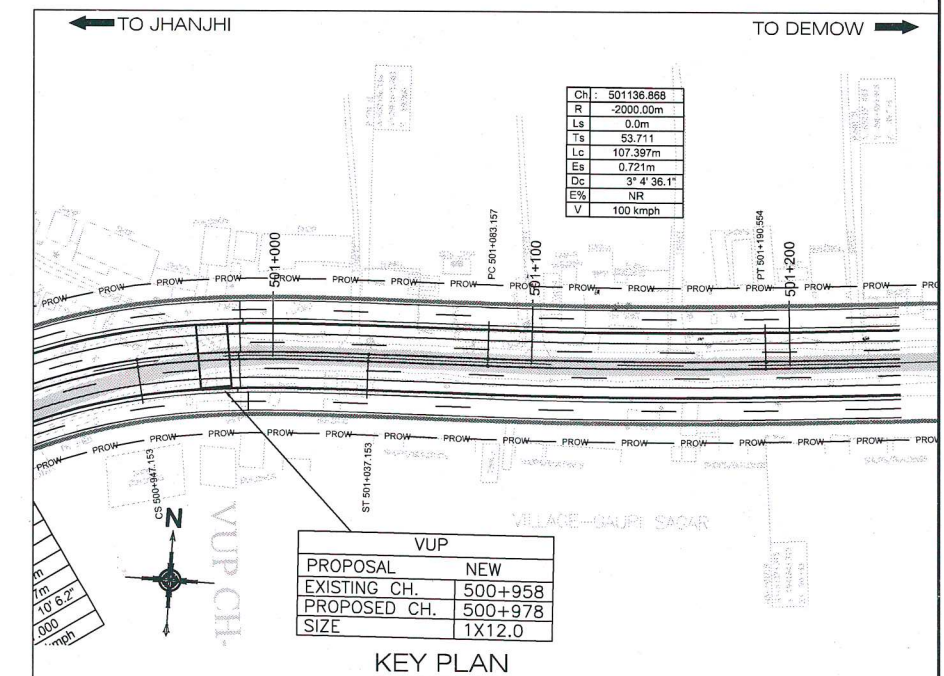


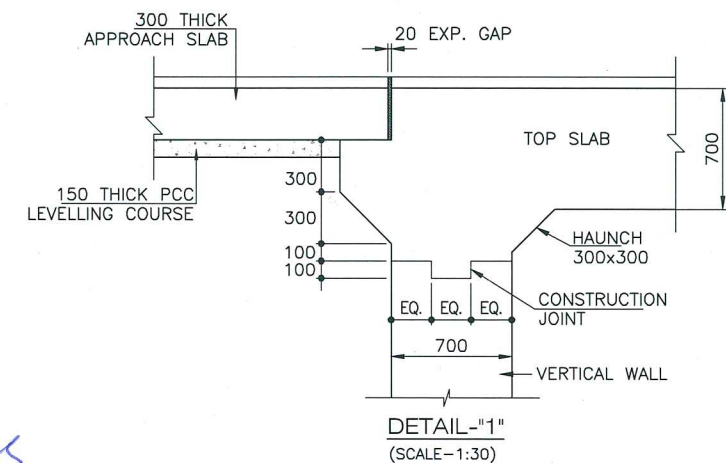
## NOTES:-

- ALL DIMENSIONS ARE IN MILLIMETERS, LEVELS ARE IN METERS, AND CHAINAGE ARE IN KILOMETERS, UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
- CONCRETE GRADE
  - FOR OF RCC BOX-----M35
  - FOR LEVELING COURSE-----M15
- MINIMUM CLEAR COVER TO ALL REINFORCEMENT SHALL BE
  - BOTTOM SLAB ----- 75MM.
  - TOP SLAB ----- 40MM.
  - SIDE WALL ----- 40MM NON EARTH FACE.
  - SIDE WALL ----- 75MM EARTH FACE.
- REINFORCEMENT GRADE-Fe:500D CONFORMING TO IS:1786.
- THE REQUIRED SBC OF  $-12t/m^2$  SHOULD BE ASCERTAINED AT SITE.
- THE FOLLOWING LOADS HAVE BEEN CONSIDERED IN THE DESIGN:-
  - THREE LANE OF CLASS A
  - ONE LANE OF CLASS A IN ADDITION OF ONE LANE OF CLASS 70R WHEEL OR ONE LANE OF 70R TRACKED & CHECK FOR SV LOADING WHICHEVER GOVERNS.
- BACKFILL MATERIAL BEHIND END WALL SHALL BE SELECTED GRANULAR SOIL HAVING PROPERTIES  $C=0$ , MINIMUM  $\phi > 30^\circ$  AND DRY DENSITY  $\gamma > 2t/m^3$
- IN CASE ANY LOOSE / UNSUITABLE MATERIAL BELOW BOX STRUCTURE IF FOUND DURING EXECUTION SHALL BE REPLACED BY SUITABLE MATERIAL AND COMPACTED.
- 600MM THICK, FILTER MATERIAL BEHIND BOX SHALL BE LAID AS PER APPENDIX 6 OF IRC 78-2014.
- PERFORATED P.V.C. PIPE 1500 TO BE PROVIDED OF GROUND LEVEL BEHIND WALL FOR DRAINAGE.
- 50mm WEARING COAT - BITUMINOUS CONCRETE THICK LAID IN SINGLE LAYER.
- FOR CRASH BARRIER MISCELLANEOUS DRAWING TO BE FOLLOWED.
- BACK FILLING BEHIND BOX SHALL CONSIST OF SELECTED EARTH CONFORMING TO APPENDIX 6 OF IRC:78-2014.
- FORMATION LEVEL, BED LEVEL, CAMBER/SUPER ELEVATION AND LAYOUT SHALL BE VERIFIED AT SITE AND SHALL BE PROVIDED AS PER APPROVED PLAN & PROFILE DRAWING. IN CASE OF ANY DEVIATION, SAME NEED TO BE BROUGHT INTO NOTICE OF ENGINEER IN-CHARGE/DESIGN CONSULTANT.
- MODERATE EXPOSURE CONDITION SHALL BE ENSURED AS PER IRC:112-2011.
