

PROJECT:-

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.

SUPERSTRUCTURE AT CH. 523+271 (42.755m PSC GIRDER)

06.03.2011
A. K. K.

ENT:



NATIONAL HIGHWAYS INFRASTRUCTURE
DEVELOPMENT CORPORATION LTD.
(3RD FLOOR, PTI BUILDING, 4 PARLIAMENT
STREET, NEW DELHI-110001)

CONTRACTOR



GANNON DUNKERLEY & CO. LTD
86A, TOPSIA ROAD (SOUTH) HAUTE STREET,
7th FLOOR KOLKATA-700046

DESIGN



ECSTATIC ENGINEERING CONSULTANTS
PRIVATE LIMITED
SCO 103 HUDA SHOPPING CENTRE,
GURGOAN, SECTOR 55, GURUGRAM,
HARYANA 122003

THORITY
INFER:



VOYANTS SOLUTIONS PVT. LTD.
403, 4TH FLOOR, BPTP PARK CENTRA,
BLOCK A, JAL VAYU VIHAR SECTOR 30 GURGOAN,
HARYANA 122001

SAFETY
CONSULTANT:



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

PROOF CONSULTANT:

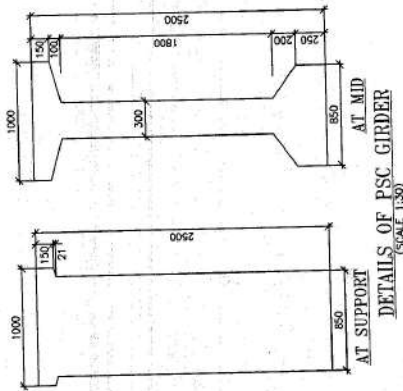


MARC TECHNOCRATS PVT. LTD.
MARC HOUSE, SECTOR-6-7 (DIVIDING ROAD),
OPPOSITE DEVI LAL PARK, BAHADURGARH,
HARYANA 124507

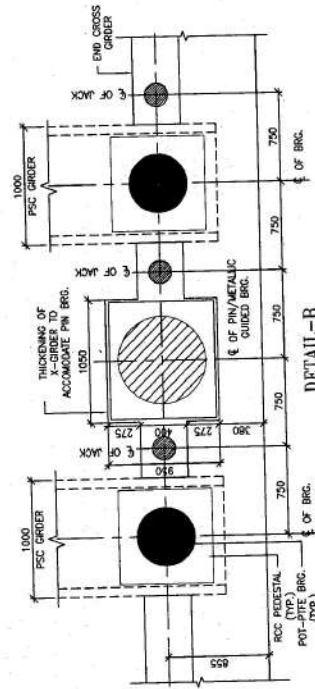
NOTES:-

1. ALL DIMENSIONS ARE IN mm. UNLESS OTHERWISE MENTIONED.
2. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED AND NO DIMENSION SHALL BE SCALED.
3. THE PROPOSED FLYOVER IS DESIGNED FOR THE LIVE LOAD COMBINATIONS GIVEN IN IRC 8:2014. THE COVERING CONCRETE SHALL BE OF GRADE M40.
4. DAYS CHARACTERISTIC STRENGTH ON 150mm CUBES FOR PRECAST PSC GIRDER F40 - 40MPa FOR CAST-IN-SITU SLAB F40 - 40MPa FOR CAST-IN-SITU CONCRETE CROSS GIRDER F40 - 40MPa FOR CAST-IN-SITU CONCRETE CROSS GIRDER F40 - 40MPa
5. THE REINFORCING STEEL SHALL BE OF HYSD BARS (GRADE DESIGNATION F40) CONFORMING TO IS:1786.
6. CLEAR COVER TO OUTERMOST STEEL IS 50mm.
7. DURING JACKING OPERATION, JACKS PLACED UNDER ONE END CROSS-GIRDER SHALL BE LIFTED TO THE SAME LEVEL USING A SYSTEM SO AS TO ENSURE THAT THE REACTION ON ALL THE JACKS IS EQUAL AT ALL TIMES.
8. CABLES CONSISTING OF 19 Nos. 12.7mm. DIA. 7 PLY CLASS II STRANDS AS PER IS:14268 SHALL BE USED FOR PRESTRESSING. BEAM SHALL BE KEPT UPRIGHT AT ALL TIMES AND TO BE CLEARLY MARKED INDICATING SPALLS AND DEFECTS AND RESPECTIVE ENDS BEFORE REMOVAL FROM THE CASTING BED.
9. TOP SURFACE OF GIRDER SHALL BE ROUGHED FOR EFFECTIVE BONDING.
10. LENGTHS OF GIRDER & LAYOUT SHALL BE VERIFIED AT SITE BEFORE EXECUTION & ANY DISCREPANCIES MUST BE BROUGHT TO THE NOTICE OF THE CONSULTANT.
11. FOR LIFTING OF THE SUPERSTRUCTURE BY JACKS AT EACH SIDE OF THE SPAN, SHOCK BEING TAKEN INTO ACCOUNT, THE CAPACITY OF EACH JACK SHALL BE 200 TON.

