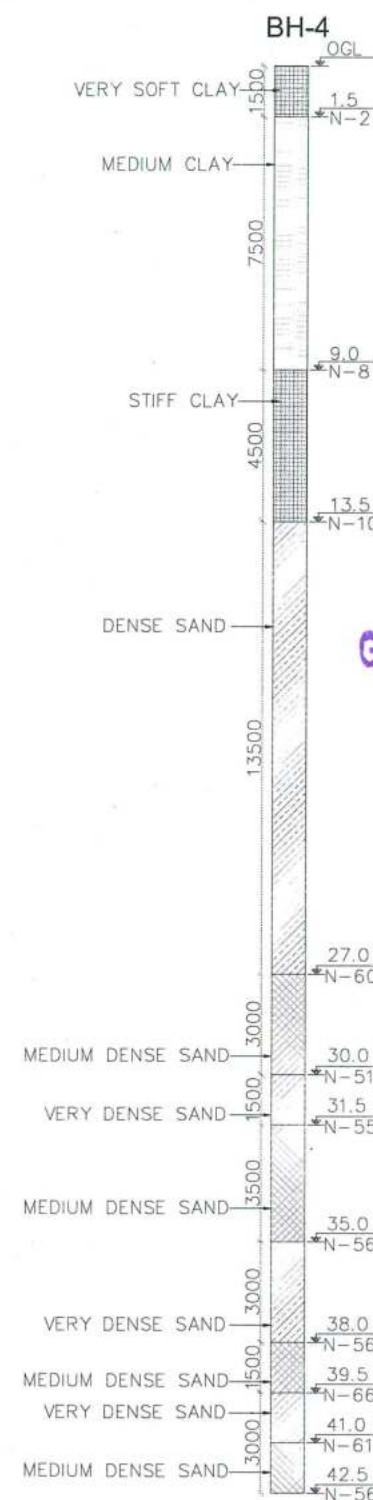
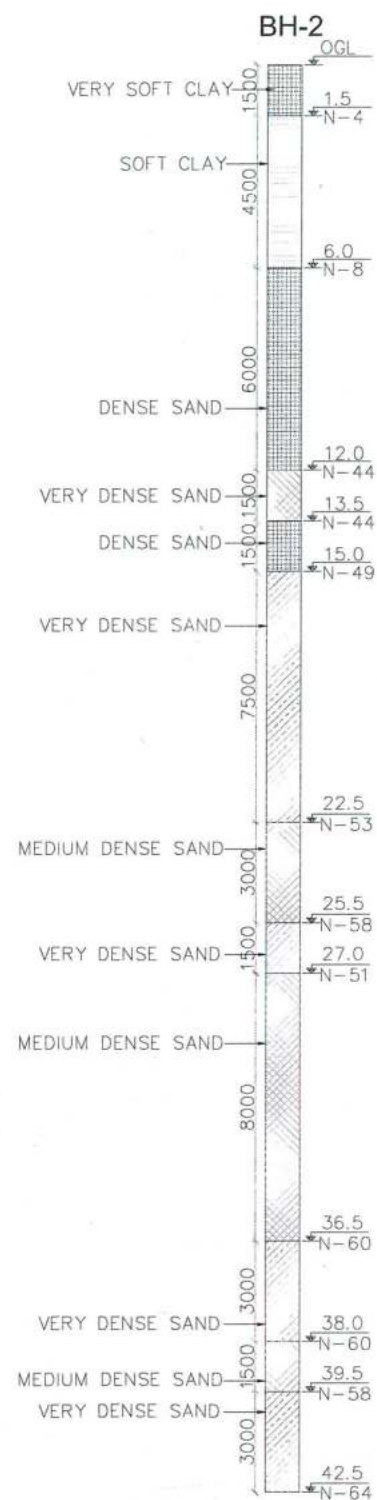


PROJECT BRIDGING OF JHANJHI TO DEMOW OF NH-37 FROM EXISTING CH. Km TO Km 535+250 (DESIGN CH. Km TO Km 534+800) IN THE STATE OF SAM UNDER EPC MODE.	CLIENT National Highways infrastructure Development Corporation Ltd.  Ministry of Road Transport & Highways, Government of India Branch office : House No.1, Panipath, Ambikagiri Nagar, Zoo road, Guwahati-24	EPC CONTRACTOR Gannon Dunkerley & Co. Ltd.  86A, Topsia Road (South), Hopetown Street, 7th Floor, Kolkata - 700 046	AUTHORITY ENGINEER VOYANTS SOLUTIONS PVT. LTD.  Date: 13/08/2018 403, 4th Floor, BPTP Park Centra, Block A, Jal Vayu Vihar, Sector 30, Gurgaon, Haryana 122001	DESIGN CONSULTANT Professional Civil Infra Pvt. Ltd.  # 1838, Ground Floor, Sir M Visweswaraya Layout, Nagadevanahalli, 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  # 3-5-687, Harinara Nivas, Gummakonda Colony, Hyderabad, Hyderabad - 500 048	National Institute of Technology.  DS9/4C NIT DURGAPUR M.G. AVENUE, DURGAPUR, WEST BENGAL-713209	<table><tr><td>R1</td><td>AS PER NIT COMMENTS</td><td>FEB 2019</td></tr><tr><td>0</td><td>FOR APPROVAL</td><td>AUG 2018</td></tr><tr><td>Rev</td><td>Description</td><td>Date</td></tr></table>	R1	AS PER NIT COMMENTS	FEB 2019	0	FOR APPROVAL	AUG 2018	Rev	Description	Date	TITLE: GENERAL ARRANGEMENT DRAWING OF MAJOR BRIDGE AT Ch: 508+454 <table><tr><td>Drw.</td><td>Dsg.</td><td>Chk.</td><td>App.</td><td>SCALE</td><td>SHEET</td></tr><tr><td>AHM</td><td>VAS</td><td>VAS</td><td>PSA</td><td>AS SHOWN</td><td>A2</td></tr></table> DRAWING No. PCIP/NH-37/JD/STR/MJB-01 SHEET No. 01 OF 18	Drw.	Dsg.	Chk.	App.	SCALE	SHEET	AHM	VAS	VAS	PSA	AS SHOWN	A2
	R1	AS PER NIT COMMENTS	FEB 2019																											
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	Rev	Description	Date																											
Drw.	Dsg.	Chk.	App.	SCALE	SHEET																									
AHM	VAS	VAS	PSA	AS SHOWN	A2																									



GOOD FOR CONSTRUCTION

1. ALL DIMENSIONS ARE IN MILLIMETERS AND LEVELS ARE IN METERS UNLESS OTHERWISE STATED. THE DRAWING SHALL NOT BE SCALED.
2. FRL MEASURED AT MEDIAN EDGE OF CARRIAGE WAY AND CHAINAGE AT BRIDGE CENTER.
3. THE BRIDGE IS DESIGNED FOR ONE LANE OF IRC CLASS 70R ONE LANE OF IRC CLASS A OR THREE LANE OF IRC CLASS A LOADING WHICHEVER GOVERN.
4. CONCRETE SHALL BE DESIGN MIX WITH A MINIMUM 28 DAYS CHARACTERISTIC STRENGTH ON 150mm CUBE AS UNDER.
 - a) RCC DECK SLAB - M45
 - b) PRECAST SP GIRDER - M35
 - c) APPROACH SLAB - M30
 - d) PEDESTAL - M35
 - e) PIER & PIER CAP - M35
5. CLEAR COVER TO OUTER MOST STEEL IS:
 - a) SUPER STRUCTURE - 40mm
 - b) ABUTMENT DIRT WALL & RETURN WALL : EARTH SIDE- 75mm NON EARTH - 40mm
 - c) ABUTMENT CAP - 40mm
 - d) PIER STEM - 40mm
 - e) PIER CAP - 50mm
6. GRADE OF STEEL SHALL BE Fe500 CONFIRMING TO ISO 1786.
7. LAYING COMPACTION AND EXTENT OF BACK FILL BEHIND ABUTMENT SHALL CONFIRM TO APPENDIX-6 OF IRC 78-2014.
8. WEARING COURSE SHALL BE 65mm THK. CONSISTING OF 40mm ASPHALTIC CONCRETE AND 25mm MASTIC ASPHALT.
9. BACK FILLING BEHIND ABUTMENT SHALL BE CONSIST OF SELECTED EARTH CONFIRMING TO APPENDIX-6 OF IRC -78 HAVING PROPERTIES, C=0, $\phi = 30^\circ$, $d_r = 20 \text{ kN/m}^3$
10. TYPE OF STRUCTURE & CONSTRUCTION METHODOLOGY CONFIRMED IN DESIGN IS
 - a) FOUNDATION - PILE FOUNDATION
 - b) SUPER STRUCTURE - PRECAST SP GIRDER & CAST-IN-SITU SLAB
 - c) WEARING COAT - 65mm THK. WITH ONE LAYER OF 25mm THK. MASTIC ASPHALT OVER 40mm THK. OF ASPHALTIC CONCRETE.
 - d) BEARING - POT CUM PTFE.
11. ALL STRUCTURAL DIMENSION SHOWN ARE BASED ON FINAL DESIGN.
12. 600mm THK. FILTER MATERIAL BEHIND ABUTMENT / RETAINING WALL SHALL BE AS PER IRC-78-2014.
13. APPROACH SLAB DRAINAGE SPOUT & CRASH BARRIER DETAIL REFER MISCELLANEOUS DWG.-PC/PLN/18-37/D/STR/RC-MIS-01.
14. SEISMIC ZONE = (v)- AS PER IS 1893-2002.
15. 40mm STRIP SEAL TYPE EXPANSION JOINT SHALL BE PROVIDED AS PER IRC SP-69-2011 GUIDELINE AND SPECIFICATION FOR EXPANSION JOINT.
16. FOR KEY PLAN PROPOSED CHAINAGE & LOCATION REFER LATEST HIGHWAY APPROVED PLAN & PROFILE DWG.
17. PEDESTAL HEIGHT SHALL BE ADJUSTED TO MAINTAIN TRANSVERSE DECK.
18. WEEP HOLES OF 1000 @ 1000C/C IS PROVIDED STAGGERED BOTH VERTICALLY AND HORIZONTALLY IN SIDE WALLS & RETAINING / RETURN WALLS
19. ALL CONSTRUCTION SHALL BE CONFIRM TO CONTRACT SPECIFICATIONS.
20. COMPACTED EARTH SHOULD CONFIRM TO CLAUSE 305 2.1.5 OF MORTH SPECIFICATIONS.
21. FRL CAMBER, EXISTING ROADS WIDTH TO BE MATCHED WITH HIGHWAY ALIGNMENT DRAWING AND DRASTIC VARIATIONS IS TO BE INFORMED TO THIS OFFICE IMMEDIATELY.
22. VERTICAL CAPACITY UNDER EACH ABUTMENT PILE SHALL BE 250T & HORIZONTAL CAPACITY SHALL BE 25T.
23. VERTICAL CAPACITY UNDER EACH PIER PILE SHALL BE 450T & HORIZONTAL CAPACITY SHALL BE 29T.
24. FOR BEARING MAINTENANCE ALL GIRDER TO BE LIFTED AT A TIME NO DIFFERENTIAL LIFTING TO BE ALLOWED.
25. HYDRAULIC DATA CORRESPONDS TO HYDROLOGY REPORT.

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

Bridge Engineer
VSPL, Sivacinar

VASANTH KUMAR T.H.

Dr. Vijay Kumar Dwivedi
Professor
Department of Civil Engineering
M. N. S. Institute of Technology
Varanasi-713209, W.B., India

MAX SCOUR LVL. AT PIER :

78.474m

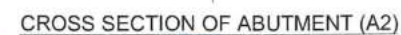
PROJECT LANING OF JHANJHI TO DEMOW N OF NH-37 FROM EXISTING Ch. Km 50 TO Km 535+250 (DESIGN CH. Km 50 TO Km 534+800) IN THE STATE OF ASSAM UNDER EPC MODE.	CLIENT National Highways infrastructure Development Corporation Ltd.  Ministry of Road Transport & Highways, Government of India Branch office : House No.1, Panipath, Ambikagiri Nagar , Zoo road, Guwahati-24	EPC CONTRACTOR Gannon Dunkerley & Co. Ltd.  86A, Topolia Road (South), Hattula Street-7th Floor, Kolkata - 700 046	AUTHORITY ENGINEER ADVANTIS SOLUTIONS PVT. LTD.  401-2nd Floor, BPTC Park Central, Block A, Jai Vajra Vihar, Sector 30, Gurgaon, Haryana-122001	DESIGN CONSULTANT Professional Civil Infra Pvt. Ltd.  193B, Ground Floor, Sri M. Visweswaraya Layout, Nagadevanahalli, Bangalore - 560 050	PROOF CONSULTANT Chetan Infra-Tech Consultants (P) Ltd.  7/11, 1st Floor, 13th Main, Srirangap Chopp, PES College Bengaluru - 560 050	SAFETY CONSULTANT Smart Safety Services  # 3-5-6&7, Harithara Nivas, Gummakonda Colony, Durgam Cheruvu, Hyderabad - 500 048	National Institute of Technology.  DS9/4C NIT DURGAPUR M.G. AVENUE, DURGAPUR, WEST BENGAL-713209	<table><tr><td>R1</td><td>AS PER NIT COMMENTS</td><td>FEB 2019</td></tr><tr><td>0</td><td>FOR APPROVAL</td><td>AUG 2018</td></tr><tr><td>Rev</td><td>Description</td><td>Date</td></tr></table>	R1	AS PER NIT COMMENTS	FEB 2019	0	FOR APPROVAL	AUG 2018	Rev	Description	Date	<table><tr><td colspan="4">TITLE:</td></tr><tr><td colspan="4">BORE HOLE DETAILS & KEY PLAN OF MAJOR BRIDGE AT Ch: 508+454</td></tr><tr><td>Drw.</td><td>Dsg.</td><td>Chk.</td><td>App.</td></tr><tr><td>AHM</td><td>VAS</td><td>VAS</td><td>PSA</td></tr><tr><td colspan="2">DRAWING NO.</td><td colspan="2">SHEET NO.</td></tr><tr><td colspan="2">PCIPL/NH-37/JD/STR/MJB-01</td><td colspan="2">03 OF 18</td></tr><tr><td colspan="2">REV.</td><td colspan="2">R1</td></tr></table>	TITLE:				BORE HOLE DETAILS & KEY PLAN OF MAJOR BRIDGE AT Ch: 508+454				Drw.	Dsg.	Chk.	App.	AHM	VAS	VAS	PSA	DRAWING NO.		SHEET NO.		PCIPL/NH-37/JD/STR/MJB-01		03 OF 18		REV.		R1	
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REV.		R1																																												



Vetted
W. Swinadi
Dr. Vijay Kumar Dwivedi
Professor
Department of Civil Engineering
National Institute of Technology
Durgapur-713209, W.B., India

DESIGN DIRECTOR

VASANTH KUMAR T.H.



Bridge Engineer
VSPCL Sivasagar

LONGITUDINAL SECTION OF ABUTMENT (A2)
(SCALE 1:75)

FOR APPROVAL

VERTICAL CAPACITY UNDER EACH ABUTMENT PILE SHALL BE 250T & HORIZONTAL CAPACITY SHALL BE 25T.

PROJECT
PLANING OF JHANJHI TO DEMOW
N OF NH-37 FROM EXISTING CH. Km
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Ministry of Road Transport & Highways,
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Branch office : House No.1, Panipath,
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Guwahati-24

EPC CONTRACTOR
Gannon Dunsley & Co, Ltd.