- PAVEMENT LAYER SHALL BE LAID OVER THE TOP AS PER HIGHWAY DRAWINGS.
- DRAINAGE PIPE OUT FALL MAY BE DECIDED AS PER SITE CONDITION IN CONSULTATION WITH AUTHORITY ENGINEER.
- DOWELS FOR CRASH BARRIER TO BE LEFT BEFORE CASTING DECK SLAB.



<p>12.33.24/2 DATE</p> <p>ISSUED FOR APPROVAL</p> <p>DESCRIPTION OF REVISIONS</p> <p>BY</p>	<p>CLIENT:</p> <p>NATIONAL HIGHWAYS INFRASTRUCTURE DEVELOPMENT CORPORATION LTD. (3RD FLOOR, 1TH BUILDING, 4 PARLIAMENT STREET, NEW DELHI 110001)</p> <p>AUTHORITY ENGINEER:</p> <p>VOYANTIS SOLUTIONS PVT. LTD. 403, 4TH FLOOR, BPT PARK CENTRA BLDCK A, JAL VAYU VIHAR SECTOR 50 GURGAON, HARYANA 124001</p>	<p>CONTRACTOR</p> <p>GANNON DUNKERLEY &amp; CO. LTD 86A, TOPSIA ROAD (SOUTH) HAUTE STREET, 7th FLOOR KOLKATA-700046</p> <p>SAFTY CONSULTANT:</p> <p>G-ENG ADVISORY SERVICES PVT. LTD. SOD-102, HUDA SHOPPING CENTER, SECTOR-56 GURGAON-122002, HARYANA. TEL:- +91-124-4295802, 4295803 EMAIL:INFO@G-ENG.IN WEB:WWW.G-ENG.IN</p>	<p>DESIGN CONSULTANT:</p> <p>ECSTATIC ENGINEERING CONSULTANTS PRIVATE LIMITED SCO 103 HUDA SHOPPING CENTRE, GURGAON, SECTOR 55, GURUGRAM, HARYANA 122003</p> <p>PROOF CONSULTANT:</p> <p>MARC TECHNOCRATS PVT. LTD Marc House, Sector-67 (Vijay Road), opposite Devi Lal Park, Bandadgarh, Haryana 124507</p>	<p>APPROVED BY: M.S</p> <p>CHECKED BY: N.S</p> <p>DESIGNED BY: V.K</p> <p>DRAWN BY: A.P</p> <p>SCALE: AS SHOWN</p> <p>DATE: MAR - 2020</p>	<p>PROJECT:</p> <p>FOUR LANING OF JHANJHI TO DEMOW SECTION OF NH-37 FROM EXISTING CH. K 491+050 TO KM 535+250 (DESIGN CH. KM 490+800 TO KM 534+800) IN THE STATE OF ASSAM UNDER EPC MODE.</p> <p>TITLE:</p> <p>GENERAL ARRANGEMENT DRAWING FOR VUP AT CH.500+978</p> <p>DRG NO.: EEC-NH-37-JD-VUP-CH-500+978-GAD.-201</p> <p>SHEET NO. (01 OF 02)</p> <p>REV. R0</p>
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700

