

KEY PLAN

NOTES:

- ALL DIMENSIONS ARE IN mm AND LEVELS IN METRES, UNLESS OTHERWISE MENTIONED. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED. NO DIMENSION IS TO BE SCALED.
- PROPOSED STRUCTURES IS DESIGNED FOR IRC 70R LOADING OR CLASS A OR BOGGIE LOADING WHICHEVER GOVERNS.
- GRADE OF CONCRETE SHALL BE AS FOLLOWS:
 - FOR LEVELLING COURSE ----- M15
 - FOR BOX SUBSTRUCTURE ----- M30
 - FOR CRASH BARRIER ----- M40
 - FOR APPROACH SLAB ----- M30
 - FOR RCC DRAIN ----- M25
- CLEAR COVER TO OUTER MOST STEEL SHALL BE AS FOLLOWS:
 - FOR TOP SLAB TOP ----- 75 mm
 - FOR TOP SLAB BOTTOM ----- 50 mm
 - FOR BOTTOM SLAB TOP ----- 50 mm
 - FOR BOTTOM SLAB BOTTOM ----- 75 mm
 - FOR BOTTOM SLAB TOP/BOTTOM ----- 75mm
 - FOR SIDE WALL ----- 75mm
 - FOR MID WALL ----- 50mm
- HIGH YIELD STRENGTH DEFORMED BARS OF GRADE DESIGNATION Fe 500 CONFORMING TO IS:1786 SHALL ONLY BE USED.
- BACK FILLING BEHIND ABUTMENTS & OUTER WALLS SHALL CONSISTS OF SELECTED EARTH CONFORMING TO APPENDIX-6 OF IRC:78-2000 HAVING PROPERTIES OF $d=20'$ & $c=0$, $\phi=30'$, $\gamma=18$ kN/m³
- 600 mm THICK FILTER MEDIA SHALL BE PROVIDED BEHIND WALLS AS PER SECTION 2504 OF MORT&H SPECIFICATIONS.
- WEEP HOLES, OF 100 mm Ø SPACED AT 1000 mm c/c BOTH HORIZONTALLY AND VERTICALLY SHALL BE PROVIDED IN A STAGGERED MANNER IN SIDE WALLS ABOVE 150 mm FROM LWL OR GL WHICHEVER IS HIGHER AS PER SECTION 2706 OF MORT&H SPECIFICATIONS.
- BACKFILLING MATERIAL USED FOR GROUND IMPROVEMENT SHALL BE OF APPROVED MATERIAL.
- FILLER TYPE EXPANSION JOINTS OF PROVEN QUALITY SHALL BE PROVIDED IN TERMS OF MODIFIED INTERIM SPECIFICATIONS IN ANNEXURE-1 TO MORT&H CIRCULAR No. RW/NH-34059/1/96-S&R DATED 30.11.2000. THE MATERIAL SPECIFICATIONS OF THE FILLER JOINTS SHALL BE IN ACCORDANCE WITH SECTION 2605 OF MORT&H SPECIFICATIONS, FOURTH REVISION.
- REFER SEPARATE DETAILED REINFORCEMENT DRAWING FOR, APPROACH SLAB, RCC PARAPET & RETAINING WALL.
- EXPOSURE CONDITION - MODERATE EXPOSURE.
- THIS DRAWING SHALL BE READ IN CONJUNCTION WITH THE RELEVANT PLAN AND PROFILE DRAWING OF ROAD.
- SBC OF SOIL BELOW THE BOX STRUCTURE SHALL NOT BE LESS THAN 12 t/Sq.m AND UPON GROUND IMPROVEMENT REQUIRED SBC SHALL BE ENSURED AT SITE.
- TYPICAL CROSS SECTION-7B.

