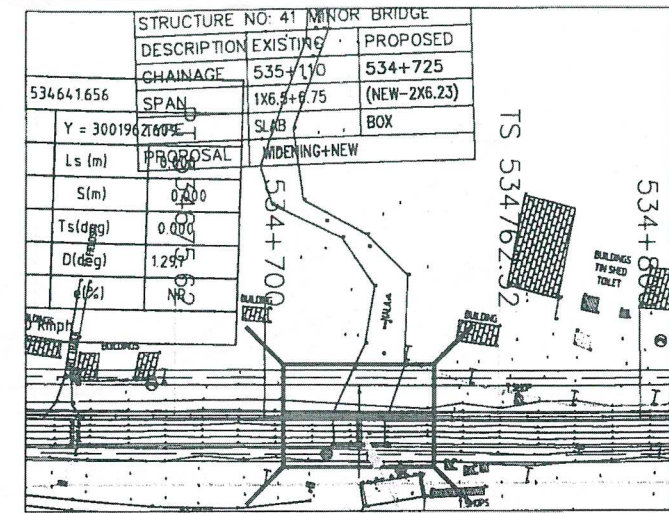
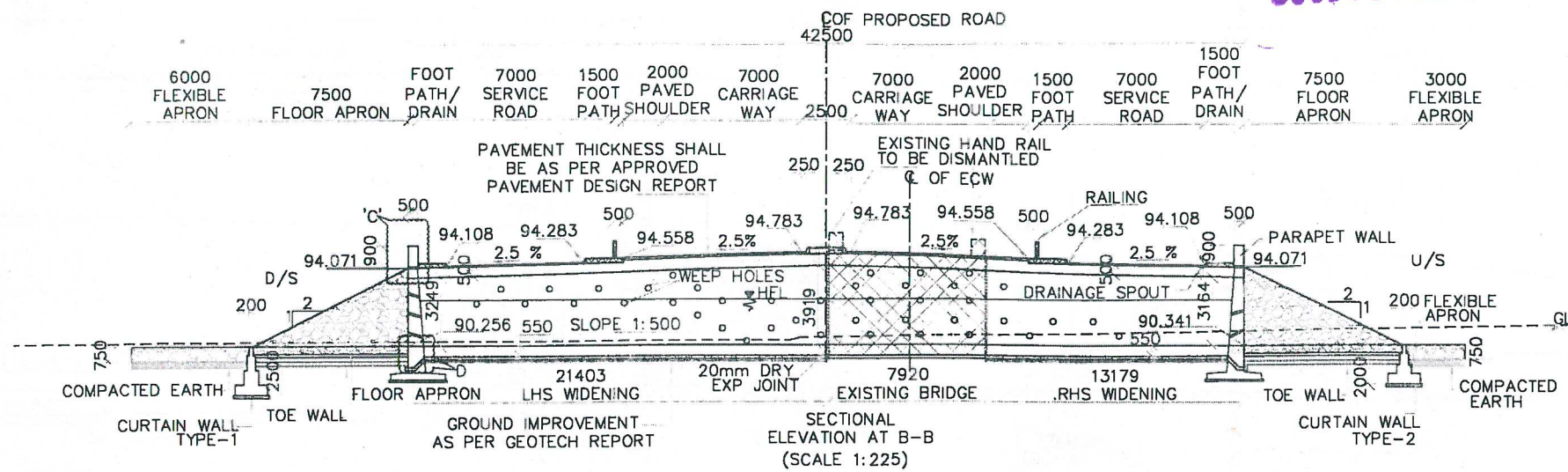