EQ. EQ. EQ.

100 100

CONSTRUCTION JOINT

VERTICAL WALL

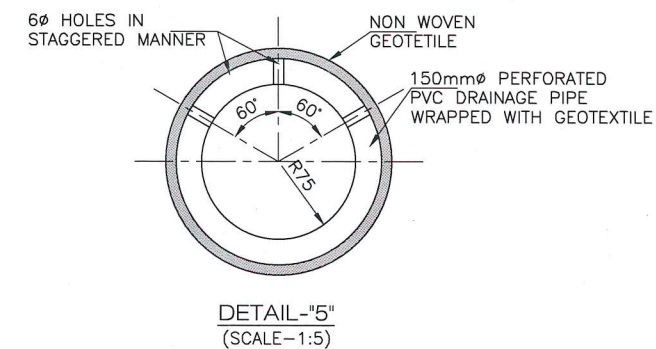
HAUNCH 300x300

BOTTOM SLAB

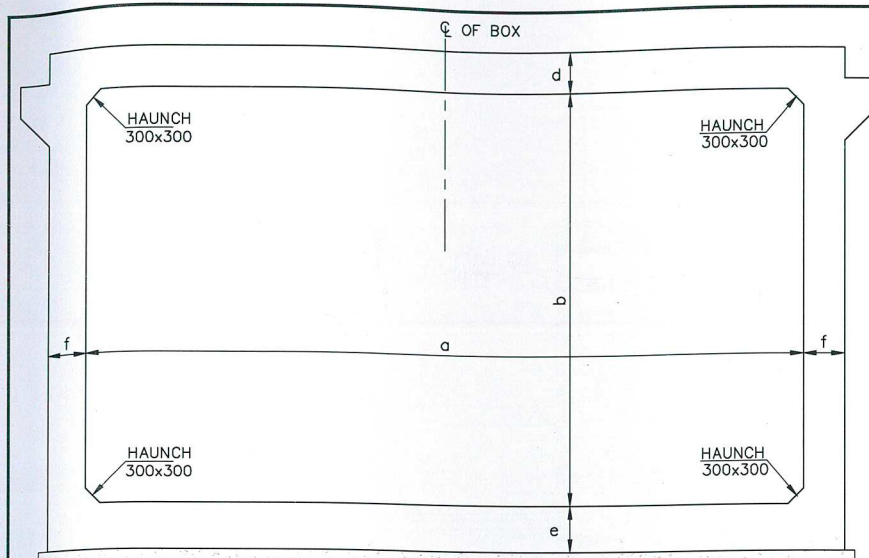
750

DETAIL - "2"

(SCALE - 1:30)