 86A, Topala Road (South),
Haute Street, 7th Floor,
Kolkata - 700 046

AUTHORITY ENGINEER
VOYANTS SOLUTIONS PVT. LTD.
403, 4th Floor, BPTP Park
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Professional Civil Infra Pvt. Ltd.
#1838, Ground Floor,
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PROOF CONSULTANT
Chetan Infra-Tech
Consultants (P) Ltd.
7/11, 1st Floor, 13th
Main, Srirangar,
Opp. PES College,
Bengaluru - 560 050

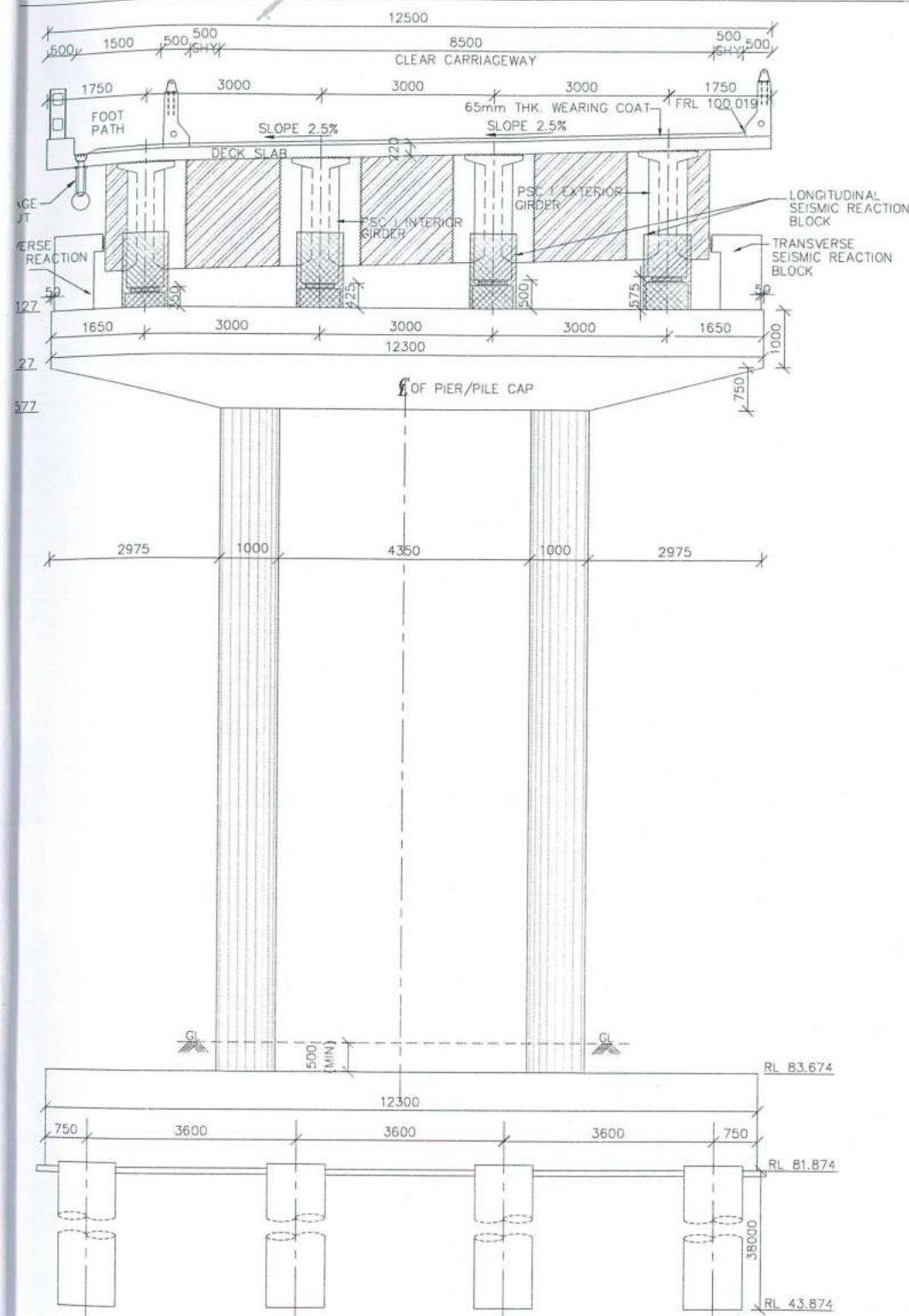
SAFETY CONSULTANT
Smart Safety Services
3-9-6&7, Haribara
Nivas, Gummakonda
Colony, Hyderguda,
Hyderabad - 500 048

National Institute of Technology.

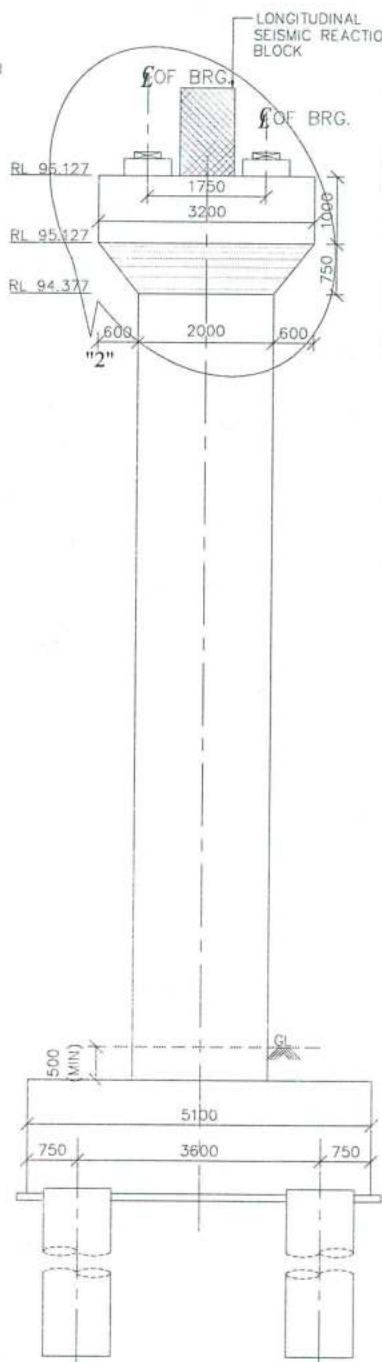
 DS9/4C NIT DURGAPUR
M.G. AVENUE,
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BENGAL-713209

R1	AS PER NIT COMMENTS	FEB 2019
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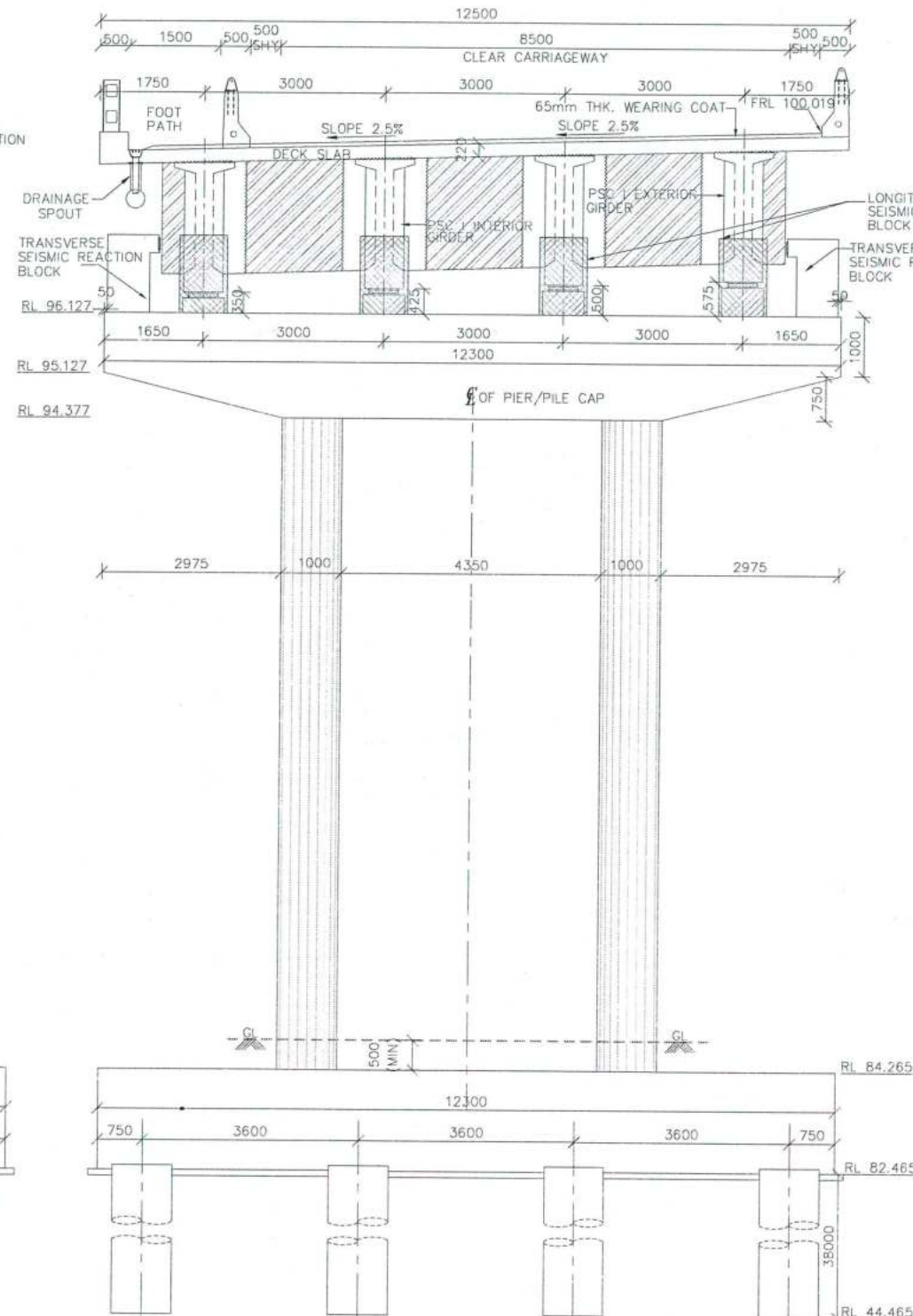
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Drw.	Dsg.	Chk.	App.	SCALE	SHEET SIZE
AHM	VAS	VAS	PSA	AS SHOWN	A2
DRAWING No.				SHEET No.	REV.
PCIPL/NH-37/JD/STR/MJB-01				05 OF 18	R1



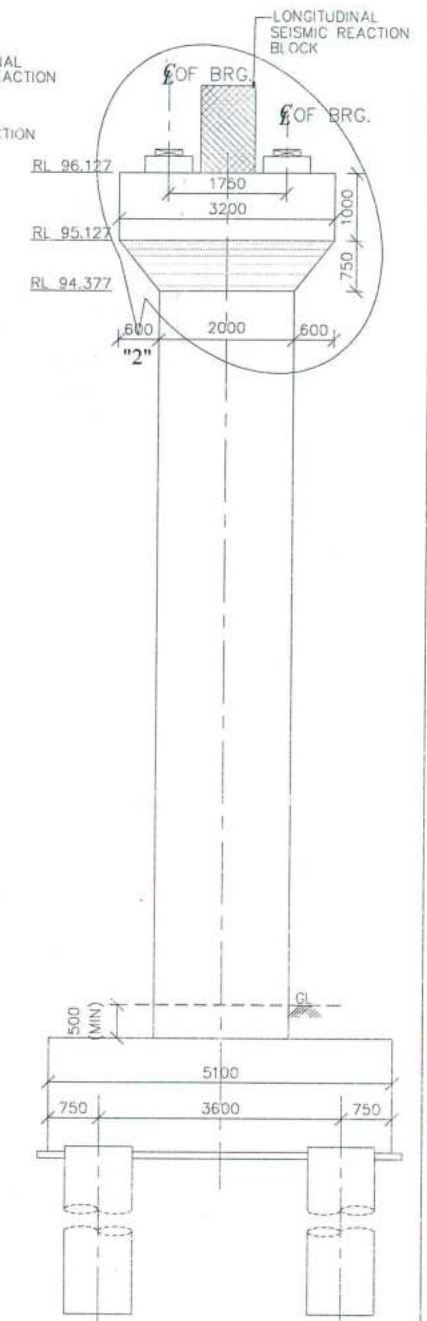
LONGITUDINAL SECTION OF PIER (P1)
(SCALE 1:75)



CROSS SECTION OF PIER (P1)
(SCALE 1:75)



LONGITUDINAL SECTION OF PIER (P2)
(SCALE 1:75)



CROSS SECTION OF PIER (P2)
(SCALE 1:75)

GOOD FOR CONSTRUCTION

HARBHARAN SING
Team Leader (VSPL)
Authority Engineer (NHIDCL)

Bridge Engineer
VSPL, Sivasagar

DESIGN DIRECTOR

VASANTH KUMAR T.H.

Dr. Vijay Kumar Dwivedi
Professor
Department of Civil Engineering
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Durgapur-713209, W.B., India

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Ministry of Road Transport & Highways,
Government of India
Branch office : House No.1, Panipath,
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Guwahati-24

EPC CONTRACTOR

Gannon Dunkerley & Co. Ltd.
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AUTHORITY ENGINEER

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Date...
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Bengaluru - 560 050