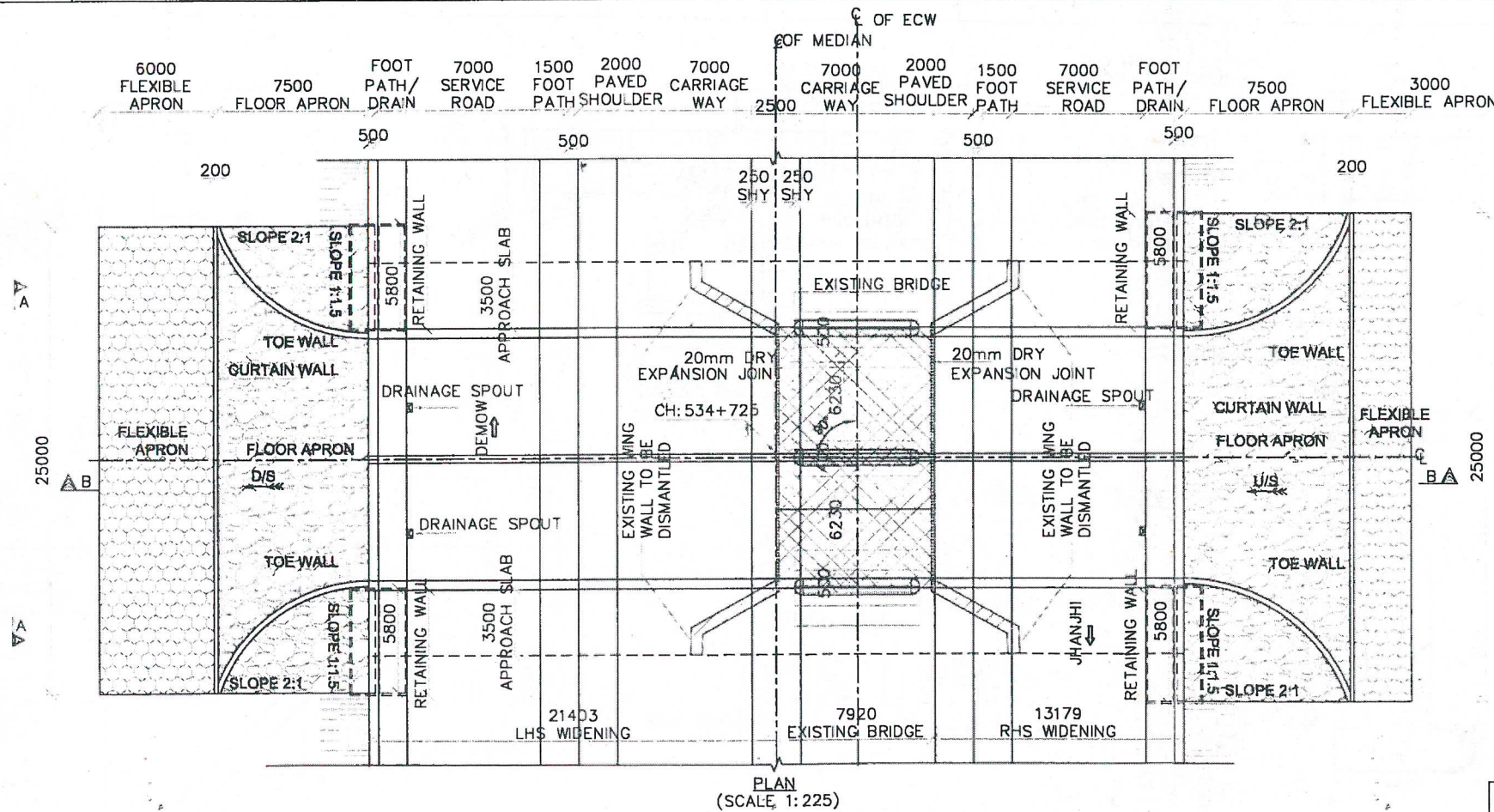