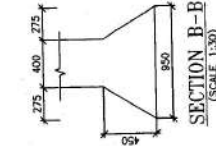
REFERENCE DRAWINGS:-



DETAILS OF PSC GIRDER AT MID (SCALE 1:50)

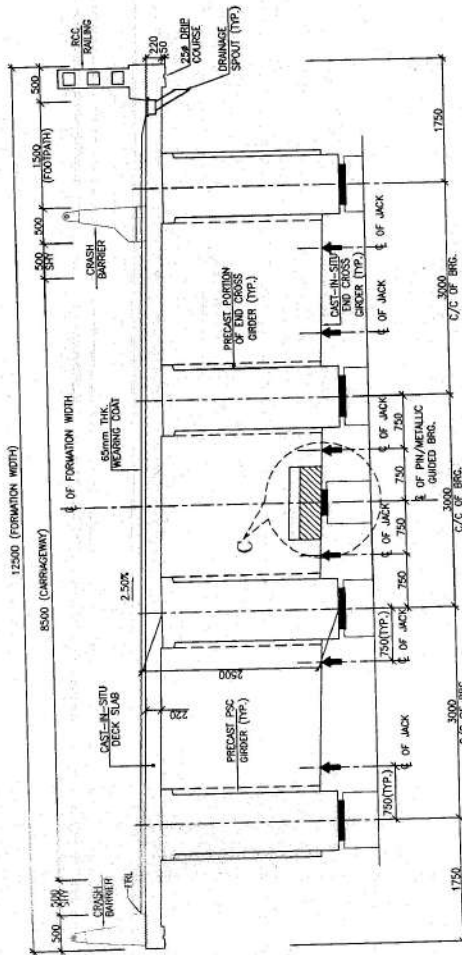


DETAIL-B (SCALE 1:50)

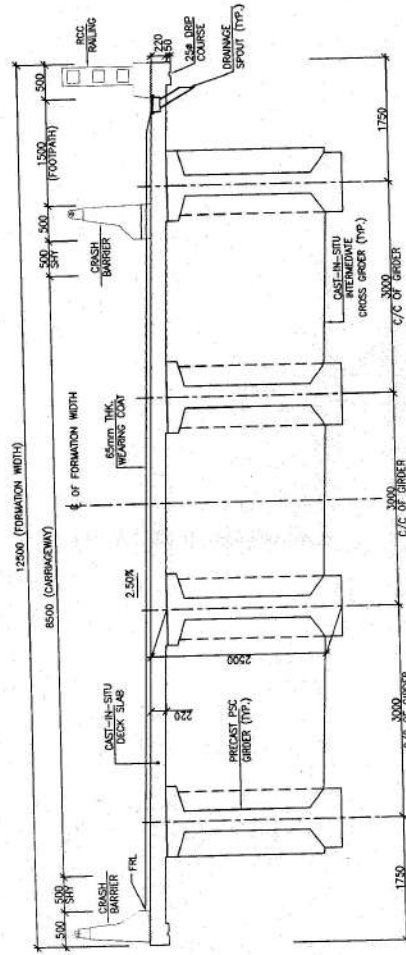


SECTION B-B (SCALE 1:30)

DETAIL-C (SCALE 1:30)

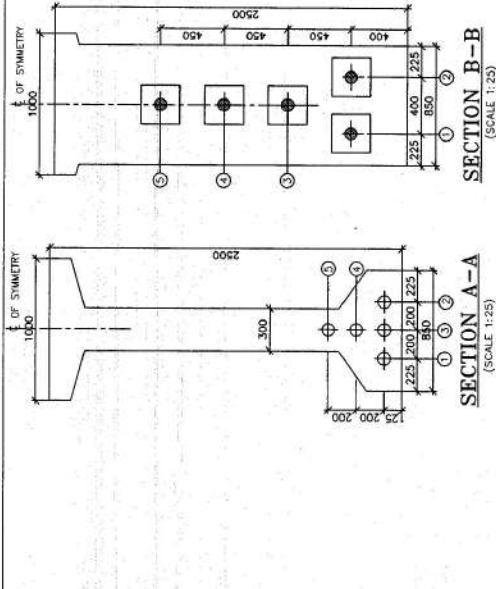


SECTION A-A (SCALE 1:50)



SECTION AT B-B (SCALE 1:50)

																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					</
--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	----

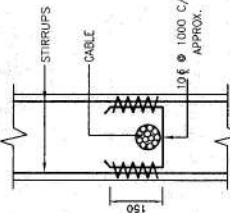


X	X	0	1000		2000		3000		4000		5000		6000		7000		8000		10000		12000		14000		16000		18000		19700		20700	
			Y	Z	Y	Z	Y	Z	Y	Z	Y	Z	Y	Z	Y	Z	Y	Z	Y	Z	Y	Z	Y	Z	Y	Z	Y	Z	Y	Z	Y	Z
1	125	200	125	200	125	200	125	200	125	200	125	200	125	200	125	200	125	200	125	200	145	200	181	200	225	200	284	200	350	200	400	200
2	125	200	125	200	125	200	125	200	125	200	125	200	125	200	125	200	125	200	125	200	145	200	181	200	225	200	284	200	350	200	400	200
3	125	0	125	0	125	0	125	0	125	0	125	0	125	0	125	0	125	0	125	0	297	0	393	0	487	0	617	0	754	0	880	0
4	325	0	325	0	325	0	325	0	325	0	337	0	369	0	404	0	440	0	521	0	616	0	727	0	859	0	1020	0	1186	0	1300	0
5	525	0	525	0	538	0	572	0	607	0	645	0	684	0	727	0	772	0	870	0	983	0	1114	0	1266	0	1446	0	1628	0	1750	0

CABLE NO.	THEORETICAL ELONGATION AT EACH END, Δa_0 (mm)	EMERGENCE ANGLE OF CABLE ($^\circ$)	NO. OF STRANDS	JACKING FORCE (Tonnes)	SEQUENCE OF STRESSING	EMERGENCY STRANDS	TOTAL LENGTH OF CABLE
1	157.349	2.85°	19	272.262	3	—	43.415
2	157.349	2.85°	19	272.262	3	—	43.415
3	156.881	5.50°	19	272.262	1	—	43.454
4	156.927	6.52°	19	272.262	2	—	43.483
5	157.026	6.97°	19	272.262	4	—	43.509

1. ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE SPECIFIED.
2. THE PRESTRESSING TENDONS FOR PRESTRESSED CONCRETE SHALL BE 19 MGS. OF 12.7mm DIA. 7-PLY CLASS 2 STRANDS AS PER IS:1428-1995, UNLESS OTHERWISE SPECIFIED IN THE DRAWING.
3. THE FOLLOWING PROPERTIES HAVE BEEN ASSUMED IN DESIGN.
 - i) NOMINAL SIZE
 - 12.7mm DIA. 7-PLY LOW RELAXATION STRANDS
 - CONFORMING TO CLASS 2 OF IS:1428-1995
 - 98.7 sq.mm PER STRANDS
 - 183.7 KN/M PER STRANDS
 - 1.95×10^6 MPa
 - 0.002
 - ii) $\mu_s = 0.17$ (radion)
 - iii) $\mu_s = 5mm$ (average)
4. THE PRESTRESSING STEEL AND ACCESSORIES SHALL BE SUBJECTED TO AN ACCEPTANCE TEST PRIOR TO THEIR ACTUAL USE IN THE WORKS (QUANTITY OF STEEL SHALL BE SUFFICIENT TO PROVIDE 10% OVERLAP TO JACK SHALL BE USED FOR TENSIONING OF CABLES DIRECT AND INDIRECT FORCE MEASUREMENT DEVICE (e.g. PRESSURE GAUGE) SHALL BE ATTACHED IN CONSULTATION WITH SYSTEM MANUFACTURER.
5. SHEATHING SHALL BE OF 90mm x HOPE.
IT SHALL BE TESTED AS PER APPENDIX 1833/1 OF MOST SPECIFICATION FOR ROAD & BRIDGE WORK.
THE JOINTS OF ALL SHEATHING SHALL BE WATER TIGHT AND CONFORM TO SECTION 13 OF IRC:112-2011. CONSTRUCTION SEQUENCE

△	INDICATES END OF CURVE IN ELEVATION
○	INDICATES START OF CURVE IN ELEVATION
◻	INDICATES START/END OF CABLE
○	INDICATES CABLE NUMBER
◈	INDICATES END OF CURVE IN PLAN


[illegible]

GANNON DUNKERLEY & CO LTD
86A, TOPSA ROAD (SOUTH) HAUTE STREET,
7th FLOOR SINGAPORE 760046

G-ENG ADVISORY SERVICES PVT. LTD.
SEC-12, DDA MARKET SHOPPING CENTRAL
SC-24, GURGAON 122002, INDIA
TEL:- 91-11-74-02960/61
EMAILING@G-ENG.COM WWW.G-ENG.COM

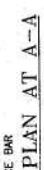
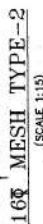
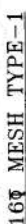
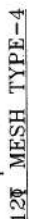
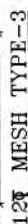
SAFETY CONSULTANT:

G-ENG
GANNON DUNKERLEY & CO LTD
86A, TOPSA ROAD (SOUTH) HAUTE STREET,
7th FLOOR SINGAPORE 760046

DESIGN CONSULTANT

P. S. SRINIVASAN & CO. ENGINEERS
 PRIVATE LIMITED
 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902,

APPROVED BY:	S.S	PROJECT:	EQUIPMENTING OF HANSHI TO REMOV SECTION OF
CHECKED BY:	S.B	NO:	NH-37 FROM EXISTING CH. 1-91-050 TO KM 335+250
DESIGNED BY:	N.S	DATE:	CH. KM 490+80 TO KM 334+800 IN THE STATE
DRAWN BY:	U.S	TITLE:	DETAILS OF CABLE PROFILE FOR PRECAST
DATE:	OCT. 2020	SHEET NO:	PSR ORDER AT CH. 231+270
SCALE:	AS SHOWN	REV:	
		RD	

1. ALL DIMENSIONS ARE IN MM, UNLESS OTHERWISE MENTIONED.
2. ANY WRITTEN DIMENSIONS ARE TO BE FOLLOWED NO DIMENSIONS SHALL BE SCALED.
3. PRESTRESSING CABLES 19 T 13 HAVING LOW RELAXATION STRANDS CONFORMING TO IS 14286.
4. THE GRADE OF CONCRETE FOR SUPERSTRUCTURE SHALL BE M60.
5. THE GRADE OF CONCRETE FOR SUBSTRUCTURE SHALL BE M40.
6. THE REINFORCING STEEL SHALL BE OF TMT BARS (GRADE DESIGNATION FE 500D) CONFORMING TO IS 1786.
7. THE WORK OF PRESTRESSING SHALL BE CARRIED OUT BY ANY RECOGNIZED SYSTEM AFTER CARRYING OUT NECESSARY INVESTIGATION AND APPROVAL BY THE AUTHORITY.
8. THE WORK OF PRESTRESSING AND GROUTING SHALL BE UNDERTAKEN BY TRAINED PERSONNEL ONLY. A REPRESENTATIVE OF THE SUPPLIER OF THE PRESTRESSING SYSTEM SHALL BE PRESENT DURING ALL TENSIONING AND GROUTING OPERATIONS AND SHALL ENSURE, MONITOR AND CHECK THE CORRECTNESS.