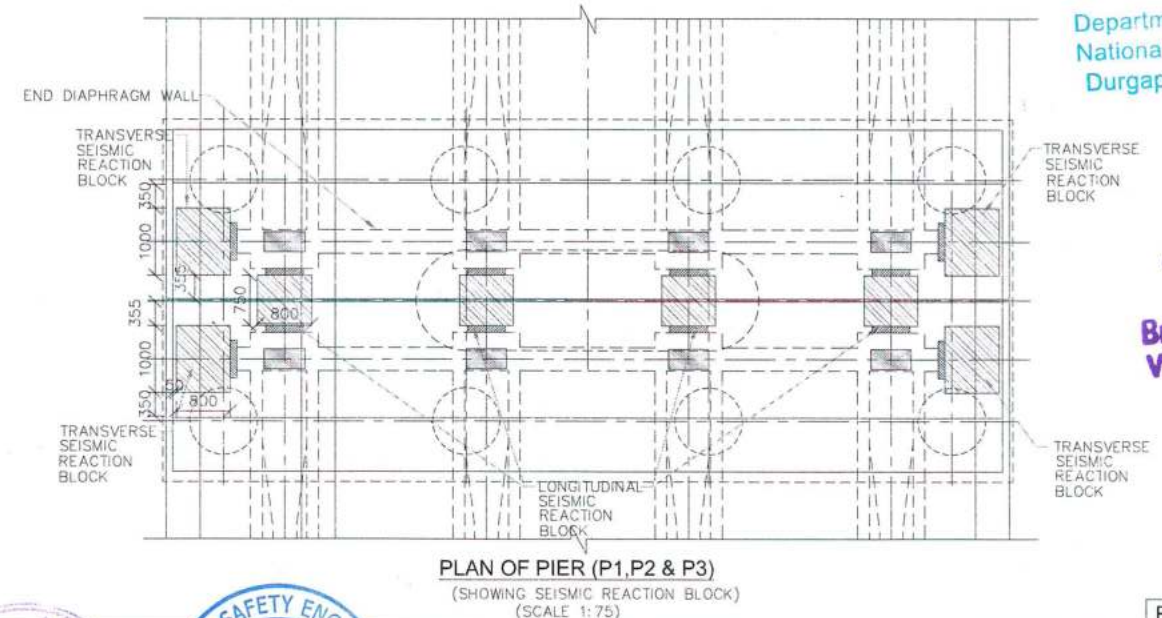
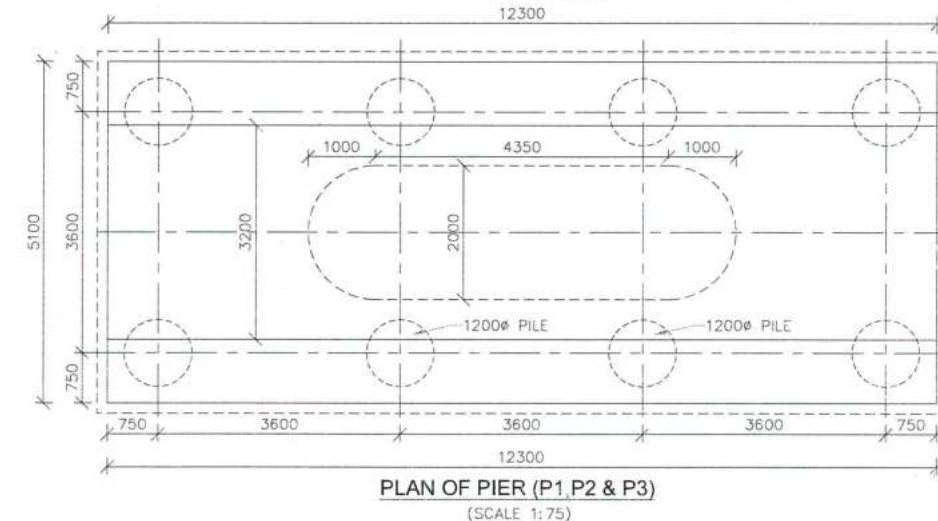
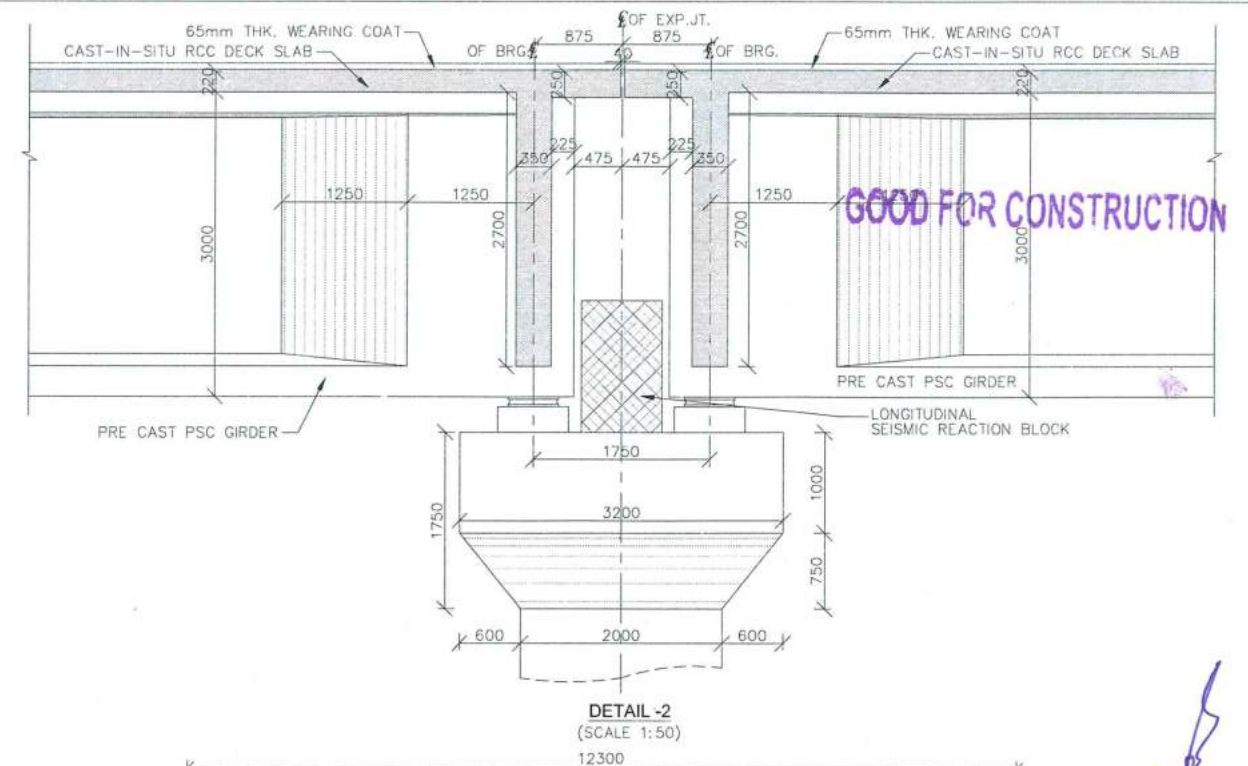
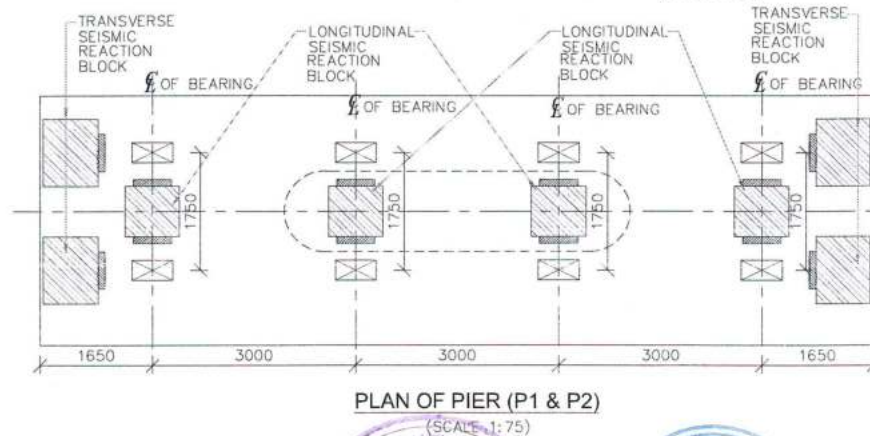
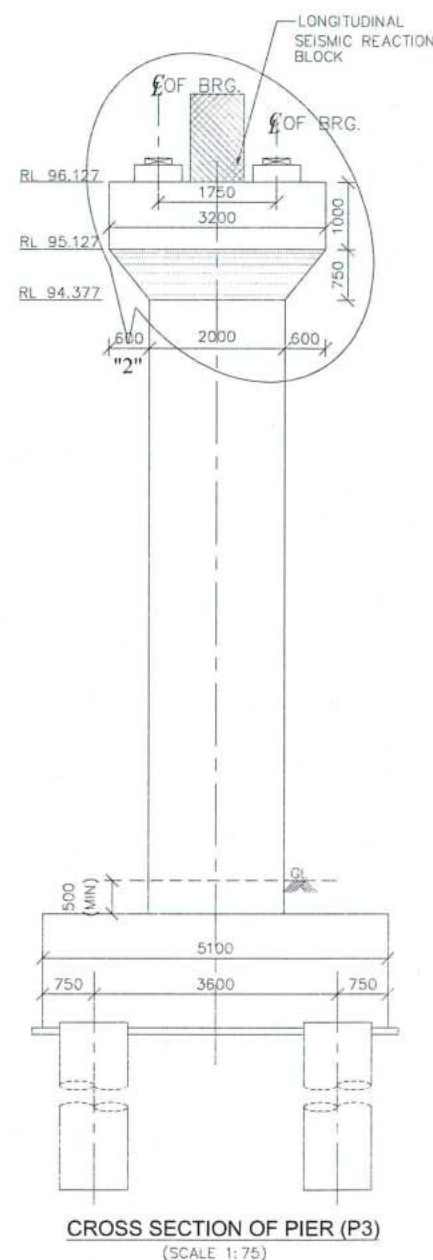
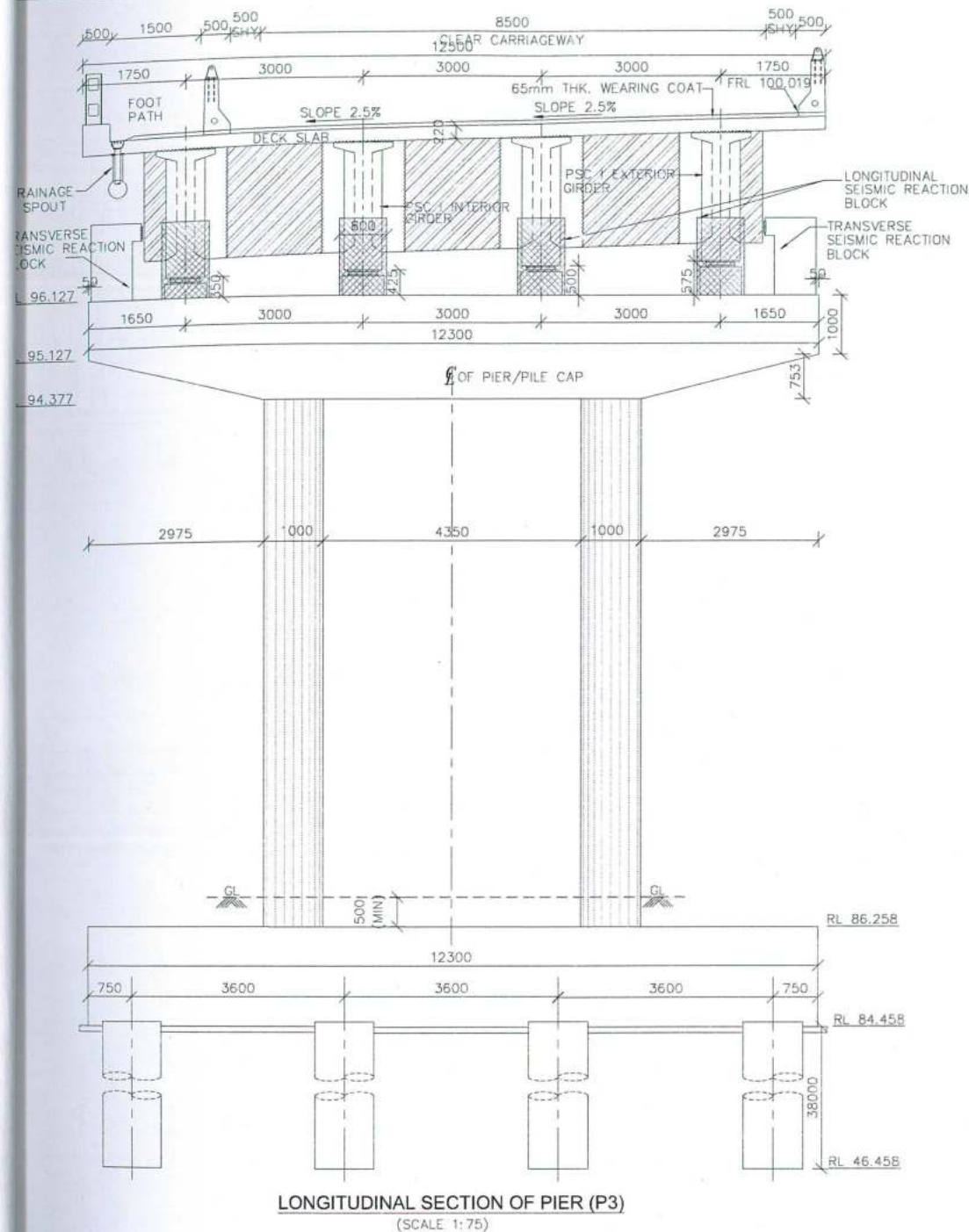
SAFETY CONSULTANT

Smart Safety Services
PRAHAKAR S A
42-4-647, Hanbura
Nivas, Gummakonda
Colony, Hyderabad
Hyderabad - 500 046

National Institute of
Technology.

DS9/4C NIT DURGAPUR
M.G. AVENUE,
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BENGAL-713209

FOR APPROVAL		TITLE:	
R1	AS PER NIT COMMENTS	FEB 2019	SECTIONAL DETAILS OF PIER OF MAJOR BRIDGE AT Ch: 508+454
0	FOR APPROVAL	AUG 2018	Drw. Dsg. Chk. App. SCALE SHEET SIZE AHM VAS VAS PSA AS SHOWN A2
Rev	Description	Date	DRAWING No. SHEET No. REV. PCIPL/NH-37/JD/STR/MJB-01 06 OF 18 R1



GOOD FOR CONSTRUCTION

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

vetted
insured


Dr. Vijay Kumar Dwivedi
Professor
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Bridge Engineer
VSPL, Sivasagar

FOR APPROVAL

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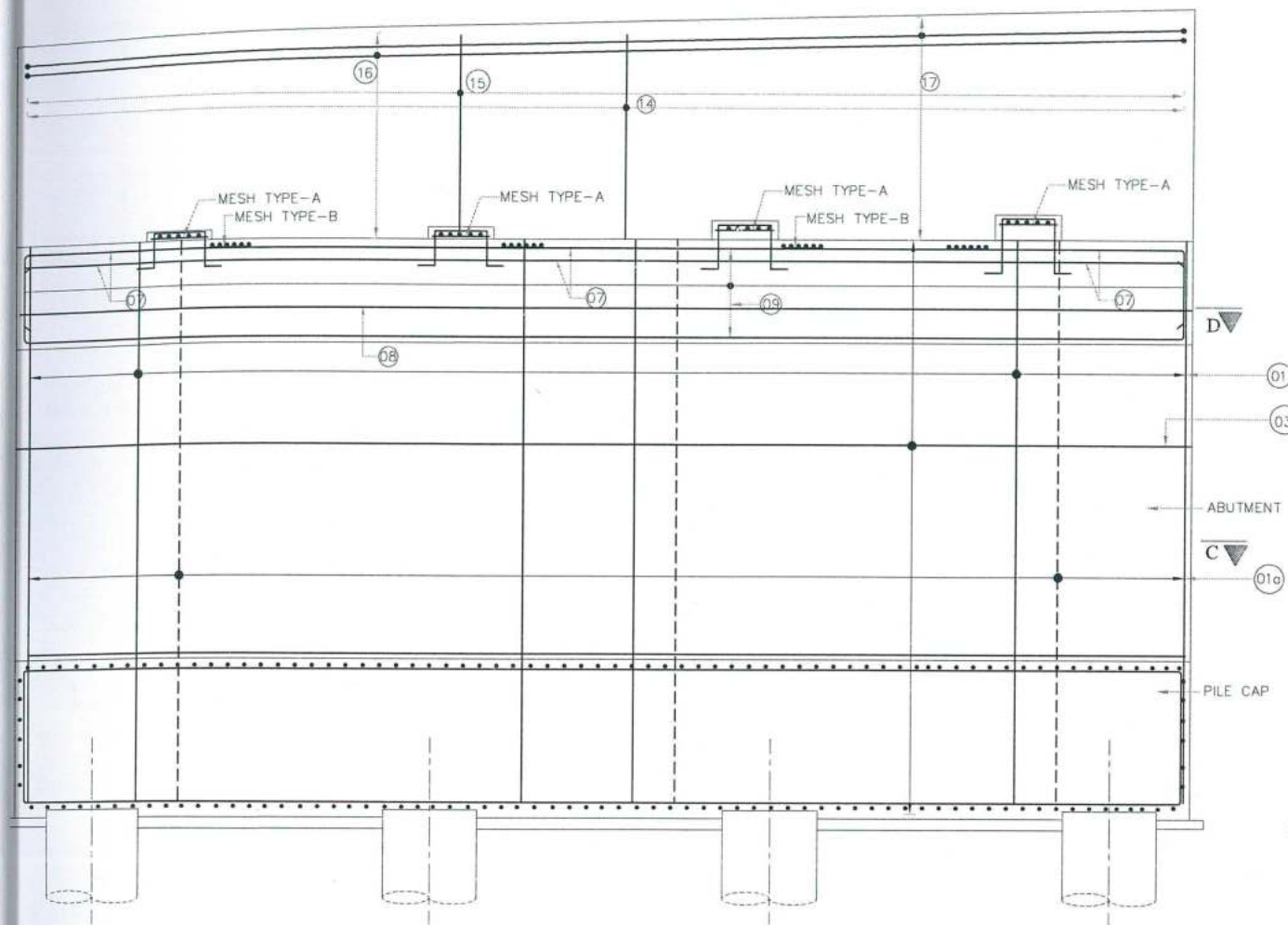
SAFETY CONSULTANT
Smart Safety Services

35-6874 BILHAR
N.V. GORAKH
Colony, Hyderguda,
Hyderabad. 500 048

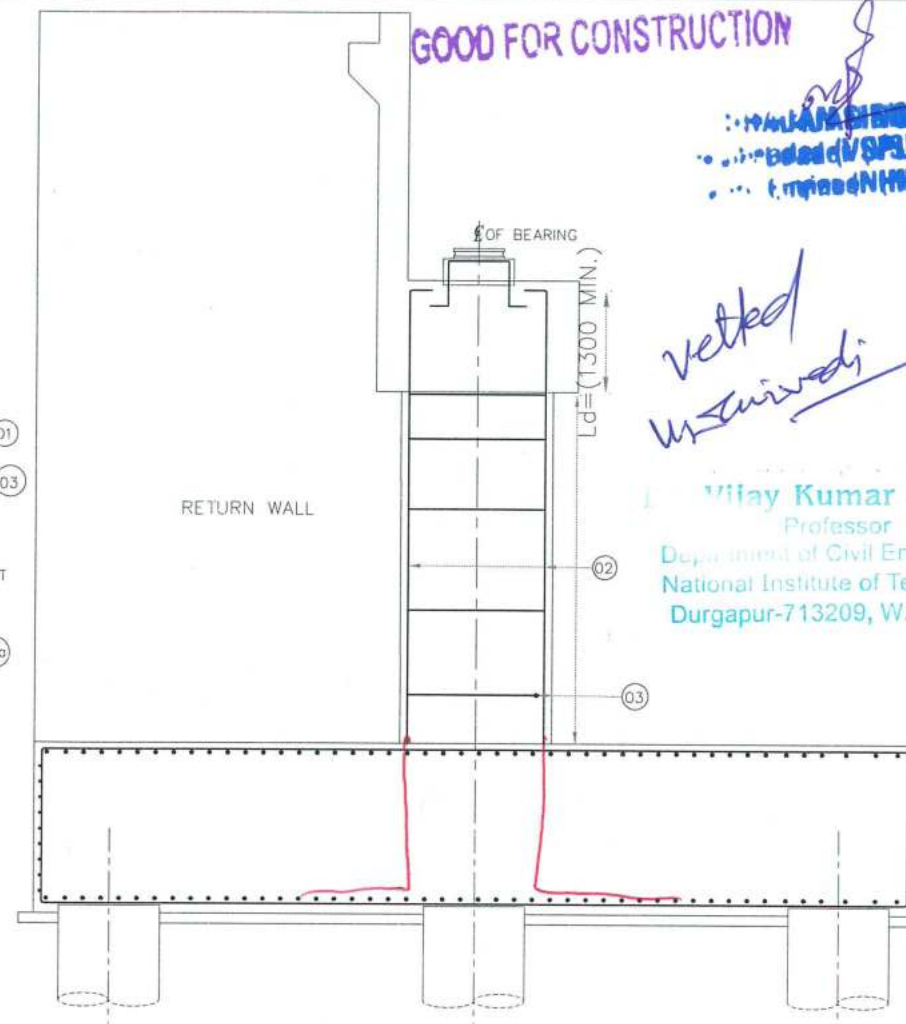
National Institute of
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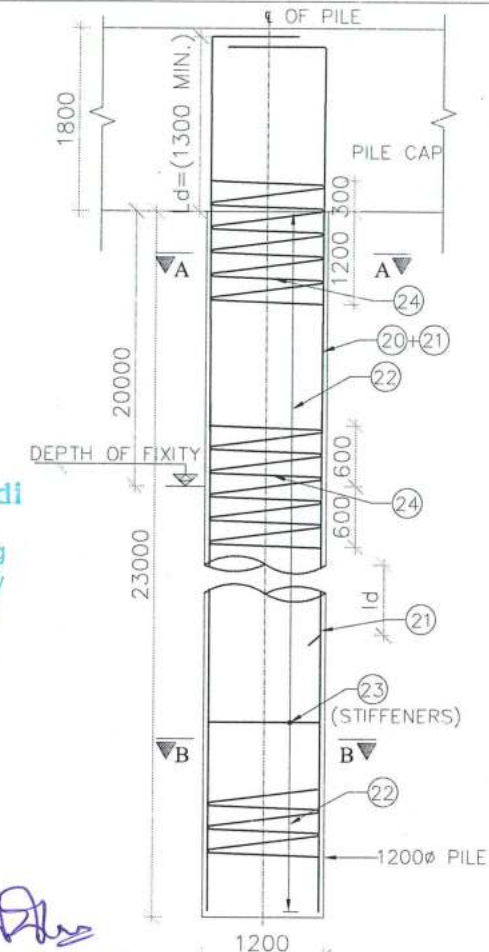
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	0	FOR APPROVAL	AUG 2018	DRAWING No.					REV.
	Rev	Description	Date	PCIP/L/NH-37/JD/STR/MJB-01					07 OF 18



REINFORCEMENT DETAILS OF ABUTMENT
LONGITUDINAL SECTION
(SCALE 1:50)



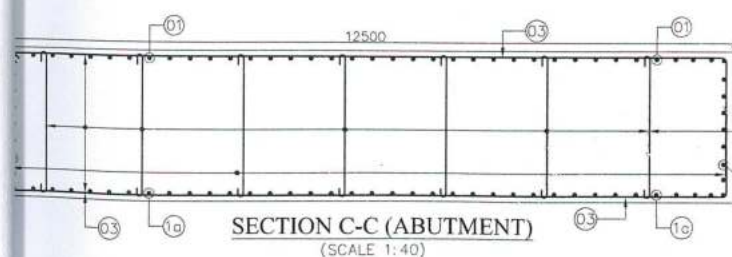
REINFORCEMENT DETAILS OF ABUTMENT
CROSS SECTION
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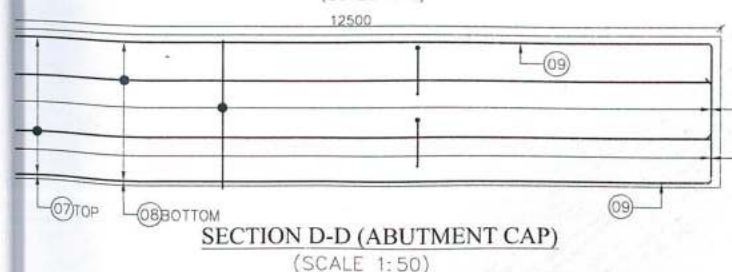
SECTIONAL DETAILS
OF PILE
(SCALE 1:50)

DESIGN DIRECTOR

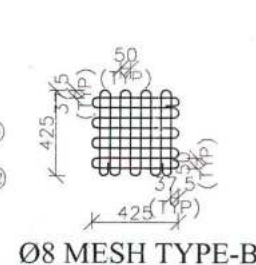
VASANTH KUMAR T.H.