GOOD FOR CONSTRUCTION



### KEY PLAN

**MINOR BRIDGE**  
@REV CH:534+725

[illegible]

DESIGN DIRECTOR

VASANTH KL

**\*HYDROLOGY PARTICULARS**  
**DESIGN DISCHARGE : 20.131 Cumecs**  
**DESIGN VELOCITY : 1.64 m/s**  
**HIGH FLOOD LEVEL : 91.684 mtr**  
**MAX SCOUR LEVEL : 90.127 mtr**

EXISTING CH AS PER SCHEDULE-B :	535+110
DESIGN CH AS PER SCHEDULE-B :	534+658
REVISED DESIGN CH	: 534+725

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 BE Fe500 HIGH YIELD STRENGTH DEFORMED BARS
5. WEEP HOLES OF 1000 @1000C/C IS PROVIDED STAGGERED BOTH VERTICALLY AND HORIZONTALLY IN SIDE WALLS & RETAINING / RETURN WALLS
6. THE FRL, CROSS SLOPE AND LONGITUDINAL GRADIENT SHALL BE VERIFIED WITH APPROVED PLAN & PROFILE DRAWING BEFORE EXECUTION OF WORK.
7. SBC OF SOIL UNDER THE RAFT SHALL NOT BE LESS THAN 14 t/m<sup>2</sup>. SBC TEST SHALL BE CARRIED OUT AT SITE & SAME SHALL BE CERTIFIED BY AUTHORITY ENGINEER.
8. PROPERLY GRADED FILTER MEDIA OF 0.6m THK. SHALL BE PROVIDED BEHIND THE ABUTMENT AND SIDE WALL AS PER IRC 78:2000
9. BACK FILLING BEHIND ABUTMENT AND RETURN WALL SHALL CONSIST OF SELECTED EARTH CONFORMING TO APPENDIX 6 OF IRC 78:2000 HAVING PROPERTIES  $\phi \geq 30^\circ$ ,  $\gamma = 2.0$  t/cum
10. FOR DETAILS OF DRAINAGE SPOUTS, CRASH BARRIER WITH SAFETY KERB REFER MISCELLANEOUS DRAWING.
11. COMPACTED EARTH SHOULD CONFORM TO CL.305.2.1.5 OF MOST SPECIFICATION.
12. REFER GEO-TECH REPORT FOR SOIL LAYER STRATA
  - \* TCS TYPE: REFER TCS 2B
  - \* P&P REF : PCIPL/NH-37/J-D/HW/P&P-45
  - \* GEOTECH REPORT : REF GEOTECH REPORT
  - \* HYDROLOGY REPORT : HYD REPORT 534+725

**GOOD FOR CONSTRUCTION**

T	2	REVISED AS PER AE COMMENTS VSP/LTRB/1365/2018/1382 DATED - 02/11/2018	NOV 2018	TITLE: GENERAL ARRANGEMENT DRAWING OF MINOR BRIDGE (WIDENING) AT REVISED DESIGN CH: 534+725						
	1	REVISED AS PER AE COMMENTS VSP/LTRB/1365/2018/1359 DATED - 08/30/2018	OCT 2018	Drw. NRV	Dsg. SK	Chk. VAS	App. PSA	SCALE AS SHOWN	SHEET SIZE A2	
	0	FOR APPROVAL	SEPT 2018	DRAWING NO. PCIP/LH-37/J-D/STR/MNB/09					SHEET No. 01 OF 02	
	Rev	Description	Date						REV. 02	

**JECT**  
PLANING OF JHANJHI TO  
SECTION OF NH-37 FROM  
NG CH. Km 491+050 TO Km  
(DESIGN CH. Km 490+800 TO  
34+800) IN THE STATE OF  
SAM 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

**EPC CONTRACTOR**  
Gannon Dunkerley & Co, Ltd.



88A, Topsia Road (South),  
Haute Street, 7th Floor,  
Kolkata - 700 046

**AUTHORITY ENGINEER**  
Voyants Solutions Pvt Ltd  
403, 4th Floor, Park Centra,  
Sector-3D, NH-6, Gurgaon,  
Haryana - 122001, India

**DESIGN CONSULTANT**  
**Professional Civil Infra Pvt. Ltd.**  
#1836, Ground Floor,  
Sri M. Vyasvaraya Layout,  
Nagdevichhalli,  
Bangalore - 560 056

**PROOF CONSULTANT**  
Chetani Infra-Tech  
Consultants (P) Ltd.  
  
7/11, 1st Floor, 13th  
Main, Srinagar,  
Opp. PES College,  
Bengaluru - 560 050

**SAFETY CONSULTANT**  
**Smart Safety Services**  
#3-5-687, Haribara  
Nivse, Gummakonda  
Colony, Hyderguda,  
Hyderabad - 500 048