GOOD FOR CONSTRUCTION

Bridge Engineer
VSPL, Sivasagar

HARBHAJAN SING
Team Leader (VSPL)
Authority Engineer (NH&IDCL)

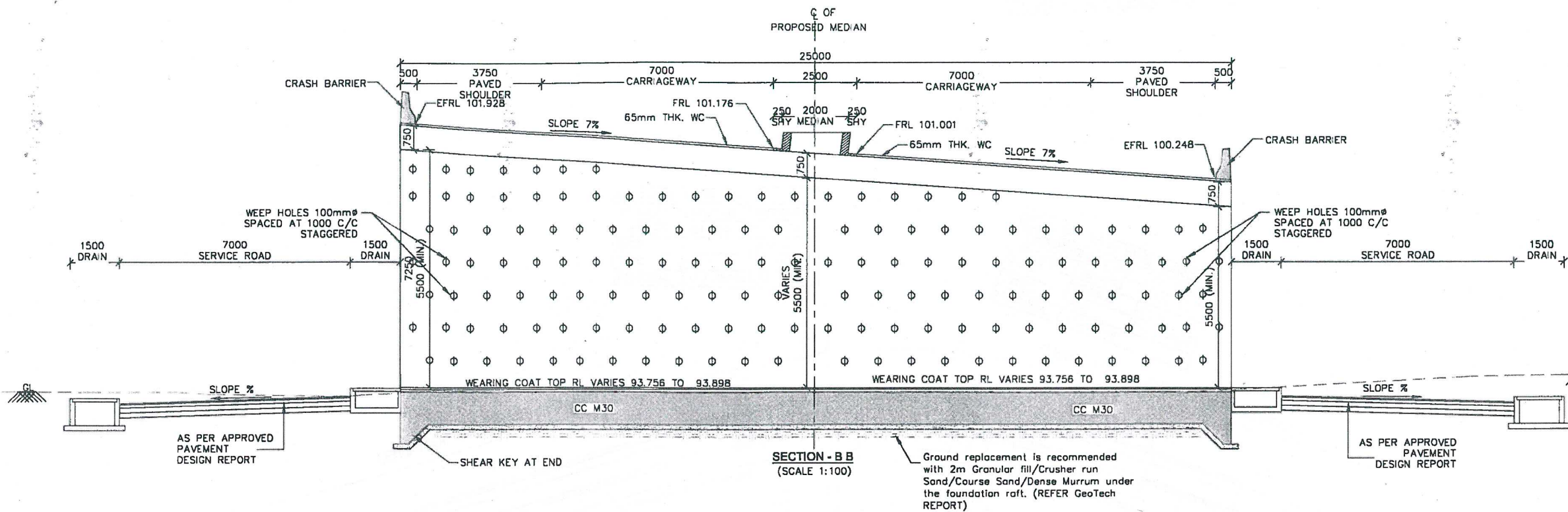
DESIGN DIRECTOR

REFERENCE DRAWINGS :

- REINFORCEMENT OF BOX TYPE VUP
PCIPL/NH-37/JD/VUP/STR/REIN/01
- FOR CRASH BARRIER, APPROACH SLAB, Etc.
PCIPL/NH-37/JD/STR/RCC-MIS/01
- PLAN AND PROFILE
PCIPL/NH-37/JD/HW/P&P-44
- TYPICAL CROSS SECTION
PCIPL/NH-37/JD/HW/CS/004