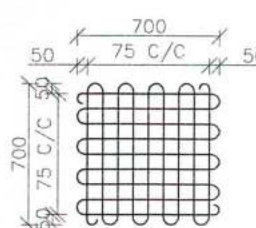
SECTION C-C (ABUTMENT)
(SCALE 1:40)



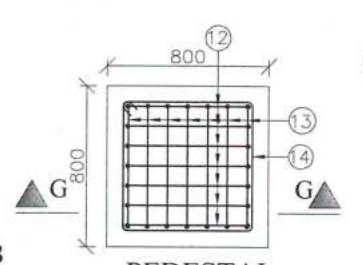
SECTION D-D (ABUTMENT CAP)
(SCALE 1:50)



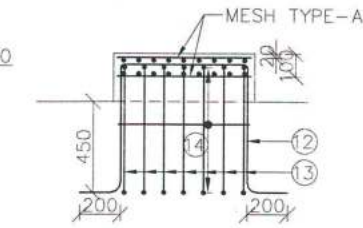
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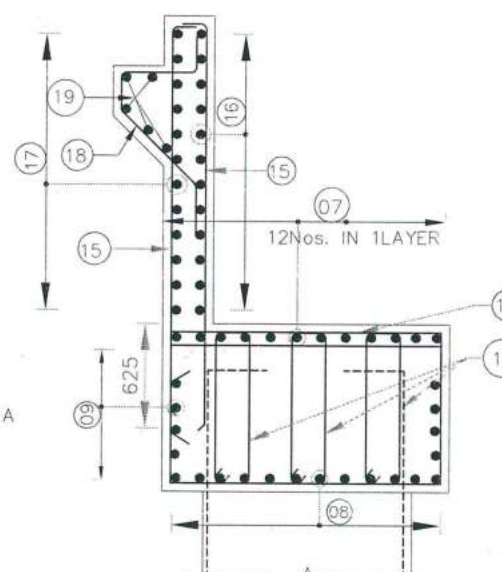
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PEDESTAL

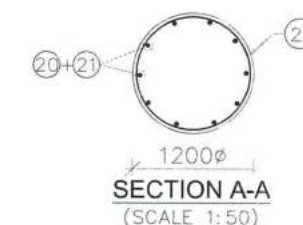


SECTION G-G

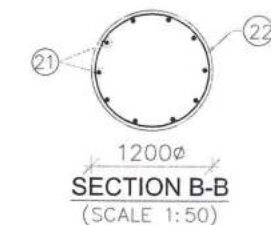


REINFORCEMENT DETAILS
OF ABUTMENT CAP
(SCALE 1:30)

SCHEDULE OF REINFORCEMENT			
BAR MARK	SHAPE OF BARS (NOT TO SCALE)	BAR DIA. in mm.	SPACING in mm. (s)
01	300	32	64 NOS.
01G	300	16	64 NOS.
02	300	32	8 NOS ON EACH FACE
03	300	25	100
04	300	10	300
05	300		NOT USED
06	300		NOT USED
07	300	20	12 NOS.
08	300	16	12 NOS.
09	300	16	200
10	300	16	150
11	300	16	6L @150 C/C
12	300	12	7 NOS.
13	300	12	7 NOS.
14	300	12	3 NOS.
15	300	16	100
16	300	12	150
17	300	12	150



SECTION A-A
(SCALE 1:50)



SECTION B-B
(SCALE 1:50)

18	300	12	150
19	300	12	5 NOS.
20	300	32	10 NOS.
21	300	32	10 NOS.
22	300	10	175
23	300	16	1000
24	300	20	100

FOR APPROVAL

PROJECT
LANING OF JHANJHI TO DEMOW
OF NH-37 FROM EXISTING CH. Km
0 TO Km 535+250 (DESIGN CH. Km
0 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.

80A, Topasia Road (South),
Route Street, 7th Floor,
Kolkata-700 046

AUTHORITY ENGINEER
VOYANTS SOLUTIONS PVT. LTD.

402, 4th Floor, BPR Park,
Central, Block A, 3rd Vyas,
Vihar, Sector 30,
Gurgaon, Haryana-122001

DESIGN CONSULTANT
Professional Civil Infra Pvt. Ltd.

1380, Ground Floor,
Sri M Visvesvaraya Layout,
Nagadevanahalli,
Bangalore - 560 055

PROOF CONSULTANT
Chetan Infra-Tech
Consultants (P) Ltd.

7/11 1st Floor, 33rd
Main, Srinagar
Opp. PES College,
Bengaluru - 560 055

SAFETY CONSULTANT
Smart Safety Services

8-5-687, Hanhara
Nivas, Gummakonda
Colony, Hyderabad,
Hyderabad - 500 048

National Institute of
Technology.

DS9/4C NIT DURGAPUR
M.G. AVENUE,
DURGAPUR, WEST
BENGAL-713209

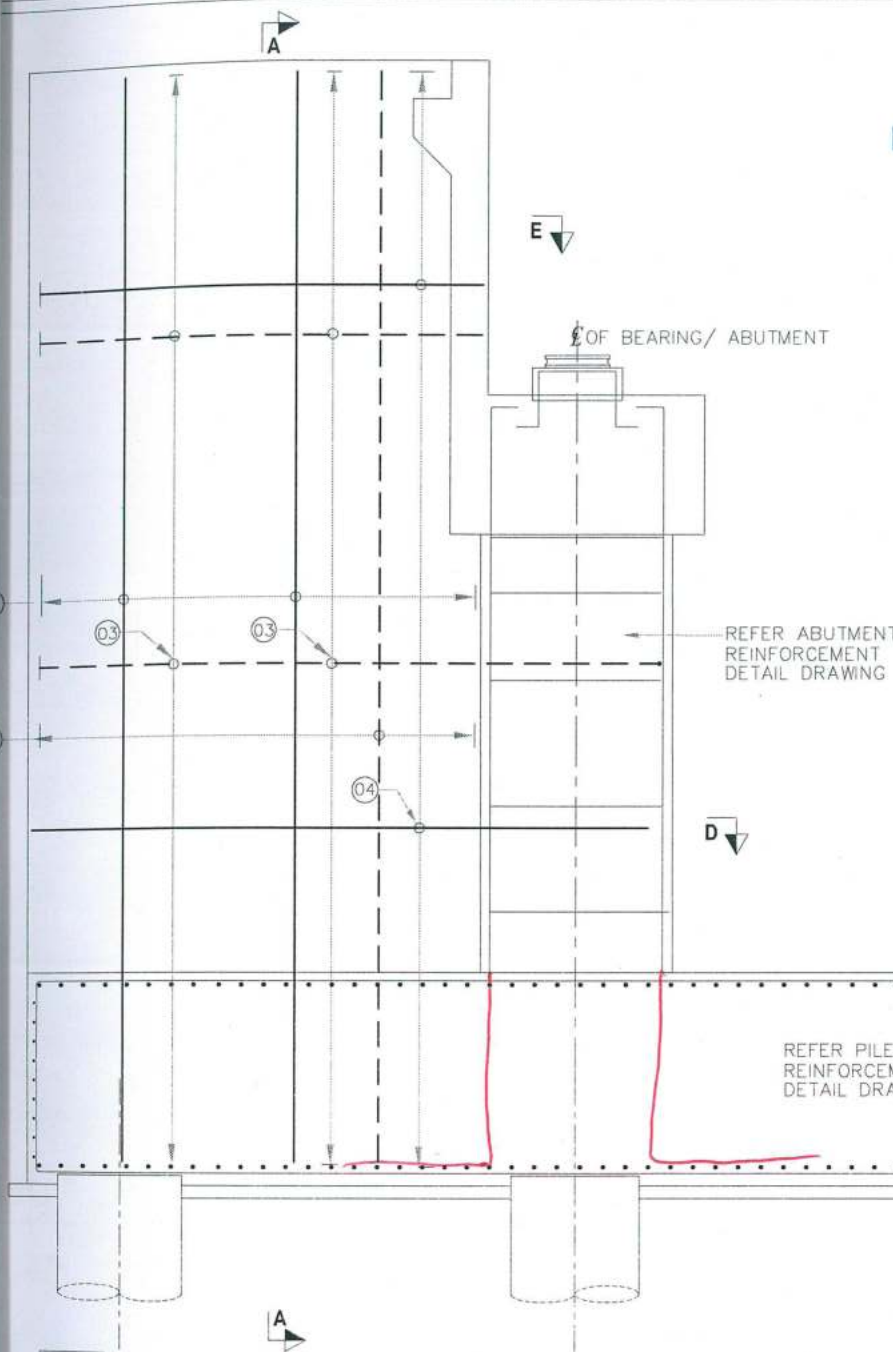
FOR APPROVAL			
R1	AS PER NIT COMMENTS	FEB 2019	
0	FOR APPROVAL	AUG 2018	
Rev	Description	Date	

TITLE:
REINFORCEMENT DETAILS OF ABUTMENT
OF MAJOR BRIDGE AT CH: 508+454
Drw. Dsg. Chk. App. SCALE SHEET SIZE
AHM VAS VAS AS SHOWN A2
DRAWING No. SHEET No. REV.
PC/PL/NH-37/JD/STR/MJB-01 11 OF 18 R1

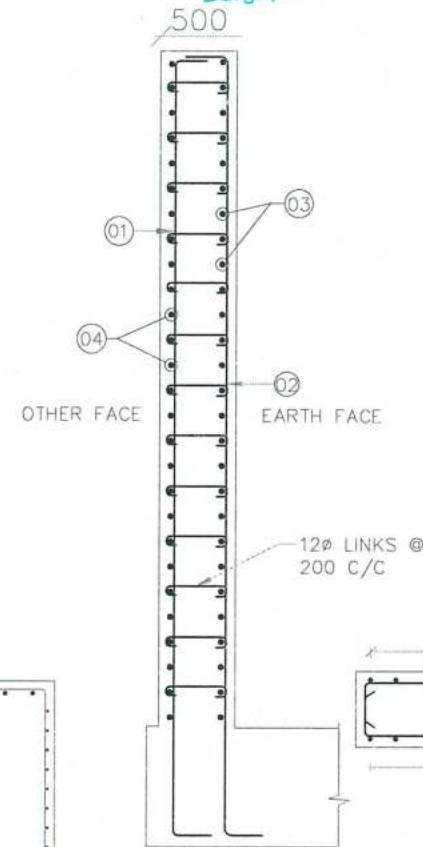
DESIGN DIRECTOR

VASANTH KUMAR T.H.

Dr. Vijay Kumar Dwivedi
Professor
Department of Civil Engineering
National Institute of Technology
Durgapur-713209, W.B., India



REINFORCEMENT DETAILS FOR FLY WING WALL
(SCALE 1:40)

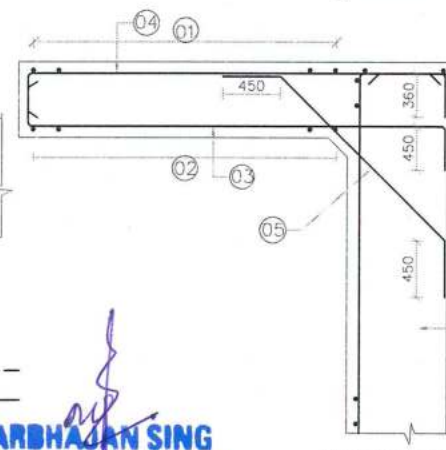


SECTION A-A
(SCALE 1:40)

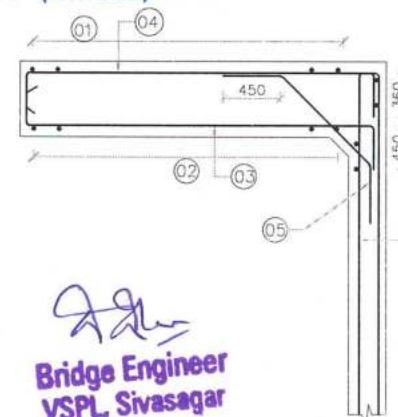
EARTH FACE
OTHER FACE

REINFORCEMENT SCHEDULE

BAR NO	BAR DIA	SPACING / NOS.	BAR SHAPE AND LENGTH
01	12	200	
02	16	100	
03	16	150	
04	12	200	
05	12	200	

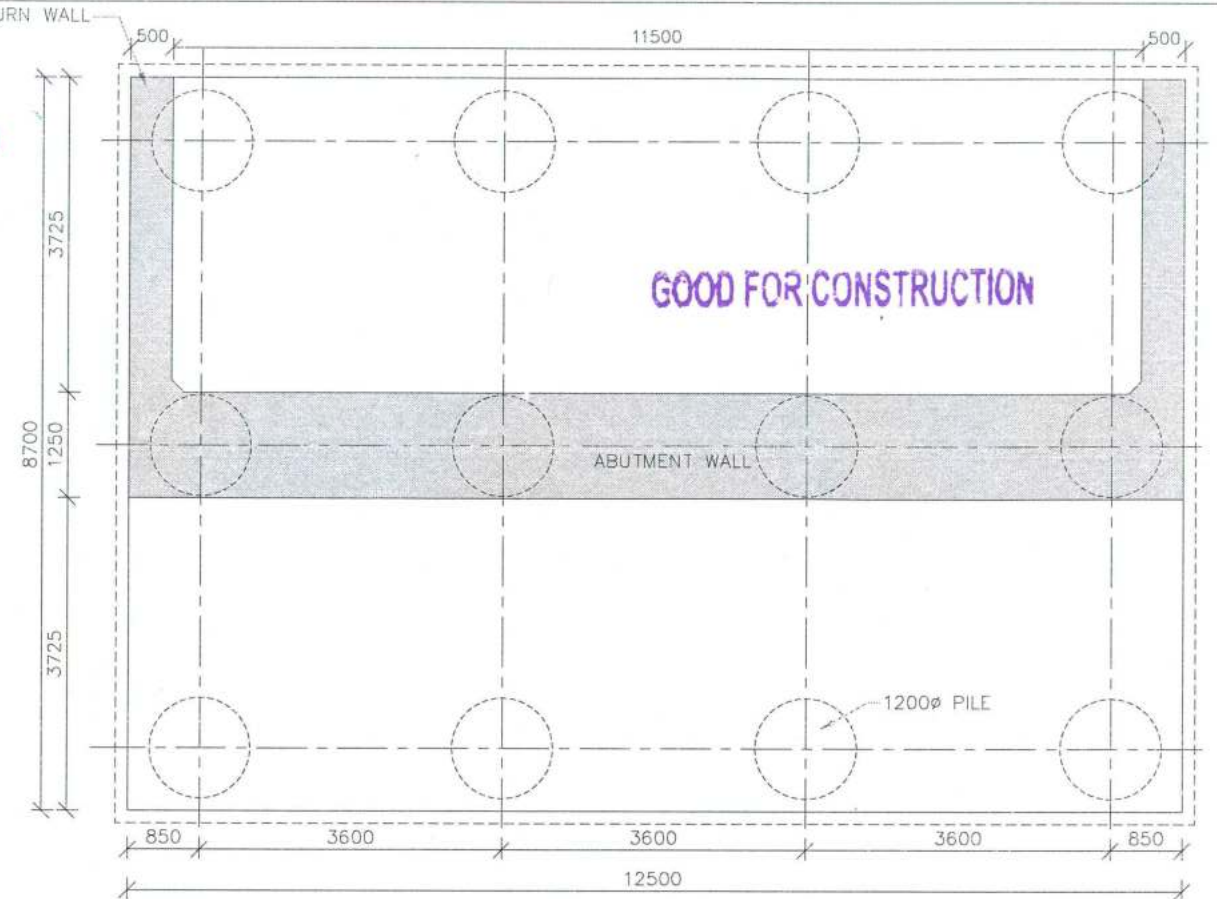


SECTION D-D
SCALE 1:50



SECTION E-E
SCALE 1:50

Bridge Engineer
VSPL, Sivasagar



PLAN OF ABUTMENT (A1 & A2)
(SCALE 1:60)