CLIENT	 <p>NATIONAL HIGHWAYS INFRASTRUCTURE DEVELOPMENT CORPORATION LTD. 100, TOLSA ROAD, SOUTH CHAMBER STREET, 7th FLOOR, TOLSA BUILDING, CHAMBERS STREET, NEW DELHI-110001</p>	CONTRACTOR	<p>GANNON DUMERLEY & CO. LTD. 100, TOLSA ROAD, SOUTH CHAMBER STREET, 7th FLOOR, TOLSA BUILDING, CHAMBERS STREET, NEW DELHI-110001</p>	DESIGN CONSULTANT	<p>EGYPTIAN ENGINEERING PROJECTS PRIVATE LIMITED NEW DELHI 100, TOLSA ROAD, SOUTH CHAMBER STREET, 7th FLOOR, TOLSA BUILDING, CHAMBERS STREET, NEW DELHI-110001</p>	APPROVED BY:	<p>S.S. (CHECKED BY)</p>	PROJECT:	<p>FOUR LINING OF HANUHI 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>
AUTHORITY ENGINEER	<p>VOYANTS SOLUTIONS PVT. LTD. 403, 4TH FLOOR, B-17P PARK CENTRA, 100, TOLSA ROAD, SOUTH CHAMBER STREET, NEW DELHI-110001</p>	SAFETY CONSULTANT	<p>G.ENG ADVISORY SERVICES PVT. LTD. 403, 4TH FLOOR, B-17P PARK CENTRA, 100, TOLSA ROAD, SOUTH CHAMBER STREET, NEW DELHI-110001</p>	PROF. CONSULTANT	<p>MARC TECHNOLOGIES PVT. LTD. OPPOSITE DEVAL PARK, SANADURG ROAD, HARTYANA 124507</p>	DESIGNED BY:	<p>N.S.</p>	TITLE	<p>ANCHORAGE DETAILS OF PSC GIRDER AT CH 523+71</p>
INITIAL SUBMISSION						DRAWN BY:	<p>U.S.</p>	DWG NO.:	<p>EEC-NH-37-ID-SUP-CH-523+70-303</p>
						CHECKED BY:	<p>DATE:</p>	SHEET NO.:	<p>01 OF 01</p>

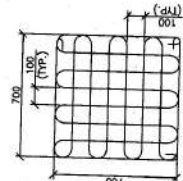
- NOTES**
- ALL DIMENSIONS ARE IN mm. UNLESS OTHERWISE MENTIONED.
 - DO NOT SCALE THE DIMENSIONS. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
 - THIS DRAWING SHALL BE READ IN CONJUNCTION WITH SHEET 1 OF 2 OF THIS DRAWING.

REINFORCEMENT DETAIL

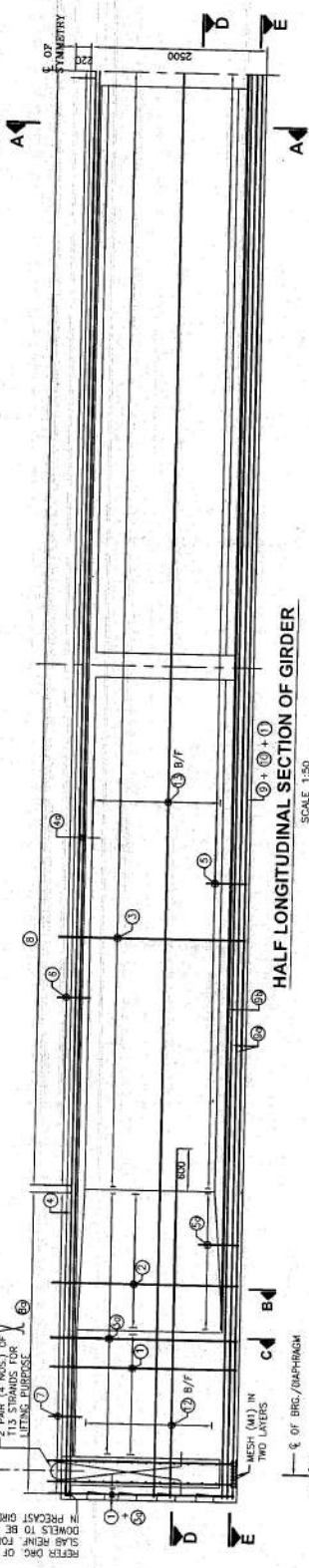
BAR NO.	BAR DIA.	No. OF BAR	SPACING @	SHAPE
1	10	-	2L-150 C/C	□
2	10	-	2L-150 C/C	□
3	10	-	2L-150 C/C	□
3a	10	-	2L-150 C/C	□
4	12	6	-	-
4a	10	4	-	-
5	10	-	150 C/C	□
5a	10	-	150 C/C	□
6	10	-	150 C/C	□
7	10	-	150 C/C	□
8	10	-	150 C/C	□
8a	10	-	150 C/C	□
9	12	2	-	-
9a	10	2x2	-	□
10	12	2	-	-
11	12	2	-	-
12	10	-	150 C/C	□
13	10	-	150 C/C	□

LEGENDS:

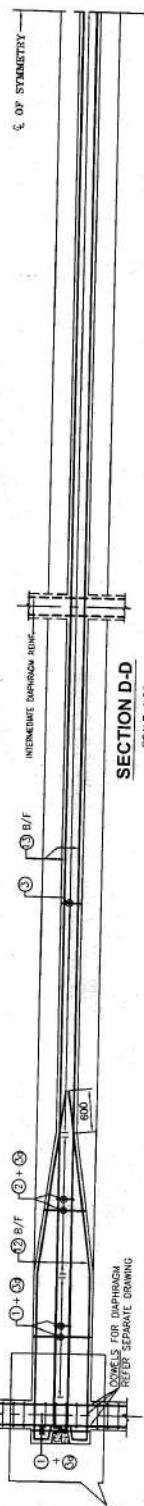
SIP.
B/F
L.V.
STIRRUPS
BAR ON BOTH FACES
LENGTH VARIES



80 MESH M1
(BEARING LOCATION)
(SCALE 1:20)



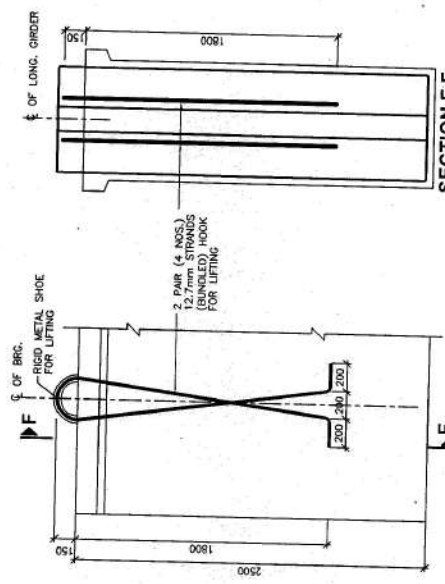
HALF LONGITUDINAL SECTION OF GIRDER
SCALE 1:50



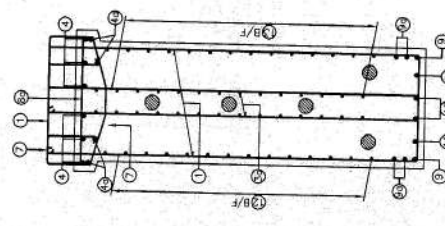
SECTION D-D
SCALE 1:50



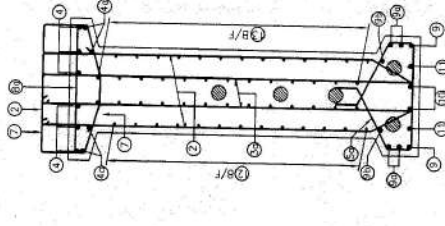
SECTION E-E
SCALE 1:50



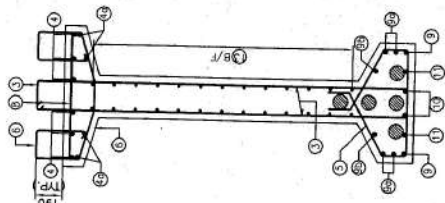
TYPICAL DETAIL OF LIFTING OF GIRDER AT EACH END OF THE GIRDER
(SCALE 1:25)



SECTION C-C
(SCALE 1:25)



SECTION B-B
(SCALE 1:25)



SECTION A-A
(SCALE 1:25)

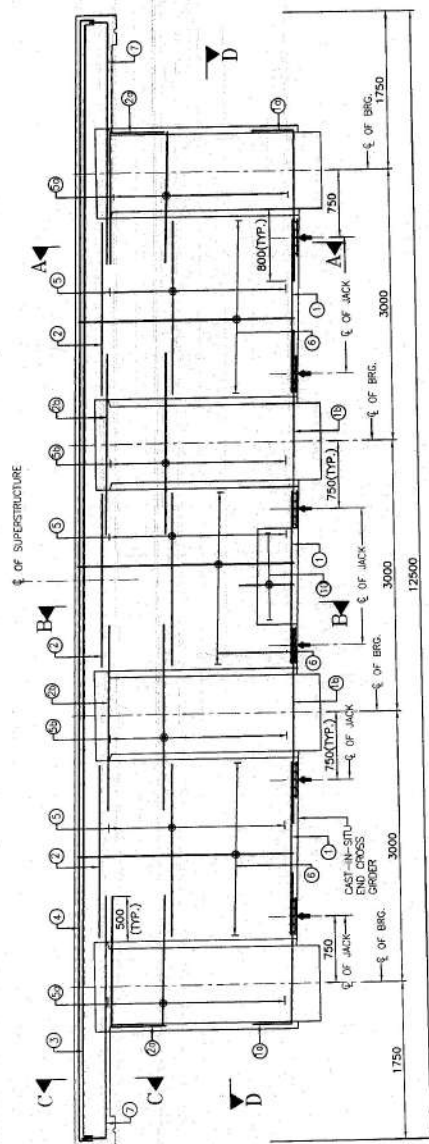
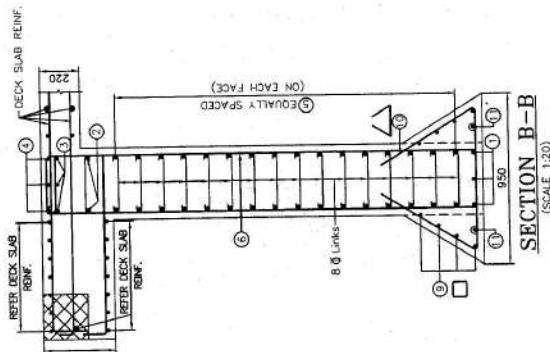
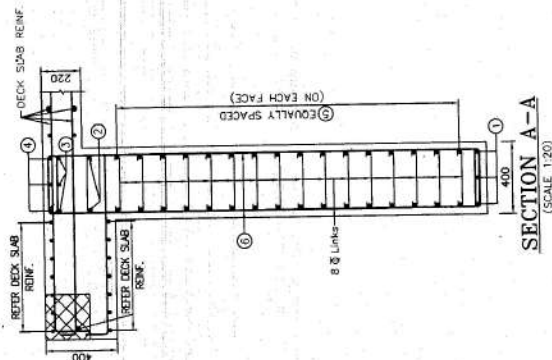
<p>CLIENT</p> <p>NATIONAL HIGHWAYS INFRASTRUCTURE DEVELOPMENT CORPORATION LTD. 405, 4TH FLOOR, 8TH PHASE, 4th FLOOR, NEW DELHI (INDIA)</p> <p>VOYANTS SOLUTIONS PVT. LTD. 405, 4TH FLOOR, 8TH PHASE, 4th FLOOR, NEW DELHI (INDIA)</p>	<p>CONTRACTOR</p> <p>GANNON DUNKERLEY & CO. LTD. 7th FLOOR, KOTAKIN STREET, NEW DELHI (INDIA)</p> <p>G-ENG ADVISORY SERVICE PVT. LTD. 405, 4TH FLOOR, 8TH PHASE, 4th FLOOR, NEW DELHI (INDIA)</p>	<p>DESIGN CONSULTANT</p> <p>ECSTATIC ENGINEERING CONSULTANTS PRIVATE LIMITED GURUDAN, SECTION 34, GURUDAN, HARYANA 122001 (INDIA)</p>	<p>PROOF CONSULTANT</p> <p>MARC TECHNOCRATES PVT. LTD. MARC HOUSE, SECTOR 17, GURUDAN, HARYANA 122001 (INDIA)</p>	<p>APPROVED BY</p> <p>S.S.</p>	<p>CHECKED BY</p> <p>S.B.</p>	<p>DESIGNED BY</p> <p>N.S.</p>	<p>DRAWN BY</p> <p>D.S.</p>	<p>DATE</p> <p>OCT. 2020</p>	<p>PROJECT</p> <p>CONSTRUCTION OF JAMNATI TO DEMOW SECTION OF NH-37 FROM KM 431+400 TO KM 535+250 (DESIGN CH. KM 499+800 TO KM 534+800) IN THE STATE OF ASSAM UNDER EPC MODE.</p>
				<p>REVISIONS</p> <p>INITIAL SUBMISSION</p> <p>DESCRIPTION OF REVISIONS</p>	<p>REINFORCEMENT DETAILS OF LONGITUDINAL GIRDER OF PSC GIRDER AT CH. 521+271</p> <p>DWG NO. EEC-NH-37-SD-SUP-CH-521+271/524</p> <p>SHEET NO. 01 OF 01</p>				