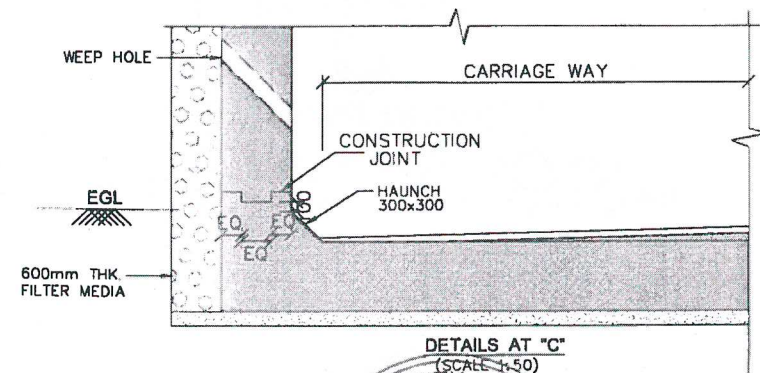
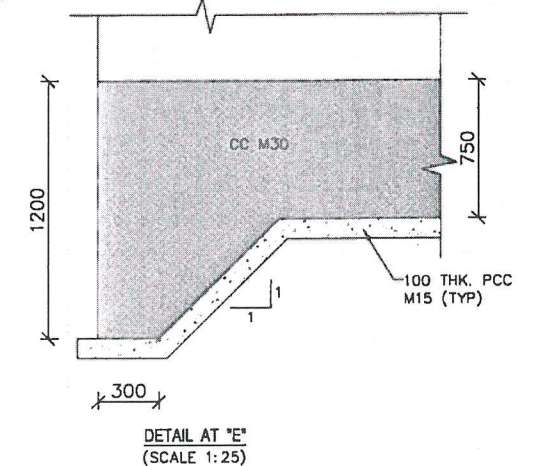
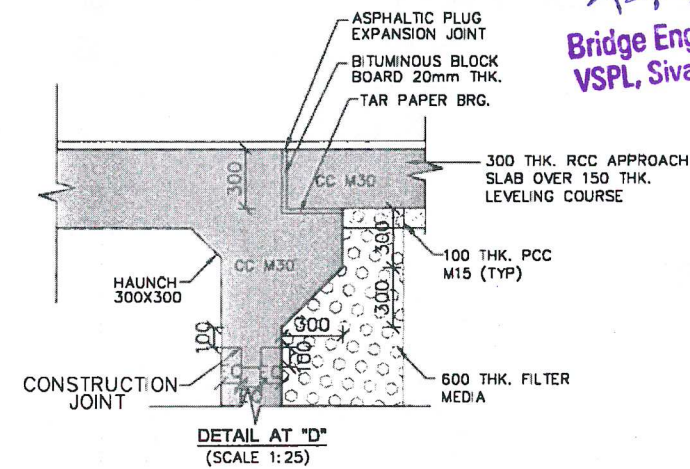
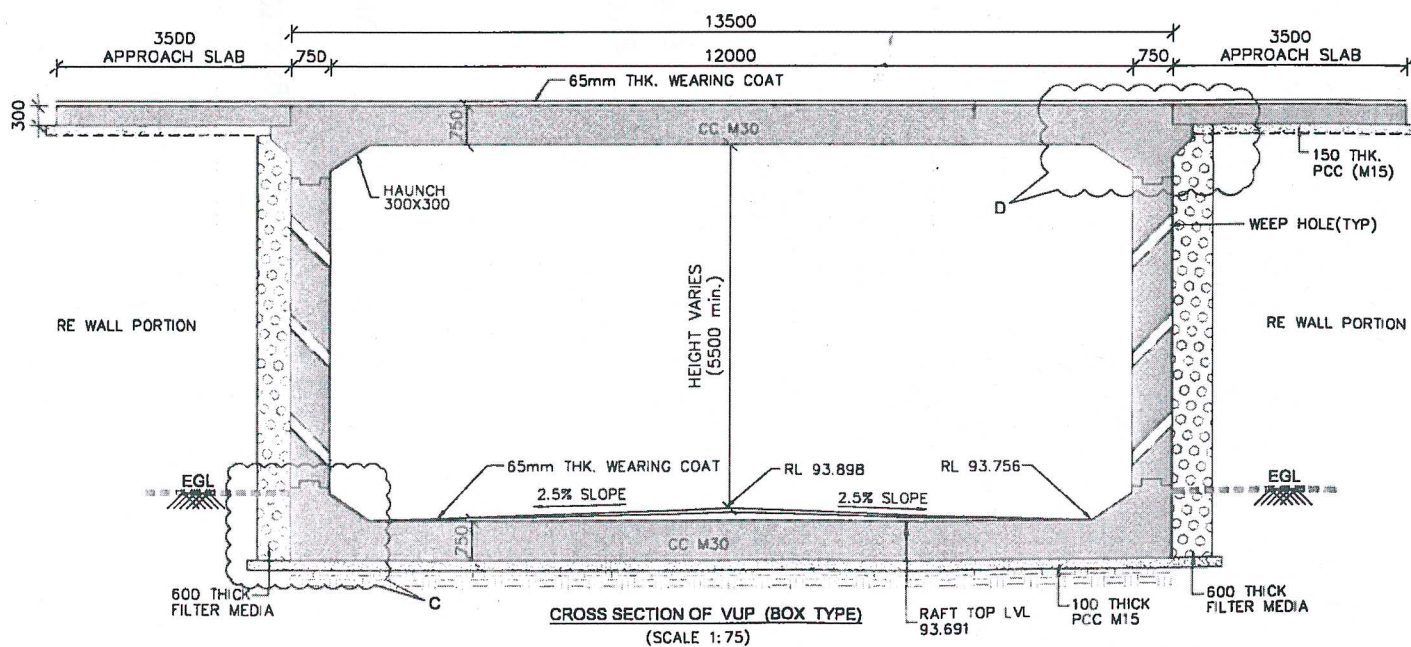
PROJECT FOUR LANING OF JHANJHI TO DEMOW SECTION OF NH-37 FROM EXISTING CH. Km 491+050 TO Km 534+800 IN THE STATE OF ASSAM UNDER EPC MODE.	CLIENT National Highways Infrastructure Development Corporation Ltd. Ministry of Road Transport & Highways, Government of India Branch office : House No.1, Panipath, Ambikagiri Nagar, Zoo road, Guwahati-24	EPC CONTRACTOR Gannon Dunkerley & Co. Ltd. 95A, Topsia Road (South), Haute Street, 7th Floor, Kolkata - 700 046	AUTHORITY ENGINEER Voyants Solutions Pvt Ltd. 403, 4th Floor, Park Centra, Sector-30, NH-8, Gurugram, Haryana - 122001, India	DESIGN CONSULTANT Professional Civil Infra Pvt. Ltd. # 143B, Ground Floor, Sir M. Visvesvaraya Layout, Nagdevanahalli, Bangalore - 560 056	PROOF CONSULTANT Chetan Infra Tech Consultants (P) Ltd. 7/11, 1st Floor, 13th Main Street, Opp. PPS College, Bengaluru - 560 050	SAFETY CONSULTANT Smart Safety Services # 345-557, Panhara Niyas, Gummakonda Colony, Hyderguda, Hyderabad - 500 048	REVISED AS PER AE COMMENTS VSPL/TRB/1365/2018/1405 DATED - 27/11/2018 REVISED AS PER AE COMMENTS VSPL/TRB/1365/2018/1305 DATED - 11/08/2018	DEC 2018 AUG 2018	TITLE: GENERAL ALIGNMENT DRAWING FOR VEHICULAR UNDERPASS @ CH:533+636 (AS PER CA DESIGN CH: 533+557 AS PER CA EX CH: 534+016) - 1X12 DRAWING No. PCIPL/NH-37/JD/VUP/STR/GAD/05 SHEET No. 01 OF 04 REV. A
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GOOD FOR CONSTRUCTION



