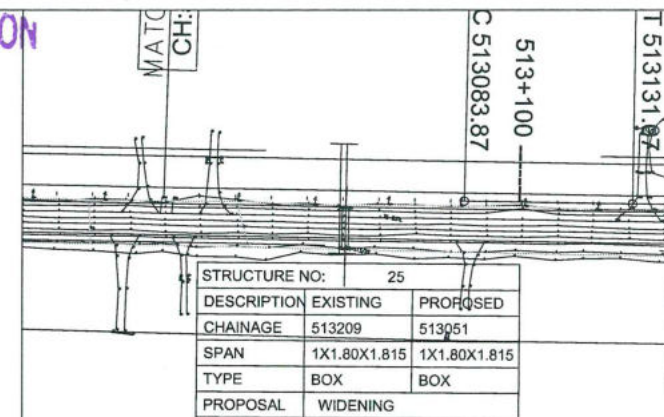


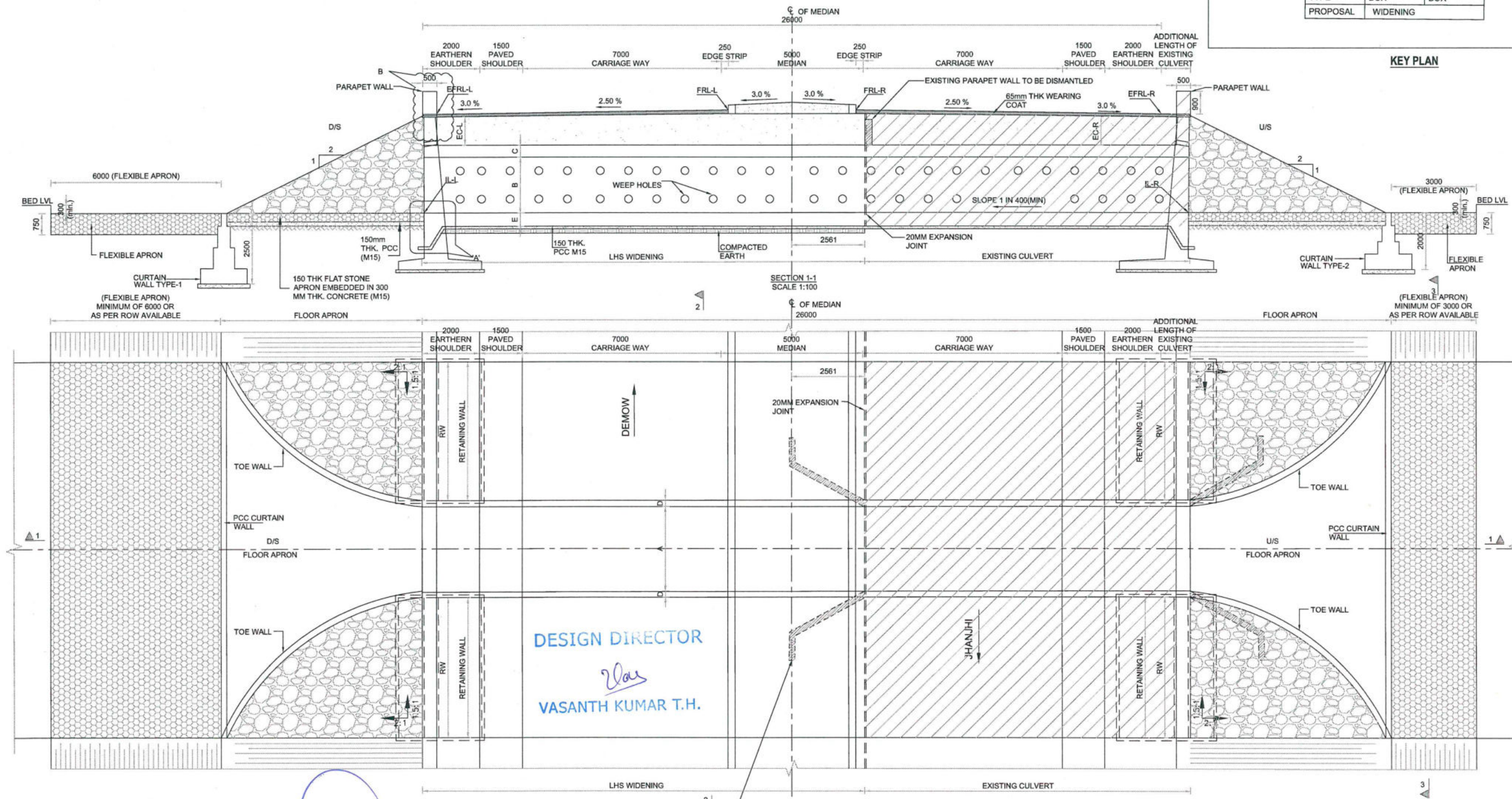
Details Of Box culvert:

EXISTING CHAINAGE	DESIGN CHAINAGE	SPAN	FRL-L	FRL-R	EFRL-L	EFRL-R	EC-L	EC-R	IL-L	IL-R	CLEAR WIDTH (A)	CLEAR HEIGHT (B)	TOP SLAB THICKNESS (C)	WALL THICKNESS (D)	BOTTOM RAFT THICKNESS (E)	RW	FLOW DIRECTION	LHS WIDENING
513+209	513+051	1X1.8X1.815	91.917	91.917	91.645	91.645	1.386	1.386	88.419	88.493	1.800	1.815	0.25	0.25	0.25	4.7	R-L	13.561

GOOD FOR CONSTRUCTION



KEY PLAN



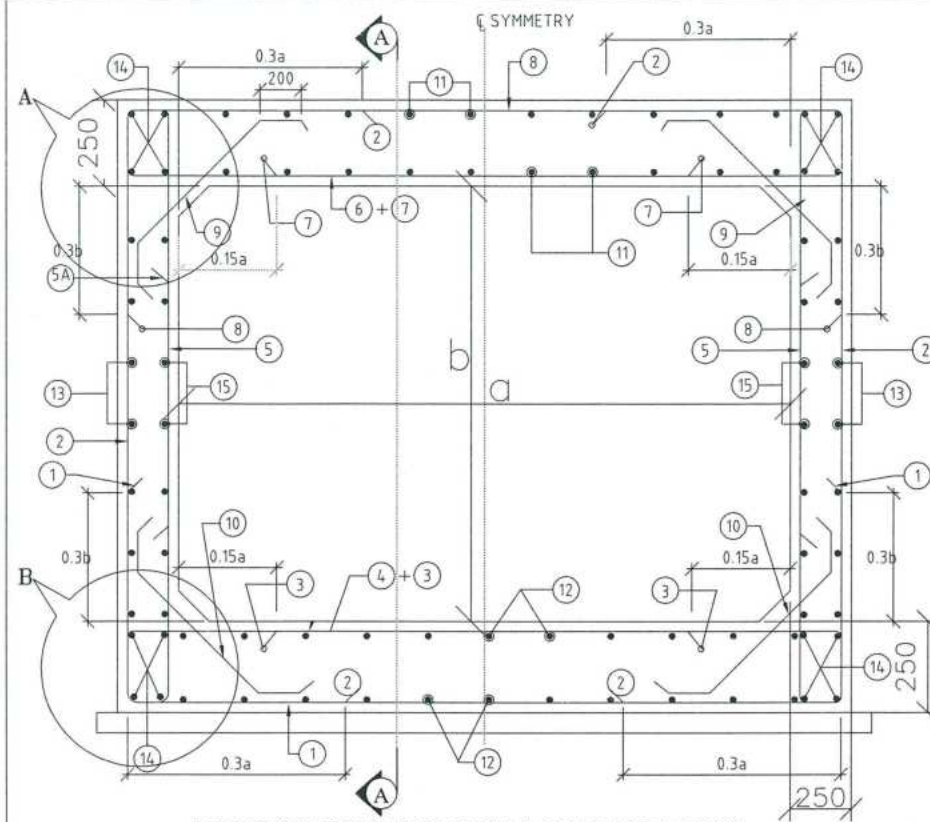
DESIGN DIRECTOR

VASANTH KUMAR T.H.

