A  
(SCALE- 1:50)

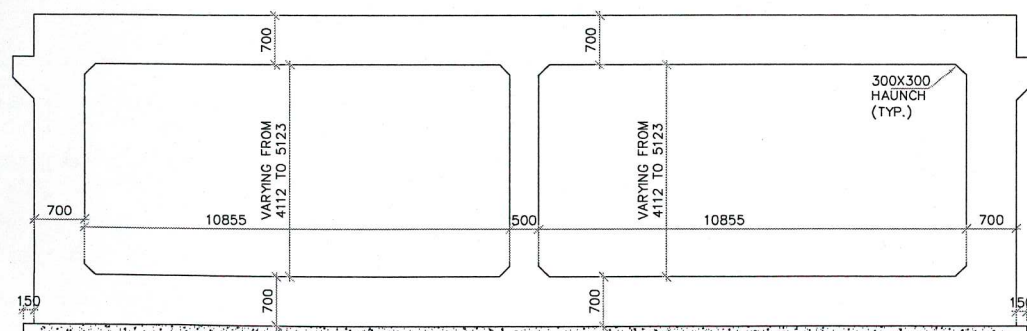


REINFORCEMENT DETAILS OF TOP SLAB  
(SCALE - 1:75)

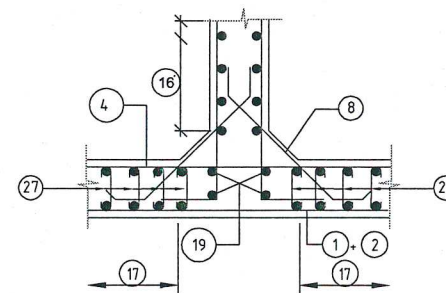


**REINFORCEMENT DETAILS OF BOTTOM SLAB**  
(SCALE - 1:75)

**Bridge Engineer**  
**VSPCL, Sivasagar**



DETAIL OF RCC BOX  
(SCALE 1:50)



**DETAIL -C**  
(SCALE- 1:30)

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETERS & LEVELS ARE IN METERS.
2. DIMENSIONS ARE NOT TO BE SCALED, ONLY WRITTEN DIMENSIONS TO BE FOLLOWED.
3. GRADE OF CONCRETE : M35 FOR BOX.
4. GRADE OF STEEL : Fe500.
5. CLEAR COVER TO REINFORCEMENT SHALL BE AS FOLLOWS.  
TOP SLAB = 75mm (TOP FACE); 50mm (BOTTOM FACE)  
BOTTOM SLAB = 50mm (TOP FACE); 75mm (BOTTOM FACE)  
OUTER WALL = 75mm (EARTH FACE); 50mm (WATER FACE).
6. ANCHORAGE LENGTH ( $l_d$ ) SHALL BE  $40 \times$  BAR DIA ( $\phi$ )
7. LAP LENGTH OF THE STEEL SHALL BE PROVIDED AS BELOW.  
 $LAP LENGTH = K \times \phi$   
 $K = 1.00$  (<25% LAPPED BAR RELATIVE TO TOTAL CROSS SECTIONAL AREA.)  
 $K = 1.15$  (33% LAPPED BAR RELATIVE TO TOTAL CROSS SECTIONAL AREA.)  
 $K = 1.40$  (50% LAPPED BAR RELATIVE TO TOTAL CROSS SECTIONAL AREA.)  
ALTERNATIVELY BAR SPLICE COUPLER CAN BE USED FOR REBAR LAPPING AND SPLICING.
8. NOT MORE THAN 50% OF BARS CAN BE LAPPED AT A SECTION AND LAPS SHALL BE STAGGERED.
9. FOR DETAILS OF APPROACH SLAB, HAND RAILING RETAINING WALL, REFER SEPARATE MISCELLANEOUS DRAWINGS.
10. SBC OF SOIL BELOW THE BOX STRUCTURE SHALL NOT BE LESS THAN 21 T/Sqm