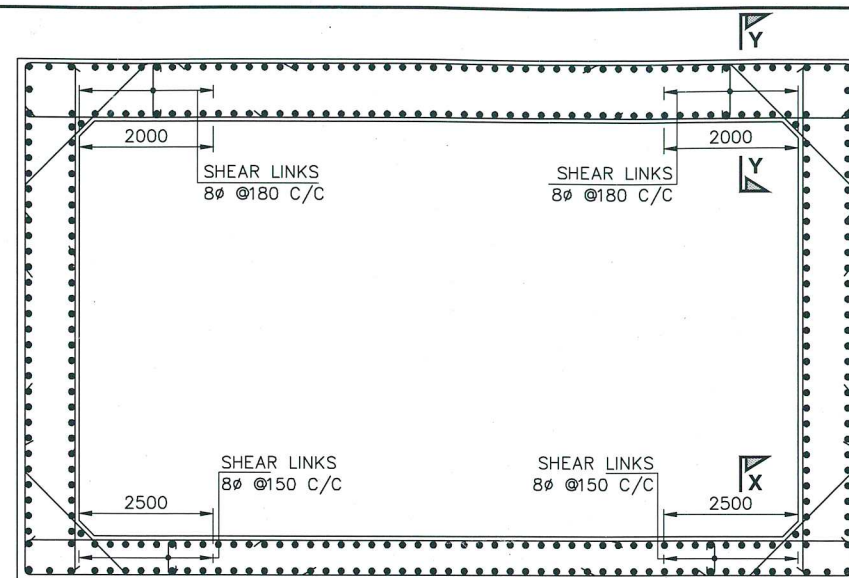
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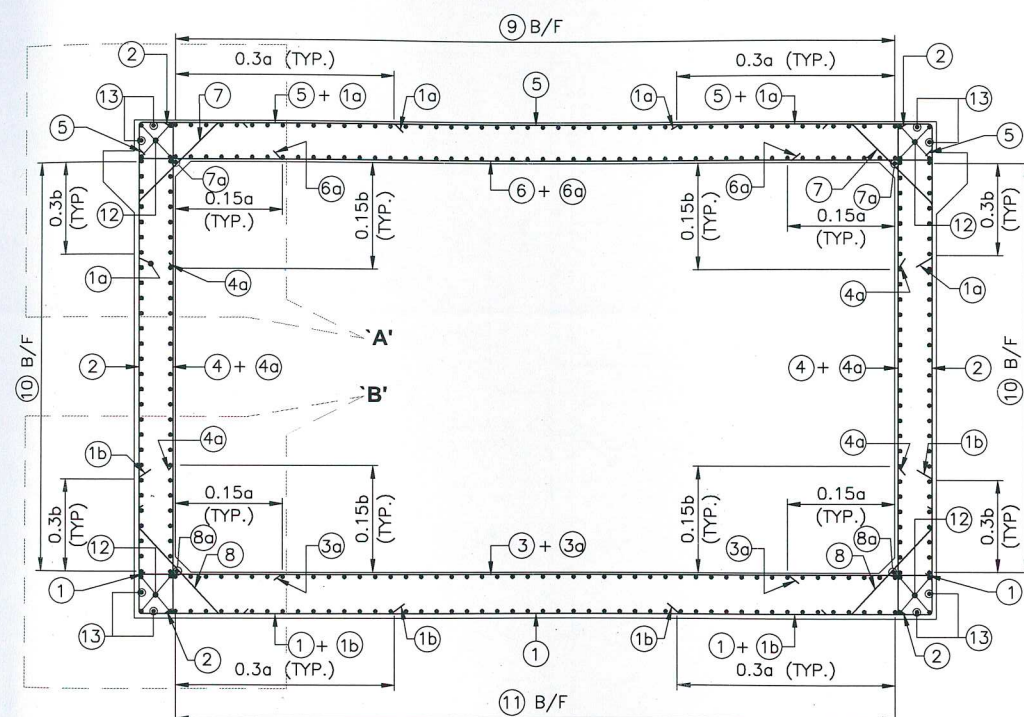
**DIMENSION DETAILS OF SINGLE CELL BOX**

(SHOWING ONLY DIMENSION)  
(SCALE 1:50)