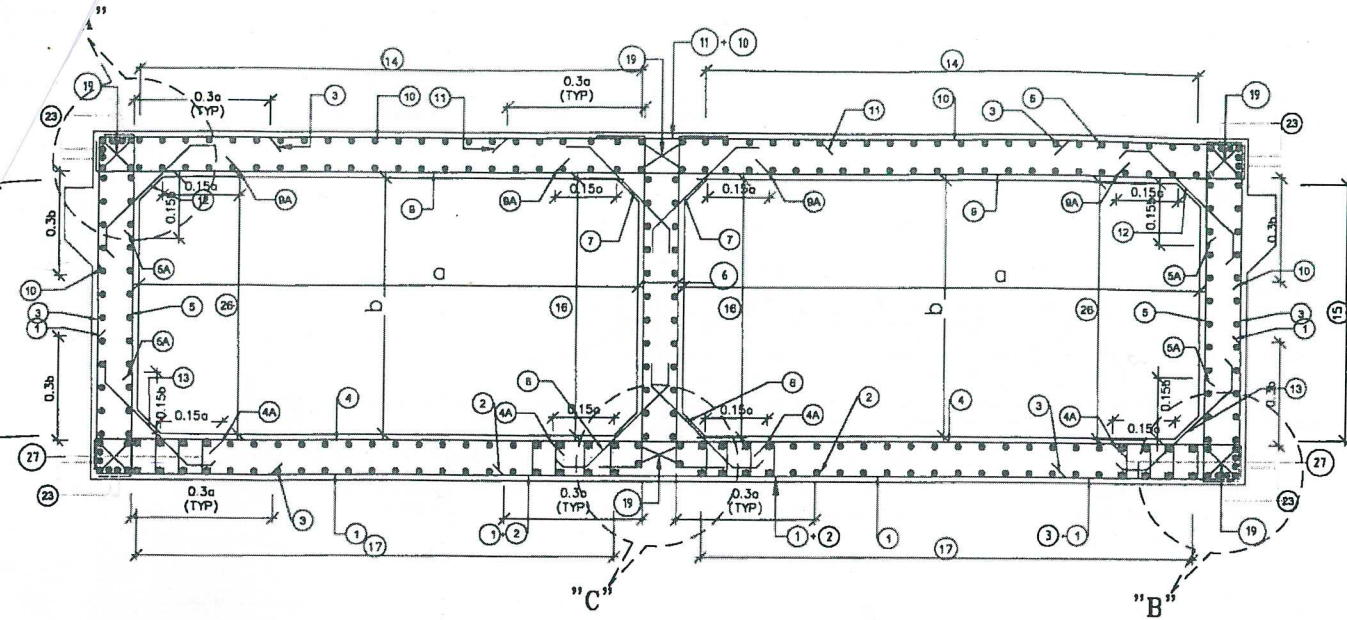
2	REVISED AS PER AE COMMENTS VSPL/TRB/1365/2018/1382 DATED - 02/11/2018
1	REVISED AS PER AE COMMENTS VSPL/TRB/1365/2018/1359 DATED - 08/10/2018
0	FOR APPROVAL
Rev	Description