Bridge Engineer
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HARBHAJAN SING
Team Leader (VSPL)
Authority Engineer (NHIOCL)



DESIGN DIRECTOR

VASANTH KUMAR T.H.

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	EPC CONTRACTOR Gannon Dunkerley & Co. Ltd. 86A, Topsia Road (South), Haute Street, 7th Floor, Kolkata - 700 046	AUTHORITY ENGINEER Voyants Solutions Pvt Ltd. 403, 4th Floor, Park Centra, Sector-30, NH-8, Gurugram, Haryana -122001, India	DESIGN CONSULTANT Professional Civil Infra Pvt. Ltd. # 1838, Ground Floor, Shri M Vidyawaraya Layout, Nageswaraiahall, Bangalore - 560 056	PROOF CONSULTANT Chetan Infra-Tech Consultants (P) Ltd. 7/11, 1st Floor, 13th Main, Srinagar, Opp. PES College, Bengaluru - 560 050	SAFETY CONSULTANT Smart Safety Services # 3-5-56, 3rd Phase Nijos, Gummalkonda Colony, Hyderabad - 500 048	<div><div>REVISED AS PER AE COMMENTS VSPL/TRB/1365/2018/1405 DATED - 27/11/2018</div><div>REVISED AS PER AE COMMENTS VSPL/TRB/1365/2018/1305 DATED - 11/08/2018</div></div> <div><div>DEC 2018</div><div>AUG 2018</div><div>Date</div></div> <div><div>Drw. AHM</div><div>Dse. HKK</div><div>Cnk. VAS</div><div>App. PSA</div><div>SCALE AS SHOWN</div><div>SHEET SIZE A2</div><div>DRAWING No. PC/ILNH-37/JDVUP/STR/GAD/05</div><div>SHEET NO. 02 OF 04</div><div>REV A</div></div>						
							<table><thead><tr><th>Rev</th><th>Description</th></tr></thead><tbody><tr><td>1</td><td></td></tr></tbody></table>	Rev	Description	1			
Rev	Description												
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STRUCTURE NO.	40	MINOR BRIDGE
DESCRIPTION	EXISTING	PROPOSED
CHAINAGE	534+193	533+790
SPAN	1X6.5+6.75	1X12.46
TYPE	SLAB	RCC T GIRDER
PROPOSAL	WIDENING+NEW	

STRUCTURE NO: 39 VUP		
DESCRIPTION	EXISTING	PROPOSED
CHAINAGE	534+016	533+636
SPAN	-	1X12X5.5
TYPE	-	VUP (BOX)
PROPOSAL	NEW CONSTRUCTION	

STRUCTURE NO. 40 MINOR BRIDGE		
DESCRIPTION	EXISTING	PROPOSED
CHAINAGE	534+153	533+790
SPAN	116.54x6.73	112.14x6
TYPE	SLAB	RCC 1 GIRDER
PROPOSAL	WIDENING+NEW	

LENGTH OF

LENGTH OF SOLID RAMP = 370m (APPROX.)

LENGTH OF SOLID RAMP = 350m (APPROX.)

533+200

054+000

VASANTH KUMAR T.H.

Bridge Engineer
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HARBHAJAN SINGH
Team Leader (VSPL)
Authority Engineer (NH/DCL)

PROJECT
FOUR LANING OF JHANJHI TO
DEMOW SECTION OF NH-37 FROM
EXISTING CH. Km 491+050 TO Km
35+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

EPC CONTRACTOR
Gannon Dunkerley & Co. Ltd.

88A, Topsia Road (South),
Haute Street, 7th Floor,
Kolkata - 700 048

AUTHORITY ENGINEER
Voyants Solutions Pvt Ltd.