**HARBHAJAN SING**  
**Team Leader (VSPL)**  
**Authority Engineer (NHIDCL)**

REINFORCEMENT DETAILS:--			
BAR MKD.	SHAPE	DIA (mm)	SPACING/ Nos.
1		16	100 C/C
2		16	100 C/C
3		12	100 C/C
4		12	100 C/C
4A		12	125 C/C
5		16	150 C/C
5A		16	150 C/C
6		12	200 C/C
7		12	100 C/C
8		12	100 C/C
9		16	150 C/C
9A		12	150 C/C
10		16	100 C/C
11		16	100 C/C
12		10	150 C/C
13		10	150 C/C
14		12	100 C/C
15		12	100 C/C
16		12	100 C/C
17		12	100 C/C
18	--	--	NOT USED
19		10	24 NOS.
20		10	10 NOS.
21		10	250 C/C
22	--	--	NOT USED
23		10	16 NOS.
24		--	NOT USED
25		--	NOT USED
26		10	200 C/C
27		4 LEGGED BAR LINKS OF 10 @ 200 MM C/C	

EXISTING CH (SCH-B) : 502+610  
DESIG CH (SCH-B) : 502+265  
REVISED DESIGN CH : 502+270

FOR APPROVAL

FOR APPROVAL																																											
<b>PROJECT</b> FOUR LANING OF JHANJHI TO DEMOW SECTION OF NH-37 FROM EXISTING CH. Km 491+050 TO Km 535+250 (DESIGN CH. Km 490+800 TO Km 534+800) IN THE STATE OF ASSAM UNDER EPC MODE.		<b>CLIENT</b> National Highways Infrastructure Development Corporation Ltd.  Ministry of Road Transport & Highways, Government of India Branch office : House No.1, Panlipath, Ambikagiri Nagar , Zoo road, Guwahati-24		<b>CONTRACTOR</b>  Cannon-Dunkley & Co. Ltd. 86A, TOPSIA ROAD (SOUTH) HAUTE STREET , 7th FLOOR KOLKATA - 700048		<b>DESIGN CONSULTANT</b>  PROFESSIONAL CIVIL INFRA PVT. LTD. # 1838, GROUND FLOOR, SIR. M. VISVESWARAYA LAYOUT, NAGADEVANAHALLI, BANGALORE - 560 056		<b>PROOF CONSULTANT</b> CHETAN INFRA-TECH CONSULTANTS (P) LTD.,  7/11, 1ST FLOOR, 13TH MAIN, SRINAGAR, P.P.PES COLLEGE, BENGALURU-560050		<b>SAFETY CONSULTANT</b> SMART SAFETY SERVICES  # 33-3 & 7, HARI HARA NIVAS, KANAKKONDA COLONY, HYDERGUDA, HYDERABAD - 500048 CRSI/2016/11		<b>AUTHORITY ENGINEER</b> VOYANTS SOLUTIONS PVT. LTD.  403, 4th Floor, BPTP Park Centra, Block A, Jal Vayu Vihar, Sector 30, Gurgaon, Haryana 122001		<table><tr><td></td><td>NAME</td><td>SHEET SIZE</td></tr><tr><td>DESIGN DIRECTOR</td><td></td><td>A2</td></tr><tr><td>PROOF CONSULTANT</td><td></td><td>SCALE</td></tr><tr><td>SAFETY CONSULTANT</td><td></td><td>AS SHOWN</td></tr><tr><td>AUTHORITY CONSULTANT</td><td></td><td>SHEET</td></tr><tr><td></td><td></td><td>01 OF 01</td></tr></table>			NAME	SHEET SIZE	DESIGN DIRECTOR		A2	PROOF CONSULTANT		SCALE	SAFETY CONSULTANT		AS SHOWN	AUTHORITY CONSULTANT		SHEET			01 OF 01	<table><tr><td colspan="2">TITLE:</td></tr><tr><td colspan="2">REINFORCEMENT DETAILS OF MINOR BRIDGE (SERVICE ROAD) AT REVISED DESIGN CHAINAGE 502+270</td></tr><tr><td>DRAWING No.</td><td>REV.</td></tr><tr><td>PCIPL/NH-37/ID/STR/MNB/REIN/06</td><td>00</td></tr></table>		TITLE:		REINFORCEMENT DETAILS OF MINOR BRIDGE (SERVICE ROAD) AT REVISED DESIGN CHAINAGE 502+270		DRAWING No.	REV.	PCIPL/NH-37/ID/STR/MNB/REIN/06	00
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