REFIN. DETAILS

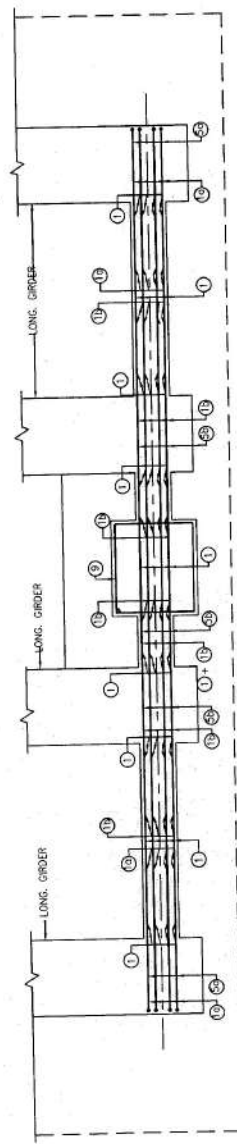
BAR MKD	BAR DIA.	NO. SPACING	SHAPE
1	25	3x3 NOS.	—
1a	25	2x3 NOS.	650
1b	25	2x3 NOS.	—
2	12	3x2 NOS.	—
2a	12	2x2 NOS.	650
2b	12	2x2 NOS.	—
3	25	3 NOS.	150
4	25	3 NOS.	150
5	20	2x1.6 NOS.	—
5a	20	2x1.6 NOS.	—
5b	20	2x1.6 NOS.	—
6	16	150 C/C	2-LEGGED
7	12	2x3 NOS.	200
8	—	NOT USED	—
9	10	4 NOS.	—
10	16	8 NOS.	—
11	12	2 NOS.	—

NOTES:-

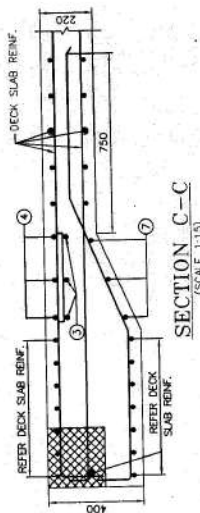
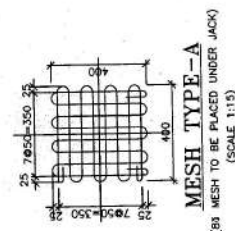
1. ALL DIMENSIONS ARE IN MM AND LEVELS IN METERS.
2. DO NOT SCALE THE DIMENSIONS. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
3. GRADE OF CONC. FOR R.C.C. WORKS = M-40
4. THE REINFORCING STEEL SHALL BE OF TMT BARS (GRADE DESIGNATION Fe 500) CONFORMING TO IS:1786, (CLEAR COVER TO REINFORCEMENT SHALL BE 50mm).
5. NOT MORE THAN 50% OF BARS SHALL BE LAPPED AT A SECTION AND LAPPING SHALL BE STAGGERED. MINIMUM LAP LENGTH SHALL BE 76 TIMES DIA OF BAR.



LONGITUDINAL SECTION OF END CROSS GIRDER (SCALE 1:40)



PLAN OF END CROSS GIRDER AT D-D (SCALE 1:40)



SECTION C-C (SCALE 1:15)