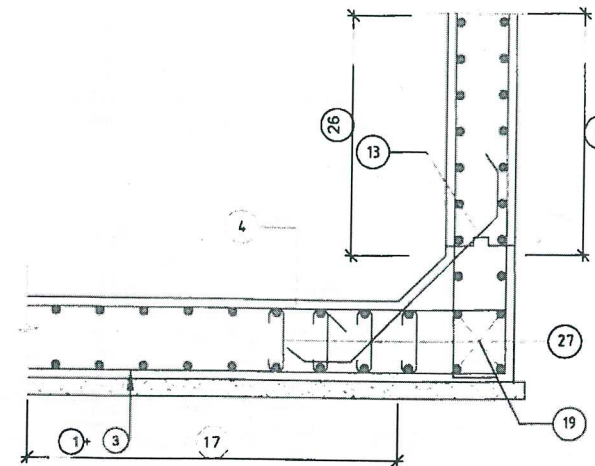




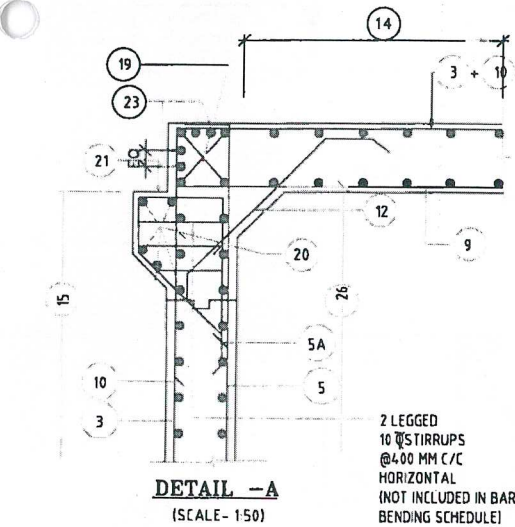
GOOD FOR CONSTRUCTION



REINFORCEMENT DETAILS OF DOUBLE CELL BOX CULVERT

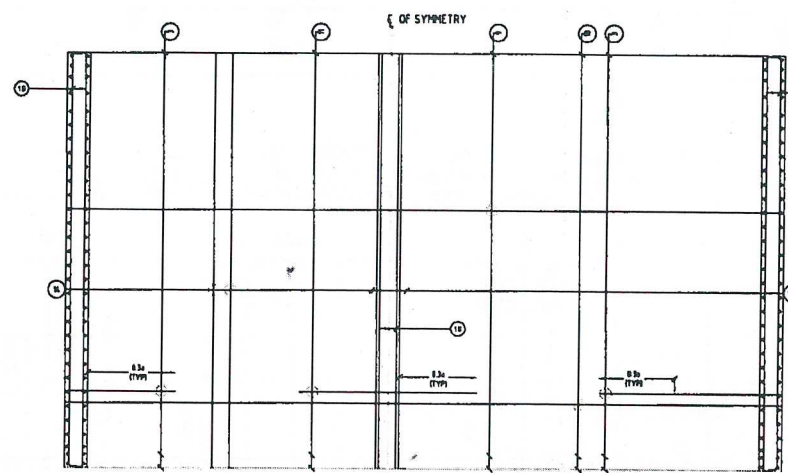


DETAIL - B  
(SCALE- 1:30)

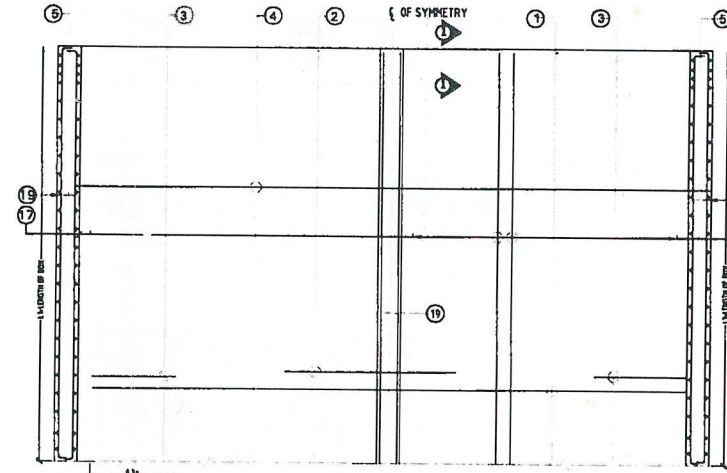


DETAIL - A  
(SCALE- 1:50)

2 LEGGED  
10 $\phi$  STIRRUPS  
@ 400 MM C/C  
HORIZONTAL  
(NOT INCLUDED IN BAR  
BENDING SCHEDULE)



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

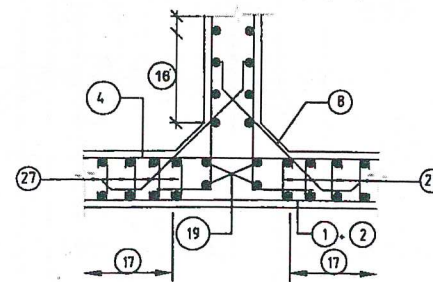


REINFORCEMENT DETAILS OF BOTTOM SLAB  
(SCALE- 1:75)

DESIGN DIRECTOR

Vas

VASANTH KUMAR T.H.