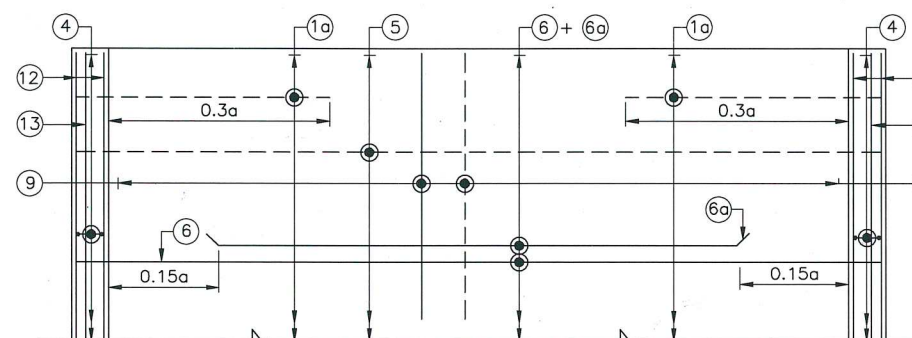
**REINFORCEMENT DETAIL SHOWING SHEAR LINKS ONLY**

(OTHER BARS NOT SHOWN FOR CLARITY)  
(SCALE 1:50)



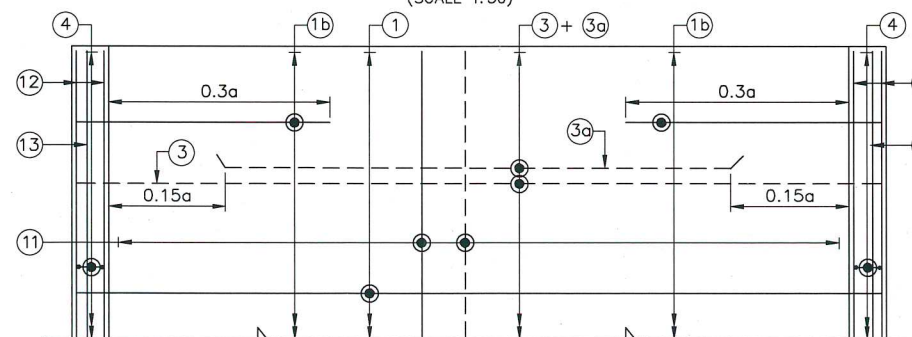
**REINFORCEMENT DETAILS OF SINGLE CELL BOX**

(SHEAR REINFORCEMENT NOT SHOWN FOR CLARITY)  
(SCALE 1:50)



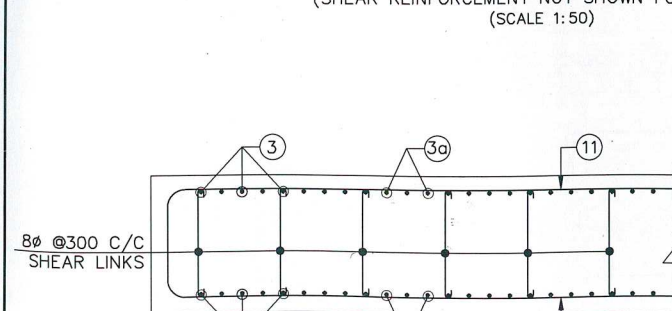
**REINFORCEMENT DETAILS OF TOP SLAB**

(SHEAR REINFORCEMENT NOT SHOWN FOR CLARITY)  
(SCALE 1:50)



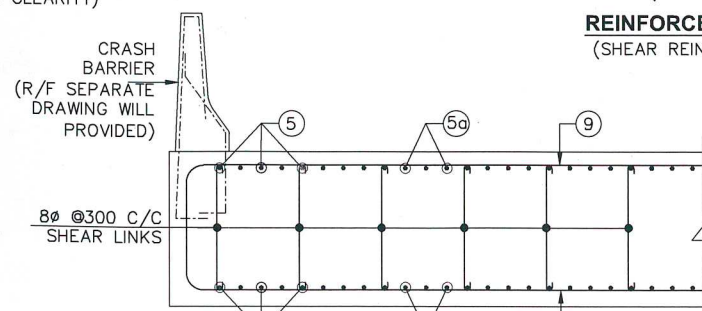
**REINFORCEMENT DETAILS OF BOTTOM SLAB**

(SHEAR REINFORCEMENT NOT SHOWN FOR CLARITY)  
(SCALE 1:50)