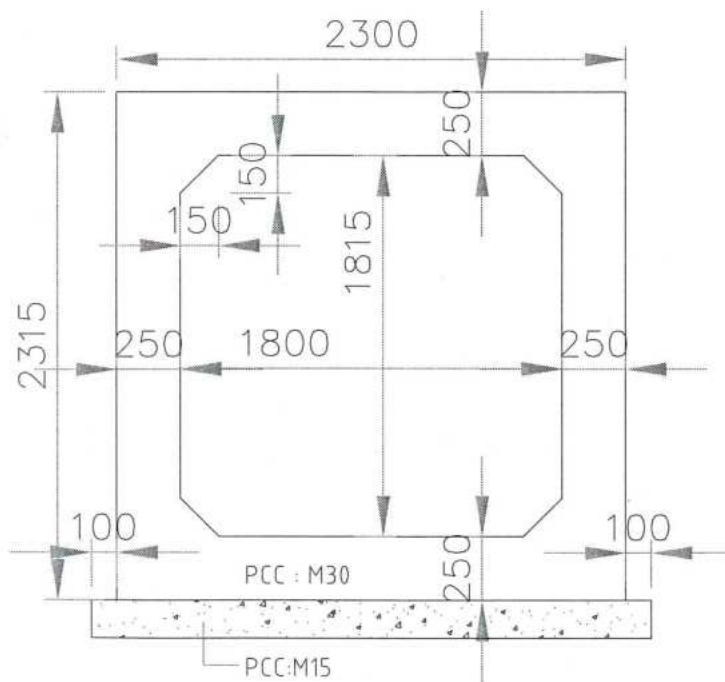
FOR APPROVAL

<div>PROJECT</div> <div>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.</div>	<div>CLIENT</div> <div><div>National Highways infrastructure Development Corporation Ltd.</div><div><div>Ministry of Road Transport & Highways, Government of India Branch office : House No.1, Panipath, Ambikagiri Nagar , Zoo road, Guwahati-24</div></div></div>	<div>CONTRACTOR</div> <div><div><div>Gammon Dunkley & Co., Ltd. 80A, TOPSIA ROAD (SOUTH) RAJITE STREET, 7th FLOOR KOLKATA - 700046</div></div></div>	<div>DESIGN CONSULTANT</div> <div><div><div>PROFESSIONAL CIVIL INFRA PVT. LTD. # 1838, GROUND FLOOR, SIR. M VISVESWARAYA LAYOUT, NAGADEVANAHALLI, BANGALORE - 560 056</div></div></div>	<div>PROOF CONSULTANT</div> <div><div><div>CHETAN INFRA TECH CONSULTANTS (P) LTD. 7/11, 1ST FLOOR, 18TH MAIN, GURUGRAM, GURGAON, HARYANA - 122001</div></div></div>	<div>SAFETY CONSULTANT</div> <div><div><div>SMART SAFETY SERVICES # 3-5-6 & 7, HARI HARA NIVAS, GUMMAKONDA COLONY, HYDERGUDA, HYDERABAD - 500048</div></div></div>	<div>AUTHORITY ENGINEER</div> <div><div><div>VOYANTS SOLUTIONS PVT. LTD. 103, 4th Floor, BPTP Park Cepra, Block A, Jal Vayu Vihar, Sector 30, Gurgaon, Haryana 122001</div></div></div>	<table><tr><td>NAME</td><td>SHEET SIZE</td></tr><tr><td>DESIGN DIRECTOR</td><td>A2</td></tr><tr><td>PROOF CONSULTANT</td><td>SCALE</td></tr><tr><td>SAFETY CONSULTANT</td><td>AS SHOWN</td></tr><tr><td>AUTHORITY CONSULTANT</td><td>SHEET No. 01 OF 02</td></tr></table>	NAME	SHEET SIZE	DESIGN DIRECTOR	A2	PROOF CONSULTANT	SCALE	SAFETY CONSULTANT	AS SHOWN	AUTHORITY CONSULTANT	SHEET No. 01 OF 02	<table><tr><td>TITLE:</td><td>GENERAL ARRANGEMENT DRAWING OF BOX CULVERT (WIDENING) AT DESIGN CH 513+051 (EXISTING CH 513+209)</td></tr><tr><td>DRAWING No.</td><td>PCIPL/NH-37/J-D/STR/BC/13</td></tr><tr><td>REV.</td><td>00</td></tr></table>	TITLE:	GENERAL ARRANGEMENT DRAWING OF BOX CULVERT (WIDENING) AT DESIGN CH 513+051 (EXISTING CH 513+209)	DRAWING No.	PCIPL/NH-37/J-D/STR/BC/13	REV.	00
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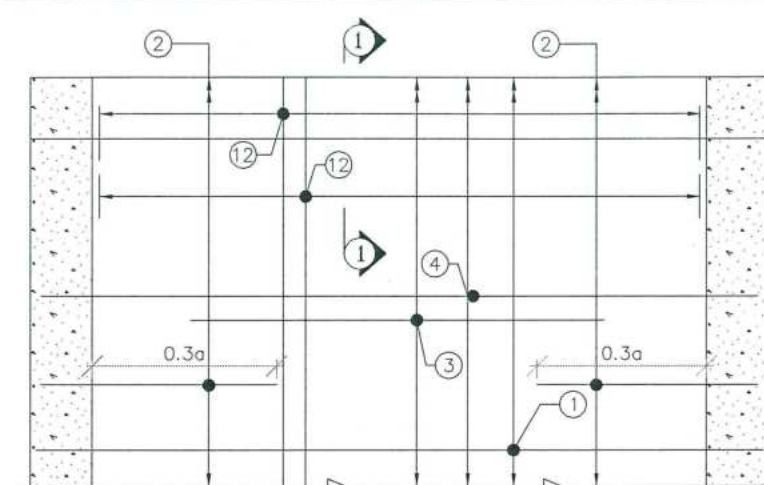
GOOD FOR CONSTRUCTION