NOTES:

- ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED. THE DRAWING SHALL NOT BE SCALED.
- THE FOLLOWING GRADE OF CONCRETE SHALL BE USED FOR
 - SUBSTRUCTURE - M35
 - FOUNDATION - M35
 - DIRT WALL & BRACKET - M35
 - LEVELING COURSE - M15
- CLEAR COVER TO MAIN REINFORCEMENT
 - EARTH FACE OF ABUTMENT - 75mm
 - OTHER FACE OF ABUTMENT - 40mm
 - FOUNDATION - 75mm
 - FLY WING WALL - 75mm
- GRADE OF STEEL-Fe-500
- FILLING BEHIND WALLS SHALL NOT BE DONE BEFORE COMPLETION OF ABUTMENT
- ANCHORAGE LENGTH SHALL BE AS PER CLAUSE 15.2.3.3 OF IRC112 - 2011
- BAR LAPS SHALL BE AS PER CLAUSE 15.2.5.1 OF IRC112 - 2011
- LAP LENGTH = $A \times 36 \times \text{DIA}$.
FOR DETAILS OF "COEFFICIENT-A" REFER BELOW TABLE

PERCENTAGE OF LAPPED BAR	<25%	33%	50%
COEFFICIENT (A)	1.0	1.15	1.40

- ANY DISCREPANCY OBSERVED SHALL BE BROUGHT TO THE NOTICE OF THE ENGINEER INCHARGE PRIOR TO EXECUTION

OBJECT
PLANING OF JHANJHI TO DEMOW
N OF NH-37 FROM EXISTING CH. Km
50 TO Km 535+250 (DESIGN CH. Km
0 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, Topsail Road (South),
Kolkata-700 046

AUTHORITY ENGINEER
VOYANTS SOLUTIONS PVT. LTD.

403, 2nd Floor, BPTP Park
Block A, Jal Vayu
Vihar, Sector 30,
Gurgaon, Haryana 122001

DESIGN CONSULTANT
Professional Civil Infra Pvt. Ltd.

1638, Ground Floor,
Sir M. Viswesvaraya Layout,
Nagdevanahalli,
Bangalore - 560 056

PROOF CONSULTANT
Chetan Infra-Tech
Consultants (P) Ltd.

7/11, 1st Floor, 13th
Main, Srinagar,
Opp. PES College,
Bengaluru - 560 050

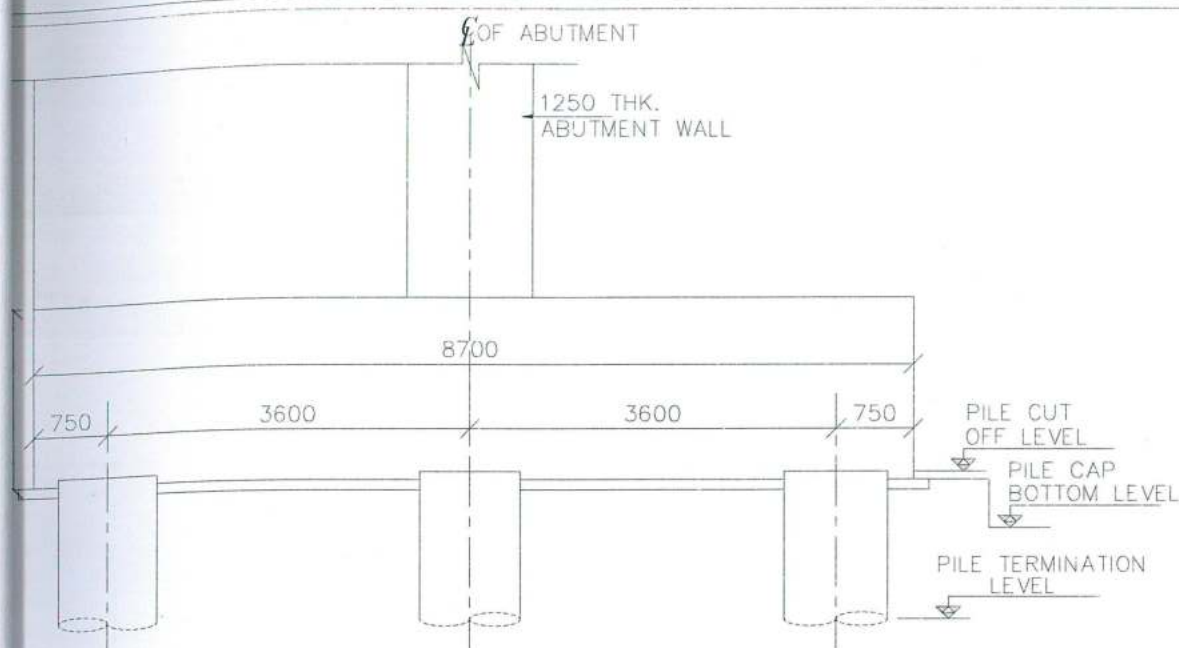
SAFETY CONSULTANT
Smart Safety Services

3-5-527, Heringa
Nivas, Gummakonda
Colony, Hyderabad
Hyderabad - 500 049

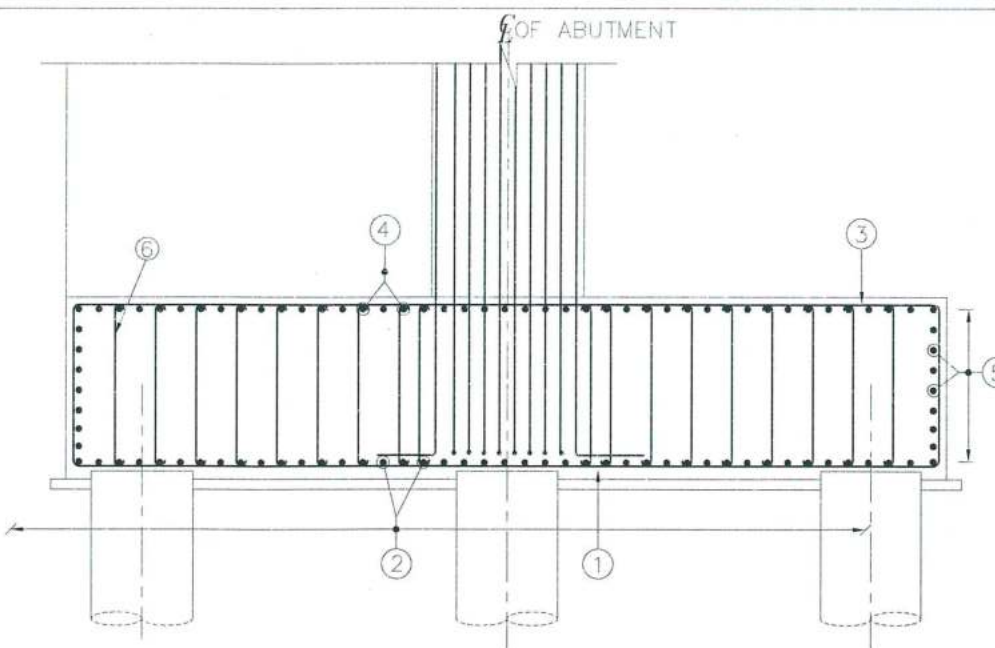
National Institute of
Technology.

DS9/4C NIT DURGAPUR
M.G. AVENUE,
DURGAPUR, WEST
BENGAL-713209

FOR APPROVAL	
TITLE:	REINFORCEMENT DETAILS OF RETURN WALL OF MAJOR BRIDGE AT Ch: 508+454
R1	AS PER NIT COMMENTS
0	FOR APPROVAL
Rev	Description
Date	Date
Drw.	Dsg.
CHK.	App.
PSA	SCALE
AS SHOWN	SHEET SIZE
A2	REV.
DRAWING No.	PCIP/NH-37/JD/STR/MJB-01 12 OF 18
R1	



SECTIONAL DETAILS OF ABUTMENT PILE CAP
(SCALE 1:40)



REINFORCEMENT DETAILS OF ABUTMENT PILE CAP
(SCALE 1:40)

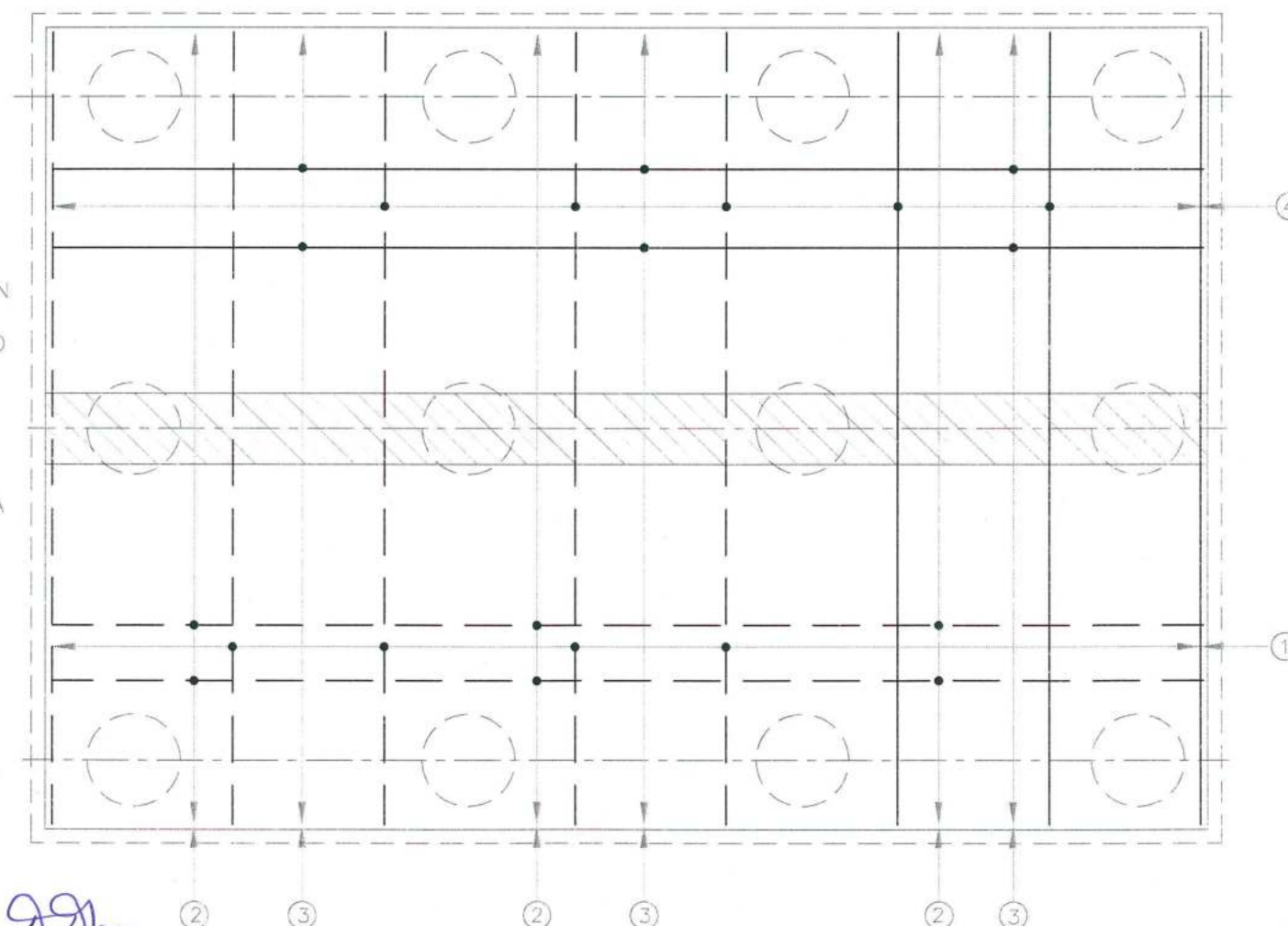
LEGEND:

TOP BARS / OUTER FACE ———
BOTTOM BARS / EARTH FACE - - - - -

NOTES

- ALL DIMENSIONS ARE IN MILLIMETERS AND LEVELS IN METERS UNLESS OTHERWISE MENTIONED.
- ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED. NO DRAWING SHALL NOT BE SCALED.
- THE GRADE OF CONCRETE FOR PILE AND PILECAP : M35
- CLEAR COVER TO REINFORCEMENT FOR PILE AND PILE CAP: 75mm
- BOTTOM OF PILE CAP COVER SHOULD BE 1 BAR DIA ABOVE THE PILE CUTOFF LEVEL.
- REINFORCEMENT BAR SHALL BE T.M.T BARS (DENOTED AS #) DESIGNED Fe - 500 AND CONFORMING TO IS-1786 : 2000
- LAPS SHALL BE STAGGERED. MINIMUM LAP LENGTH AND ANCHORAGE LENGTH SHALL BE AS PER CLAUSE 304.6 OF IRC:112-2011.
- THE BAR BENDING DIAGRAM SHOWN ARE FOR THE GUIDANCE ONLY. THE CONTRACTOR SHOULD PREPARE THE BAR BENDING SCHEDULES SUBJECT TO THE APPROVAL OF THE ENGINEER-IN-CHARGE.

BAR SHAPE	BAR Dia	SPACING mm/Nos
	#32	150
	#32	150
	#16	150
	#16	150
	#16	200
	#12	400x400 Shear link bar @ both direction



REINFORCEMENT DETAILS OF ABUTMENT CAP (PLAN)
(SCALE 1:40)

GOOD FOR CONSTRUCTION

DESIGN DIRECTOR

VASANTH KUMAR T.H.

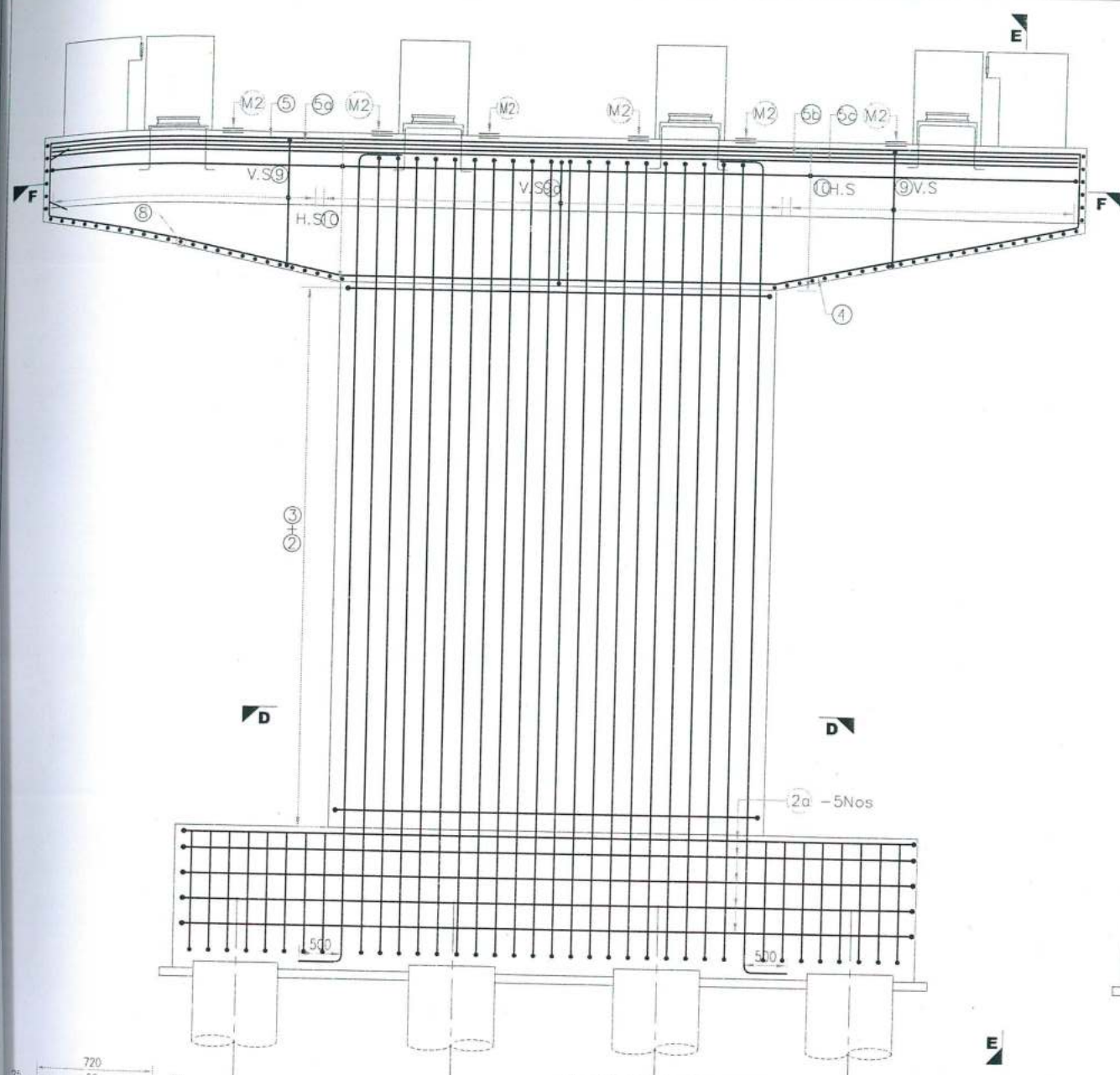
Dr. Vijay Kumar Dwivedi
Professor
Department of Civil Engineering
National Institute of Technology
Durgapur-713209, W.B., India