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Bengaluru - 560 050

SAFETY CONSULTANT

Smart Safety Services
PRABHAKAR S A
A 13-567, Harihara
Nivas, Gummakonda
Colony, Hyderguda,
Hyderabad - 500 048

			GOOD FOR CONSTRUCTION				
A	REVISED AS PER AE COMMENTS VSPL/TRB/1365/2018/1405 DATED - 27/11/2018	DEC 2018	TITLE: PLAN OF RE WALL SECTION FOR VEHICULAR UNDERPASS @ CH:533+838 (AS PER CA DESIGN CH: 533-57, AS PER CA DESIGN CH: 533-58, AS PER CA DESIGN CH: 533-59)				
	REVISED AS PER AE COMMENTS VSPL/TRB/1365/2018/1305 DATED - 11/09/2018	AUG 2018	Drw. AHM	Dsg. HKX	Chk. VBS	App. PSA	AS SHOWN IN SCALE
1			DRAWING No. _____				
Rev	Description	Date	SHEET No. _____				REV. _____
			03 OF 04				A

GOOD FOR CONSTRUCTION

Bridge Engineer
VSPL, Sivasagar

HARBHAJAN SINGH
Team Leader (VSPL)
Authority Engineer (NHIDCL)

DESIGN DIRECTOR

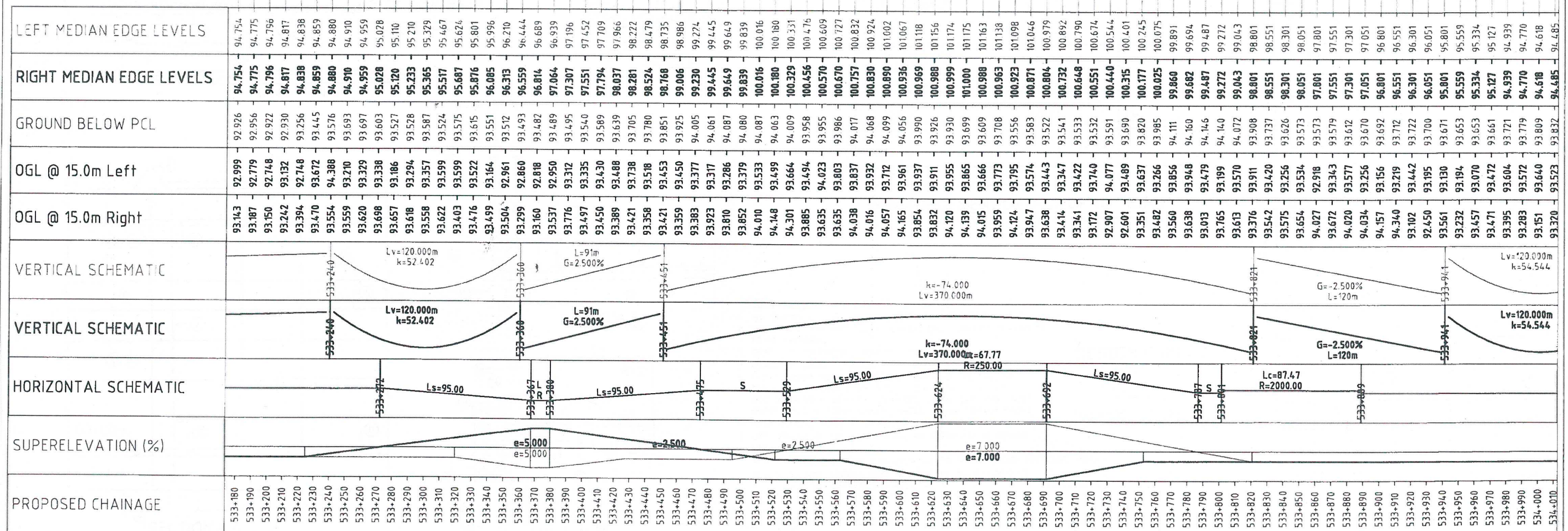
VASANTH KUMAR T.H.