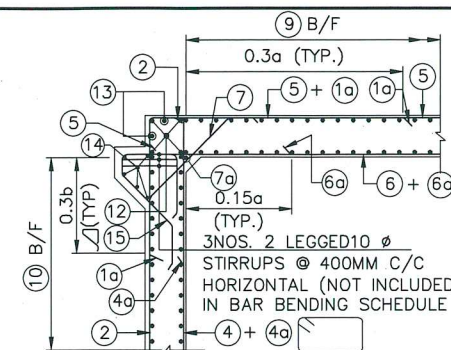
**SHEAR REIN. DETAIL AT SECTION X-X**

(SCALE 1:15)



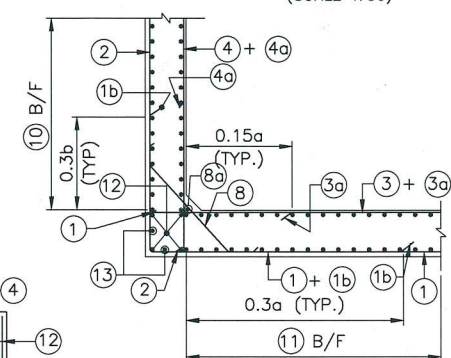
**SHEAR REIN. DETAIL AT SECTION Y-Y**

(SCALE 1:15)



**DETAIL AT 'A'**

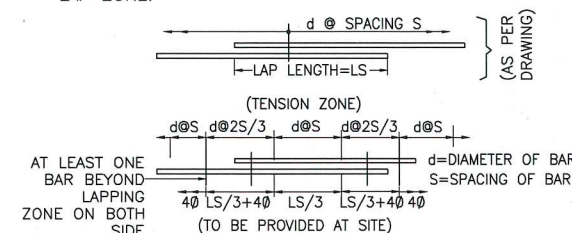
(SCALE 1:50)



**DETAIL AT 'B'**

(SCALE 1:50)

- NOTES:-**
- ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SPECIFIED. LEVELS ARE IN METERS.
  - DIMENSIONS ARE NOT TO BE SCALED. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED.
  - GRADE OF CONCRETE :  
PCC LEVELING COURSE ----- M15  
RCC BOX ----- M35
  - REINFORCEMENT H.Y.S.D. BARS SHALL CONFORM TO IS:1786 GRADE Fe-500D.
  - CLEAR COVER TO OUTER MOST REINFORCEMENT FOR  
TOP SLAB ----- 40mm  
SIDE WALL (EARTH FACE) ----- 75mm  
SIDE WALL (INNER FACE) ----- 40mm  
BOTTOM SLAB ----- 75mm
  - LAPS SHALL BE STAGGERED AND NOT MORE THAN 50% BAR. SHALL BE LAPPED AT ANY LOCATION. \* 73 x DIA OF BAR.
  - THE LEVELS SHALL BE IDENTIFIED AT SITE AND IN CASE OF ANY DISCREPANCY, IT SHALL BE BROUGHT INTO THE NOTICE OF CONSULTANT.
  - ANCHORAGE LENGTH SHALL BE PROVIDED AS PER CL. NO. 15.2.4 OF IRC 112-2011 \* 52 x DIA OF BAR.
  - SBC AT FOUNDING LEVEL OF BOX SHALL NOT BE LESS THAN 12.0t/m<sup>2</sup> RESPECTIVELY SHALL BE ENSURED AT SITE BEFORE LAYING FOUNDATION.
  - BACK FILLING SHALL BE DONE SIMULTANEOUSLY ON BOTH SIDES AFTER THE CASTING OF TOP SLAB OF BOX AND THE DIFFERENCE IN LEVELS ON BOTH SIDES SHALL NOT BE MORE THAN 1.0m.
  - ALL SIDE FACES SHALL BE PROVIDED WITH 10DIA OF BAR AT 200c/c UNLESS OTHER WISE SPECIFIED.
  - CONCRETE COVER BLOCK SHALL BE PROVIDED TO MAINTAIN THE COVER OF BAR FROM OUTER FACE OF CONCRETE.
  - ARRANGEMENT OF TRANSVERSE REINFORCEMENT IN LAP ZONE:-



AT LEAST ONE BAR BEYOND LAPPING ZONE ON BOTH SIDE  
(TO BE PROVIDED AT SITE)