HARBHARAN SING
Team Leader (VSPL)
Authority Engineer (NHIDCL)

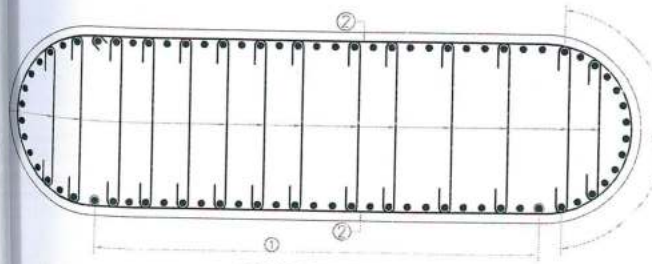
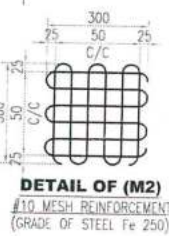
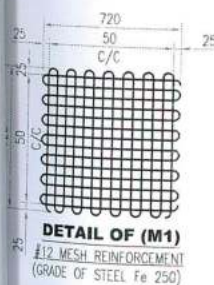
Bridge Engineer
VSPL Engineer

PROJECT	CLIENT	EPC CONTRACTOR	AUTHORITY ENGINEER	DESIGN CONSULTANT	PROOF CONSULTANT	SAFETY CONSULTANT	National Institute of Technology	FOR APPROVAL
LANING OF JHANJHI TO DEMOW N OF NH-37 FROM EXISTING CH. Km 30 TO Km 535+250 (DESIGN CH. Km 30 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. 86A, Topan Road (South) Hatch Street, 7th Floor, Kolkata - 700 046	VOYANTS SOLUTIONS PVT. LTD. Date: 16/11/2018 86A, Topan Road, 8th Floor, Central Block A, Jai Vihar, Vihar, Sector 20, Gurgaon, Haryana-122001	Professional Civil Infra Pvt. Ltd. 86A, Topan Road, 8th Floor, Central Block A, Jai Vihar, Vihar, Sector 20, Gurgaon, Haryana-122001	Chetan Infra-Tech Consultants (P) Ltd. 7th Floor, 1st Floor, 13th Floor, Srinagar, Opp. PCS College, Bengaluru - 560 050	Smart Safety Services # 5-687, Harihara Nagar, Gurgaon, Gurgaon, Haryana-122001	DS9/4C NIT DURGAPUR M.G. AVENUE, DURGAPUR, WEST BENGAL-713209	<div> <div>AS PER NIT COMMENTS</div> <div>FOR APPROVAL</div> <div>Description</div> </div> <div> <div>FEB 2019</div> <div>AUG 2018</div> <div>Date</div> </div> <div> <div>Drw. Dsg. Chk. App. SCALE SHEET SIZE</div> <div>AHM VAS VAS PSA AS SHOWN A2</div> <div>DRAWING No. SHEET No. REV.</div> <div>PC/PL/NH-37/JD/STR/MJB-01 13 OF 18 R1</div> </div>

GOOD FOR CONSTRUCTION



ELEVATION OF PIER
(ELEVATION SHOWING REINFORCEMENT DETAILS OF PIER)
(SCALE 1:50)



SECTION-DD
(PLAN SHOWING REINFORCEMENT DETAILS PIER STEM)

PROJECT
UPGRADING OF JHANJHI TO DEMOW
SECTION OF NH-37 FROM EXISTING CH. Km
+050 TO Km 535+250 (DESIGN CH. Km
+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.
86A, Toppa Road (South)
Hauz Street, 11th Floor,
Kolkata - 700 046

AUTHORITY ENGINEER
VOYANT SOLUTIONS PVT. LTD.
Date: 11/08/2019
10th Floor, BPTP Park
Central Block A, Jal Vihar,
Vihar, Sector 30,
Gurgaon, Haryana 122001

DESIGN CONSULTANT
Professional Civil Infra Pvt. Ltd.
P-1930, Ground Floor,
Sir M Visweswaraya Layout,
Nagadevanahalli,
Bangalore - 560 056

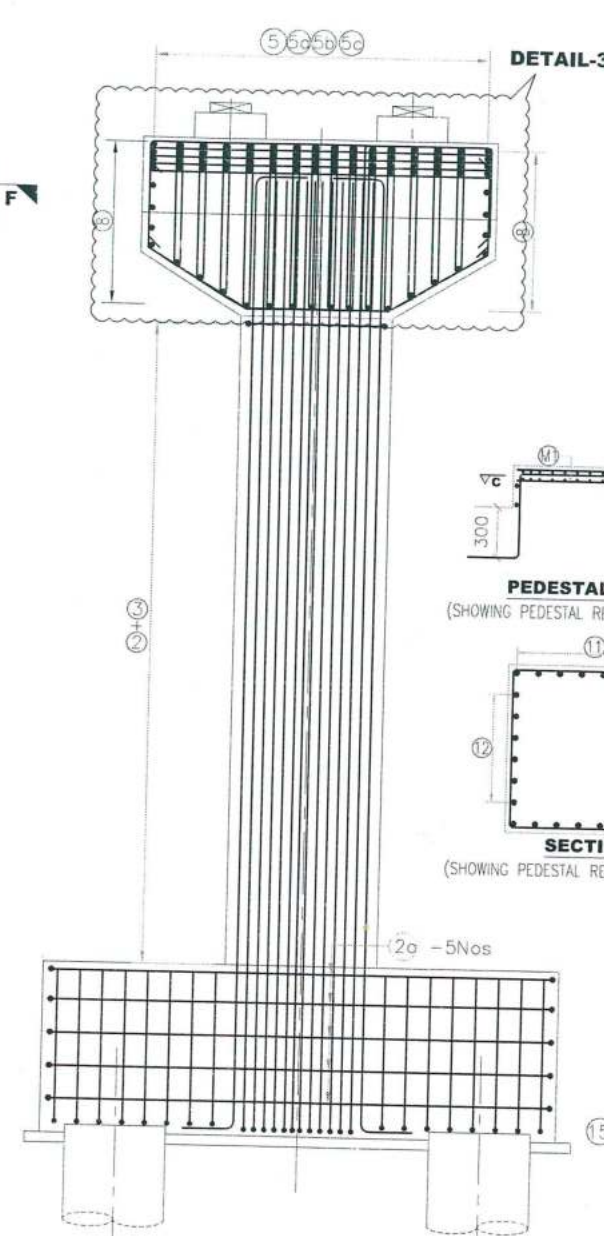
PROOF CONSULTANT
Chetan Infra-Tech
Consultants (P) Ltd.
11, 1st Floor, 13th
Main, Srinagar
Opp. PES College
Bangalore - 560 050

SAFETY CONSULTANT
Smart Safety Services
P-3-5-687, Harimara
Nivas, Gimmakurda
Colony, Hyderabad
Hyderabad - 500 046

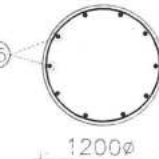
National Institute of
Technology.
DS9/4C NIT DURGAPUR
M.G. AVENUE,
DURGAPUR, WEST
BENGAL-713209

REINFORCEMENT DETAILS OF PIER CAP
R1 AS PER NIT COMMENTS
0 FOR APPROVAL
Rev Description Date

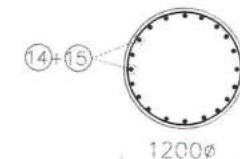
FOR APPROVAL
TITLE:
REINFORCEMENT DETAILS OF PIER
MAJOR BRIDGE AT Ch: 508+454
Drw. Dsg. Chk. App. SCALE SHEET SIZE
AHM VAS VAS PSA AS SHOWN A2
DRAWING No. SHEET No. REV.
PCIPL/NH-37/JD/STR/MJB-01 14 OF 18 R1



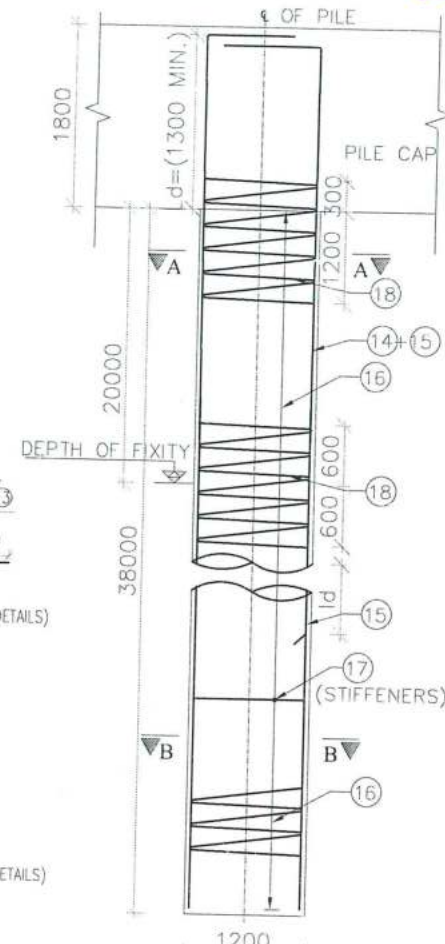
SECTION - EE
(ELEVATION SHOWING REINFORCEMENT DETAILS OF PIER)
(SCALE 1:50)



SECTION B-B
(SCALE 1:50)



SECTION A-A
(SCALE 1:50)

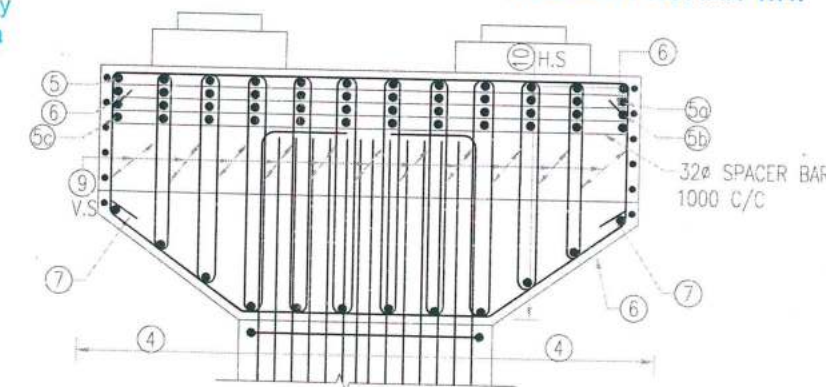


SECTIONAL DETAILS
OF PILE
(SCALE 1:50)

BAR NO	BAR SHAPE	BAR DIA	SPACING / Nos
1		32	35x2 = 70 Nos.
10		32	12x2 = 24 Nos.
2		20	125
20		20	125
3	BOTH HOR. & VER.	10	300
4		32	12 Nos.
5		32	12 Nos.
50		32	12 Nos.
50		32	12 Nos.
50		25	12 Nos.
6		32	200
7		32	200
8		16	150
80		16	150
9	12L	16	150
90	12L	16	150
10	14L	16	200
11		12	8 Nos.
12		12	8 Nos.
13		10	150
14		32	10 NOS.
15		32	10 NOS.
16		10	175
17		16	1000
18		32	120

DESIGN DIRECTOR

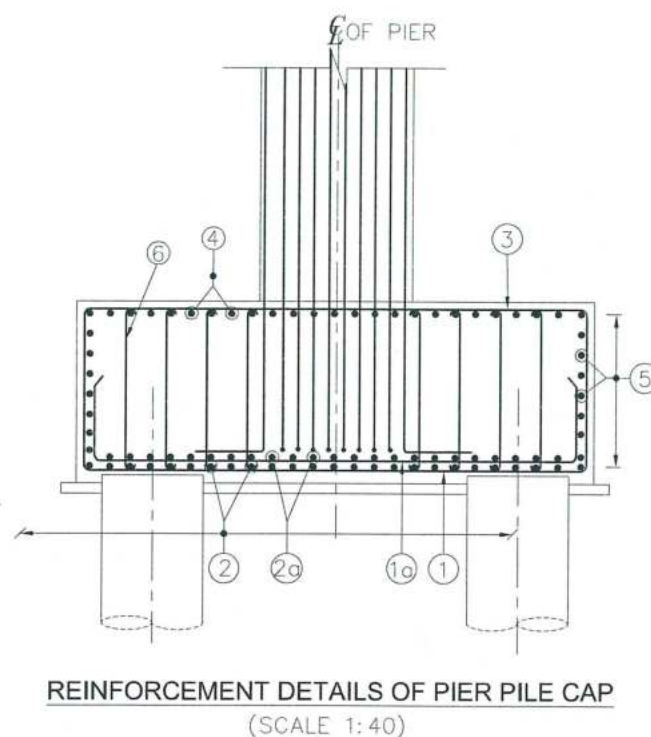
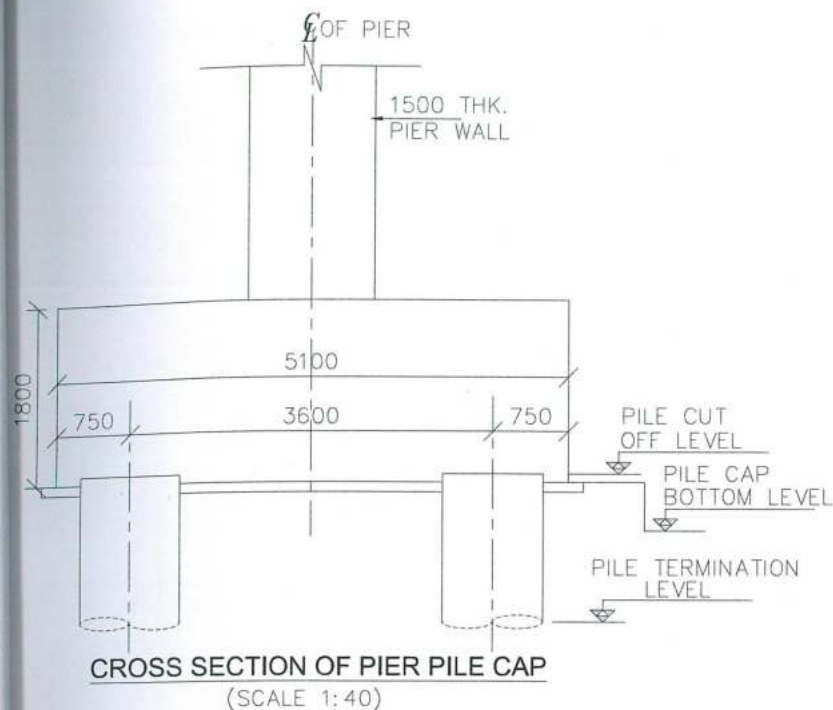
VASANTH KUMAR T.H.