DETAIL - C  
(SCALE- 1:30)

NOTES:

- ALL DIMENSIONS ARE IN MILLIMETERS & LEVELS ARE IN METERS.
  - DIMENSIONS ARE NOT TO BE SCALED, ONLY WRITTEN DIMENSIONS TO BE FOLLOWED.
  - GRADE OF CONCRETE : M35 FOR BOX.
  - GRADE OF STEEL : Fe500.
  - 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).
  - ANCHORAGE LENGTH (l) SHALL BE 40x BAR DIA (Ø)
  - LAP LENGTH OF THE STEEL SHALL BE PROVIDED AS BELOW.  
LAP LENGTH = K x l  
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.
  - NOT MORE THAN 50% OF BARS CAN BE LAPPED AT A SECTION AND LAPS SHALL BE STAGGERED.
  - FOR DETAILS OF APPROACH SLAB, HAND RAILING RETAINING WALL, REFER SEPARATE MISCELLANEOUS DRAWINGS.
  - SBC OF SOIL BELOW THE BOX STRUCTURE SHALL NOT BE LESS THAN 14 T/Sq.m
- \*NOTE: MAIN BARS FROM THE WALLS & THE SLAB (TOP/BOTTOM) SHALL BE LAPPED/ BUNDLED TOGETHER SUCH THAT MINIMUM SPACING BETWEEN THE BARS IS NOT HAMPERED

REINFORCEMENT DETAILS:-

BAR MKD	SHAPE	DIA (mm)	SPACING/ Nos.
1		16	100 C/C
2		12	100 C/C
3		12	100 C/C
4		12	100 C/C
4A		12	200 C/C
5		16	100 C/C
5A		12	100 C/C
6		12	200 C/C
7		12	150 C/C
8		12	150 C/C
9		12	100 C/C
9A		12	200 C/C
10		16	100 C/C
11		12	100 C/C
12		12	150 C/C
13		12	150 C/C
14		12	150 C/C
15		12	150 C/C
16		12	150 C/C
17		12	150 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) : 535+110  
DESIG CH (SCH-B) : 534+658  
REVISED DESIGN CH : 534+725

GOOD FOR CONSTRUCTION

<b>PROJECT</b> WIDENING OF JHANJHI TO SECTION OF NH-37 FROM 3 CH. Km 491+050 TO Km 490+800 IN THE STATE OF M 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, Panipath, Ambikagiri Nagar, Zoo road, Guwahati-24	<b>EPC CONTRACTOR</b> Gannon Dunkerley & Co, Ltd. 88A, Topsia Road (South), Haute Street, 7th Floor, Kolkata - 700 046	<b>AUTHORITY ENGINEER</b> Voyants Solutions Pvt Ltd. 403, 4th Floor, Park Centre, Sector-30, NH-8, Gurugram, Haryana - 122001, India	<b>DESIGN CONSULTANT</b> Professional Civil Infra Pvt. Ltd. # 1838, Ground Floor, 8th N, Viswabhaya Layout, Nagadonyahalli, Bangalore - 560 056	<b>PROOF CONSULTANT</b> Chetan Infra-Tech Consultants (P) Ltd. 7/23, 1st Floor, 13th Main, Srinagar, Opp. PES College, Bengaluru - 560 050	<b>SAFETY CONSULTANT</b> Smart Safety Services # 3-5-68-7, Harthara Nivas, Gummakonda Colony, Hyderabad, Hyderabad - 500 048	REVISED AS PER AE COMMENTS VSPL/TRB/1365/2018/1382 DATED - 02/11/2018 REVISED AS PER AE COMMENTS VSPL/TRB/1365/2018/1359 DATED - 08/10/2018 FOR APPROVAL Description	NOV 2018 OCT 2018 SEPT 2018 Date	<b>TITLE:</b> REINFORCEMENT DETAILS OF MINOR BRIDGE (WIDENING) AT REVISED DESIGN CHAINAGE 534+725 Drw. NRV, Dsg. SK, Chk. VAS, App. PSA SCALE AS SHOWN SHEET SIZE A2 DRAWING No. PCIL/NH-37/10/STR/MNB/REIN/09 SHEET No. 01 OF 01 REV. 02
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