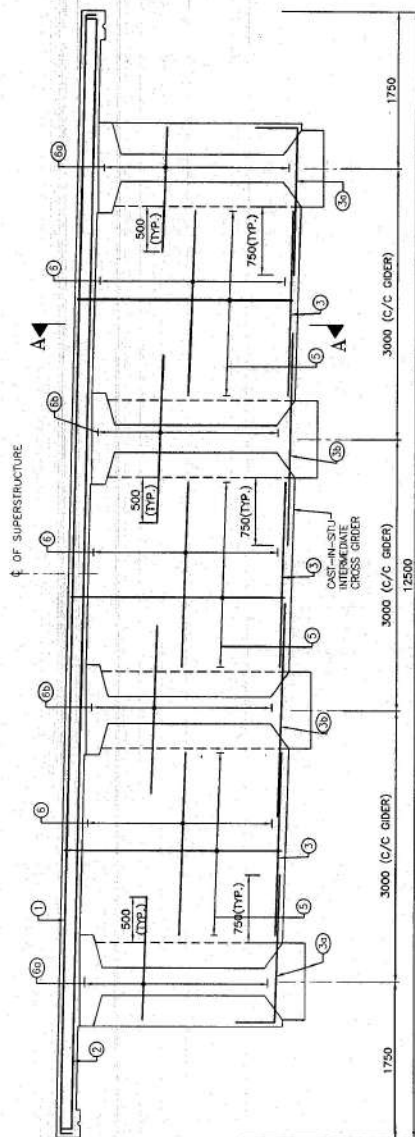
CLIENT	CONTRACTOR	DESIGN CONSULTANT	PROF. CONSULTANT	APPROVED BY	SS	PROJECT
NATIONAL HIGHWAYS INFRASTRUCTURE DEVELOPMENT CORPORATION LTD. 180 FLOOR, P.T. BUILDING, PARLIAMENT STREET, NEW DELHI-110001	GANNON DUNKERLEY & CO. LTD. 88A, TOPRA ROAD SOUTH, HAUTE STREET, 7th FLOOR, KOLKATA-700016	ECSTATIC ENGINEERING CONSULTANTS PRIVATE LIMITED SCO 103 HUDA SHOPPING COMPLEX, GURGOAN, SECTOR 14, GURGAON, HARYANA-122001	SAFETY CONSULTANT G-ENG G-ENG ADVISORY SERVICES PVT. LTD. SEC-102, MEDA SHOPPING COMPLEX, 7th FLOOR, KOLKATA-700016 TEL: +91-33-4589821, 4589822 FAX: +91-33-4589823 EMAIL: info@gea.co.in, web: www.gea.co.in	CHECKED BY DESIGNED BY DATE	S.B. N.S. U.S.	FOUR LANE OF JHARKH TO DEMONSTRATE SECTION OF NH-37 FROM KOLKATA TO RAIPUR TO LUSK-250 OF ASSAM UNDER EPC MODE.
AUTHORITY ENGINEER	CONTRACTOR	DESIGN CONSULTANT	PROF. CONSULTANT	APPROVED BY	SS	PROJECT
ADVANTIS 40/01 FLOOR, BPT PARK CENTRA, BLOCK A, JAL VAYI VIKAR SECTOR 30 GURGOAN, HARYANA-122001	GANNON DUNKERLEY & CO. LTD. 88A, TOPRA ROAD SOUTH, HAUTE STREET, 7th FLOOR, KOLKATA-700016	ECSTATIC ENGINEERING CONSULTANTS PRIVATE LIMITED SCO 103 HUDA SHOPPING COMPLEX, GURGOAN, SECTOR 14, GURGAON, HARYANA-122001	SAFETY CONSULTANT G-ENG G-ENG ADVISORY SERVICES PVT. LTD. SEC-102, MEDA SHOPPING COMPLEX, 7th FLOOR, KOLKATA-700016 TEL: +91-33-4589821, 4589822 FAX: +91-33-4589823 EMAIL: info@gea.co.in, web: www.gea.co.in	CHECKED BY DESIGNED BY DATE	S.B. N.S. U.S.	FOUR LANE OF JHARKH TO DEMONSTRATE SECTION OF NH-37 FROM KOLKATA TO RAIPUR TO LUSK-250 OF ASSAM UNDER EPC MODE.
ADVANCE COPY	DESCRIPTION OF REVISIONS	DATE	REV	DATE	REV	PROJECT
						REINFORCEMENT DETAILS END CROSS GIRDER AT CH 523+271
						DRG NO. EEC-NH-15-JD-SUP-CH 523+271-305
						SHEET NO. 01 OF 01
						REV. R0

NOTES:-

1. ALL DIMENSIONS ARE IN MM AND LEVELS IN METERS.
2. DO NOT SCALE THE DIMENSIONS. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
3. GRADE OF CONC. FOR R.C.C. WORKS = M-40
4. THE REINFORCING STEEL SHALL BE OF TMT BARS (GRADE DESIGNATION Fe 500) CONFORMING TO IS:1786.
5. CLEAR COVER TO REINFORCEMENT SHALL BE 50mm.
6. NOT MORE THAN 50% OF BARS SHALL BE LAPPED AT A SECTION AND LAPPING SHALL BE STAGGERED. MINIMUM LAP LENGTH SHALL BE 76 TIMES DIA OF BAR.

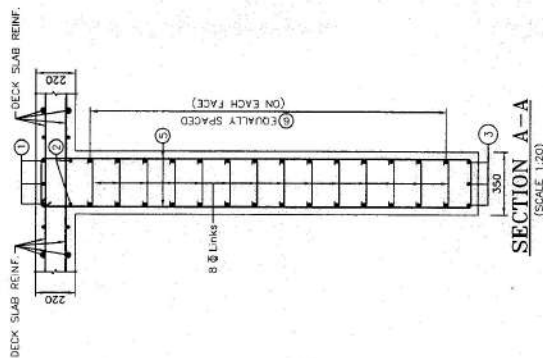
REINF. DETAILS

BAR MKD.	DIA.	NO./SPACING	SHAPE
1	25	3 NOS.	150
2	25	2 NOS.	150
3	32	3X3 NOS.	650
3a	32	2X3 NOS.	650
3b	32	2X3 NOS.	650
4		NOT USED	
5	12	150 C/C	2-LEGGED
6	10	3X14 NOS.	
6a	10	2X14 NOS.	
6b	10	2X14 NOS.	



LONGITUDINAL SECTION OF INTERMEDIATE CROSS GIRDER

(SCALE 1:40)

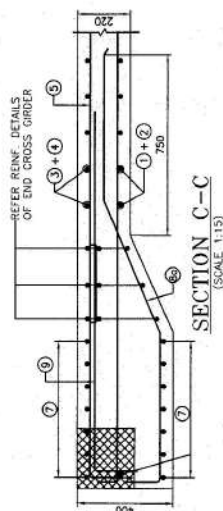
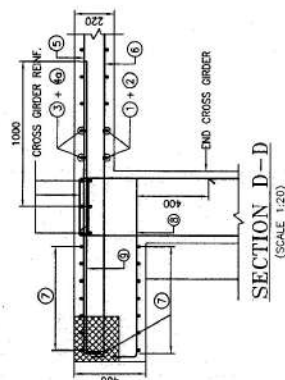
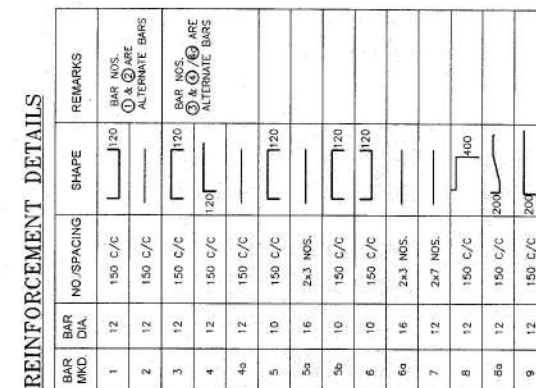
