STRUCTURE NO. 40 MINOR BRIDGE		
DESCRIPTION	EXISTING	PROPOSED
CHAMBER	534+105	533+750
SPAN	9x5.0m+4.3	1x12.4m
TYPE	SLAB	RCC GIRDER
PROPOSAL	WIDENING-NEW	

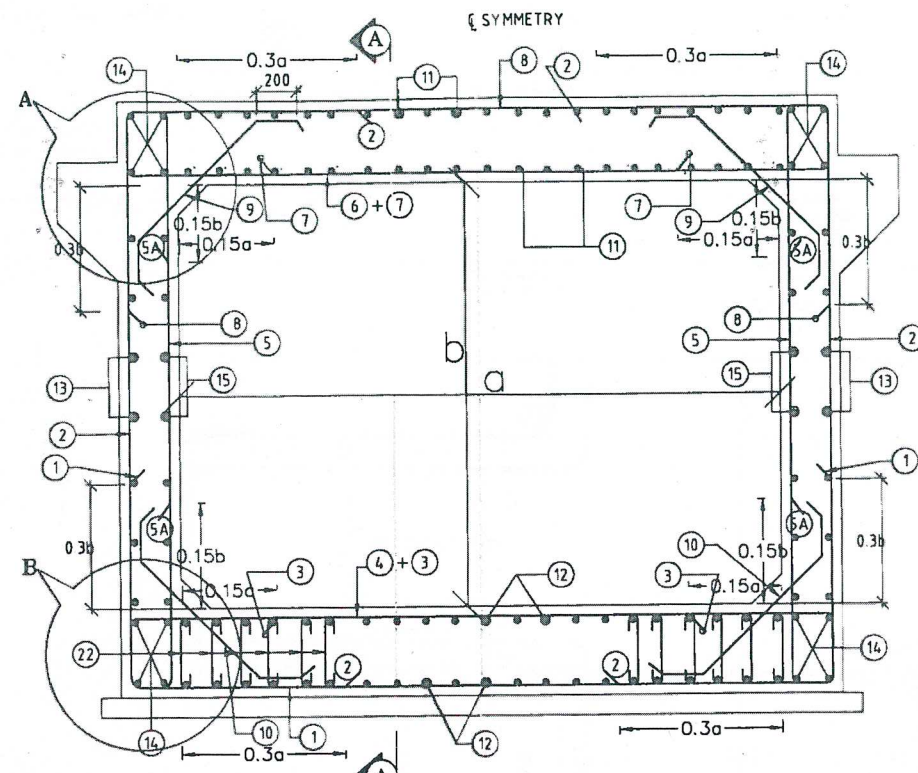
LENGTH OF SOLID RAMP= 370m (APPRX)

LENGTH OF SOLID RAMP= 350m (APPRX)

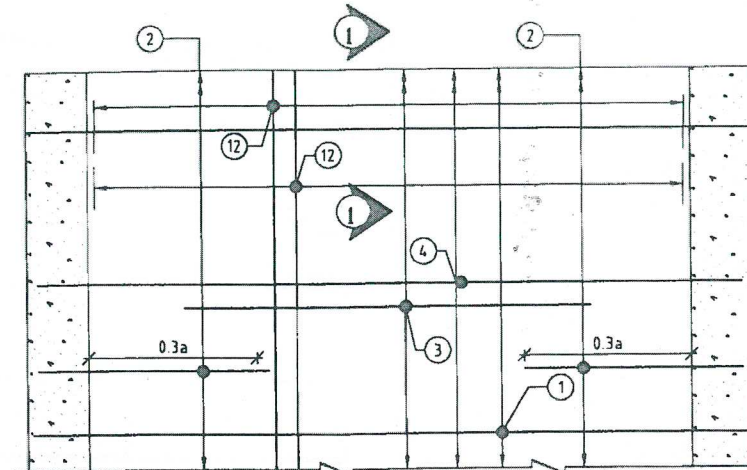
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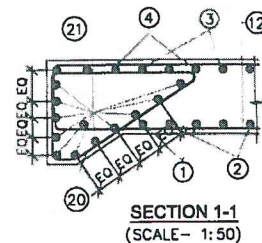
GOOD FOR CONSTRUCTION