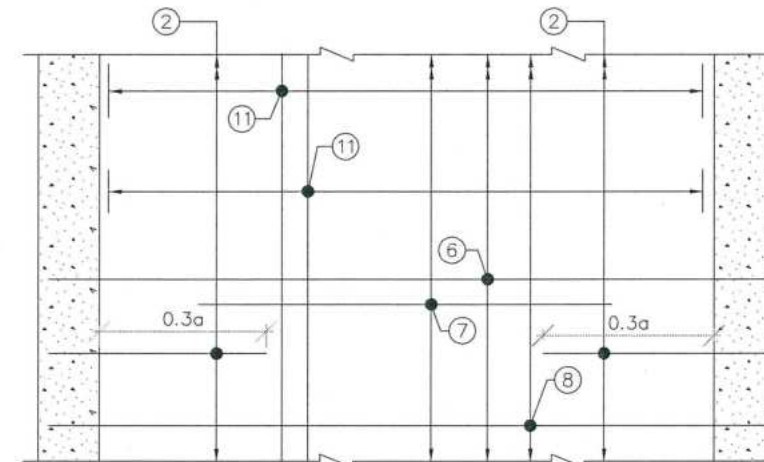
REINFORCEMENT DETAILS OF RCC BOX
(SCALE 1:20)



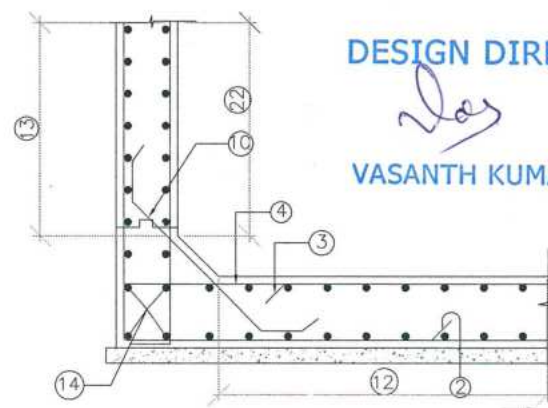
DETAILS OF RCC BOX
(SCALE 1:25)



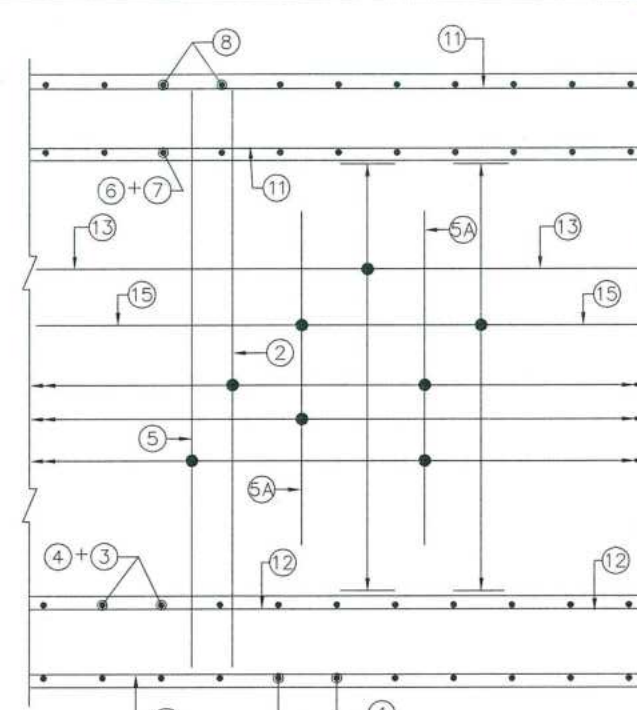
REINFORCEMENT DETAILS OF BOTTOM SLAB
HAUNCH BAR NOT SHOWN IN PLAN FOR CLARITY
(SCALE 1:25)