DETAIL-3
REINFORCEMENT DETAILS OF PIER CAP



SECTION-FF
(PLAN SHOWING REINFORCEMENT DETAILS OF PIER CAP)

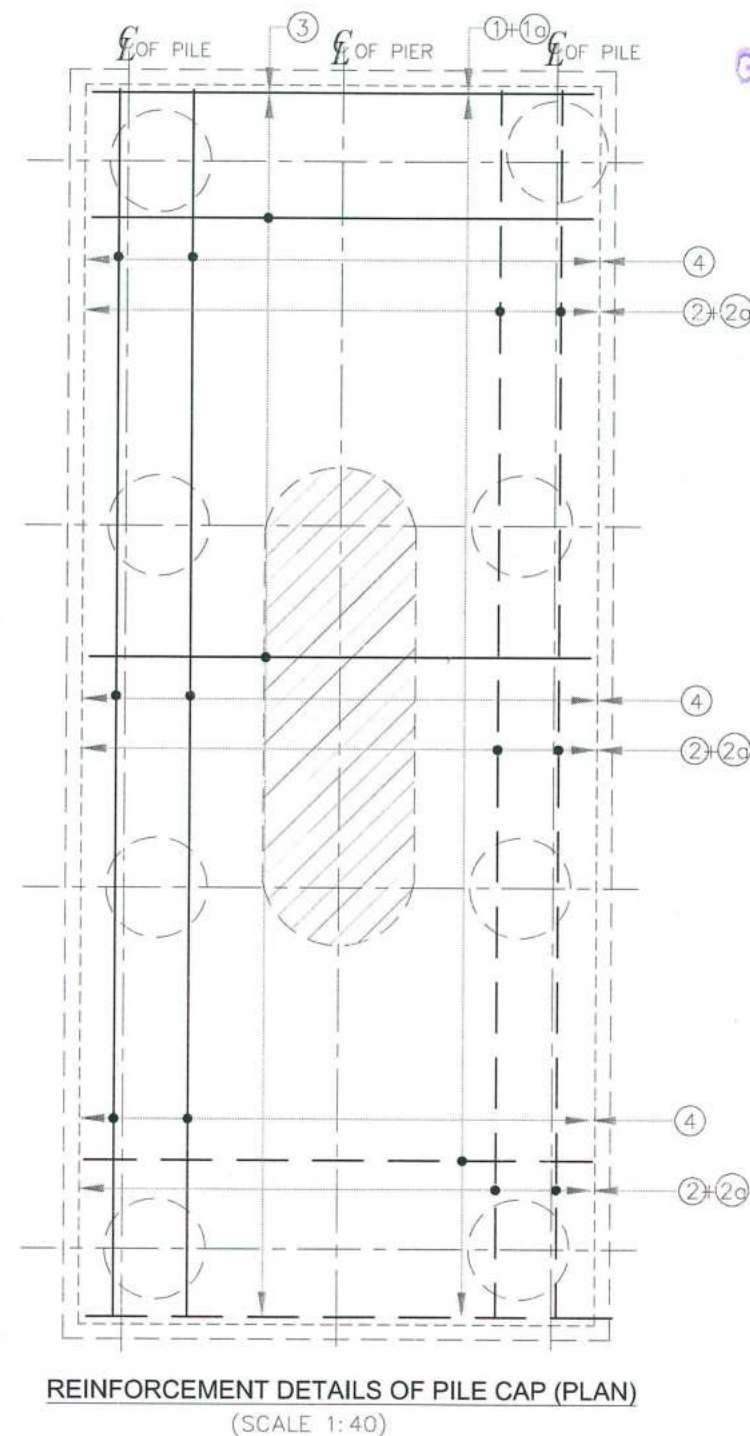


BAR NO	BAR SHAPE	BAR DIA	SPACING mm/Nos
①		#32	100
①a		#16	100
②		#32	100
②a		#16	100
③		#16	100
④		#16	100
⑤		#16	100
⑥		#12	300x300 Shear link bar @ both direction

NOTES

- ALL DIMENSIONS ARE IN MILLIMETERS AND LEVELS IN METERS UNLESS OTHERWISE MENTIONED.
- ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED. NO DRAWING SHALL NOT BE SCALED.
- THE GRADE OF CONCRETE FOR PILE AND PILECAP : M35
- CLEAR COVER TO REINFORCEMENT FOR
- PILE AND PILE CAP: 75mm
- BOTTOM OF PILE CAP COVER SHOULD BE 1 BAR DIA ABOVE THE PILE CUTOFF LEVEL.
- REINFORCEMENT BAR SHALL BE T.M.T BARS (DENOTED AS #) DESIGNED Fe - 500 AND CONFORMING TO IS-1786 : 2000
- LAPS SHALL BE STAGGERD. MINIMUM LAP LENGTH AND ANCHORAGE LENGTH SHALL BE AS PER CLAUSE 304.6 OF IRC:112-2011.
- THE BAR BENDING DIAGRAM SHOWN ARE FOR THE GUIDANCE ONLY. THE CONTRACTOR SHOULD PREPARE THE BAR BENDING SCHEDULES SUBJECT TO THE APPROVAL OF THE ENGINEER-IN-CHARGE.

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



GOOD FOR CONSTRUCTION

Vetted
W. Swarni

Dr. Vijay Kumar Dwivedi
Professor
Department of Civil Engineering
National Institute of Technology
Durgapur-713209, W.B., India

DESIGN DIRECTOR

Vas
VASANTH KUMAR T.H.

22
Bridge Engineer
VSPL, Sivanasar

LEGEND:

TOP BARS / OUTER FACE ———
BOTTOM BARS / EARTH FACE - - - - -

OBJECT

FOR LANEING OF JHANJHI TO DEMOW
ON OF NH-37 FROM EXISTING CH. Km
050 TO Km 535+250 (DESIGN CH. Km
00 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

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86A, Topsia Road, (South),
Häute Street, 7th Floor,
Kolkata - 700 046

AUTHORITY ENGINEER

VOYANTS SOLUTIONS PVT. LTD.
403, 4th Floor, BPTP Park
Centra, Block A, Jal Vayu
Vihar, Sector 30,
Gurgaon, Haryana 122001

DESIGN CONSULTANT

Professional Civil Infra Pvt. Ltd.
1838, Ground Floor,
Sir M Visvesvaraya Layout,
Nagadevanthall,
Bangalore - 560 056

PROOF CONSULTANT

**Chetan Infra-Tech
Consultants (P) Ltd.**
2nd, 1st Floor, 13th
Main, Srinagar
Opp. PES College,
Bengaluru - 560 050

SAFETY CONSULTANT

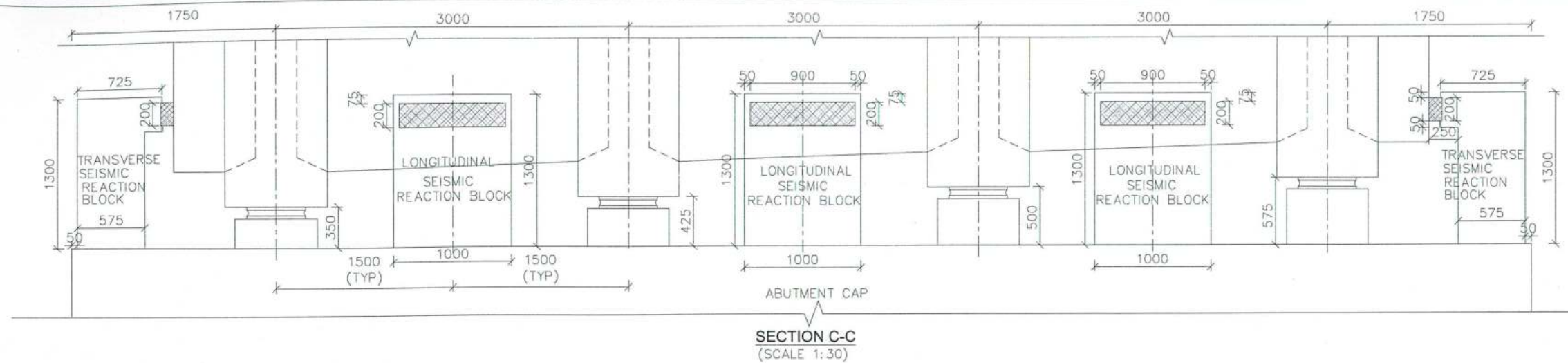
Smart Safety Services
3-5-687, Harinara Road,
Nivas, Gumtiala,
Colony, Hyderabad,
Hyderabad - 500 048

National Institute of Technology.

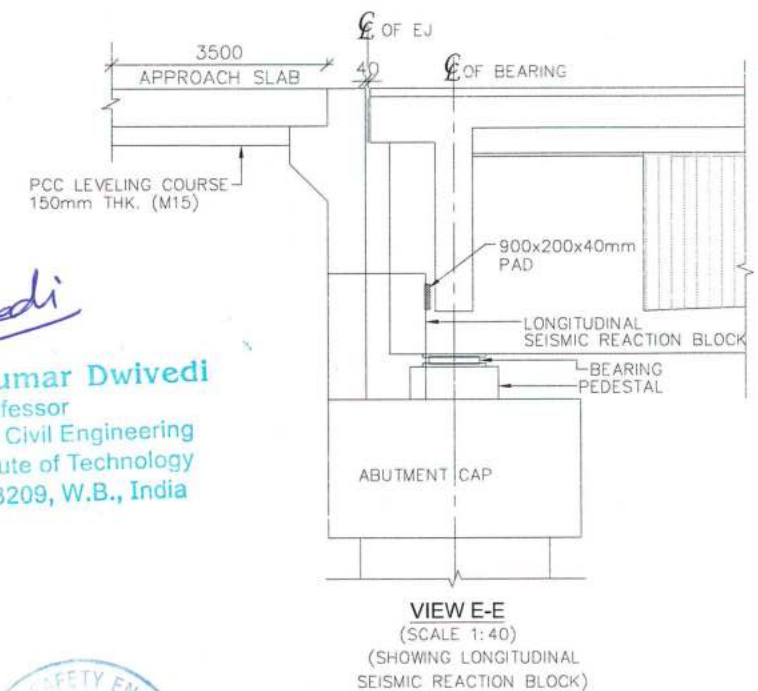
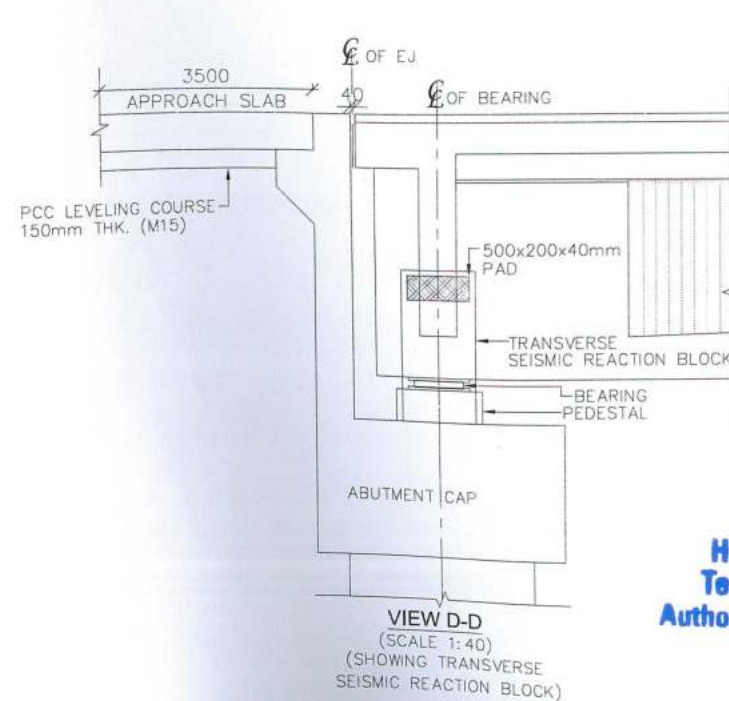
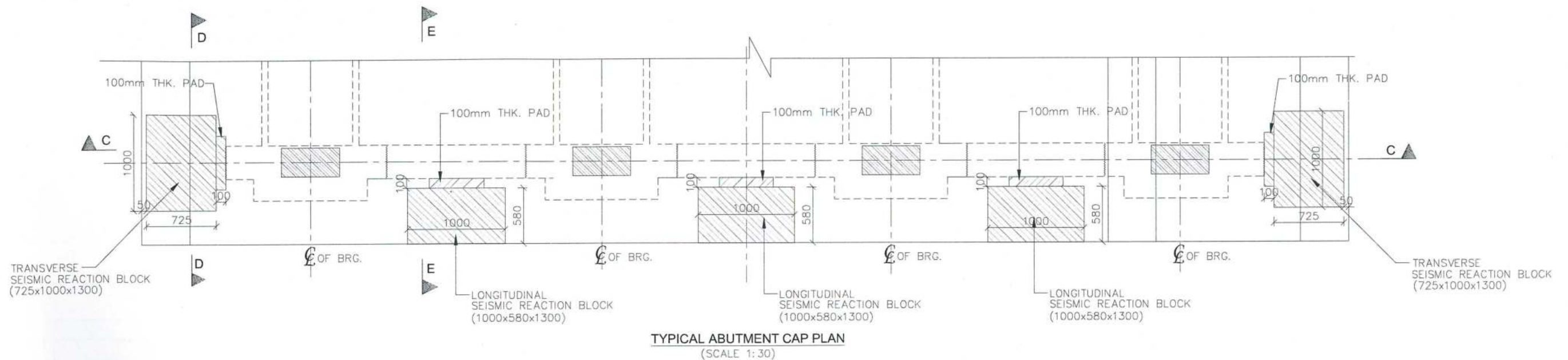
DS9/4C NIT DURGAPUR
M.G. AVENUE,
DURGAPUR, WEST
BENGAL-713209

FOR APPROVAL

TITLE: PILE CAP DIMENSION & REINFORCEMENT OF PIER PILE. MAJOR BRIDGE AT Ch: 508+454				
Drw.	Dsg.	Chk.	App.	SCALE
AHM	VAS	VAS	PSA	AS SHOWN
DRAWING No.				SHEET No.
PCIPU/NH-37/JD/STR/MJB-01				15 OF 18
Rev				REV.
Description				R1



GOOD FOR CONSTRUCTION



DESIGN DIRECTOR

VASANTH KUMAR T.H.

Dr. Vijay Kumar Dwivedi
Professor
Department of Civil Engineering
National Institute of Technology
Durgapur-713209, W.B., India

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

Bridge Engineer
VSPL, Sivasagar

PROJECT
FOUR LANE 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.

601, Vopala Road (South),
Haute Street, 7th Floor,
Kolkata - 700 046

AUTHORITY ENGINEER
VOYANTS SOLUTIONS PVT. LTD.

401, 1st Floor, SPAR Park
Central, Block A, Sal Vayu
Vihar, Sector 30,
Gurgaon, Haryana-122001

DESIGN CONSULTANT
Professional Civil Infra Pvt. Ltd.

8-1838, Ground Floor,
Sip M Visvesvaraya Layout,
Nagadevanahalli,
Bangalore - 560 056

PROOF CONSULTANT
Chetan Infra-Tech
Consultants (P) Ltd.

7/1, 1st Floor, 13th
Main, Srinagar,
Opp. PES College,
Bengaluru - 560 050

SAFETY CONSULTANT
Smart Safety Services

3-5-667, Harlhar
Nivas, Gummakonda
Colony, Hyderabad,
Hyderabad - 500 048

National Institute of
Technology.

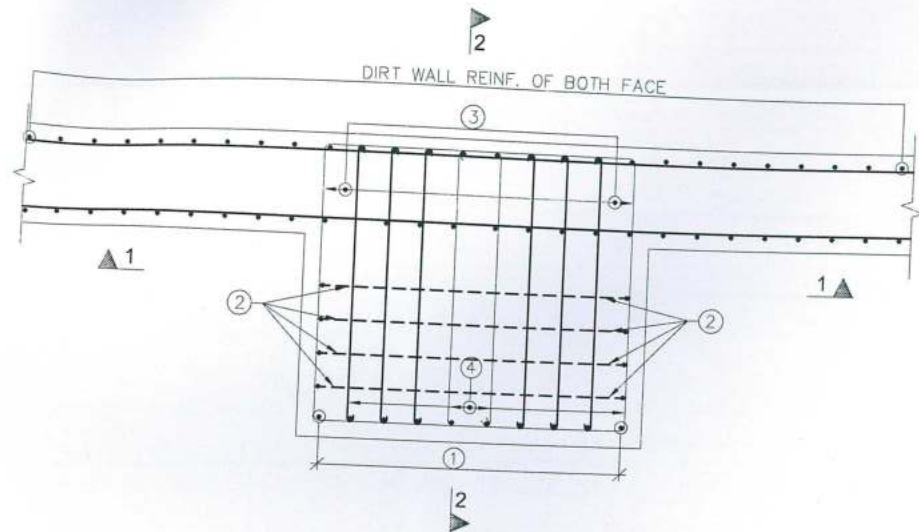
DS9/4C NIT DURGAPUR
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DURGAPUR, WEST
BENGAL-713209

Rev	Description	Date
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0	FOR APPROVAL	AUG 2018

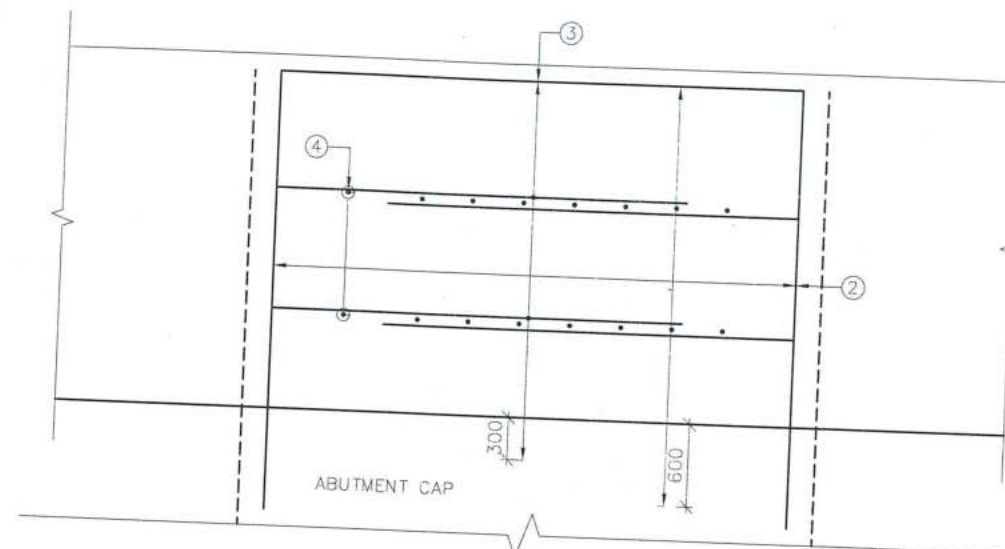
Drw.	Dsg.	Chk.	App.	SCALE	SHEET SIZE
AHM	VAS	PSA	AS SHOWN	A2	
DRAWING No.	PCIP/NH-37/JD/STR/SB-01	SHEET No.	01 OF 02	REV.	R1