SECTION A-A

(SCALE 1:20)

CLIENT	NATIONAL HIGHWAYS INFRASTRUCTURE DEVELOPMENT CORPORATION LTD. 483, 4TH FLOOR, BPS PARK CENTRAL, INDIA	CONTRACTOR	GANNON DUNKERLEY & CO. LTD BIA, TOPRIA ROAD (BOUTH HAUTE STREET, 7TH FLOOR KOLKATA-700006, INDIA	DESIGN CONSULTANT	ECSTATIC ENGINEERING CONSULTANTS PRIVATE LIMITED GURGOAN, SECTOR 39, GURGOAN, HARYANA 122003	PROOF CONSULTANT	MARC TECHNOCRATS PVT. LTD. MARC HOUSE, SECTOR 47 (JALAN ROAD), OPPOSITE DEVIL LAL PARK, BANGALORE, HARYANA 122007	APPROVED BY:	SS	PROJECT	FOUR LANE OF JHANIHI TO DEMOW SECTION OF NH-37 FROM EXISTING CH. K 491+050 TO KM 535+250 (UNDER EPC MODE) OF ASSAM UNDER EPC MODE.
AUTHORITY ENGINEER	VOYANTS SOLUTIONS PVT. LTD. 483, 4TH FLOOR, BPS PARK CENTRAL, INDIA	SAFETY CONSULTANT	G-ENG ADVISORY SERVICES PVT. LTD. SCO-104, JODHA SHOPPING CENTRE, INDIA	DESIGNED BY:	N.S.	CHECKED BY:	S.B.	DATE	OCT. 2020	TITLE	REINFORCEMENT DETAILS OF INTERMEDIATE CROSS GIRDER AT CH. 531+271
DATE	9/10/2020	ADVANCE COPY	DESCRIPTION OF REVISIONS	BY	REV	DATE	9/10/2020	REV	9/10/2020	REVISION	9/10/2020

1. ALL DIMENSIONS ARE IN mm. UNLESS OTHERWISE NOTED.
2. DO NOT SCALE THE DIMENSIONS. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
3. GRADE OF CONCRETE = M40
4. REINFORCEMENT SHALL BE CORROSION RESISTANT HYSD BARS OF GRADE FE-500K WITH MINIMUM ELONGATION 14.5% CONFORMING TO IS:1786
5. COVER TO REINFORCEMENT SHALL BE 50mm
6. NOT MORE THAN 50% OF BARS SHALL BE LAPPED AT A SECTION AND LAPPING SHALL BE STAGGERED. MINIMUM LAP LENGTH SHALL BE 75 TIMES DIA OF BAR.

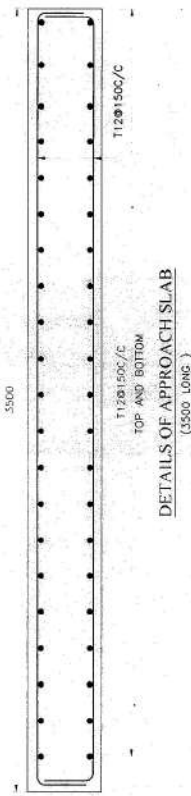
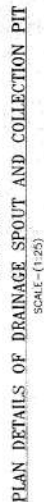


BAR MND	BAR DIA.	NO./SPACING	SHAPE	REMARKS
1	12	150 C/C		BAR NOS. ① & ② ARE ALTERNATE BARS
2	12	150 C/C		
3	12	150 C/C		BAR NOS. ③ & ④ ARE ALTERNATE BARS
4	12	150 C/C		
4a	12	150 C/C		
5	10	150 C/C		
5a	16	2x3 NOS.		
5b	10	150 C/C		
6	10	150 C/C		
6a	16	2x3 NOS.		
7	12	2x7 NOS.		
8	12	150 C/C		
8a	12	150 C/C		
9	12	150 C/C		

[illegible]

1. ALL DIMENSIONS ARE IN MILLIMETRES, UNLESS OTHERWISE MENTIONED.
ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.

2. THIS DRAWING MUST BE READ IN CONJUNCTION WITH THE RELEVANT DRAWING.
3. REINFORCING STEEL SHALL BE OF THERMO MECHANICALLY TREATED (TMT) BARS, (GRADE DESIGNED F450D) CONFORMING TO IS: 1786 (2008).
4. LAPPING OF REINFORCEMENT SHALL BE AVOIDED AS FAR AS POSSIBLE IN CASE LAPPING OF BARS BECOMES UNAVOIDABLE, MINIMUM LAP LENGTH OF REINFORCEMENT BARS SHALL BE CALCULATED AS FOLLOW WITH MAXIMUM ALLOWABLE LAPPING (P) OF 50% ONLY. (IRC:112-2011) (CLAUSE:15.2.5.1)
5. MINIMUM CLEAR COVER TO ALL REINFORCEMENT SHALL BE 50mm.
6. GRADE OF CONCRETE
CARSH BARRIER.....M40
APPROACH SLAB.....M30



DETAILS OF CRASH BARRIER WITHOUT FOOTPATH
(SHOWING DIMENSIONS)

DETAILS OF CRASH BARRIER WITHOUT FOOTPATH
(SHOWING REINFORCEMENT)

[illegible]