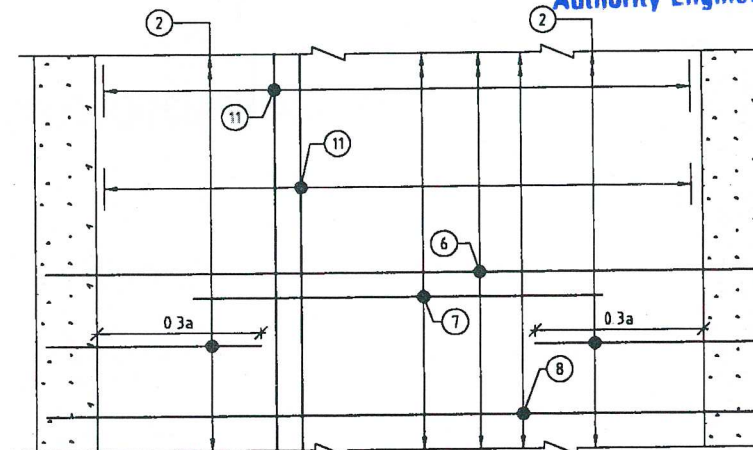
REINFORCEMENT DETAILS OF RCC BOX
(SCALE 1:20)



REINFORCEMENT DETAILS OF BOTTOM SLAB
HAUNCH BAR NOT SHOWN IN PLAN FOR CLARITY
(SCALE 1:20)



SECTION 1-1
(SCALE 1:50)



REINFORCEMENT DETAILS OF TOP SLAB
HAUNCH BAR NOT SHOWN IN PLAN FOR CLARITY
(SCALE 1:20)

APPLICABLE CHAINAGES			
SL. NO	EXISTING CHAINAGE AS PER SCH	DESIGN CHAINAGE AS PER SCH	DESIGN CHAINAGE AS PER PnP
1	534+016	533+557	533+636

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HARBHAJAN SHUKLA
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Authority Engineer (NHIDCL)

SCHEDULE OF REINFORCEMENT

DESIGN CHAINAGE (SPAN)		(1 X 12.0x 5.5)	
BAR MARK	SHAPE OF BARS (NOT TO SCALE)	BAR DIA IN mm	SPACING OR NO. OF BAR
1		20	100 C/C
2		20	100 C/C
3		16	100 C/C
4		20	100 C/C
5		20	125 C/C
5A		16	125 C/C
6		20	125 C/C
7		16	125 C/C
8		20	100 C/C
9		12	125
10		12	100
11		16	150
12		12	200
13		12	150
14		12	16 NOS.
15		12	150
16		12	10 NOS.
17		12	200
18		3 NOS. 2 LEGGED 10 Ø STIRRUPS @ 400 MM C/C	
19		12	16 NOS.
20		12	150
21		12	20 NOS.
22		6 LEGGED BAR LINKS OF 10 @ 200 MM C/C	

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 "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 127 kN/m².

DESIGN DIRECTOR

VASANTH KUMAR T.H.

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.

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1638, Ground Floor, Sir M. Viswambharaya Layout, Nagdevi Hall, Bangalore - 560 056

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

SAFETY CONSULTANT
Smart Safety Services
3-5-682, 1st Floor, Vivas, Gunmenthal, Colony, Hyderabad, Hyderabad - 500 048

REVISED AS PER AE COMMENTS VSPL/TRB/1365/2018/1405 DATED - 27/11/2018
REVISED AS PER AE COMMENTS VSPL/TRB/1365/2018/1305 DATED - 11/08/2018

TITLE: REINFORCEMENT DRAWING FOR VEHICULAR UNDERPASS (VUP)
Drw. AHM Dsg. HKK Chk. VAS App. PSA SCALE AS SHOWN SHEET SIZE A2
DRAWING No. PC/PL/NH-37/J-D/VUP/STR/REIN/01 SHEET No. 01 OF 01 REV. A

GOOD FOR CONSTRUCTION