FOR APPROVAL

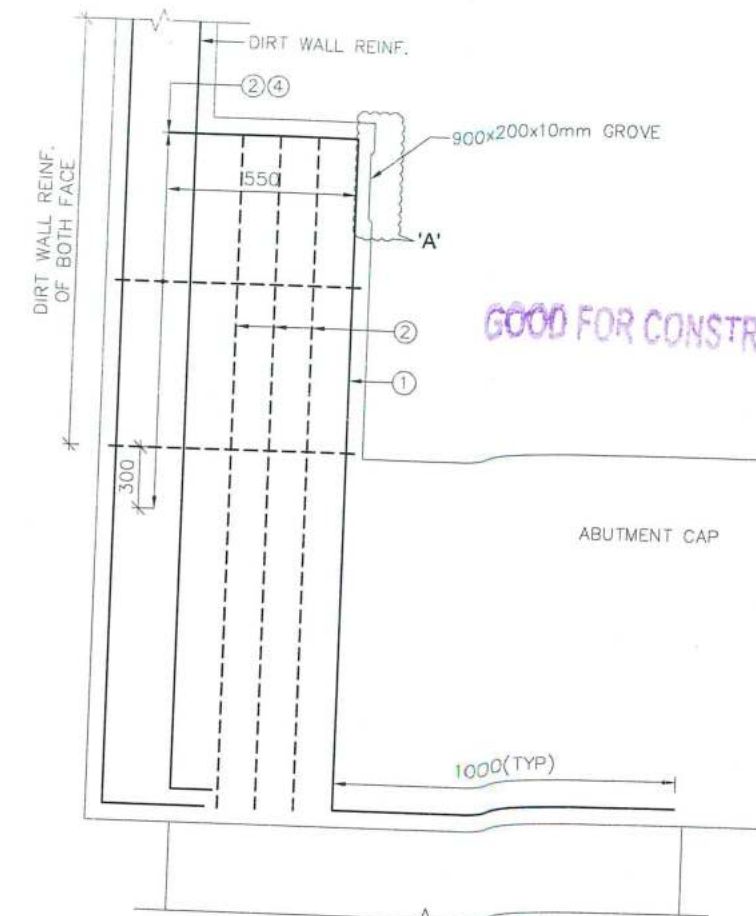
TITLE:
DETAIL DRAWING OF SEISMIC
REACTION BLOCK FOR ABUTMENT OF
MAJOR BRIDGE AT CH: 508+454



PLAN OF LONGITUDINAL SEISMIC REACTION BLOCK
(SCALE 1:15)

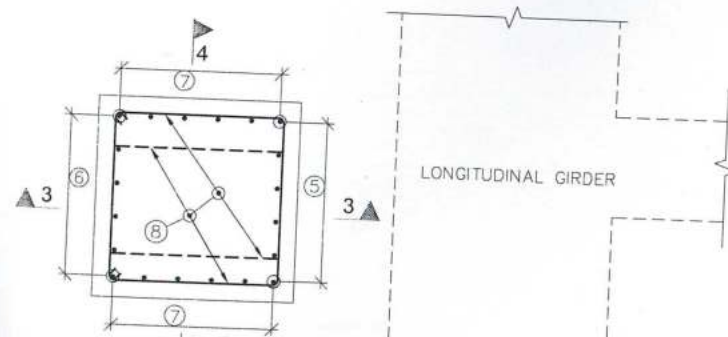


SECTION 1-1
(SCALE 1:15)

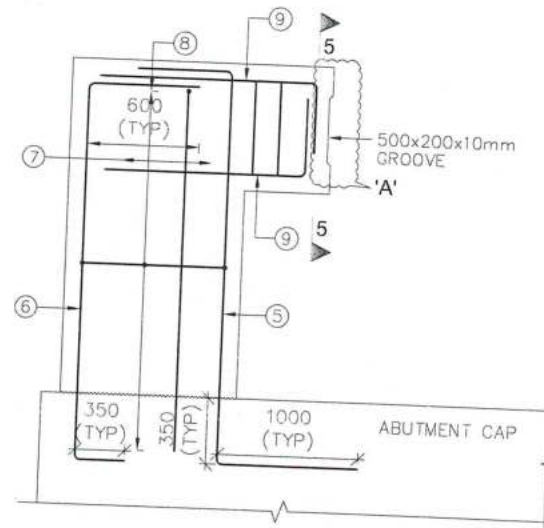


SECTION 2-2
(SCALE 1:15)
(ARRESTOR WITH DIRT WALL)

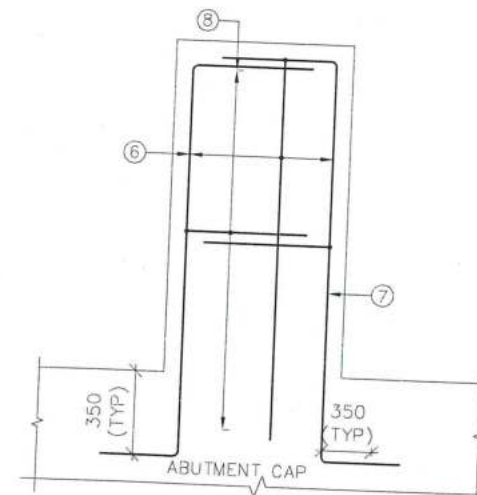
GOOD FOR CONSTRUCTIVE



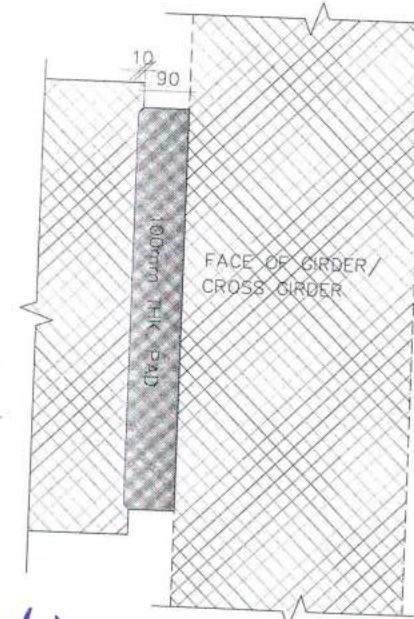
PLAN OF TRANSVERSE SEISMIC REACTION BLOCK
(SCALE 1:15)



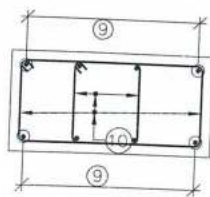
SECTION 3-3
(SCALE 1:15)



SECTION 4-4
(SCALE 1:15)



DETAIL-A
(SCALE 1:10)



SECTION 5-5
(SCALE 1:15)

SCHEDULE OF REINFORCEMENT

SL. NO	BAR SHAPE	BAR DIA	Nos. / Spacing
1		25φ	10 Nos.
2		16φ	04 Nos.
3		12φ	4L-150 C/C
4		10φ	6-LINKS VERTICALLY IN EACH LAYER WITH 3
5		25φ	10 Nos.
6		25φ	10 Nos.
7		12φ	7x2=14 Nos.
8		12φ	4L-150 C/C
9		25φ	10 Nos.
10		10φ	4L-150 C/C

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

Bridge Engineer
VSPL, Sivasagar

DESIGN DIRECTOR

VASANTH KUMAR T.H.

vetted
uswinedi

Dr. Vijay Kumar Dwivedi
Professor
Department of Civil Engineering
National Institute of Technology
Durgapur-713209, W.B., India

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),
Hauate Street, 2nd Floor,
Kolkata - 700 046

AUTHORITY ENGINEER
NOYANTS SOLUTIONS PVT. LTD.
403, 4th Floor, BPT Park
Central, Block A, Jalpaiguri
Vihar, Sector 20,
Gurgaon, Haryana 122001

DESIGN CONSULTANT
Professional Civil Infra Pvt. Ltd.
1838, Ground Floor,
Sir M Visweswaraya Layout,
Negadevanahalli,
Bangalore - 560 056

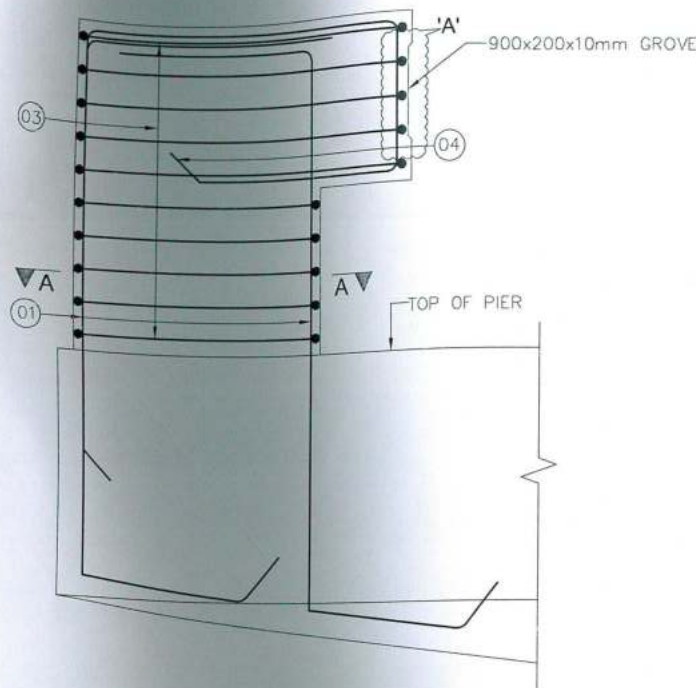
PROOF CONSULTANT
Chelan Infra-Tech
Consultants (P) Ltd.
7/11, 1st Floor, 13th
Main, Srinagar,
Opp. PES College,
Bengaluru - 560 001

SAFETY CONSULTANT
Smart Safety Services
#35-6&7, Harbari
Nikar, Gummakonda
Colony, Hyderabad
Hyderabad - 500 001

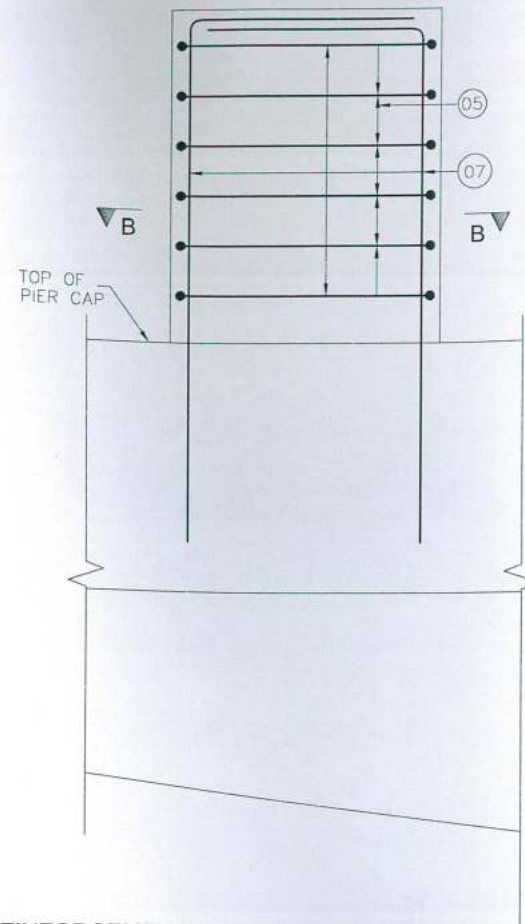
National Institute of Technology.
D59/4C NIT DURGAPUR
M.G. AVENUE,
DURGAPUR, WEST

FOR APPROVAL	
R1	AS PER NIT COMMENTS
0	FOR APPROVAL
DATE	FEB 2019
Drw.	AS SHOWN
Dsg.	AS SHOWN
Chk.	AS SHOWN
App.	AS SHOWN
SCALE	AS SHOWN
SHEET SIZE	A2

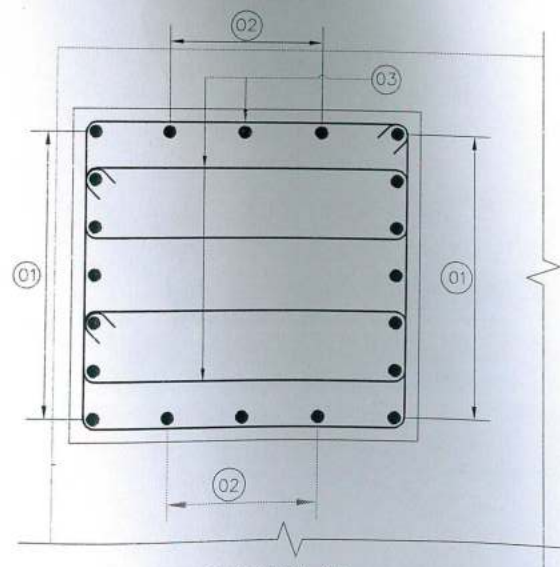
TITLE:
REINFORCEMENT DETAIL OF SEISMIC
REACTION BLOCK FOR ABUTMENT OF
MAJOR BRIDGE AT CH: 508+454



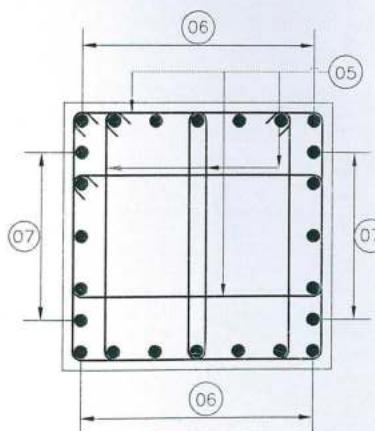
REINFORCEMENT DETAILS OF TRANSVERSE
SEISMIC REACTION BLOCK
(SCALE 1:15)



REINFORCEMENT DETAILS OF LONGITUDINAL
SEISMIC REACTION BLOCK
(SCALE 1:15)



SECTION-AA
(REINFORCEMENT DETAILS OF
TRANSVERSE SEISMIC
REACTION BLOCK)
(SCALE 1:15)



SECTION-BB
(REINFORCEMENT DETAILS OF
LONGITUDINAL SEISMIC
REACTION BLOCK)
(SCALE 1:15)

SCHEDULE OF REINFORCEMENT			
SL. NO	BAR SHAPE	BAR DIA	Nos. / Spacing
1		25	9x2 =18 Nos.
2		25	3x2 =6 Nos.
3		16	100
		16	100
		16	100
4		25	9 Nos.
5		12	100
		12	100
		12	100
6		25	9x2 =18 Nos.
7		25	6x2 =12 Nos.

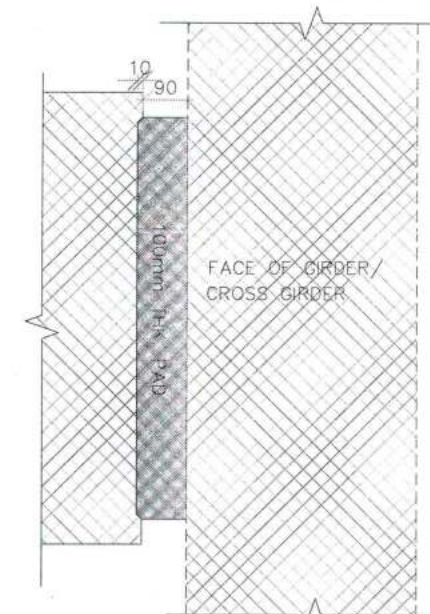
GOOD FOR CONSTRUCTION

vetted
insured

Dr. Vijay Kumar Dwivedi
Professor
Department of Civil Engineering
National Institute of Technology
Durgapur-713209, W.B., India

DESIGN DIRECTOR

Vas
VASANTH KUMAR T.H.



DETAIL-A
(SCALE 1:10)

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

Bridge Engineer
VSPL, Sivasagar

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Bengaluru - 560 050

SAFETY CONSULTANT
Smart Safety Services
#3-5-8-2, 1st Floor,
Narasimha Reddy
Colony, Hyderabad,
Hyderabad - 500 085

National Institute of
Technology.
DS9/4C NIT DURGAPUR
M.G. AVENUE,
DURGAPUR, WEST
BENGAL-713209

Rev	Description	Date
R1	AS PER NIT COMMENTS	FEB 2019
0	FOR APPROVAL	AUG 2018

TITLE: REINFORCEMENT DETAIL OF SEISMIC REACTION BLOCK FOR PIER OF MAJOR BRIDGE AT CH: 508+454					
Drw.	Dsg.	Chk.	App.	SCALE	SHEET SIZE
AHM	VAS	VAS	PSA	AS SHOWN	A2
DRAWING No.				SHEET No.	REV.
PCIPL/NH-37/JD/STR/SB-01				02 OF 02	R1

FOR APPROVAL