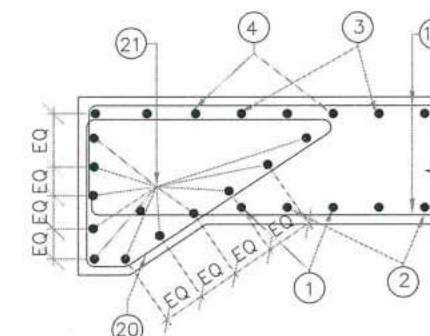
REINFORCEMENT DETAILS OF TOP SLAB
HAUNCH BAR NOT SHOWN IN PLAN FOR CLARITY
(SCALE 1:25)



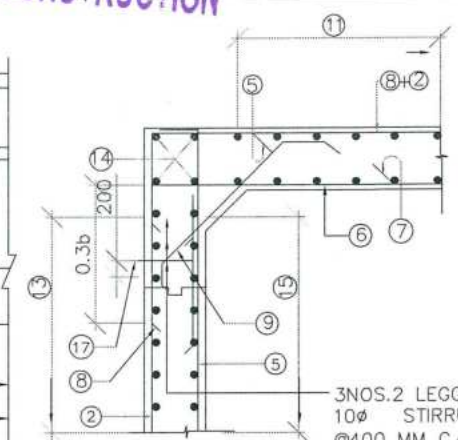
DETAIL -B
(SCALE 1:50)



SECTION A-A
(SCALE 1:25)



SECTION 1-1
(SCALE 1:30)



DETAIL -A
(SCALE 1:50)
3 NOS. 2 LEGGED
10# STIRRUPS
@400 MM C/C
HORIZONTAL
(NOT INCLUDED IN BAR
BENDING SCHEDULE)

DESIGN CH: 513+051

SCHEDULE OF REINFORCEMENT

BAR MARK	SHAPE OF BARS (NOT TO SCALE)	BAR DIA IN mm	SPACING OR NO. OF BAR
1		12	200 C/C
2		12	200 C/C
3		10	200 C/C
4		12	200 C/C
5		12	200 C/C
5A		10	200 C/C
6		12	200 C/C
7		10	200 C/C
8		12	200 C/C
9		10	200
10		10	200
11		10	200
12		10	200
13		10	200
14		10	16 NOS.
15		10	200
16		10	10 NOS.
17		10	250
18		10	NOT USED
19		10	NOT USED
20		10	150
21		10	20 NOS.

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 : M30 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 SHALL BE 40x BAR DIA (φ)
- 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 12.0 T/Sq.m

DESIGN DIRECTOR

VASANTH KUMAR T.H.

FOR APPROVAL

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 Ganesh Dunderley & Co. Ltd. 86A TOPSI ROAD (SOUTH) HAUTE STREET, 7th FLOOR KOLKATA - 700048	DESIGN CONSULTANT PROFESSIONAL CIVIL INFRA PVT. LTD. # 1838, GROUND FLOOR, SIR WYLVESWARAYA 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 PRABHAKAR S.A. HYDERABAD - 500049	AUTHORITY ENGINEER MOYANTS SOLUTIONS PVT. LTD. 403, 4th Floor, BPT Park Centra, Block A, Jal Vayu Vihar, Sector 3, Gurgaon, Haryana 122001	NAME SHEET SIZE SCALE AS SHOWN SHEET No. 01 OF 01	TITLE: REINFORCEMENT DETAILS OF BOX CULVERT (1X1.8X1.815) AT DESIGN CHAINAGE 513+051 (EXISTING CHAINAGE 513+209) DRAWING No. PC/PL/NH-37/JD/BC/STR/REIN/13 REV. 00
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