**REINFORCEMENT DETAILS:-**

BAR MKD.	DIA (mm)	SPACING/ Nos.	SHAPE	M1
1	16	150 C/C	M1	450
1a	16	150 C/C	0.3a+d	-
1b	16	150 C/C	0.3b+e	-
2	20	150 C/C	M1	400
3	16	150 C/C	M1	375
3a	16	150 C/C	M1	0.7a
4	10	150 C/C	M1	325
4a	10	150 C/C	M1	-
5	12	150 C/C	M1	400
6	16	150 C/C	M1	325
6a	16	150 C/C	M1	0.7a
7	10	150 C/C	M1	200
8	10	150 C/C	M1	200
9	10	180 C/C	M1	400
10	12	150 C/C	M1	400
11	10	150 C/C	M1	450
12	10	4 NOS.	M1	400
13	10	2 NOS.	M1	400
14	10	5 NOS.	M1	-
15	10	150 C/C	M1	400

**LEGENDS:**

- BAR ON TOP/EARTH FACE
- BAR ON BOTTOM/OUTER FACE
- B/F BAR ON BOTH FACES
- STP STIRRUPS
- VRS VARIES
- LINKS

**THIS DRAWING APPLICABLE FOR:-**

No.	Structure	Span (m) x height (m)	a	b	d	e	f
1	VUP	1x12.0x5.5*	12.0	5.5	0.70	0.75	0.70

DATE	REV	DESCRIPTION OF REVISIONS	BY
12.03.2020	R0	ISSUED FOR APPROVAL	

<b>CLIENT:</b>	NATIONAL HIGHWAYS INFRASTRUCTURE DEVELOPMENT CORPORATION LTD. (3RD FLOOR, PTI BUILDING, 4 PARLIAMENT STREET, NEW DELHI-110001)
<b>AUTHORITY ENGINEER:</b>	VOYANTS SOLUTIONS PVT. LTD. 405, 4TH FLOOR, BPTP PARK CENTRA, BLOCK A, JAL VAYU VIHAR SECTOR 30 GURGOAN, HARYANA-122001

<b>CONTRACTOR:</b>	GANNON DUNKERLEY & CO. LTD 86A, TOPSIA ROAD (SOUTH) HAUTE STREET, 7th FLOOR KOLKATA-700046
<b>SAFTY CONSULTANT:</b>	G-ENG ADVISORY SERVICES PVT. LTD. SCO-102, HUDA SHOPPING CENTER, SECTOR-56 GURGAON-122002, HARYANA. TEL:- +91-124-4295802, 4295803 EMAIL:INFO@G-ENG.IN WEB:WWW.G-ENG.IN

<b>DESIGN CONSULTANT:</b>	ECSTATIC ENGINEERING CONSULTANTS PRIVATE LIMITED SCO-103 HUDA SHOPPING CENTRE, GURGOAN, SECTOR 55, GURUGRAM, HARYANA 122003
<b>PROOF CONSULTANT:</b>	MARC TECHNOCRATS PVT. LTD. Marc House, Sector-67 (Dwilling Road), opposite Devi Lal Park, Bahadurgarh, Haryana 124507

<b>APPROVED BY:</b>	US
<b>CHECKED BY:</b>	NS
<b>DESIGNED BY:</b>	KP
<b>DRAWN BY:</b>	SR
<b>SCALE:</b>	AS SHOWN
<b>DATE:</b>	MAR-2020

<b>PROJECT:</b>	FOUR LANING OF JHANJHI TO DEMOW SECTION OF NH-37 FROM EXISTING CH. K 491+050 TO KM 535+250 (DESIGN CH. KM 490+800 TO KM 534+800) IN THE STATE OF ASSAM UNDER EPC MODE.
<b>TITLE:</b>	REINFORCEMENT DETAIL DRAWING FOR VUP OF SPAN (1X12.0m) AT DESIGN CH-500+978
<b>DRG NO.:</b>	EEC-NH-37-JD-VUP-CH-500+978-REINF.-201
<b>SHEET NO.</b>	(01 OF 01)
<b>REV.</b>	R0